"I like a company that thinks in terms of human beings, as well as machines and profits," says R. A. Wangerin, Financial Division of Butler Brothers, Chicago, national distributors of general merchandise. "This company is an example. There must be at least 150 office machines in our division. This could have caused a serious noise and work handicap—but not at Butler Brothers! They installed Acousti-Celotex sound conditioning. The Quiet Comfort it has meant to me and the other employees has made a world of difference in the way we feel and how well we work."

Men at work...more Efficiently
— thanks to Quiet Comfort

It's more than smart employee-relations to sound condition. It's good business. Because "There is both practical and experimental evidence," states the Manual of Industrial Hygiene, "that noise has been responsible for impaired hearing, fatigue, neurones, increased blood pressure and decreased working and mental efficiencies."

For good reasons, then, architects everywhere, alert to the functional needs of their clients, are placing Quiet Comfort well toward the top of the list. Your local Acousti-Celotex distributor is a professionally trained technician—member of the only organization in the world with the combined experience of more than 100,000 acoustical installations of all kinds.

And he features Acousti-Celotex—used in more offices, factories, churches, schools, banks, theaters, and hospitals than any other acoustical material.

So consult your Acousti-Celotex distributor with confidence. His advice is yours absolutely without obligation... and he guarantees results. A note to us will bring him to your desk.

FREE! "25 Answers to Questions on Sound Conditioning.
You'll want this fact-packed booklet on sound conditioning. Easy-reading... informative... helpful. For your free copy address: The Celotex Corporation, Dept. AF-1146, Chicago 3, Ill. "

Sound Conditioning with Acousti-Celotex

A PRODUCT OF THE CELOTEX CORPORATION, CHICAGO 3, ILLINOIS
NOVEMBER 1946

NEWS

LETTERS

FORUM

ANNOUNCEMENTS

HOUSES


$50,000,000 RETAIL CENTER

Huge Flushing shopping center project will exploit transportation and design. Lester Tichy, architect.

SOUTH AMERICA I

FORUM'S South American correspondent reports on Colombia and Venezuela.

U. N. CENTER

New York's bid for host to the U.N. is 350 acres of park, erstwhile scene of the World's Fair.

CIRCULAR WAREHOUSE

Analysis of six warehouse shapes produces ideal solution. H. K. Ferguson Co., engineers.

FABRIC SHOWROOM

Eleanor LeMaire, designer, merges glamour with efficiency.

TWO SMALL STUDIOS

Hollywood photographic and art studios squeeze maximum use from minimum areas.

REVIEWS


G. I. JOBS

PRODUCTS & PRACTICE

The Heat Pump, a study of reverse cycle refrigeration . . . aluminum tile . . . electric vapor heating units.

TECHNICAL LITERATURE

You'll make a hit with both tenants and owners when you specify Servel Gas Refrigerators for the new apartment houses you design or build. Tenants are enthusiastic about Servel because it never makes a sound, never annoys. As 2,000,000 families know, the Gas Refrigerator offers perfect food protection...plus the most modern refrigeration conveniences.

What's more, apartment house owners profit from Servel's lasting dependability. Year in and year out, this modern refrigeration keeps giving the same efficient service it did when new. Operating and maintenance costs remain low.

These unmatched advantages explain why Servel Gas Refrigerators have been the popular choice for years in outstanding multiple dwelling developments. Typical is their pre-war installation in New York's Castle Village and London Terrace, as well as in Washington's modern Alban Towers Apartments. And today, as a result of Servel's top-flight wartime performance, the demand is greater than ever. Thousands of families, who put up with noisy, troublesome refrigerators during the war years, have decided their next refrigerator will be a silent, long-lasting dependable Servel.

Plan now to provide outlets for Servel Gas Refrigerators in your current designs and construction work. For complete information on this famous refrigerator, consult Sweet's Catalog. Or write today to Servel, Inc., Evansville 20, Indiana.

Servel stands out with both tenants and owners because it is the only refrigerator that offers permanent silence and lasting dependability. These advantages are the result of a basically different method of operation. Here is a simple explanation of the big difference that makes Servel outstanding.

**ALL REFRIGERATORS COOL BY EVAPORATION**

When a continuous stream of ammonia or other refrigerating liquid and a continuous stream of air are poured through a bent metal tube, evaporation takes place inside the tube. This cools the outside of the tube and causes refrigeration. The evaporated ammonia goes off in vapor gas. Since in a practical refrigerator the supply of refrigerant is limited, it must be recovered and used again.
BUT SERVEL CHANGES VAPOR BACK TO LIQUID WITHOUT MOVING PARTS

**HERE'S THE DIFFERENCE**

**In an electric refrigerator,** the vapor is compressed back into a liquid by use of machinery. This machinery consists of a motor, valves, pumps and compressors.

**In the Gas Refrigerator,** the vapor is changed back into a liquid by first being passed through water. The water absorbs the ammonia. The mixture is then boiled by means of a tiny gas flame. The ammonia is driven off in the form of hot ammonia vapor. Cooled by passing through pipes, it condenses again into liquid ammonia. Not a single moving part is needed.
Looking Forward... a Tremendous Market

It cannot be done now of course. Neither materials nor labor are plentiful!

But hundreds of thousands of homes have one or more rooms with cracked plaster . . . embarrassing and dangerous. The time is coming when they must be repaired. Upson Panels provide a tested answer. Upson Panels of lasting CRACKPROOF beauty have been successfully used to re-cover ugly cracked plaster in thousands of homes.

It is easy and quick to apply Upson Panels of lasting beauty over the old plaster. The entire job is finished in a day or two. No waiting for plaster to dry. No muss—no fuss—no penetrating dust to seep all through the house.

As with all good products, Upson Panels are not yet in full supply. But it will pay you and your customers to wait a little longer. An Upsonized ceiling is permanent—beautiful—forever CRACKPROOF!

THE UPSON COMPANY • LOCKPORT, N. Y.

Upson Products Are Easily Identified by the Famous Blue-Center PACEMAKER ON CRACKPROOF PANELS
BUILDING MONTH. In Socialist England, in authoritarian Russia, in the new Fourth Republic of France, it was all the same—governments were failing to house the veterans. And last month in the U. S. many a sober-minded citizen was ready to say that the schizophrenic Veterans Emergency Housing Program—half industry, half government—would not work here either. Six months ago when Congress belatedly gave the President the Patman Act, the President gave the country a huge housing goal and turned the program over to his mighty-armed Expediter to boss. Wilson Wyatt, young, dynamic, optimistic, called on Building to repeat its war performance, to forget "normalcy." He asked for a two-year housing crusade. But as the months wore by it became painfully evident that the time for crusading was past; everybody was more ready than Mr. Wyatt to call the war over. Not even the veterans organizations, were ardent in their support.

Every anticipated trouble and a good many unanticipated ones beset the program. Materials were short and stayed so. Prices were high and went higher. Markets turned black and got blacker. Land prices skyrocketed. Prefabricators always lacked something to keep production lines moving. Controls piled on top of controls. Only red tape was in long supply. Sure, a lot of houses had been started—perhaps as many as one million units, including temporaries, this year. But a good many fewer would be finished—possibly four hundred thousand. The outlook was dolorous.

Wyatt's Worries. On October 19th Wilson Wyatt had more to chew on than his first decontrolled steak. For a man as smart and as sensitive to the public mood as Wyatt, the breakdown of OPA must have seemed a body blow to his program. Not many would believe that building controls could stay much longer. Rent control seemed for the moment safe from abolition. Even the veterans organizations, were ardent in their support. The President and the Housing Expediter undeniably underlined the Administration's determination to keep Building under leash, it would become increasingly hard to hold down prices of building materials and labor in the face of rising prices all across the board.

Mr. Wyatt was far from ready to call it quits and proved it by persuading the President to invoke his emergency powers to take the tariff off lumber imports. At the same time, he dipped into his premium payment pot to offer a $20-a-keg bonus on nails, which had been selling in the black market at the price of blue-chip stocks. Wyatt also moved to speed guarantee contracts and development loans to prefabricators. Well-founded rumor had it that such airplane titans as Consolidated-Vultee and Douglas soon would get Government blessing.

Building's Mood. Whatever Wilson Wyatt's plans, Building believed that most of his program was doomed. True or false, this belief was the most potent fact in the whole complex situation. Whether the Administration would sponsor a decent burial for veterans was the most effective bait of all. Sometimes the suspicion was justified; sometimes the charge "Politics!" was a reverse twist on the same game.

Typical of pre-election season was the "revelation" by Senator Owen Brewster, (R), of Maine, of a "long-suppressed" report of the Senate War Investigating Committee. Released by the GOP National Committee, the report took NHA over the coals for "continued and appalling waste of manpower, materials and public funds" during the construction of war housing. "Politics!" shouted the Democrats. Just as typical was the announcement that the Government was ready to remove inflation curbs on federal construction. Some $600 million was suddenly marked for public works before the end of next June, completely reversing the hold-back order of August. "Political slush fund!" charged the Republicans.

The sophisticated pointed out that policy and politics were allied terms; lifting of price controls was a "political gesture"; it was also a major governmental choice in a period of deep economic changes. The fate of the Veterans' Housing program was a political—and a human stake.

On local election fronts, housing was probably the No. 1 political night-stick
In New York, junior Senator James M. Mead charged Governor Dewey with blocking housing by expenditures of "the veterans' trust fund" on non-essential highway projects, added that the Governor had dissuaded city authorities from accepting Federal housing aid "in an arrogant desire to claim credit to himself." Finally 71 veterans spent a night of earnest trespass in the State legislative chamber, passed a resolution demanding that Dewey call a special session of the legislature, concluded their day in Albany with the resolution to support Mead. Replied Dewey: the State of New York's $35 million emergency housing program was "the most comprehensive in the nation". In nearby New Jersey fellow-Republican Governor Edge announced that he would back a record $106 million housing program, proposed a ban on commercial construction and considered a proposal for a year's moratorium on evictions, causing the State Chamber of Commerce to call "New Dealism."

In Illinois, Governor Green charged that Democrats of his State had introduced "spurious" bills to spend 46 millions in state funds for vet-housing at the last session. "This," he said, "was done not to build houses, but to build votes." The Chicago Daily Tribune agreed with the governor but had its own way of linking votes and shelter. It headlined: "If you want houses, vote Republican."

VET LOAN PILE-UP

G. I. lending program swells; will get bigger.

GI Home Loan applications stacked up like the chips of a win-all gambler. About 14,000 loans a week were being asked for. Lenders would be having the risk of a billion dollars monthly, Veterans' loans represented the biggest home-financing program in U. S. history. Within the 10-year life of the program such a stake might win the U. S. the astounding total of 10 million new homes. Alternatively, the risks were enormous if a depression brought a reversal in the economic status of home-buyers—a wave of foreclosures might ensue which would level many thousands of best-laid plans.

The Loan Guarantee Service of the Veterans Administration was ready with its first summary totals of home loan statistics. The report: 303,355 loans (worth $737 million) had been made on houses valued at $1.6 billion. Applications were flooding in; more than half of the total applications made so far have been received in the last six months; the tempo of VA lending was now running in excess of $50 million a week on loans actually closed and disbursed.

Government agencies and lending institutions acknowledged that the total program might pile up a whale of mortgage total by the end of its decade of operations. With savings declining sharply, many lenders wondered how they could continue such a rate of disbursement. RFC had promised to backstop banks by buying VA loans; now the eleven Home Loan Banks announced they would provide a similar secondary market for member savings and loan institutions. About half of the outstanding loans guaranteed under the VA program have been made by savings and loan institutions. Prediction by Governor Harold Lee of the FHLB was that they would handle a volume of $7 billion worth of such loans this year and next. With new ability to lend gained through the Home Loan Bank System they might crowd the mortgage bankers to a corner of the field.

VA, meanwhile, sweated over a problem that admitted of no easy solution. Law required that GI home loans be underwritten only at "reasonable values." Amendments to the original GI Bill enjoined the agency to go along with current costs. The situation, said one VA official, was a little like trying to ride two horses going in opposite directions. Costs, as anyone could see, were headed away from all standards of "reasonable."

AVERAGE WEEKLY VOLUME OF G. I. HOME LOAN APPLICATIONS

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COMMERCE UNDER HARRIMAN

Construction division offers help to industry.

Too many government cooks, builders believed, made for a lot of spilt broth, but one new hand was welcome—the Construction Division of the Department of Commerce. With the replacement of Secretary Wallace by business favorite Averill Harriman, the Commerce Department got a new lease on popularity. Building looked with fresh cordiality upon Commerce's function as research and statistical coordinator, gave warm attention to the plans of J. L. Haynes, Construction Division head.

Haynes announced a series of studies of keen interest to the construction field: an economic analysis of park-and-shop centers; a complete summary of solutions for blighted communities; a broad program of materials-use research; a continuous check-list of modern standards of construction. Early last month, he staged a building materials exhibit in the lobby of the Commerce Building (see cut) demonstrating the Division's desire to help industry.

Washington felt that Congress would be more generous with a Harriman-administered Commerce Department than it had been with Wallace. Cited as an instance of the legislature's distrust was the fact that Congress failed to approve the Census of Distribution last year, even though business organizations wanted it. The census would probably have been granted without hesitation to a man of Harriman's known sympathies.

LOBBY HOBBY

Registration law makes lobbying a taxable profession.

In Washington there was an out-of-season interest in the Congressional Reorganization Act, one of the late Congress' bequests to its successor. Reason: a minor clause in the law (which streamlines legislative procedures and raises the pay of Congressmen) orders lobbyists to register with the clerk of the House and the secretary of the
Senate giving full account of expenditures, salaries and membership.

Real estate and building trade groups unhappily studied the prospect. Not only might they be required to "step up and be branded" but, by intimations from the Bureau of Internal Revenue, they stood a good chance of losing the privileges of tax exemption on membership dues. Treasury officials have given warning that special-interest pressure groups will lose status as non-profit educational organizations.

Capitol Hill experts were far from sure which organizations and individuals belonged on the register of lobbyists. No one knew, for instance, if Washington representatives of business firms were obliged to acknowledge efforts to get the ear of hometown Congressmen or to nudge favorite Senators into approving a favor.

If they did register, ought they put down their entire salaries and expense accounts or some fraction corresponding to the time spent in cloakroom button-holing? There was the expectation that before the 80th Congress was many weeks old some witness would be asked whether he had filed a statement of employment as a paid persuader of the legislature. One place where the question was bound to come up was the housing program investigation sought by Senator Homer Ferguson (R., Mich.).

Building-interests spokesmen were readying their answers. By general acknowledgment, the national associations of builders, real estate men and materials producers made up one of the most influential groups in Washington, but no one had ever made public a summary of the money and manpower expended.

Like any successful combination of strong interests, the real estate lobby had caught critical fire whenever it scored. During recent months it had been credited (and castigated) for effecting the defeat of the W-E-T bill and the pruning of the original Patman housing measure. President Truman left-handedly complimented: "It appears that the National Association of Real Estate Boards has more influence with Congress than the President of the United States."

Most observers felt, however, that lobby registration implied no moral embarrassment. Many states require lobbyists to register as such, sometimes to pay fees. And partisans on all sides of most big issues have learned the lobby technique: CIO auto workers have already sent in registration forms. Lobbying seemed securely established as a part of democracy's many-cogged mechanism. Whatever the lobby-listing statute accomplished, it probably would not alter the traditional role of what the late Senator Caraway once tagged "The Third House." At month's end, however, at least one building organization determined to stay clear of the whole deal: the Producers' Council announced that it would not register; would suspend all of its identifiable "lobbying".

Mortgage Bankers in Cincinnati

Photos: Kohlining, Lobker & Toy


NEW MBA PRESIDENT was Guy T. O. Hollyday of Baltimore, seen at left, shaking hands with retiring president Byron V. Kanaley. In inter-session group, left to right, below: Henry Beach, Phil Kleas, Lindeli Peterson, R. S. Beachey, Ennis E. Murray, Hirami S. Cody and Frank J. Mills.

Housing Officials in Cleveland

Photos: Albert J. Willinger

NAHO SESSIONS included speeches by Wilson Wyatt, General Omar Bradley, Senator Robert Taft. At left, E. W. Blum, executive director, Houston Housing Authority, Wyatt, NAHO President Frank B. Wenrich. At speakers rostrum, above, I. to r.: Vincent Murphy, Mayor of Newark; Gilbert Harrison, national vice-president, American Veterans Committee; Ernest J. Bohn, Cleveland Metropolitan Housing Authority; Lee Johnson, executive vice-president, National Public Housing Conference.
HOSPITAL FORECAST: Government-sponsored boom ahead

Not even a hospital bed was refuge from the housing crisis—hospitals were stuffing in patients like herrings in a barrel, waiting lists were growing. Last month the Commission on Hospital Care of the American Hospital Association wound up a two-year study with the declaration that 195,000 more beds were immediately necessary.

The prescribed increase was fully 40 per cent over the country's present hospital capacity: its cost would be about $1.8 billion. Yet the Commission's calculations did not take into account the large number of hospitals due for replacement or remodeling or the grim boom in hospital demand to be created as 20 million ex-servicemen grow older and more ailing.

To meet the need for veteran hospitalization, the federal government was ready with a $600 million fund voted by Congress late in the last session. Within two years the Veterans Administration would establish a system of general, neuropsychiatric, tuberculosis and domiciliary hospitals. For the general population, Washington aid would produce a $1.125 billion program of building through grants-in-aid to public and voluntary institutions. Together, these two programs would create the greatest wave of hospital building in history. Unquestionably, also, they would transform the organization of hospital care, initiate an integration of medical facilities that doctors had dreamed of for decades, evolve new forms of hospital design.

Last month the curtain on this new hospital age went up. Preliminary plans and specifications were approved for the first of the VA's network of 89 new hospitals. The President signed the Hospital Survey and Construction Act, which authorizes the appropriation of $375 million in federal funds to go one-third of the way toward financing civilian hospitals and health centers. Congress has also thrown in an additional $3 million to pay the states for surveys of their hospital needs: to date, 20 states have completed such surveys, 20 others have initiated surveys, and the remaining eight plan to do so.

These surveys finished, the USPHS will approve programs of construction through the office of the Surgeon General and the Federal Hospital Council, a nongovernmental advisory group. One such program was already complete last month: the Michigan Hospital Study Committee recommended that the state reduce the number of hospitals from 292 to 118, build new, larger, properly located institutions, double the number of existing beds. This and all other state programs drafted in application for federal grants-in-aid must receive approval through the Surgeon General and the advisory Federal Hospital Council. Allocations to individual states will be apportioned by population and per capita income and will not exceed one-third of the cost of any project.

By next February, USPHS will have readied a program of standards for integrated hospital planning and for individual buildings. In charge of this key work, the Hospital Facilities Technical Unit, headed by architect-engineer Marshall Shaffer, has already completed an elaborate preparation of prototype plans. Basic to the Section's thinking has been the conception of hospital service "in echelon"—a front-line-to-headquarters organization of the whole scheme of hospital care ranging from the rural health center equipped and staffed for obstetrics and emergency surgery, through the larger rural hospital, the district hospital and, at the hub of regional service, the large base hospital containing facilities for teaching, research and consultation. While USPHS will not enjoin exact hospital designs upon states and institutions receiving federal funds, its concepts will influence all work submitted for approval. Tremendously significant, therefore, are its studies both of regional hospital patterns and of individual building forms, now being made available to designing firms and hospital authorities.

Such programs as these are only the beginning of government's greatly enlarged role in the development of hospital service. They will not by any means meet the long-term need which government analysts say would amount to a $3.9 billion addition to the existing hospital plant. In the past, hospitals have been built chiefly where voluntary money was available and, as a consequence, 40 per cent of American counties have no hospital facility at all. Only government aid to an even greater degree will provide the sort of coverage which reaches unprejudicedly into rural and urban, low-income and high-income areas.
FIRST APPROVED VA DESIGNS are for 1,000-bed hospitals at Albany and Buffalo (above), and Brooklyn (left). Eggers & Higgins and Green & James planned identical buildings for Albany and Buffalo, employing well-tested cruciform plan with centralized control of services. Skidmore, Owings & Merrill met same specifications with strikingly different plan (left) for location overlooking lower New York bay. All patients have view of harbor. Plan segregates nursing units in sixteen-story wing. A central service and elevator unit connects nursing wing to five-story treatment and clinical wing, three-story special recreation block. Unusual entrance scheme separates pedestrian from auto arrivals.

200-BED HOSPITAL for an urban district would possess complete diagnostic and treatment facilities, include educational provisions for interns and nurses, and outpatient clinic department, provide consultation and specialists' services to smaller institutions. District hospital would, in turn, connect with larger base hospital or medical center with advanced research and teaching, consultation and diagnostic services.
ALUMINUM BUILDING LINE

Reynolds helps fill gap between production and demand.

Reynolds Metals, which had a prefabricated house design and a prefabricated strip kitchen still up its sleeve (Forum, March, April '46), was ready with the magic words—"for immediate delivery." It was announced that Reynolds plants were turning out a million pounds of aluminum a day into a basic assortment of precut roofing and siding items. While the new materials made no designer turn handsprings, they had the amazing virtue of being here, now, and in quantity, to replace scarce wood and asphalt products.

Reynolds' building line consisted of: aluminum clapboard siding provided with an interlocking flange, aluminum shingles, "snap-seal"-type, weatherboard, corrugated and V-crimp roofing and siding materials and all roof-trim accessories. They possessed advantages of weather-resistance and lightness, and high heat-reflecting qualities (outwards in summer, inwards in winter). Made primarily from secondary scrap, they were low enough in price to compete with sheet steel.

But, in selling aluminum products directly to the home market, Reynolds would probably run into one annoying snag—aluminum's susceptibility to corrosion due to "galvanic action" when in contact with steel or copper. Architects and builders would know the necessity of using zinc-coated nails or rubber washers at all connecting points, but a farmer, roofing over his barn, would unhesitatingly tack aluminum sheathing with steel nails.

By introducing aluminum building components, Reynolds had beaten No. 1 ingot-producer Alcoa into the house-materials market. Reynolds carries more products into the house-market, Reynolds had beaten No. 1 ingot-producer Alcoa into the house-materials market. Reynolds carries more products into the house-materials market. Reynolds had beaten No. 1 ingot-producer Alcoa into the house-materials market.

BREAKING DOWN THE FIGURES

As other contracts waited, NHA busied itself with studying lists. There was, to begin with, a list of prefabricators whose products or models had received FHA approval. If all of these were suddenly to be provided with needed materials, told to produce at current capacity, what would we get? At a maximum, said NHA, 250,000 units a year.
Consolidated was ready with a similar "sandwich-wall" model.

Beech was trying to swing a satisfactory deal for the production of the Fuller Dynamaxion (FORUM, April, '46). (Fuller Houses, Inc., meanwhile, announced that it had suspended operations because of financial difficulties.)

Martin was negotiating for production of the aluminum house devised by the Butler Manufacturing Co. of Kansas City. In contrast with the box-like "Lincoln House," Butler uses no insulating paper core, in general strikes a more conservative note.

NHA, counting some of these in, figures that the housing program for 1947 will require 397 million lbs. of aluminum, 545 million lbs. in sheets, 54 million in extrusions. The 91 million lbs. a month output of the aluminum industry could easily cover this estimate.

HUSTLING HOMEOLA

Jacques Willis, whose Homeola prefab was underwritten by a government contract early last month, sat in his plywood-lined office in downtown Chicago and said: "If I can get logs, I can make plywood. If I can get plywood, I can make houses." The first to get a helping hand from Washington, Willis was easily the least helpless prefabber in America. He had substantial private interest in the plywood industry, a 400-dealer organization and a story-and-a-half plywood house which was coming off the production line at the rate of ten a day. Since last April, 736 of his houses had been fully erected.

With government assuming the marketing risk involved in a 1,000 per cent expansion by next June, Willis announced he would contract for the output of two large West Coast wood processing plants, double the floor-space of the assembly plant in Chicago, intensify pressure all along the line, produce 19,400 houses by the end of 1947.

Willis' distribution start was probably the chief reason for its favor with Washington. Already functioning was a system many neophyte prefabbers might well copy: Homeolas reach local dealers in two simultaneous shipments, one from the mill-work plant, the other from the Chicago utilities-assembly plant. Shipments are in units of five, an exact box-car load which moves at the lowest possible rate—e.g., $174 to San Francisco, $155 to Des Moines, $210 to Baltimore.

In exchange for the government market guarantee, Homeola agreed to a specified dollar profit, before taxes, on each unit it sells. But as a reward for successful economies in mass production, the government required the prefabricator to pass on only two-thirds of the savings to customers in the form of lower prices, retaining a third as an extra profit bonus.

RESEARCH INTO HOME-PLANNING has long been a specialty of the University of Illinois Small Homes Council which publishes a widely-circulated series of pamphlet guides to good home design. New research center, now under construction, will consolidate theoretical, structural and practical approaches to housing, consist of elaborate main building for experiment and demonstrations, outdoor production-yard for site operation work and research house group designed for specific problem investigation. Research houses will be financed by private industrial organizations. Projects now under way involve collaboration with Bituminous Coal Research, Inc., Institute of Boiler and Radiator Manufacturers and Warm Air Heating and Air Conditioning Association (below). The Research Center will concentrate on improvements in the low-cost single-unit home, plans to supplement and coordinate current investigations by industry, provide a unique study opportunity for students of home-planning and technology.

EXPERIMENTAL HOUSE sponsored by National Warm Air Heating and Air Conditioning Association (above: plan, left) will furnish practical laboratory for testing heating equipment.
**LIDICE reborn**

Here, beyond a vanished road of lime-trees, rose one of the typical small villages of Central Europe. A turnip-shaped bell tower marked the five-century-old church; around it clustered the homes and gardens of 1,200 human beings. They were woodworkers and farmers and miners—and their village was so modest a settlement that when the Germans made it into the barren plain at the right, only a few badly taken photographs remained to record its former aspect. In June 1942, in reprisal for the murder of Heydrich the Hangman, the Germans erased this village—Lidice—from their maps and murdered its entire male population; failed to erase it from the memory of millions.

Last month, in Prague, death by hanging was dealt the executioner of Lidice, S.S. Gen. Kurt Daluege. In Nuremberg, his masters were already dead. But Lidice had begun to live again. An international contest for a new Lidice plan had just been closed; best entrants would furnish the basis of the new city, scheduled for construction this spring. Two of these plans are reproduced here.

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**ONLY A CROSS MARKS SITE OF LIDICE, LEVELLED BY NAZIS**

**STERNBERG PLAN:** PARK INCLUDES ORIGINAL TOWN AREA (SHADED)

**CZECH ARCHITECTS** Eugene Sternberg and Robert Podzemny have envisaged a town of gently curving streets, community facilities, good roads. The site of the destroyed Lidice (plan at right) is preserved as a memorial park by both planners. The church will be rebuilt on the site of old St. Martin's. Otherwise, the central region will be all garden—a garden city in reverse—surrounded by a belt of streets and houses. Both designs were commissioned by the war-time Czech government. Sternberg's was executed in the office of British City-Planner Lascelles Abercrombie; Podzemny's in cooperation with the Department of Architecture of Columbia University.

*News Continued on page 14.*
Somehow you know, without being told, that the author of "Home, Sweet Home" was an American...

For the simple beauty of his song so exactly expresses the love which Americans have for home. An attitude, both strong and reverent, born in the cabins of pioneer ancestors and guarded zealously through generations that followed. From American hearthstones the spark of independence was fanned to quenchless flame, and a succession of great men and women emerged to carry its light abroad in the land.

To people who thus cherish the ideal of home, the expression of its physical form is no less important. So American homes have become the wonder of the world! Here, the home of the Colonel's lady and Judy O'Grady differ in size, location and pretension, but seldom in facilities for necessity or convenience.

One development, perhaps more than any other, makes this possible... the invention and mass production of steel pipe.

Yes, steel pipe makes it possible! The conveyance of fresh, pure water from its source, however distant, to and through the home... for drinking, cooking, bathing, laundering, cleaning and sanitation. For providing conventional heating or the advantages of the newly developed radiant heat. For cooling in summer. For fire protection... for a hundred-and-one uses.

Durable, reliable, economical... steel pipe makes these comforts of home available to all! That's why 90% of all home piping is steel piping.

The interesting story of "Pipe in American Life" will be sent upon request.

Committee on Steel Pipe Research
OF AMERICAN IRON AND STEEL INSTITUTE
350 Fifth Avenue, New York 1, N. Y.
S.R.P.
MEANS "SURE RUST PREVENTION"
FOR IRON, STEEL AND GALVANIZED IRON SURFACES

Here's a "Sure Rust Preventive" for new and old metal! S.R.P. is a penetrative rust-preventive coating that "insulates" metal against the corrosive action of salts, moisture, acid fumes and vapors, and weather exposure.

S.R.P. is easy to apply—needs no expensive preparation—goes on like paint—and you don't have to remove firm rust. S.R.P. penetrates through and combines with existing rust to bond firmly with clean metal, forming an impermeable coating against air as well as moisture. Its exceptional elasticity prevents formation of pin-holes and resists the damaging effects of expansion and contraction.

Protect piping, fences, structural members and sheet metal surfaces with S.R.P. #75 Primer; then, as a finish, apply either S.R.P. #87 or SONOLASTIC Aluminum Ready-Mixed.

See SWEET's for further information, and for descriptive literature write Dept. A-11.

SPRIL IN ANTIQUES
Sales climb high, prices boom.

When glassware, furniture, silverware and a raft of diverse objects become antiques, their metamorphosis is the most curious in merchandising. Age, rarity, intrinsic value and fashion combine to take them out of the drab market for second-hand goods and into one of the subtlest and most hypnotic bazaars in the world.

Last month, as the official antiques auction season opened, the atmosphere was more exciting and the buying more fabulous than ever before. Boom demand, growing since the start of the war, had lifted the nation's antique business to a record crest estimated at $100 million.

At New York's Antiques Fair, largest and most famous of the fall shows, 83,000 people paid $1.50 each to wander in and out of the booths strewn through the cavernous 71st Armory building. They bought over $1 million worth of everything from $5 glassware to thousand-dollar old English secretaries, viewed items offered by 160 dealers.

The nation-wide antiques boom was piling up profits for big and little sellers. Prices were some 50 per cent higher at the quality Kende Galleries and the plush galleries of Parke-Bernet, Manhattan's biggest auction house for objets d'art. For thousands of country dealers and side-street city antique-sellers with less gilt-edged stock, there was also a frenzy of trade. New York City, still the center of the antiques trade, had acquired hundreds of new dealers since the beginning of the war. Even Daytona Beach, Fla., which had one store before the war, now had five. Antique shows modeled after New York's well-staged affairs were being held in Philadelphia, Miami, Asheville, Boston and Pittsburgh.

Inferior quality antiques were enjoying the most obvious inflation: grandma's Victorian dresser, hardly worth its weight in lumber before the war, was fetching $100, repainted in gold and white lacquer. There was somewhat less exuberant buying of quality pieces: a set of Chippendale chairs was still purchasable at its 1941 price—$5,500; fine Persian rugs and 18th century silver held at near-normal values. But one-generation-old walnut sewing tables and cut-glass water pitchers had suddenly found new buyers willing to pay top prices. In the Southwest and South especially, dealers reported, the heavily-ornamented side-boards of a generation ago were being dusted off as "period" furniture. Chief result of such buying has been a tremendous increase in sales volumes, a decline in the average sale. The standard definition of an antique—an object of some durable-intrinsic value manufactured before 1830 (and by law, duty-free)—has begun to disintegrate.

People are buying antiques for old as well as new reasons. Oldest and most lasting is the appeal of unduplicable fine china or craftsman-signed 18th century chairs. Dealers are stressing with effect the argument that fine antiques are stable investments—time generally augments rather than depreciates their value. But old things have been popular, too, because new things are unobtainable. Families who have never bought antiques before are buying "good old furniture" because good new furniture is hard to find. New buyers with war-savings in their pockets are jamming the antique shops. Among their favorite purchases: antique jewelry, which has

(Continued on page 18)
NO BATHROOM IS MODERN
WITHOUT
THE ANYSTREAM
Available Now

FOR NEW CONSTRUCTION AND MODERNIZATION

The Speakman Anystream Shower Head is a must for any truly modern bathroom installation. The Anystream is three showers in one, delivering a spray to suit any user in any mood. In the flood position, the Anystream is self-cleaning, passing off all sludge, pipe-scale or sediment. Under all kinds of water conditions and under almost any pressure, the Anystream always gives a full, 48-jet shower pattern. It's simple in design, rugged, delivers years of trouble-free service, if given ordinary care.

Money-Saver, Too

Particularly important in hotel, school and institutional installations are the Anystream's water and fuel saving characteristics. In the needle-spray position, it uses up to 58% less water than ordinary shower heads.

The Anystream is sold by leading plumbing supply dealers and contractors. Now available for immediate delivery. For the name of your nearest Speakman representative, and an illustrated leaflet on the Anystream, write for folder S-42. See Sweet's Architectural File for 1946 for a condensed catalog of Speakman showers and fixtures.

"The best in brass since 1869"

SPEAKMAN
SHOWERS AND FIXTURES
SPEAKMAN COMPANY, WILMINGTON 99, DELAWARE
DOUGLAS FIR DOORS ARE A "HOUSING ESSENTIAL"

that's why the supply situation is temporarily critical

TODAY'S greatest need is for veteran housing — and Douglas fir doors must be channeled to meet that need.

This fact — plus the severe shortage of shop lumber from which stock doors are made — has naturally created a critical supply situation for general building uses.

But once present difficulties are overcome, Douglas fir doors will again be available, in ever-increasing numbers. They'll be better doors in every way — durable, attractive, made to exacting standards by modern precision methods.

Study the features outlined below — features which assure the biggest stock door values in a decade!

Douglas fir doors will be available pre-fit to exact book size ... ready to hang without-on-the-job sawing and fitting.

Douglas fir doors will also be available completely machined — not only pre-fit, but gained for hinges and mortised or bored for locks as well. Doors will be grade-marked, as in the past, for ease in specification and ordering. They'll be better doors in every way.

Douglas fir doors will be available pre-sealed ... a feature which improves dimensional stability, reduces moisture absorption, and eliminates the need for one prime coat.

Douglas Fir DOORS

THE NATIONAL ASSOCIATION OF FIR DOOR MANUFACTURERS
Tacoma 2, Washington

The Architectural FORUM November 1946
INSULATE as you build

INSULATION OUTSIDE
- Insulite sheathing builds a strong, weather-tight, windproofed wall... providing effective insulation.

INSULATION INSIDE
- Insulite Sealed Lok-Joint Lath provides a strong, rigid plastering surface... plus a second wall of insulation.

Refer to Sweet's File... Architectural Section 10 a/9.

INSULITE
Insulates as you build

The Original and Best® Wood Fibre Structural Insulating Board
*As Determined by Leading Testing Authorities.
CITIES

CHICAGO'S CODE-MAKER
Merrill to redo Chicago Code.

The country's biggest code-revision job went last month to Architect John O. Merrill, assigned to tackle Chicago's 600-page, restriction-barbed building law. Voted a fund of $100,000 (a personal fee of $15,000), Merrill will spend a year in drafting a new code, get a free hand until ready with the complete document. If adopted, the Merrill code may radically change building conditions in one of the country's busiest construction areas.

Like many another city, Chicago was finding that major overhauling of its code could no longer be deferred. Prefabricated homes were only a part of the needed construction fenced out by outmoded Chicago rules. Costs of conventional building in Chicago were being boosted out of sight of many builders by code stipulations far in excess of recognized standards—over-dimensional plumbing, excessive fire-retarding and insistence on unnecessary wall-thickness. Ruled out by the code were such low cost building techniques as frame construction and dry-wall interior finishing.

Merrill, who with partners Skidmore and Owings plans major Chicago projects, had already helped to clear the site for a new city code. Collaborating with the John B. Pierce Foundation last year, he had lent a hand in drafting a sweeping indictment of Chicago's present law. The Pierce study declared that the code needed more than blue-penciling. Essentially a specification list, it was already hopelessly outmoded when published in 1929; subsequent correction had failed to catch up with advances in building technology. What was needed was a revision written from an entirely fresh point of view, a code of performance measures which would define the functions of building materials, leave specific selection to the ingenuity of architect and builder.

The Chicago Association of Commerce, which had commissioned the Pierce Foundation study, laid it on Mayor Kelly's desk last fall, waited for the fuse to go off. First result was a feeble "pop": the city council passed an ordinance allowing code-banned materials on housing tagged for dismantling, a let-through inviting only to government-sponsored housing. Private builders were told to apply to the city council for individual permits of unorthodox construction—only one such permit topped red-tape hurdles (Homes for Veterans, Inc. which was told to go ahead with 25 Gunnite-processed houses).

Real progress was finally in sight when Chicago's city council and the Mayor's advisory code committee asked for a clear start in new building regulation, suggested that Merrill be named technical director of the revision job. Merrill will call upon expert consultants in the fields of materials analysis and legal regulation, aim for the Pierce Foundation's goal: "Standards when formulated, must be so written as to permit construction with the greatest freedom possible. They should provide the fewest possible restrictions in the choice of materials or method of construction. They should not hamper the construction of buildings providing adequate safety to health and life at a commensurate minimum cost. They should be so written as to permit the use of new techniques in the art of building and of new materials as they prove themselves. The code of regulations should be so written that it is not obsolete before it has been adopted. It should have within it the regenerative power to keep itself alive."

When the new code was completed, it would go before the city council, face wrangling in public hearings. Chicagoans recall
THREE TYPES OF ELECTRONIC PRECIPITATORS
TO MEET EVERY AIR CLEANING NEED

**Electro-Matic Electronic Precipitator**
combines electrical precipitation with fully automatic air filtration to obtain the highest efficiency in the removal of atmospheric dust and smoke. Entirely automatic and self cleaning. Made in self-contained units of different sizes for any space conditions or air capacities, and may be operated from 110 Volt A.C. lighting service without special wiring. Complete information is given in Bulletin No. 250E — send for it.

**Electro-Cell Electronic Precipitator**
a sectional type filter in which the removable collector plates permit a choice of maintenance methods — tank cleaning or washing in place. Available with either inged or removable ionizers. Made in vertical sections of two widths and heights up to 15 feet in 9-inch increments to meet practically any space or capacity requirement. For complete information send for Bulletin No. 252.

**Electro-Airmat Electronic Precipitator**
is the only dry-type electronic filter on the market. The collecting element is "charged" Airmat paper. Combines mechanical and electronic air cleaning principles to provide complete protection against dust infiltration under any operating conditions. Requires neither water nor sewer connections for cleaning, nor spraying with oil to maintain efficiency. Standard units 24" square in straight bank or "V" arrangement for any required capacity. Send for Bulletin No. 253.
HOUSING the general offices and engineering department, this Administration Building of the Scullin Steel Company, at St. Louis, Mo., faces the steel foundry. Designed in semi-modern style, of reinforced concrete construction, the building contains the executive and personnel offices, arranged for ample lighting and accessibility.

The 13-inch walls are of variegated red brick, trimmed with stone. The central feature of the building, of Bedford limestone, extends three stories in height, with four large stone columns forming an impressive, curved effect. A four-foot stone base course extends around the structure, setting off the brick and enhancing the general appearance.

Close collaboration between the architects and the firm’s engineering staff, even to the selection of Pratt & Lambert Paint and Varnish, resulted in a building that is modern, fireproof and attractively decorated. The nearest P&L Architectural Service Department will aid you in obtaining outstanding decoration with lowest maintenance costs.

Volumes have been written on proper painting of industrial plants, from the decoration of offices, to the color-planning for the plant proper. Points advanced include greater efficiency of employees, less eye-strain, less fatigue, safety factors, and identification of pipe lines, etc. To these advantages, familiar to management, we add the very important consideration of economical maintenance through the use of durable, washable P&L Paint and Varnish.
The Modern Machine
for All-Electric Typing

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ELECTROMATIC TYPEWRITER

INTERNATIONAL BUSINESS MACHINES CORPORATION, 590 MADISON AVE., NEW YORK 22, N.Y.
Roof Drainage Problem? 
Boosey
No. 1148
ALL PURPOSE DRAIN
New Patented Clamping Ring Eliminates Bolt Holes in Flashing
Permanent Water-Tight Connection
Why not end roof drainage problems with the perfect roof drain. Its shallow self-cleaning bowl does not collect and hold dirt. It may be used with either felt or metal roofing and makes a permanent water tight non-freezing installation. All connections are visible and convenient to inspect. Strainer is easily removable below.)

When the diameters of the downspouts are increased price. A masterpiece of engineering, the 1148 Roof Drain with increaser, has been approved by leading architects and engineers and has the maximum roof drainage area capacity. City of Chicago Ordinance, Section 82-64 reads:

"When the diameters of the downspouts are increased at the roof for a length of at least twice the area of the downspouts, the following areas in horizontal projection may be drained to them." (See listing below.)

<table>
<thead>
<tr>
<th>With Increaser</th>
<th>Without Increaser</th>
<th>Diameter of Downspout</th>
<th>Diameter of Increaser</th>
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<tr>
<td>Area of roof in horizontal projection (sq. ft.)</td>
<td>Area of roof in horizontal projection (sq. ft.)</td>
<td>(inches)</td>
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<tr>
<td>2,250</td>
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<td>3,800</td>
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<td>7,500</td>
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<td>11,500</td>
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<td>6&quot;</td>
<td>9½&quot;</td>
</tr>
</tbody>
</table>

Send us your roof drainage problems. We are sure we can be of help to you.

General Sales Offices: 420 North La Salle St. Chicago 10, Illinois

NATIONAL CODE-MAKING
New Building Officials Foundation will push code improvement.

The revision of Chicago's code will do much to establish new and better regulation standards, but the costly procedure of city-by-city reform is certain to be slow work. Few of the country's 2,700 code-regulated communities can afford the scientific thoroughness planned by Chicago's revisers. Suggested for years is an alternative procedure: establishment of a National Code.

Building officials, anxious for more housing, have found themselves charged with the unhappy task of administering codes they know to be backward and restrictive; few of them have had any share in drafting the laws they administer. Last month the Building Officials Conference put local enforcement officials squarely in the field of code formulation. Meeting for their annual convention in Memphis, they approved a two-pronged program: 1) completion of a model national code as a master-pattern for all communities; 2) establishment of a research foundation to keep the model code up to date.

The uniform code, to be ready in a few months, has been under preparation for two years by Conference Staffman Albert H. Baum, St. Louis building commissioner and George E. Strehan, New York engineer. Chairman of the Foundation will be Bernard A. Savage, commissioner of the Board of Standards and Appeals of New York. Savage and his staff will run a national testing laboratory, work to keep the code abreast of current developments and, in addition, offer technical advice to city officials in code-trouble.

The model code will be written in two sections: a set of performance standards and a book of applicable specifications of methods and materials, to be issued in frequently-revised loose-leaf editions. For small communities there will be a separate simplified code.

Cheers for the public service proffered by the building officials was almost certain to come from several harassed groups—chiefly, city building departments without the facilities to establish the worth of new methods or materials, manufacturers put to wasteful expense in establishing their products in city after city. Industry will foot most of the bill for the project: an endowment of $600,000 will be subscribed to by manufacturers interested in piercing old the historic battles staged each time code revision had come up—wonder if Chicago will continue to be known as "plasterer's heaven."

Twenty-two years of keeping up-to-date—that's the reason for the heating comfort and economy enjoyed by Trenton Trust Company.

Trenton Trust was founded in 1888—the same year Webster started serving steam-using customers. In 1924 when their present building was built it was provided with a Webster Heating System. Webster Sylphon Traps were installed on the 614 radiators and vacuum assured by a Nash Vacuum Pump.

In 1939 in order to give the entire building full advantage of newer developments, a 4-zone Webster Moderator System with balancing orifices and automatic control-by-the-weather was added.

Results in comfort and low cost have been outstanding. Repairs have been few, but promptly made when needed; maintenance has been regular; pressures have been kept low.

We solicit the opportunity to work with you in the same way we have been privileged to work with Trenton Trust.

Webster Heating Systems
On October 11, 1946 the Reconstruction Finance Corporation signed, with the HomeOla Corporation, the first Guaranteed Market Contract authorized under the Wagner-Taft-El-lender bill. Uncle Sam now stands ready to buy any of the two models that cannot be sold through regular trade channels.

But it is highly improbable that any HomeOla house will ever be owned by the government under this newest endorsement by RFC, because: (1) these houses are accepted nationally by FHA for financing; (2) they have enthusiastic dealer demand from coast to coast; (3) 736 veterans’ families in 23 states have proved them good houses to live in; (4) the houses are proved worthy of high commitments from lending agencies.

19,400 HomeOla houses are scheduled for production before December 31, 1947 for national distribution to individual veterans through established dealers.

To those interested in a community plan for owner erection we will send The Naperville Plan booklet. Literature on Model 20 and Model 11 is available. Builders, dealers and architects will want information on the new LOKSTEP Steel Stair Units that build a stairway in 90 minutes.

Valuable lumber dealer franchises are still open in a few places.
FLEXIBILITY and STRENGTH of RIC-WIL CONDUIT
PERMITS SHALLOW INSTALLATION of STEAM LINES

The heavy-gauge helically corrugated shell used in Ric-wil Prefabricated Insulated Pipe Units makes possible a resilient construction of high beam strength, which can safely be installed under E72 RR loadings with only 3 feet of ground cover, and under E90 loadings with only 5 feet. Because of this and other exclusive Ric-wil features, the trend of engineering departments of railroads is to specify Ric-wil for all underground steam lines. It is possible to jack Ric-wil through existing right-of-ways and to install steam lines without disturbing sidewalks, pavement or tracks and without permanent deformation of roadbeds, thus saving both installation and maintenance expense.

Secret of the strength and flexibility of Ric-wil units is in their corrugations. Seam-welded, helically corrugated, heavy gauge galvanized iron shell with full round smooth ends and special Ric-wil coupler, provide pressure-tight construction.

See our exhibit at 17th National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, Booths 38 and 39.
ATLANTA, GA.—Erickson Co.; La France Industries.
Baltimore, MD.—John Duer & Sons, Inc.; La France Industries.
BOSTON, MASS.—Andrew Dutton Co.; La France Industries.
BUFFALO, N. Y.—La France Industries.
CHARLOTTE, N. C.—Mill Remnants Co.
CHICAGO, ILL.—La France Industries; Lite Products Corp.; Lisskey, White & Coolidge, Inc.; Reliable Textile Co.
CINCINNATI, OHIO—B. H. Irvin Co.; Miami Rubber Co.
CLEVELAND, OHIO—B. Berger Company; La France Industries.
DAYTON, OHIO—Payne & Co.
DENVER, COLO.—The Pawley Co.
DETROIT, MICH.—La France Industries.
FT. WAYNE, IND.—Mossman, Yarnelle Co.
GRAND RAPIDS, MICH.—La France Industries.
HIGH POINT, N. C.—Carolyn Fabrics.
JACKSONVILLE, FLA.—Excelsior Mills Corp.
LOS ANGELES, CALIF.—Boething & Durlap; La France Industries; Pacific Hide & Leather Co.
LOUISVILLE, KY.—Fulton, Conway & Co.
MEMPHIS, TENN.—Bluff City Broom Co.
MINNEAPOLIS, MINN.—La France Industries.
NEW HAVEN, CONN.—Roberts, Crozier & Ballou.
NEW ORLEANS, LA.—C. V. Harold Rubber Co.
OKLAHOMA CITY, OKLA.—S. & J. Supply Co.
PHILADELPHIA, PA.—Gerhab & Ludlum Co.; La France Industries.
PHOENIX, ARIZ.—Keystone Bros.
PITTSBURGH, PA.—La France Industries.
PORTLAND, OREGON—Ballou & Wright.
ST. LOUIS, MO.—La France Industries; Sligo Iron Store Company; Specialty Fabrics & Supply Co.
ST. PAUL, MINN.—Farwell, Ormum, Kirk & Co.
SAN FRANCISCO, CALIF.—Keystone Bros.; La France Industries.
SPARTANBURG, S. C.—Connor & Gregory.
TORONTO, CANADA—Anthony Foster & Sons.

UNITED STATES RUBBER COMPANY
COATED FABRICS DIVISION, MISHAWAKA, INDIANA
To earn the hearty approval of your clients, recommend a range backed by over 60 years of progressive manufacturing experience — a range that's smartly designed in the modern tempo — a range with many outstanding features to assure tastier meals cooked more easily.

**ABRAMS SURVEY**

Noted houser canvasses Europe.

When U. S. houser Charles Abrams walked into the U. S. Embassy in Copenhagen not long ago, he encountered a prominent display of Nathan Straus' Seven Myths of Housing. It is not a matter of record whether Abrams immediately suggested the substitution of his own well-known Revolution in Land, but he did express surprise that the Embassy should appear so preoccupied with housing. Embassy officials explained: they were trying to spotlight U. S. housing achievements for Europeans whose picture of this country seemed to have been painted chiefly by John Steinbeck.

Many Europeans believe, Abrams said, that the U. S. is controlled by ruthless trusts and cartels, that the plight of the American negro is universally hopeless, that, except for TVA, this country has provided almost no social services for its people. Against this point of view, Europeans found U. S. housing progress news.

**Industrial Orphan.** Abrams' look at Europe's housing headaches included England, France, Sweden and Denmark. "All over the world," he said, "housebuilding has emerged as the orphan of the industrial revolution. Everywhere big business has failed to tackle housing as a major enterprise. When big industry in the U. S. confined its interest in building to the materials industry, the whole world suffered. There is no solution in sight, and no prospect that the building industry will at any time soon share in the dividends of the technological developments of our time."

Abrams found that Britain's wartime interest in basic re-planning is giving way against the pressure for housing. "But any Britisher who would oppose a housing appropriation because it threatened the private enterprise system would be recommended for the booby-hatch. England allows entrepreneurs about one-fourth of the building priorities, the rest go to public housing."

(NEWS continued on page 30)
The unusual use of 12" and 6" square Insulux Glass Block in the floor-to-ceiling panel in this conference room. Architects Perkins, Wheeler & Will, Chicago, selected Insulux for Benjamin Electric Mfg. Company's new product development and testing laboratory. Bi-lateral daylighting is accomplished by a clerestory panel of Insulux on wall opposite that shown. Insulux panels are easy to clean and keep clean.

Light subject for careful consideration

Architects find interesting new lighting treatments come easily with Insulux Glass Block.

Insulux has many special properties that merit your careful consideration in any building. Natural daylight can be diffused through areas that are usually gloomy. Furthermore, Insulux reduces sound transmission, preserves privacy, and its high insulating value simplifies heating and air conditioning.

Maintenance expense is remarkably low, because Insulux does not rot, rust or corrode and no painting is needed.

Owens-Illinois Insulux Glass Block

Technical data, specifications and installation details will be found in the “Glass” section of Sweet's Architectural Catalog. Or write Dept. C-23, Owens-Illinois Glass Company, Insulux Products Division, Toledo 1, Ohio.
Clients expect refinements like

THREE HINGES ON EVERY DOOR"

More and more people are discovering the real economy of three hinges on every door. They are learning that the two or three dollars initial hinge expense per home is hardly a fraction of the cost of repairing one warped door later on.

When you specify three hinges on every door you are guarding against warping at the jamb, helping to keep latches and locks clicking to a perfect fit, summer and winter.

Your clients will appreciate this visible proof of sound planning . . . it will help convince them that you design truly well-built homes.

Always specify three hinges to a door. The Stanley Works, New Britain, Connecticut.

STANLEY
Trade Mark

REMEMBER . . . . THREE HINGES TO A DOOR
Like a key...

The Royal never needs adjustment

Because there's nothing to adjust

The ROYAL is the only Flush Valve which has no adjustment or regulation. Its simplicity of engineering design, plus precision manufacture, insure accurate and lasting performance.

More than 4 million ROYAL Flush Valves are in daily service—including thousands of the first ROYALS installed over 36 years ago.

The ROYAL is "standard equipment" with discriminating builders and owners throughout the country. In fact, entire school systems, hotel chains, hospitals, industrial institutions, etc., use ROYALS exclusively.

For the best in Flush Valves specify Sloan—remember, there are more Sloan Flush Valves sold than all other makes combined.

SLOAN VALVE COMPANY
4300 WEST LAKE STREET, CHICAGO 24, ILLINOIS
Expropriation. In France, Abrams said, "Landlords are caught between the shears of rent control and inflation. The average family now pays about five per cent of its income for rent. This means the property owners hardly realize enough to pay expenses, which combine with rent control to mean virtual confiscation of property. Private builders will no longer build."

Sweden seems to be suffering from an attack of excess publicity. "Actually, the ideologized cooperative movement is little more than a dressed-up counterpart of a U.S. corporation. Swedish co-op members take very little interest in the management of the enterprise." Rent subsidies go only to families with three or more children, leaving a large number of lower-income families unsatisfied.

"We have much to learn from democratic Sweden but on close inspection the Middle Way, in many respects, looks more like the Muddled Way."

SHREVE DIES
Leaves massive works.

Among the year's losses to architecture, none would outrank the death of Richmond Harold Shreve, senior member of Shreve, Lamb & Harmon. With his partners and others, Shreve worked on some of New York's most important buildings, including the Empire State Building, Williamsburgh Housing Project, Metropolitan Life's Parkchester and Hunter College. Work underway when he died included a new building for the New York Times, the upper-Fifth Ave. store of Best & Co. and the research laboratory of the Johns-Manville Corp.

Shreve's career began with Carrere & Hastings, itself no mean example of oldtime success. In the twenties he formed his own firm with William Lamb and Arthur Loomis Harmon. The tripartite team proved outstanding for its collaborative efficiency: design came generally from the boards of Lamb and Harmon; the schedule of production was Shreve's.

BRADLEY WASHFOUNTAIN

CO., 2235 West Michigan Street, Milwaukee 1, Wisconsin.

Write for interesting illustrated Bulletin 464-D today.
TOP PERFORMANCE ASSURED WITH THESE NEW IMPROVED AIR CONDITIONERS

Worthington's New Series AVY (Vertical Floor Mounted) and AHY (Horizontally Suspended) Air Conditioning Units are designed to bridge the gap between Worthington's Self-Contained Air Conditioners for smaller business spaces and the huge Worthington Systems that serve the largest plants and buildings.

Available in five sizes, handling air quantities ranging from 1,600 to 12,000 c.f.m., AVY and AHY models operate on both water cooling and direct expansion. Teamed with one of the various Worthington Compressors of suitable type and capacity, they will perform every air conditioning function — cooling, heating, humidifying, dehumidifying, cleaning and circulation — with top efficiency and economy, year in and year out. Send for further information on these most up-to-date Commercial Air Conditioners.

Famous Chicago Hotel Modernizes with Worthington Air Conditioning

Patrons of the Bismarck Hotel and its adjoining Palace Theatre are looking forward to enjoying the ideal outdoor weather indoors they'll get when the two Worthington 500-ton steam turbine-driven compressors now being installed go into action to supply the necessary refrigerating effect.

Worthington Advertising Ranks at the Top

Recent Starch reports on advertising in TIME Magazine rate current Worthington Air Conditioning ads as leading all competition in attention-value and thorough readership, on the basis of results per dollar invested. This indicates that American businessmen are becoming increasingly familiar with the advantages Worthington offers.

Worthington "Integration" Offers Many Advantages

Making so many of the vital "innards" of an air conditioning or refrigeration cycle...compressors, condensers, pumps, turbines, valves, fittings, etc...Worthington is in an ideal position to combine them into the integrated unit that will give long, trouble-free, economical service. Your nearby Worthington Distributor will be glad to give you further details that prove there's more worth in Worthington.
Raceways for concealing telephone wiring in smaller homes are easy and inexpensive to install. And they are an added convenience which your clients will appreciate.

When planning a one-story home with an unfinished basement, the simple telephone wiring arrangement shown above is usually satisfactory. A short piece of pipe or other form of raceway is installed within the wall from the basement to a convenient telephone outlet. It assures concealed telephone wiring in the living quarters.

Your Bell Telephone Company will be glad to help you plan for telephone wiring facilities in the homes you design. Just call your Telephone Business Office and ask for "Architects and Builders Service."

BELL TELEPHONE SYSTEM
FORMICA laminated plastic surfacing material is so flexible in color and patterns that it is adaptable to any kind of installation from the most dignified and permanent to "jive" color combinations that may be desired for cocktail rooms or theaters. The color photograph shown above represents the reading tables surfaced with Formica "Realwood" in the reading room of the annex to the Congressional Library in Washington, where a great deal of Formica was used both for dignity and durability. Below is the cocktail lounge of the Statler Hotel at Washington where something livelier was desired. In either case the practical wearing qualities of the material are the same. It is non-porous and unstainable, cigarette-proof on horizontal surfaces, washable with soap and water or with solvents—and extremely long wearing and durable. There is no painting or refinishing required ever—no maintenance, no time out of service, no trouble.

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PENBERTHY AUTOMATIC ELECTRIC SUMP PUMPS

For sixty (60) years, the name “Penberthy” has been associated with products of the highest quality.

Wherever seepage water accumulates, Penberthy Automatic Electric Sump Pumps have established an outstanding reputation for dependability and long life. Made of copper and bronze throughout, they are immune to the attacks of corrosion. Penberthy Sump Pumps are available in three types; the Model M shown here is made for five different sump depths. They are preferred wherever quality is appreciated.

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PENBERTHY INJECTOR COMPANY
Manufacturers of Quality Products Since 1886
DETROIT 2, MICHIGAN
Canadian Plant—Windsor, Ontario
MR. ARCHITECT, wouldn't you like to...

... recommend the lowest bid with confidence?

... let someone else worry should the contractor default?

... assure your client that the structure will remain free and clear of liens?

... know that guaranteed credit will help the builder to buy more advantageously in a "seller's market"?

... make an organization of unquestioned resources and experience available to arrange for completion of the work even under today's changed conditions in accordance with the contract?

Specify This New Contract Bond

For a small fee, a new form of Contract Performance and Payment Bond, developed in cooperation with the American Institute of Architects, provides more and quicker protection for the owner and those who provide materials. Formerly, the Surety could postpone action until after the trouble was remedied. Now, if work halts or trouble threatens, the Surety steps in and acts immediately.

Experienced men are available at once to straighten out the difficulty. If money is owing, workmen, subcontractors and suppliers are paid without delay. If necessary, new bids are secured and submitted to you and the owner. Funds are furnished as needed to keep the job rolling. The Surety makes arrangements for completion of the contract according to its terms and conditions.

This new contract bond takes many present day "ifs" out of building... but only if it is written by a Surety with experience and resources adequate to assume this major responsibility. Ætna Contract Bond service will bear the closest investigation. Ask our local man for full details.

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Very little labor cost—small material cost for beautiful Built-in COLOR!

TRUSCON ART-ROC AGGREGATE GIVES Built-in COLOR HARDNESS DURABILITY EXTRA VALUE at Low Cost!

Everybody likes color but most people don't know that they can easily have color in any flat concrete surface—at small cost for labor and very little added cost for material. You can give your clients color in concrete by specifying and using Truscon ART-ROC Aggregate which is simply dusted on before finish troweling and produces a rich, beautiful finish of built-in color that is right IN the concrete. Colored concrete sets your jobs apart and gives them distinction—and adds a valuable sales feature. Over fifteen years of successful use. We invite your inquiries. Write Dept. AR-2, Truscon Laboratories, Division of Devoe & Raynolds Co., Inc., Detroit 11, Michigan.
Prospective home buyers like the modern, friendly sound of a NUTONE Door Chime. It fits perfectly into the better-living pattern of a well-planned home.

You'll like NUTONE Door Chimes, too, because they're easy to work with. Fourteen different styles are available to suit every type of interior design and color. Compact, two-note models; short-tube chimes; a combination NUTONE Door Chime and Telechron kitchen clock with a large, legible dial; long-tube chimes in two-note and combination four- and eight-note styles — some with fine built-in Hall Clocks.

Prices from $3.95 to $59.95 (list) make it easy to meet cost specifications on every type of home.

Send for your copy of a new folder which illustrates and describes all fourteen NUTONE Door Chimes.

POISON AND MEAT
Forum:
Please cancel my subscription to the Forum on the STRENGTH of the WEAKNESS of the September cover design. I could write a volume on the shallowness of your publication but don't have the inclination or time at the moment.

David G. Lewis
Palo Alto, Calif.

Forum:
Your cover designs seem to be getting better each month. The September one was particularly effective, I thought.

Lawrence Milten
New York, N.Y.

SEPTEMBER COMMENTARY
Forum:
Congratulations on "William the Conqueror . . ."

Paul Lazlo
Los Angeles, Calif.

Forum:
—and all graduates of the University of Illinois, in Architecture—

Upon reading your latest issue it seems to me that Bill Pereira was the only guy from Illinois who took seriously the BIG BUSINESS that Prof. Provine was always lecturing about. When the rest of us refused to give up our Saturday afternoons to put that big job across Bill must have been right in there pitching. No chicken coops for him. When they put up that ten story building in Seattle, Bill must have got the last four stories in in three days instead of four like the Professor.

That is mighty nice going, Bill—with a build up like that who knows what may happen in 1948? Look out for Ole Chuck Luckman, though. He was a year behind those of the many agencies of the city of Chicago. You should know that it would be absurd to have two over-all agencies planning the same territory. Were we to assume responsibility for planning work in the city, your article might appropriately have referred to the added confusion of having two separate bodies working on the same problems.

Bill Kaeser
Univ. of Ill. '31

Madison, Wis.

Forum:
The entire September issue has pace and interest. Wouldn't Bill Pereira be quite a guy to play Roark in The Fountainhead? Except that Bill is civil to his clients which, of course, would never do if he had integrity. I haven't got any either.

I know Reg Isaacs and that bunch on the Michael Reese planning program. I fervently hope that action will result from their efforts but I wish it didn't have to be put as a burden on a hospital to carry out the planning of its surroundings to this extent.

Lawrence B. Perkins
Perkins & Will, Architects
Chicago, Ill.

Forum:
May I tell you how attractive a story you have produced on the plans of the Michael Reese Hospital and associated groups. The proposal is presented in excellent form with good basic objectives and concepts, and is sound and very well delineated. The Michael Reese staff is to be complimented on the job, and this is my personal word of commendation.

The preliminary plans and the direction of them is so well done that it is unfortunate that you saw fit to make a few caustic comments about other agencies.

Your reference to the Regional Plan Association, which as you know, is the Chicago Regional Planning Association, is of course unnecessary, and I am sure you know that the statement is not appropriate. ("The Regional Plan Association which might be expected to assert a certain amount of leadership, takes the standoffish view that Chicago is not its special province." Forum, Sept. '46.)

Our Association was organized by a number of civilians and public officials in the suburban area outside Chicago for the purpose of developing and harmonizing all the planning in the suburban metropolitan areas. I am sure you know also that our plans are keyed to, and coordinated with, those of the many agencies of the city of Chicago. You should know that it would be absurd to have two over-all agencies planning the same territory. Were we to assume responsibility for planning work in the city, your article might appropriately have referred to the added confusion of having two separate bodies working on the same problems.

Robert Kinger
Chicago Regional Planning Association
Chicago, Ill.

WHOS GOT FANTASY?
Forum:
With regret we convey the discomfort felt upon reading the introductory remarks to the Berla & Abel Portfolio in the August issue. The quoted remarks of both of us were inaccurate to the point of fantasy and tactless to the point of being extremely embarrassing. We feel that a good professional periodical ought not to depend on cute journalistic tricks for interest. In any case we prefer not to be the subject of such an imaginative interview another time.

We were extremely pleased with your presentation of our material . . .

Berla & Abel
Washington, D.C.

Unless our researcher has holes in her head (which we checked) this was no imaginary interview—Eno.

INFLATION AND FRIED MUSH
Forum:
I am sitting in my lavishly appointed office reading an article with the title "Action Now Can Avert Possibility of Inflation." I am smoking a costly nickel cigar for which I paid 13 cents and have just driven downtown in a new Ford sedan that cost, to be exact, $1,434.43. (The last Ford I bought in 1940 cost $818.00.) Naturally, I am all agog to see what I can do to ward off even the tiniest smitch of inflation when a valued client came in, whom I shall call Mr. Zarapopoulos just so that you will not confuse him with Mr. Zarafonetis, who is in the newspaper business, while Mr. Zarapopoulos is in the restaurant business up to his neck, of which he has ample. However, this does not make things as clear as I might wish because Mr. Zarafonetis used to be in the restaurant business until the occupational hazard incident to that profession (broken arches) caused him to pass to another field. In fact, Mr. Zarafonetis's Uncle Gus still is in the restaurant business and if you see him say hello for me. His feet hurt, too.

Mr. Zarapopoulos, whom in view of the paper shortage I will hereafter refer to as Mr. Zarapop, gave me a copy of a publication calling "The News Bulletin of the National Restaurant Association," which contained articles by Mr. Nathaniel Owings, architect, of the firm of Skidmore, Owings & Merrill of Chicago, and Mr. John W. Root, architect, of the firm of Holabird & Root, also of Chicago. These two able characters were discussing the modernization of restaurant facilities. "Every restaurant owner," said Mr. Owings, "should feel a civic responsibility and develop a pride and interest in the block he is in."

"What's he mean by that?" demanded Mr. Zarapop.

(Continued on page 40)
Bondex answers the call for color on exteriors

Perhaps it stems from a determination to get away from the drabness of war. Maybe it's just a device to individualize homes and buildings that would otherwise be stereotyped. One thing is sure — the interest in "exterior decoration" is spreading fast to all parts of the country.

Bondex, the leader among waterproof cement paints, proves its leadership by expanding its line of shades from 8 to 12 and by offering specific color suggestions for harmony among walls, roof and trim. For "mellowing" concrete block — for adding beauty to stucco and masonry — color-style with Bondex.

Bondex waterproofs as it beautifies

Bondex Waterproof Cement Paint actually does two jobs at once. First, it provides a convenient and economical way of satisfying personal color preferences. Also, it bonds with the surface and seals up the tiny cracks and pores through which moisture may penetrate.

Bondex has demonstrated its ability to perform this double service to the point where more Bondex is sold than the total of all other waterproof cement paints combined.

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These Bondex folders dealing particularly with color should be in your hands. They will be sent on request to the nearest Reardon Company office.

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Dutch White
Old Spanish White
Oyster Shell
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Tropical Coral
Spanish Buff
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Grotto Blue
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Also, Pure White
Silbraz joints made with Walseal valves, fittings and flanges are specified on red brass or copper piping systems by leading architects and builders in the construction or remodeling of hospitals, commercial buildings, schools, breweries, private homes, monumental buildings, department stores, and similar projects.

These men know through years of experience that Silbraz joints are permanent, leakproof, trouble-free, and their use will avoid costly maintenance and repairs.

Silbraz joints are threadless — Silver brazed (not soft soldered) joints that, when properly installed, actually make the line a "one-piece pipeline". They will not creep or pull apart under any condition which the pipe itself can withstand.

For further information regarding Walseal valves, fittings and flanges, write for Circular 84.


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Make it a "one-piece pipeline" with Walseal.

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Power plants, playgrounds, refineries, reservoirs, schools, airports, institutions—are but a few of many types of property which require protection against trespassing, theft and other hazards.

A sturdy chain link fence solves the problem of property protection for its initial cost is moderate—it's easy to install—and maintenance costs are amazingly low.

Only the best selected materials are used in making Wickwire, Colorado and Calwico Brands of Chain Link Fence fabric, which is further protected by hot galvanizing after weaving. Fittings are of malleable iron and pressed steel, heavily galvanized, or aluminum.

**FREE ESTIMATES**

We will be happy to measure your property, work out details to secure proper protection, and submit estimates for fence material ready for erection or covering complete installation by our trained crews.

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“He means you must become a leader in your block, rising by slow degrees until you are generally recognized as the block head,” I explained.

“Okay,” said Mr. Zarapop. “Then what does this mean?” He pointed to Mr. Root’s statement, “Restaurants must have atmosphere.”

“This fellow means we gotta have air in our restaurants?” demanded Mr. Zarapop, agast. I ignored Mr. Z.; I was fascinated by another Root statement, “So fast are we moving to the modern, it is said that in ten years’ time, mortgage companies will not lend money on a period building.”

It had just dawned on me why they refer to it as “period” architecture; a period is a full stop. Hence, period architecture is architecture that has come to a full stop.

Frankly, Messrs. Owings and Root, you are on a false trail. You want to know what is the matter with the restaurant business? They don’t serve fried mush properly, that’s what’s the matter with the restaurant business. Cornmeal mush should be sliced thin and fried very crisp and you do not put synthetic maple syrup on it; you pour over it the gravy from pork sausages. What do you get in a restaurant when you order fried mush? I mean besides a hell of a look from the waitress? You get a slice of something half an inch thick and very limp and lackadaisical over which you are supposed to pour a menacing looking syrup that tastes like sunburned machine oil.

I explained this to Mr. Zarapop but his mind was on other things. “Both these architects,” he announced, pointing to their photographs, “are better looking than what you are.”

“That in itself hardly suffices to make them unique,” I replied coldly and went out into the drafting room and slammed the door.

Roger Allen
Grand Rapids, Mich.

OUT FOR BLOOD
Forum:
Since returning home from almost five years in the armed services, my brother and I have endeavored, as contractor and architect respectively, to do our best by our fellow veterans as well as to help alleviate the housing shortage. But not since my army career or my stay in Germany have I seen so much red tape and obstructionism by government officials, their agencies and their thousands of parasites.

It seems deliberate government policy to create this situation of chaos so as to discredit the entire building industry. I make this statement here and now: I spent too many years of my life fighting against just such control and chaos to stand idly by.

The Civilian Production Administration is as great an enemy to this country as Hitler ever pretended to be. We have almost done as Hitler predicted, adopted servitude to the omnipotent state. Our every breath is almost decreed by some government agency or other.

These complaints are not made on the spur of the moment, for I have spent months trying to cut through the red tape of various government agencies. I have filled in myriad forms, spent hundreds of dollars on blueprints and specifications—for filing in the waste-basket of some agency.

It’s time the American people or their honest representatives endeavor to right this un-American situation. While the veteran deserves a good deal of consideration, he is nevertheless no more an American than the thousands of people who worked in the factories, mills and on the farms; for they have as much right to a home as he... I am writing this with the intention of correcting this deplorable situation of subservience to the state, and to exercise one of my prerogatives as a citizen in a democracy. I suggest that something be done immediately about the arrogant attitude and dictatorial policies which prevail in such offices as that of the Civilian Production Administration in St. Louis, Mo.

America and its productive capacity are equal to the task, given freedom of opportunity, for the people are willing and the country is bountiful.

John W. Edelman, Jr.
Flat River, Mo.

COMPETITIVE MODERN Forum:
Mr. Trouchaud and myself had been reading all about postwar housing and how wonderful life is going to be in the future. Then we took a look at what is being built today under the G. I. Housing bill. We wondered if it wasn’t about time to see whether something could be done, and do it!

We have started a group which, we think, will actually construct “the house of tomorrow” for the people in the medium income bracket. At the present moment we have been working about six months against all the stumbling blocks of banks, labor unions, heating contractors, etc. The whole tendency seems to be against doing anything that was not done by our grandfathers. We are starting in to construct our first houses; three before fall, four later on, and then larger quantities.

To give you an idea of what they are: We are giving a piece of property in every case except one, of over 60 x 100. All the houses have the correct orientation and are taking advantage of solar heating.

(Continued on page 44)
BRIXMENT MORTAR

Helps Prevent Efflorescence

To test two mortars for resistance to efflorescence, "cup" two brick heavily with the mortars — let harden, and keep both brick for a few weeks in a shallow pan of water, as shown. Try this with Brixment mortar!

HERE’S WHAT CAUSES EFFLORESCENCE—AND WHY BRIXMENT MORTAR HELPS CONTROL IT

Efflorescence is an outcropping of minute white crystals on brickwork. When these crystals occur on colored mortar joints, the condition is sometimes mistaken for fading.

Efflorescence is caused by the presence of soluble salts in masonry materials. When reached by water, these salts dissolve, and are drawn by evaporation to the surface of the wall.

Brixment itself does not cause efflorescence because it is practically free from soluble salts. Even when such salts are present in the sand or brick, the waterproofing in Brixment usually prevents them from coming to the surface.

Bricklayers who have used Brixment mortar for years say they have far less efflorescence with Brixment than with any other mortar.

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CEMENT MANUFACTURERS SINCE 1830
The right roof for any job—
FROM ONE SOURCE

You see an endless variety of built-up roofs in any modern city. But whether they're Smooth Surfaced Asbestos; or Coal Tar Pitch with gravel or slag surfacing; or Asphalt, smooth or gravel-and-slag surfaced—Ruberoid makes them all, and in specifications to meet any condition.

You'll see still other types as more new buildings are erected — roof developments worked out by Ruberoid engineers in order to make valuable roof areas more truly productive—promenade roofs, heavy traffic roofs, garden roofs. Ruberoid has developed sound, tested specifications for each of these new roofs, available from Ruberoid Roofers. There's a Ruberoid Approved Roofing Contractor in your community. His wide experience, facilities and the resources of Ruberoid's complete line of roofing materials are at your service—complete assurance of top quality and workmanship.

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Asphalt and Asbestos Building Materials. Thermal Insulations
The Name HOPE'S Guarantees 1818 WINDOWS 1946

The King Residence, Sea Island, Georgia. Francis L. Abreu, Architect

FOR A "ROOM WITH A VIEW"
More than any other type of fenestration, HOPE'S Steel Casement Windows help the architect accomplish his purpose. Their versatility in layout is a constant aid to the imagination. In the room illustrated, the unobstructed view and the effect of a large glass area is obtained without sacrifice either of structural support or openings for ventilation at any point in the arc.

In specifying HOPE'S Windows, the architect also assures his client of the benefits of perfected construction, effortless operation, and life-time durability.

HOPE'S WINDOWS, INC., Jamestown, N. Y.

THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS
EAGLE Ready-To-Use WHITE LEAD PAINT

Plan to give your buildings the brilliant white gloss of new Eagle Ready-To-Use White Lead Paint! It's a whiter white . . . and it stays white longer. Besides this unique advantage, don't overlook the exceptional smoothness of Eagle RTU White Lead Paint. It literally flows on, covers completely, leaves practically no brush marks. Because it's ready to use it's a real time-saver, too.

Being lead, this marvelous paint defies wear and weather . . . has all the tough, protective qualities made famous by white lead for over 2000 years. No other paint surpasses its combination of beauty, durability and economy. Backed by 103 years of Eagle-Picher paint-making experience—your assurance of highest quality. Eagle RTU is being made available as rapidly as production will permit. Two forms: Primer Sealer and Outside White Finish Coat. One, two and five gallon pails.

THE EAGLE-PICHER COMPANY
Cincinnati (1), Ohio
Member of the Lead Industries Association

They will have large windows with a novel idea of ventilation. They will have panel heating. The room sizes are all larger than ordinary: the living room is 12 x 20, bedrooms 12 x 12 or 12 x 16. All the houses have modern lighting and include a carport. We are coming as close as we can to doing all the things that were talked about for the postwar house, and at the same time we are building ours complete, including property, for a trifle under $10,000. The houses are a combination: partly prefabricated and partly conventional.

Looking at one of your back issues, I discovered that practically all real estate people and developers throughout the U.S. are still hanging out the same old stuff and no one yet has actually done a modern house in the competitive price range.

From what I have discovered in the field of contracting and building, it will take a hell of a lot of people with a hell of a lot of guts, or we will get the same old junk thrown at us for at least 15 years.

Caleb Hornbostel
New York, N. Y.

WRIGHT
Forum:
In relation to the letters you published in the August issue "Men against Wright"—I should like to know who are these "men"—what have they contributed to the arts and civilization—where is their work and who cares what their petty personal opinions may be?
Frank Lloyd Wright has shown us his faith by his works.
Give us a look at these "men," will you please?
JOHN LLOYD WRIGHT, Architect
La Jolla, Calif.

Forum:
In an article on Frank Lloyd Wright (Forum, Jan. '46) you make the following statements:

“A case in point is the Imperial Hotel, which was floated on a mat of concrete in place of a conventional foundation. The design was without precedent, and in the considered opinion of top U. S. engineers, it was also without structural merit. But when the Japanese earthquake of 1925 came, almost the first news that came through was that the hotel had floated through with a minimum of damage. Practically every paper in the country carried the story . . .”

In view of this widespread belief about the Imperial Hotel, I thought you might be interested in this excerpt from the Nippon Times for Aug. 31, 1946:

“... On September 1, 1923, Tokyo was rocked by the most disastrous earthquake in history. But the damage, as was the case in the San Francisco quake, was done mostly by fire. Every building in the city withstood the shocks. The only things which toppled down were flimsy, ancient wooden houses, but this wasn't generally known, so when Mr. Wright received a telegram from Baron Okura informing him that the Imperial Hotel withstood the ‘quake, he naturally concluded that the floating foundation had saved it. That is how the hotel won world-wide renown for its ability to stand up against earth tremors when, in actual point of fact, few buildings in the city were as badly damaged by the ‘quake as was the Imperial Hotel. There were few fissures in its walls. In the basement where there was a swimming pool, the fissures were so large that the pool has never been used since. So, instead of working on floating foundations, Tokyo’s contractors, who rebuilt the city’s burned structures, gave . . . Wright’s experiment a wide berth.

“... But the Imperial Hotel’s reputation was already established. All over the world it was regarded as the safest place to be in during an earthquake when, as a matter of fact, it is about the most dangerous. Its present occupants may not know it, but the building was condemned by building inspectors of the Metropolitan Police a good many years ago and work on tearing it down was just about to start when the war broke out.”

DONALD KOEHLER

Tokyo, Japan

According to Brigadier General Ken R. Dyke (until recently chief of the Civil Information and Education Section, GHQ, SCAP), the Imperial Hotel, where he and other brass hats were quartered after the occupation of Tokyo, was in excellent condition except for one wing which had been damaged by fire bombs. If structural defects were present, General Dyke would not have noticed them since his previous position with Johns Manville gave him a thorough working knowledge of construction.

Comments Dyke: “The most conspicuous structural defects in the hotel were the fallen arches among the members of the staff.”—Ed.

BUILDING FOR DEMOCRACY
Forum:
I am neither an architect nor a builder, but a school teacher and member of the American Missionary Association. This organization has long majored in education among underprivileged groups in the South. We are in constant contact with state, county, city and town officials for consultation on problems of education. For instance, in the state of North Carolina where construction of schools is now going on at a very rapid pace, we have had many building plans submitted to us for approval. In one instance where a grade school was be-

(Continued on page 48)
Steel framework gave birth
to Q-PANEL WALLS

Q-PANELS, made by the H. H. Robertson Company, of Pittsburgh, Pa., are wall-building units two feet wide and up to 25 feet long, being a fluted section and a flat section separated by 1 1/2 inches of insulation. Steel or Galbestos is usually used, though stainless or aluminum are also frequent.

Q-panels are delivered to the job cut to fit and are assembled on the steel framework with six bolts. So fast is construction that an acre of wall has been erected in three days.

Construction is dry, clean, noncombustible and the finished wall has thermal insulating value equal to a foot-thick, dry masonry wall.

Architects have found great leeway of expression in combinations of texture and color. Flat and fluted sections can be combined to produce striking patterns of light and shade.

The light weight, seven pounds per square foot, introduces substantial economies. For details write:

H. H. ROBERTSON CO.

2403 Farmers Bank Building
Pittsburgh 22, Pennsylvania
MAINTENANCE OF RESILIENT FLOORS

Architects are rarely consulted by owners on proper maintenance of new resilient floors. Usually the owner goes ahead with his own methods, which may damage the appearance or shorten the life of his floor. Then, if the floor gives unsatisfactory service, the architect may be thought guilty of an improper selection of flooring materials.

It is in the architect's interest, therefore, to understand maintenance of new resilient floors. If he can educate his client to follow the rules of floor care set forth by the manufacturer, longer lasting and better looking floors are assured, with minimum time and cost for maintenance.

The following recommendations for resilient floor care have been outlined by the Armstrong Research Laboratories. At these laboratories, all types of cleaning materials and methods have been tried out over a period of years on all types of resilient floors. And results of this continuing research have indicated that some of the simplest methods of floor maintenance are the best.

1. SWEEPING
   The surface of resilient flooring is smooth and lustrous, so dirt tends to slip off readily. Such floors can be kept clean for long periods of time (depending on traffic, tracked-in dirt, etc.) by merely sweeping daily with a soft broom or dry mop. Oil mops are not recommended, as they leave a dirt-catching film on the surface. Sweeping compound may be used if it contains no oils, sand, or chemicals. Since many sweeping compounds do contain harmful ingredients, Armstrong offers a sweeping compound which contains wax and thus helps to renew the wax finish of the floor.

2. WASHING
   An old adage in the flooring business says, "More floors are washed away than are worn away." Washing should be a relatively infrequent event with resilient floors unless they are subjected to unusual amounts of dirt. When such a floor finally grows dirty, it should be washed with a mild aqueous solution. For its linoleum, Linotile®, and cork tile floors, Armstrong recommends Armstrong's Cleaner, a liquid which is mixed with water, one-half cup to a pail of lukewarm water. For asphalt tile and rubber tile floors, Armstrong's Cleaning Powder is recommended, one-half cup of which is mixed with ten quarts of warm water. Oily soaps and oily cleaners are not recommended for...
silient floors.

Greatly to their life and attractiveness, is the use of furniture rests. The ideal wax for all resilient floors is a water emulsion type such as Armstrong's Linogloss Wax, which dries in 20 minutes to a hard, colorless finish that is lustrous but not shiny.

Wax, which dries in 20 minutes to a hard, colorless finish, is a thin coat, it may be "cut" with an equal quantity of water.

Paste waxes, which may contain oil, grease, or solvents such as naphtha and turpentine, are bad for asphalt tile and rubber tile. The ideal wax for all resilient floors

This results in a thick film of wax which forms a crust and lodges in the soft wax making the floor appear gray and dirty. It is much better to apply two thin coats of wax than a single heavy coat. To make certain that the second coat is a thin coat, it may be washed and allowed to dry, resilient floors should be waxed.

3. WAXING

Most people have a tendency to use too much wax. This results in a thick film of wax which forms a crust on top, leaving a soft gummy mass underneath. Dirt penetrates the crust and lodges in the soft wax making the floor appear gray and dirty. Paste waxes, which may contain oil, grease, or solvents such as naphtha and turpentine, are bad for asphalt tile and rubber tile. The ideal wax for all resilient floors is a water emulsion type such as Armstrong's Linogloss Wax, which dries in 20 minutes to a hard, colorless finish that is lustrous but not shiny.

If the wax coat becomes smeared or streaked by wear, its lustre can be quickly restored by using a ring of No. 0 steel wool under a buffing machine. Buffing tends to give the surface a harder, longer-wearing finish.

4. PROTECTION

One element in the care of resilient floors which is often overlooked, but adds greatly to their life and attractiveness, is the use of furniture rests. The very fact that a floor is resilient means that it will "give" under impact. When a heavy static load is applied to such a floor in one small spot, a dent results. This happens when furniture is supported by small button glides or casters. Furniture rests minimize this effect by distributing the weight over a larger area, thus helping to prevent indentation. In general, the greater the weight, the wider the rest should be. (See chart of Armstrong Furniture Rests.)

Armstrong's Research Laboratories will gladly advise the architect on any special problem of floor care. For further data on the care of any Armstrong's resilient floor, call any of Armstrong's district offices, or write direct to Armstrong Cork Company, 2311 Duke Street, Lancaster, Pennsylvania.
The Architectural FORUM November 1946

Famous RUSCO VENETIAN AWNING.

ALL-METAL Manufacturers of the famous RUSCO

COMBINATION SCREEN AND STORM SASH

Rusco Combination Windows are designed and constructed for PERMANENCY. They're made of rust-resistant, galvanized and Bondertile steel ... finished with finest quality baked-on enamel. Plastic screen never needs painting ... will not stain woodwork or masonry.

Rusco Windows harmonize with all types of architecture ... because they fit flush with windows they do not disturb shadow lines. Rusco is the "tailor-made" Insulating Sash ... for all types of commercial or domestic architecture. In design and construction ... in final benefits to the owner ... it offers greater advantages in comfort, convenience, safety, economy and beauty. Manufactured by the pioneer in "window conditioning" ... the first manufacturer to produce a practical all-metal self-storing combination screen and storm window.

You can specify it with confidence. Engineering data and specifications can be found in Sweets 18a-7. Literature available upon request.

THE F. C. RUSSELL CO.

6400-AF HERMAN AVENUE CLEVELAND 2, OHIO

ING BUILT, plans were drawn up on a very conservative, old-fashioned basis. I immediately dug out my copies of the Forum and sent the more modern suggestions to the architect. We did not get everything we wanted, but we certainly did get more than the state department in North Carolina ordinarily gives to Negro schools.

Last winter three counties in North Carolina decided to ignore county lines and build a consolidated school on property which had been used formerly for a school serving only the immediate community. As happens in so many conservative political circles, the state education authorities had often wanted to construct a modern building but were afraid they would be criticized by local groups. Since our organization has great prestige among the people of this area, we called them together to discuss the matter. And again we took out our copies of the Forum and got busy. We fed our ideas to the state department of education with the result that the plans now submitted are probably the most advanced and workable of any small-town school in the state of North Carolina.

This story could be repeated hundreds of times. In our office we face the fact that we are novices at architecture. But we do have convictions about the influence of building on the whole democratic process.

Ruth A. Morton
American Missionary Assoc.

New York, N. Y.

COMPETITIONS REFORMED

Forum:

There must be a better way to select architects for important work than a competition as usually conducted. Too frequently, as in the most violent competition — war — no one wins. Time has repeatedly mocked the presumptive awards of even the most conscientious judges.

One of the most carefully planned architectural competitions in recent years was for the selection of architect for postwar construction at the United States Military Academy, West Point, N. Y. A local planning board engaged in extensive preliminary study prior to actual determination of the scope of proposed building. Architectural assistance was used in preparing sketches and budget estimates as a basis for the program. A capable and respected architect-educator served as professional advisor, and under his guidance a carefully organized competition program was submitted to ten architectural firms. The firms selected were the screened results of requirements designed to assure the highest quality of participants. Each competitor

(Continued on page 52)
NATIONAL MAGAZINE SURVEYS PROVE WOMEN WANT Electric Ranges

WOMAN'S HOME COMPANION survey shows that more women plan to buy an Electric Range than any other type!

McCALL'S MAGAZINE readers made the Electric Range their 2-to-1 "must have" choice in a recent contest.

SUCCESSFUL FARMING survey shows that nearly twice as many REA customers intended to soon buy an Electric Range as they then had one.

HOUSEHOLD MAGAZINE survey indicates that 3 times as many women want Electric Ranges as "now have" them.

COUNTRY GENTLEMAN survey shows that among the upper two-thirds of white farmers the Electric Range is the 2-to-1 choice.

Magazines can’t guess about the preferences of their readers. They’ve got to KNOW—and they find out by making surveys.

These magazines found both on the farm and in the city an overwhelming preference for ELECTRIC RANGES. The convenience, cleanliness, dependability and economy of electric cooking are getting across to women everywhere.

Your houses can take advantage of this trend at little cost. Just build in the wiring for Electric Ranges. It’s one of the most sales-worthy features you can install!

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NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
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TO KEEP THEM MODERN Wire your houses FOR ELECTRIC RANGES

A SYMBOL OF THE MODERN POST-WAR HOME
More Uses—more freedom

One piece of Furniture by Tomlinson serves several functions, can be used in different rooms, fits into various floor plans, gives more freedom to interiors. This thinking answers today's living needs, is typical of all Furniture by Tomlinson.
THE home equipped with B & G Hydro-Flo Heat is truly a haven of luxurious comfort! Whether you elect to have radiators, radiant baseboards, convectors or radiant panels, this forced hot water system provides the finest in automatic, controlled heating.

B & G Hydro-Flo Heat owes its country-wide spread in popularity to its genuine merit—proved over and over again in buildings of every character! It is the system which affords the instant, positive control of heating so essential to real comfort. It is flexible as a whip—delivering just the right amount of heat for any weather condition. No overheating in mild weather and no lack of heat when the thermometer hits bottom. At all times, indoor temperature is maintained steadily at whatever degree is preferred.

Naturally this precise measuring out of heat means utmost fuel economy—whether oil, gas or coal is burned. B & G Hydro-Flo Heat equipment can be installed on any hot water heating boiler and its extreme simplicity is a warranty of dependable operation.

Domestic hot water a bonus feature

Where a B & G Hydro-Flo Heating System is installed, no separate water heater is required. The same boiler that heats the house also heats the domestic water—not only in winter but all around the calendar! What feature could have more appeal to the lady of the house than a bountiful supply of piping hot water...always ready for kitchen, laundry and bath...at every hour of the day and night.

No wonder B & G Hydro-Flo Heat is the preferred heating system!
THE KITCHEN IS
THE HEART OF THE HOME

Plan a kitchen that has all the modern conveniences of gas even though you are building beyond the gas mains.

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"Pyrofax" gas burns just like city gas—it operates the same appliances such as a Magic Chef gas range, a silent Servel refrigerator, and an automatic water heater. "Pyrofax" gas brings new economy, convenience and cleanliness to country homes— with modern automatic "Pyrofax" gas service your clients will have no service interruptions, no dirt or odor. "Pyrofax" gas is distributed in most states east of the Rockies. Write to Dept. A5, "PYROFAX" GAS DIVISION, 30 EAST 42nd ST., NEW YORK 17, N. Y. for complete information and the name of the nearest distributor.

LETTERS

received a generous compensation for his presentation, which then became the property of the U. S.

There is no argument that the West Point Competition was not in accord with the best practice. All details were scrupulously planned and executed, and those concerned were frank in their approval of its handling. And yet, to a critical observer, certain disadvantages common to most architectural competitions, were obvious.

Does the owner win?

Since some limiting of competitors was considered economically necessary, requirements were set up which included such paradoxical propositions as (1) the firm must have done several million dollars worth of work in a single year; and (2) not be too busy to concentrate on the project immediately. The firm must also have completed large amounts of similar educational buildings. Are not such limitations detrimental to the purposes of the owner? Many of the very best architects might be eliminated because they were too busy, or had never constructed considerable amounts of similar building.

Since useful ideas would undoubtedly be found in each design, it was desirable that all presentations become the property of the owner. Ideas are the most valuable commodity an architect has; therefore, a compensation more generous than normal was appropriate. The total cost of the West Point Competition would have paid the customary architectural fees for the design and supervision of over two million dollars worth of building. Did the owner get a proper return on this investment? The designs now rest in the Museum, and it is doubtful that the winning competitor has obtained any vital idea from the losing designs.

Does the winner win?

In the flush of victory, a contract is signed. In the case of government participation when appropriations are in definite amounts, a percentage fee based on budget estimates forms the fixed amount of the architect's compensation. In the West Point Competition, estimates were so inadequate that adjustment was necessary. Even so, there was hardly enough profit to make the job worthwhile. There must be times when a winner wonders if he won.

Do losers win?

Initial payments for competition drawings rarely meet the cost of production. It is doubtful that competitors in the West Point Competition felt that the compensation, generous from the owner's viewpoint, (Continued on page 56)
A Handbook on Welding Aluminum

Are you welding aluminum now? Do you plan to weld aluminum in the future?

If so, this book is for you!

Here's a new up-to-the-minute book, "Welding Aluminum," that presents a concise, authoritative discussion of problems dealing with welding aluminum and aluminum alloys. Many new war-developed applications are described. Under a single cover, in handy usable form, you will find detailed information on 11 aluminum welding processes, from edge preparation to finishing, a comprehensive discussion of aluminum alloys and tempers, and helpful tables on properties, gauges, sizes, and strengths.

"Welding Aluminum" is clearly illustrated with 44 interesting photographs and graphs of welding operations. If you work with aluminum, you'll find "Welding Aluminum," prepared by the technical staff of the Reynolds Metals Company, an invaluable reference book.

How do you get your copy? Simply fill out the coupon on this page and mail with your check or money order for one dollar, to Reynolds Metals Company, 2500 South Third Street, Louisville 1, Kentucky.

83 PAGES packed with accurate up-to-the-minute facts, figures, and photographs—about

GAS WELDING
- Edge Preparation
- Cleaning and Preheating
- Welding Flame
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- Metal-Arc Welding
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Metal-Weight Calculator

One of the handiest calculating devices ever developed...simple...accurate...fast. Calculates weights of aluminum, magnesium, steel, brass, copper, and nickel. Only $5.00. (Check space in coupon.)

ALLOY SELECTOR

Just two settings to place at your fingertips the mechanical properties, chemical composition, physical constants, thermal treatments and specification numbers of 18 aluminum alloys. Price $1.00. (Check space in coupon.)
Plans for schools, hospitals, apartment houses, veterans' housing projects and other essential buildings occupy your drawing boards today. But as the building crisis improves, your planning and designing will be increasingly directed to all types of building. Unrestricted residential and commercial building once again will receive a large share of your attention.

Clay masonry, through the years, has been the predominant choice of architects and builders. For this reason—and because brick and tile are available at reasonable cost—brick and tile are being used in much of today's essential building. For this reason, too, designers of tomorrow's homes, churches, office structures, stores, factories and apartment houses will continue to show preference for brick and tile of coordinated dimensions.

Clay masonry gives architects wide range for artistic design. Now it is being made available in modular sizes, and as always, in many colors and textures with maximum durability and structural strength.

Modular sizes mean savings in designing and erection time. And, of course, the traditional permanence, economy of upkeep and fire safety will be part of tomorrow's buildings designed and built with modular brick and tile.

Architects are invited to write for two FREE booklets. One, "Modular Sizes of Brick and Tile," for those desiring to use these sizes in current design, and the other, "The ABC of Modular Masonry," for those interested in the development of coordinated dimensions. For either or both write the Structural Clay Products Institute, Dept. AF-11, 1756 K Street, N.W. Washington 6, D. C.
Flush glazing is achieved in this assembly which eliminates projecting metals and makes glass "disappear" into walls and ceilings.

To insure strain-free settings, glazing mouldings have stainless steel spring lugs which maintain a resilient grip along the entire length of glass.

K-47 corner bars are self-adjusting and will receive glass at any angle within a range of 70 degrees without altering the bars.

The trend in contemporary store front design has made new structural demands on glazing mouldings, metal trim, and entrances. The K-47 Line has been engineered to meet these demands.

Pictured at the left are a few of the new features in construction of the K-47 Line. These features—and many others—enable you to create outstanding architectural effects through the free use of floor-to-ceiling lights of glass, full-vision doors, flush glazing and many other elements of modern design.

And a number of K-47 assemblies, such as the corner bar and door post pictured at the left, have been simplified to obtain a more clean-lined appearance and to make installation easier.

For construction details of the K-47 Line and the Kawneer Standard Line, fill out and mail the coupon below.

THE KAWNEER COMPANY, 720 North Front Street, Niles, Michigan
Check portfolio desired. Both will be sent if checked.
□ Details of the new Kawneer K-47 Line. □ Details of the Kawneer Standard Line.
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...These before and after samples of indoor air show how germ-count can be reduced by Electronic Air Disinfection with germicidal lamps in DISINFECTAIRE Ultraviolet Germicidal Units.

There's a great new market for alert architects—scores of hospitals, schools, stores, plants, offices and homes that need protection from contagion and cross-infection, need Electronic Air Disinfection with DISINFECTAIRE Ultraviolet Germicidal Equipment.

An efficient economical DISINFECTAIRE installation makes new buildings more modern, makes remodeled properties easier to rent, gives the architect a new factor of safety that can be incorporated in his original plans.

There are DISINFECTAIRE Ultraviolet Germicidal Units for every purpose—recessed or on the wall—flush mounted or suspended—models for air-duct application, for meat coolers, for food cases, for wash and locker rooms as well as all-building protection.

Complete information is available from a DISINFECTAIRE engineer near you or from

THE ART METAL COMPANY

Manufacturers of Engineered Lighting and Ultraviolet Equipment

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was adequate enough to be considered profitable in a purely financial light.

How can we win a competition?

Certain simple changes in the conduct of a competition would eliminate the most glaring defects of the present system:

(1) Let the program consist simply of a complete description of the site and of the functions to be accommodated. Additional information courts the danger of either restricting the imagination of a competitor or pointing to a solution—which is the same thing.

(2) Let there be many competitors.

(3) Let the jury be more numerous, more varied, more skilled in the interpretation of plans—and better paid.

(4) Let jury action be without discussion, and voting secret and anonymous.

(5) Let presentations be much simpler. The competition should be judged just before the expensive presentation drawings are made. A capable jury can discover the most meritorious design from far less in the way of presentation drawings than is normally required.

F. CARTER WILLIAMS, A.I.A.

Raleigh, N. C.

LETTER FROM ARIZONA

Forum:

Running longitudinally through the heart of Arizona is a strip of territory 200 miles long by 50 miles wide. Known as the Navajo Indian Reservation, this area is larger than some of our Eastern states and nearly as large as all England. Yet the tract supports a population of less than 70,000, most of whom are Navajos, a few Hopis. The reservation has agencies to administer their legal affairs. It has hospitals to keep them well, schools to educate them and trading posts to purchase their handicraft.

Ethnologically, the Navajos are perhaps the most advanced of North American Indian tribes. Their intrinsic jewelry, their vividly beautiful and highly imaginative sand painting, rug weaving and pottery turning all bespeak a high degree of culture.

Yet, despite these evidences of advancement, the Navajos resist change with an obstinacy that amounts to fanaticism. More vividly than any other single factor, their dwellings illustrate this fact. During the summer months, each family occupies a wickiup—which is nothing more than a cage-like framework of sticks and poles overlaid with branches and leaves. With the approach of winter they move into the traditional hogan, a larger and more substantial structure, built of logs with a sod.

(Continued on page 60)
a frank statement regarding

DEVELOPMENTS

of Premier Aluminum Windows

Large-scale shipments of Premier Aluminum Sash have begun. Many jobbers throughout the nation already have complete stocks on hand. As the tempo of our production lines increases, shipments will also increase.

According to current indications, dealers all over America will be supplied with complete stocks in time for the 1947 building season.

Mass production economies effected in the past few weeks now make possible lower prices! These savings are yours to pass on to the consumer - a part of Premier’s policy to deliver America’s finest window at the lowest price.

- Easy to Install
- Easy to Service
- No Putty
- No Leakage, Sash Glazed with Ever-seal Rubber
- Weatherproof

- Built-in Stainless Steel Weatherstripping
- Positive Lock
- Spring Sash Balances
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Windows

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Mixing Valve

The Instant, Positive-Acting Hydraulic Shuttle Valve

Out of war-time lessons in precision and split-second timing, out of months upon months of continuous tests comes this modern, improved shower mixing valve. For sheer shower bathing pleasure...for protection against accidental scalding, it has no superior! You merely select the temperature of water pleasing to you and step in for a shower that stays the way you like it!

You need have no fear of accidental scalding, for if the cold water supply fails at any time, a single moving part—the safety shuttle valve—shuts off the hot water before it reaches the shower head. The Josam Moderator Mixing Valve combines a beauty of design with a simplicity of construction and installation that is hard to believe until you see it. It is an investment that pays over and over in lifelong pleasure and protection.

The Josam Moderator Mixing Valve is ideal for installation in homes, clubs, institutions, industrial plants, schools and hotels. Every architect should have complete details on this latest type of mixing valve. Mail coupon below today!

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Executive Offices, Josam Empire Bldg., Cleveland 14, O. - Manufacturing Division, Midwest City, Ind. Representatives in all Principal Cities
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The Architectural FORUM November 1946
High on its rocky eminence stands the Parthenon—a symbol of strength. Ravaged by the elements, this matchless structure erected more than two thousand years ago, has nevertheless withstood the test of time.

*Ferro-Therm*
STEEL INSULATION
For Durability and All-Year Round Efficiency

AMERICAN FLANGE & MANUFACTURING CO., INC.,
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
for Better PLASTERED WALLS AND CEILINGS

There are no finer finishing limes than the original Ohio White Finish and its famous twin, Hawk Spread. Both are scientifically processed from rock quarried from the heart of the world’s purest deposit of dolomitic limestone... Both are always fresh, work cool, spread far.

- For your protection both brands are always packed marked with distinctive Red Zig Zag Stripes.

- Hogan and friends

male to stand erect. There are no chairs, benches, or tables; the family sleeps on sheepskin mats on the floor. Instead of a stove, a fire for cooking and heating is built on the earth floor, the smoke escaping as best it can through an aperture in the roof.

Both wickiup and hogan have been used for uncounted centuries. There are records that they have been in use in the Southwest for a thousand years. It is possible the hogan is the most primitive habitation surviving on the face of the earth.

The main factor behind this slavery to tradition is the Navajo’s superstitious attitude toward death. When any member of the tribe dies in a lodge, the dwelling is immediately abandoned and very often burned with all the effects of the deceased. Building an elaborate and permanent form of structure would only mean abandoning it in the event of death. Because of this ancient tradition, the hogan and wickiup remain the most primitive and authentic touches in the Southwest. They are relics of surpassing interest to the archaeologist, as well as outstanding scenic attractions for the tourist.

Today, over the length and breadth of the vast Navajo Reservation, these log and sod hogans stand forlornly amid the sage, or among the ever-present junipers. They form the most alien and at the same time the most picturesque habitations to be seen in this country.

PHILIP FERRY

San Francisco, Calif.
(Publishers' Letter on page 66)
Radiant Heating? On-the-job bends made
without tools...with Copper Tube

No need for special bending tools when making radiant heating installations of Chase Copper Tube. Flexible and small in diameter, it's easily bent by hand—or shaped, if preferred, around a simple wooden form.

Where engineering considerations make floor installations desirable, there's no need for accurate leveling of Chase Copper Tube.

In ceiling installations, the light weight of copper tube makes handling and mounting easy.

In both cases, the long lengths of copper tube coils reduce the number of joints to a minimum. Where joints are needed, they are quickly made with solder-joint fittings.

With its many advantages, Chase Copper Tube is in heavy demand. We may not, at all times, be able to supply your requirements. But we can furnish you with literature you will find helpful in planning radiant heating installations.

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1. EASY TO BEND
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3. SOLDERED FITTINGS
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6. LOW COST
7. LONG LIFE
A new series of steam locomotives is being constructed in which the usual order is being reversed—the coal tender coming first—then the driver's cab—the boiler—and finally the water supply. This design gives the engineer better protection and visibility. Continually we are finding ways to do things better—getting away from the conventional. This is particularly true in the field of metals, where the light alloys—aluminum and magnesium—not only are replacing heavier metals, but are being used in substitution for other types of materials to give better service. If your product uses—or could use—aluminum or magnesium to decrease its weight, with no loss of strength—or to increase its eye and sales appeal—Bohn engineers would like to discuss the problem with you.

BOHN ALUMINUM AND BRASS CORPORATION—GENERAL OFFICES—LAFAYETTE BUILDING—DETROIT 26, MICH.

Designers and Fabricators—ALUMINUM • MAGNESIUM • BRASS • AIRCRAFT-TYPE BEARINGS
Singleness of purpose... concentration on elevators and escalators... has enabled Otis to bring vertical transportation to its present state of efficiency.

When you specify Otis elevators and escalators you are providing modern equipment based on mature engineering practices and almost a century of experience. Otis has designed and built more than half the world’s elevator equipment. Practically every major elevator improvement has been an Otis improvement, and Otis engineers constantly are inventing new apparatus and finding better ways of doing things.

Your client wants the latest in vertical transportation, but he wants it to be safe, dependable and inexpensive to maintain. For cooperation in providing modern equipment for any building, call your local Otis Elevator Company office* as early as possible in the planning state.

*Otis offices in 245 cities have but one interest... to provide the best and safest elevator and escalator transportation possible.

OTIS ELEVATOR COMPANY

Offices in All Principal Cities
Permanent contact between tubes and the entire surface of the fin collars—that's the advantage of hydraulic pressure used to create the lasting mechanical bond on McQuay Ripple Fin Coils. And this significant advantage is a typical example of how a seemingly small detail in engineering design plays an important part in making a superior product.

McQuay construction means higher flexible strength with less air friction and cleaner operation. To provide maximum flexibility, all headers are of non-ferrous tubes, thus reducing the problem of unequal expansion and contraction.

These exclusive features make McQuay performance possible and establish their preference among users. McQuay coils are available as a wide variety of styles and sizes, both standard and special coils for steam, hot water, cold water, brine, direct expansion, and other applications.

For complete information write McQuay, Inc., 1609 Broadway Street N. E., Minneapolis 13, Minn.
Eleven fact-filled pages like this one are yours for the asking—in the new KIMSUL® Application Data File, a source of technical information you can use to advantage. Shows how many applications, from the simplest to the most difficult, can be more efficiently handled with prefabricated, many-layer KIMSUL. To get your Application Data File, plus full technical information on KIMSUL, mail the coupon today.

We are producing all the KIMSUL Insulation we possibly can, but, due to the great demand, your dealer may have some difficulty in supplying your requirements as promptly as usual.
FIRST AID FOR PROPERTY OWNERS
As told to 180,000 Fortune readers...

DUNHAM HEATING MEANS BETTER HEATING
Or, how to solve your HEATING PROBLEMS

Satisfy your clients by specifying a heating system that gives precise control of temperatures; operates automatically; eliminates "guesswork" and maintains temperatures at desired levels throughout the building in all weather. Write C. A. Dunham Co., 450 East Ohio Street, Chicago 11, Illinois for bulletin number 632A—it gives complete information about the DUNHAM DIFFERENTIAL VACUUM HEATING SYSTEM.

A LETTER FROM THE PUBLISHER

Dear Reader:

Frankly, we never suspected that when Associate Editor Joe Hazen tramped off to fight with the Field Artillery his war experience would make a direct hit on the FORUM'S pages.

But when you turn to page 101 of this issue, you will find one result of some things Lt. Col. Hazen used when he was throwing long-range artillery fire across the Rhine into the Ruhr. Apparently, it is all the same whether you want to fit a photograph of a building model into an air photograph of its locale or whether you have to locate targets from a plane to direct gunfire eleven miles away.

We now turn the "mike" over to Hazen and hope that at least a few of the FORUM'S fifty-odd-thousand readers will understand his explanation better than we do:

"We got an existing aerial photograph of Flushing and traced the area to be covered by the shopping center. After relating the altitude of the airplane and the plate size and focal length of the aerial camera to the characteristics of our photographer's camera, we got the outline of the model as it would appear in his camera. We drew this outline in red on tracing paper and pasted it to the plate of our photographer's camera. Meanwhile, by determining the altitude of the plane, the angle of the aerial camera, the scale of the air photo and the point on the ground above which the picture was taken and by making adjustments for the relative scale of the model, we were able to set up our photographer's camera in the same relative position as the aerial photographer's. However, despite these simple algebraic calculations, considerable maneuvering of our camera was necessary to fit the image of the model to the red outline. (Lack of exact information on the height from which the aerial photo was taken gave us only approximate calculations.)

After bumping our heads on the wall and ceiling for about two hours, we got on the target, and the picture was taken with a 20-second exposure. To add realism to the combination photograph, we set up a large spotlight in the relative position of the sun at the time the aerial photo was taken.

"In the Army we used a three-lens camera which took an oblique photograph of the enemy area and, at the same instant, a vertical photo of the ground position of the plane, called the "plumb point," plus a practically useless oblique of our rear area. With these photos we could quickly and accurately determine the relationship between the photo and the target area and direct artillery fire accordingly."

The point of this little story, of course, is that this is routine performance for the FORUM'S staff. No amount of trouble is too much to make certain that every page, every picture, every drawing, every sentence tells its story clearly, authoritatively, compactly. FORUM readers are busy. We count it our duty to keep them informed and stimulated with the least pain and in the least time.

Last month brought new honors to the FORUM. The American Institute of Architects and the Producers' Council named Managing Editor Henry Wright as one of fourteen pioneers in the field of modular coordination of building materials and equipment.

A few days earlier FORUM received three awards, the largest number given to any U. S. magazine, for editorial excellence, in the annual competition sponsored by the magazine, Industrial Marketing. None of these feats is likely to turn our heads, which, as always, are buried in work for none other than — guess? — you, dear reader.
Patching and pampering go out the window

Now you can free your clients from screen worries with Firestone's amazing new material—Velon.

Resists impact up to six times more than metal screening of equal gauge, without dents, bulges or breaks.

100% corrosion-proof. Impervious to sun, rain, salt-spray. Velon screens cannot rust or leave ugly bleed stains down the front of the house.

Easy to handle. Only one-fifth the weight of metal, and correspondingly more manageable. Cuts with ordinary scissors, leaves no sharp ends.

Blended beauty. Velon screening is tinted to harmonize with interior and exterior color scheme.

Now available in standard widths and gauges. Investigate Velon screencloth for utmost in client satisfaction.

FREE—Write Firestone, Akron, for your copy of Velon booklet and samples of Velon screening.

*Trade Mark

LISTEN TO THE VOICE OF FIRESTONE MONDAY EVENINGS OVER NBC
WHEN YOU TALK ABOUT VALUE IN TODAY'S NEW HOME... REMEMBER

Andersen Windowwalls

WHEN the conversation these days drifts to the topic of what the home owner is getting in the way of value today, compared to 20 years ago, you can be sure it isn't long until Andersen WINDOWALLS are mentioned.

Today's home is a better place to live—better by far than one built two decades ago—because of Andersen WINDOWALLS. Just check these points, and you'll see how today's home buyer gets more for his money:

PREFABRICATED AT THE FACTORY—Andersen WINDOWALLS are precision milled, with frames and sash that fit perfectly.

COMPLETELY WEATHERSTRIPPED—WINDOWALLS are weathertight, weatherstripped at every vital point where cold air may infiltrate. No more fussing with weatherstrips after the home is built.

SUPERIOR OPERATION—WINDOWALLS incorporate special precision hardware that works and wears well... insures trouble-free operation. No more balky, rattling, sticking windows.

NEW CONVENIENCE—Removable sash, special screens and removable double glazings (in place of ordinary storm sash), all handled from the inside, are features of Andersen WINDOWALLS that reduce a housewife's or home owner's "chores".

ADAPTABILITY—Today you can WINDOWALL large areas in the home, simply by combining stock-size Andersen Window Units into bays, picture window combinations, corner installations. Limitless variations to add personality to a home.

WOOD PARTS CHEMICALLY TREATED—To guard against decay and termites, all wood parts in Andersen WINDOWALLS are chemically treated in accordance with highest industry standards.

ECONOMICAL INSTALLATION—Today builders slip Andersen WINDOWALLS into place in the wall section quickly and economically. Gone are old-fashioned cut-and-try methods that used to run costs up.

NEW BEAUTY AND SELECTION—Today the home buyer gets his choice of four fine designs in Andersen WINDOWALLS—choosing each type of window for its function. Superior design brings charm and attractive individuality to the WINDOWALLED home.

Andersen Corporation

Bayport, Minnesota

Manufacturers of WINDOWALLS, Including Complete Wood Casement, Horizontal Gliding, Double Hung and Basement Window Units. For details, consult Sweet's Catalog or see your millwork dealer.
The Grand Rapids Invizible has many features of superiority, as has been conclusively proved in thousands of war time and peace time installations. Among these are ease of installation, actual invisibility, and dependable, efficient operation in all climates and under varying conditions. The same balance for upper and lower sash make them interchangeable and 10 sizes meet 95% of all residential requirements. Complete illustrated instructions are on every carton.

Send for Sash Balance Catalog which contains complete information on sash balance sizes, directions for installing, etc. All fully illustrated.

Grand Rapids Sash Pulleys No. 103 face plate, one bearing type and Nos. 175, 109, 110 cambridge roller type each contains cover list of all sash pulley requirements.

Grand Rapids Hardware Company Grand Rapids, Michigan

If, to paraphrase Dan Burnham, only big plans have the power to move men’s minds, then William Zeckendorf is the world’s prime mover. This genial giant (285 lbs. stripped) has in the past year jarred conventional real estate circles with three whoppers: a $3 billion Buck Rogers airport which would run a landing strip over a good quarter of mid-town Manhattan; a $150 million “skyscraper city” expected to transform the entire East Side; a $50 million Long Island shopping center complete with mobile sidewalks and rooftop garages (p. 100). Typically Zeckendorfian is a current project for lifting the entire business section of a city of 350,000 and transporting it six miles to the left. Such stunts come close to unhinging the ordinary real estate mind and one such gentleman now clings to the firm belief that it’s going to be Mr. Z. and not the rocket scientists who will first land on the moon.

Landscape architect for the unorthodox Dickinson house (p. 90), James C. Rose at 36 finds himself an old hand at challenging entrenched tradition. He began at Harvard in the middle thirties when, as a graduate student from Cornell, he was confronted by a bulletin board notice warning that any modern solution would automatically receive an “X.” Rose joined forces with landscape architects Garrett Eckbo and Daniel Kiley to test this White Paper of black reaction. Their modern solutions got one “X” after another and the trio was hanging on the ropes when Hudnut and Gropius moved in on Harvard’s architecture. The effect on the landscape school was immediate, beneficent and not a moment too soon for Rose, Eckbo and Kiley.

John Lincoln is a fugitive from the FORUM who exchanged his typewriter for a T-square, and the canyons of Manhattan for the rocks of rural Connecticut. His career as a Yankee is the fulfillment of a tinkering yen which, in the old days, led him to buy a Stanley Steamer and tenderly rebuild its engine into putting condition. Considering a body an affectation, he finished off his treasure by placing a kitchen chair above the chassis, rode thus enthroned onto Merritt Parkway for a trial spin, munching the while on a chicken sandwich. An unruly valve suddenly enveloped the parkway in a burst of steam, Lincoln in dew and chicken salad, confirmed his notion of leaving for Stonington immediately where he now has a brisk practice combining architecture, engineering and building. His own house (p. 98) has as yet burst no pipes.

Eleanor Le Maire, designer of the Coodall fabric showroom (p. 124), is a reasonable facsimile of a perpetual motion machine who keeps an eye on her staff of 35 experts, hops from business office to drafting room and from east coast to west without so much as shifting gears. Member of the “100,000 mile Club” (for having flown the equivalent of four times around the world), Miss Le Maire blanches at any job not on a direct air route, calls home wherever she can wiggle her toes. The Le Maire recipe for the good life is “color, variety, music, glamour, fun . . .” a dish she was already dedicated to at the precocious age of 15. Commissioned to redecorate her mother’s club rooms, she attacked the dignified chambers with more zeal than client understanding. The good ladies suffered patiently through one unfettered idea after another, put a horrified collective foot down when Eleanor painted a cherished ebony piano pale ivory. Since that time her jubilant talent has overcome such conventional restraints. Remarked a friend about one of her latest creations: “It’s just a little job. Le Maire only used 32 colors.”
A new measure of service...

Screen from SARAN

In length and in kind of service, screen from Saran surpasses other types—at lowest cost.

This Dow plastic is a new yardstick for length of service in screen because it is not affected by weather and climate—rain, snow, heat, cold, salt air. Saran screen can't rust. It won't corrode. And that long service is carefree. Screen from Saran is stronger than ordinary screen. It won't sag, dent or bulge. It's easy to maintain—its smoothness makes it easy to clean. It has its own color that needs no paint to preserve it. It doesn't stain and discolor home exteriors.

Saran screen is only one way in which Dow plastics make better homes. Look into the growing possibilities with Dow plastics in building now.
Larger Windows have won wide acceptance in recent years for all types of dwellings. And such applications have become truly practical with the introduction of Twindow, Pittsburgh's new window with built-in insulation. Twindow, consisting of 2 or more panes of glass with sealed-in air space between them, has far greater insulating efficiency than ordinary windows. It cuts heat loss, minimizes downdrafts, adds to comfort the year round, and affords clear, undistorted vision.

Mirrors are among the most versatile tools at the architect's command in matters of interior design. You will find Pittsburgh Mirrors helpful in making small rooms look larger, dull rooms look brighter, plain rooms look luxurious, and all rooms more fashionable and modern. Pittsburgh Mirrors are available made of various colors of Plate Glass and with silver, gold or gunmetal backing. Architect: James W. Minick.
IN RESIDENCES

BATHROOM AND KITCHEN: design possibilities are tremendously expanded when Carrara Structural Glass is employed for walls, wainscots, and ceilings. The colorful beauty of Carrara Glass is supplemented by its practical qualities of easy-cleaning, sanitation, and long life, to make it an ideal structural material for residential use. Available in ten shades and numerous thicknesses. Architect: Maxwell A. Norcross.

FOR GENERAL GLAZING: purposes, it pays to specify "Pennvernon" . . . and not just "window glass". Pennvernon assures good vision because it is unusually clear for a sheet glass, remarkably free from distorting defects. And it has a bright, reflective surface-finish on both sides of the sheet.

Design it better with Pittsburgh Glass

"PITTSBURGH" stands for Quality Glass and Paint

Pittsburgh Plate Glass Company
218th & Grant Building, Pittsburgh 19, Pa.
Please send me, without obligation, your booklet entitled: "Ideas for the Use of Pittsburgh Glass in Building Design."

Name:__________________________
Address:________________________
City:___________________________ State:__________
A DISTINCTIVE NEW PACKAGE TO IDENTIFY AND PROTECT THE SPARKLING BEAUTY OF SALTER MASTERPIECE FIXTURES

Now when you specify Salter quality, your clients and customers will be doubly conscious of your desire to make their brass plumbing trim truly reflect masterpiece perfection. Not only does each Salter fixture excel in appearance, design and construction, but each unit is also skilfully packaged for safer shipment and maximum identification. On the job, this extra impression of the Salter trademark design, along with the Salter guarantee of quality tag, combine to forcefully reflect your interest in their behalf.

Make plans now to capitalize on the Masterpiece in Brass quality of the complete Salter line. Write today for information on the ever increasing variety of patterns which are or soon will be available and the name of Salter sales representative in your vicinity.

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MASTERPIECES IN BRASS
MARYSVILLE, OHIO
and division THE GLAUBER BRASS MFG. CO., KINSMAN, OHIO

ANNOUNCEMENTS

A STUDY OF ZONING FOR OFF-STREET PARKING, including regulations, practices and examples of this type of parking in all cities of 10,000 population and over, will be collected and reviewed by the Eno Foundation for Highway Traffic Control, Inc., Saugatuck, Conn. The report will be distributed without charge to public agencies and officials.

"THE FAMILY HOUSE," a series of lectures by Hermann Herrey, architect and planning consultant, aims to familiarize laymen (especially veterans) with the practical and technical problems of buying, building, remodeling and equipping a house. The 15 sessions will be held in Queens College, Flushing, N. Y. between Sept. 30 and Jan. 27, 1947.

36th ANNUAL CONVENTION of the National Association of Real Estate Boards will be held during the week of November 10 at Atlantic City, N. J. to discuss problems of importance in the field.

THE NORTH AMERICAN CONFERENCE ON CHURCH ARCHITECTURE for architects, church building board executives and others interested in church work will be held in New York City on January 4. Further information may be secured from the Director of the Interdenominational Bureau of Architecture, 297 4th Ave., New York 10, N. Y.

BUILDING PREVIEWS

THIS NEW PLANT FOR ADVANCED AIRCRAFT, INC., at Eddington, Pa. (Manuel Greenberg, architect) provides outside light for intricate machine-tool work by use of corrugated and block glass for roof as well as walls. Large openings beneath the eaves provide ventilation. Designed for an initial 16,000 sq. ft. of floor space, the plant will cost about $130,000 exclusive of special equipment.

A PARKE-DAVIS & CO. LABORATORY for the development and production of antibiotics is now under construction by the H. K. Ferguson Co. The four-story building (275 x 75 ft. in area) will be of structural steel with brick and stone exterior.

THE WESTON ELECTRICAL INSTRUMENT CORP. BUILDING at Newark, N. J., above, is being erected by Walter Kidde Constructors, Inc., New York, N. Y. This structure of reinforced concrete with brick facing will provide all services, lighting and partitioning on a module basis for maximum flexibility. Each laboratory will be provided with 6 types of electric services housed in continuous utility enclosures along the exterior walls. Occupancy is planned for May 1947.

NEW OFFICES

KENNETH JONES, formerly Chief Land Planning Consultant, FHA, has opened an office of land planning at 244 California St., San Francisco 11, Calif. (Continued on page 76)
AtchilDcl: Edward O. Stone

THE SHOW-ROOM HOMES
T~VEN
in the blueprint stage, homes like this begin to be show-
places for your best building materials and equipment. (You
know how a proud new home-owner shows his plans around.)

Owners of better homes like this are the leaders in residential
communities from coast to coast. They are families whose plans
are of interest to others . . . families whose preferences for certain
roofing or heating or plumbing for their own houses are likely to
influence what goes into the homes of their neighbors.

In short, they are families like the one and a half million who read
TIME each week.

A change of address will be
coming through for the TIME
subscription of Mr. Charles B.
Strauss, when this new home is
completed for him in Stamford,
Conn.

TIME-readers have the incomes (double the
U. S. family average) to buy, build, remodel
and equip homes that set new living standards.
Get the attention of the TIME market—and you
spotlight your products for millions of other
home-owners who tend to follow their example.
Murphy Cabranette Kitchens
made in 4 widths

Designed, engineered, manufactured and guaranteed by one organization which devotes its entire facilities to the manufacture of apartment kitchens.

Of welded steel construction, with exposed surfaces of genuine vitreous porcelain, Murphy Cabranette Kitchens are unique in the permanence of their beauty. They never require redecorating; upkeep costs are negligible.

No. 39
Ultra-compact kitchen, planned for the small efficiency apartment or bachelor suite. Only 39 inches wide and 23 inches deep, it fits in a tiny space.

No. 480
Full kitchen convenience in two-by-four space. Gas or electric range with oven, electric refrigerator, sink and storage cabinets. Only 48 inches wide.

Utility and Implement Cabinets
Implement cabinets and utility cabinets (with shelves) in 15 and 21-in. widths, can provide for added storage space.

No. 60
(16-in."

No. 66
(44-in."

Utility and Implement cabinets fit all kitchen assemblies.

Dwyer Products Corporation
Dept. F11, Michigan City, Indiana

Ivan Reynolds and Ross Morrison, associated architects, announce the opening of an office at 740 Hightower Bldg., Oklahoma City, Okla.

Charles Dana Loomis, AIA, formerly Technical Director, Baltimore City Housing Authority, has resumed private architectural practice at 22 E. 25th St., Baltimore 18, Md.

Jules Channing announces the establishment of his office of civil engineering at 1540 Washington Ave., Miami Beach, Fla.

Kenneth Hess, architect, recently with the Army Air Forces, has opened his office at 32 S. Oak St., Ventura, Calif.

Virgil Davis and Harris Roberts have formed a partnership for the practice of architecture at 206 Medical Arts Bldg., Waco, Texas.

Christopher Kantianis, recently of the U. S. Naval Reserve, announces the opening of his architectural office in the Springfield National Bank Bldg., Springfield, Mass.

Paul Atchison and Carl Kloverstrom announce their association as Atchison & Kloverstrom, architects, 1254 Monaco Pkwy., Denver 7, Colo.

G. A. McElroy & Associates, architects and engineers, have opened offices in the Thompson Bldg., 152 Pitt St. W., Windsor, Ont., Canada.

Keller Construction Corp. (formed by the merger of Excavators, Inc. and Keller Construction Co.) announces the opening of its new offices at 7930 Palm St., New Orleans, La.

Erich Gnant, residential and commercial designer, has re-opened his office at 3331 W. Libson Ave., Milwaukee 8, Wis.

Wallace Atkinson has resumed practice in landscape architecture and site planning at 520 N. Michigan Ave., Chicago 11, Ill.

(Continued on page 90)
Urgent Demand for Veteran Housing Means Allocation of Douglas Fir Plywood

TODAY, a substantial proportion of Douglas fir plywood production is allocated by order of the Civilian Production Administration to the Reconversion Housing Program. Housing contractors, stock cabinet manufacturers, prefabricators and distributors must be supplied first — and this means a temporary shortage for all other industrial and construction users. But MORE plywood is being produced today than in pre-war years. When the present demand is met, an increased supply will be readily available. So — anticipate your needs as far in advance as possible. Keep in touch with your regular source of supply!

DOUGLAS FIR PLYWOOD ASSOCIATION
Tacoma 2, Washington

These "Grade Trade-Marks" Are Your Assurance of Uniform Quality Standards

There is a type and grade of Douglas fir plywood for every building need. Each MUST meet rigid performance tests — in the field and in the Douglas Fir Plywood Association Laboratory. Choose the type you need by these "Grade Trade-Marks" — stamped on every panel.

EXT. - D.F.P.A.

EXTERIOR-TYPE plywood is made with completely waterproof synthetic resin binder especially for permanent exposure to weather and water. It is widely used for building exteriors, for outdoor signs, for railroad car siding, and in all phases of marine construction.

PLYCORD is an unadorned utility panel of unusual rigidity, made to withstand the rigorous service demanded of wall and roof sheathing and of sub-flooring.

PLYWALL is the grade of interior-type plywood made for use where only one side is exposed, as in wall paneling. It is suitable for most stained finishes, for painting or papering.

PLYFORM is the special concrete-form grade of Douglas fir plywood — a quality grade manufactured with highly water-resistant glues and intended for multiple re-use in form construction.

PLYPANEL is the grade of interior-type plywood made especially for high quality interior work on walls, ceilings, for booth partitions, cabinet doors and similar uses.
HOW ACCURATE HEATING TESTS ARE MADE DESPITE CHANGING WEATHER CONDITIONS

To test a newly developed product, Trane engineers compare its performance with that of similar units. To be accurate, such tests should be made under identical conditions. Trane engineers perform these tests in a special test house that is exposed to the weather on every side.

When constantly changing outdoor temperatures are involved, testing becomes a problem. Trane engineers had to devise some means of making the "weather stand still." That's where the Effective-degree-day Meters — "Bird Houses" for short — come in.

These devices, utilizing thermal and electrical principles, are mounted on the exposed walls of the test house. Each unit registers a different set of conditions, and these readings are averaged to record the total outside weather effect on the entire building. In this way, Trane engineers measure changing weather and "cancel out" day-to-day variations to make exacting tests whenever they please.

EXACTING ENGINEERING STANDARDS

Using thermal and electrical principles to make precise tests of steam and hot water heating units is another example of the adaptability of Trane engineers who carry out a constant program of research in the development and refinement of Trane products and systems.

All Trane products are designed and built together for service together. The architect and engineer will find that there is a complete Trane system for almost every conceivable application in heating, cooling, and air conditioning.

More than 200 Trane field engineers in principal cities all over the country cooperate with architects, engineers and contractors in the application of Trane Weather Magic.

TRANE UNIT HEATERS... MOST WIDELY USED... MOST W IDELY USABLE

The four outstanding Trane Unit Heater types cover a range of sizes and capacities to meet every heating requirement.

1. The Trane Model N Unit Heater, a conventional model, uses a special blade to move large quantities of air.
2. The Trane Projection Heater, pioneered by Trane, tucks up under the ceiling, yet adequately heats a broad area.
3. The Trane Torridor, a blower type unit, is recommended for those areas where a long distance of throw is necessary or against the resistance of ductwork.
4. The Trane Torridor, Jr. combines the advantages of a blower unit heater with the attractive cabinet of the Convector-radiator.

TRANE ENGINEERS WANTED THE WEATHER TO STAND STILL.

They Built Bird Houses to Beat the Weather.

The Architectural FORUM November 1946
An ingenious use of "Electro-Sheet", coated with asphaltic compound, provides rustproof, water-tight, one-piece shower pans.

Flashings of "Electro-Sheet" can seal door and window openings against infiltration of air and moisture.

As a foundation damp-course, "Electro-Sheet" confines ground moisture to the foundation, protects framing.

For damp-proofing, "Electro-Sheet" makes a little copper go a long way

ANAconda "Electro-Sheet" is pure, thin sheet copper weighing 1, 2, or 3 ounces per square foot. It is produced by electro-deposition in long, wide rolls and furnished to manufacturers who bond it to high grade building papers and fabrics, or coat it with asphaltic compounds. Resultant products are extremely flexible and easily handled.

Impervious to air and water, these "Electro-Sheet" products provide economical, durable moisture-proofing in many building applications. Distributed through building supply dealers.
ANNOUNCEMENTS

JULIUS MEYER and RICHARD AYERS have joined Riggin Buckler and G. C. Fenhagen, architects, in the association of Buckler, Fenhagen, Meyer & Ayers, 325 N. Charles St., Baltimore, Md.

WALTER MALLORE has become partner in the new firm, Clepper & Mallore, registered architects (formerly Clepper & Clepper), 72 Vine Ave., Sharon, Pa.

RAYMOND SELLOW and HARRY COLLINS, Jr., have opened an industrial design studio at 808 N. 3rd St., Milwaukee 3, Wis.

APPOINTMENTS

IRA BACH, formerly Planning Director of the Chicago Housing Authority, is now Executive Director of the newly organized Cook County Housing Authority in Illinois.

FREDERICK EARL WALLACE, Commissioner of Banks of Massachusetts, has been appointed Deputy Governor of the Federal Home Loan Bank System.

SIDNEY LITTLE, architect and associate professor at Alabama Polytechnic Institute, has been named Dean of the University of Oregon School of Architecture and Allied Arts.

DR. FRANK ROOS, recently of Ohio State University, has been appointed Head of the Department of Art at the University of Illinois, Urbana, Ill.

DOUGLAS MAIER, recently Captain in the U. S. Army, has been appointed associate professor of architectural design at Western Reserve University.

EDWARD BARNES, architect, will head the West Coast office of Henry Dreyfuss, industrial designer, at Pasadena, Calif.

JOHN WEAVER, designer, has joined the staff of Raymond Loewy Associates, industrial designers, as retail planner and account director.

(Continued on page 84)
Steam for Production In Industry

150 Horse Power Kewanee Hi-Test Boiler, 150 pounds Steam Working Pressure, fired with Oil keeps production going for Victor Mfg. & Gasket Co., Chicago.

Steam for heating, power or process purposes is an important factor in that materialization of ideas by men and machinery which makes America's industry an overwhelming factor in world economy.

The Kewanee Hi-Test Boiler...the high quality No. 1 Weld member of the famous Kewanee family...has earned a popularity all its own as a dependable source of steam.

Hi-Test two-pass portable No. 1 Weld Hi Pressure series with refractory lined firebox, designed for especially easy handling, produces more steam with less fuel even when operating under extra heavy loads.

For any fuel, hand or mechanically fired ... 50 to 150 horsepower ... 125 and 150 pounds working pressure.

Kewanee Boiler Corporation
Kewanee, Illinois

Branches in 60 Cities—Eastern District Office: 40 West 40th Street, New York City 18
Division of American Radiator & Standard Sanitary Corporation
LOOKING for a low-cost way to build lightweight, sound-insulating partitions? Then you'll want to know about the New Gold Bond Hollow Wall System. With this method of construction a 4 3/4" wall reduces room-to-room noise as effectively as an 8" solid brick wall plastered both sides...a space saver for apartments, schools, hospitals, hotels, offices and housing projects.

Strong, fireproof double partitions that are completely independent of each other...no ties or bridging. Clear unobstructed space for service piping and ducts. Patented snap-on metal base is part of the complete system—speeds erection, lowers costs. And, because partitions are separate units they may be spaced any distance apart while the cost remains the same. National Gypsum Company, Buffalo 2, N. Y.

NEW BOOK ON REQUEST.
A new illustrated book describing the Gold Bond Hollow Wall System in detail, with scale drawings, is now on the press. A post card will bring you an advance copy without charge.
ARCHITECTS who "discover" Wheeling Expanded Metal sell it to themselves. They immediately think of dozens of ways of using it to advantage in their own work. They find it perfect for partitions and enclosures, for door and window guards, grilles, walkways, stair treads, decorative uses. It's hard to break through, easy to see through, ventilating, easy to keep clean, makes good looking, substantial jobs. It likewise has many decorative possibilities in modern work. Many weights and mesh sizes available. Information on request.

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Why worry about truss problems in your building? Save time and money by submitting them to experienced AMERICAN TRUSS engineers. For, when you "buy American," you get the benefit of expert technical skill, born of over 25 years experience in building fine trusses.

You'll find that AMERICAN trusses span distances up to 150' safely, economically ... easily meet your needs and your budget. That is why so many leading architects and contractors today insist on AMERICAN TRUSSES every time. For they know that AMERICAN is a truss you can trust. So, why not send us your problem today?

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ELSCO ROLLER GUIDES FOR ELEVATORS

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GLUE ADDS PERMANENCE...

to the economies of PREFABRICATION

Actual tests, conducted by the U. S. Forest Products Laboratory, show that a plywood wall panel nailed and glued to 2 x 4 studs is 40% stronger than conventional one-inch sheathing which is fastened diagonally to the framing with nails only.

With new, completely durable Casco­phen resin glue the bond is as durable and long-lived as the wood itself. It cannot be destroyed without first destroying the wood fibre.

Thus, by using a glue of such complete durability, nails in most cases need only be used to furnish pressure until the glue has set. Or, they can be eliminated from the completed structure by the use of any one of many clamping methods.

For example, pressure can be applied by hot press, cold press (with or without radio-frequency heat application) or a fire hose or similar type assembly jig. All with a permanence heretofore unknown.

Cascophen Assures Permanence Plus . . .

Smooth, Crack-Proof Joints. When glued, the edges of plywood and wallboard panels remain flat and cannot warp. Thus they can be filled and painted or papered to make crack-proof flush walls.

Stronger Corner Joints. Rounded, stream­lined corners are possible because complete corner sections may be factory­glued and assembled, and installed at the site. Rounded corners are modern, make possible unique effects in building.

Reduced Air Infiltration. Glued joints (between sheathing and framing) are almost impervious to air infiltration. Make houses less drafty, easier to heat. Well glued joints mean better insulation since they provide dead air space in the wall panels.

For permanence in building use Cascophen. With this new, weatherproof resin glue the job can be done economi­cally, easily and quickly.

Get a free working sample and com­plete information on Cascophen. Fill in the coupon below and mail it today.

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You'll want this book! It's the only one of its kind. Prepared by Minneapolis-Honeywell with the assistance of F. W. Hutchinson, nationally recognized authority on panel heating and Honeywell consultant, this manual clearly, concisely, and completely covers the theory and application of automatic radiant panel heating controls. The material in the book is based upon the results of several years of research and tests in homes, commercial buildings and institutions.

Here's a book you will want to study for complete, up-to-the-minute information — then keep for permanent reference. It's a contribution to the heating industry by Honeywell, and is offered free to you. Mail the coupon today.

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Please send my free copy of "Automatic Control of Radiant Panel Heating"

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Address
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"Yes, you can have Lumite screens. But you can't have a house like that for ten thousand!"

Lumite window screens keep their bright beauty and tough resilient strength for years and years...as fresh as the day they were installed. Lumite is woven of Dow's Saran, a substance that simply can't wear out through natural causes!

Remember the ugly streaks that ordinary screens leave on sidewalls? Lumite cannot stain! Remember those sagging, bulging screen doors? Lumite will not sag or bulge—it "gives" under impact or pressure, then snaps back instantly to its original shape. And Lumite will not corrode or rust in any weather!

When you design or build a house, recommend Lumite plastic screens for a lifetime of lasting wear. Our A.I.A. 35P folder, with sample, is available on request.

LUMITE DIVISION, Chicopee Manufacturing Corporation
47 Worth St., New York 13, N. Y.

HERE'S WHY LEADING ARCHITECTS AND BUILDERS SPECIFY LUMITE:

• Cannot stain
• Won't rust or rot
• Never dents or bulges
• Needs no painting
• Strong! (Lumite is woven of heavy gauge plastic filament—0.015"")
"When a Couple of Inches Mean a Lot..."

You need doors and plywood. Our ability to meet your needs largely hangs on a couple of inches in the width of the doors and plywood you specify.

The production of stock sizes means multiplied production—more doors and plywood for more customers. On the other hand, odd-size doors and plywood mean manpower wasted—production slowed—orders unfilled.

So plan for stock sizes only and we'll plan to meet your needs.

Roddiscraft warehouses, located at strategic points throughout the country, have been set up to save you time and serve you better—by making stock size doors and plywood available when and where you want them. Roddiscraft warehouse service is based on production and stocking of doors and plywood in stock sizes. Only by limiting ourselves to stock sizes can we give you the additional value of "on hand" service at convenient locations.
LANDSCAPE AND HOUSE
ARE ADROITLY MESHEd
IN THIS THREE-MAN DESIGN
PLANTING ALONG STREET FRONT—LIKE THE HOUSE ITSELF—IS RESTRAINED. THE TERRACE AT REAR IS ENCLOSED BY PLEACHED SYCAMORES.

HOUSE IN CALIFORNIA: Joint design by three-man team skilfully combined

LAWRENCE TEST, Architect; WOODBRIDGE DICKINSON, JR., Designer;
JAMES C. ROSE, Landscape Architect; HOWARD ALLEN, General Contractor

For an elderly woman who lives alone and whose hobbies are gardening and flower arrangement, it would be difficult to imagine a happier solution than that provided for Mrs. Thompson Dickinson by her Pasadena, Calif., house. The entire project has a misleading air of simplicity and repose. Actually, in both house and grounds, the designers had many problems to resolve—problems which they have handled with facility and imagination. The plot, located in an already well-developed section, was a truncated wedge which sloped evenly and gently from the curving street to an abrupt drop into an arroyo at rear. At the edge of this precipice were two magnificent fern trees (Graevillea I.: beyond, a typically extravagant California landscape with a distant backdrop of snow-covered peaks. This outlook—together with the southwestern exposure—conditioned the major orientation of the whole design. Location of the house across the plot's center was determined by existing set-back restrictions and by the owner's desire for maximum isolation of her own suite from the rest of the house.

Working within this reference frame, landscaper Rose developed a layout of elegance and simplicity—one that, in 1941, was executed for approximately $1,200. Heart of the scheme lies in the series of terraces across the entire southwest face of the house. At the extreme western corner, in the angle formed by garage and cliff edge, is Mrs. Dickinson's own terrace. This charming polygonal area, which also serves as a potting garden, is surfaced with gravel and enclosed by a glass-and-redwood screen (see p. 93). The main terrace is paved with concrete blocks, poured in place between redwood dividers 20 in. on centers, and acid-etched to expose colored aggregate. An economical and (for moderate climates) practical medium, this paving has been adroitly used. Its modular character permits freedom of shape and levels, so that the terrace flows easily into the lawn. The lawn, in turn, flows down past a line of strawberry guavas (whose fruit, incredibly, looks like cherries and tastes like straw-berries) to the scheme's chef d'ouvre—the "overlook" beneath the fern trees. All these areas are protected by planting, the mass of the house and the edge of the cliff, so as to afford perfect privacy for the owner and her guests.

The property facing the street has been kept severely plain. Here a new group of sycamores balances an existing eucalyptus, while a new line of Pittosporum has been planted, screening the service court to the right. The stepped-back paved court provides for three parked cars, still permits access to garage. This causes a jog in the brick entrance walk, which Rose has effectively exploited with hedges of Chinese holly and another line of guavas. The result is a handsome frame for the Oriental character of the house facade.
CALIFORNIANS HABITUALLY make use of gardenia, bougainvillea, jacaranda, fuschia and similar exotics as permanent planting material. The FORUM asked Mr. Rose for an alternate planting schedule for soberer climes. His suggested list for northeastern U. S. is shown above in color. While these species approximate in structure, foliage and color those actually employed, Rose points out that only Douglas fir—and venerable ones, at that—could possibly substitute for the pair of fern trees in the original version.
PLASTER CEILING, GRASSCLOTH WALLS AND REDWOOD TRIM OFFER PLEASANT, NEUTRAL BACKGROUND FOR OLD LIVING ROOM FURNITURE.

THE HOUSE shows the same skilful simplicity as the landscape.

Design of the house proceeded side by side with that of the landscaping. To achieve thorough integration of indoors and out, there was constant checking back and forth, with many adjustments on both sides. (For example, the exterior trim was painted a brownish-pink to match the mahogany-like bark of the guava trees, while the courtyard paving was extended into the glazed passage in the owner's wing.) Considering her rather special requirements, this process has given Mrs. Dickinson's house the same qualities as her grounds—coherence, simplicity and polish. There is the same emphasis on growing plants and the same carefully-selected yet unostentatious colors and textures.

The plan directly expresses the household's habits. The guest suite is far removed from both service area and owner's rooms. By means of large sliding doors, the living-dining area may be thrown together with the paved terrace to create space for large scale entertaining. The service area is compact and closely related both to servant's bedroom and owner's space. This suite, in addition to bath and dressing room, has a flower room which opens onto a screened porch; the porch, in turn, gives onto the polygonal terrace and cutting garden (see facing page) and the garage and storeroom. Thus, the owner's wing provides for all her needs and activities in what is essentially an independent apartment.

Built in 1941 at a cost of $17,000, the house is wood framed, with a gravel-topped, white-painted roof. Exterior walls are surfaced in adobe-colored stucco except for living room bay, which is sheathed in vertical redwood. Interior walls are generally painted plaster; floors are oak, except for linoleum in kitchen, laundry and baths. Heating is by forced air, gas-fired.
SHELTERED FROM COOL WINDS, yet commanding a cliff-edge view of valley and distant mountains, Mrs. Dickinson's terrace serves as cutting garden, sun trap and—with adjacent workroom, tool shed and potting area—a base of horticultural operations.
HOUSE IN VIRGINIA  In-line plan achieves simplicity without monotony.

WILLIAM C. SUITE and ROSCOE L. WOOD, Architects

MALCOLM MATHESON, Contractor

The plan of this country house, nothing more than a long narrow rectangle, illustrates forcefully that the best solution is often the simplest. Designed for a wooded site overlooking the Potomac River, it takes maximum advantage of the view by placing all rooms in a single line; avoids monotony with projecting center walls and variety of fenestration. The problem of circulation has been solved by placing the living area in the center, with short corridors to the bedrooms and kitchen on either side. Main entrance at both front and rear are placed conveniently near the kitchen.

Close collaboration between architects and client was responsible for some of the best features of the design. For family privacy, the master and child’s bedrooms are grouped at one side of the living room while the guest room is isolated at the opposite side of the house. A fondness for sailing and gardening dictated the inclusion of a separate exterior entrance to the family bedrooms.

An equally convenient trick is the wood bin, designed with access from the living room for tossing another log on the fire and access from basement stairs for filling the bin. Other special effects: an architect designed bed with blanket drawers and shoe racks concealed in the base, a food pass between dining area and kitchen, so arranged that those at the table can reach the toast or coffee without getting up.
LAYOUT OF HOUSE WITH CENTRAL LIVING AREA FLANKED BY BEDROOMS DETERMINED FORMAL BALANCE OF FACADE

CONSTRUCTION OUTLINE

HOUSE IN WASHINGTON
makes the most of site and sun.

PAUL THIRY, Architect
ALFRED DANIELSON, Contractor

The most interesting feature of this one-story and basement house is its ingenious tailoring of plan to a sloping lakeside site. The basement is conventionally underground on the street side, but appears at ground level as the slope diminishes toward the lake. Entrance at grade is thus possible on two levels. Front access is at the main floor through a central "gallery" which leads to bedrooms at the front of the house, living and dining areas at rear. To shield bedrooms and bath, while retaining the appearance of width in the hall, an inner partition is splayed toward the living room. Both front and rear walls of this main living area are glass, but the house is rescued from a fishbowl effect by front yard fencing.

The rear entrance leads directly into the basement recreation room whose sliding glass doors make it part of a connecting terrace. Also included in the basement are a laundry with ground-level exit to the drying yard, a maid's room and bath which can double as swimmers' dressing space.

CONSTRUCTION OUTLINE
PATIO (ABOVE) IS FORMED BY L-SHAPED LAYOUT WHICH ALSO PROVIDES INTEREST IN LIVING AREA (BELOW)

POLISHED WOODEN STAIRWAY, CENTRALLY LOCATED NEAR MAIN ENTRANCE, WAS DETERMINING FACTOR IN PLAN.
HOUSE IN CONNECTICUT

is designed to fit a sloping site.

JOHN W. LINCOLN, Architect

The oft-repeated argument that modern design is suited to California's perpetual summertime, but not to rigorous New England winters is again disproved by this country house in Connecticut. Built for the architect's own family in 1942, it has been thoroughly tested by four years of actual use. The architect-owner reports that "heating is easy and, among neighboring acquaintances, our heating system is the last to be turned on in the fall, first to be shut off in the spring. Whether the sun shines or not, much solar heat obviously gets in. If I were designing the house now I would put even more glass in some rooms."

Aside from obvious practical advantages, the imaginative use of windows creates a pleasing variety of mood in different parts of the house. The large living room with its skillfully handled corner window is reminiscent of the old-fashioned sun porch near this glass area, but presents a warm, closed-in atmosphere next to the fireplace. These two distinct moods could not be achieved in either the traditional, small-windowed room or the modern living area with its large window-wall. In the dining room, ideally a light, cheerful space, an entire wall of glass is quite appropriate.

CONSTRUCTION OUTLINE

Covered passage connects house to garage. Nursery with two entrances (see plan) can be partitioned into separate rooms.
The most spectacular real estate man of the year, William Zeckendorf, 41-year-old executive vice president of New York City's Webb & Knapp Inc., knows a good commercial site when he sees it. And Architect Lester Tichy knows the tricks of planning and design necessary to convert a good commercial site into an attractive, profitable piece of real estate. These two experts have teamed up to produce a $50 million project which will transform the heart of Flushing (right) into a shopping and amusement center for a good part of suburban New York. Zeckendorf found the site and the money, then outlined the project's requirements. Tichy, who also makes no little plans, encouraged him to buy still more land, to raze all existing buildings and thus to permit the comprehensive development of a well integrated, large-scale commercial center. *

Combined with the magnetism of good contemporary design, two features of the project assure its success, promise to make it a highspot on sightseeing as well as shopping tours: 1) The 23-acre site is ideally located from the transportation standpoint, for it includes important bus, subway and railroad stations and is served by a network of highways and parkways tapping all of Long Island and crossing nearby bridges to link with Manhattan, the Bronx and swank Westchester County. 2) The project will cater to the public's every need, whim and comfort—a large department store, a trio of office buildings and a 5,000-seat theater will look down on seven blocks of modern shops and markets, served by a mile of covered "air conditioned" sidewalks, 5,000 covered parking spaces and 4,000 ft. of subterranean moving sidewalks.

Primarily a business venture, the project has social implications, for it will rejuvenate the entire business center of Flushing. The site is currently a mixture of old residences and commercial buildings whose ill-kempt appearance is aggravated by the unrestricted display of gaudy advertising signs. A handful of relatively new buildings dot the area, and numerous churches and public buildings are situated nearby. Beyond the commercial zone are the solidly built-up residential sections of Flushing which flow without definition into other sections of Queens.

* Among recently announced projects for New York City, this center ranks second only to another of Zeckendorf's real estate giants: a $100 million commercial city for 100,000 people and 10,000 automobiles to be built on midtown Manhattan's east side (FORUM, Oct. '46, p. 9).
exploit transportation and design, use customer conveniences to attract 125 million shopping dollars a year.

Air photo: Fairchild Aerial Surveys, Inc. Model photos: Ben Schmell
Already a transit hub, the site will be improved with underground trucking, covered parking.

Transportation facilities at the site jogged Zeckendorf’s imagination, prompted him to buy the properties. Among the biggest buildings purchased is the terminal of the North Shore Bus Co. which carries more than 40,000 passengers each day between the site and their homes along the bus routes shown below. This terminal will be rebuilt, enlarged four times to accommodate an estimated 100,000 people per day.

Across Main Street from the project’s principal (west) front is the Flushing station of the Long Island Railroad which carries 15,000 commuters per day to and from Manhattan’s Pennsylvania Station. Since the tracks will run through the proposed shopping center and the existing station is far from modern, the project promoters are negotiating with railroad officials for construction of a new station inside the center.

On another Main Street corner of the site are kiosks leading down to the Flushing terminal of New York’s 237-mile, 5-cent rapid transit system. About 100,000 people per day use this subway. In the future they may ride a moving sidewalk the full length of the project between subways and bus terminals, or they may step off at any one of the basement shops along the way. Thanks mainly to these transit facilities, the area’s sidewalks are alive with pedestrians. On Oct. 10, about 46,000 per hour were counted on Roosevelt Ave. between the hours of 8 A.M. and 10 P.M. — almost as big a volume per sq. ft. of sidewalk as at the corners of New York City’s Fifth Avenue and 42nd Street.

Despite discouraging parking facilities, vehicular traffic is also heavy. When invited by the new project’s 5,000 covered parking spaces, an estimated 2,000 passenger cars per hour will pass in and out of the area—perhaps more. The potential volume is indicated by the fact that Northern Blvd., two blocks to the north, now carries 20,000 cars per day, that densities on nearby parkways approach 12,000 per day, and that the nearby Bronx-Whitestone Bridge brings an average of 14,000 passenger cars per day to Long Island—a volume 40 per cent above prewar and steadily increasing.
Design of the center is bold and fresh to help make big money for both tenants and sponsors.

In addition to those buildings already mentioned and about 60 small shops for all types of merchants, the principal elements of the project will include a mail order house, 5 & 10 cent store, supermarket, gasoline station, plant nursery (which will double as a park), dance hall, skating rink, bowling alleys. The three 8-story structures have been earmarked as a professional building, an apartment-hotel and a general office building. Tenants for the ring-leading department store, mail order and theater spaces would be easy to obtain if the project sponsors were less choosy—each has been applied for by several companies. But shrewd Mr. Zeckendorf will sign contracts only with firms interested in making the new center a major outlet.

There is good reason for Zeckendorf's predilection for such energetic tenants; all space except that in the 8-story buildings will be leased on a percentage basis, whereby tenants pay small fixed monthly rents plus percentages of their gross annual incomes above specified levels.

To assure architectural attractiveness and a close relationship between the project's many elements, design of the entire development has been entrusted to a single architectural office. Architect Tichy will design all buildings, store fronts and exterior signs, and his control will probably cover the appearance and arrangement of tenants' interior displays.

Preservation of the project's character is further assured by the fact that not a foot of it will be sold. Webb & Knapp, who will manage the project from offices on the site, hope to gross $62 1/4 million from annual rents—5 per cent of the $125 million yearly retail business expected of their tenants. After taxes of $17 1/2 million, operating expenses of $500,000 and interest and amortization on 25-year 3 1/2 per cent loans amounting to $3 million, their anticipated net will be a tidy $31 1/4 million.

Including $2 million borrowed from the Metropolitan Life Insurance Co., Webb & Knapp have already invested $15 million in the proposal, the price of land acquisition which began quietly in late 1941. (The initial and largest single purchase was from Vincent Astor, one of W. & K.'s big clients.) Since then, about 150 other parcels have been acquired—most of them from individual home owners—and now more than 90 per cent of the necessary land has been assembled. (The appreciation in land values which accompanied this assembly of many parcels under a single ownership would permit Zeckendorf to sell today at a huge profit.)

Priced beyond reason, the balance of the land must be acquired through condemnation with municipal assistance. Since city fathers, as well as local merchants, have reacted favorably to the proposed development, Zeckendorf anticipates no difficulty in obtaining this vital municipal assistance and the equally vital assurance that present assessed value of the land will not be boosted upon completion of the project. These and the current restrictions on non-residential building are the only bars to immediate construction. Despite them, William Zeckendorf, whose hunches have expanded Webb & Knapp's assets eight-fold in the past ten years, has a hunch that construction of his Flushing shopping center will get going late next year, be completed by 1950. Financially backing up his hunch, the Met has an option on the $35 million construction loan.

INTERESTING MASS OF 5,000-SEAT THEATER DOMINATES SOUTHWEST CORNER

COVERED WALKS, like the covered parking areas above, make the Flushing project an all-weather shopping center. Unlike most storekeepers, Webb & Knapp's tenants will look forward to rainy days and hot, sunny weather when shoppers normally shun stores of traditional design. This view up Roosevelt Ave. shows the new bus terminal and adjacent shops to the right and, across the street, the inviting front of the mail order house. Exterior display cases affixed to columns relieve the monotony of the regularly spaced supports and create the illusion that the sidewalks are actually part of the shops. This illusion is heightened by the provision of flush lighting fixtures in the sidewalk canopies. Although the model has been stripped of its parking area roofs to dramatize the scope and convenience of the parking facilities, all 5,000 spaces will be sheltered. Thus, motorists may visit any part of the center without exposing themselves to the weather.

Note, for instance, in the photo below, the winding covered bridge connecting the major parking area with the circular restaurant and adjoining theater. Calculated with a sizable safety factor, the surplus of parking space will assure that no shoppers are turned away for want of a place to leave their cars.
VARIETY SHOP, as viewed from inside a nearby store, demonstrates the open planning which characterizes all parts of the project. Walls of glass open shops to sidewalks, make tastefully designed displays an important part of the overall scheme. Generous use of plants and trees adds to the informal, restful atmosphere which keynotes the center.

CHILDREN'S NURSERY, directed by trained nurses, is located adjacent to the department store. A rare convenience for mothers, it frees both hands for shopping, will more than pay its way through increased sales.

DEPARTMENT STORE, as viewed from the busy corner of Main St. and Roosevelt Ave., extends three floors above the street level shops, is completely circled by a third-floor driveway leading to the major parking area. As in other sections of the development, Architect Lester Tichy has relied upon the functional mass of the building and its well-studied interior displays to produce a highly pleasing exterior appearance.
When a U. S. citizen says “America” he usually means the U. S. A. Even when he remembers that the great continent to the south is also an America, he seldom makes any clear distinction between its rich and varied cultures. Yet the nations of South America have great diversity in people, culture, climate and geography. Indeed, so immense is the diversity that South Americans themselves know little of their own neighbors. Travel inside the continent has always been difficult. Most people were too poor to travel, and those who could afford it went neither to their neighbors nor even to the States, but to Europe.

This meant France, for since the end of the Spanish empire early in the 19th century, Paris has been the spiritual and cultural metropolis of the continent. Political colonialism might have disappeared but cultural colonialism remained. In such a context, it was inevitable that architecture and city planning were largely a reflection of European practice. While those regions with strong Indian cultures brought some of their old forms to Spanish Colonial, urban building during the last century has been almost purely European in inspiration. Only the provincial towns and remote countryside retained their traditional esthetic unity. The newly-independent capitals looked away from their own hinterlands and, from across the sea, imported all the confusion of method and form which the old world had perfected. This process of cultural importation has been continuous for over 100 years and — with few exceptions — still operates today. It is this process which largely explains the wide and rapid development of modern architecture in South America. Corbusier was accepted with the same eagerness as was Baron Hausman almost a century before.

In much contemporary South American work there is still a strong sense of “transplanted” European forms, of alien concepts not yet fully assimilated into the new environment. Yet there is a large body of genuinely exciting architecture in these countries — product of their vigorous and growing schools of architects, engineers and city planners.

Because of the wide interest in the subject, the FORUM here initiates a survey of contemporary architecture in South America; and because each country is different from every other, each will be covered separately. Material for this and subsequent studies has been collected by Miss Chloethiel Woodard who, for over a year, represented the FORUM in South America. Herself an architect from Washington, D. C., Miss Woodard had an unusual opportunity to study conditions at first hand as a professor at the University of Bolivia, as a practicing architect in La Paz, and as a Guggenheim Fellow in City Planning who visited every country on the continent. Her book on South American city planning is scheduled for publication next year.
In 1888, a U. S. visitor to Colombia remarked that “although geographically one of our nearest neighbors, Bogotá (the capital) is almost as far distant from New York as the interior of India—and quite as difficult to reach.” Her territory split by great mountain ranges into tropical jungles and alpine plateaus, Colombia’s railroad and high-

Office Building in Bogotá
Cuellar, Serrano & Gomez, Architects

The clean lines and white stone veneer of this reinforced concrete building make it an attractive, bright spot amid the city’s dark narrow streets. Projection of office floors beyond shop windows protects sidewalks from the rain and mist which characterize the mountain climate. To make the most of scarce sunlight, office floors are enclosed with broad bands of large windows.

Office Building in Medellín
Vieira & Valquez, Architects

Unlike Bogotá, Medellín enjoys year-round good weather. This is reflected in the design of this building. Windows are smaller than in its Bogotá counterpart, and balconies, frequently misused in South American cities, take advantage of the continual sunshine and distant mountain views. Dominating the corner of two broad streets, the first floor shops are trimmed with deep red terrazo, while the reinforced concrete walls above are finished with a warm yellow stone veneer, contrasting sharply with the blue-painted steel sash.
The way system was then—and is still today—held to a primitive level. As a result cities and towns have, for centuries, lived independent and isolated lives, their citizens shut off from casual contact with even nearby districts.

If, in 1946, Colombian cities are closer to one another (and closer to us) than ever before, this is largely due to the airplane. For today, with one of the world's highest per capita rates of commercial air cargo, Colombia moves by air.

Main consequences of this new communication medium have been the unification of the country and a rapid increase in the size of its COLOMBIA.

Town House in Bogotá
CUellar, SERRANO & GOMez, Architects

Contrasting sharply with the city's traditional Spanish houses, which are dark and cold with their high ceilings, covered galleries and wide eaves, this house is oriented and designed to receive the maximum of direct sun and light. The only bow to tradition is the strip of high, barred windows on the first floor which hark back to the iron grilles of older houses.

Weekend House in Fusagasuga
VINCENZO NASI, Architect

Intended for intermittent use in a warm climate, this brick and reinforced concrete house contains a central living room, a master bedroom and two independent guest rooms. To provide maximum ventilation and shade, corner windows are mounted on projecting concrete slabs and the latticed terrace roof is used to shield the living room windows.
cities. High in the mountains, Bogotá, the 400-year-old “Athens of South America,” has doubled in size in the past decade. Down toward the coast, the town of Medellin has risen to become the country’s economic center; and some eight other towns have seen a rapid growth. Compressed into the last twenty years, this urbanization has raised characteristic problems in architecture, city planning and housing. Bogotá’s experience is typical. Lacking both a master plan and an effective planning commission, her new suburbs have spread out planlessly, in all directions. Since 1936, many new stores, apartments and office buildings have begun to appear in the old Spanish quarters and

Drug Store in Bogotá
CUellar, Serrano & Gomez, Architects

Obviously a real drug store, this small shop with its clean, functional interior lines offers interesting contrast with the customary chaos of the typical U. S. (and Colombian) “drug” store. Attractive furniture and display fixtures help offset the shop’s small size and set it apart from most other Colombian drug stores which faithfully copy the graceless details of U. S. models.

House in Bogotá
CUellar, Serrano & Gomez, Architects

Occupying a steeply sloping lot in one of the city’s residential areas, this small house has an additional story facing the rear garden containing service facilities and a guest room. The crisp design features materials in their natural state and a complete absence of ornamentation. Note again the perpetuation of Colombian tradition in the small, protected first floor windows.
—often crowded along the old narrow streets—they further increase congestion. Yet despite all this hectic construction, Bogotá is plagued by a chronic housing shortage, high rents and over-crowding.

It is to such problems as these that the nation's comparatively new architectural profession is now turning its attention. With only some 150 graduate architects (50 per cent trained abroad), inadequate registration laws and two architectural schools in a nation of 11 million, the profession's job is not easy. But Colombian architects and city planners are tackling it with characteristic energy and intelligence. Their accomplishments to date augur well for the future.

COLOMBIA

National University in Bogotá. Sponsored by the Colombian government and designed by government architects, the University is located on flat valley land on the western edge of the city and is connected with the city center by main traffic arteries projected, or under construction. Although exterior appearance of individual buildings offers stimulating relief from Colombia's traditional architectural pattern, it is reminiscent of European modern of 20 years ago. Moreover, plans, shapes and orientation of these buildings, like the symmetrical plan of the campus itself, is more classic than Colombian. The extreme distances between buildings and the harsh white and gray surfaces of the buildings are poorly related to Bogotá's predominantly sunless weather. Perhaps subsequent designs will add more life to the project through variations in form, texture and color.

It is hoped that the formal monumental campus plan will serve only as a guide in future development of the project, that it will not stifle the imaginative architectural talent which Colombia is cultivating.
VENEZUELA

Perhaps the most important recent date in Venezuelan history is 1935—the year in which the dictator, Gomez, died. Since that time, in the short space of a decade, the country has seen its first real growth toward economic and political maturity. However, rapidity of its development has resulted in a lack of balance and coordination.

Educational projects, planned and building, are testimonials to Venezuela's growing interest in education and progressive thinking. In a relatively small nation, it is surprising to find such large scale projects as the National University City (model, above) whose construction has reached the first-floor level and the Agricultural School (model, below) which is still in the planning stage. Although somewhat monumental in character, the former is beautifully sited on the outskirts of Caracas, and Architect Carlos Raul Villanueva has used a free hand in placing the various elements of the campus along either side of a formal axis. Similarly located, the agricultural school is less monumental but equally formal. Distribution of facilities among a great many relatively small buildings achieves an openness of site plan in keeping with the project's purpose. Architect: Luis Malaussena.
between the many elements of this forward surge.

The first effect of the new freedom was an over-expanded bureaucracy, centered in the capital city of Caracas. Almost overnight the small provincial town became a boom town. People from the provinces crowded into the city and with them came skyrocketing land prices, speculative building and a general over-optimism. A master plan, developed in 1938, was tossed aside by impatient real estate speculators. Problem piled upon problem as the new government faced the realities of Venezuelan economics.

From its early days as a Spanish colony, Venezuela has been an...
agricultural nation, and a poor nation. For the most part it still is
today. Although the Gomez regime left the government wealthy
through its development of the rich Maracaibo oil region, this in-
dustry actually employs few people and thus does not affect the ma-
jority, except as the government uses its funds for social purposes.

There has always been a gulf between the life of the capital and that
of the backward provinces. Within the city, too, there is a schism
between wealthy landowners, whose homes lie in the lush valleys, and
the poor, whose shacks cling to barren hillsides surrounding Caracas.
This was the situation with which the rapidly expanding govern-

El Silencio Housing Project, Caracas
CARLOS RAUL VILLANUEVA, Architect

This $20 million project is, understandably, the pride
of Venezuela's capital. Lying at the western tip of
the small mountain valley in which Caracas is loc-
eted, El Silencio represents a three-fold addition to
the city. It cleared a 22 1/2 acre plot of vice- and dis-
ease-ridden slums; it provided modern dwelling units
for some 4,000 persons at moderate rentals; and it
resolved a serious traffic problem at the city's most
important gate. But because of its multiple func-
tions, it might seem somewhat unorthodox unless
seen in relation to the city as a whole.

Like most South American capitals, Caracas in-
herited a Spanish Colonial nucleus of central plaza
ringed with cathedral and public buildings set in the
midst of a densely built-up gridiron. Under the
impact of recent growth—almost 100 per cent in the
past two decades—this center was surrounded by
sprawling new suburbs which covered the valley floor
and scaled the surrounding mountainsides. Its nar-
row old streets flooded with new traffic, the central
district was almost isolated from its environs. Worst
bottleneck lay to the west, at the present site of El
Silencio, where the main highway to the coast begins
its 3,000-ft. descent to the port city of La Guaira.

Here, in 1942, the City Planning Commission set
to work. After the property had been acquired (at a
cost of $33 1/2 million) and some 2,000 buildings
razed, the deep ravine which had bisected the area
was filled in, the entire plot graded and the new
streets and plazas laid out. Main east-west axis of
the new plan was an extension, greatly widened, of
Avenida Bolivar. (Already one of the downtown
section's best commercial streets, Bolivar will ulti-
imately be widened for its entire length.) Where
Bolivar intersects the relocated highways leading
north and south out of town, a handsome fountained
plaza was laid out.

While the site plan of El Silencio, thus trisected
by arterial boulevards, will seem unorthodox to
browsers in this country, it has many interesting
aspects. Already it has shifted the center of gravity
of the city's commercial life. The large number of
shops on Silencio's ground floor, while too numerous
for the project's 4,000 tenants, are an important
source of income. Several new projects are under
way around it, including a theater and apartment
building and a big automobile salesroom. Property
values in its vicinity have skyrocketed by 1,100 per
cent. Physically and economically, the whole end of
town has been transformed.
ment had to struggle. And in spite of confusions and false starts, much has already been accomplished. A building program with emphasis on housing, education and health plus scheduling of projects for the provinces, represents the first step in what could become a unified social and economic plan. Because the country has only recently embarked on its program of "social architecture," it is surprising to find that the quality of the building is generally good. Venezuela's future, both socially and architecturally, looks encouraging. But it is regrettable that a plan was not instituted at the beginning of the boom to take advantage of its unique period of growth.

VENEZUELA

Around El Silencio's landscaped and brilliantly-lighted plaza (below) are grouped 760 units of unique, slum-clearance housing in 4 to 7 story buildings. All of the units are—by North American standards—amazingly roomy. Apartments range from two to five bedrooms, have street front balconies and porches on the garden side. Compared to current rent scales in house-hungry Caracas, Silencio's rates ($33 to $63 per month) are moderate. Financed by Banco Obrero, a federal agency created to own and operate housing, the project is self-supporting.

Framed of reinforced concrete for 'quake- and fire-resistance, the buildings are unadorned except for the colonnades which connect all street floor shops around the plaza. Here, at the request of the planning commission, the architect has incorporated details reminiscent of early Colonial buildings still standing in the city. This baroque touch is an attempt to find some sort of stylistic continuity between the recent past and the present—a problem for architects the world over, and apparently insoluble.
In preparation of the material in this issue, Forum also had the valuable assistance of Prof. Jorge Arango, architect of Bogota, Colombia and Architect Fernando Salvador, of Caracas, Venezuela.
In a dramatic gesture to the United Nations, New York proposes a spacious park site within the city limits where the world's finest facilities for land, ocean and air travel converge.

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GILMORE D. CLARKE, Landscape Architect, chairman

Drawings by HUGH FERRISS

New York City has crashed through with a resounding offer of hospitality to the United Nations. Consensus of a year's study favors the general vicinity but this is the first specific site to be tendered — no strings attached. Looking at this sumptuous architectural proposal it is difficult to recognize a refurbished hand-me-down — Flushing Meadow Park, site of the New York World's Fair of 1939. Since the demise of that recreational Utopia this land, with its $58,650,000 basic improvements, has lain fallow awaiting further developments, physical or political. Fortuitously for all concerned the plight of the homeless UN presents a seemingly perfect solution since it is doubtful that without Flushing Meadow at its disposal New York could have so lavishly offered a 350-acre site. Of far greater importance to New York and the world is the actual tangibility of getting the UN settled and functioning now.

Working with the Mayor's Committee on Plan and Scope, a galaxy of Knickerbocker architects, engineers and landscape architects developed the tentative scheme presented here. Believing the design of a world capitol should be the work of more than a purely local group, they unpretentiously term it a mere "consideration and indication" of what might rise from the ashes of the World's Fair.

This parti and the one set forth for San Francisco (Forum, Aug. '45) have much in common — including a guileless admiration for pageantry. Whereas the San Francisco version incorporated curves and counter curves in its site plan, the design for Flushing Meadow utilizes a formal, axial arrangement faintly reminiscent of eighteenth century pomp. The dome of the General Assembly effectively dominates the site but the architectural simplicity of the building group as a whole is robbed of its native dignity and importance when wedded to planning and planting "in the grand manner".

The theme of the United Nations is proclaimed, not by the obvious symbol of gaily fluttering flags, but by an austere row of pylons standing knee-deep in a moat-like reflecting pool. Though the solemnity of the undertaking cannot be over stressed, it seems hardly necessary to introduce the *memento mori* note struck by these masonry piers in their resemblance to a cenotaphs.
FROM MID-POINT ON CENTRAL LAGOON NEAR OLD AQUACADE SITE, BROADLY ALLEGORICAL STATUE DEPICTS WORLD PEACE

ARRIVING CARS GLIMPSE THE CAPITOL ON ENTERING MAIN GATE, THEN PROCEED TO UNDERGROUND PARKING BELOW TERRACE
CIRCULAR WAREHOUSE evolves from study of mail order storage problems. H. K. Ferguson Co. molds six shapes around modern conveying equipment, comes up with doughnut-like solution.

Plagued by the inconvenience and high cost of handling heavy merchandise in warehouses of traditional design, one of the nation's largest mail order houses asked H. K. Ferguson Co., Engineers and Builders, to study its problem, design the "ideal" warehouse. After a thorough analysis of the business of warehousing, undertaken without preconceived ideas as to what a warehouse should look like, Ferguson produced a half-dozen designs, boldly and proudly labeled one of them "ideal." Looking at the doughnut-like project from the cold viewpoint of efficiency, the client agreed. So have Army supply experts who studied the proposal, indicated that its basic layout may be used in the construction of future supply depots. If the first such warehouse—now shelved because of high construction costs and nonresidential building restrictions—proves as efficient as Ferguson's paper work promises, the doughnut design may well revolutionize warehouse construction.

EUGULATION OF A WAREHOUSE

Development of the "ideal" warehouse began with the traditional rectangular shapes shown to the right and progressed through triangles, hollow squares and semicircles (p. 122) to the circle illustrated in detail on page 123. With each plan is presented a summary of its merits and disadvantages, and on page 122 is a comparative statistical analysis of the four schemes. Each design is based on the client's minimum requirements as to capacity and function and upon Ferguson's findings as to the most efficient means of internal transportation, discussed in detail below.

Client requirements. Before beginning its search for the perfect warehouse, the engineer-builders moved into the client's existing buildings, studied his problems, watched his warehousing operation. They noted that the operation was comprised of four major phases:

• Receipt of merchandise.
• Movement of similar items to one of the many "warehouse divisions" for storage.
• Movement of ordered merchandise from warehouse divisions to the "order assembly floor.
• Collection of merchandise and distribution to the various "truck loading stations" for out-shipment.

They also noted that heavy merchandise covers a wide range of sizes and shapes, including playground equipment, sporting goods, furniture, auto tires, linoleum, rugs, millwork, roofing materials, farm equipment, plumbing fixtures and kitchen equipment. This material is received from railroad cars and trucks, is shipped by the same means—mostly by truck. For the new warehouse, the client wanted facilities for receiving 45,000 cu. ft. per day, normally half from rail cars.

A TWO-STORY RECTANGLE

The only two-story warehouse in the series, this scheme requires a comparatively small site—24,40 acres. Storage is in two distinct compartments, based on the shape of packages stored in each. Irregular and particularly heavy goods are loaded on four-wheel dollies and pulled by tractors to first floor stockpiles. Regular, smaller packages move via a belt-type conveyor to the second floor where they are distributed by branch belts to appropriate stockpiles. Similar equipment handles merchandise between stockpiles and shipping dock. Major disadvantages:

1) Segregation of incoming merchandise according to shape and size might not prove feasible.
2) Expansion in small increments is impossible and
3) Exterior wall construction is more extensive than in any other scheme—see comparative tabulation, page 122.

B ONE-STORY RECTANGLE

Receiving and shipping areas are better segregated in this scheme than in the two-story version, and railroad construction is minimized. However, the tremendous length of the building (3,420 ft. when expanded) requires that merchandise travel a greater distance between receipt and shipment than in any other solution.

Incoming merchandise is delivered to stockpiles by tractor-drawn four-wheel dollies. In filling orders, similar dollies are hooked to a chain conveyor and moved, unattended, to the front of the warehouse where they are disconnected automatically and picked up by tractors. Once a train of these dollies is assembled, it makes a round trip at the edge of the warehouse area, stopping at various truck loading stations along the order assembly floor to transfer merchandise or drop off dollies.

facilities for examination of merchandise, control of stocks, preparation of material for shipment, filling of orders and movement of goods in and out of stock areas.

Interior traffic pattern. No elaborate research was required to determine that the receipt and storage of merchandise would be greatly facilitated if each warehouse division was provided with its own unloading or receiving facilities. Such a convenience would reduce inside transportation and assure optimum control, and therefore became one of the major requirements of the new warehouse. To meet

(Text continued on page 130)
C ONE STORY TRIANGLE

Purpose of forming the warehouse in the shape of a triangle with receiving facilities at its base and shipping docks at its blunt apex was to reduce length of the order collecting loop—the route of the tractor-dolly trains between chain conveyors and truck loading stations. (Operations of receiving and shipping are the same as in the one-story rectangular scheme.) Although an effort was made to produce well-shaped storage areas, each area departs from the true rectangle—an undesirable feature from warehousing and construction points of view. This warehouse requires a comparatively small site for its first six sections but makes poor use of the larger site required for the expanded project. Otherwise, it might be rated as average, for the proposal is neither the best nor the worst of the group.

D ONE STORY HOLLOW SQUARE

This proposal has several advantages over the rectangular and triangular plans and the circular form which it approaches: 1) Storage units are of ideal rectangular shape. 2) Length of roadways is small. 3) Expansion may be effected in increments of one storage unit with proportional increases in the order assembly floor. 4) When fully expanded, the collecting loop may become a one-way circuit—thus the average distance traveled by merchandise between receipt and shipment would be the same as in the project as initially built. Operations of receiving and order filling are like those in the one-story rectangular scheme. Major disadvantages: the project requires the largest site (94 acres when expanded), the sharpest railroad curves and a short truck tunnel under the order assembly floor.

E ONE STORY SEMI-CIRCLE

With wedge-shaped storage sections focusing on a central shipping area, a one-way collecting loop is possible in this semi-circular scheme, regardless of warehouse size. And, since the order assembly floor is circular, the four-wheel dollies may be carried on a moving platform instead of being towed by tractors. Collection of loaded dollies would be accomplished on the inside half of the circle; distribution to various truck loading stations on the projecting half. Movement of merchandise to the collecting loop is the same as in the other plans. Major disadvantage: expansion of the project is accomplished by extending the existing storage sections, an operation which requires relocation of receiving facilities, extension of conveyors, ripping out of existing exterior walls and, most important, suspension of operations.

COMPARATIVE STATISTICS reveal that circular scheme F encloses greatest area, requires second smallest site, permits maximum efficiency.

<table>
<thead>
<tr>
<th>Kind of Work</th>
<th>Before</th>
<th>After</th>
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<tbody>
<tr>
<td>Site Area—Acres</td>
<td>24</td>
<td>40</td>
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<tr>
<td>Building Area—1,000 Sq. Ft.</td>
<td>670</td>
<td>1,339</td>
</tr>
<tr>
<td>Warehouse Area—Per Cent</td>
<td>76</td>
<td>71</td>
</tr>
<tr>
<td>Exterior Walls—Lin. Ft.</td>
<td>7,140</td>
<td>10,400</td>
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<tr>
<td>Fire Walls—Lin. Ft.</td>
<td>2,400</td>
<td>4,800</td>
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<td>4,800</td>
<td>8,400</td>
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<tr>
<td>Roadways—Lin. Ft.</td>
<td>3,800</td>
<td>4,800</td>
</tr>
<tr>
<td>Average Distance Traveled—Lin. Ft.</td>
<td>420</td>
<td>650</td>
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<tr>
<td>Storage to Assembly Floor</td>
<td>500</td>
<td>800</td>
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<tr>
<td>On Assembly Floor</td>
<td>300</td>
<td>800</td>
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<tr>
<td>Assembly Floor to Truck</td>
<td>150</td>
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<td>Total—Lin. Ft.</td>
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<th>Expansion</th>
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ONE-Story Circle reduces handling of merchandise, produces most functional warehouse.

Although it does not embody all of the advantages of all of the preceding schemes, the circular warehouse was judged by both designer and client to be the most efficient solution to the problem. It is a distinct improvement over the semi-circular plan with respect to ease of expansion and length of travel on the order assembly floor. Any amount of space may be added (up to the ultimate design capacity) without interfering with the function of the original building. Since the order assembly floor would be built as a complete circle at the time of initial construction and since trucks would back up to the inside circumference of this circle, the whole floor can be used for shipping. Although an extensive tunnel would be required to get trucks under the warehouse to the interior court, its cost would be offset, in part, by the fact that this warehouse involves a lesser amount of exterior wall construction than any of the others. Moreover, the average travel of merchandise between receipt and shipment is reduced to only 1,440 ft. when the warehouse is fully expanded.

Travel within the building is by four-wheel dollies hooked to tractors for the receipt-to-storage run and to chain conveyors for the storage-to-assembly-floor run. On the order assembly floor, dollies would be moved either by tractors or on a revolving platform; the latter would reduce travel and congestion on the floor and its use is reflected in the tabulation on page 122. Although not shown in the rendering above, the order assembly floor would be covered with a roof projecting over the truck parking space.
VIEW FROM FOYER REVEALS DRAMATIC "STAGE" DISPLAY IN DROPPED SHOWROOM FLANKED BY MULTIPLEX SAMPLE RACKS

FABRIC SHOWROOM merges glamour with efficiency, is a study in understatement.

ELEANOR LE MAIRE, Designer
ROBERT JOHNSON, Contractor

The interior of the main Goodall showroom, subtly designed as a monotone background for dramatic fabric displays, achieves an atmosphere of smooth-flowing spaciousness through lighting, color and juxtaposition of planes. There are no dividing walls between front window displays and the selling area. Instead, the entire width and depth of the shop is visible from the street. Interest is provided by a dropped ceiling, slanted shadow box and a difference in floor level between the foyer and showroom. Flanking the connecting steps and offering the only decorative touch in a chaste design are two handsome glass balustrades and some tropical planting.

Illumination, a specialty of the designer, has been cleverly handled throughout. To approximate natural light, incandescent and cold cathode fixtures are combined above the sample racks. Switch controls allow use of either lighting type separately, thus showing fabrics under typical conditions.

Trickiest problem was the exterior of the building, an existing structure of traditional design. Since the owner wished to retain the colonial character of the facade, the designer resorted to a compromise solution, emphasizing tradition in the upper section with white shutters while creating a modern open front at street level. The necessity for this schizophrenic exterior may be regretted by purists, but expert handling of its two elements has reduced conflict to a minimum.
COVE LIGHTING AT TWO LEVELS PROVIDES SPECIALIZED ILLUMINATION, ARCHITECTURAL INTEREST
A neutral blue-gray was used throughout the main floor showroom to afford an unobtrusive background for a variety of fabrics. On upper floors, the palette has been extended to complement special groupings of fabrics and provide a change of pace. Since numerous private offices as well as showrooms were necessary, slanted glass screens have been employed to achieve privacy while retaining the effect of openness. Floor to ceiling draperies between the small windows add to the feeling of height and spaciousness. Furniture is specially designed and upholstered in Goodall fabrics.
PHOTOGRAPHIC STUDIO fits 35-foot front.

ALYNE WHALEN, Designer
J. O. OLTMANS & SONS, Contractor

The plan for this Hollywood photographic studio was strictly limited by two owner demands: a maximum of shooting space and a completely closed front. Every trick for increasing the appearance of space in tiny reception, sales and gallery areas had to be used. A glass wall between sales and reception room helps the illusion, and a curved wall opposite eliminates the box-like feeling of a rectangular shape. Mounted on this wall is a continuous photo-mural which further increases apparent size. In the long (30 ft.), narrow (42 in.) gallery providing access to the working area, an ingenious illusion of width is achieved by setting vertical wooden strips in front of the wall studs and lighting top and bottom in the recesses thus formed (see cut, lower right). The narrowness was further relieved by chipping out the exterior brick wall to provide a series of recessed picture frames. The ceiling of this gallery was dropped to detract from the "canyon" effect and also to provide a mezzanine above, overlooking the studio proper. Here are the director's office and a hair stylist's room. Curving walls, draperies and a variety of colors in the main studio serve a functional as well as a decorative purposes since they can be used as backgrounds. The large studio is for fashion and action shots, the smaller one for portrait work. Make-up, dressing rooms etc. are convenient to both.
ART STUDIO squeezes a maximum of use from a minimum office area

W. H. HIGHMILLER, Designer

The problem of providing efficient work space for a number of persons in a small area has been ably solved in this remodeling project which converts four office rooms into semi-private studios for a staff of twelve artists. Because the original rooms were extremely wide with all windows on one side, the studios were designed as a row of cubicles next to the window area. Inner space is utilized for reception, storage and a general work room, separated from the studios by a double line of partitions forming a central hall. Since the space could be leased for only one year, it would have been a bad investment to spend much money in remodeling. Thus, the standard mahogany paneling and glass partitions used throughout the rest of the building were abandoned in favor of gypsum board and a coat of paint. The cost, including new bleached oak furniture and linen rugs, was under $800, as against an estimated $2,000 if standard materials had been employed.
No matter how you look at 'em—up or down, from inside or outside—you can see at a glance that Ro-Way Doors are ruggedly built for years of trouble-free service... smooth, easy operation.

Take those friction-reducing tracks, for example, that make the rollers ride away from the track sidewall—provide extra clearance—give great strength and rigidity. Or the "double-thick-tread" track rollers, each operating smoothly on 7 ball bearings. Or the "tailor-made" power springs... the "crow's foot" outer bearing support... the Parkerized and painted rustproof hardware... the seasoned lumber and selected steels used throughout.

Add it all up and you have RO-WAY—the Overhead Type Doors that make clients happy because they work so easily and last so long. Isn't that the kind of door you want to specify? Write for free catalog—no obligation.

See our catalog in Sweet's. Sales and installation service available nationwide.

ROWE MANUFACTURING COMPANY

915 Holton Street

There's a RoWay for every Doorway!
CIRCULAR WAREHOUSE

Voorhees, Walter, Foley and Smith, New York City, Architects

The recently constructed Firestone Laboratory, very last word in laboratory design is equipped with corrosion-resistant #25 grade Alberene Stone table tops and sinks. Sinks are all built with internal coved corners. The fume hood through which passes all noxious gases and corrosive fumes is Regular grade Alberene soapstone enclosed in an enameled steel shell, carrying out the movable wall construction motif of the laboratory which yields maximum flexibility. Hood shell enclosures include sliding sash and the entire hood is designed for air conditioned laboratories.

We believe it will be to your advantage to consult Alberene the next time you have a laboratory designing or remodeling job on your boards. For more than fifty years, Alberene has been designing and installing Alberene Stone Laboratory equipment in the country's finest laboratories. Take advantage of this experience.

Inquiries will receive immediate attention.

ALBERENE STONE

THE NATURAL STONE OF DIVERSIFIED UTILITY

(Continued on page 132)
“Positively lowers costs”

GEO. R. GILLESPIE CO., Nashville, Tenn.

J. B. GILLESPIE, President of the Geo. R. Gillespie Co., Inc., one of Nashville’s largest realtors.

The Gillespie Organization has installed hundreds of Youngstown Kitchens in large developments such as this, as well as in individual homes.

"We believe Youngstown Kitchens have contributed substantially to the sale of our homes," writes Mr. Gillespie, "and we are positive that they have lowered labor and construction costs, because they are so easily installed.

“Our experience with Youngstown Kitchens in properties we build and manage proves that your equipment requires practically no upkeep, and makes a very favorable impression on tenants and buyers.”

Hundreds of large-scale builders who have used Youngstown enameled steel kitchens share Mr. Gillespie’s enthusiasm. Write for the booklet, “The Builder’s Kitchen,” that shows how you can use Youngstown Kitchens to advantage, and tells what other builders have done with this attractive and modern equipment.

MULLINS MANUFACTURING CORPORATION
Warren, Ohio

Porcelain Enameled Products • Large Pressed Metal Parts
Design Engineering Service

Youngstown Kitchens
BY MULLINS
Delivering Protection to the job

**IT'S WOLMANIZED LUMBER**

This roof deck is going to last longer... they're using Wolmanized Lumber, the lumber impregnated with Wolman Salts preservative—highly resistant to decay and termite attack.

It is recommended for use in structures exposed to:

1. Moisture in artificially humidified buildings
2. Steam and vapor from industrial processes
3. Condensed water vapor in walls, floors and ceilings of refrigerated buildings
4. Soil moisture and rain water held in joints, etc., of outdoor structures
5. Moisture condensed by concrete or masonry

When you buy Wolmanized Lumber, you get pressure-treated lumber—the only reliable kind.

---

**TRANSPORTATION SYSTEMS**

After studying the layout of interior transportation, Ferguson engineers analyzed all types of equipment which might be used to move merchandise along the indicated routes. Major consideration was the necessity to move 45,000 cu. ft. of heavy merchandise in and out of the warehouse during an average eight-hour day—the equivalent of 96 cu. ft. per minute under normal conditions and 144 cu. ft. per minute during peak days (1½ times normal). Assuming that the transportation system would probably never be operated at more than 50 per cent of capacity and that bulk of the operation would be concentrated in four hours each day, it was concluded that the equipment must be capable of handling twice the indicated rate of flow—or 238 cu. ft. per minute for the 500,000 sq. ft. warehouse. (Continued on page 134.)
HERE TO STAY!

Reynolds Lifetime Aluminum Clapboard Siding going up on a typical veteran's home. Note the precision of line—with no leveling off. Note the butt joint, on the fourth clapboard from the top.

Reynolds Lifetime Aluminum Building Products

There's permanency in Reynolds aluminum building products...permanence in public acceptance as well as in the material itself. Immediate availability, in this housing shortage, is only one advantage. The public knows what it means to have absolutely fire-proof, rust-proof roofing and siding—impervious to rot, vermin and termites—lightweight and structurally strong. Farmers appreciate the fact that aluminum needs no protective coating—eliminating maintenance cost. Homeowners who prefer their houses painted are finding that aluminum holds paint longer—looks better, with less upkeep. And all alike are learning the great advantage of aluminum's radiant heat insulation—the fact that an aluminum surface reflects up to 95% of all radiant heat, reflects it outward in summer, inward in winter.

Reynolds Aluminum is here to stay in the building products field. The car-loads now being shipped, the houses now going up, are but the forerunners of a modern trend as important for dealers as for architects and contractors. Ask your regular supply source now about Reynolds Lifetime Aluminum Building Products. Distribution is through usual building trade channels.

Reynolds Metals Company

Incorporated

Building Products Division

Louisville, Ky.
The Fiat Zephyr is a high quality shower door designed for service in finest installations. Yet the moderate price of the Zephyr permits it to be used extensively on all types of shower cabinets and built up showers.

Practical features in design and construction developed through twenty-five years' experience in building shower equipment are incorporated in the Zephyr door. For example—the water deflector with gutter prevents water dripping on the floor when door is open after taking shower, full length piano hinge, bullet type catches that eliminate possibility of door binding, and offset handles are features found only in the best type of shower door construction.

Economical manufacturing methods and volume production enable Fiat to offer to the trade a shower door of high quality at a moderate price.

**CONSTRUCTION FEATURES**

- **Frame**: One-piece heavy aluminum alloy.
- **Jamb**: Heavy aluminum alloy.
- **Hinge**: Specially constructed, continuous aluminum piano hinge.
- **Lock**: Two bullet catches, prevent door binding.
- **Glass**: Clear glass, set into a heavy rubber "U" channel.
- **Grille Vent**: Horizontal aluminum bar.
- **Water Deflector**: Made of heavy aluminum alloy with gutter to prevent water from dripping on the floor when the door is opened after taking shower.
- **Grille Vent**: Horizontal aluminum bar.
- **Finish**: Satin "Alumilite."

**STANDARD SIZE**

- The standard size (24" x 72") door is built to fit an exact opening 24 inches wide by 72 inches high. All other opening sizes require a specially built door. When ordering a door, state the size of the opening, model, hinging (either right or left when facing), and whether for tile, structural glass, marble or FIAT shower cabinet.

**CONSTRUCTION DETAILS**

The water deflector with gutter prevents water dripping on the floor when door is opened.
A needle tells the story... indicating what type of asphalts will enable Flintkote roofing products to deliver extra years of dependable service.

Soft asphalts slide in hot weather. Hard asphalts crack when the temperature drops. Thus, the softness of the asphalt used in roofing products is a critical factor in the life and service of the roof. And so, at Flintkote factories, every carload of asphalt is carefully tested with the Needle Penetrometer.

First, on arrival, to make sure it meets Flintkote’s rigid specifications for raw materials. Second, throughout the processing operations, to be certain that the finished product will deliver extra years of service regardless of climate or weather.

The Flintkote “needle” is just one of many pieces of scientific equipment used to determine and control quality—to insure a dependable product for home owner, applicator, and distributor.

Donovan Awning Type Windows

These windows are basically practical in the correct admission of light and proper ventilation without drafts. Sturdily built of unusually heavy special casement sections, they are positively and easily operated. Assure a high quality product incorporating features not available in any other window design.

MAXIM-AIR WINDOWS

This window incorporates all of the desirable features of the Donovan Awning Type Window. Lighter in construction, it is lower in cost. It is suited for use in warm climates, for enclosed porches or solariums where free circulation of air is important in inclement weather as well as sunny days.

Double-Hung Windows

In Two Types—Series 1380 and Series 46

Series 1380 Windows are equipped with positive action mono-spring type balances and completely weatherstripped with spring bronze. Made from electro-galvanized strip steel, these fabricated windows are bodORIZED and finished with a baked-on primer coat of paint. Available in single units or in integrally built twin, triple and panoramic window units all are available with or without sill ventilators.

Series 46 windows are of the counterweighted design. They are especially adapted for use in office and public buildings or where Underwriter's label of approval is required. Single or twin units may be had in either standard or special sizes and are available with or without sill ventilators. Made from new billet steel, electro-galvanized, Windows are bodORIZED and finished with a baked-on primer coat of paint.

Intermediate Combination Windows

Incorporates side hinged casements and projected ventilators in one design. Fabricated from specially rolled steel casement sections substantially heavier than the minimum Metal Window Institute standard weights. The wide selection of sizes and designs add to the adaptability of the window to a wide range of architectural use.
**CORNER BEADS**
Recommended as an exposed corner reinforcement. The round nose is strongly reinforced by a deep groove which holds the plaster flush for a perfect bond. It can be wired, stapled or nailed to any kind of wall construction without the use of clips.

**METAL CASINGS**
Meet a definite demand for an artistic, sanitary method of trimming around doors and windows. Afford many architectural effects. Metal casings are fire-resistant, vermin proof, easy to maintain and do not shrink or warp.

**FERROBORD STEELDECK ROOFS**
Truscon Ferrobord provides a fire-resistant, economical roof deck for all new construction or replacements. Covered with insulation and waterproofing, it weighs approximately 5 pounds per square foot.

**FLOODLIGHT TOWERS**
Made in a wide selection of heights, they offer a firm, long-lasting floodlight tower for auxiliary lighting in parking areas, etc.

**CONCRETE REINFORCING BARS**
A special rolled section of high grade steel, with a series of longitudinal and diagonal ribs, so designed to provide the maximum bond with the enclosing concrete.

**WELDED STEEL FABRIC**
Truscon Welded Steel Fabric is made in various sizes for concrete reinforcing in all types of structures. Each joint is electrically welded for permanence.

**Curb Bars**
Protect exposed corners of concrete curbs, walls, steps, etc. Designed to give positive anchorage into the concrete. Plate surrounds and protects the corner without splitting concrete into two portions.

**OPEN TRUSS STEEL JOISTS**
Truscon developed the open truss steel joists to meet the demand for economical, light weight, fire-resistant floors in hospitals, and other light-occupancy buildings. They are easy to install. Completely shop fabricated, they reach the job ready for placing.

**METAL BASE SCREED**
Fabricated from tight coat galvanized steel. Used principally for separating two plaster materials such as plaster walls from cement, terrazzo, or composition base, and separating a cement wainscot from ordinary plaster. Another function is to give a permanent straight edge to which both trades work.

**ARCHITECTURAL PROJECTED WINDOWS**
Attractive in appearance and convenient to operate. Provide maximum daylight, ventilation and freedom from drafts. Heavy one piece casing type sections in ventilator assure rigidly. Hardware is solid bronze. Screens and under-screen operating hardware are available for all ventilators.

**METAL LATH**
There is a Truscon Metal Lath for every plastering requirement. Flat laths for ceilings and sidewalls; rib laths to reinforce concrete floors or plaster ceilings; expanded laths for stucco reinforcement; Corner Beads and Cornerite, to protect outside and inside corners.

**HOLLOW PARTITION STUDS**
Truscon hollow partition studs assure permanence, rigidity and economy. They are fire-resistant, provide excellent heat insulation, and sound resistance, are rodent and termite proof. They will not swell or warp and will resist impact, vibration or plaster cracking.

Manufacturers of a Complete Line of Steel Windows and Mechanical Operators...Steel Joists...Metal Lath...Steeldeck Roofs...Reinforcing Steel...Industrial and Hangar Steel Doors...Bank Vault Reinforcing...Radio Towers...Bridge Floors.
New or old, any multiple-room building can now have the ideal comfort of Carrier's revolutionary new Conduit Weathermaster air conditioning. It's a scientific year-round system... space saving, time saving and money saving.

Carrier Weathermaster is entirely new in principle and design. It's the first air-conditioning system to provide effective control of weather in individual rooms. It's the first to supply outside air continuously without the need of recirculation. And it's the first to use space-saving conduit instead of bulky ducts.

This dramatic new air conditioning can be installed in existing buildings without costly cutting, patching and furring of corridors and ceilings. In new buildings, it's so compact you can actually plan extra floors without increasing the over-all height an inch.

The Carrier Conduit Weathermaster air-conditioning system is produced by the organization that created air conditioning. Carrier engineers will be glad to supply any help you need to plan buildings with the air conditioning of tomorrow. They've worked with architects and consulting engineers for over 40 years. Carrier Corporation, Syracuse, New York.
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Send for our Kitchen Planning Data—AIA File 35-C-12.

YOU SPECIFY THE BEST WHEN YOU SAY Magic Chef

AMERICAN STOVE COMPANY • 4301 Perkins Ave., Cleveland 3, Ohio
New York • Atlanta • Philadelphia • Chicago • Cleveland • St. Louis • Los Angeles
This book has a paradoxical title, for no people are pictured. It is a photographic record of some of America's buildings, but not of their living inhabitants. Beautiful pictures present the empty, stark skeletons and artifacts of folk architecture throughout the land. The photographs (see cuts) convey an excellent documentation of bone-bare buildings left by simple people who have moved on, and the impression is one of classical austerity. Most historical picture-books present the rich flowering of the colonial "style," but here there is a much-needed extraction and clarification of a trend other than the lush and elaborate "styles," sprawled so profusely across the land.

The text, written by the photographer, is a somewhat mystical report of the ghostly voices he senses lingering in these abandoned buildings. "In all my life," he commences in the caption opposite the first photograph, "I've never been in anything so crowded, so full of something, as the rooms of a vacant house... An Inhabitant is what you can't take away from a house. You can take away everything else—in fact, the more you take away, the better you can see what this thing is." These stenographic records of hypothetical ghost-talk continue from page to page; however, the text is not necessarily identified with the adjacent photograph. Evidently, documentary films have had an influence in the use of this running commentary of folk-talk to be read as one turns the pages from photograph to photograph. And the publishers believe (as expressed on the bookjacket) that this book "is a refutation of a new technique, the fusing of camera and word, rather than the previous attempts to make one form illustrate another."

Integration of text and pictures is an increasingly important problem in these days of quick visualization—and The Forum itself has experimented in this complex graphic art form. However, to our way of thinking, the success of picture story interrelation in this book may be a matter of individual taste. It is true that picture words follow the same theme. But whether the two media are not parallel rather than integrated—one running in one track and one in another—is a matter of question.

Be that as it may, architects—who depend strongly on visualization—will gain understanding from this interesting book. E.B.


This collection of papers by the late Alfred Bettman, covering a period of almost thirty years, is a dry yet forceful reminder of work necessary to consolidate the position of planning, both legislatively and juridically. Himself a lawyer, Mr. Bettman entered the field almost accidentally, as City Solicitor of Cincinnati during a reform administration, he first became aware of the need for comprehensive city planning to reduce the social and economic waste of planless urban growth. He participated as a "friend of the court" in several famous cases which served to establish the constitutionality of municipal zoning regulations. He took an active part in numerous campaigns for state and
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Santophen 20 — Monsanto’s pentachlorophenol, technical—possesses outstanding toxicity to wood-rotting fungi, termites, and wood-boring insects. It is stable to light, summer and winter temperatures, soil acids and alkalies, and because of its relative insolubility in water is not easily removed from wood by leaching. These qualities of Santophen 20 assure long-lasting protection to wood that is properly treated with correct formulations of this preservative.

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In an automatic coal stoker a wind that just blows is, indeed, an ill wind. Both you and your tenants or buyers know that the air supply of the stoker must be properly controlled in order to get fullest heat out of the coal you buy.

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Our interesting new booklet, "How to Choose a Stoker," explains stoker design and operation in easy-to-read fashion—and shows how correct stoker engineering can help you get maximum returns from your stoker investment. Write for your copy of "How to Choose a Stoker" today. It’s free.

WHITING STOKERS
A Division of Superior-Lidgerwood-Mundy Corporation
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national planning. And he remained an active member of the American Institute of Planners until his death.

These collected papers, covering many years of Bettnmn's activity, are of mainly historical interest today. They often deal with dead issues and are not always easy reading. Yet they are admirable for the consistency of their logic which—despite its legal cost—is often surprisingly humane. All in all, these papers are a valuable addition to the City Planning Studies of the Harvard Press. J.M.F.

PUBLIC HOUSING DESIGN U. S. Government Printing Office. 283 pp. Illus. 8 in. x 10% in. $1.25.

A review of experience in low-rent housing issued jointly by NHA and FPHA, this book is a practical and illuminating guide for anyone connected with either public housing or private community development. It presents, for the first time, the wealth of information garnered from actual experience with nearly 400 low-rent projects built during the last decade. These projects have been occupied for a sufficient length of time to provide an accurate estimate of their operating efficiency, economy and livability. Most important, the book has not been issued as a nostalgic pat on the back for public housing, but as an honest discussion of the lessons learned through mistakes as well as successes. As such, it should help future housers to avoid pitfalls.

The book deals exhaustively with such important aspects of housing as site selection, site planning, project layout and density, the dwelling plan, community and service facilities, site engineering, structural design, utility selection, mechanical and electrical design, laws and planting. Unlike the Minimum Physical Standards and Criteria for Planning and Design of FPHA-Aided Public Housing Projects, published in 1945, it does not deal with legislative requirements, nor does it include data of the type found in standard housing textbooks. Instead, it concentrates on the technical aspects of project design with emphasis on cost-reduction—an approach which hardly needs recommendation in these days of spiraling prices. M.M.

ARCHITECTURAL MODELS by Robert Forman. The Studio: London & New York. 64 pp. Illustrated. 6% in. x 5 in. $1.

This latest in a series of "make-it-yourself" manuals should appeal particularly to the growing number of laymen who have become interested in planning their own houses. Although rather elementary for architectural students, it covers with surprising thoroughness (considering its small size) the basic materials, tools and working methods useful in model construction. Valuable pointers are given on such related problems as shipping, storing and photographing the finished product. Text and diagrams are clear without being over-technical. S.K.

EXHIBITS
"France Comes Back" is an exhibition currently on view at the American Museum of Natural History in New York City, soon to be seen in other cities throughout the U. S. Organized and directed by Jean Carlu and prepared under the auspices of the Provisional Government of the French Republic, it is presented mostly in panel form for shipping. There are a few supplementary models and some interesting publications of the French Resistance. Step by step, the exhibit consists of a section devoted to an historical résumé of the democratic background of France; an area given to the
Daylighting requirements vary widely from one factory-type building to the next—refinery, manufacturing plant, warehouse or power plant. That is why the Lupton experience in industrial window applications is so important. There are three basic types of Lupton Windows for industrial buildings—continuous windows, pivoted windows and projected windows—each offering positive assurance of improved working conditions and increased working efficiency through abundant daylighting and controlled ventilation. Write for the 1946 Catalog or see our Catalog in Sweet's.

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STEEL DOOR FRAMES FOR MODERN HOMES

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THESE ADVANTAGES ACCOUNT FOR THE GREAT DEMAND

- **STRENGTH**—Welded to form a complete integral unit of jamb, head, and two sides trim; resulting in great strength.
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Aetna Steel Door Frames, like many modern improvements in the construction field, will serve as a stimulant toward building activity. Aetna Frames are easy to erect requiring less handling at the building site, offer you mass production economy and simplify your supply problems.

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Modern in feeling, these beautiful products fit well into any decor—from extreme functional to authentic period. The quality of the tone is such that your client will know that you have thoughtfully banished for him those "door-bell nerves."

The most important development ever made in chime engineering is the Rittenhouse "Floating Percussion" unit used in all models. When working up your detail-plans, you may desire definite information on the several models we are now producing. Write for our illustrated brochure and mechanism sheets.

THE RITTENHOUSE COMPANY, INC.
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REVIEWs

Effect of the German occupants; a much more interesting section on the work of the Resistance; a large space showing the economics of the effects of war illustrated with photographs of the damage; exhibits of planning and building, education, public health, and other aspects of proposed reconstruction.

Somehow the exhibition is disappointing. But American expectations of what the French can do are based on prewar knowledge, and the very lacks and disorganization evident here are probably results of a devastation of which we Americans should become more aware. There is much material, but when trying to relate it, one receives an impression almost of chaos. However, since chaos undoubtedly plays a large part in French life today, it is a realistic impression to leave. Some of the panels are excellently designed—particularly those on town planning (see cut), prefabrication, etc.—but their content is not so interesting. There is more meat in some of the other exhibits, but it would be an overwhelming task to assimilate it. To architects and builders looking for actual examples of reconstruction and methods adapted to an emergency situation such as now exists in France, there is little to see—which conveys the idea that little has been done other than dream of vast impractical city planning unrelated to present needs. This, however, is a condition not peculiar to France, but the war-heritage of the entire world.

Pepsi-Cola Company’s National Art Competitions in previous years have not been too impressive. But the third annual exhibition just leaving New York’s National Academy of Design for circulation in the leading museums through the country is far more representative of the newer and bolder artists. There has been much argument over the prize-winning awards; but although the jury may have made their selections with tongue in cheek, they were aware of new problems in the world. First prize of $2,500 was given to Boris Deutsch for a dour painting called “What Atomic War Will Do To You.”

Advancing American Art is another traveling exhibit of paintings assembled by the U. S. State Department for showing in South America and Europe, currently at New York’s Metropolitan Museum. Comparable to the Pepsi-Cola exhibit in presenting the artists’ idea of the American scene, it was selected by one man rather than a jury. There is a good range of oil paintings by 41 artists, all the way from John Marin to Stuart Davis. E.B.
On roofs where water may collect and stand, my orders are "Tar and Gravel."

War Department Technical Manual 5-617, a bible on roofing and re-roofing for U.S. Army Engineers says: "Built up roofs are particularly adapted to relatively flat slopes because they furnish a continuous membrane, built up on the job from layers of bitumen and bituminous-saturated felt. When properly constructed they require little maintenance. Coal Tar Pitch built-up roofs should always be used on decks where water may collect and stand."

Too often during the war U.S. Army Engineers were faced with a critical shortage of materials. They had to erect their buildings in a hurry... with whatever labor, whatever materials they had on hand. Fortunately their buildings were of a temporary nature. But on flat roofs, subject to damage from water, tar and gravel roofing are first choice.

You aren't in a temporary business. You don't want a temporary roof. The roof of yesterday... with 20, 30 and 40 or more years of satisfactory service... is still the best today. That roof is tar and gravel.

If you are contemplating a new building or planning to re-roof an existing structure insist on Koppers Old Style Pitch and Koppers Approved Tarred Felt. Koppers Company, Inc., Pittsburgh 19, Pennsylvania. Refer to your Sweet's Catalog or write us for complete specifications.

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For BEAUTY...use Pittco Metal

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PITTCO Premier

A high degree of architectural symmetry is one distinguishing mark of the new Pittco Premier line of store front metal. Like Pittco De Luxe, Pittco Premier was designed as a unit...each piece styled to complement and heighten the beauty of the other members with which it may be used. Pittco Premier construction can be set more quickly and easily, with greater safety to the glass than other metal constructions. The sash is self-adjusting to various glass thicknesses, yet always maintains a firm grip on the glass. All setting operations are done from the outside and effect a substantial savings in setting time. Pittco Premier is moderately priced, is light in weight, and provides a shallower reveal for show windows than its distinguished companion line.

PITTCO STORE FRONT METAL

PITTSBURGH PLATE GLASS COMPANY

"PITTSBURGH" stands for Quality Glass and Paint
Design for Greater Human Efficiency

The value of air conditioning in increasing efficiency, lowering absenteeism and improving employee relations has been proven over and over again. Today, air conditioning is considered essential for offices and shops, as well as stores of all kinds.

Air conditioning has been simplified by Chrysler Airtemp with its famous "Packaged" Air Conditioners. They fit well into any plan, as illustrated in the above isometric of a practical office arrangement. "Packages" can be installed singly or in multiple, occupy a minimum of floor space, are easily moved and are noted for long, dependable life at low operating cost.

Behind these Chrysler Airtemp "Packaged" Air Conditioners is Chrysler Corporation with its reputation for outstanding engineering and quantity production skill.

Architects are invited to write for detailed mechanical information. Airtemp Division of Chrysler Corporation, Dayton 1, Ohio. In Canada—Therm-O-Rite, Ltd., Toronto, Ontario.
Masontown, Pa., site of 110 homes being built under the direction of the George C. Brown Co. of Pittsburgh. Architect, William C. Young, Contractor, Mellon-Stuart. This is the first in a series of the George C. Brown Company developments.

New owners are enthusiastic about better living, electrically. Mrs. E. C. De of 18 Cumberland Ave., Masontown, Pa., is especially proud of her G-E Dishw and Disposall. But, like other Masontown homemakers, she has found that all her appliances—Range, Refrigerator, Steel Cabinets, Washer, and Water Heat—help make housework easier, living pleasanter, in her new all-electric home.
"Only about $3.00 a month!" — says the
George C. Brown Company of Pittsburgh ... and proves it
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"These homes are the first fulfillment in this region of the
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"Standard equipment in every home includes the all-
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"But most important is the fact that these homes with G-E
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This month marks the end of the Forum's G. I. JOBS service. Established in July, 1945, to bring help and jobs to veterans, this department has handled hundreds of applications. Many of these, we know, resulted in successful contacts for both employers and employees. Our thanks to those employers who cooperated to assure the veteran his rightful place in the postwar building industry.

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INSURANCE SUPERVISOR—Graduate
engineer, 20 years experience, 12
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Can furnish excellent references. Young,
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construction of houses in the Pacific Northwest area. Can be counted on as purchasing agent in that area for lumber or other
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North Carolina. Will also consider
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position for a growing practice in Chicago or
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place to do business. Excellent references. Box E-312.

ARCHITECTURAL DRAFTSMAN—5
years experience, 4 years schooling.
Good sample. Training on the job.
Desires position with firm specializing in
commercial or industrial construction. Can do a
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Midwest. Know oil field and re­
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manufacturing and product develop­
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search position with firm specializing in
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residences under direction of architect.
Applicants must have background for oppor­tunity to an experienced progressive
architectural assistant to participate in
the industrial development of a rapidly
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cient experience since graduation to
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three years experience in architectural
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State full qualifications and starting
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TECT—Long established engineering
firm. Experienced design and layout
man able to develop design of industrial and
commercial buildings from sketches.
Willing to work anywhere. Box E-323.

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Miami, Florida. Good at design, thorough
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State full qualifications and starting
salary. Box E-322.

DESIGNER, ENGINEER OR ARCHI­
TECT—Long established engineering
firm. Experienced design and layout
man able to develop design of industrial and
commercial buildings from sketches.
Willing to work anywhere. Box E-323.

ENGINEER—Desires position in
construction or testing engineer with estab­
ishd company, preferably in or near
Miami, Florida. Good at design, thorough
knowledge of background for oppor­tunity to an experienced progressive
architectural assistant to participate in
the industrial development of a rapidly
expanding country. Must have had suf­
icient experience since graduation to
make contribution. Willing to go any place.
Desires position in New England. Box E-324.

ENGINEER—Civil, 32, single, has
been in practice for 1 year. Desires
a position with firm specializing in
construction or testing engineer with estab­
ishd company, preferably in or near
Miami, Florida. Good at design, thorough
knowledge of background for oppor­tunity to an experienced progressive
architectural assistant to participate in
the industrial development of a rapidly
expanding country. Must have had suf­
icient experience since graduation to
make contribution. Willing to go any place.
Desires position in New England. Box E-324.
Look Into These Facts:

- **Initial Cost Economy:** A hand-fired coal furnace is the least expensive of all central heating plants. And, with no trouble at all, it can be converted to automatic.

- **Automatic Heating:** The cost of a quiet, odorless stoker-fired coal furnace is no greater than any other kind of heating plant over a period of time. Fuel economy is the saving. Today’s binned, ash-removing stokers offer the ultimate in cleanliness, comfort and convenience.

- **Clean, Smokeless Fuel.** Today’s coal is sized, cleaned and dustproofed at the mine.

- **Inexhaustible supply.** There is a 3,000-year coal reserve. Other fuels may be depleted soon. Coal is here to stay.

- **Conversion Possibilities.** A conversion burner can be installed in a coal furnace at no great cost. The reverse is not possible. Be safe . . . design for coal. "Fuel satisfaction" can give your client "owner satisfaction."

---

Millions of home-seeking young couples are coming to you for help. They’ll say, "We want a home we can be proud of . . . we want a comfortable little home . . . but we don’t have a lot of money to spend."

You CAN help them. The basement **YOU** design will go a long way toward solving their home problem.

Let's look into this basement. In this design, you can offer a fully automatic heating plant. Automatic coal heating is as good as money can buy. Initial cost is no greater than any other plant. And, operating cost is LOWER than all other types. Extra basement space can give your client a combination laundry and playroom—added sales appeal and owner satisfaction.

As an alternative, you can save your client even more money and still achieve satisfactory heating if you specify a modern, thermostat controlled hand-fired furnace. This type of plant can be converted to automatic at any time. **ONLY** a coal heating plant can be converted to all other types of heating.

When they look to you for help, give them a low cost home with high market value, sales appeal and owner satisfaction . . . a home with a basement built for better living, better heating . . . built for coal.

---

**Norfolk and Western RAILWAY**

**Carrier of Fuel Satisfaction**
Modern homemakers like the bright cheerfulness of Stainless Steel in the kitchen. In sinks and work surfaces, its gleaming beauty lightens kitchen tasks. It appeals especially to women because it's so easy to keep spotless.

The dense, smooth surface of ARMCO Stainless resists corrosion, scratching and denting. Food spots vanish magically under a damp cloth. And because Stainless is solid metal, there is no plating to wear off. It comes up smiling after years of hard service.

There is almost no limit to the uses of Stainless in the architectural field. It lends new beauty and durability to roof-drainage systems and does away with rust and jamming in window frames. It adds an up-to-the-minute note to decorative work both indoors and out, and heightens the visibility of shop fronts, marquees and signs.

You can be confident, when you specify Stainless, that your clients will get years of service from this lifetime metal. But be sure it carries the famous Armco triangle trademark. Your clients recognize it as the mark of special quality in steel. The American Rolling Mill Company, 4111 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

SEE SWEET'S CATALOG for uses, advantages and specifications of these Armco special-purpose sheets:

- Galvanized ARMCO Ingot Iron
- ARMCO Galvanized PAINTGRIP Steel (also available with ARMCO Ingot Iron or Copper Steel base)
- ARMCO Stainless Steel

THE AMERICAN ROLLING MILL COMPANY

- SPECIAL-PURPOSE SHEET STEELS
- STAINLESS STEEL SHEETS, BARS AND WIRE

Made of ARMCO Stainless Steel

156 The Architectural FORUM November 1946
When Specifications Are Rigid—
Recommend
BENEKE PLASTIX SEATS
Write for complete information

BENEKE CORPORATION
Columbus, Mississippi, U.S.A.
Contemporary... for years to come

Clean contours and faultless performance have won renown for the Case T/N* Water Closet as a major advance in design. It is a free-standing, one piece non-overflow fixture. Equally well adapted to old and new surroundings, and to the space restrictions of today's and tomorrow's buildings, the T/N is now in rapidly expanding production. Distributed nationally—see your Classified Telephone Directory.


Foremost in demand... the Case T/N
DESIGNS THAT LAST DESERVE THE PERMANENCE OF STEEL

BUILD WITH STRAN STEEL

A framework of Stran-Steel sets any building apart from others of comparable design. For it imparts an inner value... permanence, fire-safety, freedom from warp, sag, rot and termites... that safeguards the building investment and enhances the builder's reputation.

Stran-Steel offers unlimited flexibility in design... permits the use of the widest variety of collateral materials. Pre-cut to required lengths, the framing members are quickly assembled by welding or by self-threading screws. Other building materials are simply nailed to the frame by means of the nailing groove, a patented feature of Stran-Steel studs and joists.

Match good design with good materials. Build with Stran-Steel, the fabricated structural steel for better homes, apartment buildings and light commercial and industrial structures. For further details, see Sweet's File, Architectural, Sweet's File for Builders, or the January issue of Building Supply News.

GREAT LAKES STEEL CORPORATION
Stran-Steel Division • Penobscot Building • Detroit 26, Michigan
UNIT OF NATIONAL STEEL CORPORATION

Stran-Steel framing is a building product of Great Lakes Steel Corporation
Builders benefit from Hotpoint’s leadership in the electric kitchen field!

Living comfort has advanced tremendously in the last 20 years... and nowhere with greater strides than in the kitchen. It’s a far cry from the coal stove and old style sink to the streamlined Hotpoint electric kitchen of 1946. Here truly are the appliances of tomorrow in use today. From the superb new Range and Dishwasher to the smallest matching cabinet, Hotpoint kitchens make good homes better! Since homes in most income brackets are now completely equipped by the builder, your designs must make maximum use of all the improvements in equipment and materials. Hotpoint’s Portfolio of Personalized Kitchen Plans provides complete information and planning guidance on the functional, all-electric kitchen. Attach the coupon below to your letterhead and mail to us today for your copy of this helpful Portfolio. Edison General Electric Appliance Co., Inc., Chicago.

Dependability Assured by 40 Years Experience

The Hotpoint Institute
564 W. Taylor Street, Chicago 44, Illinois

Without obligation, please send me your Portfolio of Personalized Kitchen Plans. This offer available in United States, Territory of Hawaii and Alaska.

Name

Firm Name

Address

City       State

(This offer available only to architects and contractors.)

In most states, all Hotpoint kitchen equipment can be included in F.H.A. insured mortgages.
THE HEAT PUMP—long known for its theoretical efficiency—today is proving its practicality in year-round air conditioning.

In 1854, Lord Kelvin, the father of modern mechanical refrigeration, referred to the heat pump as "tomorrow's method of heating." Tomorrow, for Lord Kelvin at least, never came, but the heat pump—also known as reverse cycle refrigeration—has remained the biggest "if" in heating. Its potential is greater today than ever before, for recent developments in engineering have made it a practical source of heating and cooling for both large buildings and small houses. And, although the theory of reverse cycle refrigeration has not changed in the ninety-odd years since Lord Kelvin made his prediction, today's requirements have altered to a degree that again brings the heat pump into prominence. Perhaps that first proponent of its unique ability asked too little of the heat pump when he expected it only to heat buildings; reverse cycle refrigeration is most practical when called upon to cool as well as heat them—all in one quiet, automatic, fuelless operation. Conceivably it may be used to power every utility in a small house but the kitchen stove—heating and cooling system, hot and iced water, food refrigeration.

The heat pump operates exactly the same as the household refrigerator, with essentially the same elements, and with exactly the same cycle. However, instead of utilizing only the "cold" of the refrigerator—and throwing away the heat thereby generated—the heat pump also utilizes the heat gain of the cycle. In fact, as a heater only, it is more efficient than the refrigerator inasmuch as the heat of the compressor may be added to the output, to the advantage of the heat pump. Since the cycle of the heat pump is the same as the cycle of ordinary refrigeration, the same equipment may be used for both heating and cooling, with adjustable valves determining which function the unit performs. Like the household refrigerator, the heat pump uses no fuel in the ordinary sense. For each unit of electrical energy required by the compressor it "borrows" two units of heat from a primary source—such as well or city water at 50°, or outside air down to 32° F.

If reverse cycle refrigeration is a practical way of heating homes, it may seem odd that it hasn't been extensively used up to now. The reasons lie deep in the economies of power generation and transmission. Considering the economy of the heat pump against other fuels, it has been almost invariably found that, although very efficient, it is at a fundamental disadvantage. All electricity, with the important exception of hydro-electric power, is generated from some fuel such as coal, oil or natural gas. The electrical energy so generated has to be controlled, transformed, distributed

Like the household refrigerator, the heat pump merely takes excess heat units from one spot and ejects them into another. In cold weather the heat pump removes the thinly-spread heat units from outside air or well water and, by compression, packs them more tightly into the air inside the building; in hot weather, the process is reversed. In either case, refrigerant is the vehicle of heat transfer.

In Summer Cooling the cold refrigerant is passed through a coil in the air conditioner where it picks up excess heat from the inside air. It passes through the compressor into an outer coil which is bathed in outside air or water. Here the refrigerant gives up much of its heat. The cycle is complete when the refrigerant is passed through an expansion valve, where its temperature drops sharply. It is now ready to move another load of heat units.

In Winter Heating the cycle is reversed. The refrigerant is forced through the outer coil where it picks up heat from outside air or water. Turning to vapor in the process, it then passes through the compressor which sharply raises its temperature—a refrigerant entering the compressor at 5° F. may leave it at 120° F. Entering the inner coil in the air conditioner proper, it heats the inside air. From there it passes into the expansion valve and on back to the outer coil.
Using air as energy source, Drayer-Hansen of Los Angeles produces a line of heat pump air conditioners for moderate climates.

**Airtopia Capacity Table**

<table>
<thead>
<tr>
<th>HEATING CYCLE</th>
<th>COOLING CYCLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outside Air Temp.</strong></td>
<td><strong>Outside Air Temp.</strong></td>
</tr>
<tr>
<td>30°F</td>
<td>Full</td>
</tr>
<tr>
<td>60°F</td>
<td>Full</td>
</tr>
<tr>
<td>70°F</td>
<td>Full</td>
</tr>
<tr>
<td>80°F</td>
<td>Full</td>
</tr>
<tr>
<td>90°F</td>
<td>Full</td>
</tr>
</tbody>
</table>

Result of six years' production in southern California, the Airtopia is a packaged air-to-air heat pump offering complete air conditioning—heating, cooling, dehumidification, filtering and circulation. Separate heat exchange equipment for the heating and cooling functions of the unit has been especially designed to use the full potentialities of each side of the cycle, rather than merely rely on the same equipment for all functions. Nonetheless, those parts which can be the same, such as the compressor, receiver, etc., are used for both heating and cooling. The Airtopia uses outside air as a primary heat source and thus faces the disadvantage of any air system—i.e., in cold weather the pump has less heat to take from the air and must also supply more heat to overcome the differential. To offset this disadvantage an ingenious air preheater has been incorporated into the design which, by reducing the temperature of the liquid (Freon 12] from the receiver to the evaporator, increases the temperature of the incoming air about 11°, both effects being desirable from an efficiency standpoint. Next year, however, a unit using water as a primary heat source will be produced for colder climates. The Airtopia is completely automatic, requiring only one electrical connection and no attention from one year to the next.

**Ingenious Buried Water Coil** acts as heat source and heat dissipater for Muncie Gear Works' new line of air conditioners.

Another new entry in the reverse cycle air conditioning field is the Marvair, produced by the Muncie Gear Works. This is a packaged unit offering year-round automatic conditioning. It uses a water-to-air heat transfer, but instead of depending upon either wells or water mains as a means of gaining or ejecting heat, the Marvair has a novel "heat exchanger" buried in the earth. This consists of a single closed loop of 1 in. water pipe which is submerged in a 5 in. drilled well to a minimum depth of 200 ft. Through this loop, water for condenser and evaporator is continuously circulated. Since no water is pumped out of the well, there is no waste water to be disposed of; even more important, there is no lowering of the water table so that the system is adaptable to closely built-up areas.

The Marvair, currently produced in two sizes, uses a single system of piping, condenser and evaporator for both heating and cooling cycles. Two pairs of solenoid valves accomplish refrigerant reversal, operating in a definite cycle to prevent overloading and avoid valve chatter. The cost of the 60,000 BTU capacity unit, complete with well, is estimated at around $1,600.

**Marvair Specifications**

<table>
<thead>
<tr>
<th>Motor</th>
<th>Heating Capacity</th>
<th>Cooling Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Weight @ 50°F Water</td>
<td>Weight @ 75°F Water</td>
</tr>
<tr>
<td>3 H.P.</td>
<td>932 lbs.</td>
<td>60,000 BTU</td>
</tr>
<tr>
<td>5 H.P.</td>
<td>1,162 lbs.</td>
<td>100,000 BTU</td>
</tr>
</tbody>
</table>
over long distances and retransformed before it reaches the home. Throughout the process there are power losses which detract from its overall efficiency. Thus it has been found cheaper to use coal, oil or natural gas directly rather than their electrical counterpart. This is the basic reason that the heat pump has not been used extensively for heating. However, certain factors may upset the old economics.

For one thing, one cannot compare a unit which heats and cools with a simple boiler or furnace which only heats. Furthermore, the higher operating costs of the heat pump may be more than offset by the distinct advantages of a purely electrical system. Fuelless operation will be a persuasive argument with many owners, as there are no chimneys to build, nothing to burn, no ashes to carry out. Important, too, is the absence of any fire or explosion hazard. The only possible hazard might be an electrical short circuit. Its space requirements are smaller and installation simpler than that of conventional equipment. One further advantage stands out: the increased emphasis on sensitive and accurate controls places an electrical system far ahead of its competitors. Unquestionably, the heat pump will respond more quickly and to closer tolerances than heating systems now in use.

Today the heat pump is in an extremely controversial position. Some engineers point to the fact that, although it is very well known, it has been relatively seldom adopted in the past ninety years. There is another group of engineers, however, who protest that there is no very similarity between reversed cycle refrigeration and straight refrigeration has been a hindrance to the development of the former. They argue that the heat pump has always used the evaporators, compressors, condensers and heat exchangers developed for an opposite purpose, and that if equipment were designed to take particular advantage of the unique capabilities of the heat pump it could stand on its own feet.

It looks as if the controversy may be decided shortly. To begin with, many of the nation's utility companies are now actively interested in promoting the heat pump on a commercial basis. All across the country, in all sorts of climates, utility company offices are being completely air conditioned by reverse cycle refrigeration: their efficient performance leaves no doubt that, mechanically, the heat pump has come of age. At least two manufacturers have announced production of year-round air conditioners, using the reverse cycle for both heating and cooling. Other firms are developing similar equipment. As competition asserts itself, further improvements may be expected.

In their end-product of conditioned air distributed through duct work, both of these new units will compete with air conditioning equipment using more conventional heat sources. Most of the power company installations are of this type. However, there is no reason to suppose that the heat pump cannot be used in connection with radiant or panel heating systems also. In fact, because of the necessarily lower temperatures achieved by the heat pump, it seems especially adapted to radiant systems, with their lower temperature requirements. In theory, the heating medium could be either air, circulated through cellular floors or ceilings, or water circulated through pipe coils. To date, there are several installations of the first type and only one of the second in this country—that in the house of Mr. C. E. Boggs at Boise, Idaho (p. 164). Here a heat pump circulates a refrigerant (not water) through a system of copper tubing embedded in the plaster walls. Although reversible, the Boggs system has so far been used only for heating.

The greatest field for the heat pump in heating and cooling entire buildings appears to be in moderate climates, where the heating load in winter would approximate the cooling load in summer. This is more a question of economics than of physics, however, since it merely guarantees the full year-round operation of the heat pump. It is not necessary to balance exactly the heat gain on one side of the cycle with the heat loss on the other. But the installation so balanced would be obviously more economical when amortizing initial costs.

The choice between outside air and well water as a primary source of "borrowed" heat depends upon the winter and summer temperatures in a given locality. Water seems best for all except the warmest regions, for the heat pump using air is at an obvious disadvantage in cold weather. Also, the building's need for heat is greatest at the very time when available heat in the outside air is at its lowest. Thus, the Ohio Power Co. found that water-to-air heat transfer was preferable to air-to-air, even though both were practicable.

In first cost, the commercial versions of the heat pump promise to equal—if not to undercut—conventional air conditioning equipment. Although understandably eager about pricing a brand new product in today's market, the heat pump manufacturers estimate that a unit whose cooling capacity is 32,000 BTU and heating capacity is 60,000 BTU will cost about $1,500. As one manufacturer puts it: "You buy the refrigeration and get the heating free." Operating costs present a much more hazardous prediction. While it remains doubtful if the heat pump will ever compete directly with other fuels on a dollar-for-dollar basis, it is obvious that, as the cost per kilowatt of electrical energy is reduced, the heat pump becomes a stronger contender in the heating field. And the heat pump can enjoy rates lower than prevail with conventional electrical appliances.

Since certain intermediate climate areas in this country have the additional advantage of low power rates (in the TVA district, for instance), there would seem to be a large potential market for reverse cycle heating and cooling today. It might also be considered in the Pacific Northwest, where electrical resistance heating already plays a large part, due to the low cost of electricity.

Of course, the relative cost of electricity in any given area depends largely on the amount used and on the times at which it is
Assembling his own reverse-cycle system out of standard refrigeration components, Engineer C. E. Boggs made this water-to-Freon installation in his own home in Boise, Idaho seven years ago. It has several novel features, including a storage tank for “off-peak” heating; radiant heating by means of % ID copper tubing embedded in plaster walls and ceiling. With well water as heat source, the system is for heating only.

**COMPARATIVE COSTS—Heat Pump vs. Conventional Heating**

<table>
<thead>
<tr>
<th></th>
<th>Hot Air Coal</th>
<th>Oil Coal</th>
<th>Hot Water Oil</th>
<th>Oil</th>
<th>Elec. Room Heaters</th>
<th>Elec. Storage</th>
<th>City Water Well Water</th>
<th>Electric Heat Pump</th>
<th>City Water Well Water</th>
<th>Combination Storage &amp; Heat Pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Equipment</td>
<td>$700</td>
<td>$700</td>
<td>$1,000</td>
<td>$600</td>
<td>$700</td>
<td>$1,650</td>
<td>$1,700</td>
<td>$2,050</td>
<td>$2,200</td>
<td></td>
</tr>
<tr>
<td>Fuel or Electricity</td>
<td>44%</td>
<td>44%</td>
<td>58%</td>
<td>22%</td>
<td>148</td>
<td>80</td>
<td>80</td>
<td>44</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Auxiliary Elec. Serv.</td>
<td>12%</td>
<td>12%</td>
<td>6%</td>
<td>0%</td>
<td>3</td>
<td>6</td>
<td>12</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>City Water Investment</td>
<td>58%</td>
<td>58%</td>
<td>70%</td>
<td>70%</td>
<td>50</td>
<td>93</td>
<td>100</td>
<td>122</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Amortized at 5%</td>
<td>60</td>
<td>58</td>
<td>75</td>
<td>70</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Annual Cost% above Hot Air Oil</td>
<td>7%</td>
<td>7%</td>
<td>93%</td>
<td>61%</td>
<td>54%</td>
<td>54%</td>
<td>44%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**USING A WATER-TO-REFRIGERANT cycle, this Idaho heat pump has a seven-year record of efficiency and surprisingly low “fuel” bills.**

Installing a storage tank, Boggs estimates that he can use “off-peak” current (at 83 cents as against peak rates of $1.66 per KWH) to bring his annual heat bill down to the price of coal. However, the system has never been used for cooling and—when used for heating alone—its annual amortization seems exorbitant when compared to conventional media. What the system does demonstrate is the practicality of the heat pump in extremely cold climates, where well water at 55°F is the primary heat source and panels are the means of heat distribution.

**PRODUCTS & PRACTICE**

The heat pump, being a potentially large consumer of current, will naturally get the benefit of reduced rates per kilowatt. As to the time requirement, the heat pump has a unique feature which enables it to utilize current when current is cheap. With a small storage tank, it can generate heat at any time and store it for future use. This storage feature allows the use of current during those periods when the utilities are not supplying their maximum output. Such current—known as the “off-peak” demand—is sold at cheaper rates. Thus Mr. Boggs, using “off-peak” storage and well water, was able to reduce his annual electric heating bill to $44—the same as coal and $14 less than oil. While this case is an isolated one, it serves to indicate that a canny cutting of corners might bring the heat pump into direct, dollars-and-cents competition with the coal- or oil-fired furnace.

Breaking down the heat and cold requirements (apart from air conditioning) of the ordinary house, some interesting possibilities for the heat pump appear. Perhaps the first application which suggests itself is domestic hot water heating. Why this hasn’t been tried before is difficult to understand, since the heat pump will use from one-quarter to one-third less current than the usual resistance-coil type of electric water heaters. It is reliably reported that several manufacturers are now developing such a heater under sponsorship of the public utilities.

Carrying the idea one step further, it is conceivable that the same machine could handle the refrigeration (water cooler, household refrigerator and frozen food compartment) as well as the hot water heating. It might be possible to use a slightly larger machine to fully air condition one room, probably the kitchen, along with the rest of its duties. Another use for the cooling side of the machine might be as a dehumidifier only, drying the air in humid weather by condensation. In any event, the best way to utilize the full potentialities of the heat pump would be to set up a list of heat losses against one of heat gains throughout the house, and design the equipment to meet the needs of each.

Another field lies in such special purpose buildings as dairies, where both heating and refrigeration are simultaneously necessary the year around. And offices requiring combined heating and air conditioning might well consider the heat pump’s compactness and freedom from servicing and fueling worries.

Today, the refrigerator and the frozen food locker each has its own little compressor, the domestic hot water supply its own heating coil, and the boiler its own firebox, while for most people complete air conditioning remains but an outside hope. The trend toward combining all these disparate elements in one package is already well under way, as illustrated in the Borg-Warner Utility Unit (FORUM, Feb. ’46).

Here the heat pump should have a real place, for it has the versatility to meet practically all the thermal requirements of the home.
Whether you run a business, supervise a store or plan an airport, if you're interested in figures you'd better meet Kentile—the floor that lasts longer, looks better—costs less!

Consider these facts when you consider your flooring:

**IS IT HANDSOME?** With Kentile you can have your own floor design. Kentile true-color squares are laid in the color combinations and patterns you decide will serve you best!

**IS IT PRACTICAL?** And how! It shows no scars, absorbs no moisture. Kentile cushions sounds, is resilient underfoot, and sure-treaded.

**WHAT'S THE UPKEEP?** Practically none! Kentile cleans with soap and water mopping, and colors stay true. When floor plans are altered or replacements needed, all you do is add new squares—without ripping up the floor.

**WHAT'S THE COST?** Kentile is asphalt tile—the lowest cost long wearing resilient tile flooring sold, foot by foot, every time. Installation is so easy it costs less installed. And because it wears longer it is incomparably cheaper.

DAVID E. KENNEDY, Inc.
80 Second Avenue, Brooklyn 15, N. Y.
201 Bona Allen Bldg., Atlanta 3, Ga.
2000 Ulloa Street, San Francisco 16, California
30 No. Michigan Ave., Chicago 2, Illinois
452 Sturte Bldg., Boston 16, Mass.
614 Olympia Road, Pittsburgh 11, Pa.
1211 National Broadcasting Co. Bldg., Cleveland 14, Ohio
ALUMINUM TILE for wall and ceiling application features ease of installation.

Altico Tile, made from pure aluminum and originally designed for kitchen and bathroom walls, is finding wide application in ceilings and walls of laundries, nurseries, lobbies, store fronts, restaurants, etc. An individual tile 4½ in. sq., Altico may be applied over any existing smooth-painted surface to provide a water- and fire-resistant wall. In new buildings, it has been found especially suitable for dry construction, installation readily being made over sheet rock partitions. A mastic cement, applied 1/16 in. thick, permanently seals the tiling to the wall. This ease of installation accounts for the cost feature, which is said to be ½ to ½ less than installed ceramic tile.

Altico comes in 16 colors, is rustproof, noncorrosive, does not crack or craze. Corresponding trim—consisting of chair rails, corner beads, feature strips and cove bases—is available.

Manufacturer: Alloy Tile Corp., Rahway, N. J.

PLASTIC WALL TILE is lightweight, versatile, easily applied.

Plastic Tile, a wall material for home, commercial or industrial applications, is available for new construction or remodeling. Light in weight (1 sq. ft. equaling 5 ½ oz.) the individual tile is easily applied with mastic cement. Installed over existing surfaces, it can easily be fitted and adapted to all corners, borders and wall bases. Made of pure plastic, it will not crack, chip, peel, break, sweat, stain or rust. It can be cleaned with a damp cloth. The individual tiles come in a variety of nine non-fading colors, solid and marbledized, measure 4½ x 4½ in., half tiles for cap 2⅛ x 4½ in. According to the manufacturer, kitchens, bathrooms and recreation rooms can be remodeled with Plastic Tile at an amazingly low cost. Other uses for the material include industrial kitchens, cafeterias, dairies, washrooms, stores, etc.


ELECTRIC VAPOR HEATING UNITS for comfortable, clean, automatic central home heating.

Vap-O-Lec electric vapor heating units combine tested scientific principles, quality workmanship and materials to produce comfortable, healthful heat with convenience and efficiency. Utilizing steam vapor generated by electricity to produce heat which retains all natural humidity, the central heating unit is fully automatic, clean, dust free and noiseless. In operation, fresh air is drawn into the unit, passed through filters and finally channeled through a bank of sharp multi-spined copper fins which discharge the electrically generated steam-vapor heat into the air under Modulflow control. Heart of the unit is its heavy copper, hermetically sealed generator which contains erosion-type low voltage heating elements encased in copper tubes with a small quantity of water sealed-in under reduced pressure. To produce superior heated steam-vapor under close tolerances, it employs a percolating action which draws water into orifices at the top of the tubes and circulates through multi-spined fins on copper heat transfer coils. Thousands of sharp spines discharge the super-vapor heat into the air stream, while the heat producing vapor, as condensed, flows back into the generator for reuse. There is no heat loss and the entire operation is continuous and automatic. Pressure-stat control of ultra-sensitive mercury switches automatically limits the flow of energy in the coils, thereby controlling the supply of electric current to the fewest number of heating elements required to insure constant air flow for the desired temperature. This, according to the manufacturer, reduces cost of operation, which is said to be comparable to other better types of automatic heat.


(Continued on page 170)
As a maintenance saver, aluminum takes top honors. Roofs, copings, skylights and carvings of Alcoa Aluminum will never rust, rot, or warp.

Inside or outside, it's all the same with aluminum. Outside, these windows are weather-resistant. Inside, they improve appearance.

Aluminum shines up to advantage in hidden places, too. Take ducts, for example. Aluminum ducts are easy to fabricate and light in weight.

When you consider aluminum for decorative purposes, remember, it is made in every form and shape.

TAKE YOUR CHOICE OF 212 WAYS TO USE Alcoa Aluminum

The whole conception of aluminum as a building material has changed. Its use is no longer limited to a few selected applications. Its economy and advantages have extended its use to more than 212 places in building construction. Some of these are familiar—some not so familiar.

If you have not checked the uses of Alcoa Aluminum recently, write today for a copy of the booklet “Aluminum Applications by Industries”. You will find this booklet a helpful reference when working on your plans for future buildings. ALUMINUM COMPANY OF AMERICA, 2166 Gulf Building, Pittsburgh 19, Pennsylvania. Sales offices in principal cities.

THE MOST VERSATILE OF ALL BUILDING MATERIALS

ALCOA FIRST IN ALUMINUM

IN EVERY COMMERCIAL FORM
G-E Silent Switches... Mean Happier Homes for Your Clients!

Nothing can compare to the noiseless operation of the new G-E silent mercury switch wherever quiet and tranquility are desirable—in bedrooms, nurseries, studies, and many other locations.

Few services that you can render your clients will be as thoroughly appreciated as the specification of these aids to comfortable living.

You'll be gaining good will in another way, as well, because G-E silent switches are built to last for many years of service. Conventional blades and springs have been eliminated. The hermetically sealed "mercury button" actuates the make and break at the flick of a finger. There are fewer moving parts to wear out.

Choice of brown or ivory handles and matching wall plates helps you to specify switches that harmonize with various interiors.

G-E Silent Switches Are Only Part of a Full Line of Wiring Devices

When you plan electric installations, don't overlook the many other reliable, high-quality G-E wiring devices. They include flush switches, convenience outlets, lampholders, plugs, fluorescent accessories, cord sets, and fuses. For information on this high quality line, see your local G-E Merchandise Distributor, or write Section D16-1126, Appliance and Merchandise Department, General Electric Company, Bridgeport 2, Connecticut.

G-E wiring devices are built to assure the perfection of detail that helps make installation easy. For industrial and commercial installations, as well as homes, the use of G-E devices means a long-lasting job throughout. Available from your local General Electric Merchandise Distributor.
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From this water heater, why not?
Its tank—mirror-smooth and sparkling blue glass-fused-to-steel—is sanitary as a glass coffee-maker.

Permaglas WATER HEATER

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VACUUM DRAFT OIL BURNING FURNACE eliminates need for standard chimney as draft-creating device.

The Norge-Heat vacuum draft oil-burning furnace is designed to create its own draft through the use of a suction fan which pulls rather than pushes air through the combustion chamber. A completely controllable fire results, and the ordinary chimney generally necessary for draft creation may be replaced by an exhaust vent. The new furnace is equipped with a drum-shaped, stainless steel fire chamber surrounded by a hollow cylinder. A vacuum draft pulls the hot gases through center drum then through hollow cylinder, and out the chimney. Cold air, which is drawn into the furnace by a blower mechanism, is forced over these heated surfaces, which have several times the surface area of those found in conventional oil burning furnaces. Thus, the maximum amount of heat is extracted from the furnace. Other advantages of the new unit include an electric ignition, air filters, an oil pressure pump and a single-motor which operates the vacuum fan, the blower and oil pressure pump. According to the manufacturer, the new unit has proved economical and reliable under all weather and climate conditions. Compactly designed, it is available in three models, the largest of which develops 120,000 BTU Burner output. The other models, designed for small homes, provide 90,000 BTU and 80,000 BTU—the smaller of the two being adapted for either gravity or forced-air circulation.


GAS CONVERSION BURNER offers easy installation, efficient operation, cleanliness, low-cost investment.

This Fuel Door Conversion Burner is designed so that one model will handle the gas heating requirements of 90 per cent of all houses. It fits into the fuel door of the furnace, thus eliminating the necessity of removing grates, or costly changeover expense. Operation is clean and efficient. A simple adjustment varies the input from 50,000 BTU to 200,000 BTU, and the unit is adaptable to both furnaces and boilers. According to the manufacturer, any existing furnace or boiler in good working condition can be converted to automatic gas heat with the new burner in a couple of hours. The unique design of the burner head causes hot gases to travel the side walls from the bottom up. This assures delivery of a maximum amount of heat through the fire box walls without heating the front. The unit has been tested by A.C.A. Laboratories.


AIR CONDITIONING UNIT utilizing vapor pressure differential provides cooled, dry, healthful air.

The Amcoil Comfortaire Conditioner for homes, offices, shops, etc., embodies a new development in air cooling: the utilization of the vapor pressure differential created by a cold coil inside of an enclosure. This patented feature removes moisture from the air by vapor pressure difference, thereby eliminating the need to lower air temperature to the dew point. Controlled by a Humidistat for cool, damp days and a thermostat on hot, dry days, the unit automatically adjusts to the constantly varying relations between temperature and humidity. The operating principle is based on the law of physics that vapor pressures equalize themselves. A cooling coil inside an enclosure creates a low vapor-pressure area. Air with moisture in the form of vapor enters the unit and circulates downward around this enclosure. Moisture is attracted to the low pressure area through small openings in the coil enclosure where it is condensed into water and drained off. Air relieved of its moisture content flows past the enclosed coil without contact and mixes below the coil with such small amounts of cooled air as entered the coil chamber by molecular attraction with the original vapor. This mixture emerges into the room at a comfortable degree of both sensible and latent heat. Since it is not necessary to lower air to the dew point to effect removal of moisture, the new unit employs a smaller condensing unit using less horsepower than conventional air conditioning units. Two floor models are available for manual control, or complete with thermostat and humidistat for automatic control.

Manufacturer: American Coils Co., 25-27 Lexington St., Newark, N. J.
The thing to note is—this protected metal, Galbestos, can be fabricated in a sheet metal shop with only ordinary equipment.

Galbestos has no rival among roofing and siding materials for resistance to extremes in weather, corrosive fumes or industrial heat. But—in addition, Galbestos is perfect for hoods, ducts and such fabricated units which call for bending, crimping or rolling. You can really work it!

Galbestos is sheet steel with asbestos literally fused to it. This is its most unique feature, the source of its unexcelled durability. The method of fusing is an exclusive development by Robertson research. Galbestos was used before the war but the excessive demands made during the last few years proved its undeniable superiority. The record of what a beating Galbestos stood up under is post-war building news worthy of your close attention.

Incidentally, the Vertical Lift Doors in the illustration, also Robertson products, can be sheathed in Galbestos. For information on these disappearing doors, or for samples of Galbestos, call your Robertson representative. H. H. Robertson Company, Pittsburgh, Pa.

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A fixed orifice, centered in relation to the venturi, measures input, and a burner air duct directs secondary air to the burners. Controls include a V-833 low voltage magnetic valve and transformer, T81 thermostat, quick-acting automatic pilot, adjustable gas pressure regulator, pilot cock and tubing with fittings. The units have an easily accessible, positive lock-type primary air adjustment, adjustable without tools, and return air connections can be made at sides or rear of the unit. Pilot has a self-contained alloy compensating element, a factory-fixed setting and a platinum pilot igniter coil to assure long life. Positive ignition of the pilot gas is obtained by a separate ignition transformer which supplies constant voltage.

Manufacturer: Surface Combustion Corp., 2375 Dorr St., Toledo, Ohio.

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ADJUSTABLE WINDOW FRAMES for decorative uses.

Wooden windo-frames, painted or decorated with decals, wallpaper, chintz, etc., have a wide variety of applications: to camouflage ugly windows, make narrow windows look wider, eliminate curtains in summer cottages, kitchens and nurseries. Or they may be mounted on the wall with glass shelves to hold plants, plates or books. Windo-Frames come unpainted in three styles, are 65 in. long and adjustable in width from 39 in. to 45 in. With extensions they fit double or triple windows. Installation with a screwdriver is simple.

Manufacturer: Robb-Hill Inc., 826 Broadway, New York 3, N. Y.

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(Technical Literature, page 184)
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All over America architects, engineers, contractors and builders are planning ahead today for the homes of tomorrow—and in the homes of tomorrow they know there must be new features to add to the beauty and the utility of those homes. One feature every home should have is steel windows. They not only offer greater utility but add to the beauty and lasting appearance of any home. Consider the advantages Ceco metal windows offer:

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3. Only General Electric sells Q-Floor wiring.

It will pay you to remember these important facts whenever you consider the electrical needs of your clients. The cellular steel members of Robertson Q-Floors make ideal permanent raceways for completely flexible and adequate electrical systems. Patented G-E Q-Floor wiring is the only material used to install electrical services in Q-Floors. The combination of these two structural and electrical systems results in an extremely simple and flexible method of supplying the electrical requirements of office buildings, banks, hospitals, industrial plants, and other construction requiring a number of services and 100 per-cent electrical availability.

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Before writing specifications for any job involving raceways, building wire or wiring devices, ask your nearest G-E Merchandise Distributor for information on the complete G-E line, or write to Section C8-1126, Appliance and Merchandise Department, General Electric Company, Bridgeport, Conn.

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**REINFORCED STEEL.** Proposed Manual of Standard Practice for Detailing Reinforced Concrete Structures. American Concrete Institute, New Center Bldg., Detroit 2, Mich. 55 pp., 9 in. x 11 1/4 in. Price $2.50.

This manual includes full instructions and data for the designing, detailing and fabricating of reinforcing steel in all types of reinforced concrete structures and structural elements. Based on extensive research by ACI Committee 315, the manual conforms to the best standards now operative for preparation of reinforcing drawings, and is liberally illustrated with charts, diagrams and model drawings.

**STEEL FLOOR PLATE.** "A.W." Rolled Steel Floor Plate. Alan Wood Steel Co., Conshohocken, Pa. 16 pp. 4 in. x 9 1/4 in.

This informative booklet describes "A.W." Rolled Steel Floor Plate for industrial, transportation and marine use. It features complete data on the four "A.W." Rolled Steel Floor Plate patterns, illustrating them with life-size photographs and listing tables of weights and sizes for each. Advantages, uses and maintenance of the material, which is designed for maximum slip and skid resistance, are illustrated and discussed.

**MAGNESIUM.** Magnesium, The Light-Weight Metal For A Multitude of Uses. Revere Copper & Brass, Inc., 230 Park Ave., New York, 18 pp. 6 in. x 9 in.

This booklet is designed to stimulate public interest in the development of magnesium products. Describing magnesium as a lightweight metal for a multitude of uses, it elaborates on the metal's characteristics, advantages and potential uses in many fields. Emphasizing the fact that public demand stimulates the introduction of new materials, it suggests ways and means to create a demand for magnesium products so the public may enjoy the benefits they offer.

**WOODWORK.** Architectural Woodwork by Curtis, Design Book No. 505. Curtis Companies, Inc., Clinton, Iowa. 190 pp. 8 1/2 in. x 11 in.

Architectural Woodwork Design Book includes information on new Curtis designs, old favorites and certain universal standard items. Among the designs illustrated are those especially suitable for the small home and others specifically created for larger homes. Contents cover: entrances, exterior and garage doors; screen goods; exterior woodwork, blinds, porch work; interior, French and flush doors; moldings and trim; mantels; cabinet work; kitchen units; stair work; Silentite windows and door frames; Silentite windows; profit storm sash and screens; Rotovents; Silentite casement units; Miterite trim.

Complete catalog information on the many items is included.

**CEMENT PAINT.** How To Use Color on Concrete Block. The Reardon Co., 2200 N. 2nd St., St. Louis, Mo. 6 pp. 3 1/2 in. x 6 1/2 in.

The use of Bondex Waterproof Cement paint for adding color to concrete block construction is featured in this folder. Examples of various colored concrete buildings are illustrated to show possible color combinations for walls, roof and trim.

**TILE.** Kraftile Glazed Structural Wall Units, Acid Brick, Swimming Pool Overflow Gutters, Modular Dimensioned. Kraftile Co., Niles, Calif. 12 pp. 9 in. x 11 in.

This catalog contains dimensioned isometric drawings of Kraftile's line of modular size glazed structural units, acid brick and swimming pool gutters. Detail drawings of suggested applications are also included.

**ASPHALT SHINGLES.** Choose Your Roof for Rain and Sunshine. The Asphalt Roofing Industry Bureau, 2 W. 49th St., New York 24 pp. 8 1/2 in. x 11 in.

Prepared for new home builders and remodelers, this booklet is devoted to the merits of asphalt shingle roofs. It features their durability, weather and fire resistance, easy application, low cost, interesting textures and patterns, attractive color adaptation to roof shapes and architectural styles. Many colorful sketches adapted from well-known architects' design focus attention on the use of colored roofs.

**WINDOW HARDWARE.** Getty Hardware for Casement Windows. H. S. Getty & Co., Inc., 3394 N. 10th St., Philadelphia Pa. 8 pp. 8 1/2 in. x 11 in.

Getty's entire line of internal and external casement window operators and accessory hardware for both metal and wood casement sash are illustrated and described. Advantage specifications, sizes, finishes, etc., are covered. Clear-cut drawings illustrate installation.
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Result: A modern, blended heating system for modern living! A heating system that gives you individual room control, that responds almost instantaneously to sensitive automatic controls ... that gives you gentle air circulation without the use of moving parts that wear out. Yes ... the dependable heating comfort, distinctive charm, space-saving, cleanliness and long service life of Modine Convector Radiation is now available for moderate cost homes and apartments. Look for Modine's representative in the "Where to Buy it" section of your phone book. Write for complete information and free descriptive literature. MODINE MANUFACTURING CO. 1736 Racine St., Racine, Wis.
CORRUGATED TRANSITE * for functional simplicity

*Transite is a registered Johns-Manville trade mark

Maintenance-free... low in cost... can’t rot... can’t rust... can’t burn. Use on walls or roofs.

TAKE ADVANTAGE of Johns-Manville Corrugated Transite to streamline and beautify your construction design.

Low in cost and adaptable to every type of modern building, Corrugated Transite offers a way to save money both on construction and maintenance.

The large fireproof sheets—with their unusual strength increased by corrugations—permit a minimum of framing. Quickly installed, they require little or no upkeep. They’re made of asbestos and cement, practically indestructible materials.

Attractive stone-gray in color, Transite can be used alone or in combination with other building materials. And when need for alterations arises, the sheets are practically 100% salvageable.

For more facts, send for brochure. Johns-Manville, Dept. AF-11, P. O. Box 290, New York 16, N. Y.

EASY TO BOLT TO STEEL  EASY TO SAW  EASY TO DRILL  EASY TO NAIL TO WOOD
**Cost-saving heat**—anywhere in the plant—in factory, stockroom, office, warehouse, is possible with the installation of Electromodes. Wherever circuit wires can be run—to isolated buildings, or beyond central heating system range,—efficient Electromodes can furnish clean, safe, heat economically.

For local or supplementary heat when some departments are running overtime, for week-ends, holidays and inventory periods, Electromodes can save on heating costs. Electrical energy is transformed into healthful warm air with no heat-loss en route from wires to heater. No current is used when not "on" and there is no expensive maintenance of piping and piping connections.

Long-life service, free from fire, shock or explosion hazards, is another Electromode advantage. The patented heating element is insulated, sheathed and embedded in a one-piece finned aluminum casting. There are no exposed hot wires or glow elements, therefore no oxidation or deterioration can limit the useful life of Electromode Heaters.

Standard capacities, from 1.5 KW to 60 KW. Ask your Electrical Wholesaler to suggest appropriate sizes. ELECTROMODE CORPORATION, Rochester 3, New York.

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**International Heater Co.'s system, precautions to be exercised, estimating materials, and suggested specifications.**

**LIGHTING.** Pittsburgh Permaflor Incandescent Lighting Equipment for every type of commercial, institutional and industrial application is here with presented. Profusely illustrated, it includes descriptions, detailed light distribution charts, installation diagrams, details, etc., for asymmetric and symmetric silvered-glass Permaflors; interior spot and flood lights; indirect, mercury and dual units, as well as a complete line of luminaries, stage-lighting equipment, industrial floodlights, knock-out strips and accessories.

**SWIMMING POOLS.** Paddock Engineering Co., 9060 Santa Monica Blvd., Los Angeles, Calif. 92 pp. 8½ in. x 11¼ in. Inadvertently omitted from August's issue was price ($1.00) of booklet. Free to architects in Calif., Ariz., Nev., and Ore.
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From a Century of Builders

At no time in the history of American building has the experience, character and ability of 106 years of Crow Construction been as important as it is today. To the architect, it assures the faithful and accurate interpretation of design. ...to the owner, it guarantees sound, serviceable, economical construction. The irrefutable proof of those qualities stands today in the buildings already constructed by Crow.

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Over 100 Years of Building
GB ALL METAL REVOLVING DOORS

GB revolving doors are a worthy addition to your finest buildings. These handsome, easy-operating doors embody features developed in thirty-five years' experience in fabricating non-ferrous metal products for the building industry. They are engineered to meet modern requirements and can be detailed to harmonize with the architectural treatment of the entrance.

GB revolving doors have been specified by many of the country's foremost architects for their finest buildings. Hundreds of installations in notable buildings all over the United States are constant reminders of their excellence. As you design new structures or the remodeling of old ones plan to use GB revolving doors. Write today for our catalog or consult Sweet's.

GENERAL BRONZE CORPORATION
34-11 TENTH STREET LONG ISLAND CITY 1, N. Y.
It "Gives" only where you touch it!

Did you ever plunk down on a sofa next to someone... only to find him "falling" toward you, off balance?

That happens when the whole "innards" of a sofa sag between different weights. But it's something that can't happen with Koylon Foam!

As you can see from the pictures, Koylon Foam provides independent suspension... "gives" only where you touch it. You can credit Koylon's amazing air-buoyancy for this.

Actually Koylon is 85% air. It "breathes"... absorbs air in millions of tiny, interconnecting cells of resilient latex— releases it on contact with the body.

Here's foolproof evidence of the resilience that gives Koylon Foam its matchless comfort. And it's another reason why we say: If you sell "seats"— or "sleep"— better sell Koylon Foam!
Hendrick Grilles offer a wide choice of attractive designs with ample open areas. Perforations are clean-cut, and there are no burrs or other imperfections. Hendrick Grilles are easy to install, and always lie flat because of a special flattening operation in their manufacture.

The grille illustrated is the Gothic Clover Leaf. Write for information on the hundred other distinctive patterns.

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Clean, Safe, Electric Head-to-Heels Warmth

Banish that early-morning chill in a jiffy. Just flip the switch for instant, head-to-toe, infra-red warmth. Easily, quickly, inexpensively installed in old or new homes with a minimum of construction. Ask contractor or write to Dept. AF-11.

*It's a THERMADOR Electric Bathroom Heater*

Thermador Electrical Mfg. Co., 5119 District Blvd., Los Angeles 22
How Architectural Concrete combines architectural and structural functions, is shown in this Hugh Ferriss drawing of cantilevered concrete balconies. It is the third in a series of modern designs demonstrating the adaptability of Architectural Concrete for apartment houses, hotels, hospitals, schools, or industrial buildings.

PORTLAND CEMENT ASSOCIATION
DEPT. 11-7, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of concrete...through scientific research and engineering field work.
Capture attention of sidewalk and street traffic—and hold it—by making the entire store a colorful setting. Day and night it will work to bring your client more business. And when the store is open, the view of people buying will act as a magnet to bring in others.

A Visual Front is not a fixed type—it is a style of front, which employs glass to “open” the store to the eyes of potential customers. It exhibits far more merchandise than could be crowded into a conventional window. It promotes sales of every item on the floor.

The invitation to enter is emphasized by doors of clear Tufflex* tempered plate glass. To reduce the possibility of condensation on the clear glass front, Thermopane*, the transparent insulating unit, is recommended. And, to accent the appeal of the front, colorful Vitrolite® is used to face pilasters, bulkhead and facade.

BEFORE YOU DESIGN your next store, write for our Visual Fronts book. You’ll find many helpful ideas that you can adapt. Write to Libbey-Owens-Ford Glass Company, 16116 Nicholas Building, Toledo 3, Ohio.

This Visual Front design opens up the store interior... displays merchandise from the sidewalk. Note the spotlit display cases on the pillars... the intriguing "patio" for summer furniture, with latticed side wall for design unity. Store name in cut-out letters is silhouetted against Blue Ridge Patterned Glass and Vitrolite.

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ATTRACTIVE, ENDURING With its clear, glossy plastic surface, a counter top and wall splash board of Kimpreg+Plywood adds enduring beauty at low cost to the kitchens in the new prefabricated HomeOla houses. Aids sanitation, too, because it is moisture-repellent . . . easier to wash. Offers no subsistence to fungi, bacteria or termites.

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AF-1146
The comfort and conveniences and economy of modern warm-air heat are already well known to hundreds of thousands of American families. In recent surveys, majorities of home planners have expressed preference for this form of heating system for the homes they intend to buy or build.

Winter Air-Conditioning systems provide indoor comfort through this exclusive combination of advantages:

1. **WARM AIR**, with room temperatures quickly responding to automatic controls.

2. **CLEAN AIR**—Filtered at the heating unit, all heat delivered throughout the warm-air duct system is free of nuisance dusts, lint and most airborne bacteria. Housekeeping burdens are lighter because walls and furnishings stay clean longer.

3. **MECHANICALLY CIRCULATED AIR** keeps warm air fresh and clean while providing the proper number of air changes per hour.

4. **HUMIDIFIED AIR** affords greater physical comfort at lower room temperatures.

Architects and builders may specify these modern warm-air units with the satisfaction of knowing that the function of air filtering will be performed efficiently and with economy for the owner by "DUST-STOP" replacement type air filters. This Fiberglas product is the outstanding choice of the industry as original equipment. DUST-STOPS for seasonal replacements are readily available through dealers in every community.

For complete information on DUST-STOPS, see Sweets' Files, or write: Owens-Corning Fiberglas Corporation, Dept. 808, Toledo 2, Ohio. Branches in principal cities.

1946 The Architectural FORUM November 1946
As an architect, you've probably asked that question more than once. The obvious answer is quality—built-in quality which makes one asphalt tile look better, cost less to maintain, and last longer than another.

But that kind of quality doesn't just happen. Production "know-how" is the magic ingredient that makes such quality possible.

For over twenty-two years Tile-Tex Asphalt Tile has been continuously refined and improved—with one single objective—so that it will be better than other asphalt tiles.

The proof, of course, lies in the performance record of Tile-Tex Asphalt Tile, which speaks for itself and is recognized everywhere by discriminating architects. The same passionate devotion to quality will always be the prime objective of Tile-Tex production engineers. For the best in asphalt tile, specify Tile-Tex.

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You'll find specifications in Sweet's. Or for full information, call your G-E distributor, General Electric Company, Air Conditioning Dept., Section 61311, Bloomfield, N.J.

*In winter, Better Air Conditioning includes controlled heating and humidification.
AN UNUSUAL WATERPROOFING PROBLEM:

Holding Back a 4-ft. High Tide
IN AN ELEVATOR PIT!

The PROBLEM: To control water seepage in the elevator pit of the Barnum Garage, Bridgeport, Conn. Located directly over an old river bed, the pit daily filled with water up to four feet when the tide came in. Continual seepage caused cables and mechanism to rust; breakdowns were frequent. After so-called "waterproofing paints" were proven ineffective, a three-feet-in-diameter sump pump well was installed with an oversized pump, having a two-inch main. The pump worked constantly; literally it was pumping a river. But even this did not work, because of mechanical and electrical failures.

The SOLUTION: The application of AQUELLA

The REASON for Aquella's effectiveness in holding back a 4-ft. high tide in this elevator pit centers around the entirely new principle on which it works...a principle that distinguishes it in three ways from the so-called "waterproofing paints." First, the ingredients of which Aquella is composed are so finely ground that they penetrate the masonry intensely to fill and close the most microscopic pores. Second, Aquella is scrubbed into the face of the masonry—not just "brushed on" to coat the outside surface. Third, Aquella has an exclusive chemical property which causes it to expand and set up a harder, firmer bond when water contacts it.

As it cures, Aquella leaves a beautiful white finish that does not powder, peel, flake or rub off, and can be painted over with any color.

The RESULT: As Mr. L. Levitt, operator of the garage, describes it: "Since January 1945, when the elevator pit was Aquellized, we have had the sump pump disconnected—even though the water in the sump pump well rises up to the cellar floor level. This proves that the floor and walls of the pit are surrounded by water held back by Aquella."

Specify AQUELLA for the treating of all porous masonry surfaces, such as brick, concrete, lightweight masonry units, stucco or cement plaster.

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When you specify Kohler plumbing for a new or remodeled home you provide the right combination of what every home owner wants in his fixtures and fittings—attractive appearance with matching designs; efficient sanitary protection; convenient, durable working parts; and lustrous, easy-to-clean surfaces. There is sound investment value, too, in the fact that the name "Kohler" is a recognized symbol of first quality—for it will add to the future ease with which a home can be rented or sold.

Kohler fixtures and fittings shown in the illustration above are the Gramercy vitreous china lavatory (available in sizes 22x18" and 24x20") with built-in fittings and roomy shelf; the Cosmopolitan Bench Bath, made with durable, gleaming enamel on time-tested, non-flexing cast iron—and equipped with the efficient Triton shower mixer; and the quiet, smooth-functioning Wellworth close-coupled closet.

All Kohler fixtures and fittings now being produced embody the same high degree of excellence, in design, workmanship and materials, that has built the 73-year-old tradition of Kohler quality. Production, at Kohler, is centered in one plant, with unity of supervision. Write for information on products now available. Kohler Co., Dept. 11-AF, Kohler, Wis. Established 1873.

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PC Foamglas, the cellular glass insulation, is fireproof, waterproof and verminproof. It is unaffected by excessive humidity, impervious to common acids. It therefore retains its original insulating efficiency indefinitely, without repairs or maintenance. That means protection against the additional cost which is incurred when defective insulating material has to be torn up and replaced.

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202 The Architectural FORUM November 1946
Rubberlike, the modern composition floor runner, provides positive protection for heavy traffic areas at less than 6¢ per square foot — a fraction of what most matting costs. Its sturdy corrugations cushion and quiet footsteps. Skidproof even when wet, Rubberlike makes slippery floors safe to walk on. Hugs any surface without cementing — won't curl at edges. Cuts cleaning costs...
THEY PUT THE LAUNDRY IN THE BASEMENT

...there too, the BENDIX is ideal

Schweikher and Elting, nationally known architects, designed this modern home for Mr. Philip S. Rinaldo of Roselle, Ill. It demonstrates that a well-planned basement is often the best solution to problems of ground contour, lot lines, compactness of service areas, heating economy and sundry local conditions. Here the laundry in the same area as the heater takes advantage of the fact that latent heat from the unit will help keep the laundry room dry. Here the Bendix automatic Washer (Standard Model shown) is ideal. It never slops water, never needs to be trundled about, requires only 4 square feet of space. And here, too the new Bendix Dryer is particularly essential: it saves up-the-steps trips to a drying yard.

FOR COMPACT EFFICIENCY
PLAN YOUR LAUNDRY AROUND THE BENDIX

Upstairs, downstairs, kitchen or garage, makes no difference—wherever there’s a Bendix Washer there’s wonderful work-saving convenience. It does the whole job of washing: soaking, washing, triple-rinsing, damp-drying within the compass of 4 sq. ft. Simple supply and waste connections are all you need. Your plans incorporating this modern work-saving efficiency will strongly appeal to the modern woman. In many states you can finance the Bendix with the building under FHA.

BENDIX automatic Home Laundry

BENDIX HOME APPLIANCES, INC., SOUTH BEND, IND.
The Eljer Savoy Junior is a fast seller... it is first-quality real vitreous china... low in cost, light in weight, easy to install and easy to keep clean. And, it is now available with Eljer's new line of renewable brass fittings.

The superb styling of the Savoy Junior stems from Eljer's 42 years of experience devoted to bringing you the many "firsts" now available in the complete Eljer line. There is a wide selection in all styles of first-quality plumbing fixtures and renewable brass trim... for every installation requirement. If you are not familiar with Eljer's Savoy Junior, see your jobber right away... the catalog number is B-3194-B.

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