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NEW CREDIT CURBS, based on guesswork and born amid discord in Federal control agencies, will increase industry confusion and slash industry volume

The bomb dropped on Hiroshima hardly surprised the Japs more than the new mortgage credit restrictions of October 12 surprised housebuilders.

Biggest blow to housebuilders was the drastic increase in down payments required of veterans to bring VA loans closer in line with the July restrictions on FHA credit, leaving only a 5 to 10 per cent differential in favor of the veterans (as compared with practically no down payment at all last spring).

The shock from the new loan terms came partly from the force with which the new terms were spelled out. Many a builder who had not realized how hard mortgage credit had been hit by the somewhat confusing restrictions of July was forced for the first time to realize what had been done to mortgage credit three months before. But the shock was also caused by Government's decision to stiffen the July terms before anyone could more than guess how hard the industry had already been hit. Best estimate among builders and mortgage lenders had been that, even without the July credit restrictions and certainly without the October second round increase, the industry might have been lucky to reach 850,000 units in 1951 (vs perhaps 1,350,000 for 1950). Of this 1,350,000 figure nearly 250,000 units represented the last spurt of FHA's 606,000 apartment program which has been killed; at least another 150,000 units could be traced to the $1 billion of Fanny May printing press money pumped into the mortgage market last Spring by a government which was then as determined to push home building up as it is now determined to push home building down; and another 150,000 units represent scare buying by families who would normally have waited until next year had it not been for Korea and the fear that maybe next year it would be either too late or too expensive to buy a house.

With no 608, no Fanny May money and no scare buying, 1951 home building might well have fallen back to 850,000.

The Round Table of building leaders called by the magazine of BUILDING in late September agreed: "While we approve the use of credit controls to cut home building back from the present level around 1,400,000 units to around 1,000,000, we consider it quite possible that the restrictions already imposed may reduce housing starts to a far lower figure—perhaps as low as 600,000... The effect of these controls should be watched closely, and should any such drastic cut appear likely, some of the restrictions should be relaxed, for we believe that the high level of home building has been the cornerstone of our national prosperity since World War II and that, until rearmament can absorb a far larger share of American production, any cut in home building far below the 1,000,000 level would cause serious unemployment and other harmful dislocations of the economy."

Both the Federal Reserve Board and the Housing & Home Finance Agency were prepared to go along with this cautious policy and on Thursday, October 5, they presented joint recommendations to Chairman W. Stuart Symington of the National Security Resources Board, Chairman Leon Keyserling of the President's Board of Economic Advisers, and a representative of the Budget Bureau. Symington and Keyserling insisted that the joint FRB-HHFA program was nowhere near tough enough and called for a 50 per cent increase in the proposed down payment schedule. A four-day rubarb followed, during which it was widely reported that FRB's Charles Fisher threatened to resign rather than have any

The party that will win the house will be the group with the best mortgage terms.
At the Controls: Seven Men Are Steering Building Activity in the Rearmament Program

Chairman W. Stuart Symington of the National Security Resources Board, former Air Force Secretary, acts as the President’s mobilization coordinator and adviser. His board consists of the secretaries of the government’s seven major departments.

Administrator William H. Harrison of the Commerce Department’s National Production Authority was formerly president of International Tel & Tel. Will now operate the controls over all materials and commodities except food (Agriculture Department) and fuel and power (Interior Department).

Secretary Charles Sawyer of the Commerce Department is a member of Symington’s NSRB and supervisor of Harrison’s NPA. A lawyer by training, Sawyer was formerly Ambassador to Belgium.

Administrator Raymond Foley of the Housing & Home Finance Agency directs controls over Government-guaranteed home finance through his FHA program and Federal National Mortgage Association and (indirectly through Presidential directive) the VA home loan program. He also guides the Federal Reserve (see below in its control of uninsured housing credit).

Chairman Thomas B. McCabe of the Board of Governors of the Federal Reserve System is responsible for credit terms on house appliances and on home construction financed outside of the FHA and VA programs.

Administrator Charles T. Fisher (left) of the Federal Reserve’s new Office of Real Estate Credit will handle new construction credit controls for Chairman McCabe, reporting through Edward L. Norton, one of the FRB’s seven governors.

Part in the Symington-Keyserling program. A compromise was finally agreed upon (see tables page 11). Building and mortgage lenders promptly protested that the new restrictions might result in as few as 400,000 starts next year. Most comforting advice they could get from the government was that before they came crying for relief they should make a sincere and all-out attempt to build and sell as many houses as possible. (Government’s optimistic opinion was that the new regulations would permit 800,000 to 850,000 units in 1951—perhaps a tip-off on how much inflationary cash the government expects will be lying around next year despite higher income taxes.) Industry spokesmen contended that due to the lag between planning and construction, any future relaxation of the present credit restrictions would come too late to permit anywhere near 800,000 units next year.

Graphically summarized in the tables on page 11, the new credit restrictions:

- Cover only one- and two-family houses.
- Cover the construction and purchase of all new houses, the purchase of existing houses financed with FHA and VA supported loans and the financing of additions and improvements where the loan exceeds $2,500.
- Do not cover purchases of existing houses financed with conventional (non-FHA; non-VA) loans. (They specifically exempt conventional loans on construction begun before noon on August 3.)
- Exempt FHA- and VA-supported loans on which commitments were made prior to October 12.
- Reduce the amortization period to 20 years, except on properties valued at or less than $7,000 or less (25 years).
- Base credit terms on transaction or purchase price, as opposed to valuation. Transaction price includes estimated costs of closing the loan or financing the transaction (but excludes ground rents, hazard insurance, premiums, current taxes and other prepaid items). Although the terms “value” and “transaction price” are both used in the official regulations, they may be considered synonymous for the purpose of computing minimum down payments.
- Bring supplementary borrowing within the scope of the restrictions, i.e., minimum down payments must be made from the borrower’s own funds, not from second mortgage money.
Early this month the magazine of BUILDING put a magnifying glass over the Baltimore building scene to get a close-up look at the effect of government credit controls on housebuilding and to evaluate the prospects for 1951. The outlook wasn't rosy—even before the new credit restrictions made their appearance.

First tangible reaction lay in the cold figures which showed that the volume of building permits issued in the metropolitan area during September had dropped 45 per cent below August. September permits were 780 as against 1,404 in August. The figures contrasted sharply with the upsurge from 516 in August, 1949 to 1,849 the following month.

Cutbacks up to 50 per cent. Interviews with key builders didn't dispel the gloomy outlook. They evinced a cautious, “wait and see” policy which reflected their perturbation over the web of constricting controls being imposed on the industry. Few were found who still were determined to go ahead full tilt with their 1951 plans. Others temporized—until they could gauge the full impact of the regulations—while 40 per cent contemplated cutbacks ranging up to 50 per cent. However, judging from the extent of their land inventories, most builders seemed ready to go if and when the light turned green.

William Chew who built 285 units under Title 608 in 1949 and 250 individual homes at $10,500 this year figured that a 10 to 20 per cent down payment requirement would cut his market 50 to 60 per cent. So he slashed next year’s plans to 125 homes, 50 per cent under this year’s volume.

Chew bought enough land early this year to last him several years and similarly got in under the wire with early purchases of materials. If he hadn’t he would have had to raise the price of his houses 8 or 9 per cent to conform with increased costs.

Most of the builders contacted had sold their output for this year prior to the outbreak of the Korean war so the subsequent July 19 credit restrictions had little effect on current operations.

Likewise unaffected by the July 19 restrictions, James Gebhart thought they cut housing sales 40 per cent and anticipated that the new restrictions “probably will shut down the low cost housing market for everybody.” He built 100 houses in 1949 and 125 this year, both in the $8,000 to $9,000 class but won’t decide for another 30 days whether he will go ahead with his 1951 plans for 150 to 200 houses.

Opinions as to the number of prospective buyers who would be forced out of the market by a required 10 per cent down payment ranged from 20 to 70 per cent and one builder said it would force him out of business.

Exceptional builders. Two notable exceptions were found to the general tendency to retrench on operations, both being operators who felt that credit restrictions—however severe—wouldn’t affect their customers. Ralph Simmers, who describes himself as the “oldest builder in Baltimore,” erected 300 houses each in 1949 and 1950 at a price of $9,190 and is already digging foundations for 1951’s 300 which he may increase to 400. “I’m going ahead so fast the government will never be able to catch up with me,” he said, adding that he has just purchased another 300 acres, sufficient for 3,600 houses. “If the new mortgage restrictions raise GI and others’ payments it would cut sales by 25 per cent but it won’t hurt my sales because I am already getting down payments of $500 to $700 on a $9,190 house.”

Henry Knott has already completed the 390 homes programmed for this year and is starting foundation work on a similar number originally planned to begin next spring. His speed-up he attributed to increased demand and he foresaw little likelihood that 10 to 15 per cent down payment requirements would cut into his market. In fact, he may step up his volume to 450 houses next year.

Land, money and materials. Although hesitant about embarking on 1951 plans, many of the builders had ample land inventories ready for use whenever feasible and there were indications that some land purchases were being made more as a hedge against inflation than with the idea of immediate development.

Land planners and surveyors reported no slackening in their activities as many big operators increased their land holdings but not many of the projects reached the architects’ drawing tables. Some architects reported building activity off 50 per cent. Engineers, on the other hand, said volume was brisker than for several years as some big industrialists were trying to get their projects in under the wire while steel still was procurable.

The local price of materials had risen 8 per cent since the imposition of the July 19 controls, with the added cost absorbed by all but one builder.

The tight supply of many building materials was expected by most to ease off within a few months as activity lessened, and prices would stabilize.

Construction money apparently was still available for the established builders although some of the smaller operators reported a tightening up.

As goes Baltimore. The findings in Baltimore were not unique. The editors of BUILDING wired scores of builders, lenders, dealers and general contractors in cities around the nation to determine whether the developing general pattern coincided with conditions in Baltimore and found them much the same.

Two-thirds of the builders said they already had instituted cut backs to some degree and 70 per cent planned to curtail next year’s output by an average of 30 per cent. Labor and materials were in tight supply in the majority of cities and the flow of construction money was beginning to ebb.

Seventy-five per cent of the lenders themselves admitted construction money was getting scarcer and confirmed that the majority of builders had cut back operations in the last 30 days. They expected 1950 volume to diminish by 25 to 50 cent.

General contractors also were plagued by materials shortages and a dearth of labor. Half of those reporting admitted clients were shelving projects and the other half said that ones underway were being speeded up.

That the Baltimore housebuilding pattern probably is true on a national level is revealed by FHA statistics on mortgage loan applications in 14 major cities. While individual cities reported drops as high as 78 per cent, total applications for September were 7,867 as against 13,120 in August—a drop of 40 per cent, compared with Baltimore’s 45 per cent drop in permits. A year ago September applications totaled 12,766—9 per cent below the 14,129 of the preceding month.

BLS figures lent added confirmation. National starts this September were 115,000, down 18.4 per cent from 141,000 in August. A year ago starts jumped almost 4 per cent from 99,000 in August to 102,000 in September.
WATCH DOG COMMITTEES in Congress will keep an eye on building economy

As the building industry moved more and more into the orbit of governmental controls, leaders foresaw a busy season of testifying on Capitol Hill where two special Congressional committees planned to oversee the developing armament and economic control programs.

Number One is dubbed the "Preparedness Committee" and constitutes a special subcommittee of the Senate Armed Services Committee. Headed by Sen. Lyndon Johnson (D. Tex.), it will operate along the lines of the famous Truman Committee of World War II. Other members are Sens. Kefauver (D. Tenn.), Hunt (D. Wyo.), Chapman (D. Ky.), Saltonstall (R. Mass), Bridges (R. N.H.), and Morse (R. Ore.). Serving as chief counsel is Donald Cook, vice chairman of the SEC. Already under investigation are: steel capacity, foreign cartels, ordinance output, Alaskan defenses and farm commodities.

The "Watchdog Committee" specifically set up under the Defense Production Act draws membership from both Houses and is headed by Sen. Maybank (D. S.C.). Other Senate members are Fulbright (D. Ark.), Robertson (D. Va.), Tobery (R. N.H.), and Capehart (R. Ind.). The House members are Reps. Brown (D. Ga.), Patman (D. Tex.), Hays (D. Ark.), Gamble (R. N.Y.), and Talle (R. Iowa). Its main function is to watch over the need for and operation of economic controls.

In addition, several other committees will follow current developments which may or may not impinge on the building industry. They include the Appropriations Committees, the Joint Committee on the Economic Report (particularly on general fiscal and monetary measures) and the Small Business Committee of the Senate.

EFFECT OF CREDIT CONTROLS on other industries: every $8,000 house inspires $1,432 purchase of other goods

The degree to which any drastic curtailment of home building will affect other industries is amply illustrated by a survey recently conducted at Levittown by the Market Research Div. of the Magazine of BUILDING. The survey indicated that the 15,000 families who will have purchased $120 million worth of homes at Levitt & Sons Long Island development will expend another $22 million, or 18 per cent, for necessary goods and services.

The survey consisted of a random sampling of 100 Levittown families who had been in their new homes for periods ranging from eight months to one year. By projecting the amount of their purchases, it was estimated that the 15,000 families who will have settled in Levittown's $7,990 houses by next February will spend $21,805,000 for goods and services during their first year of occupancy—an average of about $1,432 per family.

Since the survey revealed that 93 per cent of the Levittown families had moved from rentals or had shared space (18 per cent had previously been doubled up), the largest single contribution naturally went into home furnishings. For living room, bedroom and kitchenette furniture the 100 families queried reported they had spent $39,268. By projection, the 15,000 new homes in Levittown would give the furniture industry alone a total of $5,690,200.

The next largest single item purchased by the new suburbanites was transportation. The survey showed that since moving to Levittown 36 per cent of the families had purchased automobiles, ranging in cost from $200 vintage jalopies to sleek 1950 beauties with $3,000 price tags. The projected total to keep the 15,000 families mobile was a thumping $5,709,750.

Since the Levitt homes are equipped with refrigerators and automatic washing machines, no expenditures were made in those categories. But a potential $432 million demand was shown when 71 per cent of those interviewed said they would have bought new refrigerators and 66 per cent would have purchased washing machines. Assuming the residents bought at retail prices the units they now are using, the outlay for refrigerators would have been $2,235,967.50 and that for washers $2,276,000.

The production lines of Detroit were not the only ones kept humming by the Levittowners as local merchants and craftsmen also came in for a goodly boost. Projected figures indicated a total outlay of $2,395,013 for storm windows and screens and another $179,400 for blinds.

For carpentry services alone (finishing expansion attic, building garages, porches, etc.) Levittown will have spent $1,843,200 by the time all the residents have completed their first year of residence.

Even though late model Levitt houses come equipped with television, over a million dollar sales for TV and radio sets was indicated with the former estimated at $937,000 and the latter at $113,100.

The extent and variety of the bonanza which the building industry hands to the nation's businessmen is depicted by some of the other projected figures which emerged from the survey. Nursery equipment and furniture, $303,300; dishes, $111,600; toasters, irons and electric mixers, $54,000; gardening equipment, $561,900; lawn furniture, $172,600; draperies, $931,500; sewing machines, $107,850; carpeting, $687,450.

INVENTORY CONTROLS make their debut: priorities are on the way

While other agencies were tinkering with credit controls (page 11), the National Production Authority, set up in the Commerce Department to handle controls over all commodities except fuel, food and power, last month cracked out with a directive threatening to operate on swollen inventories unless there was some voluntary gorging. It also got ready to lay down the framework for a priorities system.

As far as it went, the inventory control order seemed comparatively mild. Since NPA lacked an enforcement staff at the outset, it would have to be satisfied for awhile with what psychological effects its admonitions might have. The order prohibits the hoarding of 32 critical war materials. It stipulates that business firms limit their stocks of these materials on hand to "practicable minimum working inventories" defined as meaning the usual ratio found necessary in each case. Included on the list were such items as lumber (except hardwood flooring) gypsum products, steel, aluminum, copper, zinc, and cement. Nails were in under the classification of wire products. Why cement was put on the list was a mystery that had everyone stumped. It is one material that simply cannot be hoarded because of its tendency to cake if not used promptly. If NPA knew of a way to hoard cement, it was holding out on an important technological advance.

General view was that the inventory order would not have much of an impact on the building industry. For one thing, householders and other ultimate consumers were exempted entirely. In the opinion of government men, this would let out builders putting up houses on order. Contractors on big building jobs would be excluded for the same reason—would be regarded as agents for the owner. On the other hand, operative builders fell under the definition. Presumably they would have some explaining to do in the unlikely event that a case were made against them for having larger stocks of the specified materials than they normally carry. A more probable cause for action against them, observers thought, would involve violations of the ban against multiple orders.
This is the practice of placing orders with a number of suppliers for the same material or equipment and then canceling all others after delivery is made on one. However, it seemed clear that the government was aiming at bigger game—business establishments in a position to accumulate large stocks. Only a few builders have the storage capacity to get away with inventory hoarding, even if they wanted to take the gamble.

There was some speculation of an academic nature as to whether the relief provision excusing violations where unusual circumstances exist would give builders a wholesale exemption. The point made in this connection was that in times like these when shortages are beginning to hover over the industry, those putting up construction money are apt to require that a builder get most of his supplies on the site before they make a deal with him. In the absence of an official ruling, no one knew just what the NPA would do in such cases—and no one seemed greatly concerned. The directive was padded with such loose words as normal, necessary and practicable, the meaning of which was anybody's guess.

The basic priority order on the verge of being promulgated would likewise not be too disturbing. It would merely require that industry give the defense program the green light by accepting orders certified as defense requirements—and giving them first consideration regardless of other business on their books. Prediction was that within 90 days or so, the building industry would begin feeling the pinch of this order; mainly in respect to metals.

**HOUSE MODERNIZATION under new financing controls will boom for a while then taper off**

One phase of building activity that seemed able to buck the head wind of stiffer credit without losing its headway was the home repair and improvement program under FHA's Title I. Government economists believed that the same thing held true for similar loans made by bankers entirely on their own. Normally Title I tends to peak in the Spring and Fall, and the same pattern was being followed this year except that the levels were higher. The loan volume which had been 101,000 in May, climbed to 159,000 in June, dipped to 123,000 in July, spurted up again to 139,709 in August. And September would show an increase over August. For last year, nearly all the monthly figures were lower—August was at the low level of 113,000 and September with a volume of 122,000 was not much better.

Under the more stringent terms applied to loans closed after August 1, a 10 per cent down payment was imposed for Title I. If the transactions were initiated prior to August 1—and there is always a lag—they were exempt. Later on, the repayment period was reduced from 36 to 30 months to conform to the new regulations clamped on installment credit by the Federal Reserve Board. In its regulation "W" the Federal Reserve Board had cut the amortization period for unsecured property loans to this limit; had also stipulated that there must be a 10 per cent down payment.

Some officials thought that the credit brakes being applied to construction would cause prospective new home buyers in many cases to hang on to their existing accommodations or to buy an old house and do some renovation work. Also they felt that many families who decided to stay put, would spruce up their property. They did not believe that the 10 per cent down payment would be much of a dissuader for a while—especially with family income at record levels. However, there seemed little doubt that as far as the long pull was concerned, the stricter terms would gradually take hold and slow the program down slightly.

That was what happened during the war when similar controls were instituted. First modernization and repair loans spurted ahead. Then a reaction set in; made all the more severe by the fact that home owners had rushed ahead in the initial wave with work that they had not planned on starting until later. Finally, the program settled down at a 5 per cent lower level measured in terms of loan volume; 10 per cent lower in respect to dollar volume. While FHA was not making any official predictions as yet, its off-the-cuff view was that history would repeat itself—almost to the same decimal point.

**DEFENSE HOUSING plans include direct government building, no Title VI revival**

Housebuilders are ready and willing to relieve the pressure around booming defense plants just as they did in World War II. But to do this they would like FHA to de-mothball its wartime Title VI.

However, none of the government agencies riding herd over the mobilization effort were taking kindly to the suggestion. FHA had made it clear that Title VI was permanently entombed as far as it was concerned. Also, it was an open secret that NSRB as well as the White House brain-trust were firmly of the opinion that if any more housing is needed in defense communities, this time, the government should do the job itself by putting up temporary rental facilities. Arguments trotted out by the Government men were: Title VI is too unwieldy. It uses too much critical material since normal building practices have to be followed. Builders are too prone to put up housing for sale instead of rental units which are the kind most needed. To all this, private builders were inclined to say "horsefeathers." They were convinced they could do the job quicker and at less cost. They were certain that no possible loss to the Treasury under a mortgage insurance program would come anywhere near the amount the government would have to put up if it waded in on its own.

However, there is more than one way of skinning a cat. With its usual flare for making pin-point distinctions, FHA was not too averse toward a back door approach to Title VI. In fact, the new restrictions on credit could be reversed in a way to provide a partial answer. All that would need be done would be to exempt housing in the vicinity of expanding defense activity; allow higher ratios of loans to values in such places. Under laws already on the books, this would open the door to 95 per cent mortgages on houses valued up to $8,000 in high cost areas with upward adjustments for each bedroom over two.

Relatively speaking, a plan for letting a favored category of housing skip over the restrictions would constitute a reasonably satisfactory substitute for Title VI. Even if it did work negatively, it would stir up building activity in some of the places needing it. But there would still be a few drawbacks. For one thing, Title VI gave the FHA an out when it came to handling extra risks. Since the title carried its own insurance fund FHA could venture into isolated communities where it would not normally go. Also it could stretch its long range marketability requirement in more established communities; take more of a gamble in respect to overbuilding.

By far the most serious objection, however, was that any plan for providing special dispensations under the regular program would leave the problem of multi-family rental projects unanswered. The rental housing part of Title VI—section 608—dangled the lure of 90 per cent mortgages before the eyes of project developers. There may have been some scandalous abuses of this privilege. But despite occasional high jinks, a lot of needed apartment construction took place. One thing appeared certain. The mortgage limits under the regular rental housing program...
(80 per cent) are too low to attract many builders.

Meanwhile Congress took a preliminary crack at the defense housing problem before its pre-election recess. What started as a fairly simple bill by Senator Benton (D) of Conn. to provide prefabricated and portable housing around deactivated war camps, was blown up to the proportions of major legislation on the Senate floor. One of the strangest coteries of Senators that ever joined forces in a common cause, helped shoulder the proposal through the Senate. Prominent among the backers were such Republican stalwarts as Wherry of Nebraska, Cakenhart of Indiana, Cain of Washington and Bricker of Ohio not to mention Fairdealing Sparkman of Alabama and the original sponsor—Benton. Even more remarkable, the maneuver that expanded the scope of the measure was engineered by none other than the ultra conservative Bricker who is usually lined up on the negative side of any housing measure that comes along.

The Bricker amendment authorizes the RFC to get behind a $100 million program for constructing rental housing develop-

ments in the vicinity of military posts and defense plants. In effect it would recreate the Defense Homes Corp., with a new twist. Although the RFC would supply the mortgage financing, HHFA would build and own the projects. Broadened by the Bricker amendment, the bill has gone to the House and the odds favor its final passage.

RENT CONTROL: a revival of Federal dictate is in the cards

Braced against a drive for tighter rent control when Congress comes back, apartment houseowners are suffering from an interim war of nerves. Housing Expediter Tighe Woods was stumping the country making dire predictions as to some of the steps that might be necessary to save the country from inflation. Included in his repertoire of scare stories were such spine tinglers as: Commercial rent control, never seriously considered during the last war emergency, might have to be resorted to this time. To keep things in line, the government might have to clamp price ceilings on the sales of existing houses.

CIVILIAN DEFENSE: a new Federal agency to help in bomb shelter building

In its long awaited report on how the home front should brace itself against an aerial blitz, the National Security Resources Board last month was ready to do some plain talking on what the various layers of government should do and who should pay the bill. It proposed the creation of a permanent Civil Defense Administration with an adequate appropriation to cover the Federal Government’s share of the cost. With its recommendations quickly whipped into legislative shape, expectation was that the measure would sail through Congress without much difficulty after the election recess.

NSRB feels that the federal government should defray part of the expense of buying materials and supplies and assist in meeting the cost of some of the bomb shelters. Since it would be financially impossible to provide such shelters for everybody every-
where, it took the common sense view that they should only be built in "critical target areas." Even then, it counseled against rushing into a shelter construction program until the possibility had been explored of using existing structures such as deep subways, bank vaults, and the basements of major buildings.

Three types of shelters are recommended:
1) "A" type built to provide the maximum amount of protection and intended for key personnel and installations. 2) "B" type of moderate strength for the use of population masses in urban centers. 3) "C" type improvised protection facilities for those in residential areas. The Federal Government would assume responsibility for research and development work in respect to all kinds of shelters. But it would only kick in with funds for the heavy duty and community types—just how much has not been determined.

While NSRB in close consultation with the military authorities has prepared its own list of places most likely to be bombed, it is not yet willing to make the information public. However, it has given state governors the benefit of its thinking and has left further action up to them.

Another NSRB proposal is that building codes be reviewed to see if they assure adequate strength in at least one portion of the basements of large buildings. Adequate shelter space of this sort is getting to be a "must" for atomic age construction, according to federal officials. Municipal spokesmen are already predicting that it won't be long before New York and other large cities start giving the below ground portions of buildings a lot more attention.

PUBLIC HOUSING runs into cost troubles, proceeds at snail's pace

Less sure-footed than most other construction activity in keeping up with climbing prices, public housing has found the going increasingly tough. Last month construction bids zoomed even farther out of reach; the program seemed on the verge of a tumble. The reason for its plight was obvious enough. True, it has higher cost limits than FHA rental housing—$1,750 per room for the country generally with an additional $750 allowed in high cost areas. But due to its inherent inflexibility it has a harder time keeping up with prices. For one thing, private builders are much more skilled in the art of stretching construction dollars. They have to be to stay in business. Also the controls applied to public housing deal with construction costs while the FHA only concerns itself with the maximum mortgage and doesn't mind if the job runs a little higher as long as the developer is willing to dig deeper into his pocket.

Two courses of action were open to the Public Housing Administration: 1) It could let a large portion of its program slide over the brink and wait until a more propitious time to resume operations. 2) It could re-study its plans and eliminate anything that added unnecessarily to the costs. Indications were that it would try both methods. The architectural fraternity got a bit of a laugh out of the appeal for giving project plans another squeeze. (PHA had previously come out with a plea for more sparkle and originality in design; for an end of the repetitious treatment given projects under the old program.)

Actually, the mounting cost for material and labor was not all that was bothering the PHA. Contractors were plainly putting cushions in their bids to absorb anticipated increases, apparently acting on the hunch that there would be another round of price and wage hikes before the Administration did anything about clamping on controls. At any rate, many bids were way out of line with current building costs. In Bridgeport, Conn., for example, contractors bid about $2,200 per room last month. Last May a few months before Korea, bids on another project in the same city came in under $1,800 per room. In addition to the post-Korean project in Bridgeport, PHA has had to reject bids in Providence, Hartford, Benton Harbor Mich., Worcester, and Omaha. In Milwaukee it was able to skim by with a $2,100 room cost.

What it all added up to was that the public housing program that had been given a token cut under the President's anti-inflation drive would probably get a genuine trimming after all. At the time the "go easy" order was issued, PHA decided that it would comply by reducing to 30,000 units the volume of work to be put under construction between July 1 and December 31. To most observers this seemed no cut at all but actually a boost. They doubted very much that PHA had been counting on starting anything like one-third of its quota for the six month period.

Late last month the score stood at 8,677 units under construction. But more than half of them—4,397 to be exact—were holdovers from the former program.
house design competition sponsored by the National Association of Home Builders and Architectural Forum the

To improve the design of builders' houses and to interest more architects in builders' houses.

Of the 925,000 houses being built this year, roughly 70 percent will be small houses, selling for less than $10,000 to families of modest income. Most of them will be built and sold by the members of the National Association of Home Builders. They are the builders of the average American home for the average American family.

More often than not, this home is built with a minimum of professional architectural service, and its livability and appearance suffer accordingly. Responsibility for this unfortunate condition rests on both the architectural profession and the home builders—as has been frankly admitted by spokesmen for both groups on the pages of the Architectural Forum, The Magazine of BUILDING.

associate sponsors
American Gas Assn.
General Electric Co.
Kwikset Locks, Inc.

special award sponsors
Douglas Fir Plywood Assn.
Libbey-Owens-Ford Glass Co.
Youngstown Kitchens by Mullins Manufacturing Corp.

purpose of competition
The purpose of this competition is to bring better design to the small house, including better use of space and materials; to bring architect and home builder closer together 1) by prompting and encouraging the architect to study the home builder's problems for their mutual benefit and the benefit of the home-buying public and 2) by demonstrating to the builder the advantages of good professional design.

It is also hoped that this competition will introduce the architect to the financial and social possibilities of a largely untouched field of design.

eligibility
The competition is limited to architects, designers, draftsmen and students who are residents of continental United States, except that Jury members and the employees and families of the Jury members and the various sponsors of the competition are not eligible to participate.
up to $100,000 in awards

**national awards**

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<th>Prize</th>
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<tr>
<td>First prize</td>
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<td>Third prize</td>
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<tr>
<td>Fourth prize</td>
<td>1,000</td>
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<tr>
<td>Nine honorable mentions</td>
<td>$500 each</td>
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**regional awards—seven regions**

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<th>Prize</th>
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<tr>
<td>Seven second prizes</td>
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<tr>
<td>Fifteen honorable mentions</td>
<td>3,750</td>
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**special awards**

Three series of Special Awards will be made for the best handling of various phases of the house design and the best use of various materials. (Details will be announced in the program.) Each series of Special Awards will include the following:

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<th>Prize</th>
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<td>First prize</td>
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<td>Third prize</td>
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<td>Fourth prize</td>
<td>500</td>
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<td>Ten honorable mentions</td>
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**local awards**

NAHB expects many of its local chapters to tie in with the national competition by offering Local Awards of $500 to $1,500 to local competitors submitting their entries simultaneously to local competition sponsors. More details of these local competitions will be announced in the program and in local newspapers.

Anticipated Local Awards up to $24,000

Since a contestant may win one National Award, one Regional Award, and one award in each of the series of Special Awards, it is possible for one contestant with a single entry to win as much as $15,750.

The competition closes December 15, 1950.

---

**the problem**

Design a detached, one-family, low cost house suitable for a 60 x 100 ft. lot. It must have three bedrooms, no basement and a floor area of 1,000 sq. ft. or less. Its design and construction must meet general FHA and VA requirements and use only materials which are commercially available.

Competitors need submit only a floor plan, a perspective, several small elevations of the house and a site plan—plus such detail drawings as they may choose to make.

**basis of awards**

Awards will be based 1) on the functional layout and esthetic appearance of the house design in combination with its solution to the problem as detailed in the program and 2) on the extent to which the following desirable features are considered: contemporary design, ease and economy of construction, imaginative use of materials, use of standard material sizes, suitability for repetitive construction, acceptability by the home-buying public.

Awards will be made primarily for the thinking behind the designs, with skill in presentation considered only insofar as it renders the design ideas clear and concise.

This competition has been approved by The American Institute of Architects

Contestants must register (coupon, right) to receive the program which will include further details of the competition. This is an announcement only; conditions governing the competition and the awards are set forth in the program.
manpower, materials and credit and do it fairly, drastically and skillfully, they can do considerable good," he said. "When they try to go selectively, timidly and sentimentally into the delicate machinery of the price system, including wages and profit, they will disrupt markets and disorganize production to an extent that appalls one."

Retiring president James M. Ashley reported that current production of materials is running 75 percent ahead of pre-World War II levels in the attempt to keep abreast of demand. He attributed this year's recession to voluntary tightening on loans. Admitting his remarks comprised a "very strong message," he urged them to "loan more conservatively" and thus assist the government's drive against inflation.


"Unless the Federal Reserve is allowed to curb the expansion of the supply of money by raising interest rates, inflation cannot be controlled," Badger asserted.

Charles T. Fisher, new administrator of the Office of Real Estate Credit of the Federal Reserve, told the delegates that the new rules were "not quite ready" but home builders took little comfort from his hint that forthcoming regulations would have little effect on farm building. A further clue was the statement: "We want to hold the present high level of production as much as possible."

Outside the formal meetings, Leon Keyserling gave a press conference another clue as to the volume of building the government is seeking. Reporters gained the impression that if the present volume of 1,300,000 homes could be reduced to between 700,000 and 1 million, the government would be happy.

**Mortgage Bankers**

In Detroit, 1,700 members of the Mortgage Bankers Association heard their retiring president, R. O. Deming, Jr., declare easy credit days to be a thing of the past as he urged them to "loan more conservatively" and thus assist the government's drive against inflation.


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**General contractors**

The Governing and Advisory Boards of AGC held their midyear board meeting at Chattanooga and reported the industry had ample capacity to carry out all defense construction with a maximum of speed and economy. Later, they recommended: 1) that all defense construction be assigned normal channels of the industry with fixed price contracts and competitive bidding; 2) that bidders submit firm prices; 3) that labor do its part through fair and just wages, maintenance of wage scales for the stipulated periods, no work stoppages due to jurisdictional disputes, provision for apprentices; 4) that government permit retention of equipment ownership; 5) government control be minimized.

**HOUSING MARKET**

Dispute over claim that annual need is only 600,000 units

Housing spokesmen reading coverage of the ABA sessions in New York (see above) took exception to a goal of 600,000 starts yearly advocated by one of the speakers.

Dr. Jules I. Bogen, professor of finance at New York University, made the flat assertion that future home building should be geared solely to the needs of new families which come into being each year—600,000. He attributed the present "over-stimulated goals" to "easy credit" policies of the government which, he said, hoped to assure continued full employment by nurturing a building boom.

In later discussions, housing spokesmen questioned Dr. Bogen's 600,000 figure and claimed he had not fully taken into account the need to replace substandard dwellings, or to provide homes for postwar married couples who were forced to "double up" and are now seeking separate homes.

Seeking figures to refute the claim, they came up with S. Morris Livingston's report on housing demand printed in the Survey of Current Business for Mar. '50. That report listed the annual increase in married couples at 875,000—double the normal rate—and added a yearly average of 356,000 households for married couples who have been "undoubling." Livingston also cited figures showing that the creation of individual households has been running at the rate of 197,000 per year, or 137,000 above normal.

Summarizing, Livingston said that: "much less than half of the net increase of 1.4 million dwelling units per year over the last three years has been necessary to accommodate the normal growth in the number of households to be housed."

While Livingston's crystal ball shows a back-to-normal trend in marriages and a one-third reduction in undoubling, the net demand will be maintained at approximately current levels by an increase in the need for replacements and the creation of a healthy vacancy ratio.
Over either concrete slab or wood subfloors, a Bruce Block Floor is unsurpassed for beauty, durability, long-time economy and smart, modern design.

This distinctive floor will last the life of a home or building. Thus it's far more economical than floors or floor coverings that must be replaced periodically. It's a quiet, resilient, warm, comfortable floor... easy to keep clean and beautiful at all times.

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HERE'S a "people's eye view" of the new 25 story Mutual Life Insurance Building rising 367 feet above old Broadway. Tons and tons of Gold Bond plaster and finish lime were used to give this stately new building a lifetime of efficient service. Whether a job is big or small, there's one definite advantage when Gold Bond products are used exclusively. That way responsibility for performance of materials rests on one reputable manufacturer, National Gypsum Company. Over 150 better Gold Bond building products, fully described in Sweet's, are available at your local Gold Bond Lumber and Building Materials Dealer.
Everything had to be perfect in this home of architect Frederick Stritzel, of Columbus, Ohio. That's why, when it came to the important radiant heating system, he specified rugged Bundyweld—the perfect tubing for the job. Heating contractor, Piping Contractors Company. Tubing supplied by Capital Heating & Equipment Company.

Architect picks Bundyweld for radiant heating in own home

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Yet, look where you will—check them all—you'll find no other tubing that offers as many advantages for radiant heating in your building projects as Bundyweld.

It's the only tubing double-walled from a single strip, a patented construction that makes it stronger, lighter, more leakproof.

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And it takes the knocks and jolts in a building operation without weakening or buckling. Remember, too: Bundyweld's thinner, ductile walls, with their complete copper bond, always afford maximum heat conductivity.

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An addition which doubled the capacity of Ottawa (Ill.) Arthritis Sanatorium and Diagnostic Clinic was glazed with Thermopane. All winter patients can sit close to the window without feeling drafts or chilliness. Norman Cook of Ottawa was the architect.

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Windows glazed with Thermopane have approximately the same thermal insulating value as twelve inches of brick and concrete. That means the trend to larger areas of glass can be satisfied without fear of creating chilly areas and without the cost of extra heating capacity and fuel consumption.

For any type of building, Thermopane offers the advantages of an insulated wall which you can see through. The two panes of glass, with a dry air space sealed between, form a complete and finished section of insulated wall. Costs of exterior masonry, furring, interior plaster and paint are eliminated for that area. On a square foot basis, you'll find Thermopane an economical wall material. Available in over 80 standard sizes . . . special units can be made to order.

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How to choose acoustical materials for a modern shopping center

Proper noise-quieting treatment for a shopping center may involve a variety of acoustical materials. Different types of retail outlets and institutions present varying noise problems. Rarely can a single material meet the needs of every type of interior.

For overall economy, a perforated fiberboard material like Armstrong's Cushiontone is recommended. Its low cost, high sound-absorption efficiency, and ease of maintenance make it ideal for stores—especially those with large ceiling areas. Cushiontone absorbs as much as 75% of the noise that strikes its surface.

Where sound is highly concentrated, Armstrong's Arrestone is an excellent choice. Arrestone is a metal pan unit with a mineral wool sound-absorbing pad. It has a noise-reduction coefficient of .85.

Where distinctive beauty is desired, as in a restaurant, bank, or theatre, an ideal selection is Armstrong's Travertone. This is an efficient mineral wool tile with a decorative white, fissured surface.

Wherever excess humidity presents a problem, Armstrong's Corkoustic is a practical choice. Made entirely of cork, it has unusually high moisture-resistance as well as thermal insulation value. Corkoustic is often chosen for its decorative qualities, too.

Building codes sometimes require fire-resistant acoustical ceilings. Both Arrestone and Travertone are rated incombustible. Cushiontone can be obtained with a special paint approved as slow-burning.

Speed of installation is often an important factor to consider. Cushiontone is quickly applied by cementing or nailing—Travertone and Corkoustic by cementing—and Arrestone is suspended mechanically.

For full details and samples, get in touch with your Armstrong acoustical contractor or write direct to Armstrong Cork Company, 5410 Stevens Street, Lancaster, Pennsylvania.

Many factors, such as cost, efficiency, fire safety, appearance, and moisture resistance affect the choice of an acoustical material. In the Armstrong Line there is an acoustical material to meet each of these requirements. The above shopping center plan shows how the various features of these materials can answer the specific problems of any interior.
Pretty as a picture—and we're proud of it! Stainless Dome erected by Overly on Lake County Courthouse, Gary, Indiana.

OVERLY-GOODWIN BATTEN TYPE STAINLESS DOME

Erected in 21 DAYS!

Lake County Courthouse, Gary, Indiana, now has the first Stainless Steel Dome of this batten type in the United States.

Featuring the beauty and weather resistance of stainless steel in the form of patented Overly-Goodwin Batten Type lifetime construction, this new Dome on Lake County Courthouse, Gary, Indiana, sets somewhat of a speed record for dome erection. Installation work on the dome was accomplished within a period of 21 days, of which only 13 were actual working days. The entire job—including detailing, prefabrication, and erection—was handled by Overly.

Materials: 30-pound felt under all roofing sheets. Grade 18-8, Type 302 Stainless Steel with No. 2-B finish for the following: 20-gauge roofing; 18-gauge sloping and vertical surfaces. All screws and bolts of Stainless Steel. Overly-Goodwin Batten Type Metal Roofing is also available in aluminum, copper, and monel metal.

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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.

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SALES AND SERVICE companies everywhere.
To help you with your own working drawings, a portfolio of tracings on 6 typical installations of ILG Ceiling Type Electric Ventilators is yours FREE for the asking. Extra quiet, yet extra powerful, the new Ceiling Ilgette Kitchen Ventilator has full capacity for thorough ventilation without sacrificing super-quiet operation. Ventilator can be mounted anywhere in kitchen ceiling. A flick of a wall switch starts the fan and opens the weather-tight door with patented booster control. Odors, smoke, steam and heat are removed right at their source—in the kitchen. Another flick of the switch and the fan is shut off and the door closed. Call nearby branch office (consult classified directory) or send coupon for FREE portfolio of drawings.

To BUILDING:
A change of name! An achievement, especially one so simple, so obvious and right there all the time.
And this current number really "does it." The best number of any architectural magazine yet.
WILLIAM GRAY PURCELL, Architect
Pasadena, Calif.

To BUILDING:
... Relative to the change in the name... as the Forum is a leader in the whole building field, the title should reflect that pre-eminence....
JOHN D. BIGGERS, President
Libbey-Owens-Ford Glass Co.
Toledo, O.

To BUILDING:
... I certainly believe the name BUILDING is much more appropriate than FORUM although I must admit that I experience a certain nostalgia at its passing. Ever since I have been interested in the construction industry the Forum has meant "tops." However, I imagine I will be able to quickly adjust to BUILDING....
DOUGLAS WHTLOCK
Washington, D. C.

To BUILDING:
I congratulate you on the change in name of your publication, which I believe is much more descriptive of its contents and its aims.
I do not see how anyone in building, architecture, engineering, etc., can do without The Magazine of BUILDING,
M. M. ROBINSON, President
General Houses, Inc.
Detroit, Mich.

To BUILDING:
... A forward looking move and... right in step with the progressive attitude of Mr. Luets' entire publishing family.
WILLIAM GILLET, Vice President
Detroit Steel Products Co.
Detroit, Mich.

To BUILDING:
... The architectural magazines have too long been concerned with their own esthetic pursuits, thus losing contact with the field of building, of which architecture is one part. The public should be informed on every phase of building before it will be able to decide for itself what is architecture and what is esthetics. My congratulations to BUILDING to have made the first constructive move in this direction.
EDGAR A. TAFEL, Architect
New York, N. Y.

To BUILDING:
Congratulations!
A. F.'s new stress on the Forum's being the MAGAZINE OF BUILDING certainly expresses the importance of the development of the building industry as a whole, rather than a heterogenous conglomeration of men and materials dumped (Continued on page 26)
Whether it's the heating of a small home or apartment unit, an average size residence or the largest multifamily apartment or commercial building—there's an efficient National hot water or steam heating system available, complete from Boiler to the most advanced types of Baseboards, Convectors or Radiators. National Research Engineers have designed effective, simple-to-operate and economical Heating Units for every type of fuel and condition.

In this distinguished family of National Heating Products thousands of Architects and Builders have found the satisfactory answer to their heating problems in terms of money-saving features, top performance, low maintenance and long service.

Get in touch with your nearest National representative for further information and a discussion of the heating requirements of your current building program.
Everything you demand of a flooring material is supplied in unmatched fashion by oak. Lifetime service, easy upkeep, versatile beauty, a grade for every type of housing, public preference—oak has them all.

Of all these features, public preference is perhaps the strongest testimony to the superiority of oak. Since 85% of all prospective home buyers want oak floors, it's easy to see why architects and builders are wisely using oak in all styles and price ranges of homes!

See our catalog in Sweet's.
YOU CAN BE SURE... IF IT'S Westinghouse

You've got to LOOK INSIDE

... to check FITNESS in panelboards

Good breakers don't necessarily make a good panelboard. That's why it's important to look behind the breakers... to check construction details... to search for potential sources of trouble. But when panelboards and breakers are made for each other, this problem is eliminated... as it is when you specify Westinghouse.

Westinghouse Panelboards are Westinghouse throughout! You get the well-known dependability and quality of Nofuze "De-ion" Breakers... in a panelboard designed specifically to assure their finest performance.

Dependable breakers in a skillfully designed, well-constructed panelboard—this is the kind of quality you'll want to call for in your specifications. Next time, specify Westinghouse Panelboards... and be sure!

Descriptive Bulletin 30-930 contains complete information plus typical specifications. For your copy, write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.
American offers to architects and builders...

A.I.A. File No. 25-G on 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 satin—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.

3 Foot Chart FREE

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.

American FLOOR SURFACING MACHINE CO.

LETTERS

together, thoroughly roasted by all concerned, often resulting in a half-baked product known as a building. Over a period of years you have done a great deal to promote better understanding among architects, builders, engineers and financiers. There is still much confusion about the real value of each function of the industry. The sooner these values are clarified, the better off we will be. There will be less back-stabbing and more cooperation.

Builders need not only a better understanding of the meaning of good architecture, but also a better understanding of architects as planners and technicians. Architects, no longer the long haired boys, still need to know more about financing and economical construction. Financiers need to know more about the hard-boiled dollar value of contemporary architecture. Trite as these statements may be, they still need emphasizing.

You have taken a long stride out of the fog of misunderstanding towards enlightened cooperation.

J. Wells Hastings, Architect
Oakland, Calif.

BUILDING:

Architecture today is no longer an infant profession. A publication devoted to the presentation of news of the profession must necessarily be able to publish not only pictures and plans but also building facts and figures.

Julius Shulman, Photographer
Los Angeles, Calif.

BUILDING:

The change of emphasis in your logotype from FORUM to BUILDING seems a very important one to me. Certainly in this age of specialization it becomes ever more necessary for people whose work is interdependent to arrive at a better understanding of each others aims and problems.

The fruits of the crusade you have led during the past 15 years for closer cooperation between architect, engineer, builder, supplier, banker and owner are noticeably altering the face of the U.S.

I am now wondering if the scope of your crusade couldn’t be broadened to also include the much maligned interior decorator.

My work as design and color consultant puts me in the no-man’s-land between architect and decorator where I am in a position to hear both sides of the story. The architect feels he has done a fine piece of work for his client. Then along comes a harebrained decorator slathering chintzes and fringe over simple planes of stone and wood and glass like a pastry chef frosting a cake. The entire intention of his design has been obscured. Naturally he’s furious.

Isn’t it about time for architect and decorator to get together, thrash out mutual problems and work as a team at turning out better buildings for their clients?

(Continued on page 30)
GOOD BRICKWORK = GOOD DESIGN + GOOD WORKMANSHIP + GOOD MATERIALS

"SLUSHING" INVITES LEAKAGE IN BRICKWORK

Slushing does not properly fill the voids in the head joints.

When mortar is spotted on only one corner of the brick, slushing seldom fills the voids.

Even when mortar is spotted on both corners of the brick, slushing will not always fill the voids.

THE PHOTOS AT THE LEFT SHOW THE Voids THAT OFTEN RESULT WHEN SLUSHING IS USED TO "FILL" A JOINT. EVEN WHEN MORTAR HAS FIRST BEEN SPOTTED ON BOTH CORNERS OF THE BRICK, SLUSHING CANNOT BE RELIED UPON TO FILL THE Voids COMPLETELY.

THE GREAT PLASTICITY OF BRIXMENT ENABLES THE BRICKLAYER TO THROW PLENTY OF MORTAR ONTO THE BRICK TO BE PLACED — TO USE PLENTY OF MORTAR IN THE BED JOINT — AND STILL SHOVE THE BRICK EASILY INTO POSITION, WITH EXCESS MORTAR OozING OUT ALL AROUND, AND WITH ALL Voids FILLED.

BRIXMENT

Brixment mortar has greater plasticity, higher water-retaining capacity and bonding quality, greater resistance to freezing and thawing, and freedom from efflorescence. Because of this combination of advantages, Brixment is the leading masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY
Modern Stores use Norton Non-slip Floors

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

Write for free catalog No. 1935

*Reg. Trade Mark for Norton fused aluminum oxide

NORTON COMPANY • WORCESTER 6, MASS.
Now, with the General Electric remote-control wiring system you can give clients all of the comforts and conveniences of modern electrical living. Both practical and economical, G-E remote-control systems are easy to install—even easier to plan. There's almost no limit to the variety of new and step-saving applications you can provide. Utilizing a low-voltage switching circuit, G-E remote control lets home owners turn lights and appliances ON and OFF from as many points as desired. Master selector switches provide centralized control of up to nine different circuits.

Look over the remote control applications illustrated. See if they don't spark your own imagination, on the many possibilities offered by the General Electric remote-control wiring system. For a handy booklet brimful of applications, write to section D22-104, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.

You can put your confidence in...

GENERAL ELECTRIC
MODERNIZE WITH HARDWOOD FLOORS!

Economize with PARKAY

Ready-Finished; In Resilient Floor Thickness; Laid Quickly Over Concrete, Wood or Terrazzo

New floors for old offer no problem with the use of Parkay. Only 3/16" thick. All the wearing surface of standard flooring without useless bulk or weight. Permits use with other resilient materials without changing floor levels. Factory finishing by craftsmen insures a lasting lustre and beauty not obtainable by on-the-job methods.

Parkay floors are applied with special adhesive to any smooth, sound subsurface. Simple and clean to install for new construction as well as for remodeling. Time and money saved on every job.

Parkay flooring, made of choice American Oak, is available in two styles—9" x 9" Tiles and 9" wide Broadway in random lengths. Both styles can also be used for impressive, low-cost wall paneling. For complete details, see Sweet's Architectural File or write direct for free samples and complete information. Wood-Mosaic Co., Inc., Louisville 9, Ky.

LETTERS

I realize that the scope of your present crusade is already an admirably wide one. However, I feel that by integrating the services of the decorator with those of the architect, engineer, builder, supplier and banker you would be adding a new facet to the editorial policy of BUILDING that would match in importance the contributions which the Forum has made in the past.

KLAUS PFEFFER, Design & Color Consultant Berkeley, Calif.

BUILDING:

It is astonishing how much verve can be injected into a title by a simple shift of emphasis from an abstract noun to an infinitive ("action word").

For the greater part of the past 15 years I have followed the progress of Forum to the climax of your recent call for a united front of the several segments of building. For more years than that I have been looking for the arrival of the "Henry Ford of shelter." It seems now that what I should have been looking for is a number of local builders with the know-how to use mass-production methods to bring plain, sound shelter within the reach of the masses.

OWEN R. EASLEY
Executive Vice President & Treasurer Mutual Building & Loan Association, Inc. Martinsville, Va.

Caldwell's Fans

BUILDING:

The statements about fans in your Caldwell Air Conditioning article in July were false and misleading.

If the article was written by one of your staff, it is evident that no attempt was made to verify the statements about fans. If the article was a publicity handout arising in the fertile brain of some public relation counsel, it should have been labeled as propaganda for all to see. In either case, your publication is to be criticized for printing such "tripe" and for failure to check facts.

It would appear that the editorial policy of your publication has degenerated from its former high technical standard to the newspaper level of reporting. The article in question is sprinkled with such phrases as "Caldwell admits," "his associates believe," "Caldwell says," etc.

Following is evidence to refute the statement made concerning fans in your article. . . .

Quote: "Fans. Caldwell admits that any attempt to get the pressures we employ with standard ventilating fans would, of course, consume too much power, since conventional fans suffer a sharp reduction in mechanical efficiency at static pressures in excess of 2 in."

Remarks: The above statement is false on two counts. Standard ventilating fans . . . have air delivery from 100 to 300,000 cfm, in pressure ranges from ½ to 15 in. static pressure . . . That ventilating fans do not suffer a sharp reduction (Continued on page 34)
TRUSCON
"O-T"
Open Truss
STEEL JOISTS

multiple purpose...

for multiple economies

These strong, light joists are adaptable to all types of building construction... office buildings, industrial structures, schools, hospitals, apartments, residences, stores... bringing eight outstanding advantages to these structures. LIGHT WEIGHT permits quick, convenient handling and placement. ECONOMICAL through savings in supporting framework and foundations; speed of erection; insurance; maintenance. PIPE AND CONDUIT easily installed through open web. FIRE-RESISTANT because built of incombustible materials. VERMIN RESISTANT because steel is impregnable to insect and animal life. RADIANT HEATING possible through unobstructed flow of heat. SOUND-RESISTANT through dead air space and built-up materials. ALL-WEATHER CONSTRUCTION because these joists are not dependent on setting concrete. FACTORY-MARKED to fit construction plans. Write for free illustrated literature.

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

TRUSCON STEEL COMPANY
Subsidiary of Republic Steel Corporation
YOUNGSTOWN 1, OHIO
Warehouses and sales offices in principal cities.
The best in modern living includes the best in modern cooking. To assure wholesome, full-flavor foods, easily prepared, every Manhattan House kitchen contains a distinctive new ROPER Gas Range. Here's proof again that ROPER is the choice of discriminating buyers who demand the finest in fast, clean, economical cooking. Shown at left is a typical Manhattan House ROPER installation.

Manhattan House
owned and operated by the
NEW YORK LIFE INSURANCE COMPANY
Equipped Throughout with ROPER Gas Ranges
A practical new idea for modern living is Manhattan House, recently completed New York apartment building owned and operated by the New York Life Insurance Company. Twenty stories high and covering an entire block, Manhattan House comprises 582 apartments of from two to seven rooms each.

Planned from the beginning to offer the finest facilities available, Manhattan House chose ROPER Gas Ranges exclusively for its livable, workable kitchens. This fact is doubly important. First, it demonstrates forcibly the preference for gas cooking ... and second, it illustrates dramatically that Manhattan House kitchen-equipment experts recognize ROPER as one of America's foremost gas ranges.

More Features to Talk About

No other line of ranges provides such a wide choice of exclusive features. ROPER'S "Center-Simmer" Top Burners ... "Staggered" Cooking top ... "Bake-Master" oven ... "Roper-Glo" Broiler ... and many other "Crowning Achievements" open the door to sure customer acceptance.

With ROPER, you offer the ultimate in fast cooking ... clean cooking ... economical cooking. You offer the carefree convenience of completely automatic oven performance, when desired. For top-of-range feasts, oven delights and tasty broiled treats, nothing can match a modern ROPER Gas Range.

More Real Value

No other line of ranges gives you such a wide choice of models ... so many different oven, broiler and top burner arrangements. From the magnificent 58-1/2 in. "Town and Country" to the compact 21-5/8 in. "600" Series, Roper makes a gas range to exactly meet every need and fit every pocketbook.

Decide now to investigate the advantages of ROPER. You can specify these distinctive ranges for use with any gas, including liquefied petroleum (bottled) gas.

"Manhattan House" Homemakers Enjoy Fast, Clean, Thrifty Gas Cooking with these Modern ROPER Ranges
the approved plastic wall tile

PITTSBURGH INTERLOCK PLASTIC WALL TILE

Accepted by the U.S. Dept. of Commerce, Bureau of Standards, Commercial Standard 168-50, Dept. of Commerce.

- Eliminates all grouting
- Fade resistant
- Will not chip, craze, peel or rust
- New 1951 colors
- Plain or marbleized patterns
- Easy to clean

ECONOMICAL WALL BEAUTY EASY TO INSTALL

JONES & BROWN, Inc.
National Distributors
439 Sixth Ave., Pittsburgh 19, Pa.

Greetings:

Please send me further information about Pittsburgh Interlock Plastic Wall Tile.

Name:

Title:

Firm Name:

Address:

City:

State:

BUILDING'S editors believe that Caldwell is on the right track in trying to reduce duct sizes.—En.

(Continued on page 40)
Installation and finishing expense leads most architects to demand the extra beauty, durability, economy and sales appeal of Mengel Hollow-Core Flush Doors.

1. Balanced seven-ply construction to provide controlled reaction in changing weather conditions.

2. Hardwood construction throughout — stronger, more durable, free from grain-raising, more easily and economically finished.

3. Exclusive Insulok grid core material has inherent resiliency; cannot cause warping, nor transfer grid pattern to faces.

4. Greater strength. Adequate core stock surface area provides maximum gluing surface and resistance to warpage.

5. Precision key-locked dove-tailed joinings of stiles and rails add strength and stability.

6. Ready to finish. Door faces are smoothly belt-sanded. Stiles are machine-planed at factory — prefit to standard book sizes.

7. Fully guaranteed. Each door must meet rigid quality control standards and constant inspection throughout manufacture.

8. Mengel Hardwood Flush Doors are economical — no mouldings to paint — no corners to collect dirt. Smooth hardwood surfaces are less absorbent and less costly to finish — easier to clean and longer-lived.

Write for complete specifications. Use the convenient coupon.

Also see

MENGEL STABILIZED SOLID-CORE DOORS
the finest products of their type on the market.

The Mengel Co., Plywood Division
2301 South Fourth Street, Louisville, Ky.

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

Name:

Street:

City: State: 
ODORLESS PAINT SCORES AGAIN!

250 CHURCH ST., NEW YORK CITY
SAMSON ROSENBLATT, HERMAN WACHT & ASSOCIATES, Owners and Builders • VICTOR MAYPER, Engineer • INDUSTRIAL ENGINEERING CO., Contractors for Structural Frame • LEON DECORATING CO., Painting Contractor — all of New York City

THIS new, 15-story office building, of steel and concrete construction, occupies a blockfront location, facing wide Church Street and extending from Leonard to Franklin Street. This location, the low structures to the west and the sweeping banks of windows on all four sides, assure a flood of natural light.

Poured concrete floor slabs of this building form the ceilings. The unplastered ceilings, after being finished with Pratt & Lambert Solidex, have the appearance of smooth plaster.

Solidex, ultra-flat oil paint, is the ideal wall finish where a quick, practical, one-coat job is required. The modern, tenant-tempting colors are ready for instant use. And Solidex is odorless! No discomfort from eye-smarting fumes — during application or afterwards.

The nearest Pratt & Lambert Architectural Service Department offers prompt, practical assistance in planning authoritative decoration.

Save the surface and you save all!

PRATT & LAMBERT-INC.
Paint & Varnish Makers
NEW YORK • BUFFALO • CHICAGO
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PRATT & LAMBERT
paint and varnish
Business is on the carpet

and carpet is our business

To be right, carpet must be beautiful. But it must also be right in construction, for the wear it must take. It must be right in price, to fit your client’s budget.

Alexander Smith-Masland contract carpets offer you an almost limitless selection of color, pattern, weave and quality—all attractively priced. And your Alexander Smith-Masland contractor is a carpet specialist, eager to help you, and skilled in effecting economies through expert installation. Call him, today.

Alexander Smith
and
C. H. Masland
CONTRACT CARPETS
295 Fifth Avenue, New York 16, New York
Eager beavers like this "always-knows-the-answer" kid are bobbing up oftener than ever these days, in progressive schools across the country. Why? Because every month in the year sees more schools being provided with perfect "indoor climate" by Trane heating and ventilating equipment. Architects, engineers, school boards have long recognized that proper air in the classroom means more attentiveness, more efficiency — and better health, as well.

Your problem may be the comfort of an eager scholar — or it may be the heating, ventilating, or air-conditioning of office, plant, store or home. It pays to remember that Trane knows air — how to warm it, cool it, dry it, humidify it, clean it or move it.

HEAT FOR BIG BUILDINGS OR MODERN HOMES: There's a better way to heat any size structure — with Trane Convec tors. Quick-heating, space-saving convectors team up with any steam or hot water system to provide better heat distribution and more comfort at low cost.

"CHOOSE YOUR OWN WEATHER" is a picture story of an amazing variety of buildings where stubborn heating and air-conditioning problems have been corrected by Trane equipment. A copy of this 16-page booklet can be secured from the Trane representative in your area, or direct from the main offices.
NOW... WASCOLITES

PLEXIGLAS SKYLIGHT UNITS

Pre-Fabricated
ready to drop in place

The last word
in modern efficient
skylights

For the full story
Write for our A.I.A. Folder

WASCO FLASHING COMPANY · CAMBRIDGE · MASS.
LETTERS

KUDOS

BUILDING:
You really got yourself a magazine now that must be read from cover to cover. When you've got people doing that, you've got something!

William Arild Johnson
William Arild Johnson & Associates, Architects & Engineers
Everett, Wash.

BUILDING:
...I have found, and my colleagues agree with me unanimously, that your coverage is the most complete of all magazines in the architectural field and in its editorial approach fills a long-wanted need...

Leo L. Fischer, Architect
Newark, N. J.

BUILDING:
I have always felt that architectural periodicals which do no more than help architects lead each other are of little value except as professional information sources. You are surely right—the architect badly needs his influence spread, not only through the whole field of building, but to the layman as well...

Robert Law Weed, Architect
Miami, Fla.

BUILDING:
I frequently take the liberty of criticizing, and now it is the greatest of pleasure to turn around on your August issue.

This is really a professional magazine of the highest possible standards. Your words about Saarinen, especially the phrase "leavened with wit and courtesy," is really masterful and beautiful; "The News—War and Building," most interesting and penetrating (a bit optimistic?); the Johnson house, beautifully presented—what a perfectly exquisite job—and your words keenly penetrating; the desert house—awfully good, and the Hillside House most interesting—and your words even better; the outdoor pool beautiful; the Chicago job excellent; and the suburban development ditto... It is really an excellent issue!

Your announcement and the words of Mr. Luce's—most bewildering; the predominance of big business—most frightening; but all of this I take as a "business policy" because, if I took it seriously for a minute, as feeble as it would be, our subscription would be canceled.

You don't know how much pleasure it is to really see once again the FORUM be what it should be and as it has been in the past!... Congratulations.

Albert Henry Hill
San Francisco, Calif.

BUILDING:
...The material which appeared in your July issue which had to do with the Long Island builders... was extremely well presented, as is usual in the case of the Forum, and the selec-

(Continued on page 46)
THE BEST TENANTS are SATISFIED TENANTS

and Honeywell P.H.C.
in Apartments

KEEPS THEM SATISFIED!

One sure way to keep tenants satisfied is to give them the amount of heat they want... when they want it! A big order under ordinary methods. But with Honeywell Personalized Heating Control each tenant family controls its own temperature, individually. As a consequence there's no longer need for one apartment to be too cold, another too hot. With PHC there's no need to fire the heating plant to capacity, thereby overheating the entire building just to satisfy a few "cold-blooded" occupants. Substantial fuel savings result. And too, management gains the advantage of being able to secure desirable tenants on longer leases, and at premium rentals.

Honeywell Personalized Heating Control is currently being installed in thousands of apartment buildings, both new and existing. Why not familiarize yourself with all the facts on PHC. Contact the Honeywell branch office near you, or write: Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Toronto 17, Ontario.

MINNEAPOLIS
Honeywell
FIRST IN CONTROLS

DEPENDABLE CONTROLS
COST LESS THAN SERVICE
Add up the
Advantages of
BILDRITE* over
Wood Sheathing

TWICE THE INSULATING VALUE OF WOOD

In fact, more than twice the insulating value. By actual tests in a laboratory "cold room," BILDRITE Sheathing proved to have 122% more insulating value than ordinary wood sheathing. That saves on fuel bills.

4 FT. WIDTHS OFFER TWICE THE BRACING STRENGTH OF WOOD

Here again, laboratory experiments with a MILLION pound testing machine proved that BILDRITE had more than twice the bracing strength of wood sheathing horizontally applied. Wood sheathed walls showed a 1/2" distortion at 1,021 lbs., but it took 2,179 lbs. to cause the same deflection in walls sheathed with 4 ft. widths of BILDRITE.

VAPOR PERMEABILITY HELPS CONTROL MOISTURE CONDENSATION AND FROST IN WALLS

In a laboratory "ice box" big enough to hold a house, tests proved condensation in walls can be controlled by sealing the warm side and venting the cold side. This is the principle of the INSULITE "Wall of Protection"—recommended and used for ten years. Sealed Lok-Joint Lath seals the warm side. Vapor-permeable Bildrite on the cold side properly "breathes" vapor towards the outside.

WATERPROOFED . . . EVERY FIBER PROTECTED

INSULITE is the original wood fiber structural insulating board—first made 36 years ago. It is waterproofed throughout—not merely a surface coating. Every fiber inside and outside is thoroughly—safely—adequately protected.

LOWER APPLIED COSTS

To get the real story on sheathing costs, you have to figure the total applied costs. BILDRITE takes only half the time to apply (compared with wood), eliminates waste material and building paper, reduces labor insurance costs. When you add it all up and compare, your best buy is BILDRITE.
Handy guide for low-cost heat

**CARRIER 46U HORIZONTAL DISCHARGE UNIT HEATER**

**RECOMMENDED** for garages, factories and other industrial spaces as well as beauty shops, exclusive stores and quality buildings.

**FOR USE** with steam or hot water.

**ADVANTAGES:** Combines attractive appearance with quiet operation and sturdiness that assures long life. New single-row coil construction offers less air resistance and facilitates cleaning.

**CAPACITIES** range from 13,400 to 200,000 Btu's per hour.

**CARRIER 46S FOUR-WAY DIRECTED-FLO UNIT HEATER**

**RECOMMENDED** for buildings best served by quick heat from relatively high ceiling suspension.

**FOR USE** with steam or hot water.

**ADVANTAGES:** Air discharges from 1, 2, 3 or 4 sides provide maximum flexibility in air distribution. Heat can be directed in any quantity and at any angle.

**CAPACITIES** range from 49,000 to 500,000 Btu's per hour.

**CARRIER 46T GAS-FIRED UNIT HEATER**

**RECOMMENDED** for clean, economical heat in offices, factories, warehouses and other types of buildings where gas is available.

**FOR USE** with gas.

**ADVANTAGES:** Heat exchanger and combustion chamber of Aluminized Steel are welded into one leakproof assembly for long, trouble-free life. Requires no pipes, ducts, boilers.

**CAPACITIES** range from 70,000 to 230,000 Btu's per hour input.

**CARRIER 46PQR HEAT DIFFUSER**

**RECOMMENDED** for ventilating as well as heating large enclosed spaces in factories, warehouses, hangars, garages and similar buildings.

**FOR USE** with steam or hot water.

**ADVANTAGES:** Multiple discharge outlets with adjustable louvres permit air to be delivered in practically any direction. Sectionalized for easy handling, lower erection costs and convenience in installing. Floor, wall or ceiling mounted—right or left assembly.

**CAPACITIES** range from 115,000 to 1,570,000 Btu's per hour.

Pick the Carrier Unit Heater that’s right for the job and you’re assured maximum efficiency at minimum fuel cost. Every Carrier Unit is field-tested for superior performance, and engineered and constructed for years of service. Whatever its style, size or type, you get plus values when you install a Carrier Unit Heater. Carrier Corporation, Syracuse, New York.

**AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING**
If your building projects are being held up by delayed or curtailed delivery of electric ranges, investigate the revolutionary Select-a-Range today. Universal can ship in time to meet your closing dates on orders placed now. Phone, wire, write: Contract Department ... Landers, Frary & Clark ... New Britain, Conn.

"CONVENIENCE-LEVEL" cooking! Here's the one feature women want most in a range... everything at the "Convenience-Level." Now you can give your buyer a range with the oven or cooking units at any desired height. "Convenience-Level" cooking eliminates stooping and bending. It's unique and only Universal Select-a-Range has it. It's something every woman wants!

LARGER WORK AREAS! Space-saving Select-a-Range design lets you build the oven in a wall or install it in a cabinet. Makes more counter area available for much needed extra work space where space is at a premium. It's the ideal solution for small home kitchens, providing greater design, flexibility and freedom. It's something every woman wants!

MORE STORAGE SPACE! Exclusive Select-a-Range design provides up to three times more storage drawer capacity than a conventional range in the same floor area. Extra drawers in matching design are right at the range where every woman wants them for all her utensils, cutlery and housewares. Saves steps...saves work. It's something every woman wants!
Let Universal show you how the more than 25 Select-a-Range variations will answer your cost schedule requirements ... and give your kitchens more "sell" than ever before. There's a model styled to fit every kitchen size ... from traditional to ranch or modern ... from lowest to highest price brackets!

GREATER BEAUTY AND EYE APPEAL! Select-a-Range gives your kitchens that "modern as tomorrow" look at low cost. Built-in or peninsular arrangements now widely publicized in national magazines have extra appeal that sells the whole kitchen easier. Here's something new and different for your kitchens. It's something every woman wants!

NEW VERSATILITY for houses of every price range! There's a Select-a-Range for every house plan ... low cost economy arrangements ... as well as many other larger variations for higher-priced and "custom-built" houses. And every Select-a-Range has all the most advanced features of electric, automatic cooking. It's something every woman wants!

COMPLETE FLEXIBILITY! 3 basic units give you over 25 Select-a-Range variations to provide the widest possible choice of range designs. And Select-a-Range flexibility gives you new freedom to design your kitchens as you want them ... impossible to attain with the rigid dimensions of conventional ranges. Here's more sales power for you at low cost!
How You Save with the NEW Niagara Method of Air Conditioning

Using "Hygrol" Hygienic Absorbent Liquid

Because it absorbs moisture from the air directly, the new Niagara Controlled Humidity Method uses less, or no, mechanical refrigeration for dehumidifying. You save first costs and installing of heavy machinery. You save space, maintenance expense, power. You get easier, more convenient operation.

Using "Hygrol" hygienic absorbent liquid, this method gives complete control of temperature and relative humidity. Especially, it is a better way to obtain dry air for drying processes, packaging hygroscopic materials, preventing moisture damage to metals, and obtaining better quality for chemical process products and food products—or in obtaining better results in comfort air conditioning for office or laboratory at lower refrigeration costs.

The diagram shows how filtered air is dehumidified by passing thru a spray of "Hygrol" — a liquid absorbent which removes air-borne moisture. This liquid is hygienic and non-corrosive; it contains no salts or solids to precipitate and cause maintenance troubles. It is continuously re-concentrated at the same rate at which it absorbs moisture, providing always the full capacity of the air conditioner, automatically.

Units provide a range of capacities from 1000 to 20,000 C. F. M. Multiple unit installations are in use successfully. Records of results are available. For further information, write Niagara Blower Co., Dept. AF, 405 Lexington Ave., New York 17, N. Y.
MIRAWAL is a porcelain facing you can cut—with a portable saw. It comes in a standard width of 2' and in lengths up to 10'. Any carpenter can erect a front in a fraction of the time required for any other vitreous or ceramic facing.

This speed of installation explains the unheard of low cost for a genuine porcelain facing—ideal for all types of store fronts, filling stations, supermarkets, hamburger stands, hotel and restaurant kitchens, lavatories, hospital corridors and operating rooms, to mention only a few of MIRAWAL's many everyday applications. Wherever a surface as sanitary as glass and as permanent as steel is needed—for exterior or interior application—MIRAWAL merits your thorough consideration. Write for free literature.

Baltimore Porcelain Steel Corp., P. O. Box 928F, Baltimore 3, Maryland.
They'll Actually Pay for Themselves
BY SAVING MAINTENANCE COSTS!

Yes, the new ADLAKE ALUMINUM WINDOWS in modern Barrington School, Barrington, Illinois, will ultimately pay for themselves by eliminating all maintenance costs except routine washing. And what's more, they'll last as long as the school itself!

These ADLAKE WINDOWS form a perfect weather seal against wind, rain and cold—for only ADLAKE offers the combination of woven-pile weather stripping and patented serrated guides that assures minimum air infiltration and absolute finger-tip control.

And ADLAKE WINDOWS never warp, rot, rattle, stick or swell. They retain their smart good looks and easy operation for the life of the building.

FOR THE FULL STORY of ADLAKE's worry-free, money-saving operation, drop a card today to The Adams & Westlake Company, 1101 N. Michigan, Elkhart, Indiana. No obligation, of course.

ADLAKE ALUMINUM WINDOWS
HAVE THESE "PLUS" FEATURES:
• Minimum Air Infiltration
• No Warp, Rot, Rattle, Stick
• Finger-tip Control
• No Painting or Maintenance
• Ease of Installation
**WHY THIS BEAUTIFUL CORRIDOR**

will **STAY** beautiful year after year...

The original beauty and color of these walls are **permanently protected** by Kalistron against all surface wear. No danger of damage from contact of rolling chairs and tables... no soiling or marring from spilled foods or liquids. For exclusive *Blanchardizing* process fuses glowing color to underside of clear, extra-strong vinyl sheeting. Thus Kalistron color cannot be touched... can never be injured.

Kalistron resists scuffs, scratches, spots; won't chip, peel or crack; waterproof, yet easily cleaned with a damp cloth.

Winner of latest Modern Plastics Award for furniture and interior decorating materials, Kalistron is also ideal as an upholstery material.

SEND COUPON BELOW for sample of Kalistron, plus top-quality nail file... free. See if you can injure Kalistron even with this file.

U. S. Plywood Corp., Dept. F, 30
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Please send me FREE Nail File Test (swatch of Kalistron plus actual nail-file).

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In Canada: PAUL CHILTON & CO., LTD., MONTREAL

Color fused to underside of transparent vinyl sheet... backed by flocking
"Hauserman Movable Steel Interiors unquestionably have increased departmental production and efficiency"


"The actual results obtained since our Hauserman Movable Steel Interiors were installed have surprised and more than pleased us" continues Mr. Ehrisman. "Actually, we now accommodate more people in the department than before the partitions were installed. The various units have their own offices, and enjoy privacy such as they never had before. Dictation and telephoning are easier. Group conferences, on one engineering problem or another, occur frequently throughout the day, without interruptions and without disturbing other persons working nearby.

"The partitioning has unquestionably increased the sales department's production and efficiency, and has made the day's work easier and pleasanter for everyone. To these benefits should be added the fact that the fourth floor now has a far more neat and attractive appearance than it ever had in the old days. Visitors stepping off the elevator seldom fail to express their very favorable impression of our modernized, good-looking, business-like office arrangements."

"Before and after" photos of the Foxboro sales department are shown above. These Hauserman Movable Steel Interiors can be quickly and easily moved whenever new operating plans require changed floor layouts. And whenever Hauserman Walls are relocated, all units are completely utilized. Ask the nearest Hauserman office or representative to help you adapt Hauserman advantages and efficiencies to your particular floor layout requirements. Or write The E. F. Hauserman Company, 6767 Grant Avenue, Cleveland 5, Ohio, for our fully-illustrated 60-page catalog.
Owners, architects, and builders of new buildings are using all the latest building techniques at their command. That's why the brass and copper pipe runs of truly modern buildings are specified Silbraz - the modern way of joining brass or copper pipe or Type B copper tubing. Silbraz joints are silver brazed - not soldered or threaded - and form a joint that is stronger than the pipe itself. They are leakproof, permanent, and will not creep or pull apart under any condition which the pipe or tubing can withstand.

Silbraz joints actually make the brass or copper pipe or tubing into "one-piece pipelines" that save you money by eliminating leaky connections, costly maintenance, and repairs.

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

**Walseal® Valves and Fittings for Making Silbraz Joints**
The Walworth Company produces a complete line of Walseal Valves, Fittings and Flanges for making Silbraz joints - the modern method of joining brass or copper piping. For further information, see your nearest Walworth distributor, or write for Circular 84B.

**WALWORTH valves and fittings**
60 EAST 42nd STREET, NEW YORK 17, N.Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD
IN THE
RECREATION ROOM

To complete the comfort facilities in the recreation area and to relieve the "traffic" pressure on master bathrooms, self-contained leakproof Weisway Cabinet Showers are available in models especially designed and priced to make extra bath facilities possible even with limited building budgets.

Weisways are economical of space, too—three-foot square, or even less, is enough. They are readily installed in old or new homes without special treatment of building walls or floor. Don't confuse Weisways with ordinary "shower stalls." Weisways are quality fixtures, proved by years of service in finest homes.

More Bath Facilities with
Weisway CABINET SHOWERS
In Homes of Every Price

Vitreous Porcelain
FLOOR AND WALLS

The famous Weisway VP models combine the advantages of guaranteed leakproof construction, unaffected by settling or shrinkage of surrounding materials, with vitreous porcelain enamel walls and the exclusive Foot-Grip, No-Slip floor of vitreous porcelain on heavy enameling iron. No metal underpan is required, no messy mastic needed for installation. Weisway in-a-wall models are available for built-in shower installations.

Weisways are offered in a range of models and in five beautiful colors, in addition to white, to meet a wide variety of planning ideas and requirements.

Get this NEW CATALOG
Contains detailed information and specifications on the complete Weisway line, including samples of the five sparkling colors in which Weisways are now available. This new catalog should be in your files—mail coupon or write for it now.

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Please send your new catalog of the complete line of Weisway Cabinet Showers.

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LETTERS

... I want you to know how greatly I appreciate your efforts "to expand the field of architecture."

To me, your campaign to sell the profession to the world at large—rather than to sell one architect to the other—is probably the first, but certainly the most significant act of real, effective service to the profession. You refer to the age-long ineffectiveness of the AIA as far as the underprivileged in the profession—especially the younger generation—are concerned, such reference is hardly necessary.

FRANK F. EBERHART, Architect
San Francisco, Calif.

BUILDING:
It is becoming more and more apparent that the individual small house design by an architect for the individual needs of a specific client and built by a local builder is fading from the building picture.

One reason is the amount of time and study required to do a good small house is often greater than for a larger one because of the lack of any economic freedom.

Second, the cost of building an individual house is naturally greater than when built in quantity.

Before going any further suppose we analyze these points. The amount of time involved in drawing could be cut down by a comparison of builders' or owners' plans with an architect's plan as filed with the lending institutions. My personal experience has been that the architect's plan is considerably more specific, leaving little chance for so-called builder's shortcuts. Somewhere there must be a happy medium where the basic principles of the design would be carried out but still leaving the builder enough leeway to incorporate some of the savings which he has spent many years in learning without necessarily

(Continued on page 58)
By use of entirely new daylight optical principles, Insulux Glass Blocks Numbers 363 and 365 give you the means to provide even, diffused lighting and eliminate bright, glaring contrast in any type of building. Diagram at left shows how this works.

With this revolutionary advance in daylight control, you can design a fenestration for maximum light and beauty. Occupants will no longer need blinds and awnings that shut out the free daylight and destroy the architect's design.

Let our Daylight Engineering Laboratory and Staff give you more information or assist you in adapting Insulux Fenestration to your specific needs. Write: Daylight Engineering Laboratory, Dept. AF-10, Box 1035, Toledo 1, Ohio. (Insulux Division, American Structural Products Company, subsidiary of Owens-Illinois Glass Company)
ANOTHER LASTING ROOF OF REVERE COPPER

View from steeple of batten seam copper roof on St. Augustine's Church, Spokane, Washington.
John W. Maloney, Architect, Seattle; Walter G. Meyers & Son, General Contractor; Krueger Sheet Metal Company, Fabricator; Eagle Metals Company, Revere Distributor—all of Spokane.

- Dollar for dollar, whenever you want lasting sheet metal construction, there is no substitute for copper. Because copper—beyond any other material commonly used for roofing, gutters and flashing—has proved its ability to give longer service per dollar of cost when properly designed and installed.

These statements are backed by facts and figures developed by intensive research and by case histories of well-known buildings. No other sheet metal construction material can support so strong a claim.

To make certain of correct design and take advantage of proved installation techniques, it will pay you to use the new design and installation data developed by the Revere Research Laboratories. You'll find these data in Revere's book, "Copper and Common Sense", an authoritative manual of sheet copper construction that has been widely distributed to architects and sheet metal contractors. There is probably a copy in your files. Be sure to refer to it as your guide to finer and more durable sheet copper construction.

Revere sheet and roll copper and other Revere quality materials are available from leading distributors throughout the United States. A Revere Technical Advisor will always be glad to consult with you without obligation.

REVERE COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
230 Park Avenue, New York 17, New York
Sales Offices in Principal Cities, Distributors Everywhere.
I like our Carr-dor because it never hinders me in my morning rush — flips up in a jiffy! And no snow shoveling to get it open.

SNOW-PROOF—The completely snug fit of the Carr-dor keeps out snow and rain. Weather has no affect on the easy, smooth action and positive closing of the Carr-dor.

"Outs a Carr-dor... we kiddies can open and close the garage door for Mommy and Daddy!"

Here's what the Smith family says about CARR-dor OVERHEAD GARAGE DOORS...

"Outs a Carr-dor is swell! It lifts and closes easily I don't have to bother the rest of the family for help anymore."

EASY TO OPEN—A slight lift, and the perfectly balanced Carr-dor with its minimized friction slides overhead by itself and stays put. The Carr-dor doesn't have the annoying habit of rolling out of position.

ATTRACTION—The Carr-dor lends added beauty to any garage. This attractiveness can be easily maintained too, because Carr-dors are made of Ponderosa Pine to which paint best adheres.

EASY TO CLOSE—No tugging a Carr-dor. And though it pulls down easily, it does not drop into position. Women especially appreciate its feather-touch ease of operation.

WIND-PROOF—Wind pressure cannot close or slam a Carr-dor when open, and when closed the lock catches both sides of the door and positively prevents opening.

The best quality hardware available is fitted to a frame made by expert craftsmen and joined together with giant size dowels, whose spiral glue cells insure permanence of joint.

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Also manufacturers of Superior Unit Wood Windows • Exterior & Interior Doors • Entrances • Shutters • Clost-tile Casements • Carr-dor Garage Doors • Basement Unit Windows • Louvers & Gable Sash • Breakfast Nooks • Combination Doors • Screens & Storm Sash • Corner (China) Cabinets • Gli- dor Cabinets • Ironing Board Cabinets • Mantels & Telephone Cabinets • Multiple-Use & Linen Cabinets • Stair Parts.
The use of American-Standard

Bollsenbacher & Kelton, Inc.

American Radiator & Standard Sanitary Corp.
P.O. Box 1226
Pittsburgh 30, Pa.

Gentlemen:

Buyers of G. I. two and three bedroom homes in all Allied Gardens residential developments built, sold and now under construction throughout Los Angeles County have come to recognize the quality of materials in our homes through the use of "name" brands.

The use of American-Standard Plumbing Fixtures and Faucets, as installed by the H. E. Murray Co. of Los Angeles, in Allied Gardens homes is a powerful aid to sales, especially in the booming Whittier orange grove district where our firm is building 2000 homes and plans the construction of an additional 3000 homes, providing for a new population of over 15,000 persons, plus a complete shopping center within the heart of the new community, two schools, a park and a playground.

We have been in the residential construction business here for more than 25 years, and have developed 20 major G. I. and F. H. A. tracts in Los Angeles County since the end of the war. In the sales of these thousands of homes, buyers recognize the long-lasting economic value in these homes with such nationally famous brands as American-Standard.

The rapidity of sales of homes in Allied Gardens at Washington and Fawcett Blvds., Allied Gardens at Huntington and Paramount Blvds., Allied Gardens on Slauson Ave., in the West Whittier area, and the current Allied Gardens in the South Whittier district can be attributed to the public recognition of quality materials and workmanship, American-Standard contributed and continues to contribute to public acceptance of Allied Gardens homes, particularly in the face of competition.

Moreover, the use of American-Standard products has, we feel, added to this firm's reputation for always striving for the highest quality of materials and construction.

It is with pride that we continue to install American-Standard products because we find that the best plumbing fixtures win enthusiastic praise from prospective as well as actual buyers.

Very truly yours,

Bollsenbacher & Kelton, Inc.

By: President

There's American-Standard Heating Equipment to suit every job you build. The line is complete — includes Boilers, Water Heaters, Radiators, Baseboard Radiant Panels, Oil Burners, Domestic Water Heaters and Accessories.
Plumbing Fixtures in our homes is a powerful aid to sales,

reports Los Angeles builder

Since the end of World War II, Bollenbacher and Kelton, Inc., Los Angeles builders, have developed 20 major tracts in Los Angeles County. The developments, known as Allied Gardens, are comprised of some 4700 two and three bedroom houses—all American-Standard equipped. These builders feel that the use of American-Standard products in their developments is a large contributing factor in the wide public acceptance of the homes.

"Moreover," says Mr. Walter Bollenbacher, president of the firm, "the use of American-Standard products has, we feel, added to this firm's reputation for always striving for the highest quality of materials and construction."

More and more builders all over the country are depending upon American-Standard Plumbing Fixtures and Heating Equipment to help make fast sales... with minimum selling expense. The smart styling and skillful designing of American-Standard products, their dependability and economy of maintenance, assure satisfied customers.

American-Standard Plumbing Fixtures and Heating Equipment will add to the salability of the structures you build, too. Whatever the type of structure you're building... whatever the budget... there are plumbing fixtures and heating equipment for your particular need in the complete American-Standard line. Ask your Heating and Plumbing Contractor about these reputable products. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

Look for the magaiine of BUILDING

American-Standard

First in heating... first in plumbing

Serving home and industry

American-Standard • American Blower • Church Seats • Detroit Lubricator • Kewanee Boilers • Ross Heater • Tonawanda Iron

the magazine of BUILDING
A shower unit designed for Built-in installation in bathrooms...

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

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

Reversible side panels, valves can be installed on either side without drilling on the job.

Size 36" x 36" x 80"—Bonderized galvanized steel walls with baked-on synthetic white enamel—will not rust. Precast terrazzo receptor. Clean interior, no screws or projecting fastenings to mar the bright white smooth enamel finish.

FIAT METAL MANUFACTURING COMPANY

Three complete plants
9301 Belmont Ave., Franklin Park, Ill.
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In Canada—Fiat showers are made by Porcelain and Metal Products, Ltd., Orillia, Ontario
HERE'S A PRODUCT YOUR CLIENTS NEED...

BACKED BY A NAME YOUR CLIENTS KNOW!

In a modern, designed-for-living house, insulation is every bit as important as floors or ceilings. Barrett* Rock Wool, with its outstanding thermal and acoustical properties, combines insulation of high efficiency with modest cost.

The 8-foot batts not only save application time and money, but also offer the matchless protection of a seamless, unbroken vapor block from floor to ceiling. Shorter lengths are also available, if desired, in various thicknesses. All are made to Barrett’s rigid quality specifications, with vapor barrier on one side and creped Kraft on the other.

You'll find the answer to every insulation need among Barrett's complete line of Rock Wool Insulation Products. Call on us whenever you have a question.

Specify Barrett Rock Wool – and be sure.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
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1337 Erie Street, Birmingham 8, Alabama
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8-FOOT LENGTHS. Fewer seams—an unbroken vapor barrier from floor to ceiling—mean better insulation, less condensation. Also available 15" x 24" and 15" x 48", full and semi-thick.

FIRE-SAFE. Barrett Rock Wool is a fireproof material—functions as a barrier to the spread of fire. A blowtorch won't burn it.

SOFTENS SOUND. Cuts down outside noises and, strategically applied to partitions between rooms (as in the case of a playroom), it virtually eliminates sound transference.

WON'T LUMP UP. Firm, springy Barrett Rock Wool doesn't "drift" or get lumpy. High resilience assures uniform density of insulation over all areas.
The SKYLIKE System—a new concept of lighting—combines the best features of silvered-bowl incandescent lighting with the architectural advantages of a fluorescent-type troffer. SKYLIKE makes it possible for you to offer your commercial clients something dramatically different, better—and lower-cost!

In fact this new adaptation of silvered-bowl incandescent lighting provides a combination of important practical advantages not found in any other lighting system:

1. Warm color—most desired by merchandising experts.
2. High initial and maintained light output.
3. Softly diffused shadows.
4. Low brightness and 90° shielding.
5. No flickering, blinking, or hum.
6. Instant starting.
7. Variable lamp size—150- to 500-watt.
8. No light loss from darkened walls or ceilings.
9. Floor-service relamping—no ladders or scaffolds.

WIDE FREEDOM OF USE

In addition to all its technical advantages, SKYLIKE is modern, handsome, and versatile in application. Units fit 24" x 24" ceiling tiles, fully or partially recessed, or may be surface-mounted—in rows or patterns. With a simple accessory and a semi-silvered-bowl-lamp, SKYLIKE is converted for directional or accent lighting.

AMAZINGLY LOW-COST!

Because it is so simple—simple in construction; simple in wiring; free of ballasts, starters, and accessories—SKYLIKE is low in cost (½ to ½ the cost of equipment delivering comparable results!). Its light weight makes for easy handling, fast installation, and lower-cost supporting construction. There's no transformer or starter maintenance. The 87% reflection factor of SKYLIKE's enamelled ceiling is easily maintained by occasional cleaning with a damp cloth.

RELAMP FROM THE FLOOR! One of the many economies of SKYLIKE is its ease of maintenance. No stepladder is needed for relamping—a lamp changer can be used, as shown.
Who drew the bulls on the cavern walls?

Well trained little Señorita Sautola didn't draw them, that's sure!

The five-year-old Spanish miss merely discovered the drawings while exploring the famous Altamira cave with her father. Cried out 'Toros!' (bulls) she did, and her father came running. And soon afterward he announced the discovery—cave murals painted by Magdalenian man, tens of thousands of years ago.

Science authenticated the claim in 1895, and went further. Studies indicated that the lasting paint used consisted of pigment, animal fat, and water. A long-forgotten painting secret, based on a scientific principle that now—in TEXOLITE—has been utilized for modern decorative requirements. For quality, for color, for ease of application and economy, TEXOLITE paints excel—setting a new standard of excellence in modern interior and exterior decoration.
At last! The simplest high grade tub and shower fitting ever devised... **NEW** Truart WALL SURFACE FITTING

**BRIGGS**

Illustrated are: T-8005 Truart combination bath and shower fitting for copper tubing solder joint with automatic diverter in spout. Everkleer self cleaning shower head with ball joint shower arm and flange. T-8410 Truart 1½" jiffy pop-up drain.

All roughing and finishing parts included with wall surface fitting. Write for free folder containing roughing-in dimensions and other data.

---

**BRIGGS Beautyware**
No wonder the demand is so great! NEW
BRIGGS Beautyware
VITREOUS CHINA CLOSETS offer unequaled value!

Why Briggs Beautyware vitreous china closets are better . . .

- Colors! Four beautiful pastel shades: sandstone, sky blue, sea green, ivory as well as sparkling white!
- Large water area, deep seal, self-draining jet!
- New, modern designs engineered for trouble-free operation!

Newly designed Briggs Beautyware Vitreous China Urinals are now available in four different types and sizes. Complete information available on request about these models . . . PENNTON (flat back wall), CLIFTON (pedestal), SPARTAN (floor stall), LAWTON (wall stall).

BRIGGS MANUFACTURING CO.
3001 MILLER, DETROIT 11, MICHIGAN

COPY 1950 BRIGGS MFG. CO.
Hold it!

you don't need a Tall Chimney with an H. B. SMITH BOILER

To keep the lines of that modern functional school within the proper architectural proportions — and to give your client truly outstanding heating plant performance — we suggest an H. B. Smith boiler.

The vertical water tube design of H. B. Smith boilers provides minimum draft resistance. Hot gases rise naturally between the boiler sections before entering the side flues. This positive gas travel is an advantage not found in boilers of the return-flue or long-fire-tube type, in which draft loss through the boiler is much greater. Tall chimneys or complicated induced-draft controls are, therefore, not necessary with H. B. Smith boilers.

For added assurance of economy of operation and long-life performance in schools or other buildings, consider the many installations in older schools where H. B. Smith Cast Iron Boilers have been giving top performance for 25, 35, even 50 years! You can recommend an H. B. Smith boiler for the life of the building!

A modern school equipped with No. 60 Smith Boilers.

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

LETTERS

BUILDING:

I am very glad indeed to see your efforts to get builders to employ architects.

I am particularly glad that magazines of general circulation such as House & Garden, Ladies Home Journal and Women's Home Companion are taking up the crusade.

I get numbers of inquiries from individuals who would like to have plans made for a house. Of course they wish to know something about how much the plans will cost. When I mention a fee which I hope will give me something more than draftsman's wages they think I am trying to hold them up, and they don't come back.

They are not wholly to blame, for they have no conception of the time and work and experience it takes to become an architect. And they have little conception of what an architect can do for them.

That is where the magazines of general circulation come in. . . .

The farther you can spread your crusade into the grass roots, the more good it will do.

LOUIS J. HOTCHKISS
Structural and Architectural Engineer
Chicago, Ill.

BUILDING:

I, personally, see no possible way for a magazine such as yours to accomplish the results you have aimed at, until AIA wakes up.

Fees for house architecture are too low, because such quantities of mass-produced plans are available on the newsstand each month, thereby creating a distorted basis of competition for the architect.

The professional "brotherhood" (AIA) sanctions this indirectly by allowing its members to do this work. These plans, produced and sold in quantity, with an architect's name and AIA affiliation signed in the bottom right-hand corner, are usually very, very mediocre documents and in many cases, absolute farces bordering on fraud. They are the worst possible advertisement for the profession.

JOHN EATRES DAVIS, JR., Architect
Birmingham, Ala.

BUILDING:

... Here are the cold facts:

Why should an architect who is well established subject himself to mental gymnastics to produce houses for merchant builders who don't give a damn what they look like just so they sell; a good example: three or four builders' houses of the "Hopalong Cassidy" type which you recently reviewed in the July issue of BUILDING. All of them had very poor plans and elevations. Those architects are certainly not helping to build better looking neighborhoods.

The FHA does not care; valuation to them depends on so many other things other than plans and skin treatment of individual homes that they simply lump the architectural services in the replacement cost estimates at $50, $75 or (Continued on page 70)
23 Years of Salt Spray and Not a Sign of Rust!

23 years right on top of the salt water and these galvanized, unpainted Fenestra® Steel Windows in the Galveston Wharf Company’s Mallory Pier, Galveston, Texas,

... look like new (remember, they were made in 1927)
... work like new (they still open and close without a hitch)

They didn’t rust a bit. And now Fenestra Engineers have developed a galvanizing system that does a better galvanizing job all around!
Control is the secret. Control by Fenestra’s Craftsmen in Fenestra’s own special galvanizing plant.

HERE’S HOW IT GOES:
Specially Planned Fabrication. To insure proper galvanizing, fabrication and assembly of window parts are especially engineered.

Hot, Deep-Dip Galvanizing. To give lasting protection, the windows are cleaned, rinsed, fluxed and then completely immersed in a bath of molten zinc.

Bonderizing. To give them a perfect finish, the windows are Bonderized and rinsed. (This also provides an excellent base for a decorative paint-finish, when desired.)

For further information, call your Fenestra Representative (he’s listed in the yellow pages of your phone book).

Or write to Detroit Steel Products Company, Dept. AF-10, 2251 East Grand Boulevard, Detroit 11, Michigan.

Steel-Strong Windows made to STAY new

Fenestra
HOT-DIP GALVANIZED STEEL WINDOWS

Intermediate Industrial Residence
People who buy homes and other buildings are not only interested in designs and floor plans, but they also have a consuming curiosity about construction. "Is this going to be a well built structure?" they ask.

When you specify Weyerhaeuser 4-Square Special S2E Joists in your buildings, you can give your clients the assurance they seek by telling them the following:

Joists must not only support loads over spans . . . they must also impart stability and stiffness to a structure. They must support loads without movement.

Specially kiln-dried to a 12% moisture content to resist shrinkage after installation, Weyerhaeuser 4-Square S2E Joists help prevent cracks, binding of doors and windows, separation of interior trim, floor settling and squeaking.

Sawn to dry to a thickness of 1-13/16" and surfaced on two edges, S2E Joists will support over 10% greater load than S4S joists surfaced to 1-5/8" thickness.

Architects who specialize in the design of homes and commercial structures find in Weyerhaeuser 4-Square S2E Joists the strong, stable, load bearing members they need for sound, durable construction.
Here's the biggest news in decorative surfacing! It's Panelyte... St. Regis' new, beautiful, high-pressure laminated plastic for all working surfaces. See Panelyte's glowing, true-as-life colors... striking patterns... visualize their countless decorative possibilities in the design and creation of beautiful necessities. Then look below the surface, at the technical advantages Panelyte offers. Panelyte is hard, dense, strong and tough. It is harder to mar... withstands heavy impacts... resists abrasion as no other plastic surface does. (We've tested... we know.) Panelyte won't swell or shrink... is easy to work. Its big sheet size (up to 48" x 120") makes for easier, more economical installation with fewer seams.

Whether you're specifying surfacing materials for interior use... manufacturing a product that calls for such materials... using plastic surfacing in any way... it will pay you to find out all about new, beautiful Panelyte. Just use the coupon below.

See what Panelyte can do

1. WHERE THINGS GET TOUGH Panelyte stands up... takes boiling water, fruit acids, alcohol, soapalkali, cleaners and detergents in stride. (Does the same with cosmetics and astringents, too, in bathrooms and powder rooms.)
2. CLEAN AS A WHISTLE—Panelyte cleans easily... instantly... just a damp cloth keeps it gleaming. Maintenance? At a minimum!
3. CIGARETTE-PROOF Panelyte offers extra protection against forgetful smokers... may be specified in any installation.
4. VERTICAL SURFACES Versatile Panelyte brings new beauty to walls, cabinet facings, interiors, all "up and down" surfaces. Panelyte won't scuff, chip, crack, dent or discolor... is non-absorbent, won't pick up stains or odors.
5. BIG SHEET SIZE (48" x 120") means easy, economical installation... fewer "joints"... greater beauty.

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The Decorative Surface
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☐ Please send me Panelyte sample, color chart, specifications and full information.
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Please send complete details.

NAME

STREET AND NUMBER

CITY, STATE

A.F.
The toilet room environment that stays new is the toilet room in which the most suitable type of toilet compartment available has been installed. Toilet compartments usually dominate a toilet room, influence the toilet room environment and emphasize the utility of fixtures and appointments. The bare functional type of toilet room is inadequate according to today's standards.

Sanymetal offers several different types of toilet compartments for creating the most suitable toilet room environment for every type of building. Sanymetal also offers and recommends Two Full Purpose Metal Base Materials which combine colorful attractiveness with long years of service life and effect important, day after day, savings in cleaning and maintenance cost. These Two Full Purpose Metal Base Materials—Sanymetal "Tenac" (galvanized, Bonderized steel), a highly corrosion-resistant material; and Sanymetal "Porcena" (porcelain on steel), the ageless and fadeless, rust proof material—represent years of engineering research and skillful adaptation by Sanymetal engineers of corrosion-resistant steels to the fabrication of new and different types of toilet compartments.

THE SANYMETAL PRODUCTS CO., INC.
1687 Urbana Road • Cleveland 12, Ohio

Over 150,000 Sanymetal installations have been made in all types of buildings. Ask the Sanymetal representative in your vicinity for information about planning suitable toilet room environments that will always stay new. Refer to Sanymetal Catalog 22b in Sweet's Architectural File for 1950.

Sanymetal ACADEMY Type Toilet Compartments are suitable for conservative but modern toilet room environments.

Sanymetal CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive toilet room environments for schools, institutions, terminals and other public buildings.

Sanymetal NORMANDIE Type Toilet Compartments endow a toilet room environment with dignity and good taste.

Sanymetal "PORCENA" (Porcelain on Steel)
A metal base material that is impervious to moisture, odors, cleaning and uric acids, oils and grease. It is rust proof. Available in 21 glistening colors.

Sanymetal "TENAC" (Baked-On Paint Enamel over Galvanized, Bonderized Steel)
A metal base material that is notable for the positive adhesion of the baked-on paint enamel to the metal and its resistance to corrosion. Its lustrous, protective finish assures long-lasting newness. Available in 21 gleaming colors.
Cuts fuel costs up to 40%

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Sensational Savings in Fuel Costs are assured with Dunham Vari-Vac® Differential Heating Systems. That’s because outside weather and inside temperatures automatically control steam consumption. No more steam is ever used than is necessary.

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Of outstanding importance in any compact apartment is the kitchen. Murphy-Cabranette Kitchens provide beautiful... practical... working facilities in units from 39 to 69 inches wide.

Modern ranges (gas or electric) have heavy Fiberglas insulation, oven heat regulators and efficient burners... are approved by A.G.A. and Underwriters’ Laboratories.

Refrigerators are capacious... Fiberglas insulation... push-button doors... stainless steel freezer compartments for ice cubes and frozen foods. Silent, trouble-free mechanism never requires oiling.

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Bedroom closet door with Richards-Wilcox Vanishing Door Hardware. Note that the door does not interfere with the chair, and does not take up any passage space between the bed and wall.

Every home-owner is a hot prospect!

...for R-W Vanishing Doors

Chairs, beds, and tables can be arranged permanently, more attractively and conveniently in homes where doors operate on Silver Streak R-W No. 1019 Vanishing Door Hangers and Track. Only Silver Streak "opens the door" so completely to modern living convenience. The newest development in hanger and track, by Richards-Wilcox, for the hanging of lightweight vanishing doors in thin wall-pockets built in a standard 2' x 4' studded wall, Silver Streak is also adapted for use on parallel residential wardrobe doors, 3/4" or more in thickness.

Rolls on Ball Bearings — The Silver Streak hanger wheel, made of fine-weave cloth base bakelite, is equipped with extra high finish ball bearings for longer wear and smoother operation.

1880-1950—OVER 70 YEARS

Letters

$100 a throw knowing full well that if the architect ever got half of that, he was lucky.

The public—ah yes, the dear public—our public and your public! You would do more for the public if you sold copies of BUILDING for 20 cents apiece on the street corner—with lots of pictures, a little explanation and let them use their own imagination—they will and do anyway.

If all the top-flight architects in the country were to donate, mind you I said donate, their time and talent to the slow process of educating the public to what good design, regardless of style, is and what good circulation, etc., does, then we would go forward and drag the merchant builder with us.

It seems to me that you are getting the cart before the horse. Improvement in the design of homes is a continual evolution, not revolution as you propose.

If you have pledged you, yourself, your fortune and your sacred honor and can now convince the architects that this is no cheap publicity stunt..., may God truly help us all to find the solution.

Donald G. Hauke, Architect
South Bend, Ind.

BUILDING:

Before the war many builders had become convinced they needed architects, but since the architectural press in the last few years has been so taken up with work of architectural sophistcates suspended in ivory towers and sidestepping facts with supercilious urbanity, builders have shied away from the profession.

It requires more than arrogance to create superiority out of weakness and irresponsibility! Putting it another way: "Words won't make a house."

If you're going to sell architects to builders, you've got to make sure architects know more than builders. You've got to sell the story with clarity and force; not with puny plans and piddling nomenclature. And you've got to persuade builders that all this is worth real money, for architects can't afford to do it, otherwise.

It's our job as architects and BUILDING'S job to see that it gets done. So congratulations on your initial efforts!

Royal Barry Wills, Architect
Boston, Mass.

BUILDING:

The matter of professional fees can be solved by arriving at an appropriate charge based on time plus costs rather than the traditional percentage. I have come to the use of this system in most of my work in recent years. It is flexible enough to cover varying situations.

Another phase of home building which would benefit from closer contact between architect and builder is the site planning. In many developments the house plans bear little relation to the site. No building can be designed apart from its setting and without relation to its neighbors. Excellent examples (although few in number) have been published of group design of resi-

(Continued on page 76)
Now! there's no limit
to what you can do
with lighting!

Plexoline

"DECIDEDLY BETTER"
DAY-BRITE
Lighting Fixtures

OFFERS YOU
AMAZING NEW
FLEX-ABILITY

Premium quality without Premium cost

Curves Circles Angles Abstracts Angular Designs

Imagine your possibilities with Plexoline! New beauty ... new patterns ... a whole new world of lighting ideas made possible through Day-Brite's versatile Plexoline. An ingenious system of linear sections and curved accent units, Plexoline permits truly unlimited fluorescent lighting possibilities at mass production costs. And the famous Day-Brite quality delivers unequaled performance plus low-cost installation and maintenance.

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"PLEXOLINE—IMAGINATION AT WORK."

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Make the most

AT THE FOREST GROVE ELEMENTARY SCHOOL, Forest Grove, Ore., the PC Vision-Lighting Plan, incorporating PC Soft-Lite* Prism & Blocks and a vision-ventilation strip, does an effective job of controlling daylight and relieving the "shut-in" feeling on the part of pupils. Standard sash for such combinations with glass blocks is readily available from many sash manufacturers. Wherever seeing is important . . . wherever eyes and health must be protected . . . you can depend upon the PC Vision-Lighting Plan to provide comfortable, low-brightness ratios, high illumination levels, top quality daylighting, ventilation and outside vision.

Architect: Donald W. Edmundson, Portland, Ore.
Associate Architect: Neal R. Kochendoerfer, Portland, Ore.

IN THIS NEW BUILDING for the Cadillac Textile Mills, Inc., Cumberland, R.I., the PC Vision-Lighting Plan includes ventilating units and inserts of PC Vue Glass Blocks. The clear Vue blocks provide good general vision without sacrificing insulation value. Architect: Roy F. Arnold, Pawtucket, R.I.

of Daylight

WITH THE

PC Vision-Lighting PLAN

The PC Vision-Lighting Plan is a construction for daylight openings consisting of orientation-keyed areas of PC Functional Glass Blocks (selected for sun or non-sun exposure) used with vision-ventilation areas as required.

During recent years, the combination of glass blocks with vision and ventilation areas has held the interest of architects, school authorities and management all over the country. For here is a method that permits properly directed and diffused daylighting, plus the advantage of adequate ventilation and vision to the outside.

The PC Vision-Lighting Plan—effectively combining these three essential elements—offers the ideal, proven system for "making the most of daylight" in classrooms and offices, as well as in factories, laboratories, etc., where precision work is done. This plan has demonstrated its ability to relieve eyestrain and fatigue; to increase students' and workers' efficiency.

Let us send you our free booklet showing many applications of the PC Vision-Lighting Plan. Just fill in and return the coupon below.

Be sure that you specify the functional block especially designed for precision work . . .

New, exclusive features in PC Functional Glass Blocks make the PC Vision-Lighting Plan even more effective for daylighting areas where critical seeing tasks are performed. These features include light-directing prisms on the interior faces of certain patterns, light-spreading corrugations on outside faces, a fibrous glass insert to diffuse still further the light transmitted by the block itself, and the PC Soft-Lite* Edge Treatment, which creates a better, more comfortable "eye-ease" panel appearance. Besides, all PC Glass Blocks embody the additional advantages of excellent insulating properties. They require no repairs or replacements, no periodic painting or puttying. They reduce heating and air-conditioning costs. And they are easily cleaned.

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Without obligation, please send me your free booklet on the use of PC Glass Blocks in industrial, commercial and public structures.
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Pictured above is the boiler room of the new Wieboldt's Department Store in Evanston, Illinois, which is equipped with four oil burning KEWANEE Steel Boilers producing 23,320,000 Btu hourly and having a total heating capacity of 97,160 sq. ft. steam.

Today's new, higher standards of comfort demand more efficient heating systems; just as advanced ideas in convenience to customers have resulted in new designs and planning for modern department stores.

This outstanding building is typical of the finer modern business structures which have chosen Kewanee Boilers for dependable, economical heat.
HOW to plan distinction at low cost

with the MASONITE HARDBOARD FAMILY

When owners want distinction—but the budget says "no"—the Masonite® Hardboard family offers a happy solution! Available in 19 types and thicknesses, these smooth, grainless, all-wood panels create out-of-the-ordinary interiors at low cost. Supremely workable—staunch and enduring—they speed the work while assuring lasting value. Here are a few ways in which Masonite Hardboards can assist you—

HOW to Provide Crackproof Dry Walls
Big, rigid panels of Masonite ½" Panelwood® go up quickly over open framing to create attractive effects like this. Panelwood builds crackproof walls and ceilings—dent and scuff resistant, too. And its supersmooth surface is easy to finish.

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There's more scope for your planning after you specify walls of Leatherwood—the Masonite Hardboard with a surface that looks and feels like Spanish-grain leather. Use Leatherwood, too, for inexpensive cabinet work with a luxury look.

HOW to Have High Style—on a Low Budget
Masonite Temprtile®—tempered for extra durability and moisture resistance—comes already scored in a 4-inch tile pattern. Temprtile can be enameled, lacquered or painted—keeps its gleaming brightness for years. The cabinets are made of ¾" Standard Presdwood®.

Lumber dealers have 19 types and thicknesses of MASONITE HARDBOARDS for 1000 uses
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to meet your specifications...

Wall Models:
1. Double-rotten-sealed outer door prevents inside moisture condensation, gives weather protection.
2. Telescoping adjustable sleeve fits walls 5 1/2 to 13".
3. Square outside frame, easy to brick or frame around.
4. Convenient chain actuates fan switch and outer door.

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1. Adjustable sleeve joint in ceiling housing fits standard 8 1/4 x 10" rectangular duct, for necessary extensions.
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3. Automatic shutter closes duct when fan is not operating.
4. Can be operated by drop chain from fan or wall switch.

Both Models:
1. Dependable Emerson-Electric induction motors, with thrust bearings.
2. Quiet-type 10" blade moves 470 CFM, a complete air change every 2 minutes for average kitchen.
3. Competitively priced.

...and her specifications!

Both Models:
1. Equipped with attractive grille finished in baked white enamel.
2. Easily cleaned and serviced — fan and grille are hinged to swing down as a unit without disconnecting.
3. Exceptionally quiet operation — built for long, trouble-free service.
4. Designed to quickly whisk out cooking odors, smoke, steam and heat — protects furnishings from greasy vapors.

Refer to Emerson-Electric Catalog in Sweet's Architectural or Builder's Files, or write for free Folder No. 1-2.

The Emerson Electric Mfg. Co. St. Louis 21, Mo.

EMERSON ELECTRIC MOTORS • FANS APPLIANCES

LETTERS

dences, which show what can be done by architectural application to the larger project. Architectural services beginning with the raw land and carrying through to the finished houses, however small and repetitive they may be, offer the real basis for architect-builder relationship.

Lawrence Moore, Architect
Technical Planning Associates, Inc.
New Haven, Conn.

Building:
Beginning at about the time of the French impressionists, art, in all phases including architecture, began divorcing itself from its former status as an integral part and expression of life.

It has been so successful that "art" is now a thing apart. It is looked upon as an expensive luxury or as a high-class, long-haired something indulged in by club women and a few crack-pot collectors.

When it comes to small houses an architect can or should give that "art" to the house that will feed the spirit, as it were, create an harmonious atmosphere. The architect should be able to give this additional essence without increasing the construction cost.

Architects know this perfectly well and take it more or less for granted, but since art is now a thing apart, no one else knows it. It is generally considered that the employment of an architect means additional and unnecessary expense due to the increased construction cost of his added extraneous artistic applications plus his fee.

This unique attitude is not only held by builders but, in addition, by financiers, realtors and the general public. You have undertaken a tremendous task of public education and the least that we architects can do is to back up the program by giving to each and every little house we do that something extra that will feed the spirit, no boxes, no junk, no compromise.

Foster Rhodes Jackson, Architect
Chino, Calif.

Building:
... Until such time as the bigger architects also get hungry, or until they show as much concern for the architectural profession as they expect of the merchant builder and others, I believe you will be up against the same old problem, of trying to get the architects to do something and not just talk about it. The important thing now is that your magazine is big enough, with the help of thousands of architects who are interested, to put this over. It has always been my hope that the A.I.A. could be persuaded to put on such an educational campaign, but it seems that architects are more apathetic than the layman to get out and do such things. The important fact is that you have done a wonderful job to start it. I hope you can carry it even beyond the house builders. There are a lot of people to educate about what an architect is, and the value of his services. It is at least to be hoped that the profession will give their wholehearted support to your program.

Victor L. Wulff, Architect
Spokane, Wash.

(Continued on page 82)
FIBERGLAS* INSULATING FORM BOARD
for GYPSUM and LIGHTWEIGHT AGGREGATE ROOFS

An ever-widening list of architects specify Fiberglas Insulating Form Board for “poured-in-place” gypsum and lightweight aggregate roof decks. Suitable for flat, curved or pitched roof framing, it forms an integral part of the construction. A highly functional board, its exposed underside is decorative in itself, or it can be spray-painted after erection.

For poured-in-place decks, the board—size 32" x 48" x 1"—is laid in place between sub-purlins normally spaced 32" on center. The weight of the poured mix causes a minimum deflection in the board, during and after application. Another advantage of Fiberglas Insulating Form Board is that it does not rot, decay, swell or shrink when exposed to moisture.

For further information write us today for our A.I.A. File No. 37-B, “Fiberglas Design Data,” or refer to Sweet’s Architectural Files.

ONE PRICE FOR INSTALLATION AND MATERIAL BRINGS:
FORM BOARD, size 32" x 48" x 1", which is quickly and easily handled, cut and installed by standard methods. Strong and light in weight, it does not appreciably increase the dead load of the structure.

ROOF INSULATION—The deck composed of 2" of gypsum plus 1" of Fiberglas Form Board with a built-up roof offers a heat transmission (U) of .15 Btu/hr./sq. ft.°F.—exceptionally low for this type of construction.

ACOUSTICAL TREATMENT—Riverbank Laboratories’ tests of Fiberglas Form Board and poured-in-place slabs show a noise reduction coefficient of .75—as good or better than regular acoustical materials.

FIRE-SAFETY—Fiberglas Form Board is incombustible. The ageless fibers of glass, from which all Fiberglas products are made, neither burn nor support combustion.

OWENS-CORNING FIBERGLAS CORPORATION, DEPT. 67-J, TOLEDO 1, OHIO
Are you up-to-date on steel "curtain walls" 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.

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SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS
UNITED STATES STEEL
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with "Modernfold" doors
for greater beauty and efficiency

No matter what type of building you're remodeling—commercial, institutional or residential—remember "Modernfold" doors! Accordion-like in action, they'll help your old building keep pace with today's construction—in efficiency and appearance.

they're efficiency plus!
Think how "Modernfold" doors can help your clients put old buildings on a paying basis. Use these folding doors as movable walls to divide rooms . . . assure privacy . . . cut maintenance costs . . . make one room serve for many. Or use "Modernfold" doors in small normal openings to save valuable space which ordinary swinging doors waste.

unrivaled for beauty!
The pictures indicate how beautiful "Modernfold" doors are with their graceful folds. There's a variety of appealing colors . . . to match any color scheme. The covering is of fire-resistant vinyl . . . easily washed . . . will not crack, peel or fade. Under this sturdy covering is a rigid steel frame to assure smooth, trouble-free performance year after year.

In price, "Modernfold" doors are surprisingly reasonable. Get the whole story from our installing distributor. Look him up under "doors" in your classified directory . . . or mail coupon.

Sold and Serviced Nationally
NEW CASTLE PRODUCTS
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Insulation must be bonded (securely fastened to its covering) to withstand the vibration that occurs in every house. Such vibration can shake the mat loose, allowing it to sag and settle. This leaves uninsulated areas. Hold a sample of insulation by the edges and shake vigorously ... if the mat and liner part company, the insulation has failed one test of quality.

Balsam-Wool, the insulation that can't pack or settle down, offers EXTRA protection against uninsulated areas. The felted wood fibers of Balsam-Wool are bonded together to form a homogeneous insulating mat, firmly cemented to the liner...it is DOUBLE BONDED! In addition, the Balsam-Wool blanket is securely fastened in place, when applied, by its sturdy spacer flanges.

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You'll find the answers to many insulation application problems in a complete set of Balsam-Wool Data Sheets designed for you. They're yours for the asking, mail the coupon!

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and all accurate to 1/60th of a second!

The time element is mighty important at the Department of Defense. One incorrect clock can seriously affect working schedules.

Yet, in the Pentagon's vast system of 2,747 Synchronromatic Clocks not a single one is ever out of step! Every one always tells the same time... the right time!

Powered by the world's most reliable clock motor... the same, famed Telechron motor that power stations use to keep their 60-cycle current absolutely correct. . . EDWARDS Synchronromatic Clocks are constantly in synchronization... constantly accurate to 1/60th of a second!

And this miraculous accuracy is achieved so simply, so reliably that hundreds of Synchronromatic Clock Systems have now passed the decade mark without requiring a single service call...proof of rugged design and precision workmanship.


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World's most reliable time, communication and protection products
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Decorate with

VARLAR
STAINPROOF WALL COVERING

"Redeforate" with Soap and Water

WASHES LIKE TILE—
HANGS AS EASILY AS
WALLPAPER!

When you decorate with economical Varlar, the amazing stainproof wall-covering, you can redecorate year after year with just plain soap and water.

Whatever interior you wish to decorate, home, office, hotel, restaurant, theatre or school, there is an exclusive Varlar style, created by world famous artists and designers, that will provide enduring beauty for the walls and ceilings.

Varlar will not chip, crack or peel—still looks new after 25,000 washings! And Varlar is termiteproof, waterproof, steamproof, mildewproof... and amazingly fire-resistant.

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Now, your Varlar dealer is showing a wide selection of over 145 gorgeous Varlar patterns. An enchanting array of weaves, pictorials, tiles, florals, plaids, geometrics and two-tone prints to assist you in any decorative problem. For home, office, or institution!

EVEN STAINS LIKE THESE WASH AWAY

Lipstick  Mercurochrome

Crayon  Hot Grease

Hair Oil  India Ink

Alcohol  Water and Steam

Food  Finger Marks

Dirt and Grime

BUILDING:

Your commendable campaign for better architect-builder relations is long overdue.

No doubt you are aware that conditions in Canada in this respect are much the same as in the U. S. Only a small fraction of house building is done with benefit of architect. New ideas seep down slowly, are misapplied and degenerate into unimaginative clichés... .

KENT BARKER, Architect & Planning Consultant
Toronto, Ont.

BUILDING:

So! In my mind anyway it all boils down to the fact that, where true architect-builder collaboration does not exist, it is because one or both parties are just plain "damn 'iggerunt"—the architect assuming a Christ-on-the-mountain-top attitude, though he has usually done nothing but "paper designing:" and the builder, probably more often correct than not, assuming that all architects are just "long hairs" to be competed against instead of collaborated with—but not knowing what the real problems and functions of the architect can or should be.

It would seem therefore that improvement can be expected in direct proportion to increase in intelligence level (and secondarily in education level) of both architects and builders, which implies an increase in intensity of application to each learning his own job and that of the other better.

Ever since my own false start toward a college degree I have advocated that all high school graduates be kicked out upon the cold world for at least two years before going to college! Insofar as architects are concerned, I have also advocated that two years of field construction experience be mandatory for admission to an architectural school. To those I'll now add that builders should spend two years with an architect's organization.

I hope this may all be of some real value in your campaign—which is much needed... .

HUGH E. JONES, Architect
Sedona, Ariz.

ERRATA

The store pictured on page 66 of the July issue was incorrectly captioned. It is Morris Brothers' newest store in Miami, designed by Architects Baxter & Baxter.—Ed.

In the review of the Public Administration Service's recent publication, Planning the Home for Occupancy, in the Aug. issue the price was incorrectly stated as $1.50. The actual price is $2.50.—Ed.
Beauty that speaks volumes! Durability that slashes maintenance costs!

These are the basic reasons why scores of restaurants, hotels, hospitals, public institutions are now specifying exclusively—upholstery materials made of rich-looking, long-lasting, colorful, stain-resistant Vinyllite Brand Resins!

Stunning styling stems from their limitless range of colors. All-star performance follows automatically because upholstery materials made of Vinyllite Resin are:

- Washable, resisting strong alkalies and most strong acids
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REPORT FROM TURKEY
By G. E. Kidder Smith*

The most exciting things in Turkey are not city planning, ministries, coffee houses or casinos (see below), but bridges. Two of the best of these, one of which is the finest foot bridge this observer has ever encountered anywhere, are in Ankara in the Youths' Park in the center of town. Both were done about ten years ago by the capable Ministry of Works, and whereas the larger one especially seems to reflect some of Maillart's influence, any similarity is purely fortuitous. The larger bridge is in any case a very, very elegant span, cleanly conceived and carried out. It was engineered by Sevki Kayaman.

Another small bridge (in Istanbul), also designed by the Ministry of Works and finished last year, is interesting for its "trellis" support of the rail, but its construction has been rather crudely executed. Of a larger order is an admirable concrete span of 147 meters in the midst of Asiatic Turkey.

The gap in thinking and design approach between these bridges and the new architecture in Turkey is one which, it is hoped, will constantly narrow. If more Turkish building showed the daring and imagination and skill of its bridges, and was equally a product of its environment, Turkey would be the "Brazil" of the eastern Mediterranean. It has a perfect ancient background for this record, for to this observer Santa Sophia is the most audacious and skillful building in the entire history of architecture.

To Turkey must go the enormous credit of being virtually the first country in the world to officially "recognize" modern architecture and adopt it for public buildings. When Mustapha Kemal Pasha, the great founder of modern Turkey (1881-1938), decided that the new capital of the "new" country should break completely with the traditions (governmental, diplomatic, political, cultural, architectural, et al.) which would be inevitably associated with Istanbul, he moved to Ankara (Angora), then a small, relatively nondescript, central Anatolian village.

The new city was to have broad, tree-lined avenues instead of the twisting mosaic of narrow streets typical of the Near East, And having no (Continued on page 90)

* The fifth 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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REPORT FROM TURKEY

national architecture of its own, so to speak, these boulevards were to be lined with clean, contemporary public buildings instead of the incrusted neo-orientalism found nearby.

Lacking suitably trained architects and planners for this work, Turkey called in several distinguished Austrians and Germans, the most important being Clemens Holzmeister. (Holzmeister, professor of architecture in Vienna, came to Turkey in 1928.) These men developed the promising directions which were initiated in the late Nineteen Twenties and early Thirties, the directions of making a fine new capital out of almost nothing. The modern architecture which was done then—like most of contemporary work of that period the world over—has, by today’s standards, a somewhat elementary character, and the planning perhaps did not take advantage of all its possibilities. But the basic approach was sound and far better than most of the public work done in Europe and America.

As would be expected, this new Turkish architecture was somewhere circumscribed in the extent of its expression because Turkey did not have the industrial resources of the countries where the early “International Style” buildings developed, and had, instead, to rely on much hand work as opposed to machine products. The plate glass, metal sash, trim and technical equipment of West Europe could only with difficulty find their way to the middle of Asia Minor. However, the early Turkish buildings at Ankara were far from being without interest and merit, and best of all the government was genuinely determined to do the finest possible contemporary work.

This hopeful condition continued until the late Nineteen Thirties, when a more formal architectural approach crept in and old Rome began to appear over the horizon. This was probably an influence from Berlin, Rome and Moscow, where similar metamorphoses were occurring. The change began in Ankara with the largest and most important structure in the entire country, the new Parliament Building, a fairly strict neo-classic affair. An international competition had been held for this but it was (conveniently) won by Holzmeister. War held up its construction and it is today still far from finished.

Since the war, still another note of dubious character—a cultural supra-nationalism—has appeared on the architectural scene in opposition to this rather Teutonic and altogether non-Turkish formalism. This glorified coziness also finds outside parallels in a war-torn and disillusioned Europe striving for greater self-expression and greater assertion of old idioms no matter how illogical.

Nationalism through logic of resources, climate and requirements should be a product of all good architecture, but in Turkey it is now largely through decorative details from old Turkish houses and palaces with far too little attention to the basic direction of why these old buildings were built the way they were. The result is old (Continued on page 94)
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REPORT FROM TURKEY

bits of new bones; the bones of the unfinished laboratories at the Technical University at Ankara, for instance, are just as formal and just as static as Munich Classic or PWA Federal. The only discernible difference lies in the fact that the former has an old Turkish stone and brick pattern and a somewhat stalactite cornice.

If, instead of such superficialities, the present-day Turks would turn back to the real masters of Turkish architectural history, men like the incomparable Sinan (Mimar Sinan Agha, mid-Sixteenth Century), and others of the Fifteenth and Sixteenth Centuries, and see how these masters of the dome, half dome, vault and pendentive, conquered space, they would have a far more genuine and magnificent basis of operation.

Courtyard view of Ministry of Monopolies at Ankara was designed by Architect Sedat Eldem.

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Street view of Ministry of Monopolies.

And if the Turks, not without logic, seek to create buildings which are genuinely Turkish and not warmed over European, let this new architecture grow from its own climate, resources and building traditions. Let it be in controlling a blistering sun, glare and heat which the new architecture almost invariably ignores. Let more careful eyes be turned to the delightful Turkish native houses with their principles of wide overhangs against the sun, deeply recessed southern porches and blank end walls on the west—an obvious and basic recognition of environment totally missing today. (The excitingly stimulating new work in Brazil, Eric Mendelsohn's prewar architecture in Palestine, the contemporary buildings in Tunisia are all as fully "modern" as their means and resources will let them be, yet each is obviously "nationalistic" for each belongs to its environment and each reflects the culture of its surroundings.) No architecture, Turkish or otherwise, can hope to be a logical and genuine expression of its resources, climate, energies and traditions by pasting a few ancient details and dentils on a foreign frame. A national expression must begin with basic planning and structure and keep its details clean.

Among the more positive accomplishments of the new building in Turkey, which in some aspects is of much merit, are two buildings by the urbane and sensitive Sedat Eldem. Mr. Eldem is one of the most progressive of the younger architects, and one who, in spite of aberrations such as the aforementioned Technical University (he calls it his "Stone Age"), understands and

(Continued on page 100)
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(Continued on page 106)
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Sports auditorium and open-air theater at Istanbul were designed by Architects Sinasi, Feyyaz & Violi.

REPORT FROM TURKEY

change in level giving a highly satisfactory definition to movement vs. repose, circulation vs. relaxation. The Serai Pavilion itself is a most elegant and altogether functional small room.

Another pavilion which is an excellent example of the earlier modern Turkish work is the Tchouhouk Restaurant near Ankara, built in 1935 by the Ministry of Works (photo, p. 100). The Taksim Casino in Istanbul (by Architect Rükkeddin, 1940) is along this same line but more formal and less successful. A direction toward even greater formalism (and even less success) can be found in the sports auditorium and open-air theater built in 1947 by Sinasi, Feyyaz and Violi.

In city planning, Turkey, which has an enormous geographic and climatic range, has been progressing slowly—as have most other countries—but not without results. Planning for the country's 639 municipalities, many of which are in an earthquake zone, is done by the Ministry of Works and the İller (State) banks under the Ministry's direction. About 200 plans have thus far been finished and the remaining 400 odd will take ten to 15 years to complete. These are directional plans only, growing with and moderating their cities as circumstances warrant. The work, much of it under the able Cevad Erbel, seemed to me to be quite sound, although considerable attention could be paid with profit to Swedish planning practice. One especially noteworthy feature is the constant effort to preserve intact the identity and character-giving elements of all old towns.

Istanbul itself, manhandled for countless generations, is a city of lost opportunities, golden opportunities at that, as regards planning. None of its beautiful, sparkling waterways—much like Stockholm's—is available to the public. Dark and dingy structures line every foot. Commerce has triumphed. No parks, no tree-lined avenues border the Golden Horn, the other shores of Stamboul, Galata and Pera. As a matter of fact the only modern tree-lined avenue anywhere in Stamboul (the older core of Istanbul) is the recent Atatürk Boulevard.

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Products for Industry
What can you do with an old building?

This reference number of The Magazine of BUILDING is devoted exclusively to old buildings—and how they may be made to compete with new ones.

Buildings are becoming obsolete faster than ever before because the technological improvements in the design, construction and mechanical equipment of new buildings have been particularly rapid and far-reaching during the past ten years.

Other factors are hastening the obsolescence of old buildings. For instance: 1) The production of modern buildings has been booming for several years, and each new building weakens the competitive position of every old structure—particularly in the field of office buildings. 2) Traffic patterns have changed with the public’s shift from the trolley and railroad to the auto and airplane, and many an old hotel which was once ideally situated now finds itself fighting for customers. 3) Space use in the hospital has been affected by changes in income and age distribution which have altered the nation’s spending habits and health patterns. 4) Improvements in teaching methods and different opinions as to adequate lighting have changed the concept of the schoolroom. 5) The spread of blight and the continual rise of construction costs have prompted civic leaders to turn to something beside expensive public housing to rescue old neighborhoods. 6) Only the apartment house field has remained generally impervious to improvement—because of the limiting effect of continued rent control. But despite this, some apartments are being modernized to fit today’s family, its pocketbook and its ideas of modern living.

Fortunately for the owners and managers of old buildings, many of the improvements in new building which have made their properties second- and third-rate may also be used to put them back in the running again. On the following pages BUILDING shows how—through a detailed analysis of each technique of modernization (page 117), then by a study of the application of these techniques to various building types (page 135). But first, a discussion of the architect’s very important role in modernization (next page)—an unsung category of construction whose volume amounts to 25 per cent of the money spent on new buildings.
Remodeling Architecture: The Esthetics of Make-Believe

The reason an owner wants to have an 1890 brownstone remodeled to look like a miniature Le Corbusier is that he wants his 1890 brownstone to earn a 1950 income. He is not primarily interested in esthetic theories (which might make his architect wish that the 1890 brownstone would continue to show its true face); he is interested in the economic facts of life.

To the remodeling architect this means that his job is to make a new form follow an old function. It means that skin-and-bones architecture is out. It means that he is not creating a full-blooded building, but a paper-thin stage set.

These are three bitter pills for him to swallow. Yet upon second thought, he might discover that he is not up against a troublesome chore, but against an exciting and stimulating challenge. The stage designer’s art is among the most ancient and the most exacting. To stage a new setting in an existing frame requires as much imagination and as many resources as to design a building from scratch. The architecture of truth and the architecture of fiction each have a language of their own; and there is ample room for both.

The vocabulary of architectural fiction is full of sly tricks. There is the trickery of facade skeleton and facade pattern; there is the trickery of color with all the optical illusions it can conjure up; and there is the magic of light with all its deceptions. Combined with whatever structural and mechanical changes are needed, these three can produce a brilliant illusion—as brilliant as any stage set, and a great deal more convincing. What went into the making of this illusion can remain a secret between the architect and his Creator.

Norman House by William Lescaze, before and after. Note that Architect Lescaze maintained levels of adjoining cornices and first floor ceilings, helped to pull streetscape together.
THE NEW FACADE

It will remodel the street

The things you can do to an old facade will be determined by two factors: what there is to start with, and what goes on next door. The first of these is too obvious to require further comment; the second is too widely ignored to be passed over lightly.

When a building in the middle of an orderly traditional block is remodeled, the architect's first inclination may be to leave the facade alone. Existing structural conditions are bound to tie his hands; whatever he may do to these conditions cannot always be his best. Personally, he might prefer to leave the "streetscape" undisturbed.

Very frequently this can't be done: An owner—for the obvious economic reasons already mentioned—wants to advertise the fact that he has overhauled his premises; an old facade has started to crack; a residence must be radically altered to accommodate a spacious store front. All these are good reasons to give your facade a new look. How can it be done without, simultaneously, giving your street that broken-up look that makes for visual slums?

The horizontal emphasis

The answer can be found in a few rules of thumb. A street is, obviously, a horizontal unit. It is dominated in general by two strong horizontal lines: The line of the first floor ceiling, and the line of the cornice. The former (being closer to the pedestrian's eye) is the more important. The latter is farther from the observer's eye, but closer, perhaps, to his impression of the overall character of the street. (New York's Park Ave., where long stretches on both sides were built up to an even height, is a good example of an orderly "streetscape"—as is almost any street or square lined with Georgian row houses.) It is safe to say that an architect who maintains the two strong horizontals at first floor ceiling and at the cornice will go a long way toward maintaining the pattern of a street.

Frequently this is not as simple as it sounds. To get the maximum of usable space out of an existing shell it is sometimes necessary to squeeze in an additional floor between the first floor ceiling and the cornice. A current example is the office-annex to New York's Museum of Modern Art, now under construction. Designer Philip Johnson sandwiched an extra floor into the overall height of his addition; but by retaining the two strongest lines of the original Museum facade—the line of the roof terrace canopy and the facia line at the first floor ceiling—he minimized any clash between these two adjoining and dissimilar building fronts.

A different problem is the remodeling of the street floor, where the remainder of the facade stays untouched. This condition is especially common with new store fronts constructed along an old facade. There the horizontal along the first floor ceiling line should be even more emphatic, in order to distract from the incongruous facade above it. It is a good idea also to project the new facade beyond the existing building front, or, else, to recess it under an arcade. This clear break in the vertical plane between new and old facades can be further emphasized by striking changes in color and lighting. The street floor changes in the Philadelphia Bulletin Building, made by George Howe in 1937, are still leading examples. The idea of archeding a new street floor facade—while less common—is gaining many adherents along crowded metropolitan avenues.

The holes in the wall

Next to the horizontal lines governing a facade, the most important building front characteristic is the fenestration pattern. Some designers have managed to evade this issue rather gracefully by making their entire facade one large window (e.g. the Lapidus Narrow addition to New York's Museum of Modern Art has six floors sandwiched between first floor ceiling and cornice, to original Museum's five. Designer Philip Johnson respected basic street pattern, retained important horizontals.

Philadelphia Bulletin Building remodeled by George Howe is projected beyond face of old structure, forms modern base for traditional facade.

Ciro's and Lederer's stores on New York's Fifth Ave. were designed by Morris Ketchum Jr. (Victor Gruen, associate on Lederer's) to break with existing facade plane, but retain important horizontal lines to help unify the street.
office building in New York) or, else, by making their entire facade above the first floor a large solid plane (see Sanders & Malsin's Brooklyn store). When this is done, there is little conflict with adjoining facades. But in most remodeling jobs the solution cannot be quite so simple. Then the problem is how to design a 1950 facade that doesn't clash with its more sedate 19th Century neighbors.

The answer can be found in a fairly simple analysis of the existing and neighboring facade patterns. Just as the holes in the cheese don't make the cheese, so the holes in the facade don't make the facade. It's the part that's left over that counts. The series of diagrams (right) shows that the pattern of a common 19th Century facade is actually not a plane with rectangular perforations (except at night when the windows are lit up), but a rectangular grid made up of bands of solid masonry. If the centerlines of these vertical and horizontal bands of masonry are taken as the visual skeleton governing the facade, then any pattern of metal and glass, concrete and glass, or of any other combination of materials based on that same skeleton should fit into the more traditional street pattern.

In narrow buildings this kind of applied facade pattern may appear extravagant and it may make more sense to design a facade of alternating horizontal bands of glass and masonry (as in William Lescaze's Norman House). Such a pattern would be more expressive of the floor span behind it than a vertical and horizontal grid based on the Georgian facade. In that event it is a good idea to maintain a vertical spacing similar to that in the adjoining building fronts, so that the heights of alternating glass and masonry bands conform with the heights of adjoining windows and spandrels.

THE NEW INTERIOR

Not structural changes alone, but color, light and screening materials can give it the new look of thought on color remodeling: One believes that a labyrinth of pipes, ducts, beams, girders, moldings, sprinklers and conduits can be made to disappear by painting it out—i.e. by covering the entire unsightly construction with a few coats of one strong color, as if a spray gun had been allowed to go berserk in the room. The other school believes that this same unsightly labyrinth can be turned into an amusing decorative asset by picking out each element with a different bright color, and turning the whole space into a brilliant, abstract painting.

A successful application of this theory was shown recently in the "Good Design" exhibit in Chicago’s Merchandise Mart, where Charles Eames, instead of minimizing the existing jumble of pipes, girders and ducts, used them as a colorful decorative skeleton that dominated
the otherwise brutal space, and superimposed an elegant and cheerful pattern on the drab interior. The colors were so bright that they virtually blinded the onlooker to the chaos of the existing structure.

A new source of light

A similar trick can, of course, be played with light.

A man looking directly into the sun finds the whole rest of the sky turning black. For all he knows, there may be a flight of canaries directly above him; but if there is, he will have to take somebody’s word for it.

The theory of remodeling by light is based in part on this experience of a man staring at the sun. Conversely, it is also based on the fact that very few people will stare at the sky because the landscape lit up by the sun is more brilliant and more interesting to look at.

Applied to the inside of an old loft building, for example, this theory works in the following manner: If a baffled or shielded down-light is placed in the existing jumble of pipes, beams or ducts, it will illuminate the areas below without drawing attention to itself. Simultaneously, it will push the ceiling into the shadow. If such a down-light is supplemented with luminous suspended planes, these luminous planes will appear as bright discs in a dark space, and by contrast make the ceiling labyrinth disappear even more completely.

The success of this kind of lighting scheme depends upon a careful adjustment of light intensity, color, and of other reflecting surfaces in the room. But according to lighting designer Richard Kelly, this kind of adjustment is not too difficult if certain rules are followed. The things to look out for are the color of the existing ceiling labyrinth above (this should be “painted out” with coats of very dark gray), and the color of the floor, which should be sufficiently “dead” so that it doesn’t reflect light up to the ceiling, but sufficiently light to draw attention to itself, and to act as a unifying element that will hold the room together much as a carpet does. As for the light source itself, this would vary with each installation: for general lighting a shielded or baffled down-light would be best; for changes in atmosphere, lighted, suspended planes can be added.

Similar principles can be applied to concealing wall surfaces as well. In one instance, designer Kelly placed a row of wood-slat screens over a wall perforated by several unsightly windows, illuminated the screens from inside the room, and used the textured surface as a light reflector from which to get his general, diffused illumination. By accenting the large screen surface with light, Kelly gave it an added unifying force to help pull the room together.

Such play with light can be carried a good deal farther. A new surface which diffuses general light—some distance below the actual ceiling, or some distance in front of the actual wall—can give an illusory new proportion to an old room. There are many other unexplored possibilities of combining color and light to create a convincing illusion—unexplored, at least, by the architect. The theater lighting expert has tried most of them. A master of visual deception,
Allen Grossman

Margaret Macy Advertising Agency before and after having been remodeled by lighting expert Richard Kelly. Wood slat screens over window wall diffuse light, unify room.

Covington showroom by Architects Associated has aluminum mesh ceiling covering unsightly true ceiling, mirror bands to give illusion of greater space.

Diagrams show illusory spaciousness resulting from mirrors above eye level and directly beneath ceiling.

Arthur Siegel

Boston showroom of H. G. Knoll Associates uses bamboo screen partition, creates hazy view beyond that suggests greater spaciousness and depth.

he can teach the remodeling architect quite a number of tricks to use in his trade.

New surfaces over old

Last and most obvious of all the devices at the interior remodeler's disposal is the new skin. In addition to performing all the different functions of a good interior finish, it has to do many other things as well. If it is used to screen a ceiling, it may have to breathe, transmit light, permit water to pass through it, and yet shroud whatever exists above.

One of the most interesting ceiling screens is the expanded aluminum mesh used by Architects Associated in their Covington showroom in New York (see cut). From a ceiling lined with air conditioning ducts and grilles, sprinklers, light outlets, beams and pipes, the architects suspended continuous panels of this mesh well below the ceiling's entrails. The mesh did a fine job of hiding the ceiling; it was sufficiently open to permit unobstructed passage of circulated air; it would permit the sprinkler system to do its work in case of fire; and it formed a scrim-like sheet upon which to project light from above (and thus further concealed the original structure).

In this same job, the architects used an ancient wall-screening device to create an illusion of greater space. Above eye-level, where the observer would not see his own reflection, they installed a band of mirrors designed to make the aluminum ceiling appear continuous beyond the confines of the actual space, and thus to extend the apparent size of the rooms far beyond its walls.

Another device to create an illusion of greater space is similar to the scrim back-drops used in stage design: a hazily transparent screen of gauze, bamboo slats or of any other material of comparable quality will make the space beyond it seem much deeper than it actually is, since the eye and brain are accustomed to associate distant views with haze. Here again lighting and color will play an important part, for only a combination of several of these devices will really remake an interior.

The language of architectural fiction

When the skeleton of an old building is laid bare to the remodeler's eyes the occasion may prove embarrassing. It may develop that the monumental granite pilaster really holds up nothing but its own capital; it may turn out that a towering stone pier is no structural support at all, but merely a bit of questionable decoration. Moreover, it may prove impossible to avert this denouement: If an all-glass store front is to be constructed at street level, the fake monumentality of the columns above will have to be cut off above the glass, and the resulting picture will not be unlike that of a circus fat man having his chair pulled out from under him.

Architecture cannot expect to be taken seriously if it is constantly exposed to this kind of ridicule. The answer is, perhaps, for architecture to handle such situations with the aplomb of someone capable of taking a joke on himself—that is, to turn ridicule into real fantasy, and embarrassment into frank admission. The fat man left hanging in mid-air may yet steady himself; the fat granite pilaster may yet be turned into a frankly decorative stroke, perforated, perhaps, to show that it is holding up nothing but its head, or cut through here and there to prove its rather charming uselessness. The spirit of gaiety is perhaps the only spirit that can yet be salvaged from our chaotic streets.

But where there is something more left to salvage—order, dignity or urban discipline—the architect has a real responsibility. Be his work on Beacon Hill in Boston, in the French Quarter of New Orleans, on New York's sadly desecrated Washington Square or on San Francisco's Nob Hill, he will be face to face with a tradition worth upholding—not by slavish imitation, but by brilliant extension into the present. This, after all, is the only way traditions can be made.
TECHNIQUE
OF MODERNIZATION

The recent advances in design, construction and mechanical equipment which have put new buildings out front in the competitive market are also the tools with which obsolete old buildings may be given new economic life:

- Air conditioning can help offset the disadvantage of yesterday's small windows and deep dark floor space.
- Elevators can be speeded up and automatically controlled to keep pace with today's busy passengers.
- Interiors can be refurbished to duplicate the new building's atmosphere of efficiency, cleanliness and eye appeal.
- Acoustics of noisy old floors, walls and ceilings can be improved with only moderate expenditures which will pay high dividends.
- Lighting, the most obvious earmark of an old building, is easy to update, but it's not just a matter of replacing ungainly droplights with shiny new fluorescents.
- Exterior face lifting, whether it be sandblasting or a new metal skin, is a problem closely allied with sign design.
**AIR CONDITIONING**

a big bonanza for the owners of old buildings.

The problem: balancing its benefits against space and cost

Air conditioning is the engineers' gift to the owners of old buildings—particularly old office buildings.

Most old office buildings were built to fill the lot and have a high percentage of deep space, despite the fact that the deep space has brought very little rent (says Rockefeller Center builder John R. Todd: "You never get a penny of extra rent for office space more than 30 ft. from a window.")

Air conditioning has radically changed these deep space economics. Air conditioning enabled 500 Fifth Ave. in Manhattan to convert its basement into offices to rent at $5 a ft. Air conditioning has enabled Bill Zeckendorf to modernize a one-time loft building at 383-385 Madison Ave. to compete for high-grade tenants with New York City's postwar buildings.

Air conditioning an old building is apt to cost more per square foot than air conditioning a new one, and it presents two special problems: 1) It may not be economically sound to air condition all of an old building unless most tenants will pay from 50 cents to 75 cents a square foot extra for it per year. 2) Bulky air conditioning ducts, water pipes and machinery have to be fitted to existing shafts and ceiling heights, instead of having the building enlarged to make room for the air conditioning as can be done with new buildings.

Money and available space are the two basic factors which an owner must consider in choosing an air conditioning system. What he eventually buys depends on whether he wants Cadillac or Chevrolet performance, how much area he has to condition, and the space that engineers can find to shoehorn in machinery and equipment. The cheapest kind of summer cooling for a small office is the $200-$300 window unit, with no connections but an electric cord, but no manufacturer recommends their wholesale installation to take care of many offices. Nor will the larger self-contained "package" unit that performs well in a small store or restaurant be adequate for large areas. A central system with its massive machinery in the basement may require more space for water pipes and ducts than is necessary when only a few floors of a building are being conditioned.

Water is another problem. Some installations use so much fresh water they would be barred from drought-conscious cities like New York, but others use steam turbines which add cooling tower make-up water through the condensing of the exhaust steam from the turbines.

Best proof that no two buildings are alike and that air conditioning must be individually designed for each structure is to study several representative buildings, and the reasons why engineers and owners did what they did.

**New York Life**

When officials of the New York Life Insurance Co. began making plans to air condition their 34-story home office, they discovered there was no cheap way to condition an existing building with over a million square feet of space. For once an owner starts a job of that size he usually wants to add new lights, acoustic ceilings, some fresh paint and make a few other changes. To do the whole job, said the consulting engineers, would cost a staggering $3 million.

For a 22-year-old building still looking relatively new, that was a lot of money. But the building could be brought up-to-date for some time to come, and part of the cost would be returned from increased rents of tenants who had the 13 upper floors. But major return was expected from the good will of 4,000 employees and higher efficiency during New York City's sizzling summers.

Once the financial hurdle was cleared the only major problem for the company was getting used to a small army of installation men who hammered on sheet metal all day long and who came to settle down for a two-year stay.

The usual tricky problem of finding enough space for equipment and ducts was less troublesome than in some other buildings. Consulting engineers Meyer, Strong & Jones found space in the third basement for three batteries of turbo-compressors, condensers and water coolers. Because the roof area was taken up by a pyramidal tower built for decoration, water coolers had to be used instead of cooling towers. So they put the washer coolers in an old gymnasium on the top floor. Most fortunate discovery was an unused shaft from basement to roof through which they could run two 16-in. steel pipes between refrigeration equipment and washer coolers.

However, they had to find approximately 50 locations throughout the building ranging from 500 to 1,000 sq. ft. each to install equipment rooms that house a chilled water cooling coil, filters, steam coils and fans. This was a real problem as it involved persuading some tenants to give up space. Nor was it easy to find ways to run chilled water pipes, as well as steam pipes, from floor to floor to these 50 fan rooms.
The fact that all this space could be found, plus plenty of ceiling area for ducts, indicated that a large central system would provide most return for the money.

In operation the chilled water is pumped from the basement to the 50 fan rooms where outside air is mixed with recirculated air and blown over the chilled water coils where it is chilled and dehumidified. Air is cleaned by filters, is then pumped through ducts to wall or ceiling grilles. Each floor is divided into several zones with separate temperature controls. Winter heating is by means of conventional radiators. At this stage the plant has a capacity of 1,500 tons. This is an example of a large, central system operating in a conventional way.

**Paramount Building**

At the 33-story Paramount Building in New York's Times Square the air conditioning problem was quite different from that at New York Life. Paramount Pictures Corp. and United Paramount Theaters Inc. together occupied the equivalent of seven floors, with the rest of the space rented to tenants. Ownership was held by a subsidiary company which had no desire to try to sell air conditioning to the scores of tenants. (The huge movie theater and a large basement restaurant were already air conditioned.)

The problem: How best to condition seven floors. A central system was rejected because there was no basement space for equipment and because of cost. Most acceptable suggestion came from York Distributors Inc.: use 21 unit conditioners, each of which was a complete air conditioning system in a single housing. From two to four units per floor were used, depending on floor size. There was roof space for a cooling tower to match a tower installed for the theater.

Once the cooling tower was located, only remaining problem was to find space for 21 units, each requiring an enclosed room about 8 x 10 ft. To draw in fresh air the unit had to be near a window. Such space was scrounged from typewriter repair rooms, dead file rooms, space used by visiting auditors and other seldom-used areas.

In each room one or more "package" units were installed for drawing in fresh air and for forcing all the air through filters, cooling coils and steam heating coils, and then out through ducts to the office spaces. Units were 7½, 10 or 15 hp size, providing a total of 365 tons of refrigeration. The 1,000 gallons of water circulating through the system per minute was conserved and recirculated via the cooling tower. Two 60 hp pumps, two 20 hp pumps and several smaller ones were used to circulate water.

Ducts were run through corridors and concealed by new dropped ceilings, or run uncut through along the ceilings of large work areas. On a typical floor there were two zones, each with a temperature control. A television studio required extra capacity and its own control. Total cost for the job, including new lighting fixtures in many areas, and the necessary painting, was approximately $225,000.

**Handling a group of buildings**

The air conditioning problem of the Union Carbide & Carbon Corp. in New York City was not how to handle one building but seven. The main 22-story building faced 42nd Street at the corner of Madison, but the corporation owned two other buildings facing Madison and several backing up to the main building on 41st Street. As the photograph shows, these were of various heights.

Consulting engineers from Air Research Associates were asked to design a system that would provide:

1. Progressive construction spread over several years, beginning with executive offices on five different floors,
2. No use of ceiling space in private offices (due to low ceilings),
3. Use of a very minimum of occupied space,
4. Excellent ventilation in all areas to be conditioned, with individual temperature control for executive offices as well as for larger zones, and
5. A really superior job of cleaning and purifying air. Engineers immediately ruled out a conventional central system with large ducts because of insufficient room and the widely dispersed area to be conditioned. After studying various possibilities they recommended an installation for exterior zones that had built-in units under windows to provide both summer cooling and winter heating from circulating chilled or hot water piped up from the basement. In the unit is a single coil over which room air is drawn by a motor-driven centrifugal fan and passed through a throw-away filter. (See photo on page 121.) Temperature is controlled by a thermostat on each unit. On the wall next to a corridor is a grille which brings in dry, fresh ventilating air from a modified central system which serves all zones.

In large open areas and interior zones air conditioning is done through circulated air from overhead outlets. Each zone has its own refrigeration unit to which cleaned dehumidified outside air is fed. This air is mixed with recirculated air which is cleaned and cooled and then circulated through ducts to the outlets.

The company was especially interested in cleaning and purifying air because of its long interest in the control of air-borne bacteria and virus using triethylene glycol, one of the company's products. Many hospitals, schools and colleges, and similar institutions use this chemical as an aid in air-sanitation. A system was designed in which triethylene glycol was used in the air circuit for its dehumidifying as
well as for its air-sanitation effect. While being careful to make no claims as to the medical effectiveness of this material, the company management feels confident that it has reduced absenteeism due to colds and other such illnesses since the triethylene glycol has been used.

The main equipment room is in the basement. Steam-driven turbine compressors permit the building to use steam year round. The summer rate is 60 cents, contrasted with a winter rate of $1.70 per 1,000 pounds. Begun in 1946, the job is now being finished. Four cooling towers will soon be in operation. Total conditioned space will be 297,000 sq. ft., and the system will handle 60,000 cu. ft. of fresh air per minute. There has been no water problem, as the steam condensing system produces about as much water as is lost through evaporation.

Chilled water pipes are run through stair wells whenever possible, and have been surrounded with wire lath and plaster to make a neat column. Local fans, sprays and other equipment for each zone are often suspended from ceilings in out of the way places, thus taking up little usable room.

**Chilled water inside a decorative panel**

When you can’t run your chilled water lines inside, put them on the outside. This solution has worked out well in the 25-story Herald Square building in New York City where a $600,000 modernization job is going on.

Architects Kahn & Jacobs had called in the engineering firm of Jaros, Baum & Bolles, who found space in the basement for turbine-driven compressors and other equipment, roof area for a cooling tower and an emergency fire stairwell for two 12-in. water lines from basement to roof. But there was no space up through the building for two bulky, insulated chilled water lines from which there must be connections at each floor. A solution growing out of conferences between architects and engineers was to put the lines outside. Kahn & Jacobs turned this apparent liability into an asset by means of making two matched stainless steel panels on the south wall of the building that faces busy Herald Square. The accompanying drawing shows the result.

At each floor the supply and return chilled water lines are carried along corridor ceilings, and next to each tenant’s door, or at another convenient spot, branch lines are carried inside the premises. From that point it is up to the tenant to provide coils, fans and controls if he elects to use the system. What he pays for chilled water depends on the amount of space he plans to air condition. Rates have not yet been fixed.

Corridor ceilings were originally 10 ft. high. This gave the architect sufficient space to install a dropped ceiling which covered the air conditioning pipes, sprinkler pipes, an old cove lighting trough, and to install flush fluorescent lighting.

In this installation, the only one of its kind in the Garment Center, the owner has provided air conditioning facilities for his tenants at a much lower rate for himself than if he installed a huge central system complete with ducts. The chilled water is there for anyone who wants to use it, and the particular air conditioning unit a tenant installs can be chosen by him to fit his needs and his purse. Only a few occupants have expressed a desire to use the still unfinished system but as most tenants use space for display and sales of wearing apparel, the owner believes that as new leases are negotiated most new tenants will want to air condition their premises as a sales attraction.

**Ducts outside the building**

The 28-story Niels Esperson building in Houston is one of the granddaddies of office building modernization jobs and set a design pattern that has been followed elsewhere. It was air conditioned 13 years ago and today can still maintain a temperature spread of only 1½°F. In designing the system, consulting engineer Charles S. Leopold was faced with the tough problem of finding space for vertical ducts and pipes when no such space was available. His solution was to build a new 35 x 11 ft. brick extension on the back of the building.

He found space in the basement for refrigeration, air washer and dehumidification equipment and on the garage roof for a cooling tower. He placed supply and return air ducts and zone fans, with reheaters, in the new exterior extension which ended at the 18th floor. From there up, pipes and ducts were of reduced size and carried within the building. The trunk supply and return ducts operate at approximately 2,500 fpm. The branch ducts in the halls—approximately 24 x 12 in. and 30 x 10 in., have an initial velocity of 1,800 fpm, and reduce to approximately 600 fpm at the terminal. Branch ducts to offices were limited to a depth of 4 in. and are fastened directly to the ceiling. Leopold designed the layout on each floor to consist of either three or four zones, depending on the floor size and shape. In general, one zone fan served the same exposure at each floor. A solution growing out of conferences between architects and engineers was to put the lines outside. Kahn & Jacobs turned this apparent liability into an asset by means of making two matched stainless steel panels on the south wall of the building that faces busy Herald Square. The accompanying drawing shows the result.

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the pipes and ducts of a central system. The building was "U" shaped and this suggested the possibility of putting a thick wall across the inside of the "U," providing a space of approximately 330 sq. ft. He carried his water lines and air ducts up through this new space, as well as using the platform on each floor for needed equipment. As in Houston he had basement area for machinery and space on the roof for a cooling tower.

Space problems at the Philadelphia Bulletin were handled in still another way. The newspaper building was constructed around a light court which ran up through the ten-story building. Leopold figured if a structure were air conditioned and properly lighted there would be no need for an old-fashioned light well in the center. He suggested that vertical ducts and pipes be run up through the well, and that the unused portion be floored over. The refrigeration equipment was installed in an unused circular tower above the main roof level. Not only did the Bulletin get an air conditioning plant and new lights, but gained approximately 800 sq. ft. of new and badly needed space per floor.

Occasionally air conditioning engineers poking around an old building looking for equipment space find a forgotten chimney or other open areas. When Leopold designed a system for the old House Office building in Washington he found he could use the masonry shafts that had been installed many years ago to provide ventilation. To get booster heat control he piped hot water into the heating coils located directly in back of the grilles and with automatic control valves in the attic. With a thermostat in each office, Congressmen could get the individual control they wanted. Winter heating was supplemented by the existing hot water radiator system. In none of these buildings did Leopold deprive the owner of any rentable office area.

A loft building with deep space

One of the most interesting air conditioning modernization jobs completed last year in New York City is at 383-385 Madison Ave. This is a block-square, 13-story building between 46th and 47th Streets with much deep space that was built in 1923 to house sales rooms for rug, furniture and related trades. Some space is still rented for that purpose, but thanks to air conditioning, the building has been able to attract the higher rents that advertising agencies and other typical office building clients are willing to pay. The minimum increase in rentals traceable directly to air conditioning is about 25 per cent, while the maximum runs from 75 to 100 per cent. About 90 per cent of all tenants agreed to pay more rent for the additional service. Total cost of the air conditioning installation was something over a million and a half, but modernizing the lobby, bringing in new wiring, new lights and modernizing all washrooms raised that sum considerably.

Owners Webb & Knapp asked the engineering firm of Jaros, Baum & Bolles to handle the technical end of the job. The fact that two-thirds of the building was over the New York Central tracks added complications. There was very little basement space, and the roof was not strong enough to hold a cooling tower of the size that would ordinarily be used.

Basement space was found for two 700-ton compressors, pumps and other equipment and a freight elevator shaft was available because new and more efficient cars were installed to replace old elevators. On each floor, adjacent to the shaft carrying the risers, are two equipment rooms, each supplying conditioned air for half a floor, or 20,000 sq. ft. In each equipment room are fans for both supply and return air, banks of filters, a chilled water coil for sensible cooling and for summer dehumidification, and a steam coil for winter pre-heating. Tenants will get from 7 to 12 changes of air per hour depending on their needs. The old hot water radiators will continue to be used for winter heating up to 68° F. and from there on adjustment will be done by controlling air temperature. There are 4 zones per floor, each of which has its own temperature control.

Normally the outside air intake will be adjusted to receive 30 per cent fresh air to be mixed with 70 per cent recirculated air, but dampers can be controlled to receive all outside air when desired. The building engineer believes this will permit him to use his refrigeration machines for as little as five months a year.

Ducts are carried through corridors where possible. Largest size of trunk ducts is 3½ x 6 ft. which diminish in size as they run out. In large open areas there is one ceiling outlet per 22 x 24 ft. bay. Air volume is controlled by the size of the ceiling air outlets.

One large section of interior space with no windows had been rented by a mail order house which had less than 30 people. When provided with new lighting and air conditioning the same space was rented to a new tenant who installed 180 people comfortably in the area. Obviously the space was much more valuable and brought more rent.

There are 26 equipment rooms throughout the building (plus the basement area) and each of these must be turned on at 7:30 in the morning and off after tenants leave at night. A five-man staff is used to operate, clean and maintain the system. If tenants want air conditioning at night they have to pay extra for it, but in exterior zones tenants can get air circulation at night by opening their windows.

Winter heating can be included

If it is necessary to include winter heating along with new air conditioning, it can be done in several ways. A double-duct air system can be designed carrying air of two different temperatures both summer and winter. A single duct system equipped with steam or hot water reheaters, as used in many department stores, can also take care of year-round conditioning.

When individual temperature control is wanted for the exterior zones of office buildings (as in the Carbide & Carbon installation described above) compact units either built in under the window or placed next to the wall under a window will do the job year round. The photograph above shows one type of unit with the shield removed. The chilled water for summer cooling is replaced by warm water in winter. A fan blows the tempered air into the room.
Flexible wall arrangements create illusion of space

By Warren Nardin*

When you remodel the interior of a building, you may merely replace the finishes, or you may also rearrange the space. If the remodeling is to be as complete and satisfactory as it should, in nearly all instances you will do both.

Most buildings which are to be remodeled were designed and put up—and partitioned inside—years ago when the concept of interior space as continuous was held and handled by only a few architects and designers. A room was a room, with a door which was often enough designed to be closed the greater part of the time. The old brownstone dwelling, a type peculiar to some cities but influential on all, is a good example of what happened not only in homes but in most other structures. It was divided carefully into single rooms, with single activities, the list of which might include entrance vestibule, front hall, front parlor, study, game room, dining room, pantry, kitchen, maids' chamber, bed chambers for the family and guests, sewing room, storage room, observatory—all threaded together with connecting corridors and stairways. They were noble houses, with a place for everything and everything in its place. The residents' station in life was indicated by the number of rooms, hence activities, contained in the house. But it is not only the stairways, and heating systems, and finishes of such old buildings which are worn out; the partitions are worn out too.

Partitions should have more purpose now than just to separate areas of activity, because this does not require partitions any more. This is as true in offices as it is in apartments. With the recognition of the efficiency and luxury which can be had from a long unpartitioned view (interior or exterior) there have also been developed various devices to take the place of the standard wall partition. Our desire for a feeling of spaciousness makes us conserve space by the use of compact storage units, sliding or folding partitions for area division, lighter looking and smaller scaled furniture, dual purpose lighting, and everywhere—flexibility.

Increased lighting is a necessary corollary for this theory of bigger space. Enlarged windows help—a glass wall is better. Where a large glass area affords a view of a yard the extension of space feeling is greatly increased. This, too, will make the space seem longer, broader, and so more useful.

* Warren Nardin is a member of the firm Nardin & Radoesy, New York industrial and architectural designers, who have won special notice for work in remodeling.
An Outline for Remodeling—Following are some notes for the guidance of those who remodel, listing a number of expedients and materials which have figured in the experience of Nardin & Radoczy.

WALLS: Plan design to retain whatever structure exists if it fits needs to do so. Elimination of stud partitions, and non-load bearing walls will open space for greater flexibility and make possible continuous-plane planning. Load bearing partition walls may be replaced with steel lally columns.

BUILDING WALLS

A. End or street walls
- Outside walls refenestrated with larger or higher windows for more light. Steel or aluminum sash for thin mullions and horizontal line to give feeling of width to narrow city street frontage (20 ft. usual).
- Outside walls replaced with curtain wall of clear or textured glass; clear glass in rear facing possible garden or terrace or other unused land; textured glass in front to close out unlovely view.

B. Side or building walls
- Side walls resurfaced:
  1. New paint.
  2. Replastered or plaster-boarded.
  3. Plaster removed to expose brick.
  4. Hide bad plaster with burlap or grass matting.
- Side walls resurfaced with material that can be clipped, nailed or screwed to furring strips which will assure plumb wall line:
  1. Wood fiber wallboard, gypsum wallboard, asbestos wallboard.
  2. Stamped or expanded metal.
  3. Acoustical material, perforated fiber wallboard, perforated asbestos wallboard, acoustical plaster or asbestos tile.
  4. Boards used vertically or horizontally, wainscoting.

C. New walls “not to be overlooked is the possibility of cleaning up an interior without making major changes—walls removed, windows enlarged, etc.—by removing ceiling trim, changing door and window trim, smaller baseboards”

Note on color: spacial feeling helped by high key grayed tints or pure white. Accent with stronger deep color.

New construction finishes:
1. Gypsum plaster block and plaster.
2. Cinder block painted or left natural.
3. Brick painted or left natural.
4. Pressed fiber board painted or left natural.
5. Wainscoting.

PARTITIONS: To open up space, define boundary of activity, or when necessary to increase wall area.

- Permanent, opaque, solid partitions
  1. Stud framing, lath and plaster.
  2. Gypsum plaster block and finish plaster.
  3. Brick or cinder block pier (too heavy for most structures).
  4. Stud framing and boards used horizontally or vertically.
  5. Stud framing sheathed with plywood or composition board.

Below, three flexible partitions give effect of room division without destroying spaciousness. Designers: Dorothy Noyes, Gerson Hirsch, Robert Rosenberg; blinds by Henry Wright; Jedd Reisner.
6. Storage unit constructed from floor to ceiling.

- Movable, opaque partitions
  1. Accordion folding door.
  2. Heavy drapery on track.
  3. Venetian blinds hang from ceiling.
  4. Screens, wood frame and cloth, set in track.
  5. Folding doors.
  6. Adjustable vertical cloth vanes.

- Permanent (fixed), transparent partitions
  1. Wood frame and glass.
  2. Wood slats set in frame as vertical louver.
  3. Blinds (Venetian or bamboo) hung from ceiling and fixed to floor or sill.
  4. Wood poles.

- Movable, transparent partitions
  1. Blinds (Venetian or bamboo) hung from ceiling.
  2. Fish net or string.
  3. Drapery (nylon, silk) hung from ceiling track.
  4. Folding glass doors.
  5. Sliding glass doors in track.
  6. Low storage units or storage units that do not touch ceilings. Advantages—ceiling plane left unobstructed; air circulation and light not impeded.

CEILINGS: Most old ceilings will be found to be odd shaped, high ceilings encumbered with many old pipes.

- Methods of correcting (implementation)
  1. Remove all exposed, unused plumbing and gas pipes.
  2. Paint dark color and use down lighting or fixtures with down reflectors only.
  3. Install new visual ceiling line with use of light panels suspended from ceiling, metal hangers to hold sheets of expanded metal, wood strips closely spaced, horizontal wooden boards.
  4. Install new dropped ceiling, metal lath and plaster, vertical wood boards or plywood.

FLOORS: Floors in old structures are usually sound. Oak parqueting can be scraped and waxed. Only bad defect might be sagging floor due to shift of floor joists. Floors of lofts that were previously dwellings are often in bad repair.

- Methods of correcting
  1. Take up bad flooring, shim up joists to new level and relay with new material.
  2. Pour flooring; metal lath nailed to floor with wood chip and plastic compound poured over it.
  3. Shim up low spots and cover old floor with plywood then surface with linoleum or asphalt tile.

- Floor treatment
  1. Carpet.
  2. Linoleum, rubber or asphalt tile.
  3. Cork.
  4. Scrape and refinish.
  5. Cement, terrazzo, stone, brick.

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Storage space that partially separates television, radio and motion picture equipment from living room also houses sliding screens that can close off area completely. Nardin & Radocy, Designers.

Room in Alvar Aalto's MIT dormitory demonstrates methods to divide space without complete partitions.

New ceiling line created by strings woven on frame (far left), open wood frame (left), with ceiling blacked out above both. Designers: R. Doulton Scott, Albert Henry Hill.

Drapery and glass panel form effective barrier between entrance and work space in this office. Alvin Lustig, designer.
Upholstering with sound absorbent must be judicious

Acoustics engineers have always complained that they are called in only after the damage was done, that theirs is too often a remedial job. But in remodeling, the wiles which they have learned in lifetimes of fixing up other peoples' mistakes are of eminent initial use.

The first question in a bad acoustics situation is: is the trouble within the rooms, or between the rooms?

If conditions are bad within a room, a tactful use of one or another of the widely manufactured acoustical absorbing materials can usually improve the situation a great deal without basic changes in the room dimensions or structure. Reverberation is the reflection of noise from surface at an uneven rate, so that the original sound which reaches a listener directly through the air is overshadowed with shattering reflections of the same sound, which sometimes make it unintelligible. If sound absorbing material is placed carefully, it will intercept these overlapping reverberations. This fact is widely understood and used. Less frequently understood is the parallel fact that too much acoustical absorbent material, applied indiscriminately, will kill all reverberation and deaden the atmosphere. A room completely covered with acoustical absorbent—walls (absorbent plaster), floor (carpeting), and ceiling (acoustical absorbent tile, suspended)—might be almost as heavily quiet as underwater, and almost as unnatural. It is important to have a professional establish the optimum amount of this material (which will vary in the room use) and not exceed it. In open planning of offices, a large amount of absorbent material should be used to mute the noises which otherwise would bounce around rooms from one group to the others, and in this situation the placing of absorbent material is important. The type is also important: different types pick up low and high frequency noises. It is only recently that the value of vertical sound-absorbent fins, placed like fences on the floor of the room has been recognized and exploited (see illustrations, and page 147). In these offices, absorbent planes (supplementing the horizontal ones of floor and ceiling) not only break up reverberation, but interrupt part of the direct flow of sound.

The other acoustics trouble, transmission of sound between rooms, is more difficult to correct. The difficulty here is the firm hard fact that only weight stops noise. A wall made of light acoustical absorbent material does not make a good soundproof partition between offices; it eats the noise on the surface which is turned toward it, but it then passes it through to the other side. A lead wall would be better. Sound also passes from one room to the next by vibration through the partition; this means that partitions should be firmly anchored to the heavy building frame, and if possible, have faces which stand independent of each other.

Impact noises are a third source of annoyance in many buildings. In hospitals, for instance, the principle fault of old buildings is that footsteps are too loud in the halls. Rugs, used in hotel halls to deaden these impact noises, are worn out too quickly in hospitals. A nearly complete solution is to rip up the old floor, then put it down again on a cushion of insulation over the structural frame. A more practical solution is to resurface old hospital floors with more resilient composition flooring materials.
One of the priceless dividends in remodeling the elevators of a building today is the possibility that you may end up with one or two empty elevator shafts. The reason: new elevators are so efficient, principally because of new controls, that they will sometimes serve tenants better than a greater number of old elevators. When this is so, a precious vertical avenue is left open through the height of the structure, a shaft which can be used to house mechanical equipment like the air conditioning ducts which replaced an elevator in the new Kaufman Department store in Pittsburgh (BUILDING, Aug. '50). In this structure it was this cavity—left when 12 new elevators replaced 16 old ones—which made the air conditioning system possible. The situation is not rare. In the remodeling job to be done in the Hanna office building in Cincinnati, eight new elevators will take the place of ten old ones. In the State-Madison Building in Chicago, a translation from department store into office building, 20 slow old elevators, age 40, were yanked out and replaced by 11 new electronically controlled cars. And in all these buildings, the new elevators are designed to service standards higher than the installations they are replacing.

Few building owners will replace their elevators just to clear that vertical space, even if it is needed; but the efficiency of the new systems means also that structures whose old elevators now are not performing adequately can lick that condition without building new shafts, a fabulously expensive and disruptive process.

There are more than 220,000 elevators in the U. S. today; most of these are not adequate to deliver the top performance the public is learning to expect. Few of the old elevators are defective mechanically; engineers say elevators, properly maintained, can operate almost indefinitely. But the pace of progress has been fast in elevatoring recently, although it is a difficult pace to measure.

When to remodel elevators

When a building owner suspects that his elevator service is not modern he has few criteria besides tenants' complaints and his own intuition to go by. Some tenants don't complain until the day they move out. As a result most elevator remodeling actually is impelled by the owner's eye—when his elevators begin to look run down, he gets new ones.

But there do exist standards for performance. First is the most obvious one: is the lobby of the office building crowded in the morning? (The building is assumed to be an office building because the biggest and most demanding elevator market is there.) The other question is: does anyone on any floor have to wait more than 35 seconds for an elevator cab after he hits the button. Large scale studies by one of the big elevator companies have come out with that figure as the limit of reason before the average passenger in an office building starts thinking of the elevator attendants and building owner as his enemies. (The average passenger waiting for an elevator hits the button the second time after 17 seconds waiting.) The owner may not agree with that figure, but it's a competitive standard.

When an owner decides to get new elevators, however, his decision is still divisible. He can get a new pair of doors; that's the step dictated by his eye, perhaps, or he do a complete job, everything new including the fireproofing on the elevator shafts. The package unwraps into the following principal components.

Controls. Since about 1920, when the first automatic sequence dispatching systems came into general use, these have included an ever maturing mechanical system for milking better service out of each elevator car. Automatic controls, the latest of which are electronically operated, cannot increase the actual carrying capacity of a bank of elevators. The test of a peak load can be met only by elevator capacity measured in numbers of elevators, or faster ones. But if old elevators are adequate to handle peak loads, but err in the matter of answering calls promptly on intermediate floors, correction can often be made completely by installing a new system of controls, and leaving the rest of the system intact. These new controls are the most exciting development in recent years in elevatoring, and will be described later.
Hoisting Machines. This major element should be replaced if the elevators are underpowered, and consequently do not move fast enough. This, however, is surprisingly seldom. Fast elevators today move from 500 to 800 ft. per minute. This a considerable increase over the 400 to 500 ft. per minute elevators of 20 years ago, but it is only in very high buildings that the difference in speed shows up to any consequence. The braking in most elevator runs for frequent stops, each of which requires an intermediate deceleration between top speed and the stop, robs the more powerful machine of most of their opportunity to show their power. But like big automobiles, big elevator hoisting engines can be expected to render better smoother service than merely adequate installations.

Door operators and doors. The substitution of mechanical doors in place of manually operated doors on elevators is a certain step toward impressing tenants with the modernization of the lift system, and may be an improvement in service also. Although some elevator operators get their doors open as briskly as the motors do in automatic doors, the latter are surer, and certainly more impressive.

Safety Devices. The degree of replacement of the other constituent parts of the elevator set-up may in some cases dictate replacement of older safety devices. Otherwise, continuance in service is usually a matter of condition.

Cabs. The most obvious place to proclaim an elevator rehabilitation or replacement program is where the tenant stands, in the car. This can be done by replacing the cab with one of the newer designs brought out periodically by the elevator companies, who follow current esthetic tastes with the alertness of automobile body designers. It can also be done by refurbishing the present cab, although this is not as easy as it seems at first because of the strong construction that goes into most elevator cabs. If the cab is one of those built to climb a Gothic Tower Gothically, there is probably a good deal of ornament which can be removed, surfaces bared and painted, to freshen the appearance. In elevator design, lighting (mostly cove) has been improved mainly by being increased. Bright colors, high illumination, and clean surfaces are psychological attacks on the suspense which some people still experience in riding elevators. The most frequent mechanical change in elevators—controls—also brings crisp new signaling and control boards to improve the appearance of cabs, and elevator halls.

The new controls

Elevators are no longer controlled individually by the elevator starter in the downstairs lobby. They now are subject to automatic direction in herds, by mechanical brains. This advance toward greater efficiency stems from the old elevating axiom, "five elevators can't give five times the service that one elevator can give." Translated, this means that as soon as the number of elevators is increased, so is the problem of scheduling them to be in the proper place to respond to calls quickly. Some degree of constant circulation by a certain number of cars in the upper reaches of the elevator shafts is necessary in order that down service be available quickly, for instance, even when the bulk of the traffic is moving up from the lobby. Until recently, when the new group automatic supervisory systems were put in operation, this scheduling and overseeing had to be done by the elevator starter, helped by simple sequence dispatchers, and so was done with varying degrees of human efficiency.

But elevator engineers broke the traffic cycles down into definite patterns, with the advent of electronics into the field, and developed automatic brains which could direct the elevators by machine to best answer the demands of each pattern. The Otis Co. broke it down into six patterns (see sketches), for their control system, and Westinghouse developed a somewhat similar set of patterns for their overseeing mechanical brain. The elevator starter now has only to decide what the character of the demand pattern is, and set the dial of his automatic supervisory system. Even this is solved for him in most buildings, where the traffic varies consistently with the hour of the day. Once the dial is set, his elevator cars are dispatched automatically by signal lights to the operators from the electric brain. The elevator starter is freed to perform as guide and information man in the lobby, another dividend of the complete remodeling and modernization of elevator systems.
TECHNIQUE

LIGHTING

can take 40 years off the age of an old building
and earn a big return on a small investment

In the whole bag of tricks an owner can use to modernize his building there is nothing else to equal lighting.

New lighting can give him two dollars worth of return for every dollar spent. Really imaginative lighting can give an old building enough glamor and character to make up for what it lacks in architectural form. And best of all, modern lighting can do its job without tearing a building apart. In fact, new lighting can take the place of expensive architectural changes.

An unhampered architect or lighting engineer is not content to string standard fluorescent fixtures along the ceilings. He re-lights the building entrance, the main floor corridors and elevator lobbies as well as upper floors to give the building a fresh, new character. Since lighting can do an advertising job for the building, he may well include some sidewalk and outdoor lighting.

The best lighting systems are the ones that have been given individual study and some experimentation, because every office building, hotel, apartment house or factory differs from its neighbors.

But modern lighting is far more than bait to retain old tenants or to capture new ones. A carefully chosen lighting system can bring greatly improved physical comfort to personnel and also provide a genuine increase in work efficiency. Personnel and office managers have learned from factory experience that lighting is a production tool. People work better if they can see better.

Choosing a new lighting system for an old building is not an afternoon's job of shopping for electrical fixtures. A few years ago the choice of fixtures was easy because there were so few to consider. But now the problem is complicated because one must choose between fluorescent and incandescent. There are several kinds and colors of fluorescent tubes and at least 50 variations in basic types of fixtures. New incandescent lamps and fixtures are better than ever and, for some people, make it no simple matter to choose between them and fluorescent lighting.

Lighting engineers suggest that a building owner should begin by accepting certain ground rules. The aim should be "planned lighting": enough light, of the right kind, in the right place, for the kind of work to be done. This sounds easier than it really is, because there are disagreements among the experts on several points. To choose the best light for a job (and often the best costs no more than average or poor lighting) the owner or his representative must consider a few basic theories.

Wherever people need light to see their work (as opposed to light for display or decoration) the fixture buyer should begin by studying the comfort angle. This means analyzing the problem of getting enough light of the right quality so that people can see their work comfortably. And "quality" in lighting means the absence of contrast and glare. This leads directly to the most controversial problem in lighting today: how much light is enough?
Photo: Roger Sturtevant

Incandescent lights are preferred in many modernizing jobs. Architect F. J. McCarthy designed this advertising office in San Francisco.

Lighting: Sylvania Electric

Recessed troffer fixtures 8 x 1 ft. set in acoustical ceiling give excellent light distribution and provides great space flexibility.

Lighting: General Electric

This type of ceiling-mounted fluorescent fixture bounces some light against the ceiling, projects most to the work area below.

Light of 100 ft-c is evenly distributed over this drafting room. Each fixture uses two 75-w. lamps. Reflective factor of ceiling is 85 per cent.

How much light?

Over the last 20 years the amount of light provided for all working people has greatly increased. In some offices where workers used to get only 10 or 12 foot-candles of light it is now assumed they need 30. In many drafting or machine tabulating rooms the light is at 60 or more foot-candles. It is obvious that the typist who spends most of her day transcribing penciled notes needs more light than the receptionist. But how much light is needed for each job?

One set of answers has been provided by the Illuminating Engineering Society in its booklet, Recommended Practice of Office Lighting which will be of help to anyone planning a lighting modernization job. The I.E.S. engineers have worked out minimums for different tasks:

- They recommend 50 foot-candles for difficult seeing tasks that involve discriminating of fine details, such as 6 or 8 point type; for conditions where there are poor contrasts, or any difficult seeing job that is carried on continually, such as office machine operation, bookkeeping, drafting or designing.
- For ordinary seeing tasks, 30 foot-candles are enough for discriminating of moderately fine details such as 8 to 12 point type, better than average contrasts over intermittent periods of time, including general office work, except for the jobs listed in the paragraph above.
- Only 10 foot-candles are needed for casual seeing tasks, such as occasional work in inactive file rooms, for reception rooms, stairways, washrooms and other service areas. For halls, corridors and passageways, 5 foot-candles are enough.

However there is one important joker in these figures. These recommended foot-candles must be maintained at all times by cleaning and lamp replacement. Generally this is not done. Fixtures get dusty, lamps give less light as they get older. To maintain both quantity and quality of light, the above foot-candles must be increased from 30 to 50 per cent, according to I. E. S. engineers. Thus the lighting installation that is to give a proper 30 foot-candles for general office work should be designed to provide from 40 to 60 when fixtures and lamps are new. The drafting or tabulating room that should have 50 for dark winter afternoons when lights are old and dusty should originally have from 60 to 75.

Consulting engineer Howard M. Sharp admits there is wide disagreement among experts as to how much light is necessary. He emphasizes that the amount of light is only one factor to be considered. Equally important is the distribution of light which affects lighting contrast.

Too much contrast sets up a glare factor, which is what people mean when they say lights are too bright. People are more comfortable with less light in glareless surroundings than with an abundance of light in an area of sharp contrasts.

Many building owners and office managers will learn with surprise that the use of light-colored surfaces for walls, ceilings, floors, desks and even office machines is almost as important as light intensity. The less contrast there is between these backgrounds and the work surface that reflects light into a person's eyes, the more comfortable he will be.

Incandescent or fluorescent?

As to a choice of incandescent or fluorescent lights most building owners or office managers do not hesitate: modernization means fluorescence. So thoroughly is fluorescence associated with being modern that many people are surprised to find that incandescent lights are even considered when buildings are given a face-lifting operation.
But incandescence is by no means dead. Some people prefer its slightly yellow tint. They feel better (and look better) in a soft light than in the harsh whiteness which is characteristic of some fluorescent installations. There is no flicker or stroboscopic effect with incandescent and when a lamp bulb burns out it goes quickly and doesn’t sputter like a frustrated Roman candle for several hours before it is changed. It is significant that incandescent lights are still being installed in many executive offices of new buildings even though fluorescents are used elsewhere. Even in new office buildings such as New York’s 100 Park Avenue, where tenants have a choice of lights, incandescents are being installed in approximately 25 per cent of the building. Some lighting engineers, such as Thomas Smith Kelly, often use a blend of incandescent and fluorescent to achieve the results they want.

But for fluorescent lighting much can be said. It gives a more even distribution of light than incandescents usually do. An unanswerable argument favoring fluorescent fixtures is that they can often be installed from existing wiring outlets and step up the amount of light to 30 or more foot-candles. To get that much light from incandescent lamps would usually require many new fixtures, much new wiring and even additional air conditioning capacity (if air conditioning is used) to take care of the heat.

It is significant that even for school lighting, where many experts still specify incandescents, Howard Sharp has said that for modernizing existing schools, fluorescent lights are indicated on the basis of wiring economy. He also believes that “the state of the lighting art and considerations of cost indicate that at levels of illumination beyond 30 foot-candles, fluorescent lamps must be used.”

Prejudices against fluorescent lighting often go back to poor installations of bare tubes some years ago. Today there are many kinds of fixtures that provide a soft, comfortable light and fluorescent tubes with a “warm” light that does not make skin tones turn a pasty chalk color. Nor does it bring in enough power for air conditioning or other items. They could save money by having electrical engineers analyze their building and make a ten-year plan that includes an estimate of all the wiring that will be needed in the future. If new wiring is being added for lighting, costs may not be much higher to bring in enough power for air conditioning or other items that may be added later. When air conditioning is installed, city electrical inspectors may find violations that have gone unnoticed for many years and the owner then may have to pay for work which could have been done much cheaper when tied in with earlier installations.
EXTERIORS
Facade remodeling may be only skin deep

The question of how far to go in modernizing the exterior walls of old buildings is a tough nut for most owners.

The first thing the owner thinks of is sandblasting. The cleaning company will probably advise him away from it in favor of steam cleaning, a much less expensive, and usually better process which involves a detergent, steam, and sometimes scrubbing. (In New York steam cleaning costs about half as much as sandblasting: a brick front 25 ft. wide and five stories high will take two equipped men about a day to clean, and cost about $135; the price for limestone will be two to four times higher because it must be hand rubbed with wire brushes). The owner may also decide to rip off old cornices and other archaic decoration to give the face of his building a new expression.

Or he can cover all or part (most remodelings go up only two stories) of the building face with a new skin. Facade finishes are relatively easy to apply, hanging on wood or steel studs applied to the face of the building.

But the technique of remodeling exterior walls successfully—i.e. economically—is often that of knowing when to stop. Often it is a fine point whether it is really economical to go deeper and rip the whole wall from a steel frame, then replace it with an efficient up-to-the-minute curtain wall backed up by new masonry or other concrete panel. It is frequently better to leave the heart of the wall alone, and apply only a new facing outside. This is usually more than the cosmetic job it seems to be, because even a light gauge metal facing over an old wall will help in weathering and thermal insulation.

If the wall is to be demolished, then rebuilt, the job is modernizing only in name. Actually it is a new curtain wall construction (BUILDING, Mar. '50). Cost for new curtain wall construction, including back-up runs up to $40 per lin. ft. per floor with a ribbon window. Cost of applying a new facing material will be less than half that.

Below is a chart listing some of the materials suitable for facing old walls, with some salient characteristics.

<table>
<thead>
<tr>
<th>SKINS</th>
<th>Profile Depth</th>
<th>Weight</th>
<th>Weathering</th>
<th>Does it dent or buckle</th>
<th>Glare</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum extruded</td>
<td>1 in.</td>
<td>1 1/2 lb.</td>
<td>good</td>
<td>no</td>
<td>some</td>
<td>medium</td>
</tr>
<tr>
<td>cast</td>
<td>2 in.</td>
<td>4 lb.</td>
<td>good</td>
<td>no</td>
<td>some</td>
<td>medium</td>
</tr>
<tr>
<td>sheet</td>
<td>1 in.</td>
<td>1 1/2 lb.</td>
<td>fair</td>
<td>yes</td>
<td>some</td>
<td>low</td>
</tr>
<tr>
<td>Stainless steel, sheet, flat</td>
<td>1 in.</td>
<td>4 lb.</td>
<td>very good</td>
<td>yes</td>
<td>some</td>
<td>medium</td>
</tr>
<tr>
<td>Bronze, sheet, flat</td>
<td>1 in.</td>
<td>3 1/2 lb.</td>
<td>very good</td>
<td>yes</td>
<td>some</td>
<td>medium</td>
</tr>
<tr>
<td>Structural glass</td>
<td>1 in. &amp; 3/4 in. backing</td>
<td>10-15 lb.</td>
<td>very good</td>
<td>no</td>
<td>some</td>
<td>high</td>
</tr>
<tr>
<td>Terra cotta</td>
<td>1 in. &amp; 3/4 in. backing</td>
<td>10-15 lb.</td>
<td>very good</td>
<td>no</td>
<td>none</td>
<td>medium-high</td>
</tr>
<tr>
<td>Porcelain enamel on steel</td>
<td>1 in. &amp; 3/4 in. backing</td>
<td>10-15 lb.</td>
<td>very good</td>
<td>sometimes</td>
<td>some</td>
<td>medium</td>
</tr>
<tr>
<td>Masonry</td>
<td>2 in.</td>
<td>25-30 lb.</td>
<td>good to very good</td>
<td>no</td>
<td>none</td>
<td>medium-high</td>
</tr>
</tbody>
</table>
Remodeling by the bay—open it up or close it up?

Both photographs (right) are of relatively old buildings in New York City which have been remodeled in part with minimum effort, but maximum effect. Yet the theory behind each job is as different as the time of day each was photographed. On most of the exterior wall surfaces there has been no substantial remodeling in recent years. The pilasters and other classic type detail have not been uprooted, but have been toned down by the passage of time and dirty air, or by the softening of an overall paint job. But downstairs, between the bay spacings of columns, the first floor tenants needed new faces to turn toward traffic. This is remodeling by the bay, one of the commonest and least disruptive kinds of remodeling.

The face of the bay in the upper photo, in a 38 year old building on upper Madison Avenue, was knocked out and replaced with glass. The corner bay in the lower building, which has stood for 40 years on lower Broadway, was also reduced to skeleton. Then it was entirely closed in, except for the minimum door opening, with sheets of green marble veneer. A gallery should be open to show what it has. A bank hides its riches, behind rich walls.

To bring it down to a strict matter of technique, it is obvious how advantageous it is to treat the building bay by bay and do each bay completely in one material. If the archaic decoration of the outer structural frame of an old building can be muted without removal, and the walls within these frames can be attacked one by one, here is a handy solution to exterior remodeling.

Design for Bonnier's gallery and bookshop, above, by Warner-Leeds, Architects, opened up not only first floor with big planes of glass but also pulled mezzanine floor back from exterior so glass could be continued up. Royal Industrial Bank, remodeled by Charles S. Telchin set simplicity in an elaborate frame for entrance.
An important focus for remodeling

The greatest opportunity for a show of technique on the exteriors of most structures is in the signs which identify them. Signs get more attention, or at the very least, breed more awareness, than any other architectural feature of almost all facades.

The companies specializing in sign construction can build practically anything. When they themselves design the signs, the standard of originality—and therefore, effectiveness, to a considerable degree—is low. Their forte generally is an unbridled and unbrilliant display of the power of neon beside neon. Or in the case of building identification, the chastely molded bronze name plate is still the general rule. The character of the structure, or of the section of the structure being identified, is not susceptible to expression by most commercial makers of signs. So if the remodeling job is to carry through, the designer or owner himself had better do the thinking about signs.

Costs are high when metal workers and electricians both have to work in the shop and on the job, as they usually do. This is the principal limitation. The relatively simple sign for the Paris Theater in New York City (see right) cost $612 in 1949. (This includes only the wall sign, not the marquee. The wall sign measures 4 ft. 2 in. high by 5 ft. 6 in. wide, uses neon illumination, is otherwise all stainless steel and is fastened to the structural frame through the limestone veneer facing of the remodeling.) This cost, incidentally, does not include installation.

This particular sign is a demonstration of another limitation besides cost which sometimes plagues the designer of signs: legal or semi-legal restrictions. The Paris Theater not only had to conform to the ordinary restrictions of elevation from the street and projection outward—which it did handily—but it also was subject to the stern ideas of a quasi-legal body of governors which exists in that part of New York. The theater is located a few numbers off Fifth Avenue on West 58th Street and so it falls within the orbit of the Fifth Avenue Association, a body of real estate owners and managers who seek wisely to retain the chastely luxurious atmosphere which exists on that famous street. One thing they urge—and the Paris Theater managers were of mind to fall in with that urging—is that no direct light be thrown out from the lettering, even in buildings where it is so customary as in theaters. The obvious solution was silhouetted letters, which the designers used with obviously good results.

An excellent example of the remodeling of a sign itself is shown on this page. The big limitation (right) was cost. The budget did not even permit buying a new sign, or sign chassis to replace the old "Bungalow type" sign (see sketch) which was on hand. So this designer also decided to use silhouette. He painted out the lettering which had been lit by bare bulbs in sockets under the head of the T, and left a white surface which he flooded with light at night by use of the same sockets and same type incandescent bulbs. Then, by bending very widely spaced wire screen around this board, suspended a few inches out from it, he had a frame to set his lettering on. Inexpensive, stock letters completed the job; the complete remodeling of the sign cost a total of only $140. The importance of signs—good signs—is emphasized by the collection of good designs on the following page.

MODERNIZATION
BY BUILDING TYPES

While all the techniques of modernization are applicable in varying degrees to all types of buildings, the problems presented by these building types are by no means similar. And the solutions to the problems are just as dissimilar as the causes of obsolescence which require attention.

Office building obsolescence requires a two-front attack: The landlord must tackle the public space in his building to keep his tenants.

Office tenants, in turn, are responsible for refurbishing their quarters—a step which is required by the need for getting the utmost use out of today’s costly square feet.

Hospitals built only a few years ago are being rapidly outmoded by recent developments in medical science, by the increase in the average age of the patient, by the Blue Cross program and by changes in methods of treatment. Up-dating them involves new additions as well as reconstruction.

Apartment building modernization is curtailed by the continuation of rent control but some landlords are cutting up their big apartments into smaller ones. Others are making attractive town houses out of their narrow old “brownstones.”

Schools of even relatively recent construction are out-dated by today’s new teaching methods and today’s new concept of adequate light.

Hotels of yesteryear to meet today’s competition must satisfy the public demand for both living and sleeping quarters at the price of a single room. And excess lobby space must be put to money-making use.
OFFICE BUILDINGS

Owners and managers set conservative but profitable modernization pattern in which public area face-lifting gets priority over new building services.

Though the extent of defense mobilization is still shrouded in a fog of uncertainty, it is a fairly safe bet that the current spurt of office building modernization in many big U. S. cities will continue at least through the next year. Material shortages and government restrictions may slow or halt the construction of new buildings and, as in the last war, an upsurge in demand for office space may reverse the recent trend toward higher vacancy in older buildings. But in the last few years U. S. office building owners have learned how profitable modernization can be and how essential it is as an answer to the competition of new structures. Full occupancy facilitates the financing of remodeling, and under mobilization conditions, construction which uses a minimum of steel and other strategic materials will be favored over new work. If new building lags in the months ahead, owners of well-located, structurally sound old buildings may have a golden opportunity to retrieve lost ground through modernization and emerge from the present war crisis in a far better position to meet the challenge of future new construction.

The technique of making an old office building profitable in the face of new competition involves two basic operations: 1) modernizing the exterior, the public areas, the services; 2) planning and equipping offices so that more people can work happily and efficiently in less space, thereby decreasing the tenant's rent per employee. The first of these steps is mainly the landlord's problem, the second the tenant's. (See page 146). The great bulk of today's office modernization reflects the owner's pragmatic approach rather than the thinking of the nation's leading architects and engineers—who have been almost completely absorbed in the great boom of new building.

NABOM'S remodeling drive

Prime mover of the postwar wave of office building remodeling in U. S. cities is the National Association of Building Owners & Managers. At its June conference (BUILDING, July '50) NABOM summed up its oft-repeated case for modernization: 1) Despite continued high rentals and occupancy, $520 million worth of new office construction in 38 cities threatens to steal blue-chip tenants from older buildings; 2) Since new buildings now cost about $25 per sq. ft. of rental area as against $15 in the late '20's, owners can spend part of the $10 differential to make their old buildings as modern as new ones and get rentals that will more than pay fixed charges and amortization of the remodeling; 3) Modernization will hold old tenants, bring in new ones, encourage tenants to improve their own space and raise values throughout the neighborhood.

NABOM's drive has helped stimulate an estimated $250 million worth of office remodeling in the U. S. since war's end. Philadelphia has spent over $10 million on the improve-
from $1.30 to $2 a sq. ft. to $4—an increase of 150 per cent.
The new work included facing the first two stories with a rose travertine, modernizing two stores and the lobby, complete rewiring and lighting, rejuvenating corridors, toilets and elevators, installing a combination air conditioning and heating system for the whole building. (This last accounted for $232,500 of the total cost.) Architects were Thalheimer & Welts.

Though this type of overall job is the goal toward which most owners are shooting, the great bulk of modernization is done by stages. Even partial renovation in smaller buildings frequently permits rent increases of from 30 to 50 cents a ft., and there are numerous examples of buildings which have increased income 50 per cent by a thorough overhaul of the main areas at a cost averaging $3 a sq. ft. Since most modernization is gradual—both to conserve capital outlay and keep tenants from suffering massive inconvenience, the normal procedure is to tackle first those elements of a building most exposed to the view of the public and get around to the guts of the structure later. Since foregoing articles have covered the conversion of an office building's main utilities, only the treatment of public areas will be reviewed here.

Public areas
As the showcase of the building, the lobby is generally the first feature to be remodeled. A well-designed modern lobby gives a lift to the entire building and speeds up the flow of traffic. The key requirement is lighting of sufficient intensity to make the transition from outdoors to indoors easy on the eye and to enable visitors to read the directory and locate elevators quickly. For small lobbies, the trend is to use an eggcrate ceiling with fluorescent fixtures above; larger areas are generally lighted either by recessed incandescent fixtures or fluorescent tubes mounted above strips of translucent glass or plastic. The most exciting, and often the most efficient kind of lighting is provided by combination of both direct and indirect type fixtures, as exemplified by the lobby of Philadelphia Otis Building designed by Davis, Poole & Sloan (photos above).

The techniques used in this small job have been repeated, with relatively minor variations, in the vast majority of lobby remodeling jobs which go beyond mere cleaning up and painting of existing structure. Because owners tend to stick to treatments whose popularity with their tenants has been proven and materials whose durability and ease of maintenance has been well tested, lobby modernization usually means a furred-down ceiling incorporating one of the types of lighting described above, flush marble walls, trim and doors of brushed steel or bronze, tempered glass doors and terrazzo or tile floor.

When a new lobby has been installed, corridor renovation can't lag far behind—if it wasn't contemplated originally, tenants will usually demand it. As in lobby modernization,
OFFICE BUILDINGS

enormous toilet rooms for men and even less adequate facilities for women. Yet from 1900 to 1940 the number of women's office workers rose from 37 to 54 per cent of the total office force. Today, any building which hopes to compete successfully with new structures must have toilet facilities for both sexes on each floor.

Even in cases where this requirement has been met, remodeling architects have generally followed standard practice and avoided coming to grips with the problem of designing toilets realistically tailored to office requirements. At its best toilet renovation usually includes only the installation of new lighting, new floor and wall tile, marble stall partitions, new lavatories, replacement of standing type urinals with wall type and substitution of long-lipped toilet bowls for the pre-1930 variety as an aid to maintenance. Examples of remodeled women's toilets which make a logical separation of powder room and sanitary facilities are rare.

Exteriors

Preceding sections have described the variety of exterior treatments open to remodelers and have laid down some of the principles which should govern the re-design of a facade. In actual practice, the great majority of office building remodelers have kept exterior alterations to a minimum because of the high cost of such work and the more tangible results produced by interior changes. Modernization of the exterior is usually confined to removal of overhanging cornices, sand blasting or steam cleaning the facade, installation of new windows and unification of the ground floors with a modern skin of smooth stone, large glass areas and steel or aluminum trim.

Complete face-lifting with extruded aluminum sections and sheets, new brick or masonry is generally limited to office buildings of 6-stories or under which have only one street facade (For a notable exception see page 139). For these smaller structures, an entirely new facade is economically feasible as a means of meeting the competition of large office buildings in the immediate neighborhood.

A glaring weakness of much lower floor facade remodeling in good retail neighborhoods is the inability of the owner-architect team to impose effective control over the design of shop fronts. Requirements of the individual shop tenants for distinctive signs and display normally take precedence over treatments which would improve the overall appearance of the building.

Modernization requires tenant support

An important ingredient of any large scale modernization plan is a high degree of tenant cooperation. Says Lawrence Roth, manager of Chicago's First Federal Savings Building, "It's almost imperative to get at least one of your important space users to go along with you on a face-lifting job on his own quarters when you start on interior work in the building." Once the ball gets rolling other tenants will usually join in the program, and when the work becomes a cooperative venture, it's easier for all concerned to put up with the noise, dust and confusion involved.

Most managers report that tenant support for modernization is readily obtained if the overall plan is explained in advance, and the work is executed in stages which reduce inconvenience to a minimum. In the case of Roth's own building over 80 per cent of the occupancy did work on their own quarters to keep pace with the management's modernization of lobby, ground floor facade, corridors, elevators and installation of air conditioning for half the structure.
FACE LIFTING IN ALUMINUM: a new skin, grafted to an 80 year-old frame helps rejuvenate a building and a neighborhood

Pictured here is a comparative rarity among modernizations—a building which has received the full treatment. For about half the cost of an equivalent new structure, St. Louis’ Commercial Building has acquired a new aluminum and glass skin, air conditioning throughout, new utilities and a completely modern interior. Result: 100 per cent occupancy and a sharp spurt in real estate activity and building improvements in the immediate neighborhood.

Due to its excellent location and the high caliber of its tenancy, the building was operated profitably until the mid-Thirties when the depression and competition of new structures brought foreclosure of the mortgage. Prior to World War II, a thorough study of the building by manager Clarence M. Turley and architect Marcel Boulicault convinced the new owners that complete modernization was economically and structurally feasible. Delayed first by the war and then by government restrictions on commercial building, the work was finally completed this summer at a cost estimated close to a million dollars.

Lacking any plans of the existing building, the architect’s biggest problem was to determine whether its 80-year old structure would support new exterior facing and the added load of modern office equipment and mechanical installations. The old brick and masonry walls tapered from a thickness of 4 ft. at the bottom to 17 in. at the top. Interior framing consisted of widely spaced cast iron columns supporting 4 in. thick concrete slabs poured on 6 in. rails spaced 3 ft. on centers. When tested, this flooring supported a 1,000 lb. per sq. ft. live load with only 1/4 in. deflection.

Aluminum was selected for the new exterior skin because of its lightness, flexibility and durability. Extruded sections and aluminized sheets were attached to a steel skeleton mounted on the existing walls. Though this treatment gives the new facade simplicity and coherence, it is essentially as eclectic as the old. Instead of being used frankly as a thin screen, the aluminum is employed like paint to imitate conventional pier and spandrel forms. On the credit side, strip windows are held to a height which is efficient both for light and reduction of the air conditioning load.

The old interior was entirely gutted and then modernized with new plumbing, fluorescent lighting, acoustical ceilings and toilets for men and women on each floor. New elevators were relocated to provide better tenant space. The new air conditioning system is a direct expansion type, supplying cooled and humidified air from basement equipment through ducts to all parts of the building.

LOCATION: St. Louis, Mo.
MARCEL BOULICAULT, Architect
G. L. TARLETON CONTRACTING CO., General Contractor

REFURBISHED WAREHOUSE consolidates ad agency’s operations, saves rent

FRIEDMAN, ALSCHULER & SINCERE, Architects
HARPER RICHARDS, Designer
ROBERT M. HATTIS, Consulting Engineer
E. H. MARHOEFER, JR. CO., General Contractor

Complete modernization has transformed this 31-year-old brick and concrete warehouse into a sparkling new home office for the Foote, Cone & Belding advertising agency. Located near Chicago’s “magnificent mile,” the building was formerly occupied by a manufacturer who jumped at the chance to rent it to the agency and move to a location better suited to his business. The shift enabled the agency to 1) gather under one roof operations which had been scattered over three downtown buildings, 2) effect a 25 per cent saving in rent, including maintenance and amortization of the $784,000 remodeling cost, over what it would have had to pay for comparable space in Chicago office buildings.

The loft’s street facade was brightened and simplified with a new entrance of limestone and dark red granite, replacement of double-hung windows with single sheets of double glass (to aid air conditioning), removal of a fifth floor cornice and steam-cleaning of the entire structure.

The layout of floors was derived from a close study of the function and inter-relation of the agency’s departments. On the ground floor (plan, left) are the facilities which absorb most outside traffic—the space-buying department, a 200-seat auditorium which may be divided into three rooms, and a dramatic two-level foyer. A comfortable lunchroom for employees is located in the basement. Research, accounting and other agency-wide services are on the second and third floors; executives, copy, art and production departments occupy the upper floors.

Though the building was structurally sound, elevators, heating, plumbing and electrical installations had to be replaced with new equipment. The new central air conditioning system may be regulated to service either the entire building or specific zones on each floor. Mechanical equipment is concentrated in a new penthouse and in the basement, freeing a maximum amount of space for offices.
FINISHES AND EQUIPMENT:

On most floors, small offices around the perimeter of the building open on handsomely finished corridors, interior conference rooms and open clerical spaces. This arrangement satisfies the client's democratic requirement that all of the 250 private offices be of about the same size—no grand executive suites—and that all floors be made equally attractive. Conference rooms on each floor are available to any members of the staff.

To break the monotony of the long corridors required by this plan, a wide variety of treatment was used. (Photos, left and below.) Acoustic ceilings, fluorescent lighting, asphalt and rubber tile flooring, silver walnut woodwork and a restricted palette of light and dark colors are used throughout the building to achieve both variety and the equality of appearance desired.
BLEND OF OLD AND NEW

is achieved in gradual updating of 47-year old professional building

LOCATION: Seattle, Wash.
PAUL THIRY, Architect
NEIL McDONALD, Contractor

Here is an example of what a competent architect can do to give an old office building a new look and a new lease on life at relatively low cost. Work completed to date in a gradual program of modernization includes the lobby and entrance, two flanking stores, three floors of corridors, one third of the tenant space, two elevator cabs, electrical services and exterior cleaning and painting—all for a cost of about $150,000.

The aim of the program is not primarily to secure rent raises, but to stabilize tenant occupancy, reduce maintenance costs and insure the basic investment against future depreciation. Located in the heart of Seattle's financial district, this six-story, 47-year-old landmark was owned free and clear by the A. S. Kerry family and produced a good income from its 65,000 sq. ft. of rental space. Though structurally sound, the building showed the ravages of age, depression, war and some periods of poor management. Many tenant spaces had been awkwardly partitioned and there were violations of new code provisions. In 1945, faced with the choice of selling the building or remodeling, the owners decided to give modernization a trial run.

Architect Paul Thiry was called in to renovate corridors of three lower floors on a budget of about $4,000 a floor. (Photos, opposite page.) Despite the inconvenience involved, tenants were so enthusiastic about the change that a program of modernizing the whole building by stages was launched. Individual offices have been rehabilitated at a cost of $2,000-$3,000 each by the installation of new floors, cove base, standard doors and partitions, furred ceilings, natural finish hardwood trim and new wiring, fixtures and radiators. Tenants choose standardized colors for their walls or employ their own color schemes at additional cost.

With a minimum of structural change, Thiry has provided a dramatic new lobby and simplified the ground floor facade, for a total cost of $40,600. Polished native sandstone, large glass areas and extruded aluminum trim have replaced heavy classical ornament, creating an exterior which is modern, yet closely related to the basic architecture of the building. As the focal point of the modernization, the lobby has been given a full face-lifting. It now has a cove-lighted ceiling, muted blue walls, new maroon elevator cabs and a new balcony and stairs, faced with yellow terrazzo and crisply accented with a rail of aluminum and glass.
Corridors were cleaned up by removing wainscot mouldings and base, installing new lighting, natural finish hardwood veneer on walls and a magnesite cove base.

Within the entrance arch of extruded aluminum are 15 bronze reliefs, based on Northwest Indian motifs by Sculptor Everett S. Du Pen. Doors are tempered glass.

Photos: Webster & Stevens, Inc.
Built 20 years ago as a huge loft building, Chicago's Merchandise Mart is emerging today from a modernization program which has converted the building into one of the city's leading office addresses. This transition has raised rentals from a low of 35 cents a ft. to a high of $2.75 and kept the tenants happy all year round with air conditioning at the remarkably low cost of 35 cents per sq. ft. But the real significance of the Mart's modernization program is its size. The Mart is the biggest commercial building in the world—in sheer size its 3,040,700 sq. ft. distributed over 18 floors outrank every other building of every kind except the Army's Pentagon in Washington (3,634,000 sq. ft.).

Prior to 1945 when Joseph P. Kennedy, one-time Ambassador to Great Britain, purchased the Mart from Marshall Field & Co., 40 per cent of the space was used for the department store's offices and warehousing operation, 30 per cent was occupied by exhibitors, 10 per cent was devoted to light manufacturing and most of the balance was occupied by the Federal Government. Office occupancy was negligible, and so was net income.

Today, thanks to far-sighted management, a comprehensive modernization program and a strategic location, the Mart's directory sparkles with the names of blue-chip office tenants like Quaker Oats (whose new quarters are pictured at the right), Carrier, Gillette, Johns-Manville, Monsanto, Norge, Pullman, Schenley, U.S. Rubber and Westinghouse. Such offices occupy 20 per cent of the area. Most of the building (70 per cent) is occupied by smaller offices, display rooms and wholesaling facilities for some 1,100 tenants—325 of whom have been attracted since the modernization program began. Lower floor retail and service facilities occupy the 10 per cent balance.

The Mart's main attraction to new tenants was a modernization program covering everything from outdoor landscaping to linen roller towels in the public lavatories. Spread out over five years, the program has cost more than $6.5 million.

Air conditioning

The biggest closed, chilled water air conditioning job on record, the Mart's five-year program began in 1946 with the installation of one of the biggest centrifugal compressors ever made (750 tons) to supplement the small amount of equipment previously in operation. Since then three 1,100 ton compressors have been purchased for about $100,000 each and installed at $20,000 each, bringing the total capacity to 5,550 tons—enough to raise the conditioned space to 2,000,000 sq. ft. or two-thirds of the rentable area. Although one 14 in. chilled water riser was already in existence when the program began, the running of long laterals (the building is 725 ft. long) from it at the various floors would have

(Continued on page 186)

* Other measurements of the mammoth Mart: Built at a 1928-31 cost of $28 million, the Mart has a gross floor area of 4,023,400 sq. ft. or 93 acres, a net rentable area of 3,040,700 sq. ft. On the basis of equal area and comparable design, the Mart would be 67 stories higher than the Empire State Building, or 169 stories high. "Believe-it-or-not Ripley" once proved that the entire population of Chicago could be squeezed into the Mart at one time. (Architects: Graham, Anderson, Probst & White.)
TENANT MODERNIZATION IN THE MART: Quaker Oats' office, once a factory

Latest example of the Merchandise Mart's interior metamorphosis from loft to business space is the Quaker Oats' office on the third floor. When the previous tenant, a needle work manufacturer, moved out, the space was bare and 95 per cent unfinished (photo, left). Floors, ceilings and columns were raw concrete, radiators were cast iron, illumination was provided by drop lights. Today, only the columns and windows are reminders of the past.

First, a grid of shallow ducts to carry telephone and electric wiring was laid on the 674 sq. ft. concrete floor, which was leveled with a mastic fill and finished with rubber tile (photo left, bottom). Unit cost: 35 cents per sq. ft. for the ductwork, 20 cents for the mastic fill, 55 cents for the rubber tile finish—total, $1.10.

At the landlord's expense, walls and columns were plastered, all radiators were replaced with convectors and six executive offices were enclosed with finished plaster partitions. The tenant paid for the complete air conditioning system in this one case ($100,000 or about $1.50 per sq. ft.), for the erection of movable steel and glass partitions ($60,000) and for installation of recessed fluorescent light troffers. This lighting system, which cost $52,000, provides 45 foot-candles in the office areas, 60 foot-candles in the engineering department.

Other improvements, including five new laboratories, a concealed interoffice pneumatic tube system for the transfer of written messages and the hanging of an acoustical ceiling, brought the total cost of the project to about $500,000 ($7.45 per sq. ft.). In return for this Quaker Oats enjoys one of the most attractive and efficient offices in Chicago.
THE TENANT’S PROBLEM: How to remodel high-priced office space to gain more efficient and attractive quarters in less square feet

The landlord can modernize an old office building merely by giving it the new look and improving its services, but the tenant’s modernization program must satisfy two hard new conditions: 1) With rents so high and space so hard to get that premiums as high as $100,000 have been paid to get a single floor in a good New York office building, tenants are now forced to learn how to make more efficient use of each square foot and how to fit more people into less space. 2) But since tenants are so much more conscious today of their employee relations, it is no longer practical to crowd more people into less space unless compensating advantages are given in return.

In other words, the real problem of modernization in tenant space comes down to this: how to make offices so much more attractive, comfortable and efficient that employees will be happier in less square feet.

This brand new requirement has opened up a new, highly specialized field of planning, not only for the design profession, but for office equipment manufacturers and independent office planning specialists who are willing to take a vast amount of time and trouble to study the tenant’s overall problem and the many little problems of each individual employee. Today, most office remodeling projects involve the services of a number of specialists, ranging from architects and acoustical engineers to the free-lance office planner.

All these specialists agree that the basic solution to the tenant’s problem is open planning. By and large it is impossible to get more people into the same space if any large percentage of them are to retain private offices. This is partly because the private offices’ partitions themselves take up close to 10 per cent of the floor area, partly because workers in an 8 x 8 ft. private office would be threatened with claustrophobia, whereas 64 sq. ft. can be made efficient and cheerful in open areas, partly because private offices around the perimeter make the interior space less attractive and psychologically uncomfortable even with air conditioning and modern lighting. Consequently, all the office planners concentrate their attack on making open space more desirable by 1) better organization of work areas and traffic flow, 2) better lighting, 3) noise control, 4) better ventilation for nonair-conditioned space, 5) better use of color, 6) better provision for central storage, 7) better local storage around the worker’s own desk.

Of all the office planning specialists, perhaps the most successful is Maria Bergson, who attracted nation-wide attention three years ago by collaborating in the conversion of a floor of one of Chicago’s oldest buildings (the First National Bank) into the most contemporary of Chicago offices for the highly design conscious Container Corp. (Building, Feb. 1948).

The real secret of Bergson’s success is her painstaking analysis of each employee’s requirements for working space and storage. Once a secretary herself, she goes far beyond most office planners in studying the work process of the individual as a basis for a more efficient layout of equipment in less space. She avoids changes that would require too drastic a shift in a worker’s habits and concentrates on enabling him to work neatly. It is a Bergson maxim that the best work is produced on a clear desk-top, that neatness comes easier when adequate storage facilities are integrated with adequate work surfaces.

Like other office planners, Bergson first makes a careful study of the tenant’s broad requirements before analyzing the needs of individual employees. Work flow, traffic and types of equipment are surveyed to determine the best overall arrangements of departments in the space available. But the hallmark of a Bergson job is close integration of all the devices that can be used to make employees contented and efficient in less space. Here are some of the main elements of her approach:

Storage. Bergson packs storage units closely designed to individual needs around and under desk-tops, into low partitions and on top of easily accessible standard filing cabinets. Central files sometimes double as free-standing partitions to channel traffic.

Lighting. Open areas in nonair-conditioned space are extended to windows wherever possible for psychological effect as well as for better light and ventilation. To Bergson, high intensity artificial lighting of deep open space is important not only as an aid to efficiency but as a morale booster. Both for eye-appeal and quality of light at the work surface, she generally uses incandescent lighting.

Sound Controls are carefully balanced to absorb or redistribute the full range of office noise. Where the budget permits, carpets and drapes supplement acoustical ceilings as traps for high frequency reverberations. Low frequencies are absorbed by a Bergson innovation—waist-high, acoustically treated screens which subdivide open areas and give individual workers a sense of privacy.

Color. To make big open spaces more intimate and attractive, Bergson breaks away from the uniformly light colors recommended by lighting engineers. She keeps window walls and ceilings light in tone, but other wall sections are treated with a related palette of colors ranging from pastels to rich darks. Bergson uses dark colors on some walls to eliminate glare and to create the illusion of greater space in small areas.

Bergson is cheerfully aware that much of her work does not satisfy design purists, but she feels that good design in office planning must often be achieved by easy stages. Her aim is to strike a happy balance between the purely practical requirements of space, cost, operation and maintenance and the need to satisfy the employees’ desire for privacy and prestige. Pictured on the next three pages is the most recent example of her effort in this direction—the TIME & LIFE offices in New York.
Magazine offices gain space, efficiency and amenities by shift to sound-conditioned open plan

LOCATION: TIME & LIFE Building, New York City
MARIA BERGSON, Designer

In old-style layout, space-eating outer offices rob cluttered bull-pen areas of light and air. In new acoustically treated open plan, good decor, individually planned work enclosures permit multi-purpose use of space, boost morale and performance.

Gradual remodeling of the New York offices of TIME, LIFE and FORTUNE by designer Maria Bergson provides a dramatic contrast between old and new styles of office layout. A typical pre-Bergson floor (photo, left) contained small perimeter offices opening onto narrow corridors or irregularly shaped open areas crowded with desks and files of varying heights. Workers in these cluttered spaces were distracted by passing traffic, by reflections of light and sound from surrounding partitions, by the lack of any provisions for individual privacy. Re-arrangement of expanding or contracting departments was hampered by the large number of partitions.

Working closely with the company's own office planning service, Bergson gained space, light, air and flexibility by eliminating as many perimeter offices as possible and putting more people into the newly created open space. Pictured below is a remodeled reception and working area for the staff of FORTUNE's publisher. Acoustical screens and ceiling, wall-to-wall carpeting, warm colors and a curtain-backed with sound absorbing material make this large space as quiet and attractive as a private office. Screens provide privacy and control traffic, without sacrificing spaciousness.

Though this treatment is slightly more expensive than old-style remodeling with plaster block partitions, the tenant gains 1) an average of 15-20 per cent more usable space; 2) permanent possession of acoustical screens which may be easily rearranged to meet future needs; 3) a drastic saving in paint maintenance costs through elimination of walls.
Photos above show contrast between a poorly organized, crowded office on one of TIME & LIFE'S old floors and the new Travel Bureau where carpeting, contrasting wall colors, drapes and acoustical screens more than compensate for restricted space.

In the remodeled accounting area (photo below), sole remaining private office is a glass and steel enclosure for the supervisor, who required complete privacy for his work. Corridor partition at right is made up of wardrobes, storage units and files.

Promotion list department (photo below), has compact plan which makes key files easily accessible to all workers. Desk space is augmented by lower counters for typewriters on opposite side of individual enclosures. Machines rest on movable acoustical panels.
Remodeling of the TIME INC. comptroller’s department by Maria Bergson has put the same number of people in 23 per cent less space, made them happier about their surroundings and greatly improved the flow of work. Formerly, general accounting was awkwardly spread over three locations; two of its sections were separated by a bank of small offices containing miscellaneous specialists (plans, left); the other was on the far side of the building. The cramped arrangement of desks and files was complicated by numerous small stands for business machines. Bills were processed via a circuitous route, traffic was congested and machine noise was a constant problem.

To remedy these conditions most of the private offices were eliminated, all accounting work was set up as a straight-line operation in one portion of the newly created open space, the payroll division was consolidated in another, and noisy machines were placed in an acoustically treated room between the two sections. The comptroller and his special staff were moved to a closely related block of private offices south of the accounting area (not shown on plan). Central files were compressed into a U-shaped bank next to the accounting area, forming a partition which protects workers from corridor noise on the other side, yet permits cross-ventilation above it. Better desk-side storage facilities and low counters opposite desks made possible the elimination of space-consuming stands for business machines. Acoustical screens not only soak up the sound of machines, but emphasize the order of the desk arrangement and confine traffic to clear channels.

A triumph of space-saving was achieved in the shift of the company’s Travel Bureau into an office containing 200 sq. ft. less than the one formerly occupied. Located adja-

cent to the accounting area to facilitate the processing of ticket and hotel requisitions for all company traveling, this 340 sq. ft. office was given an especially rich decorative treatment as a compensation for the reduction of space (photo, opposite page). Space per employee here averages 68 sq. ft., as against the 80 sq. ft. recommended by the Metropolitan Life Insurance Co. for individuals working in open areas, but thanks to the combination of a pleasant decor and equipment closely tailored to individual needs, the five occupants boast that this office is far superior to their old one.

Pictured above is a typical Bergson solution to the problem of shifting junior executives from space-eating private offices to open areas without too drastic a sacrifice in privacy and prestige. Though a fully walled office of equal size would be oppressively small, this 64 sq. ft. enclosure provides with no sense of crowding all the essential facilities—a 60 in. desk with a bank of drawers and a counter to extend its working space, a good-sized bookcase and room for one or two visitors’ chairs in addition to the desk chair. Private conversations and machine noise are muted by the carpet and acoustical treatment of ceilings, screens and bookcase backs. Typewriter noise is reduced about 50 per cent by putting the machines on interchangeable sound absorbent panels set in counters backed by acoustical screens. These patented screens are a sandwich of insulating material between perforated sheets of gray enameled steel framed in walnut-stain birch—a combination of finishes chosen for both good appearance and ease of maintenance. To facilitate rearrangement with various types of office equipment, the waist-high screens are produced in standard 3 and 5 ft. lengths. The use of rubber-backed carpet makes possible easy patching of holes cut for floor attachments of the screens when a new partition arrangement is desired.
HOSPITALS

Not more beds, but more facilities for keeping patients out of bed is the biggest remodeling need of existing hospital plants

When a business faces the problems presented by an obsolete plant, decision emerges from the hard logic of dollars. Only a lunatic businessman would consider a plant replacement or modernization program that promised to bring losses instead of profits.

The fact is, however, that in the last few years hundreds of businessmen have been enthusiastically approving plant modernizations that are sure-fire deficit producers, and much of the money has been furnished by the biggest banker in the world—the U.S. Treasury. In these cases neither businessman nor banker was loony; these are just the normal loony economics of the hospital, where science shapes the product, the customer determines the price and management tries to answer the demands of both.

Like the apocryphal vendor who didn't mind losing a little on every hot dog because he sold so many, the hospital board must meet the community's need for expanded service, unshaken by the knowledge that each new room or service is unlikely to pay for itself. Unlike the vendor, the hospital manager usually knows exactly what he is doing; he is seeking the best possible compromise between the conflicting demands of science and economics, conducting his perilous business at the precise point where the upward thrust of advancing medical technology meets the dead weight of unbearable expense.

Operating a community facility without profits from which replacement costs normally come, the hospital with a down-at-heels plant is under heavy moral obligation to use its buildings as long as they offer reasonable assurance of keeping patients warm and dry. Its other obligation, of course, is to provide modern, scientific care under conditions of absolute comfort and safety.

Of some $540 million spent for construction up to last January under the Federal government's Hill-Burton Act, less than half was for new hospitals. The greater part, according to a recent report from the U.S. Public Health Service, which administers the Act, was for additions and alterations to existing plants. According to architects who do both kinds, the new hospital, difficult as it may be, is a comparatively simple design problem alongside the average addition project. "Nothing to worry about but all that nice, clean space," a veteran hospital architect said not long ago, dismissing the new hospital with a wave of the arm.

"This is real hospital practice," he went on, bringing out a plot plan and unrolling it across the table in his office. The plan showed eleven buildings on a five or six acre site at Evanston, Ill. The buildings ranged from a brick cottage built 60 years ago to a modern, 120 bed addition now nearing completion. Erected at different times and for different purposes, many of which have long since become outmoded, the buildings had been linked together successfully in the last two stages of the construction program, so that the completed hospital of 400 beds will offer modern facilities in all departments. Yet no building has been destroyed or discarded—an economic fact in which the architect, Carl Erikson of Chicago, takes justifiable pride.

While 100 per cent salvage like this makes economic sense in the hands of skilled hospital planners, this, unfortunately, is not the case for all hospital remodeling plans. The very first question that the qualified architect is apt to ask about a hopeful hospital remodeling program is, "Would it be cheaper to demolish the building and start all over again?" But to ask this question in the penetrating terms necessary to get a realistic answer, the architect must today be the master of a field of extraordinary breadth and complexity. One way of grasping the extent of his job is to realize that in the hospital there is no such thing as an "unrelated" building element.

Handrails along the hall?

Take such a deceptively simple matter as refinishing a hospital floor, for example. Surely, the unwary might say, the same standards of durability and low maintenance cost that apply in other modern buildings will apply here, too. The answer is that these standards are only the beginning—and very far indeed from the end—of the hospital architect's thinking about how he will refinish that floor. He will need to be aware that today's practice of "early ambulation" puts to a large percentage of surgical and obstetrical cases on their feet on this floor he is thinking about. This means, architect Aaron N. Kiff says, that "continued use of highly polished tile, terrazzo and other such floors must be seriously questioned" and that the planners should also ask themselves "whether it would be desirable to install handrails along patient corridor walls to assist the patient." The hospital architect will also need to consider his floor finish in relation to modern methods of bacteria control. If a simple method of dust control by coating the floor with paraffin oil is deemed adequate, this will affect the decision on the new floor finish. If, on the other hand, the hospital has decided to install, say, glycol generating equipment for more complete control of air-borne bacteria, dust control would be a less important consideration in the choice of a floor finish. And when the selection of a floor finish has satisfied all these considerations, the architect—if he is a real hospital architect—will still be obliged to ask himself, "Is my floor finish so hard that pounding footsteps along the halls will mean noise in patients' rooms?"

This is only a small example of the breadth of knowledge
and insight which the hospital architect today must bring to the question of "How much will it cost to remodel this hospital building?" But if the question is an extraordinarily complex and delicate one, it is also a very large one. There are slightly more than 6,000 hospitals in the U. S. today. Half of them are more than 26 years old, and more than a third of them are more than 40 years old. When this statistic is placed against the fact that medical advances are taking place at a rate which, in the opinion of hospital administrators, demands a complete renovation of the hospital plant about once every decade, the size of the job is alarmingly plain.

Perhaps both the hospital architect and the hospital administrator could start answering the question of how much it will cost to remodel a hospital by turning it around. The cost of continuing hospital operations in an obsolete plant is uncommonly high. It is a cost made up first, and most importantly, of the cost in mortality rates to a community where modern hospital facilities for diagnosis and therapy are not functioning as efficiently as they could be. The next element in the high cost of not modernizing a hospital plant is, of course, the high cost of operating in these older buildings. With its large wards, long corridors and 15 ft. ceilings, the hospital building of 50 years ago is a monument to an easy day when fuel was cheap and plentiful and nurses were glad to work 18 hours a day for bed, board and pin money. In our more complicated economy, the nurse's steps must be metered like the fuel oil.

Dr. Fred G. Carter, the seasoned director of St. Luke's Hospital in Cleveland, says that the cost of operation in a badly planned hospital may be $25,000 a year more than it would be in a soundly planned one. The arithmetic on this is that $25,000 at 4 per cent over 24 years amounts to $1,016,147.71—or enough to pay for a well-equipped new structure of 100 beds.

The third element in the high cost of not modernizing applies in startling terms to most old hospital buildings. This is the high cost of building maintenance. Said Dr. Carter, recalling an inspection trip through a hospital plant where all ceilings were 18 ft. high: "For 80 years this hospital has been heating, painting, washing the walls and otherwise maintaining the equivalent of a five-story building and yet has had the use and income of only a three-story building during the entire period."

Most qualified hospital architects would hasten to point out that an 80 year old hospital building would have not only dimensional deficiencies but also piping and other utility deficiencies of a size to suggest demolition as a sensible way out of the remodeling question.

Says Marshall Shaffer, chief architect of the U. S. Public

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Health Service: "Because the modern hospital requires so much plumbing, it is a very costly process to renovate an old building. It is usually simpler and cheaper to put on an addition and relegate the older space to some auxiliary function, such as storage." This last is considerably more important than it might seem at a glance. Says hospital architect Isadore Rosenfield: "Few old hospitals have more than a quarter of the storage space they need."

If there is anything more depressing to the hospital architect than a really old hospital building, it is an old non-hospital building. Leading hospital architects say they have to spend considerable time in discouraging optimistic hospital boards from snapping up supposed bargains in existing non-hospital buildings. If the question is "Can some old brick building which the town is anxious to give away be turned into a modern hospital?" the answer is invariably a sharp "No" according to architect Isadore Rosenfield. The cost of converting a non-hospital building to a modern hospital plant would be out of all proportion to the satisfaction that such a remodeled building could possibly give, Rosenfield says.

**Room for parking**

In the case of the large urban hospital plant, there is an important new factor which may dictate demolition of an existing building rather than relegation to auxiliary use. This is the great need for parking. Parking space for doctor's cars was so vitally needed in the case of St. Luke's, a great hospital near Chicago's Loop, that architect Carl Erikson decided to demolish a nurses' residence in order to release 13,000 sq. ft. (an extremely valuable piece of real estate) for use for doctors' parking. Some cities (Los Angeles and Bryn Mawr, Pa., are examples) now take the city's hospital's need for parking so seriously as to require one car parking space for every hospital bed and occasionally this ordinance is enforced retroactively.

Another—and even more compelling—consideration which sometimes tips the scale in favor of demolition instead of remodeling is the fact that modern hospitals today must plan with regard for each other. Architect Rosenfield was recently retained by three Philadelphia hospitals contemplating remodeling. He advised them to scrap their present plants and join together in putting up a first class medical center with teaching facilities. He bolstered his advice with a study made by two hospitals in New Haven which compared the cost of rebuilding two separate plants or one large new one. Excluding the cost of construction, the hospitals found they could save $103,000 a year in operating costs by building one large plant, as against the cost of operating two separate hospitals. While such figures are impressive to hospital administrators, they are apt to be even more impressive to the citizen at large, whose funds, in one way or another, are underwriting the high cost of modern hospital facilities. The high cost of the diagnostic and therapeutic facilities now essential in the modern hospital makes it more important than ever for all the hospitals in a community to plan their plants so that there will be no unnecessary overlapping and duplication of these facilities.

All of these factors point to the fundamental which underlies all sound hospital building. This is that a master plan for the hospital must be drawn up before the smallest remodeling step is undertaken. The master plan will begin by attempting to measure the hospital's role in the community for many years to come and may end with such details as placing an easily removable storeroom next to a laboratory earmarked for future expansion. The master plan is the joint responsibility of the hospital architect, the hospital administrator, and the hospital board. Whatever its final shape, it will have two indispensable elements. These are provision for future expansion and for flexible use of space. In this day of accelerating scientific advances, perhaps the only certainties that hospital planners can count on are that 1) increase in population plus increase in ability to pay for hospital care (private insurance plans, Social Security funds etc.) will mean increased demand for hospital facilities; 2) new medical discoveries will make new demands on hospital space. Fortunately, the hospital planner can, by keeping abreast of the continually advancing front of medical science, predict to some extent the direction which these new demands will take. Above all, the planners can be sure that the hospital will continue its conversion from a surgery with beds attached to a laboratory where early diagnosis and prompt therapy is increasingly eliminating the need for surgery. This is the marvelous change that has taken place in the hospital over the last half-century; it is, as Marshall Shaffer puts it, "no longer a place where people go to die, but to get well."

Dr. J. J. Golub, head of New York's famed Hospital for Joint Diseases and consultant on hospital planning in a number of cities, estimates that over 50 per cent of all hospital admissions are now nonsurgical patients. What this means to the physical shape of the hospital can be measured by Dr. Golub's estimate that 80 per cent or more of total cubicage in a modern hospital is now taken up by auxiliary services, with only 20 per cent of cubicage allotted to bed space. In a large medical center, equipped with teaching and research facilities, bed space may amount to only 10 per cent of total cubicage. Merely over the last decade the number of X-ray processes performed in a modern hospital has doubled or tripled; the number of laboratory processes has increased four or five times. Few existing institutions have been able to increase space available for X-ray and laboratory functions in anything like this proportion. Remodeling jobs now underway show how great the average hospital's need is for this kind of space. In the program now underway at the University of Pennsylvania's hospital, Architect Carl Erikson is increasing X-ray space from 14,000 to 25,000 sq. ft. At New York's Mt. Sinai, architects Kahn & Jacobs and York & Sawyer are increasing X-ray space from 3,500 to 8,500 sq. ft.

Despite the increase of industrial injuries and traffic accidents, hospital experts expect the number of patients requiring surgical treatment to continue to drop. Dr. Golub suggests the probable next steps in medicine's great advance as 1) diagnostic procedures providing for even earlier recognition of disease—in a "preclinical stage"; and 2) further progress in endocrinology which may help prevent the involutionary states of old age.

All these new directions suggest that new beds are not precisely what the older hospital needs. In the new building now taking place with benefit of Hill-Burton funds, the federal push is justifiedly for increasing hospital bed capacity in sections of the country where there are less than 4.5 beds per 1,000 population. On the other hand, in master plans for going hospitals where both extensive remodeling and additions are called for, emphasis is much less on increasing bed capacity than on increasing the facilities which will keep people out of hospital beds or, at any rate, shorten their stay.

Emphasis on the diagnostic and chemotherapeutic facili-
DOUBLING THE DIAGNOSTIC FACILITIES is an important part of the remodeling program worked out for New York's Mt. Sinai by architects Kahn & Jacobs, York & Sawyer. Master plan calls for $6.5 million worth of new building and remodeling, which will increase bed capacity by only 160 beds (total 1,000) but add a complete new obstetrics wing and new research laboratory. Space for increasing the X-ray department shown here to a total 8,500 sq. ft. was obtained by moving former refrigerator and storage rooms to a centralized kitchen in the new building.

X-ray department is organized in two sections, one for ward patients, the other for private patients. Each section has separate waiting rooms for ambulatory and for stretcher patients. Two diagnostic rooms (lead-lined) are served from central X-ray control room. Note smaller rooms for film-loading and storage, with pass-through to control room.

An interesting part of the Mt. Sinai program is provision for a premature nursery of 40 basins (for which the hospital gets Hill-Burton funds). New methods of care for premature babies have led to a cooperative provision of these nurseries in several large hospitals in each city to which smaller hospitals send such cases.

ties of the hospital is basic in all the master plans which the leading hospital architects are now making for hospitals undertaking remodeling and additions. Here are some of the new ways in which these architects think older hospitals most need to re-allocate their use of space:

More outpatient facilities. Architect George S. Holderness told the American Hospital Association convention last month, "Throughout the land there is a hue and cry for more and more hospital beds, but in many cases this would be reduced to a mere whisper if the outpatient arrangements were planned and geared to maximum efficiency. The greatest service that the outpatient department (OPD) can render is to eliminate needless admissions to the hospital. How well it can do this depends on its location, size and arrangement and on its integration with the rest of the hospital."

"Frequently facilities for X-ray, laboratories, basal metabolism, etc., are so hard for the OPD to reach that the only way to avoid this bottleneck is to sign the outpatient up for a sojourn in one of the hospital's overworked beds.

"Many hospitals think that a joint use of staff by the OPD and the wards is as important as the joint use of laboratory facilities. When the OPD is not conveniently located for traffic from the wards and when there is a notorious delay in the clinical procedures, the star members of the staff are not easily lured from the wards, and the all-important work of the OPD becomes the responsibility of less experienced doctors and students."

Holderness suggests that an ideal plan would put laboratory and other common facilities in the middle, flanked by the OPD on one side and the wards or nursing units on the other, but, unfortunately, it is only in one-story hospitals that this can be completely achieved. In multi-floor jobs, all nursing units and laboratory departments should be in direct contact with a single bank of elevators, "which thus becomes the hospital's life line, serving all of its organisms and providing articulation for the entire plan."

FIVE OLD HOSPITAL BUILDINGS, all overcrowded, will be unified and expanded by master plan prepared for New York's St. Vincent Hospital by architects Eggers & Higgins. First step was demolition of one old building and replacement by a complete new structure. Second step (shown left) was complete renovation of an existing seven-story building. Main problem was three old stairways, none of which met fire regulations. It was possible to enclose one of these; the other two were removed completely and replaced by a new stairway cantilevered outside the building line. One of the stairs was a grand, ornamental staircase, and the architects were able to convert the space they salvaged by its removal into the variety of facilities shown in diagram (left).
Hospitals

Corridor in Latter-Day Saints Hospital, Salt Lake City. Note elimination of glaring reflections by acoustic treatment of ceiling, also new fluorescent lighting.

Photos (below, p. 155): Michael Miller

Modern architecture permits such assets as the sun traps on the roof of this convalescent branch of New York's Mt. Sinai. Views below show domestic treatment of new wing.

A modern wing has been added to the Georgian-style old building of Mt. Sinai branch by architects Kahn & Jacobs. A narrow linking building helps preserve dignity and proportions of old building and forms transition to clean lines and continuous fenestration of the new.

Pay clinics. While the outpatient department has traditionally been the place where big city hospitals provide medical care for the indigent, this is no longer the case. The happy fact that there are no longer so many indigent in need of free medical care plus the logic of making wider use of the modern hospital's diagnostic facilities has produced the "pay clinic." Pay clinics are now operated by a number of large voluntary hospitals in the big cities. Such clinics receive patients of any size pocketbook for diagnostic examination. Architect Holderness reminds that the presence of a pay clinic in the hospital plan is one more reason for planning doctors' offices as a part of the hospital. Dr. Golub backs this trend as an important means of saving doctors' time, and so making more of the time of ranking staff members available for clinical service.

The group clinic. This is a device for bringing the various specialists to the outpatient instead of requiring the patient to make the rounds of the specialists. To save specialists' steps, the group clinic must be located as a separate unit from the rest of the outpatient department (but with the same good traffic connections to the hospital laboratories). Holderness points to New York's Columbia Presbyterian as a good example: here the group clinic consists of a waiting room surrounded by a history corridor, ringed by 15 or 20 almost identical examination rooms and a small clinical laboratory (only duplication of the easily accessible main hospital laboratories.)

Double the patients? Early ambulation, that spectacular postwar advance in hospital methods, has hitherto preoccupied hospital planners to the degree that it puts more patients on their feet (bathrooms between rooms, etc.), Now leading hospital architects think that the full impact of early ambulation is just beginning to be felt. Providing for walking instead of prostrate sick is not hard, they say. What is likely to be really tough is adjusting to the fact that early ambulation has cut the average hospital stay in half. "If early ambulation has reduced the average hospital stay from ten to five days, we have doubled the number of patients to be processed over a period of time," says architect Kiff. "This means that surgeries, obstetrical rooms, labor rooms, nurseries, X-ray rooms, etc., must handle twice as many patients as they have before." Kiff thinks some pretty careful study will be necessary to show in what proportion surgeries, de-
livery rooms, other facilities must be enlarged to keep up with the increased number of patients per hospital bed. Can existing facilities be used oftener—or will they have to be doubled, too? How much will increased patient admissions affect such other facilities as, say, central sterile supply, record rooms, load in the laundry, kitchen, dining rooms? Whatever the exact answer, Kiff says, "the parts that need to be increased are the expensive parts of the hospital, and the increase will further reduce the proportion of bed to non-bed areas."

**Saving the nurse's steps.** Hospital administrators emphasize the importance of such labor-saving devices as intercommunication systems between patient and nurse. Not all planners realize that these no longer need be tailor-made. Efficient standard systems are now on the market, which put such equipment within the moderate remodeling budget.

**Fire safety.** Often the decision as to whether an existing building can be converted to house one of these new hospital services must turn on a single consideration—fire safety. Fire hazard dooms many an otherwise serviceable hospital building. Yet the fact is that many older buildings can be made safe for patient occupancy by the installation of sprinkler systems, fire doors and stairwell enclosures. Investment in such fire protection was recommended in a report released last April by the Hospital Council of Greater New York. Of 42,355 beds in general hospitals and related facilities in New York, the council reported, 8,883 are in structures judged to be non-fire resistant. "We don't mean that all facilities in non-fire resistant buildings need to be replaced," Dr. John B. Pastore, executive director of the council explained. "Some of the facilities can be made safer by the installation of sprinkler systems and other safety devices." In most cases, the report indicated, the fire hazard in New York hospitals is attributed primarily to wooden floors and partitions of non-fire resistant materials.

Some hospitals in built-up city neighborhoods find that conforming to code provisions for fire safety will also enable them to add to their narrowly circumscribed space. St. Vincent's in New York, for example, cantilevered a fire-safe stairtower outside its building and removed the large formal circular stairwell at the center of its building. Subtracting this stairway salvaged some 4,000 sq. ft for hospital services (see plan, p. 153).

**The patient is all one piece.** If the modern hospital has recognized that what happens to the patient before he needs a bed may be more important than what happens to him afterward, it is also recognizing that it has to be as interested in, say, the patient's teeth as in his cardiograph and that the condition of the patient's psyche may be almost as important as the condition of his gall bladder. This simply means that the modern hospital is the place where a synthesis of the medical specialties seems to be taking place. For the hospital plant, this means the addition of such new services as the dental clinic, the psychiatric clinic, the physical therapy and rehabilitation departments. It means broadening out of the psychiatric service to include preventative mental hygiene and a closer integration of what Dr. Karl Menninger calls "the most demanded of all medical specialties—psychiatry"—with the practice of medicine and surgery in all parts of the hospital.

To the hospital architect, this brings planning questions as various as how much space to allot for the dental service and what color to paint the psychiatric clinic (New York's Bellevue recently painted its psychiatric wards green and reported a big drop in suicide attempts). But perhaps the big effect of regard for the patient's psyche on hospital planning may be that the modern hospital will be designed in human rather than in laboratory terms. Most of the leading hospital architects are now thinking about how their buildings can help patients over the shock and fear that hospital admission brings. Perhaps our medical and scientific advances are still so new that we cannot easily avoid emphasizing them in the steel and concrete mass of the modern hospital. How to build lead-lined laboratories for handling radioactive isotopes is obviously a much hotter topic than how to make hospital entries more inviting. But as we grow more at home with medicine's marvelous new tools, hospital planners are finding time to think of that special dimension of architecture—how do the mass, the dimensions and the materials of this building affect the people who use it?

The modern hospital may never be able to go as far as the modern school, for example, has gone in capturing the emotional reassurance of domestic scale and materials, but its best examples have already come a long way from the dismal institutions which once led Frank Lloyd Wright to say: "More people die of the hospital than of the disease they bring to it".
APARTMENTS. Split-up of big luxury apartments and town houses into smaller units meets challenge of new construction

For 99 out of 100 owners, remodeling an apartment house means just one thing—making little apartments out of big ones. Thanks to the tax pattern of the last 20 years, the luxury apartment house and the single-family town house are a drug on today’s market. Few people can afford the rents these buildings once commanded or the servants required to maintain them. Saddled with skyrocketing operating costs and rent controls based on a period when the demand for big apartments was at its nadir, owners have been getting a fraction of the return produced by equal space in new apartment houses. And now that new construction and the push to the suburbs has eased the housing shortage in cities, many 1920-style apartment houses are only partially rented.

Remodeling into smaller units is the logical way out of this dilemma. However, since the war relatively few big U. S. apartment houses have been subdivided, mainly for two reasons: 1) the existing arrangement of columns, stacks, firestairs and utility cores disqualifies many buildings for remodeling—apartment house Architect George F. Pelham estimates that not one in 100 lends itself readily to alteration, that some 30 per cent are completely unsuitable. 2) Federal or local rent laws still in effect in most big cities make the eviction of tenants a long and involved process.

Luxury apartments are prime targets

Owners have found that the best bet for large scale conversion is a soundly built luxury apartment house whose character and location will permit rental of the smaller units at relatively high rates. Remodeling of this type has generally produced an increase in rental income of over 50 per cent for less than half the cost of an equivalent new structure. Because the well-to-do occupants of such buildings can now find other housing without much difficulty, they often flee from modernization instead of fighting it, thereby speeding up the remodeling work. Split-ups of medium-size, medium-price apartments usually fail to produce enough additional income to justify the cost of alteration.

There are two schools of thought as to the best method of subdividing a luxury apartment house. One advocates starting with a few vacant apartments and progressing through the building as tenants either move away or into one of the new units. (Example, see page 158.) This method maintains some income during alterations, but ties up construction money over a long period, requires planning gymnastics and the laying of costly horizontal plumbing lines so that the rest of the building can remain occupied while some apartments are being split-up. It has the advantage of providing legal grounds for eviction, since most rent laws stipulate that tenants must surrender their present quarters to remodelers if new ones in the same building are made available to them.

The other school claims that a cleaner and ultimately more economical job can be produced by emptying the whole building and remodeling in one operation. (Example, page opposite.) The problem in such a program is to get all the tenants out in a reasonable length of time, so that work can get under way before the owner loses his shirt.

The choice of one of these two methods for any specific job will depend on the structure and existing facilities of the building, as well as on local rent laws. Progressive remodeling is possible only where access to two fire escapes can be maintained for all apartments throughout the changeover. This usually means that the location of service stairs and public hall stairs in the old layout must permit construction of a corridor connecting them with all the newly created smaller units on any one floor. (In most cases, the new corridor must also become a route for garbage disposal and other functions formerly confined to the service stairs of the former, full-floor apartments.) Ceilings in gradual remodeling jobs must be high enough to permit installation of horizontal ventilating ducts and blowers for interior bathrooms and kitchens.

Complete possession of the building is often essential if additional fire stairs, elevators, incinerators and new stacks and risers must be installed. In such cases, modernization of the whole building at one stroke has some obvious advantages: 1) Since preservation of partitions around apartments that are still occupied is unnecessary, floor plans can be freely laid out to produce maximum rental yield. 2) Replacement or repair of all basic utilities at one time can cut future operating costs sharply and eliminate the possibility of having to remodel a partial remodeling job at a later date. 3) A clean-out of most of the interior avoids costly protecting, patching, matching and renovation of existing work.

Town-house-to-apartment conversion

Because the split-up of town houses into small apartments involves fewer headaches and even more profit than the subdivision of big apartment houses, by far the greatest remodeling activity has been in the house field. Less capital per job is involved here, eviction of tenants is easier and the financial returns are often fantastically high.

Remodeling of a typical, narrow five-story town house usually produces two tiny apartments on each of the upper floors (one at the back, the other at the front) and either a duplex or two full-floor apartments on the lower floors. A new self-service elevator, incinerator and fire stairs are squeezed into an expanded version of the old stairwell, and ventilation of new interior bathrooms and kitchens is provided by ducts and blowers. Most remodelers ignore the problem of getting more light and air into the new apartments and rely on existing fenestration.

Yet modern architects have a good answer to the problem. Replacement of the typical high, narrow windows of these old houses with large areas of glass, as Morris Lapidus has done in the house shown on page 159, is a logical way of giving small apartments not only light and air but a sense of spaciousness. Whether the glass facade should be on one or both of the two exposed ends of the house, or whether it should be partly translucent or completely clear will depend on the neighborhood and the orientation of the building. The rewards of using glass boldly in town house conversions definitely outweigh the disadvantage of having to curtail the big windows heavily at night to gain privacy.
Simultaneous split-up of all full-floor apartments will triple investment yield

Here is an example of what may be accomplished by almost completely cleaning out the interior of an old apartment house and remodeling it as a unit rather than piecemeal. Conversion of this 34-year-old structure on New York's fashionable 72nd Street from 12 full-floor suites to 62 small apartments and six modern stores will more than triple the net return on the investment.

The decision to remodel the whole building in one operation was based on three factors: 1) Since the structure was only partially rented and most tenants were dissatisfied with their oversize quarters, it has not been difficult to persuade tenants to move (New York's rent law prohibits eviction unless comparable space is found for tenants); 2) Required installation of a new fire stair and an incinerator would not be possible in a floor-by-floor alteration; 3) Analysis of the building convinced Architect George F. Pelham that it would be more economical in the long run to scrap most existing partitions and facilities (plan, right) and create a completely new interior with floor plans designed more for high rental yield than for short-cuts in construction.

The new plan for each floor (below) makes maximum use of perimeter space by providing three interior bathrooms, vented by blowers and serviced by new plumbing stacks. One obvious compromise is an incinerator which some tenants can reach only by walking the length of the hall.

First floor frontage is now being altered to provide 2,500 sq. ft. of store area with an additional 1,460 sq. ft. of selling basement, reached by an existing elevator and basement stairs. The street facades (photo, below) will be modernized by removing the cornice and lowering the front parapet walls to provide a spacious terrace for new apartments in the former penthouse laundry.

In its present state the building netted about $30,000 yearly on a $700,000 original cost. With a total expenditure of $1,200,000 ($700,000 purchase price, $500,000 remodeling cost) the new owner will net $155,000—figured on a free-and-clear basis, a 12.9 per cent return on his investment.

**LOCATION:** New York City
GEORGE F. PELHAM II, Architect
Gradual division of luxury apartments into smaller units maintains income during alteration, will ultimately boost rental return 57 per cent

This sumptuous 1920-style Fifth Avenue apartment house is being subdivided by a method which is the exact opposite of Architect Pelham's (preceding page) but far more widely used. Instead of waiting until the building can be emptied, the new owners are splitting 22 big apartments into 60 smaller ones as tenants vacate so that some income is produced during alteration. Unlike Pelham, whose aim is a thorough, clean modernization at one stroke, Architects Siegal & Green are trying to preserve this building's traditional features on the theory that people still like the large rooms, elaborate fireplaces, rich paneling and high ceilings which new apartments can't provide because of high costs.

To achieve this and yet avoid extensive patching and matching of existing trim and moldings, the architects have made maximum use of existing partitions and facilities. Even so, it has been necessary to run costly horizontal plumbing stacks as much as 35 ft. to some new bathrooms or kitchens so that service could be maintained to other floors during alterations. And remodeling of any one floor can't be undertaken until enough old apartments are acquired to permit cutting a corridor which will connect all new apartments with both fire stairs.

Because the building's choice location overlooking New York's Central Park insured its continuing luxury appeal, and because no new Manhattan buildings offer apartments of more than six rooms, the owners decided to provide some eight and nine room suites as a competitive feature. The other remodeled apartments range in size down to three rooms, and individual floor plans differ widely. (The ones shown below are for the 6th to 11th floors, before and after alterations.)

Besides maintaining some income during the change-over, piecemeal remodeling gives New York owners legal support for eviction of tenants. Under the state law, tenants get first claim on smaller apartments carved out of their building, but if they refuse to take this new space, they must eventually turn over their own quarters to the remodelers. In this case, some tenants have chosen to move out to avoid the inconvenience of living in a building under alteration.

Purchase price of the building was about $1 million (subject to a mortgage of $825,000). Remodeling at an estimated cost of $500,000-$750,000 is expected to increase gross rental income from $141,000 yearly to $325,000 with little change in operating costs.
Glass-walled apartments convert old brownstone to a modern money-maker

LOCATION: New York City
MORRIS LAPIDUS, Architect

This transformation of a typical 72nd Street brownstone has proved to be 1) a whopping financial success for the owner and 2) a capsule of the assets and liabilities of a clear glass street facade for city apartments.

With a minimum of interior alteration, Architect Morris Lapidus has remodeled a single-family residence that could not have rented for more than $250 a month into a rent-free duplex for the owner, four tiny \( \frac{21}{2} \)-room apartments and a ground floor doctor's office which yield a combined rental of $1,050 a month. Purchased with a $50,000 mortgage and remodeled for $65,000, the building now nets about $5,600 a year, without income from the owner's apartment. Full paying occupancy would produce a 14 per cent return on cash invested. About $6,000 of the remodeling cost went into a new steel and glass facade, framed in red Roman brick and accented with copper window boxes. Other major items were a new self-service elevator and an incinerator, economically combined in a single shaft, and a complete rewiring job.

Since the brownstone was hemmed in on two sides (a new structure is going up on the east) and overshadowed by a taller building in the rear, a glass-walled street facade was a logical means of providing maximum light and air for at least half the interior. Clear glass was used above the ground floor to produce a sense of spaciousness in the small rooms and permit "a look at the weather." Also, with a northern exposure, big windows compensate for the lack of sunlight.

The chief disadvantages of this treatment are 1) at night, privacy can be achieved only by screening the windows with a costly expanse of opaque curtaining or fixed shades, 2) seen from the street, the variety of curtains used by tenants give the facade a cluttered appearance, and 3) there is a minimum of insulation against the noise of a busy street.

Though the building is now fully occupied, the problem of how to handle the large glass areas discouraged some prospective tenants. The adjoining building—remodeled along conservative lines into apartments of similar size and price—was rented more rapidly than the Lapidus job.

Traditional in her tastes, third-floor tenant likes the big windows, but augments rattan blind with heavy drapes to gain privacy and tie window in with period furniture.
SCHOOLS

For the headache of renovating them the reward is twice the value for the tax dollar

“School renovation is a crucifying experience, but it costs far less per pupil and per unit of value than the good clean fun of new building.” So says Stayton Nunn, the architect statesman acting as school coordinator for the burgeoning city of Houston.

Nunn’s sharp analysis, based on four postwar years, is important to any fast-growing American community. Houston’s population, like that of Seattle or Los Angeles, is rapidly outrunning the sources of tax money and the limit of bonded indebtedness. Double care must be taken to get the utmost value for limited funds. Since World War II, Houston has had $35 million to put into schools. When this has all been spent, $1 million will have gone into sites, $8.28 million into four spang new high schools, $9.25 million into 29 new elementary schools, and then $16.47 million—almost half the total—into additions, alterations, and renovations.

Within the general field of remodeling, coordinator Nunn distinguishes sharply between additions and renovations.

Additions carry no bargain tag. In Houston, since 1946, additions to existing schools have consistently cost about the same per square foot as comparable new structures built separately in the same market. Today this means $12 to $14 per sq. ft. The decision whether to add new rooms to existing plants or to put them in new buildings has not been a price decision but a policy decision.

Alterations and renovations, as contrasted with additions, are a big bargain. In every case, though the lump sum has seemed large, the yardstick has proved the unit cost to be small. “At costs ranging from $1.75 to $2.50 per sq. ft. of existing permanent buildings altered or renovated (excluding additions) it has been possible to raise the esteem in which these older schools are held by their pupils, teachers, and patrons so as almost to equal the esteem for new schools, costing $12 to $14 per sq. ft., by those who use them.”

In highly concentrated mature cities such as Philadelphia or New York, renovation is a land problem rather than a building problem. New York’s $5 million annual renovation program is based mainly on the extreme difficulty of finding and financing new sites.

The following are the steps most frequently taken:

*Directional glass block increase light at innermost desks; here they required no change in the structural openings.*

**Major items of renovation**

*Heating.* Old inefficient boilers may be replaced by compact heating plants using fuel currently less costly. When renovation is coupled with new construction, the new compact boiler is put in a new compact room and the old large boiler room converted into a cafeteria or industrial arts room. New code standards may involve a change-over to a new combination of heating and ventilating. In New York, ventilating air is supplied through ducts only in polluted sections. In other sections ducts are being torn out in favor of window ventilation and simple mechanical exhaust fans; enough radiators are installed to do all heating. Current heating theory recognizes that once school is on, the pupils themselves supply more than enough heat, and even on average winter days there is cooling to be done rather than heating (BUILDING, Oct. ’49, p. 144). Radiators can then be turned off and no fuel is wasted on prewarming ventilating air which is destined for the out-of-doors. Many school districts install unit heater-ventilators, because these turn off the heating element automatically when the room is in balance, and they direct the path of the ventilating air, taken direct from the out-of-doors, more scientifically. Other school systems prefer to maintain the ductwork and the single large motor of a central ventilating system rather than the many motors and the many wall openings of unit systems.

Insulation is rarely introduced in sidewalls of schools but goes under the ceiling of the top story or under the roof felt when that is replaced; also, many existing schools need proper insulation over boiler rooms.

*Lighting.* Today’s codes ask for anywhere from 15 to 30 foot-candles of light at every desk; existing rooms may supply the innermost desks with only 3 to 5. Upgrading begins at the windows, where directional glass block may be set in existing openings (sometimes without structural change, see photos below). These blocks re-direct a share of the daylight from the window to the ceiling from which it is reflected to inner desks. A similar result may be secured from tilted plastic panels at windows; however these require more maintenance.

*Fluorescent lamps deliver up to three times the light from existing conduits and outlets and are favored in renovation.*
As the next step, electric lighting is increased and room colors brightened for high reflectance. In renovation, fluorescent lamps have the unique advantage of tripling the illumination at the same wattage, so it may be possible to meet new higher standards without multiplying outlets or touching the conduits—photos below. (The revised wiring system has to carry not only increased lighting but new items: clocks, intercom systems, visual aids. In order that many more wires may be drawn through existing conduits, many city codes permit the use in remodeling of wires with thin-walled plastic insulation, which in new schools may be prohibited. In several other respects old wiring must be upgraded to new code standards.)

A better luminous environment for children demands not only more daylight and electric light but uniformly lighter surfaces in place of "schoolroom brown." Desks are sanded to restore the blond natural tone. Floors are sanded. The aisles between old fixed desks are usually worn down to the nail heads, prohibiting re-use of the good old hardwood floors. Asphalt tiles in light colors (linoleum in kindergartens and nurseries) are then laid over the smoothed-down existing floor. Old "blackboards" are reduced in area in favor of bulletin boards or replaced entirely by light colored chalk-boards. Walls and ceilings are painted in high-key colors reflecting 60 to 80 per cent of incident light. The result of these measures in combination may be a "miracle."

Sound control. Most measures are indirect: insulating air ducts, replacing noisy old "tin" lockers, and the like. Sound absorbing material may be applied to ceilings or sidewalls above the door and chalk-board height.

Structural. There is rarely any economy in renovating a run-down wooden school, or masonry schools whose defects lie deeper than the face brick. Roofs are frequently replaced (and simplified in shape); stairs enclosed in fireproof towers; rotting cornices and gingerbread smoothed off for easier exterior maintenance; old sash replaced; nonbreakable glass or plastic windows installed next to playgrounds.

An unavoidable consequence of trimming away excesses is that the old school often loses its character but fails to gain the qualities that really make "simplicity" good in new architecture. Remodelers should be less somber, should not fear adding some playful decoration such as the older architecture needs. Renovation should be not a sad stripping but a reincarnation.
Addition and renovation redoubles school capacity at two-thirds the cost of new construction

Like many a hustling city of the Northwest, the town of Lebanon, in Oregon's Willamette Valley, was producing children faster than it was producing money. By 1947, some 700 of these children found themselves crammed into the nooks and basement of an old 1910 school, plus a 1935 gymnasium, originally intended for 450 children. Meanwhile the school fathers, watching a 70 per cent enrollment increase in ten years, counted over and over again the $500,000 in their school plant budget and figured that it gave them only $600 for each of 800 pupils, or one-half the cost of the necessary space in new buildings. So Superintendent J. W. King called in architects Freeman, Hayslip & Tufts of Portland, accustomed as they were to 100 school jobs a year—one-fourth of them renovations.

It was a combined renovation and addition program that King and the architects agreed on—the most efficient kind of an operation because it permits playing leapfrog with the work and playing football with the different needed spaces. The first of eight stages was the erection, in 1948, of a $75,000 new heating plant hooked up to the old buildings. Benefiting from stage one, stage two made a kitchen and cafeteria out of the big old boiler room that had been occupied by the oversized old boiler. New, these rooms would have cost $25,000. The conversion cost $6,500. Saving: $18,000.

Stages three and four consisted of adding new one-story wings north and south, plus two new main entrances to replace the former central entrance. Completed July 1949, these wings cost $152,000.

Stage five was an elaborate alteration to the old central school. A whole group of fractional little rooms around the stair was changed around as may be seen in the comparative plans across-page. This was done by boldly tearing out the tower front and the recessed middle part of the front wall, eliminating the wide front stair, and rebuilding this central bay out forward. Net gain: four new classrooms.

Meanwhile existing rooms were rewired, refloored, refinshed; all the old wooden window sash were torn out and replaced with glass block over vision strips (see photo); the decaying brick of the exterior was stuccoed and the rotting cornices were replaced by a continuous parapet which half-hides the graceless irregularities of the inherited roof shapes. Stage five was completed October 1949 for $130,000.

Stages six to eight involve further refinements: the remaining 1935 basement space is already converted into well lighted, well ventilated dressing rooms, showers, locker rooms (cost, $40,000); two classrooms are being converted into an acoustically treated music room: a future new $100,000 gym will let the present room be exclusively an auditorium.

Because of this work of Superintendent King and his architects, for many a year the school board and citizens of Lebanon will enjoy a happier Christmas. For a total of $430,000, including the architects' fees and excluding only loose equipment, Lebanon possesses 27 teacher stations, ample space for 800 pupils, and a bonus in shops and gym. The total cost has been $540 per pupil or $7.90 per sq. ft., less than two thirds the cost of new space not much better. Says Hayslip, "We don't always recommend this solution; we suggest that those who go in for it do so as Lebanon did—thoroughly."
Comparison of gray plans above (the old school) with plans below shows how Lebanon gained four additional classrooms. Library (top plan) became two classrooms; two little classrooms on the same top floor became two big ones; cut-up office space next to stairs, on the old first floor, became the library (offices were consolidated in more efficient space); the corresponding small rooms in the basement became the art room; the big old furnace room with adjoining basement storage space became the new cafeteria and school kitchen.

Renovated classrooms have plenty of electric light, asphalt tile, bright light-reflecting surfaces.
HOTELS. New owners dig for gold in outsize lobbies, put restaurants on a profit basis, replan rooms to meet needs of today's light-traveling, auto-driving, increasingly female-accompanied guest

Most of the hotels built in the great hotel-building age between 1905 and 1930 can be bought in now for a fraction of what it would cost to build a new hotel. But the low price of these old hotels reflects low present earning power and a physical plan strikingly maladapted to today's changed conditions (indeed, most of them have a plan maladapted to any conditions).

Since the war these old hotels have been selling like hot dogs, and smart traders have realized some big profits out of the re-financing involved. But few of these bargains in old brick and stone yielded any substantial operating profits until anywhere from $1 to $3 millions had been spent putting them in shape to meet today's demands.

The Hilton chain bought New York's Plaza cheap when it was clearing only about $5,000 a year, but has since poured over $6 million (only $1 million less than the purchase price) into renovation of this queenly old hotel's outmoded plant. When the Sheraton Corp. acquired the Park Sheraton in New York, the hotel lacked even a dining room. Sheraton spent a half-million putting in a dining room and re-doing the lobby, boosted earnings 15 per cent. Realtor Leo Corrigan thought Dallas' huge Adolphus a bargain at $3.5 million, promptly spent $2 million refurbishing this full-blown sample of Gothic Brewery. And even such fast-moving traders as Julius Epstein, who built a hotel empire of about 8,000 rooms in the two years after the war, find that they must put in some big money before they can expect to take much out. Epstein, for example, got the shuffling old Deshler-Wallick in Columbus for $2.5 million, has since spent $1.5 million improving it.

Despite climbing break even points and falling occupancy ratios, the enterprising chains have proved to their satisfaction that the blush is not yet off the hotel boom. By putting in only about $100,000 in remodeling money and making other operating economies, Hilton, for example, increased Palmer House annual gross by $1.7 million.

The Washington Statler, first big hotel to be built in the U. S. since the plop of hotel bonds in the Thirties, convinced almost everybody that an intelligently planned hotel, even if built at a cost of $9,000 a room* (1943), can make money—over $1 million net for every operating year since it opened, as a matter of fact. Older hotels who have consistently spent remodeling money to keep up with the times show consistent earnings in almost the same proportion. The 35-year old Muehlbach hotel in Kansas City, for example, is one of the most profitable hotels in the country. Hotel men say that owner Barney Allis' continuous remodeling and renovation program is the basis of his ability to maintain room rates at the level of big Chicago hotels.

Most of these generation-old hotels present plenty of room for what Conrad Hilton calls "digging for gold." Many of them were built by public spirited sponsors as a monument to a local big-wig or to the fact that the home town had burst into a city. Such builders, encouraged by the brisk appetite of the era for real estate bonds, were in a mood to sling plenty of marble, mahogany and empty space around. In many cases, these lavish piles were designed by one hotel architects who learned hotel economics from the mistakes they made on their one hotel. But even those hotels which were most skilfully planned to meet the needs of the Twenties (when Ellsworth Statler showed just how much the traveling salesman wanted a room with a bath) confront a very different kind of business today.

Here are some of the main ways in which the smartest hotel men say the hotel business has changed:

1. The class which used to support luxury hotels like the Plaza is now so heavily taxed as to be an almost negligible factor in the hotel business. The big spenders in hotels today are traveling on expense accounts, 42 per cent of which represent tax money.

2. The restaurant must return a substantial profit. Yesterday's hotel owner figured his restaurant was doing well if its losses weren't more than 10 per cent.

3. More than half the restaurant patronage must come from the street instead of from the hotel's room guests. This makes the street entrance to the restaurant more important than the lobby entrance.

4. More people want to eat in a hurry—the Cordan Bleu graduate is a vanishing American and even the Waldorf-Astoria has installed a lunch counter.

5. More women are traveling today.

6. Everybody travels lighter. This does not just mean smaller closets and bureau drawers compressed into a single desk-bureau-luggage-rack unit. It also means that the whole tone of the public rooms should be so that the guest travel-light will be unembarrassed by not having clothes in, which to live up to impressive surroundings.

7. More people are traveling by automobile. The fact that motels have doubled over the last ten years has scared many a downtown hotel into providing a parking garage.

*MONUMENT TO THE AMERICAN PAST: Plaza's Palm Court, where Hilton moved no potted palm

*Average cost of the big hotels built in the Golden Twenties was about $7,500 per room. The depression wringer squeezed the book value of most of them down to $3,500 per room or less.
and, where this is at all possible, a special registration desk which permits the driving guest to proceed directly from car to room without going through the main lobby.

8. Retail rents must make a bigger contribution to the profits of the big downtown hotel. Horwath & Horwath, hotel accountants, consider a big downtown hotel in really safe financial condition when ground floor store rents amount to enough to cover taxes and interest charges on the land. One big reason why the Ritz-Carlton in New York (soon to be torn down) cannot make enough money to justify continued use of its valuable Madison Avenue site is that the lobby and elevators are so located that these retail possibilities cannot be developed without a major operation.

9. Travelers want to do business and entertain in their hotel rooms, without paying the price of a suite. This, of course, has led to the dual-purpose hotel room, popularized by the Washington Statler (See BUILDING, June '43, June '50), and by now probably the biggest single item in all big hotel remodeling programs. The newest wrinkle in making the guest room work harder is being tried out by Barney Allis at the Muehlebach. Allis is now building a $1 million, 115-room addition, in which a number of rooms will be planned for three-person occupancy. He believes that three men, or three women, attending a convention don't mind being in the same room—if the room is laid out so that they will all be comfortable.

10. Labor costs more—much more. Moves to counter this big cost increase have ranged all the way from installing public address systems to replace paging and making sure that the new "studio" room bed is designed so the chambermaid won't refuse to make it up to a major re-engineering of the kitchen layout, complete with electric chicken eviscerators and radar ranges.

More than re-chintzing the bedrooms

Confronted with all these new demands on his managerial ingenuity, today's hotel man is no longer a striped-trousered greeter in the lobby. Product of the profession which developed in the depression under the grim eyes of the bankers, he is likely to combine the imagination of an impresario with the eye of a skilled cost accountant, the knowledgeability of a psychiatrist with the resourcefulness of a supply sergeant. But he is still apt to use a striped-trousers approach to his remodeling problems.

The big hotel men who have systematically exploited the dividends of thorough remodeling say that the average hotelkeeper makes his first mistake by calling in a decorator instead of an architect. His second mistake is to fail to understand who his customers are and what kind of hotel he should be running. Byron Calboun, vice-president of Intercontinental Hotels Corp. and an expert hotel doctor, gives these as the two cardinal rules of hotel remodeling: 1) free yourself from thinking about what the hotel used to be like and try to figure out instead what kind of hotel you could operate most successfully in that location if you were starting from scratch to build a brand new hotel; 2) send for an architect and get your plan and economics right before you send for a decorator.

There are a number of reasons why the harried hotelkeeper is apt to view his problem as one of re-chintzing the bedrooms rather than of systematic analysis of space use. In the first place, he had a war-accumulated backlog of repairs to deal with, and "repairs," as Horwath & Horwath say, "are like taxes: if they are not paid this year, they will have to be paid with penalty next year or the year after." Confronting a bill of some thousands of dollars simply for replacing the carpet, the average hotel man was in no mood to talk about tearing down structural partitions. The fact that many of the new hotel owners were in the business for a quick profit on re-sale was even more influential in dampening interest in major capital improvements. Perhaps most important of all is a certain lack of competition in the hotel business. In most other kinds of business, natural competition boosts some enterprises into big profits, forces others to shut down entirely. Few hotels have ever shut their doors—even though 80 per cent of them were bankrupt during the depression. When a hotel starts losing money, it is more likely to be rescued by receivership than by remodeling. If it can't make money with a debt structure of, say, $4,000 a room, some newcomer is almost always happy to see if it can make money when the debt load has been forced down to $1,000.

While these attitudes still blacken the remodeling programs of many hotels, the big chains have demonstrated that there are other, and more profitable ways to run a hotel business. Statler, citadel of the sterilized toilet seat and the celophanated cups, climbed to the top of the hotel business by grasping the importance of the traveling salesman and building hotels of uniform quality to serve him. Statler has stayed pretty close to the top* by spending more of its annual income for repairs and maintenance than for rent (5.4 per cent as compared to 4.2) and putting an additional 5.9 per cent into reserves for future capital improvement. This chain's unremitting program of modernization has provided a guest room of such startling uniformity that an absent-minded guest, turning the ice water tap or retrieving his overcoat, cannot be developed without a major operation.

* In net profits, Statler is close second to Hilton, who owns more rooms.
night-cleaned suit from the Servidor, might suddenly begin to wonder whether he was indeed in Boston or still in Detroit.

Contrasted with Statler's long-term remodeling, Conrad Hilton's expenditure of $15 million over the last three or four years for renovating his lighting-like purchases has been more spectacular. Hilton, of course, runs his business from the point of view of an investor-buyer rather than of a builder-manager like Statler. He has made no attempt to standardize operations in any of his widely varying properties, emphasizes instead the importance of maintaining the individual character of each hotel. Hilton points to re-analysis of space use as the most important element in his formula for restoring the earning power of some of the greatest U.S. hotels. In the Palmer House, he found a large room off the lobby used for luggage storage. He put the luggage in the basement, installed a liquor bar instead. In another part of the lobby, he found a book nook paying $3,600 a year, replaced it with a cocktail lounge netting $181,000. Elsewhere, space hitherto used for employees' lockers was turned into 16 additional guest rooms.

Hilton is applying the same formula to that most baffling of U.S. hotels, New York's Plaza, with a gentle touch at which the hotel industry is agape. Survivor of the champagne-washed and diamond-bespattered era before World War I, the aging Plaza was facing a mounting shortage of guests interested in renting a $10,000 suite for the New York social season. But there was still just enough of this upper-bracket business left to make any hopeful modernizer leery of changing so much as a potted palm around the tea tables in the Palm Court. Hilton managed to make enough behind-the-scenes changes (major replanning of the kitchen and bakeries was the biggest) to reduce the hotel's unbearable labor cost, locked off a good many unrentable parlors, wisely chose to restore, rather than change, the character of most of the hotel's historic rooms. This proper reverence for a monument to the American past did much to reconcile New York socialites to the big hotel man from the West, and Hilton was able to discreetly drop a number of small stores, lobby showcases and other revenue producers around the lobby's marble columns, move a stock brokerage firm out of the main floor to make way for a liquor bar paying $67,000 a month, even lure society down to the basement with the Rendez-Vous room.

Lifting the lobby

Most of the big hotels have plenty of space that a sound economic analysis could profitably put to work. Just how depends, of course, on both the location and character of the hotel. Raymond Loewy Associates once made a study of the New York Statler (then owned by the Pennsylvania railroad) which showed that the hotel could boost its revenue by hundreds of thousands by the bold step of installing a moving stair to lift the lobby and registration desk to the mezzanine level. This would have released the whole ground floor for street-access bars and restaurants and for stores which could exploit the hotel's prime shopping location (between Gimbel's and Macy's).

Not all hotels are so favorably located for retail development (nothing makes stores pull except a lot of other stores, as William T. Snaith, the Loewy partner of retail planning says). Where location bars any major store use of ground floor space, the answer will be development of the hotel's own food and beverage profits.

Before restaurants and cocktail bars can be turned into dividends, the hotelkeeper must know exactly who he can most profitably serve there. Even in the case of the Waldorf-Astoria, this may turn out to be (in one corner at least) the office worker at lunch as well as the local nabobs at banquet time. The Statler chain was the first to demonstrate that today's business traveler, who often brings his wife along, is more at home with the carefully preserved vituans of a one-price dinner in the coffee shop than with the best flourishes of a temperamental French chef in a saloon deep in headwaiters. Since Statler hired its first women cooks and began counting the exact number of slices it could prudently get out of a slab of bacon, many another hotel has installed the moderate-priced coffee shop, planned for quick service and with a street entrance.

Let food sell the hotel

But the coffee shop is not everybody's money-maker. Take the Kirkeby group, for instance. Kirkeby, a securities dealer who fell into the hotel business in the depression, has piled up profits by finding out how to provide a lot of yesterday's hotel luxury on today's standardized and profitable basis. Kirkeby aims at the upper reaches of America's triumphant middle-class; if Statler can be said to have built for Babbitt, then Kirkeby has certainly remodeled for Babbitt's son—the one who went to Harvard, likes his steak bernaise instead of with onions and prefers Veuve Clicquot to bourbon.

When Kirkeby buys a hotel, his first move is to turn its restaurant as close as he can come into the best place in town to eat. This not only draws travelers willing to pay the average $7 to $14 rate Kirkeby gets for his luxury rooms, but has boosted food and beverage sales, in typical operations, to close to 50 per cent of gross (30 per cent is the usual ratio).

Kirkeby's rule—let the food sell the hotel—has been applied with equal success to much smaller hotel operations. Owner Paul Heine has made the Brunswick Hotel in Lancaster, Pa. famous by specializing in superb Pennsylvania Dutch cooking. When Heine took over the Brunswick in 1946, it was serving 93 meals in a gloomy dining room, never rented more than half its guest rooms. Heine remodeled the dining room, went to work on the food—today he averages 1,370 meals a day and better than 80 per cent occupancy. Food and beverages amount to two-thirds of gross sales.

"The first thing we do in planning a hotel dining room," says hotel doctor Calhoun, "is to write a typical menu. Thus we determine the income level and the character of the clientele we expect to attract. Every element in the room is planned around this basic fact."

The following pages show these and other ways in which hotel men are re-shaping their plants to meet the new needs of today's new kind of hotel guest. Perhaps it still remains for some latter-day Ellsworth Statler to discover exactly how different he really is and to reap the rich rewards of the discovery. Chances are that this discovery, if it comes, will have a lot to do with the fact that more and more Americans are traveling by automobile. The motel on the outskirts now worries the average hotel man a lot more than his competitor downtown. A few owners, calculating the rewards of adding on a few floors downtown, have already decided to build a suburban branch instead, complete with swimming pool and cabanas. Some experts think the downtown hotel may eventually be forced to meet the competition from the suburban hotel built around the automobile by retrofitting up to the third or fourth story of its present building, using the floors below for car parking.
LOS ANGELES’ TOWN HOUSE has boosted room revenue 40 per cent

One of the first of Hilton’s spectacular buys during the war years (he got this hotel from Kirkeby for $850,000 because a number of people were convinced that the Japanese would bomb Los Angeles), the Town House has completed its transformation from a staid residential apartment-hotel property to a luxury hotel for transients. Hotel men say that Hilton’s remodeling has boosted market value of this property to $3.5 million or better. This open-handed program included:

1. Complete transformation of the lobby by architect Douglas Honnold. This job, which included specially designed furniture, lighting, carpet and hand-woven fabrics, cost $80,000, set whole new tone of hotel.

2. Breaking luxury suites into transient rooms, each with two studio-type beds.

3. Building a complete new building on space formerly occupied by tennis courts. This new building provided 14 studio rooms and two luxury suites, each with its own outside lanai. Rooms overlook a central swimming pool through a sliding glass wall. Cost was over $200,000. Architect: Wayne McAllister. Landscape Architect: Thomas Church.
FOUR-PURPOSE LIGHTING is an important part of remodeling of famed Persian room at New York's Plaza. Lighting provides varying patterns and intensities for lunch, dinner, floor show, and fashion show use. Tiny recessed spots in ceiling direct light to tables. Two lines of ceiling-flush fixtures, centered with door, follow path of fashion show. Lights recessed in pilasters play on the plaster screen which covers two walls, washing this screen with two color changes. (Screen is also acoustically useful.) Dorothy Liebes has even woven small lights in the blue and gold draperies, which twinkle during a starlight dance. Cost of complete remodeling was $200,000, including air conditioning and a complete new sound system. Century Lighting Co. was consultant on lighting. Henry Dreyfuss designed the whole job.

VISIBILITY was improved by terracing two sides of room. Gray lines in diagram show original plan. Intaglio screen replaces original "Persian" murals.
What makes the customer feel expansive?
Architects have yet to solve the problem of the bar

Hotel men are perhaps the first among building investors to grasp the cash register value of what may be roughly—very roughly—described as "esthetics." They know that the way a public room looks has a lot to do with how much money people will spend there. Like everything else about hotels, this has changed a lot since yesterday. Says Byron Calhoun: "Yesterday's splendor is likely to overawe today's guest and keep him out of the hotel dining room. Today's diner or drinker want to feel more important than the room itself. When the public room is scaled down in a way to make the guest feel he is a man of substance, he will relax and spend more money."

While hotel men are in a highly approachable state of mind on this whole matter, so far modern architects have not offered them much. In England, where such matters are taken more seriously, the Architectural Review has characteristically initiated some deep thought on what makes a pub a pub. Critic J. M. Richards probably answers this as well as it can be answered—"warmth, cheerfulness and a sense of seclusion...an atmosphere in which the charm of the familiar is somehow combined with a sense of something intriguing just around the corner. A pub should make people feel at home and yet have the capacity to lift them a little out of themselves."

In the U. S., "pub" cannot, of course, be literally translated as bar because the bar has become a cocktail lounge—that twilight place where the importance of a woman may quite possibly be overestimated. Moreover, the cocktail lounge can be said to reflect the shiny optimism of those with deals yet to make, while the dark wood, engraved glass and spotty gilt of yesterday's saloon bar conspired as a gentle architecture of commiseration: it was a place where it was not painful to conclude that nothing ahead was likely to be more rewarding than the next glass.

Despite these wide gaps, U. S. architects might have something to learn from the old bars and pubs, from, as critic Richards suggests, the "close and intricate subdivision of large rooms to give a feeling of seclusion and intimacy, the use of glass screens and mirrors to give mystery and sparkle, the use of rich dark colors, the use of bottles and barrels and brewers' trade-marks as decoration."
NEW YORK'S HOTEL ASTOR has finished remodeling five entrances on two sides of its great building, has entrances on the Broadway side yet to do. Entire face of building to the belt course was covered with pink Georgian marble. Revolving doors were replaced by a total of 31 tempered glass doors, each with plastic handles designed to prevent smudging. Marquee cove work is stainless steel. A mile of cold cathode tubing (used to reduce heat factor) shines through egg crate louvers, which are carried through to inner doors. Cost: $200,000. Designed and supervised by Walter M. Ballard Corp. in collaboration with Wechsler & Schimmenti, architects.

BEVERLY HILLS' SHATTUCK HOTEL added a new entrance to attract traffic from newly important side street. Floor to ceiling windows, minimum of structural obstruction added to spaciousness of completely redesigned lobby inside. Raymond Loewy Associates, designer.

PITTSBURGH'S HOTEL WEBSTER HALL added 41 luxury rooms on its three top (tower) floors by converting space formerly occupied by a big swimming pool, gymnasium and handball court. Before conversion, this space earned $5,000 a year, now brings over $120,000. Designed in booming Twenties by famed Henry Hornbostel, Webster Hall also lost roof overhang, had windows cut in monolithic tower. All new rooms were planned to 13 ft. 6 in. width, to accommodate multiples of 27 in. wide carpet (most expensive furnishing item) without patching. New plumbing lines were run up to the area, and special outlets for probable future air conditioning were included. Total cost: $200,000. Architects: Franklin & Dowlen.

Photos: Richard Averill Smith, Rembrandt Studio, Exem Stone & Hugo Sterrett
MODERNIZATION
BY THE BLOCK

The biggest remodeling job faced by the building industry is the modernization of American slums. It is the toughest—and most exciting—remodeling job of all.

On the following pages are presented two challenging experiments, now being carried out by two U. S. cities, in clearing up this stickiest of all modernization problems:

In Philadelphia the famed American Friends Service Committee, in collaboration with Architect Oscar Stonorov, is modernizing a block of century-old slum buildings and making it pay socially and economically.

In Baltimore a precedent-breaking housing code is being used to help improve living conditions in 80 per cent of the city’s blighted blocks.

Despite the success of each of these approaches, neither Philadelphia nor Baltimore claim that it has solved its slum problems. Each knows that slum roots go too deep for eradication by any one method. However, each city has been eminently successful in developing an important new weapon for use in the battle against slums.
MODERNIZATION transforms century-old houses into low rent, big-sized apartments

The slowest, most expensive way to get rid of a slum neighborhood is to tear it down. Yet most American cities are handling their slum problems only in this fashion. The cost is enormous: even with the billions in public and private funds now earmarked for slum clearance, the U.S. can't hope to clear more than 20 per cent of its blighted areas. And this job won't be finished in less than ten years.

Fortunately there are other methods which are quicker and cheaper. The most hopeful of these is slum modernization—the rehabilitation of structurally sound neighborhoods. In Philadelphia, American Friends Service Committee, the Quaker humanitarian organization, has produced some exciting ideas on how this can be done. The Friends, in collaboration with the local Planning Commission and the Redevelopment Authority, are starting to redevelop a 16-block slum known as the East Poplar area. Nine of the blocks will be torn down and redeveloped as parks, playgrounds or new housing projects. The buildings on the other six blocks will be overhauled and modernized under FHA-insured financing from plans by Architect Oscar Stonorov.

In planning their ambitious program, the Friends have come up with four significant slum-modernization pointers:

1. Structurally-sound old buildings are not only worth saving but they can be remodeled into apartments which are bigger and better than those in new FHA 608's or public housing.

2. These larger apartments can be bought and modernized at a cost approximately two-thirds that of new FHA 608's, and one-half that of public housing. Their rental schedule will be two-thirds that of a typical 608 and not much higher than that of a subsidized public housing project.

3. Modernizing a slum neighborhood can be accomplished in about half the time it would take to rip everything down and replace it.

4. Modernization, to be economically and socially effective, has to be carried out in an area no smaller than a block. It must be supplemented by a long-range social welfare program to help slum dwellers adjust to their new living. Friends Neighborhood Guild, a Quaker settlement house which is co-sponsoring the East Poplar project, will handle this phase of the program.

New wine, old bottles

The buildings which the Friends are modernizing in their first block (top picture, opposite) are typical Victorian forresses, the kind of houses that were "the best addresses in the city" back in the 1870's. Each of the semi-detached units once served a single family in walnut-and-gaslight elegance. Now, from five to ten families are packed in. In his remodeling plans, Architect Stonorov has cut family density on the block from 114 to 100. This lower density allows him to re-arrange rooms so that modernized 3-room units will average 675 sq. ft. (Average 3-room units in a Philadelphia 608 project are about 650 sq. ft.) The cost of purchasing and remodeling each apartment is about $6,300. The rent schedule is still tentative but will be roughly equal to what slum dwellers in the block are now paying for their grim, grumpy quarters when the cost of their utilities and heating is added to current rents.

It took the Friends Committee 18 months to work out the financing of their project—and it isn't finished yet. The problem was not in remodeling a group of buildings. This can readily be accomplished with an FHA-insured loan. But FHA is not prepared to underwrite the high cost of slum land and buildings. In their first block, the land and buildings are appraised at $186,000—which is too high for a remodeling program aimed at low-rent occupancy. The city has agreed to buy the property at its appraised value and turn it over to the Friends for $78,000, its long-term economic worth.

Since the last thing that the Friends Committee wants to do is get into the real estate business on a permanent basis, it has made careful plans to bow out of the picture once the modernized blocks are operating smoothly. The first block is owned by a mutual-housing cooperative which will be run by the 100 families who move into its new apartments. Each family starts with equal shares of stock, based on the 10 per cent equity each puts into the project to match the 90 per cent mortgage. Most of the equity will not be money. It will be a money-value computed from the amount of physical labor each family will put into the modernization project itself. Realizing that most slum families wouldn't have the required cash equity, the Quakers devised this self-help program so that the occupant-owners could better their own living conditions partially through their own efforts.

More than economics

If their East Poplar modernization project was only a financial success, the Friends would feel that it hadn't done a complete job. From the beginning, their primary concern has been with the people who will live in their blocks. The decision to save as many existing buildings as possible was not based solely on dollars-and-cents considerations.

The Quaker's first re-development block, when it is finished next Fall, will still lack some of the innovations that the new housing projects boast. It will also lack the sterile, dormitory flavor that marks most public and private redevelopment housing. It will have the infinitely more important virtue of human scale. U.S. slum clearance planners will do well to ponder this particular aspect of the Philadelphia Friends' slum clearance program.

PROJECT COSTS

Estimated net income available for interest, principal and reserves $4,284

ANNUAL OPERATING ESTIMATES

Gross rent $73,260
Less 7 per cent vacancy reserve 5,128
Gross income expectancy $68,132

Expenses
Operating $24,450
Reserve for replacement 2,497
Taxes 2,497
Total expenses $29,448

Total project cost $63,150

Costs
Acquisition of land and buildings $78,400
Alterations 429,000
Heating 46,200
Treatment of interior court 9,350
Builders' fee at 5 per cent 24,200
Carrying charges during construction 26,000
Architect's fee and surveys 24,000

NOTE: Operating income and expense figures are in accordance with those used by FHA.

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Landscaped interior court will be social center of modernized block

Block shown in plot plan is the first scheduled for modernization under Quaker program. Dotted lines indicate wooden additions to original brick structures which will be removed to open up the courtyard even more for rest and recreation areas. Ice-cream factory, an example of the kind of bad zoning that hastens neighborhood blight, is scheduled to be ripped down if factory owners lose a legal suit, now in the courts, challenging the city's right to seize its property.

New apartment building, left, will replace the only existing house on the block which was rated not worthy of rehabilitation. It will also be an important factor in raising the whole level of the rehabilitation effort within the block.
"It is easier to modernize 90-year-old buildings like these than it will be to modernize a FHA 608 building." Thus does Architect Oscar Stonorov sum up his work in rehabilitating the first group of 10 Civil War houses into modern apartments for the American Friends Service Committee.

Architect Stonorov's assertion is based on the fact that the old buildings, for all their lack of modern conveniences, have one design virtue that most modern apartments lack: space. In planning the modernization of these apartments, he capitalized on this bonus throughout. All of the apartments are wonderfully big. Twenty foot living rooms and 10 ft. ceilings are commonplace. Their size is enhanced by the great degree of open planning within the remodeled apartments (plan above).

Because of a tight budget under which the Friends are operating, the architect took special care to use as many existing partitions as possible—and also to avoid putting up new ones. The only major structural change is a brick firewall, required by the code, and a new staircase in the back to provide entrances to the newly created rear apartments. Several windows will be punched into one blank wall to clear up blind hall rooms. The long center-hall, typical of Victorian houses (and too many new houses), is clipped at both ends. This not only creates more living space but gives each apartment a separate entrance.

The basic structural soundness of these buildings was the biggest cost-reducer. The exterior brick walls need some pointing and the interior walls will be plastered again. Most of the floors are salvagable, though, and all of the roofs are sound. Architect Stonorov plans to keep most of the bow windows. Though no traditionalist, he points out: "Here they are fitting and proper."

The major additions will be new heating and plumbing systems. Each pair of semi-detached units will have its own central heating. Storage space—a major lack in the apartments—will be provided in the cellar of each house where each family will be provided with individual locker space.

One corner building on the block will be torn down to provide a new 3-story apartment building (picture left) whose purpose, in addition to providing more apartment units, is to "anchor" the rejuvenated new character of the block. The new building will be located at the main entrance to the block's interior court. Flanking this entrance on the other side will be a neighborhood social hall that will be owned by the tenants of the block.

The interior court will be the main social center of the block. Here, the architect has taken advantage of several existing trees, to create a shaded "conversation corner" for the adults. The western end will be a playground for young kids and handball court for the older ones.
Baltimore adds housing-code enforcement to its program of fighting neighborhood blight. After three years, the code proves successful in preventing future slums, also in improving present ones.

The most highly-publicized slum control program in recent years has been the "Baltimore Plan" for checking blight by enforcing a municipal housing code. The logic behind the plan is simple: blighted neighborhoods in U. S. cities can be rehabilitated by forcing landlords and tenants to conform to minimum housing standards. In doing this, the argument runs, the trend towards blight can not only be checked but reversed.

After three years' hard-and-heavy enforcement of its pioneer housing code, Baltimore (pop. 940,000) provides a good case study in just how effective this approach can be.

Baltimore's code isn't a one-shot solution to wiping out its slums. It has effectively cut down substandard housing conditions in many slum neighborhoods. More important, perhaps, is its proved ability to check the downhill trend in semi-blighted areas. In five years, the Baltimore Health Department and other city agencies have cleared out over 100 blight-touched blocks, enforced over 108,000 housing violation notices. So far this is only a small beachhead in the city's fight to clean up its 2,100 blocks of blight. But it is substantial enough to justify Baltimore's contention that its housing code is an extremely useful weapon for better housing. (For a description of the code's provisions, see p. 194.)

A little arithmetic will show why. There are 91,000 housing units in blighted neighborhoods—almost 40 per cent of the total housing supply. A projected public housing program will provide about 10,000 new units. Another 10,622 units are scheduled in four large private-enterprise redevelopment projects just getting under way. Assuming that one slum unit will be cleared for each new unit built under the programs (and this is a weak assumption), there are still over 70,000 blighted units left in the city. Housing-code enforcement is Baltimore's only guarantee during the next few years that some degree of minimum housing standards can be maintained within this group.

Unfortunately, most U. S. cities have no such similar plans for their great mass of blighted housing which is not going to be torn down under present private or public redevelopment schemes. Housing ordinances are still a municipal novelty.* Most cities are so entranced by shiny new re-

* Less than two dozen cities have effective housing codes on their books. In a recent study, Harrison, Ballard & Allen, New York City planning consultants, estimated that no more than a dozen cities are actively enforcing their codes. Among them: Baltimore, St. Louis, Milwaukee, Cincinnati, Denver, Portland (Ore.), Toledo, Charlotte (N. C.), Wilmington (Del.) and Greensboro (N. C.).
development schemes for re-housing a minority of their slum dwellers than they have ignored the majority who won’t be re-housed in this way for a long, long time.

Baltimore is avoiding this trap with its housing code. And by catching blight in its early stages through code enforcement it also hopes to whittle down the amount of total blight that has to be cured by the drastic—and expensive—method of ripping it down and replacing it with publicly-aided redevelopment housing. For these reasons, the code and how it operates are worth a good hard look.

Plan for Action

The Baltimore City Council passed a housing code back in 1941. The corridor commentators down at City Hall assured one another that it didn’t mean a thing. How, they asked, can you force people to fix up their back stoops and keep their garbage-can covers on tight. The same questions were asked, less cynically, in the offices of the City Health Department which had been assigned to enforce the code. It took five years to find the answers.

The first problem was: how to carry out the code. At first, the Health Department worked on the orthodox principle that when you get a complaint you slap a summons on the violator. But it didn’t work out that way. Back in 1941, Health Commissioner Huntington Williams hired an intense young man, G. Yates Cook, as its first $1,800-a-year housing-code inspector. (Today, Yates Cook—a little older and a lot less naive about the problems of cleaning up Baltimore slums—is head of the Department’s Housing & Law Enforcement Office with 14 inspectors under him.) After a few months in the job, Inspector Cook realized that issuing violation notices didn’t in itself mean much. If he cleaned up 50 violation in one block, there would often be 500 left. The improvements were soon overwhelmed by the sluage-like atmosphere of blight which surrounded them.

The Department came to some important conclusions. One was that housing code violations, especially in depressed areas, were tied up so closely with the environment that they must be enforced all at once in concentrated areas. Its second conclusion was equally important; not only should the housing code be applied in these small areas but also the five other city codes—fire, health, building, sanitary and zoning—which affected housing. From these observations came Baltimore’s plan for action: block-by-block enforcement of its city housing ordinances. Instead of nibbling at blight—a frustrating job, at best—it decided to hit hard.

The next problem was getting the code enforced in the courts. Legally, enforcement was assigned to the police magistrates. Violators could be fined up to $50 (and costs) by a police court and even jailed if they refused to pay the court fine. In practise, this turned out to be a paper threat. Housing code violations were generally at the bottom of the magistrate’s docket. After a whole day listening to burglars, wife-beaters and panderers, a magistrate was inclined to go easy on a landlord whose only offense was not screening his basement windows. The judge would usually postpone the case with a weary warning to the landlord to fix up his place. For five years, this judicial indifference had bottlenecked the whole housing-law enforcement program.

In June 1947, Baltimore’s Mayor Thomas D’Alesandro made arrangements for a special magistrate’s court to handle only housing violations. The Baltimore housing court was—and still is—the first of its kind in the country. Its big achievement was to throw Baltimore’s housing code enforcement program into high gear. Before the court was set up, it took the Health Department a year and a half to clean up a block and a half of slums. Under the housing court, the campaign is clipping along at the rate of three blocks a month.

How It Works

With the block-by-block system plus the legal back-stopping of the housing court, the Baltimore code-enforcement program has settled down to a routine operation. When the landlords and tenants of a block picked for code enforcement start getting their notices, they no longer make threats of legal action nor send indignant delegations to City Hall—procedures which were common during the early days of the program. In fact, many landlords are so well aware of the fact that they are going to get violation notices that they start fixing up their buildings ahead of time.

The first step in preparing a new block for the code-enforcement routine is a complete survey of the area by Health Department sanitary inspectors. They comb it for violations. (In bad slum blocks, the total number of violations—big and small—will run up to 3,000. Besides toting up housing-code violations, the inspectors note all violations under the five other city codes that relate to housing (fire, health, building, sanitary and zoning). These are sent to the appropriate city agencies and Cook’s office staff follows them up to make sure that they are enforced. Completely dilapidated buildings are “posted”—that is, closed up (picture below).

In handling its own housing-code violations, the Health Department is gently firm in enforcing compliance. Landlords and tenants are given notices for each violation, with a time-limit up to three months. (In flagrant cases, however, this is often cut down sharply to 24 hours.) Penny postal-card reminders are sent to them a month before the compliance notices expire. Usually, this easy approach does the trick. The biggest difficulty is tracking down absentee owners: many slum buildings are tied up in an estate or the owner lives out of town. Atypical, though not unusual, are cases like the group of buildings owned by the Jerome Bonaparte estate. Jerome Bonaparte, brother of Napoleon, came to Baltimore in 1803 and left in 1805. His estate has shifted through one court litigation after another since that time. And the last thing that the lawyers involved thought about was the condition of the plumbing systems in the houses they argued about. Recently, the Victorian calm which surrounded the estate was rudely shattered by a simple request from the Health Department that something be done to make the estate’s slum buildings habitable for their tenants. After some huffing and puffing, the violations were cleared.

It takes about five months to get a block cleared up, outside of a few straggling violations. Besides chasing down landlords and tenants, the Health Department also arranges with the city’s Bureau of Road Construction to fix up streets and alleys in the area.

Pushing his self-proclaimed slogan to “Make Baltimore The Cleanest City in the Nation,” Mayor D’Alesandro in 1947 set up a sanitary squad in the Police Department to augment the Health Department’s block-by-block campaign. The 18 sanitary cops supplement the Health Department block-by-block campaign by checking violations in other parts of the city. When their record for clearing up housing-code violations is added to that of the Health Department,
the results are impressive. For instance, they have eliminated more than 15,000 outside toilets in the city. (There are still 5,000 left.) Their box score on some other violations during the past three years: Board fences removed—14,186; yards cleaned and graded—13,302; alleys cleaned—1,540; inside toilets repaired—1,589; rat infestations corrected—1,290; floors repaired—1,203.

Of all the other codes which the Health Department invokes when it goes into a blighted block, the zoning code is probably the most important. The average Baltimore slum block is about 15 per cent overcrowded, even when the density measure is the city’s lenient allowance of 1.5 persons to a habitable room. Since high density and old buildings are prime indicators of blight, the health department has worked closely with the zoning board to clear off each block’s excess population. In four years, over 300 dwelling units have been vacated—a remarkable record in view of the low-rent housing shortage. A relatively small number (10 per cent) have gone to public housing; the rest have pushed into other low-rent, slum areas. This means, of course, that they further overload the density ratio in these blocks.

Spot zoning—the easement of zoning laws to permit the existence of an otherwise-unlawful building in a restricted area—is another tough problem for the Baltimore Planners. In the past three years, Baltimore’s zoning appeals board has granted 68 amendments to the zoning ordinance. Some of the amendments were legitimate but the majority were pure-and-simple violation of the letter and intent of the zoning law. Particularly flagrant is the case of a one-family house in a blighted area which, after three successive and successful appeals to the zoning board, was re-classified to an eight-family rooming house in three years. Thus, while seven other Baltimore city agencies are carrying out a program to clean up blight, the zoning board is permitting conditions which encourage it. There is no easy solution to this situation; spot zoning in Baltimore is a highly flavored political expedient as in many another U. S. town.
SLUM PREVENTION, not slum clearance, is housing code's biggest accomplishment

A very important lesson to be learned from Baltimore's experience in enforcing its housing code in rock-bottom slum areas is that the code can improve bad housing but it can't transform it into good housing.

The before-and-after pictures (left) of a typical "rehabilitated" block in one of the worst slum areas are a case in point. The difference, of course, is dramatic. Over 100 tons of debris were moved from the block during the cleanup period. Inside toilets replaced the primitive outdoor hoppers. High, rat-infested board fences were removed and the whole center of the block opened up.

But it is still slum housing. An honest appraisal of "after" conditions should include, as in the picture strip below, the so-called "rehabilitation" of the apartment rented by Charles Van Story, a furniture handler who lives in the block. The rehabilitation program's main effect for Mr. Van Story was the addition of a small inside toilet, but the advantage is dubious since the toilet is shared by the 17 people who live in the building's three apartments. Most of the slum families in rehabilitated blocks have fared better than Charlie Van Story but the improvement is only relative. Bad housing has not been transformed into good housing. Many slum-rehabilitated families still lack a tub or shower.

However, the fact that the Health Department has not been able to perform overnight miracles in Baltimore's worst slum areas is no argument against the housing code. The code's operation in rock-bottom slum areas has had at least two important effects. The first is that families living in these slums have some basic housing amenities that they didn't have before. The second effect is to eliminate some of the substandard buildings they live in. About a dozen slum buildings have been torn down in the first 100 blocks cleared by the housing code. In most cases, they were abandoned by their owners because it wasn't economically worthwhile to bring the buildings up to housing code standards. This is a small but significant start in approaching the general problem of getting rid of substandard buildings. Up to now, the prevailing slum clearance philosophy has been to buy out landlords at high prices based on inflated rents. The housing-code approach is simpler—and far less expensive. It reasons, quite correctly, that substandard housing, like substandard autos or planes, should be fixed up or else condemned by law, without compensation to owners.

There are practical difficulties. The fact that Baltimore has been able to knock down only a dozen buildings indicates this. For one thing, Baltimore slums are still a high-yield investment, even after landlords spend money (average: $500 per building) to conform to the housing code. The local rent control office has granted increases up to 50 per cent to slum landlords, based on the improvements they have made. (The average raise has been closer to 10 per cent.) Thus the cost of the improvement is quickly amortized and the rents are still relatively high in terms of their investments. Another factor limiting destruction of slum building is that housing is still in short supply in Baltimore—especially low rent housing. Most housing economists agree that a housing surplus is necessary before there will be large-scale abandonment of slum buildings.

Finally, Baltimore's housing code, like most others, is still not stiff enough to force the wholesale destruction of dilapidated buildings. They usually can be brought up to code minima. Noteworthy, however, is the experience of Charlotte (N.C.). Charlotte's code provides for the destruction of any slum building if the cost of improving it is more than half its assessed valuation. Under this formula, Charlotte officials have knocked down 502 buildings since 1948.

Besides its well-publicized work in improving the city's worst slums, the Baltimore Health Department is also doing a significant job of preventing future slums through housing code enforcement. This includes work in areas which are only spotted with blight now, also those which are blight-free but threatened.

The Health Department's work in spotily-blighted areas is particularly interesting. Typical is the Peabody St. project. The area has typical white-stooped Baltimore row housing along its main streets but the interior alleys are speckled with dilapidated shacks. The Health Department has spot-checked the area, is now concentrating on cleaning out the small blight-cancers which have developed along the alleyways. As a result, the trend towards blight has been checked before it has had a chance to overwhelm the area.

The problem of stopping blight in a neighborhood before it starts is a more subtle one. Although they have not pressed this point yet, the Health Department realizes that blight prevention in such areas will eventually become an integral part of its program. In fact, they already have one 500-block area tagged for housing-law enforcement. Today the area, south of Fulton Street on the city's west side, is largely a citadel of middle-class respectability—long anonymous blocks of substantial row houses with clipped hedges, white porches and neat yards. A camera would not indicate it (below) but the Fulton area is ripe for blight. Recently, Negro families, most of them with good incomes and a middle-class respectability to match their White neighbors, have been buying into the area. The result has been a wave of scare-selling by many of the White families. Unless some positive measures are taken, this time-worn segregation pattern will force the Fulton area into blight. The reason: segregation housing inevitably means substandard housing.

The Health Department Housing Law & Enforcement Section already has made some attempts to prevent this. The most important is that, since 1947, it has had the power to check all building-remodeling plans, submitted to the city Building Department, for violations of its own housing code. In that time, it has reviewed 3,000 plans and rejected 600. (The most common reason for rejection: landlords who want to partition their buildings so that some rooms have no windows.) This is a good temporary stop gap but a full-scale program for checking blight before it starts, will also include enforcement of health, fire, zoning and housing codes.
Men behind the code: they sparked it from plan to reality

Hans Froelicher, headmaster of Baltimore's Park School, is also the planning director of the Baltimore Plan. He believes in Baltimore the way some people believe in spiritualism. He thinks that the Plan's possibilities haven't even been scratched. Says he: "At our present rate, it's going to take us 35 years to clean up this town. We've got to move faster than that."

Yates Cook, director of the Health Department's Housing and Law Enforcement Section, has been the benevolent work horse behind most of the Plan's major developments. As one Baltimorian points out: "Yates is as well known among the slum dwellers as any ten rent-collectors." Recently he got a letter addressed: "Mr. Cook, Department what makes you fix up your fences and yards?"

Harry Kruger's housing court in session

It took a lot of people a long time to bring the housing code up to its present point of effectiveness. Among them (left to right):

Thomas D'Alesandro came to City Hall as mayor in 1946 after upsetting a Republican ticket. He has supported the Baltimore Plan more ardently than he needed to politically. One good reason: Tommy D'Alesandro came out of the slums himself, knows more about them than all the uptown reformers put together.

James Rouse heads up the Mayor's Advisory Committee on the Baltimore Plan. An affable, hard-working mortgage man, Jim Rouse believes in Baltimore the way some people believe in spiritualism. He thinks that the Plan's possibilities haven't even been scratched. Says he: "At our present rate, it's going to take us 35 years to clean up this town. We've got to move faster than that."

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Hans Froelicher, headmaster of Baltimore's Park School, is president of the lively Citizens Planning & Housing Association. The Baltimore Plan is, largely, CPHA's doing. When Yates Cook needed some support in prosecuting housing-code cases back in the early days, Hans Froelicher would send a delegation of 35 of his associates to stand with Cook when the cases came up in magistrate's courts. A few such incidents, well publicized in the local papers, lead to the setting up of the housing court. The Association has one major reservation about the plan: they don't want it to be used as a club to knock out public housing, which they also support strongly.
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been extremely expensive and complicated due to the number of separate tenant's offices and the seven firewalls on each floor. Therefore, a 16 in. lateral was installed the entire length of the basement and connected with 10 in. and 12 in. risers to the seven fan rooms stacked one above the other on each floor.

To relieve its original vertical water screen, which will be relegated to a stand-by emergency status, the Mart is spending $13,000 on a new screen for straining the air conditioning water taken from the adjacent Chicago River to cool the compressors. A secondary screen was installed at $2,500 last year in the refrigeration room. Air brought into the fan rooms is cleaned by automatic oil filters of a continuous type, augmented by new air-mat filtering devices recently installed at a cost of $75,000.

The Mart and its tenants have invested a total of $1.5 million or 75 cents per sq. ft. of air conditioned space in bringing air conditioning to each floor—up to the fan rooms. From the fan rooms on, costs of ceiling ducts, grilles and controls are borne by the tenants and have ranged from 32 to 35 cents per sq. ft. One outlet is installed in every 400 sq. ft. of open area and in every enclosed office regardless of size. (A condition of 74° or a 15° differential with adequate dehumidification—50 per cent relative—is maintained in average summer weather; in winter adequate humidity is 30 per cent relative.) With air conditioning costs in new office buildings averaging close to $3.75 per sq. ft., the Mart and its tenants obviously enjoy bargain price comfort—attributable mainly to the large scale of the undertaking.

Vertical transportation

In step with the Mart's shift from loft to office use, seven of its 12 freight elevators are being converted to passenger service (29 passengers per car, 700 ft. per minute) to supplement the 23 existing passenger cars. Half the job was completed in 1949 at a cost of $300,000; the last four cars will be converted by January 1951 for about $250,000.

To further expedite interfloor transportation, the Mart plans to install moving stairs between the first and second floors (at $150,000) and eventually to expand the system to the fifth floor. Scheduled for completion next year, the first step of this project will facilitate rush-hour traffic by making it unnecessary for elevators to stop at the street level which vies with the second floor elevated railway level as the building's main floor.

Lobby

The main lobby of the Mart for 20 years had been cluttered with obsolete display windows and heavy ornamental grille work set in brass frames. All this has now been replaced with a solid facing of travertine marble. Cost: $16,000.

Lighting

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(Continued on page 190)
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Here are the all-around advantages of this new Mueller Climatrol design:

- Compact, Space-saving — only 25½" wide. Goes through any door easily.
- Easily installed — shipped pre-assembled, with a solid base and leveling screws to eliminate special concrete work and grouting.
- Top quality at low cost — nationally known for 93 years, the Mueller name is a mark of quality accepted by home-owners everywhere.
- Beauty to please any buyer — handsomely designed, finished in durable Mueller crinkle green enamel.

Now it's a simple matter to make sure of lasting satisfaction with the heating installation on every job. Standardize on Mueller Climatrol. Write for full details on the Type 111 — and all the other units in the complete Mueller Climatrol line . . . L. J. Mueller Furnace Company, 2119 W. Oklahoma Ave., Milwaukee 15, Wisconsin.
"I can wash both sides indoors!"

They had looked over a number of attractive homes. All had the usual "blanket" mortgage appliances. Then they were shown a home with an extra something—R·O·W wood windows that are REMOVABLE. That closed the sale. The sales appeal of R·O·W REMOVABLE windows costs little or no more than ordinary windows. R·O·W's spring cushion action automatically adjusts for swelling and shrinking caused by weather changes.

OVER SIX MILLION IN USE. Consumer acceptance for R·O·W Windows has been built by national advertising in BETTER HOMES & GARDENS, AMERICAN HOME, and SMALL HOMES GUIDE. It's the window women want.

MERCHANT BUILDERS: Dramatic merchandising and display helps are available to make your home selling easier. Fill out and mail the coupon today for merchandising samples and more information about the wood window with SALES APPEAL.

R·O·W SALES COMPANY
1325 ACADEMY * FERNDALE 20, MICHIGAN

PLEASE Send more information on R·O·W — the window with sales appeal to

Name
Company
Address
City
State

□ I am Architect
□ Builder
□ Dealer
□ Carpenter-Contractor

Zone
Check the Beauty

Check the Features

Here is the truly modern, advanced feature metal suspension system for sound conditioning ceilings. Combining beauty, installation simplicity, service and utility accessibility never before available. Check the features and you'll agree!

1. A "Dead Level" Ceiling. No shadow areas or shadow lines regardless of light direction.

2. Instant Accessibility Through Any Point. Any single tile or group of tiles at any point, may be removed to reach service or utility lines—quickly replaced without damage.

3. Adaptable to All Lighting Systems and Fixtures. Units and tile can be readily laid out and cut to accommodate any standard lighting fixture.

4. Incombustible. Acousti-Line* units are all metal. When used with Acousti-Celotex* Perforated Mineral Tile or Fissuretone*, which meet Federal Specification SSA-118a for incombustibility, the result is complete incombustibility.

5. Speedy Erection. Goes up fast. Easy to affix to concrete or metal base material.

6. A Non-Breathing Ceiling. All joints tightly sealed to prevent air movement (breathing) through joints—a major cause of dust discoloration and dirt deposits on ceilings.

Write now for complete and detail drawings of Acousti-Line Metal Suspension Ceilings for Sound Conditioning. It's information you'll want to get, use and keep. Address a note on your letterhead to The Celotex Corporation, 120 South LaSalle Street, Chicago, Illinois. Dept. A-10. Do it today.
private offices, the lighting standards of the 20-year-old building have been quadrupled—and so has the current consumption. Transformer capacity and the wiring of the building have been boosted accordingly. The old drop cord lights are usually replaced by fluorescent fixtures, although many tenants have preferred incandescent, semi-indirect lighting.

As pictured on p. 144, the Mart's exterior pylons and balconies are illuminated at night as a promotional stunt. At present the flood lights are set in big copper drums with built-in reflectors, both of which involve a serious maintenance problem. These are currently being replaced by sealed beam lamps with integral reflectors which will cut maintenance costs and reduce power requirements from 75,000 to 53,000 watts per hour. (This means a saving of more than 157,000 watts per winter night.) Cost: $10,000.

Exterior

In 1948 a minor face-lifting of the Mart's exterior replaced 38 marble spandrels with polished glass. These 2 x 9½ ft. panels have given a bright, modern touch to the facade, reduced maintenance costs and eliminated the problem of water staining and sun fading.

Another outside improvement is the addition of synthetic “marble” boxes around the river front plaza in which dwarf spruce and hawthorne trees, as well as flowers, are planted. The importance attached to this public relations gesture is indicated by its original cost of $12,000 and its maintenance budget of $5,000 per year.

Public facilities

The Mart's comprehensive modernization program has been extended beyond the building itself to the transportation facilities which serve it: 1) The second floor rapid transit and railroad depot which handles 13,000 passengers a day has been remodeled to the tune of $30,000. 2) The one-car canopy outside the main plaza entrance has been rebuilt and extended at a cost of $10,000 to accommodate three automobiles, and plans are underway for a further $40,000 extension of this canopy across the plaza. More than 5,000 buses and taxis now stop daily at the Mart. 3) A parking lot with a 350-car capacity and a 50 cent daily charge has been created next door. 4) Five-cent bus service has been provided to connect the Mart with other parking lots in the mid-city office and shopping district. 5) Last month a 10 cent shuttle bus service to Chicago main railroad stations began operation.*

* Other Mart transportation facilities include six railroad sidings beneath the building, a 50-truck loading platform, river docks directly across the Mart Plaza and on the roof a heliport—used by one helicopter commuter and for helicopter demonstrations.

Sparked by the landlord's modernization, many Mart retail and service tenants have also refurbished their quarters.
It takes a continuous, vertical wiring trough to make a control center really easy to wire. And that's exactly what you get in the new Westinghouse design. Several new design achievements contribute to this important feature.

- **Removable side baffles** in each starter unit simply slide out to provide free access from wiring trough to terminal boards. Baffle grills are notched to clear outgoing leads.

- **Removable support bars** between the starter units are easily released by slight pressure to the left. This eliminates the tedious job of fishing wires through blind spaces.

- By removing side baffles and support bars you create a continuous wiring trough—unobstructed from top to bottom—providing ample hand room for an easier, faster wiring job.

**Consider all the advantages of this new control center!**

New, Magna-Grip "plug-in" connectors for greater operating simplicity; standardized, modular dimensions for unmatched flexibility; 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, Pennsylvania.
No wonder Plexiglas lighting wins approval. It provides glarefree, shadowless illumination wherever installed, from Directors’ Rooms to housewives’ kitchens. The full output of the lighting source is evenly diffused across the surface of this highly efficient acrylic plastic. Result: A luminous atmosphere notable for low brightness contrast and high visibility.

Plexiglas aids design and installation, too. Lightness and strength mean easy erection with fewer, lighter supports. Resistance to breakage and discoloration assures low-cost maintenance. And the variety of translucency-grades in flat, patterned, or corrugated material, coupled with the ability of Plexiglas to be formed readily and economically to almost any desired shape, gives almost unlimited scope to fixture design.

Plexiglas is used for both diffusion and reflection of light in the General Electric Company Board of Directors’ Room, New York City. White translucent panels in the 9-foot-square fixtures diffuse perfectly the light from 18 slimlines mounted only 2½” from the acrylic plastic surfaces. Lightly sanded on the outside, the panels also act as diffuse reflectors for indirect lighting from hanging fixtures that are used when the main lighting is not needed. Fixtures designed and installed by The Frink Corporation, Long Island City, New York.
PLEXIGLAS ceiling lighting fixtures in the Directors' Room of Cleveland's Bank of Ohio produce an average illumination of 75 footcandles on the conference table. Each fixture measures approximately 6 x 8 feet and consists of four corrugated bottom diffusing panels with curved side panels formed from 12" strips of flat material. Ten 96" 300MA G.E. Slimline and two 40-watt fluorescent lamps (mounted at right angles at the ends of the Slimlines) illuminate each fixture. All lamps are 3000°. Fixtures installed by Bell Electric Company. Design consultants: W. E. Conley, General Electric Co.; John Liston, George S. Rider Co.; W. A. Mize, Cleveland Electric Illuminating Company.

Tell Us About Your Problem

We will be glad to work with you on specific lighting applications. Write us today. Let us show you how PLEXIGLAS can provide the best answer to your lighting problem.

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

Rohm & Haas Company
Washington Square, Philadelphia 5, Pa.
Representatives in principal foreign countries
BOTH SIDES of the

Sealuxe Browne

"Folding-Flue" Windows

are cleaned from the INSIDE!

Other SEALUXE-BROWNE values . . .

- 100% controllable, draft-free ventilation. When slightly bowed, a vertical V-flue lets fresh air in and foul air out without drafts.
- Force fit against resilient wool felt shuts out dirt, dust, wind, water and traffic noises. Laboratory tested.
- Stream-lined to let in more light; set off any architectural treatment.
- Fold at finger-tip pressure. Stay put under normal wind pressure.
- No metal-to-masonry contact. Resist tarnish, rust and corrosion.

OTHER SEALUXE PRODUCTS

WINDOWS—Picture, Store Front, Commercial and Monumental Casement, Thermo (insulated) • SOLAR CONTROLS—Fins, Canopies, Shades, Louvres • BUILDING ACCESSORIES—Pilasters, Spandrels, Fascias, Trim • ENTRANCE ACCESSORIES—Building Directories, etc. • DOOR ACCESSORIES • CROWD CONTROL EQUIPMENT. For more information you are invited to clip and mail coupon below or see our catalog in Sweet's Architectural File.

Baltimore's Housing Code

(Continued from page 180)

Here is a description, stripped of legalisms, of the significant sections of Baltimore's pioneering housing code:

Repair. "Every dwelling . . . shall be maintained in good repair by the owner or agent, and fit for human habitation."

Windows. All habitable rooms must contain at least one window opening to the outside air. The total window area may not be less than 10 per cent of the floor area.

Sleeping space. Sleeping rooms must have at least 400 cu. ft. of air space with 50 sq. ft. of floor space for each adult. For children under 12, the minimum standards are 200 cu. ft. of air space and 30 sq. ft. of floor space. Minimum sleeping room: 60 sq. ft.

Density. No dwelling unit may be occupied by more than 1½ persons per habitable room. Children under 12 are counted as one-half; babies under one are not counted.

Toilets. There must be at least one inside water closet for every 10 persons in a building.

Cooking. Food may not be prepared or cooked in any room used for sleeping.

Bathrooms. Bathrooms must have adequate light and ventilations. (This doesn't prohibit inside bathrooms.)

Refuse. Metal, tightly-covered garbage cans are required for each dwelling unit.

Access. Each dwelling unit must have a separate entrance. No unit should serve as access to another.

Drainage. Yards and courts must be properly drained and graded.

Water Supply. Every dwelling unit with two or more rooms must have running water and at least one sink connected to an approved sewage-disposal system.

Basement Rooms. Basement rooms may not be occupied as habitable rooms unless they extend 3 ft. above ground level, are at least 7 ft. 6 in. high and completely dampproofed.

Heating. All dwelling units must be completely weatherproofed and provided with adequate heating equipment. (Not necessarily weatherstripping and central heating.)

The striking thing about these regulations, of course, is their moderation. Baltimore and other housing-code cities have been criticized for setting their sights too low in drawing up their codes. Yates Cook, head of Baltimore's Housing Law & Enforcement Division, has an answer for this, however: "We learned early that we had to move carefully in applying our code. If we had been given a really tough code to enforce, we wouldn't have gotten to first base with it. As it is, we know that the code is inadequate in many respects, but the important thing is that we have gotten even these minimal provisions in working order. There is plenty of time to upgrade the code when our enforcement program is ready."
3 Sure Ways to Save Money on Hot Water for Apartments and Schools

Specify A. O. Smith Burkay Gas Water Heater Model 600. Featuring the patented A. O. Smith Booster Recovery Hookup, this famous water heater provides hot water of two different temperatures—140° and 180°—if desired. (For LPG operation model 618F is widely used.)

Specify A. O. Smith Burkay Gas Water Heater Model 618. Engineered to meet the needs of apartments and schools that have heavy peak load demands for hot water and varying day and night requirements. All-copper construction. Forced-flow circulation. Full automatic control.

Specify A. O. Smith Burkay Gas Water Heater Model 417. Small in size but big in performance. Ideal for smaller apartments and school buildings. A straight recovery model, it assures an ample supply of hot water. Watch this efficient model pay for itself in daily savings!

Why Lose 25% to 50% on Hot Water Costs?
Inefficient water heating equipment can easily squander 25% to 50% of the money you allocate for water heating! Stop this waste with modern A. O. Smith Burkay Gas Water Heating equipment. Save on fuel costs, too! Gas rates are low, seldom rise. Gas is cleaner. No dust, soot or ashes. Better hot water service at lowest cost!

Your files should contain Bulletins No. HDH-978 and HD-986 which give detailed information and specifications of A. O. Smith Burkay Gas Water Heaters. Also Form No. 115 which gives valuable new information on design of hot water heating systems. Write today to Dept. AF-1050, Toledo 7, Ohio, for your copies!

A. O. Smith
Burkay Volume-Flow Water Heaters

A. O. SMITH CORPORATION, HEATING DIVISION
Atlanta 3 • Boston 16 • Chicago 4 • Houston 2 • Los Angeles 14
Milwaukee 2 • New York 17 • Pittsburgh 19 • Salt Lake City 1
San Francisco 4 • Seattle 1 • Washington 6, D.C.

International Division: Milwaukee 1

Saves $1,565.30 in 5 Months! E. F. Nelson, manager of Evans Hotel, Chicago, reports saving of $440.30 on fuel, $1,125.00 on labor costs, after installation of A. O. Smith Burkay Gas Water Heaters.
Precision tested to conform to Federal specifications for Flexure Indentation Curling Impact

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Asphalt Tile Flooring

QUALITY PROVED in Metropolitan Life's East Coast Developments

1947-1948-1949 QUALITY PROVED

... and now MA-TI-CO

With a record of outstanding performance in Metropolitan Life's Peter Cooper Village, Stuyvesant Town and River- ton in New York, MA-TI-CO was selected for Metropolitan Life's big West Coast projects, pictured above.

These new communities of Metropolitan Life are among the latest in an impressive list of MA-TI-CO installations that include Bond Clothing Company, Rochester, N. Y.; Philco Radio, Philadelphia; Cornell University, Ithaca, N. Y.; General Electric Company, Holyoke, Mass.; and

MASTIC TILE CORPORATION

Member Asphalt Tile Institute
used in these West Coast projects of Metropolitan Life

Levitt and Sons' vast developments of homes in Levittown and Roslyn, N. Y.

Wherever MA-TI-CO is installed — apartments, institutions, industrial plants, homes, stores — it gives enduring beauty, economy and resilience underfoot. These qualities make MA-TI-CO ideal for every type installation. When next you specify asphalt tile flooring, be sure it's MA-TI-CO.

GET TO KNOW MA-TI-CO! Consult our insert in Sweet's File Architectural Section 13. Or send a letter on your business stationery, and we will mail samples.

OF AMERICA Factories: Newburgh, N. Y., Long Beach, Calif.
The translucent Vinlyite louvers specially developed for "Sky-Glo" not only reflect but also transmit light to create a NEW KIND OF LIGHT and an entirely new experience in seeing. The special qualities of these plastic louvers diffuse and soften light to provide maximum freedom from glare.

Many types of louver materials were studied and tested before Vinlylite was selected by Benjamin engineers. Here is a material that actually glows with light...that creates luminous ceilings so impressively better that overall lighting has become a "best seller" overnight!

With Benjamin Luminous Louvers, high levels of illumination in the order of 50—100—150 foot-candles—are easily attained without annoying brightness or glare. In fact, so unobtrusive is "Sky-Glo" illumination, that there is no awareness of high levels of illumination...only the sensation of pleasant, restful, inviting, comfortable surroundings.

In maintenance, too, Vinlylite "Sky-Glo" louvers are superior. The hard and non-porous surface of "Sky-Glo" louvers resists adherence of dust, dirt and grime. They are easily kept in "like new" condition by an occasional dipping in lukewarm water with soapless detergent.

Send for FREE "SKY-GLO" DATA BULLETIN And List of Installations Near You

Also, New Catalog Data On BENJAMIN "STRIP-LINE" SYSTEM the new, economical, efficient series of fluorescent lighting strips especially designed for use with "Sky-Glo". Be sure to get details before specifying light sources to be used with "Sky-Glo" overall lighting. Write:


CEILING BEAUTY TREATMENT...DURING ... AND AFTER

New "Strip-Line" Units by Benjamin are specially designed for "Sky-Glo", are available with and without reflectors.

Louvres are notched to fit in channels, easy to remove and replace.

Final result: an ugly ceiling converted into a glowing new one without costly alteration.

Up to 35% More Efficient and 13% Less Glare

How "Sky-Glo" Luminous Louvers give the user more and better light for his money is shown by laboratory tests of performance with other types of louver materials. Chart above shows typical results of such tests. The data shown was obtained from the Benjamin laboratory experimental room with all conditions carefully controlled. The room dimensions were 15'6"x15'6" with 9'2" from floor to bottom of louvers. Lamps used were 4500° white. Louver cells were 2"x2"x2" providing 45° lengthwise and crosswise shielding.

<table>
<thead>
<tr>
<th>Louver Ceiling</th>
<th>Efficiency of Material</th>
<th>Average Foot-candles</th>
<th>Coefficient of Utilization</th>
<th>Brightness (Candles Per Sq. Ft.)</th>
<th>Relative Efficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without LOUVERS</td>
<td>100.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;SKY-GLO&quot; - Translucent Vinylite</td>
<td>81.6</td>
<td>102</td>
<td>0.36</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>SYSTEM &quot;A&quot; - Aluminum (5 minute aged)</td>
<td>70.4</td>
<td>119</td>
<td>0.30</td>
<td>1.14</td>
<td></td>
</tr>
<tr>
<td>SYSTEM &quot;B&quot; - White Paint, Specular</td>
<td>60.5</td>
<td>125</td>
<td>0.28</td>
<td>0.65</td>
<td></td>
</tr>
</tbody>
</table>

How "Sky-Glo" Luminous Louvers give the user more and better light for his money is shown by laboratory tests of performance with other types of louver materials. Chart above shows typical results of such tests. The data shown was obtained from the Benjamin laboratory experimental room with all conditions carefully controlled. The room dimensions were 15'6"x15'6" with 9'2" from floor to bottom of louvers. Lamps used were 4500° white. Louver cells were 2"x2"x2" providing 45° lengthwise and crosswise shielding.
Utilize space ... cut building costs ... streamline appearance ... increase livability ... simplify upkeep ... these goals command the best thinking of you men who plan and build today's housing.

It's easy to see that it's good thinking.

Your work and your ideas have made new housing synonymous with better housing in every community in America.

It's also easy to see that a majority of you choose brick to make these good ideas work out even better. There's more to this preference than the many qualities that make brick a favorite in any year. For example:

With brick you can always be sure of the additional building efficiency and economy of modular sizes. Our industry was the first to support this idea.

You can get all the advantages of engineered housing at its best—in brick—because we're backing this program, too.

You can expect an adequate supply of skilled craftsmen to carry out your plans when you build in brick. We're helping to train thousands of apprentices.

When you need facts that will help you build better, we can supply them, too. Just write the SCPI Regional Office nearest you whenever we may be of service.

14 regional offices to help you

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New York 17, N. Y., 1949 Grand Central Terminal
Canton, Ohio, 306 Market Ave., No.
Pittsburgh 22, Pa., 502 Benedum Trees Building
Chicago 1, Illinois, 228 N. LaSalle St.
Ames, Iowa, 120½ Welch Avenue
Counsel Bluffs, Iowa

Minneapolis 4, Minnesota
206 Wesley Temple Building
Denver 2, Colo., 208 Kittridge Bldg.
Phoenix, Arizona
1538 West McDowell Road
San Francisco 5, Calif.
55 New Montgomery Street
Seattle 4, Wash., Central Building
Clay Products Association of the Southwest
Austin, Texas, Littlefield Building
Oklahoma City, Okla.
First National Building

MAIN OFFICE

STRUCTURAL CLAY PRODUCTS INSTITUTE
1520 18TH STREET, N. W.,
WASHINGTON 6, D. C.
Approach vista to the Capital of the East Punjab, India. Designed in collaboration with Albert Mayer in 1950. Nowicki's plane crashed on the way back from India.

Project for a shopping center in the Los Angeles area. Designed in 1949 in collaboration with Clarence Stein, the huge, waffle-iron roof is suspended from four masts. Shops are freely placed beneath roof plane.
FROM THE LEGACY OF MATTHEW NOWICKI

who died on August 31 when his plane crashed into the Egyptian Desert

and who, in the short span of his exciting life,

presented to architecture some of its most daring and most brilliant conceptions

On September 27, the Museum of Modern Art in New York opened an exhibition of some of Matthew Nowicki's architectural projects. With these exciting sketches and photographs, the Museum also displayed statements by four of the dead man's friends: Lewis Mumford, Wallace K. Harrison, William H. Deitrick and Eero Saarinen. What these men had to say about Matthew Nowicki explains the full extent of the tragedy of his death.

LEWIS MUMFORD: "Matthew Nowicki. Born in Poland, spending part of his youth in America, at home in Europe, familiar by travel with North Africa and South America, teaching in North Carolina, called to India to design the new Capitol of the East Punjab, meeting his death near Cairo—Nowicki, in his own life, struck the opening chords of the One World Symphony. His architecture recognized no provinciality of time or place or method. . . .

"Nowicki was graduated from the Polytechnic in Warsaw and in the brief years before the Nazi invasion, he had risen to the top of his profession. As an officer in the artillery, he served his country at the front: he took part in the work of the underground and in the Russian-betrayed insurrection of Warsaw: from a refuge in the countryside, as Chief of Planning for the rebuilding of inner Warsaw, he prepared for the liberation and rebuilding of his country. Too deeply committed to freedom to accept the repressive forms of totalitarian communism, Nowicki nevertheless became the inevitable choice of Poland for the United Nations Board of Design.

"No member of that Board was better prepared than Nowicki as both architect and designer of cities: few architects anywhere could match him in his unflagging discipline, his deep sense of duty, his adventurousness and gaiety, his open-eyed daring, above all, is the humility that is given only to great genius. . . .

"Those who know Nowicki's work intimately, who can estimate his potentialities as well as his performances, have no doubt that he bore within him the seed of a new age. In his designs, spontaneity and discipline, power and love, form and function, mechanical structure and symbol, were united. What he left undone through his death must now call forth the creative efforts of a whole generation . . ."

(Continued on page 206)
there's no better roof than Koppers!

All over the country, people are building homes that are excitingly different. That are functional in design. That are more fun to live in. And for these ultra-modern homes, that traditional, time-tested roofing combination—Koppers Pitch and Felt—makes rugged, long-lasting roofs.

Koppers Built-Up Roofs consist of alternate plies of Koppers Approved Tarred Felt cemented with Koppers Coal Tar Pitch. These roofs resist prolonged contact with water without deteriorating. They are self-sealing if small breaks occur. In fact, Koppers will guarantee the performance of its roofing materials by offering to bond them for 10, 15, or 20 years in sections of the United States covered by Koppers inspection service.

Koppers Roofing Materials are now available throughout the United States, including the West Coast. Specify these materials, and your projects will have the best in roofing. Write for full information and specifications.

KOPPERS COMPANY, INC. PITTSBURGH 19, PA.

- SPECIFY KOPPERS FOR LONG-LIFE ROOFING -
An Outstanding Product

G-E TEXTOLITE*
PLASTIC TOPS

Manufactured by an old firm, GENERAL ELECTRIC
Distributed by an old friend, Roddiscraft

Architects have been specifying General Electric equipment and Roddiscraft products for many years. These two now team up to bring you General Electric Textolite—a quality plastics laminate surfacing material—a beauty with brawn.

Yes—General Electric Textolite wears like iron—cleans like glass. Colorful as a rainbow, too

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Induced draft fans which are built-in eliminate the need of an expensive chimney.
Simple installation requires no special foundation.
Clean, quiet operation.
Heavy-duty, rugged construction assures long-lived dependability.
Burner equipment to suit your fuel: gas, oil or both.
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Department 7-AF100, Cleveland 1, Ohio
Gentlemen: Please send me catalog of informative data and specifications on Rusco Prime Windows.

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Dept. 7-AF100  Cleveland 1, Ohio
Manufacturer of the famous Rusco all-metal, self-storing Combination Screen and Storm Sash.
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to meet every need

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door closer with 4-speed control
and "Silence Adjustment." Dual
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gives complete closing of door in various
combinations of 4 speeds.

Russwin panic bolts
Drop forged levers...safer, surer always.
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exclusive triple-grip action which
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pressure needs, prolongs service life.

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crankshaft. Plenty of backbone
support makes this Russwin
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New Britain, Conn.

PROVING THE ECONOMY OF QUALITY
WALLACE K. HARRISON: “Matthew Nowicki was a great architect and a most gifted designer. He was cut down before he could produce more than a small part of all that his talent promised; our architectural world will be empty without him. His associates on the United Nations miss him bitterly.”

WILLIAM H. DEITRICK: “The work of Matthew Nowicki has those qualities inherent in lasting architecture. It is bold yet modest, human yet precise, and has a look of freshness and beauty seldom found. His collaboration was inspiring to his associates.”

EERO SAARINEN: “If time had allowed his genius to spread its wings in full, this poet-philosopher of form would have influenced the whole course of architecture as profoundly as he inspired his friends.”

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Russwin Builders’ Hardware

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Russwin unit locks
Solid bronze castings and hard rolled wrought brass.
Easier to install... need only 1 ½” notch...
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Russwin “ten strike” cylinder locks
One size case for 30 lock functions. Simpler to specify, easier to install, a truly outstanding mortise lock.

Russwin “adjustable” anti-friction pivot hinges
Exclusive construction floats heavy doors (up to 350 lbs.) easily and without strain. Roller bearings carry the radial load, ball bearings, the thrust load.

Russell & Erwin Division
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New Britain, Conn.

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**REVIEW**

**YOUR MORTGAGE.** By Frederick H. Allen, Duell, Sloan & Pearce, New York, N. Y. 90 pp. $2.50.

This slim volume is an elementary primer for homeowners explaining the provisions, pitfalls, and payment systems of the six most popular home mortgage plans in use today. Although no substitute for the services of a good lawyer in helping the homebuyer understand the important fine print of his mortgage contract, it is a welcome addition to the sparse literature on mortgages written for the layman. Author Frederick H. Allen is himself a former mortgage loan officer of a leading New York savings bank, is now a partner in Harrison, Ballard & Allen, housing consultants for New York City's progressive new zoning ordinance (BUILDING, Sept. '50).—R.B.


Intriguing as a swinging door, this delightful work should be indispensable to English architects and of no mean value to domestic. For, although the public house or, more fondly, the pub is "peculiarly English" it does share with its American cousins twice-removed—the cocktail lounge, roadside bar and country club—a common greatgrandmother, the medieval alehouse kitchen. England takes its pubs seriously as social institutions, for good or bad. A good number of the city pubs stand on street corners and so were vulnerable targets during the air raids, "many... leaving behind no relics except perhaps the most durable of fittings, the tiled wall of the 'Gents'." Rather than regard this demolition as answer to a temperance worker's prayer, the Government soberly appointed a committee to consider the effects of the war on pubs. The resultant Morris Report established a pattern for "improved public houses" and expert architects and designers were employed who planned for plenty of light and air and used modern materials in constructing the new houses but "to the eye of a traditionalist none of them look particularly like pubs."

Admitting a pub to be one of the two knottiest architectural problems (the other, a church), The Architectural Review announced a competition in pub design last winter, and devoted a special issue to a comprehensive study of the pub's development. Inside the Pub is a rearrangement of much of the research appearing in that issue. Warning that "a tradition does not imply the conscious revival of previous styles; in fact, by definition implies changing with the times," the book scrutinizes the individual elements that created bonhommie in the medieval alehouse kitchen (a home away from home), the Tudor inn, the Georgian club, the Victorian gin palace ("grander than home"—an escape from the squalor of the industrial revolution)—places anomalous except for the common denominator of liquor sold. The friendly atmosphere of each is dissected in terms of furniture, fittings, wood.
Discard Old-Fashioned Methods
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Discriminating use of color adds to the beauty and utility of the general offices of the Milwaukee Journal, Milwaukee, Wis.

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Gordon Cullen's suggestion for a public bar "starts by being real and concrete and gradually dissolves into mystery, an endless and intangible world of barrels, pillars, lettering and mirrors."

REVIEWS

work, cut glass, mirrors (lest the solitary customer drink alone), advertisements, repetitive patterns of barrels and empty bottles and perhaps most important—color. Here is something found throughout the history of pubs—dark warm colors, natural wood and earth colors. "The art shades of some of our present day bars give any good pub goer a pain." Especially amusing is the origin of our modern bar from the narrow Georgian serving niche. The "happy combination of an attractive barmaid and a substantial counter to lean on was not lost on the customers."

Rich photographic material and drawings contemporary to each period are integrated with the text. Sketches by Gordon Cullen of hypothetical modern pubs (see above) appear in the last critical chapter on 20th Century pub design.—M.G.


The Army is usually in a position when it has to explain things very clearly to its personnel. Sometimes the things to be explained are impressively technical and sometimes the personnel are not so impressively prepared. Part of the answer the Army has found to this problem are good basic textbooks and reports, which make few assumptions and leave few details undetailed. These texts are frequently useful outside the Army too.

This one is the First Interim Report on Night-work Lighting Systems for Construction Equipment, released now for general technical circulation by the office of the Chief of Engineers. Specifically, the volume covers a study of the lighting requirements to permit efficient night operation of the power cranes, road graders, road rollers, tractors, tractor-operated cranes, water distributors, and ditching machines used by the Corps of Engineers. It describes the development of suitable lighting and electrical power equipment, and tells the proper location of the equipment to meet lighting requirements. The book is complete with reports of field tests which indicate that properly lighted night work can be done at approximately 85 per cent of the day rate. Its content makes it worthy of the attention of any contractor who has ever been pushed on a job. Or, for that matter, anyone who has ever tried to push a contractor.—W. McQ.


Here is a book the builder can recommend to his questioning clients—that is, if after checking Mr. Peter's Chart for Judging Houses against his own construction he is willing to have it compared with the "standard, above and below standard specifications." The author of Pour Yourself a (Continued on page 220)
When this striking 1.5-million dollar Livetsock Coliseum was being planned for Montgomery, Ala., the architects—Sherlock, Smith & Adams, Inc.—executed two alternate designs for the 286-ft clear span, thin-shell barrel roof and ceiling ribs. One design used structural steel, the other reinforced concrete. Bidding showed that concrete cost slightly less than steel. But it was construction time that made reinforced concrete the overwhelming choice. The estimate for concrete was 500 days—230 days less than structural steel!

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TWO GREAT TILES

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Reviews

House writes for the layman in a folksy manner, warning him of the house with a clothes washer but no insulation, of the site with a high tax future, etc. Simple axioms such as "the land on which a residence is to be built should cost or be worth no more or less than 1/5 the value of the ultimate house that is planned for it" and suggestions for selecting a community make good sense. Building materials from foundation through attic are discussed in detail and the reader is told how to evaluate one item over another in the final construction.—M.N.G.


Except for a few soft-drink signs and an occasional gasoline pump, the appearance of Greenwich, N. J. has changed little since the Colonial era. Major John Fenwick did not have the capital to put behind Charles I's munificent land grant and after seven lean years sold most of his property along the Delaware river to an enterprising builder-developer, William Penn. This story of Greenwich, a surviving fragment of a real estate project that fizzled, should have interest for the architect and the antiquarian as well as the sophomore history class. Houses pictured are good examples of 17th and 18th Century construction and style characteristic of the Middle Atlantic states. Unusual red and blue brick patterns (see below) of British nee Flemish origin are prevalent although some of the homes were modernized during the Victorian era with coats of yellow stucco.

The Greenwich born author tells of the early settlement and growing resentment to British taxation (townspeople bricked up "unnecessary windows" rather than pay duty on panes). When a British sea captain brought a cargo of tea ashore for safekeeping in this quiet peaceful port before sailing on to Philadelphia there was a Jersey echo of the Boston Tea Party.

Unfortunately for the student of building design most of Sickler's descriptions of houses in Greenwich deal with the people who loved and died in them. The photographs, however, reveal the disturbing charm of a living anachronism. Pilgrims to reconstructed Williamsburg or to Old Sturbridge Village, Mass. might do well to route their journey through this little town on the Cohansey which most road maps neglect to list as a "place of interest."—M.N.G.
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PRODUCT NEWS

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Model J units may be used in flush ceiling installations or can be connected to exposed ducts. Where it is impractical to recess outlets deep into the ceiling, JS models are available which extend only a few inches above the ceiling surface. If existing construction does not permit sidewall returns, combination supply and return ceiling diffusers (models JSC and JC) may be utilized. All outlets are factory coated in a gray prime, in a baked aluminum, and in a wide variety of electro-plated finishes. They are made in neck diameters ranging from 6 to 32 in.

Manufacturer: Barber Colman Co., Rockford, Ill.

ELECTRIC WALL HEATER combines convected and radiant heat.

As a neat replacement for an antique radiator or as a supplemental heat source, the moderately priced Quikheter offers immediate radiant heat plus gentle circulation of warm air. A high luster steel reflector behind the wire-heating element directs penetrating heat rays into the room while cool air enters at bottom, passes over the heating element and thus warmed re-enters the room through grille at top. Air space behind the reflector prevents the wall from overheating and provides additional air circulation. Proper tension on the wire element is maintained by an automatic adjuster. Although the new model is equipped with a built-in switch for simple installation, it may be controlled by thermostat where desired. Retail price for the 1,000 w., 120 v. model, measuring 3½ in. deep, 21 in. high and 9 in. wide, is $30; with thermostat, $57.50. The Quikheter's enclosing case is of 16 gauge galvanized steel with chromium finished face.

Manufacturer: Frank Adam Electric Co., 3650 Windsor Pl., St. Louis 13, Mo.
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That's a value-packed assortment of properties which have made Allegheny Metal indispensable for a great number of essential industrial and armament uses. We're continuing to spend millions of dollars to expand our already greatly increased production. In addition, we invite any fabricator to let us help find possible ways of using Allegheny Metal better, in order to get more out of every ton.

* * * * *

Complete technical and fabricating data—engineering help, too—are yours for the asking from Allegheny Ludlum Steel Corporation, Pittsburgh, Pa. . . . the nation's leading producer of stainless steel in all forms. Branch Offices are located in principal cities, coast to coast, and Warehouse Stocks of Allegheny Stainless Steel are carried by all Joseph T. Ryerson & Son, Inc. plants.

You can make it BETTER with Allegheny Metal.
For fire-safety, our acoustical ceilings must be noncombustible

Then I'll specify J-M SANACOUSTIC—a perforated metal unit

That's the best answer to that problem. J-M Sanacoustic Units won't burn. Suspended construction permits easy access. Baked-enamel finish is easy to wash, easy to maintain.

There is no need to do without a single feature that you consider desirable in an acoustical ceiling, because J-M Sanacoustic Panels combine the advantages of fire-safety, good appearance, removability, high light-reflection, ease of maintenance, and extremely high sound-absorption qualities.

As a result, millions of square feet of Sanacoustic have been installed in institutions, offices, hospitals, schools and places of public assembly.

Consisting of perforated metal panels backed up with a fireproof sound-absorbing element, Sanacoustic Ceilings will not burn, rot, or disintegrate. They may be applied over new or existing construction. The method of installation assures perfect alignment of units, allows easy removal without damage.

An exclusive J-M patented construction system permits interchangeability of flush-type fluorescent lighting and acoustical ceiling units. Write for our brochure, "Sound Control." Johns-Manville, Box 290, New York 16, N. Y.

Johns-Manville

J-M Acoustical Materials include Sanacoustic Panels, Asbestos Transite®, and drilled Fibretone®
5 New Models! Delco-Heat Announces a Brilliantly Engineered Line of New Gas-Fired Conditionairs

Products of General Motors!

Here is a new line of gas-fired forced warm air furnaces that will add sales appeal and make your new homes easier to sell! Because for features, for value and for appearance—the new Delco-Heat "GA" Conditionairs challenge all competition!

The new "GA" Series includes 5 AGA-approved, forced warm air models—in both 12 and 16 gauge steel. Capacities are 62,500, 90,000, 120,000, 150,000, and 210,000 Btu input . . . a range that makes them applicable for all sizes of homes.

Note that the new "GA" Conditionair has extreme eye-appeal. It's compact, streamlined, and tastefully finished in Delco-green. Nothing protrudes—even the draft hood is concealed beneath the louvered panel.

Outstanding features of the "GA" Conditionair include the exclusive Multi-Rad heat exchanger—ribbon-type twin burners — and a blower-filter unit that is powered by Delco's famous Rigid-frame motor.

New Homes sell better when they're equipped with Delco-Heat! Delco-Heat manufactures a complete line of automatic home heating products—for all types of fuels, all systems of heating and all sizes of homes. And our engineering and sales departments will be glad to serve you in any way possible. For information about Delco-Heat products, write to Delco Appliance Division, Dept. AF-10, General Motors Corporation, Rochester 1, New York.

Also manufacturers of Electric Water Systems for farms and homes—fractional horsepower electric motors—electric automobile clocks.
PRODUCT NEWS

CENTRIFUGAL FAN LINE handles large air volumes quietly, on low horsepower.

After two years of intensive product engineering and laboratory tests, Trane Co., has announced a new and expanded line of forward curved (FC) and backwardly inclined (BI) fans. Made primarily for air conditioning, ventilating, industrial, process and power applications, the new models are said to use 23 per cent less horsepower than other fans with the same ratings to deliver required volumes of air—and deliver it quietly. This economy of operation was achieved through design: Inlets were streamlined to reduce turbulence and air friction. Blade angles were recalculated and tested. Fan wheels were balanced. Heavier gauge metals, rigid bracing and sturdier construction were used throughout the line. Housings were proportioned to permit discharge of air with minimum turbulence and low outlet velocities.

The FC models, fabricated for general ventilating and air handling requirements, are especially suited for exhausting or supplying air in smaller places where resistance is encountered; and for installation directly in the space to be ventilated or where available space is limited. These units are made in 21 wheel diameter sizes from 12 to 89 in. The BI fans are available in 23 sizes, from 12 to 109 in. wheel diameters. These are designed to handle comparatively clean air for comfort heating, ventilating, air conditioning and industrial process applications. Both the forward curved and backwardly inclined fans are made in single and double widths and the line includes all standard motor and drive arrangements and discharge outlet directions. Housings for fans with wheel diameters less than 36 in. are of convertible lockseam (airtight, i.e. quiet) construction to permit change of discharge direction on the job. Larger fans have all welded housings. To make erection of the big ones easier, housings are split in two and three parts. The fans are finished with a chlorinated rubber base enamel. For severe industrial corrosive conditions, the standard steel units are supplied with zinc, lead, rubber, neoprene or phenolic resin coatings. They are also fabricated in aluminum, copper, Monel and stainless steel. The entire line carries certified ratings of the National Association of Fan Manufacturers. Trane has published three excellent booklets describing the new fans (see Technical Literature).

Manufacturer: The Trane Co., La Crosse, Wis.

GLASS BLOCK transmits daylight to ceiling effectively during entire day.

Insulux 363 is a recently developed glass block designed to provide more uniform distribution of daylight for classrooms than its predecessor, the 351. Like the original Insulux prismatic block, the new fenestration material directs most of (Continued on page 234)
ELIMINATE THE GREATEST
FIRES HAZARD IN YOUR BUILDING
WITH ELSCO SAFETY ROLLER GUIDES

MODEL A — for elevators
MODEL C — for counterweight and low rise, low speed elevators

It is common knowledge that in the event of fire, elevator shaftways with inflammable oil and grease, act like flues and are the greatest factor in the rapid spread of fire. Dry rails and shaftways are the modern and only proper way of elevator operation. Modernize your elevators, save life, property and money.

RESULTS HAVE BEEN AMAZING!!!
ELSCO ROLLER GUIDES PAY FOR THEMSELVES

1. With Elsco Safety Roller Guides, hatchways no longer need constant cleaning to remove inflammable grease, dirt, fuzz and filth. There is a large savings in labor costs.
2. Tests on a variety of elevators under a multitude of conditions indicate a savings in electric current of between 24% and 44%, and since elevators consume the largest amount of electricity in buildings, the amount of k.w.h. savings is tremendous. Elsco Roller Guides are an anti-friction device.
3. Elsco Roller Guides solve the problem of badly aligned rails and unbalanced conditions, often saving the cost of new, or costly realignment of old rails. Elsco Guides roll and do not slide. Elsco Guides contain stabilizing springs.
4. Because of dry rails, emergency safety jaws hold better in the event of accident.
5. Elsco Roller Guides give a smooth, gliding ride.

Elsco Safety Roller Guides have been in successful operation since 1941. They have been approved unanimously by the Board of Standards and Appeals of N.Y.C. up to 1200 f.p.m., They are adaptable to passenger and freight elevators regardless of capacity or speed, space permitting. They have been installed in leading buildings from coast to coast, and abroad. They are the only safety roller guide with oscillation, traction and knee action. The yoke affixed between the wheels provides a maximum of safety.

YOU OWE IT TO YOUR BUILDING TO INSTALL THE NEW ELSCO SAFETY ROLLER GUIDES
(Patented and trade mark registered)

For further information inquire of your dealer or

ELEVATOR SAFETY CORPORATION / 165 Broadway, New York 6, N.Y.
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**For Insulating Masonry Walls**

Porex saves valuable building dollars, reduces heating costs 50%. Lightweight fire-and-water-resistant slabs of mineralized wood fiber and Portland cement are used for furring and insulating the walls of apartment and hospital buildings. They make a good plaster base. Write today for full information.

**PORETE MANUFACTURING CO.**
North Arlington, New Jersey

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for that SHADE of difference

Sun-resistant Fyrban shades can't fade, crack or cockle. The coating of tough vinyl plastic over fabric makes them fire-resistant, washable and extra long-wearing. Take a cue from the American Hotel Association, federal, state and city housing authorities—all of whom approve Fyrban. Specify Hartshorn Fyrban fabric on Hartshorn metal rollers. In fact, let your Hartshorn dealer supply all the shades you need, from a complete line of brackets, light shields, rollers and shade cloth. Folder on request.

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and weather does not affect **CRYSTAL silicone WATER REPELLENT**

- Just one application of CRYSTAL will waterproof exterior brick, stucco, concrete, and other materials to last over 10 years! Can be applied in any temperature.
- Costs only a few cents per square foot, per job.
- Invisible when applied. Does not change surface color or texture.
- One gallon covers 100 to 200 square feet.

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At FORDHAM HILL also...

FABRON assures long-term beauty and economy

Planned, built, owned and operated by the Equitable Life Assurance Society, Fordham Hill is designed to appeal to families of better than average income.

FABRON, the canvas-plastic-lacquer wall covering, was selected not only because of its rich decorative appearance—ideally suited for this type of development—but also because of its long-term economy. For FABRON does not require periodic "re-doing", like paint and other ordinary wall finishes. Its proven durability, protection against plaster cracks, unlimited washability and easy repairability eliminate the expense and inconvenience of periodic redecorations — make FABRON truly a long-term investment.

Since its introduction over ten years ago, FABRON has attracted the favorable attention of other large scale real estate investors such as Metropolitan Life, New York Life and other outstanding leaders in the field, in addition to thousands of institutions — hospitals, hotels, schools, colleges, etc. Its basic characteristics of permanence, low initial cost (comparable to that of a good three coat oil paint treatment), and simple, economical maintenance adapt it to any project on which you may be working. Its more than 160 colors, patterns and textures offer a latitude unmatched by conventional treatments.

May we give you complete information about FABRON for your next project? With no obligation to you, we offer to furnish material costs, quantity estimates, specification data and if you wish, suggested decorative schemes.

CERTIFIED FIRE PROTECTION

Among wall coverings, only FABRON bears the label of the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters.

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Special Contract Division

The canvas-plastic-lacquer wall covering for institutions
the daylight toward the ceiling from where it is reflected downward on work surfaces. It has almost twice as many vertical and horizontal ribs, placed to diffuse daylight more evenly to all portions of the room—sidewise to front and back walls as well as to the opposite wall. These additional "azimuth correcting" ribs on outside and inside faces of the 363 are said to present less surface glare when viewed at eye level. For use below eye level, a companion block, the 365 is recommended. This block diffuses light only in vertical and horizontal planes but does not angle it toward ceiling. Price to builder in orders of 500 to 1,000 is about 71 cents per 8 in. block.

Manufacturer: Insulux Div., American Structural Products Co., Toledo, Ohio.

PLASTIC WALL TILE requires no grouting at joints.

Precision machined butt edges allow each Coronet plastic tile to contact the next without the usual ooze of mastic between them. A sloping bevel at each side of the joint is wiped clean of mastic by the applicator as he presses tiles into place. The walls thus present a continuous surface, free of grouted seams. The pillow face of these lightweight 4½ in. tiles gives illusion of thickness. Cost is about 45 cents per sq. ft., not installed. The new line includes 16 plain and marbleized colors. Application is not recommended on surfaces where temperature is apt to exceed 160°, such as area behind kitchen range.


WASHABLE INSULATING TILES can be set directly over rough surfaces.

Vinyl fabric is combined with ½ in. insulating board to form these durable and decorative wall tiles. The 12 in. square blocks are covered with smooth washable plastic sheeting. Abrasion and puncture resistant, the surface material will regain its shape after a sharp blow even if the board beneath remains dented. It will take long hard wear without cracking, chipping or discolor.


(Continued on page 238)
MICARTA is furnished in stock panels by factory-bonding ⅛” Micarta, with waterproof glue, to genuine Weldwood plywood (exterior grade, rotary Philippine mahogany). Maximum stability is achieved by balancing the construction with a backing sheet.

**TWO THICKNESSES:** ¼” and ⅛”.

**FOUR SIZES** of the ¼” panels reduce waste to a minimum. They provide exactly the right width for almost every common use and in the great majority of installations the lengths cut with virtually no waste.

- 24” x 96” — — — for commercial counter tops and fronts, kitchen counters and bar tops.
- 30” x 60” and 30” x 96” — — — standard kitchen counter and sink tops including back splash (30” x 60” for built-in breakfast tables); also commercial counter tops and fronts.
- 48” x 96” — — — exactly right for walls and other large areas.

(Special sizes also available from mill. Ask for information.)

Any carpenter can saw, trim, plane, drill — work and install — these panels, right on the job, using inexpensive hand or power tools.

**EDGES** can be finished by painting or staining or with “Snap-In” Metal moldings or solid wood moldings. They cannot be Micarta “edge-banded.”

**CONVEX AND CONCAVE CURVED SURFACES** may be obtained by curving or bending the panels to a radius as small as 12” after saw-kerfing the back.

**FINISHES**

**HIGH GLOSS** offers a brilliant, lustrous mirror-like surface.

**SATIN** is a pleasant, subdued finish with a minimum of light reflectivity. It is extremely practical, camouflaging fingers marks, etc. and hence is recommended for all solid colors. Micarta's satin finish is always smooth and uniform because it is produced during the pressing — is not achieved by roughing down the plastic surface.

**OFFICIAL APPROVALS**

MICARTA equals or exceeds the standards set by the National Electrical Manufacturers Association.

Approved by the New York City Board of Standards and Appeals. Approved samples of Micarta push plates, armor plates, and kick plates are on file at the National Bureau of Standards, for use by Veterans Administration Hospitals, and the United States Army Corps of Engineers. Approved by U. S. Coast Guard for Maritime applications when used according to regulations.

**GENERAL ADVANTAGES**

Resists scratching better than any other type of commonly used decorative surfacing material.

Stain resistant, non-porous, super smooth surface — impervious to damage by foods, household cleaners, alcohol, boiling water, dilute acids and alkalis, ordinary cosmetics (including nail polish), and medicines.

Easy to keep completely clean — just wipe with a damp cloth.

High impact strength — Micarta's extra hardness resists chipping, denting, cracking, splintering, despite years of abuse.

Cold resistant — The tensile strength of Micarta actually increases with temperatures down to 70° below zero.

---

**HEAT RESISTANCE**

MICARTA withstands intermittent heat up to 300° and is guaranteed against damage by lighted cigars or cigarettes.

**COLORS AND PATTERNS**

**MICARTA** is offered in approximately 42 colors with 4 patterns plus solids.

**STANDARD SOLIDS** — 7 bright, permanent uniform, fade-proof colors.

**DECORATOR COLORS** — 9 earthy pastel solids selected by a panel of leading architects to fit the newest and finest of modern interiors.

**FOAM AND MOTHER OF PEARL PATTERNS, LINEN WEAVES** — In an assortment of attractive colors. (All above patterns are non-directional, thus simplifying matching.)

**TRUWOODS** — Selected genuine wood veneers permanently protected by Micarta.

**1/16” SHEETS**

MICARTA is most commonly used by fabricators who apply ⅛” sheets under pressure to plywood, producing installations that meet the specifications of architects, builders and equipment manufacturers.

**FOUR SIZES** are commonly carried in stock at warehouses:

- 24” x 96”
- 30” x 60”
- 36” x 72”
- 48” x 96”

Also available from the mill on crate lot orders (approx. 500 ft.) are half sizes of the above as well as full and half sizes of the following:

- 24” x 96”
- 30” x 72”
- 36” x 96”
- 48” x 96”

“EDGE BANDING” with Micarta can be done by fabricators using veneer sheets, thus achieving the ultimate in a finished, neat appearance. Edges can also be finished with “Snap-On” metal moldings, wood moldings, and with paint or stain.

**CURVES** to a radius as small as 3” can be obtained with the use of these sheets.

---

**THE MANUFACTURER**

MICARTA is manufactured by Westinghouse Electric Corp. in its plant at Trafford, Pa. This was the first high pressure plastic laminate plant in the world. Today, as it has for many years past, MICARTA annually produces more high pressure plastic laminate than any other plant in the world.

**DISTRIBUTORS**

MICARTA in decorative grades is distributed exclusively by United States Plywood Corporation and U. S.-Mengel Plywoods, Inc. They maintain stocks in 44 warehouses from coast to coast. Micarta is also available to building contractors and the general public through local authorized lumber dealers throughout the nation.

**VENEERS** — TRUWOODS — Selected genuine wood veneers permanently protected by Micarta.

**SUDBORO DECO** — Standard and Decorator colors plus solids.

**WEAVE** — In an assortment of attractive colors. (All above patterns are non-directional, thus simplifying matching.)

**FOAM AND PEARL PATTERNS** — In an assortment of attractive colors. (All above patterns are non-directional, thus simplifying matching.)

**TRUWOODS** — Selected genuine wood veneers permanently protected by Micarta.

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**GENERAL ADVANTAGES**

Resists scratching better than any other type of commonly used decorative surfacing material.

Stain resistant, non-porous, super smooth surface — impervious to damage by foods, household cleaners, alcohol, boiling water, dilute acids and alkalis, ordinary cosmetics (including nail polish), and medicines.

Easy to keep completely clean — just wipe with a damp cloth.

High impact strength — Micarta's extra hardness resists chipping, denting, cracking, splintering, despite years of abuse.

Cold resistant — The tensile strength of Micarta actually increases with temperatures down to 70° below zero.

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Approved by the New York City Board of Standards and Appeals. Approved samples of Micarta push plates, armor plates, and kick plates are on file at the National Bureau of Standards, for use by Veterans Administration Hospitals, and the United States Army Corps of Engineers. Approved by U. S. Coast Guard for Maritime applications when used according to regulations.

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**BONDED-TO-PLYWOOD PANELS**

MICARTA is furnished in stock panels by factory-bonding ⅛” Micarta, with waterproof glue, to genuine Weldwood plywood (exterior grade, rotary Philippine mahogany). Maximum stability is achieved by balancing the construction with a backing sheet.

**TWO THICKNESSES:** ¼” and ⅛”.

**FOUR SIZES** of the ¼” panels reduce waste to a minimum. They provide exactly the right width for almost every common use and in the great majority of installations the lengths cut with virtually no waste.

- 24” x 96” — — — for commercial counter tops and fronts, kitchen counters and bar tops.
- 30” x 60” and 30” x 96” — — — standard kitchen counter and sink tops including back splash (30” x 60” for built-in breakfast tables); also commercial counter tops and fronts.
- 48” x 96” — — — exactly right for walls and other large areas.

(Special sizes also available from mill. Ask for information.)

Any carpenter can saw, trim, plane, drill — work and install — these panels, right on the job, using inexpensive hand or power tools.

**EDGES** can be finished by painting or staining or with “Snap-In” Metal moldings or solid wood moldings. They cannot be Micarta “edge-banded.”

**CONVEX AND CONCAVE CURVED SURFACES** may be obtained by curving or bending the panels to a radius as small as 12” after saw-kerfing the back.
What a lovely kitchen!

But — what about the Bathroom?

Beauty and Convenience are Important "SALES MAKERS" in the Bathroom, Too!

Ideas like these from Miami-Carey will brighten your bathrooms... give them the extra sales appeal of "custom" beauty and convenience at "standard" prices! They're practical, economical... thanks to Miami-Carey's five great lines of cabinets, mirrors and matching accessories. See them at your Miami-Carey dealer's... pronto!

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ATTENTION MANUFACTURERS' AGENTS

The Magazine of BUILDING is compiling a new list of Dealers, Distributors and Manufacturers' Agents who are interested in adding new lines (building products, materials, specialties, household appliances, etc.). This list, when completed, will be available on request to interested manufacturers.

If you would like to be listed please write and be sure to tell us what territory you cover and what types of products you would like to handle.

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A clean, attractive, well-ventilated home is easier to sell. The new Westinghouse Home Ventilator Fan, with the amazing Injector Grille, can completely change the air in an average kitchen every TWO MINUTES. Now, alert builders everywhere are including the Westinghouse Home Ventilator in construction and remodeling plans.

**LOOK AT THESE FEATURES**

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**GRANT Silent SLIDING DOOR HANGERS**

Stay Silent...
Last a Lifetime

Grant #16 and #17 sliding door hangers are the only hangers with rollers of NYLON. This assures you of a really silent operation—as nylon makes up the complete rotating member of the ball-bearing roller. With Nylon rollers there is no metal to metal contact—thus eliminating metallic sound—your guarantee of SILENT, smooth operating sliding door hangers.

Specify Sliding Doors—
- they save space, improve home decoration.
- allow for a simplified partitioning of rooms.

Specify Grant Sliding Door Hangers—
- the only hangers containing these outstanding advantages:
  - ball bearing action • three adjustments
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Representatives in all Major Cities

The foremost name in Sliding Devices
PRODUCT NEWS

The tiles have beveled edges and are tongued and grooved for a close fit over rough surfaces. Just three tools are needed for application—a putty knife, stapler and a fiberboard knife. Thick globs of acoustic tile adhesive are applied to each panel before it is pressed against the wall or ceiling. Retail price is about 48 cents per sq. ft.; discounts are allowed to builders. For basement or bathroom installations, an asphalt impregnated board is available at an additional 2 cents. Mastic costs about $2 a gallon. One gallon should cover from 60 to 80 sq. ft. The plastic covering is available in six leather-grained and and six solid colors.

Manufacturer: Page Panel Co., Cresskill, N. J.

PLASTIC CARPET laid over cellular rubber is comfortable heavy duty flooring.

For hotel lobbies, offices, restaurants—anywhere the comfort and appearance of carpeting are desirable but pedestrian traffic is heavy or maintenance a problem—Arrazin flooring is a practical solution. This textured vinyl carpeting with rubber underlayment is highly resistant to abrasive wear. Properly installed, it will not chip or crack. Its nonporous surface can be mopped clean, and is resistant to oil, grease and food stains. Installed prices range from 78 cents per sq. ft. for Arrazin with \(\frac{1}{8}\) in. sponge rubber in simple wall to wall settings to about $1.34 where a good deal of cutting is involved, and a heavier rubber base is used.


ALL WOOD DOOR carries 1 hr. fire rating.

It was the third seal of approval for the Fox wood fire door when it passed Underwriters' Laboratories fire and hose stream tests this summer. Associated Factory Mutuals Laboratories and the New York City Board of Standards and Appeals had already given it their okays, and this latest endorsement makes it possible for architects to specify an all-wood door in fireproof construction. Subjected to intense heat (up to 1,100° F.) for 60 minutes the two Protexol impregnated doors tested showed no flame through the outside faces. Average heat transfer of the doors was 110° at the end of the test. In a strength test, a Fox door was slammed 100,000 times without causing any evident loosening of attachments or separation of parts in the door assembly. The door remained dimensionally stable; transverse load test revealed a deflection (Continued on page 242)
Does the Job! This plan shows how Coleman Gas Wall Heaters can be used in modern homes.

Keeps costs down—Helps sell homes

Coleman AUTOMATIC GAS WALL HEATER

SAVES SPACE, INSTALLS EASILY

The modern heater that fits in the wall between studs. It extends out only 3% inches so takes no living space. Smart, modern style with a smooth, bright, luxurious finish that won't discolor, chip, flake or peel. And won't discolor wall or crack plaster. No ugly pipes show.

Saves on installation because it needs no excavation, no special construction, no basement. Ideal for slab-floor homes as there's no rippling floors. A dandy for heating 2nd-floor areas where space is scarce. Makes and moves the heat for an abundance of fresh flowing warmth. Safe for children — the casing they can reach heats to only 53° above room temperature.

TWO MODELS—Single and Dual Wall, for Gas and LP gas. Use anywhere.

Single Wall Model heats 2 average rooms with 25,000 BTU per hour input rating. Dual Wall Model, set in wall or partition, heats adjoining rooms. BTU per hour input rating 45,000. Separate controls to regulate temperature individually. Send coupon to find out why Coleman Gas Wall Heaters do such a dependable job of heating thoroughly — yet keep costs low.

THE COLEMAN COMPANY, Inc., Wichita 1, Kansas

COLEMAN HIGH-PERFORMANCE Gas WATER HEATER


Comfort costs so little with a Coleman America's leader in home heating

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Please send information on:
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the magazine of BUILDING 239
PACE-SETTER in all a closet should be...

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SANITARY PROTECTION Water supply is safeguarded with china channel enclosing riser pipe—open atmospheric vent—and other special design features.

Case

A MATCHING LAVATORY in the same design motif is the new Case Windell 8785.*

Case

Here is the perfect fixture for the house of today and tomorrow—a completely new model of a design that has been a favorite ever since Case first introduced the One-Piece Water Closet. In redesigning this fixture, Case engineers and a nationally famous industrial designer have retained the best features of its predecessor and added important new Case developments. The result is the newest and mechanically the most advanced water closet ever offered to the architect, builder and contractor.

From the main entrance and right on in, Stanley Magic Doors work to make any building "new"!

First, Stanley Magic Doors — doors that open themselves without so much as a touch — are an invitation to come in — a compelling, attention-getting advertisement for stores, restaurants, hotels that says, "Come here for better service".

Second, Magic Doors pay for themselves times over wherever they're used: in factories by reducing materials handling time — in public and institutional buildings by speeding traffic flow, cutting heating and air conditioning costs — in restaurants by speeding service — in stores and markets by helping bundle-laden customers shop more easily, more conveniently — and bringing them back to do it over and over again.

Actuated by a photoelectric "eye", "Magic Carpet", or by other electrical controls, Stanley Magic Doors open instantly, automatically on approach — stay open until all traffic passes through — then close quickly and quietly. They are easily adaptable to almost all requirements of space and location. Best of all, Magic Door Controls can be installed on present doors.

For 20 years Stanley Magic Doors have been a cost-cutting, profit-earning investment in installations all over the country. Find out how much they can do for you. Mail this coupon now!
PRODUCT NEWS

of less than 1/64 in. under 200 lb. pressure.

The glue (the point of failure for many wood doors during fire) used in their construction is a blood resin type which turns to ceramic in high heat. Chemically treated strips 13/16 in. wide form rails, stiles and panels. Each face of the core is sanded and layers of cross banding and finished untreated veneer glued to it. The door is hung on three 4½ in. mortise steel hinges. The 3 x 7 ft. flush door costs about $70 with wood veneer and about $60 with simulated wood facing. Other fire doors made by Fox are a 30 min. door, which sells for about $25 and a 45 min. door for $50. The Protexol process not only renders the doors fireproof but rot and vermin resistant as well.

Manufacturer: Fox Brothers Mfg. Co., Ohio Ave. and Sidney St., St. Louis, Mo.

STEEL LINTELS available in 14 stock sizes are ribbed for extra strength.

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Manufacturer: The Steelcraft Mfg. Co., Ross-
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The magazine of BUILDING 245
ROLL-UP DOOR of aluminum takes no stacking or swing space between rooms.

The Alumaroll door is a handy apartment space saver because no swing or folding space is required. Composed of aluminum slats beaded and hinged in a rolling assembly, the door rides up wood side rails to form a compact bundle beneath the header. The door is especially useful as a kitchenette closure. Rolled up out of the way, it is not likely to become spattered by cooking soil, but if it should become spotted, its baked paint surface can easily be wiped clean. The 1/2 in. slats are mounted on 1/4 in. tubing. A counterbalanced spring attachment permits the user to open the door from any point and it is sturdy enough to take long constant usage. It also may be utilized as a closet or cabinet closure. Alumaroll are cut to fit individual design requirements. Price to builders on orders of less than 50 units is $1.24 per sq. ft.; and on quantities of 50 or more, $1.16 per sq. ft. In addition to white and an aluminum finish, stock colors are pale yellow, dark green, deep blue, ivory and eggshell. Manufacturer: Orchard Bros., Inc., 63 Meadow Rd., Rutherford, N.J.

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(Continued on page 250)
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When a resilient floor is being selected for a place of business where style is an important factor in selling, Armstrong's Linoleum is almost always the first choice. No other type of resilient flooring material can be used so freely in the development of smart decoration. No other flooring material offers such a wide choice of beautiful patterns and style effects, such a complete range of colors. Custom designs are easy to create with Armstrong's Linoleum, and, in that way, unusual decorative floor effects can be obtained. The moderate cost of linoleum makes even an elaborately designed floor an economical investment.

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For additional information on these floors as well as for data on Armstrong's Linotile®, Rubber Tile, Arlon® 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, 2610 State Street, Lancaster, Pennsylvania.
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the magazine of BUILDING 249
**A New Book for Architects**

The increasing use of electricity throughout the home emphasizes the importance of electrical planning.

To help with your planning, those electrical features that have won wide public approval have been incorporated in this "Design Details" book.

It fills a real need for construction details on valance, cornice, cove, soffit, pinhole spot, under-cabinet and other unusual lighting effects. Kitchen and laundry plans are also shown, as well as essentials of modern wiring. Photographs of actual installations illustrate these planning ideas. Architectural details are accurate and complete. A copy of this book will be sent to you on request to the Better Homes Bureau, Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Penna.

**PRODUCT NEWS**

**AUTOMATIC CLOTHES DRYER** has single dial control, flat top work surface.

The new gas burning Temco unit dries clothes by drawing warm air through a slowly revolving perforated drum. A single control, the Sun Dial, turns on the ½ h.p. motor which drives both the cylinder and centrifugal blower, determines how long gas will burn to deliver clothes at desired degree of dampness or dryness. The drum continues to rotate 5 minutes after the burner is shut off—long enough to utilize heat stored in the vacuum tight compartment and allow the clothes to cool enough for handling. The unit requires only 15,000 Btu per hr. and can fluff-dry an average load in about 37 min. It is designed to operate on manufactured, natural and liquidified petroleum gases, and uses 110 v., a.c., 60 cycle current. A reversible lint trap may be adapted to vent moist air to the outside or discharge it in the laundry area. In addition to a safety pilot device, a switch cuts off the gas supply to the main burner whenever the front door is opened. The Temco Model 15-1 stands 3 ft. high, is 30 in. wide and 25 in. deep, and retails for about $220. Installed in multiple housing laundries, automatic dryers are not only a convenience for tenants but also keep the apartment buildings from becoming Monday morning clothes racks.

*Manufacturer:* Temco Inc., Nashville 9, Tenn.

**WASH BASIN** has its own water heater.

For the many remodeling jobs where additional small lavatories are desired but running hot water lines from the central system is impractical, this new combination lavatory and water heater should prove a useful fixture. The white porcelain lavatory has a mixing faucet, and is mounted on an aluminum cabinet. An automatic electric water heater inside the cabinet is fully plumbed to the lavatory. Underwriters' approved, the heater is insulated with 2 in. of glass fiber. A thermostatic control turns on the current only when the hot water is used. Installation consists of simple water connections to cold water source and drain, and plugging in the heater to an electric outlet. Dimensions are: front height 311/4 in., rear height 35 in., cabinet width 18 in., depth 17 in. Price, f.o.b. factory, is $89.50.


(Continued on page 254)

Tyler engineers have been working on the problems of open, self-service food store merchandising for years — are abreast of latest practice. The Tyler line, with over 400 models, represents the most advanced available — includes Open, Self-Service Cases for meats, produce, dairy products, frozen foods; sectional, steel-clad Walk-In Coolers; Welded-Steel Reach-In Refrigerators; economical, factory-finished Metal Shelving, check-out counters, etc.

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Manufacturer: Western Metalcraft Inc., Box 657, Olympia, Wash.

CEILING FIXTURE uses one bulb for two lighting jobs.

Beaming a glareless spot through a louvered lens in the bottom of its bucket, the Lightcaster utilizes the light directed up from the same bulb by reflecting it from a smooth-lined ceiling dome. Edward Wormley and Gerald Thurston collaborated on the fixture's design, scaling it so that it is adaptable to office and showroom as well as home use. It is finished in grey, red, yellow, green or charcoal, with polished brass trim. Approximate retail prices are $19.50 for the 25 in. wide fixture with a 9 in. lens, and $19.50 for the 17 in., with a 6 in. lens.

Manufacturer: Lightolier, Inc., 11 E. 36th St., New York, N.Y.

REVOLVING RECEPTACLE keeps instruments within finger's reach.

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Manufacturer: Rototray Div., Inc., Box 551, Glendale, Calif. (Technical Literature page 260)

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Performance data and complete dimension information contained in these three comprehensive publications should be useful to engineers, architects and contractors selecting the manufacturer's fans. In addition to material on standard and special arrangements, the bulletins explain the mechanically efficient zones of operation for each size and type of centrifugal fan.

HEATING. Modern Methods of Apartment Heating and Heating Control. Minneapolis Honeywell Regulator Co., Minneapolis, Minn. 14 pp. 8 1/2 x 11 in.

Heating design and layout for systems that will maintain stable day and night temperatures in apartment buildings, yet provide for individual tenant thermostat controls, are discussed in this booklet. Drawings supplement the explanation of "personalized" apartment heating for various systems—radiant, radiators, convector, baseboard radiant and forced or gravity warm air.

AIR CIRCULATION. Chelsea Fan and Blower Catalogue. Chelsea Fan & Blower Co., Inc. 1206 Grove St., Irvington, N. J. 22 pp. 8 1/2 x 12 1/4 in.

Full engineering information, dimensions, performance and prices for all the manufacturer's industrial and residential fans are covered in the catalogue. Many unusual applications of new types of fans are described. Included is information on direct drive or belt driven window fans, industrial pressure fans, duct booster fans and a full line of automatic counter balanced shutters.


Eleven different construction applications of stud welding are shown in this folder. Uses of this fastening technique include installation of roofing, siding, windows, and decorative panels; curtainwall construction; insulation, electrical equipment and various types of reinforcing for concrete applications.


Written to serve as a general guide for architects, engineers and specification writers, this booklet presents brief authoritative information on aluminum for architectural purposes. Choice of aluminum alloys, product applications, finishes and characteristics of wrought and cast alloys are some of the topics covered.

AIR CONDITIONING. Key to Cleanliness in the Home, Booklet B-5156. Westinghouse Electric Corp., 125 Damon St., Hyde Park, Boston 36, Mass. 16 pp. 8 1/2 x 11 in.

A new model electronic air cleaner for the home is described in this booklet. One section shows how this residential unit fits into new or existing duct work and how it electronically traps dirt, dust, soil and pollen particles passing through it. Another chapter explains its operation and points out several advantages. Covering the technical side, the last part of the booklet contains a cutaway view, weight and dimensional data, and a brief discussion of the Precipitron principle of operation.

PAINTS. Medusa Rubber Base Paint Color Selector. Medusa Products Div., Medusa Portland Cement Co., 1000 Midland Bldg., Cleveland, Ohio. 6 pp. 3 1/2 x 8 in.

This folder contains eight color chips of new shades available in the manufacturer's rubber base paint and gives instructions for applying it to concrete floors and interior masonry walls.

(Continued on page 264)
EVERYTHING YOU WANT TO KNOW
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TECHNICAL LITERATURE


Fireproofing with lightweight Permalite plaster instead of the conventional solid concrete not only allows use of lighter steel members but does not afford an appreciable saving in erection time because steel members may be fireproofed at the same time as the interior finish without costly framework. The first folder, on fireproofing steel columns with Permalite plaster, gives necessary specifications for getting ratings of 1, 2, 3 and 4 hours. The other brochure describes a suspended ceiling (incombustible construction) which has a 4 hr. fire rating. Both publications include detail drawings and complete specifications.

CONCRETE REINFORCEMENT. A Specialized Steel Service for Contractors. Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80, Ill. 8 pp. 8½ x 11 in.

A deeply corrugated bar designed to bond effectively with concrete is featured in this bulletin. Called Hi-Bond, this reversed helical reinforcing bar is said to stay in place better than conventional bars, to make hook anchorage unnecessary and to reduce cracking of concrete structures. Other products described for the building contractor include electrically welded wire fabric, steel forms for concrete joist construction, steel spirals, caisson rings and reinforcing accessories.


Individuals or groups contemplating the erection of new buildings or the extensive remodeling of old ones will find some convincing arguments in this booklet for having a single overall construction contract. The booklet tells the prospective builder-owner that he can reduce costs and benefit in other ways by putting the complete responsibility for a project into the hands of a reliable general contractor.


Published as part of the Association's educational program for trade and architectural schools and for men in the building profession, this reference booklet contains a resume of all metals commonly used in making hardware and descriptions of the many finishes applicable to them. Although the subject of metallurgy is basically technical, the fundamentals are explained in simple terms without use of mathematical formulas or chemical symbols. A 4 ft. folding chart shows all available hardware finishes of 71 leading hardware manufacturers.

(Continued on page 268)
Leaderall moulded plastic unit ceiling at Electric Supply Corp., Chicago. Approximate area 6,000 sq. ft. Average intensity 50 foot candles . . . light intensities may be varied, however, without visual effect. Indicated floored area of 4 sq. ft. Light source is simple, fluorescent strip with reflectors. Architect . . . Mr. Vic Chorn.

An ideal Leaderall installation would consist of fluorescent slimline strip with reflector mounted to ceiling, plus Leaderall plastic ceiling grille installed below. Leaderall grille is easily removable for quick relamping. Grilles provide more apertures per foot for maximum “sifting” of lamp rays and greatest shielding of lamps. Units with 40°-40° cut-off available in 2' x 4' or 4' x 4' sections. Other sizes and curvatures custom made. Plastic is destaticized . . . dust resistant. No interference with sprinkler system or air conditioning.

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The exact number of the sheets and accessories needed for roofing and siding may be determined quite simply by following the steps outlined in this guide. Diagrams show what measurements are needed for estimating all types of roofs—plain gable, hip, L-shaped, T-shaped and gambrel—and for dormers. Also included is a table which makes it possible to calculate rafter lengths where the actual measurements are unknown or difficult to take.


Compiled to assist architects in the selection of the manufacturer's floor maintenance materials, this looseleaf folder covers every phase of finishing from the sanding machines used in preparing the surface to product specifications. Choosing the proper coatings and estimating their coverage on various surfaces is simplified by a data chart which also gives drying time for 15 sealers, cleaners and waxes applied to wood, composition and terrazzo floors.

FLOORING. Masterquick Method. The Master Builders Co., Cleveland 3, Ohio. 8 pp. 8½ x 11 in.

An iron asphalt patching material said to produce long life repairs and make possible easy, fast patching or resurfacing of worn concrete floors is announced in this illustrated bulletin. According to the manufacturer, this Masterquick material, embodying a graded ductile metallic aggregate, overcomes the problems of feather edges and early breakdown under impact.

AIR MOVING EQUIPMENT. How to Have Comfort from Moving Air. Torrington Mfg. Co., Box 808, Torrington, Conn. 136 pp. 5 x 7 in.

Fourteen kinds of heating, cooling and ventilating equipment embodying the manufacturer's air impellers are presented in this attractive booklet. Window fans, floor and attic fans, room air conditioners and other air moving equipment for stores, offices and homes are pictured and described. Each of the 14 chapters is prefaced by an excellent short article on particular applications and proper installation of the type of unit detailed in the section.


Describing fully magnetic non-thermal industrial circuit breakers this bulletin gives illustrations, charts, diagrams, graphs and cutaway drawings of the company's one, two and three pole breakers. Time overload curves and coil resistance curves are included for convenience in selecting breakers for specific needs.

(Continued on page 272)
a model house . . .
a model kitchen with

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General Electric Textolite* Plastics Tops were chosen for the surfacing material in this model kitchen at the Museum of Modern Art-Woman's Home Companion Exhibition House (Gregory Ain, architect). Available in a wide range of original colors and patterns, these tops help architects and builders create the color schemes they desire—the color schemes that will please homeowners.

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This illustrated report cites case histories of 55 million board feet of Wolman pressure-treated wood. The first application of this vermin and rot resistant lumber in the U. S., a 26 year old dye house, is described as still being in good service despite severe moisture conditions.

INDUSTRIAL STEAM TRAPS. Sarco Steam Hookups. Sarco Co., Inc., 350 Fifth Ave., New York 1, N. Y. 63 pp. 50 cents.

To be efficient steam has to be dry—whether it is for heating, cooling, evaporation or processing. If condensation forms and is not removed before the steam reaches the point of use, fuel is wasted. Steam traps, as this booklet points out, therefore have direct bearing on the over-all efficiency of building operations. Yet they are usually not given more than cursory attention. To simplify their selection and application by the engineer or contractor, Sarco has assembled this handy reference information on when and where to use steam traps or temperature control, what types to select and how to size and install them. Also included are tables and charts on properties of saturated steam, velocities for fluid flow through pipes, standard pipe and pipe threads.


Actual colors of rugs, fabrics, upholstery, etc., currently available in stores throughout the country form the bases for 24 color schemes contained in this folder. Six solid blocks of color, representing walls, floor covering, upholstery and accessories appear on each card with an explanation of the effect of the colors on the room. Relationships are planned for large rooms (or for those receiving much daylight) and for small (or dark) rooms. Much easier to comprehend than a full-blown color system, the Colorscope provides the architect with a convenient shopping palette for his client.


Every common school lighting need is discussed thoroughly in this well illustrated guide. Lighting plans for each of 34 types of areas present in most large schools—from classroom and library to gymnasium and laboratory—are included. A handy index makes it easy to find each plan according to the type of space it represents. Photographs of actual installations appear with each plan as well as a sketch of the manufacturer’s lighting unit used, its catalog number, and data on foot-candle levels recommended for the particular area. Architects and educators should find the publication a practical reference.
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