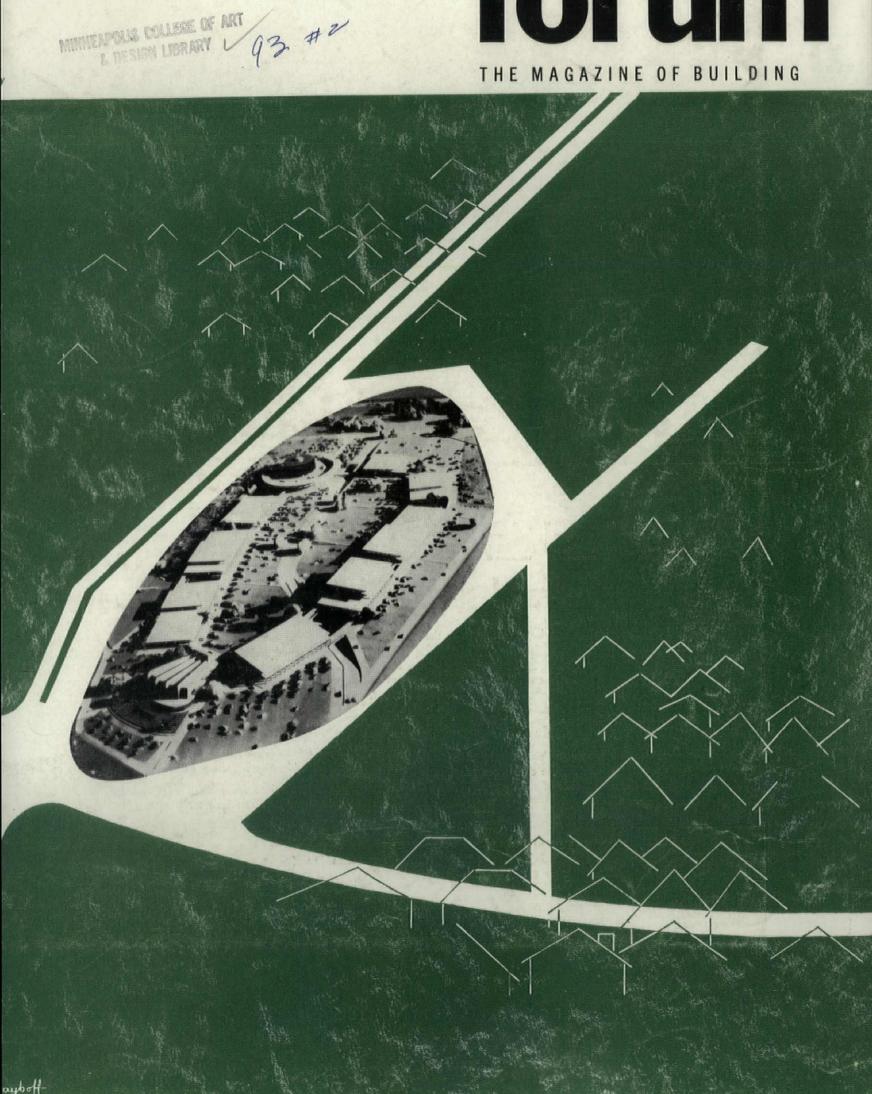
GUST 1950

ARCHITECTURAL FORUM





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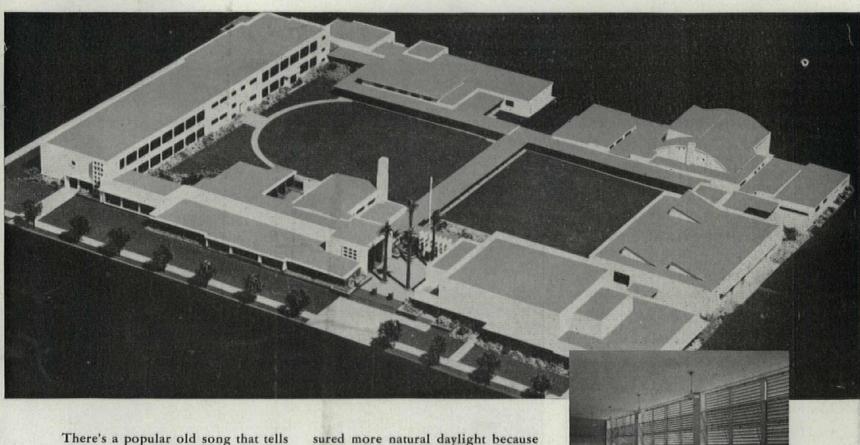
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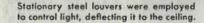


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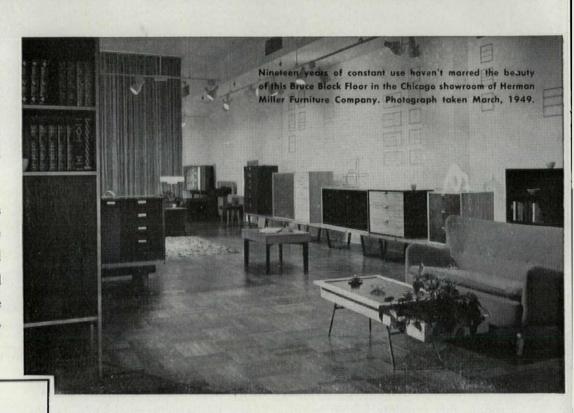
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Designer Nelson calls Bruce Floor "the most attractive and impressive design element."

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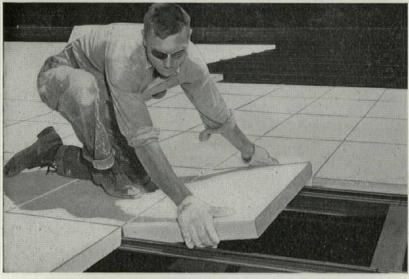
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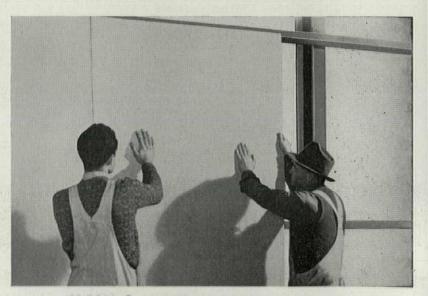
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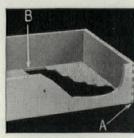
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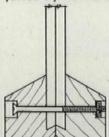




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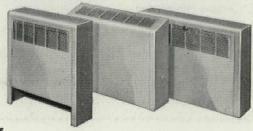
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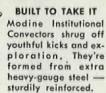


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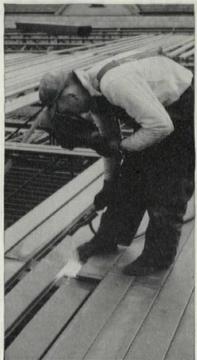


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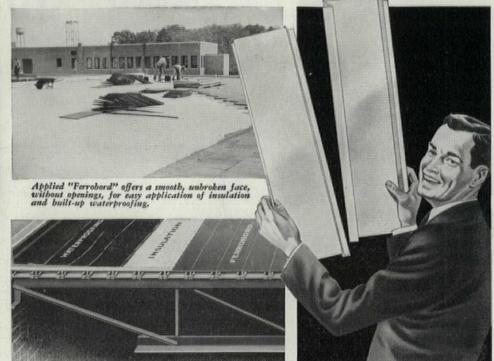


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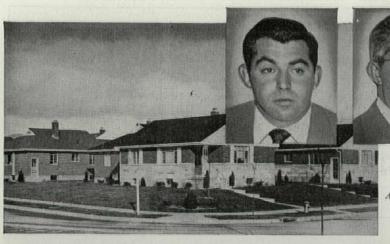
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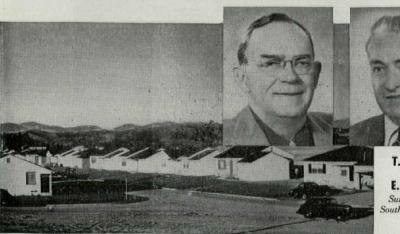
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Home Freezers

After Korea

If we have an all-out war, we will need a tremendous amount of new building to meet the war demands for industrial decentralization and for faster and faster war production. (Wars never repeat themselves, but still it is noteworthy that building volume hit a new high in the first year of World War II.)

If we have a 10 per cent war abroad and what Senator Taft calls a "garrison state" at home, we will still need a tremendous amount of new building if we are to meet the demand for guns without a very drastic reduction in our present standard of civilian living.

If by some miracle the crisis with communism should lead quickly, not to war, but to a settlement so realistic as to be believable, we could presumably go right on with the biggest building boom we have ever known.

Any way you figure it, the total volume of building will be very great indeed. As long as we can keep America unconquered by world communism, only one thing could be more foolish than for any one in the building industry to start worrying about whether he can keep himself, his capital, and his tools busy for many years to come.

That one more foolish thing would be for any one in Building to hope—or even want—anything to go on being the same as most Americans let themselves believe it was before Korea brought the crisis with communism right out where everyone could see our weakness and our peril. There will be plenty of business, but business as usual is out.

Building has as great a stake as all the rest of America in the world struggle against communism. And the very certainty that no one in Building need worry about having a job to do makes it all the more important that every one in Building should now give prayerful thought to how his job and his industry can best contribute to the preservation of our freedoms—including our freedom to build.

* * *

Perhaps that thinking should begin with an appraisal of what kind of building rates priority, for the kind of building needed in all-out war might be very different from the kind of building needed for a garrison state, and in either case the kind of building needed will certainly differ in many ways from the kind of building we have today.

Labor saving plants

Top priority, we believe, should go to new industrial plants—partly to increase our absolute productive capacity, partly to reduce the waste of manpower in obsolete factories. We hear a great deal about stockpiling critical commodities like rubber, copper and tin, but what about the shortage which in wartime always becomes the most critical of all—the shortage of manpower? The only way we can stockpile manpower is to invest it heavily now, before the pinch develops, in plants that will waste less man-hours later.

More than half of all our industrial production still comes from plants which, even before World War II, were obsolescent; i.e., wasteful of man-hours. Since then, the pallet, the fork lift, the conveyor belt and the overhead crane have so revolutionized production that even most 1940 plants are wasters of manpower. Jim Lincoln of Lincoln Electric (FORUM, Mar. '50) pays the highest wages in

the world to get the absolute maximum production out of every worker, but even Jim Lincoln thinks his new plant may double his production per man hour. Johnson & Johnson (FORUM, May, '50) is famous for its handling of labor—but Johnson & Johnson's latest plant freed 56 per cent of the former personnel for other work.

If this is true of such efficient manufacturers, it is certain that there are very few industrialists for whom a truly 1950 plant would not permit great savings in manpower. Many companies have been delaying their plans for plant modernization, but the new certainty of tremendous demand should speed their decision.

Second, in this age of the atom bomb, we need to decentralize our essential industries. That means a lot more than new factories in out-of-the-way places. It means whole new communities for the people who work in the decentralized plants—homes, schools, stores, hospitals, movies, and all. If ever Bill Levitt and Fritz Burns have to stop building suburban dormitories, they could be kept busy seven days a week on these new cities. And if we set our best architects thinking about these new communities and set the right design standards now, perhaps there will be time to get something better than such well-planned shanty towns as World War II's soon-to-becompletely-rebuilt atomic city of Oak Ridge.

War or peace buildings

War or peace, we need thousands of new hospital beds to keep up with the past decade's revolution in medicine and surgery—sadly, more beds for war than peace. War or peace, we need new military housing—though we hope the shadow of war will force the military to abate the extravagance of its housing demands.

War or peace, the crowding in our schools will soon be so critical that some way must be found to provide thousands of added class-rooms quickly—though war's approach leaves less excuse than ever for the wasteful anachronisms on which so many of our school construction dollars are still being spent.

President Truman is undoubtedly right in putting the brakes on housing credit. If a family does not need a new home enough to put up more than a single month's rent in cash to buy it, that family certainly does not need a new home enough to warrant a call on \$8,000 worth of lumber, copper, steel and labor.

But cutting down on blue sky credit is one thing; cutting down immediately on home building just for the sake of making a cut would be a very different thing.

It will be months before a war mobilization program can be ready to absorb elsewhere the manpower that is now turning out new homes at such a prodigious rate. Until that labor can be used elsewhere, the more good houses we can get built before home building may have to be curtailed, the better.

The greatest waste of all is unemployment. And every man—or woman—who can be kept busy now erecting these needed factories or new hospitals, or new schools, or new power plants, or new decentralized communities—will free someone later on when the manpower shortage has grown far more pressing.

Meanwhile, cold war, guns-and-butter war, or all-out World War III, inflation and rising prices are inevitable—perhaps more, perhaps less. Nothing could be more important to upbuilding America's power than holding these price increases to the minimum. Nothing could be more important to the future good name of the building industry than to make an all-out patriotic effort to hold the line on its costs and prices.

If patriotism cannot hold the line, there is always the certainty of an excess profits tax to discourage profiteering. And behind that stands price control.

KOREAN CAMPAIGN BRINGS A NEW ECONOMY. The industry scrambles for materials, money and buildings to hedge against certain inflation, probable reshaping of the construction boom and a host of uncertainties

First effect of Harry Truman's clamp-down order on easy housing credit* last month was easy to see: it was inflationary. Long Island Builder Bill Levitt, who was forced to slap a down-payment (\$400) on his houses-for-veterans for the first time in his postwar operations and in spite of it chalked up his highest weekly sales record, said the swarm of new applicants came in a "wave of panic buying." The wave rolled as far west of Levittown as Los Angeles, through every state in the U. S. Almost nowhere did builders report a slackening of sales; almost everywhere they reported a marked increase. And where sales didn't increase, they at least held the line—which, as everyone knew, was plenty high already. The whole market of wavering buyers seemed to accept this as a signal that they had better buy now while they still had a chance.

Industrial and commercial construction read the signals the same way. Although the credit restrictions applied only to residential work, bigger clients saw in it a sign of tougher things ahead; heavy contractors and architect-engineer firms began to feel a new demand for their services from clients who wanted to get in "under the wire." (Construction spending in July reached a new record of \$2,653 million, 6 per cent above June, 25 per cent above July, 1949; \$1,960 million was in private construction—up 10 per cent from June.)

That "wire," unlike the 38th parallel in Korea, was a hard, realistic boundary. To builders and buyers alike it represented the curtailment of all "non-essential" construction—or, at the optimistic best, higher prices on what building there was.

Delayed, not dud. As Building, the vanguard of the U.S. economy, began to brace itself against the wire's sudden drop, it became more and more apparent that the missile which Truman leveled at the building boom wasn't a dud after all, but merely a charge with a delayed action fuse. At any rate, it landed smack in the middle of a boom which was about to be slowed down by its own weight, ** and the onslaught of new clients it scattered looking for "lastchance" shelter might very well slow it down just that much sooner. And that, said the government's housing chieftains, was just what they wanted-to put a crimp in Building's frenzied pace by mid-fall, slow housing starts down to around a 50,000 or 60,000 a month level. They conceded that total construction for the year would still hit \$25.9 billion (\$5.3 billion higher than last year) and that 1950's housing starts would probably hit 1.1 million, exceeding last year's total by 75,000. But in 1951, they thought, housing could be expected to take a dip to somewhere around the 750,000 to 800,000 mark.

Slow-down ahead. By month's end it was perfectly clear that a slow-down at least that sharp was in store. Builders who had already worn themselves thin catching ma-

terials as they fell from the production line, and scraping up labor from every possible source, were in no position to tamper with this latest uncertainty. They considered themselves lucky if they could just take care of work already started, and fill orders already made, which stretched three and four months ahead. Beyond that they weren't planning-certainly not to the extent of buying up land, which for the first time since the war sat unmoved and unmoving throughout the country. (Said Long Island's Levitt: "Ordinarily we're always buying land. But now we've stopped all purchases. No builder will touch it.") And many began resignedly to predict that the new credit tightening, with its attendant conditions, would cut back their future operations by as much as 50 per cent. (In the week ending August 3, contracts for private mass residential housing fell to \$57,200,000, the lowest since January.)

All this would happen even if Harry Truman didn't say another word about building. The bigger If's beyond thatcontrols, priorities, allocations, curtailment altogether-were abstractions too vague for the builder to worry about. Not only Building, but the whole economy would reel and stagger under them. But, like the all-out war which would bring them, there wasn't much anybody could do about it except hope that they wouldn't come. The harrassed U. S. Building industry, during the first fateful month of piecemeal war, had to plot its future within the boundaries of a newly defined status quo, and some of the signposts looked gloomy indeed.

Material shortages, spawned in peaceful housing boom, are extended and multiplied by war buying. Tight markets turn gray—even black in spots.

Even before Korea, materials shortages was an old, sad story. A Commerce Department survey of 39 cities disclosed that by mid-July builders were having supply troubles in all but six of them; a few months previous only three of those cities had reported supply problems. Materials in shortest supply were gypsum products, cement, lumber and brick, but city after city began also to feel the pinch in soil pipe, nails, copper and heating equipment.

The BLS wholesale building materials price index, which had climbed 5 per cent from January through June, shot up another 2 per cent in the first three weeks of July. But where supplies were tightest, Korea's impact was hard to measure: if you couldn't buy a sheet of gyp board in Houston before Korea, the war situation didn't change things much. When lumber jumped another 20 per cent, as it did in Miami during the last two weeks of July, it didn't necessarily disprove the end-of-themonth contention of Cyrus Sweet, president of the National Retail Lumber Dealers Assn. that "the war situation has had no effect yet on the supply or price of lumber;" lumber had been jumping and tightening up since April. And deliveries from the Pacific Northwest mills were still hampered by such non-military factors as a shortage of freight cars.

Military: how much? How much of a bite military needs would take out of what lumber supply there is neither Sweet nor anyone else knew. Presumably, even in an allout war it wouldn't be as much as was needed in World War II, because many of the camps erected then are still standing. But whatever the size of the military's orders, it would be substantial enough (see p. 12). And although Washington went to great pains to stamp out rampant rumors that the military was stockpiling lumber, last month the Oregon industry voluntarily offered the military top priority. The picture wasn't totally black, however. T. L. O'Gara, vice president of St. Paul's big Weyerhauser Lumber Co., thought that with

^{*} Larger down payments under the FHA and VA programs; appraisals based on July 1 costs.

^{**} Many of Truman's sharpest critics, indeed, thought that his move was unnecessary—that higher house prices, brought on by the rising cost of materials and the payment of premium wages to labor in short supply, would have dropped many fringe-buyers from the market and brought annual housing output well under 1 million units.

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sufficient letup in house building, the lumber industry "could handle several billion feet of government lumber requirements and still have ample production for civilian needs."

Other materials. The war crisis found most other materials in the same boat with lumber, with manufacturers straining at top speed trying to bail out. National Fireproofing Co. was four to five months behind in filling orders for facing tile. Johns-Manville had a continuing shortage of asphalt roofing. In several areas-Florida, the Twin Cities, some parts of the Southwest-the shortage of cement had become acute: one major cement distributor thought that, even without Korea, there would have been no letup in the shortage for the rest of the year. (To some extent, foreign cement was helping to ease the shortage. But its use was only economically feasible in a fringe along the Atlantic and Gulf Coast. It could be loaded on freighters cheaply enough at Belgium and German ports but could not be shipped very far inland at the U.S. Also, there were many indications that it was of an inferior grade and couldn't meet testing specifications.)

Steel, which Building eyed nervously as the first target Allocation would hit, couldn't begin to fill its demands; one big producer of steel products said his company had never known "such a hectic period nor as acute a situation" as it had since July 1st. The Korean war coming on top of the highest building contract awards in history had produced a "panic setup." Even running at top capacity, General Electric stayed 31/2 months behind in filling orders for heating equipment, and that wouldn't be the worst of it. H. M. Brundage, manager of GE's Automatic Heating Division, looked for the steel shortage to have a "really serious" effect on GE's supplies within 60

National Gypsum, which had just settled the strike which kept it tied up for 105 days, was already oversold through November, and Sales Manager J. W. Brown reported a "noticeable increase in orders" after Truman's credit restriction announcement. Particularly the South and Southwest was hungry for gypsum board. The scarebuying wave had left its water mark on bricks, too. Russel G. Eshenaur, president of the big Glen-Gery Shale Brick Corp. in Reading, Pa., called the later-July demand "terrific." He foresaw not only no letup in demand ahead, but a shortage of masons. also, as military demands for manpower increase.

Gray market ghost. In the midst of all this, it wasn't at all surprising to see the gray market shake itself loose from its graveyard of the past few years and come around to haunt hard-pressed builders. Indeed, in some areas, as one builder put it, the gray market was "turning blacker than hell." Suppliers and equipment distributors, to the extent that they could control their immediate sales transactions, were firmly closing the door against suspiciouslooking deals. Thus when the factory representatives of a well-known refrigerator maker began to receive frantic orders from what appeared to be fictitious builders, they squelched them soundly. As a further precaution, they started clamping down on requests for advance delivery from regular customers except in special cases. They did not propose to see a dozen or so refrigerators that a builder had stored in a garage ultimately find their way into a gray-or black-market.

For their part, builders were not stockpiling materials. Aside from the matters of patriotism involved, and pleas from the National Association of Home Builders not to hoard (see box), there were two good reasons why builders in many areas couldn't do it. Washington Builder Ed Carr elaborately explained the first reason: "How can you stockpile materials when you can't get enough to keep your present operation going?" The second was just as realistic: few builders had adequate storage space. How,

for instance, asked one Midwest builder, could a small builder stockpile such bulky material as cement?

Lenders' demands. Most builders would gladly store up the materials necessary to take care of the work already started—when they could get them. In some areas lenders were refusing to grant construction loans unless builders could assure them that they had the materials available to finish their projects. (Some were doing this by requiring builders to present letters of assurance from their dealers that they would be able to get materials; a few others were actually demanding that the necessary materials be warehoused.)

But even this amount of stockpiling was a risky thing in many places, and the builders knew it, and in some instances decided to do something about it before the government did it for them. In Miami, for instance, where materials supply is as tight as it is anywhere in the country, the builders got together with their materials dealers and decided that even among builders with work already started there should be priorities: Builder A, who expects to have his houses up within a month has a greater claim to what bathtubs there are coming into Miami than Builder B, whose project won't be finished until the first of the year. Miami set about establishing a "voluntary allocation" program which it hoped would make distribution as fair as possible

THOMAS P. COOGAN, president of the National Association of Home Builders, in a statement to the FORUM for the housebuilders, calls for intelligent action

If the builders of the country will not lose their heads and act too selfishly, we can continue to function within the tight economy that will be necessary during the Korean emergency. The pro-

A. E. Hang

COOGAN

ductive capacity of the U. S. is tremendous and a tremendous volume of building materials is moving from the factories, in addition to that required by the military. This is going to call for a curtailment of housing, but not a stoppage.

We are now attempting to evaluate the need for new housing under the present conditions and we hope to stabilize the industry at a certain level whereby we can produce needed private housing, necessary military housing, and not encroach on the production of the necessities for defense.

This policy can be carried through if builders and supply houses can get together as we are trying to get them together in every city throughout the country on voluntary apportionment of scarce materials. No builder should stockpile.

This will mean a reduced building pace, and everyone should comply and keep his construction organization in pace with a new level of supply. Any builder attempting to gain an advantage by constructing at the old rate is going to run into higher costs and endanger the entire industry. Hysterical buying, stockpiling, bidding up of materials will only lead to price controls, priorities, allocations, and all the other old evils that went with it.

The Home Building industry is composed of mature business men with sound judgment. I am sure they can see the reasonableness of intelligent action in this time of crisis. and at the same time keep Washington's hands out of it. San Francisco decided to try the same thing.

Building Money, still plentiful, turns waryparticularly in the construction loan field. But a stronger, more active mortgage market is predicted.

Everybody knew that the surest way for Washington to choke off Housebuilding would be to make enough noise to arouse the lender's natural inclination to protect himself. To all appearances, Washington hadn't made that much noise yet, at all. Most lenders have always been scared of easy credit and were quite happy to see housebuilding retreat behind a downpayment defense line.* But to many it seemed a perfect opportunity to call for defenses more rigid than that. Lenders in many areas were beginning to tighten up on construction loans. Said George W. West, president of the First Federal Savings & Loan in Atlanta: "I cannot believe that construction loans will be forthcoming. . . . As far as we are concerned, we are out of the construction loan business until we can see our way into the future and are not limited as to our ability to perform such services and have confidence that the builders will have adequate supply for steady progress to completion."

More equity. Other lenders might not be canceling such loans altogether, but they were putting the screws on. Lenders in Houston, Florida, Denver, Chicago, and all along the West Coast echoed the flat statement of Benjamin J. Smith, president of the Seattle Mortgage Co.: "We are requiring builders to put up more equity for construction loans." And even where the building money was not yet that tight, lenders would certainly not be looking for more business. Said George W. DeFranceaux, vice president of Frederick W. Berens, Inc., Washington, D. C., mortgage bankers: "... Institutions will not be taking on new builders."

In the east, some lenders were beginning to follow the lead of lenders throughout

* One Detroit banker, however, said he would rather not get a veteran's last \$1,000, which the veteran buyer almost invariably needed for furnishings, for he then would be set up for another loan and weakened correspondingly as a mortgage risk. Others, pursuing the same line, predicted that the tightening up on down payments would quickly make the package mortgage a necessity.

the rest of the country and clamp down on VA 501 loans. Some mortgage bankers were refusing to make 501's unless they had commitments from a big life insurance company to buy them up afterward.

Lots of money. However, as Earl B. Schwulst, president of New York's Bowery Savings Bank, put it, "the banks are full of money." And the net effect of the credit restrictions would be to strengthen the market. That, together with lower yields on government obligations—the result of increased arms production-should keep the mortgage market active, and, according to Economist Miles Colean, "make a 4 per cent rate look good."

And, of course, restrictions imposed on new lending will add to the strength of demand for existing loans, so a scramble for seasoned VA and FHA paper seemed

Public building shifts from housing, offices and college dormitories to plans for rejuvenating army camps and decentralizing industrial plants.

In the meantime, what about the market that emanated from Washington-public building, military building, construction of new plants based on the government's new defense needs? How active would those markets be, and how much would they drain from private building's dwindling supply of materials and labor?

P-H slow-down. Most observers hoped that President Truman's announcement of the "slowing down" of public housing (to no more than 30,000 units during the next six months) wasn't a serious indication of the crack-down he intended to exert on unnecessary public construction. Since Public Housing had managed to get only 9,000 units started during the first six months, and hadn't, at the most generous outside, the vaguest chance of hitting more than 25,000 units during the entire year. *Truman's announcement seemed little short of preposterous. Indeed, to some it seemed to be a signal for full speed ahead on a program which couldn't even be justified politically during a time of crisis.

A few other measures had been taken, however, to discourage unnecessary building. The President asked federal agencies

to defer all but the most essential projects, urged state and local governments to follow suit. The Senate in a gesture of supreme self-sacrifice agreed to postpone the construction of a new \$18 million office building. The HHFA program for low interest loans to finance college dormitories was shelved for the time being. Finally, FHA rescinded the only two orders it had issued under its escalator clause permitting hikes in mortgage limits in high cost areas. The cities involved were New York and Wash-

Patched-up barracks. As for military construction, there weren't many hints as to how active that would be-short of all-out war. The Army announced that it would reactivate some cantonments and began making surveys to see how quickly World War II training centers could be brought up to date. The Corps of Engineers launched a special study to find out what sort of prefabricated panels might be available for patching up some of the old barracks and mess halls; it was particularly interested in methods which would cut down material and labor requirements. So far as could be seen, construction of no new training centers was planned.

It was still too early, also, for Washington to attempt to say how much additional industrial construction might be needed. First move would be to bring stand-by plants into production. Next step would convert existing plants from civilian to war production. Only as a last resort (the imponderable) would entirely new construction be programmed. Under the new Defense Production Act (see p. 13), the government will lend a hand in getting new facilities built. If an industry vital to the war effort is unable to expand under its own steam, the government will guarantee a construction loan. In the event that the new plants needed are still not started, it will build them itself. General policy is to favor decentralization of new construction as much as possible. This does not necessarily mean a cross-country move from the Connecticut valley to Kansas. What planning officials think would be preferable in most cases is a dispersion of new plants around the metropolitan areas where the parent facilities are located. New facilities thus would not be too close to primary bombing targets, but still would be close enough to enable workers to stay in their present houses. This would not only be consistent with managerial efficiency, but would cut down the amount of new housing and community facilities required.

^{*} Houston last month became the 12th city to reject Public Housing by referendum. (Seven have accepted it by referendum.)

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BACKGROUND FOR WAR BUILDING. The new Defense Production Act, current Washington thinking on controls and the lessons of World War II indicate a more sensible approach to housing for World War III

Superficially it did not appear that the new control powers extended the President in the "Defense Production Act" would cut very deep into the economy. All he sought was permission to allocate scarce materials to the armed forces, a restoration of wartime control over installment credit and control over private mortgage financing. But a more careful reading discloses a few gimmicks. For one thing, the allocation authority provided was extremely broad. The President could not only take over any plant that refused to cooperate but could yank materials away from less essential industries. In one way or another he was given blanket authority to assure the availability of facilities, materials, goods and services for military and essential civilian needs. Industry spokesmen, while they realized that allocation powers were necessary to speed up national defense, thought that the procedure should have been spelled out more completely.

Particularly disconcerting to the lending segment of the industry was the section placing curbs on private mortgage financing. Restraints on installment credit through reactivation of "Regulation W" had been expected. But even during World War II, conventional mortgage financing, which has always involved much lower percentage loans than those promoted under the government insured programs, had been let alone. Now the White House and HHFAdministrator Raymond Foley were saying that it was necessary to control this form of real estate and housing credit in order to plug a gap in the wall being built to ward off inflation. As Foley put it, without such authority a "shift to conventional loans could weaken the restrictions placed on government insured mortgages."

It seemed inconceivable that he could be seriously worried about the prospect of private credit outbidding the government programs as to liberality.

A limit on house size

One possible clue to what the White House planners had in mind lay in various official statements about the necessity for concentrating on moderate priced housing. There was a hint that if the tightening up of the FHA and VA programs did not slow down the building volume within a reasonable time, the next step would be a new

order limiting the size or maximum cost of a house that could be financed.

A new rent freeze?

Unless the Korean campaign exploded into a full-fledged war or was aggravated by communist encroachment at other trouble spots, the President had repeatedly emphasized that partial mobilization would suffice. He felt that the national economy was strong enough to take the situation in its stride, including the stepped up rearmament program. However he made it clear that he would jump into the breach quickly if inflationary trends got out of hand, would ask Congress for power to control prices and wages and to ration most essential items. In such an event, a new rent freeze would be part of the picture since almost half of the country has now been lifted out from under the present control program. Also controls would be placed on building similar to those under the famous L-41 order issued in the early stages of World War II-on April 19, 1942 to be exact.

World War II lessons

Much could be learned from the mistakes made on this previous occasion when construction was put under wraps. Whether the lessons would be heeded was a different matter. For example the old WPB was often more concerned with the sanctity of its regulations than the end results. After it had ordered all building stopped, it tried to recapture items piled up in the inventories of builders putting up what it regarded as luxury houses or apartments. It did not seem to realize that most of these items were not suitable for other building any way and that after seizure would just go to waste. This time, the trend of official thinking is that anything started in good faith before a control order is slapped on should be allowed to go ahead as long as the materials are on hand or under order.

Another mistake government men want to avoid is allowing builders to get under the ropes with "phony starts." Under the old stop order, any project was permitted to go ahead as long as construction was actually in place at the time of the freeze; some builders immediately rushed out and stuck a few posts in the ground. Also under the old order, subsequent construction was permitted on work considered important

to the war effort. It is a reasonably safe bet that permits will be doled out on a more restricted basis in the event of another emergency. This is partly because the national economy is now operating at full blast, partly because there would be less time to mobilize if the country gets into an all out war.

Government war planning

Despite official assurance to the contrary, Washington appears to have no adequate plan for mobilizing the civilian economy. The National Security Resources Board was given this task but has been fumbling along without accomplishing much. One reason: the President delayed appointing NSRB's full time chairman (capable Stuart Symington, former Air Force secretary) until a few months ago. Another reason why more progress has not been made is one peculiar to a democracy: the only kind of a war it can plan is a defensive one. Some critics feel that even so, NSRB has devoted too much time to planning for the type of war that would start with a devastating attack on American cities, and has not attempted to figure out how the economy should be organized to cope with a series of 10 per cent wars on the scale of the Korean fighting.

Mobile houses

In the event of war, NSRB thinks that mobile housing of various types would play a much more important role than during the last war. The U. S. homeland, heretofore practically invulnerable, is now subject to enemy bombing. As one NSRB official pointed out, bombs of either the atomic or conventional type are more damaging to property than to people. People



TENT-TYPE PORTABLE SHELTER, envisioned as one type of emergency housing in case of war, was developed by Army Quartermasters. Made up of preassembled wood floor panels, rigid arch framing, and insulating blanket cover, it is of knock-down construction, and can be erected by five men in one hour. Basic unit is 16 x 16 ft., can be increased in length to 24 ft.

can be moved. In Germany, for example, Allied bombing destroyed 6 million out of 18 million dwellings. In England the loss was $4\frac{1}{2}$ million out of 13 million. In Hiroshima more than half of all housing and community facilities was destroyed in one atomic bomb blast. To make housing available for bombed out victims as well as to provide for quick shifts of population to war plants and other strategic centers NSRB feels that the readily-movable structure is a must.

Realizing that the only way the country can be sure of getting enough mobile housing in a pinch is to build up the sustaining industry during more or less normal times, NSRB has taken steps to stimulate business for prefabricators. It persuaded FHA and the Department of Defense to assign at least 20 per cent of the Wherry Act housing around military bases to prefabricators. Of course, the completely livable type of prefabricated housing would only constitute part of the picture. To fill emergency needs for evacuees and for other stop-gap purposes, various shack-type units would be used. One of these is the Army's socalled tent-house comprised of a plywood floor, U-shaped wooden ribs, and a fabric covering (see cut). These units can be erected in a jiffy and stored compactly. In addition studies have been made of the "self-help" minimum type housing used by the Germans and similar facilities developed in England.

Use of existing housing

Also it is part of the new plans being sketched to make more effective use of existing housing this time. During the last war, about one-half of the shelter need imposed by the influx of workers to industrial and military bases was met by what was termed the "homes use program." Because NSRB does not feel that the pace of the next war would be leisurely enough to permit many new houses to be built, it believes that programs should be worked out for registering available space. Every owner of a house or building would be surveyed to find out how much space he had and how many people were using it. While officials shun the word, the plain implication is that billeting would be resorted to if property owners refused to cooperate in an emergency. The more euphonious term "occupancy control" is used to describe the process. To the extent that new facilities are built at all, best bet is that they would be confined to skimpy temporary type rental housing built by the government-most likely by the PHA.

WASHINGTON

NEW TAX BILL plugs loopholes, may discourage realty investment by institutions

Headed for the legislative wastebasket before the Korean stew began to boil over, the bill cutting down certain excise taxes and offsetting the loss in collections by plugging loopholes, was given a last minute reprieve. Since some of these loopholes are used by real estate investors and promotors, the bill's disposition holds considerable significance for Building. Since the bill had already passed the House, Administration forces hit upon the smart strategem of using it as the vehicle to carry through an interim \$5 billion tax increase to help finance the rearmament program. However, only the portion cracking down on side-stepping practices was retained. With the Government needing more money than ever, all realized that it was no time to tamper with the excise rates.

Of the various time-honored devices for dodging taxes, the one Congress was most anxious to swat involves an abuse of the exemption privilege conferred on educational and religious institutions. Many schools have been straying off the academic reservation with side ventures of a business nature. One glaring example: the excursion of New York University into the spaghetti business. (It owns the profitable Muller Spaghetti Co.) But plenty of others are cashing in on their tax immunity. Harvard and many other universities are known to have extensive real estate holdings that bring in revenue.

The new bill would allow the Bureau of Internal Revenue to tax income from "unrelated activities carried on by educational institutions. It would apply in similar fashion to various trade associations and chambers of commerce, all of which now enjoy tax exemption. Before the smoke is cleared there will obviously have to be some court delineation of what constitutes jumping the fence. Cases have been uncovered where these groups have gone so far afield as to acquire ownership in bowling alleys, gymnasiums, clothing stores and office buildings. Presumably they would be denied tax exemption in regard to such enterprises. Trade and labor organizations, being newer arrivals on the national scene, have had less time to think up tricks for shortchanging the money plate. But even so, they have managed to cut a few capers. Labor unions have built office buildings entirely unconnected with their regular activities. One owns the building occupied by PHA. Trade associations frequently sell advertising space in their house organs and in some instances earn a neat profit on which they pay no tax.

Another tax dodge that the bill eliminates has to do with collapsible corporations. This is a scheme occasionally used to reduce the tax bite on profitable ventures. The promoters of an enterprise such as the erection of an apartment house or office building would set up a special corporation for the purpose. Then when they sold the property they would collapse the company and pay a capital gains tax on the amount accruing to individual members instead of the normal income levy. Invariably the income tax would be higher because the individuals involved would be in the surtax brackets. This method of tax avoidance was used much more extensively by the movie makers than by the building industry. In any event, the new bill abolishes the privilege of applying capital gains tax treatment to the profits redistributed by collapsible corporations.

DESIGN

DESIGN COMPETITION for small homes decided on by NAHB and FORUM

The National Association of Home Builders and the Architectural Forum decided last month to sponsor jointly an architectural competition for the design of merchant-built homes (see p. 81). While the announcement of the competition awaits a clarification of housebuilding's status in a semi-mobilized economy, the tentative details of the competition were released, and are given here:

- 1. Local competitions closing in December would be conducted by as many as possible of the 132 local chapters of the National Association of Home Builders, each of which, depending on its size, would put up local prizes ranging from \$500 to \$1,500.
- 2. All the entries from these local competitions would automatically be entered in the national competition to be judged at the Home Builders Show in Chicago beginning January 20. (Architects who do not participate in any local competition could

enter their designs directly in the national competition.)

- 3. Judging in Chicago would be first on a regional basis, with awards offered by the National Association for the house best suited to New England, to the North Atlantic region, to the Gulf Coast states, to Tropical Florida, to the Middle West, to the Mountain states, to the South West, and to the Pacific North West. In addition, there would be a grand prize offered by FORUM itself for the best design of all.
- 4. Judges would include not only architects, but merchant builders and representatives of the home buying public.
- 5. All entries would be three-bedroom houses of nearly but not over 1,000 sq. ft. which could be erected without basements at the merchant builder cost standard. which now ranges roughly from \$5 to \$7 per sq. ft. (without special equipment) depending on locality.
- 6. Judging would be based not on design alone, but also on sales appeal and on adaptability to economical quantity production.

AIA AND NAHB COOPERATE to bring design to the mass-produced house

The first real action toward bringing architectural design into the merchandising house market, embracing 80 per cent of new American homes, was taken last month.*

Crystallizing a movement which began in April with a FORUM editorial backed up by letters to the FORUM from National Association of Home Builders President Tom Coogan and AIA's President Ralph Walker, representatives of both those groups sat down together in Washington, D. C., and mapped out a blueprint for action to accomplish what had never been accomplished before: architectural design of the \$8,000 house.

Dollars and cents. Both groups knew that this was a dollars and cents proposition. For the architects it was a chance to tap the market of 600,000 houses a year which had heretofore been closed to them. For the builders it was the long-needed opportunity to improve the drab product which even a

desperate market had not been too well pleased with.

Purpose of the meeting was to clear away a lot of cobwebs and lay the groundwork for issues which would have to be slugged out laboriously in the months ahead. This could best be done by first stating the problems.

Problem No. 1, for the home builders, had always been architects' fees: a builder putting up an \$8,000 house had not felt that he could afford to pay an architect \$800 out of his profit and still eat. The problem was the same for the architect, who also had to eat. Their big joint decision last month was that this problem could be licked at the local level, by persuading the government and small-home mortgage lenders to include architectural service in the mortgage commitment.

Two Committees. Both groups appointed ten-man committees; to permit close and constant cooperation, it was arranged that one NAHB member would be from the same city of one AIA committee member. So there are, in effect, architect-builder teams in ten key cities, who will study together the ways and means by which an architect can help a merchant builder.

The first problem the two groups will tackle: the architect's handling of an entire subdivision, from project conception to completion. The architect, heretofore the buffer between builder and client on contract houses and a sometime consultant on small mass-produced houses, would now be charged with great new responsibilities, including land and unit planning, exterior design, color control and display drawings. Along with the builder, he would participate in such development essentials as FHA, VA and bank conferences. This new architect-builder relationship, both groups believed, would infuse the mass-produced small house with an improved and extensive variety of floor plans, exteriors, interiors, colors and designs, and speed the demise of what NAHB was frank to call "peas in a pod" developments.

The teams will study the use of architects in every type of home building operationthe large and small-scale producer, the contractor, the prefabricator. In October, the entire committees of both groups will meet in Houston to report what they have learned. At that meeting, both groups fervently hope, the small homes industry will become a different kind of animal.

The teams (with builder listed first) are: St. Louis, J. Harvey Vattervott and Kenneth E. Wischmeyer; Buffalo, Walter Johnson and John N. Highland, Jr.; Fort Worth, Joseph Driskell and Hubert H. Crane; Miami, Thomas P. Coogan and Alfred B. Parker; Philadelphia and Washington, D. C., Clarke Daniel and Howell B. Pennell; Kansas City, John C. Taylor and David B. Runnells; Boston, Clark Sundin and Hugh A. Stubbins, Jr.; Seattle, Albert Balch and Lawrence Waldron; Chicago, H. Morton Robbins and L. Morgan Yost; Los Angeles, Paul L. Burkhard and George D. Riddle.

BELLUSCHI, HUDNUT appointed to National Commission of Fine Arts

The National Commission of Fine Arts last month acquired a new chairman and four new members. The chairman: David E. Finley, director of the National Gallery of Art since 1938, and before that a lawyer. Architects were particularly interested in his long record as assistant to Secretary of the Treasury Andrew Mellon.

The new members are Architect Pietro Belluschi of Portland, Ore., Joseph Hudnut, dean of the Harvard University graduate school of design, Architect Edward F. Nield, Sr. of Shreveport, La. and Felix W. deWeldon, Washington sculptor who once did a bust of Harry Truman which Truman liked very much.

The appointment of Belluschi and Hudnut heartened those who have been hoping that the monopoly of a small conservative clique of column architects on the commission could be broken.

AIA SURVEY will attempt to ascertain status of U. S. architects

In an effort to search out how many architects there are, how they are being trained, how they are actually conducting their practice, AIA last month set forth on its first major survey in nine years. The Carnegie Foundation is helping pay for the work of the ten-man committee headed by Dr. Edwin L. Burdell of Cooper Institute and President Ralph Walker. To keep strict control, AIA gently but firmly turned down offers of help from BLS in exchange for information.

Though knowledge to be gained from the thoughtfully framed punch-card questions will be invaluable, examination of the questions casts doubt whether they will throw light on the swift change in the type of architectural employment (fewer independents, more architects working as salaried employees of stores and industries), or the growth of new attitudes in education.

^{*} FORUM in June was correct in reporting the disappointment of the enthusiastic home builders when they found the architects were not ready to get down to cases at their first meeting the day the AIA convention closed. But FORUM erred in not making it clearer that President Ralph Walker's hands were tied until after the AIA had formally elected a new Board of Directors, Says Mr. Walker: "I'm just as interested in this program as the FORUM is."-Ed.

MONEY

OPEN END MORTGAGE program takes big step forward in the East

In its biggest step forward to date, the open-end mortgage program (FORUM, June, '49; Nov. '49) was advanved, by one estimate, at least two years last month. A committee of the Savings Bank Association of the State of New York, after a careful study, recommended its use by the Association's 130 member banks (who have assets totaling \$12 billion, approximately 35 per cent of it in mortgages).

The open-end mortgage, the committee reminded the banks, had some pretty heavy advantages for bankers: it would enable the bank to "retain and increase an investment which it might otherwise lose to a competing investor," and it would provide "great advertising value" by permitting the bank to offer an important extra service to its customers.

To promoters of the open-end mortgage, the big advantage of the Association's action was clear: it would force life insurance companies and other big lenders to follow suit.

TITLE INSURANCE COST, long-time barrier to open-end credit, cracks

Last month saw the first break in the practically united front of the title insurance companies against cheaper open-end mortgage credit: the City Title Insurance Co. of New York announced its willingness to insure lending institutions for their open-end advances, without requiring a new title search.

Title companies have been quick to cash in on the lender's reluctance to grant loans for modernization and repair without some sort of insurance. And about the only kind of insurance heretofore has been a new title search, whose exhorbitant charge has put the cost of an open-end loan out of reach of many a would-be borrower.

In New York City, the average modernization loan is \$1,000. The cost of a new title search is \$60.* City Title's President, Saul Fromkes, who had already substantially helped Long Island Builder Bill Levitt produce cheap houses (by searching the title of a piece of land for the standard fee, and then insuring the title of each lot carved out of it for much less, saw that this was barring the way to a lot of stored-up credit. The result: City Title decided to

insure a lender's open-end advances—for a charge of \$5 per \$1,000—solely on the basis of a homeowner's affidavit that no lien had been attached to his property since the original title search was made. Said President Fromkes: "We are willing to

rely on the good faith of the homeowner."

So far, insurance will be limited to those mortgages on which City Title made the original search. But at month's end Fromkes was considering extending that privilege to other lenders as well.

MATERIALS

BASIC BUILDING CODE by BOCA takes step forward but bumps into criticism

This month the long-heralded Basic Building Code which the Building Officials Conference of America has been working on for the past five years is ready for distribution. As the newest of national codes it is sure to be studied and adopted by many communities now revising their building regulations.

Considerable controversy already surrounds the new code, for the very act of publication implies that BOCA believes its code has better safety features and is more progressive than older regulations such as the Pacific Coast or Southern codes. Mildest comments are that while the new code offers nothing radically new it "compares favorably" with the Pacific and Southern codes. More severe critics say that in spite of all its claims, it is not a performance code, is badly organized and far from a workmanlike job.

That it is not a perfect code even BOCA Consultant George Strehan, who has done much of the preparation, is frank to admit. Although revised several times, the Basic Code is still new and cannot be considered a finished job. But even its critics join in praising some of its features.

Provisions of the code. A comparison of BOCA provisions with those of other codes is almost impossible since nearly every code is different from others in thousands of details. BOCA is not radically different from the Pacific Coast or Southern codes. It follows the lead of the more liberal codes in recommending a 3/4 hour standard rather than the traditional one hour standard for fire resistance. Like other postwar codes it does not specify any thickness for curtain walls, thus permitting a number of new materials to be used. It has a graduated scale for fire resistance and fire grading as applied to exterior walls that permits lightweight assemblies of noncombustible insulating materials.

All buildings are divided into classifications depending on their use, floor, occupancy and fire load. Considerable emphasis is put on supplemental means of emergency fire ventilation, as more than half the people who have died in fires have been asphyxiated. Its authors claim the new code liberalizes the design load and structural stress requirements of materials, permitting high yield steel and light gauge steel, as well as other new light metals in ways that older codes forbid. Devices such as moving stairways, revolving doors, refrigeration and air conditioning equipment and special purpose elevator loadings—ignored in other codes—are given proper controls.

For one- and two-family houses the trend to lighter construction is recognized. BOCA breaks with present codes by recommending a 3/4 hour standard but allows techniques that provide only 1/2 hour protection in frame dwellings.

Sets up safety balances. The new code faces the harsh realities learned from many fires that it does little good to build a fireproof building if it is filled with inflammable finishes and coverings. In maintaining this and similar balances of safety, the new code overcomes weaknesses common in many other sets of regulations.

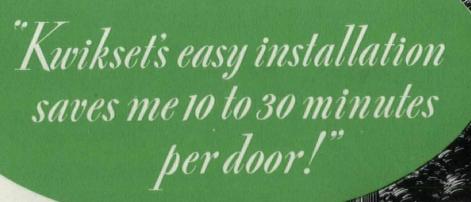
On the whole, critics agree, BOCA officials have prepared a liberal, forward-looking code. While they have not written a simon-pure performance code, no one else has either, and material and construction tests have not yet reached the point where such is possible.

BOCA has done a commendable job in harmonizing the conflicting interests of trade and manufacturing groups. It has also worked in recommendations of a joint code committee representing the Bureau of Standards, American Standards Assn., National Board of Fire Underwriters and government interests.

To unify legislation regarding jurisdiction and enforcement of codes, BOCA recommends many new practices. Some critics believe BOCA has confused the code issue by trying to take in too much scope, including such factors as qualifications for building inspectors.

A simplified set of regulations, called the Abridged Basic Code, has been issued to make codes simpler for the 14,000 small towns that today have no codes.

^{*} Costs elsewhere: Pittsburgh, \$180; northern New Jersey, \$140.



Builder's Time Studies Show that Kwikset Locks are the World's Fastest and Easiest Locks to Install!*

More and more builders all over America are recognizing the cost-saving features of Kwikset locks. They've found that Kwikset locks save them money two ways. First, Kwikset locks cost less to buy. Second, Kwikset locks cost less to install. Typical of the enthusiastic acceptance of Kwikset's simplified, time-saving installation is this unsolicited statement by a large builder of F.H.A. insured tract housing: "I make it a point to buy Kwikset for every door of every house I build. We've made detailed time studies of the length of time to install all popular residential locks and have found that Kwikset saves our men 10 to 30 minutes per door on installation time. The ease of installation coupled with low cost assures our continued use of Kwikset locks."

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- √ Kwikset's tubular design permits simple, 2-hole installation—eliminates mortising.
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Combine these time-saving installation features with Kwikset's striking beauty, high quality and low cost and there is little wonder why more and more architects are specifying Kwikset. They've found that Kwikset locks are a credit to any home . . . and to the architect or builder who puts them there.

*Name and address available upon request.

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YOUNGSTOWN KITCHENS AUTOMATIC DISHWASHER fits snugly near any sink. Handsomely styled, matches all other Youngstown units. Booster heater keeps water at just-right dishwashing temperature.

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-that makes the Youngstown Kitchens Automatic Dishwasher so practical, and so efficient. Water is "booster-heated" to ideal washing temperature (regardless of hot-water supply). Then, 64 whirling, swirling jets brush-flush every hollow, groove, corner and contour of every dish, glass, piece of silver and cooking utensil. Hydro-Brush Action from top to bottom. Followed by two piping-hot rinses. Presto! Dishwasher stops and pops open cover for practically instantaneous flash drying. All in 93/4 minutes (normal water pressure). All done automatically, electrically.





WHEN WOMEN SEE THE EASE AND THOROUGHNESS and speed with which the Youngstown Kitchens Automatic Dishwasher washes dishes, glasses and silver spotlessly clean-they're instantly and com-

Users have, generally, one comment:-"This is the greatest helper a housewife ever had!"

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In just 93/4 minutes (normal water pressure), it washes all the dishes for a family of six beautifully clean and bright. And-it's FULLY automatic. All the housewife does is flick a switch. The Youngstown Kitchens Automatic Dishwasher washes, doublerinses, stops, and pops open its cover for quick atmospheric drying-all by itself!

It's superefficient-it is the only automatic dishwasher that incorporates the remarkable Jet-Tower principle and Hydro-Brush Action.



CURVES IN TORROJA'S HIPPODROME

Forum:

I have seen the reference in the May issue of FORUM to the roofing of the stands of the Madrid race course Hippodrome, I thank you indeed for the kind phrases published about my work.

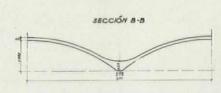
However, the layout of the structure which you published along with the photographs does not correspond to these. It is in fact an early provisional design in which the vault was supported on usual cantilever beams.

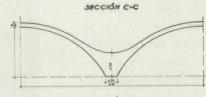
I am enclosing some drawings (left) of the structure, as it was actually built later on, in which the beams were done away with and the strength in bending of the vaults was derived entirely from the double curvature of the laminar surface.

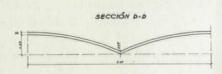
> E. TORROJA, Engineer Madrid, Spain

• FORUM admits having had difficulty relating Reader Torroja's preliminary drawings to the photographs of his finished Hippodrome, welcomes this firsthand solution to the puzzle. FORUM's European photographer-correspondent obtained the original drawings from a Spanish magazine because he was unable to discuss the Hippodrome's construction with the designer who was "out of town." Architects of the Hippodrome, working with Engineer Torroja, were Carlos Arniches and Martin Dominguez.—Ed.

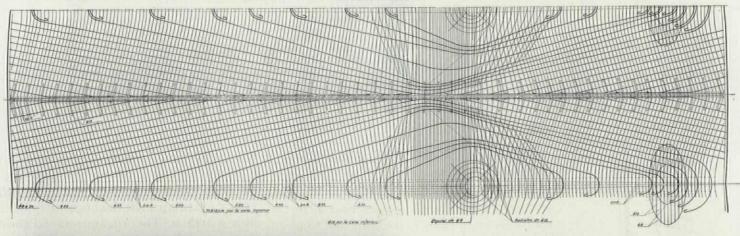








PLANTA DE ARMADURAS





G. E. Kidder Smith

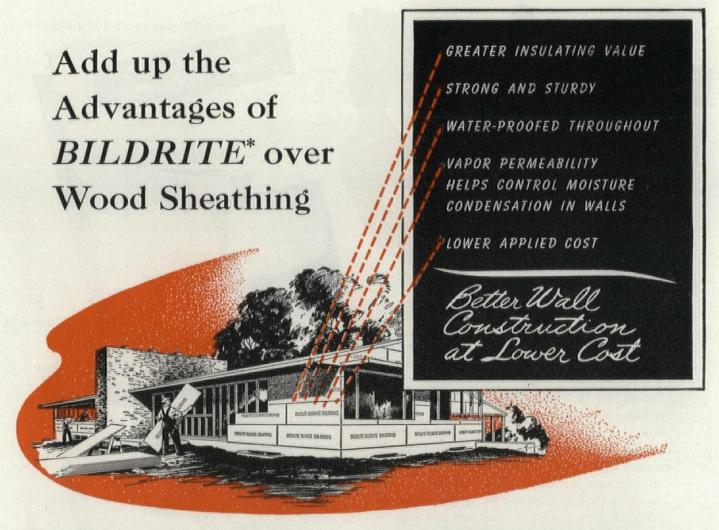
A-BOMB AND PLANNING

Forum:

The information you published in your April issue on construction and the atom bomb must cause every architect and planner to evaluate the standards and direction of planning.

Here are criteria, outdated before they are published, which set up as a principal consideration for planners the effects of the atom bomb. Next come revised criteria for the hydrogen bomb, further modified by the effects of bacteriological warfare, until everyone can anticipate living in his own hermetically sealed cave.

(Continued on page 24)

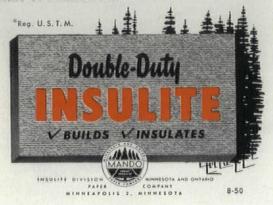


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Refer to Sweet's File, Architectural Section 10a/8



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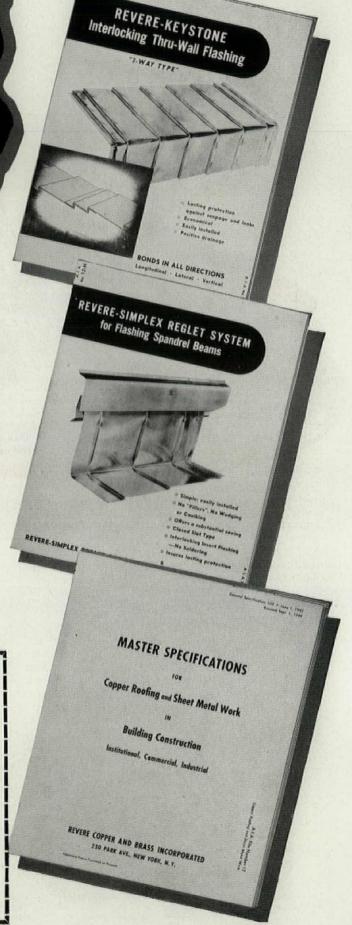
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- ☐ Revere-Simplex Reglet System for Flashing Spandrel Beams
- ☐ Master Specifications for Copper Roofing and Sheet Metal Work

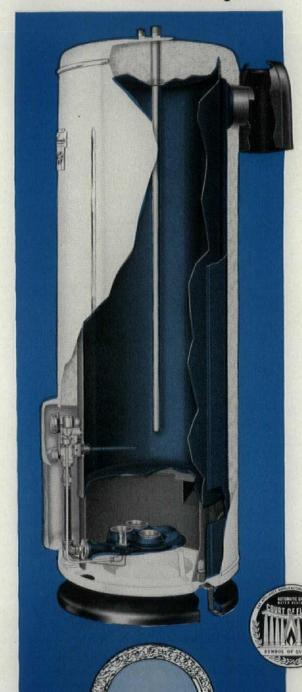
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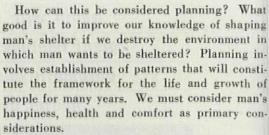
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It is time to reinvestigate a policy which destroys man's hope in the future. Are these the "big plans" and "big dreams" the last generation spoke of? Ministers and scientists have spoken out against the hydrogen bomb as having the capacity to destroy civilization. Even before it is built, it has destroyed planning, man's shaping of his future. We can either call for a new policy based on an orientation toward peace, or give up the illusion that we are planners,

RICHARD G. STEIN, Architect Croton-on-Hudson, N. Y.

A STOCKBROKER MEETS F.LL.W.

Forum:

To have better architecture needs education of the ultimate consumer—the population at large.

I am a stockbroker, but have been privileged to visit the Taliesin Fellowship of Frank Lloyd Wright both in their home at Spring Green, Wis. and their winter camp on Maricopa Mesa, N. M. Here, by apprenticeship to the master, is the ideal way to learn architecture.

What can one learn from Frank Lloyd Wright? Well, I have seen students trying to learn how to copy Mr. Wright. I don't think that's very smart. They never can really do it and what they do produce is secondhand. Confronted with this fact, one of the apprentices said to me, "It's better to do poor imitation Frank Lloyd Wright than the best John Doe." There is something in that, but not enough.

I have no basic training in draftsmanship or engineering or design. Hence, what I learned from Frank Lloyd Wright is from the layman's point of view. Yet, if I trained to pass the examinations for a license to practice architecture and then hung out my shingle and started to work, here are some of the things I would do.

First, I would do my own best work. Nothing anyone ever did before or nothing any client suggested could consciously change me from that. I would strive for a simply rhythmic plan. The universe is founded on rhythms. I believe dimensions that are related one to the other do something to you in the finished building.

I would try hard to forget the buildings I live and work in and see every day. It is important to try and think what might evolve if the design is unfettered. A design should stand on its own feet as would a painting or a purely decorative piece of jewelry.

I would try to re-enact life as it is to be lived in my building and fit my building to it.

I know it would be hard and that is why I repeat a previous thought, but I would accept

(Continued on page 28)



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Writing specifications for acoustical materials

In writing specifications for acoustical materials many architects have emphasized the efficiencies of the materials they want to use. In actual practice, small differences in efficiencies between acoustical products are unimportant since the human ear cannot detect them. Also, the tests to determine these efficiencies can not be carried out with pin-point accuracy. Therefore, acoustical materials that are better suited to job requirements could be selected if most of the emphasis were placed on the other features of the available materials in the desired efficiency range. Here are some of the reasons why.

How accurate are "efficiency ratings"?

Most materials are tested regularly by the Acoustical Materials Association. The results, which show performance at various sound frequencies, provide a valuable standard of comparison for the whole industry. But the AMA cautions that these tests may be as much as 7% inaccurate. In addition, the resulting figures are "rounded out" to the nearest .05 after tests are completed. Since these laboratory ratings are not exact, it would seem advisable to look upon them as a general guide in classifying acoustical materials into groups and in showing their relative efficiencies at various frequencies.

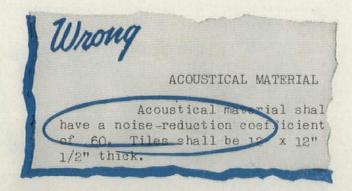
"Noise reduction coefficients"

Absorption values of materials are expressed in "coefficients" at each frequency. The "noise reduction coefficient" is an average figure for the middle frequencies. While it is a good general guide, it doesn't tell us how well a material absorbs sound at the higher frequencies. These higher frequencies cover the high-pitched, piercing noises, the ones that are most annoying, and therefore the most important ones to subdue.

Specifying materials

When only one coefficient is specified, your choice is limited and better materials may be ruled out. As an example, if a material with an approximate efficiency of .60 is desired, the specifications might well show an allowance of .05 in each direction-a range of .55, .60, .65-as illustrated above. This margin enables you to take advantage of other product features such as cost, fire safety, repaintability, moisture resistance, and appearance.

*REG. APPLIED FOR.



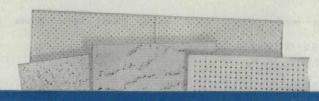
ACOUSTICAL MATERIAL Acoustical material shall manufactured by the Armstrong Co have a noise-reduction coefficient range of .55 - .60 - .65. Tiles sh in si

As shown above, it's better to specify a range of acoustical efficiencies instead of just one. This allows a wider choice of materials, and other special product features can then be considered in making the final choice of material.

Material characteristics

The Armstrong Line of acoustical materials covers the full range of popular efficiencies. Armstrong's Arrestone® is usually chosen for areas where maximum absorption is essential. Other features, however, are often the deciding factors in making a choice. Armstrong's Cushiontone®, for example, is often selected for its low cost. Armstrong's Corkoustic® is especially suited for use in areas of extremely high humidity. It also provides efficient thermal insulation. For both beauty and fire safety, Armstrong's Travertone * is a good choice. All of the Armstrong materials provide high light reflection, insulation, and easy maintenance.

For full details and advice in making proper selections, get in touch with your nearest Armstrong acoustical contractor or Armstrong district office, or write Armstrong Cork Company, 5408 Stevens St., Lancaster, Pennsylvania.



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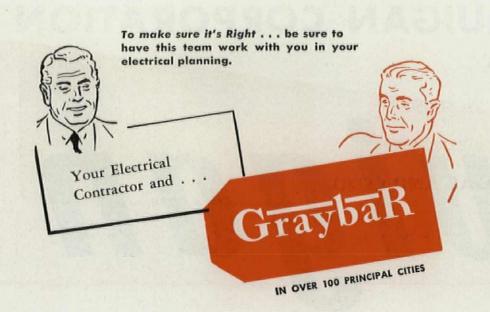


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LETTERS

nothing as it is and blindly perpetuate it just because everybody has been automatically standardizing it that way.

I would question every division and partition to be sure I needed it. I would picture myself in my new building looking up and down as well as sideways. Most plans are just in the one dimension of sideways movement.

I would think of light and dark and large and small and high and low and their effect on human emotion. A bright space looks brighter if you enter it from a dark space. A high space looks higher coming into it from one that is low. A large space looks larger if you are first in a cramped space.

I would look at how nature constructs and ornaments and confine my copying to thoughts born of that.

I would think of materials used honestly. They would be chosen by the economics of the times and the location of the structure. But stone should be used as nature uses stone and wood to bring out its own possibilities.

These are a few of the highspots I think Frank Lloyd Wright taught me. I have purposely not opened his books or lectures, because I wanted to remember only what was deep in me and not just to copy what has been said before.

When I was last out at the Desert Camp, we all went on a picnic just before sunset. Mr. Wright led the caravan of students across the desert for miles and then up into the hills to a peak that commanded a view in every direction. Big fires were begun and made ready for roasting steaks and baking potatoes. Gradually, the light faded, the sun started to set, and the sky changed color. The shape of the rocks and the shadows. altered at dusk, crept on us. Mr. Wright stood with his flowing cape and cane and wonderful head of white hair and his own kind of hat outlined against the skyline. The camp fires, their light at first dwarfed by the sky, slowly became the center of light, and moving shadows soon were to be seen on the rocks. "This," said the master, "is how I teach architecture-not over a drawing board." I didn't know what it meant to the apprentices. Probably something different to each. But to me, it meant that we should learn from nature and build to try and catch just a bit of the influence of shape and color and light and dark and cold and heat, sweet and sour, hard and soft and quiet and music of nature in our buildings.

GERALD LOEB E. F. Hutton & Co. New York, N. Y.

BILLION DOLLAR QUESTION

Forum:

Your article on Norfolk housing raised a fundamental issue between the "housers" and the "nonhousers," now for the first time reduced to facts and figures.

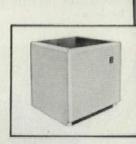
Public housing costing \$9,000 per unit and FHA private housing at \$4,600 per unit—which is right for the purpose? If the former contains

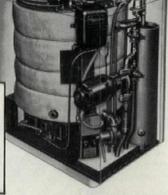
(Continued on page 32)

TIMKEN Silent Automatic

To Help You Build Better Homes Within Your Construction Budget!

KITCHEN-TYPE OIL BOILERS the most revolutionary development in modern smallhome heating—automatically heat the home, also supply ample domestic hot water.

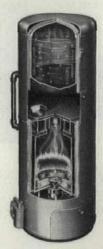






"DUTY-DESIGNED" OIL HI-BOILERS are built to give small homes all the comforts of modern oil heat-plus automatic domestic hot water. Unusually quiet and compact.

COMPACT OIL AND GAS HI-FURNACES, specifically designed for small homes, bring to every owner the full benefits of winter air conditioning without a cost premium.



More and more alert architects and builders are gaining important design advantagesand making major construction savings, too -thanks to the matchless heating experience of Timken Silent Automatic. For some of the results of 25 years devoted to the development of fine heating equipment at realistic prices, look below.

COMPACT DESIGN -Close attention to every detail of design engineering has held required floor area to a minimum. All the finest modern features are combined in a complete line of ultra-compact units ideal for small homes.

OUIET OPERATION-The truly exceptional quietness of the famous Wall-Flame Burner-a sound level so low it can scarcely be heard-has proved its value in hundreds of thousands of installations, especially next to living quarters.

EFFICIENT PERFORMANCE—For many years Timken Silent Automatic oil-fired equipment has produced fuel oil savings of 25% or more. Now modern design has also made Timken Silent Automatic gas-fired equipment outstanding for economy in its field.

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Unistrut includes concrete inserts, pipe, tubing and cable clamps, roller pipe supports, brackets, and many other standard parts which in combination provide the world's most flexible system of support or suspension. With Unistrut you can build all types of framing, mounts, shelving, racks, tables and benches, cable, conduit and pipe hangers, fluorescent fixture supports and many other structures with only a hacksaw and a wrench. Unistrut does the complete job, you need no other parts or materials.

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



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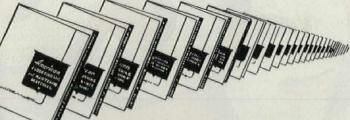
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1—A year 'round unit—no screens or storm sash to buy . . . 2—Built-in ventilation control . . . 3—Glass and screen panels removable from inside for easy washing . . . 4—No weights, cords or balances . . . 5—Waterproof felt weather stripping . . . 6—No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

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Preparation, Finishing and Maintaining
ALL Types of FLOORS

This data covers the subject of floor finishing and maintenance from A to Z—gives recommended seals, finishes, waxes and cleaners for every desired result—glossy or dull—fast-drying or normal drying—on wood, cork, linoleum, terrazzo, asphalt tile, rubber tile, concrete, plastic, and other types. Also, recommended procedure for preparing floors and maintaining floors.



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A handy reference in estimating coverage, drying time, selection of materials and other important data for all floors. Gives data and recommendations on 15 quality materials for treating floors, including penetrating floor seal finishes, surface floor finishes, floor cleaning and maintenance materials, and rapid drying special finishes. This chart which folds to file size, will be sent free to architects and builders upon request.



Floor Finishes, Maintenance Materials and Cleaners . . . by AMERICAN

Now you can specify an American finish for all kinds of floors. American's new complete line gives you the correct material—in the finest quality—

for each type of floor, and for each desired result. American, as floor surfacing and floor maintenance machine manufacturers, have been closely related to all types of floor work for years.

Write for this new complete file on finishing floors...also ask for the free chart showing all materials for all floors. The American Floor Surfacing Machine Co., 586 So. St. Clair St., Toledo 3, Ohio.

All materials listed under Underwriters Laboratories as non-slip.

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LETTERS

the minimum amenities, then the latter are unacceptable. If the latter contain the minimum amenities for the purpose, the former is "slum clearance" overdone—and there's the rub. Some correction is due. Which shall it be?

Note the inevitable mis-statement—public housing "will have heat and hot water"; the other "will be unheated cold water flats." A truly horrible privation! But it is this emotional fallacy that clouds our thinking and keeps both sides from reconciliation and agreement.

The description should read that "one will have a central heating and hot water system," the other will have "apartment heating and hot water" which can provide a truly comfortable habitation though somewhat more laborious to the occupant who has to fire the stoves.

If we are to remove slums the latter will do it as well as the former; but if we are to raise standards of living above the accepted standards established by law, then we must drop the slum slogan and justify the extra cost item on an entirely different ground, and it must take its place with our other heavy commitments for humanity the world over.

I am sure the majority of the "non-housers" want "slum clearance" but at the least cost to the taxpayer in these days of heavy imposts. The "housers" say something new has happened, there is a "housing shortage" and let us go into complete amenities while we are about it.

But if the private market and the local laws accept the \$4,600 dwelling as adequately meeting the slum clearance problem and the housing shortage for this level of our people, why should not the Government adopt the same standards for public housing, and by the same ratio as now prevails we would have public housing for the lowest income group at one-half the cost and therefore without cash subsidy.

I believe on this basis both sides would be reconciled, instead of the fight going on indefinitely. Apply this to the New York area and you have a billion dollar question.

> CHARLES C. PLATT, Architect New York, N. Y.

COMMERCIAL BUILDINGS, 2,000 A.D.

Forum:

I'm an eighth grade student. My father has received the FORUM magazine for the last three years, and we have enjoyed the magazine very much

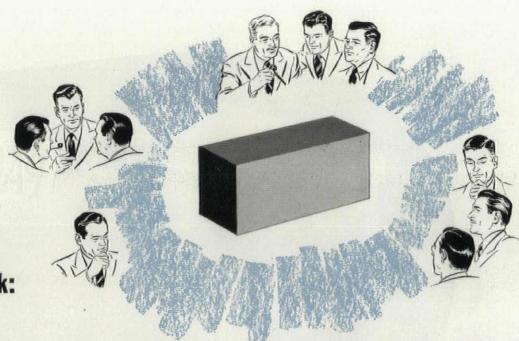
My father and I thought, why don't you devote one full issue of the FORUM in the future to commercial buildings and what they will look like 50 or 100 years from now.

I hope to become an architect and hope the day will come that you will print some of my fine architectural works in the future.

ALVIN R. OLDEN
West Los Angeles, Calif.

• Unable to guess what commercial buildings will look like in 2000 AD, FORUM will wait for Reader Olden to design them.—ED.

(Continued on page 36)



"10 Good Names to Know" ask:

"How can we better the best?"

Today you are getting Facing Tile at its best from these "10 Good Names to Know."

Continuous research over the past ten years has brought many improvements in the unit design and in the properties of both the body and glazes of this Facing Tile.

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We present the ALL NEW non-overflow

ONE-PIECE

with lower bowl and important sanitary developments

With the \$1000 Case One-Piece, modern development in water closet design attains a new standard of beauty, performance and utility. The *1000 carries on the immensely popular idea sponsored by Case in the original one-piece water closet. New mechanical features assure the positive, quiet flushing action people desire in the up-to-date bathroom. The bowl has been lowered one inch, incorporating the findings of the latest research on posture. For maximum health protection, the riser pipe of the ballcock is enclosed in a china channel completely separated from the water in the

tank. The body of the ballcock is located well above any possible water level. An open atmospheric vent obviates all possibility of back-syphonage under any conditions. Of particular appeal is the fresh exterior styling, designed to convey the feeling of quality inherent in this fixture. The \$1000 is built to the highest specifications, is attractively priced, and is available in white and 26 popular colors. See it now at your Case distributor-or write for folder. W. A. Case & Son Mfg. Co., Buffalo 3, N. Y. Founded 1853.

... and a new matching lavatory

The handsome new style motif of the One-Piece water closet is duplicated line for line in this companion lavatory, the new Windell \$780* with specially designed fittings. When installed together, each fixture complements the other's beauty.

Size 24" x 20".



*U. S. Pat. (One-Piece) — D139563, 2252078, 2290438, (Lavatory) — D143104, ©



This Anaconda bulletin contains construction details and reason-why data on the use of cold-rolled (cornice temper) copper in flat-lock, soldered seam work.

These are the subjects it discusses:

Type of copper to use.

Recommended size and weight of sheets.

Allowances for expansion and contraction.

How to form and install roofing squares.

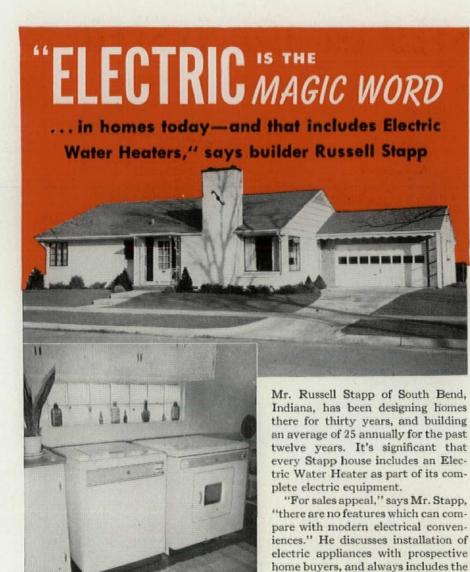
Expansion batten construction.

Batten construction at intersections.

Joining flat seam roofing with other types.

Also included is a complete specification for flat-lock seam copper roofing with 16 in. x 18 in. roofing squares. Be sure to get your copy of this helpful new roofing bulletin. Ask for Anaconda A.I.A. File No. 12-C. The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

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range from \$12,000 to \$35,000, and

The experience of successful build-

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ELECTRIC WATER HEATER SECTION

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ARCHITECT AND BUILDER (continued)

Forum:

Your Architect and Builder editorial in the April issue was warmly welcomed by us since it so precisely defines the problem we have been tackling for the past two years. From its inception, the Revere Quality House program was based on the belief that the first step toward improving the quality of speculative housing is to get architects into this field. Therefore, one of our basic requirements is that a project must be architect-designed to be eligible for approval by the Institute. Furthermore, we have strongly urged all of the builders with whom we have come in contact to employ the best architects they can get and to pay fees sufficient to permit their architects to give serious study to their projects.

In the two and one-half years of its existence this program has achieved considerable success. Revere Quality houses all over the country have been acclaimed as outstanding examples of quality resulting from architect-builder collaboration. I believe that this program has been an important factor in the increasing recognition by builders of the importance of design as noted in your editorial.

Since FORUM was co-founder of this worthy program, and has published a number of Institute-approved houses (four in the April issue), I was surprised and disappointed that you did not mention the work that our organization is doing in this field.

> JOHN HANCOCK CALLENDER Architectural Consultant Southwest Research Institute Revere Quality House Div. New York, N. Y.

Forum:

Your April issue . . . is established as required reading by our underwriting staff.

Several items in the issue, however, may be the subject of controversy. The suggestion that the Federal Housing Administration is reluctant to insure mortgages on well-planned, satisfactorily priced properties of whatever style, type or period, I am confident is not the general opinion of New Hampshire owners and builders. Of course, the insurable mortgage amount is based on value and value is not easily defined in a general way. Value cannot exceed the replacement cost. Market appeal is important.

We are pleased to have in the past endorsed for insurance mortgages on properties which at the time of their construction were considered radical. Now they are considered old fashioned. We are today insuring mortgages on modern, contemporary or whatever you choose to call it, and have encouraged architects and builders to exercise imagination and are pleased to have received the thanks of some of our most progres-

> WILLIAM F. BAKER, State Director Federal Housing Administration Manchester, N. H.

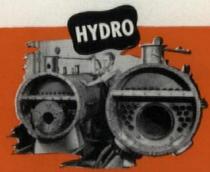
(Continued on page 40)

FACTORY-TESTED AND JOB-TESTED

. . . Another Reason Why You Get A Greater Return From Your Investment In A Cleaver-Brooks Steam Boiler



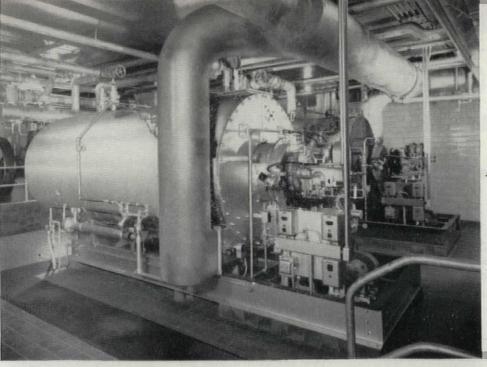
Cleaver-Brooks boilers are electrically welded - stress relieved - all welded seams under tension are X-ray checked to assure quality construction



Hydrostatically tested and inspected, every Cleaver-Brooks boiler is certified workmanship that material, construction, are in accordance with A.S.M.E. code.



FINAL: Every Cleaver-Brooks boiler is completely tested in operation before leaving the factory—and all components thoroughly checked and tested for performance





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Flexible Operation Burning Gas or Oil With Equal Efficiency: You can use oil, gas, or combination oil and gas, whichever is of lower cost. Through high heat transfer, Cleaver-Brooks boilers operate at a guaranteed efficiency of 80% from full load down to 30% of rating.

In addition, Cleaver-Brooks boilers give you clean, smokeless operation-eliminate fuel-ash handling -require no high or costly stacksno special foundations - fit under low headroom-provide quick steaming, flexible operation to meet fluctuating loads—fully meet all codes.

Available in sizes 15 to 500 H.P., 15 to 200 P.S.I. - write for new Cleaver-Brooks steam boiler catalog.

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She liked the architecture, the big windows, the light friendly rooms—but, she had a doubt that kept them from saying "yes." He liked the location and the looks, but knew what she meant.

Then—the salesman showed her how simple it was to remove the R • O • W windows by pushing each window to the left. That was the convenient extra they were looking for. So—

She tried it. They both agreed. They bought.

TYPICAL CONSTRUCTION DETAILS (above). There are 27 specially licensed R·O·W manufacturers and 48 distributors throughout the U.S. Details vary slightly according to the requirements of your area.

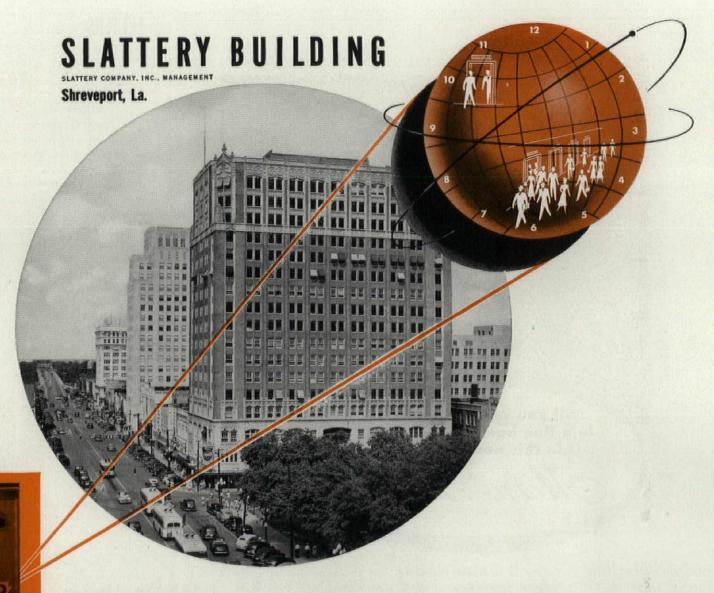
That story, multiplied over six million times, has made R • O • W the world's largest selling wood window.

The exclusive spring cushion construction (cutaway view at right) not only makes the removable feature possible, it automatically adjusts to suit the weatherman. Gives in damp weather—expands in dry weather. Wood sash travel in metal sash guides for smooth operation.

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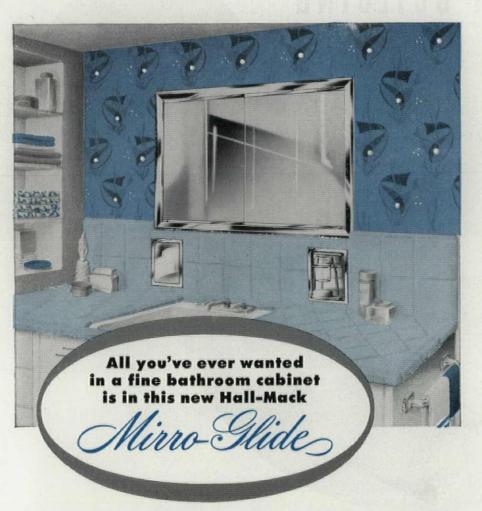
MODERNIZES to provide fast, dramatic **AUTOTRONIC** elevator service

"Once again, we have been well advised by Otis." What does the management of the Slattery Building mean by "...well advised by Otis"? Just this: Help in planning and installing 4 manually operated Otis elevators in 1923...advice on maintenance to insure maximum service from each car; to prevent expensive repair bills and shutdowns; to keep the running equipment in excellent condition and available for modernization - even after 27 years' service!

"... well advised by Otis" means a carefully engineered plan for modernization: Faster, better coordinated elevator service to keep the Slattery Building competitively abreast of new buildings...assurance that AUTOTRONIC elevatoring, with its automatic supervision and 6 basic traffic programs, will provide the operating features sought by the Slattery management...assistance in designing the Otis-built entrances and cars, not only to help in modernizing the lobby and upper floors, but to make certain that the doors function perfectly as an integral part of the complete installation...finally, a construction plan that would not impair present elevator service during the change-over.

Anyone with a vertical transportation problem "will be equally well advised by Otis." And without obligation. Contact any of our 263 local offices. Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.





HERE IS THE very most in bathroom cabinet beauty and convenience... two sliding plate glass mirror doors which conceal a spacious, double size recessed cabinet.

There's beauty in the large handsome expanse of plate glass mirror (39"x22") completely bound by a wide chrome frame...in the gleaming white baked enamel steel cabinet...in the fine Hall-Mack workmanship and finish.

shelves...in the smoothly sliding mirror doors which always provide a 20"x22" mirror for use even when one cabinet is opened.

Wherever you want the ultimate in cabinet quality, and the most in beauty and practical convenience—install the new Hall-Mack Mirro-Glide.



LETTERS

Forum:

. . . I have some very strong opinions as I have had experience working with builders in five cases. There are many good points and many bad points, some of it might be our own "sitting in an ivory tower." The other would be the builder's limited vision, particularly in regard to finish and finesse-"when you select hardware, do you select what is best for the job or what puts the most in your pocket?" One break for the architect is that he does not have the strain of client relations which he does with the individual client. This is worth several per cent of our fee. We have never successfully or satisfactorily guessed at a percentage fee. However, we worked several of them on a cost-plus arrangement which is quite satisfactory to the office and the job. The lack of control of the job is the most discouraging part of the work. This applies to site planning, details, errors and selections. . . .

> FRANCIS JOSEPH McCARTHY, Architect San Francisco, Calif.

Forum:

. . . I feel that a closer association would be of definite benefit to the building public and our whole order of society. It could result in profits to the builder and reasonable remuneration to the architect. Working out the exact relationship is, of course, the problem. It may well be that architectural services could be utilized on developments of 25 or more housing units. There are cases where builder and architect have cooperated on less than this number, the resulting benefits, if any, would need to be investigated.

An educational program in the ranks of the builder and architect would help to promote understanding and disseminate newer methods of construction which are advantageous to enhanced values in shelter. It occurs to me that at least a consulting fee for the architect might produce values that are marketable for the builder and give the architect a fee, not out of line with architectural services rendered.

At least the attempt to organize consistent thinking and cooperative action are in order and greatly needed.

> George M. Beal, Head Department of Architecture University of Kansas Lawrence, Kansas

Forum:

I would like to know in what way it is costing the American public to build without the advice of an AIA man. I for one believe that some of the best, top-flight design in the residential field is in part being done by non-AIA men.

In the FORUM I have seen some design done by an AIA man that was not even competitive. These fellows obviously lack a little imagination or else the owner got into their hair during the job.

In the bigger jobs it is better to have an AIA man in on the job. Most naturally they would be the ones to qualify for these big deals.

Small residential is anyone's meat,

E. L. HARRIS San Diego, Calif.

(Continued on page 44)



insist on Walseal® products and be certain



- the FACTORY INSERTED Ring insures FULL PENETRATION of the Silver Alloy . . . a perfect joint

Today, contractors ... builders ... architects are using brazed connections, in ever increasing numbers on their brass and copper pipe runs. However, they must be certain that the correct brazing alloy is used; that the joint has penetration of alloy up the shoulder of the fitting.

That's why more and more are turning to Silbraz® joints made with Walseal valves, fittings and flanges which assure the proper amount of alloy with no waste. They know that the finished joint not only will withstand hydrostatic pressure, but it will also withstand terrific impact and vibration - in fact, no correctly made Silbraz joint has ever been known to creep or pull apart under any pressure,

shock, vibration or temperature which the pipe itself can withstand.

Furthermore, it is a relatively simple operation to make a Silbraz joint - no heavy scaffolding need be erected . . . just cut the pipe, flux, assemble, then braze, following the technique recommended by the Walworth Company. A silver brazing alloy - FACTORY INSERTED in each port flows out when heated with the oxyacetylene torch, making a joint that is stronger than the pipe itself . . . a one-hand operation, with the mechanic out of the path of the deflected heat - at all times.

For full information about Silbraz joints made with Walseal products, write for Circular 84



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FOR 35 YEARS architects have been making use of GROVER Pneumatic Tube equipment in meeting the need for fast message transmission in many types of occupancy. On our part, we have striven to perfect our engineering approach to these problems so that we could give the architect a real service at the drafting room stage. We are first of all Pneumatic Tube System engineers, and our manufacture of component units has been organized on the basis of complete flexibility to meet modern trends in design and layout—and modern needs in the stream-lining of business operation.

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transmission of small packages and sizable sheafs of file work in the flat. New standards in the efficient central control of retail cash and charge transactions have been set by GROVER equipment. The complications of library reference service and even the transmission of average-size books find a new and better answer through a Transitube System.

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GROVER can be of real assistance to you at the drawing board stage.



GROVER equipment is quiet, speedy, private and errorless.

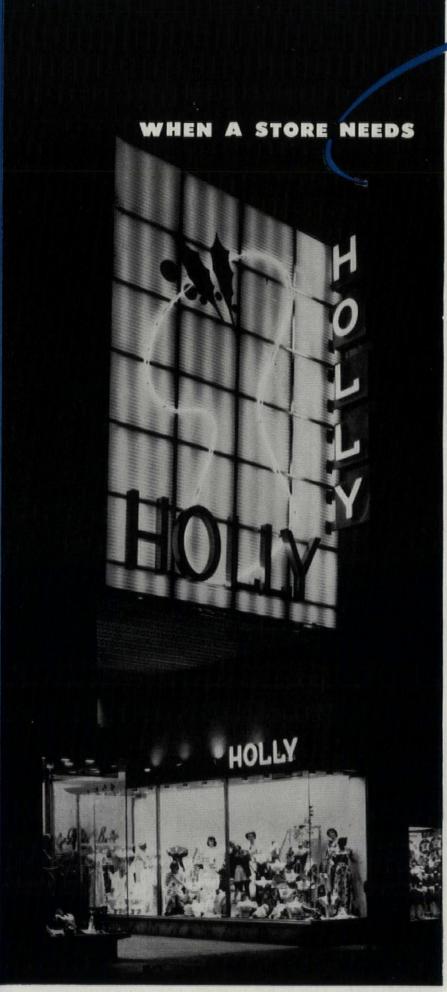
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Consult the yellow pages of your local telephone directory for address of Grover Representative nearest you. Or write The Grover Company, 25527 W. Eight Mile Road, Detroit 19, Mich.

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Designed by Morris Lapidus of New York, this 20-by-25-foot luminous store-front in Baton Rouge, La., was created by backlighting large panels of corrugated white translucent PLEXIGLAS. The interesting pattern is achieved by means of neon tubing behind the facade. Red and green PLEXIGLAS is used for holly leaves and berries mounted against the glowing acrylic background. Fabricated by Plastics Productions, Inc., New Orleans, La. Installed by Lamarr Advertising Agency, Baton Rouge, La.

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

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PLEXIGLAS comes to the front

"Make my store-front different—distinctive," says your client. And PLEXIGLAS makes this tough assignment easy. Clear or in gem-like colors, smooth surfaced, corrugated or artistically patterned—adaptable PLEXIGLAS offers an almost limitless range of design possibilities.

Backlighted Plexiclas gives you completely luminous letters and facades—rich with light and color, yet minus the confusion of visible light sources. Plexiclas permits textured and three-dimensional effects—ranging from the delicate and graceful to the massive and dignified. And with all this, Plexiclas saves on erection and maintenance costs, too.

Lightness and strength mean easy erection—with fewer, lighter supporting members. This sparkling outdoor plastic resists age, weather and hard blows. Indoors or outdoors, Plexiclas represents a unique combination of beauty and durability.

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For your personal file we've reserved a copy of our newest booklet, "PLEXIGLAS... for Modern Store Fronts." Use your business letterhead to tell us where to send it.

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deliveries. AND because trained field men help solve dealer problems of financing, selling, erecting. AND because we back up our dealers with color ads in leading magazines — the most powerful national advertising program in the housing field.

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Illustrated with 60 photos of National Homes: factory scenes, features, projects, interiors and exteriors, floor plans. The dramatic facts about the Nation's Largest Producer of Prefabricated Homes. Send for it today.

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LETTERS

Forum:

I am pleased to note that the Home Builders are motivated not by profit alone, but have come to recognize that the architects influence the best there is in design.

ARTHUR WUPPER, Architect Indianapolis, Ind.

Forum:

You are to be congratulated on your fine issue on the merchant builder and the architect. This issue and the resulting letters are very interesting.

The important elements in architectural service are an educated client and a conscientious and capable architect.

An architect's first duty to the client, to himself and to the profession is to turn out the best possible work. This requires that he receive a fee that allows thorough study and that allows him to operate on a sound business basis.

My experience has been that the person who wants incomplete drawings and no supervision does not follow the drawings anyway (and is often difficult to collect from). An architect is not being reactionary or stuffy in refusing this type of client. He is simply recognizing that it is not sound ethics from the business or professional standpoint to undertake work on a basis where it is impossible to achieve good results.

Partial service and the plan services are the greatest obstacle to the development of an educated public who appreciate just what architectural service is and what it can accomplish.

I believe much of the dissatisfaction of the merchant builders is due to architects not having the good sense to insist on doing the job right or not at all. They are justified in assuming we are a bunch of dummies when some of our number will sell their services on such a ridiculous basis, one incomplete set of plans without supervision is the perfect vehicle to gain the maximum of ill will and misunderstanding.

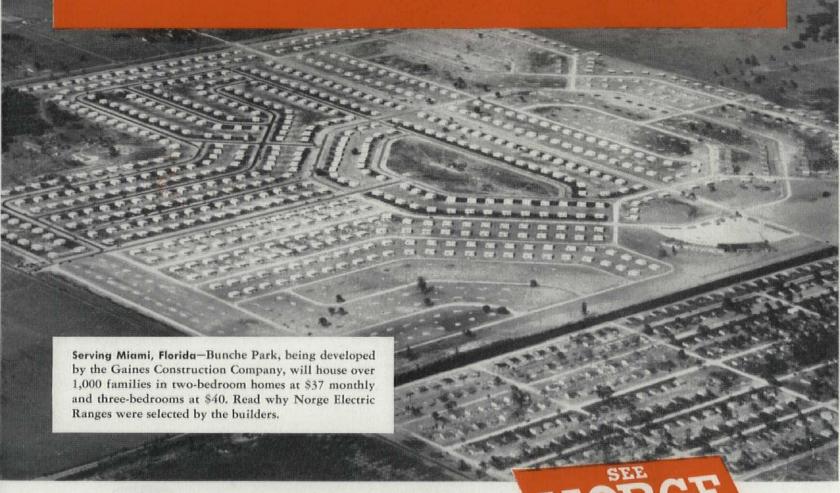
Merchant builders or any other client will find capable architects in most communities who are willing to deal on a fair businesslike basis making allowances for the character of the job. And it will be well worth their while to employ them. The construction industry must compete with other industries for the consumer's dollar. It is the equal concern of the bricklayer, contractor or architect that the public is given the best possible product. American business as a whole, its methods and development, contradict the theory that \$10 is all the client will pay for design in a \$7,500 house. What he will pay depends entirely on how much it appeals to him. . . .

Any architect doing a large volume of work has a very fine opportunity to observe many contractors and the way they operate, their costs, their estimating methods, the morale of their men, etc. There is much to be gained not only in design but also in the development of more efficient construction procedures by proper architect-contractor relations.

TOMAS F. HARGIS, Jr., Architect Yakima, Wash.

(Continued on page 48)

NORGE Electric Ranges chosen for Bunche Park Housing Project



"As both builder and landlord," says Sal Ramagli, sales director of Gaines Construction Company, "we've had to build and equip Bunche Park houses with an eye to both the present and the future.

"This has been particularly important in the selection of so essential an appliance as the family cook-stove.

"After exploring this subject, we selected NORGE Electric Ranges on both counts. They fulfill all family demands, and construction is such as to protect our investment over the long haul."

SEE THE FEATURES OF AMERICA'S FINEST HOME APPLIANCES

Refrigerators • Gas and Electric Ranges • Home Heaters
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Att. Director of Contract Sales

Send me full information on the following Norge appliances:

Refrigerators Gas Ranges
Automatic Washers Electric Water Heaters
Electric Ranges Home Heaters

Name Title

Company

Street

Zone

State

They'll beat a path to



THIS PHOTOGRAPH was taken on opening day at the Stratford Acres Model Home in Stratford, Conn. A G-E Kitchen-Laundry was featured . . . and included in the purchase price of the house.

From all over America come similar enthusiastic reports from builders who have installed G-E equipment.

YOU, too, can include G-E Kitchen-Laundry equipment in your homes for as little as \$4.80 a month under the "Packaged Mortgage" Plan.

Why not install General Electric equipment in your homes, and watch home buyers beat a path to your door?

General Electric offers you all this:

- Tested merchandising programs that have helped so many other builders enjoy phenomenal sales results.
- The brand of electrical appliances that people prefer to all others.
- One source of supply for matched equipment
- ... a full line of cabinets and appliances.
- Assistance in designing and improving kitchen layouts for your houses.
- And most important: G-E equipment is world-famous for its dependability! Why not let G-E help pre-sell your houses?

You can put your confidence in-

GENERAL (ELECTRIC



your door every time!





George Decker and Oliver Martin of Stratford, Conn., built their model home with a completely equipped General Electric Kitchen. Although other new homes near by were not selling, all fifty of the Stratford Acres homes were sold within 48 hours!

Here's how the Bridgeport Telegram, Bridgeport, Conn., reported the model home event the next day:

"An estimated 8400 persons visited the Stratford Acres Homes Model Home on Greenfield Avenue, Stratford, yesterday

afternoon, and all 50 homes planned by the firm already have been sold . . . the home sells for \$10,500."

Offered under "Packaged Mortgage" Plan

"Builders of the homes report that this is the first large-scale

Here's the big drawing card . . .

... the completely equipped General Electric Kitchen-Laundry that is included in the sales price of the Stratford Homes.

This worksaving General Electric Kitchen includes: Automatic Dishwasher-Sink and Disposall®, Automatic Washer, Range, Refrigerator, Clock, and all-steel Cabinets. No wonder all 50 houses were sold within 48 hours! housing development in this part of the state to offer an allelectric kitchen fully equipped under a packaged mortgage..."

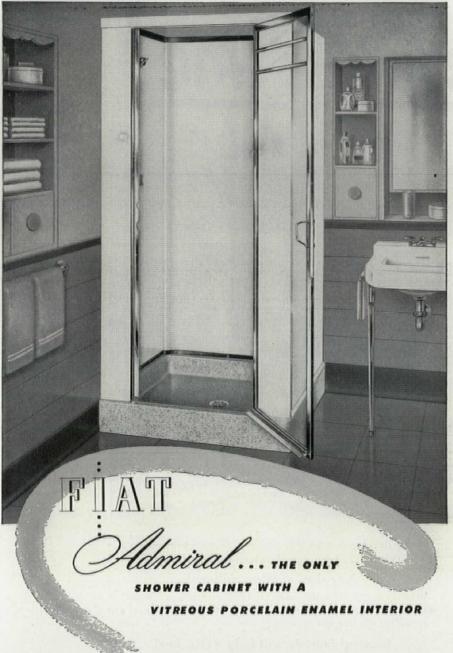
A typical success pattern!

This experience with the General Electric equipped house is not unusual. Rather, it is *typical* of the sales miracles that are happening all over the country.

General Electric will help YOU, too!

Why not let General Electric help pre-sell *your* houses? See your local General Electric distributor, or write to the Home Bureau, General Electric Company, Bridgeport 2, Conn.





The smooth, glass hard, vitreous porcelain interior surfaces of the Admiral Shower provide the ultimate in cleanliness and sanitation, they remain white and impervious to wear for a lifetime. Exterior of side and back panels are regularly finished with vitreous porcelain enamel ground coat, but can be furnished to match interior at small extra cost. Front stiles and head rail, bonderized, galvanized steel finished in white synthetic baked-on enamel. Receptor, deep type terrazzo made of black and white marble chips and white cement. Sizes 36" x 36" x 80" and 40" x 40" x 80". Illustration shows this shower equipped with a Fiat Dolphin heavily chromium plated glass door. The Admiral shower is suitable for high grade residential and institution installations.

Complete specifications in Sweets' Architectural Catalog File, or write any of the three Fiat plants for catalog.



FIAT METAL MANUFACTURING CO.

Three complete plants

9301 Belmont Ave., Franklin Park, III.

Los Angeles 33, Calif. Long Island City 1, N. Y.

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

LETTERS

DELIGHT PLUS FACT

Forum

It is extremely gratifying to see the crispness and thorough handling of recent FORUM issues. By imaginative conception and presentation you inspire, often with the same stroke that enlightens. I hope this attitude will continue to grow to the point where there is as much delight as there is fact.

CHESTER NAGEL
Asst. Prof. of Architecture
Harvard University
Cambridge, Mass.

GIBBINGS WITHOUT HUMOR

Forum:

Your report of my talk at the AID Forum (an assault on indoor-outdoor architecture, FORUM, May '50, p. 16—ED.) did not point out that the talk was put around a quotation from the Nov. '49 FORUM presentation of Philip C. Johnson's "glass house":

"The greatest architect would be that godlike man who could shelter a space using no materials at all. Architecture without buildings . . . would be paradise. By this last magic of a consummate civilization we should be united in freedom with the most primitive hunter for whom all Nature is home."

My talk was a satire based on this rather extravagant statement, and I think that a fair report of the talk would have pointed this out....

T. H. Robsjohn-Gibbings New York, N. Y.

The extravagant statement about the godlike man was a quotation from a "young enthusiast" whom FORUM kidded gently for seeking "an excess of perfection," Sorry to have caused Mr. Gibbings so much labor.—ED.

CREDIT

FORUM's presentation of Blythe Park School (May '50) is sparkling and authoritative. All credit for the "simple amphitheater of stone and wood" belongs to McFadzean, Everly & Associates, landscape and recreational consultants.

LAWRENCE B. PERKINS, Architect Perkins & Will Chicago, Ill.

ERRATA

Forum:

In the June 1950 copy . . . you are describing the 'Youtz-Slick' method of construction on a new building for Trinity College at San Antonio. Texas. You are giving as the name of the general contractor James T. Stuart & Co. on page 135 and John Stewart Contracting Co. on page 137. Will you kindly make a correction. . . .

W. M. LABASTILLE James Stewart & Co., Inc. New York, N. Y.

To James Stewart & Co., Inc., we are apologizing.

—ED.



porches patios partitions



FOR THE OFFICE

screens ceilings displays wall paneling



FOR INDUSTRIAL BUILDINGS

weather-resistant skylights partitions exterior walls



Photo courtesy Corrulux Corp.

to install . . . long lasting

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beautiful—available in a wide range of attractive colors and decorative shapes, they offer unlimited opportunity for striking and effective design . . . and installed cost is low!

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Owens-Corning Fiberglas Corporation, Plastics Reinforcement Division, Nicholas Bldg., Toledo, Ohio

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It will have passed rigorous tests by an independent laboratory. It will measure up to the rigid standards of the Aluminum Window Manufacturers Association. It will, in short, assure you and your clients of thorough-going satisfaction.

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You can get more detailed information from Sweet's (Section 17a/4a), any Association member, or from us. Write Desk AF-8.





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General Bronze Corporation (and its subsidiary The Aluminum Window Corporation), Garden City, New York

Sterling Windows, Inc. New York City, N. Y.

Windalume Corporation, West New York, New Jersey





This is Armstrong's Linoleum

Armstrong has developed many new types of resilient floors, but Armstrong's Linoleum, the oldest of them all, still holds its place at the top of

the list. In most cases, no other flooring offers a combination of so many desirable qualities. That's more true today than ever because, year after year, scientific development has improved the quality of Armstrong's Linoleum.

This floor has always been noted for its ability to stand up under the wear and tear of heavy traffic. It's also been noted for the

ease with which it can be kept clean. Today, it's more wear resistant than ever before and has a smoother surface that's even easier to clean.

Armstrong's Linoleum is made in six distinct types—Plain, Jaspé, Marbelle[®], Embossed Inlaid, Spatter, and Straight Line Inlaid—and in a wide variety of patterns and colors. It is available in three different thicknesses to meet various wearing requirements.

For wide range of decorative possibilities, no other flooring can match Armstrong's Linoleum.

This is Armstrong's Asphalt Tile

When the first cost of a floor is a really important consideration—or if you need an attractive floor to put on a concrete slab that's in direct

contact with the ground— Armstrong's Asphalt Tile should be your choice.

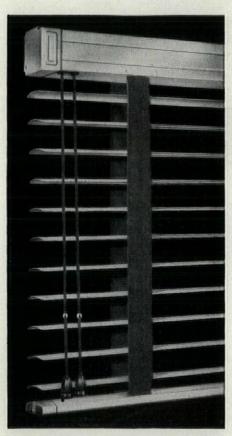
Asphalt tile is the lowest in cost of all the resilient floors, yet it is long wearing and very attractive in appearance. Armstrong's Asphalt Tile can be used on almost any kind of subfloor. It is an ideal flooring for use in basements and for basementless buildings because of its resistance to the harm-

ful effects of alkaline moisture. Armstrong's Asphalt Tile is manufactured in two types—Standard and Greaseproof. It is available in two service thicknesses—1/8" and 3/16".

They're both Armstrong's Floors

For additional information on these floors as well as for data on Armstrong's Linotile[®], Rubber Tile, or Cork Tile, see the latest edition of Sweet's Architectural Files, section 13, catalog B or the 1950 edition of Armstrong's Pattern Book. For samples, literature, and unbiased help on any unusual flooring problems, architects are invited to get in touch with the nearest Armstrong District Office or write directly to the Armstrong Cork Company, Floor Division, 2608 State Street, Lancaster, Pennsylvania.

15 months in service without a service call



And now you can have LEVOLOR-built Venetians that are matched in quality and color in all 3 vital parts: smart, enclosed Head, durable, springy aluminum Slats, slender enclosed Bottom Bar...all of which are chip-, mar- and stain-resistant. Dust and dirt is easily wiped off the plastic, mirror-smooth surfaces. And when tilt cords are uneven, they are evened up again by simply pulling the short one.

See our catalog in Sweet's Architectural File, 19D-3A, and Sweet's File for Builders, 3E-5.



... That's the Believe-It-Or-Not record of Venetians equipped with LEVOLOR metal heads in the General Petroleum Building, Los Angeles

If it's maintenance-free service you want in venetian blinds—specify LEVOLOR-built. The LEVOLOR enclosed head houses the finest precision hardware . . . the smoothest operating parts obtainable. And this feature, plus LEVOLOR's *patented* self-adjusting tilter, provides quiet, easy, mechanically-perfect performance.

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Yes, for every reason you can think of, specify LEVOLOR-built Venetians...made by makers of high quality blinds everywhere.



Specify LEVELOR

Time-proven Products for Venetians

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Comparison proves why Nu-Style Cabinets excel!

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- Nu-Style Cabinets are produced by experts trained in latest scientific manufacturing methods.
- They are made from thoroughly seasoned, Kiln-dried Ponderosa Pine . . . the best base for a wide variety of

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comes to the number of possible uses and arrangements of these sectional cabinets, in bathrooms, bedrooms, storage walls or dens as well as in the



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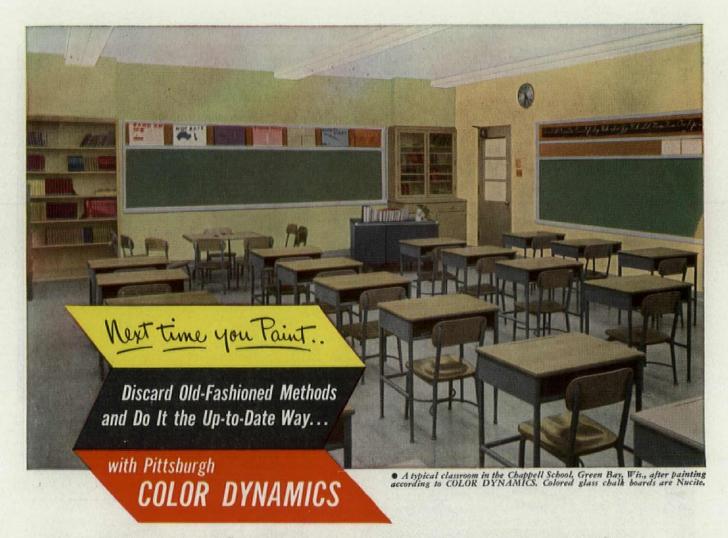


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Ways to utilize wasted space is a "must" with every thrifty homemaker.

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New, scientific painting system uses <u>energy in color</u> to aid efficiency of pupils and teachers

SINCE Pittsburgh announced its system of COLOR DYNAMICS, educators all over the country are learning more about the purposeful use of color to assist pupils and teachers in their work.

- Science has proved that some colors stimulate and excite, others soothe and relax; still others cause fatigue, depression and irritation. Pittsburgh has based its painting system of COLOR DYNAMICS upon this knowledge.
- By the purposeful use of this energy in color, modern schools are being given color arrangements in keeping with the activities for which the rooms are used and the natural and artificial light that is available.
- Typical of the comments of school executives who have used COLOR DYNAMICS is this letter from C.W.

Byrnes, Superintendent of Public School Buildings and Grounds in Green Bay, Wisconsin.

- "Since adopting the practice of painting our schools according to COLOR DYNAMICS," writes Mr. Byrnes, "we have had a highly favorable reaction from teachers, students and visitors. Bright, cheerful and eyeresting surroundings have been created which enable us to utilize our present lighting system with maximum effectiveness. I do not hesitate to recommend Pittsburgh's COLOR DYNAMICS system for all schools."
- By using COLOR DYNAMICS eye-strain is lessened, concentration is stimulated, academic grades of students and the efficiency of the teaching staff are improved. Housekeeping problems are reduced and vandalism is discouraged.

We'll make a COLOR DYNAMICS engineering study of your school—FREE!

• Why not use COLOR DYNAMICS next time you paint and obtain these benefits for your school?

For a complete explanation of what COLOR DYNAMICS is and how to use it, send for our FREE booklet which contains many examples of school painting.

Better still, we'll gladly make a scientific color engineering study of your entire school, without cost or obligation to you. We have trained color experts at each of our 75 warehouses. Call your nearest Pittsburgh Plate Glass Company branch and arrange to have one of these representatives see you at your convenience. Or mail this coupon.

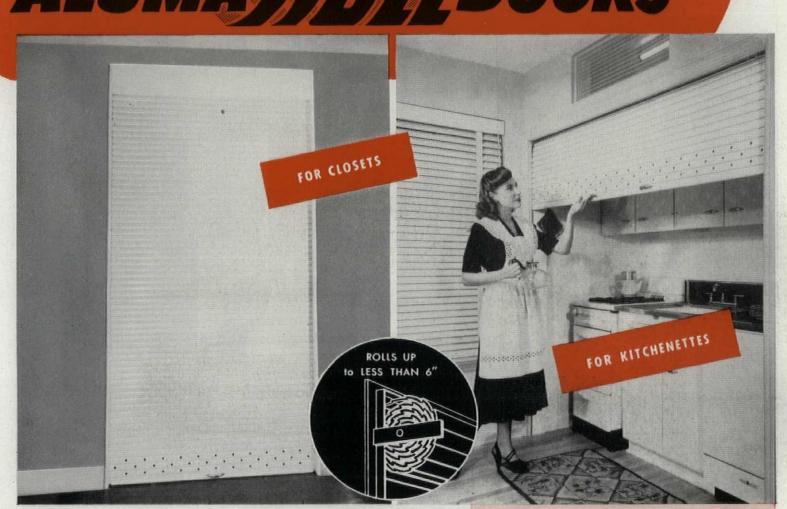
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portland cement and meets Federal and ASTM Specifications. Use it in

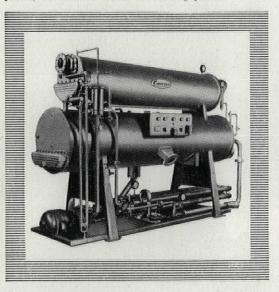
architectural concrete units and in a variety of other forms

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Trinity Division, General Portland Cement Co., 111 W. Monroe St., Chicago; Republic Bank Bldg., Dallas; 816 W. 5th St., Los Angeles; 305 Morgan St., Tampa; Volunteer Building, Chattanooga.

This Carrier Absorption Refrigerating Machine uses heat to make cold. It is safe, compact and com-pletely automatic. It has no moving parts.



New Machine

lowers cost of air conditioning!

Uses low-cost steam—cuts installation and operating expense

CAN your clients afford air conditioning? Even though the answer was "no" it may now be "yes." Where steam costs are reasonable, the Carrier Absorption Refrigerating Machine can lower owning and operating costs of any air conditioning system.

Who can use the Carrier Absorption Refrigerating Machine

Any office building, department store, factory or apartment building that uses steam for heating in the winter and has a steam plant that is relatively idle in the summer. Any sort of building or business in areas where steam costs are reasonable, or where there are district steam plants. The Carrier Absorption Refrigerating Machine is an alternative to refrigerating equipment operated by electric power.

Installation economies lower first cost

The Carrier Absorption Refrigerating Machine takes up a minimum of space. (The 115-ton capacity model is approximately 9 feet high, 5 feet wide, and 12 feet long.) Expensive foundations are unnecessary. It is so light in weight (net operating weight 5 tons) that it may be located on the roof with other mechanical equipment such as boilers, cooling towers, elevators, and air conditioning apparatus. This feature saves valuable basement space and places all mechanical equipment together.

Operating economies lower owning cost

The Carrier Absorption Refrigerating Machine uses either high or low pressure steam. It uses less than 20 pounds of steam per hour per ton of refrigeration. It automatically adjusts itself to partial loads down to 15% of total capacity - without losing efficiency. Because there are no moving parts (other than a small centrifugal pump) and because the safe absorbent cannot be lost by evaporation, maintenance costs are exceptionally low.

Wide range of sizes available

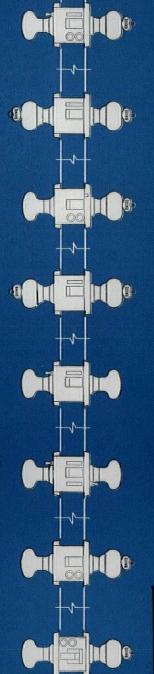
For air conditioning, the Carrier Absorption Refrigerating Machine chills water to 50 degrees F. or below. For refrigeration, the machine will chill water to 36 degrees F. It is available in individual capacities of 115, 150, 200, 270 and 350 tons. It is suited to multiunit installations in any combination. We suggest that you write for the booklet, "Cooling with Heat." Carrier Corporation, Syracuse 1, New York.



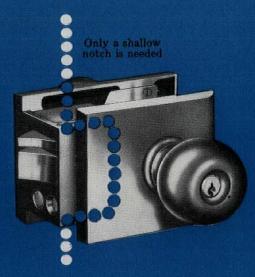
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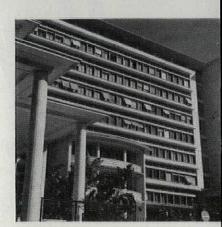


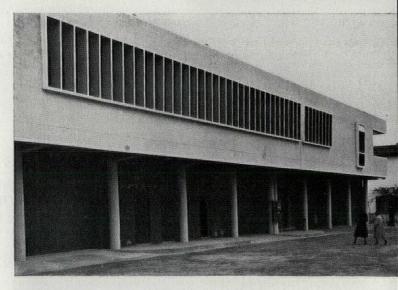




Photos: G. E. Kidde

Government Building, Algiers





Coca-Cola Office, Algiers



Native school near Algiers

REPORT FROM ALGERIA

By G. E. Kidder Smith*

The most striking and noteworthy building, old or new, in Algeria s a modern structure designed as long ago as the late 1920's and ompleted in 1930. This is the General Government Building in Algiers (top left) by Jacques Giauchin, and it is unquestionably ne of the finest public buildings in the early history of internaional modern architecture.

Although this structure was opened 20 years ago, it has received ar too little attention. When it was built it created a storm of protest because of its daring. However, in addition to being darng it was also good—a far more important quality. So good in act that it stands forth today with little of the brittle surface haracter which types its early modern contemporaries in Holland, rance and Germany.

The other buildings of Algeria, native and modern, are not as timulating as the rest of French North Africa (Morocco and Tunisia). This is undoubtedly because Algeria is closest to France -it has been under French control for more than 100 years-and ts architects and their clients are too close to Paris, too tied to the raditions of French Beaux-Arts architecture in general, too unwillng to see the basic climatic, material, ethnic and other differences which should develop a more basic approach to Algerian archiectural problems.

The revolution initiated by Giauchin has now largely degenerated into a modern, or faux-moderne, which varies between a PWA stripped classic and the modified juke-box school. The result s that with only a few exceptions and even fewer outstanding ones, contemporary Algeria has little to offer the contemporary rchitect. In addition to general conservatism, building activity has not been as intense as in Morocco or war-torn Tunisia.

There are however exceptions. Outstanding is the work of P. A. Emery who was in the U. S. for six months after the war and is also on the Council of the C. I. A. M., so is fully up to date on contemporary developments, architectural and urbanistic. He and his office are primarily engaged in large scale, low cost housng and planning projects for east-central Algiers, but they have also recently finished a highly colorful small office building for he ubiquitous Coca-Cola.

This Coca-Cola building (left, below) is the first actual construction in Algeria of the bris-soleil which Corbusier originally proposed for this country years ago. In addition to the interest in he concrete sun louvers, the Coca-Cola building plays handsomely vith colors, mainly red and blue. It also has a striking abstract nural in the entrance lobby, an encouragement of art by a comnercial firm too absent in the U.S.

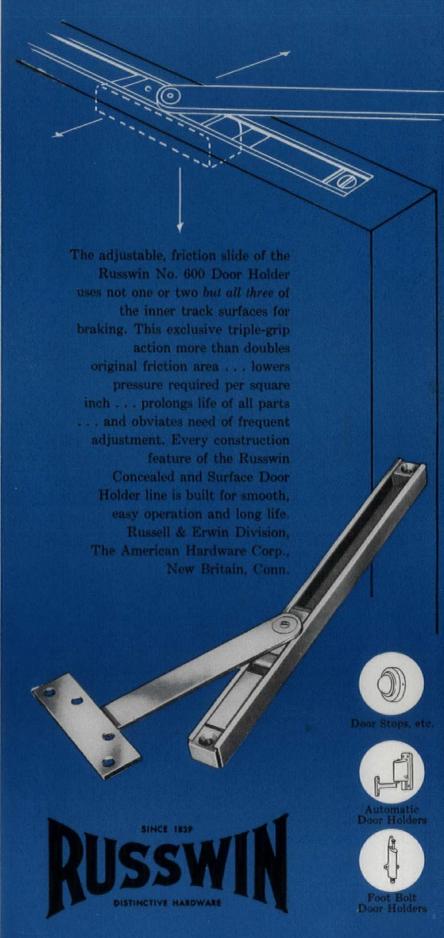
A most unusual new building is a school for natives in an eastern suburb. As the photograph (below) shows, it looks some-

(Continued on page 64)

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



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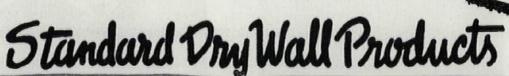
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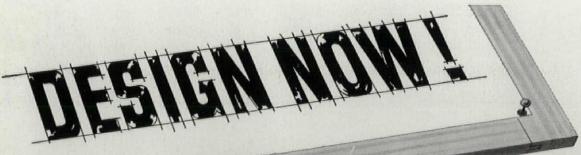
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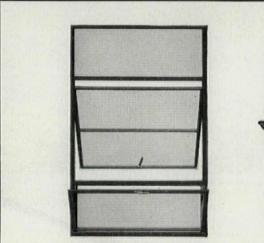
Baltimore, Maryland

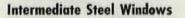


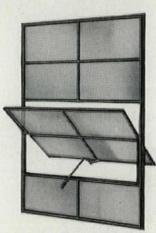


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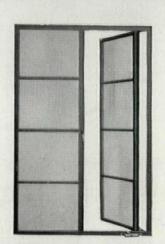
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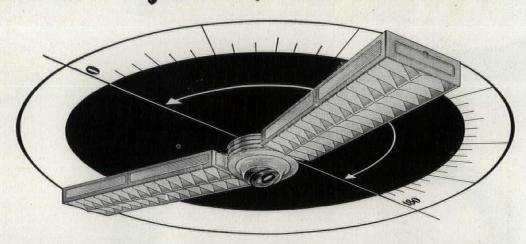


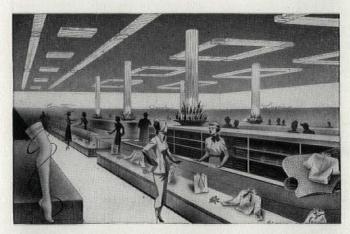
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what like a small edition of Fressinet's famous hangars at Arly, or a concrete Quonsettype hut. The airy cross vaulting at the entrances is particularly interesting.

Most of the other new work in and around Algiers is more prosaic. The influence of Auguste Perret, French architect, is strong and has been for years. Incidentally, the brothers Perret were the builders for the beautifully constructed General Government Building, and its architecture too shows the Perret influence. Auguste Perret himself has also done a small amount of work here.

Michel Luyckx has made several clever experiments in construction technique in the Sahara and other remote corners of the country. Not being able to use wood, steel, concrete or any of the "standard" materials, nor employ other than relatively unskilled local native labor, Luyckx has produced several unusual hospitals and schools. His hospital at Adrar, about 500 miles from the Mediterranean, is of pressed earth bricks dried in the sun. These bricks are laid up with mortar made by the same earth and together they make a more or less homogenous mass. Brick must be used instead of pouring the "mud" like concrete because it can thus be made into quick drying units and requires no formwork. This construction is sufficient protection against the almost total lack of rain.

The complete necessity for relying on native materials and native labor characterizes much of the contemporary rural North African architecture. Further excellent examples of this can be seen in the missionary school (above) and Catholic church (below) in Touggourt, an oasis town well into the Sahara and about 300 miles from the Mediterranean.

Their forms though designed by Europeans are built by natives with local native materials. While such work can obviously not be as striking as if made with unlimited steel and concrete, their results are often challenging.

(Continued on page 68)

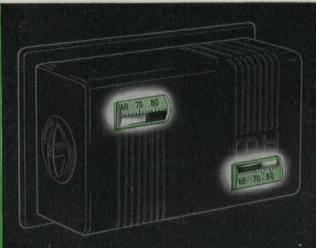
Catholic Church, Touggourt



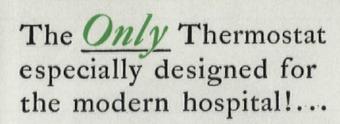
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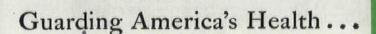


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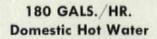
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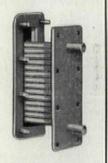
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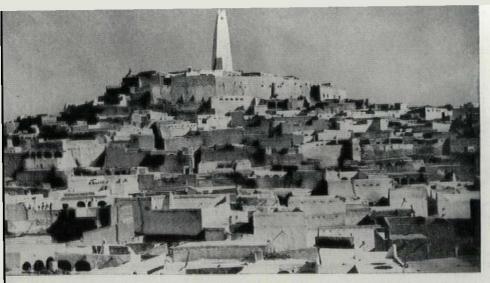
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	Bru Heat	Total Tax		Net		Surf. Sq. Ft.	Cap. Gals.		Box Vol.	Net Steam	Shpg. Steam
	Output	Steam	H. W.	Steam	H. W.	04.11.	Steam	H. W.	Cu. Ft.	& H. W.	& H. W.
DeLuxe Models SDS, SWS	95200	396	635	300	480	17	25	32	1.41	775	811
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Town of Ghardaia in profile (left) and plan (right)

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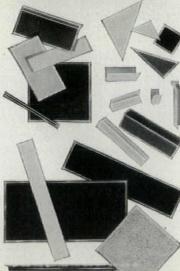


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REPORT FROM ALGERIA

Although the Algerian vernacular architecture is not as exciting as that of Moroccothere are certain refreshing examples. The town of Ghardaia is, for instance, superb both in profile (left, above) and plan (below). Even more challenging is the architecture in the Aures Mountains. These bleak, generally snow-capped ridges (7,600 ft. high) rise be-

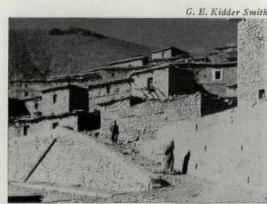


hind the enormously impressive Roman ruins of Timgad and finally taper off into the north Sahara above the oasis of Biskra.

Stone is the mainstay of the isolated mountain builders there, for stone for centuries has been virtually the only material. As a consequence of their long indoctrination, the Swawia tribe of the Berbers who live in this region have developed a first-rate ability to make very superior smooth stone walls of nothing but common field stone, in many cases laid up dry (photo, below). They give lateral bracing to these walls by laying small tree trunks or limbs horizontally above the "courses" of stone, usually spacing the wood strips several feet apart.

On top of the stone walls are laid closely spaced tree trunks and interlaced branches filled with daub. This gives all the buildings the flat roof needed for drying dates, grains and clothes and in addition provides an openair work space for the women and a kind of terrace living space for the family. The sun bakes the mud topping into a relatively impervious surface, but after an infrequent shower there is a scurry of activity topsides!

(Continued on page 72)



Stone buildings at Chir

KOPPERS ROOFS

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even 20 years!

FOR as long as 20 years—the owner, whose roof is Bonded,* pays nothing for repairs. That's the remarkable story of a remarkable Bonded Roof-Koppers.

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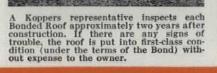
KOPPERS COMPANY, INC. Pittsburgh 19, Pa.

*Koppers issues Roof Guarantee Bonds in such sections of the United States as are covered by its inspection service.



KOPPERS COMPANY, INC. ROOF GUARANTEE BOND National Surety Corporation

A Koppers representative inspects the roof during construction to make sure that it is built according to specifications.





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Interior sketch shows how the builder's unique installation takes full advantage of the flexibility of Frigidaire window type air conditioners. Although these units are primarily designed for window installation, here they are actually sealed into wall apertures below the window—giving them an attractive, built-in appearance.

As usually installed, Frigidaire units fit easily into almost any double-hung window. They're completely self-contained, require no drain or water connections. The Meter-Miser which powers them is the same type of refrigerating unit used in Frigidaire refrigerators. It's exceptionally economical—carries a special 5-year warranty. Frigidaire's larger model, shown here, has almost twice the cooling capacity of the smaller Frigidaire unit used in the Floral Park project.



LOCATION: Floral Park, L. I., N. Y. ROBERT METRICK CO., INC., Builder MAX M. SIMON, Architect

Rentals will range as low as \$58.50 a month in the new Childs Garden Apartments at Floral Park, L. I. Yet each of the 284 apartments will be Frigidaire air conditioned—at no extra cost to occupants.

This is the result of an idea that may well be the forerunner of a new trend toward air conditioning low and moderate rental apartment structures.

For Robert Metrick, builder of the 3½ million dollar project, has achieved low-cost air conditioning through the use of 1,000 Frigidaire window-type air conditioners.

These units will be installed in all bedrooms and living rooms of Childs Garden Apartments—as well as in a larger development now being planned.

From the viewpoint of cost, Metrick's plan has several outstanding advantages. It avoids the expense of a large central system and elaborate duct work. It provides conditioning only for actual dwelling space—wasting no capacity on public halls, stairwells and similar space. And even within the apartment, air conditioning is economically zoned. During daytime, the Frigidaire window air conditioner in the bedroom may be turned off. At night, occupants can easily turn off the living room unit and start the bedroom conditioner a few hours before retiring.

More important, Metrick has kept costs low without sacrificing any part of his objective. For the Frigidaire units he is using will supply air conditioning comparable to that provided by any other means. Not only do they cool air to desired temperature—they also filter it, take out excess moisture, add fresh outside air, and gently circulate it throughout the room.

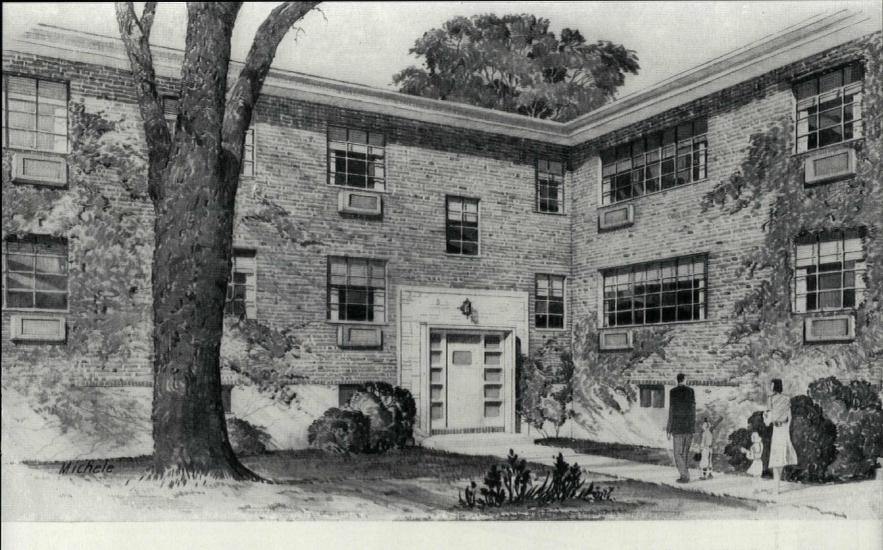
Builder Metrick Tells Why He Chose Frigidaire

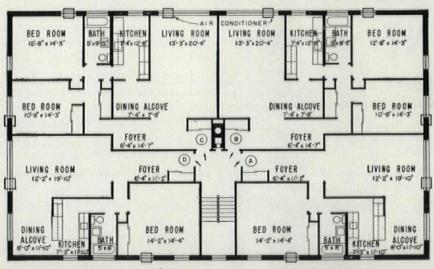
"When it came to deciding which make of conditioner to use, we were convinced that Frigidaire offered the best all-round value. This conviction was based on three factors:

"One-Frigidaire's long experience in the field of refrigeration and air conditioning.

"Two — the attractive appearance of these Frigidaire window air conditioners.

"Three—the low-cost operation for which Frigidaire Window Air Conditioners are noted. This is undoubtedly due to the efficient Meter-Miser refrigerating unit which powers them, and the fact that they are built to General Motors standards of quality."

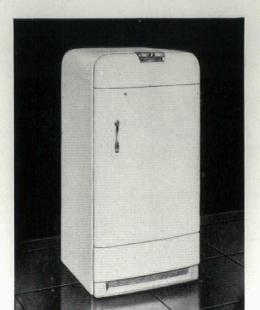




Above: Exterior of Childs Garden Apartments, showing placement of Frigidaire window air conditioners. "It is my conviction," says Robert Metrick, the builder, "that air conditioning is the greatest drawing card in attracting and holding tenants today."

Left: Floor plan reveals the amount of space each conditioner will handle. Although the Frigidaire window conditioners used are only 27¾" wide, 29½" deep, and 14¾" high, they will condition rooms up to 250 square feet—processing air at the rate of about 200 cubic feet per minute.

The well-planned modern kitchens of the Childs Garden Apartments will be equipped with latest Frigidaire refrigerators. Exceptionally compact, this apartment model provides a full 6 cu. ft. of storage space—and many famous Frigidaire features, Larger 7.6 cu. ft. models are also being used,



For complete information on Frigidaire Window Air Conditioners, large-capacity Self-Contained Air Conditioners and kitchen and laundry appliances, call your Frigidaire Dealer, Distributor or Factory Branch. Look for name in the Yellow Pages of your phone book. Or write Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside 12, Ontario.

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Fortified granaries at Baniane



REPORT FROM ALGERIA

The coursed construction, together with the low lines and flat roofs of these houses creates an admirable typing of the building to the landscape. Indeed, it can almost be said that the building is the landscape scraped together a bit! When several hundred of these structures are grouped together on a hillside, a wonderful feeling of rightness and unity results.

The other buildings in the Aures which are quite fascinating are the fortified granaries at Baniane (see photos). These are only reached after traversing one of the rockiest and bumpiest roads "created" in recorded history, but the granaries are worth it. Perched at the top of a natural cliff-like escarpment, which has been smoothed and rounded, they tower high above the narrow river defile. The curve of the face of the cliff is followed by the storehouses above, the soaring verticality of which is dramatically topped by four bands of continuous cantilevered balconies. These fragileseeming, rail-less balconies perched high above the river bed are used for drying the dates which are stored inside. Quarters for the inhabitants and space for the animals (often one and the same) are grouped around the other side of the warehouses.

Inasmuch as virtually all dwellings in this part of the world open only onto a walled court or compound (which forms an extension and part of the house) these date repositories are protected by walled houses on one side and cliff on the other.

Down the hill on the opposite side of the river slides an agreeable collection of simple rock houses and quarters. The largest of these have a kind of well oriented open-air (but covered) terrace on top. This is made at one corner of the house by carrying two outside adjacent walls up a story higher than the house itself and into these right-angled walls the second, or topmost, roof is framed. The other two side are left open. Variations of course occur and the open-air "room" is often enclosed by three solid walls instead of two. The basic architectural recognition of sun. wind and shade of this primitive and forgotten corner of nowhere could be profitably taken to heart in more civilized ends of the world.



Rock houses with covered terraces

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Hollywood leads the way in making America's housewives want the latest and best for their homes.

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*Jane Wyatt will soon be seen in MY BLUE HEAVEN, starring Betty Grable, a 20th-Century Fox production. Color by Technicolor.

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MODERN STYL

Modern Stores use Norton Non-slip Floors



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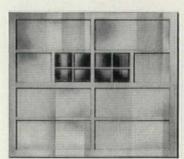




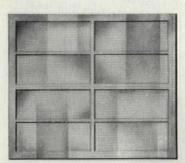
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Douglas Fir

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Design No. 45



Design No. 44



Craw-Fir-Dor goes up out of the way—out of the weather!

Fir Door Institute

Tacoma 2, Washington





The simple construction makes for easy installation and operation. Craw-Fir-Dor is v light in weight. Requires only 2 inches head and sideroom.

Auto-type lock-the high-quality automobile type lock fur-nished with Craw-Fir-Dor hardware. This lock-set is convenient to use, positive in action and adds beauty as well as safety.



BEHIND THE BLUEPRINTS



Architects JOHN PORTER CLARK and ALBERT FREY have spent 16 years in practice together in Palm Springs, Calif., peppering that desert oasis with everything from houses to hospitals. Clark is a Cornell alumnus with 24 years of architectural experience in Southern California. Frey studied architecture in Zurich, Switzerland, worked in Paris with Le Corbusier and in New York with William Lescaze before joining Clark. Featured this month are Frey's luxurious Palm Springs bachelor quarters (p. 88).



JAMES WALTER FITZGIBBON, architect of the imaginative Quonset house (p. 92), was born in Omaha, Neb., holds architectural degrees from Syracuse University and the University of Pennsylvania. For the past five years he has pursued twin careers as teacher and architect, first at the University of Oklahoma in Norman, now in Raleigh, at the School of Design, North Carolina State Teacher's College.



San Francisco's gifted Landscape Architect THOMAS D. CHURCH has done much to bring the principles of contemporary design into the out-of-doors. Trained at the University of California and Harvard University, he has designed fresh, informal, useful gardens from his Bay Region office since 1932. The pool at Sonoma, Calif., is a recent Church design (p. 96).









LAWRENCE B. ANDERSON, HERBERT L. BECKWITH, WIL-LIAM R. GREELEY, and WALTER S. BRODIE were associated architects for the Lincoln Elementary School (p. 122)

between historic Lexington and Concord. MIT graduates all, Anderson and Beckwith are also Tech faculty members of long standing, with Anderson presently at the helm of the Department of Architecture. Greeley and Brodie's firm was originally Kilham & Hopkins, founded in 1898. Greeley became a partner in 1916, Brodie in 1944.



Chicago Builder JOHN S. CLARK (1.) and Architects MILTON S. CARSTENS (r.) and ROBERT SCHULTZ comprise the team responsible for the neat new subdivision in Westchester, Ill. (p. 128). Clark studied architecture at Notre Dame, worked for his builder-realtor father before the war, now heads his own construction company. Carstens was trained at Armour Institute, has practised architecture in Chicago since 1926. Schultz is a 1940 graduate of Notre Dame.



Architect ROBERT M. LITTLE (1.) and Builder GEORGE R. HEADLEY were the prime movers in the development of Keystone Point, modern subdivision (p. 131) in Miami, Fla. A native Pennsylvanian, Little migrated to Florida during the booming mid-Twenties, became a registered architect in 1932, currently hangs his shingle from a Miami Beach office. Headley has been a Miami resident since 1938, is a former municipal building official.



For you'rents THE ULTIMATE



ROBERT H. WACHENDORF, builder and developer, is cooperating with Servel, Inc., and The Cincinnati Gas and Electric Company in the construction of the Meadow Ridge Year Around Model Home in Amberly Village, Cincinnati, shown below.

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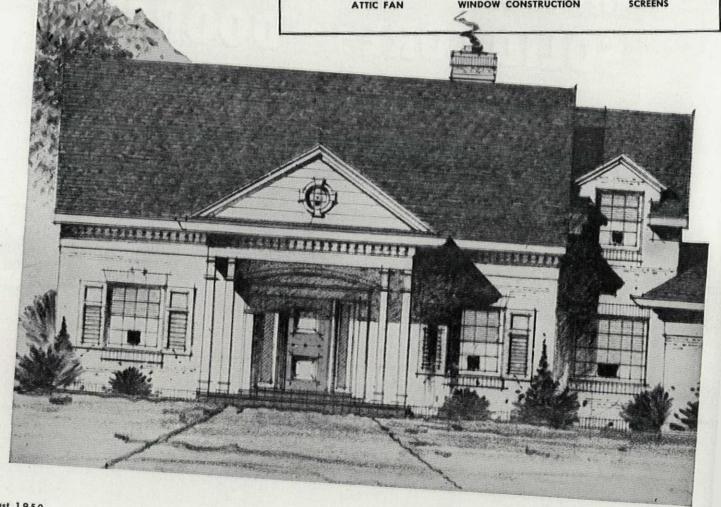
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The Servel All-Year Air Conditioner can be easily adapted to any size, style, type, or shape of home your client wants. Ask your local Gas Company for all the particulars, or write to Servel, Inc., 2008 Morton Avenue, Evansville, Indiana.





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FLINTKOTE Products for Industry

Better architecture for the average home

"As for the middle and lower classes, they get along without architects or architecture for their homes". So, unhappily, FORUM's editor-in-chief reported in 1935.

Now at last something effective is being done about architecture, architects and the average American home.

Already the joint committee of the American Institute of Architects and the National Association of Home Builders is making rapid progress in working out a new basis of cooperation and compensation which will open a great new outlet for architectural skill and bring America's best architectural talent to the design and site planning of merchant builder homes. (See News, p. 15.)

Already many merchant builders are getting religion and calling in front rank architects to help them plan better homes. (See News, p. 15; also pp. 126, 128 and 131.)

Now we have a new and perhaps still more important development to report:

Competition: Within the next month we hope to announce an architectural competition jointly sponsored by the National Association of Home Builders and ARCHITECTURAL FORUM, with the enthusiastic approval and support of the American Institute of Architects-a competition which may well prove a milestone in the architecture of the American home and exert a major influence on the design for living for years to come.

The uncertainties of the war situation forbid any full, definite announcement of the competition in this issue of FORUM; they may still make it necessary to postpone the competition entirely or to modify it in many ways to keep it in line with the spirit of our mobilization. Subject to that reservation, however, we believe it is important to let you know as much as possible about what FORUM and the NAHB have in mind:

Prize money: From a financial point of view, the competition would offer the winning architects greater rewards than any home design competition ever held in America. Not only is the direct prize money contemplated by the National Association of Home Builders and its member branches bigger than the direct prize money in any previous home competition; in addition, the winning architects in the national competition and in scores of preliminary local competitions could expect substantial fees and royalties if their winning designs bring them into association with one of the thousands of merchant builders now on the lookout for help in designing better, more livable, more salable houses.

But financial reward is not the best measure for the importance and significance of this competition. For here, for the first time, is an architectural competition whose one and only purpose would be to bring better design to the average American home, to get better architects interested in house design for the average American family, to enable merchant

builders to offer the average American home buyer better value and a better way of living:

Added significance: And the competition is made doubly significant by the very fact that its prize money and co-sponsorship come from the merchant builders whose disinterest in design architects have so long been wont to lament.

Says Ralph Walker, President of the AIA: "This competition is really a hot idea.'

Already several front rank producers of building materials, quick to sense the significance of this competition, have volunteered to put up substantial side prizes (\$10,000 or over) not directly to promote the sale of their own products, but to focus architect and merchant builder attention on some aspect of better building in which they, as makers of quality materials, are particularly interested-as, for example, design for lower maintenance, or for better acoustics, or better lighting, or better insula tion, or better fenestration.

And, to be very frank indeed, we think the gain to builders from getting close attention for the first time from numerous top architects will be no greater than the gain to thousands of architects who have never given a thought to the merchant builders' houses (some 85 per cent of all the houses being erected this year). From the merchant builder these architects can learn a hundred simple shortcuts to quick and economical construction-in short can catch up to the industrial revolution in housing. which hitherto, unfortunately, has generally bypassed the architectural profession.

Once architects have picked up this quantity construction know-how, they will be in a far better position to make their contribution to higher design and livability standards of the average home.

Details of the competition, still tentative, are presented under News-see p. 15.

ELIEL SAARINEN 1873-195







Wide World Photo

66 WE are born, we live (mostly), and we die in architecture."

Eliel Saarinen would have dearly loved to see this come literally true, to have the setting of human life be planned and designed instead of being haphazard and slovenly. He rounded out a fruitful and orderly career on July 1 at the age of 76 as an architect and planner of the Twentieth Century. His life was a measured, loyal, and filial kind of life, leavened with wit and courtesy; his work was a considered and soundly wholesome work, done with unstinting care as well as originality.

When he came to the U.S. in 1923, he had already won European fame with works such as his Helsinki railroad station, his Finnish exposition building at the Paris fair of 1900, his numerous plans for Finnish cities. Above all, he had won the famous second prize for the 1922 Chicago Tribune Competition (Louis Sullivan heaped withering scorn on the jury for denying him the first prize) and his drawings set the U.S. skyscraper pattern for the next 20 years.

Like every one of our major architectural leaders of these times, he had to find himself at least one backer who was more than just a client, and had to isolate himself on some kind of an island to work from. George F. Booth, publisher of the Detroit News, came forth as his major patron, flinging \$17,000,000 into that ramifying group of schools at Bloomfield Hills, 40 miles west of Detroit, which Saarinen built up into his major demonstration. Cranbrook was his island. Its handsome groups of school buildings and residences, set among hills and against lakes, next door to America's roaring center of headlong industry, was a place where one could see what beauty was, and leisure, and unhurried contemplation. Here Eliel Saarinen could teach-and not only as head of Cranbrook Academy and director of its school of architecture. For the most effective school of architecture is the masterly building, or better yet, the masterly group set up

in a masterly handling of the natural surroundings. If Cranbrook never quite equaled the breath-taking quality of that other architect's mecca at Taliesin, it had a unique value of its own. It was closer to the understanding of the community; it was built with conscientious craftsmanship; it made generous and thoughtful use of architecture's "allied arts," most especially the sculpture of Saarinen's distinguished friend who followed him to Cranbrook, Carl Milles.

From Cranbrook, in partnership with his son Eero (and during the years 1925-1947 also with J. Robert F. Swanson), Eliel Saarinen sent forth his designs and his city planning projects. His buildings were primarily institutional and civic—they proved that throughout the whole of the "functional" era there was a strong thirst for the monumental. The Kleinhans Music Hall at Buffalo, the Tabernacle Church of Christ at Columbus, Indiana, the Des Moines Art Center—and finally the Christ Church at Minneapolis (see the July FORUM) were among the best known of the firm's buildings in which his hand was dominant.

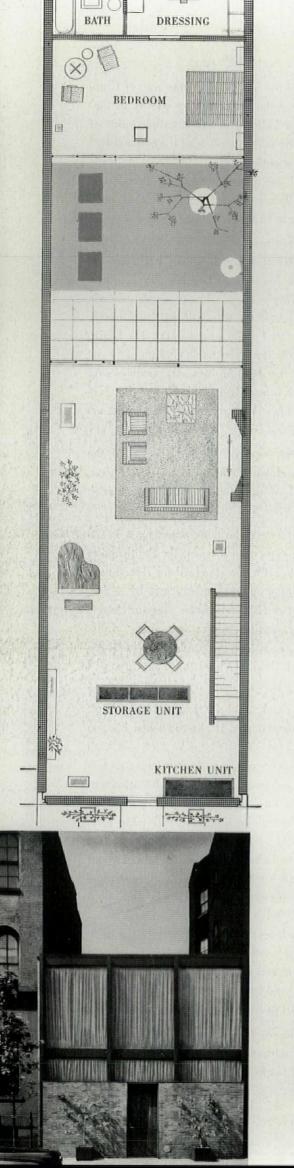
In 1947, Eliel Saarinen received the gold medal of the American Institute of Architects, and in April of this year, the coveted gold medal of the Royal Institute of British Architects was added.

Like all our major architects he suffered many a heartbreak. The remarkable competition plan for the Smithsonian Gallery, which might have set a new standard for thread-bare Twentieth Century Washington, was sidetracked by a doctrinaire Art Commission; and his civic center plan for Detroit has been destined for execution by the less able—whom, nevertheless, he would have generously guided. His ideas for centralized cities published in his book on *The City*, will work themselves out only through untraceable channels.

Yet Eliel Saarinen was a cheerful warrior, and his greatest gift was one of self-transcendence. It showed when his son Eero returned in 1934 from Yale (where he had won high honors) filled with a new awareness-the American awareness of industrialism as a human instrument. The Saarinens had worked always as a family-Loja, the wife, as a top weaver and sculptor, Pipsan the daughter following after her mother, Eero after his father. The battle between the father's views and the son's new ideas was strong and open; but they composed it and worked on, each as an individual yet in close friendly association. Said Alvar Aalto, their mutual Finnish friend, "What a wonderful critic Eero has in his father." When each sent a separate entry to the highstaked competition for the Jefferson Memorial in St. Louis, the first prize notification was sent mistakenly to the father. He would tell the story, and smile: "when we learned it was really for my son, we had to celebrate all over!"

In a family which shows so hearteningly the real oldfashioned meaning of tradition, who knows but the celebration will come some day for Eero's son, and Eliel's grandson, Eric!

—D. H.



GUEST HOUSE

PHILIP C. JOHNSON, Designer

LANDIS GORES, Associated

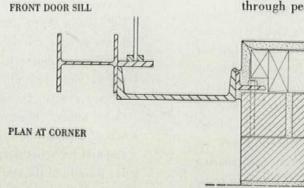
Water is rapidly becoming a favorite plaything of the modern architect. Its use as a chief decorative feature in houses as remote and different from one another as a New York party house and a Palm Springs desert home suggests that ultimately wading pools and lily ponds will be attractions even in subdivisions.

At the heart of this remodeled New York house, kinetic designer Philip Johnson has introduced a restful pation. It is water-floored and can be crossed only on large square stepping stones. It is filled with the sound of water splashing in a fountain or dripping into the poof as artificial rain from the glass canopy above. Glass walled, the pation is actually an open-air inward room upon which the rest of the house is focused.

This inward-directed plan, so contrary to the concep of Johnson's own well-known "glass house" at Nev Canaan, came into being very simply as the result o tying an old coach house, at the rear of the lot, to the master house, so that a departed Victorian coachman wa responsible for this rebirth of the Victorian conservatory

Redesigned to serve a rich art-loving family as a gues house and a place for parties, the main dwelling had it first floor converted, as befits the new kind of *salon*, into a king-size living room served by a buffet kitchen. Up stairs two guest rooms draw some light through the discreet translucent glass of the street facade, but thei windows face the garden. To the rear of the patio is the spacious master bedroom.

Having designed the house around a light-filled and glass-faced water well, Johnson proceeded to let its ever changing light and reflections do most of his painting fo him. A white linoleum floor, white plaster ceiling, and the white painted common brick of the party walls give this light the requisite large surfaces to play on. The dark rich colors of upholstery and carpet make the color scheme almost black and white, enhancing the owner' paintings and sculpture. And museum-man Johnson turned to lighting-man Kelly for illumination which washes his walls with soft light from recessed ceiling floodlights while the downlight, also on dimmers, come through pearly plastic louvers.



SECOND FLOOR

HEAD & FASCIA

SECOND FLOOR

FIRST FLOOR

SILL AT DOOR

SILL & SPANDREL

A strange front to find on 52nd Street, this simple-looking arrangement of glass, brick and steel is contrived by relativel intricate detailing. As a typically Miesian expression, the vertice H-sections are not columns but the mullions of the fixed window.



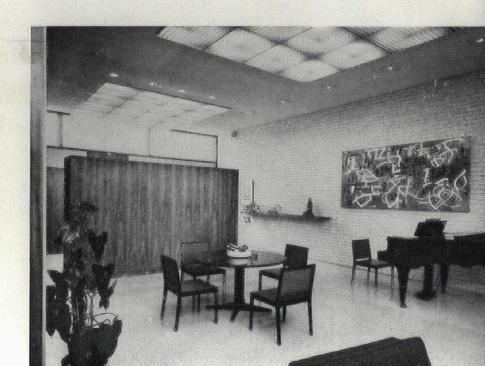
Photos: Robert Damora

For small conversational groups a restful fireside arrangement of furniture creates a feeling of intimacy. Low, chair-height indirect lamp is Johnson-Kelly-designed.

A predominantly black and white color scheme, accented by low-keyed colors and simple wood finishes, does not compete with works of art from the owners' collection.

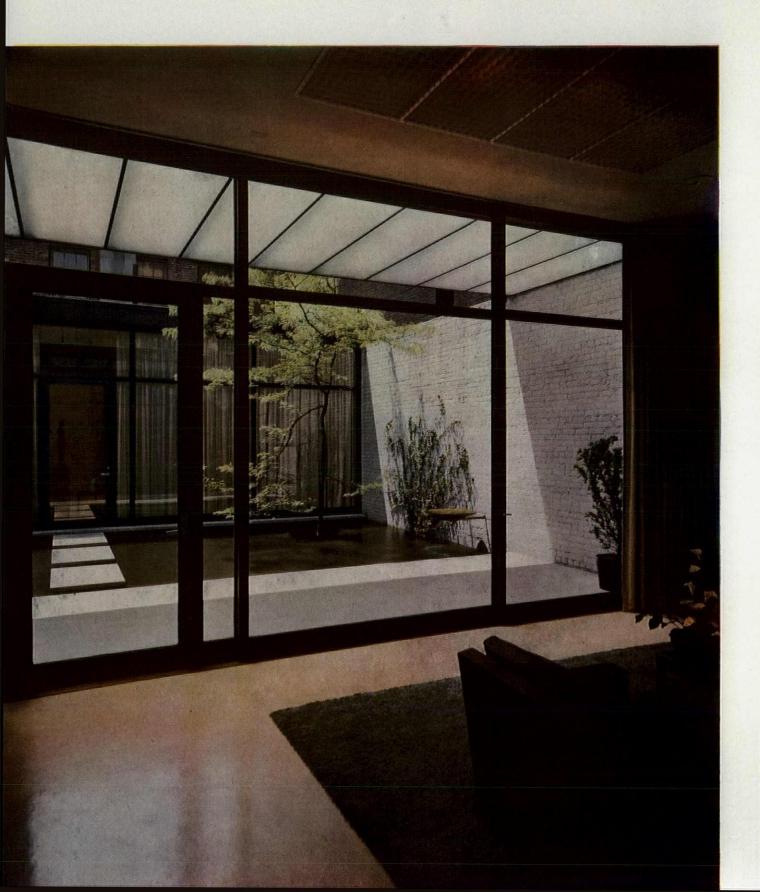
When not in use, a compact kitchen at the front of the house may be closed off by folding doors which, when open, screen kitchen activity from the main entrance.





The idea of a quietly serene and empty space at the very core of a house and its busy life is one that might have appealed to Lao Tse the philosopher. Its appeal is perhaps even greater for our hectic century. And Johnson's water-floor protects the space perpetually from physical intrusion, leaving the honey-locust tree, a simple bronze fountain, and the climbing vines, in sole undisputed possession.

The main room may be opened to the patio by sliding two glass panels back over the door panel. Guests sitting on the open terrace may then enjoy the final romanticism—a curtain of "rain" dropped just beyond the edge of the travertine from a pierced pipe at the facia of the glass roof over the terrace. At night, strip lighting concealed between the two layers of the glass roof brings the show alive.



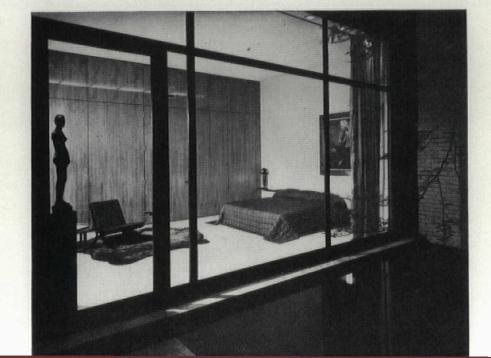


The serenity of the garden pool and the simply composed furnishings of the spacious main bedroom combine to create an impression of richness, harmony and deep repose.

Typical of the careful, expressive detailing throughout the house, the walnut paneled wall of the bedroom echoes the divisions of the glass wall opposite.

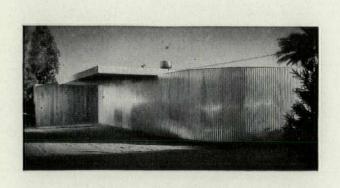
FREDERICK C. GENZ, Associate Archt.
MURPHY - BRINKWORTH CONSTRUCTION
CORP., General Contractor
RICHARD KELLY, Lighting Consultant

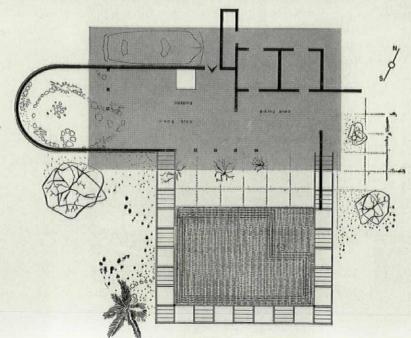
CONSTRUCTION OUTLINE: Floor construction—concrete slab on Vermiculite, Zonolite Co. IN-SULATION—Infra Insulation, Inc. and Owens-Corning Fiberglas Corp. WINDOWS: Sash—Hope's Windows, Inc., Mansfield Iron Works. Glass—Pittsburgh Plate Glass Co. Porch roof—Libbey-Owens-Ford Glass Co. FINISH FLOOR-ING—linoleum, Armstrong Cork Co. HARD-WARE—Hagstrom Mfg. Co., Grant Pulley & Hardware Co. and Ostrander & Eshelman, ELECTRICAL FIXTURES—Gotham Lighting Co., Ledlin Lighting, Kurt Versen, Inc., Kliegl Bros., Benjamin Electric Co., Joseph Architectural Metals Co. KITCHEN EQUIPMENT—Hotpoint, Inc., General Electric Co. Fan—Pryne Co. BATHROOM EQUIPMENT—American Radiator-Standard Sanitary Corp. HEATING—radiant panel system. Unit air conditioner—Carrier Corp. Valves—Sarco, Inc. Regulator—Minneapolis-Honeywell Regulator Co. Water heater—Bell & Gossett, Inc.



DESERT HOUSE, simply built, has pools inside







and out that make it charming

LOCATION: Palm Springs, Calif. CLARK & FREY, Architects

Here is an exciting example of how imaginative handling of industrial materials and low cost building techniques can produce richness and individuality in a small house. In 1941, wiry, desert-wise architect Albert Frey built the three-room nucleus of his Palm Springs house as a possible model for mass-produced homes (Forum, Sept. 1942). Using the simple structural system of the original unit, he has now added a spacious living-sleeping room and a solarium at a cost of about \$10 a sq. ft. The house's debt to the factory is made less obvious, but not concealed, by subtle detailing, warm interior finishes and two closely integrated pools—a swimming pool outside and a garden pool within.

As Frey's year-around bachelor quarters, the house is designed for maximum adaptability to the local climate. To make the most of ideal conditions for outdoor living during the cool half of the year, sliding glass walls may be opened to merge the interior with the swimming pool and the barbecue area. Yet on chilly winter evenings, the fully walled end of the living room may be shut off completely to create warmth and intimacy around an open circular fireplace.

Water, which Philip Johnson used mainly for esthetic effect in his town house (pages 84-87), here becomes an important environmental control as well as a playful decorative element. Besides giving relief in summer to the heat-jaded eye, Frey's pools cool and humidify the house by rapid evaporation in the dry climate—and even irrigate the garden with their overflow. The swimming pool is tied to the house by a graceful wooden sunshade, or "ramada," which Frey claims to have curved in profile, not out of mere whimsy, but "in accordance with the bending moments at different points."

Desert conditions as well as cost factors determined the structure of the house. Exterior wall





Brightly cushioned concrete seats form decorative accents around the pool and make entertaining easier. Pool is geometrically patterned at its edges with underwater steps,

Light, flexible structure of the house permits maximum contact with the natural setting. At night louvered panels keep artificial lighting subordinate to the desert sky.

Private solarium-pool off living-bedroom



Photos: Julius Shulman



CONSTRUCTION OUTLINE: Exterior wallscorrugated aluminum, Sisalkraft Co. paper, wood frame, pine; inside-redwood and Flexboard, Johns-Manville Co. Ceilings-corrugated aluminum. ROOFING-Paraffine Co.'s, Inc. FIREPLACE—aluminum; chimney cap galvanized steel, Western Engineering & Mfg. Co. WINDOWS: Glass-Pittsburgh Plate Glass Co. FINISH FLOORS: Bathrooms-ceramic tile, Gladding McBean Co. HARDWARE-Schlage Lock Co. and Grant Pulley & Hardware Co. KITCHEN EQUIPMENT: Range-Thermador Electrical Mfg. Co. Refrigerator-Westinghouse Electric Corp. Fan-Westinghouse Electric Corp. BATHROOM EQUIPMENT-Crane Co. HEAT-ING-electric, radiant in bath, fan type in other rooms, Thermador Electric Mfg. Co. Evaporative cooler-Payne Furnace Co.

enhances its romantic intimacy

and roof surfacing of aluminum reflects the fierce summer sun. Interior facing are of pine and redwood boards or sheets of cement asbestos on a 4 x 8 ft. modular framework. On hot days the house is cooled by an evaporative blower unit which offsets heat absorption by the thin walls and large glass areas. Since evenings are generally cool, any heat built up inside during the day is quickly dissipated by opening the sliding glass walls at night.

Within the house the machine-like sparkle of its exterior gives way to almost sybaritic richness achieved by simple means. Focal point of the new living-sleeping area is a curved pool, lushly planted and bridged by stepping stones leading to a solarium beyond. (For all its plush effect, Frey estimates that the pool added only about \$350 to the general cement contract.)

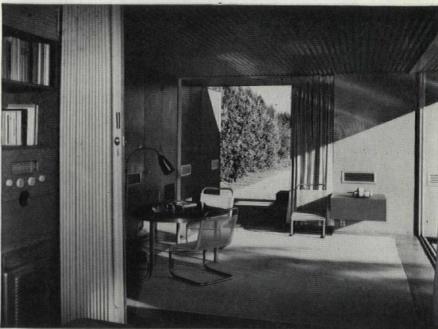
The room is further enriched by such touches as the irregularly sanded finish of its lapped pine board walls, recessed three-dimensional paintings and a skylight set above the bed—for stargazing. As a foil to these romantic notes, the corrugated aluminum ceiling recalls the industrial character of the basic structure.

Beneath its playfulness, the house is highly practical. Living, dining and sleeping areas are combined for convenience and maximum spaciousness at least cost. Kitchen and bathroom are minimum size, with built-in case work and plumbing in a common wall. (The dry climate permits storage of linen and clothes in the bathroom.) Once the main room of the original house, the dining area now provides a transition from the outdoors to the privacy of the living room.





With all sliding panels and partitions open the dining area commands an unbroken interior vista of some 44 ft. and is also the center of pool and barbecue activity.



A folding partition is used to seal the livingsleeping area off from the open end of the house. Evaporative blower and electric heater outlets are in this end of redwood storage wall,

Cool gray rocks, a fountain, tropical plants and a wild grape vine that climbs over exposed roof joists add to the charm of the screened-over solarium pool. Living area may be closed off by sliding glass panels at left.

HILLSIDE HOUSE framed on Quonset ribs

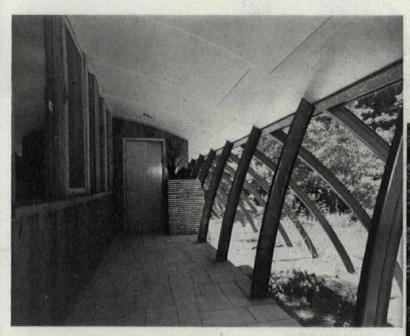


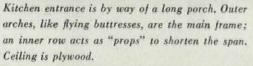


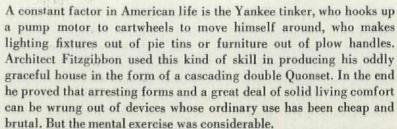
shows the possibility of new techniques



LOCATION: KNOXVILLE, Tenn. JAMES W. FITZGIBBON, Architect

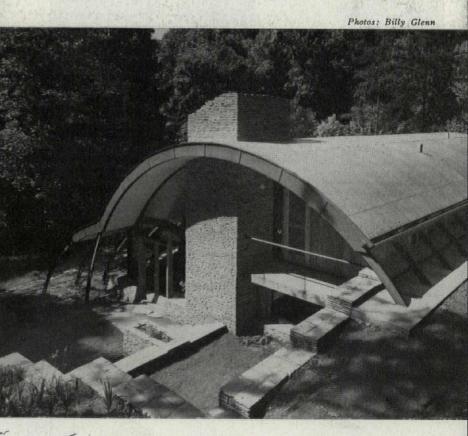






Finding that good framing timber was scarce at Knoxville at the moment, Fitzgibbon bought 54 arch segments (each makes one-third of a complete arch) for the 40 ft. type of Quonset, plus several hundred feet of furring channels to catch his corrugated aluminum roofing. This cost \$1,250 to which was added \$250 for erection of the frame on his foundation, plus \$80 for extra workmen used as helpers, bringing the frame cost to a \$1,580 total. The frame was all up and welded in five days; but that was just the beginning of the problem. The modular spacing of the arch ribs 4 ft. apart left big gaps between arches to be bridged by somewhat intricate wooden blocking for the attachment of roof sheathing, insulation, and lath for plaster.

The charm of this house, compared to the ordinary Quonset, derives from the architect's "loose-footed" facility in combining the unusual materials. The "organic" idea of contemporary architecture, which lets each material be undisguisedly itself and nothing else, was a god-send to him-it meant that he had no masking problems to add to his other problems. Where steel ribs projected they were left naked and painted. The edges of the metal roof were trimmed with wooden fascias. Vertical end walls were faced with chestnut. Best of all, a marble quarry making veneer sold its discarded "imperfect" slabs for \$2 a ton, and Fitzgibbon's college athlete workmen laid them flat in generous marble-faced walls to complete the homespun medley.



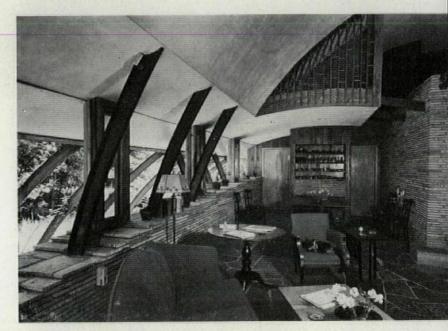
The plentiful use of marble slabs laid flat to form retaining walls and chimney is explained by the fact they were discarded "veneer" and cost only \$2 a ton. Roof is aluminum.

Professor Daniel and his wife like their house. They say that the arrangement upstairs is nearly perfect. (A detail: they might have preferred that the balcony space be used in the boy's bedroom.) The upper terrace is fine for play and for those who sun-bathe. The owners have few complaints—topography confined them to a single entrance, gave them a trash-concealing problem; the folding door next to the chimney (opp. page) gives the study insufficient privacy; black tile are hard to clean in the kitchen. But the owners are pleased with all the big things—"the sensible arrangement of rooms, a spacious living room, a great deal of light and air," and the plentiful storage.

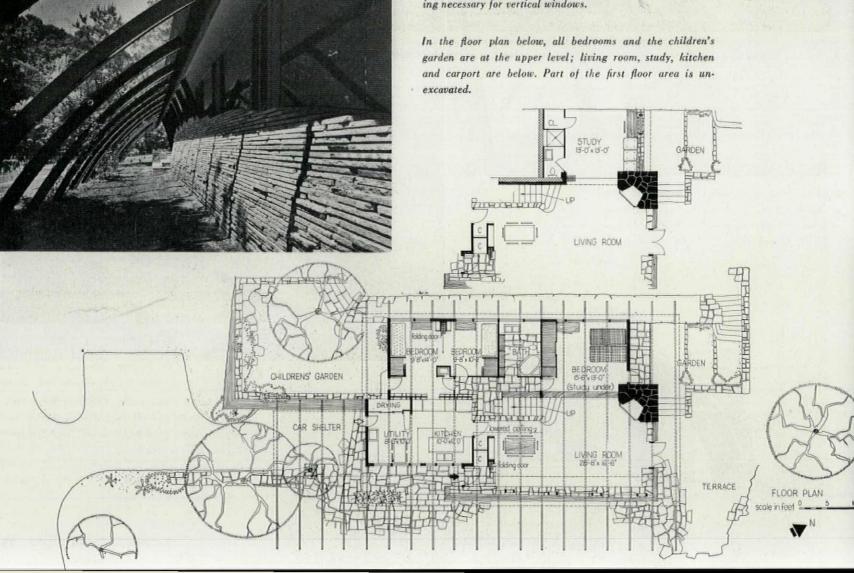
The Daniels haven't analyzed just why they consider their house so beautiful. They are still explorative "like the tourists." Some of their friends like the marble best, some the chestnut siding, or the large amount of glass in the living room. These neighbors ask when the projecting Quonset ribs will be "covered." Says Daniel, "they are too preoccupied with these esthetic questions to appreciate the livability."

Fitzgibbon's fellow architects are likely to have more reservations. They too will recognize the fine flow of the house, its hominess, its unexpected picturesqueness. They will congratulate Fitzgibbon on his willing college-athlete helpers who built the house at \$11 per ft. with the aid of a few subcontractors. But they will question the procedure—whether improvisation with parts not originally intended to fit together doesn't lead to endless trouble. Some, noting how stones are piled as if on a cairn, how the chimney is left unfinished as if in a Rackham drawing, will raise a more basic question as to the danger line where fantasy eats out common sense and Mother Goose appears on the scene. Pictorialism can become a danger to architecture. In the face of this danger, Architect Fitzgibbon did nicely.

CONSTRUCTION OUTLINE: Retaining walls—reinforced concrete block, marble facing. End walls—studs, chestnut siding; inside—plywood. ROOF—Quonset ribs, Stran Steel Div., Great Lakes Steel Corp.; Vaporseal sheathing, The Celotex Corp. FIREPLACE: Damper—Heatilator Corp. WINDOWS: Sash—cypress. Glass—polished plate. FINISH FLOORS: Living room, halls and bathroom—marble flagging, Candora Marble Co. Kitchen—asphalt tile. PAINTS—Lionoil, Berry Bros., Inc. HARDWARE—Parlyn, Ltd. and Schlage Lock Co. ELECTRICAL INSTALLATION: Switches—General Electric Co. Fixtures—Kurt Versen, BATHROOM EQUIPMENT—Crane Co. HEATING—cable electric radiant system in ceiling and floors, Shannon Electric Co. Regulator—Minneapolis-Honeywell Regulator Co.

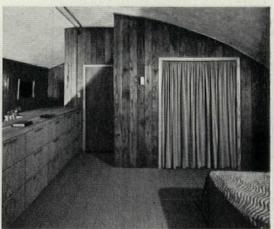


Picture above shows all points of main difficulty: the organ loft to take up the differences between arcs, the extra framing necessary for vertical windows.

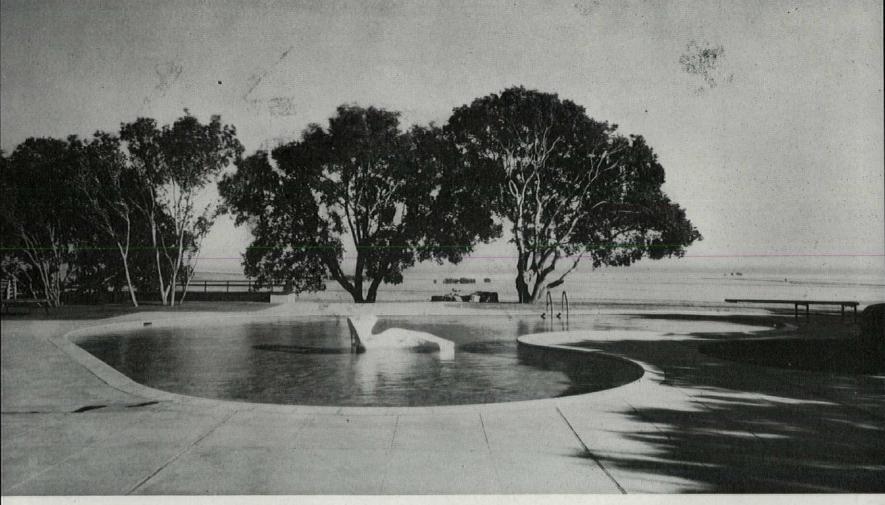




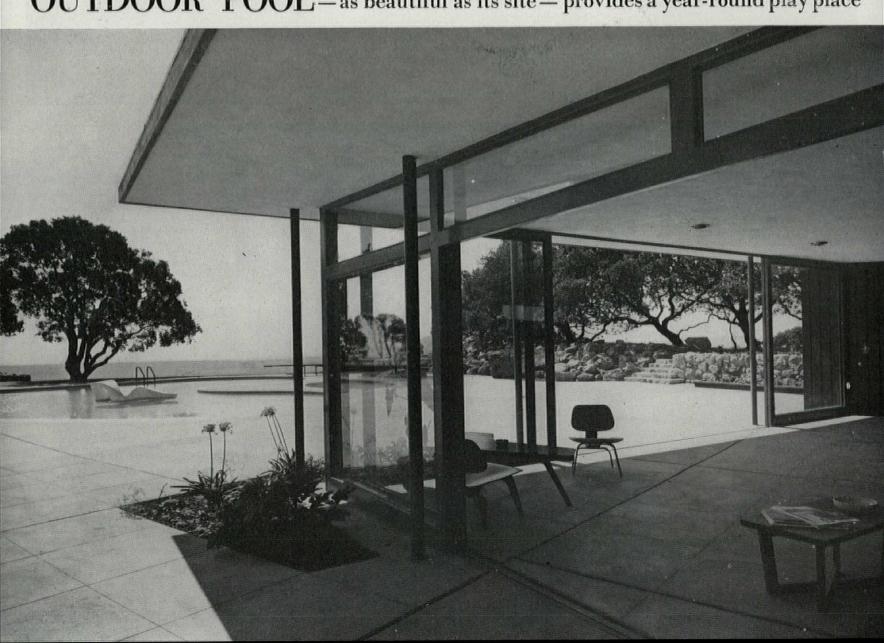


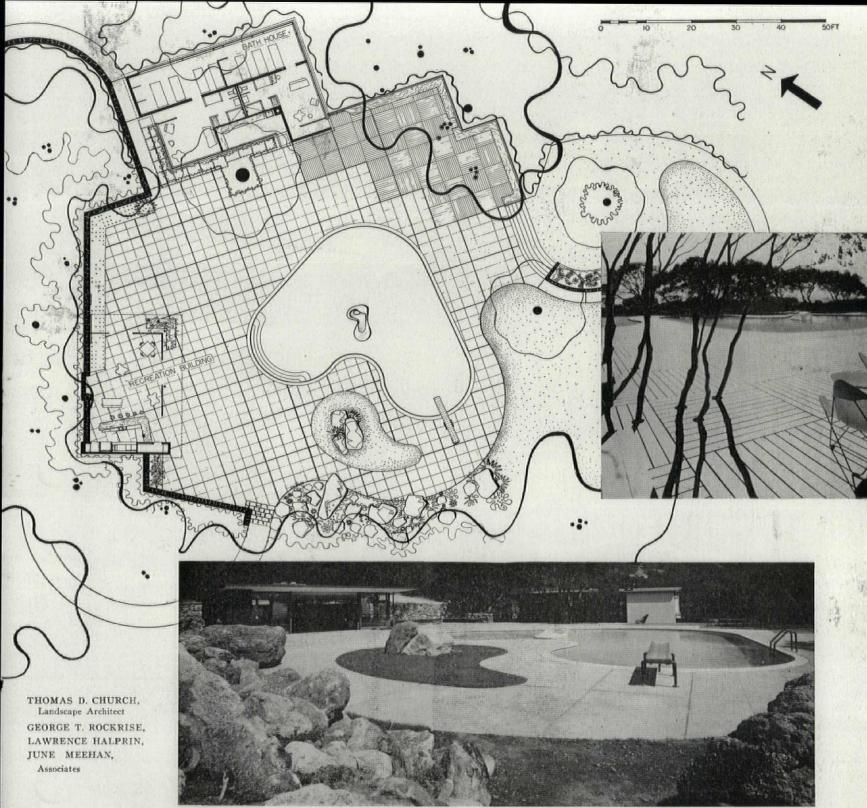


The big arched top gives a sense of space and dignity to the open living room; the vertical mass of the chimney makes it solid. On the open mezzanine above is the child's bedroom (adults below must be quiet). The study under the mezzanine is dug out of the ground, is cool in the hot climate. It can serve as a guest bedroom (might well have been supplied a separate bathroom). The floors and ceilings are electrically radiant heated, using the low rates of the region.



OUTDOOR POOL—as beautiful as its site—provides a year-round play place





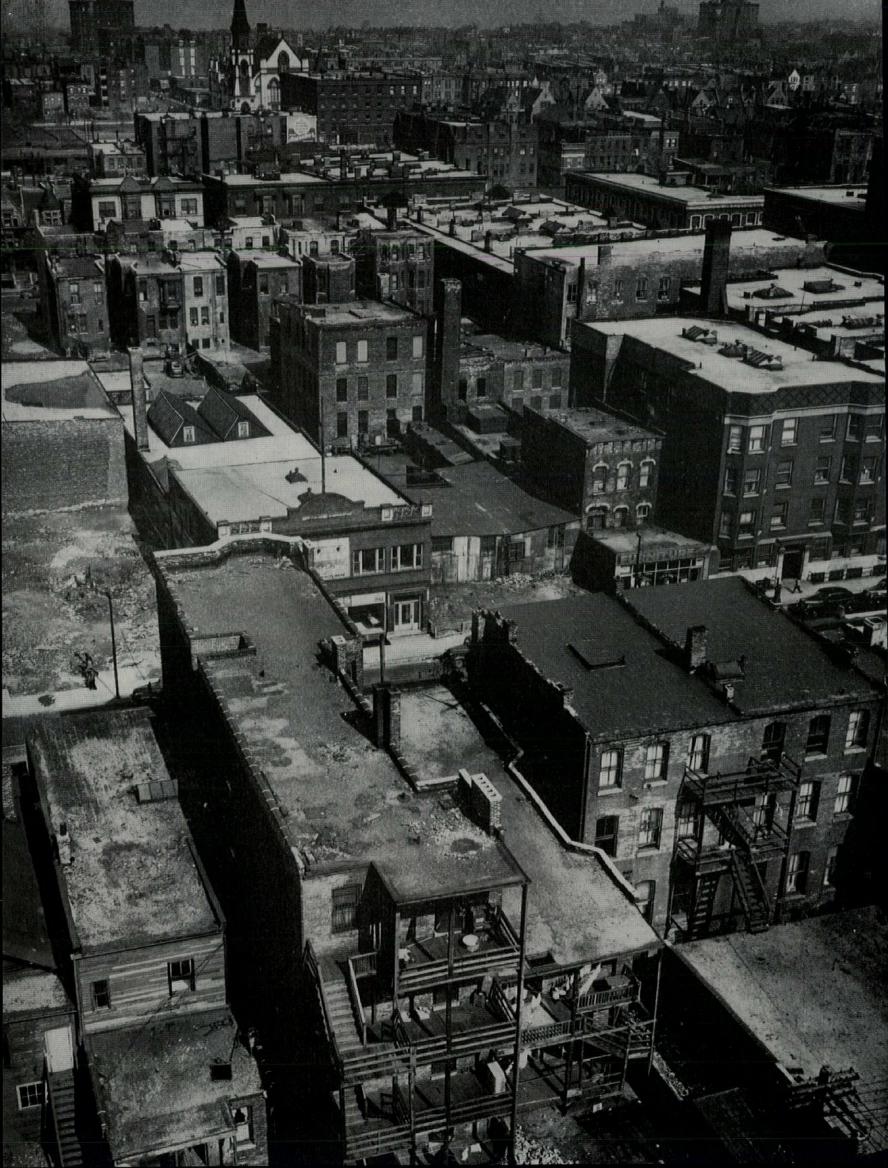
Photos: Rondal Partridge

Concrete and duckboard were raised into the realm of fine art when Landscape Architect Tom Church created this out-of-the-world play place for California's Valley of the Moon.

A wealthy cattle rancher asked for a pool and recreation house that would take advantage of the magnificent view on his 5,000 acre tract, which looks over marshlands at the south and east to the formidable Mount Diablo, the towers of San Francisco and Golden Gate Bridge. His solution is as spacious as its site—and as sensitive to the demands of sun, wind and shade as the tough ancient oaks which surround it.

Extensive use of concrete and masonry guards against the danger from field fires during dry months. The strategically-placed houses for recreation and dressing break the winds from the north and west. Floors and concrete terraces are radiant-heated, making them comfortable the year round. A section of wood decking serves as more than an esthetic contrast to the concrete—it allows the terrace to extend over a steep decline without interfering with the young trees which grow up through it (see photo above right).

The pool's apparently casual wingspread forms two distinct sections—a shallow one near the playhouse for children; and a deep section, with diving board and 60 ft. swim-span, for adults. Adaline Kent's sculpture rests in the center helps divide the pool into these two areas and provides a platform for diving and sun-bathing plus an underground hole to challenge submarine swimmers!



CHICAGO REDEVELOPS

Slums yield to low density skyscraper housing financed with insurance company money

CHICAGO LAND CLEARANCE COMMISSION: John McKinlay, Chairman; Ira J. Bach, Executive Director

SKIDMORE, OWINGS & MERRILL, Architects

NEW YORK LIFE INSURANCE CO.: Otto L. Nelson, Jr., Vice-President in Charge of Housing

If Chicago's 50 tough aldermen approve a plan now before the city council, the stubble skyline of the Chicago South Side, America's biggest slum, will soon cast up a twin edition of the most striking

building silhouette since the invention of the skyscraper.

"Skyscrapers laid on edge" would be a fitting description for the two vast slabs apartments—"miles long and inches thick"—into which the New York Life Insurance Co. will put the major part of a \$20,000,000 investment to house 1,404 families. Designed by Skidmore, Owings & Merrill as the central feature of the "Lake Meadows" project, these will be 23 stories high, 832 ft. long (one-third of a mile), and only one apartment (40 ft.) thick. For comparison, if the new UN skyscraper slab in New York were tipped over on its edge it would stretch only two-thirds as far.

Widely spaced, the two big slabs and intervening park will occupy the northwest corner of a 101.35 acre tract, which is separated from Lake Michigan only by narrow Burnham Park and the tracks of the Illinois Central Railroad. (Photo of model below.) On the southwest corner, New York Life will build a shopping center, and along the east edge a drift of 116 walk-up apartments. (Additional garden apartments will be developed by five small Chicago insurance companies on ten acres.) Land will remain for a church, a hospital, a strip of parks, and a school.

This entire "meadows" area is at present a bleak slum. It is part of seven square miles of run down-and still running-blocks of miserable old mansions, inhabited, sometimes in shifts, by the Terminal City's Negro population. Chicago's Gold Coast was once included in these seven square miles, but the gilt is off now.

Redevelopment Project No. 1 in Chicago will be notable for factors more important ultimately than its startling building shapes. To begin with, it will be the country's first big insurance company apartment group intended primarily (but not exclusively) for Negro tenants. Rents will not be low, but moderate-\$20 to \$26 per room-and New York Life is sure that the market is present among the colored population of Chicago.

The second reason lies in the terms of the lure by which Chicago attracted the medicinal money of the insurance company to its sick South Side. The set-up and the results differ radically from New York's arrangement with Metropolitan Life in 1943 which produced Stuyvesant Town. Metropolitan paid a whopping land price (better than \$6 per sq. ft.) but was given what virtually amounted to tax exemption on the improvements. This encouraged unlimited improvements and put a premium on congestion, and Stuyvesant Town duly arrived at the great density of 390 persons per net acre. By contrast, density at Lake Meadows, on the 42 acres to be used residentially by New York Life, will be 119 persons per net acre—and land coverage will be only 8 per cent, leaving vast stretches of open green area. Stuyvesant Town quadrupled the previous population; Lake Meadows will actually decrease it. True, Chicago's congestion problem is less than New York's; but the setup encourages low density, since the taxes are in effect to be on the buildings, not on the land. The land is being bought and cleared by the Chicago Land Clearance Commission with municipal and state money at a cost of about \$3 per sq. ft., then sold to the insurance companies at 50 cents per sq. ft.

Money to buy this land came to Chicago under the Illinois Blighted

Areas Redevelopment Act of 1947, and also from a Chicago bond issue. But the Federal government will enter the picture too, under the Housing Act of 1949, which provides Federal grants up to twothirds of sums which cities will lose deliberately in this kind of real estate courtship of private capital. In the end the land for Lake Meadows will have cost the insurance companies which will own it about \$2,000,000, Chicago about \$3,000,000, and the U. S. about \$6,000,000. For New York Life, this will be a sound 4 per cent investment plus 2 per cent amortization. For the city and country, it will be a bandage over part of the nation's biggest sore. If New York Life had wanted more than 4 per cent return on this investment in overvalued land, either the taxpayers would have had virtually to present the site to them outright or density would have had to be raised at the same rentals. The insurance company has foregone any higher present return in exchange for the future security which the low density and consequent high quality give them.

But it is not only low density which will make these apartments attractive. These will be some of the best apartments in Chicago, and will rent at considerably less than the present going rate. There will be no enclosed hallways in the towering slabs, which essentially are row houses stacked on top of one another and served by elevators. Instead of halls, open air galleries 9 ft. 8 in. wide-sidewalks in the sky-will run down the north sides, opening up every apartment and almost every room to through ventilation, and also providing shaded summer porches and play areas with views of Lake Michigan.

This is not low-rent housing. Only about 15 per cent of the people living on the land now will be able to afford these apartments (see next page). These people can be evicted from their dwellings if they will not leave for new homes found by the Land Clearance Commission. This is no gentle therapy; it is drastic surgery. But cities like Chicago are beyond mild measures. In the words of Ferd Kramer, public-minded Chicago mortgage broker who had as much to do as anyone with bringing New York Life on the scene, "Cities today have to compete with their suburbs." Chicago is in the process of doing that by blasting blight off this narrow section of its dreary landscape.

"Stubble skyline of Chicago's South Side (opp. page) will soon be replaced by the most striking building silhouette since invention of the skyscraper,"





America's biggest slum

When the words "blighted area" are used in Chicago, most people know what is meant. This may be because there are a lot of planners there, and they have made themselves and their technical words heard. Or it may be the character of the South Side, the model for all blighted areas.

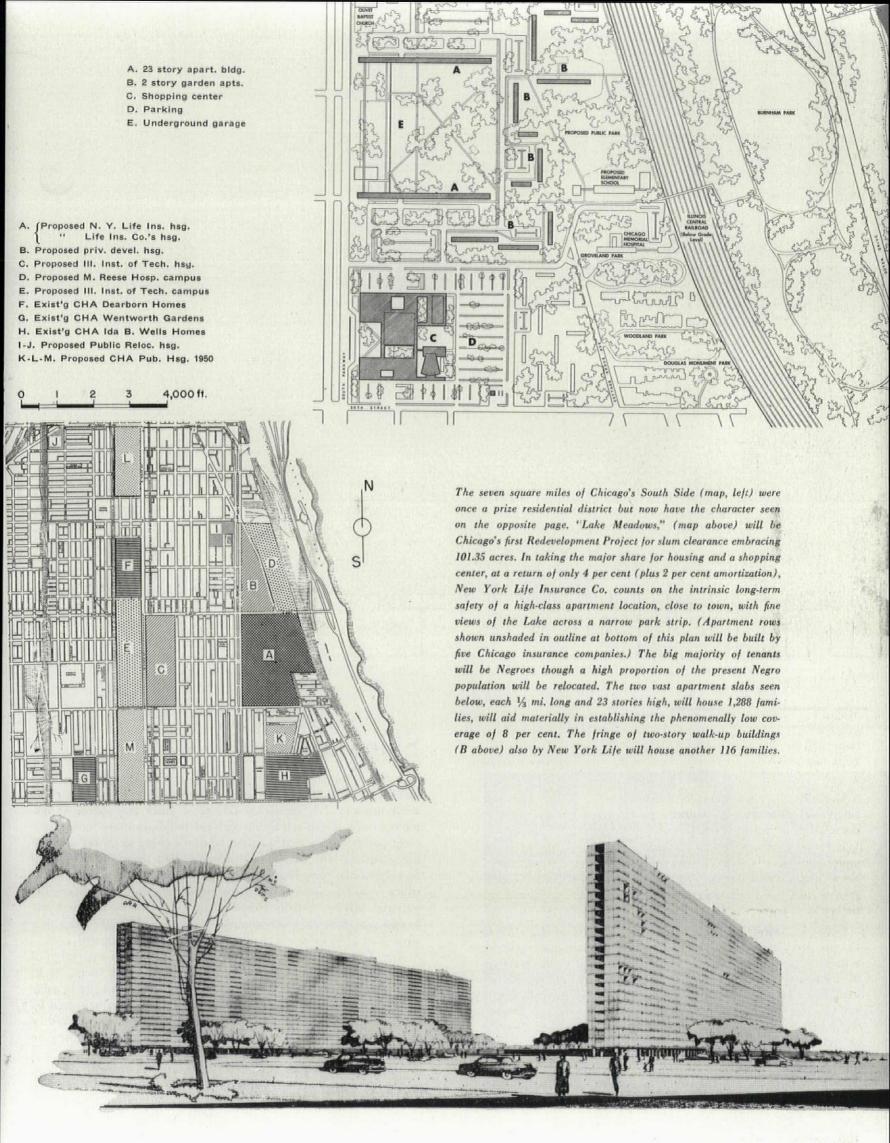
Mentally, it's always raining on the South Side. No matter how sunny and clear the day, a gray mist of depression must seep into the mind of anyone who makes a pilgrimage through this dying area. It is not so vicious a slum as Harlem, in New York City. Land occupancy is not nearly so high, because buildings aren't so tall. But for sheer extent, and duration, and monotonous depression, this endless grid of low buildings and littered back alleys with their sagging timber back porches is fortunately hard to match in the U. S.

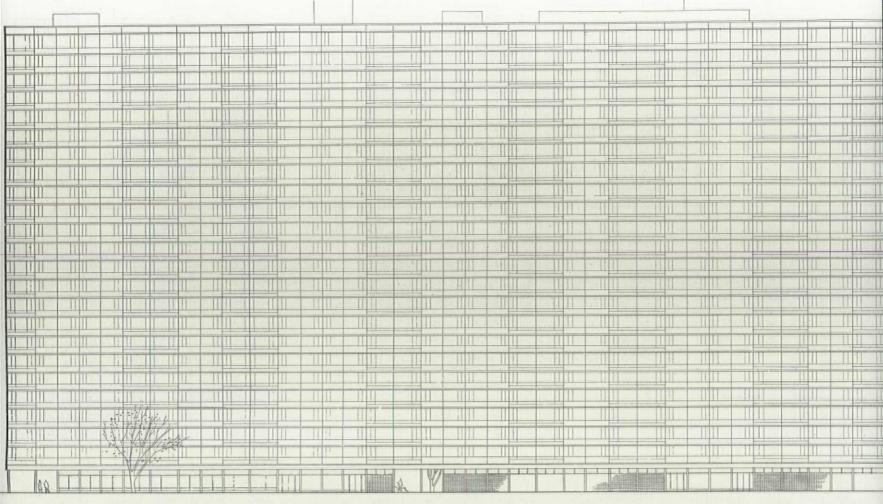
Chicago citizens know this. Some say what they need is another fire. But there are other, more vigorous groups of Chicagoans who have a different prescription. The South Side bloomed as the social part of Chicago after the great fire, which did not touch this area. Marshall Field had his house here in the last quarter of the Nineteenth Century, and the rest of Chicago society clustered around him, followed by the merely respectable population. But by the time of the Great Fair of 1893 society began to leap over the business section to the North side, where Potter Palmer built his mansion. With the first World War came an immigration of Negroes. In 1930 Chicago's Negro population was 278,000. Today it is near 500,000.

It was after the last war that the South Side Planning Board, a privately supported group, began effectively to urge strong measures for rejuvenation of the area. Michael Reese Hospital and Illinois Institute of Technology both began to carve out their areas, and the Chicago Housing Authority built and planned to build more (see map). Today the only obstruction to the Chicago aldermen's approval of the N. Y. Life plan is the blocking off of a main traffic artery, Cottage Grove Avenue, which runs through the property.

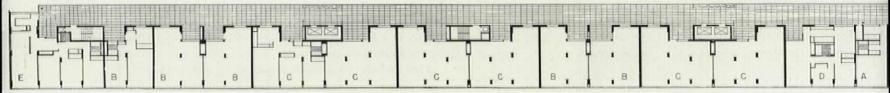
There are several patches of salvation on the map of the South Side, but they only begin to handle the problem. Before going into its project, New York Life ran studies which indicated that there are 19,000 Negro families in Chicago who could afford to pay their proposed rents, and who in many cases are not able to rent decent dwellings for any price today. Fewer than two thousand new rental units have been built for Negroes in Chicago in the last 20 years.

Thirty-five hundred families now live in the Lake Meadows area. On completion of the new buildings, 1,400 families will live there. Of the present occupants, it is estimated that 10 to 15 per cent can afford the new apartments. Another 25 per cent are eligible for public housing and are being moved there. The rest are being relocated by the Land Commission in equivalent dwellings. This relocation problem is one of the knottiest aspects of the whole operation, as always, but Land Clearance Board Officials say it shrinks in comparison with the annual immigration of Negro families into the South Side.





SOUTH ELEVATION





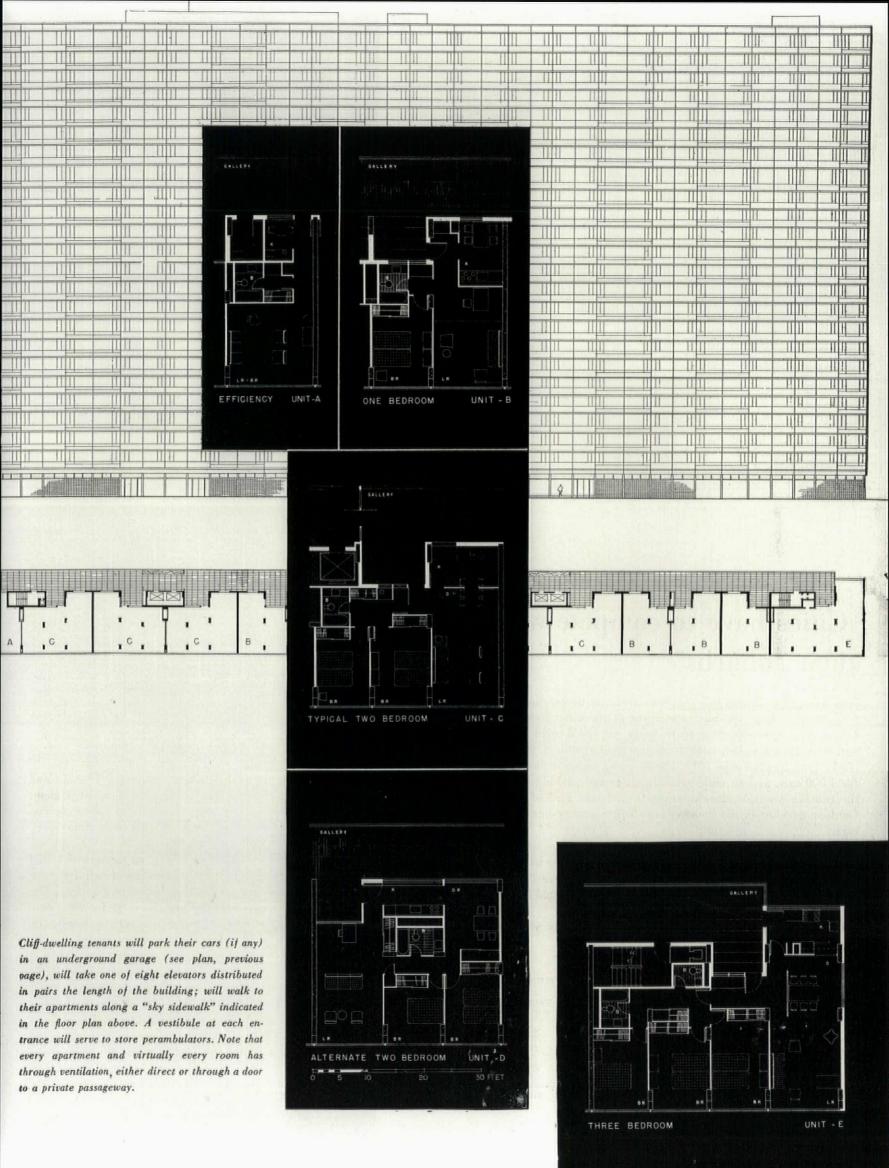


Sidewalks in the sky

The first question that people ask about Skidmore, Owings and Merrill's vast wall of apartments (elevation above) is, what about wind bracing. The answer in Chicago's gusty atmosphere is diaphragm walls which run up through the buildings every other apartment partition. The next question is, who's going to shovel snow off the galleries? The answer to that one is that the management will be responsible. Some heating units may be included to melt the snow, which would be drained from the inside edge of the gallery. The galleries will be partially closed off by glass anyway for wind protection, and complete winter enclosure is suggested. On the south side, some kind of exterior sun shading for summer is anticipated.

New York Life set up a luxurious set of standards for design of these apartments (sample: 240 sq. ft. gross area per room; 13 ft. 6 in. running feet of exterior wall). And S-O-M came close to satisfying them completely. Economy will be sought in construction by use of column-to-column prefabricated sections. The sections will be of welded steel angles with glass or porcelain steel curtains hung on them. Building structure will be reinforced concrete.

Elevators will be fast self-service units, and tenants will own keys to the elevator doors on the main floor. Structure is divided into "neighborhoods" of five or six apartments on a gallery.



SECTION THROUGH 23 STORY BUILDING

Vertical cross-section of the tall building (left) shows the "knifethin" silhouette. At several points the cross-walls between apartments will be used as wind-bracing "diaphragms."

Plans (right) are apartment plans in the 2-story walkups seen below in

The character of the shopping center (which occupies the foreground of the model, opposite page) is seen in the rendering.



2 ND. FLOOR

3 BEDROOM UNIT | ST. FLOOR

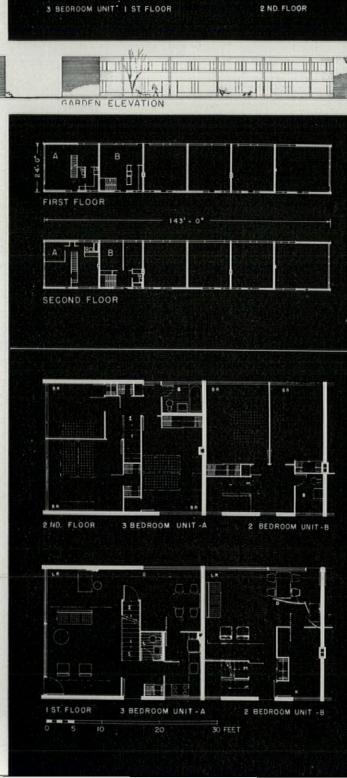
"Cities have to compete with their suburbs"

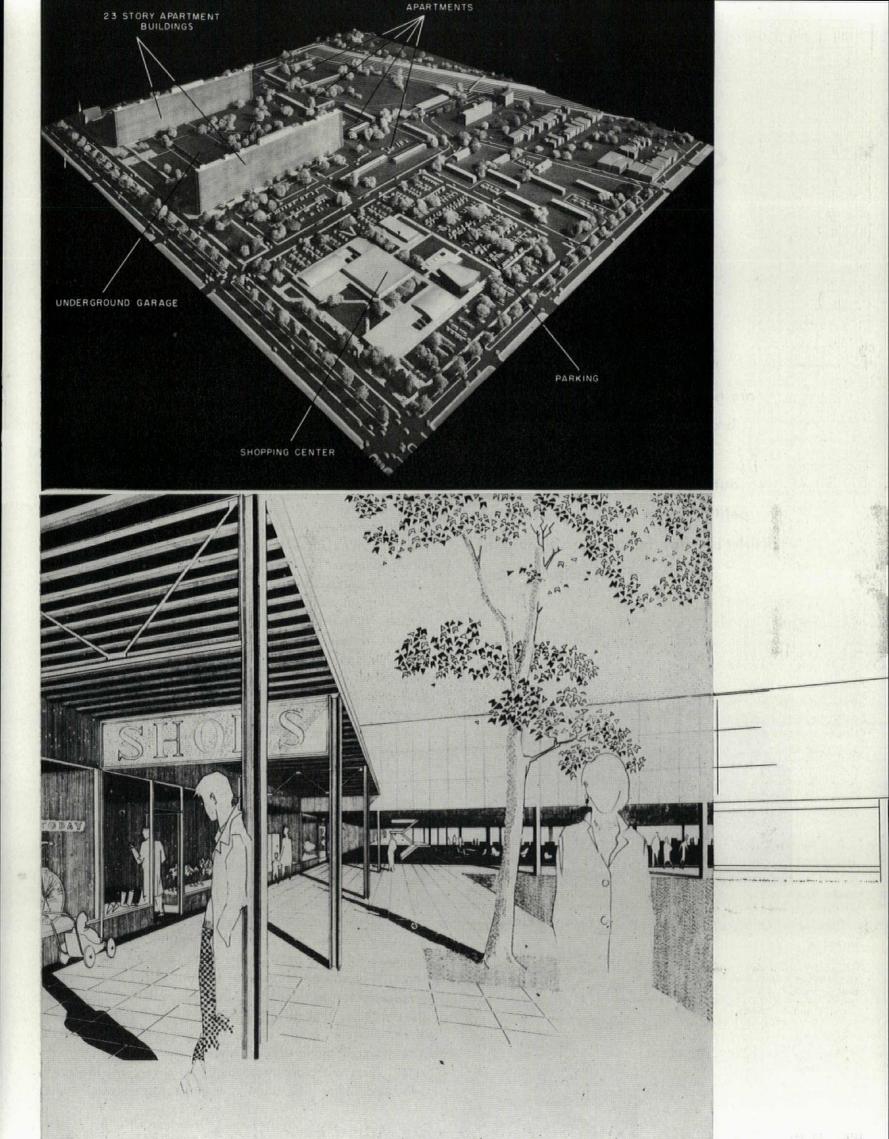
New York Life answers this challenge virtually by creating a suburb only minutes from the business center of the city. Their 116 row houses, complete with 20 x 30 ft. yards, occupy a third of the site, and even so are pulled back from the smoke path of the railroad tracks (see site plan page 101). The shopping center includes parking for 1,000 cars, and an underground garage and parking lot between the two big multiple story apartments will take care of 346 more. Outdoor parking in the housing area will accommodate about 548

Row houses will be brick and tile. Even row houses are designed and placed to have a view of the lake. Most of the site will be filled, part as much as 8 ft., to elevate the buildings above the railroad tracks. The shopping center was developed so there would be frontage on the main road to the east.

Breakdown for the entire project, multi-story as well as row houses is:

ELEVATOR APARTMENTS				GARDEN APARTMENTS			
Rooms per unit	B.R. per unit	Total units	Total Rooms	Rooms per unit	B.R. per unit	Total units	Total Rooms
2	0	92	184	5	2	46	253
31/2	1	460	1,610	6	3	10	60
41/2	2	598	2,691	6	3	24	144
5	2	46	230	6	3	8	48
6	3	92	552	6	3	24	144
	•	52	002	6	3	4	24
		1,288	5,267			116	673

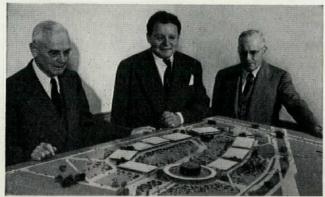




SUBURBAN RETAIL DISTRICTS

The nations leading merchants are now betting on huge suburban branch department stores almost 100 per cent dependent on automobile traffic. Planned competition in an integrated shopping district is what the merchants count on to make their investments pay.

Joe Clark



J. L. HUDSON CO. executives like the looks of this model of architect Victor Gruen's plan for their \$15 million suburban development.

They are: (l. to r.) chairman of the board, Richard Webber, vice-president and general manager James B. Webber, Jr., president Oscar Webber. The isolated branch department store in the suburbs is headed for trouble.

The suburban "shopping center," planned around a single department store branch, is no longer where the smartest investors are putting their money.

A major new building pattern is appearing out in the great automobile trading areas which surround all the big U. S. cities. This is the integrated suburban retail district, planned and built under a single ownership. Perhaps the best place to study it is in the case history of the J. L. Hudson Co. of Detroit, which stands next to Macy's New York as the biggest single department store in the country. The Hudson Co. is planning to build a \$15 million retail district on a 103-acre site out in Detroit's suburbs. This district will be almost wholly dependent upon automobile traffic. As the focal point of this development, J. L. Hudson is planning a branch department store big enough to gross \$20 million a year.

Another place to see the new pattern is in the \$12½ million suburban district owned by Allied Stores and already under construction six miles north of downtown Seattle. In this district, Allied's suburban Bon Marche store, open only a few months, is already doing business at the rate of \$10 million a year. President Rex Allison is confident that sales will soon hit \$20 million—about two-thirds the volume of the downtown store.

No department stores of this size have ever before been built in a suburban shopping center dependent on automobileborne shoppers. Not even the big Crenshaw and Westchester shopping centers around Los Angeles, where almost everybody travels by automobile, boast department stores this big.

Both Hudson and Allied are counting on integrated shopping districts including directly competitive stores to bolster their huge suburban investments. The most significant fact about Hudson's plans is that this great store is planning to rent a big store in its new development to its nearest downtown competitor. The shrewd merchants who own Hudson's believe that "competition is good for us downtown, and it will be equally good for us in the suburbs." This emerging suburban pattern can be checked by the fact that Allied Stores, in its center outside Seattle, is renting a big store to a competitive department store, another to the shoe merchant which actually beats Bon Marche downtown store on shoe sales.

Planning like this means that shopping complexes with something like the pull of New York's 34th Street are moving out to the suburbs. The merchants know that the chance for comparative shopping from one store to another is what turns shoppers into buyers, and they are now cooperatively planning for it in staking out their suburban locations. This means a suburban retail district that will be the first real threat to downtown stores, long nervous at the rate cities are leapfrogging over their boundaries out to the suburbs. About the only thing that still persuades the suburban car owner to fight the traffic congestion and inadequate parking of the downtown shopping district is the chance to shop comparatively from one store to another and to see all the stocks available. When this cumulative pull is transferred to the

suburbs in a development planned for the two out of every three American families who own automobiles, downtown stores can expect to lose some business. Almost the only big city where the suburban retail district cannot reasonably be expected to get a start is Pittsburgh, where the vast system of highway improvement and downtown parking space now underway (FORUM, Nov. '49) will make it easy to reach the downtown shopping district.

Census bureau is the salesman

The Allied and Hudson shopping centers mean that these powerful retailers have faced up to the fact that the high tide of centralization which swept millions of customers along mass transit lines and into the gridiron aisles of downtown department stores is now clearly running out. "The best salesman we have is the U. S. Census Bureau," says Horace Carpenter, manager of Hudson's wholly-owned subsidiary, Eastland Plaza Corp. Census findings showed an even sharper suburban movement than business had expected; suburban populations were up 70 per cent in some areas as compared to gains as low as 2 per cent inside some big U. S. cities. Even more important than this great population shift is the fact that middle- and upper-income families are the ones who have moved to the suburbs. Census findings on retail sales show what is happening: 1948 suburban retail sales were up 226 per cent over 1939 as compared to a rise of only 177 per cent for stores inside the 32 biggest U. S. cities.

Despite their tremendous stake in downtown plant, department stores are now capitulating to the suburban trend at a rate to create a real boom in shopping centers. Marshall Field's in Chicago, Hutzler's in Baltimore, Hecht's in Washington, Wanamaker's in New York, the Emporium in San Francisco are some of the big stores which have within recent months announced a move to the suburbs. The pattern all these merchants have chosen for their suburban advent is of the first importance to retailers in all lines and of all sizes.

Planned competition

The department stores are putting their money on integrated "one-stop" shopping, a suburban retail district big enough to hold all the stores required for a family's buying needs—from high-priced apparel to a toothbrush, from furniture to shoe repair shops. Even more important, most of them decided that the "one-stop" shopping center must include two or three directly competitive stores in most merchandise lines. This is a tribute to what William Zeckendorf calls that "most efficient of all purchasing agents, the U. S. housewife," who insists on comparing price and value in at least three stores before she makes up her mind.

The big merchants' recognition that competitive stores are needed to give the shopping center pull for the customer is also the element which makes it possible to attract enough financing to swing these developments on a regional scale. All the big developments now under way are being financed by life insurance companies either through a mortgage loan or by low-interest bonds. In either case, the building

loan is likely to amount to 100 per cent of actual construction costs. Life insurance mortgages are limited by law to two-thirds of the appraised value of the property, but in these big developments value of the assembled site is usually enough to cover the other one-third.

Financing is granted by the life insurance companies chiefly on the security of long-term leases presented by the developer. Sometimes, lenders require up to 80 per cent of projected space to be leased. So long as the big merchants tried to keep their chief competitors out, it was hard for the developer of a large scale center to get enough lessees of the required credit rating. Financing still generally requires amortization on a 20-year basis, but strong department store participation may encourage the insurance companies to grant longer terms.

The need to provide an equivalent of the comparative shopping possible downtown means planning for competition. This term, which only yesterday would have been considered self-contradictory, may point to a strong new strand in the American economic fabric. At the very least, it promises, through the building pattern it is punching into shape, to revolutionize the distribution of retail goods. Since the high cost of distribution is one of the economic burdens to which U. S. business has never been resigned, the new thinking that is making integrated distribution machines out of "markets in the meadows" will be of interest to more than building enterprisers.

About half of all existing retail stores probably should not be in business at all: they are nonprofitable, constantly failing enterprises. Another 25 per cent are marginal undertakings; only a strong 25 per cent enjoy steady prosperity. Patterned by planning both as precise as a cash register and as imaginative as a Calder mobile, the suburban retail district or regional-size shopping center is designed for the strong 25 per cent—lessees must have close to a national triple-A credit rating to attract life insurance company financing. The essence of the whole formula is that strong business for one means stronger business for all.

Planned competition in the suburban retail district differs from the wasteful competition of the average downtown Main Street as sharply as the Ford V-8 differs from the horse car. Downtown merchants crowd into whatever front footage becomes available on established Main Streets and take their chances on dividing up trade from passing traffic. So long as the shopper was at the mercy of mass transit lines, "100 per cent location" was a safe substitute for market analysis. But when widespread automobile ownership liberated the customer from the fixed path of mass transit lines, it became evident to a few retailers that the shopper could be pulled almost anywhere by a strong merchandising attraction and by what the downtown district so signally lacked—a place to park the car.

One of the first to recognize the extent to which the automobile was changing established distribution patterns was shrewd General Robert E. Wood of Sears Roebuck. Sears had a number of mail order warehouses around the country,

of necessity located on a railroad siding, out of the central district. In the early twenties, General Wood started to experiment with retail stores in the first floor front of these warehouses. After a few tries, he began to locate suburban store buildings back from the highway and surround them with parking space. In 1925, Sears' retail store sales amounted to \$11 million. The success of General Wood's early suburban location policy can be measured by the fact that today Sears' 630 retail stores gross \$1½ billion, the biggest retail volume in the country. In 1922, the nation's first great community builder, J. C. Nichols, briskly stowed supermarkets back of 16th Century Italian columns and showed Kansas City how to plan compact shopping areas with adequate parking space.

Today backers of the suburban retail district believe that "you could pull business up a mountain—if you have the right stores in the right relationship to each other." But most of them spend hundreds of thousands of dollars to find out what are the right stores and the right relationships and where these integrated developments should be located for maximum pull in the great automobile trading areas of the suburbs. In this new field, the golden hunches of the real estate genius have given way to market analyses almost as rigorous as the equations demonstrating the second law of thermodynamics.

How big is big enough?

The whole science of planning suburban retail districts is so new that two sets of planners, working from only slightly different premises, may arrive at widely different conclusions. One of the questions which these suburban investors kick around most is: What is the maximum size for a successful suburban retail district?

Huston Rawls, a pioneer of today's integrated suburban retail district, stands solidly opposed to yesterday's optimistic notion that any profitable real estate development can profitably be made bigger. Rawls is one of a group of four Boston real estate trustees who sat down in 1945 to figure out a safe way to diversify holdings of downtown retail properties all over the U.S. for the right kind of suburban investments. To find out what was safe to buy-a corner branch store in a suburban town, a strip highway development, a local shopping center spawned by a supermarket?-the Boston trustees enlisted some of the best planners in the country: M.I.T.'s Dean William Wurster and City Planner Frederick Adams; store architects Kenneth Welch and Ketchum, Gina & Sharpe. Their conclusion: no suburban investment short of a carefully planned retail district big enough to provide "one-stop" shopping for a whole trading region would be safe. Since nothing like this existed, the trustees formed Suburban Centers Trust*, an organization to plan, build and provide equity financing for a chain of such retail districts. Four months ago a subsidiary, the Middlesex Trust, started construction of the first \$7 million development near Framingham, Mass. (see FORUM, April '47 for plan), where Allied's Jordan-Marsh is the main lessee. The trust expects soon to start construction of other retail districts near Beverly, Mass., Pleasantville, N. Y., Paramus, N. J., with others in Detroit and Cleveland in the planning stage. The original group of four trustees has become a group of ten, representing as management other trusts and estates. Suburban Centers may soon increase the already large funds it has available for equity financing by a public stock issue.

Suburban Centers insists on a 50-80 acre site that will be expansion-proof because it is locked in the arms of arterial highways. Its site plans make extensive provision for "buffer areas" of surrounding park space and residential development. Even for the rich trading area around its Westchester project, the firm plans only 525,000

sq. ft. of store space and feels this not far from the maximum size to which any suburban retail district can aspire without repeating all the evils of downtown congestion. New York's William Zeckendorf, schooled in the tricky shifts of urban real estate values, agrees. Says Zeckendorf, who recently purchased Hampton Village, a shopping center outside St. Louis which he plans to expand to regional size: "I see the regional center as a minimum of 20 acres and a maximum of 50 acres, of which only one-fourth would be store space. If a development requires more than 50 acres, it is time to seek diverse areas in different sectors of the suburbs. Planning for too many cars will mean congestion on highways leading to the center. Auto congestion is even more aggravating than crowd congestion on downtown streets-you can push your way through crowds!" Rawls and Zeckendorf recommend provision of three times as much parking space as store area, and Rawls is writing this ratio into the leases in the Framingham development.

These investors emphasizing limited size run into the department store's almost automatic drive for bigness. J. L. Hudson plans a total sales area of 1,250,000 sq. ft. in its 103-acre Eastland Plaza development, of which it will take 350,000 for its own branch store. Allied's Northgate amounts to 650,000 sq. ft., and part of the site is earmarked for future store space expansion amounting to an additional 100,000 sq. ft. The Bon Marche branch store amounts to 200,000 sq. ft. In both developments, parking space is about twice sales area.

Battle of the lines

The department store's drive for bigness grows, of course, out of the nature of its merchandising operation and out of the difficulties it faces in translating this operation into a smaller, branch store. Bigness is the department store's great competitive advantage. It pulls by its complete assortment of stock in all merchandise types, lines, sizes and prices. In cutting this kind of operation down for a smaller suburban store, some of the first stores to move out opened little more than pilot plants, with scarcely more than a sampling of major lines. In planning Bloomingdale's location in the Fresh Meadows shopping center near New York, Fred Lazarus of Federated Department Stores eliminated whole departments in order to have room for assortments in selected departments that would be in no way inferior to stocks in the central store. Thus Bloomingdale's in Fresh Meadows sells no furniture and no heavy appliances, is very heavy on women's and children's ready-to-wear, general housewares.

Both Allied and Hudson are seeking the maximum in both breadth and depth in their suburban stores. Hudson, for instance, is planning a furniture department occupying one-fourth as much space as their dowtown furniture sales area, but president Oscar Webber emphasizes that only furniture best-sellers will be selected for the suburban store and that staple items like chests, beds, mattresses will be favored rather than such lifetime purchases as, say, luxury living room "pieces." Apparel stocks, however, will be very deep-there will, for example, probably be a better range of children's shoes than in the huge downtown store. Webber expects to use price as the chief limiting factor in suburban stocking. In all merchandise categories, both the highest and lowest price lines are being eliminated: Webber is logically aiming his merchandise for the middle-income families which his market studies show as predominating in the suburban market. Thus he is avoiding one of the commonest mistakes made in suburban shopping center planning. Many already-built centers do not have the right tenants to appeal to the buying pattern and income of the suburban market. The thorough appraisal of Hampton Village before its purchase by Webb & Knapp showed, for example, that one 20 ft. shop selling dresses at \$18 and up was doing more business than the combined sales of three stores operated by a low-priced dress chain.

In addition to furniture stock in the main department store, both Hudson and Allied plan to lease space to independent furniture stores,

^{*} Advisory board chairman and chief stockholder is William Coolidge, whose famous Boston financier grandfather, Thomas Jefferson Coolidge, put many a U. S. industry on its feet. Energetic investor Coolidge is best known for his organization of the National Research Corp., whose Minute-Maid frozen orange juice was a smashing success.

a policy backed by the fact that the suburban customer is in large proportion a new homeowner and a big furniture buyer. Hudson expects to handle an independent furniture store in cheaper basement space, with only a small frontage on the first floor. National Suburban's Huston Rawls thinks the suburban store should carry no more than a token sampling of furniture. "The landlord gets 21/2 per cent on furniture sales of about \$33 a sq. ft. Who can afford this at a construction cost of \$12-15 a sq. ft.? Furniture should be used to pull customers to the downtown stores-which we certainly don't want to see go out of business."

Past mistakes

If the big news about suburban retail development is that the merchants have finally recognized their combined, competitive pulling power as what it takes to keep the shopper coming, it has nevertheless taken them two decades of experimentation to get the point. Until recently department stores divided roughly into two groups: those who favored suburban branch stores and those who didn't. Those who did tended to try to get the jump on their competitors by seeking out "hot spots" or so-called proven locations. Frequently these were in highway strip developments where parking shoppers and roadcrossing shoppers mixed to create a first-rate traffic hazard. Sometimes they were in the existing retail district of suburban towns, which soon proved to be almost as handicapped by lack of parking space and traffic congestion as the central city itself. Some stores boldly opened isolated branches on suburban corners and relied on their individual pulling power to bring customers. Random dispersal of this kind took place along Los Angeles' "Miracle Mile" (Wilshire Boulevard), where important stores are so strung out that it is necessary for the shopper to get in and out of her car a dozen times to cover them.

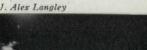
Wherever they went, the department stores couldn't seem to persuade themselves to get off the sidewalk-although there were few pedestrians. They still doggedly lined up their display windows along the store front-although these were usually obscured from the passing driver by curb parking and although the majority of customers entered the rear of the store from the parking lot. Today's integrated retail district relies on no simple device like conventional window display to attract the passing driver-but on the 100 per cent effective traffic created by the cumulative pull of some 40-100 grade A stores.

Today's suburban planners realize that window display means little until the shopper has arrived and parked her car. Accordingly, they relate window display on one side to the parking lot, on the other to the pedestrian traffic path around the interior mall. Sometimes they use whole glass-enclosed buildings as a kind of showcase for the entire development (see Ketchum, Gina & Sharpe plan, p. 118).

Random suburban dispersal, dangerous for everybody's business, has probably come to an end. The suburban retail districts of the future will probably go even farther toward planned competition than the examples shown on the following pages. In these plans, although up to three department stores are represented in a single project, there is still clearly a "dominant" department store. When Filene's (Federated) and Jordan-Marsh (Allied) get together on a suburban location (as they are now understood to be planning to do), there will be two major magnets for pedestrian traffic along the suburban shopping mall.

Pooling the overhead

For the merchant, the suburban retail district promises substantial reductions in the cost of doing business. These regional-size shopping districts are something like building the downtown business district of Sacramento in one whack. Unlike downtown Sacramento, they will not have an opportunity to experiment through years of slow growth and natural competition. By the same token, they present distribution economies on a scale of which downtown Sacramento merchants have never dreamed. Downtown store building has had to adjust to rigid conditions of street pattern, service alley, existing building wall. Within this rigid framework, each merchant makes his own provisions for delivery access and unloading docks, customer parking (if provided at all), building services and utilities, stock storage, etc. He may feel it necessary to use expensive floor space for such customer services as a restaurant, beauty shop, children's nursery. In the integrated retail district, most of these utilities and services can be efficiently pooled at a great saving in both building and operating costs. Ample customer parking space promises to cut the store's cost of delivery by as much as 80 per cent. All this suburban expansion usually takes place at little increase in the store's advertising budget (now about 21/2 per cent of gross), since the same newspapers serve the whole metropolitan trading area.





POOLING SERVICES in the integrated retail district means free nurseries like this one in a 45-acre shopping development now under way at Levittown, N. Y. Owner: Berger-Tilles. Architect: A. Salkowitz.



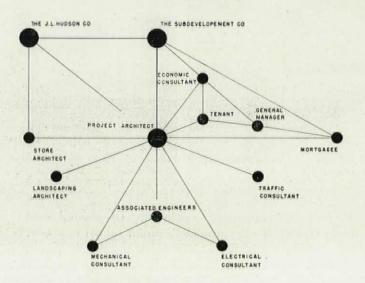
One of the most important ways in which the planned retail district will operate to boost the merchant's profits cannot now even be estimated. Nobody really knows how much a carefully planned interrelationship of stores—the right stores located in exactly the right places to move customer traffic around the shopping path-will increase sales for everybody.

If the merchant is to exploit the new advantages of the planned suburban retail district, he must be prepared to drop some of his old ways of thinking about rent. It is important, for example, that this emerging building pattern not be hamstrung by leasing standards and leasing practices which it has made suddenly obsolete. Both guaranteed minimum and percentage rentals asked tend to be a little higher than many of the big chains and department stores are accustomed to paying for suburban locations. (Guaranteed minimums average around \$1.50 a sq. ft. Percentages range from 1 per cent for a large supermarket to 10 per cent for a small millinery store. Department stores who "spearhead" a development usually think they should pay much less than the 21/2 or 3 per cent they are commonly asked.) In evaluating these rents, merchants must take into account what the integrated retail district offers them compared to anything they have leased before. Rental evaluations based merely on front footage will certainly have to go-the myriad devices for directing customer traffic in the suburban district make every square foot of space of almost equal value.

For the owner, the suburban retail district promises some substantial returns. Minimum guaranteed rents (averaging about \$1.50 per sq. ft. for most of the projects now underway) represent the breakeven point. The cautious market analyses that back these developments indicate that rents paid on a percentage basis will average above \$3 a sq. ft.

THE ARCHITECT'S PLACE

in the suburban retail district



A team like this one set up for the J. L. Hudson suburban development is necessary for sound planning of these new districts.

Where is the architect in the suburban retail district? Perhaps the most important thing that can be said about him is that he is in a position of leadership almost unparalleled in his practice. The suburban retail district promises him both a design freedom and a planning responsibility of staggering proportions. The architect is no longer the last man to climb aboard—at the mercy of the zoning ordinance, of the chain store's architectural department, of the real estate broker. Out on the meadows, he has a chance—as he has never had before—to control the traffic pattern, to help write a new zoning ordinance, to set the shape and depth of buildings, to control outside as well as inside space. Nor will he be limited by building code restrictions that are necessary in congested multiple-level building districts. He creates his own fire breaks and gives his client the dividend of a reduced structural cost.

The modern architect who opened up the front of the downtown store in the Thirties has come a long way. For his new job, he needs to combine skills ranging from those of the traffic engineer and city planner to those of the chain store leasing specialist—not because he will dream of undertaking these jobs in his own firm, but because he will need to coordinate the work of experts in a dozen fields. Yesterday's "store" architect today needs to be the master of an extraordinary amount of know-how, ranging from, say, the fact that required parking space decreases as dollar volume of average sale climbs (see p. 120) to how to get clear spans of 40 ft. with low cost steel framing (see p. 118). Ideally he will be called in while land buying notions are still a gleam in the developer's eye. The J. L. Hudson Co., for example, called in Victor Gruen before the officers had even decided whether to build a branch department store or an integrated center. President Webber urged architect Gruen to enlist as many specialists as needed and gave him full responsibility for turning this kind of teamwork into a building plan.

Says Gruen: "We are cooperating steadily as a policy-making team which decides about leasing conditions, choice of tenants, location of tenants, traffic requirements, financial arrangements etc.

"Only too often have I witnessed that in projects of this type two hostile camps develop. In one camp stands the architect all by himself fighting for esthetic appearance, good design, recreational facilities, etc. In the other camp are 'the practical men of business experience' who generally take the point of view that the architect is just a dreamer, and that in order to make money esthetic considerations and sound land use have to be thrown out the window. This condition arises because there has not been the right kind of teamwork from the beginning."

The architect of the suburban retail district has some formidable responsibilities—to the owner, to the participating merchants, to the shopper, and to the community in which the development is placed. The examples on the following pages show that he is discharging them in a way to promise that tomorrow's shopping will be better business and more fun for everybody.



R. Marvin Wilson

DETROIT: The J. L. Hudson Co. builds 1,250,000 sq. ft. in a \$15 million suburban district

VICTOR GRUEN, GRUEN & KRUMMECK, Project Architect

KARL O. VAN LEUVEN, JR., Associate in charge EDGARDO CONTINI, Structural Design H. E. BEYSTER CORP., Associated Engineers

LARRY P. SMITH, Economic Consultant

THE GEORGE JEROME CO., Associated Site and Mechanical Engineers

LLOYD B. REID, Traffic Consultant

FRED WILKINS, Associated for Hudson store interiors

Architect Victor Gruen planned for J. L. Hudson Co. a suburban retail district scaled to that great department store's dominance in its market. (Detroiters buy three times as much at Hudson's as at any other Detroit store.) His \$15 million plan for Eastland Plaza provides: 1) the largest single-ownership retail district of all (103-acre site, parking for 6,000 cars, 1,250,000 sq. ft. of rentable space, anticipated gross of \$60 million) and 2) a really complete assembly of stores and services. Stores will range from the Hudson branch (350,000 sq. ft., the biggest suburban department store in the world) down to small kiosks, which architect Gruen says "make room for the Poppa and Momma store, a place to get your pants pressed, a place to buy Hungarian pastries or Polish sausages."

This great building group is organized around a split parking scheme, which puts a central core of parking space inside an oval ring of ten buildings and provides additional parking outside the ring. The oval pedestrian walk connecting all the stores is about 3,300 ft. long (about 16 city blocks). Stores on opposite sides of the ring are connected by a 600 ft. gangway (about three city blocks) with a bridge over the interior parking road. Central landscaped parking area is depressed to give a view across the building ring.

Gruen gives this building complex architectural unity by colonnade treatment which runs along both frontages of all ten buildings and then connects them with covered walks. The columns will be set 20 ft. apart and covered with ivy. Stores are arcaded back 15 ft. behind the columns and tenants will have complete freedom in designing their individual ground floor fronts.

Another spectacular part of Gruen's plan is the skill with which he has organized the massive square footage required by Hudson's own branch store as a round building. Core and peripheral storage areas ring sales space on both levels of this building, exploiting the round form to minimize the movement of both customers and stock.

Gruen's emphasis on making room for Poppa and Momma stores

is an imaginative attempt to transfer the color and character of a downtown shopping street to the new planned district in the suburbs. It is important for several reasons. On the one hand, "one-stop shopping" demands the presence of big competing merchants, and Hudson's plans to rent space to three other department stores and many large specialty stores. One the other hand, a suburban district trying to live from the big chains or the big department stores alone would risk losing sales to a place where the shopper can also get her shoes heeled or get the children's hair cut. This fortunate economic circumstance is rescuing the suburban retail district from the dreary uniformity which might otherwise result from a group of big stores planned in one swoop.

The site. Hudson's Eastland Plaza is the first step in an expansion program which may eventually include three retail districts strategically located in the Detroit suburban area. It will lie in a busy housebuilding area nine miles east of the downtown Hudson store and near prosperous Grosse Pointe. Approach is by two four-lane arterials. In addition to the 103-acre shopping center site, Hudson's owns adjoining acreage which will be used for recreation and park space (including a small forest) and for future development featuring apartments, doctors' offices, automobile showrooms, interior decorators and other nonshopping enterprises. This kind of building will protect the center against "pirating" from competitive enterprisers who might try to profit from the center's pull without providing their own parking.

Hudson's has applied for rezoning, and, consulting with township officials, Gruen has proposed a new zoning type: R.S.C. 1 or Regional Shopping Center Zone. This establishes standards for a large coordinated shopping center, which set minimum size, require separation of foot, car and truck traffic, and provision of adequate parking.

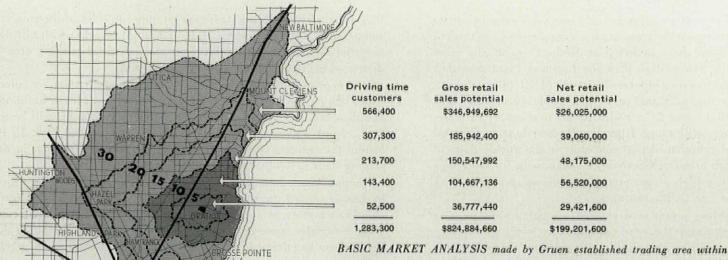
Parking. Parking for 6,000 cars requires about twice the area of the store space planned. An expected 4-5 car turnover per space means that some 30,000 cars may be parked in a day. To keep walking distance from car to store down to 350 ft., a split parking scheme is used, which puts parking in the interior area as well as outside the building ring. Access to interior parking is by underpasses bridged by the sidewalks.

Rooftop parking is planned for Hudson's own store. Gruen's argument for it: 1) it would cost little more, since Hudson's wants foundations strong enough to carry a third story if needed; 2) it would bring all parking 240 cars (roof's capacity) closer; 3) it would give the store a fifth entrance down a moving stair from the roof; 4) it would permit opening the rooftop restaurant at night (store restaurants operating on a one-meal basis don't pay).

Underground truck road. Delivery access will be separated from shopping traffic by an underground road on the perimeter of the building area. Since this will be part of the basement area with connecting sections made in a single excavation, Gruen expects it to cost much less than an underground tunnel. Smaller stores will cooperatively use basement unloading docks, and the building plan provides for dropping in a freight elevator where needed.

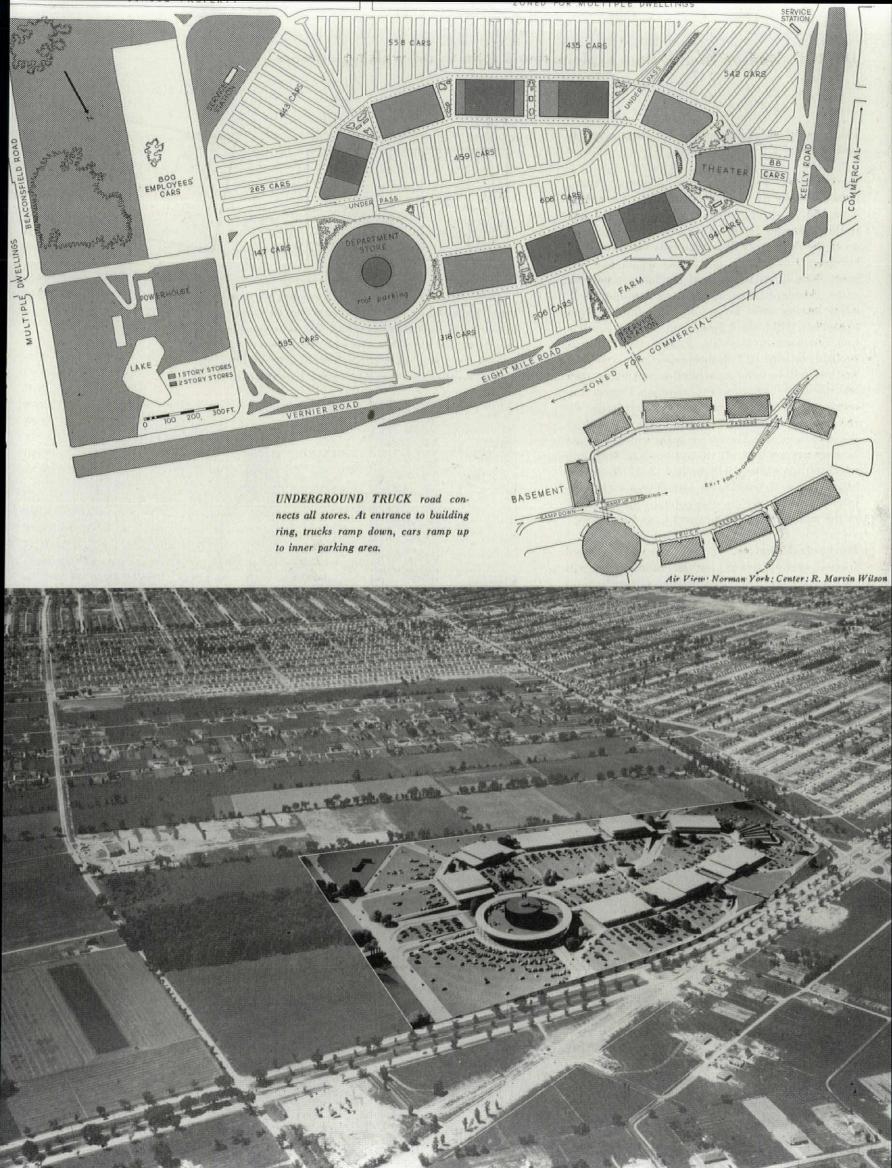
Store location: The Hudson branch store is the "pull" at one end of the oval plan and a theater at the other (the theater may have to be replaced by some other puller since theater chains all over the country are taking television so seriously as to curtail suburban location). A number of viewpoints have been brought to bear on the vital matter of locating other stores: 1) grouping by types of merchandise (all food stores together, etc.); 2) grouping by price class (higher-price stores on one side of the shopping ring; popular price lines on the other); 3) main attraction stores are strategically located to pull traffic past other stores (about 12 major tenants will occupy 70 per cent of all space); 4) stores with night openings (drug, candy, restaurant, etc.) are kept near the theater.

Double frontage. All major stores will front on both exterior and interior parking space, making it possible to exploit both ends of the store for impulse shopping.



BUSINESS DISTRI

30 minutes driving time of site. Market's irregular shape is because radius is actual driving time not distance. Varying percentages of population were discounted for distance in five main zones. Net retail sales potential available is still three times as much as the \$60 million annual sales which Hudson counts on for its shopping centers.



DETROIT: Hudson branch store exploits round form to cut walking distance

Underground unloading makes this direct access to both sides of all stores possible.

Construction. Except for the Hudson department store and the theater, all buildings are a standard 150 ft. depth. Some are two-story, and one section, intended for a department store, is carried up to the third story. The plan cuts these standard buildings into sections of varying length and disposes them in a ring around the interior parking space. Standardization of the basic building shell, while leaving room for infinite variation in front treatments, will make it possible to use mass production construction methods. Precast concrete will probably be used (if bids meet expectations) and the first step will be to pave the interior parking lot, then tent it over for the precasting operation. Precast concrete columns will be located 20 ft. apart in one direction and provide a 47 ft. span along the depth of the store buildings. These wide spans will be bridged by huge precast concrete rib sections 3 ft. deep, into which all main ducts will be laid. A 17 ft. ceiling height makes it possible to introduce a mezzanine in any two-bay section, and columns are prepared so the mezzanine can be plugged in and out at will.

Mechanical services. All buildings will be heated from a central system, but air conditioning will be provided by individual tenants. Gruen believes that store owners differ so greatly in their air conditioning requirements and especially in their notions of what they want to pay for air conditioning that a central system would not be feasible. Moreover, he thinks the air space between concrete floor slabs plus the deep overhangs on all sides will provide enough insulation so that many merchants may get along without air conditioning. Gruen is, however, also studying the possibility of a central system for supplying chilled water to all stores, which each tenant could adapt to his own requirements.*

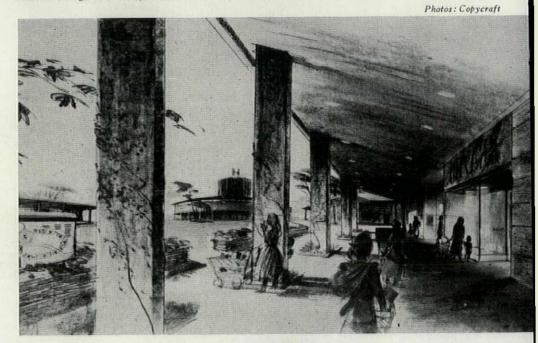
*A central chilled water system, the first of its kind, is in use at the much smaller shopping center built by New York Life Insurance Co. in its Fresh Meadows development outside New York. In this system, chilled water (45°) is delivered to individual store tenants through a mile of piping. Temperature loss throughout the system is reported at less than 1°. Another set of pipes returns water (at 61°) to compressors in the central plant. Smaller stores pay at a flat rate; the department store and theater pay according to special meters which measure the Btu's removed.

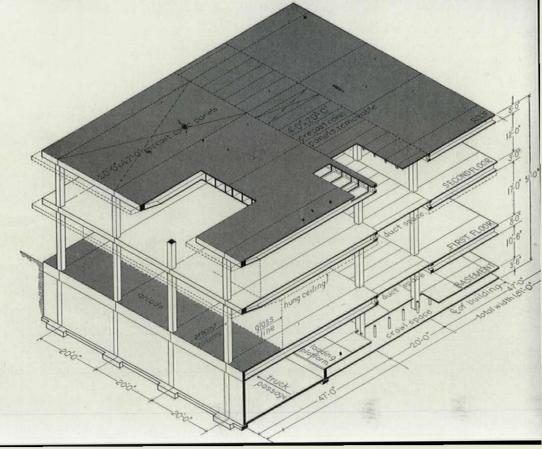
EACH STANDARD BUILDING is 180 ft. deep and each is composed of three 47 ft. bays separated by two 20 ft. bays. These 20 ft. bays are bridged by removable precast concrete floor slabs to provide vertical flexibility for changing tenant needs. Slabs can be easily lifted out for insertion of elevators, stairs, moving stairs, etc.

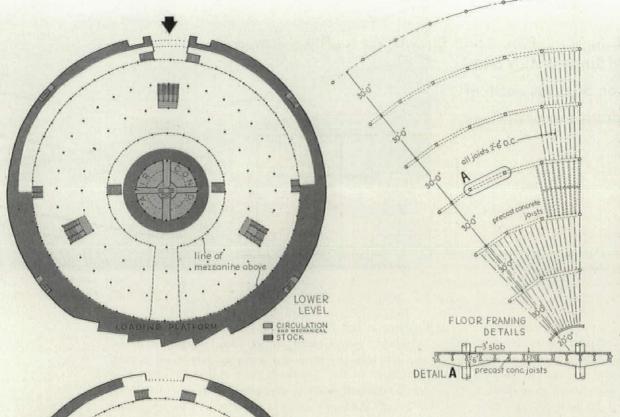


SHADED COLONNADE is created by arcading all storefronts 15 ft. back from column line. This permits each tenant to construct the front according to his individual needs, while the rhythmic line of columns gives architectural unity to the building group as a whole. Gruen calls this a "frame substantial enough to show after the individual pictures are in."

TYPICAL PLAN shows how major stores front on both sides of standard building.

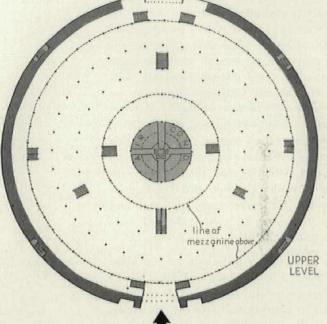




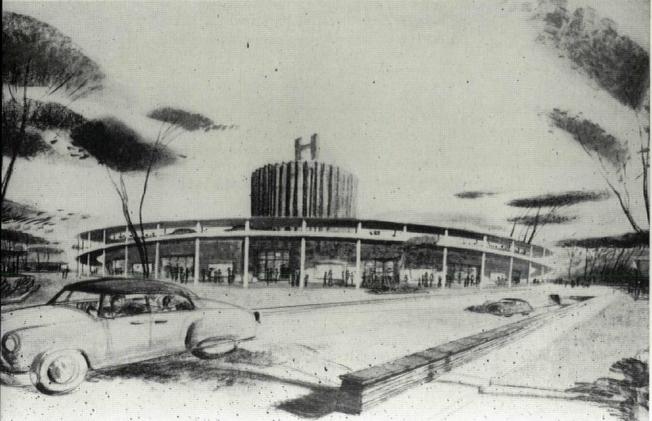


HUDSON BRANCH STORE is a round, two-story building swung around a central core of mechanical services. Round shape reduces walking distance, also saves on outer wall area. A peripheral mezzanine between the first and second sales levels holds customer services, garden furniture (replaced by toys in winter), beauty shop. Peripheral mezzanine (with windows) above second sales level holds offices, workshops, etc. Two mezzanines around central core are used for employee facilities and public auditorium. Space under all mezzanines is used for stock storage, making all of Hudson's vast stocks available at point of sale.

CONSTRUCTION is adapted to round store shape by a system of concentric rings of concrete columns connected by rigid beams poured in place. Precast joists span the column rings, with 3 in. reinforced concrete slab poured on top.







STORE is placed on sloping ground so that direct access from parking space is provided at four levels: one at lower sales floor, one at upper sales level, two at mezzanines. A fifth entrance will be from the roof parking space via central moving stair. The ramp leading to the roof parking lot also forms the canopy of a promenade around the store.

Central core extends through roof to hold restaurant, employees' cafeteria and lounge, also air conditioning equipment. Open area for outdoor dining is on top of core.

SEATTLE: Allied Stores builds 650,-000 sq. ft. of store space on 50 acres north of city, finds sales volume double expectations

JOHN GRAHAM & CO., Architect HOWARD S. WRIGHT & CO., INC., General Contractor

Until the J. L. Hudson Co. announced its plans for a suburban development outside Detroit, Northgate, six miles north of downtown Seattle, held the title as the biggest suburban retail district now underway. Northgate is owned by the biggest U. S. department store chain, Allied Stores. It was spearheaded by Rex Allison, the hard-driving young president of Allied's Seattle store, Bon Marche.

Northgate, a \$12 million development, will be about half the size of the projected Hudson center. Total space will be 650,000 sq. ft. of which 200,000 will be occupied by the Bon Marche branch (about half the selling space of its downtown store). Unlike Hudson, Northgate's backers decided to build a 4-story office and professional building right away (Hudson plans this for a future development). Allison points out that one busy doctor may bring up to 50 extra customers a day to the center. Part of the site is earmarked for future expansion of store space by an additional 100,000 sq. ft.

Like Hudson, Northgate is based on competitive merchandising. Allied is leasing department store space to a big volume chain like Sears or Penny, which will compete with its own Bon Marche branch. There will be two big merchants competing in all specialized lines. But Bon Marche's most direct downtown competitor will not be represented. Seattle's other big department store, Frederick & Nelson (owned by Marshall Field) is staking \$61/2 million on a 5-story downtown expansion (but already has one suburban branch in the Bellevue shopping center east of Seattle).

Three of Northgate's stores are already open for business, and give some measure of the shopping pull these big suburban developments can be expected to have. Allison had cautiously counted on a \$5 million gross for his suburban branch store. Within days after its opening, the Bon Marche branch was doing business at the rate of \$10 million. Allison thought sales would soon hit \$20 million-about two-thirds the volume of the downtown store. This promises that the center's total sales will be far in excess of the anticipated \$32,630,250. Business is so good that Allison hastily canceled his plans to bring a convention of Indian tribes to the mall as an added attraction-they would simply have been in the way of the customers.

Allison had been arguing for a suburban expansion since 1945. He knew that a move northward couldn't miss, because Seattle, unlike most cities, has only one way to grow-it is blocked on the east and west by Lake



Long paved central mall links all stores, cantilevered canopy shades shopping path

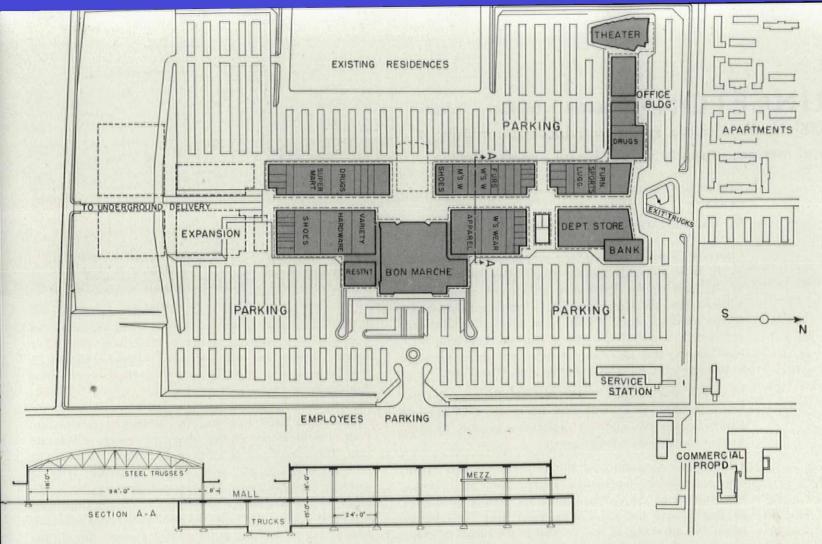
Washington and Puget Sound, on the south by industry. Architect John Graham, whose firm planned the downtown Bon Marche store and many another great department store in the Northwest, was called in when Bon Marche was still debating expansion on its downtown site. He backed Allison's drive for a suburban location, and persuaded Allison to enlarge his plans so that Bon Marche would move north supported by enough stores to make up an integrated suburban retail district. Economic consultant Larry Smith bolstered Graham's argument by showing that the proposed site was within 12 minutes driving time of 275,000 people who spend \$500 million a year. The original corporation formed to develop this district ran into leasing difficulties in the merchandising recession of 1948 and Allied Stores, through its subsidiaries, became owner of the whole district. The Equitable Life Assurance Co. made the mortgage loan, and assisted in the planning process by passing along its vast experience in the requirements of chain store tenants.

Plan. Graham has lined up all buildings on two sides of a paved central mall, 1,500 ft. long and 48 ft. wide. All parking is on the outside of this double row of buildings, leaving the narrow interior mall free for pedestrian traffic. Graham chose the long, narrow building plan as a way to cut walking distance from parking areas to stores to a feasible distance and still provide a central mall free from traffic. Gruen on the other hand, in the larger Hudson development, chose an oval building plan and cut walking by bringing parking inside the oval.

Under Northgate's long central mall, an underground concourse is excavated to provide for all delivery to stores. This, like Gruen's peripheral underground truck road, separates trucking from shopper traffic. All major stores will have double frontage on both peripheral parking space and interior mall. Most will use large glass areas on both sides. Cantilevered marquees cover walks on both sides of the buildings. Store fronts will be developed individually for each tenant, but there will be sign control.

Site. Store buildings and parking cover about 50 acres. An additional 9 acres are alloted to a \$2 million, 250-unit apartment development. Access at present is by 2-lane highways which connect with major arterials. Traffic jams already show that widening of these is necessary.

Parking. Present space provides for 4,000 cars, but leases guarantee only 3,000 spaces, (2:1 ratio), leaving room for future expansion. Maximum walking distance from car to store is 500 ft.



REINFORCED CONCRETE CONSTRUCTION on 24 x 24 ft. bay is basic system, permitting re-use of slab, beam and column forms (moved by lift trucks). Most buildings are one-story. In central areas of these, 24 ft. bays are supplanted by 96 ft. steel bowstring

trusses for maximum clear span. Bon Marche store has three floors, with rear parking space dropped to ground floor level. Entry from parking side is to first or ground floor. Entry from mall side is at second or nain floor level. STRICTLY DEPARTMENTALIZED layout places all food stores together, all shoe stores, all women's ready-to-wear, etc. This emphasizes competitive shopping and convenience for the customer. All major stores have entrances on both mall and parking sides.



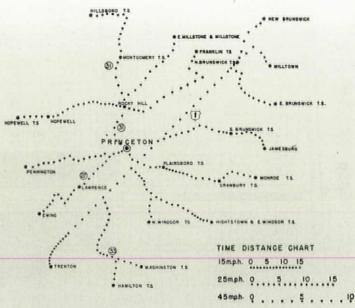
Pacific Aerial Surveys, Inc

PRINCETON: Industrial builder plans 205,000 sq. ft. of store space, convinces community it will not menace property values by an expert plan

KETCHUM, GINA & SHARPE, Architects
KENNETH C. WELCH, Market Analysis
SEVERUD-ELSTAD-KRUEGER, Structural Engineers

Clearview, a suburban shopping project outside Princeton, N. J., is considerably smaller (total store space 205,000 sq. ft., parking for 1,900 cars, anticipated sales of \$10 million) than the Hudson and Allied developments shown on the previous pages. Partly because of its smaller size, architects Ketchum, Ginà & Sharpe were able to develop their plan in a way that adds some important new design elements to this emerging suburban building type. These are:

- Location and design of individual buildings so that the whole building group will have the kind of "showcase" attraction from the approach road that a brightly lit store window has on a downtown steet.
- ▶ Buildings custom-designed to the needs of most major types of tenancies—supermarket, apparel stores, candy stores, etc.—instead of the standard buildings usually allotted to all tenants save the major department store. This means taking full advantage of the fact that in the suburban shopping center the tenant precedes the building. That is, precise market analysis of the surrounding trading area sets the type and number of tenants required for the financial success of the shopping center. This makes it possible to design from the beginning to the requirements of, say, a shoe store, instead of adapting a piece of a standard building to these requirements after a specific lease is signed with specific shoe merchant Smith.
- ▶ A solution for the problem of keeping delivery trucking out of the way of shoppers where the center is too small to justify the expense of an underground delivery road.
- An interior grassy mall architecturally modeled into three separate spaces in relation to major buildings.
- ▶ A building on stilts to bring this mall in view of the driver approaching the shopping center.
- A carefully studied pattern of pedestrian traffic control, which routes all shoppers from peripheral parking space through glass-enclosed ramps up to the central mall onto which all stores front. These glass-enclosed ramps are imaginatively exploited—one as a two-level florist shop, others for views into adjacent stores where display is used to presell the shopper before she reaches the actual store entrance.
- An economic system of steel framing, which provides a 20 x 40 ft. bay in most buildings. Specialty stores will each fit into a single 40 ft. wide bay section, thus run depth of building without interruption by columns. In the department store, 60 x 60 ft. bay framing will be used; in the supermarket, 40 x 40 ft. bay.
- A clear-cut separation of stores and services. The restaurant adjoins, but is not in, the department store, making dinner service possible. No stores have been forced into the lobby floor of the office building.



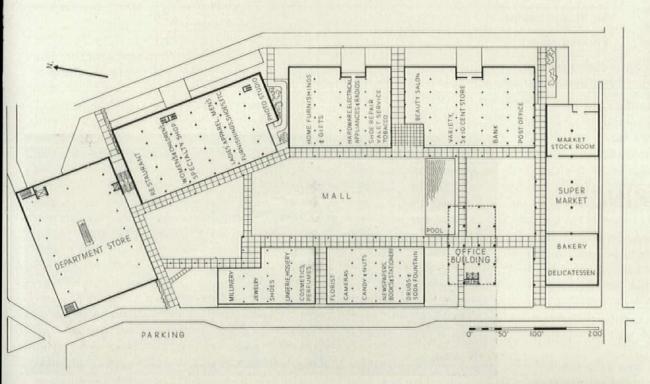
MARKET ANALYSIS by Architect Kenneth Welch started with this chart of driving time-distance from site to all major population points. Each dot represents one minute of driving time; where dots are far apart, greater speed is possible on better roads. Market area is defined by a time-distance radius of 29 minutes.

In short, architects Ketchum, Ginà & Sharpe gave Theodore Potts, the developer of this shopping center, a first-rate plan. This turned out to be needed. Perhaps no would-be suburban developer ever faced a more formidable array of planning commissioners and interested citizenry. Mr. Potts' tangle with local planners and property owners illustrates, in a fairly exaggerated form, the problem all these suburban retail developments face in fitting into a community. In the first place, Mr. Potts, a contractor specializing in industrial building, confronted a Township Planning Board headed by Jean Labatut, distinguished architect and planner and professor of architecture at Princeton University. Sitting with professor Labatut on the planning board were several atomic physicists who love to bone up on planning theory in their spare time. Looking over the shoulder of these commissioners was a highly articulate group of nearby property owners, headed by Bernard Kilgore, publisher of the Wall Street Journal, for whom the prospect of adjacent commercial development had small charm. Potts sweated through a year-long series of meetings with this high-powered planning commission. They terminated when chairman Labatut happily informed the Princeton Township Committee, "Mr. Potts has generously offered the community a nine-acre public park. In this case, we are recommending that the committee consider a re-zoning ordinance which will enable Mr. Potts to build his shopping center." Whereupon the planning commissioners presented a zoning ordinance of an unprecedented character. This ordinance, in effect, said that the area might be re-zoned for commercial use provided that plans as prepared by architects Ketchum, Ginà & Sharpe were used for the development.

Few planning commissions will probably go quite that far in making sure that the new suburban retail districts fit graciously into the community. But to the degree that they understand sound land use they will insist that the architects responsible for these suburban developments go as far as Ketchum, Ginà & Sharpe did in 1) routing traffic to and from the center away from surrounding residential streets; 2) providing adequate off-street parking and unloading space; 3) handling park space and surrounding green belt to give privacy and protection to surrounding houses; 4) providing buildings of a character and design quality that will be welcome in the community.

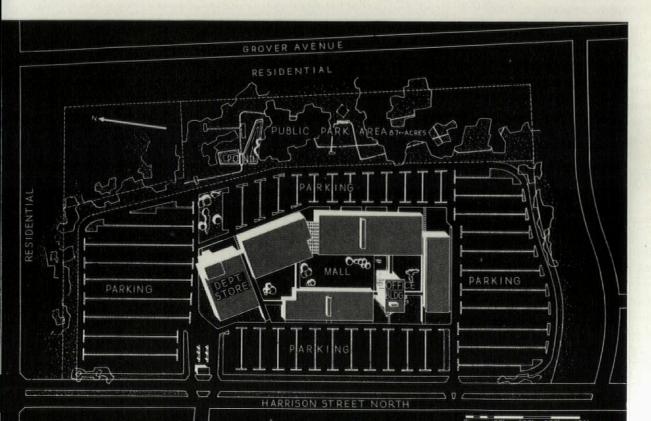


DEPARTMENT STORE has large glass expanse on parking side (northern exposure). Planting, trees, black pavement will be used to help cut glare inside. Store is also opened by glass on south side for view through, but on this side glass will extend only the height of show windows which will be protected by a deep canopy. Both department store and the adjoining building take advantage of the sloping grade for two levels. All other store buildings are one-story; office building is seven.





GLASS ENCLOSED CORRIDOR, lighted by clerestory, leads from peripheral parking space into central landscaped mall. Note on rental plan (l.) how all "impulse" stores are grouped in smaller buildings with low ceilings on western side of plan. This is approach to the whole center, since traffic access is limited by zoning ordinance to one street, Harrison. These smaller buildings are glass-walled on both sides, act as "show case" for whole development. Stock in these "impulse" stores will run along length, so as not to block view through to inner, landscaped mall. Note how green mall is brought up and around all sides of office building, which will be on stilts.



MAJOR STORES are located to move shopping traffic back and forth across the mall-department store on one side, supermarket (with slightly lesser pull bolstered by the office building) on the other. This pattern also makes it possible to place big stores which need big unloading areas at ends of the building plan where delivery will have minimum interference with parking traffic. The architects point out that delivery to the small "impulse" stores at the front will mean minimal interference with other traffic, since these stores carry small inventories and delivery can be made by small trucks requiring little time.

THIRTY MINUTES DRIVING TIME

A new kind of market analysis is necessary in planning the suburban retail district. It starts with the assumption that the size of the market can be measured by the variable "30 minutes driving time." The analyst establishes total retail buying power of the people who live within 30 minutes of the site. He then discounts this total buying power to allow for distance from the site (families who live closer will buy more than families farther away) and for competition from existing stores. Analysts differ sharply in their methods of calculating discounts. When the analyst arrives at the net retail sales which can be prudently expected at the new suburban center, he knows how many sq. ft. of store space should be built. The comparison made by FORUM (r.) suggests that this is 1 sq. ft. for every \$50 of sales. If the Seattle development is a fair test, all districts should do much better than this: Northgate is already far exceeding minimum expectations. Architect Kenneth Welch prepared the market analysis for Princeton; Larry Smith the analyses for Detroit and Seattle.

DETROIT	SEATTLE	PRINCETON

Population within 30 minutes*	1,112,979	241,374	283,818
Gross retail sales potential	\$824,884,660	\$238,286,331	\$130,000,000
Percentage discounted**	93	86.7	92
Minimum sales expected	\$60,000,000	\$33,000,000	\$10,000,000
Total sq. ft. store space	1,200,000	650,000	200,000
Minimum sales expectancy per sq. ft. gross store space	\$50	\$50	\$50
Sq. ft. per capita	1	2.6	.7
Parking ratio	2:1	2:1	3:1

^{*} Driving time.

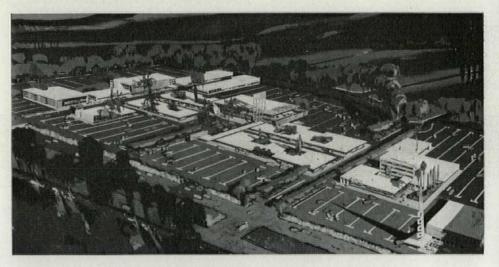
HOW MUCH PARKING?

Some suburban stores have gone bankrupt because their builders failed to provide enough room to park. On the other hand, too much parking space will not be effective if it stretches so far away from stores that the shopper will have to walk long distances from car to store. Surveys have shown that if walking distance is more than 400 ft. the driver prefers to cruise around waiting for closer parking.

Until recently store planners have been guided by little more than rule of thumb. Surveys made of existing shopping centers by the Urban Land Institute show an average ratio of twice as much space given to parking as to interior store space. This "area ratio" method of determining needed parking space is the one used by most building codes, which specify parking lots on the basis of the square footage of the buildings which they will serve.

The skilled architects who are now planning suburban retail districts are abandoning these "area ratios" for more precise measures of required parking space. Wurdeman & Becket, for example, have adopted a method based on average "unit sale." They developed this method out of research they did for two San Francisco shopping districts, one for Stoneson Bros., the other to be built in David Bohannon's 800-acre Hillsdale Community Development.

Surveying parking space around hundreds of existing stores and shopping centers, Wurdeman & Becket noted that two stores with exactly the same annual gross sales may vary tremendously in their requirements for off-street parking. Store A, dealing in lower-priced merchandise, will have a higher number of individual sales transactions per day than store B, and thus need more parking space. The firm's research showed that average sales volume per



SHOPPING DISTRICT is part of master plan for David Bohannon's 800-acre Hillsdale Community Development. Some 171 stores will occupy 640,000 sq. ft. on 42-acre site. Wurdeman & Becket's plan offsets mall into northern and southern wings to avoid monotony and shorten vista.

car space in existing stores and shopping centers varies from \$15,000 to \$60,000 per year. On the basis of these studies, they set up a formula reflecting annual gross sales, percentage of shoppers not arriving by car, car turnover, customers per car, average unit sale. Applying this formula to the Hillsdale center, they used these figures:

Anticipated annual gross sales	\$35,000,000
Minimum car turnover per space	3.3
Customers per car	1.4
Customers arriving by car	50%
Average unit sale	\$5.40

Their conclusion: one parking space would be required for every \$15,000 of the expected annual sales volume. Thus Hillsdale requires at least 2,300 parking spaces. In area this would be about 690,000 sq. ft. or slightly more than a 1:1 ratio to Hillsdale's anticipated 640,000 sq. ft. of store space.

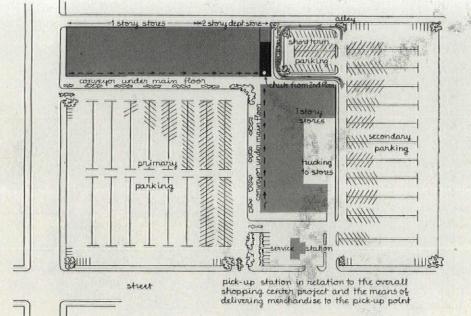
^{**} Discounts reflect distance of shoppers from center, competition from existing stores, shoppers not counted for low-income, etc. Analysts differ sharply in methods of estimating discounts.

AUTO SHOPPING

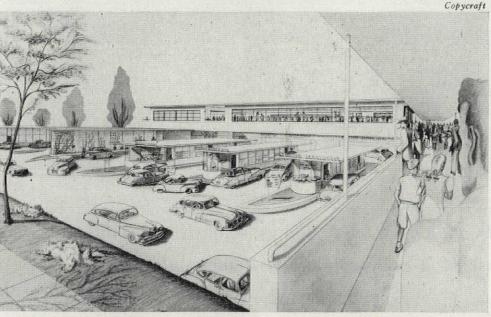
Architect Howard T. Fisher thinks planning for automobile shoppers has not yet gone far enough. The suburban retail district means vastly improved merchandising efficiency, Fisher says, but the problem of getting what the shopper buys into her car has not yet been completely solved. The plans shown on the preceding pages will all probably use some system of delivering packages by handcart to central pick-up points in the parking area. The shopper will drive past this point on the way out, present her check and collect her packages, Fisher would substitute a light conveyor system for the hand-cart method of getting packages to the pick-up point, and has prepared the schemes on these pages to show how it would work.

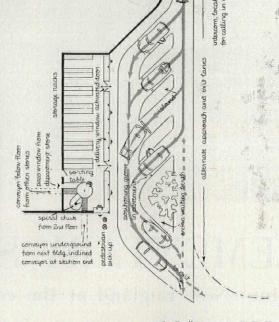
Fisher's scheme assumes an L-shaped building plan, with the major department store at the angle of the L. He would install a simple conveyor across the fronts of all buildings, locating the conveyor at the ceiling of the basements or, if there are no basements, in a trench below floor level. A spiral chute to reach this conveyor would be provided from upper floors of the department store.

Another Fisher proposal to adapt suburban shopping more completely to the automobile is a scheme to make it possible for the customer to buy certain goods and services



SCHEME shows location of a central package pick-up point in relation to L-shaped shopping center plan. Light conveyors would bring packages from all stores to this pick-up station.

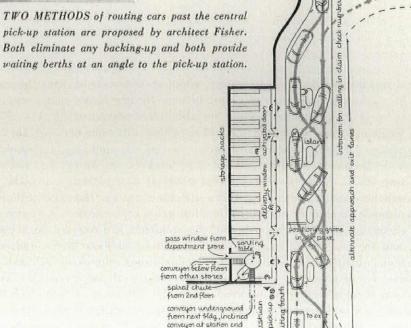




Auto shopping lanes

without even getting out of her car. He calls this Auto-Shopping and points out that it is simply an extension of the method used now to sell gasoline, and by banks which have installed drive-in windows.

Fisher's plan for a two-level shopping center lines up convenience and service stores in auto lanes (see cut above). The shopper would drive through, leave dry cleaning at one window, a drug prescription at another, cash a check at the auto bank, even buy groceries or other standard goods from stores fronting on the auto lane. Auto shopping would be intended only as a supplement to the major stores in the shopping center, where goods requiring a greater selection time would be sold as usual. Architect Fisher planned the Lincoln Village shopping center (104,435 sq. ft. of store space) now under construction outside Chicago and several other large shopping centers expected soon to get underway. But so far he has not sold any developer on his auto shopping scheme.





Photos: George M. Cushing, Ir.

ELEMENTARY SCHOOL brings scientific daylighting controls into New England at the cost of a compromise with nostalgia

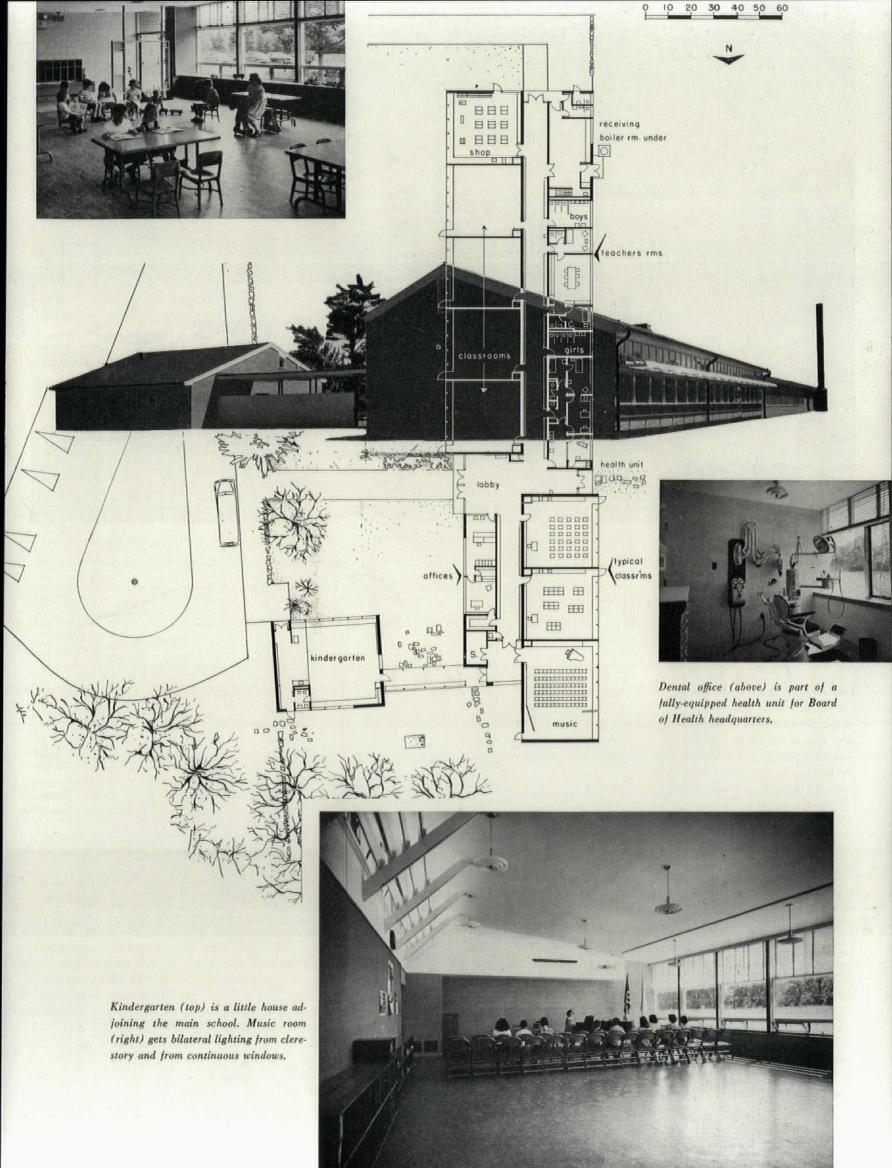
LOCATION: Lincoln, Mass. ANDERSON & BECKWITH, Architects KILHAM, HOPKINS, GREELEY & BRODIE, Associates THOMAS WORCESTER, INC., General Contractor JOHN NICHOLS, School Consultant

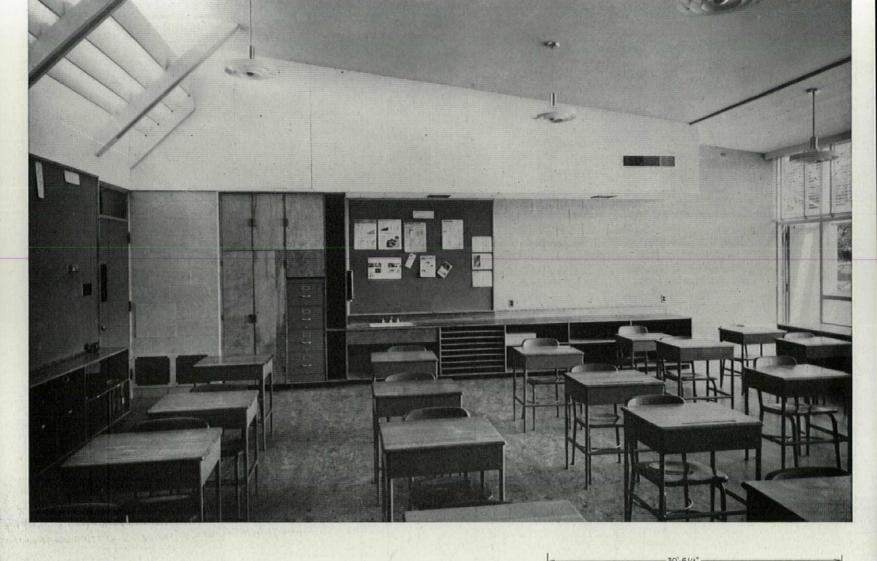
The story of this innocent-looking elementary school at the Cradle of Liberty in Massachusetts is the story of a clash between the new ideals of science and progressive architecture and the inherited conservatism of a New England school board. In the battle neither side won a clear-cut victory-yet both made decisive gains.

Anderson & Beckwith, scientific-minded top teachers at New England's own M. I. T., achieved controlled bilateral daylighting for all classrooms, though contending with a difficult exposure. The school board made good its demand for a familiar gable roof, necessitating a surrender of the single-pitch roof the architects had contemplated, and the building of unnecessary trusses at an additional cost of \$5,000 (which would have half paid for a children's lunchroom.) School board members, as they contemplate their otherwise trim little school, may well come to wonder why the difference of 10° in a roof pitch once seemed to them so sacred. In any case, the expert lighting, acoustics and room organization which fit unconcernedly under it have established local acceptance of a functional approach to classroom design.

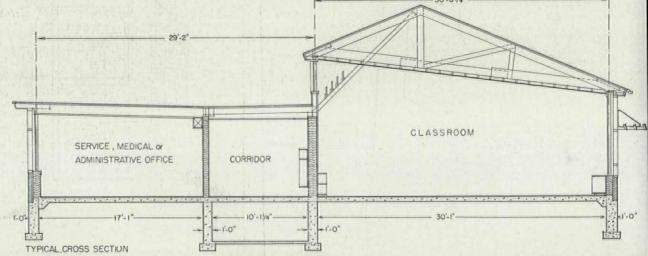
A limited (\$300,000) budget kiboshed the architects' first proposal for classrooms paired in "little houses" and strung alternately left and right along corridors. (This gave each room light from three sides, complete acoustic isolation, and a fine scale for children.) The architects then developed—with budget-wise architects Kilham, Hopkins, Greeley & Brodie as associates—a single-corridor plan which sets classrooms and offices facing each other. The building was set in a long line on the east side of the property to conserve play space—a placement which saddled A & B with the problem of controlling natural light from the difficult east and west exposures.

To attain bilateral lighting, classroom ceilings slope up from 10 ft. 9 in. at the broad continuous windows to 14 ft. 5 in. along the inner side. This allows a 3 ft. clerestory to be set above the corridor. The chief difficulty in regulating light from these sources is the low





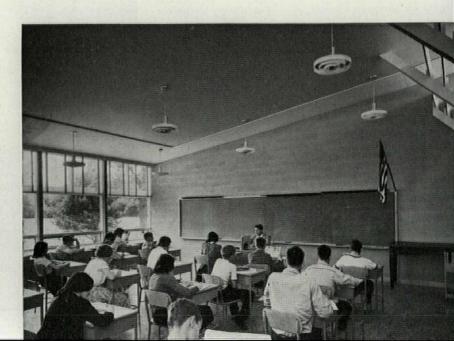
Cross-section (right) shows central corridor flanked by offices and class-rooms. Sloped ceilings are bordered with acoustic tile to prevent reverberation. Photo at top reveals supplementary heating duct along the back wall—this draws in and heats fresh air from the clerestory.

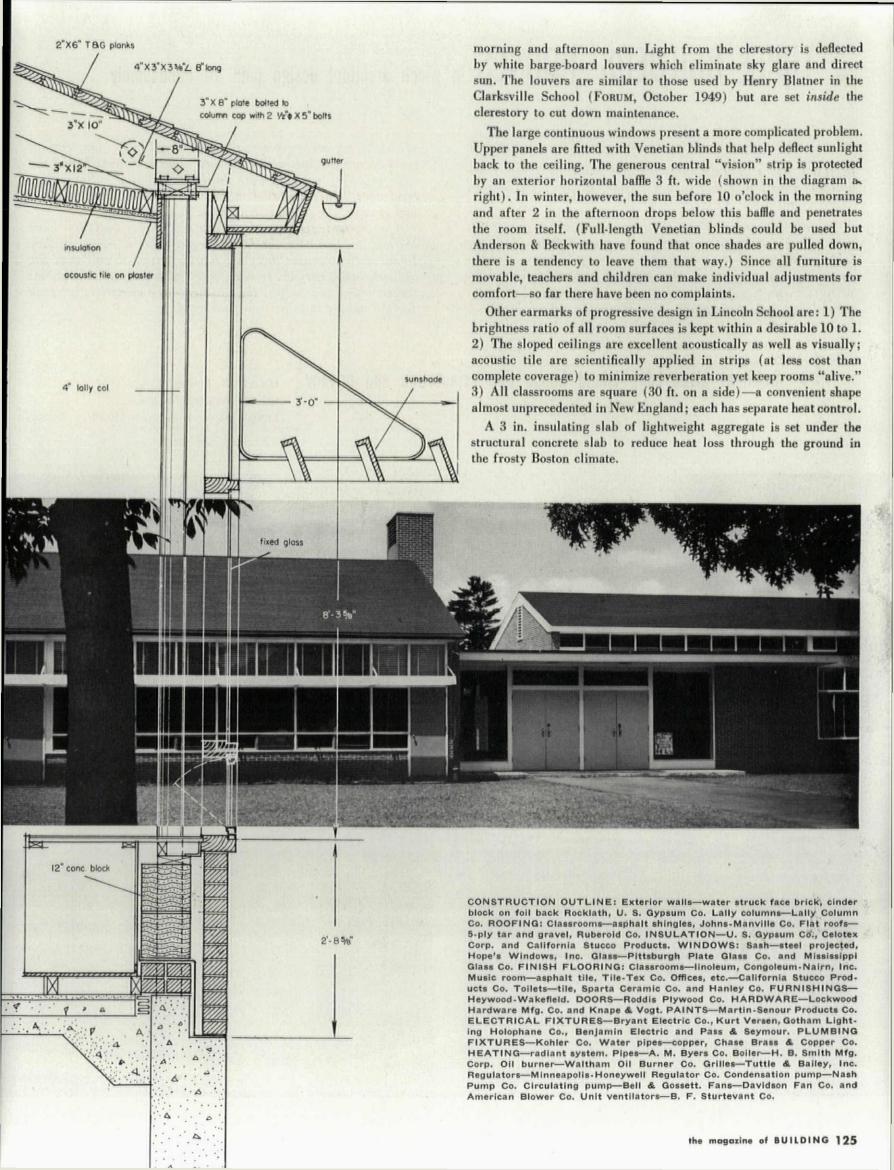


COST BREAKDOWN

Excav. & rough grad \$	11,499
Foundations	27,982
Waterproofing	3,079
Footing & drainage	1,530
Floor slabs, conc	6,500
Masonry	28,028
Steel & misc. metal	10,529
Framing carpentry	21,489
Finish carpentry (incl.	
shingled roof)	38,914
Roofing (flat roof only)	4,440
Plumbing	17,330
Heating	40,265
Electrical	22,740
Linoleum & asphalt tile	2,550
Ceramic tile	2,400

Steel sash	6,153
Hardware	4,646
Toilet stalls	1,365
Glazing	3,000
Acoustic work	2,720
Plastering	5,850
Chalkboards & tackboards	2,910
Painting	4,800
Steel stack	1,265
Constr. contract	313,075
Archts.' fee	24,690
Land	12,000
Landsc., paving, etc	5,500
Furnishings	11,000
	9266 265





THREE BUILDERS' HOUSES in which architect design paid off handsomely

How much is a good architect's service worth to a builder? In these pages, Forum presents the work of three more builders who found that hiring a good architect was not an expense, but a way to increase profits.

There are two good reasons why none of these builders will ever build again without an architect. First, each was lucky enough to find an architect who designed a house that was easy to put together. This came as something of a surprise to them. Said one builder: "I used to think that architects didn't care how much a building cost. Now I take it

all back: my architect actually was arguing me into cutting costs before we finished the house." The architects found the experience of working with builders equally enlightening. Said one: "Once you realize that the builder's biggest problem is costs, the battle is half won."

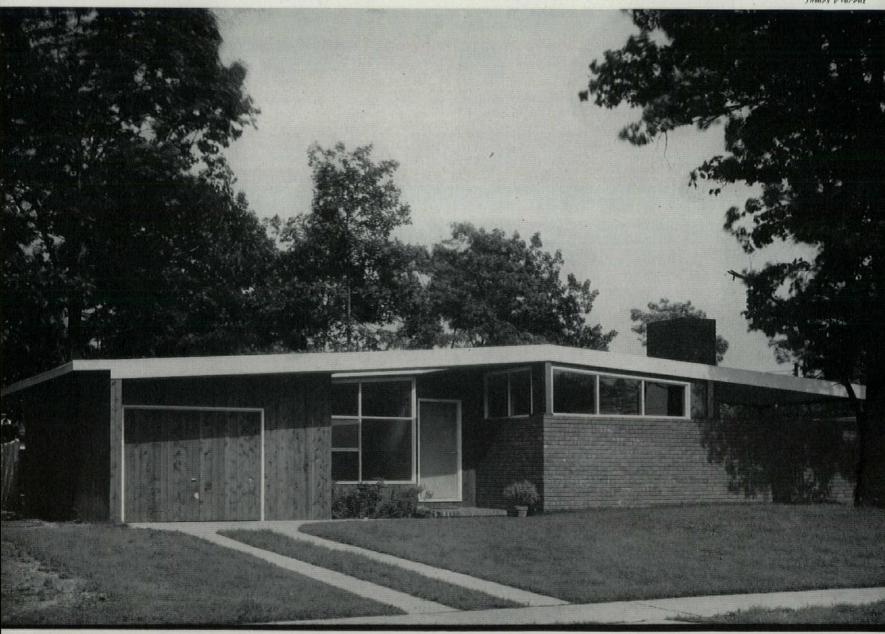
lem is costs, the battle is half won."

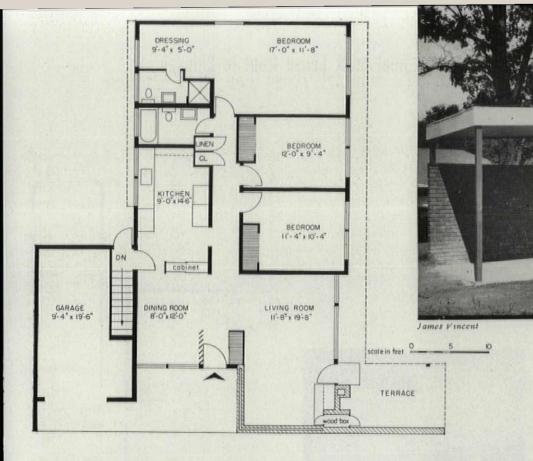
The second reason why FORUM's three builders have learned to live with architects—and like it—is that they found their architect designed houses easier to sell than the old stock-plan variety. In each case the reason was the same: the architect had helped the builder offer more living space for the money than his competitors did.

1. Architect gives Long Island house fine orientation and privacy

LOCATION: Freeport, L. I.
HUSON JACKSON, Architect
LEROY SIMON & KEENAN MORROW, Builders

James Vincent





OUTDOOR LIVING AREA adds to spaciousness of rather small living room. Because of southern orientation, Architect Jackson has provided 3 ft. 10 in. overhang outside livingroom window, 2 ft. 6 in. overhang outside bedrooms.

LIVING ROOM displays exposed brick wall on street side with clerestory windows above (here hidden by drapes). Dining room window, in lower picture, uses obscure glass up to head height.

Privacy and good orientation—two highly merchandisable virtues in a builder's house—are ably provided in this group of Long Island builder houses.

Given a group of adjoining 75 x 100 ft. lots, Architect Huson Jackson started off by siting each 39 ft. long house 3 ft. from the north property line on the north-south streets. This gave him a large (40 x 55 ft.) side yard on the south, which he made the main focus for his plans. The living room and the three bedrooms all face out on this yard. To insure privacy in this green and pleasant area, he has shielded it from the street with a 14 ft. brick extension of the house front. The north side of the adjoining house is neatly planned to assure privacy from that direction: a blank-walled garage in the front and only high-stripped windows in the rear.

The interior plan was dictated by the south-sided orientation of the house. Although the living and dining rooms are modest in size, large amounts of glass areas increase their apparent spaciousness. The living room opens up on the south to a roofed outdoor living area with a barbecue and concrete slab floor.

Noteworthy is the way the master bedroom is planned larger than the living room to provide a good-sized "retreat" for oldsters when the young set takes over the front rooms.

The houses sold for \$18,000 early this Spring. Architect Jackson's fee was very low at \$300 for the model house design, plus \$100 royalty for the dozen other units built. (When a client wanted some major changes, like the addition of a room, Jackson charged an extra \$50 just to cover his costs. This occurred in six houses.) Thus the builder's architectural expense came to \$1,800—or less than 1½ per cent of the houses' selling price. This may well be the good-design bargain of the year. The Quality House Division of the Southwest Research Institute approved these houses.





CONSTRUCTION OUTLINE: Exterior walls—red cedar, 15 lb. felt, shiplap, studs, insulation and wallboard. Ceilings—Sheetrock, U. S. Gypsum Co. ROOFING—3-ply built-up. SHEET METAL WORK: Flashing—copper. WINDOWS: Sash—aluminum, Glass—double strength. KITCHEN EQUIPMENT: Range and refrigerator—Frigidaire Div., General Motors Corp. Sink—Tracy Mfg. Corp. LAUNDRY EQUIPMENT: Washing machine—Bendix Home Appliances, Inc. HEATING—hot water system. Boiler—L. O. Koven Bros., Inc.



2. Bright construction ideas are found behind neat brick house front in Chicago

LOCATION: Cook County, Ill.

MILTON S. CARSTENS & ROBERT SCHULTZ, Architects
R. PAUL SHADE, Heating Engineer
JOHN S. CLARK CONSTRUCTION CO., Builder

Architect Milton Carstens' chief contribution to this group of Chicago builder's houses is a series of bright construction ideas, including:

A new warm air radiant heating system which heats every inch of the floor, answers some thorny heat-lag problem.

Structural clay tile walls in the kitchen, bath, and utility room.

Combination brick-cavity-wall and truss-roof construction which streamlined construction and eliminated all interior wood trim.

These ideas are wrapped up in a simply detailed house which, considering the limitations of its 50 ft. lot, is many cuts above the average Chicago house.

The use of structural clay tile walls, an old standby in commercial building, becomes a sparkling new housebuilding idea in this project. Builder Clark used 5 x 12 in. blocks, ceramic glazed in a variety of colors for the walls around kitchen, bath and utility rooms. Where the wall adjoins the living room, hallway, or bedrooms, tile was used with one side glazed and the other side plain so that plaster could be applied directly.

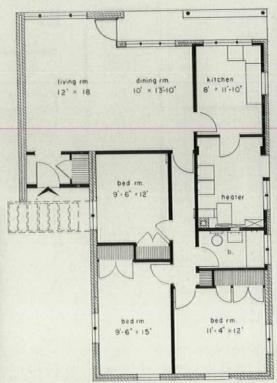
A warm-air slab-heating system provides another structural innovation. The slab consists of 4 in. of insulated concrete, over which are laid hollow steel panels that serve as the duct work through which warm air is forced by a blower. (See picture below) Twelve-gauge steel sheets are placed over the header voids and welded into place to form a solid steel floor desk. Two inches of concrete are poured over this deck and covered with parquet flooring. Aside from the economies of warm-air heating, Builder Clark reports the special success of his heating system in cutting down heat-lag for two reasons: 1) The 2 in. slab on top of the steel deck is half the thickness of an ordinary slab, and therefore requires less time to heat; 2) 100 per cent floor coverage further hastens the slab-warming process.

Exterior walls of the house are of the 2 in. cavity type, tied together with ½ in. tie rods. The inside faces of these walls are tile, stone veneer, exposed brick, or brick with plaster. Wood trim is eliminated inside the house. The kitchen, bath, and utility rooms have tiled sills and returns; windows and doors in the other rooms have plaster returns.

Builder Clark sold this group of 14 houses for \$21,000. Architect Carstens' fee was a flat 8 per cent of the construction price of the houses. However, his arrangement with the builder provided that as soon as the builder erected enough houses so that their number, multiplied by \$100, equaled his 8 per cent fee for one house the fee would drop to a \$100 royalty-per-house. Since the architect's fee was about \$1,400 a house, this meant that after Builder Clark had finished 14 houses, the \$100 royalty fee went into effect.

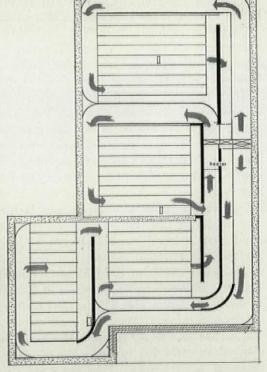


L-SHAPED HOUSE PLAN (above) can be reversed to provide two distinct elevations from street side. House above shows eave line to street, with slight change from basic plan in main-entrance detail.





HEATING SYSTEM detail in picture above shows steel panels in place before sheet metal is welded to header void, providing a completely closed circuit. System is zoned. Layout of system (right) shows that supply channels were



wisely placed along exterior walls whenever possible to offset higher heat loss around perimeter. Cost-wise, Builder Clark says, the system ran about 10 per cent higher than a conventional hot-water slab layout.



Photos: Hedrich Blessing

BASIC HOUSE above shows gable-ended bedroom wing facing street. Living room in this plan looks out on privacy of rear yard. Another provision for privacy is keeping the living room wall solid on the lot side.



\$20,945



COST BREAKDOWN Land Foundation & walks..... 1,930 3.790 545 Lumber & carpentry..... 1,800 785 Flooring Millwork and cabinets..... 985 85 990 Sheet metal floor deck..... 145 Heating equipment 730 260 Roofing 1,180 Plumbing Plastering 1,020 Decorating 600 Electrical work 570 Glazing 220 Hardware Loan cost, survey & overhead...... 1,000 Profit 2,110

CONSTRUCTION OUTLINE: Exterior walls -10 in. cavity, face brick, Waylite block; inside-plaster. Structural clay tile walls-Arketex Ceramics Corp. Floors-E. L. Bruce Co. parquet over concrete slab, 41/2 in. Fenestra panels, Detroit Steel Products Corp. over 4 in. Zonolite, Zonolite Co. WINDOWS: Sash -aluminum awning, Metal Window Products. Glass-Pittsburgh Plate Glass Co. FINISH FLOORS: Kitchen and bathrooms-asphalt tile, Thomas Moulding Floor Mfg. Co. DOORS -Paine Lumber Co., Ltd. ELECTRICAL FIXTURES-General Electric Co. KITCH-EN EQUIPMENT: Refrigerator-Kelvinator, Kelvinator Div., Nash Kelvinator Corp. Cabinets and sink-Morton Co. BATHROOM EQUIPMENT-American Radiator-Standard Sanitary Corp. HEATING-gas fired, hot air, radiant floor system. Boiler-J. V. Patten Co.

KITCHEN demonstrates clean-cut effect of structural-tile wall. Where tile is part of exterior wall, it serves as the inner withe of a cavity wall. Costwise, Builder Clark says his floor-to-ceiling tile did not exceed a conventional stud-lath-plaster wall, tile-surfaced halfway up.

3. Design brings merchandising triumph over stock-plan house model in Florida

LOCATION: North Miami, Fla.

ROBERT LITTLE, Architect

KEYSTONE POINT DEVELOPMENT CO., Builder

Land Developer John Keefe of Miami thinks he knows what kind of house will sell and what kind will not. Last summer he predicted that the stockplan house another builder was putting up on his property wouldn't sell, and he was as right as rain.

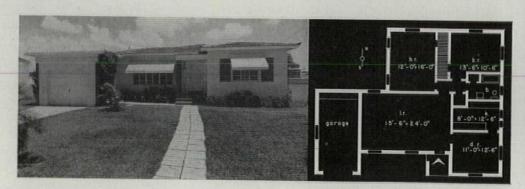
When 13 of them were put up before even one sold, Jack Keefe decided to form his own building syndicate and called in Architect Bob Little to plan a house that would sell.

The results are pictured on the page opposite. Architect Little's houses show an uncommon amount of good sense in their interpretation of Florida living requirements. (In this, they differ not only from the 13 original houses on the site but also from most of the speculative houses built in the semitropical South.) The problem is largely one of climate: Miami is hot, sunny and rainy. Here is how Architect Little handled these factors:

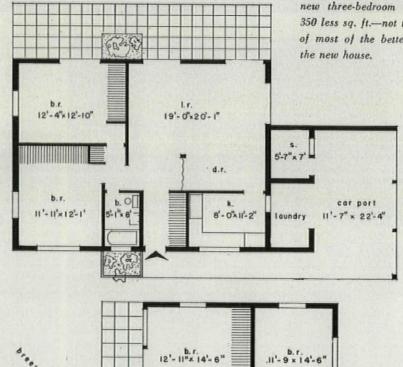
- Proper orientation. In both interior planning and site planning, the houses are laid out to take advantage of the sun, also of the 15 mile-per-hour southeast breeze which alone makes Miami weather bearable in the summertime.
- Good cross ventilation. Supplementing his orientation solution, Little has made his houses convenient breezeways by placing windows with low sills on the side the breeze comes from, high windows to the leeward. Another sensible cross-ventilation trick was to specify awning-type windows, the only kind that can be kept open during Miami's many rainy spells. Open-planned interior. A screened porch and terraces are readily accessible from the living area. Glass window walls separate these outdoor living areas from the living room proper. Little also specified these window walls for the main bedrooms until FHA cracked down with a ruling that he was carrying indoor-outdoor living a bit too far. (FHA's position is a reminder that glass-walled bedrooms are still a highly debatable subject in the evolution of the contemporary house.)

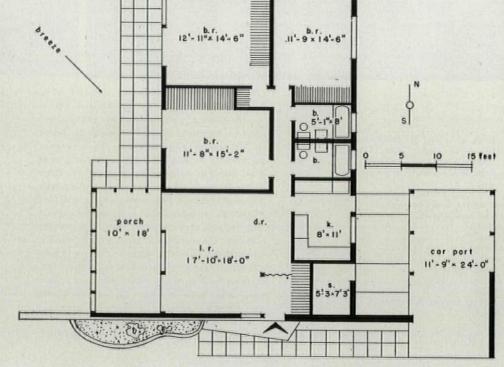
Large overhangs on all sides to minimize the effect of sun glare and rain. But some of the design effects, happily removable, are a bit overtricky.

With all these plus features, the houses were a merchandising success from the start. Jack Keefe's syndicate has sold out its first 50-unit section, plans to build over 100 houses by the end of the year. The basic two-bedroom house is priced at \$10,800, the three-bedroom at \$13,500. Largely because of their simple, straightforward plans, the houses sell at about \$8 a sq. ft. By comparison, the original stockplan houses sold at \$10 a sq. ft. Architect Little, who is a vice-president in the Keefe syndicate, gets a flat $2\frac{1}{2}$ per cent architectural fee based on the selling price of the houses, for complete design and construction supervision.



STOCK PLAN HOUSE is stripped-down descendant of the stucco Spanish "villas". These houses were originally put on the market at the same price (\$13,500) as the new three-bedroom house, they contain 350 less sq. ft.—not to mention their lack of most of the better living qualities of the new house.







Architect's basic two-bedroom house is shown at immediate left. Below are two with variations in roofline and carport location to fit other sites.

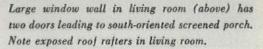






CONSTRUCTION OUTLINE: Exterior walls—concrete block, Maule Industries, Inc., stucco; inside plaster, U. S. Gypsum Co. and plywood, Davidson Plywood Co. Floors—cement with terrazzo and Walton Flooring Co. wood finish. ROOFING—built-up, Keene Roofing Co. INSULATION—Celotex Corp. WINDOWS: Sash—Gate City Sash & Door Co., Ludman Corp. and Miami Aluminum Windows Co., Glass—Pittsburgh Plate Glass Co. and Southern Glass Co. WALL COVERINGS: Bathrooms—tile, American Olean Tile Co. PAINTS—Sherman Williams Co. DOORS—Paine Lumber Co., Ltd. HARDWARE—Schlage Lock Co. CABINETS—Gate City Sash & Door and Renuart Mill Co. BATH-ROOM EQUIPMENT—American Radiator-Standard Sanitary Corp.

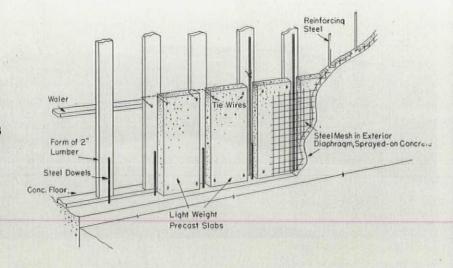






QUICK CONCRETE WALL

A combination of sprayed studs and prefab panels makes this new wall strong and inexpensive

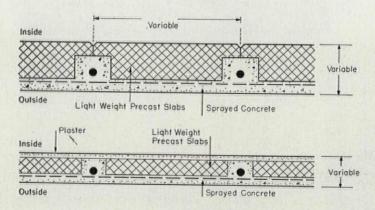


Comprised of sprayed concrete studs supporting precast light-aggregate filler panels to which they are bonded, this new wall is fireproof, light in weight, high in structural strength, and low in cost—more than 20 per cent cheaper than a typical reinforced poured-concrete wall of the same thickness. Recent competitive bids indicate that the new wall is 49 cents per sq. ft. of wall cheaper than an equivalent solid concrete insulated wall.

Development of the wall was begun four years ago by a group of engineers in the Imperial Valley of California at El Centro. Sprayed or pneumatically applied concrete was nothing new in that area. Local contractors and workmen thought nothing of it; the concrete gun was an old weapon to them. But the engineers, headed by J. S. Hamel, began an investigation to find if this building method really had been probed deeply. Now, four years later, their ponderings are complete and they are licensing a thoroughly tested wall-building method officially dubbed Insulrib.

More than \$3 million of buildings with Insulrib walls have been completed in California or are under construction. The method has been approved by the Uniform Building Code of the Pacific Coast Building Officials Conference, by FHA, and by California's Division of Architecture for use in school buildings.

It's a simple wall to construct, requiring no elaborate equipment or precision workmen. (See sketches and photos.) The inherent high strength of sprayed concrete



Two standard Insulrib walls are shown in plan section above, the unfinished version (top) and the plastered wall. Wall thickness is based on use.

is used shrewdly in small piers at stud spacings, reinforced with steel.

Erection is rapid. Precast lightweight aggregate concrete slabs are propped up into the positions they will fill between stud spaces, and 2 in. planks are used to back up those still empty stud spaces. Steel mesh is hung over the outer face of the skeleton wall before any spraying begins. Then comes the gun, and spraying is continued after the stud cavities have been filled in until there is a plain concrete exterior surface to the wall. If the spray gun is handled right, shooting the right mix from the proper distance, a surface of excellent texture can be applied. (See photos.)

The inside of the Insulrib wall can be left rough or can be plastered direct (see sections). Where vapor barriers are required, the interior surface of the wall is sprayed with an asphaltic emulsion prior to plastering. When a high degree of vapor resistance is needed—as in cold storage buildings—prefabricated slabs of asphaltic impregnated and coated materials are used.

The Insulrib wall can have good heat insulating qualities since the class of insulating material in filler panels may be varied to fit each building's prescription. Any inert material may be used, and the various types of precast slabs and preformed floor and wall sections are adaptable. (Or a good filler slab of lightweight aggregate concrete can be poured on the job.) "U" values of the unplastered Insulrib walls are .17 for the 5 in. wall, .15 for the 6 in. wall, and .12 for the 8 in. wall. In each case, plastering cuts down Btu transmission another .01 per sq. ft. per hour. If heat loss is still too high, the Insulrib walls can easily be made strong enough to support additional applied insulation.

In the department of endurance against fire, one standard 6 in. Insulrib wall using vermiculite aggregate has been given a 4-hr. fire resistance rating.

Substantial weight reduction with the Insulrib method may be made in fireproof structures. The composite weight per cu. ft. of an 8 in. Insulrib wall is one-half that of concrete. The lightest type of concrete aggregates are used to form the insulating slabs, and the inherent high strength of sprayed concrete permits the use of the minimum concrete section.

This lightweight is of particular importance in seismic areas, where the lightweight walls may be combined with lightweight floors and roofs, and the use of ver-



Exterior walls of good texture are possible by concrete gun (see left).

miculite or perlite plaster will effect a substantial economy in overall building costs.

As an example, a police station and jail was designed with Insulrib walls, lightweight steel floor and roof joists, and vermiculite plaster, meeting the requirements of the Uniform Building Code for Type 1 construction. The building was a two story structure having a gross area of 10,500 sq. ft. Compared with the use of equivalent reinforced concrete floor and wall construction, using concrete joist floor, the Insulrib method saved 139 tons in deadweight, or an average of 25 lb. per sq. ft. of floor area.

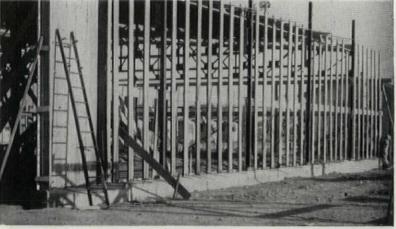
Construction of Insulrib walls can be very rapid, especially in one or two story buildings, because when the wall forms are set, roof framing can go ahead and the roof and walls are usually completed at about the same time. Interior plastering can proceed without delay for furring or lathing—Hamel says his Insulrib wall is ready to plaster as soon as the planks which are the forms are stripped.

Below is a detailed cost analysis of an Insulrib wall compared with an equivalent thickness of poured reinforced concrete:

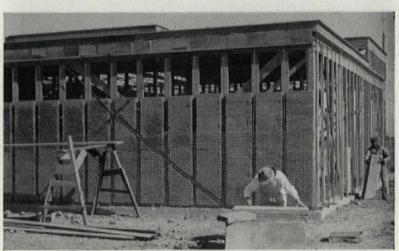
Typical 8 in, thick reinforced, poured concrete wall:

Typical 8 in, thick reinforced, poured concrete wa	.ш:	
C	ost per sq.	ft.
Forms—based on a 3-times re-use factor (2-contact surfaces)	.80	
Concrete—based on price of \$17 cu. yd. in place	.42	
(1-2-4 mix)	.42	
at 6.50/cwt		
Labor placing steel at \$11.50/cwt	.30	
Total cost per sq. ft. of wall in place	\$1.52	
Typical Insulrib wall 8 in. thick, ribs 24 in. o.c. Diaphragm 2½ in. thick, using vermiculite aginsulating slabs.	gregate	for
Forms-2 x 8 in, skeleton form with 2 x 8 in.		
plate and sill 4 x 4 in. walers	.12	
eu. yd	.37	
Insulating slabs, precast and set in place	.55	
Reinforcing steel mesh		
Labor		
.334 lbs. ½ in, bars at 6.50/cwt02		
.334 lbs. Labor at 11.50/cwt	.18	

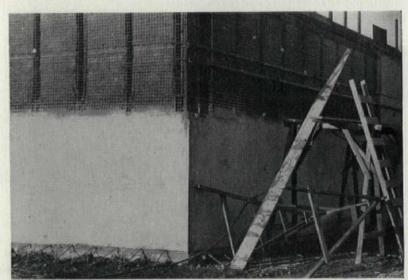
Total cost per sq. ft. of wall in place......



In first step, above, planks are placed behind spaces where studs are to stand



Precast panels are then propped up between stud spacings and mesh is placed



Studs and exterior skin are applied under pressure by concrete gun, unifying wall



Unfinished interior shows stud spacings after planks have been removed. Conduits are cut into wall easily before plastering.

RADIANT WARM AIR HEATING DESIGNS

are improved for slab-on-ground houses

After trying out several designs for heating slab-on ground houses, the National Warm Air Heating & Air Conditioning Assn. now has sufficient experience to recommend its perimeter layout as being best suited among warm air systems for the small, basementless house. During the last heating season, several refinements were developed that give new designs a pronounced superiority over earlier methods.

In the recommended perimeter system, air from a down-flow furnace in the center of the house is forced through either three or four radial ducts buried in the slab to a distribution duct that encircles the slab next to its outer edges. Air flows to rooms via floor registers, usually under windows.

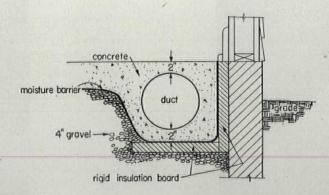
Thus while most of the heating is done by the warm air itself, there is some heating by radiation from the slab over the ducts. Running the perimeter duct close to the slab edge keeps the floor warm near exterior walls and this radiant heating plus the air from the registers counteracts the downward flow of cold air over windows and walls.

A specific lesson learned from one of the experimental houses at the University of Illinois' Small Homes Council, sponsored by the Association, is that a two-loop design is unsatisfactory. In such a layout in which each independent loop heats one-half the house, there is too much radiant heat through the center area of the floor where the main supply ducts run side by side. Air distribution to registers is not as efficient as in the radial duct system. The experimenters also learned last winter that at a point where radial ducts leave the furnace they should be buried 5 in, below the top slab surface and gradually slope upwards until they join the perimeter duct, 2 in, below the slab surface, If this is not done there will be too much heat radiated near the furnace.

More than 500 slab-on-ground houses have now been heated by radiant warm air. From this background of experience it is apparent that the most successful installations are those in which houses were built on well-drained sites where slabs remain dry. Two in. of coarse aggregate are put under the slab, and no cinders are used. The top of the slab is at least 6 in. above the established grade. Of utmost importance, the Association claims, is a waterproof membrane such as heavy building paper between the fill and the bottom of the slab. Equally necessary is a 2 in. thick rigid insulation board beneath and along side of the edges of the slab.

Registers that are long and narrow are best, and the floor gives better distribution than locations in the wall or baseboard. In the bathroom a wall register is often used. Additional comfort is gained if the radial duct runs under the bath tub.

The house illustrated, built in Evanston, Ill., was heated last season with 665 gal. of fuel oil that cost \$85.70. The house had storm windows, and the above figure does not include hot water heat.



Hedrich Blessing Studio



Key to proper installation is moisture barrier under slab of waterproof, reinforced paper or 55 lb. roofing felt. Joints must be sealed.



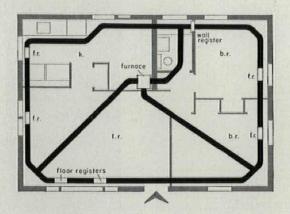
Warm air furnace sits on top of pit or plenum chamber. This installation has three radial ducts rather than four which are more usual.

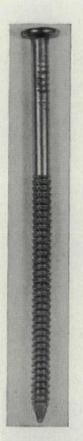


Sheet metal forms hold the ducts in place while concrete is poured. Register openings are covered to keep out dirt during construction.



From 1½ to 2 in. of concrete surround the ducts. Pipes are protected from wheelbarrows and other heavy loads during the concrete laying process.





GROOVED NAILS proven 4.6 and 5.2 times stronger than plain shank nails

How much stronger are grooved nails than plain shank nails?

The Wood Research Laboratory of Virginia Polytechnic Institute has been investigating this question by testing the thrust resistance of housing frames. Pressure is put on the top of the frame to simulate wind conditions during a heavy storm.

Sections designed as in the illustrations below were built of both green and dry southern pine lumber and tested in a Universal testing machine. The frame was fastened to the machine base against a steel angle with four ½ in. diameter bolts and washers.

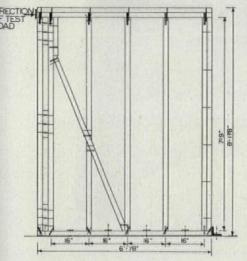
In green lumber the grooved nails $3\frac{1}{2}$ in. long (as illustrated) permitted the frame to take 4.6 times more lateral thrust than when plain shank nails were used.

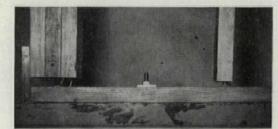
When dry lumber frames were tested, the grooved nails took a thrust 5.2 times that using plain shank nails.

Success of the grooved nails is due to the way the wood fibers are forced over the shoulders of the grooves and wedged into the circular crevices.

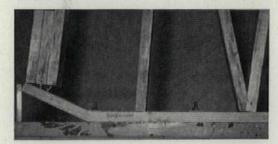
The tests also confirmed what builders have long known: that dry wood makes stronger frames than green lumber. With plain shank nails the seasoned frames were 1.5 times stronger than green frames. With grooved nails, the seasoned frames were 1.7 times stronger.

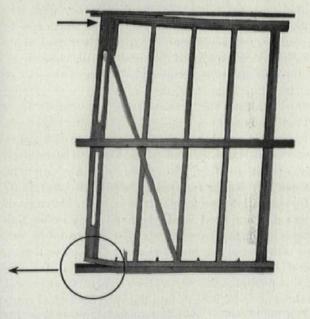
E. George Stern, Director of the Wood Research Laboratory, points out that tests of this kind are significant because the joints of structural members are the most important element of a frame dwelling in withstanding heavy wind storms.





Left: test section design. Above: green lumber failed at lower left with plain shank nails. Below and at right: grooved nails in green lumber. Joint holds but base plate fails.





RUBBER SURFACED PLAYGROUND eases falls for kids

Skinned knees and elbows from falls on playgrounds may be a thing of the past some day because of experimental work done by scientists at the Goodyear Tire & Rubber Co. Substituting ground-up rubber for the conventional crushed slag in an asphalt mixture, the research men have produced a playground covering that is tough, yet springy.

First installed at Akron's Rankin School last fall, the test area has gone through one entire school year. It stood up so well during the winter and is so popular with the kids that the city is converting an entire playground with the new rubber covering. The new material is also being used in sample installations in California, Kansas and Pennsylvania.

Cost of the rubber is five cents per lb. Cost of rubber, filler and asphalt is about 30 cents per sq. yd.



A stone base is sealed with hot-mix asphalt, then covered with ½ in, of ground rubber which is rolled to impregnate rubber particles into asphalt.



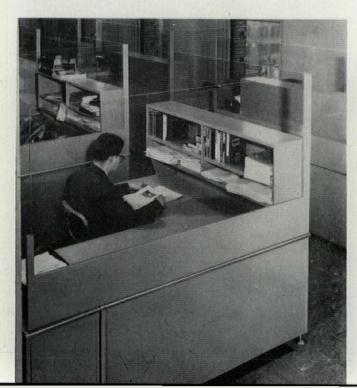
ONE-MAN SIZED OFFICE

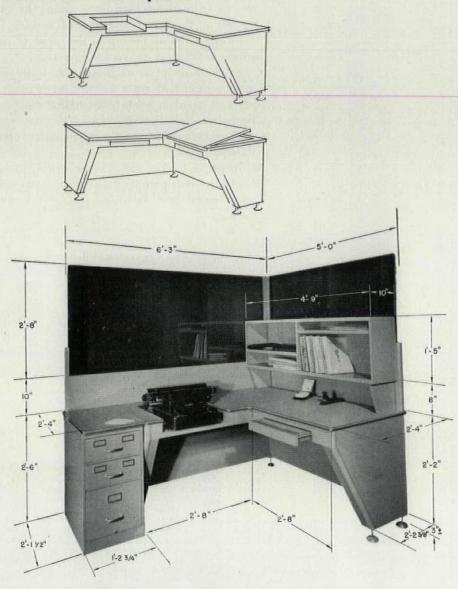
New desk-office unit, mass produced, saves 30 per cent office floor space

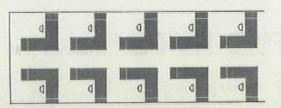
As rents for new office space have climbed in recent years, reaching the figure of \$4.50 to \$8 per sq. ft. for New York City's new buildings (100 Park Ave.), lessors have scraped away at extravagance in use of this precious space. One of their biggest problems has been how to put minor executives in space which will be suitably private for their dignity and efficiency, yet not end up in low occupancy of area, wasting a disproportionate number of square feet. The latest attempt to balance the elements of dignity and density is this desk which is also an office.

An extreme example of economy in space use, it was first developed by E. I. Du Pont de Nemours & Co. One hundred thousand dollars of Du Pont money went into the design and construction of 200 of these offices now in use, and went wisely, according to company real estate engineers who have studied the results of the desk-offices' use. Du Pont has now licensed production of the unit to seven furniture companies, each of whom is developing modified designs. The licenses come gratuitously from Du Pont, who had no wish to enter the furniture business.

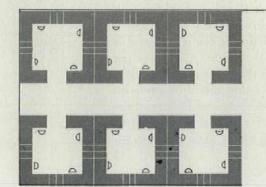
The basis is a desk, with upper partitions which are an upward extension of the desk backs. Thus, no space at all is given partitions. Total space taken by the first unit to be marketed (by Korda Industries, New York City) is 47 sq. ft., with allowance for a 2 ft. 6 in. aisle. Materials of Korda's unit are wood, steel, glass and linoleum or high pressure laminate. Three models offer different desk surfaces, with special accommodation for drafting or typing. Several different arrangements are suggested for this modified pool-planning for offices (right). No acoustical absorbent material is built into the unit; acoustical treatment of the big office space is assumed. Current price for the basic "L" including the two-shelf bookcase, glass panels and filing cabinet is \$425; \$20 more for the type-writer recessed model.



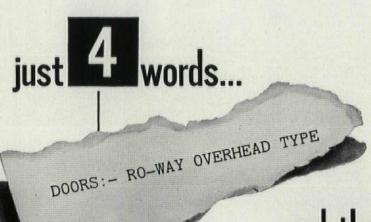




Groupings can be by cubicle or pen. Pen is more efficient. Top drawings show variations in desk surfaces for typing and drafting. Perforated backing in shelf (photo) has no acoustical value.







and the job is **RIGHT!**

RIGHT IN MATERIALS

Rowe's own buyer selects only high quality lumber at the mills. Panels are three-ply exterior grade Douglas Fir plywood. Hardware, Track Rollers and Springs are made in our own plant, and Parkerized *after* fabrication.

RIGHT IN CONSTRUCTION

Multiple mortises assure accuracy, uniformity and good fit. All mortise and tenon joints are glued—then steel doweled. Track rollers have "double-thick tread." Springs are power-metered to the weight of each door.

RIGHT IN INSTALLATION

Ro-Way Doors are erected with utmost care by Ro-Way's nation-wide network of selected distributors.

RIGHT IN APPEARANCE

Ro-Way Doors are drum-sanded to give a silky, lustre finish. All joints are finished by hand. Parkerized and painted hardware prevents rust streaks. Ro-Way Doors keep their good looks.

RIGHT IN SERVICE

Ro-Way Doors roll up-in-and overhead—out of the way. They won't freeze shut. They won't blow off or bang shut. They are not affected by moisture-swelling or frost-raised floors. Even drifting snow won't keep them from lifting easily.

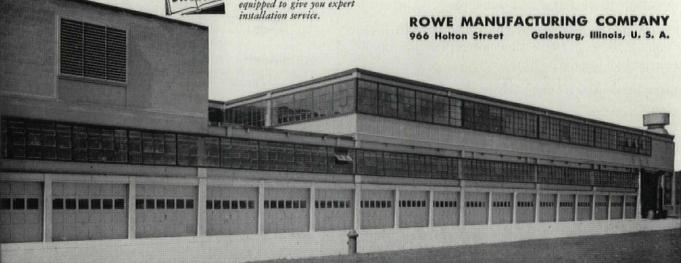
RIGHT IN PRICE

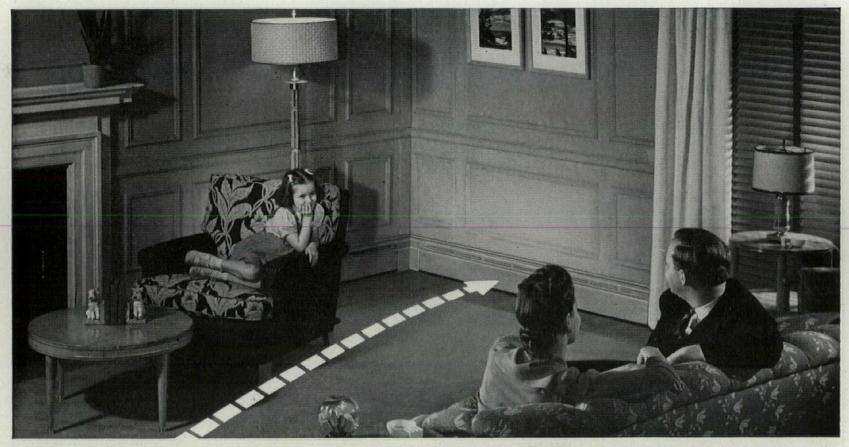
Ro-Way Doors are built completely in Rowe's own plant. This "singleprofit" plan enables us to pass along to Ro-Way users many extra values at no extra cost.

There's a Rollay for every Doorway!



See your classified telephone directory for name and address of the Ro-Way Distributor Ro-Way Overhead Type Doors are available for all Industrial, Commercial and Residential Installations equipped to give you expert installation service. 966 Holton Street





Note how new U.S. Radiant Baseboard harmonizes with this modern interior.

NOW...U.S. RADIANT HEAT!

New U.S. Radiant Baseboard—the greatest advance in heating since the advent of automatic heat—offers these advantages:

- · Easy to handle, store and figure.
- · Easy to assemble, rough in and install.
- · Lightweight and durable.
- Radiant heat-moderately priced.
- · Increases usable floor and wall space.
- Provides ideal room temperatures—no cold spots, no drafty corners, no chilly window areas.

U.S. Radiant Baseboard may be installed in new homes or old, multiple dwellings or commercial buildings, to provide delightful radiant heating at a reasonable price.

No change of any kind is required in building construction for new homes. No costly structural alterations are needed for commercial buildings or old homes.

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designed for use with hot water systems, is built entirely of steel and is easy to handle, store, assemble and install. It is available in two- to twelve-foot lengths and weighs only 7 pounds per lineal foot. One man can easily install the largest section made.

All parts are welded or brazed into a tough, durable assembly. Both the thickness and grade of metal used in the waterways are comparable to that used in \(^3\)4" pipe.



Contact the nearest U.S. Radiator Branch Office or Sales Representative for complete data, heating plans, and estimates on any U.S. Radiator products, also for on-the-job assistance whenever you need it.

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Reinforced construction assures maximum strength.



AllianceWare distinctive modern design complements any bathroom styling.



Gleaming, stainproof porcelain enamel surface cleans easily.



An integral wall guard prevents water seepage.

Heavy gauge sheet steel used in AllianceWare formed metal tubs.

Sheet steel usually used in formed metal tubs in accordance with Federal specifications.

FOR THE BEAUTY OF

Fixtures that Stay Young select Alliance Ware

THE modern styling, beauty, and color—blue, green, pink and suntan, as well as white—of AllianceWare fixtures fit Cape Cod cottage, Western ranch house and Colonial mansion.

Owners of AllianceWare are enthusiastic in their pleasure with the sparkle of these sanitary fixtures that stay young year after year.

But the lifetime beauty of AllianceWare is not mere happenstance. The stainproof, porcelain-enamelon-steel retains its gleaming luster for years. The heavier gauge sheets used for AllianceWare provide

ALLIANCEWARE, INC. • Alliance, Ohio
Bathtubs • Lavatories • Sinks

rugged durability and quietness. And the Alliance-Ware method of installation prevents sagging of tubs and leaking of water around the rim at the wall line. Installation is simple, quick and positive because dimensions of finished fixtures do not vary more than ½ inch.

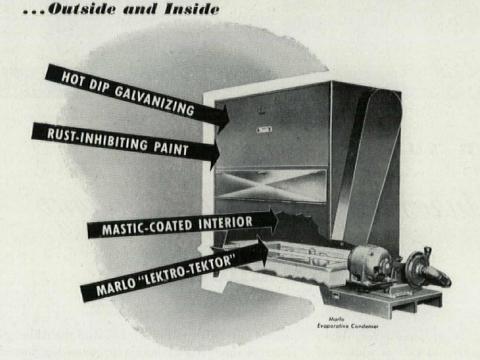
Complete specifications, installation diagrams, and color charts of AllianceWare fixtures are available for architects and builders.

AllianceVare



The pageant of DRAYNEFLETE progresses from Roman chariots and pillars . . .

ONLY <u>MARLO</u> COOLING UNITS ARE DOUBLY-PROTECTED AGAINST CORROSION



Marlo Evaporative Condensers and Cooling Towers offer this big four-way defense against corrosion:

OUTSIDE — over the Hot Dip Galvanizing — Marlo all-steel housings are sprayed with a special rust-inhibiting alkyd resin-base paint that forms an *extra* front line barrier against corrosive elements.

INSIDE EACH UNIT — sheets, panels and galvanized parts are coated with a sound deadening asbestos-asphalt mastic that doubles as an efficient corrosion retardant. Additional internal protection is afforded by Marlo's exclusive "Lektro-Tektor" that prevents electrolytic sump tank corrosion.

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REVIEWS

THERE'LL ALWAYS BE A DRAYNEFLETE. By Osbert Lancaster. Houghton Mifflin Co., 432 Fourth Ave., New York, N. Y. 70 pp. 6 x 834. Illus.

In the interests of better U. S.-Anglo understanding it is hereby suggested that all previous histories, monographs and textbooks on British architecture and planning be suppressed and destroyed. In their place may profitably be substituted this one slim volume. The 70 pages of There'll Always Be A Drayneflete provide a capsule history of building in England—a panorama of the architecture, sculpture, painting, trade, science, exploration, morals, costumes and traffic regulations that have made Britannia rule the waves so long.

Americans as well as Englishmen have known Drayneflete before this latest reincarnation under the pen of Osbert Lancaster. They, too, "will follow with a sense of recognition its changing fortunes from village to city." This not-so-mythical town is shown as it evolves "from earliest times—or perhaps even earlier." As history, the account merits the compliment paid by its author to Miss Dracula Parsley-flidget: it is "a veritable mine of extraordinary information which could have been obtained from no other source."

Brilliantly as the text carries on in the great tradition of English historians, the scientific reader may appreciate even more the sketches which reconstruct Drayneflete's architectural transitions. Beginning with the Roman town (Draconobododum it was called) Drayneslete is shown in the splendor which held sway until the 5th Century-when it fell "a prey to marauding Saxons or Angles (or even Jutes)." In unfaltering penstrokes, "There'll Always Be A-" sweeps its way through Medieval, Renaissance, Cavalier, Victorian and 20th Century variations to the Drayneflete of Tomorrow-complete with a "municipal office including community center, psychiatric clinic, creche and heliocopter landing strip" and a "floating concert hall for audience of 2,500 and full symphony orchestra."



Architects of a philosophic turn of mind will relish meeting Drayneflete's great 17th Century patron of the arts—'Sensibility' Littlehampton, second Earl of the name. This building-conscious peer had Drayneflete completely rebuilt twice —first in the Palladian and then in the Gothic

style. 'Sensibility' it was, who constructed the famous architectural nightmare "Lord Littlehamton's Folly" (see the thoroughly contemporary sketch above). Here, in one noble spire, are assembled examples of all the five great schools of architecture: "a square pavilion...of classical porticos," on which rests "a Gothic octagon... supporting a three-storied Chinese pagoda, that terminated in a cupola in the Hindoo taste. Under

(Continued on page 144)

Are you up-to-date

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for multi-storied buildings?

NO wonder "curtain walls" are today's big news in the design of multi-storied buildings. Substitution of thin, lightweight panels for heavy masonry exterior walls opens new possibilities for the use of color and texture, and new possibilities in building efficiency.

In developing this natural complement of structural steel framing, it was only logical to turn to Stainless Steel. Panels of this fire-resistant, durable material give promise of great construction economy, combined with ultra-modern, permanently attractive appearance and an ease of maintenance that no other material can equal.

In U·S·S Stainless Steel, architects have a material that offers unique possibilities of design. Fabricators have facilities available for mass production of steel sections in any formed, fluted or corrugated surface desired. By alternating Stainless Steel panels with sections of Porcelain-enameled Steel in any color or finish you desire, you can obtain practically unlimited variety in decorative effect. Such all-steel panels, produced to exact dimensions, are available in widths as designed by the architect, and in lengths of one, two or possibly even three stories.

Equally important to the architect is the wealth of information on this type of construction that has been gathered by United States Steel development engineers.

These facts are available to you. Quite likely they contain the answers to questions you may have concerning weight savings and resulting reduction in costs, savings in space, lower construction costs, building codes, selection of materials and finishes, protection during erection, insulation, and countless other details. One of our development engineers will be glad to discuss this important new concept in multi-storied building construction with you.

Here's a typical panel showing the architectural possibilities of this new type of construction. Fluted sections of U·S·S Stainless Steel are combined with a blue Porcelain-enameled section. Back of same panel showing location of roller weld and joint. ENGTH OF PANEL MAY IE FROM FLOOR TO This drawing shows an assembly with a Stainless Steel fluted pilaster and formed Porcelain-enameled Steel spandrel section. Stainless or Porcelain-enameled window frame is combined in the spandrel assembly.

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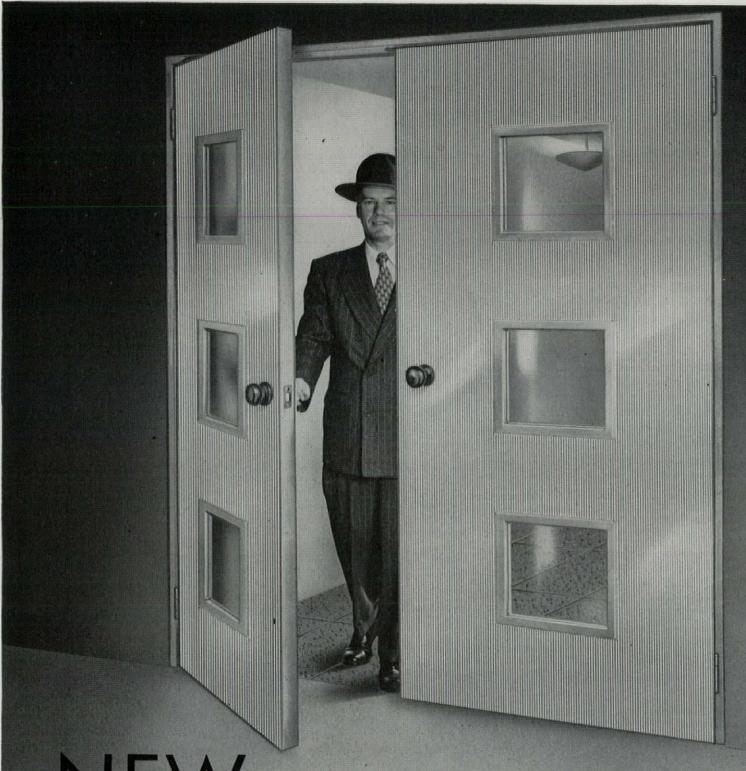


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IN HANDSOME, MODERN APPEARANCE
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Striking in their simplicity of styling and their lustrous alumilited finish, Kawneer All-Aluminum Flush Doors will add a unique and modern keynote to any interior or exterior. They combine good taste in design with the strong, eye-appeal of gracefully-fluted aluminum.

Their remarkable rigidity and durability are based on a new exclusive Kawneer method of construction (Patent Pending) which locks the two door faces to the interior framework, thus forming a rugged integral unit which assures long-term service and minimum maintenance.

Precision-made and correctly balanced, Kawneer Flush Doors will operate smoothly year after year. Their ease of operation is further increased by their unusual light weight—for example, the 3 foot by 7 foot size weighs only about 50 pounds without hardware.

In addition to the Standard Style shown at right above, Flush Doors can be ordered with one or more lights of glass or louvers. Single-acting or double-acting doors are available as single units or in pairs. Hardware is installed at the factory to assure accurate fitting.

For detailed information, write The Kawneer Company, Dept. AF 49, 1105 North Front St., Niles, Mich., or Dept. AF 49, 930 Dwight Way, Berkeley, Cal.

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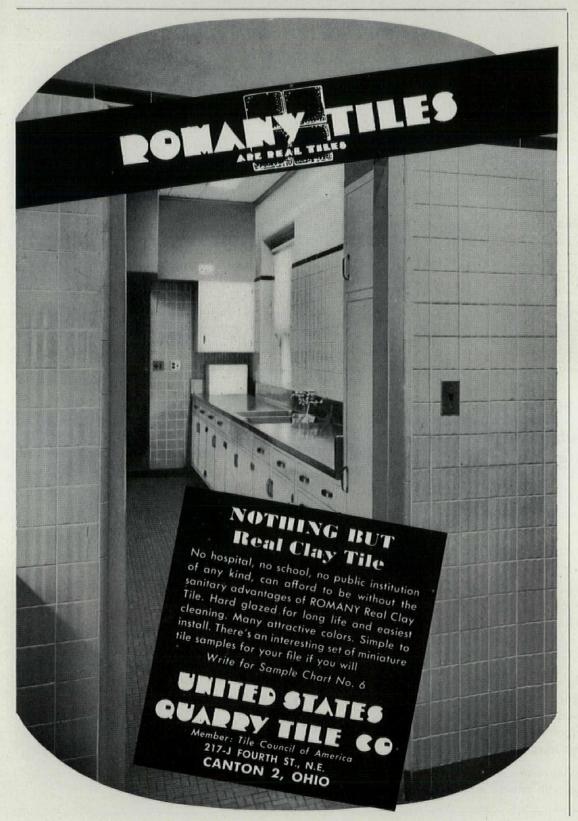
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Aluminum Roll-Type Awnings • Modern Entrances
Aluminum Facing Materials • Flush Doors



... through Saxon thatch and churls. And on ...



REVIEWS

the whole was an Egyptian crypt." Significant of past and future is its sad fate: "Today all that remains is the Egyptian crypt which rendered yeoman service as an air raid shelter."

Realizing that no mere review can do justice to a work of such scope, we can only agree with Chronicler and Depicter Lancaster that in recounting "the many changes that have overtaken the town . . . the illustrations will speak more convincingly than any words". The reader open to conviction will find some stages of Drayne-flete's progress on this and the following pages.—SK

PLANNING THE HOME FOR OCCUPANCY.

By the American Public Health Association Committee on the Hygiene of Housing. Public Administration Service, 1313 E. 60th St., Chicago 37, III. 53 pp. $61/2 \times 9$, \$1.50.

In 1900 the average Dutchman was housed in half a room, and he consumed an annual 7½ liters of gin. In 1938, through the expansion of housing, each Dutchman was provided with a room and a half, and he consumed only 1½ liters of gin.

This footnote in Planning the Home for Occupancy points up the book's main thesis-that the single factor of space in housing has a definite bearing on public welfare. The distinguished Committee which produced this survey contains such well-known housing experts as C.-E. A. Winslow, Catherine Bauer, F. Stuart Chapin, Henry Churchill, Robert L. Davison and Clarence Stein. Their findings, concerned primarily with "the human objectives which should be attained in the housing of the future," are focused on one crying need: "During the past half-century, our progress in home sanitation, in heating and ventilation, in improved household equipment, has been revolutionary. In the same period, however, we have been retrogressing in space conditions to an almost equally phenomenal extent."

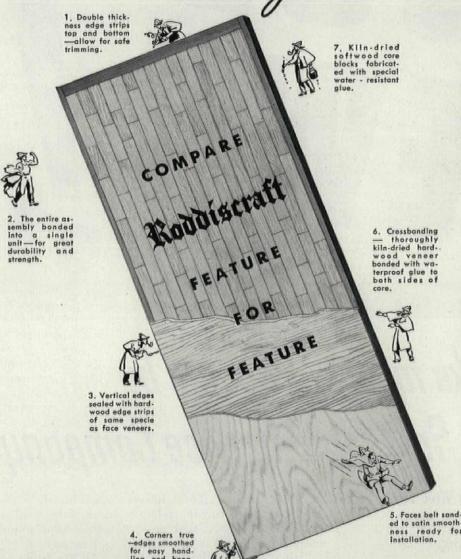
The savings effected in today's economy housing seem to them highly dubious, even in crude cash terms: "The average community must provide almost as many hospital beds for mental and nervous diseases as for all other types of diseases taken together . . . The frustration which results from overcrowding, conflict between the desires and needs of various members of the family, fatigue due to performance of household duties under unfavorable conditions—these are health menaces quite as serious as (if less obvious than) poorly heated rooms or stairs without railings . . . Overcrowding and frustration in a congested household cause stresses as real as those produced by overloading a column."

Myth of the average. In their search for the causes of the present mal-use of space in housing, the Committee noted two common errors: (1) far too much building is done for the mythical "average family"; and (2) the dimensions of each room having been reduced to minima, their sum is expected to fit around a full everyday life.

(Continued on page 148)

THE Roddiscraft SOLID CORE FLUSH VENEERED DOOR

a Beauty with Brawn



R ODDISCRAFT Solid Core Doors offer a combination of beauty plus rugged resistance to heavy traffic, fire protection, sound resistance, and a completely waterproof band. They are highly resistant to vermin and fungi. Roddiscraft construction welds core, crossbanding and face veneers into a single unit with the inherent strength of five-ply construction.

FIRE Resistance — The resistance of Roddiscraft Solid Core Flush Veneered Doors to fire has been substantiated by independent laboratories where standard Roddiscraft Doors have easily exceeded the 40 minute fire test — a fact worth remembering when specifying doors for apartment buildings and hotels.

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STANDARD THICKNESS FACE VENEERS

The thinner the face veneer, the less wood exposed outside the waterproof glue line. That's a self-evident fact — and that's why Roddiscraft Standard Thickness Face Veneers — 1/28 inch — retain their smooth beauty. Exposure tests show checking patterns become coarser and more conspicuous as the face thickness increases. Thin

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veneers also permit better matching, are more resistant to abuse because of the tough hardwood crossbanding to which they are inseparably bonded.

For beauty with brawn, specify Roddiscraft Solid Core Flush Veneered Doors. Write for book — "An Open and Shut Case" — giving construction details and specifications of the Roddiscraft Door line.



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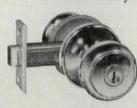
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Kwikset promises... To architects... Advanced engineering and authentic styling in the field of residential locks... To jobbers... Best possible service plus sound, friendly relationships... To builders... Ease of installation, nation-wide distribution... To the trade in general... Augmented manufacturing facilities, highest quality in our price class, precision-fabrication and advanced styling.

In summary, with Kwikset you will enjoy satisfactory service and pleasant relationships with plus values in every Kwikset lock you buy!





This is the famous and popular Kwikset 5-pin tumbler lock with die-cast parts and wrought bronze or brass knob and trim—a plus value.

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An architect's guide for - "What carpet to put where"

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Saratoga - SA 41

Mohawk Hardtwist

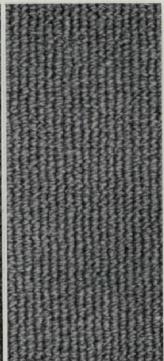
Peerage

Morleigh - ML 47











HOTEL LOBBY . . .

Mohawk Saxony — high piled, closely woven Wilton carpet built to take much wear. Available in host of attractive patterns.

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Mohawk Saratoga . . . Luxurious and rugged to take the concentrated traffic of theater patrons . . . absorbs sounds disturbing to patrons.

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Peerage-Anchortuft...resilient, round-wire carpet with anchortuft back...can be installed quickly with practically invisible seams...no fluffing or shading for housekeeping ease.

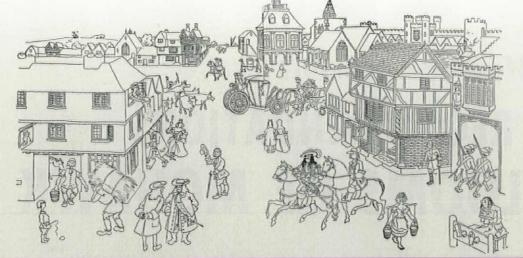
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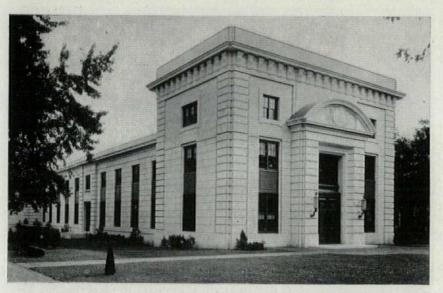
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... to Renaissance half-timber and a Restoration town hall .



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REVIEWS

Exploding the use of the statistically average family (3.6 persons) the book points out: "When we look beyond the arithmetical average to the actual range which it misrepresents, we find that the three-person and four-person families make up only 45 per cent of the total. Thirty-five per cent are one-person and two-person; 20 per cent have more than four persons." In providing for these varied groups the emphasis should be kept on all-over living space rather than a string of abstractly reduced cubicles. "We believe that the space included in a particular bedroom, in a living room, a kitchen or dining room is not a fixed essential. What we have tried to do is to establish the minimum total space required for family living, leaving it to the architect to subdivide and plan that space in accord with his own creative imagination and the needs of the family to be served."

In determining total minimal space Planning the Home for Occupancy begins with basic living functions: sleeping and dressing, preparing food, recreation and self-improvement, performance of household tasks. The space required by each reflects the dimensions of needed objects and movements. It includes:

- 1. Horizontal measurements of every piece of furniture.
- 2. The space necessary for circulation around and use of each piece.
- 3. Space for storage of the objects essential to each function.
- 4. Deductions for the overlapping of circulation space around adjacent pieces of furniture.

How big is a minimum? Sound as is the "humane" standard of this study, it is sometimes interpreted with a freedom that seems as unrealistic as the penurious planning it seeks to replace. For instance, the 400 sq. ft, named as minimal for a single person includes no fewer than 125 sq. ft. (31 per cent) for recreation and self-improvement. Such a margin for relaxation is no doubt desirable, but it is hardly "minimal" in the ordinary sense of the word. To beg the question by calling it so not only fails to alter matters, but may have the unfortunate effect of calling into question the book's very real contributions.

On the whole, its minimal space recommendations are "about 25 per cent above the space provided in the better of our public housing projects. They call for about double the space furnished in a great volume of speculative building, and . . . certain economy houses publicized by the federal housing agencies."

In addition to its stimulating, if controversial, space estimates, *Planning the Home* provides a mine of sound insights into everyday home use. Some nuggets lifted at random:

Doccasional activities, such as care of the sick, are frequently overlooked . . . Reduction in mortality at early and middle-age periods is producing a demand in many households for space for the aged or infirm.

Done-third of 1949's fatal accidents happened at home . . . conditions in the home which cause (Continued on page 152)





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As Sheathing Paper



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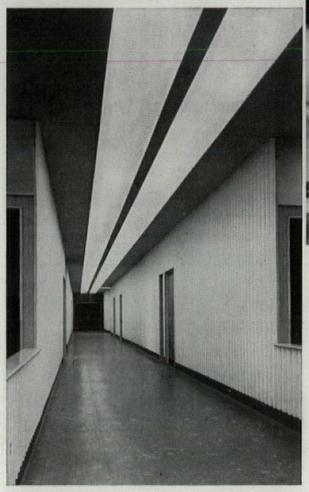
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CORRUGATED TRANSITE*... inside or out!

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Newport Steel Corporation of Detroit utilized J-M Corrugated Transite for interiors. The corrugations increase the unusual strength of these asbestos-cement sheets. This allows minimum framing, provides functional decoration when used with architectural good taste as in the example above.

Natural stone-gray in color, Corrugated Transite is often used without further decoration, thus contributes another economy,

(In this installation, flat sheets of Transite were also used to finish ceilings and some of the wall areas.)



New United Air Lines maintenance base has maintenance-free walls of J-M Corrugated Transite.

Long a favorite for exterior construction, Asbestos Corrugated Transite is also being used to create attractive interiors. Tough Transite sheets can't burn, rot, or rust—and they're not expensive.

Architects, engineers, and builders are constantly discovering new uses for J-M Corrugated Transite, partly because it is so effective in modern streamlined design.

At first this building material attracted attention because of its durability—fireproof, rotproof, weatherproof. Made of materials that are practically indestructible (asbestos and cement), it was rapidly accepted as an exterior siding and roofing for industrial buildings.

But that was just the start of a construction career that has become more and more versatile. Today Corrugated Transite is contributing structural attractiveness to smart shops, office buildings, even art galleries—inside as well as outside.

Many architects are now specifying Corrugated Transite combined with insulating materials for curtain walls. Recently, Corrugated Transite in curtain wall construction was used on a new power plant addition where it reduced the load-bearing factor 83%! The versatility of this material is amazing. Write for brochure to Johns-Manville, Box 290, New York 16, N. Y.



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When Turkish fathers—like fathers anywhere else—pace the floor in this Ankara maternity hospital, they will, at least, pace in supreme comfort. For here is the first maternity hospital in Turkey that has licked the problem of humid, dreary, heat—and how did this happen?

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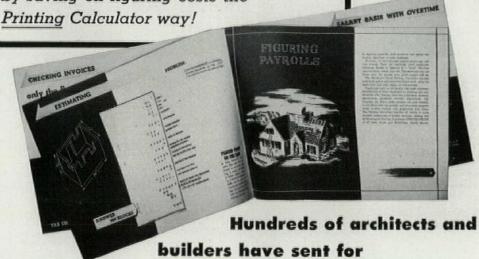
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REVIEWS

frustration or fatigue will increase the accident susceptibility of the individual.

The large family, because of age differentials and more complex relationships, requires more over-all space. It is by no means adequate to provide three or four bedrooms and keep cooking, dining and living space the same as for a onebedroom unit.

One of the reasons for inadequate storage space undoubtedly is the preconceived idea that families who have small incomes do not have many possessions . . . As a matter of fact, poorer families are more apt to save things for possible future

There should be space in the kitchen for the family dog because there he will be, whether or not there is space for him. *-S. K.

SOCIAL PRESSURES IN INFORMAL GROUPS.

By Leon Festinger, Stanley Schachter and Kurt Back, Harper & Bros., 49 E. 33rd St., New York 16, N. Y. 240 pp. III. \$3.

This minor sociological study of everyday relationships has major implications for everyone interested in large scale housing. A research group operating under a Bemis Foundation Grant has analyzed here (by various tests and question groups) the extent to which the pattern of a housing project called Westgate, Mass. influenced the social life and activities of its indwellers. The fact that all its tenants were young married veterans and their wives (between the ages of 20 and 35) and that all were students of engineering at Massachusetts Institute of Technology gave members in the group a high degree of congeniality-and therefore allowed the design of the



project to become the major element in determining social patterns.

New kind of research. Robert Woods Kennedy, a thoughtful Boston architect with experience in mass-housing, points out the significance of its conclusions for planners:

"The new sphere of mass-housing reverses the architect's traditional responsibility. He must now design a dwelling to be repeated indefinitely, low in area and cost, for a statistical person whom he can never hope to meet. Because it is repeated indefinitely, the architect becomes responsible not

(Continued on page 156)

* Two other booklets round out this study of home needs, Planning the Neighborhood (1948) and Equipment and Construction of the Home (forthcoming).

[.uiiiii.]

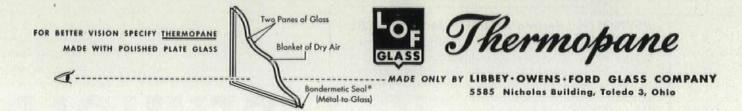


Thermopane* insulating glass cuts the cost of airconditioning in two ways: Cuts the cost of operation; usually cuts the cost of original equipment. In the new Brotherhood Building pictured above, the architect figured Thermopane saved 150 tons of air-conditioning capacity. Thermopane used in this building has an outer pane of Heat Absorbing Plate Glass. This reduces the load on air-conditioning equipment by absorbing solar heat in summer.

Further savings with *Thermopane* are realized with lower fuel consumption in winter. *Thermopane* has a half inch of dry air sealed between two panes

of glass. Because of this most efficient insulation, no floor space is wasted. Desks and other furniture can be placed closer to *Thermopane* than to single-glazed windows. This fuller use of floor space has proved surprisingly great in many instances.

Considering all the cost factors influenced by the use of double-glazing, Thermopane is an economical wall material. It is now available in over 80 standard sizes for design flexibility and building economy. If you are interested in the construction of any kind of building—office, hospital, school, residence, store—write for Thermopane literature.



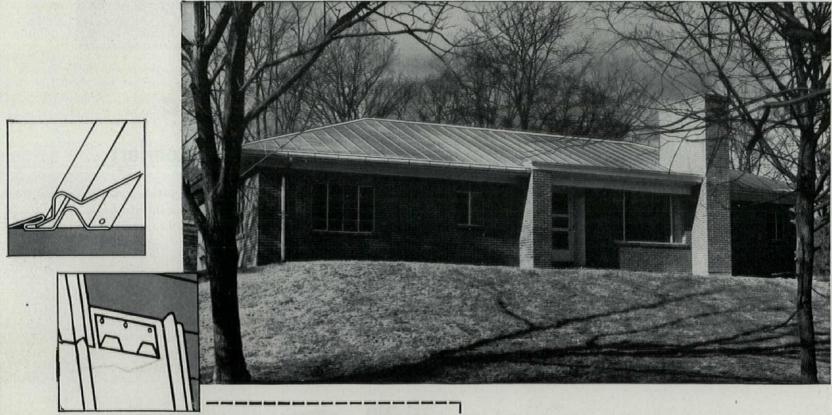
In These Homes:

22 Different Forms of

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The swift rise of Aluminum in home building, as in all types of construction, goes farther than the eye can see. The soft grey of a roof may signal Aluminum immediately...on the house below...on farms and industrial buildings throughout the country. Aluminum gutters attract attention by their trim lines and neutral, harmonizing tone. Aluminum windows bespeak, at once, modernity in home building. Screens, storm doors and storm windows, louvres, flashing...all proclaim aluminum. Even the painted weatherboard corner pieces, in the house at the right, are distinctively aluminum by their straightness and neat fit.

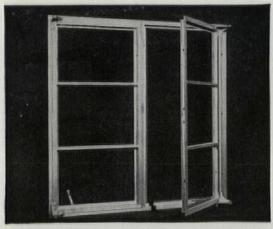
Yet the versatility of aluminum goes still farther. Beneath the finish paint of carefully built homes is a primer coat of aluminum paint...wood's best protector. In the clapboards, and in all exposed uses, are aluminum nails...permanent protection against rust and stain streaks. Over floor crawl spaces, inside walls and over ceilings is aluminum reflective insulation. And all the duct work is easier-to-handle, heat-reflecting aluminum. Add aluminum thresholds, copings, railings, and you can see how the list grows. The modern rustproof metal that combines strength and beauty with a decided weight advantage is the better answer to more and more specification problems. For details in A.I.A. file form, write **REYNOLDS METALS COMPANY**, Building Products Section, Louisville 1, Kentucky. Offices in 32 principal cities.



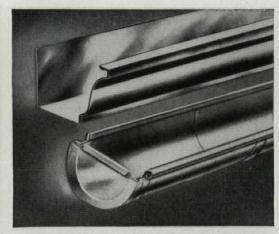
REYNOLDS Lifetime ALUMINUM SNAP-SEAL

ROOFING on a private home—showing the pleasing design effect of evenly spaced vertical lines. Inset details show interlocking side lap which assures weathertightness with concealed nailing; also end cleat attachment which again conceals nailing. Snap-Seal Roofing is .022" thick, stipple embossed, 6', 8', 10' and 12' lengths, 24" width coverage. This house also has aluminum gutters, windows, insulation, ducts.

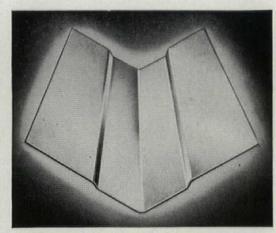
REYNOLDS



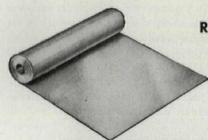
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ALUMINU



For literature on all these products-also Rey Kool 19" Selvage Built-up Roofing - write to Reynolds Metals Company, Building Products Section, 2019 S. Ninth St., Louisville 1, Kentucky.



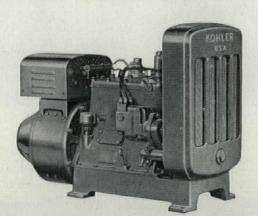
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REVIEWS

only for the house but for the environment and, to the extent that environment affects social life, for that too. In this new, vast and impersonal sphere the architect is lost. He can no longer find out for himself what the needs of his new clients are . . . Only a new kind of basic research can uncover these needs and patterns."

Social Pressures in Informal Groups is an example of just such research. Its results prove overwhelmingly a fact hitherto only surmised by planners: "the dependence of friendship formation on the mere physical arrangement of the houses. People who lived close to each other became friendly while those who lived far apart did not. Mere 'accidents' of where a path went or whose doorway a staircase passed were major determinants of who became friends in this community."

Kennedy in a summary chapter points out other desirable steps along this research path: "What is the optimum number of families for which courts, superblocks, stairwells, row houses, and so on should be designed? Do certain building patterns foster undesirable clique formations? . . . Do closed vistas, by suggesting close community relations, actually foster them?"—S. K.

RENTAL HOUSING UNDER FHA-608. By the New York Chapter of the American Institute of Architects. 115 E. 40th St., New York 16, N. Y. 16 pp. 81/2 x 11. \$1.00.

In this round-up of FHA-608 housing throughout its territory, the New York Chapter of the A.I.A. pulls no punches. For the past year a judiciously varied Committee chosen from its members has visited and examined local projects. Their report, documented by plans and snapshots, is tersely unflattering (underscoring all the criticisms made in the FORUM study of Jan., '50).

Within the short span of 16 pages they castigate: '608' Administration—"The hasty procedure and the resulting routine solutions tended to encourage those sponsors who were satisfied with the minimum."

Planning standards—"Building units were selected not for suitability to the shape, contours or orientations of the site or to the surroundings, or even for outlook from within the apartments or for good room relationships, but only because . . . they made possible the maximum use of land."

Site planning—"The pattern . . . disregarded orientation, views, convenience and privacy."

Construction—"Most serious is the absence of fire-resistive construction in all the 608 projects visited. In three-and six-story buildings . . . no examples of fire-protected steel or reinforced concrete rated as fire-proof were observed . . . They have been designed for low first-cost rather than for sound, long-range values."

Eight recommendations are made to prevent a possible recurrence of these mistakes in future housing programs. Their aim is, in general, to bolster such a program from within. It is exemplified by the significant No. 3: "An adequate budget should be provided the administrative

(Continued on page 158)



Above: Tap Room, Hotel Taft, N. Y. City. Bar front covered with brilliant red Kalistron. Deep red Kalistron on banquettes.

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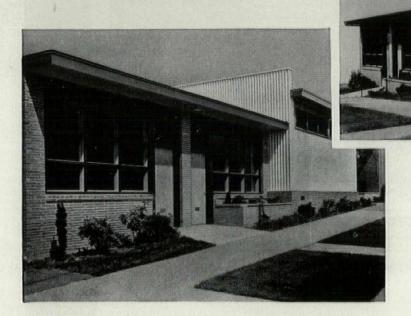
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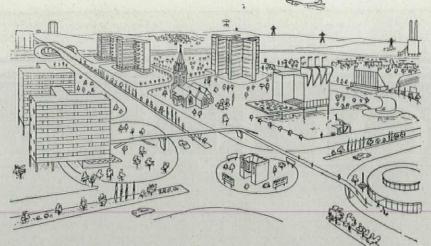
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REVIEWS

agency to obtain and retain sufficient personnel having the requisite experience, training and basic competence to perform the tasks assigned in connection with matters of architecture and site planning as well as the other factors affecting the safety of loans."

Here is one report that functions in fighting trim all the way through. As a member of the Committee summed it up later—"We said the standards are no good; the design's no good; the construction's no good; and the site planning's no good. What more can we say?" There is just one thing more they might have added. Instead of limiting this critique to "technical considerations" alone, some word might have been given as to the why of the situation which has aroused so many other observers: the search for a certain quick profit—with no individual responsibility and virtually no competition—at public risk.—S. K.

THE TOURIST COURT PLAN BOOK, Second edition. Tourist Court Journal Co., Temple, Tex. 80

tion. Tourist Court Journal Co., Temple, Tex. 80 pp. plus 50 floor plans. 9 x 12. Spiral Back. \$19.50.

The motel is a new breed of building sired by wayside hotel out of overnight cabin. As attested by the second printing of this expensive manual, it also commands a high market value—a full-size motel rates today an expenditure of between \$150,000 and \$200,000.

To any interested newcomer, Tourist Court Plan Book presents a bagful of trade tricks. Its 50 floor and site plans delineate the patterns already worked out and found acceptable in the field—single bedroom units, bungalows, double units, bachelors' quarters, etc. Problems of financing, location, landscaping and equipment are covered in a rough and ready way that points out difficulties if it does not solve them.



The pictorial history of motel design has hitherto been almost unprintable-but the very complexities of motel sanitation, upkeep and plot planning are pressing it towards acceptance of skillful architectural handling. Even this book, which represents a more far-seeing stratum of owners, rates design on a primitive scale whose extremes of praise and blame are "eye-catching" and "dust-catching." By this narrowly functional yardstick the style 'modern' rates rather excruciatingly high. An Oscar of the roads must be awarded to Cliff May for achieving a motel which combines sales appeal with pleasant restraint. His De Anza Motor Inn (shown above) looks out of these pages like a friendly face in a strange land.-S. K.



Residence in Chestnut Hill, Philadelphia. Built on site of old Estate, overlooking formal gardens. Architects: Bishop & Wright, Philadelphia. Contractor: Cleveland Yerger & Sons, Philadelphia.

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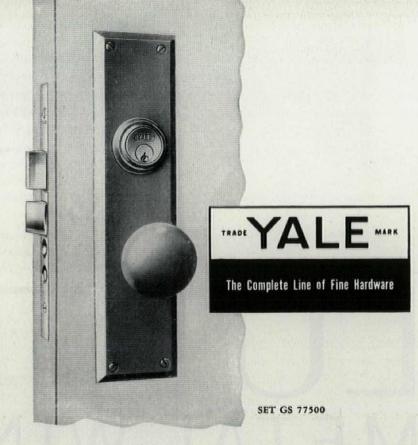
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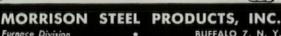


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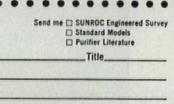
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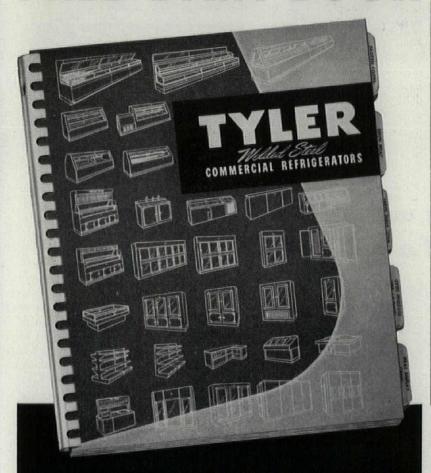
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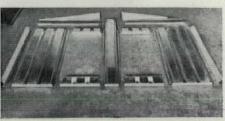
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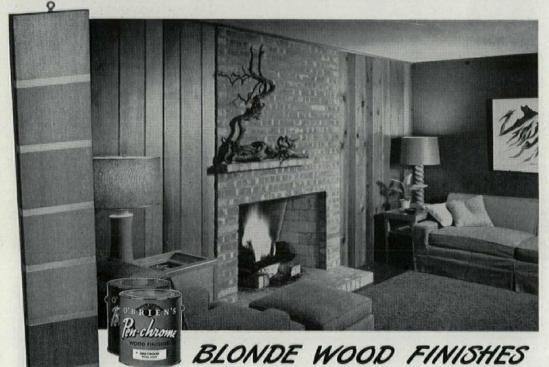


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Please send free sample panel showing 10 Pen-Chrome tints.

Name_

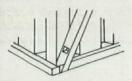
Address_

O'BRIEN
PAINTS
DIAMOND JUBILEE 1875-1950

structure enough strength so that supports are unnecessary; walls and roofs "hold themselves up." The eave section is cleated to the roof and the roof to the side walls to form a permanent building, weathertight against wind and rain. Where concrete slab floor is used, bolts for the base rails are imbedded in the concrete, For other floorings-flagstone, treated wood or stablized earth (a process employing Socony Vacuum's Dustrol rolled over the earth to form a black top type surfacing)-the base is fastened to cedar stakes before the flooring is laid. To make connections around the base rail, 10 in. sections of wood block are used; a longer section of 2 x 4 is furnished for a sturdy door sill. All parts are coded with a number and letter to correspond with the marked blueprint accompanying each knock down assembly.

The eave support of the roof overhang lends a contemporary touch to the design and doubles as a downspout drain for water from the eave trim gutter. Aluminum

shade screening is used on all windows and door. Door frame is also aluminum and is fitted with matching hardware. Where extra weather



protection is desired, rolled window closures are available at \$10.30 each and a door closure at \$9.50. Although the aluminum roof and walls reflect solar rays and help keep house cool, additional cold weather protection may be obtained by finishing the interior with board type insulation. When windows are not in use they may be closed with blanks of .032 aluminum. The Wheel-Away grill pictured below serves as a charcoal broiler and, with the grill in vertical position, as a room heater on a cool evening. It is constructed of heavy steel and retails at \$45. A valuable accessory which converts the vacation house into a

(Continued on page 166)





efficient in sound-absorption, easy to clean or wash, ideal for suspended ceiling construction. And it's a favorite choice for institutions, offices, hospitals, etc. . . .

THERE IS NO NEED to do without a single feature that you consider desirable in an acoustical ceiling, because J-M Sanacoustic Panels combine the advantages of fire-safety, good appearance, removability, high light-reflection, ease of maintenance, and extremely high soundabsorption qualities.

As a result, millions of square feet of Sanacoustic have been installed in institutions, offices, hospitals, schools and places of public assembly.

Consisting of perforated metal panels backed up with a fireproof sound-absorbing element, Sanacoustic Ceilings will not burn, rot, or disintegrate. They may be applied over new or existing construction. The method of installation assures perfect alignment of units, allows easy removal without damage.

An exclusive J-M patented construction system permits interchangeability of flush-type fluorescent lighting and acoustical ceiling units. Write for our brochure, "Sound Control." Johns-Manville, Box 290, New York 16, N. Y.

*Reg. U. S. Pat. Off.

J-M SANACOUSTIC is NONCOMBUSTIBLE DEMOUNTABLE EASY-TO-CLEAN All-metal-and-mineral construction provides numerous advantages.



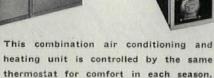
J-M Acoustical Materials include Sanacoustic Panels, Asbestos Transite*, and drilled Fibretone*

PRODUCT NEWS

garage is an overhead door, selling for \$83.75. Another adaptation of the house will use three sides for a porch extension. At present the house comes in a fixed range of five lengths: 13 ft. 4 in., 15 ft. 10 in., 18 ft. 4 in., 23 ft. 4 in. and 25 ft. 10 in. Each is 11 ft. 8 in. wide. Prices vary with size. The 11 ft. 8 in. x 18 ft. 4 in. sells for \$550.50, not installed; the largest, for \$744.

Manufacturer: The Lennox Furnace Co., Holiday House Div., Marshalltown, Iowa.

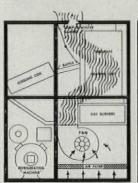


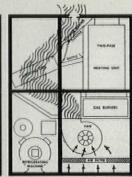




WINTER-SUMMER AIR CONDITIONER is adaptable for home and commercial use.

Further indication of the trend to air conditioning in the home (Residential Air Conditioning, FORUM, Apr. '50) is Carrier's new Weathermaker, the 38 B. Utilizing a one duct system this combination unit furnishes automatic gas heat in cold weather, and cools in summer by hermetically sealed refrigeration equipment. Cooling and heating elements, operating in the same way as

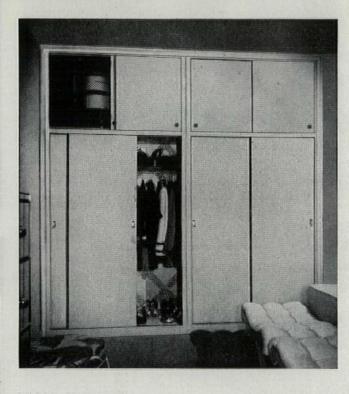




those in the manufacturer's Weathermaker air cooler and unit heater lines, are enclosed in a single thermally and acoustically insulated cabinet. Suitable for use in new construction or as a replacement in existing duct systems, the 38 B measures only 52 in, wide by 43 in, deep and 70 in, high. It is being produced this year in limited quantities in three capacities-3 h.p. cooling and 110,000-150,000 Btu heating, 5 h.p. cooling and 110,000-150,000 Btu heating, and 5 h.p. cooling and 165,000-200,000 Btu heating. Installed prices are estimated to range from \$2,000 to \$4,500, depending on capacity and varying labor costs. The manufacturer believes that the additional cost to the builder for cooling and dehumidification over heating and humidifying can be counterbalanced by an overall economical design. Operating costs for the homeowner are offset somewhat by the reduced cleaning and maintenance required for interior furnishings. Quiet and compact, the packaged unit may be installed in a utility room adjoining the living quarters. It can be serviced from the front and is designed so that, in one story construction, return air can be drawn into the conditioner from the bottom. For basement installations the air intake is placed at back of cabinet and flue connection may be made either from the side or top. Side panels are easily removed for servicing. The Weathermaker's casing is bonderized and finished with stain resistant enamel. The heat interchanger and combustion chamber are of aluminized steel, welded to provide one-piece sealed construction. A single thermostat controls the temperature for heating and cooling.

Manufacturer: Carrier Corp., Syracuse, N. Y. (Continued on page 170)

THREE MENGEL PRODUCTS



SOLVE **ALL YOUR** CLOSET PROBLEMS!

SEE OUR CATALOG IN "SWEETS"-ARCHITECTS' - 5c BUILDERS' - 26

WALL CLOSETS A really new storage idea . . . brilliantly engineered! Complete Wall Closets in a wide choice of sizes and models. Space-saving design and prefabricated construction require 25-40% less floor space than wood-stud closets, yet Sliding doors, suspended on ball-bearing hangers to prevent binding or sticking, save living area outside the closet and present a beautiful flush-wall appearance. Closets have adjustable shelves, rods and drawers (optional) to permit easy rearrangement to meet changing storage requirements. Top compartments utilize space that is ordinarily wasted.

provide an equal amount of more usable storage. Units shipped KD with front frames and doors

MAIL THE COUPON FOR COMPLETE I	NFORMATION /
Cabinet Division—Dept, AF-7 THE MENGEL COMPANY 1122 Dumesnil St., Louisville 1, Ky. Gentlemen: Please send me complete Mengel Wall Closets, Closet Front Sliding Doors.	e information on s and Topflight
Name	
Firm	
Street	
City	State

assembled and all hardware included. Birch or prime-coated faces. Easily installed. Comply with FHA requirements.

CLOSET FRONTS AND FRAMES Designed to bring the beauty and luxury of sliding doors to conventional closets. Fronts and frames are identical to those used in Mengel Wall Closets and have many of the same advantages as complete Wall

TOPFLIGHT SLIDING DOORS Top-quality sliding doors at very low cost! Available in a variety of styles and widths and in 2 heights-one to conform with other doors in the room, the other for floor-to-ceiling installations. Aluminum channels along the vertical edges of each door provide exceptional strength and rigidity. An exclusive Mengel design feature minimizes the possibility of warpage. Doors are suspended from top track on ball-bearing hangers to insure smooth operation. Sturdy frame construction . . . tempered pressed wood faces. Shipped with top and bottom tracks and with all parts completely fabricated.



He's on your staff but not your payroll

It was a tough heating problem. But the architect who faced it knew of a proved source of engineering aid on heating. And the Bryant distributor brought in the answer.

Yes, Bryant distributors welcome such opportunities. Complete and thorough factory engineering assistance is at their call. Thus, thinking of the industry's largest staff of gas heating engineers becomes an extra Bryant service for architects from coast to coast.

Other plus factors of the Bryant program are the opportunity of getting most everything in gas heating equipment from a single source... a near-by distributor with adequate warehouse stock... a nationally famous brand name that clients recognize for its quality.

If you are one of those architects who likes to get more than just the product when you write it into your specifications . . . check with Bryant!



The most complete line of gas heating equipment in the nation

Bryant Heater, Dept. 225, 17825 St. Clair, Cleveland, Ohio	. MACOURT
☐ Send me the new booklet the Bryant story. ☐ Have your tor call on me.	
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Company	
Address	
City	State



Many Flooring Materials limit your opportunities for varied design effects—and are not suitable for low-cost non-basement construction.

But Kentile meets your every need. It enables you to create "custom" flooring effects at low cost with decorative ThemeTile* and Kenserts. Kentile is ideal for radiant-heated homes . . . the *only* type of flooring possible in basementless houses because it can be laid on concrete in direct contact with the earth.

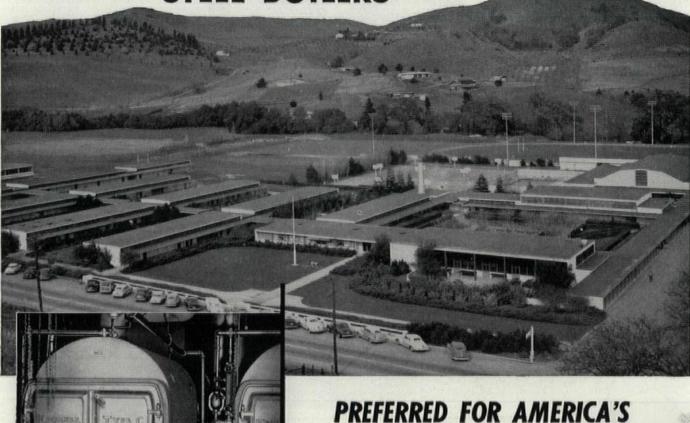
Save your clients money with economical, easy-to-install Kentile. Builders (and their clients) like its lustrous beauty. They know, too, that it means years of super-service and easy upkeep . . . because of the reliable Kentile name . . . because of national advertising campaigns in leading magazines.

Examples of ThemeTile are the circular inserts shown in the floor above and available in different color combinations. Other ThemeTile include such decorative designs as: Pitcher, Sprinkler, Spoon and Fork, Kettle, Frog, Ivy, Daisy. Factorymade, these inserts come pre-assembled and their installation involves no extra labor.



DAVID E. KENNEDY, INC., 58 Second Ave., Brooklyn 15, N. Y. • 350 Fifth Ave., New York 1, N. Y. • 705 Architects Bldg., 17th and Sansom St., Philadelphia 3, Pa. • 1211 NBC 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. • 1113 Vine St., Houston 1, Texas • 4501 Santa Fe Ave., Los Angeles 58, Calif. • 95 Market St., Oakland 4, Calif. • 452 Statler Bldg., Boston 16, Mass.

KEWANEE STEEL BOILERS



PREFERRED FOR AMERICA'S MODERN SCHOOL BUILDINGS

New ideas and functional designing have greatly improved the appearance and usefulness of American Schools. New ideas in heating have raised the standards of comfort; and a Kewanee Boiler in the specifications will "step up" the operating efficiency of an entire school system.

The Acalanes Union High School at Lafayette, Calif., where "every room has a garden", is a typically modern school structure; three Kewanee Boilers were selected to insure extra economies along with heating comfort.

And this is one more school to add to the twelve thousand others . . . new and old, large and small . . . where thousands of Kewanee Boilers perform to perfection.

ACALANES UNION HIGH SCHOOL, Lafayette, Calif. Kump & Falk, Architects

Heated by 3 Type "C" KEWANEE BOILERS producing 8,748,000 Btu.

Monterey County Plumbing Co., Heating Contractors

KEWANEE BOILER CORPORATION

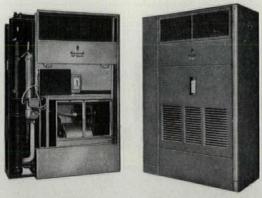
BOILERMAKERS 80 YEARS KEWANEE, ILLINOIS
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Division of AMERICAN RADIATOR & Standard Sanitary Corporation

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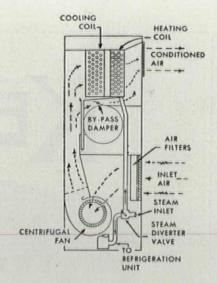
PRODUCT NEWS

SELF CONTAINED AIR CONDITIONER works on steam power.

Instead of the usual condensation method, this commercial air conditioner cools and dehumidifies air by absorption refrigeration. For fuel it uses low pressure steam from any source to create differences in temperature and height of liquid columns in the absorption refrigeration unit, and thus cause circulation of the water refrigerant, (Either well water or water passed through a cooling tower may be utilized.) Because of the



Absence of moving parts in this new absorption refrigeration unit cuts down maintenance costs.



The NATIONAL Disposer





The contractor has no problems where installation of National Disposers is concerned. Nationals are designed for quick, easy installation. It's a matter of record that on one apartment house job National Disposers were installed in an average time of less than ½ hour

FULLY AUTOMATIC • SAFETY TOP CONTROL • WATER FLOW SWITCH The NATIONAL disposer is easily and quickly installed, From drawing board to sink... no problems! GOOD DESIGN IS SIMPLE DESIGN!

each! Easy installation means low cost—more profit to builder. (FHA appraisals can be increased by full value of disposer.)

YOU'LL DO BEST TO SPECIFY NATIONAL DISPOSERS

Nationals meet every requirement from the first planning stage on—every requirement of the architect, contractor, apartment and home owner. It will pay you to get complete details now. Get your "Architect's File" including National Disposer specification sheets and installation data. Address: Dept. 7, Plumbing Equipment Division, National Rubber Machinery Co., Akron 8, Ohio.





Made by National Rubber Machinery Company, for over 40 years designers and builders of precision processing machines.

absence of moving parts, noise and vibration are reduced considerably, and there is little possibility of mechanical breakdown. In fact, Servel offers a 5-year warranty on the SDE-1. To cool and dehumidify the air (or, where heating coil is installed with the unit, to warm it) the blower sends filtered air through the coils. This air then flows into the conditioned space, maintaining the temperature selected by the user. Although it is designed primarily for placement within the space to be conditioned, the SDE-1 may be situated outside this area and supply duct-work attached to its discharge opening. To change from refrigeration to heating or to turn off the unit, the user merely flips a switch. And, if the unit is equipped with an automatic Selectrol dial, even the switching is unnecessary. A large door provides easy access to filters, control panel, fan, and motor fan bearings. No clearance is needed in rear, but 18 in, should be allowed on the sides for servicing. The unit itself measures 841/2 in. high, 30 in. deep and 571/4 in, wide. Bonderized finish is grav enamel. Its delivered capacity for inside conditioned space is 62,000 Btu for refrigeration and 87,300 Btu for heating. Price for the SDE-1 is \$1,750, not installed. The unit is most advantageous where district steam is inexpensive. Steam fuel is supplied to the conditioner at a safe atmospheric pressure.

Manufacturer: Servel, Inc., Evansville 20, Ind.

ROOM AIR CONDITIONER has dual refrigerating system for light and moderate loads.

Equipped with two independent refrigerating systems, this newly designed window room air conditioner, the ARM-100, provides the user with selective cooling. For economical operation during the night and in temperate weather, one of the Meter Miser units may be operated alone to cool and filter the air adequately. In extremely hot weather, both work simultaneously to handle the heavier load. When both systems are in use they have a combined cooling effect in the room equal to about one ton of melting ice per day. (A thermostatic control is available which will provide completely automatic regulation.) Air is circulated by the ARM-100 at a rate of 300 cu. ft. per min., and the ventilating control will admit fresh outside air up to 50 cu. ft. per min. Five full length vanes may be adjusted manually to direct the air flow to any part of the room. An oil-coated spun-glass filter is located directly in

(Continued on page 176)

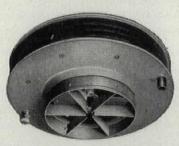
Speedheater installation showing simple piping connections.

SOLVE YOUR HEATING PROBLEM NOW ...EFFICIENTLY, ECONOMICALLY

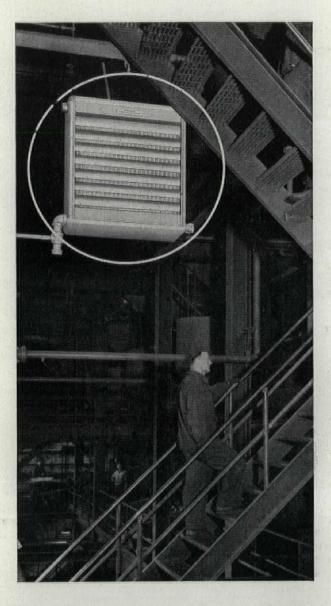
From basements to warehouses, from drying rooms to bus terminals, Sturtevant Speedheaters® offer the efficient, economical answer to your heating problem. Speedheaters provide faster heat delivery, better heat distribution, lower fuel costs. They do what old style heating systems fail to do . . . force warm air down into areas where it is needed most. Adjacent walls are "washed", not "baked" with heat, giving more uniform distribution over larger areas. And Speedheaters go to work immediately; there's no "warm-up" time and fuel lost.

For complete details, contact your local Sturtevant Distributor, or write Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Mass.

FOR HIGH CEILING INSTALLATIONS — THE DOWNBLAST SPEEDHEATER



Forces warm air down into working area; greatly reduces ceiling heat loss; connections on both sides save piping costs; capacities from 40,000 to 400,000 btu.



CHECK THESE SPEEDHEATER FEATURES:

- 1. Fast Heat Delivery . . . with quiet-operating fan.
- 2. Low Maintenance Cost . . . single row radiator. Tested for 200 lbs. steam pressure.
- Dependable Westinghouse Motor . . . backed by nation-wide motor service plan.
- **4.** Simplified Installation . . . flat top construction permits installation directly to the ceiling . . . inlet and outlet connection on each side of heater.
- 5. Pliable Steel Hangers . . . can be shaped on job.
- Available in 26 Sizes . . . from 25,000 to 400,000 btu.

YOU CAN BE SURE ... IF IT'S

Westinghouse



Henry Kadel of the Kaywin Construction Co.

Big Builder Henry Kadel Knows A Bendix Washer Can Make Buyers Out of Lookers!

The Kaywin Construction Company of Fair Lawn, N. J. already has 650 fast selling homes equipped with sales-pushing Bendix automatic Washers . . . and more are coming. For Bendix Washers are standard equipment in all Kaywin units.

Kaywin has found that whether the house sells for \$9,000.00 or \$22,500.00, a Bendix Washer is one feature that sells both men and women. Women want the house with built-in freedom from washday work. Men go for the extra value of an automatic washer. And, to both men and women, the name BENDIX on a washer means more than any other!

Notice that Kaywin Construction Company *labels* the Bendix Washer by name . . . because they know the name Bendix SELLS . . . even in toughest competition.

Is competition getting *your* share of sales because of the Bendix "extra" that closes the sale? A Bendix Washer in a house adds only pennies more

per month in a package mortgage plan—yet it is sure to clinch profitable sales . . . quicker, easier.

Check on the profitable Bendix Builder story with your nearest Bendix distributor, or write us for his name.

Bendix is participating in the Good American Home Program



PRODUCT OF BENDIX HOME APPLIANCES, INC., SOUTH BEND 24, INDIANA

IF THERE EVER WAS A REASON FOR NOT USING WALL TYPE FIXTURES, IT NO LONGER EXISTS!

ZURN Found

the Simple, Fast, Safe Way to Install Wall Type Fixtures

The Zurn Way of installing wall type fixtures gets fixtures up off the floor and takes the load off the wall. Zurn Wall Closet Fittings and Carriers are engineered to provide fixture support free of the wall—safely, securely and in perfect alignment. The Zurn Way of installing wall type fixtures reduces time-cost—adjustments are simple and time-wasting grief and guesswork are avoided.

Wall type fixtures reduce cleaning and maintenance costs over the years—free floor areas provide a clean sweep of the floor cleaning is quicker and easier.

Wall type fixtures and the Zurn Way of installing them provide the broadest protection against premature obsolescence in toilet rooms. Zurn Wall Closet Fittings and Wall Fixture Carriers are designed for any type or make of wall type fixture. Consult a Zurn representative for more details.

J. A. ZURN MFG. CO.

Plumbing Division • ERIE, PA., U. S. A. Sales Offices in All Principal Cities

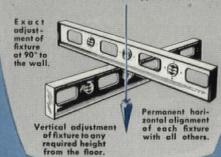
Pre-eminent Manufacturer of Sanitary Products for the Protection of Human Health and Modern Structures.

ices in All Principal Cities



PERFECT ALIGNMENT IN ALL 3 DIRECTIONS

Obtained with Exclusive Adjustment Features of Zurn Wall Closet Fittings And Carriers...For The Support of All Types And Makes of Wall Type Fixtures



One of several types of Zurn Engineered Carriers for wall type urinals.



Carrier Catalog and Handbook No. 50 ARD

J. A. ZURN MFG. CO. • PLUMBING DIVISION • ERIE, PA., U.S.A.

Please send me the new Zurn "Carrier Catalog and Handbook No. 50" for wall type fixture plumbing.

Wall closet fitting horizontal, single type shown with connections for soil pipe.

> Exploded view of Zurn Wall Closet Fitting for syphon jet closet left-hand, horizontal, for soil pipe connections. Also available for threaded pipe connection.

Syphon jet closet carrier face plate with universal adjustable fixture bolts and corrosion resistant adjustable coupling.

Name and Title

Company

Windows of Wood



GENERATIONS from now, the Western Pine wood windows you specify or install today will still be providing satisfying all-season comfort and friendly charm!

Wood is a natural insulator, non-conductor of heat or cold, and to these practical qualities the Western Pines* add their own smooth, fine-grained beauty and workability. They grip paint tenaciously, and scientific processing assures unusual durability. Soft-textured, versatile Western Pines prove their beauty and value wherever they are used. Distinctive effects can be achieved economically not only in windows but in attractive exteriors, clear or knotty pine paneled walls, woodwork and cabinets that please architect, builder and owner alike.

DO YOU PLAN-BUILD-FINANCE?

These free booklets may be helpful when talking with prospects, clients and customers. Your letterhead or postcard request brings them to you.

Windows of Wood

Enchanting Homes of Western Pines

Address Western Pine Association, Dept. 318-V, Yeon Bldg., Portland 4, Oregon

THESE ARE THE WESTERN PINES

*IDAHO WHITE PINE *PONDEROSA PINE

These are the Associated Woods

Larch, Douglas Fir, White Fir, Engelmann Spruce, Incense Cedar, Red Cedar, Lodgepole Pine

* SUGAR PINE

WELL MANUFACTURED . THOROUGHLY SEASONED . CAREFULLY GRADED

FOR SIGHT UNSEEN ... choose MIRROPANE





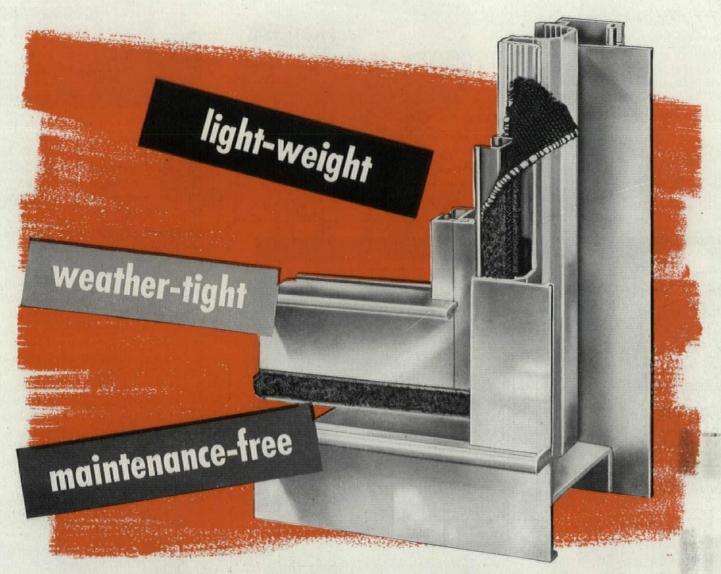
Funeral chapels, night clubs and fraternal lodges are finding this unique transparent mirror—Mirropane*—an important means of providing added privacy—in family rooms, in private dining rooms, in lodge ceremonial quarters. Observers are able to see everything in the other room without being seen—provided the light is stronger in the room being watched than in the observer's room.

Mirropane acts as an ordinary mirror when viewed from the side having the strongest light. From the other side, it is transparent. Instant reversal is possible at the flick of a light switch. There are many exciting new architectural applications of Mirropane resulting from this unusual quality. Like more information? Write Liberty Mirror Division, Libbey Owens Ford Glass Company, 9885 Nicholas Bldg., Toledo 3, O.

MIRROPANE



TRANSPARENT MIRROR • PRODUCT OF LIBERTY MIRROR DIVISION
LIBBEY • OWENS • FORD GLASS COMPANY



Adlake aluminum windows are ideally suited to curtain wall construction

Although designed for a lifetime of service in any building, modern or traditional, Adlake Aluminum Windows are a "natural" for curtain wall installations. Built of lightweight aluminum, they do away with the cost of painting and maintenance, and keep their smart good looks and finger-tip control for the life of the building!

What's more, only Adlake Windows combine woven-pile weather stripping and serrated guides to assure minimum air infiltration. Adlake Windows never warp, swell, rot, rattle or stick, and installation is amazingly simple: you can complete all exterior work first and then simply set the window in place!

For complete information, please drop us a card today. Address The Adams & Westlake Company, 1101 N. Michigan, Elkhart, Indiana. No obligation, of course.



THE Adams & Westlake COMPANY- ALL

Established 1857 • ELKHART, INDIANA • New York • Chicago

PRODUCT NEWS

front of the cooling units and above the room air inlet. Dispensable and inexpensive, the filter may be slipped out through the bottom of the case without raising the window. Other features of the conditioner are quiet operation and automatic moisture removal. Selling for \$419.75, f.o.b. Dayton, the unit is completely self contained; it merely has to be plugged in. It will fit in any double hung window from 29 to 56 in. wide and usually can be installed in less than an hour. The conditioner has been designed so that its gray



Equipped with two 1/2 h.p. refrigerator units, this room air conditioner handles light or heavy loads.



enameled steel case extends only 13 in, into the room. This model and the ARL-50, which has a half ton capacity and costs \$292.52, are each 28½ in. wide, 31½ in. deep and 16¼ in. high (including mounting frame.)

Manufacturer: Frigidaire Div., General Motors Corp., Dayton 1, Ohio.

ROOM AIR CONDITIONER LINE has good-looking units, low prices.

This year's Philco room air conditioners range from a ½ h.p. air-cooled window sill model to a 2 h.p. water-cooled console. Model 50-F-1 is a ½ h.p. motor compressor unit selling for \$289.50. The unit extends only 105% in. into the room, It is equipped with an adjustable air outlet louver and has a pump out control to remove stale air. It is suited for installation in rooms up to 15 x 19 ft. in area with standard 9 ft. ceilings. Available for 115 v., 60 cycle a.c. operation, the 50-F-1 is guaranteed for five years. Cabinet dimensions are 143% in. high, 265% in. wide and 103% in. deep.

The 3/4 h.p. window sill unit pictured is Model 75-F-1 which measures 143/8 in, high, 261/4 in.



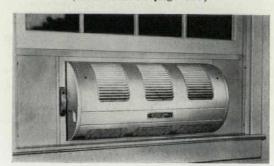
wide and 187/8 in, deep, Priced at \$359.50, the unit provides conditioning for rooms up to 20 x 20 ft. It requires no plumbing and will fit any window from 27 in, up to 48 in, wide.

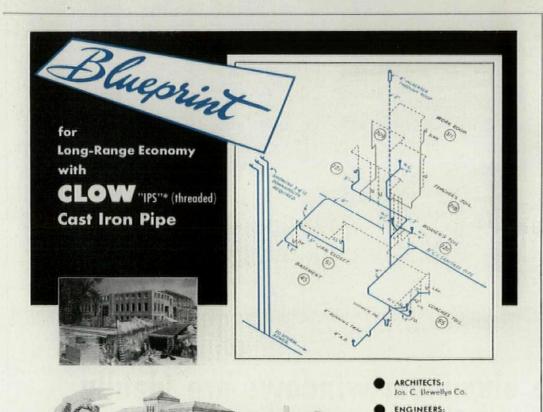
Another new Philco, the 34 h.p. 75-Fc, is a neat console designed to blend with interior furnishings. It has a walnut case and a simulated leather top. It stands 32½ in. high, 45¾ in. wide and 17½ in. deep and sells for \$539.

Manufacturer: Philco Corp., Philadelphia, Pa.

CYLINDRICAL AIR VENTILATOR is adjustable for air intake, exhaust or both.

One of the several new Remington air conditioners introduced recently is a practical room ventilator, the Air Pilot. Its unique barrel-like construction permits a variety of ventilating func-(Continued on page 180)





Approximately 1500 feet of Clow "IPS"* (threaded) Cast Iron Pipe is now being installed in the new Physical Education and Music Building of the Lyons Township High School, La Grange, Illinois. This corrosion-proof pipe was chosen for long-range economy, as it lasts for a century or more. A section of the original riser blueprint is depicted above, with heavy lines indicating where Clow "IPS"* (threaded) Cast Iron Pipe will serve as vent stacks, waste lines, soil pipe, and downspouts. Also shown is a view of the building under construction, and a view showing how it will appear when completed.

Clow "IPS"* Cast Iron Pipe is available with plain or threaded ends, in 3, 4, 5, 6, 8 and 10" sizes in 18' random lengths. Also furnished with integral caulking bell on one end (other end plain) in 18' random lengths, and 4, 6 and 8" sizes.

CLOW "IPS" CAST IRON PIPE CAN BE

Samuel R. Lewis & Associates
PLUMBING CONTRACTOR:



on the job, with ordinary tools of the piping trade.

*''IPS'' is iron pipe size O. D.

JAMES B. CLOW & SONS

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Chicago 80, Illinois

Division, Birmingham, Alabama; subsidiaries Eddy Valve Co., Waterford, New York; lowa Valve Co., Oskaloosa, Iowa.

High efficiency plant?



For top efficiency in electrical conductor—per dollar of conductor cost—figure feeders in *aluminum*. See for yourself that aluminum costs less to buy, less to install.

For names of manufacturers and a copy of "Questions and Answers about Insulated Aluminum Conductors," call your nearest Alcoa sales office. Or write ALUMINUM COMPANY OF AMERICA, 1778H Gulf Building, Pittsburgh 19, Pennsylvania.

Aluminum Conductors



of ALCOA ALUMINUM are made by leading manufacturers

Tuck this heater away in the wall!

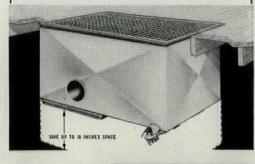
The cost-saving COLEMAN automatic gas wall heater



Designed for today's building— This plan shows how the Coleman Gas Wall Heater can be used in modern new homes.

Automatic Low-cost Heat with the Coleman Floor Furnace

Fits in floor, takes no living space. Heats 4 to 5 rooms, giving complete change of warm air 3 to 5 times an hour. No basement, no excavation, no air ducts needed! The Flat Register lies flush with the floor and the Dual Wall Model fits beneath wall or partition to heat adjoining rooms at same time. Coleman's Shalloflow illustrated is the shallow furnace with bigfurnace heat production. Models from 25,000 to 70,000 BTU per hour. For Oil, Gas, LP-gas.



Comfort costs so little with a



World's largest manufacturer of home heating equipment

Takes no living space! Here's automatic low-cost heat that's easy to install in low-cost homes. It's the modern, handsomely styled heater that fits in the wall between standard studs and extends out only 3\%". Needs no excavation, no special construction and no basement. And no ripping up floors—ideal for slab-floor homes. Just the thing to heat second-floor areas when space must be conserved. Safe for children because the casing they can touch heats to only 53° above room temperature.

Single Wall and Dual Wall Models

Single Wall Model has a 25,000 BTU per hour input rating and circulates 8000 cubic feet of warmed air every hour—enough to heat 2 average rooms. The Dual Wall Model fits in wall between 2 rooms, heating adjoining rooms at same time. Separate controls to regulate temperature. BTU per hour input rating, 45,000. Send coupon for more information showing how the Gas Wall Heater helps keep building costs down; helps sell houses faster.

THE COLEMAN COMPANY, INC. . WICHITA 1, KANSAS

Please send more informat	ion on		
☐ Coleman Floor Furnaces ☐ Coleman Gas Wall Heate	☐ Gas ☐ Oil	☐ LP-gas	
Name			



Crawford

announces the publication of a new tool for Architects and Engineers

THE CRAWFORD 60-Second DOOR SELECTOR

This new type of reference book is dedicated to the idea that you should be able to find any door you want in 60 seconds, together with all the information you need for specifications. Covers doors for warehouses, loading docks, factories, service stations, boat wells, residence garages, etc., and all auxiliary equipment such as operators, controls, etc. This book should save you much time and effort. A copy is yours for the asking.

Call your local Crawford Door Sales Company, listed in your Yellow Pages, or write us direct.

CRAWFORD DOOR COMPANY

Main Plant: 9-401 St. Jean Ave., Detroit 14, Michigan

FABRICATING PLANTS in Portland • Tacoma • Los Angeles • San Francisco • Dallas Kansas City • Chattanooga • Milwaukee • Hudson, Mass. • Cadillac • Ottawa, Canada. DISTRIBUTING WAREHOUSES in 79 major cities. SALES AND SERVICE companies everywhere.

In Both Traditional and

Modern Motif . . . DI-LON

Wallpaper Extraordinary

can be used for formal and striking effects. The beauty of authentic reproductions in marbles, wood grains, leathers and other interesting subjects will help carry out the motif of the architect and decorator. Whether it be used for decoration of home or office, there are DI-LON patterns that will add new harmony, character and beauty! DI-LON is practical, sunfast, washable.

DI-LON WALLPAPER FOR HOMES, OFFICES, INSTITUTIONS AND INDUSTRIAL PLANTS.

Ask for samples and name of nearest supplier.



THE DI-NOC COMPANY

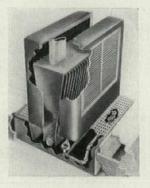
1700 LONDON ROAD . CLEVELAND 12, OHIO

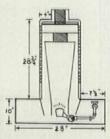
PRODUCT NEWS

tions. In one position it will bring in 100 per cent outside air, filter it to remove dust and pollen, and discharge it either upward or downward into the room. By rotating the cylinder, the user can adjust the Air Pilot to dispel odors and smoky air from the room or position it to provide intake and exhaust in any desired combination. The Air Pilot also may be used to circulate air already in the room. It operates on 110 v. a.c., requires no special wiring, and is installed quickly in almost any double hung window. Retail price is \$119.50. Manufacturer: Remington Corp., Air Conditioning Div., Cortland, N. Y.

COMPACT HEATER delivers radiated and convected heat.

The RadiVector combines features of a floor furnace, dual furnace and a wall heater with a few of its own. The design provides for delivery of both radiated and convected heat through an efficient heating element with upward sloping ribs. Requiring only 10 in. of floor depth, the new heater is approved by the American Gas Assn. for second story installations. Also, it is easily set in concrete slab construction because all connec-





tion and servicing are done from above. Burner and control assembly may be placed in either side; return air grilles are on both sides on the floor. The first model produced has an input of 45,000 Btu. Installed price to the building trade is estimated at \$100. Discounts are allowed on quantity orders.

Manufacturer: RadiVector, Inc., 5341 San Fernando Rd. West, Los Angeles 39, Calif.

RADIATOR VALVE with thermostat permits individual room heating control.

Heat-Timer is a thermostatic valve which can be attached to radiators to maintain individual room temperatures. It is easily inserted on the radiator in place of the regular air valve, Besides offering increased comfort, it is said to reduce fuel bills, Heat-Timers will work on any one-pipe



system. They retail for \$4.95 each.

Manufacturer: Heat-Timer Corp., 160 Fifth Ave., New York, N. Y.

(Continued on page 182)



Uniform room comfort, with Crane Baseboard Panels. Shown: Type "RC" Panel

for any home, new or remodeled



Crane 16 Oil Fired Boiler ideal for use with Crane Baseboard Panels

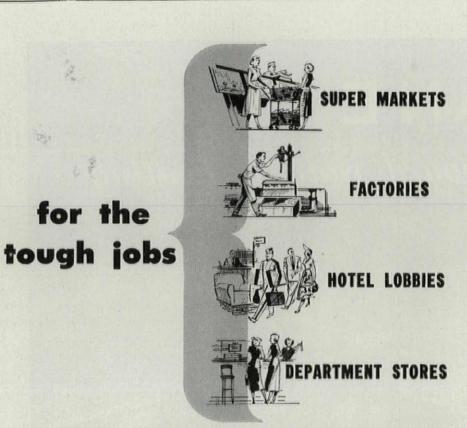
Even modest homes can now have the best in heating—uniform from floor to ceiling—with Crane Baseboard Panels. Ideal for modernizing. Complete planning freedom . . . valuable wall space and space below windows may be utilized.

Two types: "R" Panels for radiant heating; "RC", radiant and convection. Crane supplies the *complete heating system*... for hot water or steam... coal, coke, oil, or gas. Consult your Crane Branch or Crane Wholesaler.

CRANE SAL

CRANE CO., GENERAL OFFICES

PLUMBING AND HEATING . VALVES . FITTINGS . PIPE



your best floor is WRIGHTFLOR

Developed specifically for the heavy traffic areas, WRIGHTFLOR has characteristics which make it far superior to any softer rubber floor covering.

It's easy to clean! Extra-hard, non-porous WRIGHTFLOR needs only to be mopped with clear, lukewarm water to remove all trace of dirt. Regular buffing, plus occasional waxing, keeps it sparkling.

It's beautiful! Gloss and colors of WRIGHTFLOR are rich and permanentthey go all the way through the tile. Marbleization is uniform, rhythmical, interesting in pattern.

It's resistant to damage! High-modulus, non-porous WRIGHTFLOR is compounded entirely of non-fibrous ingredients, molded under unusually high pressure. As a result it is resistant to chemical attack and identation. Abrasive particles cannot penetrate its surface and there is no factory-waxed surface to wear off.

And it lasts! Floors of WRIGHT RUBBER TILE, heavily traveled for over 28 years, still look like new. And, remember, because of Wright Manufacturing Company's practice of continuing research and improvement, today's WRIGHTFLOR resists wear even better than the earlier long-wearing WRIGHT RUBBER TILE. No other proved floor covering can compare with WRIGHTFLOR in heavy traffic service!

> Send today for free samples of WRIGHTFLOR, together with details on characteristics, standard architects specifications and the name of your nearest dealer.

> WRIGHT MANUFACTURING COMPANY 5204 POST OAK ROAD HOUSTON 6, TEXAS



FLOORS OF DISTINCTION

for the

- WRIGHTEX-Soft Rubber Tile
- WRIGHTFLOR—Hard Surface Rubber Tile
- WRIGHT-ON-TOP Compression Cove Base

PRODUCT NEWS



DISHWASHER SINK COMBINATION has single lever faucet, garbage disposer.

Matching the current trend in ranges, the new Hotpoint automatic dishwasher sinks have high backsplashers, which not only provide convenient storage space for soap and utensils, but also allow for more uninterrupted work surface. The 61/2 in. backsplasher has two utility compartments with ventilated doors, A new Moen faucet (see below) with a single lever is mounted directly on the backsplasher. The pre-plumbed model, the MCP16, has a Disposall which works with the dishwasher. In operation, water is pumped from the machine into the garbage disposer for draining. Once the dial is set, the dishwasher operates automatically to wash, rinse and dry up to 58 dishes plus glassware and silver. A concealed vent helps carry off moisture laden air during washing and drying phases. The stainless steel rack rolls on ball bearings and may be used for storing dishes. Overall height of the MCP16 is 421/2 in.; depth, 25 in. It retails at \$519.95. Other dishwasher sinks are priced at \$379.95 and

Manufacturer: Hotpoint, Inc., 5600 W. Taylor St., Chicago 44, Ill.

FAUCET is controlled by finger tip action.

A single lever on the new Moen faucet regulates volume and temperature. The handle is raised or lowered to control amount of water, moved sideways for hot and cold. After water is adjusted and shut off temporarily, it can be turned on

again at exactly the same temperature. The deck type mixing faucet pictured at right is the 22A-9A. It has a 9 in. swing spout and retails



at \$19.95. All faucets are supplied with aerators. Other fixtures for lavatory, bathtub, shower and kitchen range from \$15.40 to \$19.55.

Manufacturer: Ravenna Metal Products Corp., 6518 Ravenna Ave., Seattle, Wash.

COUNTER-HIGH REFRIGERATOR has large frozen food storage compartment.

Designed to fit in with the Universal modular Select-a-Range (FORUM, Jan. '50) the Select-a-Refrigerator is a 26 % in. wide counter-top unit (Continued on page 184)



Blueprint for beauty...

GENERAL ELECTRIC PLASTICS TOPS















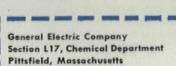
FOR COUNTERS

You know how people nowadays want color in the kitchen. They want colorful, lustrous work surfaces that set off the gleaming beauty of white appliances, and that make their kitchens more pleasant, easier places to work in. They want surfaces that will stand up under hard daily usage, too-and that are easy to keep clean and sparkling.

It's easy to meet these demands with General Electric Textolite* Plastics Tops -the same fine, durable surfacing material which can be used so successfully for table and counter tops in commercial eat-and-drink establishments. There's a wide range of exclusive patterns and colors to make color-planning easy. And the remarkable wearing qualities of General Electric Plastics Tops-plus the fact that they're so easy to cleanmake them ideal for the kitchen of today.

And there's another good reason why architects and builders find General Electric Plastics Tops in ready favor with clients. That's because the name General Electric on specification sheets gives immediate assurance of a quality product.

For more information about G-E Textolite Plastics Tops, see our Catalog in Sweet's File, or mail the coupon below. *Reg. U.S. Pat. Off.



Please send me a free copy of your new illustrated booklet, including a pattern sheet showing G-E Textolite

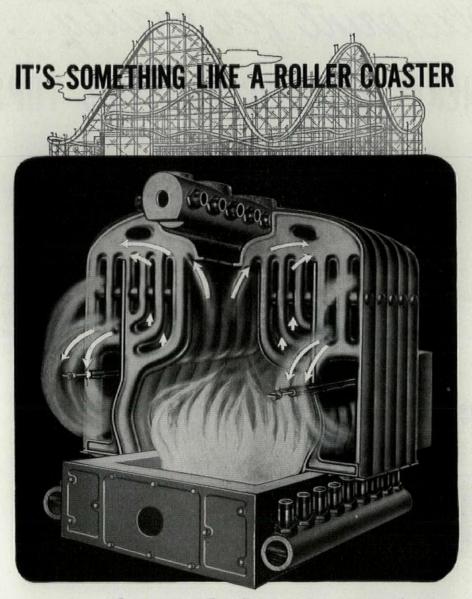


	designs		
Nam			

1,41116	TO SHEET WATER	PARTY LINE	
Business			
	A SEPTIME		

You can put your confidence in





... the way the hot gases travel in a Smith Mills Cast Iron Boiler

... whipped up and around the entire chamber they go directly to the highest surface of the boiler — then across to each side — to the front through the upper flue passages — to the back through the lower channels . . . finally, spent and exhausted, they pass up the chimney.

In the efficient Mills design the hot gases embrace a cast iron boiler water tube at every "roller coaster" turn. These gas passages are relatively large—the gases travel at low velocity, transferring maximum heat to the tubes, allowing ample time for complete combustion. There is less draft loss—and less need for high chimneys—with a Smith-Mills Boiler.

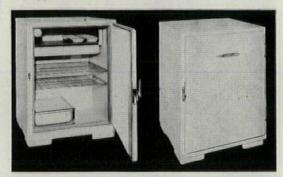
Results? More heat with less fuel, lower maintenance — and often lower installation costs.

It pays to specify Smith-Mills Boilers for all heating needs in industrial, commercial, institutional and residential jobs. For these and other advantages send for free bulletins today.



PRODUCT NEWS

with a capacity of 6 cu. ft. It may be set up to align with standard 36 in. counter or, by removing the feet, reduced to proper height for installation under the counter or sink drainboard. It is equipped with a two-freezer plate horizontal

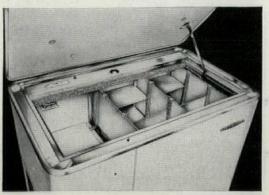


evaporator which has room for 20 lbs, of frozen foods. An aluminum tray directly beneath the freezer provides space for an additional 10 lbs. of frozen food storage, The Select-a-Refrigerator also has a 10 qt. porcelain enameled vegetable crisper. Approximate retail price is \$189. Discounts are allowed to builders.

Manufacturer: Refrigeration Sales Co., 91 Lexington St., New Britain, Conn.

FREEZER has indexed compartments for convenient food storage.

An unusual household appliance, the Index-a-Freezer boasts an adjustable interior with identifying tabs which serve as key to locating stored foods. Forcing cold directly into the compact cabinet, seven freezer plates form three separate compartments: a quick freeze section with about 2 cu. ft. capacity and two sections having 5 cu. ft. each. Heavy gauge aluminum dividers may be placed vertically or horizontally to suit user's requirements. Almost every inch of space is usable.

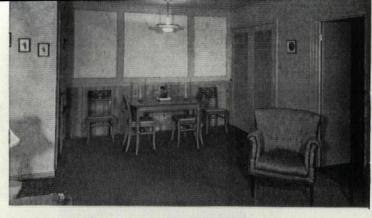


The URL12FD holds a maximum of about 420 lbs. of food—nearly twice the amount of many other units its same size. Outer dimensions are: height, 36 in.; length, 47½ in.; and width, 30¼ in. Temperature control is inside the freezer and an automatic flood light illuminates the interior. A ¼ h.p. fan cooled Freon compressor powers the freezer. Refrigeration assembly is easily removed for servicing. The model sells for \$399.95; without food labels and dividing shelves, for \$359.95.

Manufacturer: Refrigeration Sales Co., 91 Lexington St., New Britain, Conn.

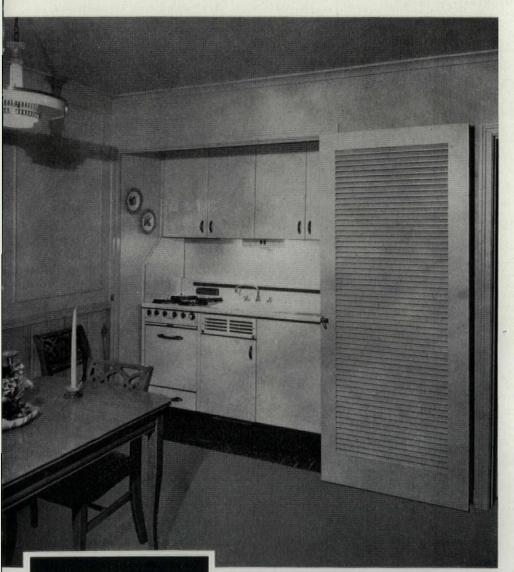
(Continued on page 186)

MORE LIVING SPACE



With folding doors closed, the Murphy-Cabranette Kitchen is entirely concealed.

... with Murphy-Cabranette Kitchens



Entire front . . . as well as sink-and-range top . . . is genuine vitreous porcelain on steel.

With doors open, the kitchen is ready to use... can be concealed from view from the living room by setting doors at right angle to wall.

CLOS DINING ALE TABLE TO THE PROPERTY OF THE P

In compact units (39 to 69 inches wide) they provide complete . . . practical . . . working facilities for the homemaker.

Ranges (gas or electric) are of modern design, ample in size, with heavy Fiberglas insulation, oven heat regulator and modern burners. Tested and approved by A.G.A and Underwriters' Laboratories.

Refrigerators are capacious . . . Fiberglas insulated . . . with stainless steel freezer compartment for ice cubes and frozen foods. Silent, trouble-free mechanism never requires oiling.

Sink-and-range top is one sleek piece of vitreous porcelain . . . not a crack or crevice to harbor dirt or grease.

Storage space for cans and packaged foods, for dishes and utensils, is provided in wall cabinets and under sink.

Maintenance is easy. Every vital working part can be serviced or replaced without moving any section of the assembly. Tens of thousands of these remarkable kitchens . . . in the grueling service of rental properties . . . have proven their efficiency and durability.

Murphy-Cabranette Kitchens are engineered, manufactured and guaranteed . . . in their entirety . . . by an organization specializing in compact kitchens for more than 25 years.

Write for illustrated bulletin

DWYER PRODUCTS CORPORATION

Dept. F8, Michigan City, Indiana

Planned by S. H. Dixon. Built and operated by Braeswood Building and Development Company in Houston, Texas.

MASTER NO-DRAFT SASH BALANCE

ORIGINAL
Sash Balance and
Weatherstrip
Combination

the

has no equal in

- simplicity of installation.
- quality of materials or workmanship.
- economy of time and labor in pre-fitting double hung windows with sash balances and weatherstrip in a single unit.

• The Master No-Draft Spring sash balance and metal weatherstrip combination is the ideal unit for pre-fit window assembly. It is simple, requiring only two sash rabbets. It is satisfactory in use, and proved by thousands of installations from remodel jobs to huge government housing projects. It is the original patented quality unit manufactured by the leader in the development and sale of this type of equipment.

Every quality product has its imitation. The difference between the two may not be apparent but it is always there . . . either in material, in workmanship, or in design. When you install an assembly which must maintain your product's reputation be sure that it will do so. Hundreds of mills are now supplying thousands upon thousands of sash pre-assembled with Master No-Draft Sash Balances.

Master No-Draft sash balances are installed from the far northern island of Attu in the Aleutians to the tip of South Africa in Johannesburg.

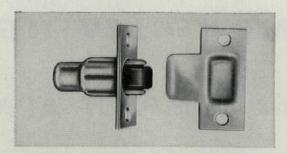
SPRING AND HOUSING

 Write today for complete details. Give your windows this sales feature. We also manufacture the world's finest weatherstrip for windows and doors.

SPRING CLIPS OVER HOUSING AT TOP



PRODUCT NEWS



ROLLER CATCH for interior doors operates on easy push-pull action.

Designed for wardrobe, closet, communicating and other interior doors that do not require a lock, this new catch is said to work smoothly and quietly and to be installed and adjusted quite simply. It is set on either door edge or frame by boring a 7/8 in. hole, 23/8 in. deep. Tension is regulated by pulling the roller plunger forward and rotating it between the fingers. (Maximum adjustment is 3/8 in.) Approximate prices range from \$1 to \$1.20, depending on finish of strike and face plate. Any door knob or pull may be used in conjunction with the catch.

Manufacturer: The Stanley Works, New Britain, Conn.

LOW VOLTAGE HOME FIRE ALARM is inexpensive, easy to install,

Easily installed, the Savealife fire alarm kit consists of 12 thermostats, 2 enclosed bells, a 110-10 volt a.c. trans-

former and 150 ft, of plastic coated wiring. (A 6 v. battery may be substituted for the transformer.) The 10 white thermostats are set to signal alarm at 135°,



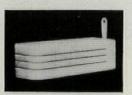
and 2 red thermostats (for use in attics, over heaters or in furnace rooms) are set at 165°. Because the system operates on low voltage, wires may be run safely through floors and walls in new construction. Retail price of the complete kit, sufficient for the average six-room house, is \$15.95. Augmented systems for more extensive installations are also available.

Manufacturer: F. Cecil Brown Co., 1001 N. Vermon Ave., Los Angeles 27, Calif.

BURGLAR ALARM needs no wiring, is tiny but loud.

This effective yet small and inexpensive intruder alarm is set off by a self-contained battery. It is easily attached to any door or window with two

screws. Set in alarm position from inside the house, the Alert Alarm will sound a continuous piercing signal at the slightest opening of door or window it protects,



It is eased in ivory or brown plastic and retails for \$1.98.

Manufacturer: Electromagie Co., 1003 Penn Ave., Pittsburgh 22, Pa.

(Continued on page 188)

YOU CAN BE SURE .. IF IT'S

Westinghouse

the greatest advancement in "PLUG IN" control center design

MAGNA-GRIP "PLUG IN"CONNECTORS

for unmatched operating simplicity

The Magna-Grip connectors in the new Westinghouse Control Center were designed specifically to give you this important operating benefit:

Simple, safe removal and replacement of starter units

These new stab-type connectors simply "plug-in" to the power bus to eliminate the danger associated with working on "hot" lines. Their simple construction eliminates mechanical difficulty and the special silver plated, alloy copper retains spring pressure even under extreme temperature conditions.

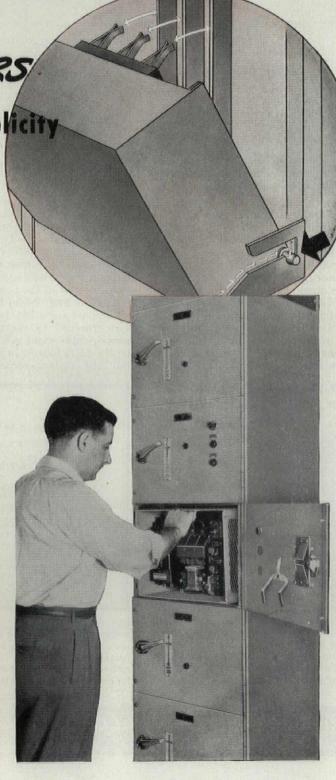
Alignment is positive . . . simple . . . because rigid guide rails in the vertical structure direct the starter stabs to "bull's-eye" contact with the vertical buses.

Consider all the advantages of this new control center!

Standardized, modular dimensions for unmatched flexibility in starter arrangements; a large vertical wiring trough for greater wiring convenience; interlocking handles and "tilt position" disconnect for extra safety. These are random examples. The complete story is in Booklet B-4213. For your copy, write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-21539

Westinghouse CONTROL CENTERS



"Quick Change"... Three-R Style

R-W DeLuxe FoldeR-Way Partition

FULLY AUTOMATIC-ELECTRICALLY OPERATED



R-W Deluxe FoldeR-Way Partition, bi-parting, 64' x 22' opening.

Just a turn of the switch key and the R-W DeLuxe FoldeR-Way Partition goes into operation silently and swiftly...locking and unlocking, opening and closing automatically! Designed specifically for school gymnasiums, auditoriums, stages and other high or wide openings—no matter how large—to be closed against light and sound, electrically operated FoldeR-Way Partitions are the answer to present-day problems of economy in space and expenditure. They transform any large indoor area into two smaller

ones—a quick change made entirely without manual effort.

Yes, you turn the switch key and R-W does the rest! DeLuxe FoldeR-Way locks to the floor without floor bolts, keepers, guides, tracks or manually operated sealing strips, pressure-sealing itself to the floor for complete soundproofing. When bi-parting partitions are installed, both halves are synchronized to operate simultaneously—all sections are full-size, equal width doors folding in accordion fashion into jamb or pocket.

R-W Offers a Complete Line of Single and Multiple Action Classroom Wardrobes



R-W No. 833 Multiple Action-Master Control Door Wardrobe

Richards-Wilcox Classroom Wardrobes are outstandingly popular because they are designed to give maximum space for pupils' wraps without overcrowding—because simplicity of design and installation in wall recess means low cost. Wardrobes are available in Single or Multiple Action-Master Control Door units with mounted slate or cork boards. Each door opening accommodates eight to ten pupils.

Also ...

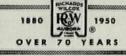
Uninterrupted R-W Service to HOME, INDUSTRY and FARM

Since 1880

- In industry, conveyor systems to solve any overhead handling problem.
- In the home, R-W Silver Streak Vanishing Door Hangers and Aluminum Track afford quick, economical conversion to spacesaving Disappearing Doors. Complete hardware for modern overhead garage doors.
- For the farm, barn door hardware up to any size, gable door fixtures, stay rollers, latches, etc., that perform up to par year after year.

Get all the facts about Richards-Wilcox cost-cutting, space-saving FoldeR-Way Partitions and Classroom Wardrobes now—write today or call your nearby branch office for complete information without obligation.

Richards-Wilcox Mfg. Co.



PRODUCT NEWS

SHAMPOO SPRAY is attached to bathroom wall, works from washbasin fixtures.

A useful piece of bathroom equipment, the Lifetime shampoo spray is designed for permanent wall attachment. Hot and cold water feed are



controlled from the regular washbowl fixtures via a diverter valve; or, if desired, separate fixtures may be installed. The flexible polished stainless steel hose screws directly to the outlet. The brass spray head and holder are chrome plated and the

unit carries a year's guarantee. Price for the spray including a 4 ft. hose is \$13, not installed. Longer lengths may be purchased on special order.

Manufacturer: T & S Brass & Bronze Works, Inc. 121 E. 2 St., Mineola, N. Y.

LEVERAGE TOOL has many construction uses.

Accurate, powerful leverage can be achieved by a simple movement of the Flor-Tite's hand lever.

Measuring only 9 x 3½ in., this portable tool can be used to straighten roof boards and flooring, to draw screening or parquet flooring tight for nailing, or to separate materials. Steel underpins provide positive grip, and interchange-

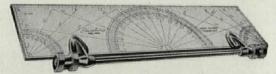


able inserts in the facing allow for a wide variety of securing and separating operations. The Flor-Tite may also be used to space studding and brace joists, It sells for \$6.75, post paid.

Manufacturer: R. M. Products, Box 171, Rochester, Mich.

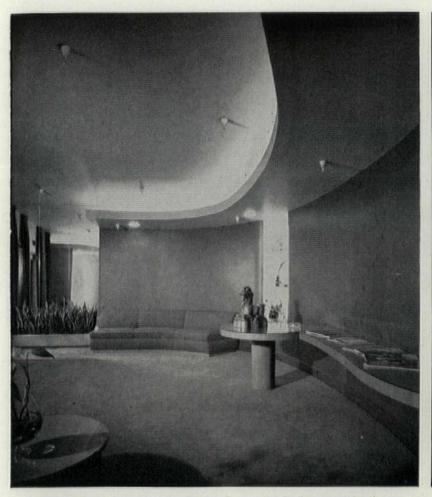
VERSATILE DRAFTING INSTRUMENT is useful for angular line layouts and crosshatching.

The Paraline combines in one pocket size instrument functions of a T-square, straight edge, triangle, protractor and scale. It measures 10¼ x

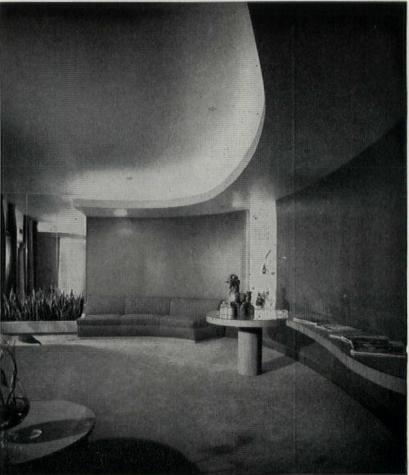


3 3/16 in, and has rollers machined to a tolerance of .0002. Motion economy studies conducted by University of California's Dept, of Engineering on typical drafting and engineering problems showed that considerable time was saved with the Paraline over conventional devices. Price is \$2.95. Manufacturer: Loomis Industries, 516 Park Way, Piedmont 11, Calif.

(Continued on page 190)



BEFORE: An otherwise beautiful interior can be badly marred by the unsightly protrusions and distorting shadows of conventional sprinkler heads.



AFTER: Here is real beauty. There is no distraction from the fine lines of the architect's design when Viking Flush Type Sprinkler Heads are used.

SEE

how much Beauty you Add with VIKING FLUSH TYPE SPRINKLER HEADS

You don't need to be an architect to see the difference in the two photographs above. One has lost the streamlinea beauty which the architect sought. The other is a masterpiece of good taste... a tribute to the architect's skill. Both have vitally important sprinkler protection.

Viking Flush Type Heads complement the architect's design. They help complete the beauty of the building so it stands as a monument to their ability.

Flush Type Heads are so smoothly out of sight, they never interfere with your planning. Yet, they are always ready when trouble comes. There are no unsightly shadows and highlights such as you have with sprinkler heads that protrude far below the ceiling.

SEND THIS COUPON TODAY
AND GET THE FACTS



THE VIKING

Viking Flush Type Sprinkler Heads are installed as easily as any other type of sprinkler head and are unsurpassed in effective water distribution. They, like all other Viking Equipment, are fully approved by the Underwriters' Laboratories and Factory Mutual Laboratories.

Representatives in Principal Cities

CITY_____STATE____

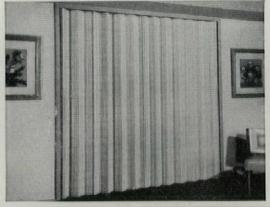
CORPORATION

HASTINGS MICHIGAN

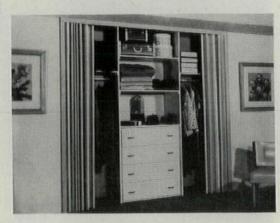
PRODUCT NEWS

FLEXIBLE DOOR of woven wood fabric is hung on curtain traverse.

An old standby, the wood slat porch shade, has been turned on its side to create a novel and inexpensive accordion door for closets and room partitions. Made of narrow basswood splints woven together with tough fish net twine, the lightweight Ra-Tox doors are hung not on sliding door track but on drapery traverse. They are simply pushed or pulled open without additional



Hung and handled as easily as drapes, these wood slat accordion doors provide decorative closure without cutting off air circulation.



hardware. Air circulates naturally through the slat construction, preventing musty odors and mildew in closets and allowing for ventilation of two rooms separated by the doors. Folding to either side of the door frame, they save the space wasted by swinging doors and so may be used advantageously in apartments and small homes. Doors 6 ft, wide and 6 ft, 8 in, high list at \$37 per pair; other standard units range from 6 x 8 ft., at \$44.50 per pair, to 8 x 8 ft. at \$57.50. Prices include lacquer finish on both sides in any of 11 colors, overhead hardware and track, and the anchor molding for attaching door to casing. Larger doors up to 14 ft, tall and 20 ft, wide are made for school and commercial use. Discounts are available to architects and builders.

Manufacturer: Hough Shade Corp., Janesville, Wis.

AUTOMATIC WASHER weighs clothes.

The new L-5 Laundromat clothes washer features a built-in scale mechanism and loading door to show the user the correct amount of soap and hot

water needed to wash a given load of soiled clothes. Weight indicator is on slanting front panel and is marked to correspond with settings of machine. The Laundromat fills itself with water automatically, washes, rinses and spins

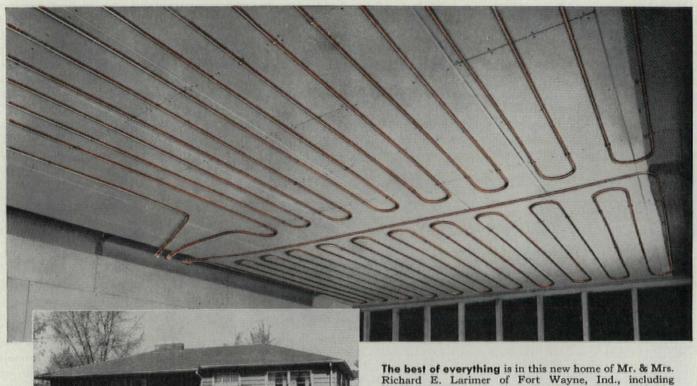


garments damp-dry, cleans and drains itself and shuts off. Complete cycle takes about 35 minutes. A limit control shuts off the washer under severe unbalanced load conditions, Engineering improvements include Micarta gears said to be quieter than metal, a new type snubber to absorb vibration and a spring-controlled mix and fill valve which replaces the free acting gravity type mechanism. The transmission is guaranteed for five years against manufacturing defects. The Laundromat is powered by a 60 cycle, 115 volt a.c. motor, which is lubricated for life. It is priced at \$269.95.

Manufacturer: Westinghouse Electric Corp., 306 Fourth Avenue, Pittsburgh 30, Pa,

(Technical Literature page 192)





Richard E. Larimer of Fort Wayne, Ind., including Bundyweld Tubing for the radiant heating systems in the first-floor ceiling and concrete basement floor. Installation by H. B. Shank & Sons, Fort Wayne, Ind.

Ideal radiant heating for the ideal home with Bundyweld Tubing

Yes . . . ideal, however you look at it.

For Bundyweld is the only tubing double-walled from a single strip, a patented construction that gives it advantages no other tubing can match—on the building site or in the heating system.

It's extra-rugged, extra-strong . . . won't dent, crush, twist or sag. No kid gloves needed with Bundyweld! It's lightweight and ductile, too . . . quickly fabricated, easily handled in installation. It bends more readily and takes more bends with-

out weakening structurally. And your over-all savings in cost are something you'd have to see to believe!

Bundyweld grids last a housetime. Copper-bonded through 360° of wall contact, this unique tubing is leakproof, proved by test... no corrosion, no plaster leaks once it's in place. And its thinner, stronger walls assure maximum heat conductivity always.

Get all the latest information on amazing Bundyweld Tubing in the new Radiant Heating Brochure. Write to: Bundy Tubing Company, Detroit 14, Michigan.

Bundyweld Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

WHY BUNDYWELD IS BETTER TUBING



Bundyweld starts as a single strip of basic metal, coated with a bonding metal. Then it's



twice around laterally into a tube of uniform thickness, and



nace. Bonding meta fuses with basis metal, presto—



double-walled and brazed through 360°



NOTE the exclusive patented Bundyweld beveled edge, which affords a smoother joint, absence of bead and less chance for any breakage.

STAINLESS STEEL. Strength of Stainless Steel Structural Members as Function of Design. By Michael Watter, D. Eng. and Rush A. Lincoln, D. Sc. Allegheny Ludium Steel Corp., Pittsburgh, Pa. 153 pp. 7½ x 10¾ in. \$5.00 Illus.

It was Allegheny Ludlum as manufacturer, and Edward G. Budd, as fabricator, who first really brought stainless steel structures to the attention of the American public, including the building public. Their first stainless steel structures were on wheels—flashing railroad trains which had somehing else new about them in that day, streamlining. Since the first streamlined stainless trains, this clean hard metal has occupied some of the best building minds of the world with its possibilities for static construction. Today it is accepted as an effective and economic weather shield in curtain walls, but it has further to go in structures. This book will help point the way.

Shortly before he died in 1946, train maker Budd wrote in a letter about stainless, "It is a beautiful metal and that is a factor in its favor. We use it because it is a strong ductile metal practically indestructible." The new book, which is dedicated to Budd, is occupied by a detailed examination of his words, practically indestructible. The book describes the basic properties of light gauge stainless steel strip of various tempers at room temperature, and methods for calculating the allowable load for structures made from it. There are simplified design procedures illustrated with graphic work of great clarity, almost unique in the field of engineering publishing.—W. McQ.

CURTAIN WALLS. Armco Stainless Steelox Curtain Walls. Armco Drainage and Metal Products, Inc., Middletown, Ohio. 12 pp. 81/2 x 11 in.

Builders will find this booklet a useful reference on curtain walls. Listing many architectural and financial advantages of metal panel construction, it explains the functional design of the Steelox curtain wall in particular. Design sketches show how these stainless steel units can be used either vertically or horizontally for various exterior treatments. Details show sections at masonry walls, wall bases and windows, and plan views illustrate spandrel and strut construction.

CONCRETE FORMS. Symons Forming System, Symons Magnesium Wall Forms, Symons Panel Form Layout. Symons Clamp & Mfg. Co., 4249 W. Diversey Ave., Chicago 39, III. 4 pp., 8 pp. 81/2 x 11 in.

In the first bulletin in this series, building contractors will find full construction directions and detail drawings for erecting forms with the Symons Forming System, Tables give pertinent information on concrete pressure and what causes heavy pressure in concrete. The use of panel ties and walers is explained in relation to the concrete pressure. The second publication presents data on the manufacturer's rustproof magnesium wall forms. Other features noted for the forms are their accuracy, light weight (less than 3 lbs. per sq. ft.), and rental at same price as plywood forms. The third brochure explains pictorially how to specify and use the forms. Diagrams of a typical foundation show the dimensions required and a chart indicates the number of panels, fillers, inside and outside corners, pilaster boards, waler sets and ties needed for the job. The contractor can figure all the material required for a contemplated foundation on this form layout.

STEEL BEAMS. Skyscraper Construction for Every Building. Jones & Laughlin Steel Corp., Pittsburgh 30, Pa. 24 pp. 8½ x 11 in.

Technical data for the installation of junior beams and junior channels is well presented in this booklet. Progress photos illustrate floor joist and roof purlin installations with J & L junior beams, described as the lightest hot-rolled steel structural beams manufactured. Sections are devoted to construction of light occupancy buildings, industrial buildings and residences.

(Continued on page 196)



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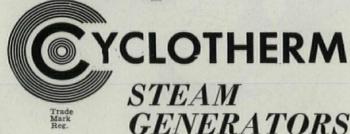
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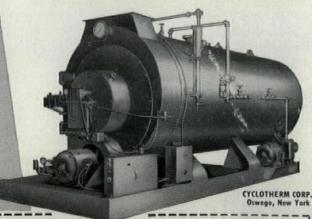
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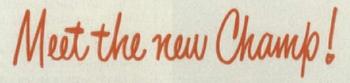
These lads are the brickmason apprentices now enrolled in a nationwide training program being promoted by SCPI in cooperation with the BM&PIU.

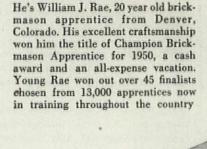
They are being enrolled at the rate of 3,000 per year. They are learning their trade well.

How well was recently shown in the finals of the 1950 national bricklaying competition held in Philadelphia. Here 45 sectional champions from 44 states went to work with trowel and mortar to demonstrate their skills before a thoroughly impressed audience of almost 400,000.

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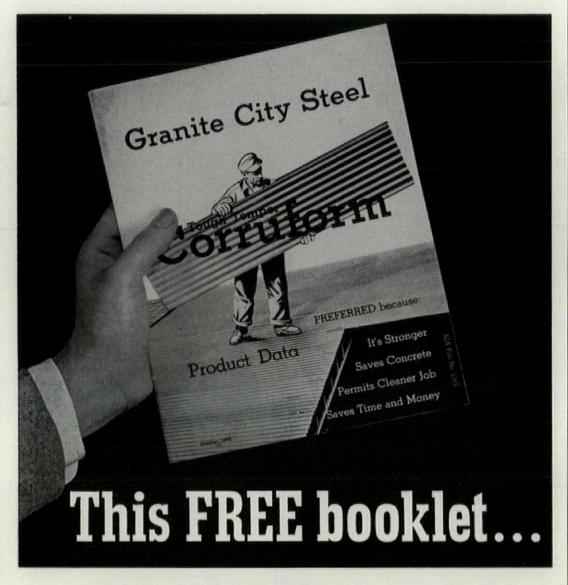
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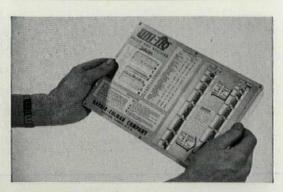
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TECHNICAL LITERATURE



AIR CONDITIONING. Grille Selector Slide Rule. Uni-Flo Sales Div., Barber-Colman Co., Rockford, III. 2 pp. 81/2 x 11 in.

Available to architects, contractors and engineers at no cost, this slide rule helps the user to size Uni-Flo ventilating and air conditioning grilles quickly and easily. Basing grille size on noise level, air volume, throw and ceiling height, the device provides data for almost any application. A handy feature is the table of maximum allowance noise levels for locations ranging from a sound studio to machine shop.

ACOUSTICS. How to Select an Acoustical Material. Armstrong News Bureau, Armstrong Cork Co., Lancaster, Pa. 16 pp. 81/2 x 11 in.

Acquainting the reader with basic problems of sound and its control through the use of proper acoustical material, this booklet explains two kinds of treatment: reverberation control, and sound absorption. Charts on absorption coefficients and excellent two-color diagrams supplement the straightforward text. Pointing out various characteristics of the manufacturer's acoustical materials that make each suitable for particular situations, the booklet also describes three installation methods-nailing, cementing and mechanical suspension.

MARBLE, Marble Forecast for 1950-1951. Marble Institute of America, Inc., 108 Forster Ave., Mount Vernon, N. Y. 8 pp. 81/2 x 11 in.

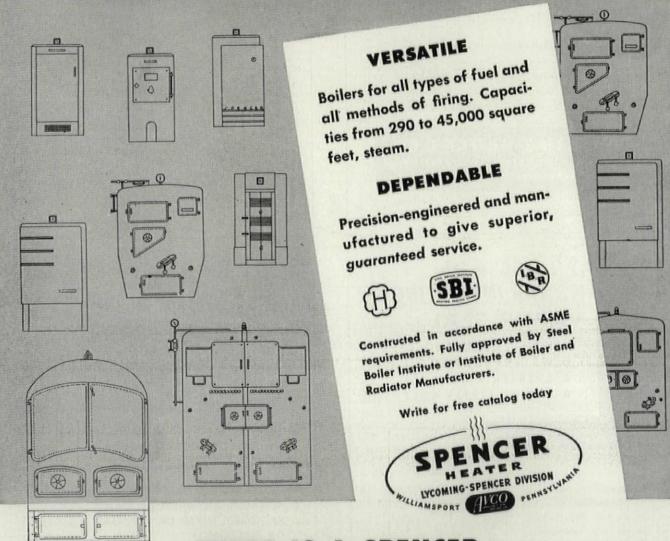
Those who specify and buy building marble will find this concise brochure invaluable. It lists available domestic and foreign marbles, tabulates the colors of all types and classifies each according to soundness (uniformity and working qualities). Also included are the names and addresses of Marble Institute members.

PORCELAIN ENAMEL. Architectural Porcelain Enamel Data Bulletin. Porcelain Enamel Institute, Architectural Div., 1010 Vermont Ave., N. W., Washington 5, D. C. 4 pp. 81/2 x 11.

In this Data Bulletin are discussed exterior and interior applications for architectural porcelain enamel, the forms in which it is fabricated for architectural use, shape limitations, available surface finishes and colors, weatherability and other properties. Porcelain enamel signs and letters, panel attachment methods and curtain wail construction are also covered briefly.

(Continued on page 200)

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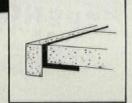
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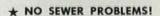


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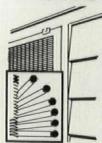
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TECHNICAL LITERATURE

ESTIMATING, Blueprint for Figure Fact Efficiency. Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y. 8 pp. 11 x 81/2 in.

Mechanized accounting methods are described in this booklet for builders and contractors. In illustrated problem-answer style, the booklet shows how accurate bid preparation may be achieved. "Find the number of 12 in, concrete blocks required for a pictured cellar foundation," is a typical problem solved with the manufacturer's Printing Calculator. Besides eliminating many of the inaccuracies of manual computation, the Calculator cuts down figuring time. It may be used in preparing payrolls, figuring cubic content and providing data for government reports and check invoices. According to the publication, the machine's simple 10-key keyboard is easily mastered.

ELECTRIC PLANTS. Gasoline Driven Electric Plants, No. A-168. Diesel Electric Plants, A-192 D. W. Onan & Sons, Inc., Minneapolis, Minn. 8 pp., 4 pp. 81/2 x 11 in.

The first of these two-color booklets covers the company's gasoline driven electric plants, ranging from 260 to 35,000 w. in all standard voltages, frequencies and phases. Direct current models in standard voltages are described in ranges from 750 to 15,000 w. Listed also are battery charging electric plants in 6, 12 and 32 v., 400 to 2,000 w. Special accessories itemized include wall mounted automatic controls, fuel tanks and lines, gasoline carburetors, remote stations and wire, and dollies

The second folder describes the company's Diesel driven electric generating plants, Models range from single cylinder 2,500 w. air cooled units to massive six cylinder 60,000 w. water cooled plants. The Onan air cooled 5,000 w. unit is featured in this publication. According to the manufacturer, this opposed twin cylinder unit is practically vibration free, running so smoothly that bolting down is unnecessary. Information concerning parallel operation, automatic controls, models and optional equipment is included.

ELECTRICAL WIRING. Wiremold Catalogue and Wiring Guide No. 18. The Wiremold Co., Hartford 10, Conn. 4 x 6 in. 112 pp.

Covering the manufacturer's complete line of metal raceways and fittings, this pocket sized guide lists several recent developments. One of the new products described is the No. 615 wire pulley which serves as a means for guiding wires into Wiremold raceways. Another addition, the No. 1914C wall-box connector, provides for connection to a flush mounted wall box which may be fed either by pipe or armored cable. The 3046K circuit breaker cover can be used to adapt No. 3000 Wiremold for industrial applications, allowing increased flexibility of circuits by placing the circuit breaker near the point of use. The catalogue gives complete installation details covering all Wiremold wiring systems.

(Continued on page 204)



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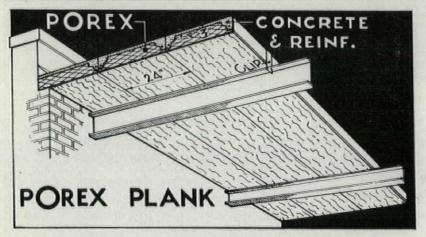
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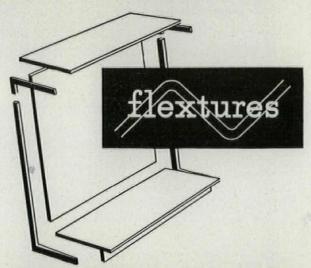
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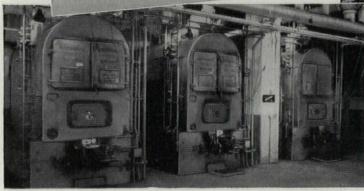
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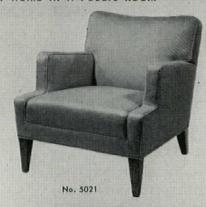
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TECHNICAL LITERATURE

FLOORING, Dodge Vinyl Cork Floor Tile. Dodge Cork Co., Inc., Lancaster, Pa. 4 pp. 8½ x 11 in.

A new color chart in this bulletin shows 23 patterns of the firm's cork-based vinyl tile. The folder covers information on durability and resiliency of this flooring material and lists sizes, thicknesses and other specification data.

ELECTRICAL SYSTEMS. How to Lay Out and Estimate G-E Fiberduct Raceways. No. 18-120 UF. General Electric, Construction Materials Dept., Bridgeport 2, Conn. 12 pp. 81/2 x 11 in.

This booklet contains pertinent information on laying out a duct system with the manufacturer's Fiberduct raceways. It tells how to make a materials take-off and describes installation procedure. Handy formulas and step-by-step instructions for figuring materials are included as well as diagrams, photographs and a short set of specifications.

LIGHTING. Incandescent Unified Lighting. The Art Metal Co., 1810 E. 40 St., Cleveland 3, Ohio. 46 pp. 81/2 x 11 in.

All the technical data commonly used in specifying and applying incandescent lighting equipment is arranged in easy-to-use form in this booklet. Carefully indexed for quick reference, the publication covers such topics as: lighting design, recommended foot-candle values for various areas, and spacing and mounting height ratios. The phrase, "unified lighting" is used by the manufacturer to indicate that its equipment is related in design, style and finish.

LIGHTING. A-B-C Plan for School Lighting. B-4556. Westinghouse Electric Corp., Box 2099, Pittsburgh, 30, Pa. 20 pp. 81/2 x 11 in.

School lighting problems itemized and analyzed in the A-B-C Plan include: how much light is needed, what kind of light is needed, what fixture will meet requirements, and what lighting plan will do the job best. Such features as appearance, maintenance and freedom from glare are compared in tabular form for five types of lighting fixtures. Complete data is given on each type and several sample school lighting layouts are illustrated.

LIGHTING. Recommended Practice of Daylighting. Illuminating Engineering Society, 51 Madison Ave., New York 10, N. Y. 38 pp. 8½ x 11 in. 50 cents.

Prepared by an authoritative I.E.S. committee, the paper discusses in detail means prescribed by this national technical society for utilizing daylight in building design. An introductory section shows illumination distribution in rooms, describes design principles for windows, and includes tables of solar position in various latitudes. Window arrangements are suggested, as well as various control media such as louvers, blinds and glass block. The report also pictures several treatments for reflecting light on to work surfaces in schools, factories, business offices and homes.



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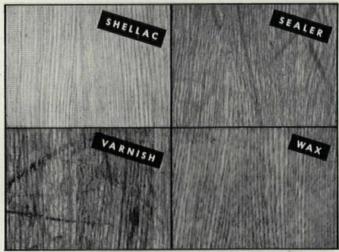


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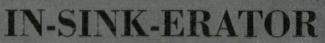
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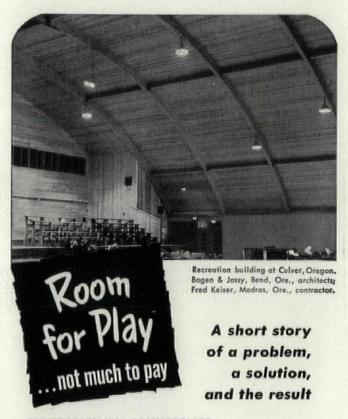
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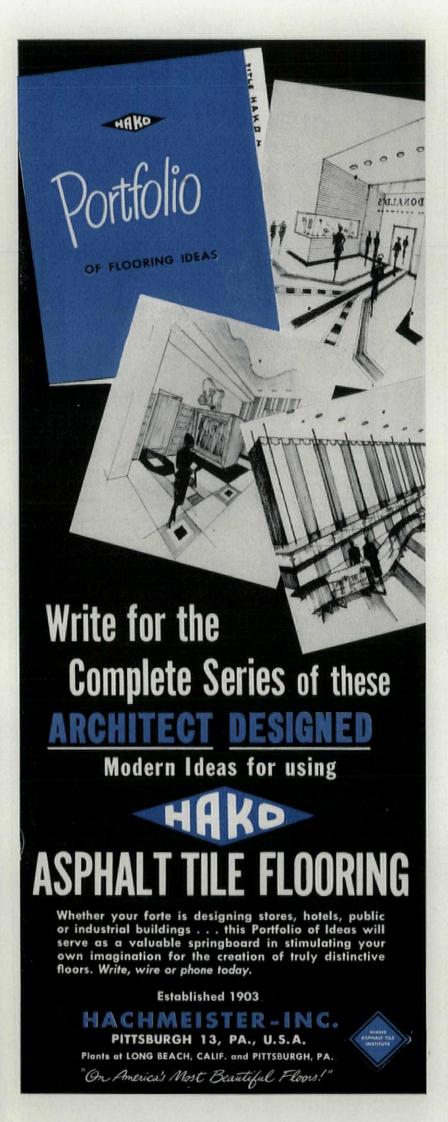
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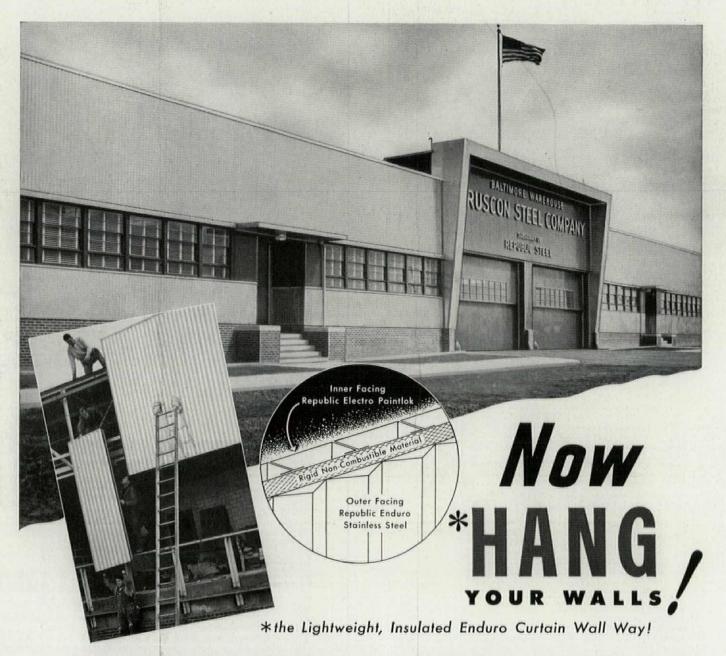
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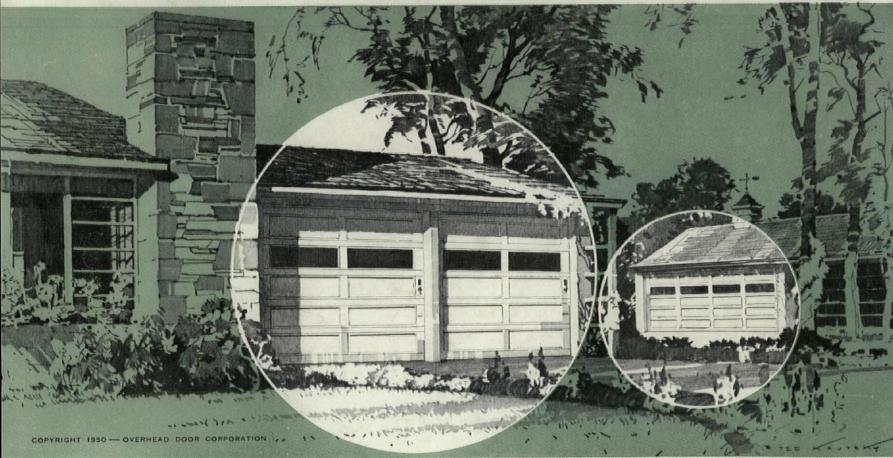


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