THE ARCHITECTURAL FORUM

MAY 1939

MODERN RECREATION SPACE

ON ANY FLAT ROOF AREA

Costs less This Easy Way!

This beautiful roof deck on the White Memorial Hospital, Los Angeles, is typical of what can be done with any flat roof area on hotel, apartment house, factory, school, or residence, using Celotex Traffic Top surfacing.

NEW MATERIAL IS COLORFUL, RESILIENT, LIGHT-WEIGHT, WEATHER-PROOF

THERE'S only one way to provide a beautiful, practical promenade roof deck like this *at such low cost*—and that's by specifying the new Celotex Traffic Top roof surfacing!

Home owners often want usable roof decks over porch or garage. Apartment house and hotel owners are quick to see the added tenant appeal of such a modern feature. Business blocks and industrial property can profit by including such a recreation spot for employees. For all these uses, *Celotex Traffic Top surfacing is the economical answer*—available in colors, impervious to weather, resilient under foot.

Flat roof areas planned for Traffic Top surfacing *require no extra reinforcement,* since this product weighs no more than ordinary slag or gravel surfacing. Deadens sound transmission to rooms below; protects built-up roofing from the heat of the sun. *Passes firebrand tests,* and is permanently protected against termites and dry rot by the exclusive, patented Ferox Process. Mail the coupon.

The word Celotex is a brand name identifying a group of products marketed by The Celotex Corporation and is protected as a trade-mark shown elsewhere in this advertisement.

AF 5-39

THE CELOTEX CORPORATION
919 N. Michigan Ave., Chicago, Ill.

Please send specifications on your new Celotex Traffic Top Material.

Name.....

Address.....

City..... *State*.....

County.....

CELOTEX

REG. U. S. PAT. OFF.

TRAFFIC TOP

TRADE MARK

Sales Distributors Throughout the World

ARCHITECTURAL FORUM

MAY 1939

Editor, Howard Myers; *Managing Editor*, Ruth Goodhue; *Associates*, Paul Grotz, Joseph C. Hazen, Jr., George Nelson, Henry H. Saylor, Henry Wright; *Assistants*, John Beinert, Anna De Cormis, Barbara Hunt, Richard E. Saunders, Madeline Thatcher, Nadia Williams, Allan Woodle.

THE ARCHITECTURAL FORUM is published by Time Inc., Henry R. Luce, President; Roy E. Larsen, Eric Hodgins, P. I. Prentice, Vice Presidents; Charles L. Stillman, Secretary and Treasurer. Publication and Subscription Office, Erie Ave., F & G Streets, Philadelphia, Pa. Subscriptions may also be sent to 330 East 22nd Street, Chicago, Illinois. Executive, Editorial and Advertising Offices, Time & Life Building, Rockefeller Center, New York. Business Manager, H. A. Richter. Advertising Manager, George P. Shutt. Address all editorial correspondence to Time & Life Building, Rockefeller Center, New York. Yearly subscription, Payable in advance, U. S. and Possessions, Canada, Cuba, Mexico, South America, $4.00. Elsewhere $6.00. Single issues, including Reference Numbers, $1.00. All copies Mailed Flat.

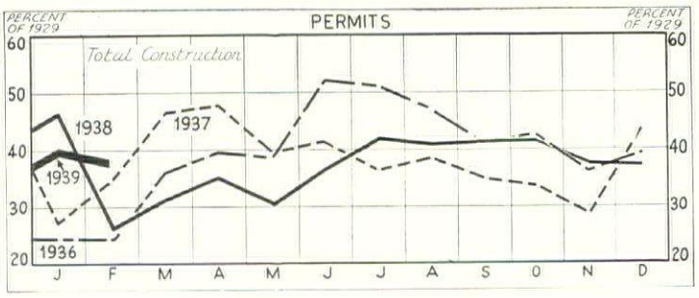
VOLUME 70—NUMBER FIVE

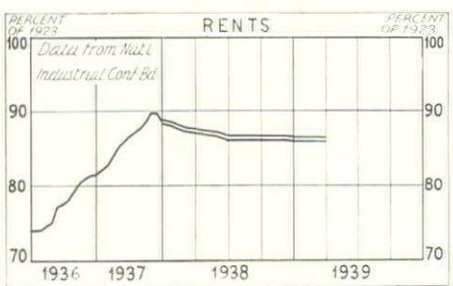
THE MONTH IN BUILDING

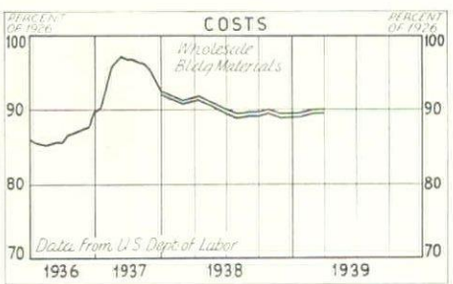
PERMITS

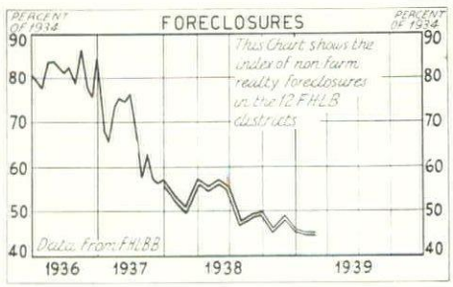
(Source: U. S. Dept. of Labor)

	Monthly data			First two months	
	Feb. 1939 (millions)	Comparison with Jan. '39	Feb. '38	1939 (millions)	Comparison with 1938
Residential	$ 86.7	+21.1%	+116.7%	$158.3	+19.5%
Non-residential	36.2	—38.5	—24.4	95.1	—4.1
Additions, repairs	25.6	+6.4	+ 5.9	49.7	+2.8
TOTAL	148.5	—3.9	+46.1	303.1	+8.3









UP AND UP. While most other industries have been thinking up excuses for poor performance, Home Building thus far this year has kept its nose to the grindstone, ground out houses in record-breaking numbers. According to F. W. Dodge Corp.'s compilation of construction contracts awarded in 37 Eastern States, residential building for the initial 1939 quarter totaled roughly $285,000,000 —83 per cent above the corresponding figure for last year and 23 per cent above that for 1937, the previous post-depression peak. Total building during the three months set an eight-year record of $775,000,000—44 per cent above last year, 17 per cent over 1937.

Bolstering these totals was March residential building, valued at more than $126,000,000. Its 59 per cent gain over the preceding month was more than the normal seasonal expectation, and was made despite the adverse effects of generally stormy weather and a delayed spring. Total building jumped 36 per cent between February and March to $300,661,000.

Thus, for Home Building, 1939 has come in like a lion. Chances are, however, that it will not soon follow the lion-to-lamb rule of thumb. To wit: March's weekly volume of FHA mortgages accepted for appraisal, a barometer of future residential building activity, advanced steadily, at month's end totaled $121,689,493, an all-time record.

GOLD STEEL. Of prime interest to prefabricators was the announcement last month of a new kind of steel—strong, light, stainless and colored. Bold claim of its developer, Metallurgist and Industrial Designer Oscar B. Bach, is that in conjunction with mass production, the new steel will make $10,000 houses cost $3,800. Unlike other prefabricators' materials, principal ingredient of the proposed Bach house will be asbestos panels covered with a thin skin of his cheap, colored, corrosion-proof metal.

But Bachite, as the product is called, has additional significance for Building. Its low cost, its wide range of colors (red, green, blue, purple, bronze, black and even gold), and its corrosive resistance (almost that of twice-as-expensive high-grade chrome nickel stainless steel) may make it readily adaptable to almost any exterior as well as interior use where metal is advantageous.

FHAMENDMENTS. As fickle as the map of Europe is the state of Congressional legislation which will eventually amend the National Housing Act. As if Senators and Representatives were not muddled enough in their own minds, they have been barraged by conflicting suggestions from realtors, building and loaners, bankers, AFL, FHLBB and, last but not least, FHA itself. Consequently, their attempts to keep everybody happy render yesterday's reporting out of date, make the subject of tomorrow's reporting unpredictable.

Fortnight ago, however, the House made up its mind as to how the Act should be changed, sent a bill to the Senate providing in the main:

▶ That FHA's mortgage insurance limit be upped from $3 billion to $4 billion. FHA wanted the maximum boosted to $6; FHLBB and its building and loan children stumped for no boost at all. Said FHLBB Chairman John H. Fahey: "One of the fears that I have is that increasing the authorization from $3 billion to $6 billion is, in effect, making this (FHA) a permanent organization . . . (and) experience with the insured mortgage has not gone far enough, as yet, to demonstrate whether it is a wise plan, as a permanent policy."

▶ That insurance of mortgages on existing structures be extended to July 1, 1941. FHA, realtors, and bankers argued in favor of this provision; FHLBB and building and loaners, against it. The former group claimed it was necessary to lubricate the trade-in or used-house market, while the latter said that it would permit bankers to continue their raid on building and loan mortgage portfolios.

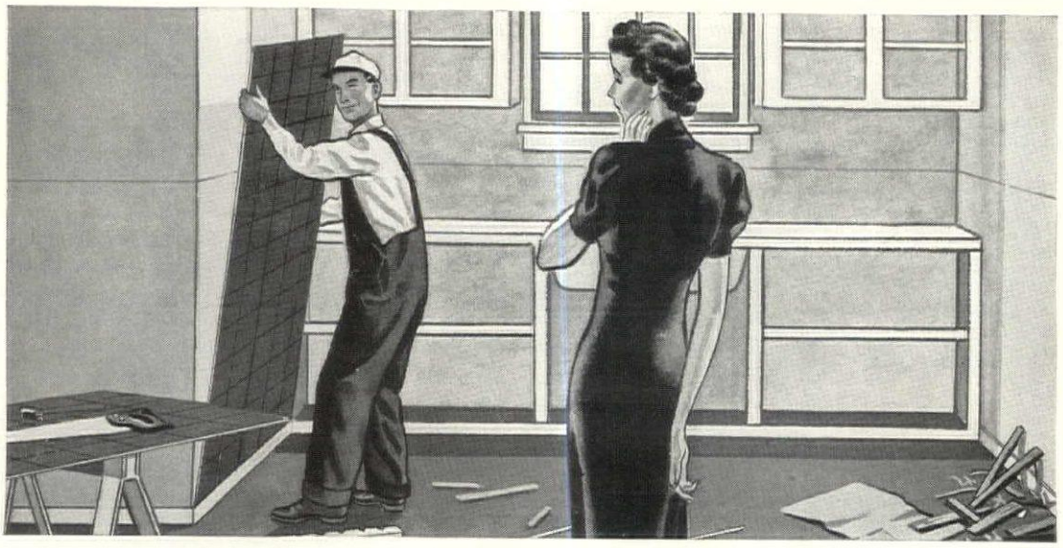
▶ That section 210 of the NHA, covering insurance of $16,000-$200,000 mortgages on projects of ten or more houses be eliminated. FHA was in favor of this move. Such mortgages may still be insured under more restrictive Section 207 of the Act which has no bottom mortgage limit but gives FHA a hand in the management of all projects.

▶ That Title I's life be extended to July 1, 1941. As usual, FHA was against extension, but was willing to string along with public demand provided certain changes were made in the Title (see below).

▶ That the principal amount of home modernization loans eligible for insurance under Title I be reduced from $10,000 to $2,500.

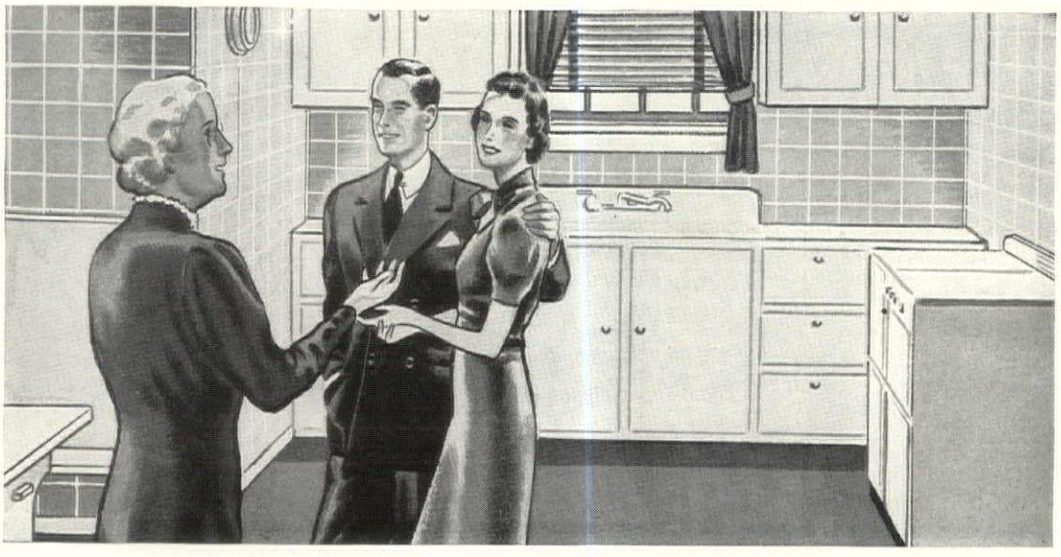
▶ That an annual premium of not more than 1 per cent be charged for mortgage insurance under Title I where currently no premium is required.

Easy to install



• Masonite Presdwood Temprtile is the modern material for kitchen and bathroom walls. Because it's an all-wood, grainless board, it can be applied with moisture-proof adhesive or nailed directly to studs. Properly installed, it will not warp, chip or crack. And it resists moisture.

Produces beautiful tile effects



• Already grooved with tile-like pattern, Presdwood Temprtile can be painted in any number of pleasing combinations. It can be washed with soap and water to keep it looking spick and span. And it can be repainted whenever the home owner wants a change in color scheme.

Masonite Presdwood Temprtile provides lasting surfaces at low cost

It's Right MASONITE

• Masonite Presdwood Temprtile saves money for the home owner in many ways. It enables him to have expensive-looking walls for a low initial cost. It is easy and inexpensive to install. The up-keep cost is very little. And Presdwood Temprtile will last as long as the building stands.

CLIP AND MAIL THIS COUPON FOR FREE SAMPLE AND FULL DETAILS

FREE!

MASONITE

THE WONDER WOOD OF A THOUSAND USES

A Mississippi product sold by lumber dealers everywhere

MASONITE CORPORATION, *Dept. AF-17*
111 W. Washington St., Chicago, Ill.

Please send me free sample and more information about Masonite Presdwood Temprtile.

Name _____

Address _____

City _____ *State* _____

THE ARCHITECTURAL FORUM

Published monthly by Time Inc., Henry R. Luce, President, Publication Office, Erie Ave., F & G St., Phila., Pa. Yearly Subscription: U. S. A. Insular Possessions, Canada and Cuba, $4.00. Foreign Countries in the Postal Union, $6.00. Single issues, including Reference Numbers, $1.00. Entered as Second Class Matter at the Post Office at Philadelphia, Pa., under the Act of March 3, 1879. Additional entry at New York, N. Y. Copyright, 1939, Time Inc. Spiral Binding U. S. Pat. Nos. 1516932 and 1942026. Other Patents Pending.

VOLUME 70
Number 5

THE MONTH IN BUILDING

▶ That FHA value the land on which large scale projects are built on the basis of present market value, thus prevent the writing up of land values by promoters. This was an answer to the cry of realtors who complained generally of the competitive effect that FHA projects have on the rental market. Specifically, they pointed their fingers at St. Louis' Manhasset project where raw land was purchased at $44,000 and put into the project at $171,000. FHA did not deny the write-up, countered that it was justified in view of the ultimate developments to be made on and near the site. (Apparently realtors failed to observe that by padding land values, project sponsors have to increase rents and thus offer less competition.) FHA claims that the anti-mark-up amendment will put the damper on large scale operations by removing an incentive for investment in such projects. Bigger FHA worry, however, is that the wide publicity and misunderstanding concerning Realty's attacks will clamp the brakes on the rental housing program.

When these provisions were passed in the House, the Senate subcommittee had not perfected its version of the FHAmendments. It was, however, working along the same lines as the House, had approved several provisions incorporated in the Representatives' bill. Major *differences:*

▶ Elimination of Section 210 was not considered.

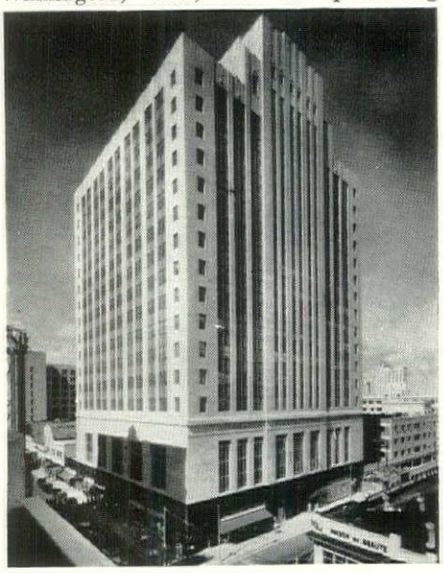
▶ The sub-committee recommended that all labor on FHA-insured projects with a mortgage of more than $16,000 be paid in accordance with prevailing wage scales. This provision will not bother FHA; most large rental projects are already being built by organized labor.

▶ It was suggested that insurance of existing structures be limited to 35 per cent of the total volume of FHA mortgage insurance. Aimed at appeasement of building and loaners, this provision will also make but little difference to FHA—the ratio for 1938 was 70-30 in favor of new construction, and the volume of insurance on existing structures has been decreasing percentage-wise every year since FHA's establishment.

DIESELIZED. Most newsworthy building to scrape the sky in many a month is the Alfred I. duPont Building in Miami. Not only is it the largest U. S. office building completed thus far in 1939, but it is the largest ever built which depends on Diesel-generated electricity for all its light and power requirements. Not a kw. is supplied the building from outside sources.

Housed in a soundproofed basement room of the completely air conditioned 17-story structure, the power plant is comprised of three 16-cylinder, spring-mounted Diesels, each developing 1,050 horsepower at 600 r.p.m. Unlike the average air-started Diesel, the duPont trio is started by electricity from eight huge storage batteries which will also supply emergency lighting throughout the building should the power plant fail. Two 3,000 gallon fuel storage tanks feed the plant, and a brick stack the entire height of the building carries off the engine's exhaust.

Credit for the building's design goes to Architects Marsh and Saxelby of Jacksonville, Fla. and Messena & duPont of Wilmington, Del.; for its pioneering



Boasts its own Kilowatts

power plant, to General Motors Corp. and Miller Electric Co., consulting engineers. Credit is also due Miami's duPont Building for lining up with the pioneers of a new market for Diesel engines (ARCH. FORUM, Mar. 1937, p. 197). In time it may offer some interesting operating cost data for building owners and managers.

RESOURCES. Highly important prelude to actual coordination and preservation of U. S. natural resources is detailed study of what those resources are, how they are being wasted. Nearly three years ago, the President, under authority of the Emergency Relief Appropriations Act, created the National Resources Committee for just such a study. It has since turned out many an important analysis of resource problems from population to drainage, has emphasized the need for coordinating local, State and regional plans. This June, however, the Committee's authorized time will be up, and without further enabling legislation its studies will cease.

An attempt at such legislation is the bill introduced recently by Senator Hayden as an amendment to the Public Works Bill. It proposes to make the National Resources Committee a permanent branch of the Government under the name "National Resources Board" and would continue their broad research and advisory powers. Because the Committee has helped local governments iron out planning problems and at the same time has given them technical assistance otherwise unavailable, the Hayden Amendment has the backing not only of theoretical planners but of as practical an organization as the National Association of Real Estate Boards.

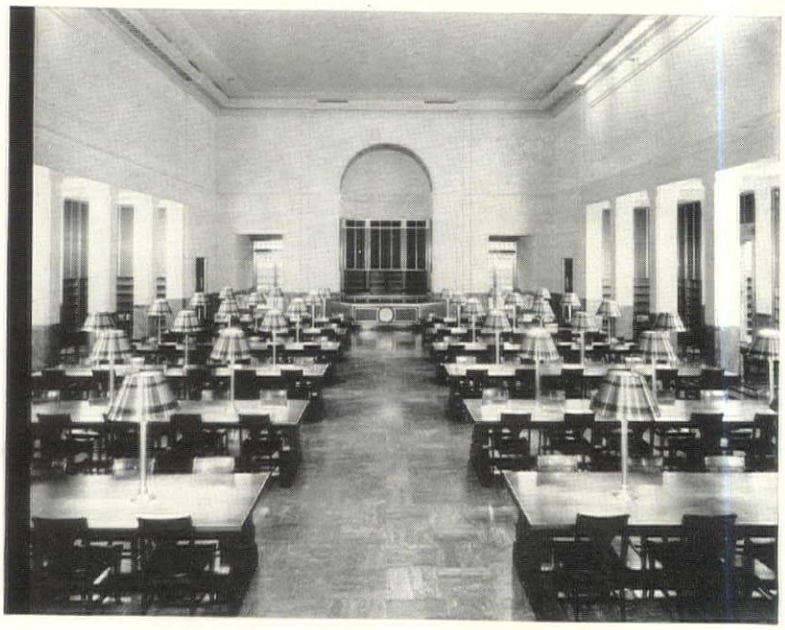
Currently, the Hayden rider and its host, the Public Works Bill, are under consideration by the special Committee to Investigate Unemployment and Relief. Fate of the former is, of course, in the hands of the latter; and the latter on its way through the legislative wringer, is faced with tough going. Reason: the Public Works Bill would do away with WPA and create instead a Department of Public Works which would carry on a long range program implemented by State grants based on an equated relation between population and the number of unemployed.

EARNINGS. Last month 32 of Building's manufacturers reported their earnings for 1938:

Year ending Dec. 31	1938	1937
Acme Steel	$368,168	$1,898,091
Air Reduction	3,769,337	7,326,835
Alpha Portland Cement	235,107	234,755
Allis-Chalmers Mfg.	2,553,946	7,841,167
Aluminum Co. of America	15,563,147	27,622,749
American Rolling Mill	1,307,880*	8,231,335
Atlas Plywood[1]	58,324	181,624
Carrier Corp.	1,133,021*	250,794
Cooper Bessemer	298,242	270,096
Crucible Steel	2,237,026*	4,017,931
Ferro-Enamel	111,257	625,520
General Electric	27,729,000	63,546,762
Harnischfeger	335,275*	237,719
Hobart Mfg.	812,849	910,469
Holland Furnace	1,233,382	1,421,600
Kennecott Copper	22,689,660	49,822,394
Kimberly Clark	1,894,641	2,360,417
Masonite Corp.[2]	442,923	551,938
Mueller Brass[3]	383,773	629,375
Otis Elevator	1,912,730	3,592,325
Pennsylvania-Dixie	86,716	28,382
Pittsburgh Plate Glass	6,488,907	18,287,969
Revere Copper & Brass	2,125,407*	414,759
Reynolds Metals	571,115	1,515,920
Ruberoid	515,472	750,509
Sharon Steel	95,324*	1,345,810
Starrett	460,712*	259,293*
Stone & Webster	761,306	861,640
U. S. Plywood[4]	82,599	5,799*
U. S. Steel	7,717,453*	94,944,358
Wheeling Steel	493,138	4,238,488
Yale & Towne	68,958	1,326,080

* net loss
1—6 mos. to Dec. 31
2—28 wks. to Mar. 11
3—12 mos. to Feb. 28
4—3 mos. to Jan. 31

★IN THE NEW LIBRARY OF CONGRESS ANNEX - *Formica finds many uses!*



★ Formica Realwood table tops in the reading room. The entire desk and paneling with inlays at the rear are also Formica.

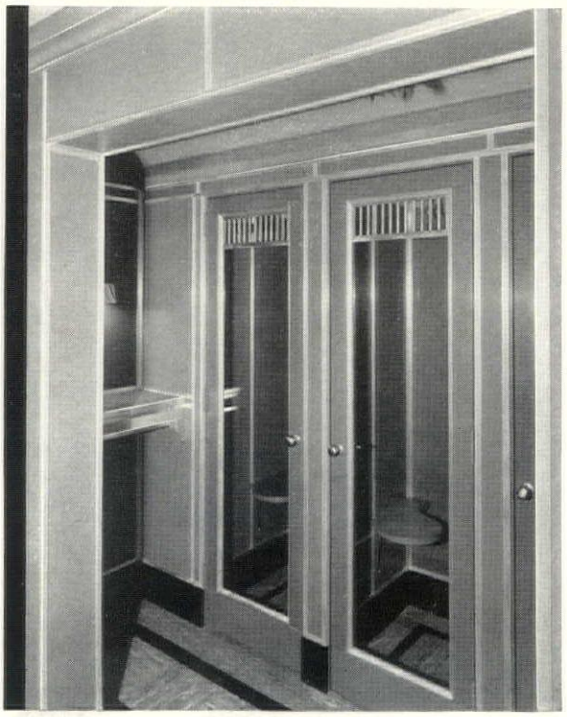
FORMICA demonstrates its versatility in the Annex to the Library of Congress recently designed by Pierson & Wilson for the Architect of the Capitol.

Chosen for its excellent appearance, its modernity, and its unusual durability and stability of color, it was employed for such diverse purposes as table and desk tops, book shelves, wainscot in corridors, telephone booths, doors, baseboard, chair rails, and fronts of car card index cases.

Much of the material is in a subdued gray-green with a morocco surface—some of it has decorative inlays; some of it is realwood. Literature giving construction details is available. Ask for it.

THE FORMICA INSULATION CO.
4620 Spring Grove Avenue
Cincinnati, Ohio

★ Formica Realwood table tops and Formica gray-green book shelves in a small reading room.

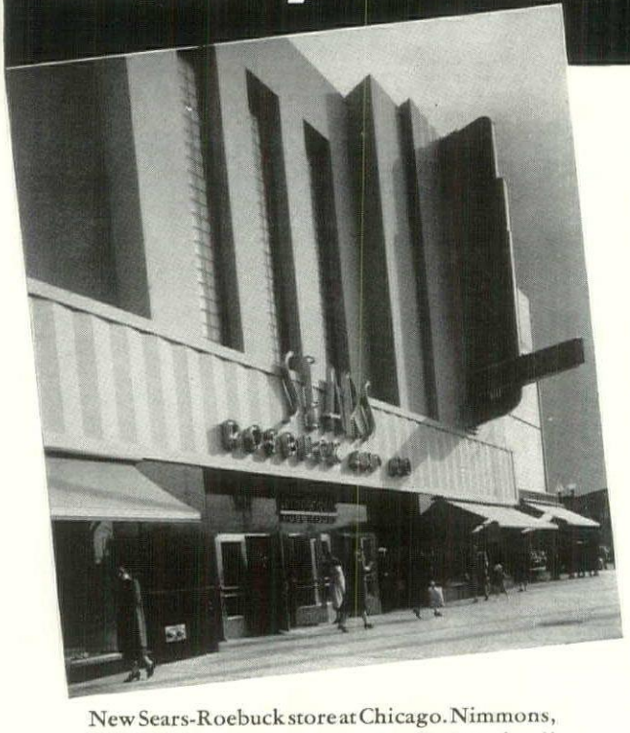


★ Formica doors, paneling, shelving and seats in telephone booths.

FORMICA

FOR BUILDING PURPOSES

Firesafety and beauty cost less when you build with CONCRETE



New Sears-Roebuck store at Chicago. Nimmons, Carr & Wright, architects; Lundoff-Bicknell Company, contractors. Similar Sears buildings designed by Nimmons, Carr & Wright were recently completed at Baltimore, Highland Park, Mich., and Glendale, Calif.

Concrete helps achieve good appearance for your store, factory, warehouse or office building because it is adaptable to any architectural problem.

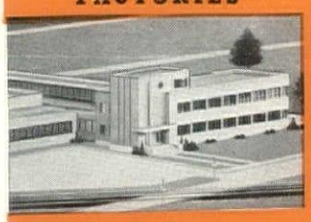
But concrete does much more. It keeps costs down by combining structural and architectural functions in one thrifty material. It insures long life, firesafety and low maintenance. It saves time because you enclose as you build with concrete.

Your architect or engineer can show how your building can be built efficiently and economically with concrete. Write for *"The NEW Beauty in Walls of Architectural Concrete"* (sent free in the United States or Canada), or ask for one of our engineers to call.

PORTLAND CEMENT ASSOCIATION
Dept. 5-7, 33 W. Grand Ave., Chicago, Ill.

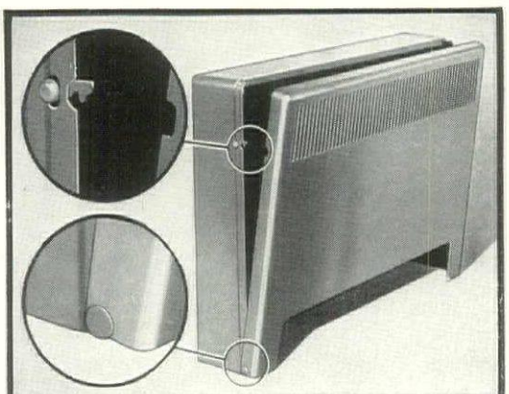
A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work.

ARCHITECTURAL CONCRETE . . . ARCHITECTURAL AND STRUCTURAL FUNCTIONS COMBINED IN ONE FIRESAFE, ENDURING MATERIAL



When You Build Go MODERN

3 Distinct and Separate Lines of COPPER RADIATION to Meet Today's Specialized Heating Requirements

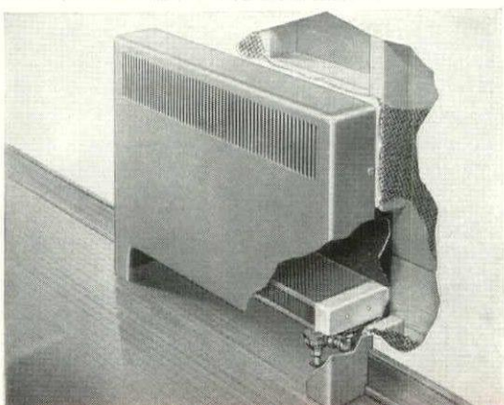


ONLY MODINE HAS NEW TIME-SAVING MANUALLY REMOVABLE ENCLOSURE FRONT—NO EXTRA COST

A Feature of the Standard and Institutional Lines

No screws, bolts or nuts. No tools. Press two catches *by hand,* and enclosure front is off. Saves 15 minutes per convector in installing; speeds up cleaning and servicing.

NEW PROJECTION FRONT GIVES MORE RADIATION IN 4-INCH STUD WALLS—With new Projection Front type, *Standard* Recessed Convector, a heating unit of 7⅜ or 9¼-inch depth can be installed in 4-inch stud wall. (See cut below.)



Modine Copper Radiation (Convectors) has obsoleted old-style, inefficient, space-taking, ugly cast iron radiators. For thirteen years architects have specified Modine Convectors as standard equipment in America's finest homes, apartments, offices and public buildings. Thousands are enjoying the new comfort, convenience, cleanliness and beauty of Modine Copper Convector heating.

Only pioneer heat transfer specialists with Modine's vast experience could have developed so many exclusive design advancements as are embodied in the *Modine Triple Line of Convectors.* They not only anticipate today's varying demands but offer the architect the widest latitude in selecting the right type of convector for his exact need.

1 MODINE *Deluxe* CONVECTORS—AN ENTIRELY NEW CONCEPTION OF BEAUTY—Never before, except possibly in custom design and manufacture, has there been true beauty in heating equipment. Modine *Deluxe* Convectors, graceful in line and pleasingly proportioned, with a wide selection of *die-cast* grilles allow the architect freedom to express beauty in keeping with the finest decorative motifs.

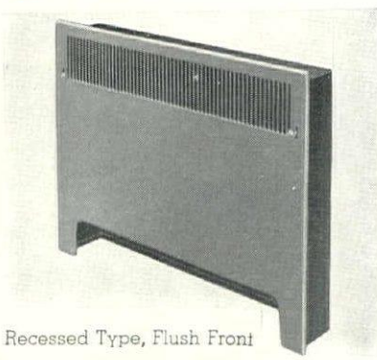
2 MODINE *Standard* CONVECTORS—NEW DEVELOPMENTS, NEW ECONOMIES, AND A NEW LOW COST—Modine simplification and standardization . . . plus such exclusive design features as the new manually removable enclosure front and the new projection front . . . effect lower initial and installation costs. Stores, apartments, offices, hotels, and moderate cost homes can now enjoy all the superiorities of steam and hot water heating with Modine Copper Convectors—*at a new low cost.*

3 MODINE *Institutional* CONVECTORS FOR HEAVY-DUTY APPLICATION MEET "SPECIAL" REQUIREMENTS AT ALMOST STOCK PRICES—Specifically designed to meet requirements peculiar to institutional heating. Many special construction features usually listed as "extra cost" items are now standard, *at almost stock prices.* Made of heavier gauge metals, with square lattice grilles. Tamper-proof manually removable Lock-Type fronts and Lock-Type dampers are optional features.

ALL LINES HAVE FAMOUS MODINE "Red Cap" *COPPER* HEATING UNIT—Small and compact, the Modine heating unit may be built into the wall, saving floor and wall space. Made of enduring copper, it heats faster, responds more quickly and evenly to automatic control.

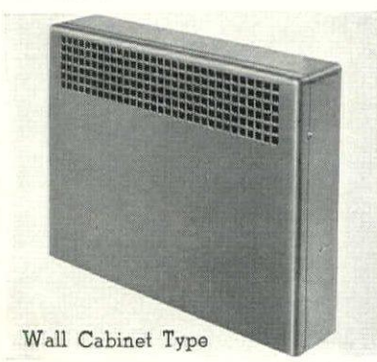
Floor Cabinet Type

1 DELUXE Line types; *Concealed* (plaster front, in-wall) *Recessed* (metal front, in-wall); *Floor Cabinet; Wall Cabinet.*



Recessed Type, Flush Front

2 STANDARD Line types: *Recessed,* with Flush, Panel, or Projection fronts; *Floor Cabinet; Wall Cabinet.*



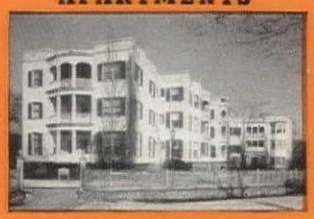
Wall Cabinet Type

3 INSTITUTIONAL Line types: *Recessed,* with Flush Front, and Panel Front; and *Wall Cabinet.*

MODINE MANUFACTURING COMPANY

HEATING, COOLING AND AIR CONDITIONING EQUIPMENT FOR RESIDENTIAL

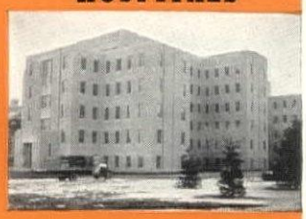
APARTMENTS



PUBLIC BUILDINGS

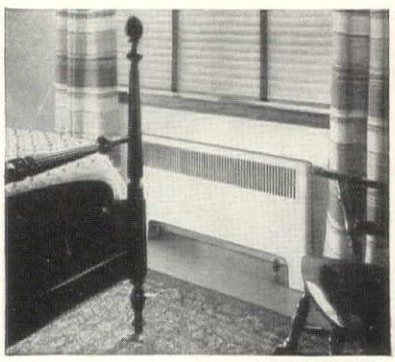
SCHOOLS

HOSPITALS

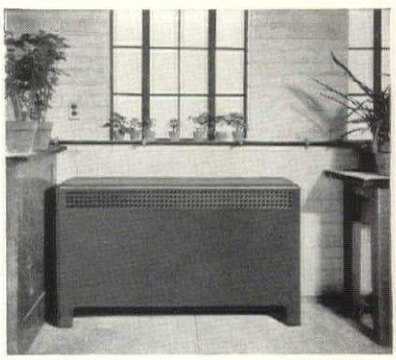


—Anything with MODINE

This Modine *Deluxe* Concealed Type Convector is the ultimate in concealment, space saving and distinctive beauty of appearance.



With its rounded corners, this Panel Front Recessed Type *Standard* Convector is strikingly in keeping with modern decorative trends.



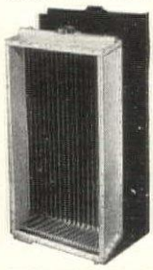
This *Institutional* Convector is of the Floor Cabinet Type—ideal for installation in existing buildings as in new construction.

MODINE AIR CONDITIONERS

Modine Air Conditioning Units perform every function of complete winter and summer air conditioning *automatically*. Steam or hot water is used for heating; cold water or freon for cooling. Units attach to any steam or hot water boiler or central steam supply; are adaptable to automatic firing — oil, gas, or coal stoker; or hand firing.

Large Central Type (shown) is a high capacity unit for large residential or commercial installations in straight air conditioning or split systems. Apartment House Type (not shown) for apartments, hotel suites, residences, offices, shops...compact to allow installation in closet or above a false ceiling. For literature — use the coupon below.

HEATING AND COOLING COILS



Most modern in design, stronger structurally, more effective in heat transfer—*Modine Heating Coils* (shown) satisfy the most exacting demands for heating surface applications. Patented expansion bend allows free, independent expansion of tubes. All steam carrying passages are cylindrical for excess strength. Condenser is copper or copper alloy, inlet to outlet. Copper fins are metallically bonded to tubes. Over 250 types, sizes and capacities. *Modine Cooling Coils* (not shown) for central cooling and air conditioning plants. Installed with blower fan and duct work. Adaptable where cold water or non-corrosive brine is the cooling medium. For literature—use the coupon below.

MODINE UNIT COOLERS

For stores and offices, the Modine Unit Cooler not only cools but cleans, dehumidifies and circulates the air—practically every function of summer air conditioning.

The Modine Unit Cooler is equipped with a powerful yet *quiet* blower, extra deep cooling coils and large-area replaceable-type air filter. Unusually compact. Quick, easy and inexpensive to install. Installation may be made either with or without duct work.

Choice of cold water or freon cooling coils. For literature—use the coupon below.

MODINE UNIT HEATERS

Modine pioneered the direct-pipe-suspension type unit heater — *and more Modines are sold than any other make of unit heater.* Modines are the modern way of heating large space areas in stores, show rooms, filling stations, church and school rooms as well as for industrial heating and process drying. Modines heat faster, distribute heat more thoroughly and evenly, eliminate cold spots and drafts. Fuel savings alone are from 15 to 25%. *Expansion bend construction* permits free, individual tube expansion and eliminates condenser fatigue failure; *velocity generators* lower operating costs. *Modine-patented* direct pipe suspension makes Modines cost less to install. For literature—use the coupon below.

MAIL COUPON NOW FOR FREE LITERATURE

See the Modine Convectors at the 1939 New York World's Fair in House No. 8 "Town of Tomorrow."

MODINE MANUFACTURING COMPANY
1736 Racine St., Racine, Wisconsin

Please send me free literature on the MODINE EQUIPMENT checked below:

○ Deluxe Convectors ○ Standard Convectors ○ Institutional Convectors

☐ Air Conditioners ☐ Heating and Cooling Coils
☐ Unit Coolers ☐ Unit Heaters

Individual _____

Firm Name _____

Street and Number _____

City _____ State _____

1736 RACINE ST., RACINE, WISCONSIN

COMMERCIAL AND INDUSTRIAL APPLICATION

Modine equipment is sold through heating contractors and recognized wholesalers

ARCHITECTURE OF THE DICTATORS

Since the dictator, by definition, is one who governs without the consent of the governed, he has from time immemorial been constrained to placate as well as suppress his populace, throwing sops in the form of bread and circuses, sometimes as elaborate public works. A further device, as popular with the Pharaohs as with twentieth century despots, is the erection of grandiose monuments designed to convince dubious citizens of the eternal stability of the existing regime.

In this respect neither Hitler nor Mussolini has failed to follow the historic pattern. Illustrated on these two pages are some of the architectural compensations currently offered the German and Italian people.

POST AND TELEGRAPH OFFICE, PIAZZA BOLOGNA, ROME

Monkemeyer

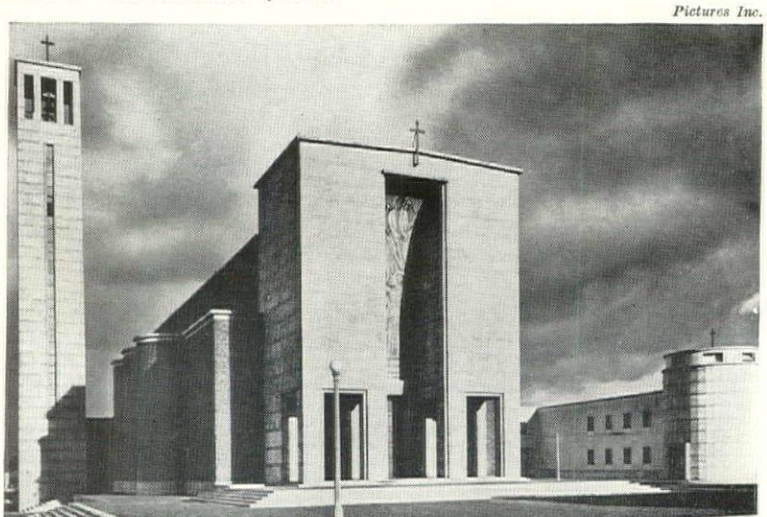
Pictures Inc.

TOWER OF THE REVOLUTION, BRESCIA

PART OF THE UNIVERSITY, ROME

Monkemeyer

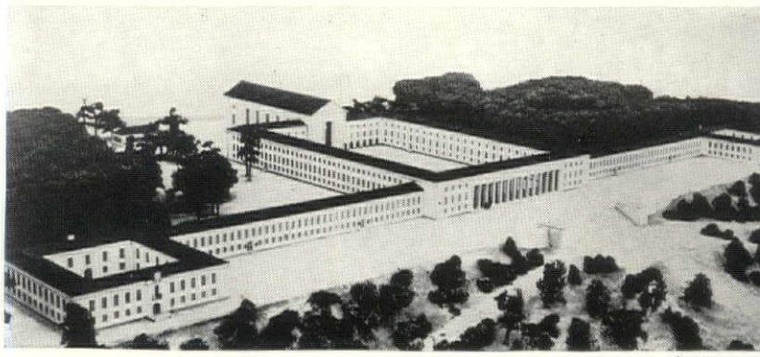
Pictures Inc.



CHURCH OF THE ANNUNCIATION, SABAUDIA →

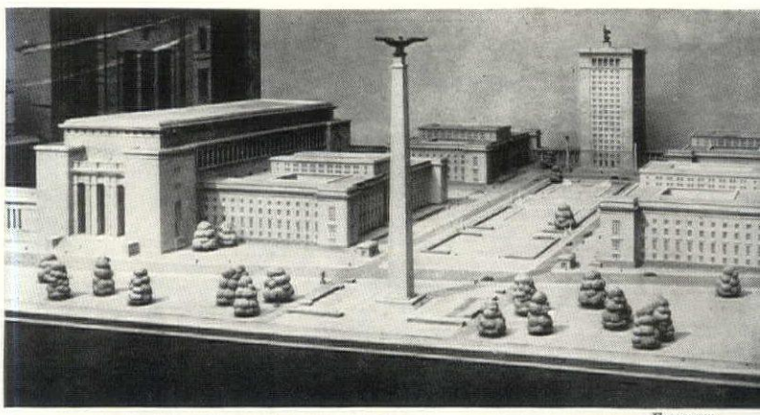
Pictures Inc.

THE AIR MINISTRY, WILHELMSTRASSE, BERLIN



Acme

MODEL OF POTSDAM'S ADOLF HITLER SCHOOL

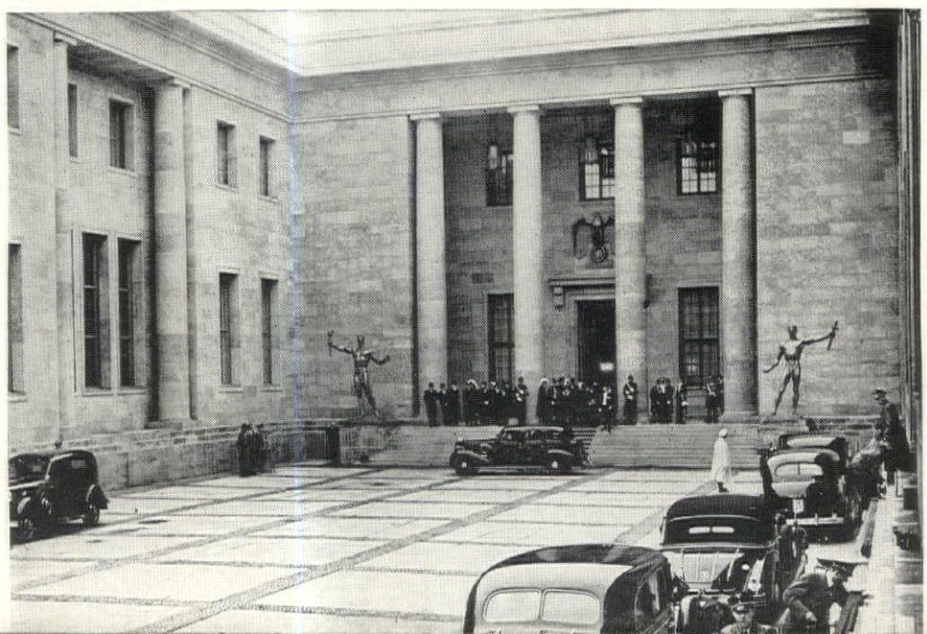


European

MODEL, BUILDING FOR ARMY HIGH COMMAND W. KREIS, ARCHITECT

By the early 1930's the worldwide architectural controversy between modern and traditional was solved for Italy by Mussolini, who, as a former hack journalist felt competent to make a decision. With official blessings on modern, young Italian architects gladly went to work, old Italian architects hastily burned their books behind them. Much of the work was excellent; it had a local flavor, used native marbles tastefully, was imaginative and consistent. Unfortunately modern has proved too dynamic for the Fascist atmosphere, and is gradually being suppressed in favor of the safety of a sterile classicism. Examples: the University in Rome (opposite page), the appalling pavilion at the New York World's Fair. For Hitler there was no such choice of style. Riding into power after a Social-Democratic government whose housing work had set new world standards for modern architecture, he was forced to proclaim anything contemporary as "Bolshevik art," turning to the ponderous, and more appropriate, classicism of the earlier Prussian autocracy. It fitted well with his penchant for lengthy facades such as the one on the school at Potsdam.

In six short years the Führer and his draftsmen have turned out prodigious quantities of utterly stultifying architecture. And if the designs for the 1942 World's Fair in Rome are any indication, the Fascist International Style will be Hitler's rather than Mussolini's—an exercise in exhumation.

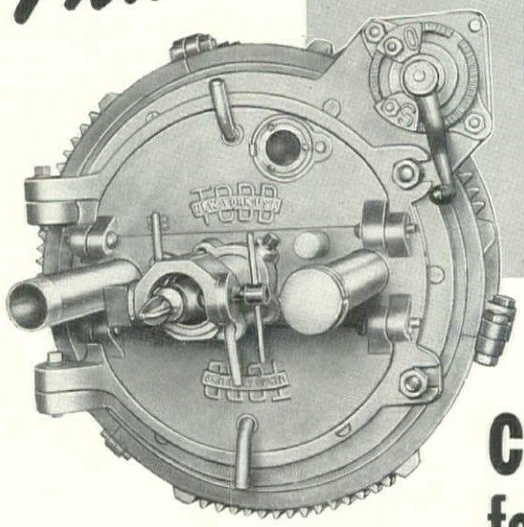


CHANCELLERY COURT OF HONOR, AND (ABOVE) THE VOSSTRASSE FACADE →

Associated Press Photos

(Forum of Events continued on page 42)

NO DIRT...NO STANDBY LOSSES
Practical...economical



TODD

COMBUSTION UNITS for gas or fuel oil . . .

Todd Manufactures the Finest—

1. Mechanical Pressure Atomizing Oil Burners
2. Horizontal Rotary Oil Burners
3. Oil Burning Air Registers for Natural, Assisted, Induced or Forced Draft
4. Inside Mixing Steam Atomizing Oil Burners
5. Combination Gas and Oil Burners
6. Furnace Doors and Interior Castings for Converting Howden Type Furnace Fronts to Oil Firing
7. Oil Burning Galley Ranges
8. Oil Heating, Pumping and Straining Equipment

Small, light-weight *compact*, Todd Combustion Units meet every requirement of commercial, industrial or marine boilers.

They assure flexibility to care for varying loads . . . close regulation and thorough mixture of fuel and air . . . correct control and direction of air supply. They stand the highest furnace temperatures . . . feature high radiant heat transfer . . . low stack temperature and high overall performance.

Todd Gas Burners guarantee *complete* combustion. They are easily adjusted and all parts are air-cooled. Todd Oil Burners have no small or delicate parts . . . tips and strainers easily removed and cleaned. Available with air register fully insulated for installations using preheated air supply.

Why not have an experienced Todd engineer give you an impartial analysis of how, when and where to cut your fuel bill . . . for greater all 'round efficiency.

TODD COMBUSTION EQUIPMENT, INC.

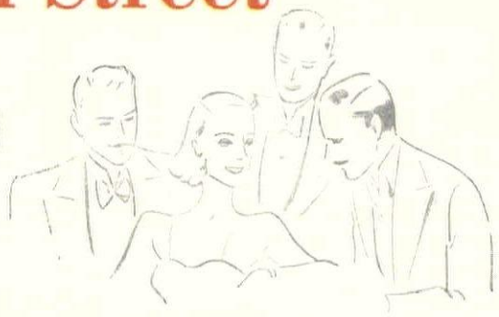
(Division of Todd Shipyards Corporation)

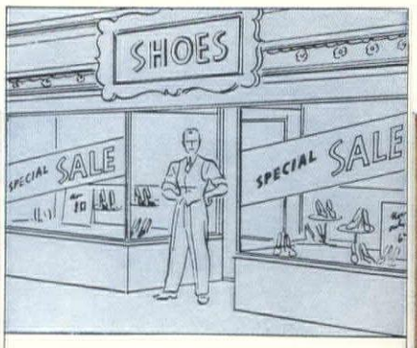
601 West 26th Street, New York City

NEW YORK MOBILE NEW ORLEANS GALVESTON SEATTLE BUENOS AIRES LONDON

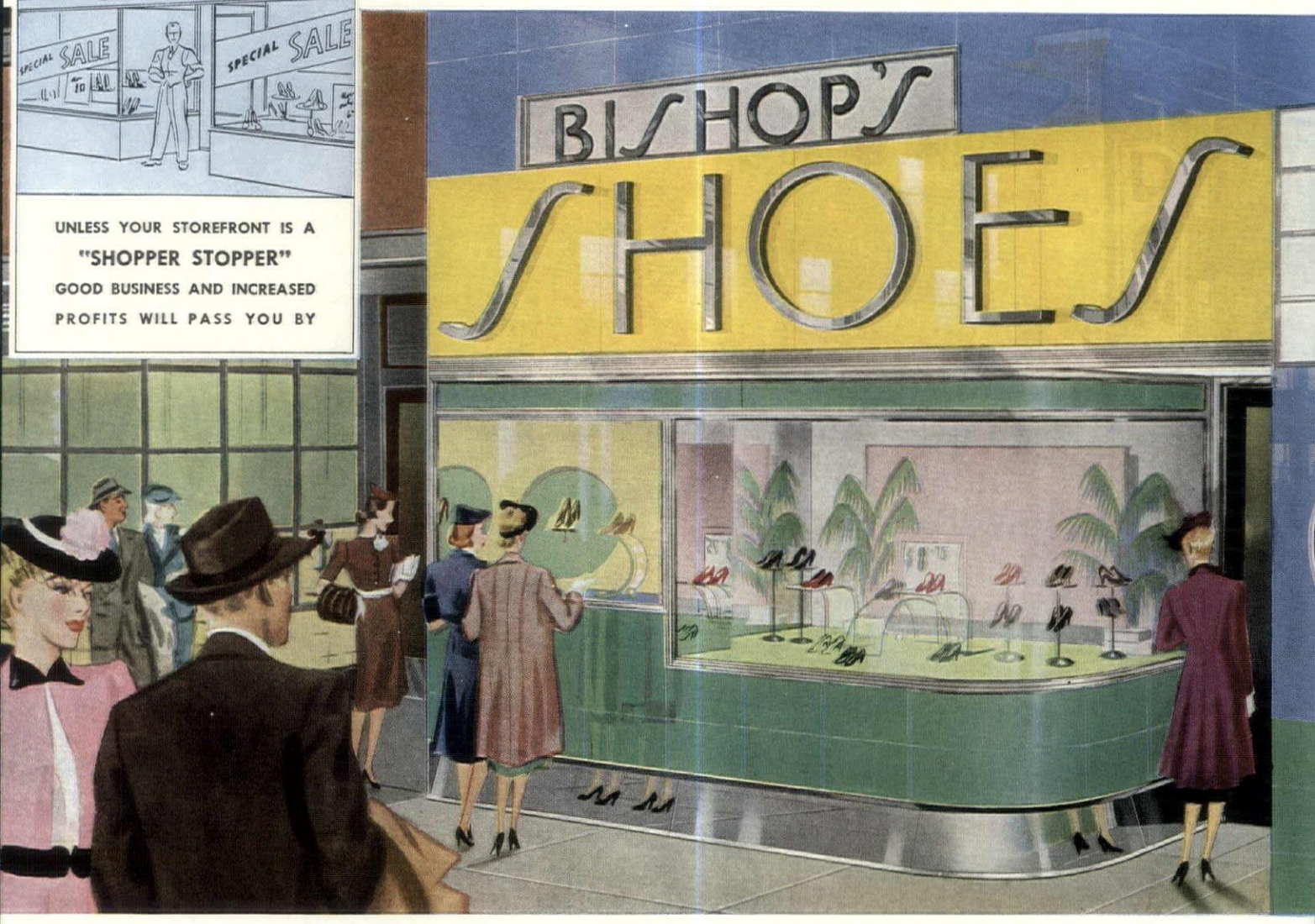
The Wallflower of Main Street

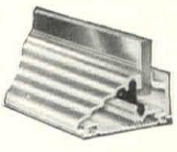
BECOMES THE BELLE OF THE AVENUE





UNLESS YOUR STOREFRONT IS A
"SHOPPER STOPPER"
GOOD BUSINESS AND INCREASED
PROFITS WILL PASS YOU BY





EXTRUDALITE

An entirely new principle of Storefront Metal, combining new beauty and a patented, pressure-controlled shock-absorbing feature that eliminates unequal pressure, the most common cause of glass breakage. An exclusive L·O·F development.

Make certain your Vitrolite installation is made by a franchised L·O·F dealer.

•

Visit the Libbey·Owens·Ford Exhibit, 1939 Golden Gate International Exposition, on San Francisco Bay

UNLESS a store has "color" and *looks* today, it's a wallflower. And it's usually unprofitable to the owner because it doesn't command a top rental. But let an Architect create a colorful, swanky L·O·F Storefront for this "Wallflower of Main Street" and it becomes "The Belle of the Avenue"—radiant with shopper-appeal, tenant-appeal and sales-appeal—a *profit maker*.

Modern landlords and merchants want the beauty, color, easy cleaning, low maintenance cost and *shopper-appeal* of L·O·F Glass and Metal Fronts. Architects are realizing that in Vitrolite, Vitrolux, Extrudalite and L·O·F Plate Glass they have modern materials that fit in perfectly with Today's demand for modern and modernistic designs that involve beauty, color and light.

The trend toward L·O·F Storefronts is definite. We will gladly cooperate with you on any unusual design problems. Meanwhile ask for our newest Vitrolite Color Chart and any other information you need. Libbey·Owens·Ford Glass Company, 1308 Nicholas Building, Toledo, Ohio.

(Member of Producer's Council)

LIBBEY · OWENS · FORD

COLORFUL Storefronts

VITROLITE • VITROLUX • EXTRUDALITE

(Continued from page 11)

WINNERS IN THE PRODUCTIVE HOME COMPETITION

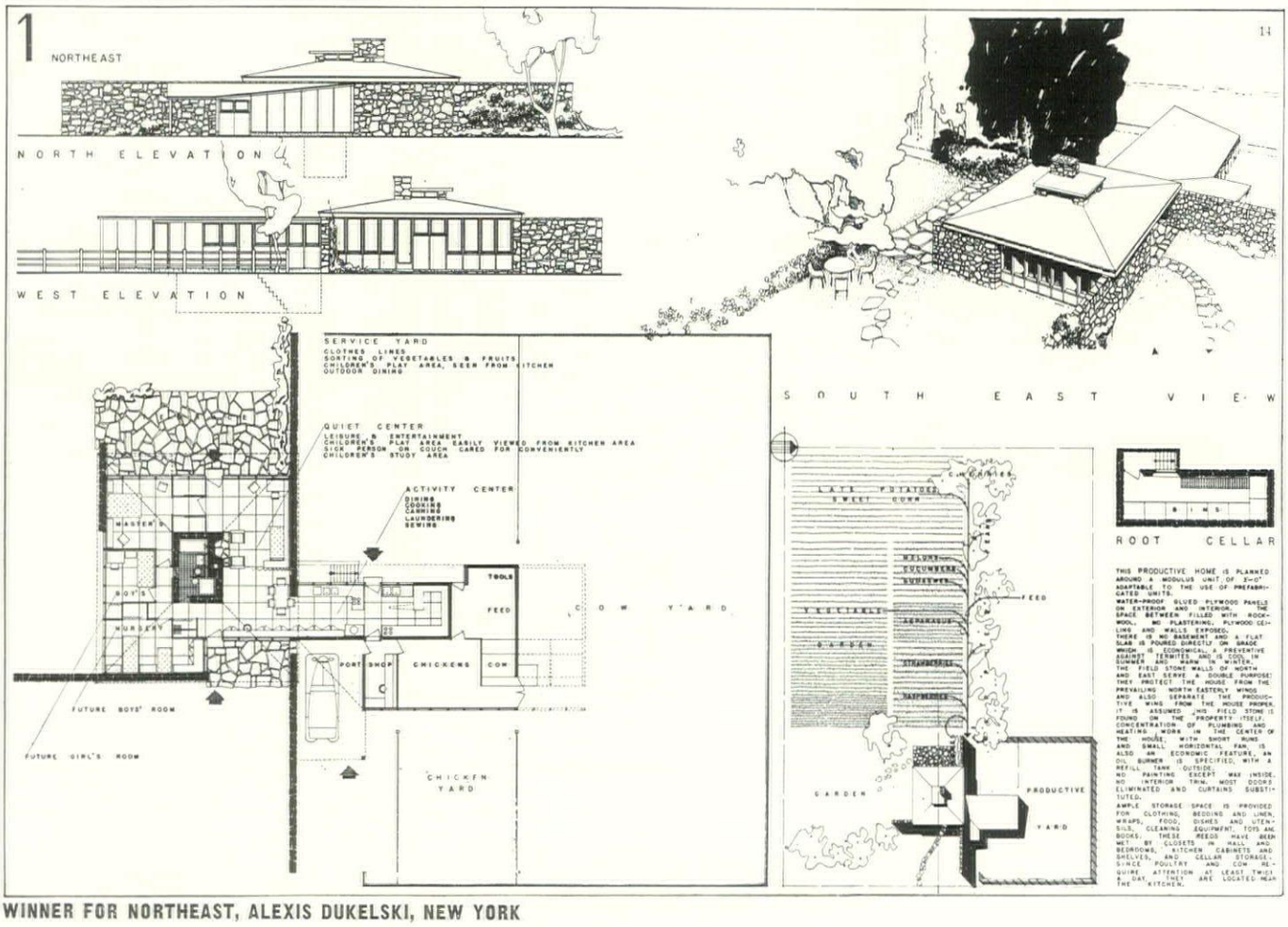
Rurban is the new name for it. For five regions of the U. S. designs for moderately low cost houses were submitted by 508 competitors, setting a pattern for a kind of life that is neither radically new nor yet a reversion to pioneering. Sponsors believing in the ideas of Ralph Borsodi are trying to draw families of moderate means away from city apartments into garden homes within commuting range. Family's cash income from city employment could be made to go farther by raising part of what it consumes.

In the first stage of a two-stage competition, 55 designs were selected for further development. From the final submission five designs won each $1,000, with 50 runners-up receiving $100 each.

Designs were based on the assumption that the house would be built on an acre and a half of ground, and that the commuting breadwinner would earn $2,100 annually. Five rooms, a garage, workshed and root cellar were to be provided, and some of the work of construction or enlargement would be done by the family itself.

First-stage Jury: Dr. Baker Brownell, Professional Adviser Walter Sanders, Frederick L. Ackerman, Mrs. Margaret J. Suydam, Burnham Hoyt, Monsignor Liugi G. Ligutti. By vote of contestants, Richard J. Neutra and Antonin Raymond were added for the final judging.

Five qualities sought by the jury: adaptability to productive activities; layout of land and outbuildings; economy; suitability to region; apparent ability of competitor to prepare proper working drawings and specifications. One requirement most generally neglected was economy. The Jury, in its report, emphasized the fact that it does not wish to present the idea that any of these plans will be an ideal productive home, and only hopes that they might serve as a springboard for completely valid solutions. Under the illustrations are comments by members of the Jury.



WINNER FOR NORTHEAST, ALEXIS DUKELSKI, NEW YORK

"Probably the smartest and handsomest home of those entered, but it is too costly for the family in our problem."

(Continued on page 16)

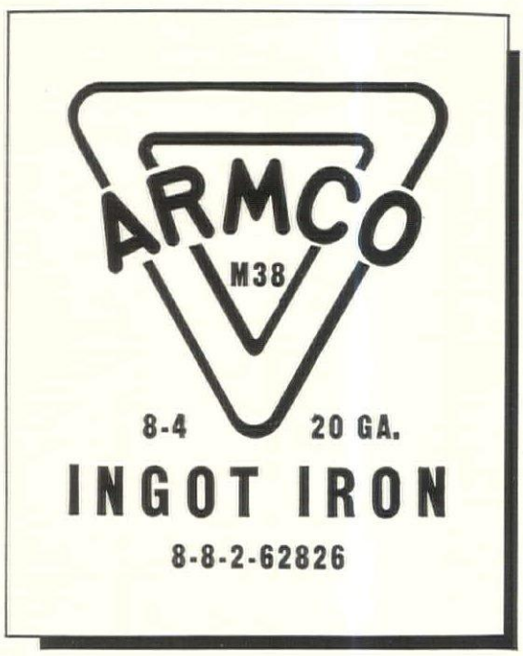
What do you get when you specify just "GALVANIZED IRON"?

Frankly, we couldn't begin to say what you get when you specify simply "Galvanized Iron." It would be a gamble at the best. Yet we *can* tell you what you get when you specify galvanized ARMCO Ingot Iron. Thirty-three years of usage support these straightforward, uncolored facts:

A Known Name: Your specification of galvanized ARMCO Ingot Iron brings positive assurance of identification of brand and gage. It isn't fun to be fooled by inferior substitutes, and the Armco stencil prevents this unpleasant and even costly experience.

Proved Durability: Of all the durable, low-cost galvanized metals, ARMCO Ingot Iron has the longest record of actual service in building construction. Thousands and thousands of installations subjected to all kinds of climates and weather conditions amply bear out this statement of *proved durability and service.*

Architect Preference:
An analysis of the sheet metal specifications of work featured in the Small House issues of ARCHITECTURAL FORUM reveals that ARMCO Ingot Iron was the most frequently mentioned brand of galvanized metal.



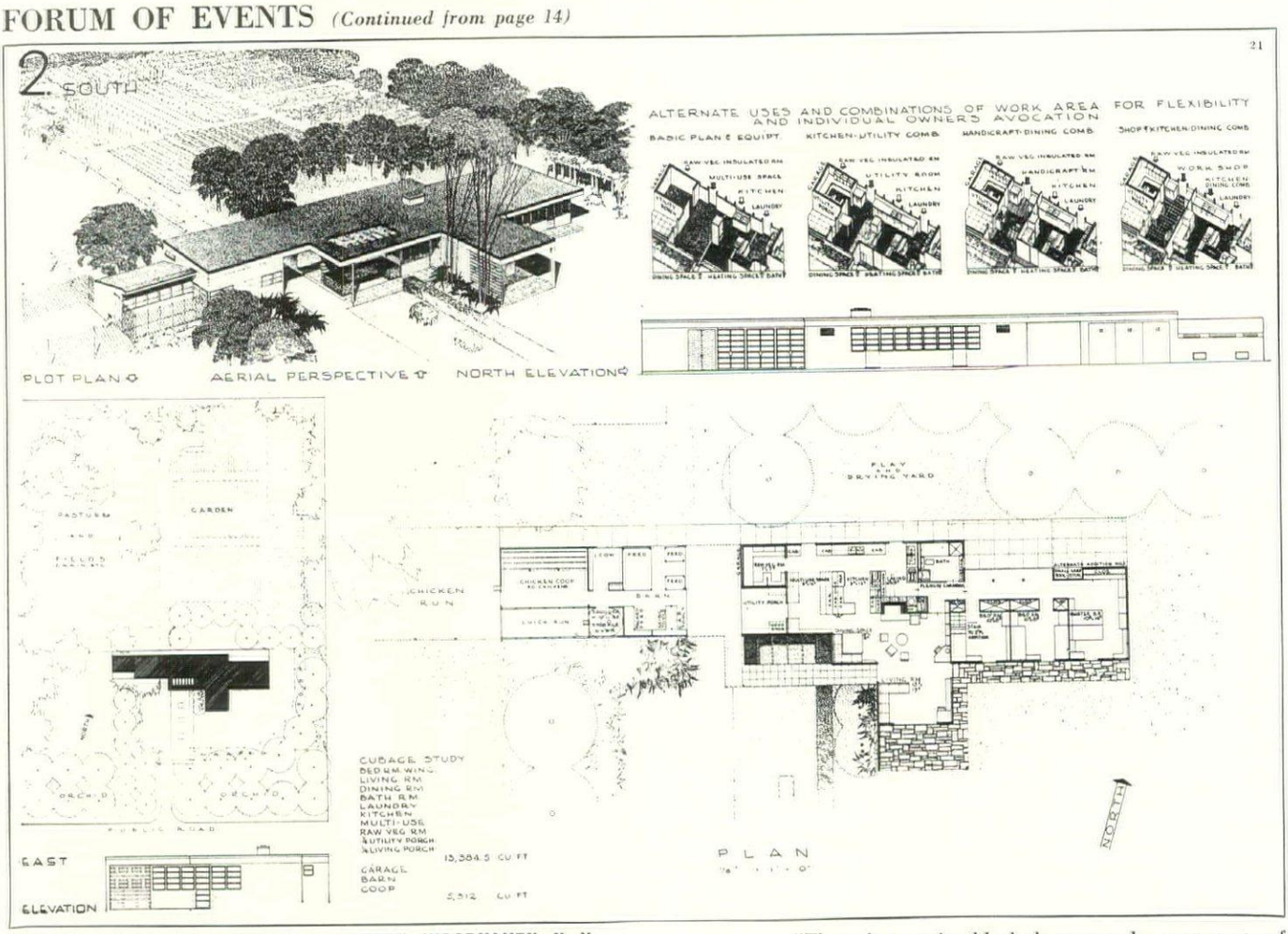
Always the Same: Careful selection of raw materials coupled with exacting control in production make certain that one sheet of ARMCO Ingot Iron is just like the next — highly refined, of predetermined chemical analysis, and possessing a uniform, protective galvanized coating. You'll *never* get questionable "seconds" when you use ARMCO Ingot Iron.

Analysis Unchanged: The main objective in the production of ARMCO Ingot Iron always has been a very highly refined iron of consistent uniformity. This original analysis has been unchanged for thirty-three years, because time and usage have completely confirmed that it will successfully withstand general corrosive conditions.

• Should you wish additional information about ARMCO Ingot Iron, feel free to write us. The American Rolling Mill Company, 1000 Curtis Street, Middletown, Ohio.

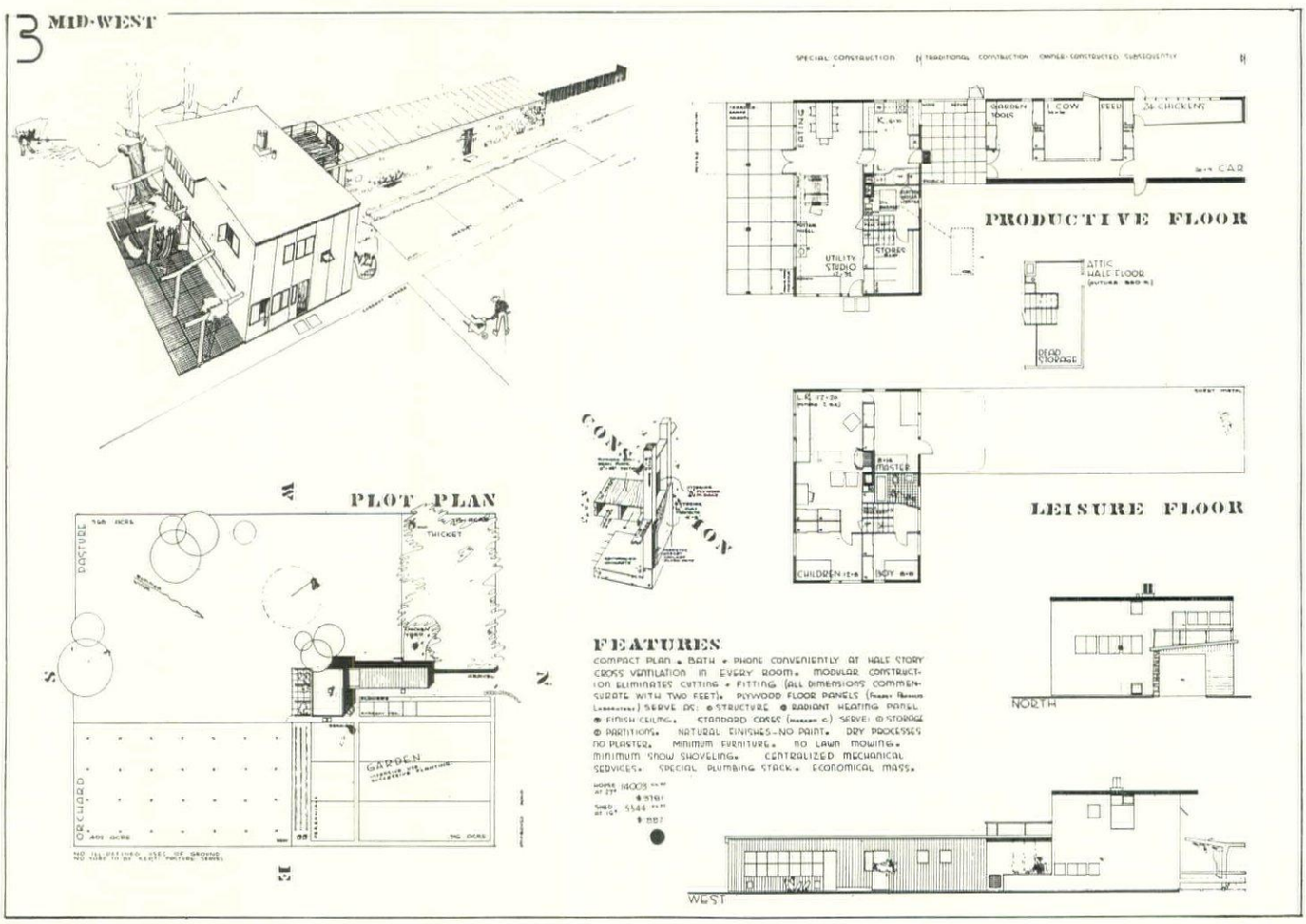
ARMCO INGOT IRON

"THE ARCHITECT'S STANDARD"



WINNER FOR SOUTH, RUDOLPH A. MATERN, WOODHAVEN, N. Y.

"There is a noticeable lack among the contestants of a proper conception of storage space requirements."



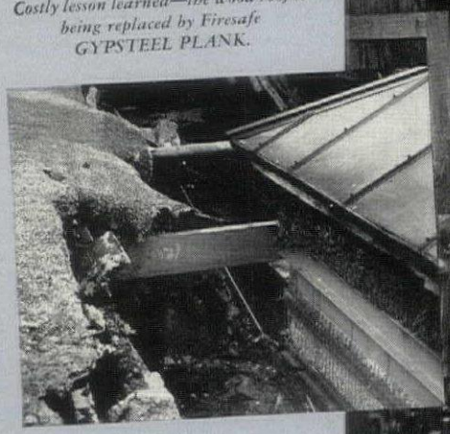
WINNER FOR MIDDLE WEST, HARRY WEESE. CRANBROOK ACADEMY, BLOOMFIELD HILLS, MICH.

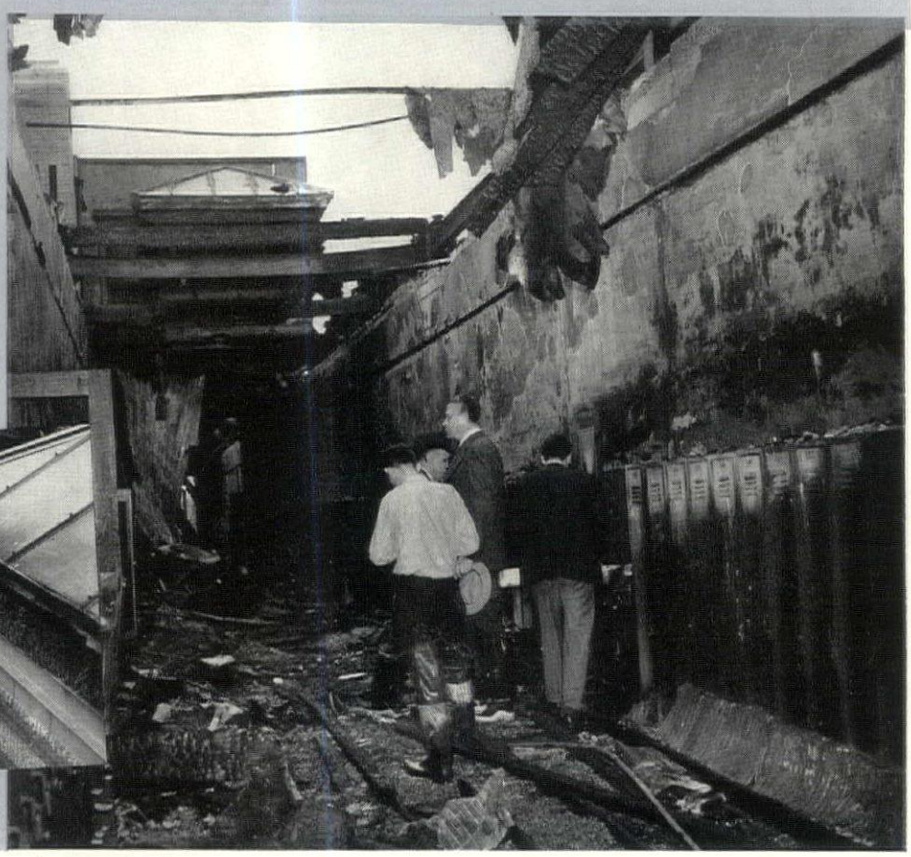
"The possibilities for the future development of many of these houses were not so well emphasized as they might have been."

(Continued on page 18)

This HAPPENED to a "Fireproof" Building!

Costly lesson learned—the wood roof is being replaced by Firesafe GYPSTEEL PLANK.





● All floors, ceilings, sidewalls and interior partitions of this upstate New York school were of fireproof construction. Even the *roof framing* was of steel!

But, unfortunately, the roof-deck was wood.

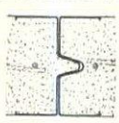
You can see the tragic destruction caused when fire, spreading through a ventilating shaft, destroyed the deck, caused the framing to collapse, and exposed the entire building to the weather, which resulted in buckling floors, ruined decorations, and damage throughout.

No building is entirely safe unless the roof-deck is as fireproof as the rest of the materials used.

When you specify materials for a firesafe building, be sure to include GYPSTEEL PLANK* for both floors and roofs. PLANK handles like wood—cut, sawed, nailed or bored—and can be laid with the same ease and speed at the same labor cost. Yet it offers the highest type of firesafety—2 inches of extra dense gypsum.

PLANK bridges the gap between the low cost of wood and the high cost of masonry construction. It offers you a new way to give your clients extra protection without straining their budgets. And, in addition, savings on insurance premiums, where firesafe GYPSTEEL PLANK is used in place of wood decks, will pay attractive dividends on the investment. Full information about PLANK is contained in our special 28-page *Plank Bulletin.* Write us today—a note will bring you a copy.

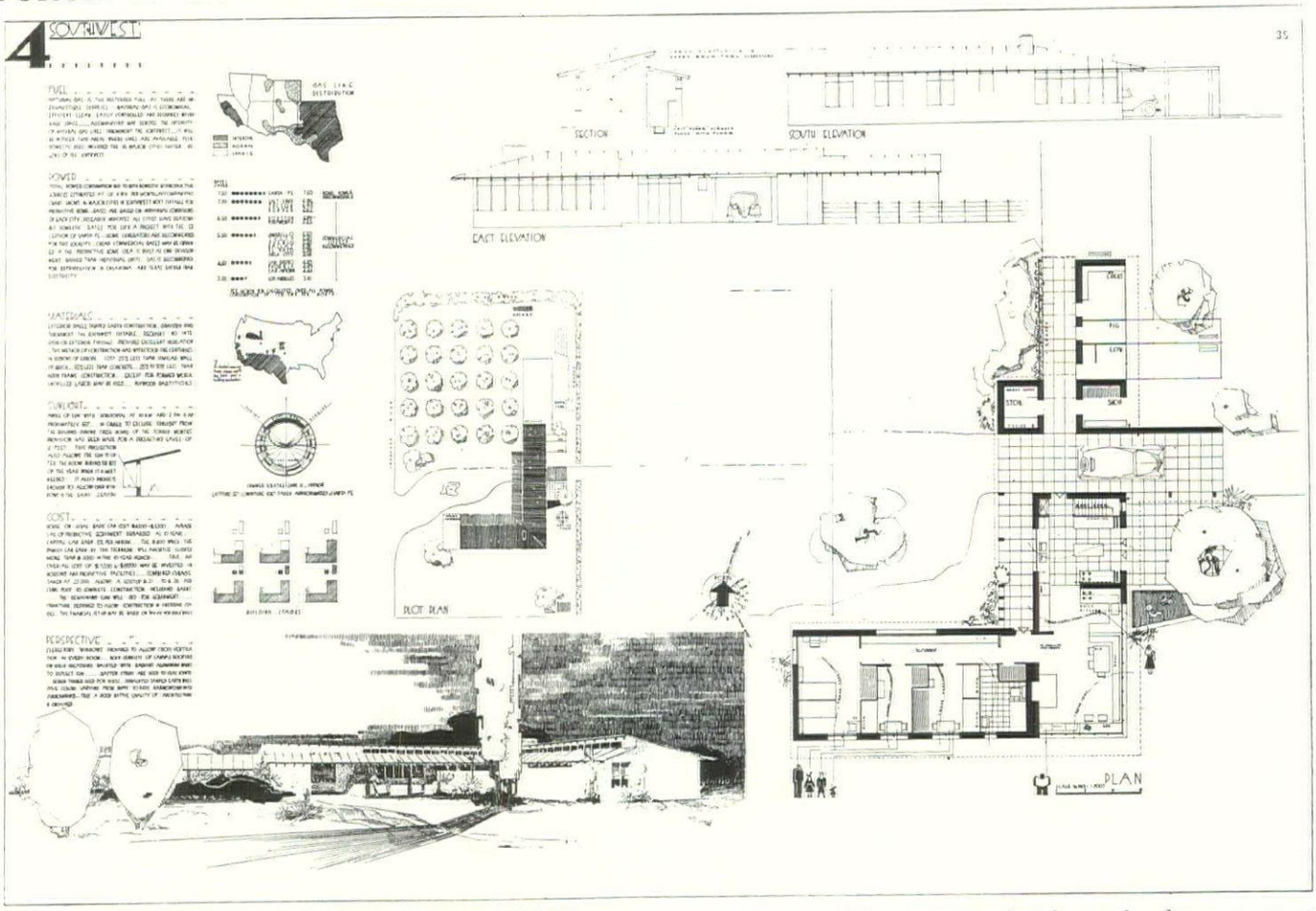
GYPSTEEL PLANK is a complete structural unit shaped like lumber. Made of extra dense, nailable gypsum. All four sides are bound with galvanized steel tongues and grooves which lock to form a strong, continuous I-BEAM. Center is reinforced with steel wire mesh. Vermin-proof, termite-proof. Will not shrink or warp.



*The term PLANK as applied to cementitious building products is a trade-mark of the American Cyanamid & Chemical Corporation.

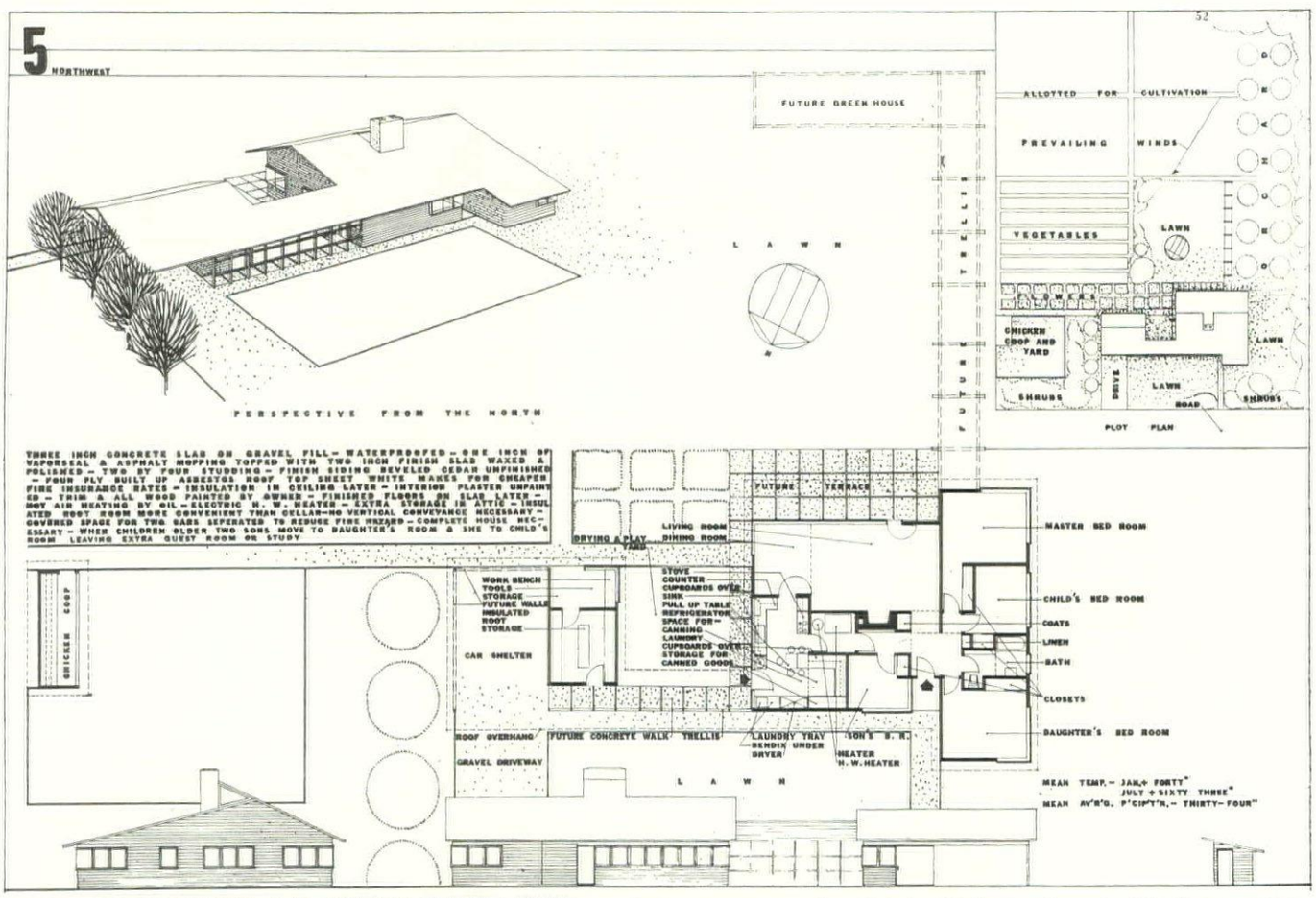
AMERICAN CYANAMID & CHEMICAL CORPORATION
Structural Gypsum Division
30 ROCKEFELLER PLAZA • NEW YORK, N. Y.

GYPSTEEL PLANK



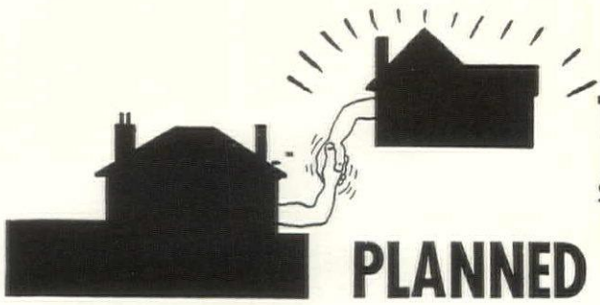
WINNERS FOR SOUTHWEST, LOIS W. WORLEY AND WILLIAM W. CAUDILL, MASS. INST. TECH., CAMBRIDGE, MASS.

"Not many of the contestants thought out the plot arrangement for a complete food subsistence production for a whole year."



WINNER FOR NORTHWEST, J. R. SPROULE, SEATTLE, WASH.

"The bathroom and toilet should be easily accessible from outdoor work and play areas without soiling floors and stairs of inner dwelling."



THE $5,000 HOUSE

SHAKES HANDS WITH THE $15,000 HOUSE ON

PLANNED PERMANENT PROTECTION

for Insulation and Air-Conditioning

Says the $5,000 house to his $15,000 neighbor, "You are bigger than I am, you cost three times as much; but since I'm also wrapped in 'Brownskin' and 'Copperskin' from foundation to roof, I'm just as everlastingly protected as you are."

"You mean that you won't ever have to worry about dampproofing, flashing, sheathing or lining?" "That's right," says the little house, "Or Vapor-Seal either — I'm all protected and ready for fill-in insulation any time my owner desires. I have drip-pans of 'Copperskin' under every window." "Okay and shake," says the $15,000 house. "We are both proud of ourselves because we're planned to fit modern needs. Welcome to our neighborhood."

ANGIER CORPORATION FRAMINGHAM, MASS.

BOOKS

New York in photographs . . . . Home decoration . . . . Housing abroad . . . . Steel design . . . . Scottish architecture . . . . Decorative art in Italy.

CHANGING NEW YORK. Photographs by Berenice Abbott, captions by Elizabeth McCausland. A publication of the Federal Art Project. E. P. Dutton & Company, Inc. 207 pp. 8½ x 11½. $3.00.

The danger of documentary photography is that while the camera may not lie, the photographer can. In any sequence of pictures it is his eye, not the lens, which determines the final impression. In the case of a large city this is particularly true. New York could be shown as a festering slum or the world's smartest business center. Emphasis on its speedways, bridges, parks and housing developments would produce an existing "city of tomorrow." To the more romantically minded it has appeared as a kind of mechanical Grand Canyon, wreathed in clouds and perpetual sunsets. In the hands of one with a political or sociological bee in his bonnet, a camera pointed at New York could be made to prove anything.

To the credit of Miss Abbott, her photographic document does no one of these things. While the hundred-odd illustrations represent only a fragment of her full-length portrait of the city, it is a pretty comprehensive fragment. Taken as a whole it ranges from the antique shop fantasy shown above to the latest in skyscrapers. The main impression created, and probably a very accurate one, is that New York is still overwhelmingly a relic of the nineteenth century despite the expensive congestion of the Wall Street and Grand Central zones. Behind the admirable detachment of the photographer is a sound technique: the pictures are not only good documents, but good photographs, entirely free from the usual tricks. An office building is shown as an office building, not as a modern tower of Babel in the Hugh Ferriss manner. A "French Renaissance" car barn is photographed and the result shows all of its naïve ugliness. Barren slum courtyards are not forced into picturesque "streets of Naples" arrangements. Lacking in fake drama, the photographs in the end are more impressive for their plain honesty. For the architect of today they constitute an illuminating record of the astonishing mess his predecessors helped to create.

The hundreds of pictures making up the complete record are to be deposited in the Museum of the City of New York, and prints have already begun circulating to the various public schools, universities and museums. A collection of unquestionable historical value, it provides fresh, impressive evidence of the unique contributions being made by the Federal Art Project.

COMMON SENSE IN HOME DECORATION, by Carl Maas. Greenberg. New York. 350 pp. 9½ x 6 in. illustrated. $2.75.

Excellent practical guide for the layman. It gives information on furniture arrangement, its proper selection, the mixing of colors, fabrics, and wall treatments. There is much useful data on the historical styles, characteristics of woods and colors favored in various periods. Furniture dimensions are given which should be very helpful in planning interior arrangements. As comprehensive a book on general problems of home decoration as has been published to date.

EUROPE RE-HOUSED, by Elizabeth Denby. W. W. Norton & Co., Inc. 284 pp., about 100 illustrations. 6 x 9. $3.50.

"Europe Re-Housed" covers Sweden, Holland, Germany, Austria, Italy and France. It was written to show how the problems of housing had been tackled in these countries, and which, if any, of the various methods employed were applicable in England.

The basic problem everywhere, says the author, is twofold: money to build with; land to build on. Each country faced a specific situation and tried various solutions, but ultimately it was the money and land conditions which were determining factors in the results. Vienna, for instance, considered the most successful of all by Miss Denby, had municipally owned land and building materials plants, and avoided interest charges by building out of income. Sweden made use of municipal land, shops and funds but has relied more and more heavily on the owner and renter cooperatives. England subsidized "a vast quantity of small dwellings (privately built) of which few can compare for quality with the output of any other European nation." In all cases some form of Government aid was used. England's solution for the problem, widely publicized in the U. S. as a remedy for depression, meets with scant approval on the part of the author. Comparing Vienna, with 1,800,000 citizens, 14 square miles of built-up area and 93 square miles of woodlands, parks, etc., to Manchester, with 759,000 inhabitants, 39 square miles of buildings and 4 square miles of open space, she comments: "How absurd for questions of existing city density to be disregarded. How lazy to advocate decentralization and the creation of new satellite towns! In these so-called overcrowded towns, there is ample room for replanning and rebuilding within the existing city boundaries with ample space for every kind of activity."

Oriented primarily for an English audience, the book is perfectly applicable to the U. S., as the above quotation suggests. Stimulating and provocative, it represents a very reasonable approach to a complex problem, is particularly valuable for its insistence on national peculiarities, for its linking of housing and town planning and for its estimation of specific results in the light of local conditions.

(Continued on page 54)

$ 15,000 in prizes

4 COMPETITIONS
incorporating the use of a versatile building material
INSULUX GLASS BLOCK

CONDUCTED BY THE ARCHITECTURAL FORUM FOR OWENS-ILLINOIS GLASS COMPANY

If you're quick with your pencil

Competition No. 1 does not close until midnight of May 22. You can enter by wire—program and data by return mail.

REGISTRATION to enter Competition No. 1 or No. 2 is all that is needed for continuous participation. It ensures your receiving the technical information needed, and title lettering. It does not obligate you to submit drawings.

Write Henry H. Saylor, A.I.A., Professional Adviser, 9 Rockefeller Plaza, New York, N. Y., indicating your entry as architect, architectural designer, or architectural draftsman.

2nd COMPETITION

This competition has been approved as a Secondary Competition by the Special Committee for Secondary Competitions for the territory of the New York Chapter, American Institute of Architects. Full participation is permitted to all Institute members.

SUBJECT: A GROUP OF THREE STORES

$2,500 in prizes

Closes August 21, 1939

THE PROBLEM

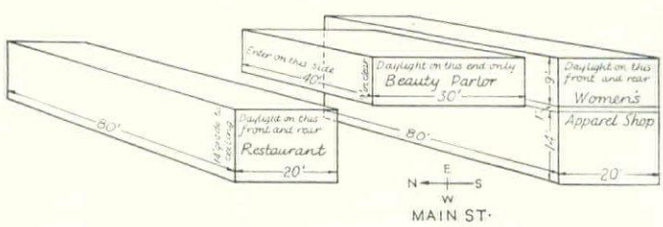
Our client is the owner of business property located in the heart of the women's shopping district of a mid-western city, about 150,000 population. Three of his tenants have told him that they will not remain in their present quarters unless these are remodeled and brought up to date.

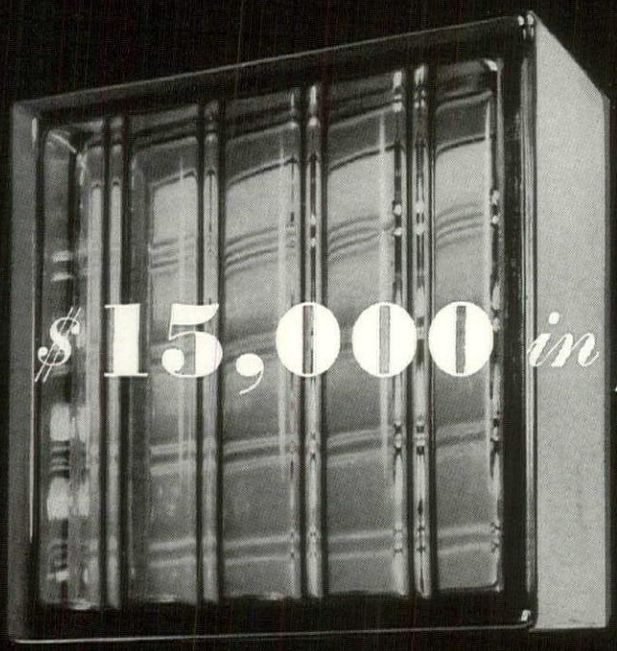
These three tenants occupy spaces that are parts of an existing four-story building, and all front on Main Street. None of the three is immediately adjacent to either of the others, so they may be regarded as independent problems in design. The three premises (See diagram) are:

1) A Restaurant, with frontage of 20′ facing west on Main Street, and depth of 80′, opening upon a right-of-way at the rear, parallel to Main Street. The establishment occupies the first floor and basement. Fountain and table service are to be provided on the first floor, and a small bar may be included. Food is prepared in the basement, delivered to the restaurant floor by dumb-waiters, and the soiled dishes returned below by the same means. Service can be effected through the rear right-of-way, or through the Main Street sidewalk, or both. In the basement also are washrooms for men and women. Plan of the basement is not required.

2) A Beauty Parlor, with a second-story location, 30′ frontage on Main Street, depth of 40′ to a blank wall; this space is air conditioned, though the detailed provision for this need not be taken into consideration for the purposes of this competition. Adjoining is a public stair hall permitting entrance to the Beauty Parlor at any point on the north side of the 40′ depth. A comfortable reception and waiting room is desired, with provision for display of cosmetics for sale. An open workroom should adjoin four cubicles, each of these with facilities for shampooing. A ladies' washroom is essential.

3) A Women's Apparel Shop, two stories high, with 20′ frontage on Main Street and a depth of 80′ to the right-of-way. The Shop offers merchandise including both women's apparel and accessories. Surplus stock is stored in the basement. Incoming and outgoing shipping can be effected through the rear right-of-way. Of this establishment only a design of the Main Street facade is required.





$15,000 in prizes

You are cordially invited to enter the

While there is no restriction as to the size of signs on the front of these premises, their design should be integrated with the design of the individual store facades and none of them can project materially from the building.

As to ceiling heights, the first story is 14′ from sidewalk grade to ceiling; the second story is 9′ in the clear.

The client has clearly in mind the value of Insulux Glass Block in its function of admitting daylight without vision, also for its effectiveness in night illumination, and also because it immediately suggests to the public a modern, up-to-date establishment. He looks not only for a logical use in these functions, in combination with other materials, but hopes that other new and appropriate uses may be devised by the competitors.

THE PRIZES: For each of the four competitions there will be awarded eight cash prizes as follows: First Prize, $1,000; Second Prize, $750; Third Prize, $250; Fourth Prize, $100; Fifth Prize, $100; Sixth Prize, $100; Seventh Prize, $100; and Eighth Prize, $100. Checks will be mailed to the prize winners by THE ARCHITECTURAL FORUM within one week after each judgment.

GRAND PRIZES. Competitors are encouraged to continuous participation in this series through an offer of Grand Prizes. These do not call for a final competitive effort but will be awarded automatically on the basis of points scored in the four quarterly competitions. A winner of a First Prize in one or more of these is given 100 points credits for each; Second Prize brings 80 points; Third, 63; Fourth, 49; Fifth, 38; Sixth, 30; Seventh, 25; and Eighth, 23 points. Thus a competitor who might capture one Third Prize and one Fifth Prize would, in the award of Grand Prizes, rank ahead of the winner of one First Prize.

Immediately after the awards have been made for the Fourth Competition, Grand Prizes will be awarded in the following amounts: First Grand Prize, $1,500; Second Grand Prize, $1,250; Third Grand Prize, $1,000; Fourth Grand Prize, $750; and Fifth Grand Prize, $500. In the event of ties in the scores for Grand Prizes, duplicate prizes will be awarded. Checks will be mailed to the Grand Prize winners by THE ARCHITECTURAL FORUM immediately after the scores have been computed.

1. AUTHORITY

Owens-Illinois Glass Company has delegated to THE ARCHITECTURAL FORUM authority to conduct a competition for the purposes above outlined, including the publication of the premiated designs; and has appointed as Professional Adviser, Henry H. Saylor, A.I.A., 9 Rockefeller Plaza, New York, N. Y.

2. COMPETITORS

This competition and the two additional ones that complete the series are open to all architects, architectural designers and architectural draftsmen in the Western Hemisphere, except employees of Owens-Illinois Glass Company and of THE ARCHITECTURAL FORUM. A competitor may submit as many drawings as he likes in any or all of the competitions, and is eligible to win any number of awards.

3. JURY OF AWARDS

The following architects, all of the West Coast, have agreed to act as a Jury in Competition No. 2, and their decision shall be final. In case of a tie, the Professional Adviser shall vote. (Any Juror in this series is eligible to compete in any of these competitions except that one for which he is serving as a judge.)

WALTER E. CHURCH
STILES O. CLEMENTS
GARDNER A. DAILEY
GORDON B. KAUFMANN
DONALD B. PARKINSON
TIMOTHY L. PFLUEGER
GEORGE W. STODDARD
WILLIAM W. WURSTER

4. EXAMINATION OF DESIGNS

The Professional Adviser will examine the designs to ascertain whether they comply with the mandatory requirements of the program, and will report to the Jury any instances of failure so to do. The Jury will satisfy itself of the accuracy of such report, and will place out of competition and make no award to any design which does not comply with these mandatory requirements. The Jury for Competition No. 2 will meet in the City of San Francisco within three weeks after the closing date, and carefully study the program and the eligible designs, and will make the awards before opening the envelopes which contain the names of the competitors.

5. REPORT OF THE JURY

Announcement of the awards, as detailed above, will be made in a later issue of THE ARCHITECTURAL FORUM, and to the successful competitors by telegraph immediately after the judgment.

6. EXHIBITION AND PUBLICATION

No drawings will be exhibited or published until after the awards of the Jury in each competition. All prize-winning designs will be published, with the names and addresses of their authors. Owens-Illinois Glass Company shall have the right also to publish additional designs other than those awarded prizes, accompanied by the names and addresses of their authors. As it is the intention of the Company to exhibit the prize-winning designs, and possibly many of the others, in cities throughout the country, covering an indefinite period of time, no drawings will be returned, except as follows: any competitor, other than a prize winner, who prefers the return of his drawing to its possible exhibition as outlined above, may enclose in the envelope containing his name and address the necessary stamps or a request to return by express, collect, insured for $50. Neither Owens-Illinois Glass Company, nor THE ARCHITECTURAL FORUM, nor the Professional Adviser, however, accepts any responsibility for their safe return beyond that of exercising reasonable care in packing and shipment.

7. COMMUNICATIONS

Every intending competitor is required to register his intention to enter the series of competitions (the registration does not obligate him to submit an entry), advising the Professional Adviser at the New York address by mail, giving name, address and classifying himself as an architect, an architectural designer, or an architectural draftsman. Acknowledgment of this entry will be made by sending printed titles to be pasted on the mounts, and a booklet giving technical information about Insulux Glass Block.

It will be impossible to answer requests for additional information or for interpretation of the terms of the program.

8. ANONYMITY (Mandatory)

The name or names of competitors shall not appear on the drawings; the only mark of identification shall be a nom-de-plume or device placed in the lower right corner of the mount, below the border line. On an opaque white envelope, pasted securely on the back of the mount, this same nom-de-plume or device shall appear, and sealed in the envelope shall be the name and address of the competitor; if an entry is the joint work of more than one designer, the name and address of each shall be enclosed, also instructions as to how, in the event of an award, a check shall be drawn. No competitor shall directly or indirectly reveal the identity of his design or hold any communication regarding the competition with Owens-Illinois Glass Company, or with any member of the Jury, or (except as provided in Section 7) with the Professional Adviser. It is understood that in submitting a design each competitor thereby affirms that he has complied with these provisions in regard to anonymity, and agrees that any violation of them renders his entry *hors concours*. The Professional Adviser will number the drawings as a further means of identification by the Jury; the sealed envelopes shall be opened by the Professional Adviser after the Jury's selection has been made, and in the Jury's presence.

9. DELIVERY OF DRAWINGS (Mandatory)

Drawings submitted in Competition No. 2 shall be securely wrapped, flat, addressed as follows: **Professional Adviser, Insulux Competition No. 2, c/o THE ARCHITECTURAL FORUM, 155 Montgomery Street, San Francisco, Calif.,** and forwarded to this address not later than midnight August 21, 1939. Post Office date stamps or express company dated receipts indicating receipt of the drawings on or before the above date and hour, will be accepted as evidence of compliance with this provision. Entries delivered by hand must be at the above address on or before the date and hour given.

10. DRAWINGS (Mandatory)

The design of each competitor shall be presented on one sheet of white illustration board 20″ x 30″ over all; the arrangement of drawings on the board shall be such that the 30″ dimension is the vertical; all shall be inside a single line border 1″ inside of each edge. A printed title (see Section 7) is to extend across the bottom just inside the border line.

Undiluted black ink only shall be used, excepting where color is required (See under b and d below), and the lines and incidental lettering should be capable of reduction without loss of legibility when the board is photographed down to a height of 10″. The following drawings are required, no more, no less.

a) First floor plan of Restaurant; and plan of the second-floor Beauty Parlor; each at a scale of 1/8″. Indicate locations of principal elements, circulation, etc., without developing in great detail the equipment.

b) Main Street elevation of Restaurant in full color at a scale of 3/8″.

c) A longitudinal section through the Beauty Parlor at a scale of 3/8″, in black line only.

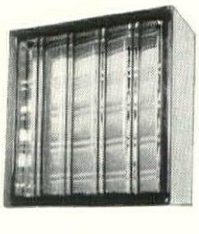
d) Main Street elevation of Women's Apparel Shop in full color at a scale of 3/8″.

NOTE—One drawing, either b or d, should be rendered as a night view in full color, the other as a daylight view in full color, according to the competitor's choice. Renderings may be in any medium the competitor selects.

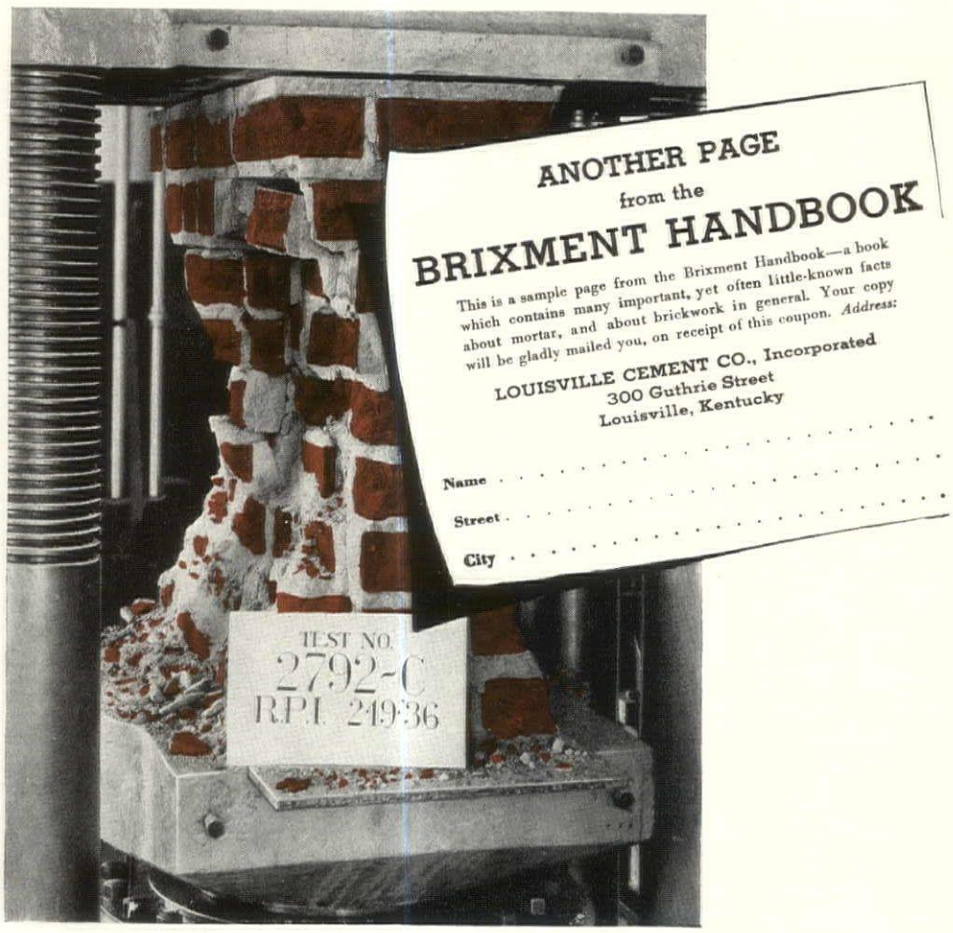
e) A vertical section through either Restaurant facade or Women's Apparel Shop facade in black line drawing at 3/4″ scale, making clear the construction in so far as it applies to the glass block and also showing the provision for admitting daylight and also for night lighting of the facade.

f) Prepare an adequate, but brief typewritten statement explaining why Insulux was used where shown and why the particular face design or designs were selected, with an explanation of the provision for night lighting effects on the facade not shown by section drawn for e. Place this typewritten statement in an envelope bearing the word "statement" and the nom-de-plume or device mentioned in Section 8. If the entry is sent by express or delivered by hand, attach this envelope to the back of the mount. However, if the entry is sent by mail, this envelope shall be enclosed in another envelope, and mailed separately to the Professional Adviser at the San Francisco address.

3rd and 4th competitions: No. 3—a Dairy, and No. 4—a Newspaper Plant, may seem to involve technical knowledge that is not immediately at hand. When these programs are published it will be found that the necessary research has all been done; its results, ready for use, are handed to the competitor on a salver. Space requirements for each element, with its proper relationship to the whole, are graphically given. This series, it need hardly be emphasized, is designed to bring out new and better uses for Insulux Glass Block. This major objective will not be clouded by the introduction of extraneous difficulties. As a matter of fact, it will be surprising if the competitor, after a brief study of the predigested research handed to him, does not regard himself as a qualified expert on dairies and newspaper plants.



OWENS-ILLINOIS GLASS COMPANY



BRIXMENT Mortar is STRONG

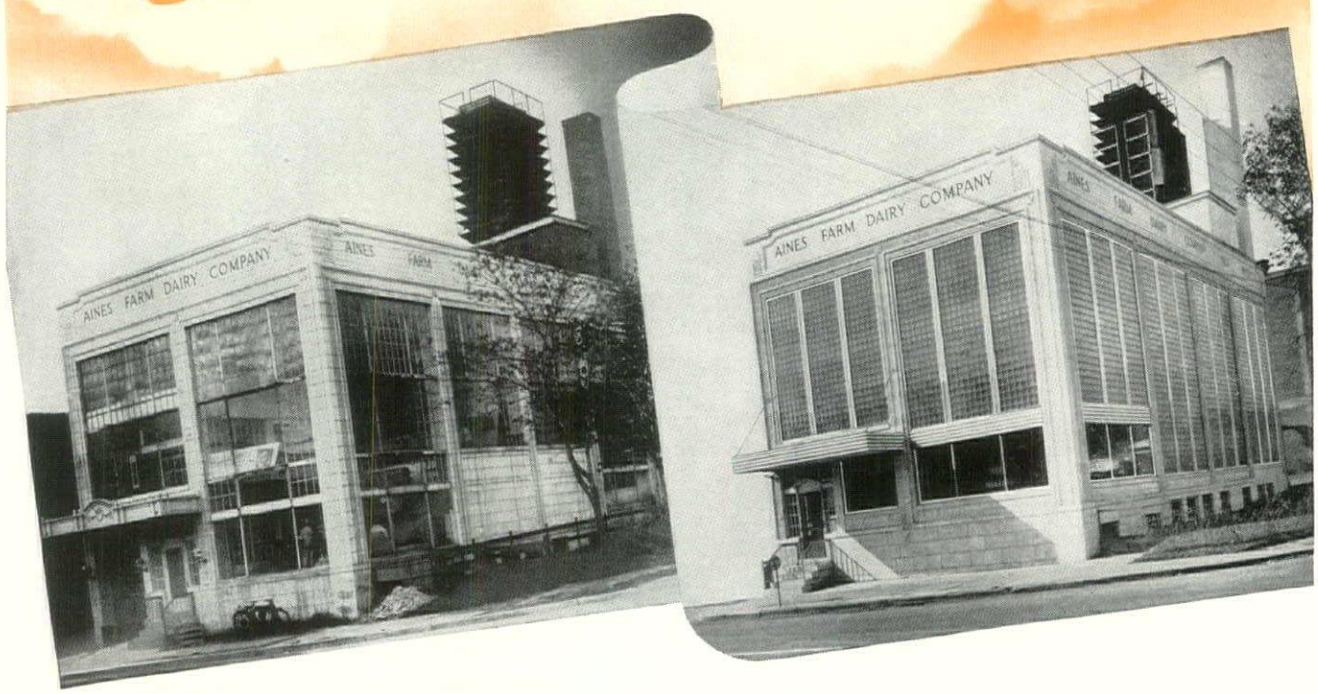
In planning *strength* for your jobs, don't forget this: The crushing strength of a mortar is not the only factor that decides the strength of the finished wall. Of equal importance are (1) *plasticity* which makes possible the proper bedding of the brick; and (2) the ability of the mortar to form a strong, intimate *bond* with the brick. . . . Brixment mortar is of course tremendously strong. But more important still, it is extremely plastic and has high bonding power. When tested in piers the brick almost invariably shatter before the mortar fails. . . .

An example of Brixment's great strength may be found in the 1937 cyclone at Gainesville, Georgia. The *one* brick building left standing in the stricken area was the *only* building in that area which had been built with Brixment.

If you are building foundation, load-bearing or parapet walls that require great strength—free-standing stacks or any other severe application—you can make no better choice than the use of Brixment for mortar. For further facts on *bond*, see page 7.★

★See further details in the Brixment Handbook.

Adds value to OLD BUILDINGS..



Thousands of owners of old commercial structures fail to see the business-building possibilities of modernization simply because it has never been called to their attention in the right way.

Here's a field of activity for the architect that hardly has been scratched — a huge field full of potential profits — a field where Republic ENDURO* Stainless Steel has demonstrated time and time again its ability to enable owners to overcome the tricks that time plays on once-proud buildings.

Less than a ton of ENDURO was needed to effect the remarkable change in appearance so apparent in the dairy photographs on this page. If any further argument is needed look again at these two buildings, imagine them side by side, and answer this question, "Where would you prefer to buy your dairy products?"

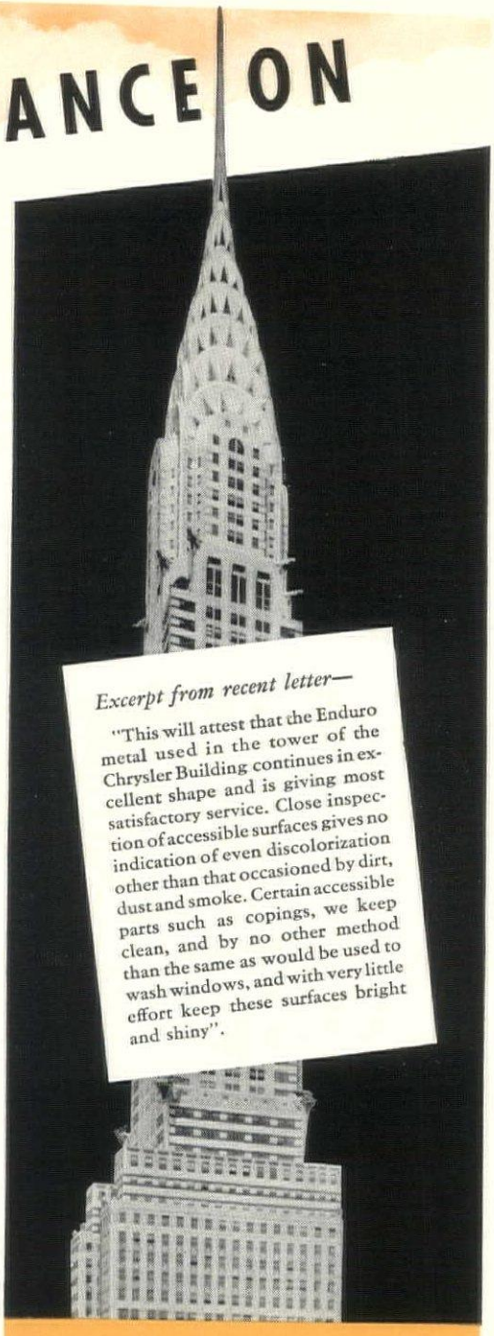
REG. U. S. PAT. OFF.

REPUBLIC STEEL

ENDURO STAINLESS STEEL

*Reg. U.S. Pat. Off.

.REDUCES MAINTENANCE ON OLD AND NEW



Economy in building is no affair of the moment. It stretches on into the years ahead and takes into consideration such items as repair costs, replacements, even the cost of cleaning—the sum of which spells maintenance.

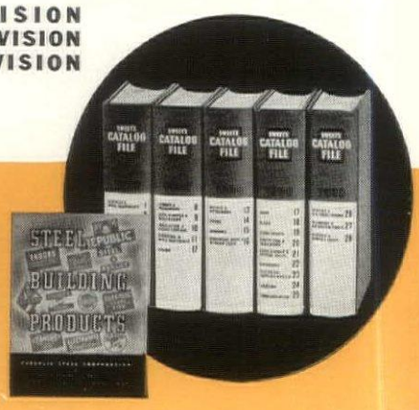
Maintenance costs on any part of a building in which ENDURO is used can best be expressed by the mathematical expression, "approaching zero as a limit".

ENDURO is an inert material, unaffected by atmospheric conditions. Most chemicals have no effect on it. It does not rust or discolor. It will retain its beauty and its strength throughout the useful life of any building, and save its cost many times through the ease with which it may be cleaned. Cleaning operations are as simple as those of washing windows.

See Sweets' Catalog for more detailed information or ask for literature suggesting the many architectural applications where this economical metal will save money for your clients.

REPUBLIC STEEL CORPORATION
GENERAL OFFICES: CLEVELAND, OHIO
Alloy Steel Division: Massillon, Ohio

UNION DRAWN STEEL DIVISION
BERGER MANUFACTURING DIVISION
NILES STEEL PRODUCTS DIVISION
TRUSCON STEEL COMPANY
STEEL AND TUBES, INC.



Look under the names Republic, Berger, Steel and Tubes, and Truscon in Sweets' Catalog File for the most complete line of steels and steel building materials manufactured by a single producer—or write for Booklet 196.

REPUBLIC STEEL BUILDING PRODUCTS

Steel, Copper-Bearing Steel and rust-resisting Toncan* Iron Sheets and Roofing

•

Republic Taylor Roofing Ternes

•

Steel, Copper-Bearing Steel and rust-resisting Toncan Iron Pipe

•

Toncan Iron Enameling Sheets

•

Upson Quality Bolts, Nuts and Rivets

•

Concrete Reinforcing Bars

•

Wire Nails and Staples

•

Toncan Iron Corrugated Pipe

•

Steeltubes Electrical Conduit

•

Berlloy Sheet Metal Products

•

Truscon Windows, Doors, Joists and Other Products

LETTERS

50 Houses 50

Forum:

Just a note of surprise I should like to sound: were those 50 houses 50 the best you could do? Looks as if when better little houses were going to be published THE FORUM would have to design them.

I wouldn't have minded so much if there weren't so many architects' names attached. You might have thought that architects, in all those years since you know when, would have gotten over some of those fancy ideas and learned to do decent small houses. Is it so hard? As a small-town banker I probably shouldn't care, but it does seem as if the landscape could be treated a little more gently. One of the local boys just got through a course in architecture which cost as much as two of your dream houses and is now designing beer bottle labels one or two days a week, although he could have had a job doing plans for a builder in town—if he knew how. Seems he spent his last year in school designing a project for a new palace for the League of Nations and now they tell me that the League is getting kicked out of Switzerland pretty soon and will have a perfectly good building for rent, let alone want a new one.

F. C. ADAMS

New York City

Prodigal and/or Allen Returns

Forum:

In a recent issue of The Saturday Review of Literature (a weekly having nothing to do with architecture, which is the reason I read it) I note that the Guggenheim Fellowships have been awarded for the ensuing year, and that I didn't get one. I was in hopes that the Guggenheim Foundation, finally smitten to the heart by the plight of the profession, might advance a beggarly pittance, say $25,000, to allow me to live for a year in a style to which I am entirely unaccustomed, while I did the necessary research to enable me to write my textbook on "How To Write Specifications So That It Will Be Impossible for The Contractor To Keep From Reading Them."

If I could have written that book your hair would have stood straight up on end. But would that have been wise? The last time I saw you, your hair was not so profuse that it could afford to engage in gymnastics.

It is a sad commentary on the way things are done in this country (and by the way, what country is this?) that I must now spend thousands of dollars worth of time telling you how I propose to write specifications so that contractors, subcontractors and material dealers will read them from cover to cover.

You know how it goes with the old, or pre-Allen, type of specification, don't you? The architect gives it to the contractor and the contractor thanks him fulsomely and then throws the specifications in the tool box, frequently right on top of his lunch. No good ever comes of throwing a large thick volume of specifications on top of a delicate lunch. Things like that make trouble with the union. They make trouble with the lunch, too. Did you ever see a piece of custard pie that had been side-swiped by an Ornamental Iron and Specialties Specification?

The trouble with specifications is that they do not have any love interest.

This is absolutely fatal. Any book on writing will tell you that a love interest is imperatively necessary if you are to hold the reader's attention. I have read thousands of books on writing: in fact my attic is so full of books on writing that European powers have definitely abandoned the idea of bombing my house, as no bomb yet made can penetrate six or seven feet of volumes on the art of the short story. All these books say you must have a love interest or the reader will leave the room to get a glass of water (that's what *HE* says) and never come back.

Another thing you must have is suspense. With the old type of specifications the reader always knew what was coming next. If he happened to be reading "Preparation of Forms" he knew that right after that would come "Method of Depositing Concrete in Forms," and naturally his interest waned. Now with my type of specifications nobody knows what is coming next, including me.

You see the system is to interweave an exciting love story right in with the specification so that when the contractor starts reading the specification he starts getting interested in the love story and is unable to stop reading until the last page, where the heroine learns that the hero (a young architect who specializes in designing morgues; he has designed so many morgues that he is slab happy) has just won the Irish Sweepstakes and it comes to her like a flash that she loves him deeply. All this happens just before the contractor learns that at conclusion of work he is to wash all windows, remove all debris, leave all floors broom clean and turn over building ready for occupancy.

If the Guggenheim Foundation had acted in a fair and square manner and subsidized me for a year I could have written an entire specification along these lines that would have marked a new high in attaining contractor interest. But no: they are only interested in novelists and poets and dreamers of that kind. When a man has a scientific, business-like proposition such as I have outlined they pass him by. It's a good thing I didn't apply for a fellowship, although if I had, and they had accepted it, I might even have had time to found my "Specification of the Month Club," which would send all members a complete specification every month to send out with their own plans. One critic tells me that this would not work, because the specifications would bear no relation to the plans. Is this necessary? Is it even usual?

Grand Rapids, Mich.

ROGER ALLEN

One if Bidet, Two if B'night

Forum:

The little nugget of knowledge heading your Products & Practice section, namely that a bidet is a small horse used in an army, is the most architecturally useful statement in the entire article. Why the FORUM should be so concerned with the hygenics of American posteriors is at first glance hard to fathom. Particularly as almost everyone else believed the problem rather well solved. Are you merely carrying to its logical conclusion the architect's pet theory that physical planning is capable of solving all human ills? Or were you interposing sly humor betwixt pages dull?

Of course, there are obvious advantages to the sitz bath. Think how equipping the 150 USHA projects with bidets would do for the plumbing industry!

W. C.

Kansas City, Mo.

Metal Ceilings

Forum:

. . . In addition to being permanent, steel ceilings will outlast the ordinary life of plaster, do not crack, and no expensive decorations are ruined by remodeling or through cracking from vibration and strains on various type buildings.

They are also fire resistant and in many cases have definitely checked seemingly disastrous fires, and on present statistics can show where thousands of dollars have been saved by ceilings covered with metal.

For remodeling purposes, they offer a decided advantage and can be easily changed from time to time.

The cost of steel ceilings, in some instances, figures less than other coverings.

They can be erected in one third the time it takes to apply plaster ceiling . . .

GEORGE J. KOHLER, *Manager*
The Edwards Mfg. Co.
Cincinnati, Ohio

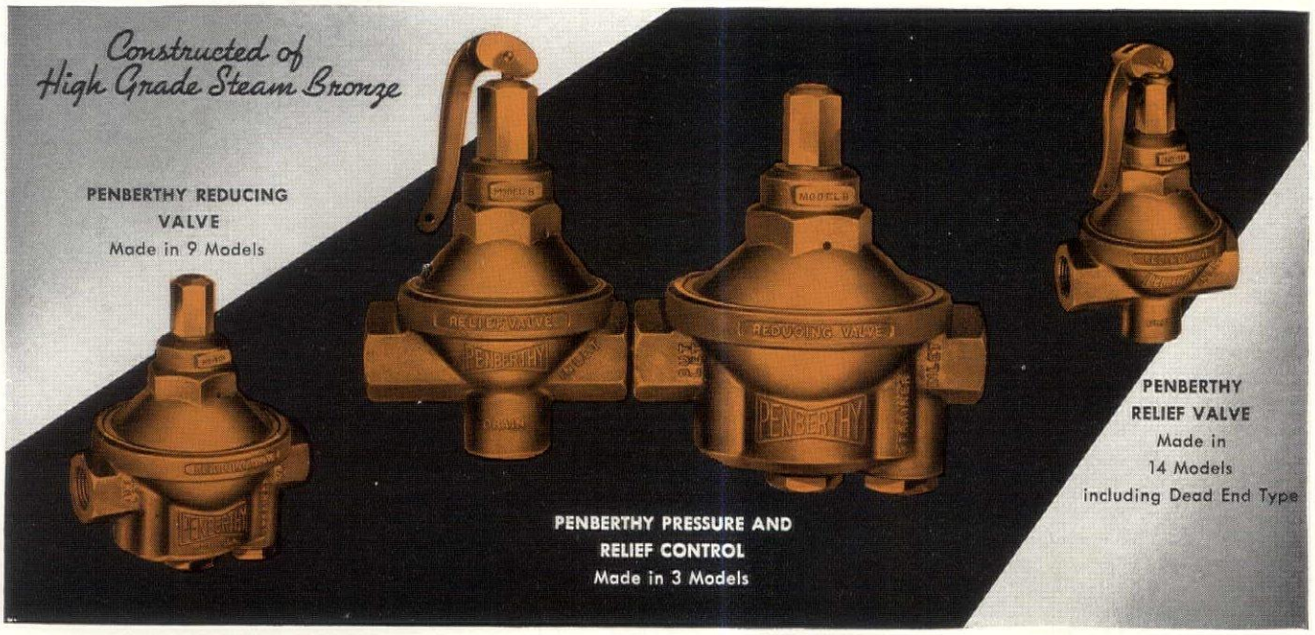
A statement in the April issue concerning metal ceilings inspired Mr. Kohler's comment—ED.

Thrifty

YOUR client gets a superior product at an attractive price when you specify one of the units shown above to keep his basement free from seepage water—or the specialties shown below to modernize his hot water heating plant. Thrifty clients particularly appreciate these thrifty products.

Penberthy Products are carried in stock by jobbers everywhere.

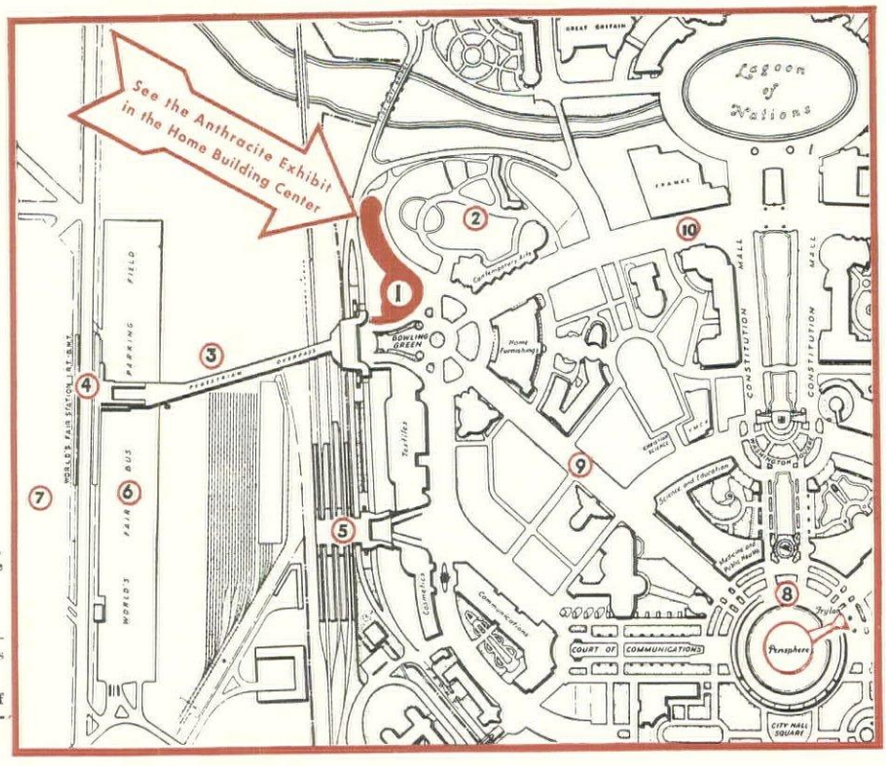
PENBERTHY HOT WATER HEATING SPECIALTIES



PENBERTHY INJECTOR COMPANY

Manufacturers of QUALITY PRODUCTS *Since 1886*
DETROIT, MICHIGAN • *Canadian Plant,* Windsor, Ont.

ANTHRACITE
WORLD'S FAIR EXHIBIT
where it is and how to reach it



1 Anthracite Exhibit, largest in the Home Building Center.
2 Town of Tomorrow.
3 Pedestrian Entrance—overpass from subways and parking fields.
4 World's Fair Station of I.R.T. and B.M.T. subways.
5 World's Fair Station of Long Island Railroad.
6 Bus Parking Field.
7 Automobile Parking Field.
8 Trylon and Perisphere.
9 Avenue of Patriots.
10 Rainbow Avenue.

WHEN you visit the World's Fair, plan to see the Anthracite Exhibit first. Whether you go to the Fair by train or subway, by World's Fair bus or private car, you will find the Anthracite Exhibit, in the Home Building Center, close at hand. The diagram above shows how near this Anthracite Exhibit is to the entrances that will be most used.

See this most unique Anthracite Exhibit—created by Gilbert Rohde, one of America's foremost industrial designers. See the glowing cube of "Anthracite," held in a giant feminine hand that dwarfs people standing beside it. See the sixty-foot wall of "Anthracite" that changes from jet black to a red glow. See the "picturama" of the Anthracite producing region and its many products other than Anthracite. See the three-dimensional action display of automatic Anthracite equipment—and the White Room that contains a talking Anthracite heater.

One of the most interesting and outstanding Exhibits in the World's Fair will be the Anthracite Exhibit. See it first when you visit the Fair. Anthracite Industries, Inc., Chrysler Building, New York, N. Y.

GILBERT ROHDE who created the unique Anthracite Exhibit, is one of the 5 industrial designers appointed by the World's Fair Corporation to design its own exhibits and buildings.

Save with Pennsylvania ANTHRACITE
(HARD COAL)
THE ONLY 7 STAR FUEL

PLANNING ANY KITCHENS TODAY?

Here's Big New Reference Book to Help You . . . It's on Planning CURTIS KITCHENS

● How many kitchens have you planned? Curtis has helped over 50,000 American housewives plan their kitchens. And Curtis believes that you can use *that* experience!

Send for a copy of this new colorful book, just published by one of America's foremost kitchen planners. It makes kitchen planning simple. It gives you a fast, economical method of giving your clients the kitchens they want.

See how Curtis Kitchen Planning starts with spacious, modern durable *wood* cabinets, which come to the job in dustproof cartons. After installation they are ready to decorate, *just the way you and your client wish!*

For 73 years Curtis has made fine woodwork. That experience is your proof of the quality of Curtis sectional kitchen units and other Curtis woodwork. No job-built cabinets compare in endurance, beauty or satisfaction with the Curtis line as thousands of owners know.

Many architects specify Curtis cabinets in school, hotel, club, church kitchens—everywhere that modern, durable and efficient kitchen units are required.

Ask your Curtis Dealer for a copy of this brand new book or write us. You'll want information on Curtis Silentite "Insulated" Windows, on Curtis doors and woodwork. Return this coupon today.

CURTIS COMPANIES SERVICE BUREAU
CLINTON, IOWA

If you live in Canada, write to Edwards Curtis Limited, 991 Somerset Street West, Ottawa, Canada

1865 CURTIS WOODWORK

CURTIS MAKES ALL THESE PRODUCTS—
Silentite Windows • Exterior and Interior Doors • Frames • Trim • Entrances Molding • Panel Work • Cabinet Work Kitchen Cabinets • Mantels • Stairways Shutters • Screens • Storm Doors and Windows • Garage Doors Mitertite Door and Window Trim.

CURTIS WOODWORK IS SOLD BY RELIABLE DEALERS EVERYWHERE

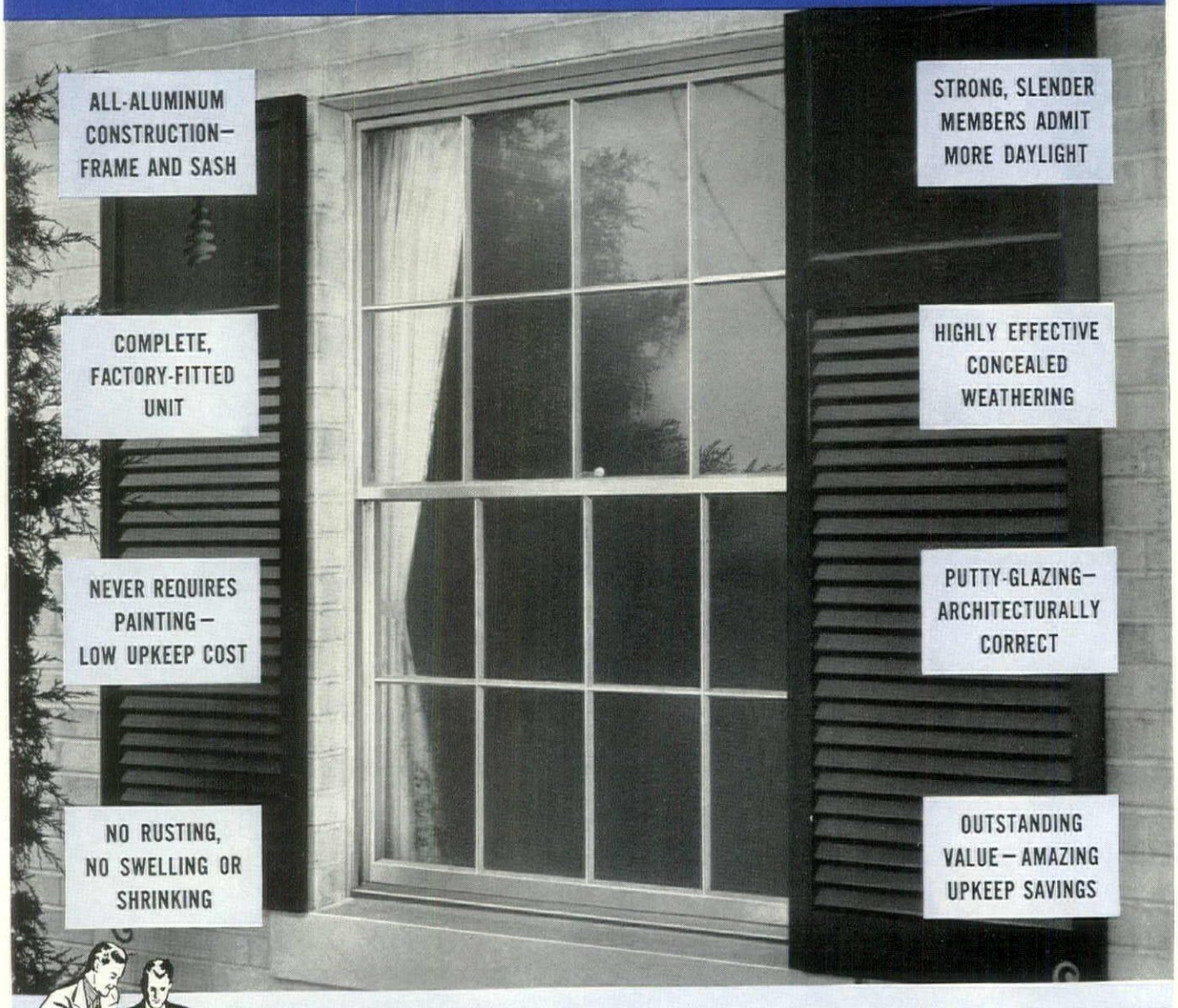
CURTIS COMPANIES SERVICE BUREAU
Dept. AF-4K, Clinton, Iowa
Please send me your new book on planning the Curtis Kitchen.

Name _____

Address _____

City _____ *State* _____

WINDOW OF THE YEAR!



SEALAIR ALL-ALUMINUM WINDOW OFFERS IMPORTANT NEW ADVANTAGES

The Sealair All-Aluminum (or Bronze) Window is assuming major importance in the window field. Chosen again and again by architects, operative builders, and home owners for all types of residences and buildings, this unit brings advantages you can't afford to overlook.

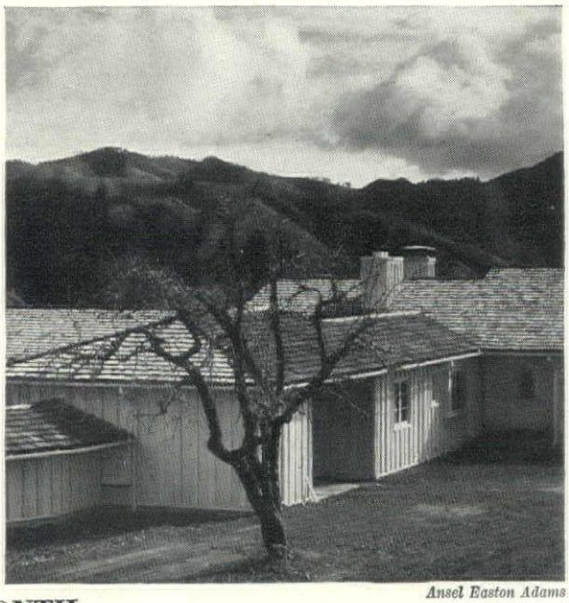
The outstanding beauty of its strong, slender members and rich, satin finish appeals to everyone. Its dependably easy action and effective weathering are convincing features. And its amazing upkeep economy quickly wins the man who pays the maintenance bills.

The Series 120 Sealair Window (illustrated) is furnished in 30 stock sizes, with putty-glazed sash and a wide choice of muntin arrangement to conform with any style of architecture. For openings up to 4'-0" x 8'-0". The Series 220 Window is furnished for openings up to 5'-0" x 9'-0"— with metal glazing. Other types are available, including Sealair Casements.

Consult SWEETS or write for latest details. Specify the Sealair All-Aluminum Window for your next job and you'll join in acclaiming it— window of the year!

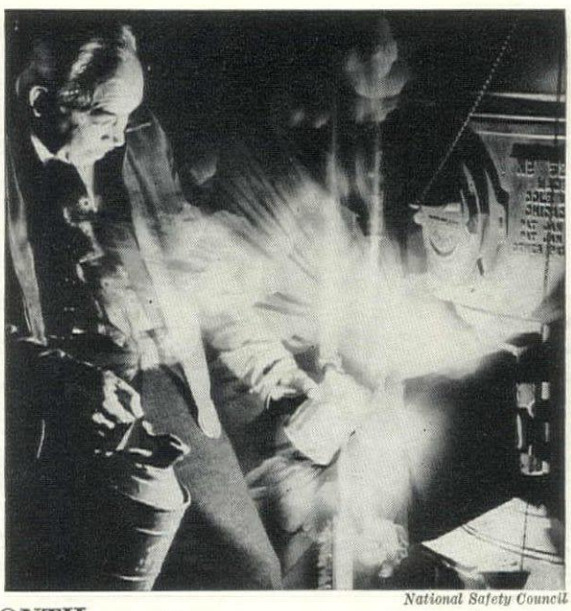
Kawneer

THE KAWNEER COMPANY, NILES, MICHIGAN. BRANCHES: NEW YORK, CHICAGO, BERKELEY, CAL. DISTRIBUTORS IN PRINCIPAL CITIES.



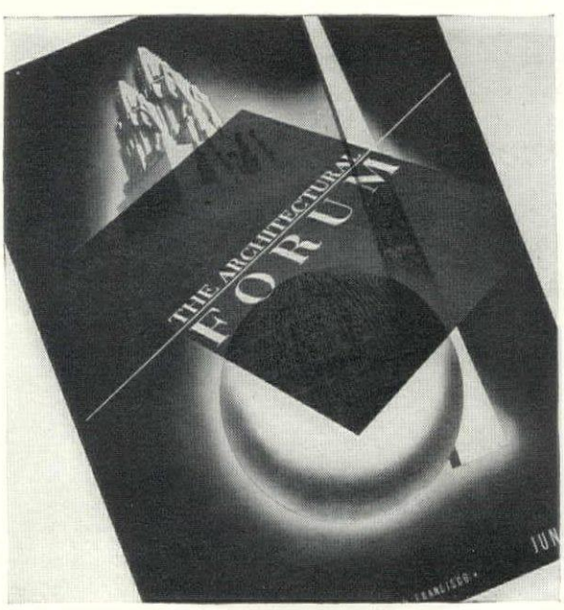
Ansel Easton Adams

BUILDING OF THE MONTH . . . for the 9,000-acre lot with mountains (page 322)



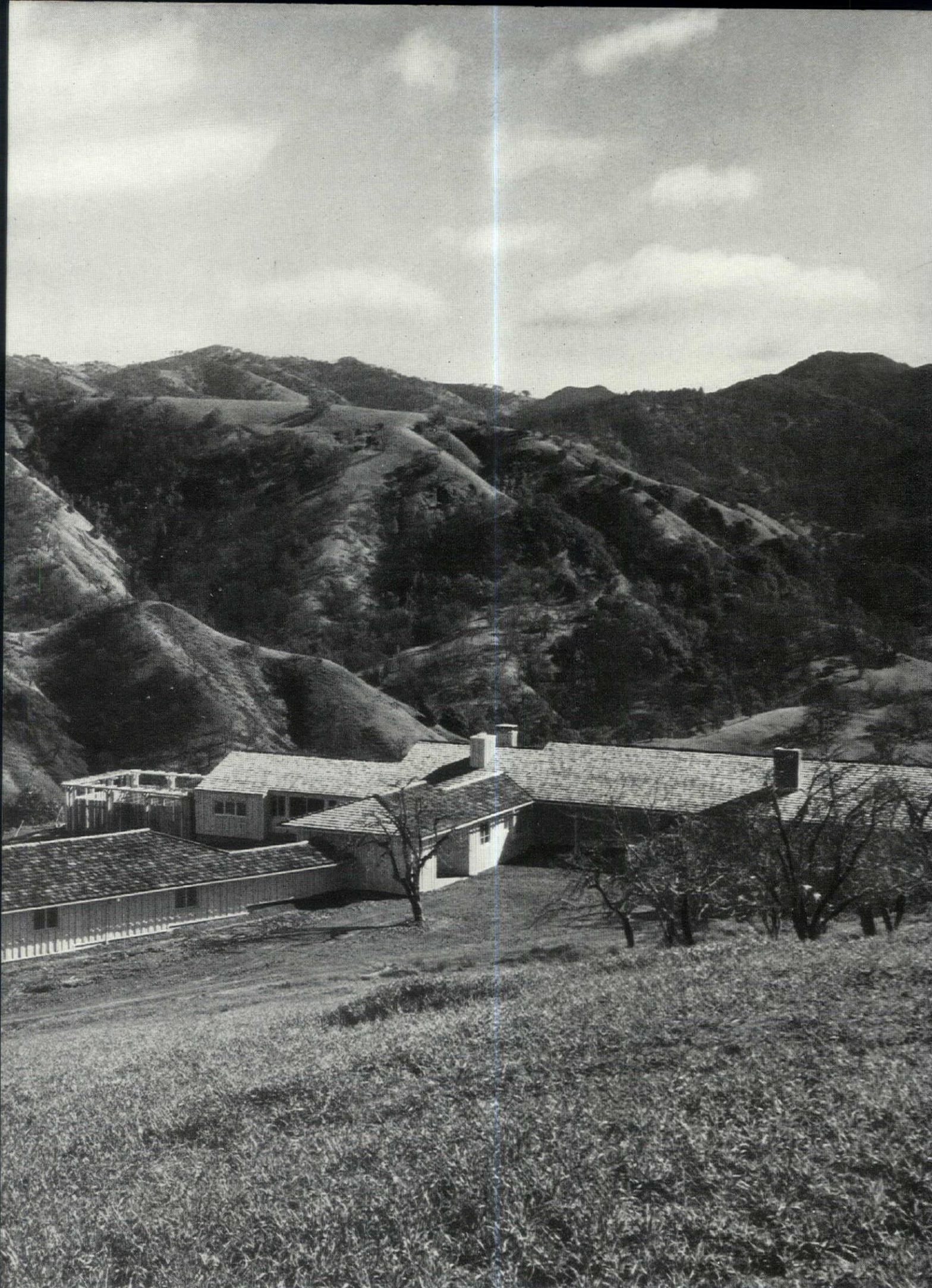
National Safety Council

PROBLEM OF THE MONTH . . . More on rugs than on roads (page 333)



EVENT OF NEXT MONTH . . . JUNE FORUM . . both FAIRS in ONE (adv.)

RANCH GROUP FOR E. L. WALBRIDGE, SONOMA CO



All photos, Ansel Easton Adams

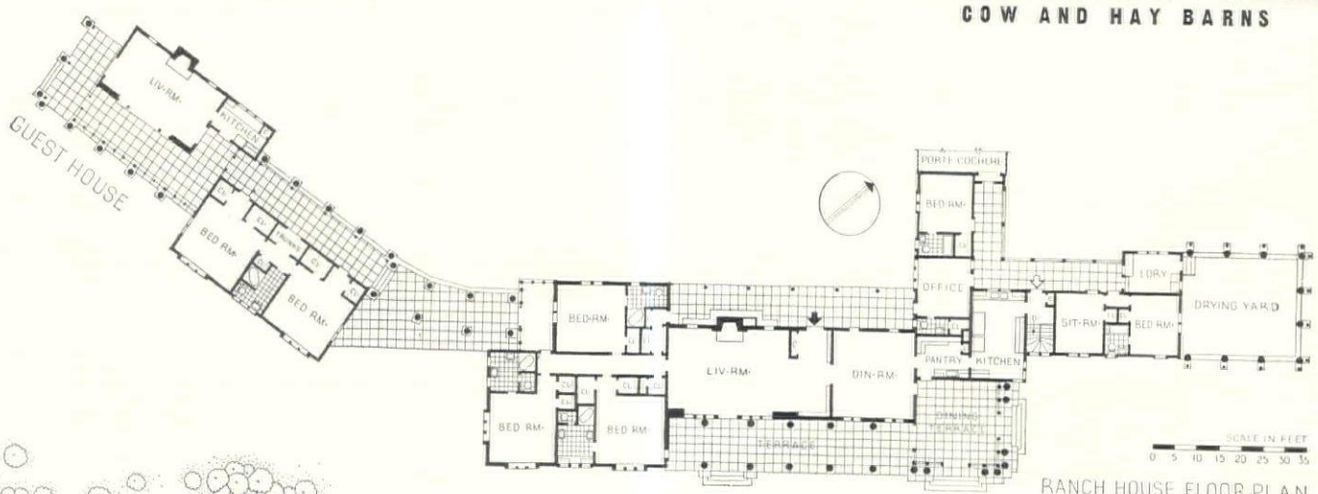
ALIFORNIA. ELDRIDGE T. SPENCER, ARCHITECT

VIEW NORTH FROM MAIN HOUSE

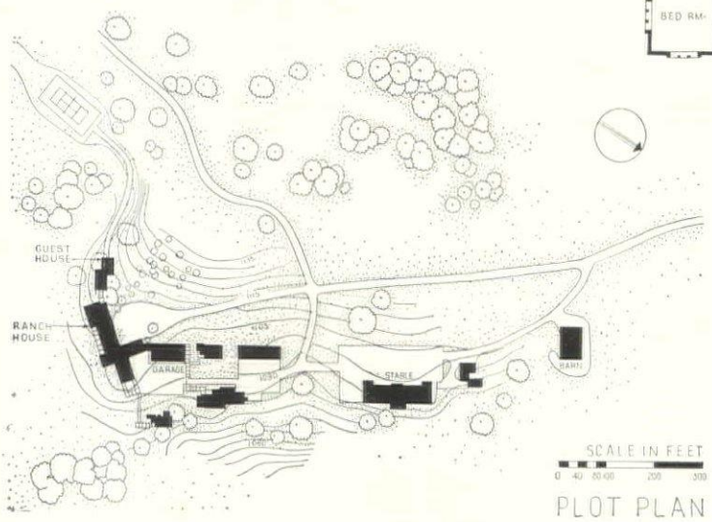
Piling up to the north of San Francisco Bay lie tangled rows of brown hills, their hard sides wrinkled with gullies, haphazardly covered with patches of grass, redwood, oak, madrone and Douglas fir. Packed together in impressive confusion these restless shapes form a landscape which, if not as conventionally spectacular as the inland mountains, is much more typical of the State. Occasionally, as here, these hills flatten out into smooth slopes and wide valleys. Into nine thousand acres of such surroundings it was one architect's problem to build a ranch group.

The "problem" of fitting a building to a specific rural setting is undoubtedly an invention of recent generations of architects who, curiously enough, show no such solicitude for their surroundings when building in cities. The fact is that the best examples of harmony between architecture and landscape have been produced by builders concerned with matters of more immediate importance. Some such unromantic approach is suggested here in the magnificent photographs of Ansel Adams. A ranch house and service

COW AND HAY BARNS



RANCH HOUSE FLOOR PLAN



PLOT PLAN

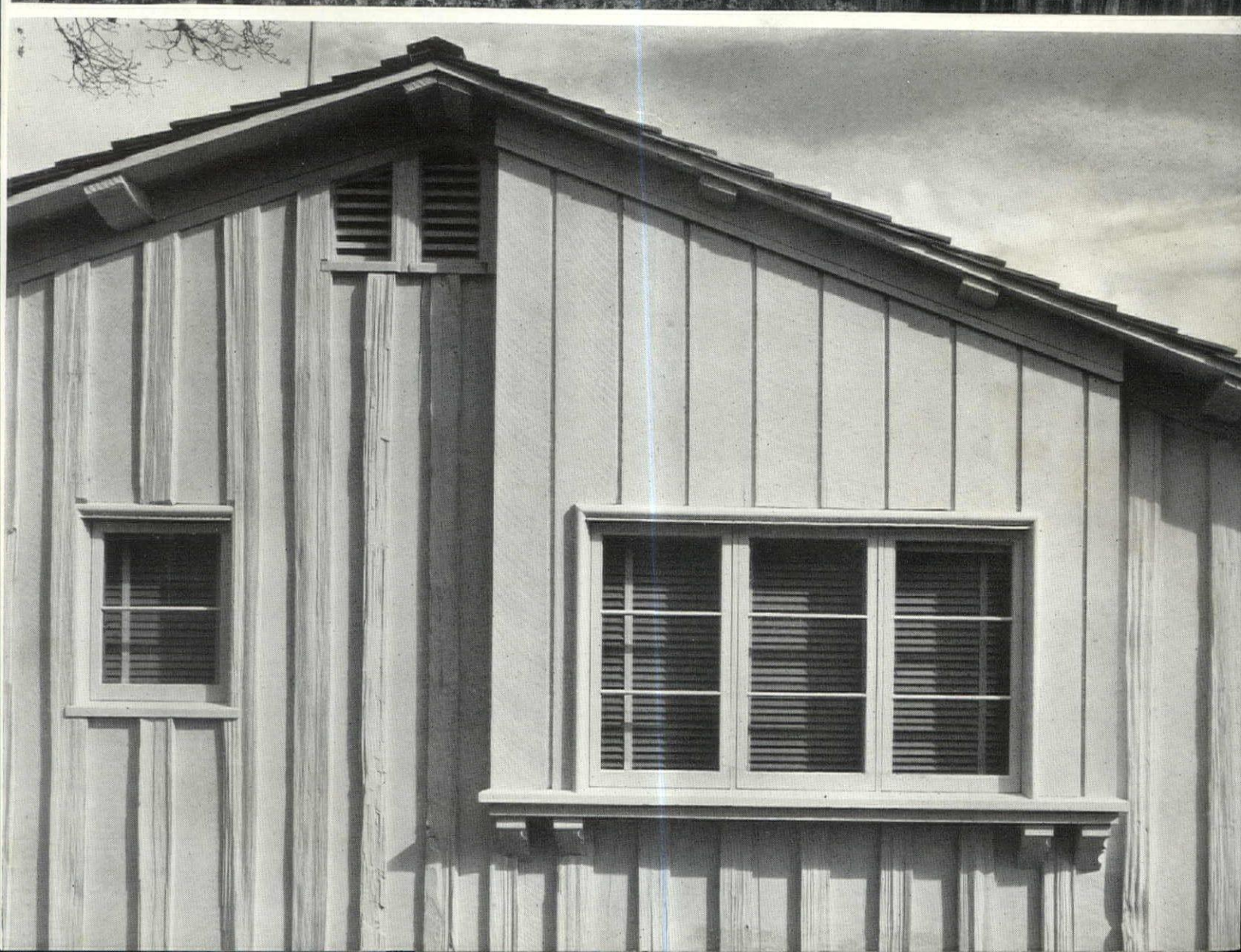
RANCH GROUP FOR E. L. WALBRIDGE
SONOMA COUNTY, CALIF.
ELDRIDGE T. SPENCER, ARCHITECT
FIRM OF
SPENCER, BLANCHARD AND MAHER

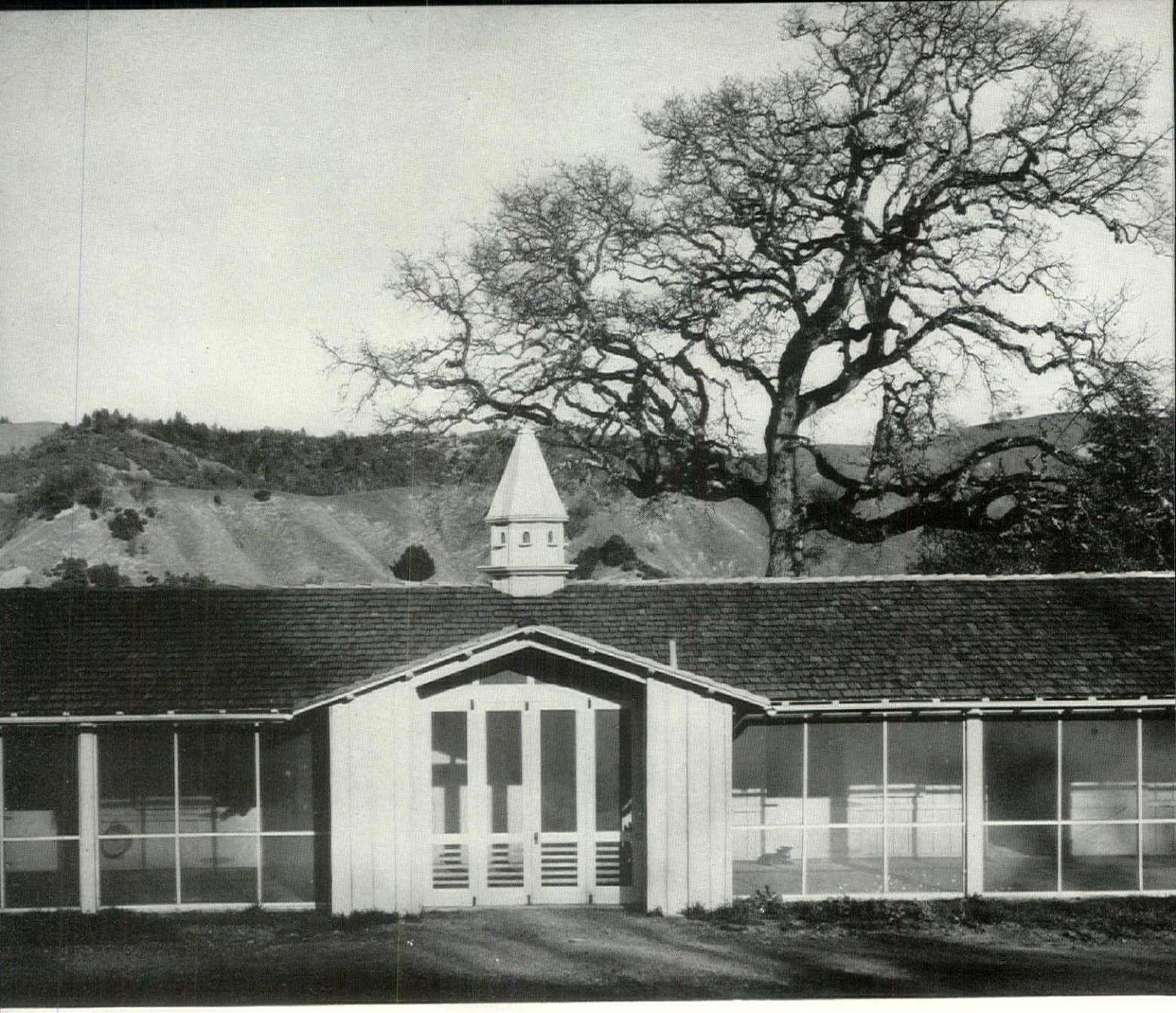
HAY BARN

buildings are strung along the side of a hill, arranged for convenient use and easy access from the road. The architectural treatment is identical for cow barn and main house: all roofs and walls are covered without variation by redwood shakes and by board and batten siding. There is no fake picturesqueness.

Isolated from the customary services, the ranch group had to be designed as a self-contained unit. It includes, in addition to the main house, a guest house, cottages for the caretaker and chauffeur, a bunk house, barns and a stable. Independent systems provide water, heat and power on the property; telephone service is brought in over twelve miles of wire. Butane gas, stored in a 3,000-gallon tank, is used for heating, cooking, refrigeration, and for running the power plant. While open and loosely knit, the group plan has been well studied for convenient distribution of these services.

In its general design the ranch combines a strong personal quality of style with the healthy anonymity of good farm architecture. There is the almost classic impersonality of the hay barn above, and there is also the architect's evident fondness for heavily columned porches and loggias, and for rough surfaces. In this vigorous handling of textures, however, there is no superficial deference to an imposing landscape. The setting is acknowledged by a beautifully casual transition from trim geometric building shapes to the hand-split redwood battens, to the straggling fences in the old local manner, and finally to the trees and surrounding hills. These buildings do not "blend" into the landscape: they add a new note to it.





STABLE

RANCH GROUP FOR E. L. WALBRIDGE, SONOMA COUNTY, CALIFORNIA

ELDRIDGE T. SPENCER, ARCHITECT. FIRM OF SPENCER, BLANCHARD & MAHER

CONSTRUCTION OUTLINE

FOUNDATIONS: Walls—reenforced concrete and continuous footings. Waterproofing—Tricosal, normal.

STRUCTURE: Douglas fir wood frame, exposed in service buildings, wall and roof sheathing, Brownskin paper. Exterior walls—1 x 12 in. unsurfaced redwood boards with split redwood poles as battens, Redwood logs.

CHIMNEY: Common and firebrick, pressed buck facing, terra cotta lining; quarry tile hearths.

SHEET METAL WORK: Gutters, flashings and downspouts——No. 26 gauge Armco galvanized American Rolling Mill Co. sheet metal.

WINDOWS: Sash—sugar pine, outswing casements. Glass—quality A, single strength, Libbey-Owens-Ford Glass Co. Screens—Rolscreen Co.

FLOORS: Main rooms—plank oak; maple in bunk house. Baths and kitchens—1 x 4 in. T. & G. sub-floors and felt covered with linoleum.

WALL COVERINGS: Main rooms—wood; exposed frame in bunk house, service buildings, etc.

HARDWARE: Interior and exterior—P. & F. Corbin. Garage doors—overhead type, Stanley Works.

PAINTING: Exterior walls—2 coats lead and oil. Sash and doors—3 coats lead and oil. Interior—paint and stain finishes.

ELECTRICAL INSTALLATION: Three Fairbanks-Morse generating sets, Butane operated, Trenchclay underground distribution, flexible conduit wiring. General Cable Corp.

KITCHEN EQUIPMENT: Range—gas, James Graham Mfg. Co. Refrigerators—Electrolux, Servel, Inc.

PLUMBING: Domestic and fire protection water supply from 25,000 gal. Redwood storage tank. Pipes—cast iron and galvanized wrought steel. Fixtures—Standard Sanitary Mfg. Co. Septic tank—Pacific Lumber Co.

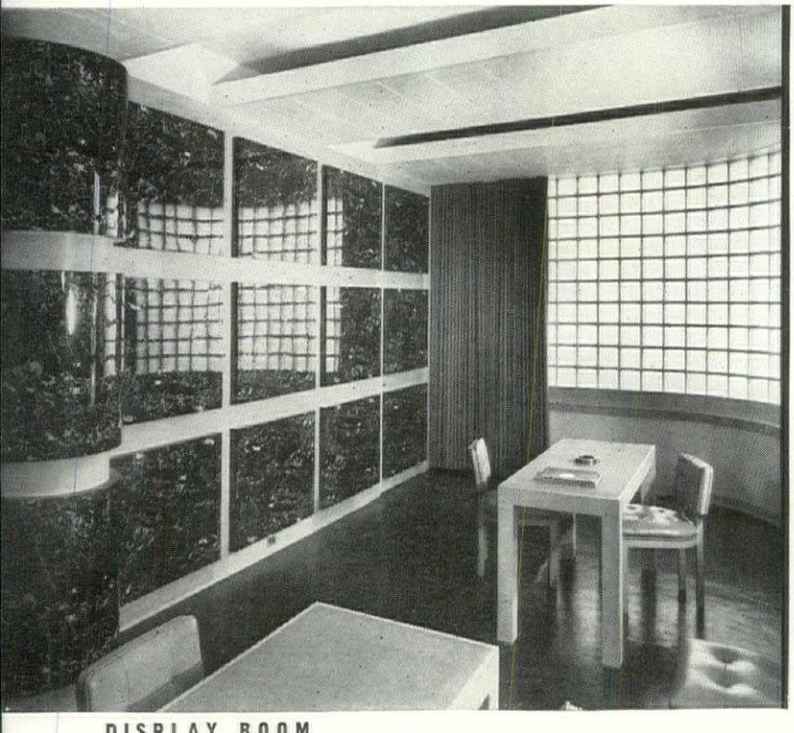
HEATING: All heating from central supply of Butane gas generated from liquid Butane by heat exchanger and piped to various buildings. Ranch house—hot water, Watrola Co. Convectors—Trane Co. Furnaces—Electrogas Co.


MEYERCORD BUILDING CHICAGO
JULIUS FLOTO, ARCHITECT INTERIORS BY ABEL FAIDY

Hedrich-Blessing Photos

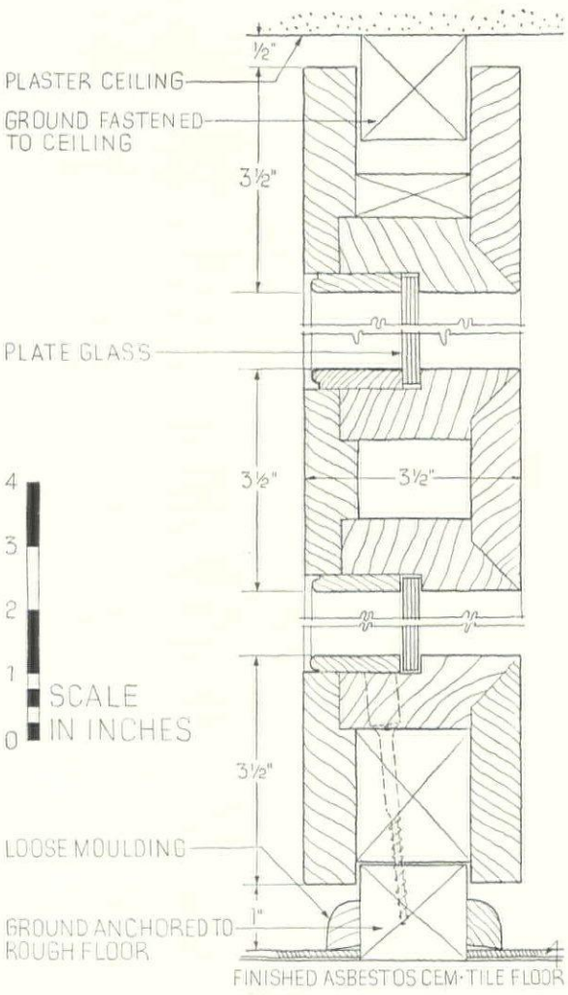
PRIVATE OFFICES

The Meyercord Company is a large manufacturer of decalcomanias—transfers for lettering and designs which have a variety of commercial applications. One of the uses of these transfers is in the imitation of marble, rare woods and similar expensive materials on sheets of wallboard. In these new air conditioned offices, insulated from street noises, such synthetic products have been imaginatively incorporated as demonstrations of the company's products. Other applications are suggested in the photomurals shown on the preceding page. All interiors and furnishings were designed by Mr. Faidy, whose preference for strong rhythms and pronounced rectangular patterns is evident in the wall, window and ceiling treatments, the repetition of partition units and the placing of desks and work shelves.

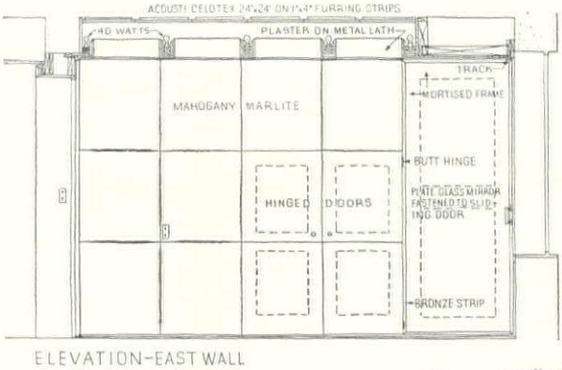


DISPLAY ROOM

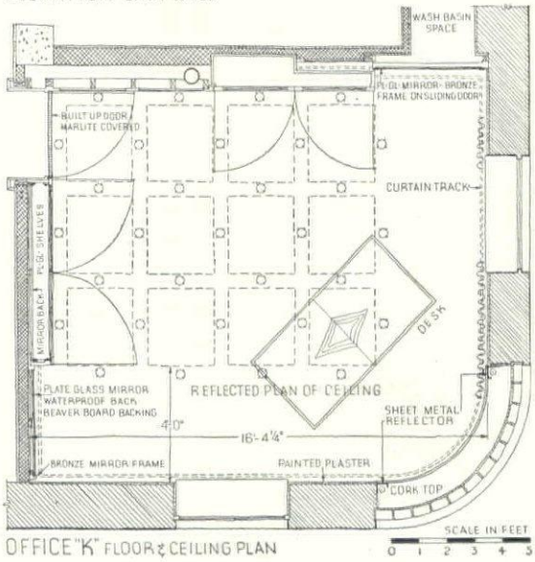
FOR PLAN SEE OPPOSITE PAGE



VERTICAL SECTION THROUGH GLASS PARTITIONS

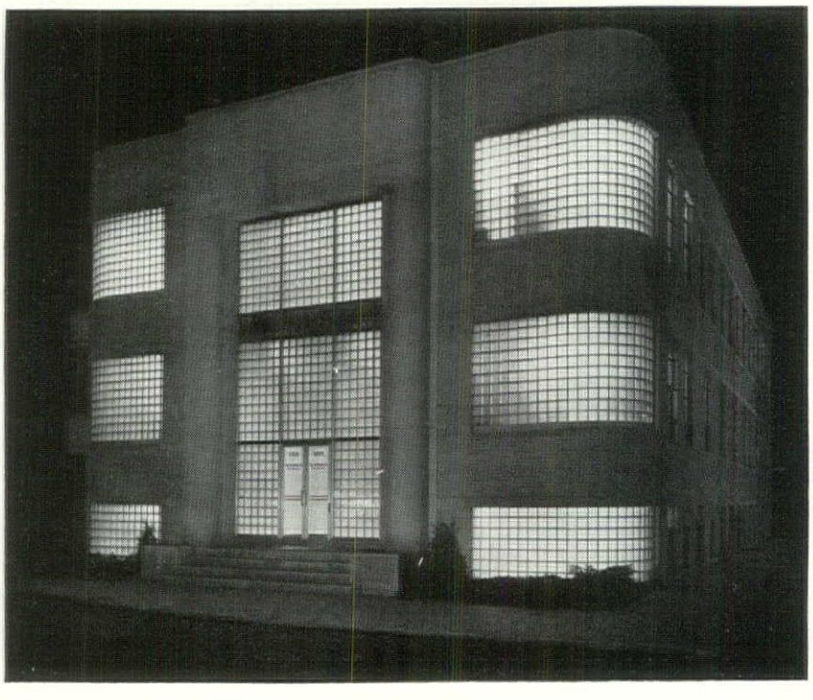


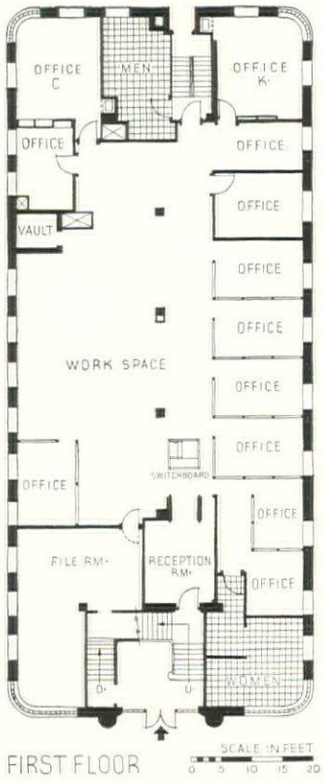
ELEVATION—EAST WALL



OFFICE "K" FLOOR & CEILING PLAN

OFFICES AND WORKROOM





FIRST FLOOR

CONSTRUCTION OUTLINE

FOUNDATIONS: Reenforced concrete with Barber Asphalt Corp. membrane waterproofing.

STRUCTURE: Exterior walls—common brick on two sides; mottled yellow face brick in rear; Bedford stone front; furred with metal lath, 3 coats plaster. Interior partitions—4 in. burnt clay and gypsum tile. Floor construction—reenforced concrete joists, tile fillers. Ceilings—plaster, sound deadened in main rooms; suspended ceiling for top floor.

ROOF: Covered with 6 x 9 in. red quarry tile, Ludowici-Celadon Co.

SHEET METAL WORK: Flashing and gutters—Anaconda copper, American Brass Co. Ducts—galvanized iron fabricated by Roy M. Moffitt Co.

INSULATION: Top floor—18 in. air space and 4 in. mineral wool, Ludowici-Celadon Co. Sound insulation—Celotex, Celotex Corp.

WINDOWS: Sash—Fenmark projected steel, Detroit Steel Products Co. Glass—¼ in. polished plate, quality AA, American Window Glass Co. Glass blocks—Owens-Illinois Glass Co.

STAIRS: Steel, terrazzo treads and platforms.

FLOOR COVERINGS: Marshall Field & Co. linoleum covering throughout.

WALL COVERINGS: Show rooms and offices—Marlite panels, Marsh Wall Products Co., decalcomania product by Meyercord Co.

FURNISHINGS: Designed by Abel Faidy.

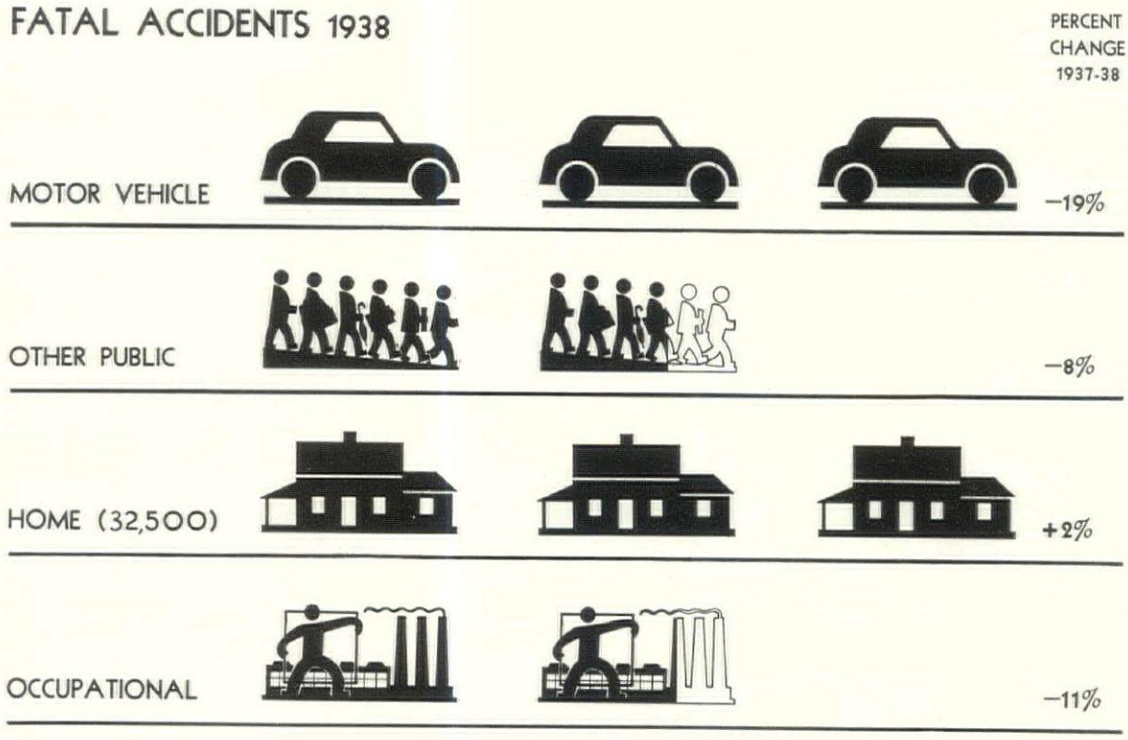
HARDWARE: By Yale & Towne Mfg. Co.

PAINTING: Walls and ceilings—3 coats white lead and linseed oil.

ELECTRICAL INSTALLATION: Wiring system—concealed in iron conduits. Switches—Trumbull Electric Co. and General Electric Co. Wall receptacles—General Electric Co. Circuit breaker—Westinghouse Electric & Mfg. Co.

PLUMBING: Hot and cold water pipes—Anaconda copper, American Brass Co. Pumps—Economy Pumps, Inc. Toilet fixtures—Crane Co. Toilet partitions—Vitrolite, Libbey-Owens-Ford Glass Co.

HEATING AND AIR CONDITIONING: Hot water system; complete air conditioning system by Roy M. Moffitt & Co. Boiler—Kewanee Boiler Corp. Radiators—concealed. Blowers—American Blower Corp.

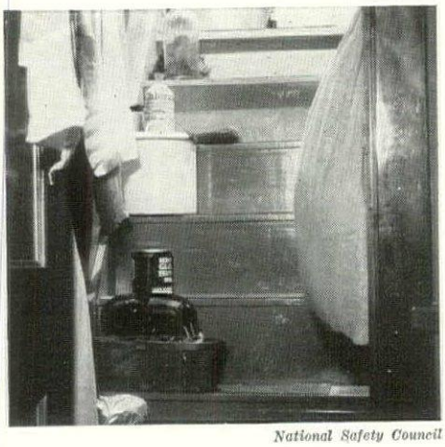


According to current estimates of 1938 fatalities, accidents in the home moved up to first place among causes of accidental death last year, rose 2 per cent to take the place of motor vehicle deaths, which fell off 19 per cent.

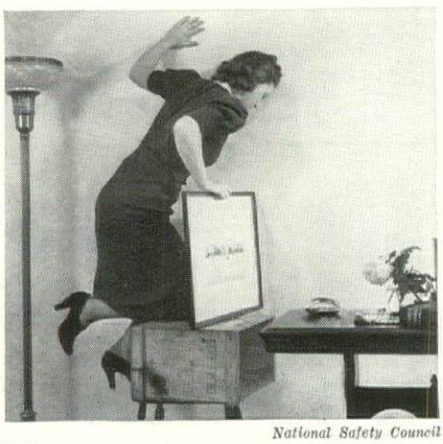
DESIGN FOR SAFETY

Last year, for the first time, home accidents killed more people than automobiles, became the largest single cause of accidental death. To the extent that this reflects the decline of motor vehicle fatalities, which fell off almost 20 per cent, it is, of course, a gratifying fact. But to the extent that it emphasizes our failure to score a proportionate reduction in home accidents it is extremely disquieting. Up 2 per cent over last year, 1938's estimated 32,500 home fatalities, plus its 140,000 permanent and 4,610,000 temporary disabilities, are black marks against a year otherwise distinguished by the greatest reduction (10 per cent) in general accident fatalities so far achieved. They are also a challenge to the architect and the home-building industry to do everything within their power to bring a reduction in home accidents corresponding to those being made in other fields.

Naturally, not all home accidents are preventable. A great many arise out of personal factors, such as carelessness and the infirmities of old age, which are beyond control. A substantial proportion, however, are traceable to causes which can be wholly or partially eliminated by better house design and construction, often at little or no added cost. Recommended precautions against home accidents are simple and for the most part easily carried out; moreover, an excellent basis for assaying their relative importance is furnished by the statistics kept by insurance companies and government agencies showing the proportion of home accidents according to cause and location. Such figures show, for example, that more than half of all home accidents are caused by falls, and almost a third of these occur on stairs; indicating more than 5,000 annual deaths and 20,000 permanent disabilities which might be drastically reduced by improved stair design, safer surfacing, and better lighting. Others indicate little known sources of accidental injury and serve as a valuable reminder of points usually neglected. Highlighted by all such figures are the need for adequate, safe, and convenient storage facilities throughout the house and provision for segregated, properly supervised children's play areas, both precautions which should therefore be doubly appreciated.



National Safety Council



National Safety Council

Falls occur mostly on stairs, are often caused by objects kept there because of lack of adequate storage space, especially for cleaning equipment. Another potent cause is the practice of climbing on chairs and tables to dust, hang pictures, occasioned in part by the architect's failure to provide convenient storage space for a stepladder.

LOCALE OF HOSPITALIZED HOME ACCIDENTS*

	% of Total	% of Falls	% of Burns
YARD	19%	20%	8%
GARAGE	1%	1%	0%
BASEMENT	6%	2%	6%
PORCH AND OUTSIDE STAIRS	20%	30%	0%
HALLS AND INSIDE STAIRS	12%	17%	1%
LIVING AND DINING ROOMS	12%	10%	10%
KITCHENS	18%	10%	56%
BATHROOMS	3%	2%	5%
BEDROOMS	7%	5%	9%
ELSEWHERE	2%	3%	5%

*Survey of home accidents hospitalized at Cook County Hospital, 1933-34, WPA.

TYPES OF HOME ACCIDENTS

Nearly two-thirds of home accidents are caused by falls and fires. Falls alone account for more than half of the fatalities, for half of all accidents; conflagrations, burns, and explosions result in another 18 per cent of deaths. No other single cause (poisoning, absorption of poisonous gas, suffocation, firearms, etc.) accounts for more than 5 per cent.

FALLS result most of all from slippery, badly designed, or poorly lighted stairs, also from objects left on stairways—usually because storage facilities are inadequate or inconvenient. Outside the house, ice on stairs, unexpected steps, and poor lighting account for the largest number of falls occurring at any point.
Next to bad stairs, slippery floors and loose rugs result in the largest number of falls. Contrary to general belief, the number of falls which occur in the bathtub and bathroom is small (6.1 per cent), and the number getting in and out of bed tiny (2.1 per cent). Precautions which the designer can take against falls are, in order of importance:

1. Keep the number of outside steps to a minimum, see that they are located so as to be easily visible both day and night (within range of entrance light, color contrasted with walks), protected if possible from snow and ice, and equipped with proper railings.

2. Design inside stairs for straight runs, intermediate landings if possible, keep risers under 7¾ in., treads at least 9½ in. excluding nosing, uniform in size for each run, equip stairs with continuous handrail, provide non-slip finish if possible. See that stairs have sufficient natural light and that artificial light can be controlled from both top and bottom of stairway. Avoid placing doorways too close to top or bottom of stairway (30 in. minimum).

3. Provide adequate storage facilities, especially for household cleaning equipment which is otherwise kept on basement and attic stairways, provide 8 in. x 2 ft. x 5 ft. space for storing stepladder, preferably on both floors.

4. Avoid use of flooring materials which require slippery surfacing, urge owner to employ non-slip finishes, adhesive mats under loose rugs (21.9 per cent of falls occur on floors and rugs).

5. Equip all bathtubs and showers with an adequate grab bar, preferably vertical and of sufficient length to be reached either sitting or standing.

By far the largest proportion of falls, especially fatal falls, occur among the aged, (65 and over). A special precaution which should do much to reduce the number of such accidents is the provision of ground-floor bedrooms for the very old. Special effort should also be made to assure that homes to be occupied by old people are free from hazards of all types, especially slippery floors and loose rugs.

BURNS, the next largest cause of home accidents, accounted for 6,000 deaths in 1937, caused mostly by fires originating inside and outside the house and explosions, etc., resulting from operation of unsafe cooking, heating, and home cleaning equipment. The National Fire Protection Association lists as the eight major causes of fire in the home the following: 1. Rubbish, 2. Defective Chimneys, 3. Combustible Roofs, 4. Defective Heating Apparatus, 5. Matches and Careless Smoking, 6. Gasoline, Kerosene, etc., 7. Electrical Defects, 8. Hot Ashes. Architects and builders are in a position to guard against most of these causes of fire, by taking all ordinary precautions required by good construction practice and by paying special attention to the following:

1. Basements and garages should be adequately lighted and fully paved to encourage cleanliness and equipped with fire resistant ceilings, garages with fire resistant sidewalls where they adjoin the house. Both may be equipped with simplified automatic sprinklers at surprisingly low cost. Fire resistant floors and walls, besides masonry and reenforced concrete, include plaster on metal lath and plaster board, which may be applied in double layers with staggered joints to increase fire resistance.

2. Adequate fire stops in the walls, especially next to basements and attics. In addition to ordinary methods, fireproof insulation such as gypsum and mineral wool does much to retard the spread of fire, may be applied to garage ceilings and sidewalls where they adjoin the house as fireproofing and to reduce heat loss.

3. Stairways should be enclosed wherever possible to avoid chimney effect. Avoid outside stair and porch constructions which are a fire hazard.

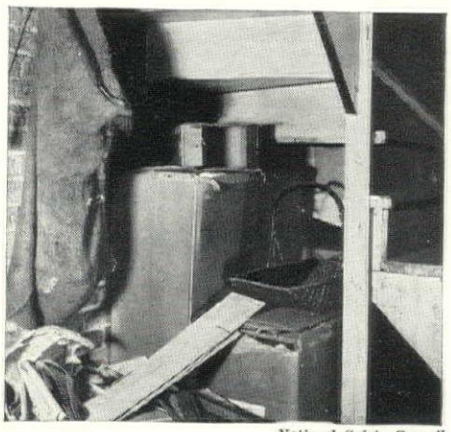
4. Open fires must be properly guarded. Attractive built-in firescreens are available which increase the likelihood of proper protection.

5. Provide 4 in. x 4 in. x 18 in. recess for fire extinguisher in kitchen or at head of basement stair and at a convenient point on second floor. Extinguishers are more likely to be purchased and kept in order if a special place is provided for their convenient storage.

Accidental burns and scalds not arising from fires occur mostly in the kitchen (56 per cent), and are commonest among very young children (0 to 4 years). This suggests the imperative need for a safe play space adjacent to the kitchen, as proposed by Fordyce and Hamby in "Small Houses for Civilized Americans," ARCH. FORUM, Jan. 1936. Small children have a tendency to follow the mother wherever she goes, and since most of her time is spent in the kitchen, most of the child's time is likely to be spent there, too, underfoot. About the only effective precaution against the hazard this presents for both mother and child is an adjoining play space within view of the kitchen but separated from it by a very low partition or guard over or through which the child can see the mother at work (and vice versa). Ideally, this should perhaps be a room intended solely for play, but in most cases it is used for a dining nook as well, to conserve space. Provision of such a room is mostly a matter of careful planning, plus equipment to divide it from the kitchen in the fashion outlined above. Care should be taken to provide convenient storage space for toys, since these are an important cause of falls.

Next most important cause of accidental burns is smoking in bed (often fatal), which falls outside the province of the architect. Burns and scalds may also result from unguarded heating equipment, showers lacking proper regulating equipment,

(*Continued from page 336*)



National Safety Council

National Safety Council

Fires usually start in the basement, are carried between floors by stairs. Adequate natural light discourages dangerous accumulations of rubbish like that in the upper picture. Poisonings strike most frequently in the case of the very young, may be largely eliminated if a locked compartment is provided for poisonous drugs.

HOME SAFETY CHECK LIST—Prepared by the Safety Research Institute

Location, type of accident, precautions:

STAIRS AND STEPS

Falls

HANDRAILS—at open sides rails should be not less than 31 in. high from front of tread.

LIGHT—natural light on stairs desirable for daytime safety; artificial light essential at night.

WINDERS—eliminate short turns and winders.

PORCHES

Falls

RAILINGS—strong railings at least 42 in. high should be provided if porch is more than one step above grade.

PALINGS—should be close enough together to keep children from pushing through; if palings are not used there should be intermediate railings providing the same safety.

TOE BOARDS—second floor porches should have toe boards to prevent objects from falling to the ground.

BATHROOMS

Falls

HANDGRIPS—rigid grips, conveniently placed, should be provided for tubs and shower stalls.

FLOOR—unglazed tile will mitigate danger of slipping on wet floor.

SOAP DISH—adequate dishes that will prevent soap from falling out.

Shock

ELECTRIC LIGHTS—should be controlled by switch located near door, away from tub or wash bowl.

ELECTRIC APPLIANCES—should be used outside bathroom to avoid all danger of contact with water during their use.

Poisonings

MEDICINE CABINET—should have locked compartment where poisons can be safely kept.

BASEMENTS

Fire

CEILING—fire resisting, especially over oil burner. Automatic sprinkler system will protect basement and prevent spread of fire to upper rooms.

FIRE EXTINGUISHER—location should be planned.

FIRE ALARM—automatic fire alarm units will warn occupants of undiscovered fires.

Falls; striking against, stepping on objects, etc.

NATURAL LIGHT—should be provided in daytime; artificial light, properly planned and controlled, for night safety.

OUTSIDE WALKS

Falls

STEPS—should be grouped in locations where they can be adequately lighted; color should contrast with walks. Avoid irregular steps.

KITCHEN

Fire

FIRE EXTINGUISHER—location should be planned near door at convenient height.

CLOSET—employ fire-resistant construction for closet where oil mops and cleaning materials can be kept.

Falls

SHELVES AND CABINETS—avoid placing storage facilities at heights which require use of stepladder or an unsafe substitute.

Cuts

KNIFE RACK—provide rack where knives can be safely kept.

ELECTRIC WIRING

Fire; falls

OUTLETS—provide sufficient electric outlets in all rooms to eliminate unsafe use of portable cords.

NIGHT LIGHTS—provide for night lights in halls outside sleeping rooms.

FIREPLACE

Fire

SCREENS—built-in fire screens will encourage safe use of open fires.

DAMPER—control should be outside fireplace.

WINDOWS

Falls

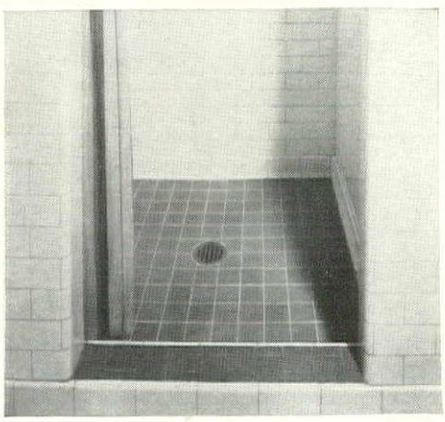
CLEANING—use windows which are easily cleaned from the inside.

CLOSETS

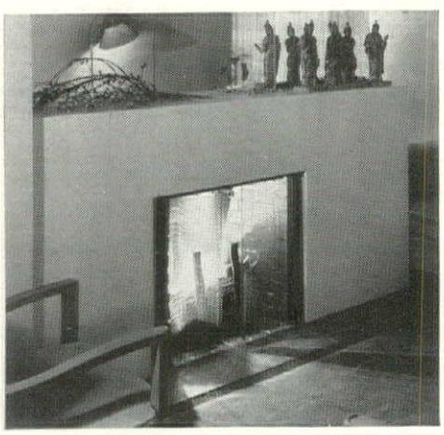
Falls, fires, falling objects, etc.

ADEQUATE FACILITIES—for separate storage of cleaning supplies, for clothing, linen, and all other purposes, will encourage safe housekeeping habits.

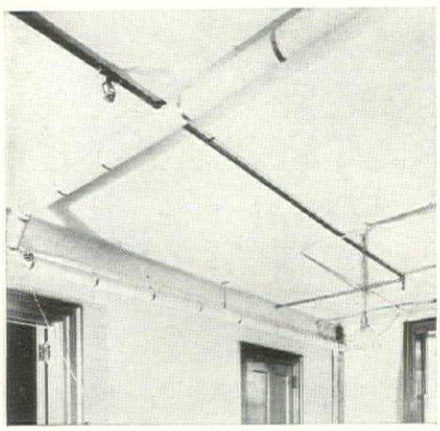
Combo Corp.



Norton Co.



Joseph Aronson, Designer; Bennett Fireplace Corp.



Rockwood Sprinkler Co.

Products which encourage safety include the incinerator, non-slip shower floor, built-in fire screen, and basement sprinkler system. Those shown above are merely representative of a host of types and designs.

defective stoves, etc. Slippery floors in kitchens and dining rooms are a secondary cause of burns and scalds resulting from spilling hot liquids, etc. Defective electrical equipment, especially when likely to be operated with wet hands, as in the kitchen, bathroom, and basement, often causes burns, sometimes electrocution.

OTHER CAUSES of home accidents include poisoning, absorption of poisonous gas, mechanical suffocation, and firearms. Altogether, these account for but 13 per cent of fatalities, assume significant proportions only in the case of accidental poisoning in the 0 to 4 year age group, where two deaths per 100,000 population are traced to this cause (burns account for 11.3 deaths per 100,000 in the same group). That this is due mostly, as commonly supposed, to unauthorized prying in medicine chests and the like is indicated by the fact that the rate for more venturesome and agile boys is 50 per cent higher than for girls. The suggestion of a California mothers' group that medicine chests be fitted with a special locked compartment for poisons would therefore seem to make sense, and in the absence of such equipment architects and builders might well provide an altogether separate locked compartment for this purpose. The same precaution would also seem desirable for firearms, although these are a much less important cause of fatalities than poison.

Cuts from improperly stored knives, etc., in kitchens are not an important source of hospitalized or fatal accidents, and therefore do not commonly appear in accident statistics. They constitute a real danger, however, which should be guarded against by the provision of proper storage facilities, such as a knife rack or, better still, a series of slots for knife blades in the back of the counter surface.

THE ACCIDENT-PROOF HOME, of course, cannot exist, but the fact that more than half of all home accidents occur in kitchens and on inside and outside stairs should be enough to prove that proper precautions in house design can do much to reduce the total. In addition, the fact that better than half of all home fires start in the basement, and that more than 15 per cent of fatalities are traceable to fire will indicate the importance of proper fire retardants and safeguards. Home-accident prevention is next on the agenda of practically all agencies concerned with safety, and is bound to receive the active attention of home builders and home buyers during the next few years. The General Federation of Women's Clubs, with two and a half million members, has already set up a Home Safety Division to organize and direct an extensive Home Safety Program. Meanwhile, the architect or builder who becomes safety conscious will do himself and his clients a service which will pay dividends for years to come.

HOME ACCIDENT FATALITIES BY TYPE, SEX, AND AGE GROUPS*

Death rate per 100,000 population

MEANS OF INJURY	All Ages		0-4 Years		5-14 Years		15-64 Years		65 and Over	
	M	F	M	F	M	F	M	F	M	F
ALL FATAL HOME ACCIDENTS	14.9	13.7	30.1	25.4	4.5	9.2	13.8	9.3	87.3	118.3
POISONING BY FOOD	.2	.1	.4	.4	X	.1	.1	.1	.6	.2
OTHER ACCIDENTAL POISONING	.7	.6	3.1	1.9	.1	.1	.5	.5	1.0	.6
CONFLAGRATION	.9	.6	1.4	1.3	.6	.5	.9	.5	3.2	2.4
ACCIDENTAL BURNS	2.2	3.3	10.5	11.3	.9	2.4	1.1	2.0	7.8	11.9
ABSORPTION OF POISONOUS GAS	1.8	.8	.4	.5	.1	.1	2.5	.8	8.6	3.9
DROWNING	.2	.1	1.2	.5	X	X	.1	X	.1	.2
TRAUMATION BY FIREARMS	1.0	.2	.4	.2	1.0	.2	1.2	.2	.3	.2
TRAUMATION BY CUTTING OR PINCHING INSTRUMENTS	.1	.1	.1	.2	X	X	.1	.1	.7	.2
TRAUMATION BY FALL	6.0	7.1	4.4	3.3	1.1	.6	6.2	4.5	61.6	95.7
OTHER ACCIDENTAL FATALITIES	1.8	.9	8.1	5.3	.6	.2	1.0	.5	3.4	2.9

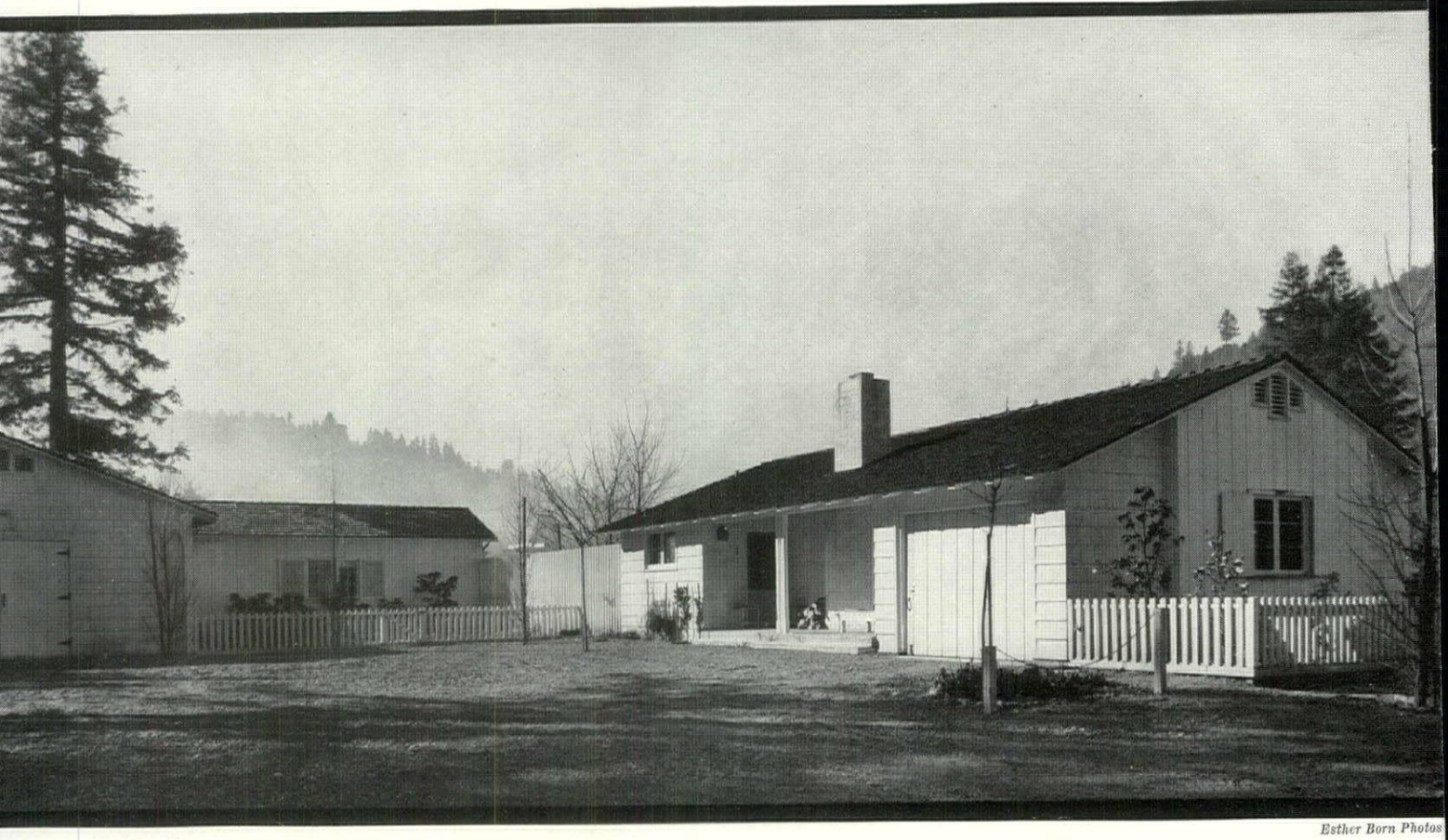
*Metropolitan Life Insurance Co., 1931-35 combined. X = less than .05 per 100,000. M = Male, F = Female.

NORMAN K. BLANCHARD AND EDWARD J. MAHER, ARCHITECTS

HOUSES

Esther Born

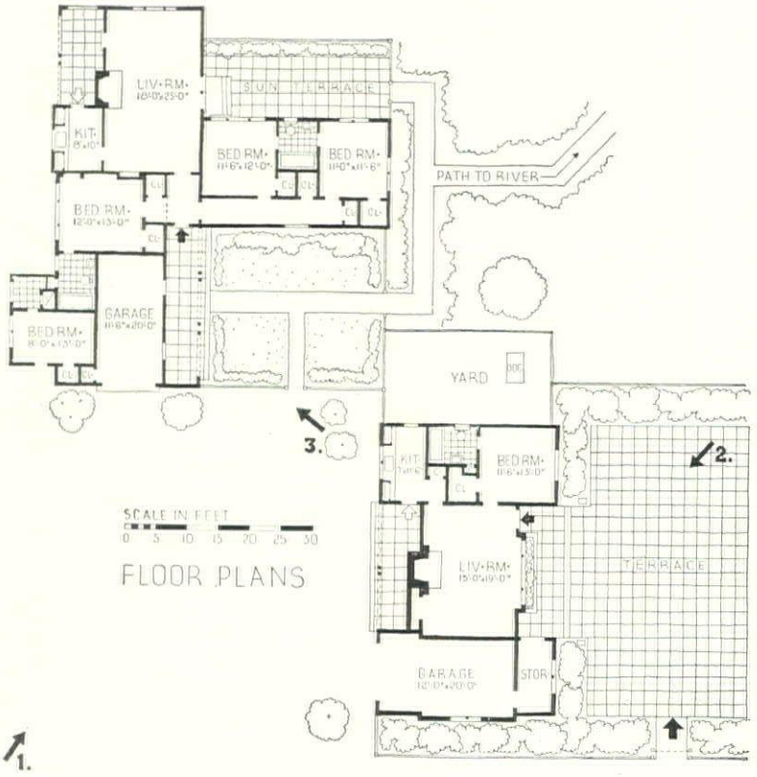
HOUSES FOR WILLIAM D. AND GEORGE G. FRISBEE, GUERNEVILLE, CALIF.



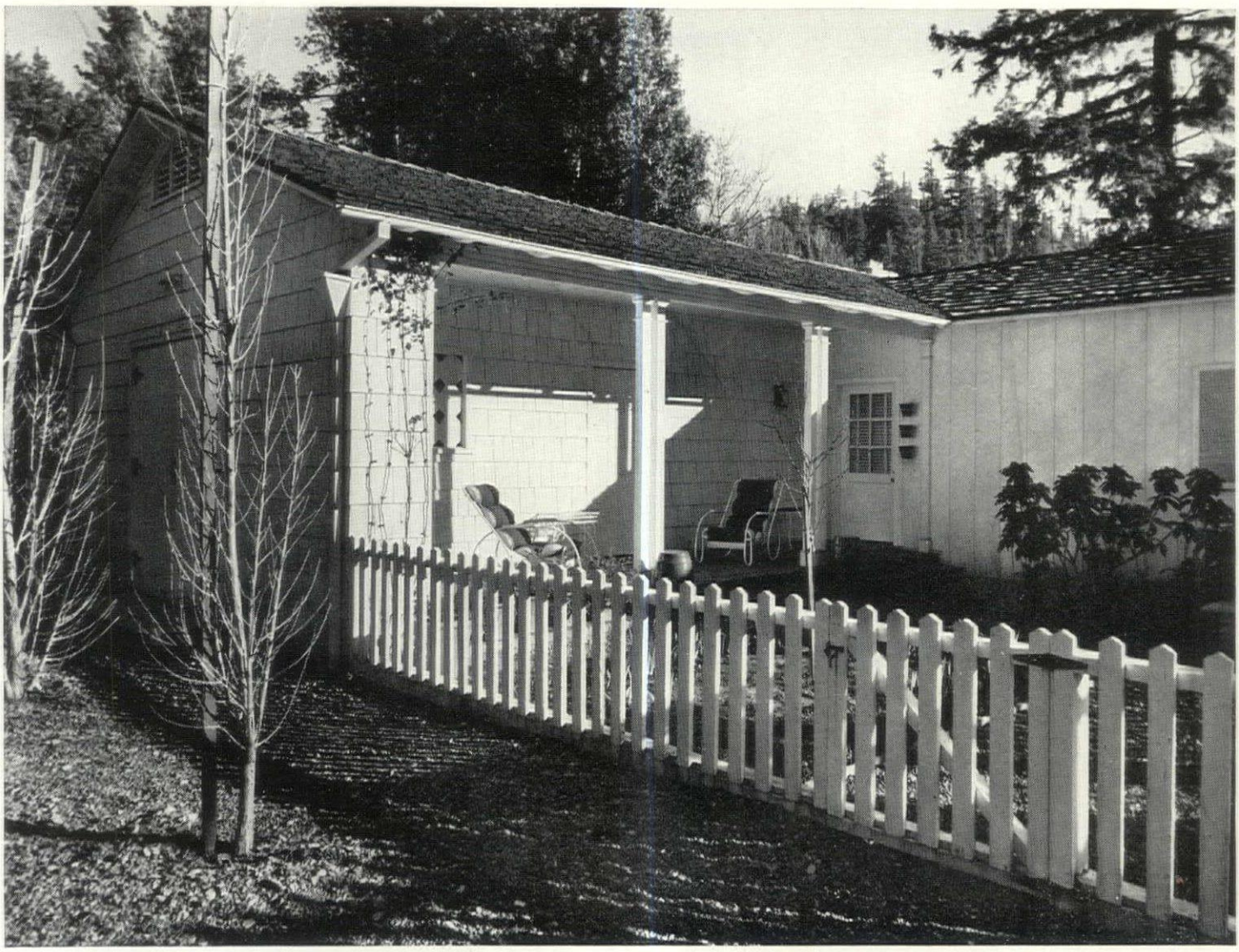
Esther Born Photos

VIEW 1.

These two summer cottages are located in a resort area on the Redwood Highway in northern California. Developed around a common garden, the houses have also been planned for the utmost convenience in separate use, each facing its own private terrace, with cross-views entirely eliminated. By a careful orientation of the group as a whole, each room has been assured ample sunlight. Services such as the kitchens, due to the seasonal use of the houses, have been reduced to a comfortable minimum. Materials, as in the Walbridge ranch (p. 323), are limited almost entirely to redwood, exterior walls, for instance, being given a slight variation in texture by the use of shingles and vertical siding. Typical of the architect's skill in designing for a specific environment are these broadly roofed houses, appropriate but not "rustic," and such vigorously handled details as the large bay illustrated on the opposite page. Cost (both houses): $15,200.



NORMAN K. BLANCHARD AND EDWARD J. MAHER, ARCHITECTS, FIRM OF SPENCER, BLANCHARD & MAHER



VIEW 3.

VIEW 2.

HOUSES IN GUERNEVILLE, CALIF. NORMAN K. BLANCHARD AND EDWARD J. MAHER, ARCHITECTS

LIVING ROOM

CONSTRUCTION OUTLINE

FOUNDATIONS: Continuous reenforced concrete.
STRUCTURE: Douglas fir wood frame. Exterior walls—Royal cedar shingles and redwood boards over Brownskin paper and Brown Co. diagonal Douglas fir sheathing.
ROOF: Split cedar shakes over Brownskin paper and Brown Co. Douglas fir sheathing.
CHIMNEY: Common brick with pressed brick facing; firebrick fire box and quarry tile hearth, Gladding, McBean & Co.
SHEET METAL WORK: Flashing—Armco galvanized iron, American Rolling Mill Co.
WINDOWS: Sash—sugar pine casement on Dalmo fixtures. Glass—single strength, quality A, Libbey-Owens-Ford Glass Co. Screens—Rolscreen Co.
FLOORS: Living and bedrooms—select oak. Bathrooms and kitchens—1 x 4 in. T. & G. sub-floor and felt covered with Gladding, McBean & Co. ceramic tile.
WALL COVERINGS: Living room walls and ceilings—molded vertical grain Douglas fir boards. Baths and bedrooms—Douglas fir plywood. Ceilings—Insulite, canvas, Insulite Co.
HARDWARE: Interior—bronze, Sargent Co. Garage door—Stanley Works.
PAINTING: Living room and entry—stain and wax. Bedrooms and baths—3 coats lead and oil, W. P. Fuller Paint Co. Roof—linseed oil.
ELECTRICAL INSTALLATION: Knob and tube, General Electric Co. tumbler switches.
KITCHEN EQUIPMENT: Range, refrigerator and water heater—electric, General Electric Co.
PLUMBING: Soil pipes—cast iron. Water pipes—galvanized wrought steel. Fixtures—Standard Sanitary Mfg. Co.
HEATING: Bathroom heater—electric, Wesix Co.

HOUSE FOR J. FRANK WADDELL, CHAPPAQUA, N. Y.

Harold Halliday Costain

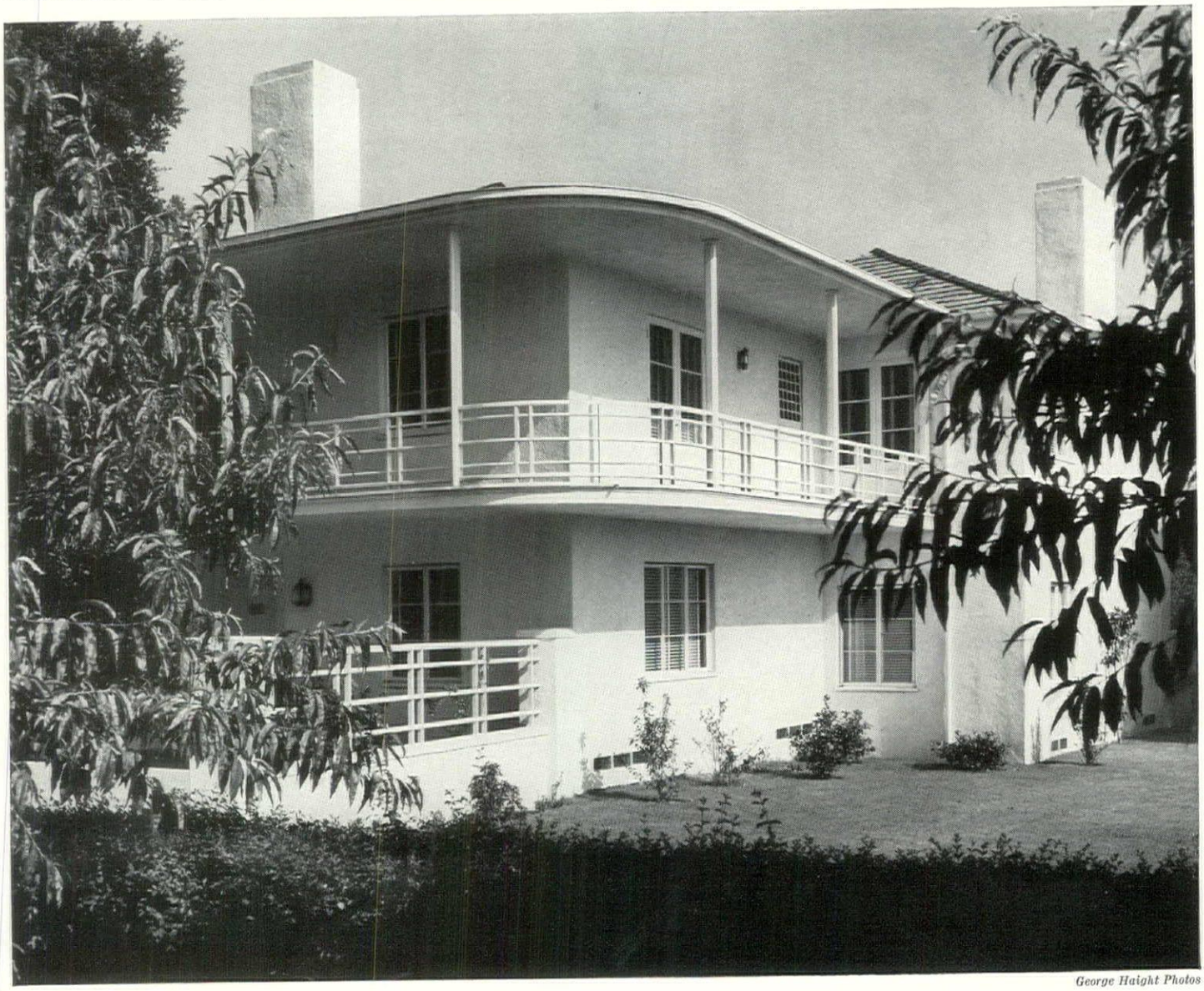
JAMES RENWICK THOMSON, ARCHITECT

A somewhat extended one-story design, this house contains provision for an additional two bedrooms and bath on the second floor. The necessary dormers are placed at the rear. Unusual in houses of this size is the interest created by a careful articulation of the three main elements: living room, entrance and service wing. A stone wall further emphasizes the entrance, and creates a link between the house and the handsome dry wall in front of it. Cubage: 24,000. Cost: $10,600, at 44 cents per cubic foot.

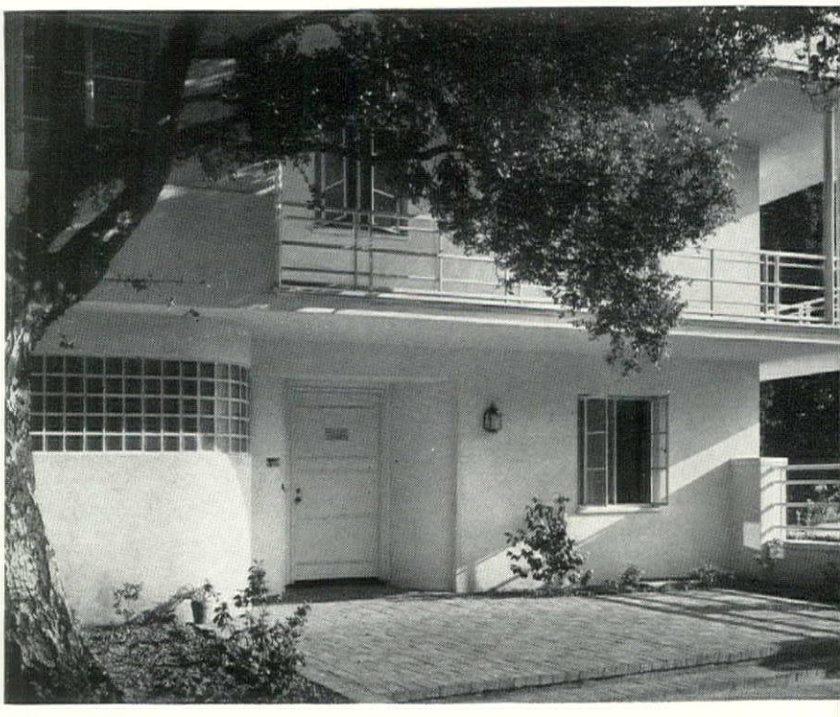
CONSTRUCTION OUTLINE

FOUNDATION: Walls—concrete block. Cellar floor—cement on cinder fill. Waterproofing—2 coats tar and felt.
STRUCTURE: Exterior walls—stud construction, shingles and stone veneer.
CHIMNEY: Brick with terra cotta lining. Damper—H. W. Covert Co.
SHEET METAL WORK: Flashing, gutters and leaders—16 oz. copper. Ducts—galvanized iron.
INSULATION: Outside walls and attic floor—rock wool.
WINDOWS: Sash—wood, double hung, Unique Window Balance Co. Glass—double strength, Libbey-Owens-Ford Glass Co.
STAIRS: Pine stringers and risers; oak treads, Curtis Companies.
WALL COVERINGS: Living room and bedrooms—wallpaper. Bathrooms—tile wainscot.
HARDWARE: Black and brass Colonial throughout.
ELECTRICAL INSTALLATION: Wiring system—BX. Switches—toggle, Harvey Hubbell Co.
KITCHEN EQUIPMENT: Range—Pyrofax, Carbide & Carbon Corp. Refrigerator—General Electric Co. Sink—Standard Sanitary Mfg. Co. Cabinets—Kitchen Maid Mfg. Co.
BATHROOM EQUIPMENT: All fixtures by Standard Sanitary Mfg. Co.
PLUMBING: Hot and cold water pipes—brass.
HEATING AND AIR CONDITIONING: System includes filtering and humidifying. Boiler—oil fired, American Radiator Co.

HOUSE FOR RALPH E. PHILLIPS, SAN MARINO, CALIF.



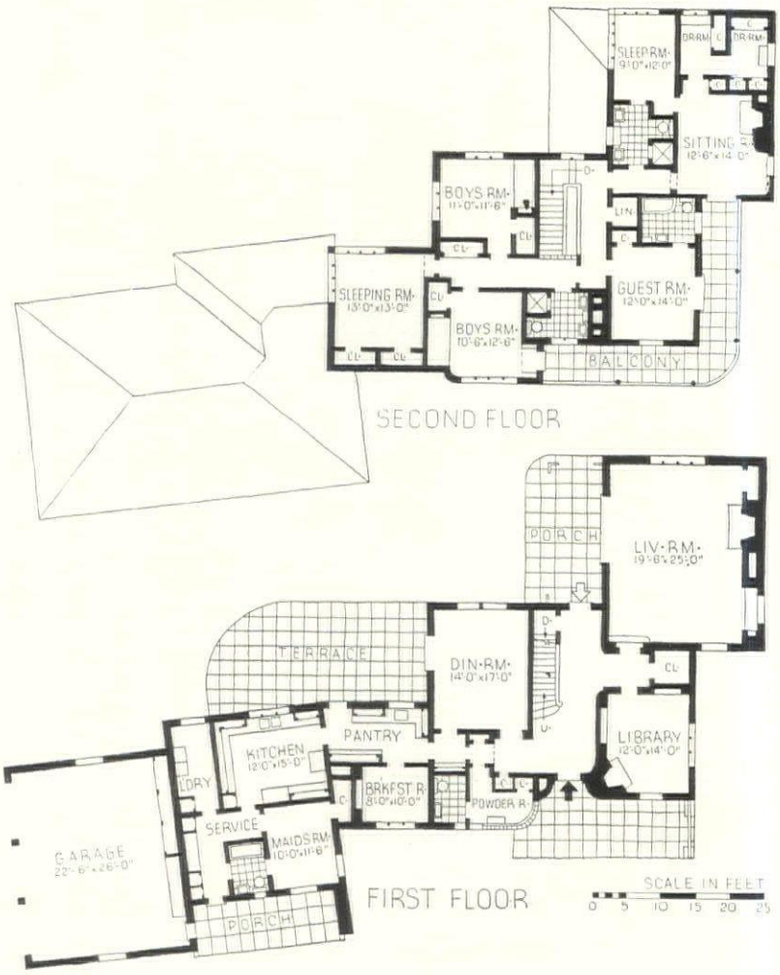
George Haight Photos



ENTRANCE

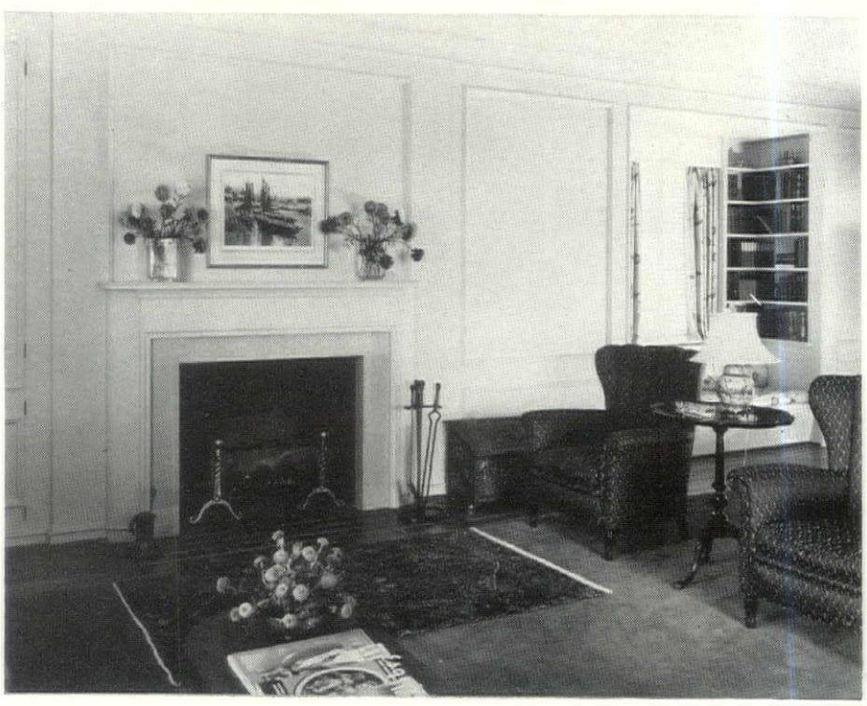
An interesting feature of this plan is the separation of bedrooms into sleeping and sitting rooms. A desirable arrangement where the budget permits, it has in this case necessitated the addition of two rooms, complicating a plan already somewhat involved. General living space is ample, with porches and terraces adjacent. The design, both interior and exterior, reflects a growing trend in its combination of modern and traditional elements.

H. ROY KELLEY, ARCHITECT

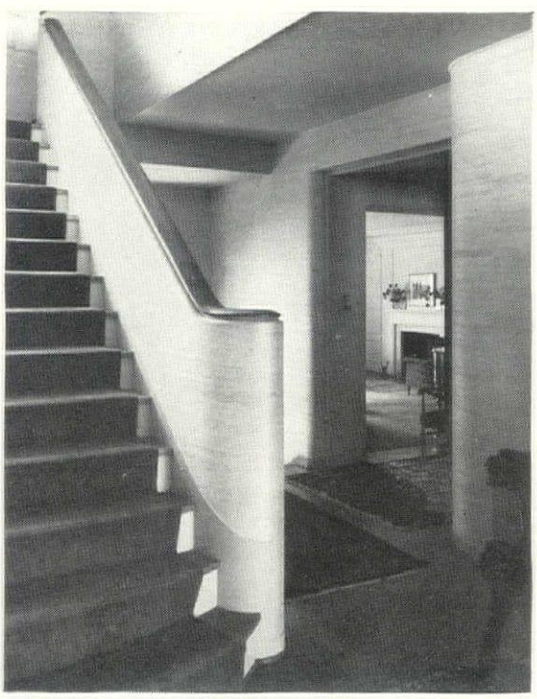


CONSTRUCTION OUTLINE

FOUNDATION: Walls and cellar floor—concrete.
STRUCTURE: Exterior walls—cement plaster on grip lath, wood studs, inside gypsum plaster. Floor construction—wood joist, oak finish flooring. Ceilings—grip lath and gypsum plaster.
ROOF: Covered with split red cedar shakes. Decks covered with Mastipave, Paraffine Companies.
CHIMNEY: Common brick, terra cotta flue lining. Dampers—Richardson & Boynton Co.
SHEET METAL WORK: Flashing, gutters and leaders—Toncan galvanized iron, Republic Steel Corp.
INSULATION: Roof—Reynolds Metallation, Reynolds Corp. Weatherstripping—Monarch Metal Weather Strip Co.
WINDOWS: Sash—steel casement, Druwhit Co. Glass—double strength, quality A, Libbey-Owens-Ford Glass Co. Glass blocks—Insulux, Owens-Illinois Glass Co. Screens—automatic tension roller.
STAIRS: Treads—oak. Risers—mahogany.
FLOOR COVERINGS: Main rooms—oak. Kitchen and bathrooms—linoleum covered.
WALL COVERINGS: Living room, bedrooms, kitchen and bathrooms—Sanitas, Standard Coated Products Co. Halls—grass cloth.
WOODWORK: Trim and cabinets—California white pine. Doors—sugar pine. Garage doors—Douglas fir, Frantz Mfg. Co. hardware.
HARDWARE: Russwin, Russell & Erwin Mfg. Co.
PAINTING: Walls and sash—oil paint, Sherwin-Williams Co. Floors—stain and wax. Exterior walls—Bondex, Reardon Co. Roof—stain.
ELECTRICAL INSTALLATION: Wiring system—conduit. Switches—Bryant Electric Co. Fixtures—Arthur Clough.
KITCHEN EQUIPMENT: Range—Wedgewood, James Graham Mfg. Co.
Refrigerator—General Electric Co. Sink—Crane Co.
LAUNDRY EQUIPMENT: Sink—Crane Co. Washing machine and drier—General Electric Co.
BATHROOM EQUIPMENT: All fixtures by Crane Co. Shower—Speakman Co.
PLUMBING: Hot and cold water pipes—copper tubing.
HEATING: Atlas gas fired, warm air, blower type.

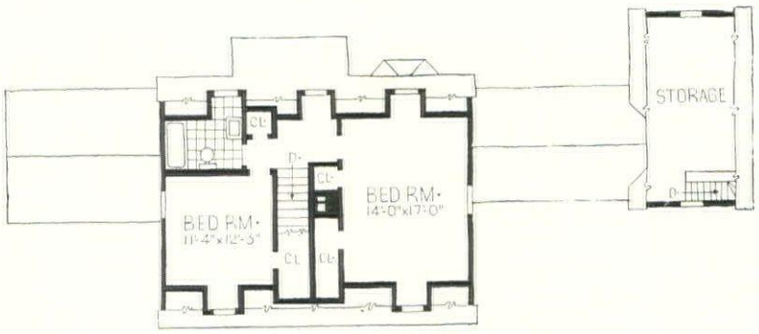


LIVING ROOM

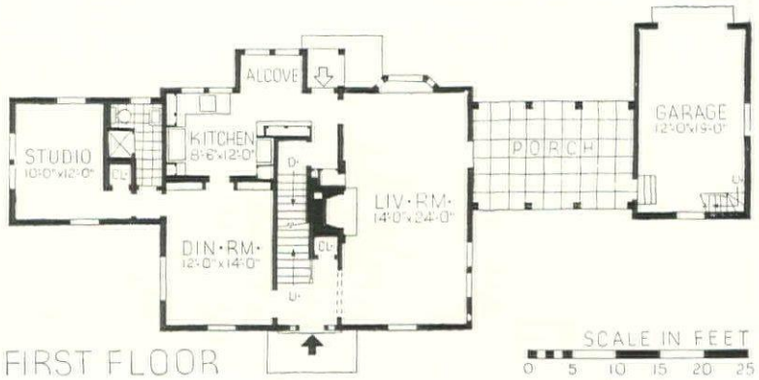


STAIR HALL

HOUSE FOR GLENN PRICE, LIBERTYVILLE, ILL.

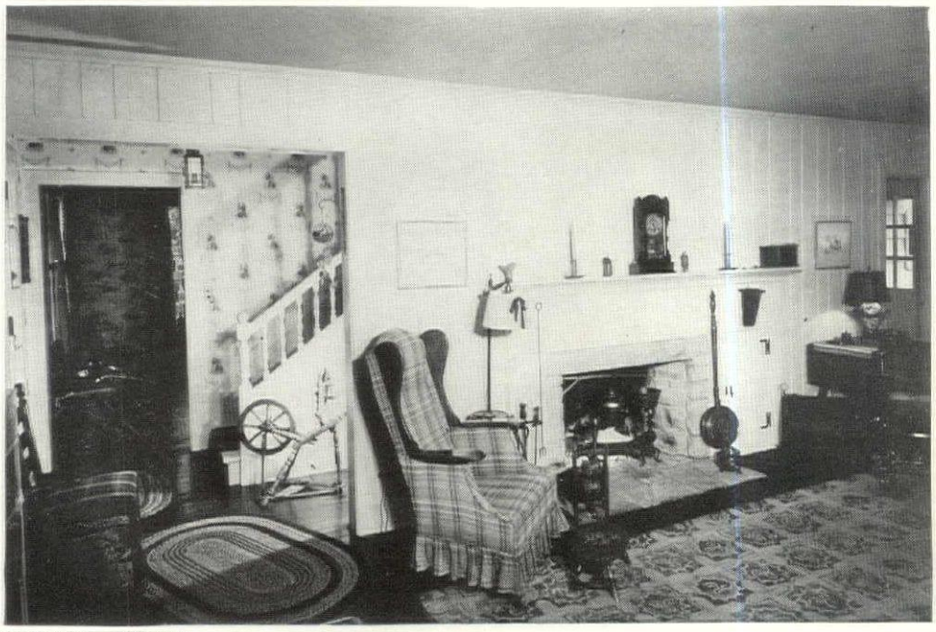


SECOND FLOOR

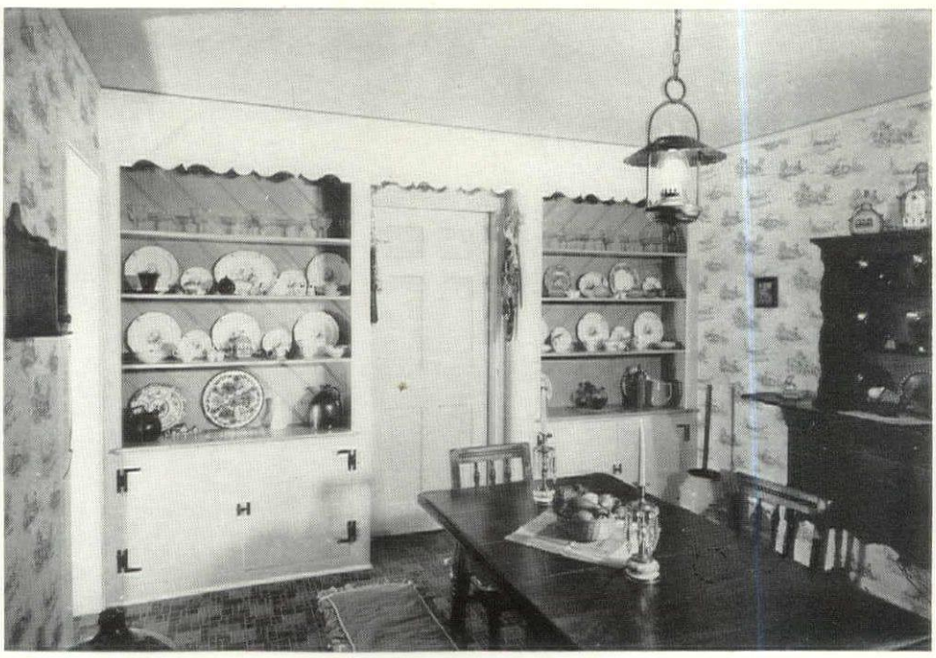


FIRST FLOOR

A compact two-bedroom house, very consistently treated in the Colonial manner. A studio with adjoining bath provides additional bedroom space on the ground floor when required; removed from the main living areas, it might serve as a guest or sickroom. Five dormers on the second floor permit the use of a low roof without undue inconvenience inside, and the horizontality of the design is further emphasized by the low porch which links garage and house. Note the efficient manner in which all plumbing units have been concentrated. Cost: $12,000. Cubage: 31,660, at about 38 cents per cubic foot.



LIVING ROOM



DINING ROOM

BEDROOM

CONSTRUCTION OUTLINE

FOUNDATION: Walls—poured concrete. Cellar floor—concrete over gravel fill. Waterproofing—coating of hot pitch on exterior foundation.

STRUCTURE: Exterior walls—Gyplap on wood frame, Red Top insulation. 10 in. wood siding, rock lath and gypsum plaster; all by U. S. Gypsum Co. Interior partitions—rock lath and gypsum plaster. Floor construction—joist, rough flooring, ¾ in. oak finish flooring.

ROOF: Wood rafters, sheathing and red cedar shingles.

CHIMNEY: Common brick, flue lining. Dampers—Colonial Fireplace Co.

SHEET METAL WORK: Flashing—Old Style 40 lb. tin, N. & S. Taylor Co. Gutters, leaders and ducts—Toncan metal, Republic Steel Corp.

INSULATION: Outside walls and roof—U. S. Gypsum Co. Red Top insulation wool. Sound insulation—resilient clips, U. S. Gypsum Co.

WINDOWS: Sash—Western pine, double hung with storm sash. Glass—double strength, quality A, Libbey-Owens-Ford Glass Co. Screens—copper mesh, wood frame.

STAIRS: Treads—oak. Risers and handrails—birch.

FLOOR COVERINGS: Main rooms—oak, E. L. Bruce Co. Kitchen—linoleum. Bathrooms—rubber tile.

WALL COVERINGS: Living room (one wall)—Western pine; remainder plaster.

WOODWORK: Trim, doors and cabinets—Western pine. Garage doors—overhead type.

HARDWARE: By Yale & Towne Mfg. Co.

PAINTING: Interior walls and ceilings—2 coats paint, Pratt & Lambert. Floor—3 coats varnish. Exterior walls—2 coats Double White, Samuel Cabot, Inc.

ELECTRICAL INSTALLATION: Wiring system—rigid conduit. Switches—Arrow-Hart & Hegeman Electric Co. Fixtures—Beardslee Mfg. Co. and Victor Pearlman Mfg. Co.

KITCHEN EQUIPMENT: Range—Hot Point, Edison General Electric Appliance Co. Refrigerator—Crosley Corp. Sink—Crane Co.

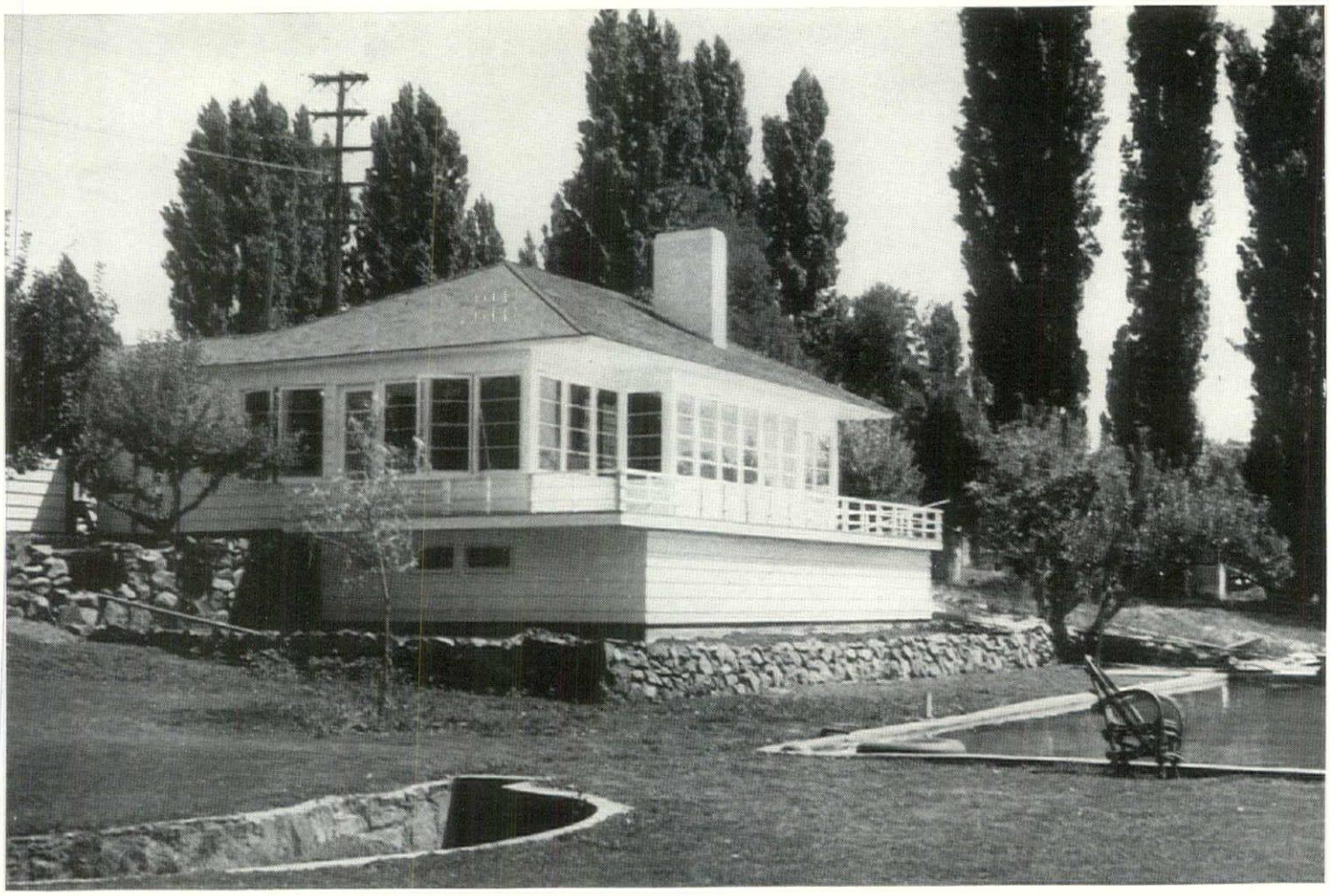
LAUNDRY EQUIPMENT: Sink—Crane Co. Washing machine—General Electric Co.

BATHROOM EQUIPMENT: All fixtures by Crane Co. Shower—Fiat Metal Mfg. Co. Cabinets—Hess Warming & Ventilating Co.

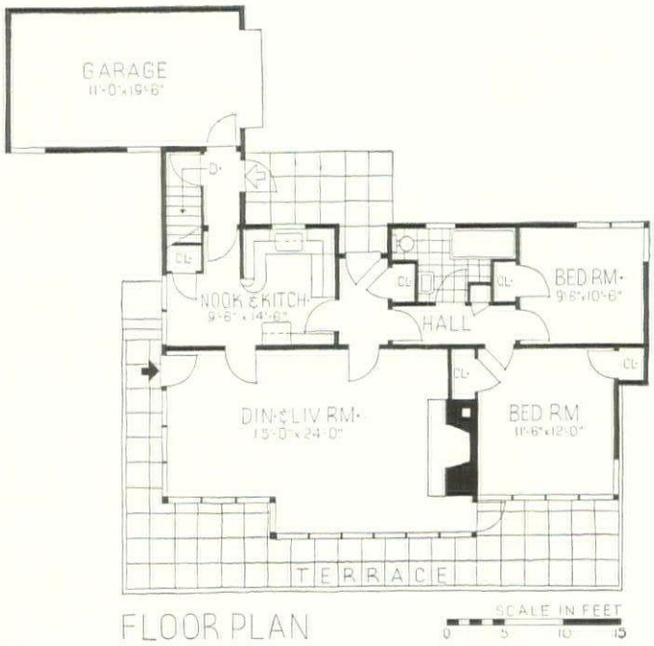
PLUMBING: Hot and cold water pipes—galvanized iron. Concrete septic tank; Crane Co. shallow well pump with 120 gal. tank.

HEATING AND AIR CONDITIONING: Lennox Furnace Co. Air Flow oil burning hot air, with Minneapolis-Honeywell Regulator Co. thermostat. Simple humidification; water pan system. Hot water heater—Hot Point, Edison General Electric Appliance Co.

HOUSE FOR HOWARD BARNHISEL, KLAMATH FALLS, ORE.



HOWARD R. PERRIN, ARCHITECT



FLOOR PLAN

Constructed on a sloping site, this house has made excellent use of the property by its arrangement of living quarters above a partly exposed basement. While the result is anything but the conventional small house, it seems highly successful. With glass walls on the garden side, living room and bedroom are pleasantly located, and sheltered from the sun by projecting eaves. The plan is definitely workable: the kitchen is properly located, bedrooms are in a separate unit, and the main room is well arranged for its various uses. Cost: $4,815.

CONSTRUCTION OUTLINE

FOUNDATION: Walls and floor—reenforced concrete. Waterproofing—Celite in floor and walls.

STRUCTURE: Exterior walls—2 x 4 in. studs, 16 in. o.c., 5/8 in. sheathing, building paper, 14 lb. felt, 1 x 10 in. pine bevel siding, 1/4 in. 3-ply plywood on inside. Floor construction—floor joists, 16 in. o.c. Ceilings—1/4 in. 3-ply plywood, 1/2 in. insulation, U. S. Gypsum Co.

ROOF: Covered with 5/8 in. sheathing, No. 1 red cedar shingles 4 1/2 in. to weather.

WEATHERSTRIPPING: Outside doors—Chamberlin Metal Weather Strip Co.

WINDOWS: Sash—wood casements. Glass—single strength, quality A. Screens—Rolla-Way Window Screen Co.

FLOOR COVERINGS: Living room, bedrooms—oak. Kitchen and bathrooms—linoleum.

WALL COVERINGS: Living room—Japanese grass cloth. Bedrooms and halls—wallpaper, Walcrest Corp. Kitchen—Walltex, Columbus Coated Fabrics Corp. Bathrooms—Tylac Co.

HARDWARE: Dexter, National Brass Co. Garage doors—overhead type, Stanley Works.

PAINTING: Walls, ceilings and trim in kitchen and bathrooms—3 coats enamel. Floor—paste wood fill, 2 coats floor seal and base wax. Exterior walls—3 coats glossy. Roof—preservative shingle stain. All paints by Sherwin-Williams Co.

ELECTRICAL INSTALLATION: Wiring system—flexible conduit. Fixtures—Lightolier Co.

KITCHEN EQUIPMENT: Range—Westinghouse Electric & Mfg. Co. Refrigerator—Frigidaire Corp. Sink—Standard Sanitary Mfg. Co.

LAUNDRY EQUIPMENT: Washing machine and drier—Maytag Co.

BATHROOM EQUIPMENT: All fixtures by Standard Sanitary Mfg. Co.

PLUMBING: Water pipes—galvanized iron. Hot water heater—General Electric Co.

HEATING: Warm air, Peerless Foundry Co. furnace.

ART AND JOHN DOE

By Norwood MacGilvary

PAINTER; MEMBER OF FACULTY, DEPT. OF FINE ARTS, CARNEGIE INSTITUTE OF TECHNOLOGY

Excerpts from the author's article in Pittsburgh Architectural Club's *The Charette*

A little group of us were going through the International Exhibition the other evening. In this group were a lawyer, a steel man, and three women. The men were college graduates, each successful in his own field, in the prime of activity, awake and aware of the world and its doings, and not indifferent to what is called its "cultural" interests. Two of the women were writers with sharp minds and sensitive natures, and one of them an amateur of music. Most of these people thought of themselves as responsive to the arts in general, including the visual arts of decoration, design and painting.

★

During our rounds they pelted me with curious and indignant questions because they considered me by virtue of my training and practice to be the expert of the party. Most of these were "why" questions rather than "how" questions. Why does the painter have to libel nature in his portrayal of it? Why does he put such silly or frightful people into his pictures? Why do these people have to be mouse-faced, rat-faced, sheep-faced, or simply idiot-faced? And why do they have to have the bodies of congenital cripples? I might have replied to these questions, as many a painter and critic has replied, "You poor simpleton, you had better keep quiet before you have uncovered all of your ignorance and lack of taste!" I did not so reply for a very good reason —I am not so sure of this answer myself.

As we were leaving the gallery the lawyer said, "I hadn't made up my mind before whether or not I like painting. Now I have. If this exhibition represents the art of painting, I know I don't like painting." The others did not express themselves quite so positively, yet they did agree with him, as the diplomats say, in principle, though they were willing to make generous exceptions in favor of certain pictures. I myself felt discouraged—discouraged that my beloved art should have so little influence with my friends. To the best of my ability I had argued, explained and apologized, pointing out that the artist is not a camera, and does not want to be, nor is he a mere recorder or copyist, but rather an interpreter and creator. Summoning all the patter of my craft at my command I expatiated on design, pattern, construction, fundamental as distinguished from superficial form, on the space-concept, on the abstract, on mood, vitality, and originality. I tried to stress the pre-occupations peculiar to an art of sight in so far as it differs from an art of hearing or of words.

★

No use. I was given a polite but incredulous hearing. I felt that I had not been convincing. The worst of it was that I had not wholly convinced myself of the deeper human values—of the human necessity of such an art. If this art of painting is not a necessity to the human spirit; if it is only a luxury, a sort of pick-me-up to a few jaded esthetes, or is only a lively but unimportant subject for a debating society, it is a superfluity and an excrescence. Even the argument that the luxury for the few may somehow become the necessity for the many did not quite persuade. Yet I was unable to concede that this art is not a human necessity. All its history, its antiquity denies that concession. These questions then intrude: Is the fault ours—the public's? Is there some vital deficiency in the art itself, some exhaustion of its vitality after all these centuries that now presages an early end? Or is there some failing in its present practitioners, and some loss of faith in its high priests? Have they led us into some desert canyon from which there is no outlet, a canyon haunted by the spooks of bloodless ideas? Or is it only that we, the average people, are not able to follow these peerless trackers of the spirit over a difficult yet possible and even hopeful trail? Whatever the reason, the fact remains that they are not being followed.

★

What is it that this art lacks in food-value for the common man? It does not seem to be subject matter, for this is varied enough to suit almost any taste. It is not true that the public always demands a sentimental or literary story in his picture, in spite of what the art-for-artists champions say. Nor does it always reject the tragic in favor of the pretty and pleasant. The power of tragedy is still manifest in the drama and in literature. It is not intelligibility either, because the cryptic work of such painters as Dali has a considerable public appeal —as great almost as that of the sweet and the obvious.

Perhaps too many painters have been concerned too much with the technicalities and the mechanics of their trade—with problems of design, pattern, color, etc., and with those abstract elements which admittedly lie at the very foundation of painting, and should by all means receive the artist's profound attention, but which in themselves and for their own sake, like blood and bones divorced from the body, are not viable and capable of maintaining a separate existence. Men and women have useful skeletons, of which under normal conditions they are fortunately scarcely aware, but in which anatomists and surgeons may well take a lively and understandable professional interest.

It is all very well to take heed of such fundamentals as the skeleton, but while doing so is it also necessary to sacrifice such things as shapely muscles, healthy skin, or even the superficialities of adornment? The dullest woman knows better than that. Unless we happen to be cranks or are flat broke, do we in life discard all our gimcracks and reduce ourselves to the barest necessities? Yet many argue that art, who by rights ought to be a wealthy woman and well able to afford every device offered by nature to enhance the allurement of her charms, should starve herself to skin and bones, renounce her bathtub, and exhibit herself in filthy nakedness, or else clothe herself in a ragged gunnysack.

★

Art can truly be judged by you, the individual, as far as you yourself are concerned, by only one measure. It is not a static but an energy measure. Do not ask what the art *is* or *ought* to be, for this is debatable and will inevitably lead to endless argument. Ask only what it *does*—not what it does to somebody *else*, for this again is only hearsay, but what it does to *you*. No matter how good a painting may be by any and all theoretical esthetic standards, if it does not do something special to you, Mr. John Doe, then it means about as much to you as a rumor of a love affair on Mars heard in a convention of psychologists.

SPECIALIZATION IN ARCHITECTURAL PRACTICE

Excerpts from editorial comment by *The Architects' Journal*, March 23, 1939, upon a recent debate in the R.I.B.A.

It is generally assumed that as architecture becomes wider in range and technically more complicated, there must be a tendency toward specialization, and that this tendency needs to be encouraged. But at the Junior Members' meeting at the R.I.B.A., general opinion seemed very much against encouraging specialization. In fact, Mr. T. P. Bennett, who opened the discussion, and is himself a famous specialist in apartment planning of a certain type, was the only speaker who had a really good word to say for it.

★

There are two kinds of architectural specialization: there is specialization of individual activity within an office (once popular but now fortunately *demodé*) in which one member of a firm gets the jobs, another does the planning, another puts the architecture on, and yet another makes the working drawings; and there is specialization as practiced by a firm which concentrates on a specific type of building. It was this second kind of specialization with which the R.I.B.A. meeting was mainly concerned.

A man specializes in slaughter-houses not so much because he is interested in the psychology of planning for humane animal slaughter, but because he happened to get a slaughter-house to do for his first big job. The obvious argument *for* specialization of this kind, however arbitrarily come by, is that only by restricting your field to research and gaining wide experience in some particular type of building, can you hope to become proficient in designing that type of building. An important argument *against* is that specialization of this kind leads to architectural constipation: the architect must leave his imagination free to assimilate the requirements of any kind of architectural problem and must get himself to plan *anything*. Otherwise he grows biased, academic, sterile.

Mr. E. A. A. Rowse, who followed Mr. Bennett, went a step further than this. He said that the specialist, in perfecting his design for a special type of building, might be unconsciously producing something detrimental to the social structure: the vital need for every architect was to see architecture *whole*, every building an integral part of a planned community, every community an integral part of a planned region. The architect, said Mr. Rowse, must know how to collaborate, how to coordinate the findings of technical experts inside *and outside* the building industry in order to achieve this end.

But we must remember that Mr. Rowse's admirable architect-town-planner is, as Mr. Bennett pointed out, "the very biggest kind of specialist." Great as the need is for such men, only a very small percentage of architects can hope to cover the long term of training and finally practice as super-planners. Nevertheless, the inter-relation of architecture and regional planning should guide all architectural activity.

Mr. Maxwell Fry pointed out that a much more flexible alternative to specialization was "group work": round-table discussions with a group of experts and *technical* specialists who could give information on each special job. He saw no good reason why we should be too rushed to think out a fresh problem whenever a new job came into the office.

None of the really great names of this generation of architects are the names of specialists.

There is no analogy with medicine. In medicine proficiency depends largely on detailed knowledge and specific experience. In architecture proficiency depends largely on imaginative technique. Imagination should be our specialty.

THE DANGERS AND ADVANTAGES OF LUXURY

By Siegfried Giedion

Excerpts from the author's article in *Focus* (London) for Spring, 1939

In 1893, a reaction from new architecture to a classical revival took place in America. It was not faulty execution or unsatisfactory design which caused this reaction; but richer execution and greater luxury were demanded. In contemporary American journals, it was emphasized that "The eastern man erecting an edifice for the use of his business, feels inclined to make it a proclamation of his commercial success." This may be true, but it represents a more general feeling: the need for luxury and the wish to impress. These needs occur in every civilization, and our own is no exception. If this is not sufficiently considered, the public avenges itself by turning away and taking refuge in a substitute. If this need is met, as in America fifty years ago—by simply and mechanically transferring emotional luxury-forms from earlier periods to our own—the result is bound to be unsatisfactory.

An obvious danger is the suppression of modern architecture in most (and soon, very likely, in all) totalitarian countries. More dangerous still is their subversive influence on neighboring countries. In recent Swiss competitions, for instance, there have been signs of a leaning toward the Victorian, or Classicist. In Holland, too, there is a circle of young architects, some of whom have been taught by le Corbusier, who will soon demonstrate by executed buildings that they think the time has come to embellish buildings by introducing stylistic details (cornices, friezes, Greek orders). These young architects stated in a public discussion at Amsterdam that they had enough of the "Frankfurt Kitchen," of the minimum-flat, of "box architecture." They were interested in big flats, bigger private houses, and great monumental public buildings. They asked again for "beauty." Why not the beauty of traditional details?

★

It is certain that in the future our attitude to the past will be less self-conscious. But today, we are still under the influence of the last century. There have been periods in the past, like the Renaissance, when owing to their own vitality they were able to assimilate the forms of the past, and from them evolve a new creative architecture. Our context today is different. To satisfy our need for luxury, splendor and beauty, we must create for our own "optical vision."

Contemporary architecture can only be fully appreciated by those who have a real understanding of contemporary painting and sculpture. Architecture, painting, and sculpture spring from the same emotional source. That is their strength. Architecture can only satisfy emotional needs by means of collaboration with painting and sculpture. So it is necessary for the architect himself to have a personal understanding of the arts. Architects who work in countries where contemporary architecture is called on to erect impressive public buildings have already come up against this problem in practice. . . . The public authorities often ask for the use of sculpture and painting which is quite contrary to the architectural expression. In the course of the fight for functionalism, many architects lost touch with painting and sculpture. There is a real danger that the unity of a building is destroyed if the architect treats painting and sculpture as secondary in importance, or as a subject for flippancy.

★

In these days of specialization it is exceptional to find a painter who has a real grasp of architectural problems or an architect with a talent for painting. It generally results in the worst form of dilettantism if an architect tries to be a painter as well. It is of vital importance to both art and architecture that means of cooperation between the two should be found in the future. Imagination is the most valuable ingredient of architecture. By imagination we mean, nowadays, a new relation and integration of the elements of architecture, as well as new discoveries of spatial planning.

The danger is in the tendency for archi-

tecture to become flippant. It makes no difference whether this happens by the introduction of single stylistic elements as in Holland, or, as in recent English work, by whimsically degrading Greek statues for the sake of a tasty sensation. It is certainly difficult to regain luxury in architecture in a legitimate and vital way.

"For most of us the word 'modernistic' has come to bear a meaning from which, at this date, it cannot be rescued . . . even if one would wish to rescue such a tortured addition to the English language. We are all looking forward to the time when 'modernistic' will have found its last refuge in the bargain basement on the way to join its late-lamented predecessors, 'art nouveau,' which was lost in the Great War, and 'moderne,' that pretty child of the 1924 Paris Exhibition which has languished to an elegant decline in decorators' salons."—HUMPHREY CARVER.

CIVILIZATION, 1939

From "The Mathematics of Air Raid Protection" in *Nature* (London), by Professor J. B. S. Haldane, F.R.S.

Consider a given type of bomb, say a 250 kilo. bomb, and a man in a given situation, whether in the street or in a shelter. Let n be the expected number of bombs falling in his neighborhood (say, one square kilometer) the distribution of bombs over this area being supposed even, since aim is poor when cities are bombed. Let p be the probability that a single bomb falling at the point (x, y) will kill him. Then the probability that he will be killed in the course of the war is

$$P = \frac{n}{A}\int p\,dx\,dy,$$ integration being taken over the whole neighborhood or area A. Values of n and p will be different for each type of bomb.

THEY SAY—

"Of new building in Milwaukee County, Wis., 93 per cent is done without benefit of architect."—LEIGH HUNT.

"The most beautiful architecture wrought by man is a bridge, especially a suspension bridge."—ROBERT MOSES.

"Today, beyond all doubt, bad architecture is a greater evil in England than drink and drugs put together."—H. G. STRAUSS, M.P.

"One can use the current of eleven 100-watt lamps during the time it takes a cigarette to burn, and at the same cost."—H. FREEMAN BARNES.

"The linking of any branch or movement of architecture with any particular type of political faith leads to a hardening of the mental arteries."—JOHN GLOAG, HON. A.R.I.B.A.

"The visitor on his arrival at my own city of Boston enters a shapeless space which, with extreme convention, is termed a square and named after Admiral Dewey with a distorted disposition to do him honor. . . . Sweeping across the facade of the station is an elevated railroad, a diabolic institution which proclaims that Boston is attending to its own interior business and doesn't mind what the stranger thinks about it. I know of no uglier vestibule to a great city in America."—CHARLES D. MAGINNIS.

ON THE CARPET

By Lee Simonson

The constant complaint I hear on the part of both decorators and architects is that neither the traditional nor the modern designs are good or in good taste. The complaint of carpet salesmen and manufacturers that people are no longer interested in carpets and don't like a patterned floor, is largely due to the fact that, unlike the designs in wall paper and fabrics, the patterns in carpets are not good enough to arouse much interest. As a rule, both traditional and modern decorators resort to a single tone carpet *faute de mieux*. Neither they nor their clients ever get very excited about their choice, so that both concentrate their interest and spend the money available on other features of the interior. Even the single tone carpets are not subtle or varied enough in color or texture: the fountain pen ink blues, the cranberry sauce reds and the dead browns predominating.

Carpet manufacturers seem very exercised at present over the problem of their merchandising outlets: should they encourage dealers to sell from samples, at wholesale showrooms, or limit their distribution to retail stores? They might do better to consider first, not how they are going to sell their product but what they have to sell. Compared to the standards of design, both traditional and modern, that can be seen at any of the leading upholstery or wall paper distributors, the designing of carpets is at a chronically low ebb, dating back, with rare exceptions, if not to the Garfield-Hayes period, at least to early Statler. Where so-called modern is attempted, chiefly for local movie houses, its blatancy is a kick in the eye.

★

There is no reason why there should be capable, talented and even brilliant designers of textiles and wall coverings in this country, and no carpet designers in the same class. The overwhelming chances are that the carpet industry has failed to find them and organize them.

At a recent dinner of a trade association representing the carpet industry (where I spoke and where my remarks were not any too well received), I pointed out several obvious ways of stimulating better designs in carpets and encouraging public appreciation of them. First among these was the organization of public competitions, with either scholarships or prizes, for students in the textile schools of the country, as the Beaux-Arts Institute of Design has done for years in the architectural field; and for professional designers, exactly as is done in leading architectural competitions, by making certain designers invited competitors, thus setting a standard for the competition, offering substantial cash prizes and having the event judged by a top-notch jury both on the technical and the artistic side.

The industry might also very well select a few really qualified men to visit textile schools and architectural schools and societies to explain the technical problems of design in relation to the problems of manufacturing costs and present day merchandizing.

★

The industry as a whole needs greatly to improve its methods of presentation. The average showroom, wholesale or retail, is a dismal affair. The carpets are laid out in monotonous layers that remind me always of Diego Rivera's mural painting of a New York flophouse where the out-of-works sleep in receding rows. Carpets are part of an ensemble: an extremely difficult thing for anyone but a professional to anticipate with his mind's eye. The incentive to buy them—and they often represent a very substantial first cost—is a realization of what they can do in a room to make it more agreeable or charming or more livable. It is precisely this relation that is completely ignored.

What is needed here is modern technique of display, both in wholesale and retail showrooms. There should be recesses, corners of rooms occupying no great space but within sight of the customer looking at the sample line, where he or she could see certain typical and effective combinations of carpet with wall coverings, with window draperies, and a few typical pieces of furniture, whether modern or of any of the historic periods still commonly used.

Probably no single manufacturer could undertake the cost of this kind of propaganda. An organization of the leading manufacturers who would contribute the necessary funds for a four or five year program is what is required.

THE DIARY

Henry H. Saylor

Detroit, Friday, March 17.—The Michigan Society of Architects, holding its Silver Anniversary Convention today, expressed its intention to create, if practicable, the office of an executive director. This man, not in active practice, should give his whole time to the work of the Society's diverse interests. Naturally, the major problem is one of finance. Dues now three dollars yearly for the membership of about 500 would surely have to be raised to provide a budget of $7,000 or $8,000.

In this connection, the annual report of President Weston, Southern California Chapter, A.I.A., indicates that this desire for more intensive work in the profession's interests is not confined to Michigan. Weston's report points out that there are many things of inestimable value to the profession as a whole, crying to be done, and someone should be paid for the time and responsibility needed in doing these things. Instead of twenty dollars a year dues which the Southern California Chapter members now pay, their president thinks it would be well worth while for them to pay something like ten dollars a month, and achieve correspondingly greater benefits.

Detroit, Saturday, March 18.—Kenneth C. Black, president of the Michigan Society of Architects, introduced the inimitable Roger Allen as toastmaster for the Third Annual Michigan Building Industry banquet. About 900 men filled two banquet rooms of The Statler—a measure of cooperation between architects, builders, real estate and material men that comes near setting a new high record.

Foregathered with Robert Frantz and James A. Spence of Saginaw, and Arthur K. Hyde, president of the Detroit Chapter, talking of competitions, clients, and other puzzling elements of architectural practice until I boarded the 2:55 a.m. train for New York.

Tuesday, March 21.—The New York Chapter, A.I.A., was all set, after a dinner tonight, for a debate on "Full-time *vs* Part-time Services." Robert O'Connor, Henry Waterbury, and Wesley Bessell were upholding the right of the architect to see his work through from the first sketches to the turning over of the keys. Ralph Walker, William Lescaze, and Lorimer Rich contended that possibly half a loaf is better than no vacation, Ralph Walker stressing the point that partial service, such as was indicated in the Smithsonian Art Gallery Competition program, was the first instance in his experience when the client was willing to take over the gamble on the cost of making drawings. However, the whole debate became something resembling a love feast when I read a news release from the Treasury Department indicating that the regional competition scheme for the selection of architects for public works was about to be tried, and that Secretary Morgenthau apparently was by no means convinced that the working drawings for the Smithsonian Art Gallery must be made in the Supervising Architect's Office rather than on the winner's own drawing boards.

Friday, March 24.—The tradition is that an architect has to shoot somebody in order to make the front page. Harry Francis Cunningham of Washington made it without resorting to homicide. He merely told the German Embassy, for whose new home in Washington he was associate architect, that they had better get someone else to do the job. The design, selected in competition, is that of Professor E. A. Breuhaus. Cunningham resigned for two reasons: in the first place he could get no cooperation or information from the Reich's architects; and in the second place, "The astounding events of the past few days . . . are so offensive to my solidly founded American ideals that it is impossible for me to be of any further service to your government." A major of infantry with the A.E.F. in France, Harry Cunningham apparently doesn't like the Germans any more now than he did then.

Washington, Thursday, March 30.—Lunched with Louis Simon who mentioned, incidentally, in connection with the Social Security Building that the 150 sets of blueprints just sent out for bids would cover eighteen acres.

Friday, March 31.—Aymar Embury has a theory that a perspective drawing of a small building looks much more realistic if the viewpoint is taken at grade rather than at the height of a standing man's eye.

Monday, April 3.—While in Detroit recently, I heard the good news that Clair Ditchy, regional director, A.I.A. for Michigan, Indiana, Kentucky, and Ohio—aided and abetted by Leigh Hunt, regional director representing the State associations—has brought all four of his States into A.I.A. membership. Hats off to Clair Ditchy for bringing the first of the ten regional districts wholly into the A.I.A. on our march toward the unification of the architectural profession in America.

Rochester, Wednesday, April 12.—Following the lead of Buffalo architects in their efforts to provide an adequate and convenient means of acquiring a modest home, a Rochester group launched today its Certified Homes program. Conway Todd, president of the architects' group, presided at a luncheon for 600, including men from the lending institutions and real estate offices, general contractors, sub-contractors and material men, who have joined forces with this single objective. J. E. McNamara, who has been managing the Buffalo enterprise, is also to manage this one. Buffalo, he tells me, already has 700 houses under contract, designed, financed, supervised and guaranteed under the Certified Homes plan.

Back to New York in company with Edward B. Green of Buffalo, and William G. Kaelber of Rochester, who were coming down for a meeting of the Registration Board. Mr. Green, who finds time from what is perhaps the largest practice in Buffalo to preside over the State's Architectural Registration Board—and has done so since its organization—is an irrepressible youth of 84 years.

Washington, Thursday, April 13.—Breakfasted with Henry R. Shepley, Aymar Embury and Philip Maher on their weekly way to their job as Advisory Board of design to the Supervising Architect. Shepley told us of meeting George Howe the other day, who promptly came out with, "Henry, your Cornell Medical Group is the most beautiful pile in New York." "But George," replied Shepley, "I was under the impression that you did not care particularly for anything so unfunctional as beauty." "Quite right," said Howe, "I don't."

Saturday, April 15.—Burnham Hoyt and Richard Neutra came on from the far West to help judge today the second stage of the Productive Homes Competition, Frederick Ackerman being the third architectural member of the Jury. The winners for the five regional districts were announced at luncheon. Here was no typical suburban residence to be designed, but a home which should itself contribute in plan to a form of American life that has been almost lost since the days of the early pioneers. (See page 14.)

Courtesy Public Works Administration

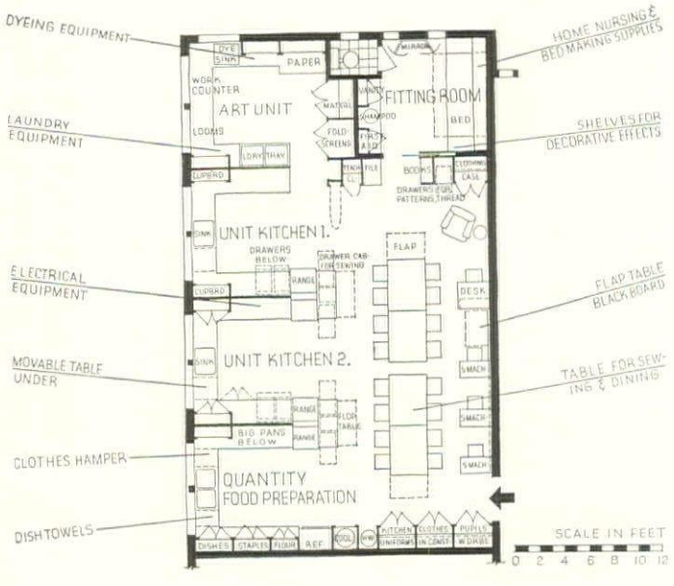
SECONDARY SCHOOLS

Secondary school curricula have changed more profoundly in the past three years than in the preceding thirty. Throughout the country, new methods are now being worked out and applied which strike at the very basis of formalized education. Learning by doing is replacing learning by rote. Orientation of the new program is everyday life, its prime object to graduate students better fitted to the conditions and problems of our present day democracy. Already more than one in every ten U. S. communities has made or is making basic alterations in its school curriculum. In ten years time, it is hoped that this transformation will be universal.

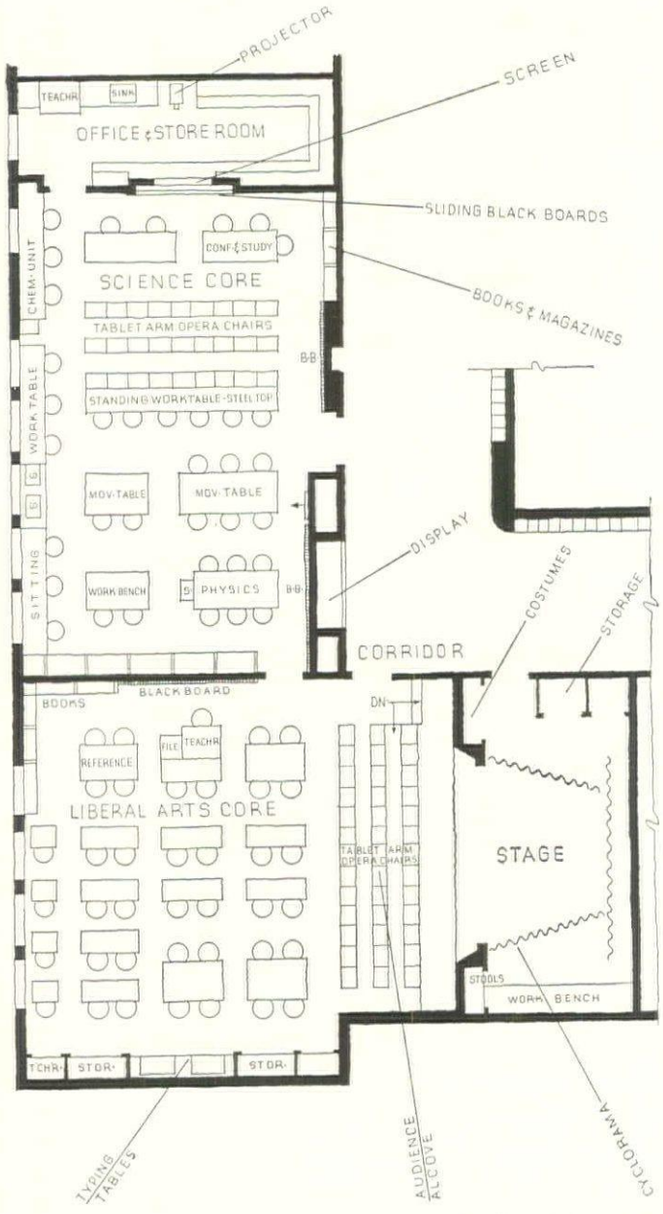
Most affected by these new methods is the school's basic unit, the classroom. Conventionally a rigidly organized lecture and recitation room, the classroom in the modern school might more properly be called a workroom, is devoted to a general type of subject matter rather than a specialized division of formal knowledge. Instead of moving about from class to class and teacher to teacher every half hour, students may remain in this one room the better part of the school day, while several teachers may use it simultaneously. Instead of working from a single textbook, students are encouraged to make use of library and periodical sources. Facilities for motion- and still-picture projection, radio, informal dramatics, private conferences between teacher and pupil, and plenty of storage space for books, paraphernalia, and equipment, are but a few of its new needs.

Naturally, such a classroom is a vastly different thing from its progenitor. In the first place, it is considerably larger. Secondly, regular rows of individual desks are replaced by generous work tables at which several students may be accommodated, and a more compact grouping of tablet-arm chairs for demonstration periods. Finally, it should be surrounded with sufficient space for auxiliary equipment. Classrooms for Liberal Arts study, for instance, are ideally provided with a small stage, with a work table and space for storing costumes, storage cabinets, two or more typewriter tables, and bookshelves in addition to more cork and less black boards. Model unit plans on the following page illustrate this tendency as applied to Liberal Arts, Science, and Homemaking class areas.

In addition to classroom changes, the new school curriculum has had considerable effect on secondary planning as a whole. Most general of these is the shift in the dividing line between elementary and secondary schools. Formerly this line was placed between the eighth and ninth years, dividing the twelve year total into eight and four year periods. Today the line is drawn between the sixth and seventh years, making two equal periods of six years.



ONE ROOM HOMEMAKING DEPT.



CORE COURSE ROOMS SPECIALIZED FOR SCIENCE & LIBERAL ARTS

Courtesy California State Dept. of Education, Division of Schoolhouse Planning

This means that the small high school may need to be enlarged to accommodate the two added grades, or some other type of adjustment be made. Coupled with the recommendation that no high school should house less than 100 pupils, and preferably should accommodate from 300 to 1200, it has in some cases resulted in the coupling of two smaller schools into a double unit consisting of Junior and Senior High in order to effect operating economies and provide better facilities. Preferably located on the same campus, such double units are nevertheless an improvement over two separate schools even when several miles apart.

Another new factor affecting the general plan is increased use of high school facilities by the adult community, a practice which reacts to the benefit of both. Involving public use of gymnasium, auditorium, and library facilities, it dictates separate access and separate control of the heating equipment for these units in order that they may be used independently. Multiple use of certain shops, class, and work rooms for adult education may also demand separate control of heating.

Demand for increased flexibility is still another result of changing educational methods. Most schools are not undertaking drastic changes all at once, are rather altering their curriculum in gradual stages. This calls for construction permitting maximum flexibility and plenty of variety in classroom size. Partitions between classrooms should be soundproof and readily removable, and free from electric wiring and plumbing, which should be located in exterior and corridor walls so as not to interfere with alterations. In addition classrooms should be located next to classrooms, laboratories next to laboratories, so that they may be combined if necessary, and floor and ceiling finishes should run through under and around partitions to eliminate need for patching if partitions are removed.

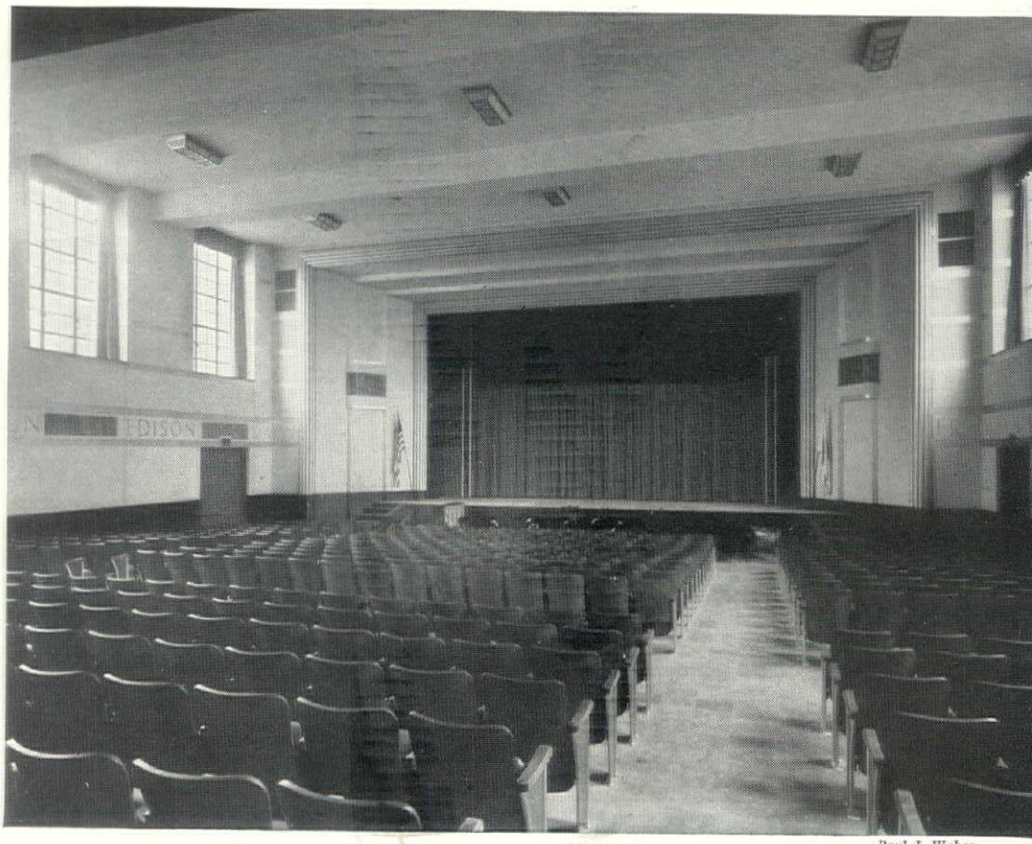
Planning the present day school calls for a more intimate understanding of the educational process than was formerly required, when all that was necessary in most instances was to provide a sufficient number of uniform classrooms with free circulation between, without regard for the specific use to which the rooms would be put. Today, carefully designed units are needed not only for vocation courses, homemaking, and the sciences, but for liberal arts as well.

Design of each of these units, of which the examples in the margin are merely representative, should be based upon close cooperation between the architect and the school authorities directly involved, especially during the present evolutionary stage of the development of new teaching methods. The examples on the pages which follow illustrate many of these new trends in various formative and more or less complete stages of development. In addition to forward steps in education and school planning, they represent heartening progress away from the hidebound traditionalism which characterized the school field up to even a few years ago, preface a wedding of functional design and functional education in the not too distant future.

GAMALIEL BRADFORD SENIOR HIGH SCHOOL, WELLESLEY, MASS.

J. Stedman Adams

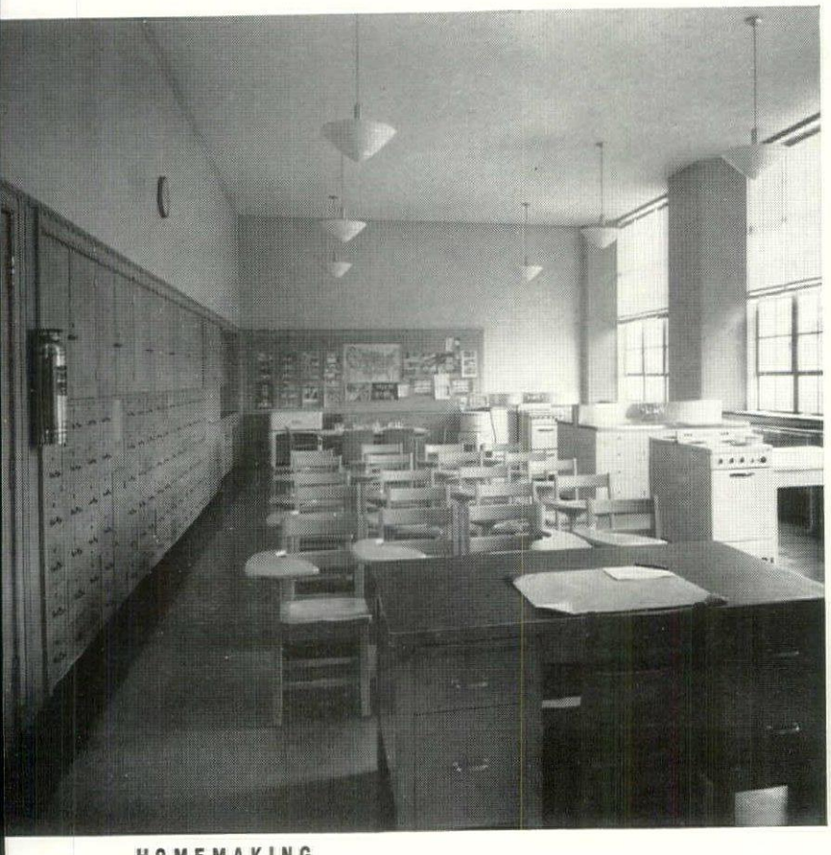
PERRY, SHAW AND HEPBURN, ARCHITECTS



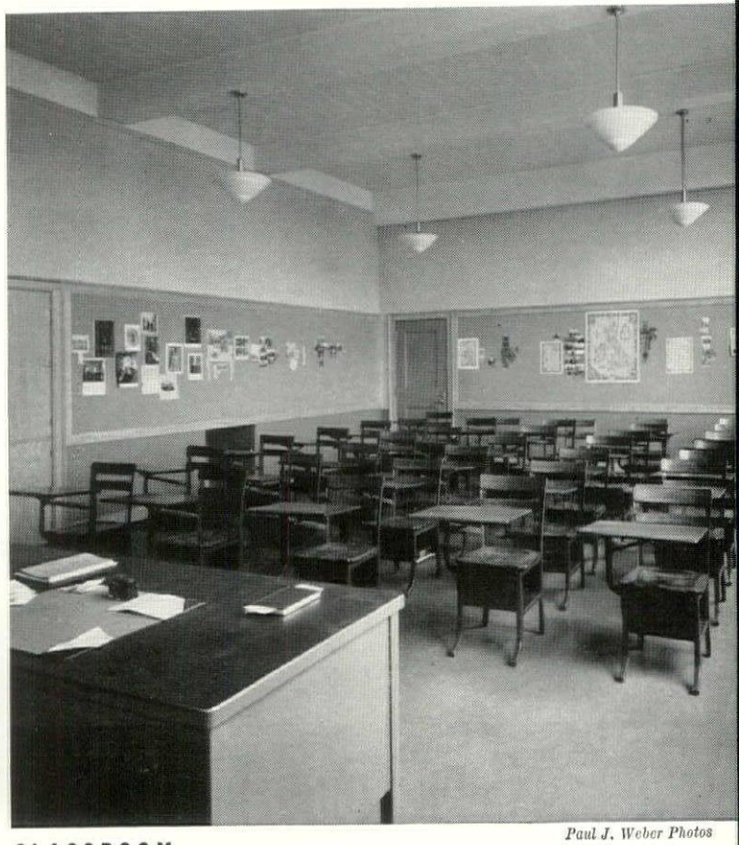
AUDITORIUM

Paul J. Weber

J. Stedman Adams



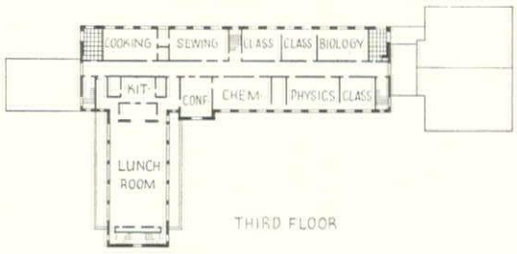
HOMEMAKING

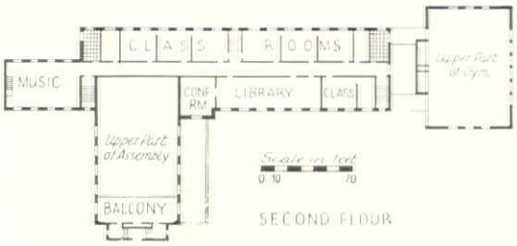


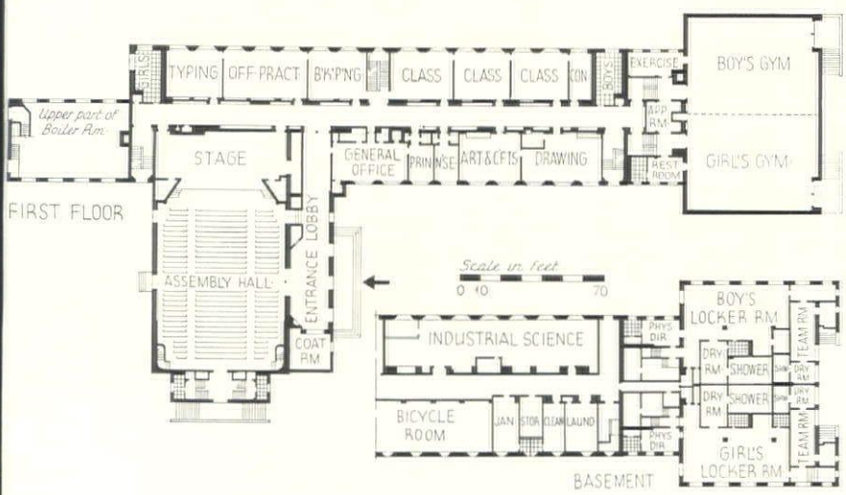
CLASSROOM

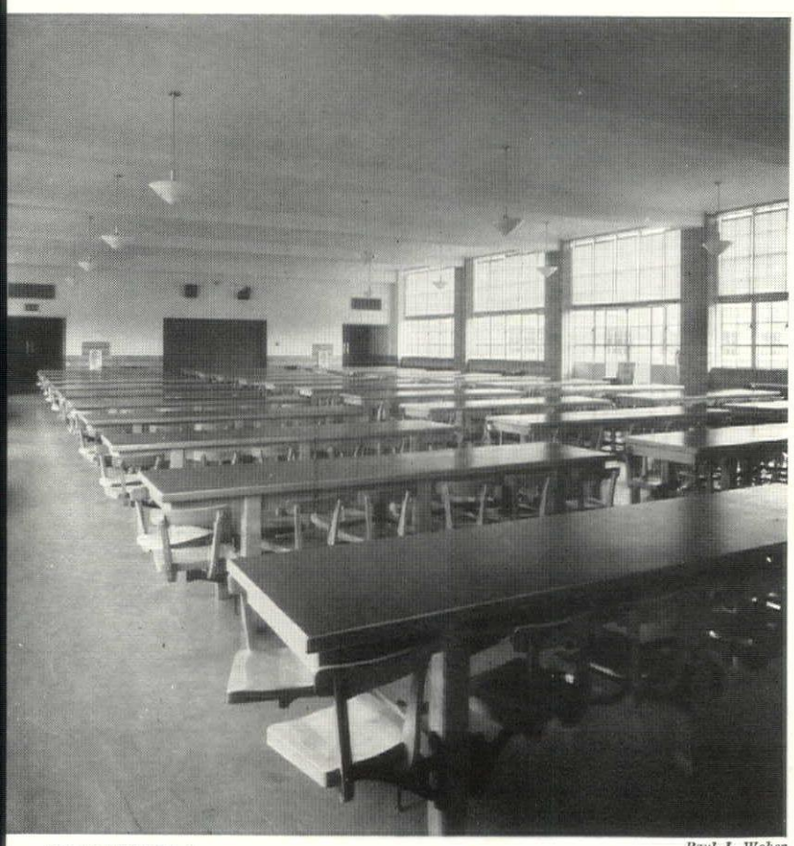
Paul J. Weber Photos

SENIOR HIGH SCHOOL, WELLESLEY, MASS. PERRY, SHAW & HEPBURN, ARCHITECTS









CAFETERIA

Paul J. Weber

This handsome building, the work of a firm of architects hitherto known for their sensitive handling of the Georgian style, demonstrates—among other things—that the strict schooling in proportion and detail which the traditional affords serves as an excellent basis for modern design. The plan, a simple L, is noteworthy for its placement of the gymnasium, music room, and auditorium at the extremities, thus providing proper segregation and independent access for these units without complicating the form of the building as a whole. Reversing the conventional arrangement, the auditorium is attached to main building at the stage end, a device which permits the occasional use of adjoining schoolrooms for dressing and further divides classroom and auditorium circulation. Other features of the plan include the attractive location of the lunch room atop the auditorium, and direct and generous exit facilities at three points on the main corridor.

CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—red brick, Westfield Brick Co., backed with Winchester sand lime brick, ¾ in. steel channels, painted metal lath and gypsum plaster. Interior partitions—(basement) clay tile; above gypsum tile. Floor construction—concrete, Celotex Corp. Acousti-Celotex directly on underside of slab.

ROOF: Main building—concrete, 5-ply roofing, Barrett Co.; remainder—1⅛ in. boarding and 5-ply roofing.

SHEET METAL WORK: Flashing—(concealed) Wasco No. 5 fabric, Wasco Flashing Co.; (exposed) lead coated 16 oz. copper. Tower—lead coated copper applied over felt on boarding on steel frame.

WINDOWS: Sash—steel, Hope's Windows, Inc. Glass—quality A. Glass blocks—Owens-Illinois Glass Co.

FLOOR COVERINGS: Lunchroom, corridors, classrooms—linoleum, Paraffin Co.'s, Inc. Science rooms—asphalt tile, Paul Coste, Inc. Gymnasium, stage, music room—maple. Auditorium area under seats—granolithic with Master Builders Co. Color-mix; aisles—cork tile. Toilets and showers—ceramic tile. Locker rooms—terrazzo.

WALL COVERINGS: Toilets—glazed tile. Lunchroom, corridors and stair halls—iron spot brick. Gymnasium—8 ft. maple dado, brick over. Locker rooms—glazed brick.

WOOD TRIM: Trim and interior doors—brown ash. Exterior doors—Northern pine. Folding door in gymnasium and sewing room—Richard Wilcox Mfg. Co.

HARDWARE: Bronze by Yale & Towne Mfg. Co.; Von Duprin panic bolts, Vonnegut Hardware Co.

PAINTING: Interior: Dados—Sherwin-Williams Co. paint. Walls—Atlantic casein paint. Ceilings—calcimo, Benjamin Moore & Co. Floors—Lukon wax.

ELECTRICAL INSTALLATION: Rigid conduit—Simplex Wire & Cable Co. Switches—(power) Trumbull Electric Co.; (lighting)—Bryant Electric Co. Fixtures—(classrooms) Amplite, Illuminator Co.; (corridors) Holophane Co.; (stage) Wheeler Electric Co. Radio and public address system—R. C. A. Victor Co. Telechron program system—Warren Telechron Co. Fire alarm system—Holtzer-Cabot Electric Co.

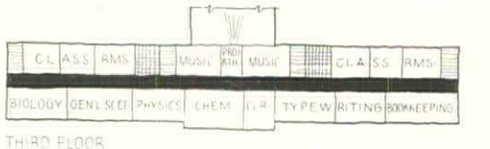
PLUMBING: Hot and cold water pipes—copper tubing, Anaconda, American Brass Co. Pumps—Deming Pump Co. Toilet fixtures—Standard Sanitary Mfg. Co. Kitchen equipment—John Van Range Co.

HEATING AND VENTILATING: Heating—vacuum steam, welded steel pipe. Ventilating—(class rooms) unit ventilators, gravity exhaust; (auditorium and gymnasium) supply and exhaust fans, B. F. Sturtevant Mfg. Co. Boiler—International Engineering Co. Oil burner—Ray Oil Burner Co. Radiators—American Radiator Co. Grilles—stamped steel, Tuttle & Bailey Mfg. Co. Thermostats—Johnson Service Co. Valves—Jenkins Bros. Hot water heater—Sands Mfg. Co. Vacuum pumps—Nash Engineering Co. Drying rooms—Aerofin heaters, Aerofin Co.

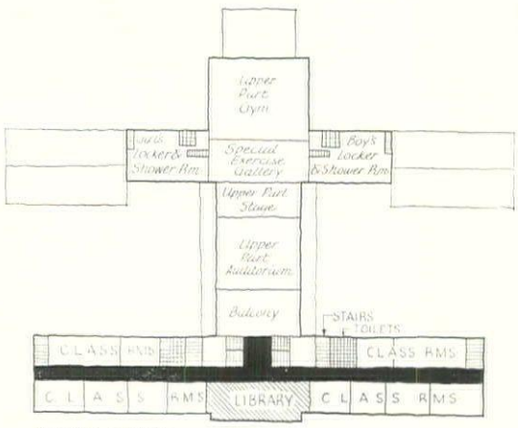
SPECIAL EQUIPMENT: Incinerator—Kernerator, Kerner Incinerator Co. Dumbwaiter—Beckwith Elevator Co.

GENERAL CONTRACTOR: N. Spinelli & Sons, Co., Inc.

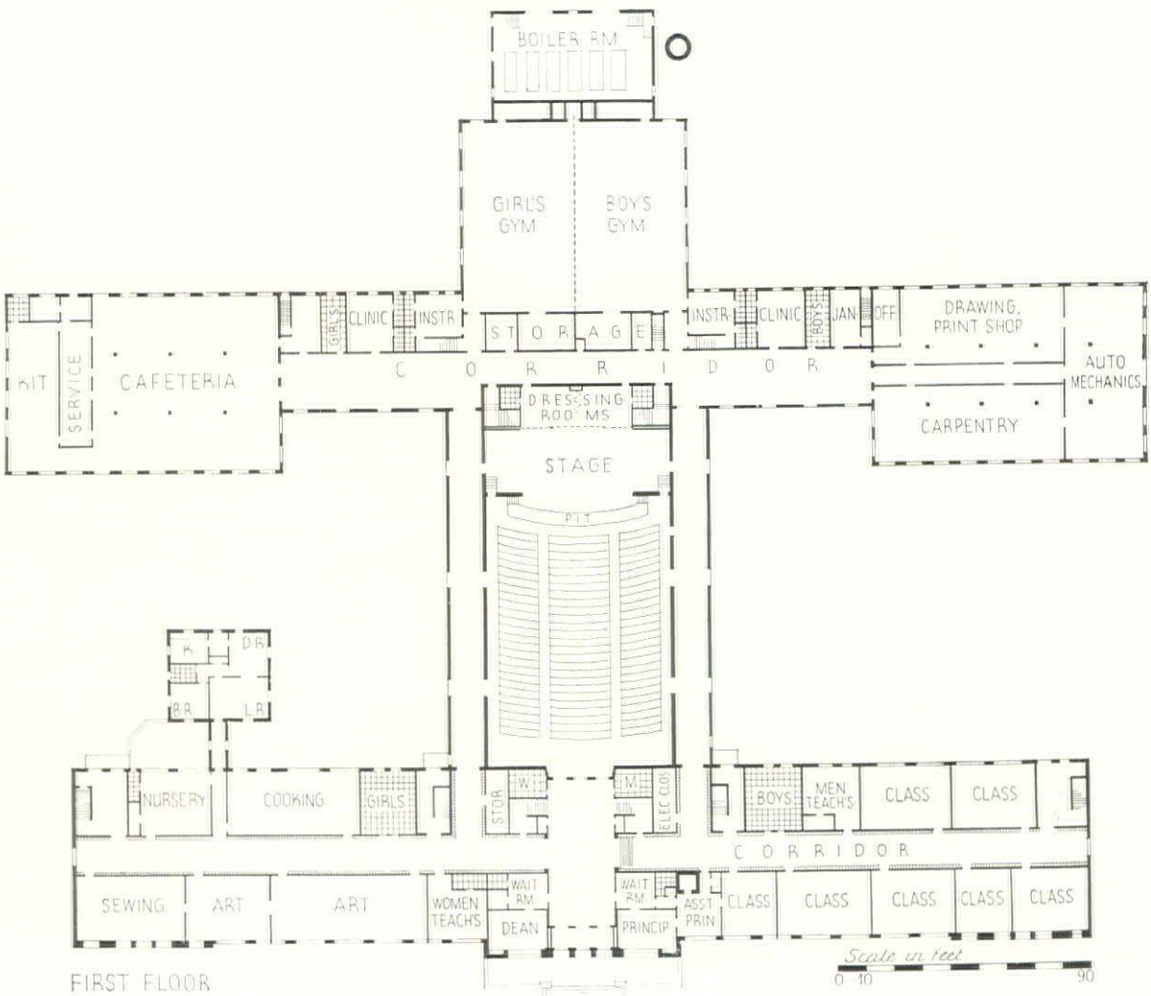
HIGH SCHOOL, HAMDEN, CONN. R. W. FOOTE, ARCHITECT



THIRD FLOOR

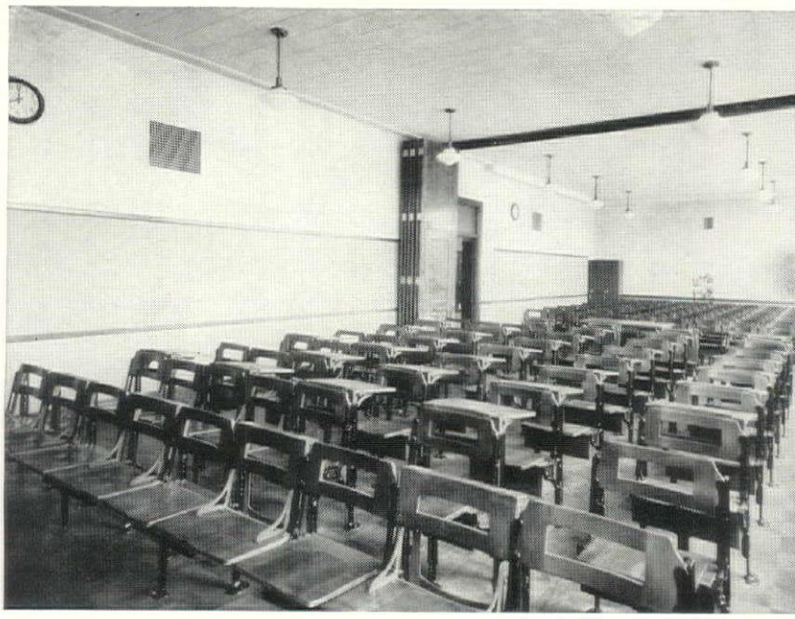


SECOND FLOOR



FIRST FLOOR

TYPICAL CLASSROOM

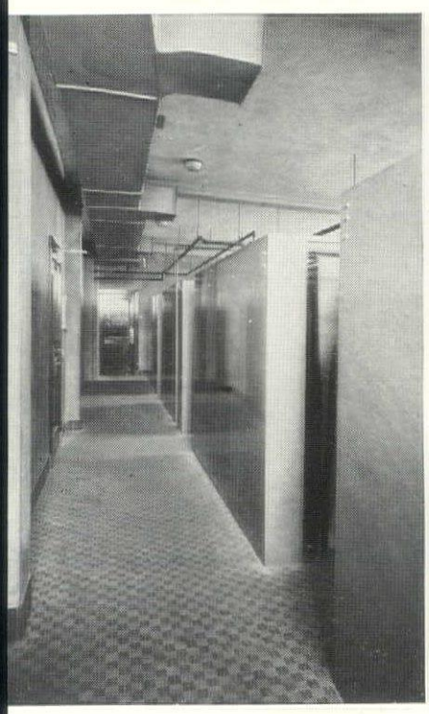


STUDY HALL

W. D. Daymon

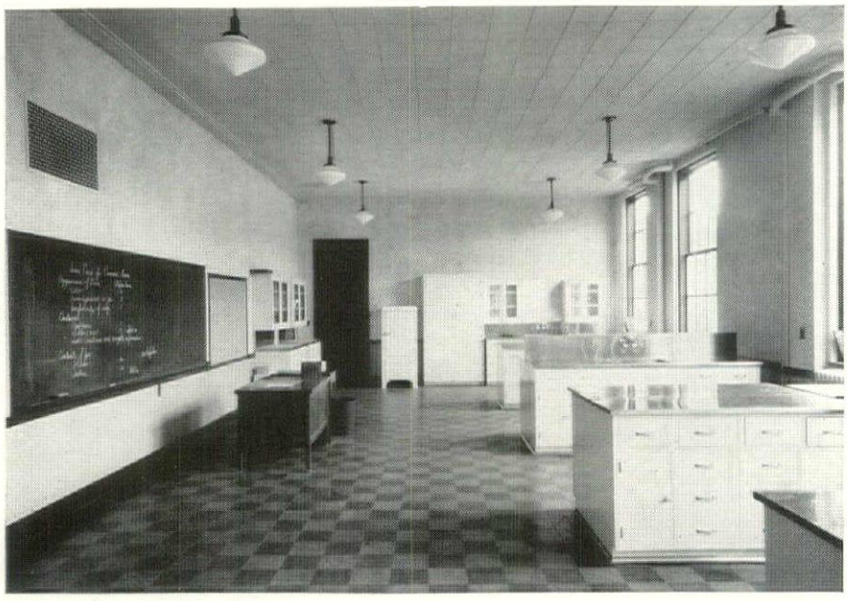
Somewhat surprisingly, the wholly conventional exterior shown on the opposite page houses a school in which group study and other modern educational devices are emphasized, and an interior which makes few concessions to tradition. Typical classrooms are equipped with conference tables and movable chairs in place of the usual fixed desks. The Homemaking Department is complete even to a free standing "model house" for demonstrations and experimentation. Classrooms are large, and in most cases designed for specific purposes, in line with the modern trend. Generous facilities for vocational courses, gymnastics, library, and cafeteria, plus a large and well equipped auditorium complete the picture of an up-to-date secondary school plant.

SHOWERS

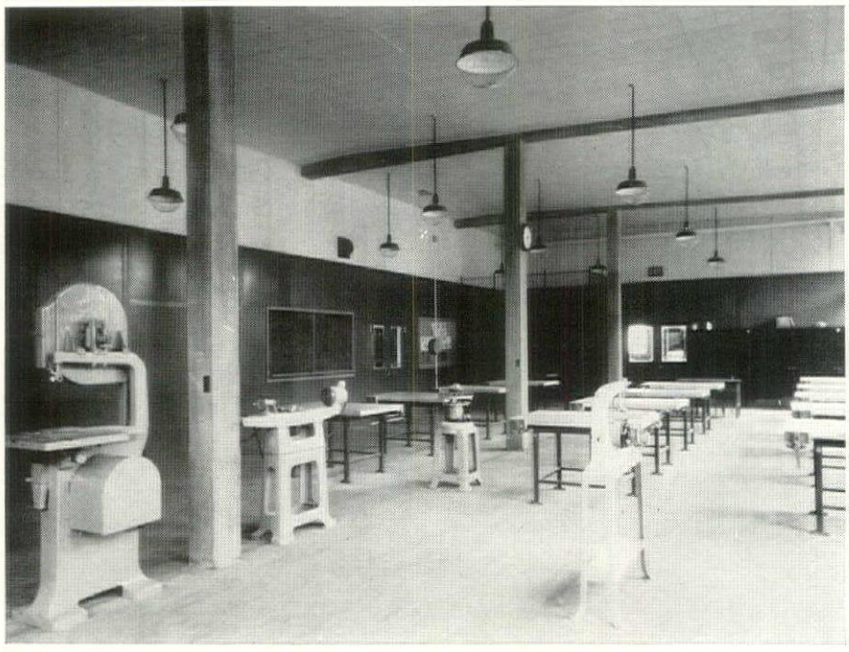


GYMNASIUM

HIGH SCHOOL, HAMDEN, CONN. R. W. FOOTE, ARCHITECT



FOODS LABORATORY



SHOP

DRAFTING ROOM

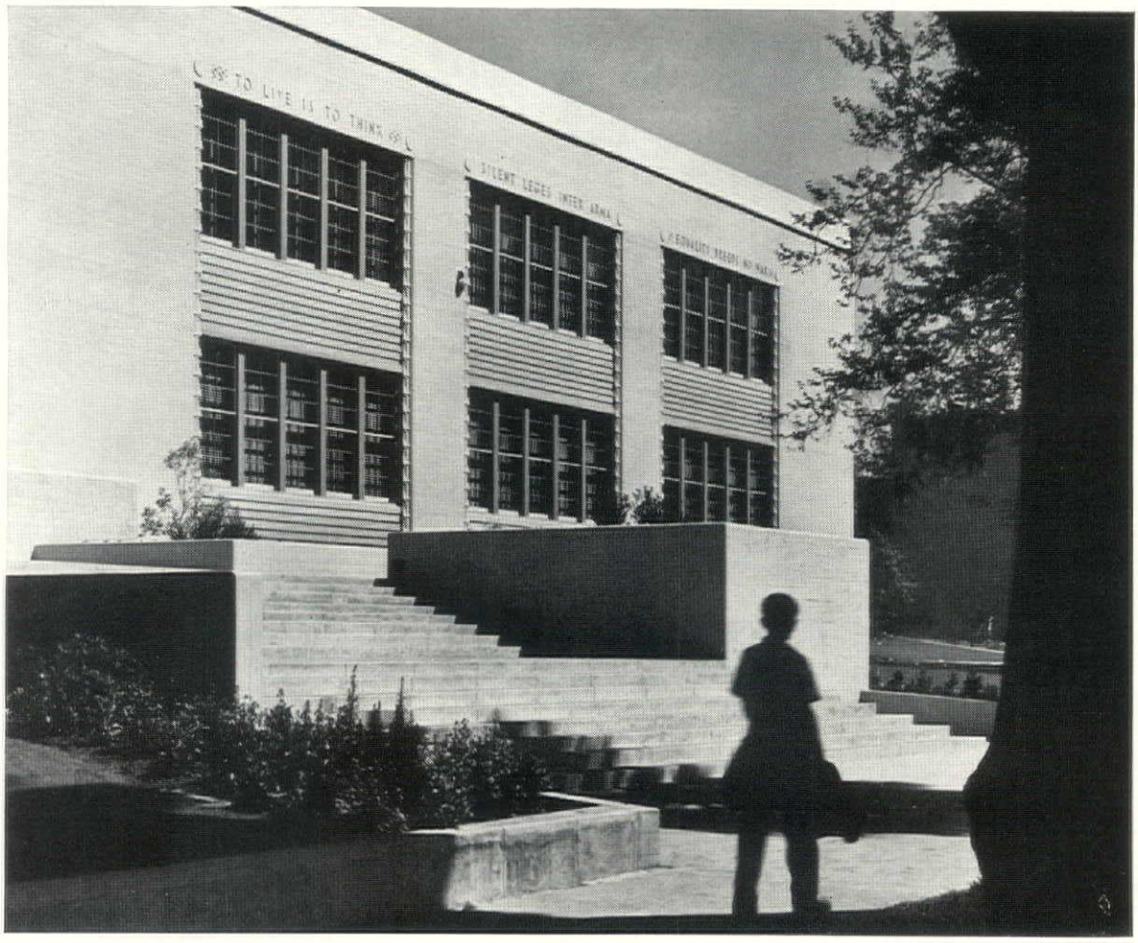
W. D. Daymon Photos

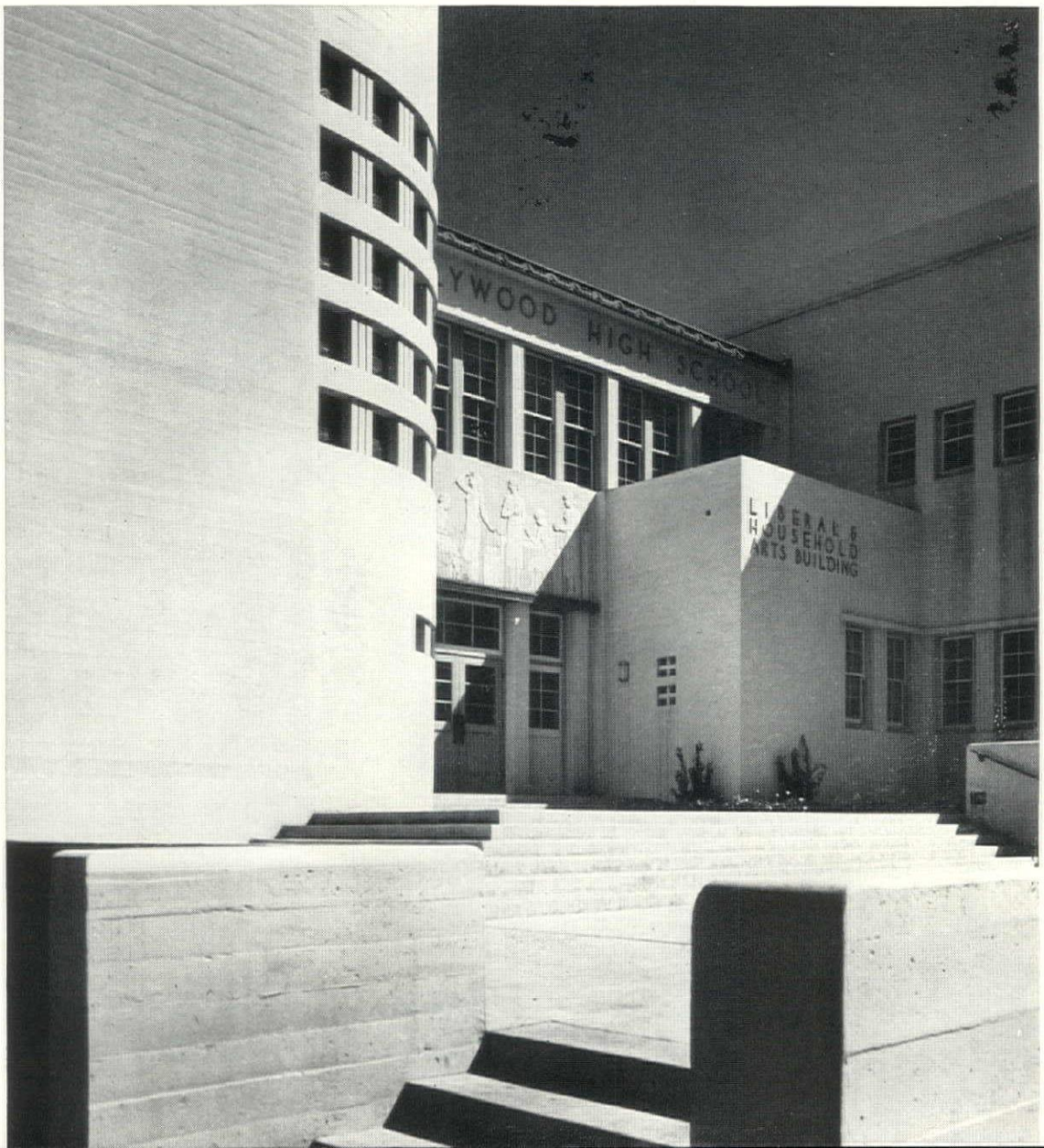
CONSTRUCTION OUTLINE

FOUNDATIONS: Reenforced concrete.
STRUCTURE: Exterior walls—steel frame 8 in. brick facing, hollow cinder tile backing, waterproofing and plaster. Interior partitions—cinder tile. Structural steel—Bethlehem Steel Co. Floor construction—reenforced concrete, pan system.
ROOF: Main building—gypsum plank, slated. Auditorium and gymnasium—gypsum plank, Barrett Co. built-up asphalt smooth surface.
SHEET METAL WORK: Flashing and gutters—lead-coated copper, American Cyanamid & Chemical Corp. Ducts—galvanized Toncan metal, Republic Steel Corp.
INSULATION: Roofs—Celotex, Celotex Corp. Sound insulation—Acousti-Celotex, Celotex Corp.
WINDOWS: Sash—double hung, steel, Campbell Metal Window Co. Glass—double strength.
STAIRS: Reenforced concrete, Feralum nosings, American Abrasive Metals Co.
FLOOR COVERINGS: Asphalt tile throughout, David E. Kennedy, Inc.
WALL COVERINGS: Gymnasium and passages—glazed tile brick; elsewhere plaster.
WOOD AND METAL TRIM: Trim—combination steel buck, jamb and trim. Doors—in general birch veneer; hollow metal fire doors.
HARDWARE: Bronze, Sargent & Co.
PAINTING: Interior: Walls and trim—3 coats paint. Doors—varnish. Ceilings—acoustical tile, unpainted. Floors—asphalt tile, wax.
ELECTRICAL INSTALLATION: Switches—Harvey Hubbell, Inc. Fixtures—Cecil K. White and Westinghouse Electric & Mfg. Co.
PLUMBING: Cold water pipes—galvanized wrought iron where exposed; brass elsewhere. Hot water pipes—brass, Bridgeport Brass Co. Toilet fixtures—Standard Sanitary Mfg. Co.
HEATING: Vacuum steam. Boiler—Burnham Boiler Co. Grilles—Hart & Cooley Mfg. Co. Valves—Jenkins Bros. Hot water heater—lined steel, National Pipe Bending Co.
GENERAL CONTRACTOR: The Industrial Construction Co.

HIGH SCHOOL FOR LIBERAL & HOUSEHOLD ARTS, HOLLYWOOD, CALIF.

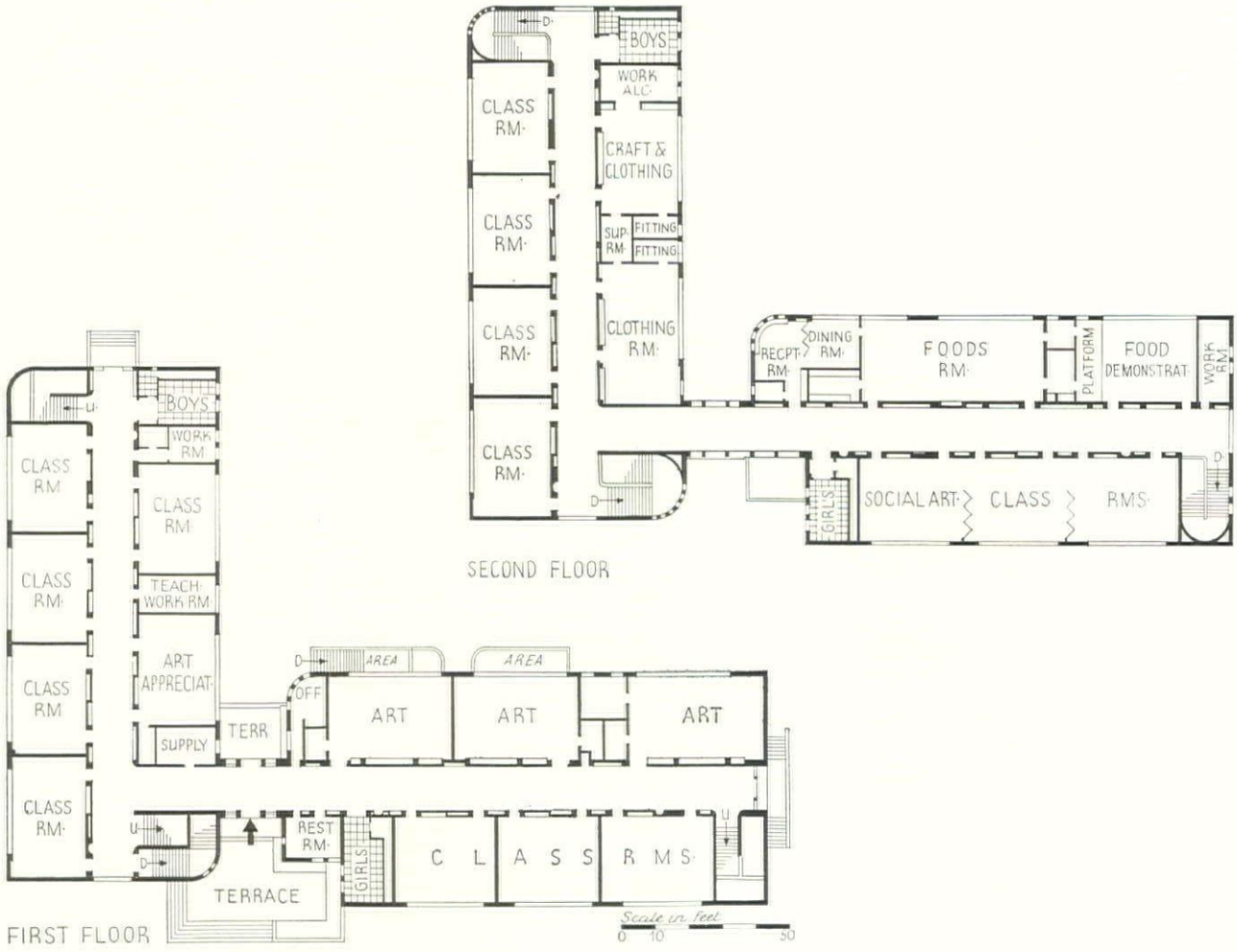
MARSH, SMITH
& POWELL,
ARCHITECTS

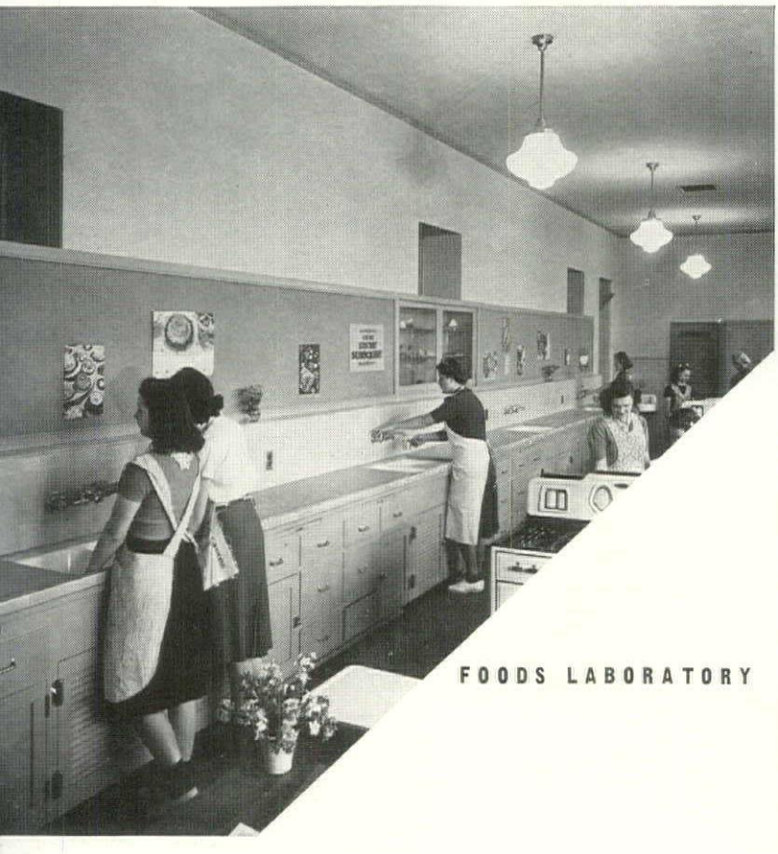




Eaton Photos

HIGH SCHOOL FOR LIBERAL & HOUSEHOLD ARTS, HOLLYWOOD, CALIF.



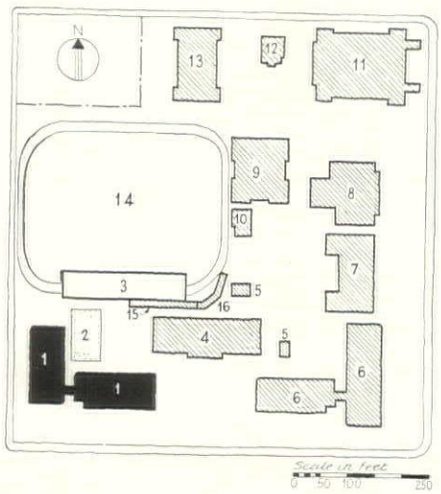


FOODS LABORATORY

Eaton Photos

MARSH, SMITH & POWELL, ARCHITECTS

1. LIBERAL & HOUSEHOLD ARTS BLDG.
2. TENNIS COURT
3. BLEACHERS
4. SHOP BLDG.
5. STUDENT STORES
6. SCIENCE BLDG.
7. ADMINISTRATION BLDG.
8. LIBRARY
9. GIRLS' GYMNASIUM
10. BOILER HOUSE
11. AUDITORIUM & DOMESTIC SCIENCE BLDG.
12. HOUSE
13. BOYS' GYMNASIUM
14. ATHLETIC FIELD
15. ARMORY
16. POTTERY



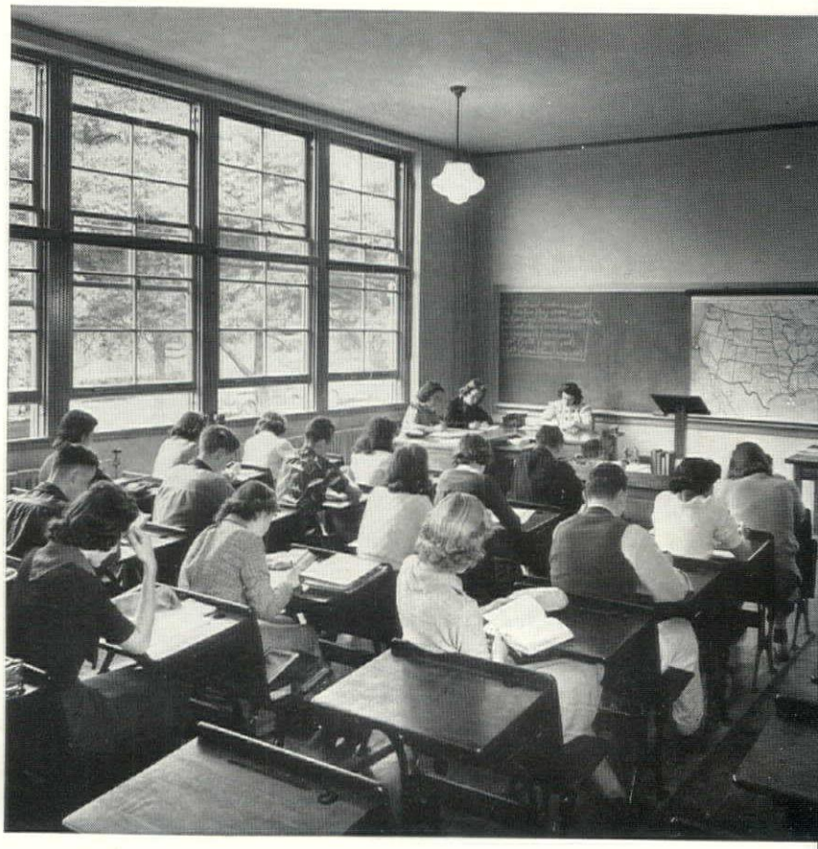
One of several specialized units comprising a ten-acre, 2,500 student high school, the building illustrated on this and the preceding pages illustrates another trend in secondary school design: towards the college style campus and away from the single, monumental building. (For the Science unit—No. 6 in the plot plan above—see ARCH. FORUM, March 1938, p. 231.) The unusual degree of separation between the two lugs of the L-shaped plan is explained by the necessities of earthquake-resistant construction, which requires a joint at this point in the structure, but has other advantages as well, admitting additional light and air and adding interest to what is otherwise so often a dreary corridor. Folding partitions between the Social Art classrooms provide a high degree of flexibility, and the enlarged room thus created is used for entertaining in conjunction with the reception room and private dining room adjoining the Foods Room, where students demonstrate their culinary art to school visitors.

CONSTRUCTION OUTLINE

FOUNDATIONS: Continuous spread footings.
STRUCTURE: Exterior walls—reenforced concrete; inside U. S. Gypsum Co. plaster. Interior partitions—metal studs, Penn Metal Co.; metal lath, Milcor Steel Co., U. S. Gypsum Co. plaster. Ceilings—metal lath and plaster suspended ceilings. Floor construction—reenforced concrete slab.
ROOF: Reenforced concrete, composition and gravel roofing, Paraffine Co.'s.
SHEET METAL WORK: Flashing—galvanized sheet metal and copper. Ducts—galvanized metal.
WINDOWS: Sash—double hung, sugar pine. Glass—double strength, quality A, Libbey-Owens-Ford Glass Co.
STAIRS: Reenforced concrete, carborundum abrasive treads.
FLOOR COVERINGS: Paraffine Co.'s Battleship linoleum and maple strip floors laid in mastic.
FURNISHINGS: Blackboards—Spinner-Deist Kenoplate composition; Paraffine Co.'s cork billboards.
HARDWARE: All Russwin, Russell & Erwin Mfg. Co., except McKinney butts; L. C. N. door closers and Lawson Mfg. Co. spring hinges.
PAINTING: Interior—lead and oil. Exterior walls—concrete paint. All paints by W. P. Fuller & Co.
ELECTRICAL INSTALLATION: Wiring system—Alumaduct conduit, National Enameling & Mfg. Co.; Crescent wire, American Cable Co. Switches—Arrow-Hart & Hegeman Electric Co. Fixtures—Royal Monax, Corning Glass Co.; Holophane Co., Inc., Benjamin Electric Co., Crouse-Hinds Co., Westinghouse Electric & Mfg. Co. Clocks—General Electric Co. Panels and switchboards—Mullenbach. Fire alarms—Cannon. Outlet boxes and receptacles—Appleton Electric Co. Fuses—Clearsite and Economy, Economy Fuse Mfg. Co.
PLUMBING: Hot and cold water pipes—Wheeling Steel Corp. Toilet fixtures—Washington-Eljer; Standard Sanitary Mfg. Co. and Haws; Kramer flush valves, Shand and Jurs hose racks and roof drains. Toilet partitions—Milwaukee Stamping Co.
HEATING: Low pressure steam from existing central plant for entire school. Radiators—U. S. Radiator Corp. Thermostats—Marsh Valve Co. Valves—Kennedy Valve Co. and Marsh Valve Co. Unit vents and fans—B. F. Sturtevant Co.
DUMBWAITER: D. A. Matot Co.
GENERAL CONTRACTOR: Pacific Realty & Building Co.

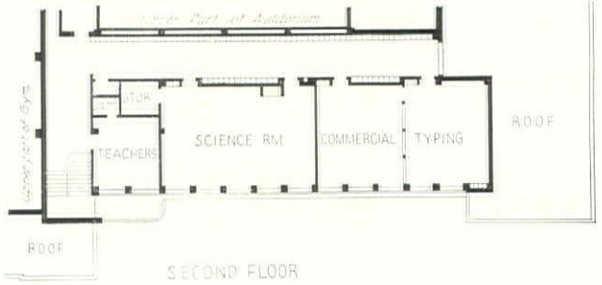
SEWING ROOM

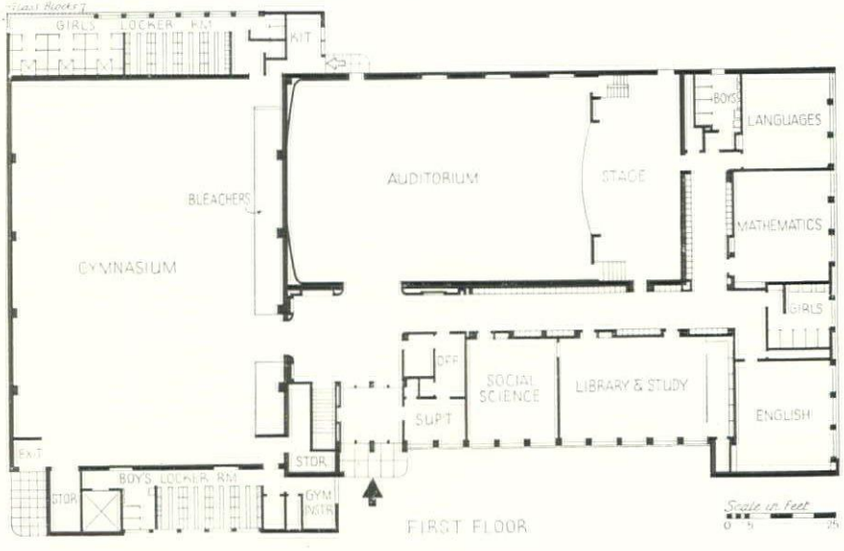
ACADEMIC ARTS



HIGH SCHOOL, IDAHO SPRINGS, COL.

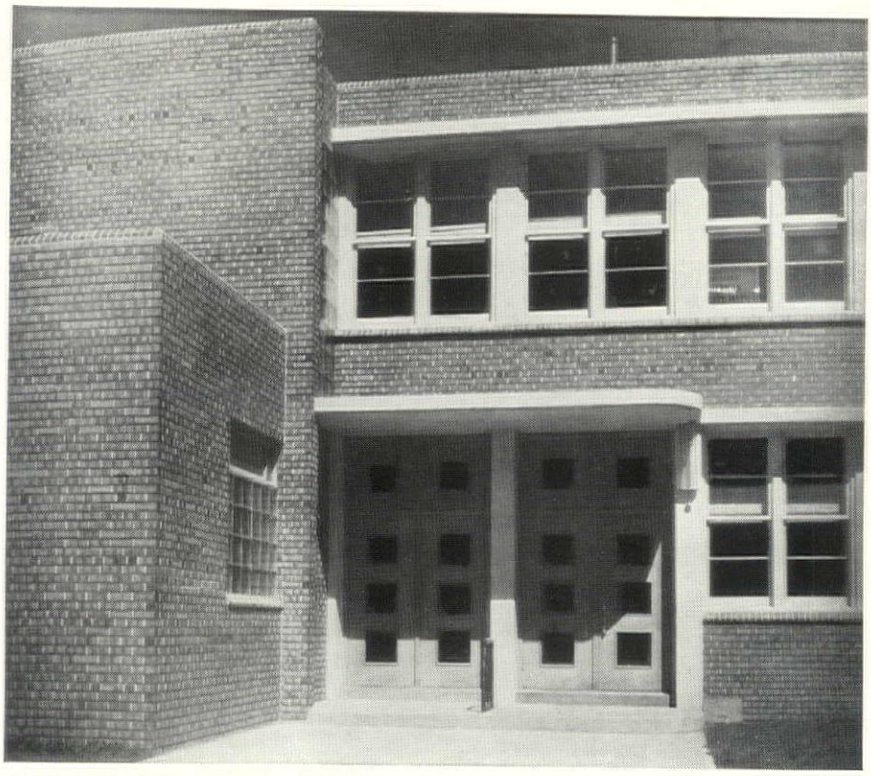
Maddy





The clean horizontal lines of this brick and concrete structure are reminiscent of Frank Lloyd Wright's Prairie Architecture, nonetheless attractive and appropriate against the background of Colorado hills. Designed to supplement an existing building consisting mostly of classrooms and dating back to 1885 (to which it is connected by a tunnel running beneath a separating street) the building is intended for community as well as school use. Classrooms may be shut-off from the Gymnasium and Auditorium Lobby by folding gates which disappear entirely in the corridor walls—shown part way out in the picture at the bottom of the opposite page—and are equipped with separately controlled heating.

FREWEN & MORRIS, ARCHITECTS



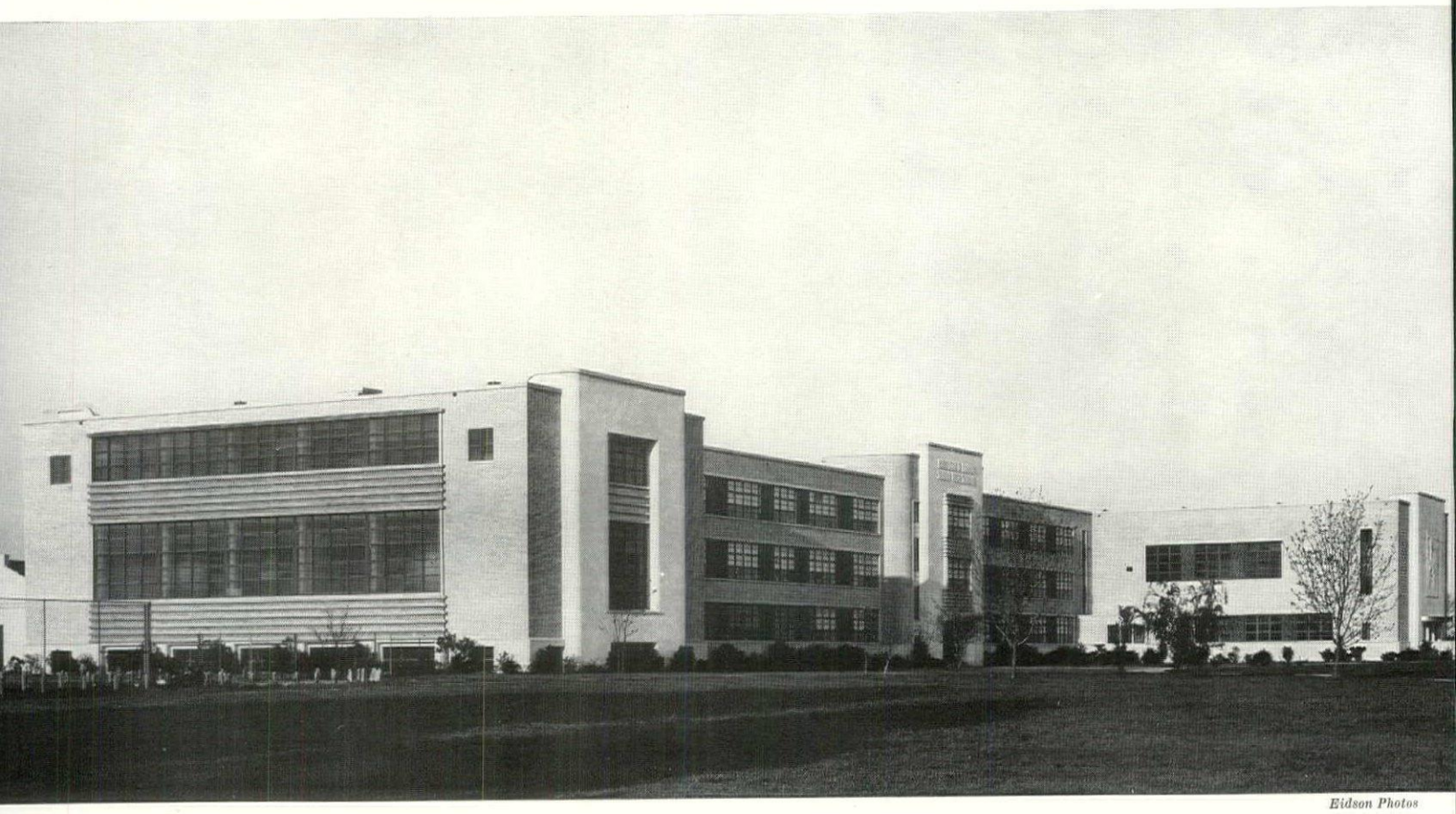
ENTRANCE

AUDITORIUM

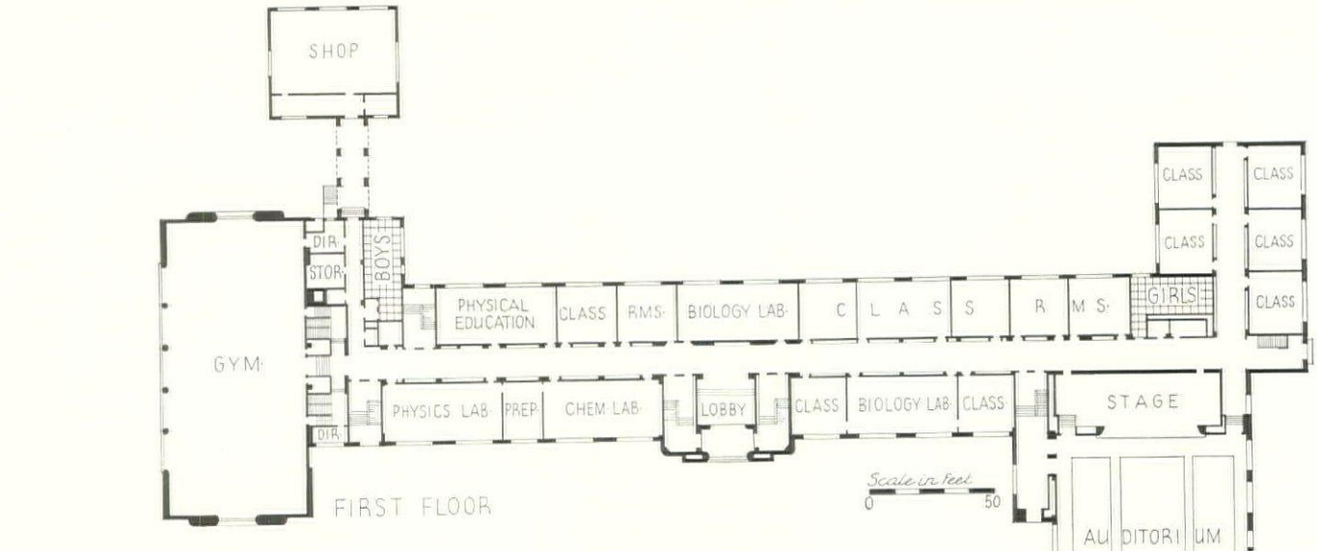
CONSTRUCTION OUTLINE

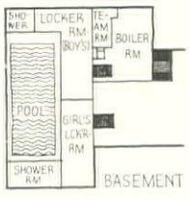
FOUNDATIONS: Concrete. Waterproofing—membrane on walls below grade.
STRUCTURE: Exterior walls—4 in. exterior facing variegated red brick; 8 in. backing walls—Jumbo brick. Interior partitions—clay tile. Columns—concrete. Structural steel—trusses over gymnasium, Colorado Fuel & Iron Co. Floor construction—(1st) concrete; (2nd) concrete on open web steel joists, Colorado Builders Supply Co. (gymnasium) wood over concrete slab; Loxit metal strips fastened to concrete slab wood floor fastened with strips, Loxit Mfg. Co.
ROOF: Covered with composition roofing.
INSULATION: Roofs—2 in. Thermax, Celotex Corp.
WINDOWS: Sash—Silentite, double hung, Curtis Companies. Glass—double strength, quality A. Glass blocks—Owens-Illinois Glass Co.
FLOOR COVERINGS: Asphalt tile used throughout, Thomas Moulding Floor Mfg. Co.
WOOD AND METAL TRIM: Trim—metal door bucks. Doors—wood slab.
HARDWARE: By P. & F. Corbin Co.
PAINTING: Throughout 3 coats lead and oil, McMurtry Mfg. Co.
PLUMBING: Soil, waste and vent pipes—cast iron. Hot and cold water pipes—copper, Type M. Streamline, Mueller Brass Co. Pumps—Nash Engineering Co. Hot water tanks—Kewanee Boiler Co. Toilet fixtures—Crane Co.
HEATING: Two pipe steam vacuum, valves and traps, Warren-Webster Co. Unit ventilators—American Blower Co. Stoker—Ideal Stoker Co. Radiators—cast iron, Crane Co. Thermostats—Johnson Service Co. American Blower Co. fan and Aerofin coils; American Air Filters Co. filters in auditorium.
GENERAL CONTRACTOR: The F. J. Kirchhof Construction Co.

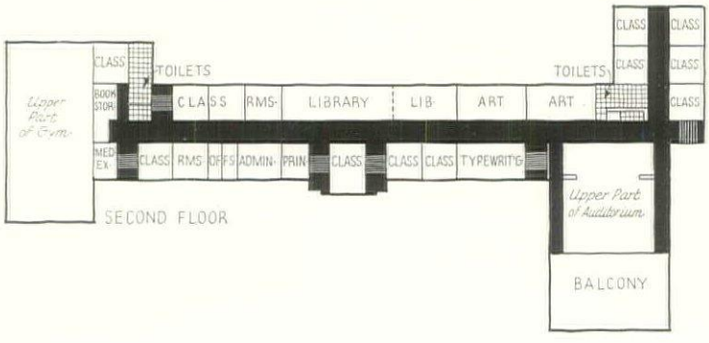
MIRABEAU B. LAMAR SENIOR HIGH SCHOOL, HOUSTON, TEXAS

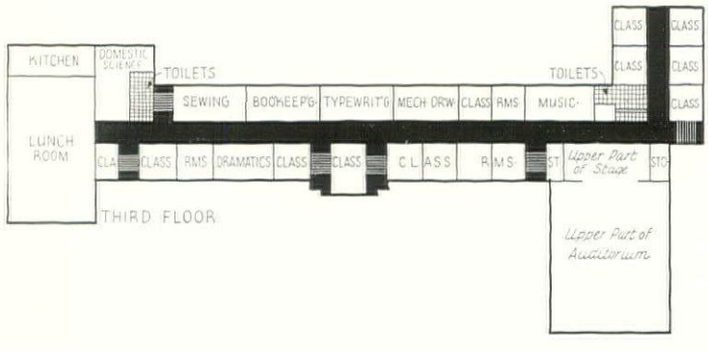


Eidson Photos

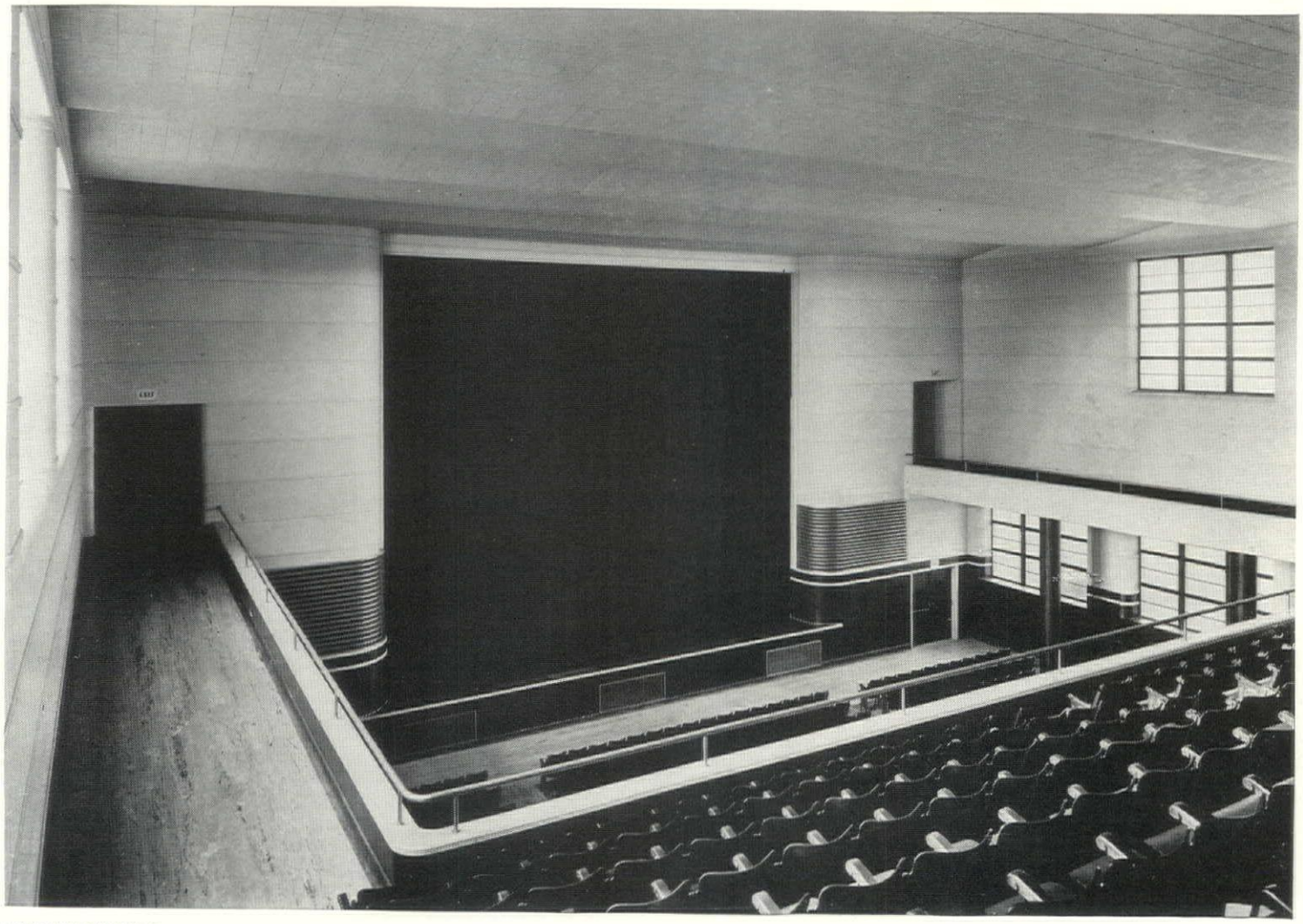








JOHN F. STAUB, KENNETH FRANZHEIM, INC., LAMAR Q. CATO, HARRY D. PAYNE, LOUIS A. GLOVER, ARCHITECTS



AUDITORIUM

FOYER TO AUDITORIUM

This imposing building contains, in a single well-knit unit, all of the facilities of the modern secondary school, with swimming pool, gymnasium, vocational shop and auditorium properly located at its extremities. As in plan on page 355, the latter is attached to the main building at its stage end, but in this instance the circulation which this entails has been worked out for a greater degree of separation between student and public access. Utmost flexibility in this respect is provided by the unusual treatment of the balcony, which is connected to the second-floor corridor of the main building by the galleries shown above. Another unique feature of the scheme is the huge window providing side lighting for the gymnasium, an arrangement probably much appreciated in a climate where the hot sun is so nearly overhead for the greater part of the school year.

MIRABEAU B. LAMAR SENIOR HIGH SCHOOL, HOUSTON, TEXAS

ARCHITECTS:

JOHN F. STAUB

KENNETH FRANZHEIM, INC.

LAMAR Q. CATO

HARRY D. PAYNE

LOUIS A. GLOVER

CONSTRUCTION OUTLINE

FOUNDATIONS: Spot footings and grade beam. Waterproofing—2 coats Ironite, Bowles Co.
STRUCTURE: Exterior walls—Acme Brick Co. face brick and Cordova limestone, Texas Quarries; back plastered, backed with 8 in. hollow tile, mastic waterproofing on tile and 3 in. clay tile furring plastered. Interior partitions—plastered 4 in. clay tile, National Fireproofing Co. structural glazed tile in corridors, stairs, toilets, locker and shower rooms, gymnasium, shop, cafeteria and kitchen. Columns—reenforced concrete. Structural steel—framing of auditorium, gymnasium, cafeteria, roof of shop, Mosher Steel Co. Floor construction—reenforced concrete beam and joist, Ceco steel pan forms. Ceilings—suspended metal lath and plaster. Classrooms and corridors—fiber tile, U. S. Gypsum Co. Library, auditorium, gymnasium, music room, etc.—acoustic tile, Johns-Manville.
ROOF: Reenforced concrete; U. S. Gypsum Co. Pyrofill gypsum deck over structural steel; Johns-Manville 4-ply pitch felt and gravel roof and wall flashing; copper roof on wood deck over shop.
SHEET METAL WORK: Flashing—copper. Ducts—galvanized iron.
WINDOWS: Sash—Conovan steel, Truscon Steel Co. Glass—double strength, quality A, Libbey-Owens-Ford Glass Co. Screens—vertical sliding, bronze wire, Truscon Steel Products Co.
STAIRS: Treads, risers and base—terrazzo; aluminum safety treads—American Abrasive Metal Co. Hand rail and brackets—Ambrite, Usona Mfg. Co.
FLOOR COVERINGS: Gymnasium and classrooms—beech wood. Corridors—terrazzo. Auditorium—cement and American Tile & Rubber Co. sheet rubber in aisles. Cafeteria and library—sheet rubber. Toilets, pool room, locker rooms and showers—slipproof tile, Wenczel Tile Co. Shop—Blox-on-end, Carter Blox-on-end Flooring Co.
WALL COVERINGS: Auditorium lobby and library wainscot—linoleum, Congoleum-Nairn.
FURNISHINGS: Display cases and special trim—Ambrite, Usona Mfg. Co. School furniture—birch and oak. Laboratory equipment—Leonard Peterson & Co. Steel lockers—Lyon Metal Products Co.
WOOD AND METAL TRIM: Doors and trim—gum; hollow metal, Metal Door Trim Co. Shop doors—hollow metal, Overhead Door Co.
HARDWARE: Yale & Towne Mfg. Co.; Von Duprin exit devices, Vonnegut Hardware Co.
PAINTING: Walls and ceilings—size, 2 coats flat paint, Masury Paint Co. Acoustic tile—Alabastine cold water paint, Alabastine Co. Floors—(wood) 2 coats sealer; (terrazzo) Onyx Seal, Hillyard Sales Co. Trim—walnut stain, shellac, dull varnish. Sash—metal primer, lead and oil, glazed and wiped.
ELECTRICAL INSTALLATION: Wiring system—rigid conduit, General Electric Co.; wire—Hazard Wire Works. Panels and switchboards—Square D. Co. Fixtures—Daybrite concealed and flush lighting; Benjamin Electric Co. reflectors. Radio and public address system—R. C. A. Victor Co. Stage lighting—Major Equipment Co.
PLUMBING: Hot and cold water pipes—galvanized steel. Sump pump—Nash Engineering Co. Ice water compressor—Vilter Co. Pool cleaner—United Vacuum Appliance Co. Toilet fixtures—Crane Co. Kitchen equipment—General Hotel Supply Co.; Samuel Olsen & Co. dish conveyor; Hobart Mfg. Co. peeler and mixer; Majestic Mfg. Co. range; Frigidaire Corp. refrigerators.
HEATING: Direct steam radiation for classrooms and shop; fan blast in auditorium; unit heaters in gymnasium, American Blower Co. Gas fired boiler—Pacific Boiler Co. Radiators—Crane Co. Grilles—A. J. Bayer Co. Thermostats—Johnson Service Co. Valves—Warren Webster & Co. Pool water heaters—Patterson-Kelly Co. Supply heater—Johnson Bros. Pool water filter—Permutit Co. Chlorinator—Wallace & Tierman.

ENTRANCE TO AUDITORIUM

BUILDING MONEY

ARITHMETIC OF LAND DEVELOPMENT

is flunked by 7 out of 10 U. S. subdividers. THE FORUM probes and solves the equation: longer blocks plus shorter streets equals lower costs.

NEXT to actual hammer-and-saw construction, land development is Home Building's biggest assignment. Close to half the houses built last year in urban U. S. were erected in subdivisions. Moreover, under the influence of the Federal Housing Administration's mortgage insurance program this nominal 50-50 ratio is becoming increasingly lopsided in favor of houses in subdivisions.

Subdividing is not only a big assignment; it is a tough one—mastered by comparatively few of those who try it. Evidence is the fact that of the 927 subdivisions submitted last year to FHA for mortgage insurance, more than 800 were not acceptable. To be specific, 65 per cent were glaring examples of what subdivisions should not be; 25 per cent were only fair-to-middling. The balance, a mere 10 per cent, measured up to FHA's yardstick, did not require the otherwise valuable assistance of its Land Planning Division.

If, despite recent preachings of the esthetic as well as dollar-and-cents value of careful land planning, these sad statistics prevail, it is safe to say that at least 75 per cent of the 9,000-10,000 active subdivisions in the U. S. today are poorly planned. Obviously, the average subdivider has much to learn. And, from the calibre of his existing work, it is apparent that he must be taught in simple language. More advanced attempts have evidently sailed over his head.

Thus, to point up the many advantages of careful land planning, to underline by comparison the many disadvantages of current practices, THE ARCHITECTURAL FORUM herewith explores some of the major aids to economic subdividing—and, for the benefit of the untutored 75 per cent, pursues its explorations with understandable simplicity.

Secondary purpose of the following paragraphs is to give the low cost house a firmer leg to stand on. It is common knowledge that of the well-planned subdivisions now being developed, all but a handful are aimed at the upper income brackets. The little fellow is not only hard pressed to find a house he can afford (ARCH. FORUM, April 1939, p. 233 et. seq.) but, when he does find one, chances are that it is an isolated offering or one of a long row of uninviting dwellings pressed closely together in an uninviting neighborhood. And, the middle income group is not without this difficulty. More important, many a medium-priced house could reach down into the vaster low cost market if subdividers would heed the economics of smart land planning.

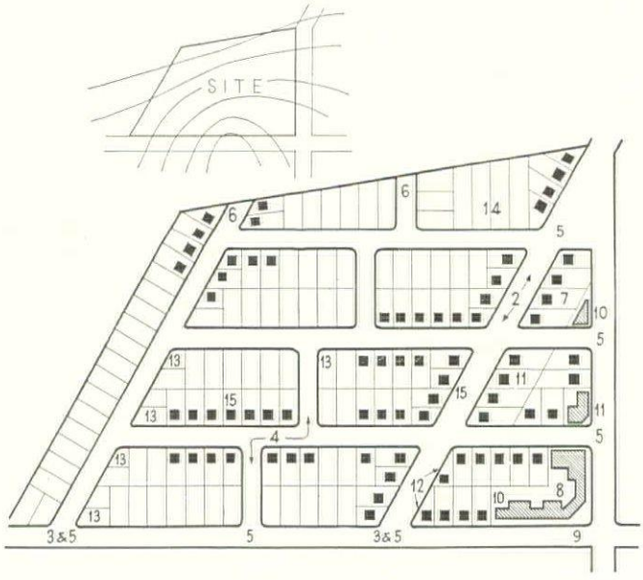
Site Selection. Dictionary definitions notwithstanding, good subdividing is much more than the mere "division of a part . . . into smaller parts." In the first place, there must be a need for housing in the general area considered and, secondly, the selected site must lend itself readily to housing that will meet that market. Assuming that through industrial expansion or population movements or some other cause such a local need exists, it must be measured by some form of market analysis. Of prime importance is determination of what family income group the

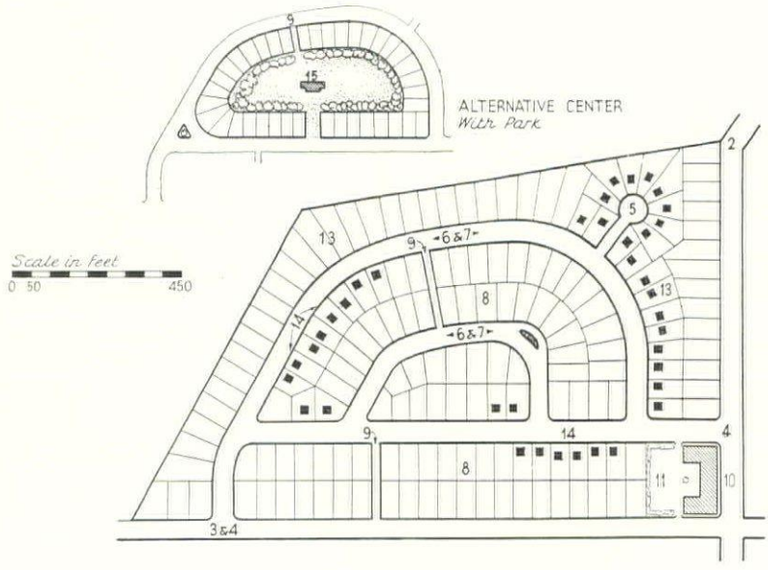
proposed subdivision will serve. Incomes will govern the sales prices to be affixed to house and lot units and, working backwards, sales prices will determine what should be paid for raw land.

Low cost houses cannot be built on high priced land. If the market dictates that house and lot sell for $5,000 or less, authorities hold that the subdivider should not pay more than $1,400 per gross acre for raw land. Division of the acre into ten lots will produce a raw land cost of $140 per lot, but the usual 150 per cent mark-up to cover carrying charges and the loss of land in streets, parks, etc., ups the cost per lot to $350 or 7 per cent of the ultimate $5,000 cost of house and lot. This 7 per cent rule of thumb says that land cost for the $4,000 house should not exceed $1,120 per acre; for the $6,000 house, $1,680; for the $8,000 house, $2,240; for the $10,000 house, $2,800.

Costs also depend upon topography. A mountain range in miniature might make an attractive subdivision but the grading bill would also be mountainous. And, while building upon a rock may be good practice, it is expensive. The site, or at least a sizable portion of it, should be free from steep slopes, impossible ravines, and low-lying, poorly drained areas. However, the opposite course is frequently pursued to an extreme—the average subdivider breaks his back in search of a perfectly flat site. Realizing this, land owners frequently tack a higher price on flat land than on properties which are moderately hilly. Properly developed, the latter will make a more attractive, faster selling subdivision. Moreover, since subdividers have habitually shied away from this type of land, it is frequently located closer to the center of communities than available flat properties.

Other factors entering into site selection concern the proximity of facilities which will be required to service the subdivision. The optimum of subdivisions would be





POOR PLANNING and what is wrong with it:

1 Gridiron street pattern without purpose
2 Heavy traffic within subdivision
3 Angular intersections
4 Non-abutting cross streets
5 Numerous subdivision entrance streets
6 Dead-end streets
7 Small, uneconomical blocks
8 Ribbon shopping district
9 No off-street parking space
10 Stores amid residences
11 Lots not perpendicular to streets
12 Angular lots
13 Small corner lots
14 Deep lots
15 Monotonous building line

GOOD PLANNING and what is good about it:

1 Curved street pattern adds subdivision appeal
2 Heavy traffic diverted
3 Safe, perpendicular intersections
4 Few subdivision entrance streets
5 Quiet street
6 Local streets for local traffic only
7 Streets fit topography
8 Long economical blocks
9 Cross walks in long blocks
10 Organized shopping center
11 Off-street parking space
12 Wide corner lots
13 Lots perpendicular to streets
14 Staggered building line
15 Provision for interior park

NO SUBDIVIDER would make as many mistakes as are incorporated in the hypothetical plot plan, left above. But many subdividers make many of them. Note that an improved solution to the same problem produces more lots, less streets. For how much more and less see tabulation, right.

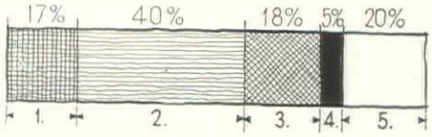
	GRIDIRON PLAN	LONG-BLOCK PLAN (without park)	LONG-BLOCK PLAN (with park)
Number of residential lots	156	169	144
Size of lots (average)	50 x 100 ft.	50 x 100 ft.	50 x 100 ft.
Length of major streets	1,050 ft.	....	....
Length of minor streets	4,800 ft.	3,850 ft.	3,200 ft.
Length of cul-de-sac	....	200 ft.	200 ft.
Total length of streets	5,850 ft.	4,050 ft.	3,400 ft.
Total street length per lot	37.5 ft.	24.0 ft.	23.6 ft.
Cost of public improvements[1]	$46,800	$32,400	$27,200
Cost of public improvements per lot	$300	$192	$189
Cost of public improvements plus park value per lot[2]	$300	$192	$225

[1] Cost of public improvements includes street construction, utilities, sidewalks, grading, lamp posts, etc., and is assumed to be $8 per linear foot of street. Calculations favor the gridiron plan in that cost of public improvements on its major street (diagonal) would exceed $8 per foot, while cost of the cul-de-sac in the long-block plan would be less than $8 per ft.

[2] Park covers 3½ acres and is valued at $1,500 per acre, or $5,250. Value of park per lot is thus $36.

situated within a half-mile of schools, churches, recreational facilities, a transportation center and a shopping district. If situated outside the half-mile radius, the subdivision may itself contain a shopping center—provided of course that the number of families to be housed and their average annual income warrants it. Provision of a shopping center is not, however, the worry of the average U. S. subdivider; FHA records show that its average subdivision is comprised of only 100 to 125 lots—too few to justify the erection of even one store.

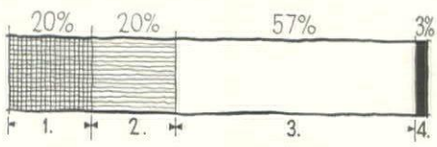
Platting. But, site selection is less than half the battle. As evidenced by the chart below*, cost of raw land represents only



1. RAW LAND
2. PUBLIC IMPROVEMENTS
3. LOT IMPROVEMENTS
4. PROFESSIONAL FEES
5. CARRYING CHARGES

about 17 per cent of the total land and development cost per dwelling. By far the largest single part of this cost (40 per cent) covers what are called "public improvements"—parks, walks, sewers, surface water drains, boundary streets, interior streets, turn-arounds, street lighting, etc. Since the cost of all utilities is dependent (in most cases) upon the length of streets, a separate discussion of utilities per se is unnecessary (see table of unit costs, page 370). Thus, actual subdivision planning logically breaks down into three sections: streets, lots, and parks.

First mechanical task of the subdivider is to determine what part of his property is to be allocated to each of these three uses. More important, he must see that a well-balanced relationship results between them. For large sites (200 acres and more) a ratio of 60 per cent buildable land (lots) and 40 per cent open land (streets, parks, etc.) is the accepted ratio. In subdividing smaller areas, the built-up ratio may be increased. Satisfactory land breakdown for a 200-acre, 1,300 lot subdivision (6.5 lots to the gross acre):



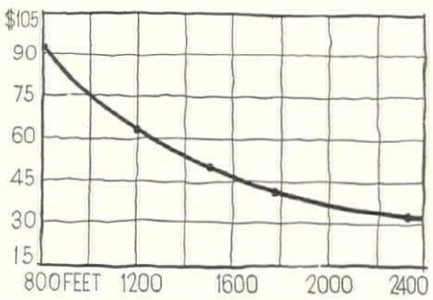
1. STREETS
2. PARKS AND SCHOOL
3. BUILDING LOTS
4. STORES

* Based on a subdivision of 200 acres, of average topography, 1,300 lots of 3,875 sq. ft. each and providing 3,000 ft. of store frontage. Sixty per cent of the land for building purposes.

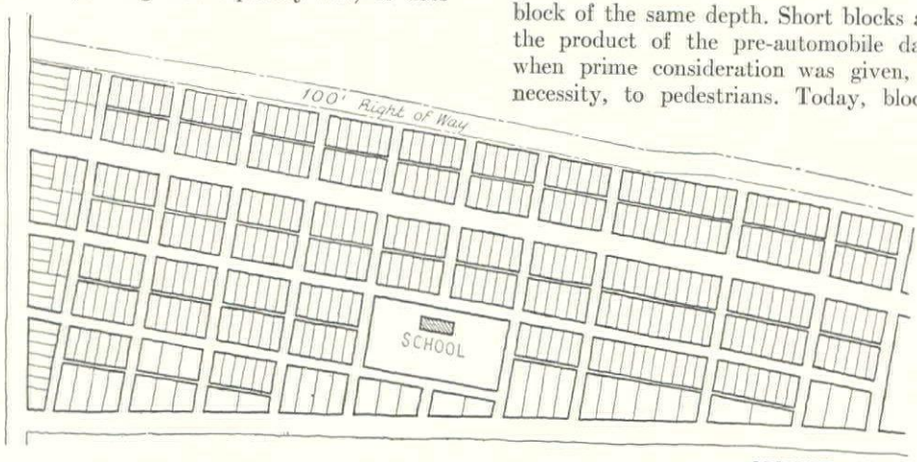
Street Pattern. Distribution of these use areas is determined by the street pattern, which also governs to a great extent the marketability of the lots and, in turn, the economic soundness of the subdivision. Streets and the pattern they cut may make or break a subdivision; and if they cut the old-fashioned, unimaginative gridiron pattern they will probably break it. Reason: the gridiron merely produces blocks, it does not add interest, beauty and variation to them. Moreover, due to excessive street lengths, the cost of development will be unnecessarily large. Also, if the property is hilly, the gridiron pattern may require a large amount of expensive cutting and filling and many of the lots will not be readily buildable.

Alternative to the gridiron is the free-hand, long-block pattern now practiced by all business-minded subdividers. Its curved streets conceal the monotonous regularity of a flat terrain and enhance the natural beauties of an irregular topography by following contours. And, contrary to general belief, it is usually more economical than the gridiron pattern. Its longer blocks reduce the development cost per lot; and, if it does not produce more lots (although it frequently will) it does produce uniformly more desirable and therefore more salable lots (see page 368). Worth noting in this regard is the fact that a subdivider's profit does not begin until he has sold about 75 per cent of his homesites. If the remaining 25 per cent are "sticky," carrying charges on them may produce a net loss instead of a profit.

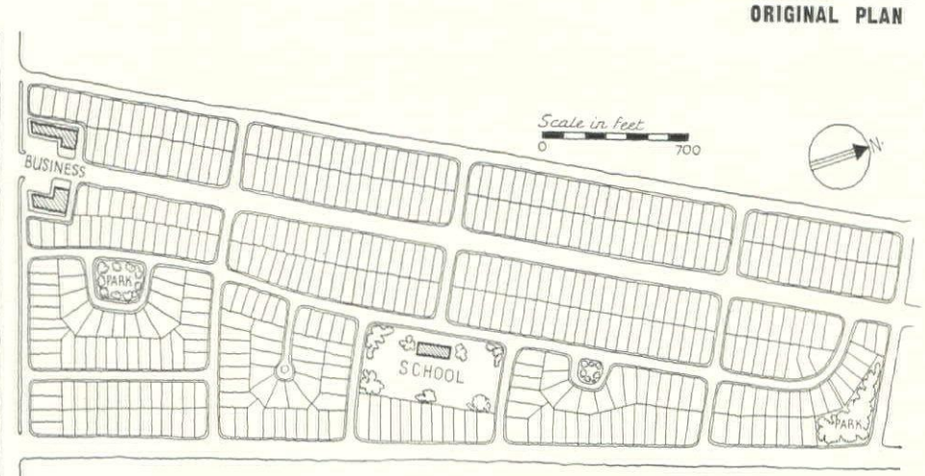
More a matter of economy than salability is the determination of block lengths. Short blocks are uneconomical, for cross streets and the utilities under them cost money, occupy valuable building land. The accompanying chart shows that costs per lot of side-street improvements dropped from $92 in an 815 ft. block (two lots deep) to $32 in a 2,330 ft.



block of the same depth. Short blocks are the product of the pre-automobile days when prime consideration was given, of necessity, to pedestrians. Today, blocks



ORIGINAL PLAN



FHA REVISION

A Georgia subdivision submitted to FHA last year. Said FHA of the original plan, "Blocks too short, making unnecessary street. Alleys not necessary . . . unattractive lot layout, many lots not proper size for owners' use, full advantage not taken of adjoining golf course (along eastern boundary) as to view from residential lots. Streets entering main highway, causing traffic hazard." In its suggested revision FHA pointed out these improvements: "A more attractive plan, alleys eliminated, 18,310 ft. less streets, 147 more lots, three acres gained for school and park, one-and-one-half-acre shopping center, 15 ft. planting strip and 20 ft. side road along main highway adds to privacy and decreases traffic hazard. Lots are of better shape; slightly curved street plan adds to neighborhood appeal."

may be as much as 1,300 ft. long, but if over 750 ft. they should be divided by a cross walk.

The rectangular block is no more necessary than the short block. A U-shaped unit may better fit topography and a semicircular one often will provide desirable park space. Where the latter is not demanded within the semicircle, interior lots may be platted and serviced by a cul-de-sac or loop. A comparatively new type of street in U. S. subdivisions, the cul-de-sac, is a popular implement of FHA's Land Planning Division, popping up in practically every FHA-improved plan. It solves handily the problem posed by an irregular shaped piece of property and lops many a dollar from public improvement costs. According to professional opinion, however, this dollar-lopping is greatest when the cul-de-sac's length exceeds 240 ft. but falls short of 360-400 ft. (minimum dimension of the turn-around is set at 30 ft.).

Getting back to the gridiron pattern, all streets serve the same purpose and must therefore be of the same width and construction. On the other hand, streets in the informal free-hand pattern vary in purpose, may therefore vary in width and construction. Result: many of the streets, by virtue of their restricted use may be of less expensive dimensions and materials. While the gridiron pattern may require that all streets be capable of carrying two or three lines of traffic and be paved to a width of 18-27 ft., the informal pattern may make profitable use of 14-18 ft. culs-de-sac and one-way streets which cost about half as much.

Bad habit of subdividers is to reduce costs through the use of undeveloped cross streets. Better educated than a few years ago, the average home purchaser realizes that purchase of a lot on an unfinished street probably means a stiff assessment for street improvements in later years.

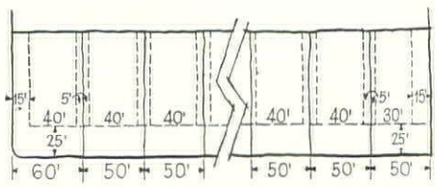
UNIT COST OF IMPROVEMENTS

Finished Street Grading	$ .75 per cu. yd.
Paving:	
6 in. concrete	2.00 per sq. yd.
Curb:	
Granite	1.85 per lin. ft.
Concrete—curb only	.80 per lin. ft.
Cobblestone gutter	.25 per lin. ft.
Sidewalks:	
4½ in. concrete	.23 per sq. ft.
Seeding and Planting:	
Seeding	.25 per sq. yd.
Trees	8.00 each
Sanitary Sewers, incl. Manholes:	
8 in. pipe, 8 ft. deep	2.00 per lin. ft.
12 in. pipe, 10 ft. deep	3.00 per lin. ft.
Storm Sewers, incl. Manholes & Inlets:	
12 in. pipe, 6 ft. deep	2.25 per lin. ft.
Driveways:	
Concrete	2.25 per sq. yd.
House connections:	
Water	.65 per lin. ft.
Gas	.90 per lin. ft.
Sewer	.75 per lin. ft.

Source: Harvard City Planning Series, Vol. III

Lots. While their gravest errors are made in street layout, subdividers have much to learn about the actual platting of lots. The average subdivider usually overcrowds his development, because he believes 1) that he can create more salable (lower priced) lots, and 2) that he can make more money via more houses. But he is wrong on both counts—small lots jam-packed together never made an attractive subdivision—never will. Refutation of the run-of-the-mill subdivider's belief is the proof of England's leading houser, Sir Raymond Unwin, that by decreasing street lengths it is just as profitable to build twelve houses per acre as twenty (ARCH. FORUM, Aug. 1936, p. 88). Reduction of density, however, should not stop at twelve houses per acre—FHA preaches a 6-to-1 ratio.

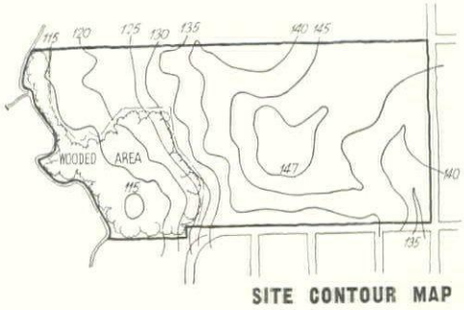
Also considerably different from those of the past, today's lot-size standards require that for detached houses the width be at least 50 ft., that the length be at least 100 ft. Such are the minimum dimensions for interior lots; corner lots should be at least 10 ft. wider. Reason is that if all lots were, say, 50 ft. wide, a side yard requirement of 5 ft. and a side-street building setback of 15 ft. would leave only 30 ft. of buildable frontage in the corner lots:



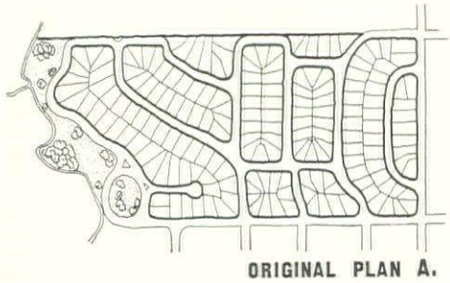
While these dimensions are considered as general minimum standards, no hard and fast rule can be set. Dimensions will vary according to the location of the subdivision. A 50 ft. lot may not be practicable for low cost housing where land values are high, but in no case should the width go below 30-35 ft. The low cost house is smaller than the average, does not require an average-size lot. However, the real low cost house is a one-story house and, as such, usually requires more land than a slightly higher-priced two-story unit.

Parks. In step with today's demand for increased greensward in urban residential districts, land planners hold that no

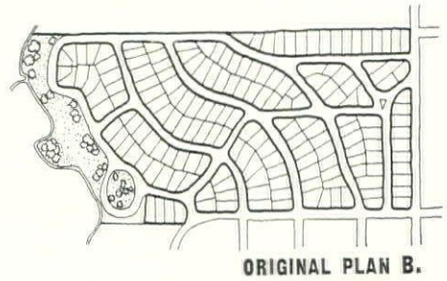
(Continued on page 34)



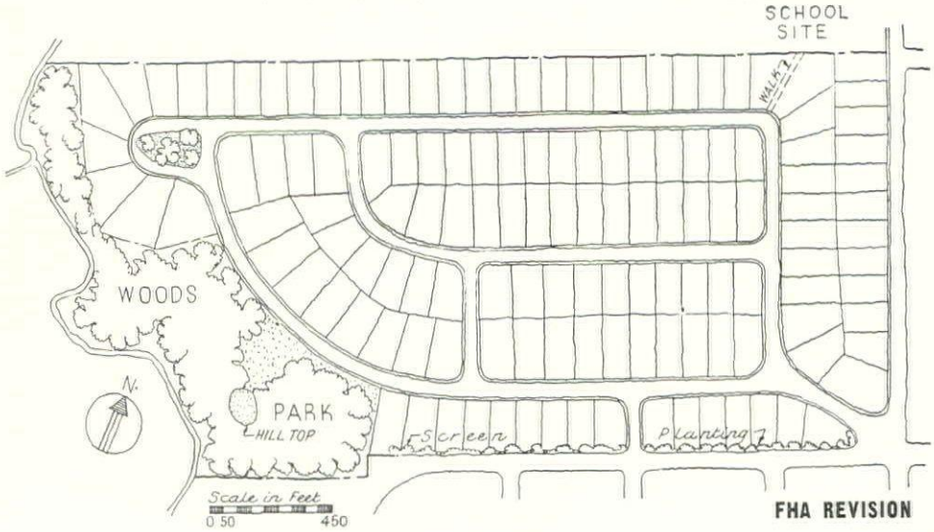
SITE CONTOUR MAP



ORIGINAL PLAN A.



ORIGINAL PLAN B.



FHA REVISION

From North Carolina to FHA came the above plot plans with the notation that the subdivider desired all lots to be 75 ft. wide. Falling short of his own specifications, his two original solutions (A and B above) included about 180 lots—many of them are small, poorly shaped and located—along some 10,500 linear feet of street. FHA last March revised his plans (right), cut street length to about 7,100 ft., the number of lots to 135—which average about 75 x 150 ft. Note location of park in natural wooded area, reduction of subdivision entrances from six and seven to two.

FHA RENTAL PROJECT SPOTLIGHTS COLUMBUS

In its March issue, THE ARCHITECTURAL FORUM *presented two privately financed rental housing projects in Summit, N. J. as newsworthy examples of one of Building's up-and-coming activities. This month* THE FORUM *looks at a more ambitious project in Columbus, Ohio, will soon look further west and southward.*

If any project embodies the planning preferences of FHA's Rental Housing Division, it should be Olentangy Village. A $2 million development serving Columbus, Ohio, it was designed by FHA's original chief architect—Raymond C. Snow of Washington, D. C. But Olentangy Village represents more than Architect Snow's first-hand FHA experience; during his past two years of private practice he has added to his design roster with thirteen other FHA-approved large scale garden apartment projects, has done a $13 million business from Lansing, Mich., to Birmingham, Ala.

Site. Year and a half ago Project-Sponsor L. L. LeVeque surveyed the demand for rental housing in the Columbus area and the available properties on which to build. He found both—the latter on the banks of the Indian-named Olentangy River three miles from the city's center. There, for an estimated $200,000 he purchased 65.4 acres that for 39 years had been partially occupied by the Olentangy Amusement Park and was thus well known to Columbusites. Setting aside most of the area for future expansion, LeVeque commissioned Architect Snow to develop 28.7 acres with garden apartments.

As seen on the plot plan (page 372), topography of the site lent itself readily to an interesting building layout. Preserving the natural beauties of the property, Snow set the main building along the 40 ft. well-wooded river bank bluff, set the rest to follow land contours. Studied orientation of the buildings gave most of them a southern exposure. Including shopping center and garages, the structures cover only one-third of the site, leave ample room for parks, tennis courts, and a swimming pool—sole reminder of the demolished amusement park. As an extra attraction, LeVeque dammed the river some distance below the project, thus made boating possible.

Buildings. Architectural style of the project is Georgian Colonial—for the reason that, as evidenced by all his other projects, it is the architect's favorite. The central building of the Village is patterned after the court house at Williamsburg, Virginia. Construction is 8 and 12 in. brick with limestone trim; floors are hardwood on concrete slab; pitched roofs are shingle tile; flat roofs, tar and gravel. A builder of no mean repute (Cincinnati's $7 million USHA project, Laurel Homes, was built by his construction company), Sponsor LeVeque handled all of Olentangy's construction except the sub-let plastering contract.

Within the project's nine residential buildings Architect Snow provided space for 402 dwelling units, breaking down in size into—

1-room apartments	2
2-room apartments	15
3-room apartments	150
3½-room apartments	132
4-room apartments	85
5-room apartments	18

Original plans called for considerably more one-room units which were to cater to students and faculty of nearby Ohio State University, but FHA vetoed the idea; reason being that although one-room units are easy to rent, they attract transient tenants, are hard to keep rented.

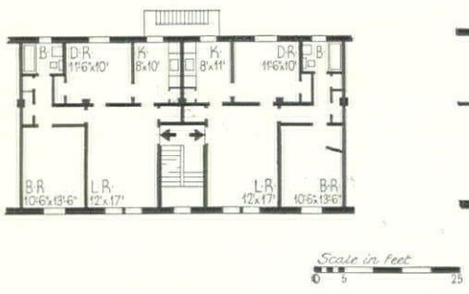
To serve the 402 families, 198 garages were strung along service streets at the project's northern boundary, following the planners' practice of using such elements as protective screens from any nuisances that may develop on uncontrolled nearby property. A plentiful supply of off-street parking space was provided, to compensate for the fact that garages are unhandy to some apartments near the river.

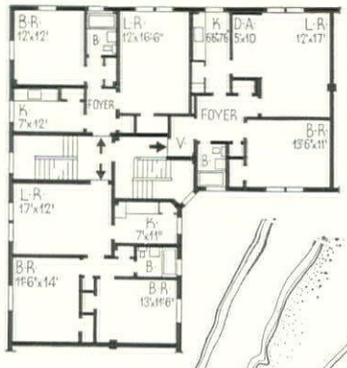
A lucrative and uncommon feature of the project is the sizable shopping center which flanks the main entrance. Providing quarters for eleven stores with a combined total of 38,973 sq. ft. of floor space and four upstairs offices, it also serves to screen the apartments from the busy thoroughfare. Based on no market survey, plans for the shopping center were expanded periodically in step with demand.

To make the shopping center attractive to a wider group than the tenants of the Village, shopper parking space was provided on either side of the entrance to the Village. Any overflow will be handled by a large parking lot at the end of the store section on LeVeque's yet-to-be-built-upon land. Today, the center's tenants include a grocery, drug store, dry cleaner, barber shop, beauty salon, tavern, florist, bakery, service station, a 5 & 10 and offices for three doctors, one architectural firm. The project's rental offices are also in the shopping center.

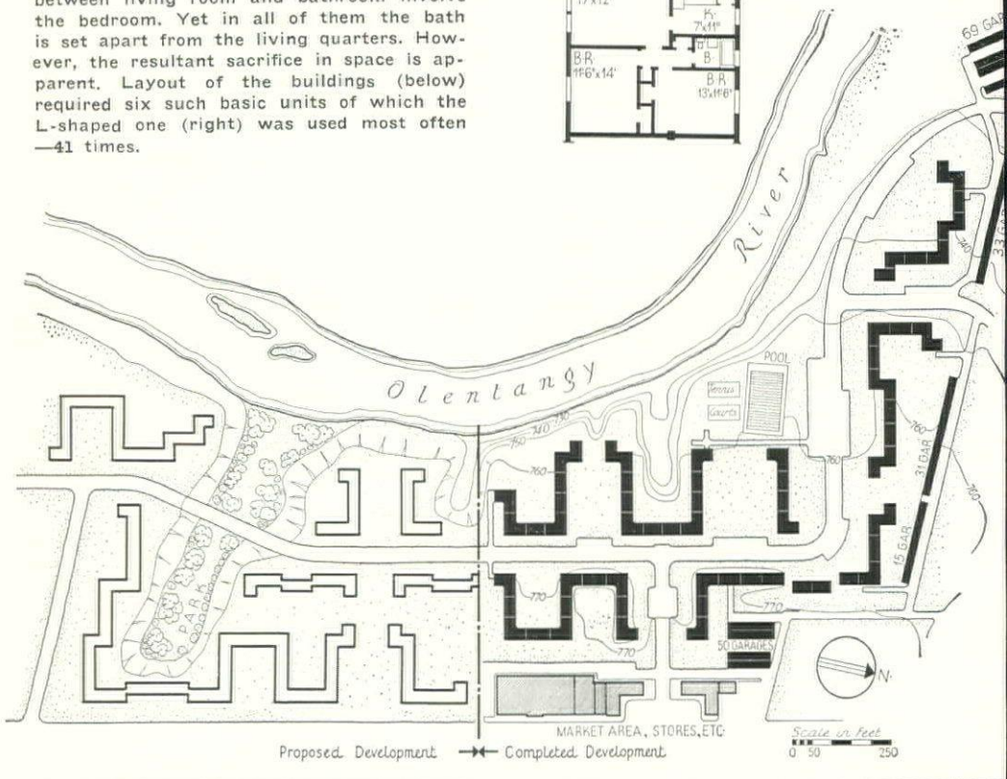
Cost. Reflecting no noteworthy attempts at construction cost reduction, the total cost of the project was $1,893,000 or, excluding the $165,000 shopping center, about $4,300 per dwelling unit, $1,300 per room. The buildings alone cost $1,465,000, landscaping cost $36,000, and utilities, $70,000. Thanks to an FHA-insured mortgage, Sponsor LeVeque had to ante only $478,000 of the $2,213,000 capitalization. The 78 per cent balance, $1,735,000, was lent by the New York Life Insurance Co. at 4½ per cent interest. As there are 1,374 rooms in the project, the amount of the mortgage per room—$1,262—is well within the $1,350 limit set by the National Housing Act under which the project was built.

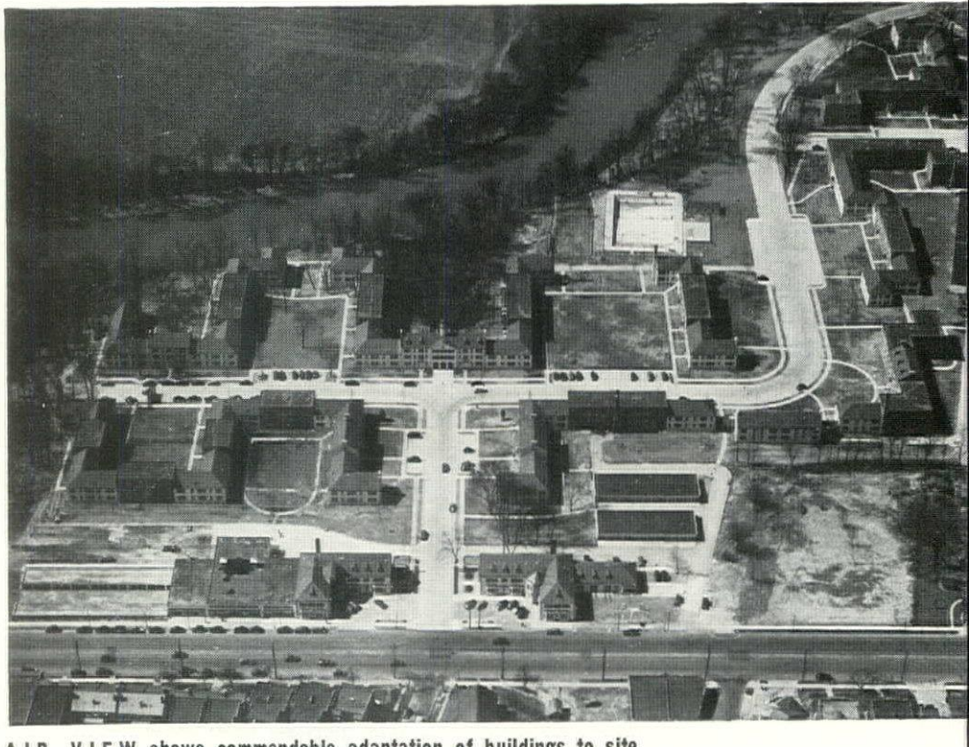
Operation. Monthly rentals for the Village range from $30 to $55 per month, average





Salient Feature of Architect Snow's floor plans is segregation of living and sleeping quarters. Thus, in none of the basic units pictured above and right does circulation between living room and bathroom involve the bedroom. Yet in all of them the bath is set apart from the living quarters. However, the resultant sacrifice in space is apparent. Layout of the buildings (below) required six such basic units of which the L-shaped one (right) was used most often —41 times.





AIR VIEW shows commendable adaptation of buildings to site.

$47.96 per apartment, $14.08 per room, including heat and hot water—which services are provided by a boiler room in each of the seven main buildings.

Most other tenant expenses may be lumped under the head "electricity," for all kitchens are completely electrical. And, if LeVeque's estimate proves accurate, average electric bill for cooking, lighting, and refrigeration will not exceed $2.25 per month. Reason: LeVeque engineered a special metering agreement with the local utility company whereby power will enter the project through a single meter, be re-metered by the management to each tenant.

Assuming 100 per cent occupancy, Olentangy Village will produce a gross rental income of $230,000 per year from dwelling facilities alone. Store and garage revenue will push the total higher.

Something of a showplace, Olentangy Village has had its full share of local attention. Its grand opening at mid-March was heralded in one paper by an eighteen-page special supplement, was attended by 15,000 sightseers. Fortnight ago, two months after their official opening, the apartments were 65 per cent rented, the stores and offices, 100 per cent. Leases on the former run for one year, on the latter from three to ten years.

Anticipating a full house within a month or so, Sponsor LeVeque already has plans for the expansion of Olentangy Village. First apartment annex will be to the south of the present development (see plot plan), will contain some 350 dwelling units; the next, to the north of the shopping center. Also on the fire and probably the first move is the extension southward of the money-making shopping center. Whatever the next building move may be Architect Raymond C. Snow will plan it.

CONSTRUCTION OUTLINE

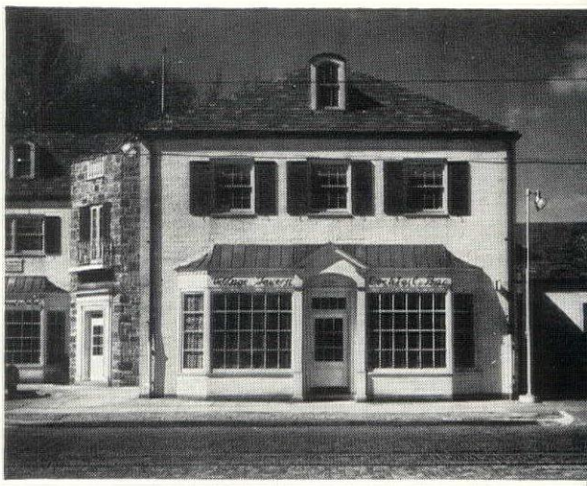
FOUNDATION: Walls—12 in. brick. Cellar floor—5 in. concrete slab. Waterproofing—integral, Truscon Steel Co.
STRUCTURE: Walls—8 and 12 in. brick, limestone trim. Interior partitions—3 in. gypsum block; stair halls—6 in. terra cotta. Floor construction—reenforced 5 in. slab. Ceilings—plastic oil paint on concrete.
ROOFS: Wood rafters; pitched roofs covered with Ludowici-Celadon Co. shingle tile; flat roofs covered with 20-yr. Bonded tar and gravel.
CHIMNEYS: Brick with fire brick lining.
SHEET METAL WORK: Flashing, gutters and leaders—16 oz. copper. Ducts—galvanized iron.
INSULATION: Attic floors—Ludowici-Celadon Co.
WINDOWS: Sash—wood, double hung, J. E. McNally Lumber Co. Glass—double strength, quality B. Screens—copper mesh.
STAIRS: Steel covered with asphalt tile.
FLOOR COVERINGS: Main rooms—oak laid in mastic, E. L. Bruce Co. Kitchen and bathrooms—linoleum covered. Public halls—asphalt tile.
WALL COVERINGS: Bathrooms—Marlite, Marsh Wall Products, Inc.
HARDWARE: Interior and exterior—Norwalk Co.
PAINTING: Interior—oil paints, The Hanna Paint Mfg. Co. Floors—fill, stain and wax. Exterior—Medusa cement paint on brickwork, Medusa Portland Cement Co.
LIGHTING FIXTURES: By Chase Brass & Copper Co.
KITCHEN EQUIPMENT: Range and refrigerator—Westinghouse Electric & Mfg. Co. Sink and cabinets—Whitehead Metal Prod. Co.
LAUNDRY EQUIPMENT: Sink—Crane Co. Washing machine and drier—Thor.
BATHROOM EQUIPMENT: All equipment—Crane Co. Seats—C. F. Church Mfg. Co. Showers—Speakman Co. Cabinets—Miami Cabinet Div., Philip Carey Co.
PLUMBING: Cold and hot water pipes—brass. Valves—Jenkins Bros.
HEATING: Two pipe steam system. Boilers—Brownell Co. Convectors—Trane Co. Stokers—United Stoker & Boiler Co., Inc. Thermostat control—Warren Webster & Co. Hot water heater—Taco Heaters, Inc.

Integration of Olentangy Village's dwelling facilities with its shopping center was accomplished by styling them both Georgian Colonial. Gateway to the Village is the shopping center itself. Although more elaborate in architectural detail than the apartment buildings, the shop fronts reflect commendable sign restriction (below, right). Note the stone fronted private entrance to second floor offices at the left of the store. Kitchens number 402, are serviced entirely by electricity, make the Village the largest all-electric project in the country.

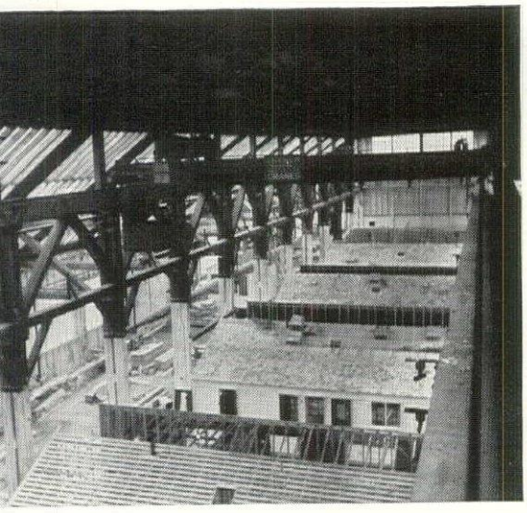
KITCHEN

ENTRANCE

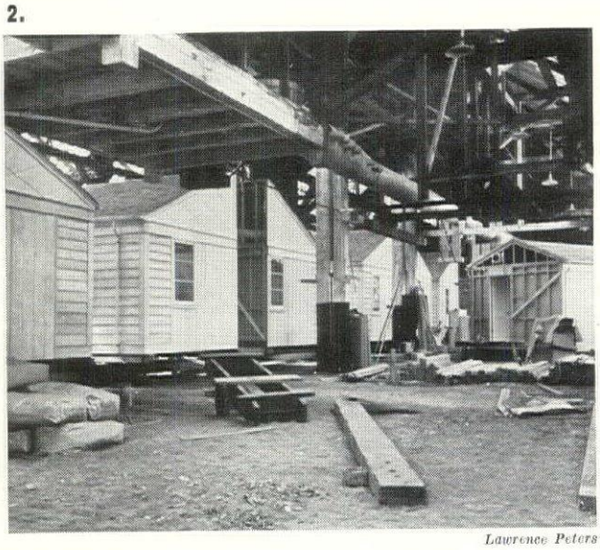
STORE BUILDING



1.

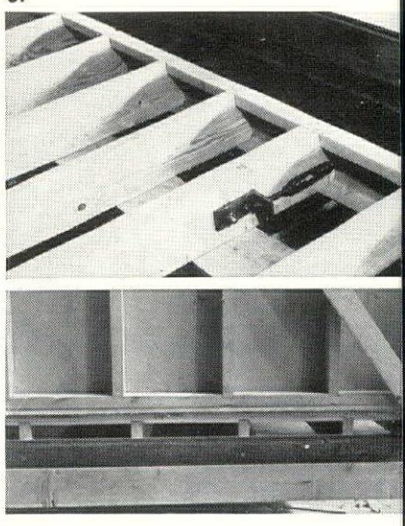


2.



Lawrence Peters

3.



HOME BUILDING GOES INDOORS, uses automobile and furniture construction tricks. A house a week at $2,980 f. o. b. Seattle.

THE automobile trailer excepted, most attempts at mobile housing have quietly followed the faltering footsteps of miniature golf and mahjong. But, just as quietly, a recent stab at mobile housing has been amounting to something. Today in Seattle, Wash. the General Housing Corp.† is pushing one complete house per week from its 300 ft. conveyor belt, is selling them even faster. Well-designed, well-built and priced at $2,980 f.o.b., these factory-fabricated, FHA-approved houses have earned a prominent place among Home Building's low cost products.*

Although too young to be judged an up-and-coming industrial concern (its factory has been in operation only five months, has produced eleven houses), General Housing Corp.'s construction technique, the quality of its product and its warm local reception make it worthy of examination.

Year ago the Corporation was only an idea in the fertile mind of 43-year-old George Wellington Stoddard, one of the Northwest's prominent architects and unsung designer of the "ideal American home" which the Federal Housing Administration chose to grace its first poster. Stoddard's idea was to supply sound housing for the low income group and to do it by paring construction costs through mass production, mass purchasing power and standardization. A more newsworthy aspect of that idea was that the houses be built in comparatively large units (of several rooms each) in a factory, then trucked to the site for assembly.

†Not to be confused with Howard T. Fisher's General Houses, Inc.—long-established Chicago prefabricator.

*Last month THE ARCHITECTURAL FORUM briefly described General Housing Corp.'s prefabricated house as one of the existing solutions to the low cost house problem (ARCH. FORUM, April, 1939, p. 286).

Before putting his notions on paper, however, Architect Stoddard solicited the woodworking experience of J. Donald Fuller, secretary and manager of a local millwork company, and the backing of a small group of Seattle business men headed by a local lumberman, Frank C. Reed. With the construction advice of Woodworker Fuller, Stoddard drew plans and specifications for his prefabricated, mobile house. With the financial aid of the business men, he formed the General Housing Corp. with Lumberman Reed as the No. 1 stockholder, and leased a vacant plant in south Seattle in which to operate.

Design. Profiting by the experience of mobile housing pioneers (ARCH. FORUM, July 1937, p. 53), Stoddard decided to build his houses of conventional frame construction (not of revolutionary copper panels as did Baltimore's Copper Houses, Inc.); further decided to build them in small enough parcels to be easily moved, but large enough to be quickly assembled (not in one 32 ft.-wide piece as did Peoria's R. G. LeTourneau, Inc.).

The basic four-room house is divided length-wise into two equal sections each measuring 12 ft. in width, 32 ft. in length. These halves are constructed individually —are not fastened together until they reach the site. A still larger house (five rooms and garage or six rooms) may be obtained by the simple addition of one-room units to either or both ends of the basic plan.

In exterior treatment, the house is equally simple. Variation in appearance from that pictured opposite is obtained by minor changes in fenestration (corner windows, for instance), floor plans and entrance details. Also, shifting the front door to the end of the house, makes the plan readily adaptable to a narrow lot.

Production. More significant than its design, however, is the construction and production of the Stoddard house. The 300 x 110 ft. plant of General Housing Corp. is undoubtedly the closest thing to a house factory that the U. S. has seen. And, put together like furniture, the houses are undoubtedly better built than most houses in their price bracket—even better built than many in higher brackets.

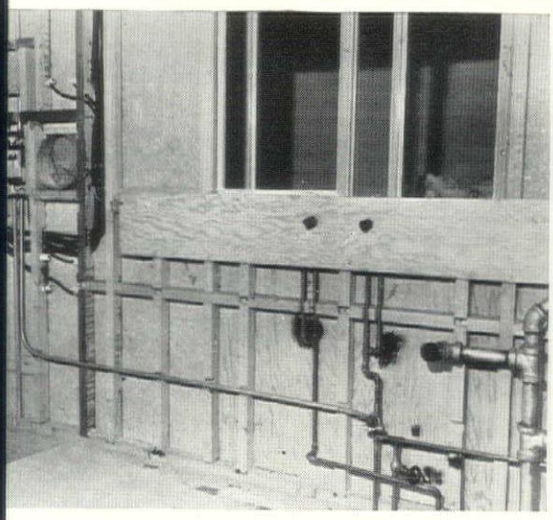
Costs are minimized by ordering all stock to specifications, thus doing away with cutting and fitting in the plant. And, of course, factory fabrication itself is a prime cost saver. It permits the widespread use of jigs and power equipment, eliminates much of the craft union inefficiency and interference prevalent in field operations (especially in Seattle).

Construction in General Housing Corp.'s plant follows closely the production-line system of the automobile industry. In this case two steel rails laid 20 ft. apart comprise the conveyor belt. The house sections are started on steel wheels at one end of the track, are pushed through six operation stations and a week later roll off the other end complete in every detail and ready for delivery to the site.

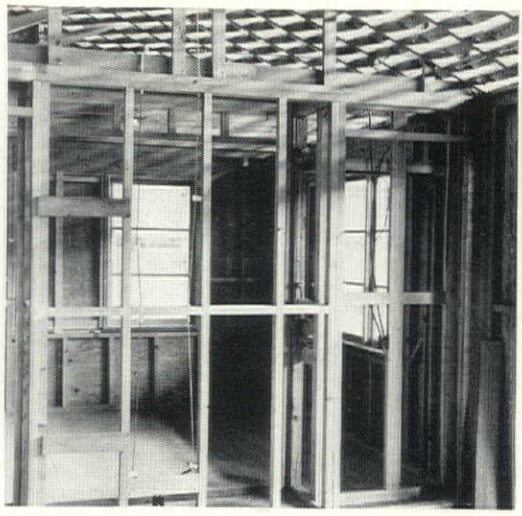
First operation on this production line is formation of the floor section which takes place on a bed formed by two 32 ft. 6 x 6's resting on the wheels perpendicular to the tracks. Atop these 6 x 6's are laid steel angles of the same length drilled at every joist position (16 in. on centers). Floor joists are then dropped into position, aligned with a jig and secured to the steel angles with electric screw-drivers. (The reenforcing properties of these long steel angles fortify the frame for transportation and prevent "center sag" sometimes found in low cost houses.)

Where the two halves of the house are to be joined, 2 x 4's are dadoed into the floor joists and two turnbuckles, which

4.



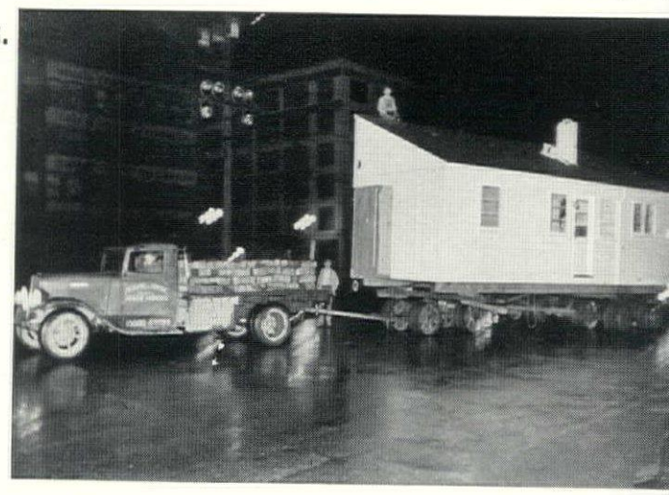
5.

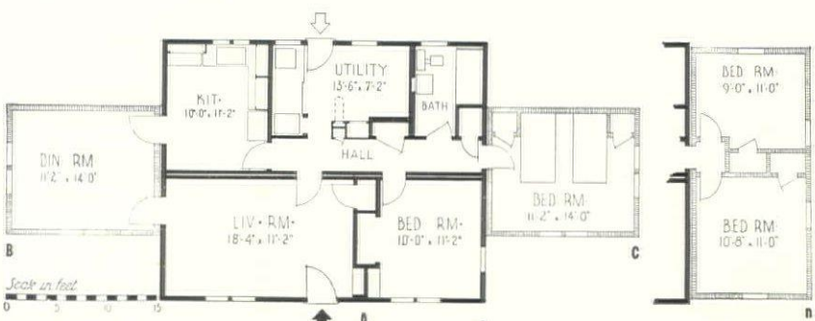


6.

1. Bird's-eye of General Housing Corp.'s seven-house production line. 2. Nearly complete, these houses are ready for insulation. "Addable units" are built in the factory's bays. 3. (Upper picture) a turnbuckle secured to a double joist will pull the house-halves together. (Lower picture) Joists are aligned by and screwed to 32 ft. steel angle piece. Note dadoed frame construction. 4. Pre-assembled electrical and plumbing equipment fits handily into notched structural members. 5. Interior ready for dry wall finish. 6. Abutting walls are finished only on the interior, require no insulation. Note wheel and track of production line in foreground, heating duct connection in attic. 7. A completed house-half moves out at night on two four-wheeled dollies. 8. The halves are pulled together, make a house 24 ft. wide, 32 ft. long. A demonstrator, this house has no foundation.

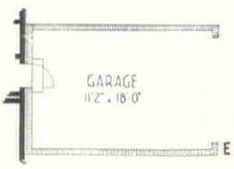
7.



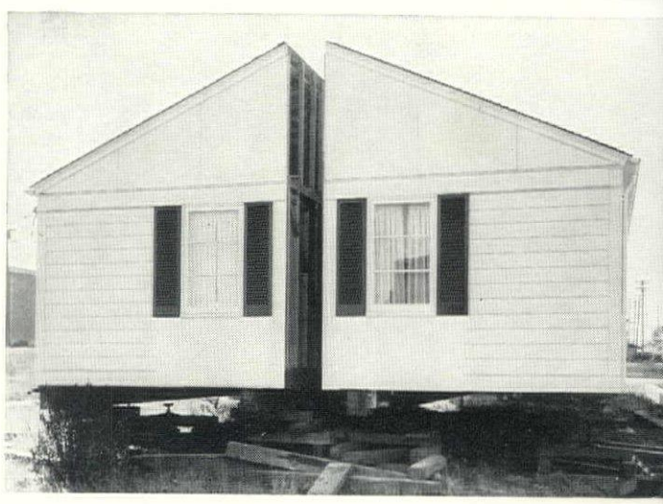


COSTS:

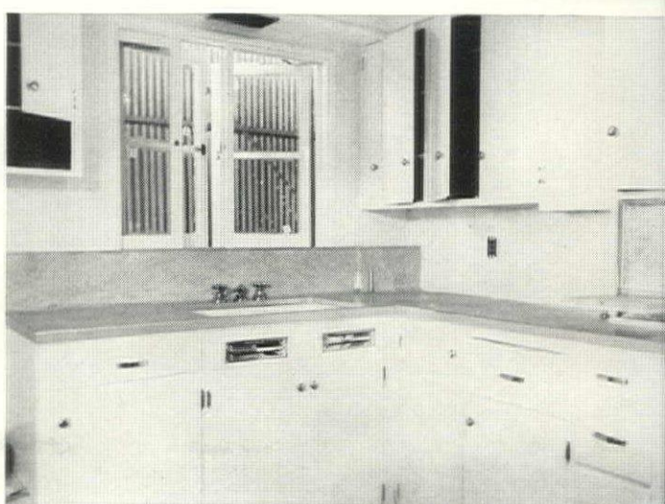
BASIC UNIT	A	$2,980
ADDABLE UNIT	B	425
	C	450
	D	705
	E	235



8.



HOUSE with addable units B and C



KITCHEN

Lawrence Peters, Webster & Stevens

will eventually pull the house together, are bolted to double joists. Final step at the first station is application of the sub flooring—panels of ¾ in. five-ply plywood measuring 4 x 8 ft. and coated on the under side with a resin-base paint.

At station No. 2 the house sections are framed. But, unlike conventional construction methods, all exterior walls and partitions are built in a horizontal position using the completed floor sections as level worktables, are then raised into position. Also unlike conventional home construction, all structural members are coated at their joints with casein glue, clamped in place and finally nailed. Even the face of each stud is covered with glue before the 5/16 in. plywood sheathing is applied. Rigidity of the frame is further accomplished by dadoing all studs, joists and rafters into the plates. Claim is that due to these adaptations from furniture manufacture, the resultant house is earthquake resistant.

At the next station along the production line, building paper and cedar drop siding is applied to the exterior, cedar shingles to the roof. Door frames, exterior trim and chimney hangers are also put in place. At the same time the company's plumbers and electricians install their preassembled roughing-in material.

After the latter has been inspected by city officials, the house sections move to station No. 4 where all ceiling and exterior walls are insulated. Partitions and interior walls are surfaced with wallboard, doors and windows are hung, and all interior trim, hardware and finish flooring is provided. Particularly noteworthy are the screens which are also installed at this station. Called "Slide-Way" and patented by Woodworker Fuller, they are located inside the wood casement windows and slide into the wall cavity when not in use.

At station No. 5 the house is completed. The operation includes installation of plumbing and electrical fixtures, laying of linoleum, all sheet metal work and painting. General Housing Corp.'s painters use a specially prepared and reputedly better material than can be used for field application. Reason: General Housing's painting is done under the controlled "weather conditions" of a factory.

Also at station No. 5, the chimney which has been cast previously in sections (tile flue lining surrounded by 4 in. of reenforced cinder concrete) is put together. Heat ducts, previously installed in the attic, are insulated and connected with the heating unit. The latter may be either gas or oil fired and is equipped with fans, filters and humidifiers.

After installation of kitchen equipment and application of other finishing touches, the two house sections are finally moved to station No. 6. At this point they are completely finished and ready for immediate purchase and occupancy.

Delivery. Transportation of the house sections from factory to site follows much the same procedure as does ordinary house moving; but, since the sections are tailor-made for moving, the operation is without the usual headaches. House sections are jacked up at the end of the production line, placed on two 12 x 12's which are in turn supported by two four-wheeled dollies. In trailer-like fashion the section is then hitched to a truck, pulled to the site.

Since width of the "trailer" is 12 ft. (4 ft. over the legal limit for the State of Washington), a special permit must be written for each shipment. However, height of the "trailer" just clears by 1 in. the minimum bridge headroom set by

(Continued on page 36)

THE CONCRETE BLOCK

takes steps toward standardization. A new production method.

BUILDING'S ugly duckling, the concrete block, has long been struggling to turn into an architectural swan, and has lately shown signs of succeeding. Used for many years in garages and other prosaic structures, it has blossomed out with new surfaces, new shapes and has aroused new interest in its design possibilities. But like so much of Building's complex structure, the manufacturer of concrete blocks is still in the duckling stage—produced most often by small, local, uncoordinated units.

There are 6,600 manufacturers of concrete blocks throughout the country, a phenomenal number justified by the fact that it is uneconomical to ship blocks long distances. Most of them are located beside sand pits convenient to a highway, and serve only local needs. Results of these handicraft methods are: 1) local variations in shapes and sizes, and 2) lack of uniform quality.

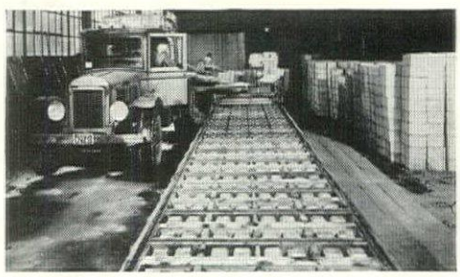
Month ago, however, a newsworthy company was organized for the ambitious purpose of streamlining the industry through block standardization, not by producing blocks itself but by marketing patented manufacturing equipment. Its program would, therefore, be built upon the existing manufacturing structure. As the sponsor contends that the process will produce concrete structural shapes of uniform quality, each local producer will market the product under a uniform name —"Cemenstone." In addition, widespread adoption of the process would result in greater uniformity of shapes. The equipment will produce standard concrete units related in design to standard steel elements, will thus facilitate their integration. The proposed system has the important advantage that a wide latitude of shapes can be produced with the basic equipment—as contrasted to the existing necessity of having different molds for every variation in shape.

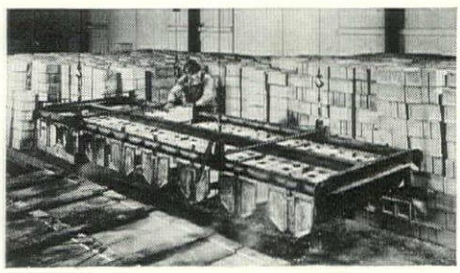
Among the products which can be manufactured, besides various shaped blocks, are channel slabs, concrete planks, insulating tile, veneering, curbs, sidewalks, and fence posts. Also, a wide variety of integral finishes can be applied.

Technique of "Cemenstone" manufacture is based on three principles—mass production, vibration and heat. Equipment is so organized that the cycles of manufacturing proceed continuously and can produce several shapes in one operation.

The new equipment consists of special molds contained in a heavy steel framework that rests over a steam chamber capable of maintaining the temperature at 160° Fahrenheit. The mix is fed into the molds by a hopper riding the framework. While it is curing, the concrete is agitated by vibrators which produce a dense and uniform texture and speed hardening. They also move along the steel framework.

Behind "Cemenstone" is the newly organized Cemenstone Corporation, which has as its chairman President W. P. Witherow of the Blaw-Knox Co., as its president Leslie M. Johnston, former vice president and general manager of A. M. Byers Co. Originator of the method, experienced construction superintendent Albert Henderson, is consulting engineer. Since the first company to manufacture "Cemenstone" has only recently gone into operation, it remains to be seen how the product and production principles will affect the industry. Fact remains, however, that Cemenstone represents a step toward much-needed standardization.



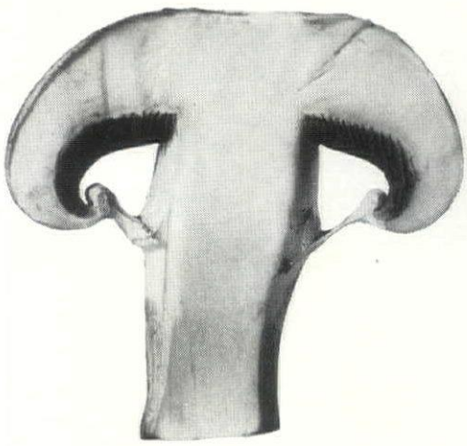


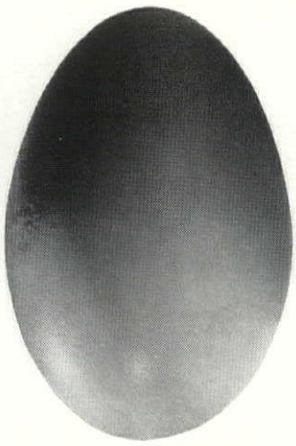
Manufacture of "Cemenstone" concrete blocks and other shapes proceeds with factory finesse. A pouring spout and vibrator ride atop a steel-framed mold (left). Vibration of the mix hastens setting, permits early removal of the forms, and thus continuous operation. Steam vats under the molds also contribute to production speed by stepping up the chemical reaction. When set, the blocks are removed for aging (right) which takes place under cover to keep quality constant.

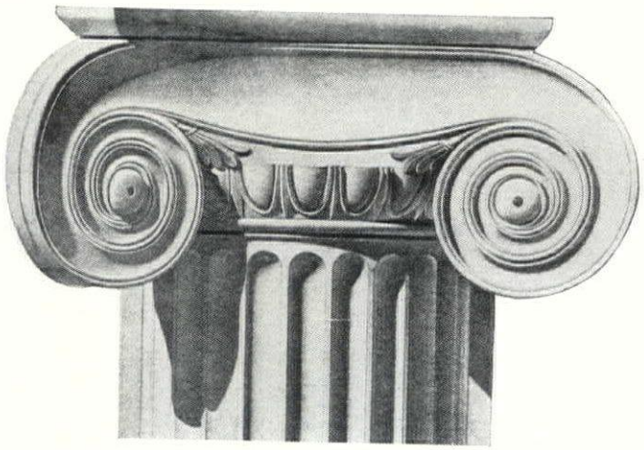
OZENFANT

UPON BEAUTIFUL FORM OR DO YOU LIKE

Mushrooms? **Eggs?** **Snails?**







This mushroom is not bad → but art often does better than nature

Too much incense and too much nonsense have left us almost unable to say what the word "beauty" means.

Besides, the word beauty has been so often misused in unworthy associations, that most intelligent people hesitate to use it at all.

However, if there are forms which appear beautiful to us we must believe that there is such a thing as beauty.

Mr. But: But no two men are alike so beauty must be a relative term.

—Men are not alike, not quite alike, but much more alike than different. Proof: Have you noticed in the country, in the mountains, in the woods, at the seashore, where there are millions of flowers, plants, stones and shells of all kinds, everyone picks the same flowers, fills his pockets with the same stones and the same shells: the beautiful ones.

Mr. But: But why?

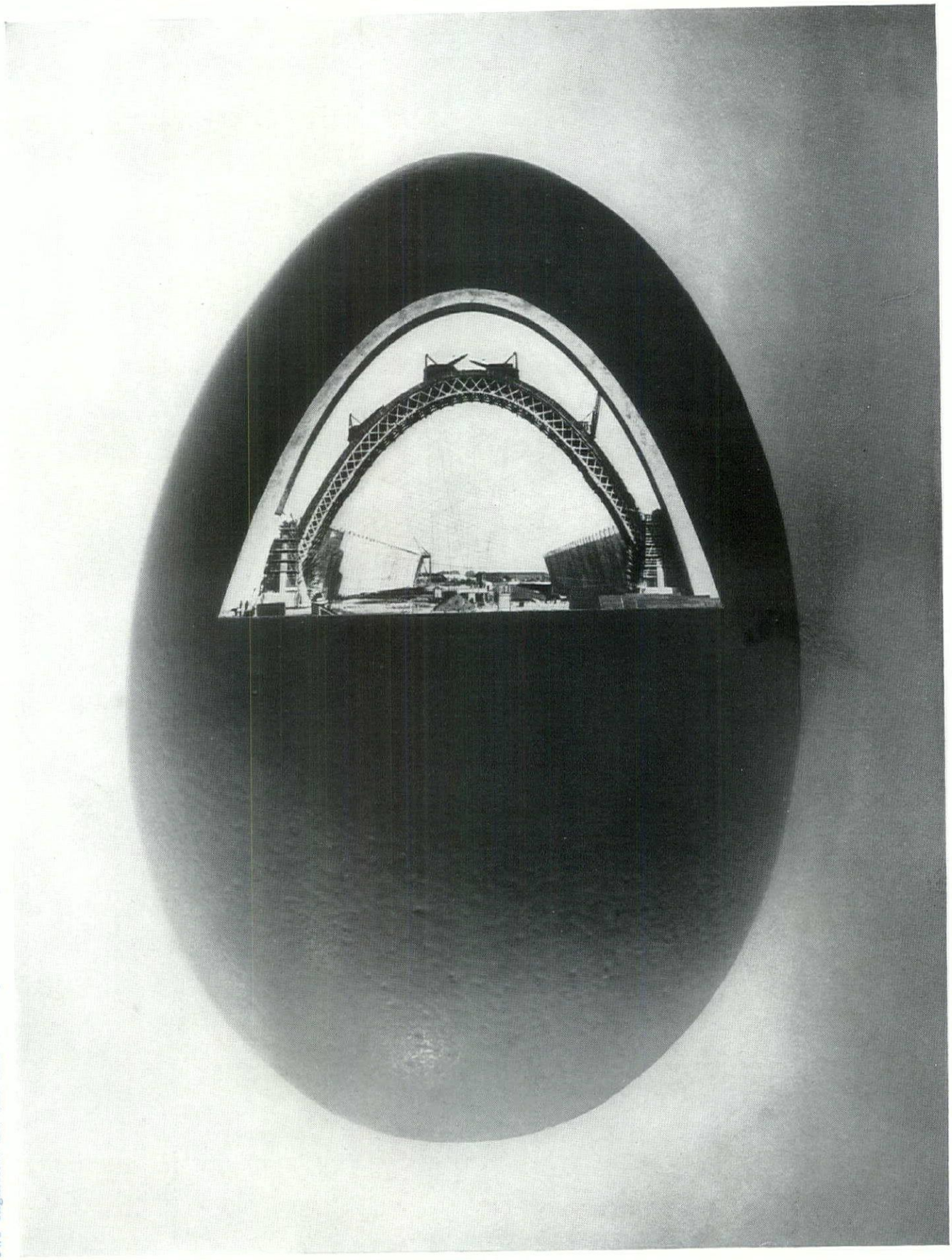
—Because everyone feels a need for beautiful forms, a basic human need. The artist's role in society: to produce beautiful forms. Beautiful art is made of forms for which we feel an instinctive need.

Mr.But: But we sometimes collect monstrosities; curiously ugly objects.

plus MAY 3

Editors: Wallace K. Harrison, William Lescaze, William Muschenheim, Stamo Papadaki, James Johnson Sweeney. Typography and layout: Herbert Matter.

NATURE AND THE ENGINEER



Two engineers: the hen and Mr. Freyssinet. (Hangar of Orly)

—Certainly: there is also art in ugliness, very fashionable today. It gets its strength simply from running counter to our normal desires. But all the great expressions in art, the Sumerian, the Egyptian, the architecture of Greece and Rome, certain examples of contemporary architecture and good Negro sculpture are based on the satisfaction of our need for beautiful forms.

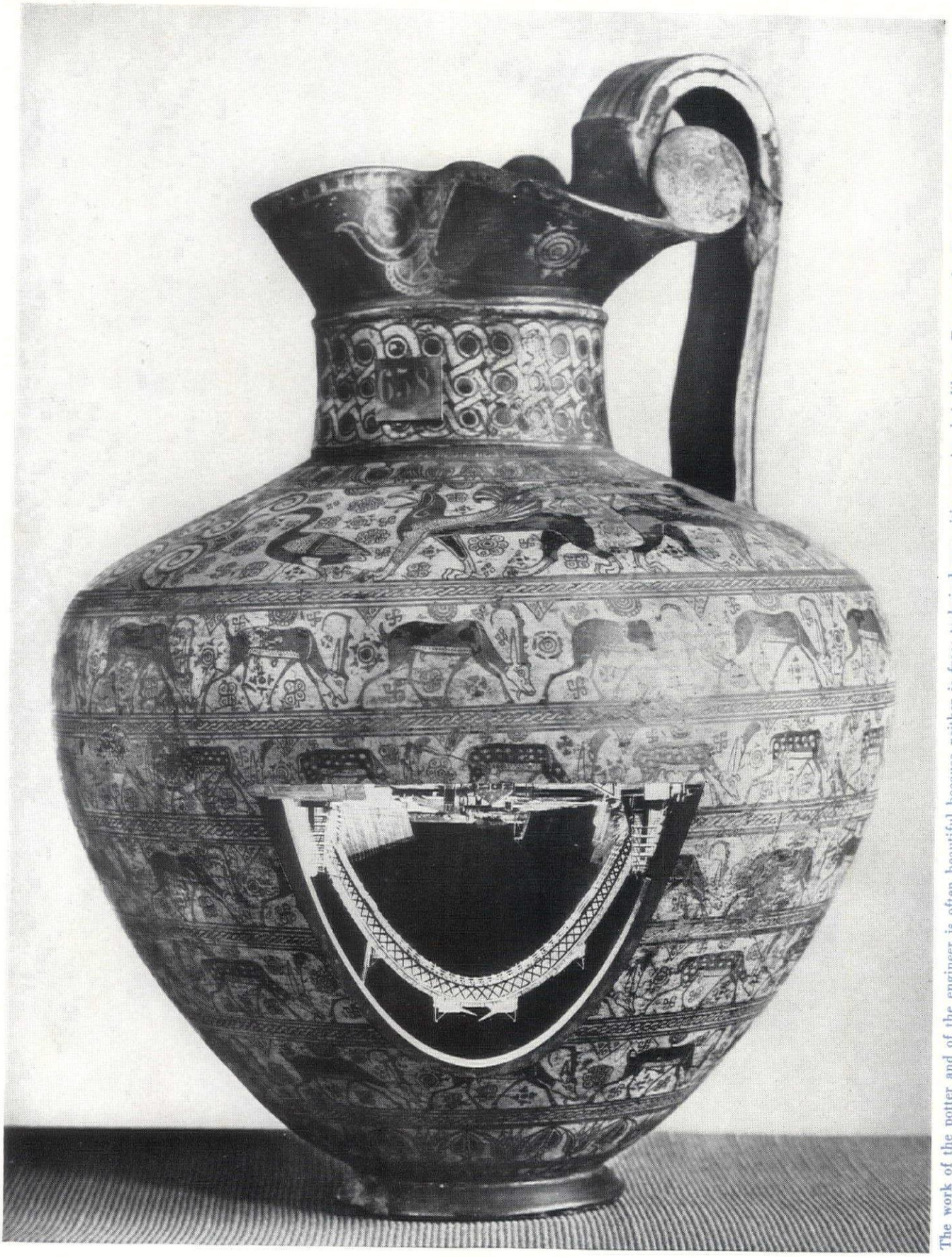
Mr. But: But this means that beautiful forms are beautiful if they answer normal, natural desires in us?

—Yes. These desires are the bases of the great art in all periods in all places.

Mr. But: But how do we recognize a beautiful form?

—By looking at it. There are beautiful forms and ugly forms as there are good odors and bad odors. To be sure, certain depraved tastes enjoy ugly sights and nasty smells. To test the quality of a form, you need only ask yourself if you would be tempted to pick up a shape of this sort at the seashore—if you would want to put it in

THE ENGINEER AND ARTIST

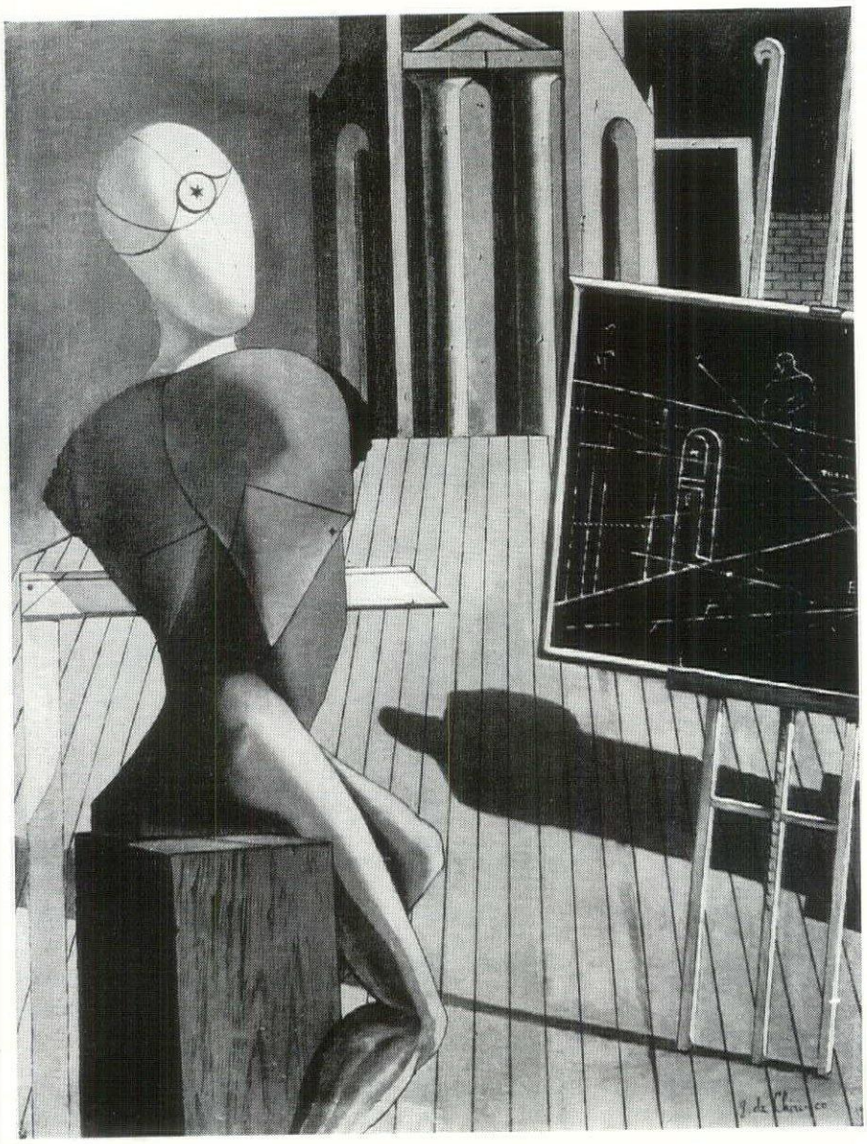


The work of the potter and of the engineer is often beautiful because neither is free: technical necessities restrict their liberty. Fortunately. For the abuse of liberty leads to anarchy of "forms," consequently to anarchy in the work itself.

your pocket. If these facts, simple as they are, were always kept in mind, a real step toward the understanding of art would be made: the most beautiful works of art are a result of the symphonic organization of beautiful forms. And a beautiful form is a beautiful form no matter how it was produced—by nature, or by the artistic or mathematical imagination.

I do not ask the snail, or the genie of the mushroom, the hen, and Mr. Freyssinet if they are artists—they satisfy my need for beauty. The rest is merely a question of title. Forms that express resistance, tension and growth are usually beautiful; they make us feel the functioning of forces, and forces are nature. The form in nature expressing resistance (the egg), or growth (the snail), or the same forms employed in painting or sculpture, no matter what "body" they make a part of, have the power to put us in communion with nature by making us feel and understand its functioning, its life.

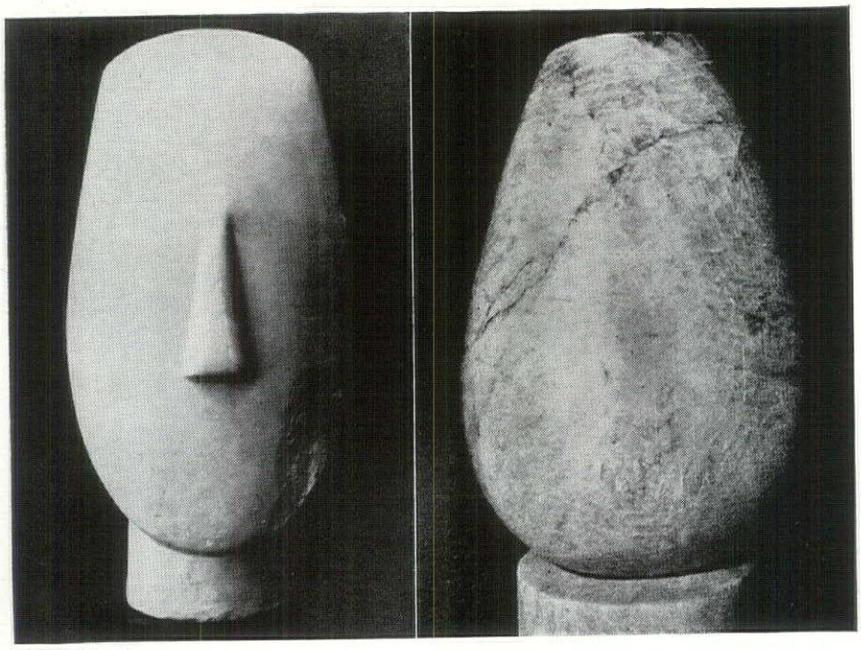
THE EGG-THEME IN ART: EXAMPLE



Chirico 1917.

WHY HAVE ARTISTS CHOSEN THIS THEME?

1st. BECAUSE THE EGG-FORM IS A BEAUTIFUL FORM.
2nd. BECAUSE MAN HAS AN INSTINCTIVE LONGING FOR COMPLETENESS. AND THE EGG-FORM SATISFIES THIS NEED: IT GIVES US A FEELING OF THE COSMIC TOTALITY.



Cycladic sculpture, bronze age.

Brancusi 1922.

LITANY

THERE ARE UGLY IDEAS AND BEAUTIFUL ONES.

THERE ARE UGLY ACTS AND BEAUTIFUL ONES.

THERE ARE PLENTY OF UGLY PICTURES AND SOME BEAUTIFUL ONES.

THERE ARE UGLY WOMEN (TOO MANY) AND BEAUTIFUL ONES.

THERE ARE UGLY MACHINES AND A FEW BEAUTIFUL ONES.

THERE ARE MANY UGLY MACHINE-MADE OBJECTS AND SOME VERY BEAUTIFUL ONES.

THERE ARE MANY MORE THINGS STILL, NEITHER UGLY NOR BEAUTIFUL: NIL.

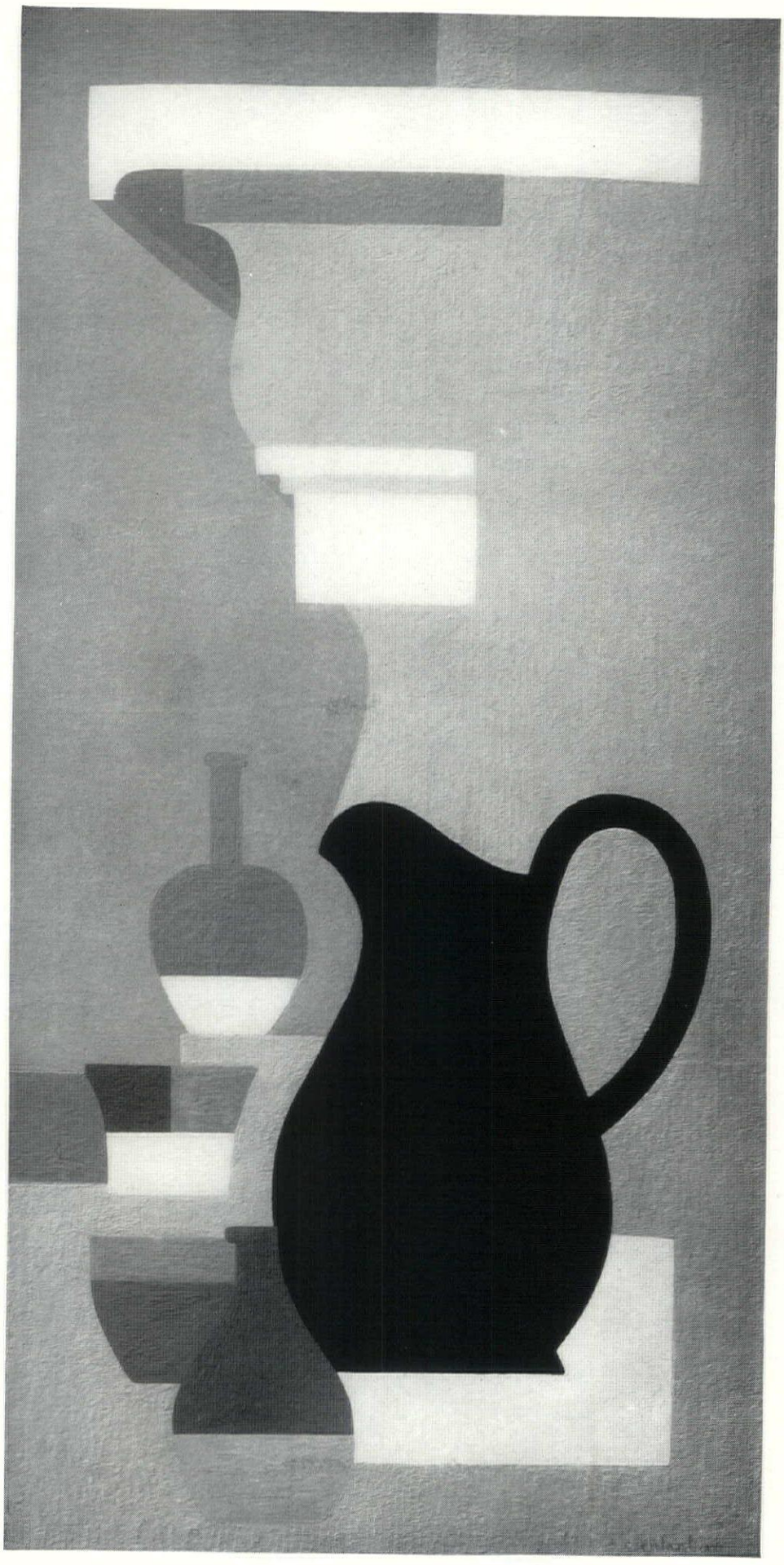
OF A GENERATIVE THEME FORM

WHAT IS ART?

A WORK OF ART OUGHT TO BE DETERMINED BY AN ELEMENTARY FORM-LAW, A SORT OF PRIME GENERATIVE CELL WHICH GIVES A WORK ITS ORGANIC EXISTENCE—GIVES IT CHARACTER. THAT IS WHY WORKS OF NATURE, OR OF OUTSTANDING ENGINEERS APPEAR TO HAVE SOMETHING IN COMMON WITH WORKS OF ART. THEY ARE ORGANIZED BY THE TECHNICAL REQUIREMENTS OF CONSTRUCTION. THAT IS TO SAY THEY ARE DETERMINED IN THE FIRST PLACE BY A MATHEMATICAL FORM WHICH IS EVENTUALLY TRANSLATED INTO A "MATERIAL" FORM.

BUT ONE DUTY OF ART IS TO BRING VARIETY INTO UNITY WITHOUT DESTROYING ANYTHING OF THE UNITY: THEME AND VARIATIONS. TRUE FOR ALL ART IN ALL PERIODS.
IF HUMANITY HAS CHANGED, IT HAS CHANGED VERY LITTLE IN ANYTHING THAT CONCERNS ITS SENSIBILITY AND ARTISTIC PSYCHOLOGY: THE PROOF IS THAT EVEN PREHISTORIC WORK OF ART GIVES US SATISFACTION. THIS CONSTANCY IS VERY FORTUNATE; WITHOUT IT ART WOULD BE MERELY A FASHION—GOOD ONLY FOR ONE SEASON. ART ON THE CONTRARY PLAYS OVER A KEYBOARD OF HUMAN CONSTANTS.

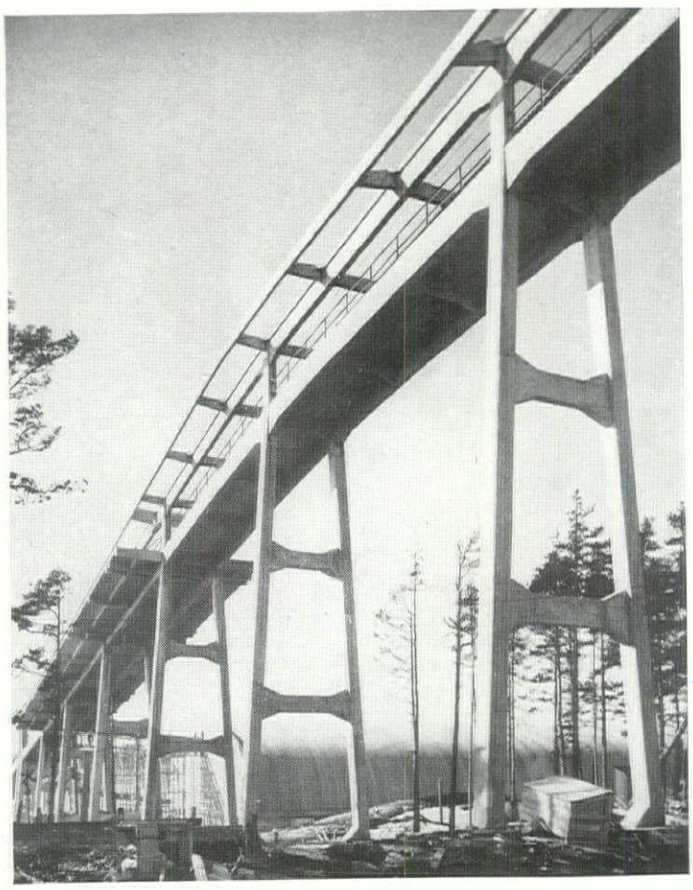
THERE ARE TWO KINDS OF ENGINEERS:
1st THOSE WHO ARE SATISFIED TO EMPLOY A USEFUL FORM.
2nd THOSE WHO ARE ABLE TO INVENT A FORM AS BEAUTIFUL AS USEFUL
—YOU MEAN THAT A GREAT ENGINEER SHOULD ALSO BE AN ARTIST?
—YES. AND AN ARTIST OUGHT ALSO TO BE AN ENGINEER. THE MORE, THE BETTER

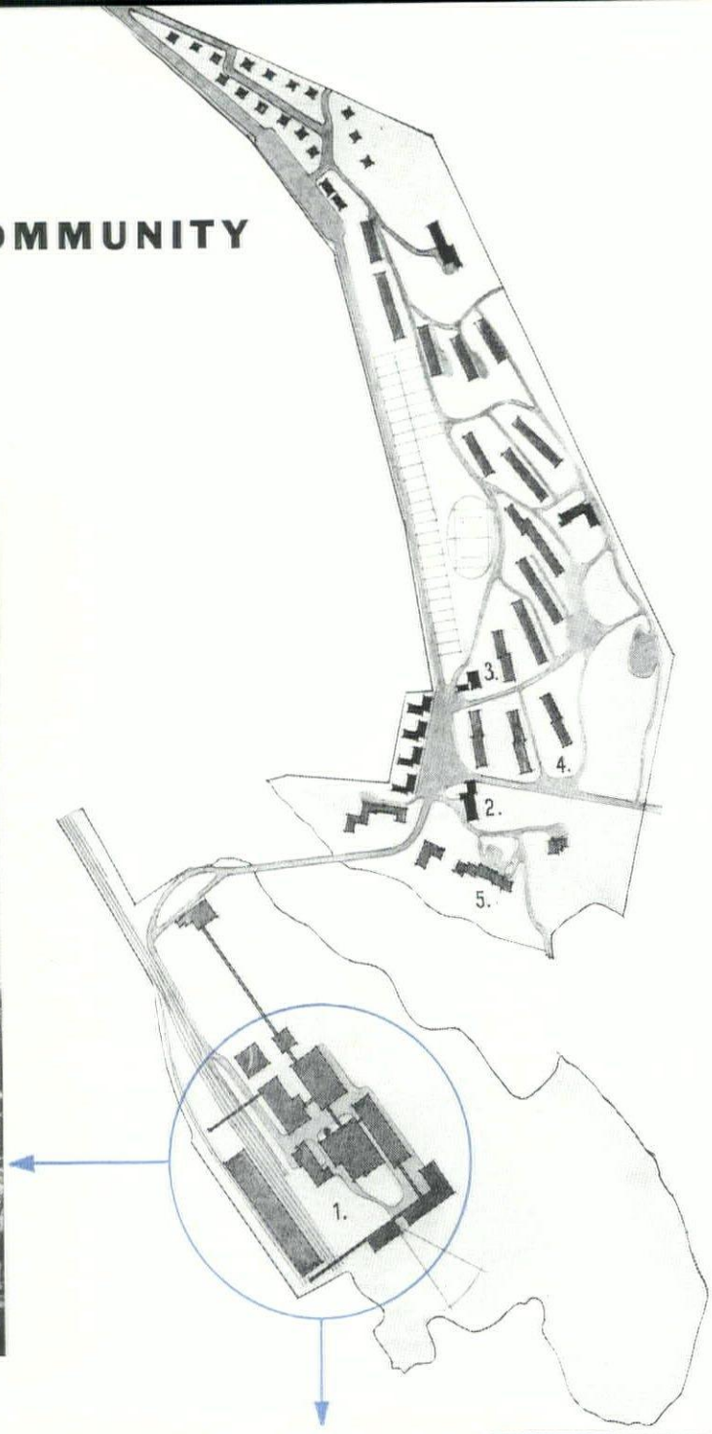


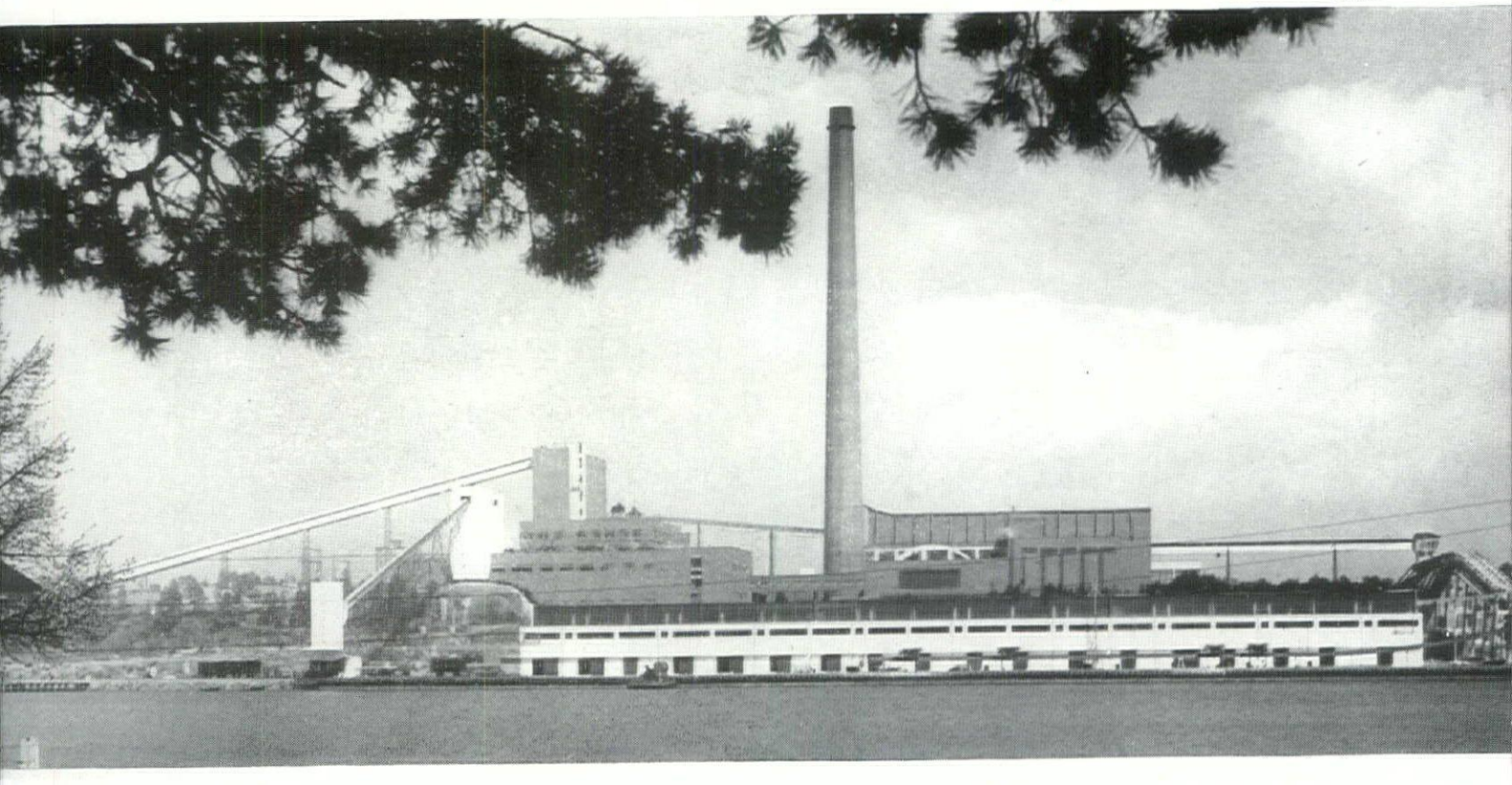
MURAL PAINTING BY OZENFANT (1926), OR "FIND THE EGGS."

SUNILA: FACTORY AND COMMUNITY

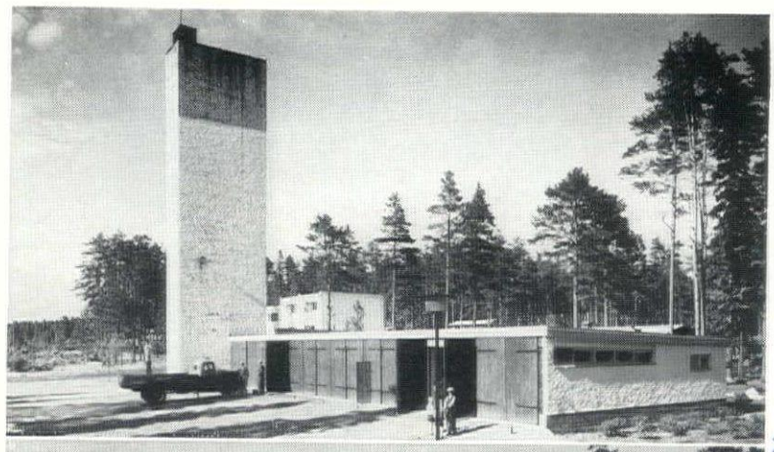
By Alvar and Aino Aalto



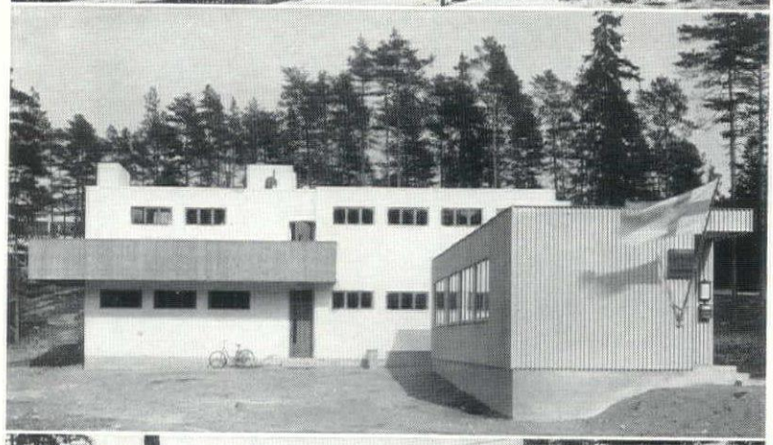




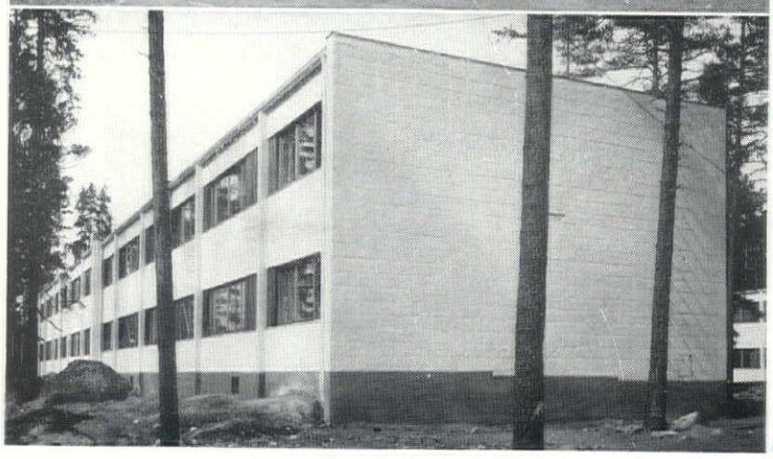
The Sunila pulp mill (1) is on the island of Poytinen, in the south of Finland, at the head of the Kymi river, down which timber is floated from many central waterways. The factory buildings, mostly of reenforced concrete, house the process of cleaning, cutting the wood, pulping and rolling. A power house, a chemical plant and the administration building complete the unit.
The entire housing of managers, engineers (5), foremen and workers (4) is on the mainland where a central heating station (2), Finnish baths (3) and a shopping center are provided. The foremen and workers are housed in two-story buildings, located in groups on high, rocky ground, overlooking low land given to individual gardens. Each building contains 24 two- and one-room units.



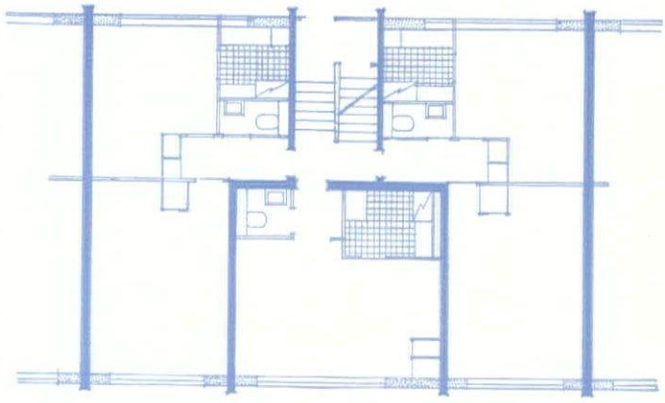
2



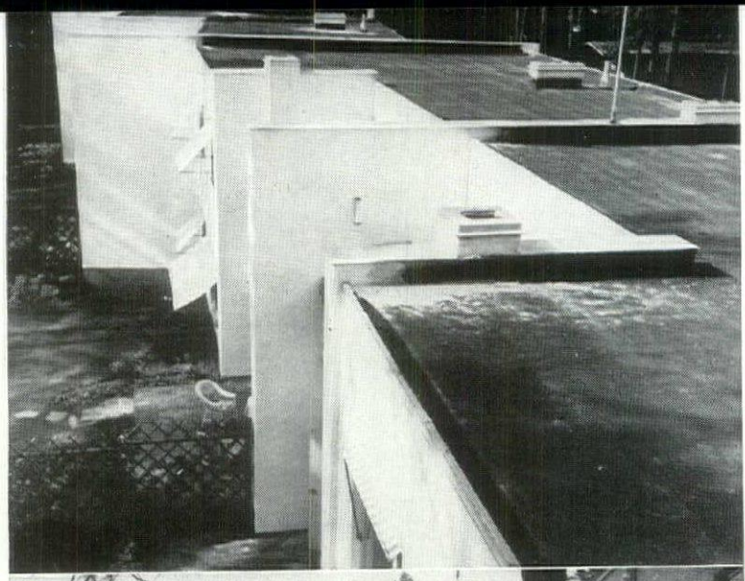
3

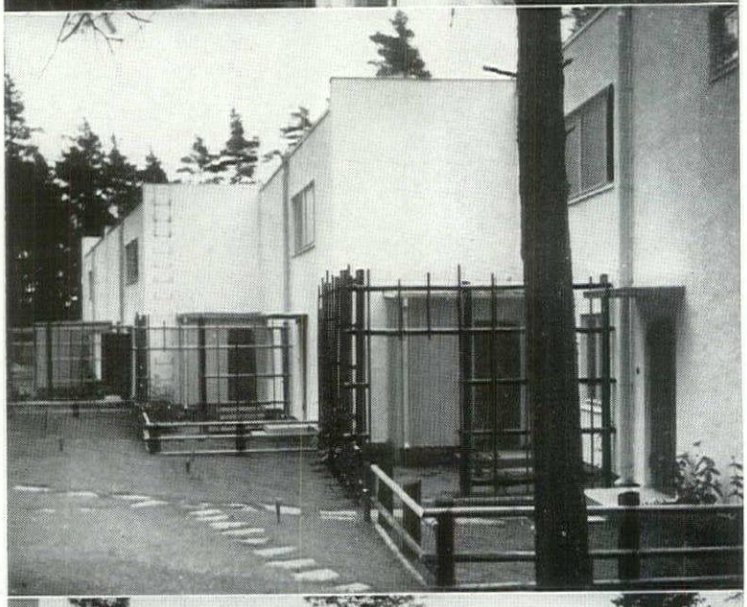


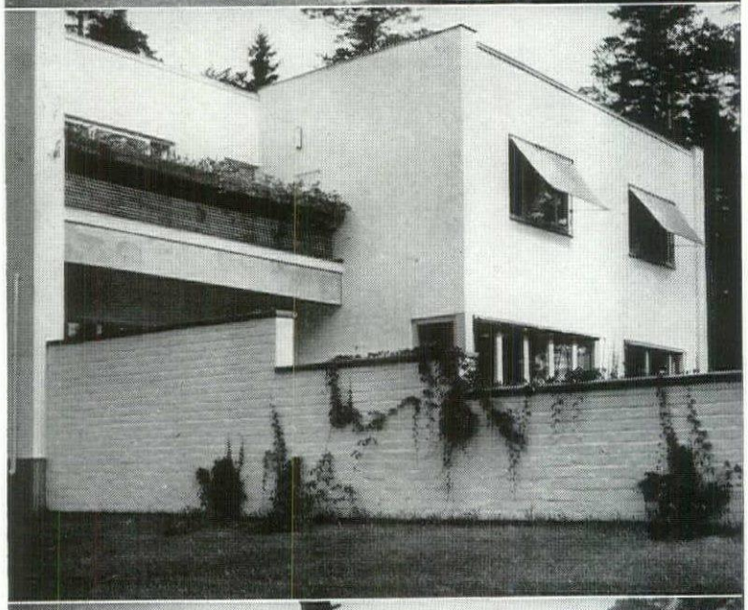
4

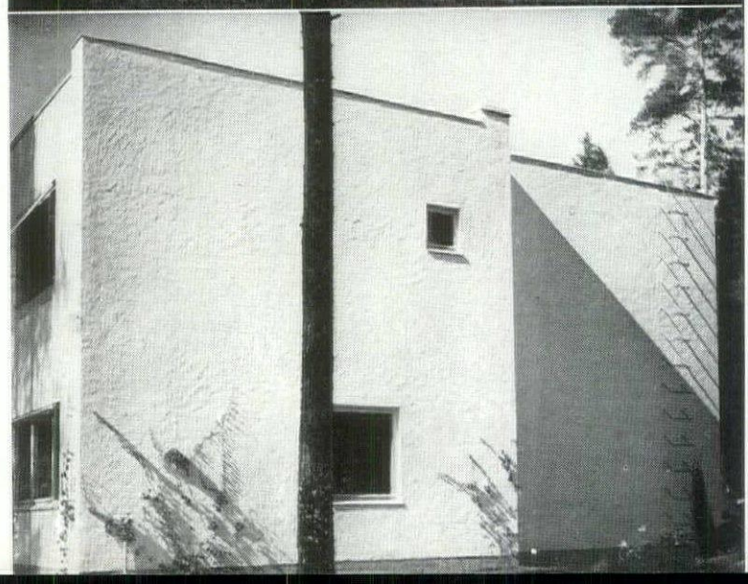


4

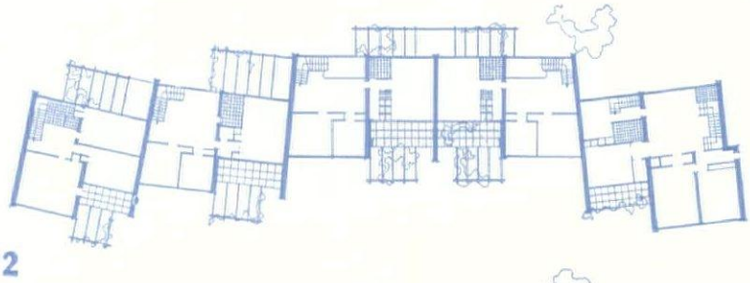




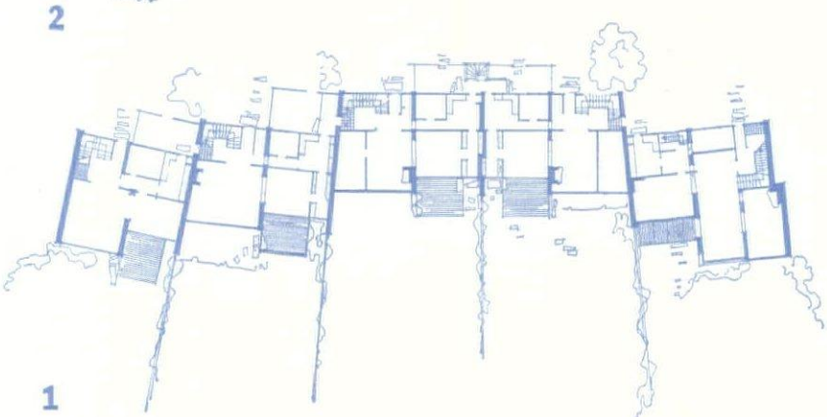




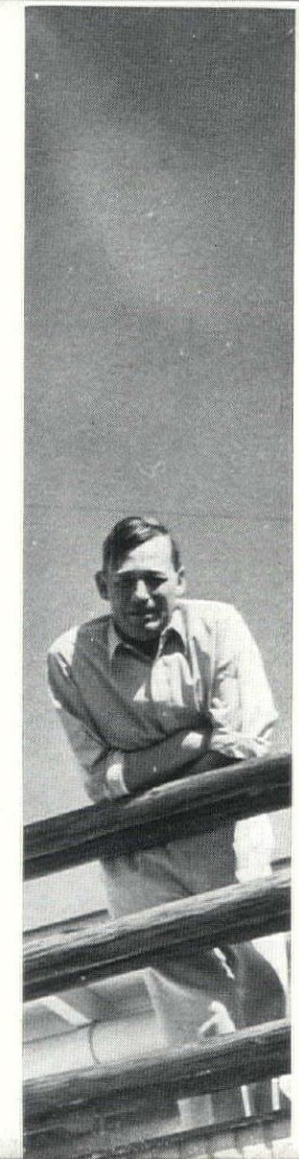
Five row-houses for the engineers, covering 13,068 sq. ft., are planned to provide a maximum view and privacy. Each house has a small vegetable garden near the entrance and an enclosed lawn at the rear. The construction here is the same as in the workers' houses: bearing party walls and frame exterior walls.



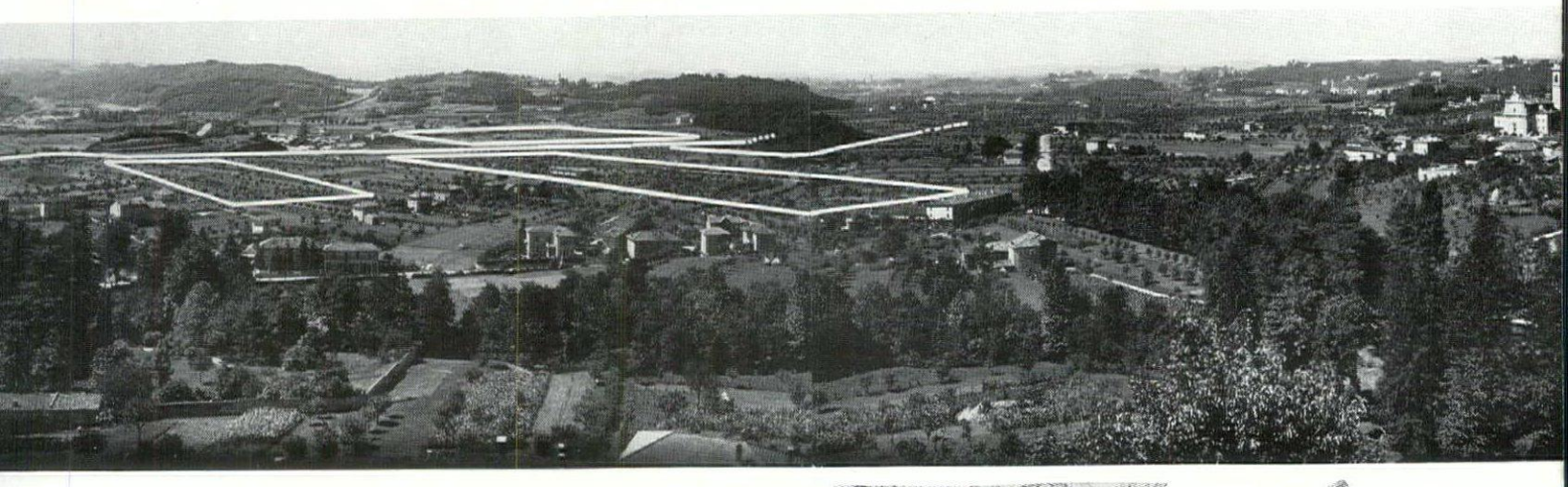
2



1

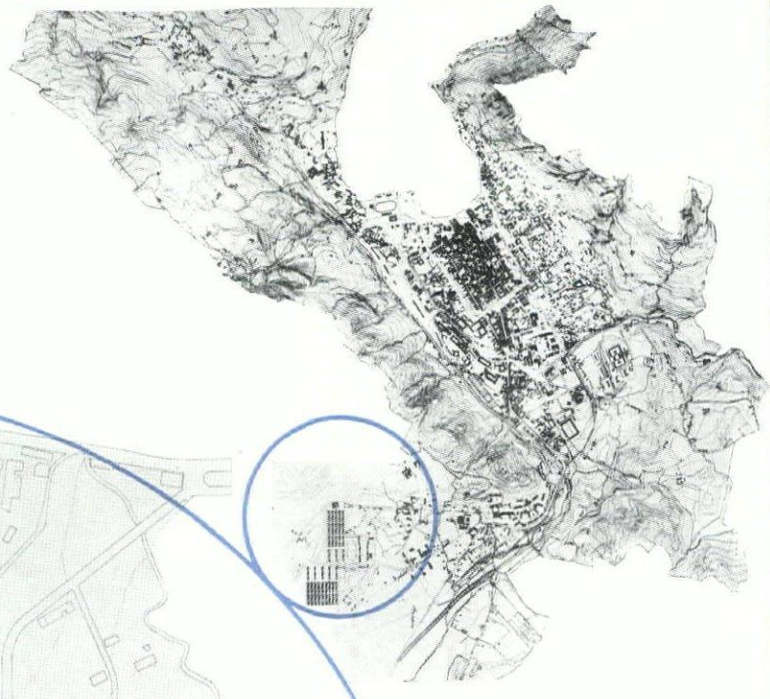


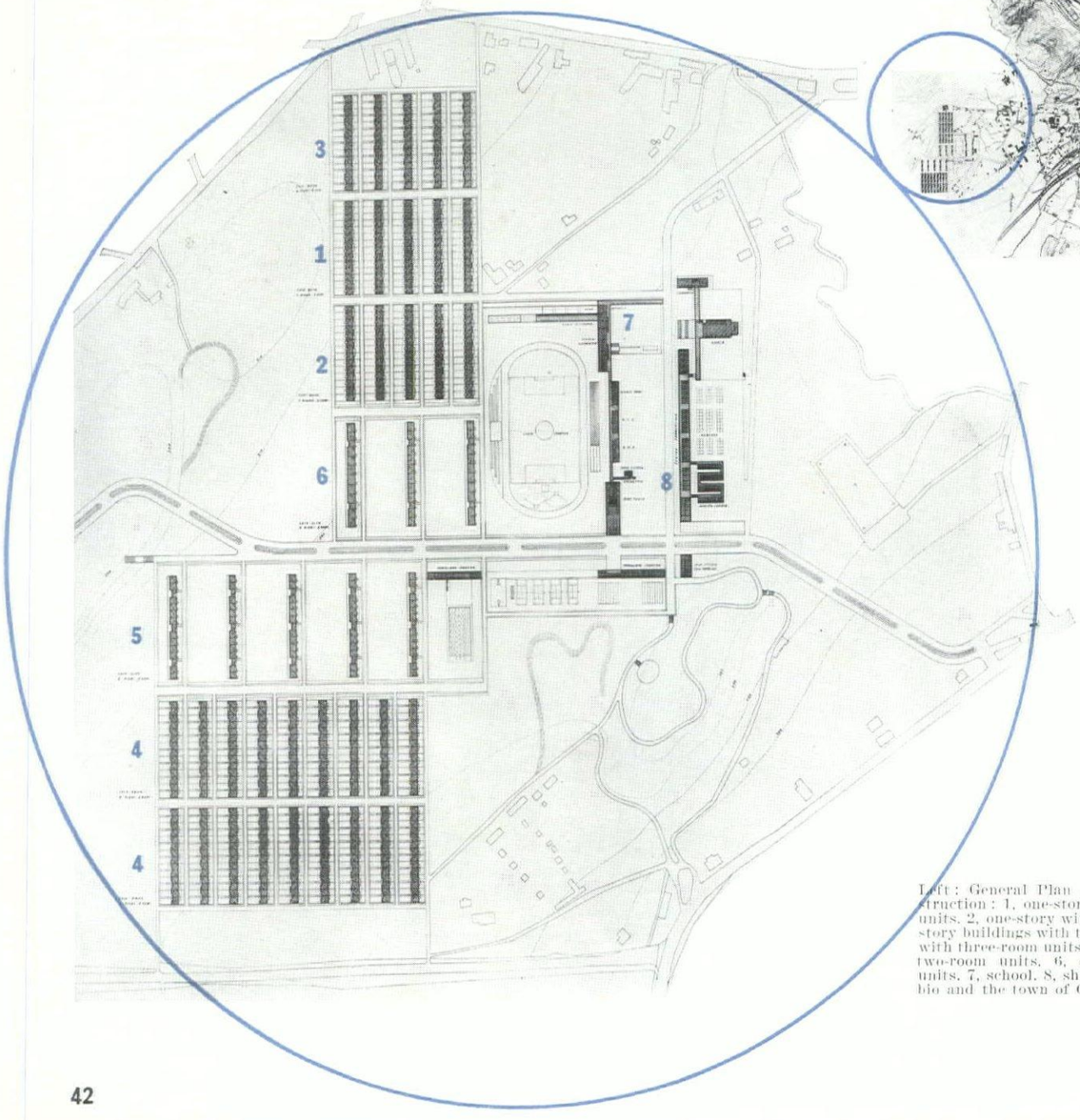
The architect Alvar Aalto



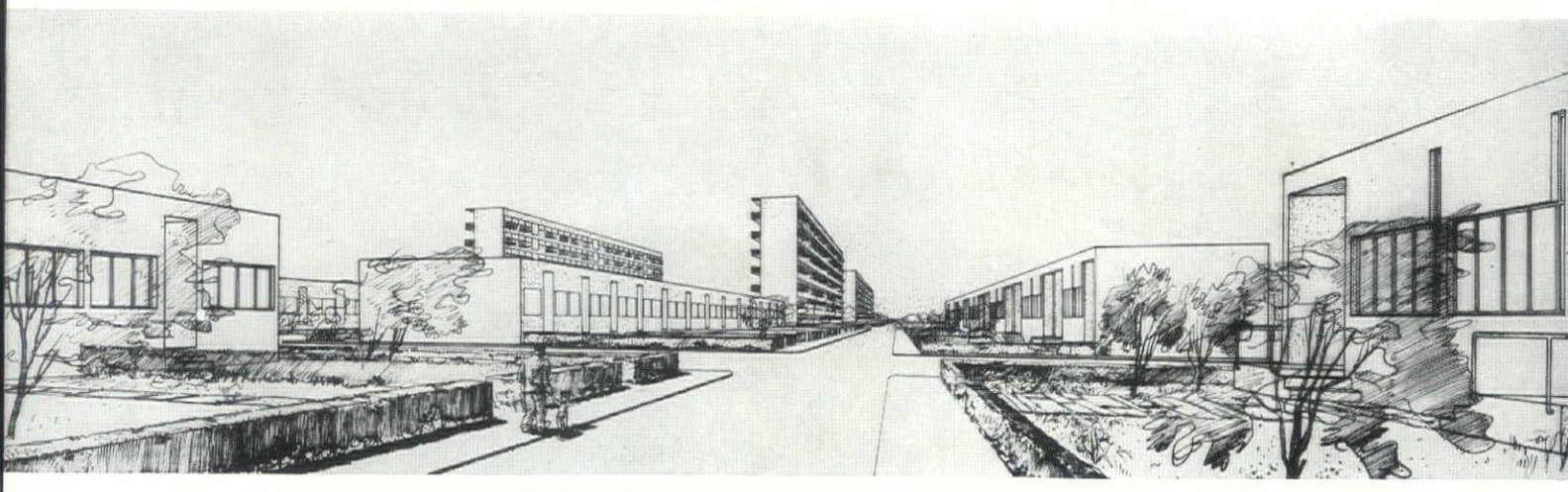
REBBIO A SATELLITE TOWN FOR INDUSTRIAL WORKERS

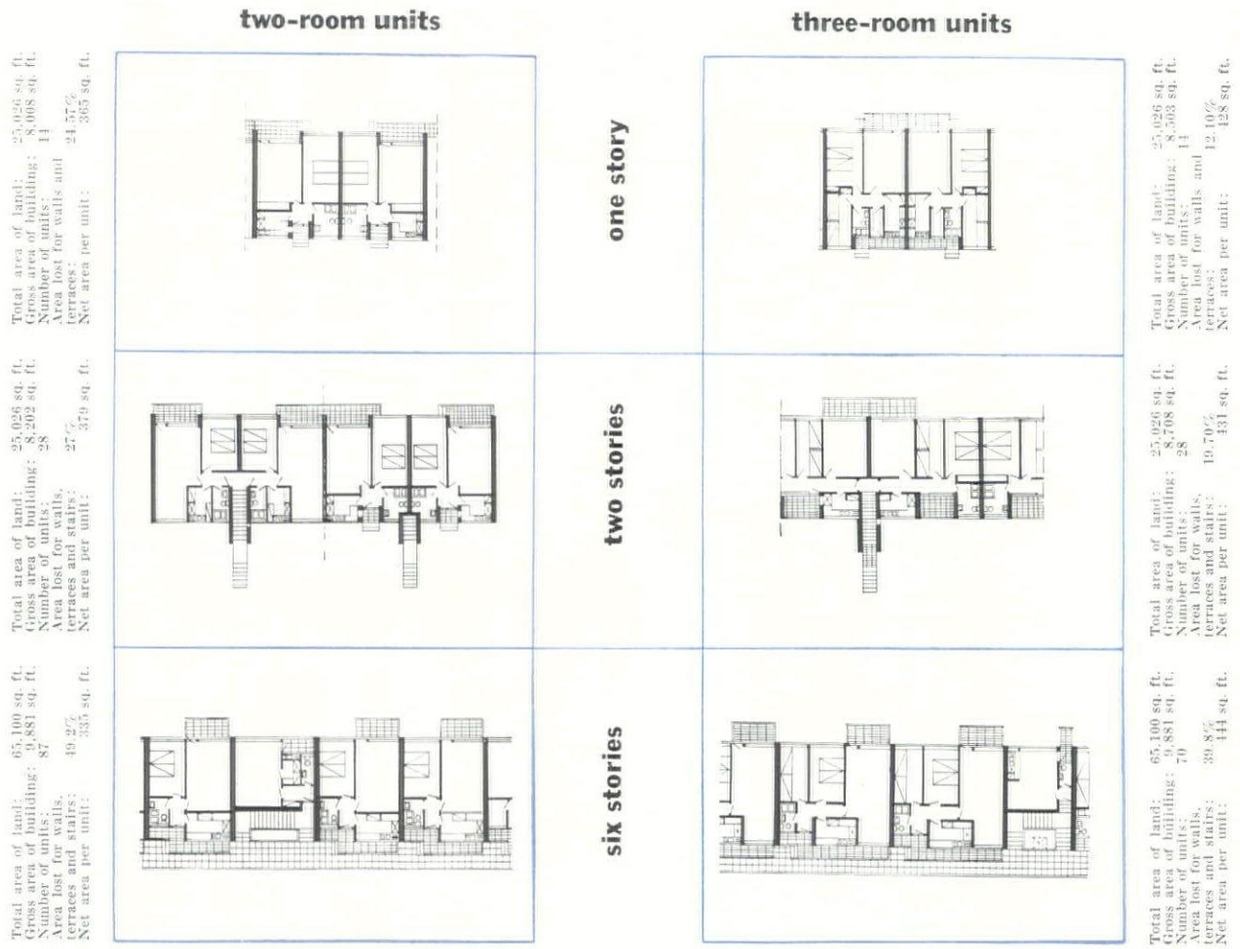
By A. Sartoris and G. Terragni



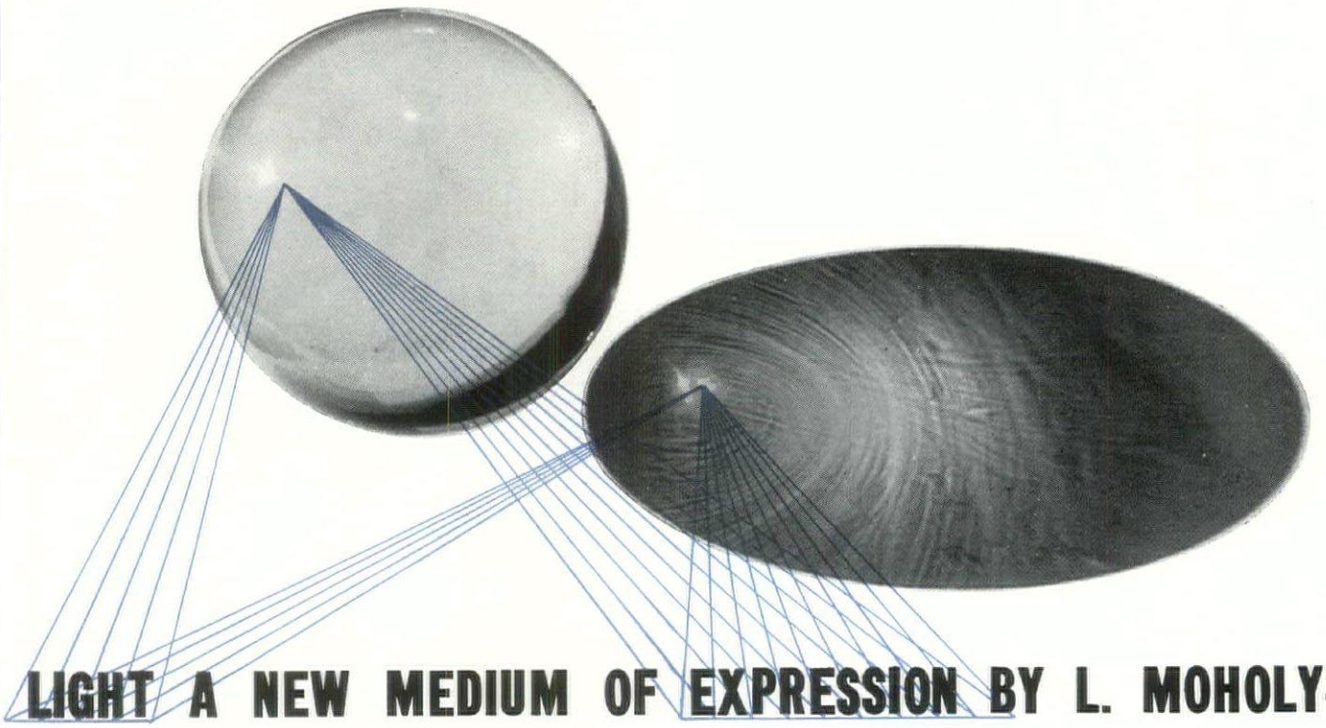


Left: General Plan of the section under construction: 1, one-story buildings with two-room units. 2, one-story with three-room units. 3, two-story buildings with two-room units. 4, two-story with three-room units. 5, six-story buildings with two-room units. 6, six-story with three-room units. 7, school. 8, shopping center. Above: Rebbio and the town of Como.





The plan of Rebbio at its present stage provides 1,429 housing units of two and three rooms. It includes a community hall, theater, church, kindergarten, elementary and vocational school, a stadium, swimming pool, hospital and shopping center which will also serve the neighboring communities. Orientation of houses: East-West. Distance between two rows of low houses: 71 ft.; between six-story buildings: 170 ft. Each housing unit has a private garden facing west, 36 ft. deep.
Future expansion of Rebbio is provided west of its shopping center.



LIGHT A NEW MEDIUM OF EXPRESSION BY L. MOHOLY-NAGY

"Painting With Light" is an old chapter of human activity. We have documents about antique illumination for theatrical performances in which colored glasses, prisms, etc., were used. Centuries later the magic lantern appeared—fireworks, the light effects of the baroque opera; and, later still, different projects for a color organ. Today, in light, from photography to television, we have more sources for a new art form than at any other period of human history. But unless we learn to clear our minds of the old, traditional ideas of painting, not even the work of talented painters will reach the level of a genuine artistic creation.

It is the general opinion that manual painting is the peak of optical creation. Its basic significance is that different pigments reflect and absorb certain parts of the spectrum. So far as pigments possessed these qualities they were used for the creation of an optical illusion which was actually similar to the light effects which solid bodies performed. Such a three dimensional object showed, if normally lighted, a plastic shape through its lighter and darker shading, and the painter had only to imitate the different surfaces of the solid object by mixing different pigments. However, this manual effort never could repeat the same radiant effect because the direct reflection of the object had always a more intensive value. We call the procedure of traditional painting "mixture by subtraction." The term implies that each new mixed color will be darker than the previous color by itself. This can clearly be seen from watercolors. Each layer darkens the previous one; in other words "it subtracts light." However, besides these primary pigments there are three other primaries, the light primaries, and in the new art of painting with light, they are going to play an important part. They are the red, green, and blue of the spectrum. We call the mixture of light primaries "mixture by addition" because, contrary to the case in pigments, the resultant color is lighter than each of the component colors. We can see this when we throw different lights from different filtered projectors on one spot of a screen. A mixture by addition of green and red lights creates yellow. However, the mixture by subtraction of green and red pigments produces not yellow but an olive brown.

As early as the close of the last century the pointillist painters, Seurat and Signac endeavored to create an impression of radiant yellow sunshine by the use of thickly sprinkled red and green pigment particles on the canvas. They adduced in support of their theory evidence of a discovery made in 1869 by Ducos du Hauron that the human eye splits the colors of the spectrum, red and green, into minutest points producing a yellow to the vision. Aristotle, also, knew that colors in juxtaposition will mix in the retina when seen from a distance. We find this principle applied in painting as early as the Florentine and Venetian pictures of the fourteenth and fifteenth centuries. Fra Angelico and Botticelli used a first layer of thin coloring for the figures of their paintings, for instance green, and then covered this green surface with innumerable fine red lines; the result was an infinitely spiritualized whitish-yellow flesh color.

Rubens used the optical energy of the "turbid" medium in order to obtain flesh colorings and transparent blue shadows which could not be produced by mixtures of pigment. Rubens painted on a white ground thickly sown with black lines—making the outlines and deeply shaded portions of his model in brown and going afterwards over the whole with a creamy, translucent, pinkish white. The result was a radiantly transparent orange rose, a perfect flesh color with bluish transparent shadows.

Goethe gave us the physiological explanation for all this in his anti-Newtonism theory of coloring in which he established that black through a "turbid" medium appears as blue and light gives us yellow-orange up to yellow-red.

"Turbid" means layers of transparencies or translucencies.

But not only the Old Masters worked in this way, employing subjective results of optical effects; Van Gogh, applied color so thickly that the pigment appeared as a relief; the brush strokes created shadows and the edges of the strokes were touched by light. Thus light and shadow was drawn into the picture as a determinative, qualitative factor and an effect was obtained similar to that aimed at by the Florentine.

Cézanne carried this research work one step further. He was less interested in the representation of radiant surfaces than in the subtle qualities of colors to perform movements forwards and backwards, up and down, centifugal and centripetal, etc. He created with these a new spatial representation as well as a new painting quality.

A psychological experiment made at the University of Wisconsin gives a clear explanation how color is able to change sizes. Black, white, yellow, green and blue cubes of the same sizes have been shown each beside the other. The white cube appeared to be the largest, black to be the smallest. Yellow was larger than green, and blue was smaller than green. The same phenomenon can be expressed otherwise. The white cube, being the largest, appeared to be the nearest to the spectator, the black, being the smallest, appeared to be the furthest away from him. This means that if a painter would use these colors he would be able to change their experimental characteristics with certain manipulations. The constructivists' work often offers the example that black for instance stands in front of white, etc. The after images and the subjective changes in the neighbor colors, are valuable means to the painters' spiritual craftsmanship. For example, the upper part of a black plane can appear bluish if beside it a yellow plane is placed; the same black below can simultaneously appear reddish if a green plan is placed beside it.

As yet the psychological and physiological experiences of color have not been sufficiently integrated with the physical laws of light by painters, sculptors, architects, commercial artists and publicity men.

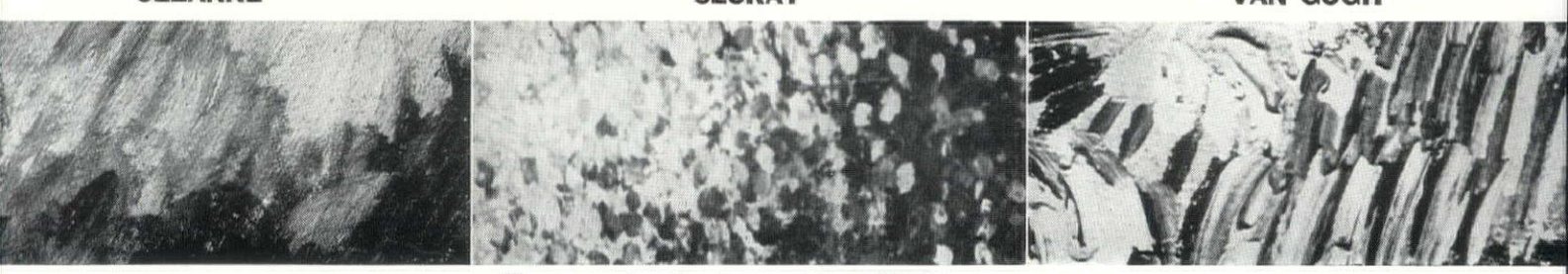
In fact, all color harmony systems concerning the pigments differ from one another, all defining a different number of colors and with them the complementary pairs. Newton speaks about seven colors; Goethe, Schopenhauer about six; Ostwald about eight, and Munsell about ten. Goethe defines the primary complementaries as: yellow-redblue. Blue-redyellow, purple-green. Ostwald defines them: yellow-ultramarine, iceblue-orange, red-seagreen, violet-leafgreen. Munsell: yellow-purpleblue, blue-yellow-red, red-bluegreen, redpurple-green, purple-greenyellow. Newton mentioned only once a complementary pair: gold-indigo. Still the fundamental laws of perception of color are an inborn attribute of every human being. In other words the appreciation of color depends upon the general psychological fact that man answers every color with its contrast, with its complementary. Our eyes react to red with green, to yellow with blue and so on.

But until today we were not able to define the complementary color pairs with an absolute exactness. The old masters interpreted the complementary colors individually. That is to say, in spite of the fact that almost all classical paintings were made with complementary color contrasts: red-green and blue-yellow, they show slightly different tones of the complementaries. It even seems as if the personal achievement of a painter depends upon this individual modification of the law of the complementary colors. Now we have to reckon with the extensive use of electric light as a source of illumination. Since the spectrum of this light differs from that of sunlight, the well known effects of color harmony undergo various transformations. We learned from Goethe that objects lit by colored light produce shadows in their complementary color. For instance, if an object is lit with red light, its shadow becomes green.

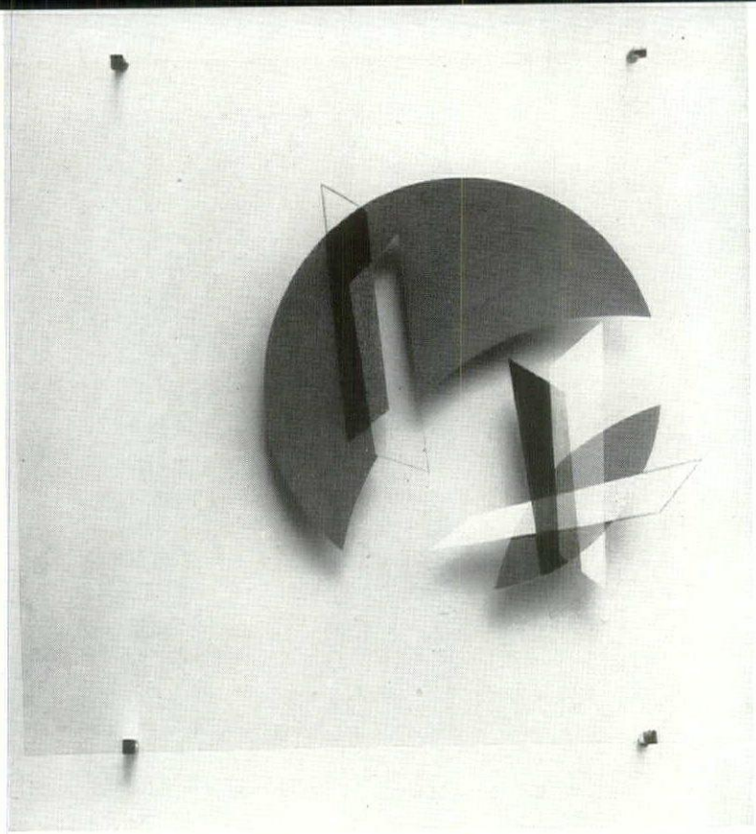
One may ask now—is it possible to do anything artistic with the purely physical complementaries or do we have to continue with the subjectively interpreted daylight effects alone? I believe it is possible, but the purely automatic harmonies which are no longer created by pigments but by light projection will probably have to undergo a process of step by step development of artistic appreciation. We are so accustomed to the old form of manual painting that we are not yet able to see that later painting may become a "machine painting" without lowering its spiritual level. The technique as part of the creative process is only important insofar as it must be controlled at every stage of production. Besides this, it does not matter at all whether the result itself is achieved by manual or machine operation.

Of course the pedagogic value of the manual pigment painting will not be denied. But this painting will be no more the only art expression. Photography is already a proof. We have to observe its form, its creative process, the superimposition and mirroring, the innumerable lens and prism effects, the mechanical and chemical distortion of the surface, the light flooded planes, the "chiaroscuro"

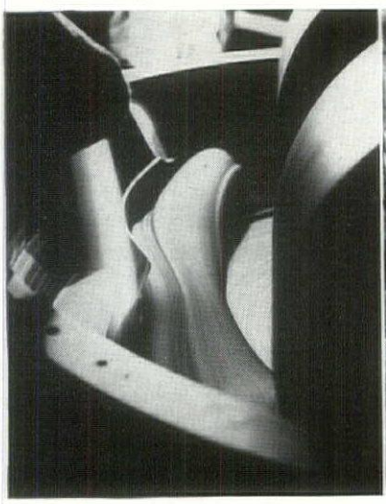
CEZANNE **SEURAT** **VAN GOGH**

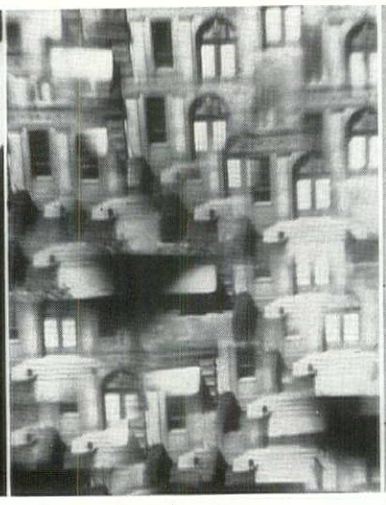


Three examples of surface treatment with pigment.

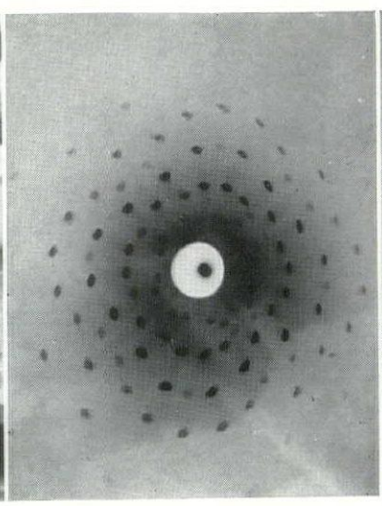


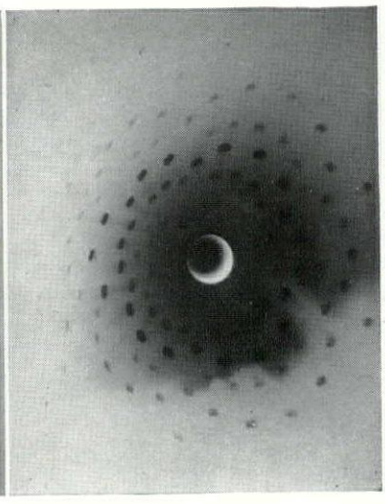
L. Moholy-Nagy: Construction



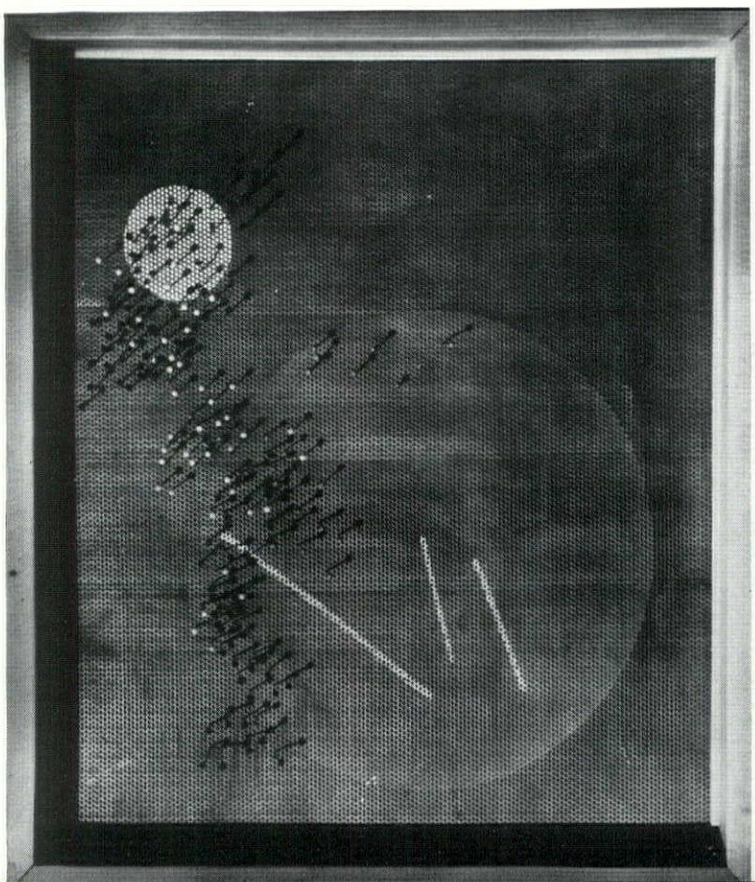


Hans Finsler: Chocolate Manufacturing. Photograph with prism.





Atom photograph



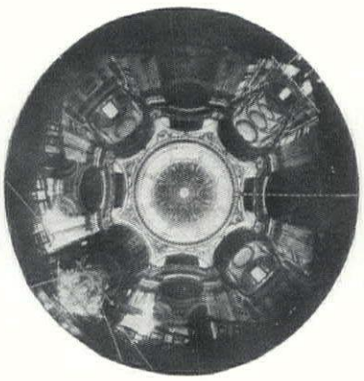
L. Moholy-Nagy: Pin Picture, 1935

in the finest gray graduation. Then we know that our wish to express ourselves with optical means can only be satisfied by a thorough knowledge about light. We must become familiar with colorimetry, wave lengths, purity, brightness, excitation of light, and with the manifold possibilities of the artificial light sources. Optical illusions, changes in size, automatic complementaries, surrounding effects of negative shapes, of hue, chroma and value are already in use. In addition we experiment with polished surfaces, with transparencies and translucencies which allow a combination of pigment and direct light effects.

The next step will be the conscious use or reflexes, solid and open shadows, mirroring refraction with prism and grating, polarization and interference of light.

Since the Eighteenth Century many persons were working in this direction: Pater Costel, Hoffman, Rimington, Serjabin, Hirschfeld-Mack, Thomas Wilfred and Alexander Lazzlo. They all have experimented in the color organ. Viking Eggeling has been the pioneer for the abstract film. There should be mentioned also other fore-runners of light display: gigantic light parades of battleships, projectors, search-lights, skywriters, changing light-pictures, floodlight, luminescence, phosphorescence, ultra-violet, infrared, cathod, and polarized X-rays.

Superimposition of ten photographs



Fisheye camera photograph

Sea animal

The work of the future lies with the light engineer who is collecting the elements of a genuine creation. Great technical problems will be solved when the intuition of the artists will direct the research of engineers and technicians.

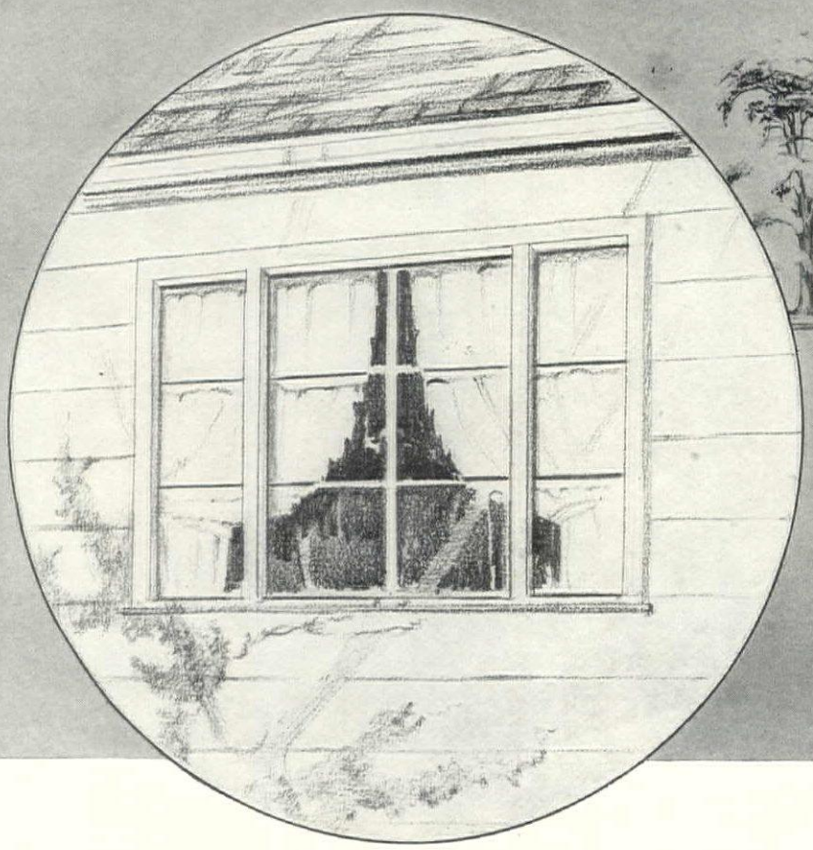
It is premature to go into details yet. But one thing is clear—that forthcoming experiments, the study of the physiology of the eye, the physical properties of light and the introduction of new technical means with their "automatic" and "mechanical harmony" will play a very important part.

Consequently we must never cease observing the simple or rich phenomena of light and color which are offered by the daily routine at home and on the stage, in the street and in the laboratory—in our physical and chemical apparatus.

Finally—it seems to me that we should direct all our efforts like the Dadaist Raoul Hausmann toward the creation of an optophonetic art which one day will allow us to **see music** and **hear pictures** simultaneously.

Next page: Photogram by L. Moholy-Nagy.

Have you considered the Beauty of "HM" Types of Fenestra Steel Casements in the Small Colonial House?



The window detail, opposite, shows three Fenestra Casement units combined with two vertical wood mullions. Type numbers of the three Casements are: One HM-4326, with two Fixed-13 units (for sidelights). The perspective, above, shows the general appearance of the house.

In the Colonial house sketched, you see Fenestra Steel Casement Windows of the "Horizontal Muntin" type (designated as "HM" for brevity). In this type, the vertical muntins are omitted. Horizontal lines are stressed. The effect is pleasing, is it not?

Fenestra Bonderized Steel Casements provide many desirable advantages for better living: more daylight, better ventilation, safe cleaning, easy opening, better screening, greater weather-tightness, with lower first cost, and lower upkeep . . . Write for details.

Detroit Steel Products Co.,
2252 East Grand Boulevard,
Detroit, Michigan.

Please send free literature, as follows:

- ☐ New Portfolio of plates by Architects for Architects, illustrating, "Window Ideas for Colonial Houses."
- ☐ New Fenestra "Fenwrought" Casement Catalog.

Name_____

Address _____

★ *Fenestra* ★

BONDERIZED STEEL CASEMENTS . . . INSIDE INSULATING WINDOWS . . . INSIDE SCREENS

BY AMERICA'S OLDEST AND LARGEST STEEL WINDOW MANUFACTURER

LAND DEVELOPMENT

(Continued from page 370)

modern subdivision of any size is complete without provision for some park or recreational area. It may be a small "island" dividing a street, or it may be several acres in the center of a super-block.

Frequently, creation of a park is a move toward economy. While it may replace several lots, it will increase the value of other lots, help sell them—especially when inter-subdivision competition is keen. (Note reduction in costs per lot through introduction of park space in a hypothetical subdivision, page 368. Result will be lower cost houses and lots.) Furthermore, it is often cheaper to set aside rough, wooded low-lying areas than to try to develop them. The banks of a stream, or the corner of a site which does not lend itself to facile platting may best serve as park space.

It is possible that the local government may assume responsibility for maintenance of the park once it is developed. This failing, a community organization must be set up for maintenance of the park.

Professional Advice. From this high-spot-hitting analysis of the many factors which subdividers must consider, it is apparent that good subdividing is seldom a matter of chance. It results only from careful consideration of these factors and a resulting site plan which produces the economies necessary to good business and creates an attractive, integrated neighborhood necessary to the protection of real estate values.

Frequently the task is too much for the untutored builder or land owner, and FHA recommends that he retain a competent subdivision designer for the purpose. But, FHA itself offers many a poignant suggestion, is without doubt the most active force behind today's movement toward better land planning.

Aside from the paper analyses last year of 927 subdivisions (comprising 29,000 acres, 96,000 lots), FHA's Land Planning Division held more than 1,000 consultations with the sponsors of developments and personally inspected their sites. Throughout the past three years land planning conferences have been held in 80 cities, have been attended by some 15,000 subdividers, builders, bankers, and city officials. Growth in volume and importance of this FHA unit's work has been such that five months ago it was taken from the "section" rank, made a "division." Thus elevated, the Land Planning Division under the able guidance of Director Seward W. Mott will better serve Home Building by directing its increased activities "toward the decrease of mortgage risk, better business for developers and mortgagees and a safe investment for the home buyer in attractive, stable communities."

COMPLETION . . . DAYS SOONER

When Home Loans Are Approved Promptly!

YOU don't have to put up with the red tape that so often delays home loans! Your local Savings or Building and Loan Association will frequently have an approval for you 48 hours after the application is filed! Construction money moves fast, too. For this business was built on prompt, efficient service!

Years of experience have keyed our procedure to your requirements. Savings, Building and Loan Associations have a background of 10,500,000 American homes financed soundly, conveniently and promptly. For over 100 years our group has been America's most popular home financing system.

Records like these aren't easy to establish. Yet institutions like ours consistently finance more home loans than all other financing institutions put together. Here are the reasons why—

1. Prompt service, without red tape, all the way through.
2. Convenient, easy-to-understand loans paid back like rent on a monthly-repayment, long-term plan.
3. Friendly service where a loan means a good neighbor, not just a number.

In addition, savings, building and loan associations keep local dollars at home. We help make jobs for local people by fostering local saving to encourage local home ownership.

You be the judge. Try this source of home financing money. See for yourself what "time-saving efficiency" means to you and the people you serve. Let a member of the United States Building and Loan League give you facts and details about this prompt, red-tape-less home financing service.

ARCHITECTS—*Our services include facilities to handle all types of home loans whether they be for new building, buying, remodeling or refinancing. Call us for information. You'll like our quick, friendly service.*

Your Local SAVINGS OR BUILDING AND LOAN ASSOCIATION

When you support Your Local Savings or Building and Loan Association—***You help local business!***

INDOOR BUILDING

(Continued from page 376)

the State at 14½ ft. To cover delivery of the basic house, General Housing Corp. adds to its $2,980 f.o.b. price $125 for shipments within Seattle's city limits and an extra $1 per mile for shipments outside the limits. Freight rate within the city limits on "addable units" is $25 each. Orders are accepted for delivery within 100 miles of the factory.

Foundations and utility connections for the house are supplied by the purchaser, but are made according to plans and specifications furnished by the Corporation. In the city of Seattle, utility connections cost about $85, a no-basement foundation costs another $85, a full basement about $450. If the latter is used (or even a partial basement), the heating and laundry equipment may be located in it. Where such is the case, a removable panel in the floor of the multiple-use room may be lifted to give access to a basement stairway furnished by the Corporation as an accessory.

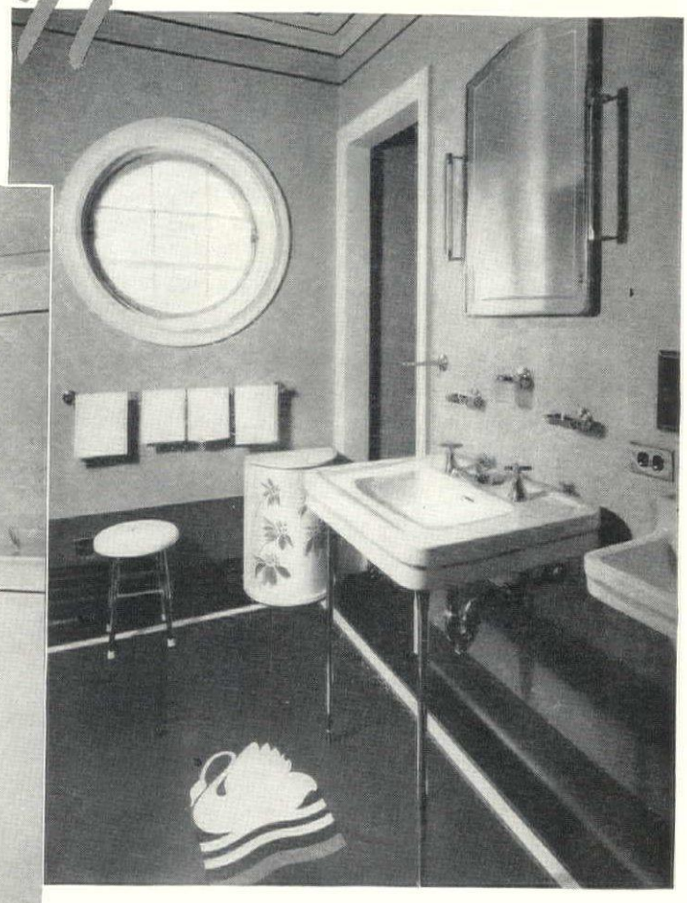
Assembly of the house sections at the site is a simple operation, the cost of which is included in the Corporation's delivery fee. The two halves of the house are pulled together with turnbuckles on tie rods and are bolted to the foundation. Wiring is connected by use of twist locks, and a sheet metal collar connects abutting heat ducts. Evidence of heady planning is the fact that all plumbing is concentrated in the rear half of the house, thus obviating plumbing connections during assembly.

Merchandising. To date, selling his houses has given General Housing Corp.'s President Stoddard no worry. They have been selling themselves. Several orders for as many as 40 houses each have been rejected due to the factory's limited production capacity. Mere rumor and word-of-mouth publicity has attracted inquiries from as far east as Long Island, as far west as the Hawaiian Islands. One came from a point 500 miles in the interior of Alaska.

Doubtlessly these inquiries originated with Stoddard's only publicity stunt: In the latter part of August, 1938 the Corporation's experimental house was displayed for two weeks in the middle of Seattle's much-trafficked University Street. There, by actual count, 25,000-odd people ambled through the house, listened to six hostesses describe its building materials and methods. And, when the house was carted off to a suburban lot and reopened for inspection, 15,000 to 20,000 additional visitors looked into what had become Seattle's most-talked-about house. (Proof that Stoddard's house is well built is the fact that, despite this overdose of trucking and public probing, the demonstrator emerged none the worse for wear.)

(Continued on page 38)

SPECIFY *Sales Appeal* FOR WALLS!



• *Nairn Linoleum—for floors, walls, and ceiling—makes every square inch of these rooms modern, sanitary, and permanently beautiful. Note the use of Nairn Sealex Borders, Feature Strips and Insets for smart Personal-ized* designs in all three surfaces.*

* Trademark Registered U. S. Pat. Off. by Congoleum-Nairn Inc.

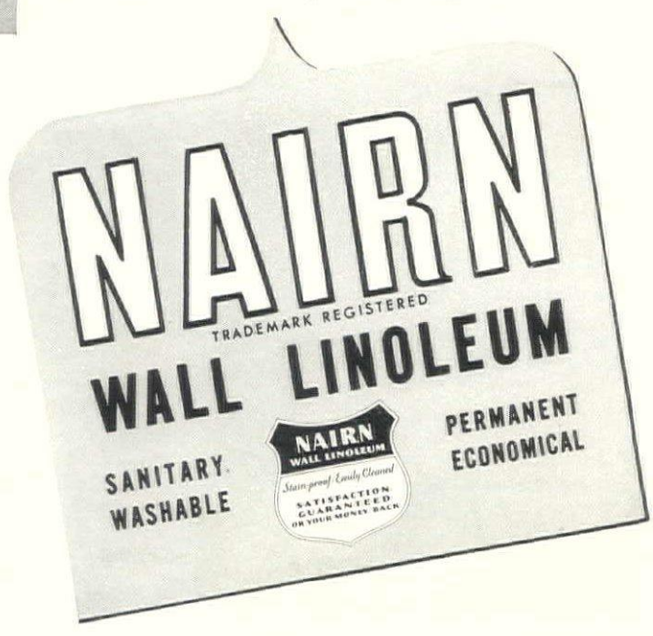
ARCHITECTS and builders today find a growing demand for smooth, sanitary, *permanent* walls. Satisfy that demand—give your residential construction the extra sales appeal of Nairn Wall Linoleum!

Have *you* seen all the smart new effects in this most modern of all wall treatments? Rich marbleized designs—delicate pastels—natural wood-grain reproductions.

Even in much more costly materials, you can't get *all* the advantages of Nairn Wall Linoleum. A perfectly smooth surface—washable, sanitary, easy-to-clean! Smart rounded effects at openings and corners! And freedom from refinishing expense!

Installed by authorized contractors, Nairn Wall Linoleum is fully guaranteed. An A. I. A. sample file is available to architects and contractors. Write today.

CONGOLEUM-NAIRN INC., KEARNY, N. J.



(Continued from page 36)

But, self-sales attributable to this original publicity cannot last forever. When they peter out, Architect Stoddard will consider more seriously the problems of merchandising. Up his sleeve are three possibilities: 1) Real estate companies may handle sales on a 5 per cent commission basis—the Seattle Real Estate Board has already expressed its willingness to cooperate. 2) Retail lumber dealers may be used as an outlet. 3) The Corporation may deem it expedient to develop its own sales organization.

Expansion. While the General Housing Corp. must now be classed as a "little business," it optimistically hopes to move some day into the ranks of "big business." Today it employs only twenty building mechanics—all AFL members selected by the Corporation's officials and paid on an hourly basis. But, after it has had a little more experience with its new production techniques and if demand for its product continues, the Corporation will ultimately establish plants in all sections of the country—thus solve its knotty transportation problem which makes shipments of more than 100 miles uneconomical.

Besides the obvious attraction of its low price, other factors which may build up demand for Stoddard's house, warrant its production on a nation-wide basis are, first, those which are inherent in any mobile house and, secondly, those which pertain particularly to Stoddard's mobile house. In the first category is the fact that the purchaser of a mobile house (like the purchaser of its progenitor—the "diner" or portable lunch wagon) can protect his investment by moving his house from one neighborhood to another. (The house itself is 100 per cent salvagable.) Furthermore, there is the oft-advanced theory that ultimately it may be possible to finance the purchase of a mobile house under a comparatively inexpensive chattel mortgage.

Architect Stoddard, however, uses neither of these sales points in boosting his mobile house. Instead, his promotional literature lists five talking points: the house as priced is 1) ready to live in, 2) fully equipped, 3) constructed with factory precision, 4) architect designed and, 5) expandable through the use of "addable" room units. For this five-fold reason, Stoddard has dubbed his patented creation "The Quintec House," has registered its name with Federal authorities.

Such are the factors which favor the expansion of General Housing Corp. If expansion takes place, it will be due to the undisputable quality of The Quintec House. Also, if expansion takes place, it will be the first time in the history of mobile housing, and the General Housing Corp. will have gone far toward hushing those who continually compare Home Building's production methods with those of the automobile industry.

YOU don't need three guesses to tell what I'm talking about, because my job is mining lead.

And lead is the starting point for making a durable paint.

You see, they make the purest lead into white lead.

And white lead is used in making paint.

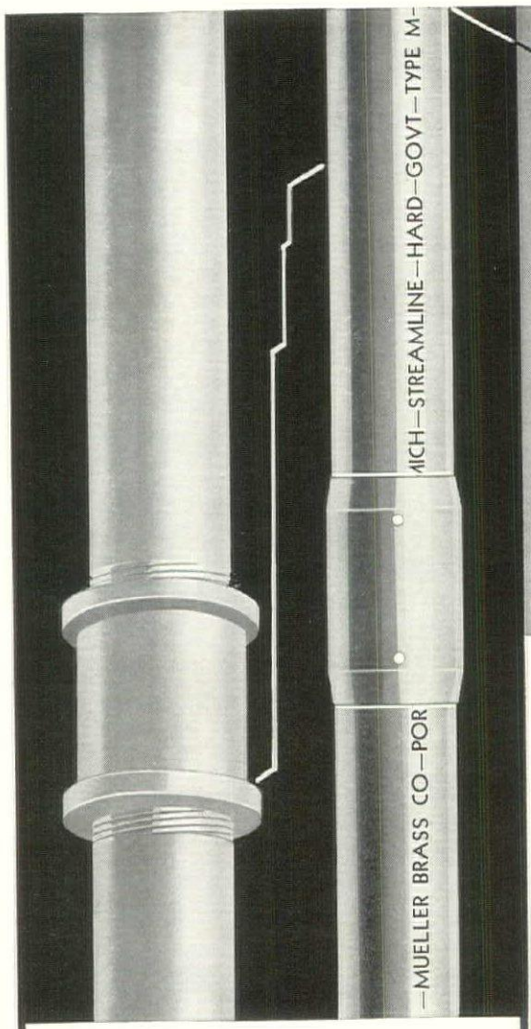
When you look at such ancestry, it's not surprising that pure white lead paint is able to stand up under the attack of time and nature.

In case you think I'm grinding my own ax, just ask any painter who knows his stuff. Ask him what he'd paint his own house with. I can tell you what his answer will be—"white lead."

So take it from an old lead miner, you can't beat a paint that's made from lead. And this is one case where the best is really the cheapest.

LEAD INDUSTRIES ASSOCIATION
420 Lexington Avenue
New York, N. Y.

It takes experience to do a good paint job. For the paint on a house is only 1-200th of an inch thick, and it needs to be skilfully applied to give real protection. Pictured here is one of the many things a good painter knows – how to lay paint at corners to protect the points where clapboards join.



Specify STREAMLINE

TRADE MARK REG. U.S. PAT. OFFICE

COPPER PIPE AND FITTINGS

A system of copper will outlast the building ★ ★ ★

● Note the great difference in appearance between the two sections of pipe illustrated above. The STREAMLINE Copper Pipe (right-hand illustration) is much neater and compact in appearance. It actually appears smaller in diameter but the STREAMLINE Copper Pipe has as great, or greater internal flow capacity than the threaded pipe.

Piping systems connected by threaded fittings are weakest at the joint because the metal is cut away to fabricate the thread. This is a potential point for future breakage and leaks.

In contrast to this copper pipe connected with STREAMLINE Fittings is actually strongest at the joint and is so constructed that its internal diameter is uniform and smooth—much less chance for clogging and pressure loss.

● Copper has long been recognized as the most durable of metals for piping purposes. There are authentic cases on record where it has lasted for hundreds of years and, with the exception of a slight tarnish, just as serviceable as when first installed.

Athough copper is not a cure-all for all water conditions—and there are certain sections in the country where its use is not recommended—it does fill the requirements for an all-purpose piping in the great majority of cases, and in most instances is a far superior piping to install.

An efficient—and lastingly efficient plumbing or heating piping system is one of the most vitally important factors in any home, or in any building where a conducting system is required. It is the actual nerve center upon which the very livability of the dwelling depends—and this becomes more and more apparent after some years of service.

STREAMLINE Copper Pipe connected with STREAMLINE Fittings assures a piping installation that incorporates tremendous resistance to rust, clogging and vibration. More than that, its cost is little, if any higher than materials that corrode and leak after a few years of service.

STREAMLINE Copper Pipe conducts hot water quicker with less heat loss than ferrous piping. It requires less room to install, has no threaded joints to leak and is the best possible insurance against plumbing repair bills. Like all good things, STREAMLINE has many imitations but no equals. Specify genuine STREAMLINE. Insist upon its being used.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

DEAL YOURSELF A FULL HOUSE WITH *Gas Refrigeration*

SERVEL ELECTROLUX HELPS KEEP HOUSES 100% RENTED

Tenant

"I find the operating expense a dollar a month; have never had any expense for service or service parts. We are very well pleased and particularly like its silence." *Mrs. Simeon Anderson, 5348 N. Christiana, Chicago, Illinois.*

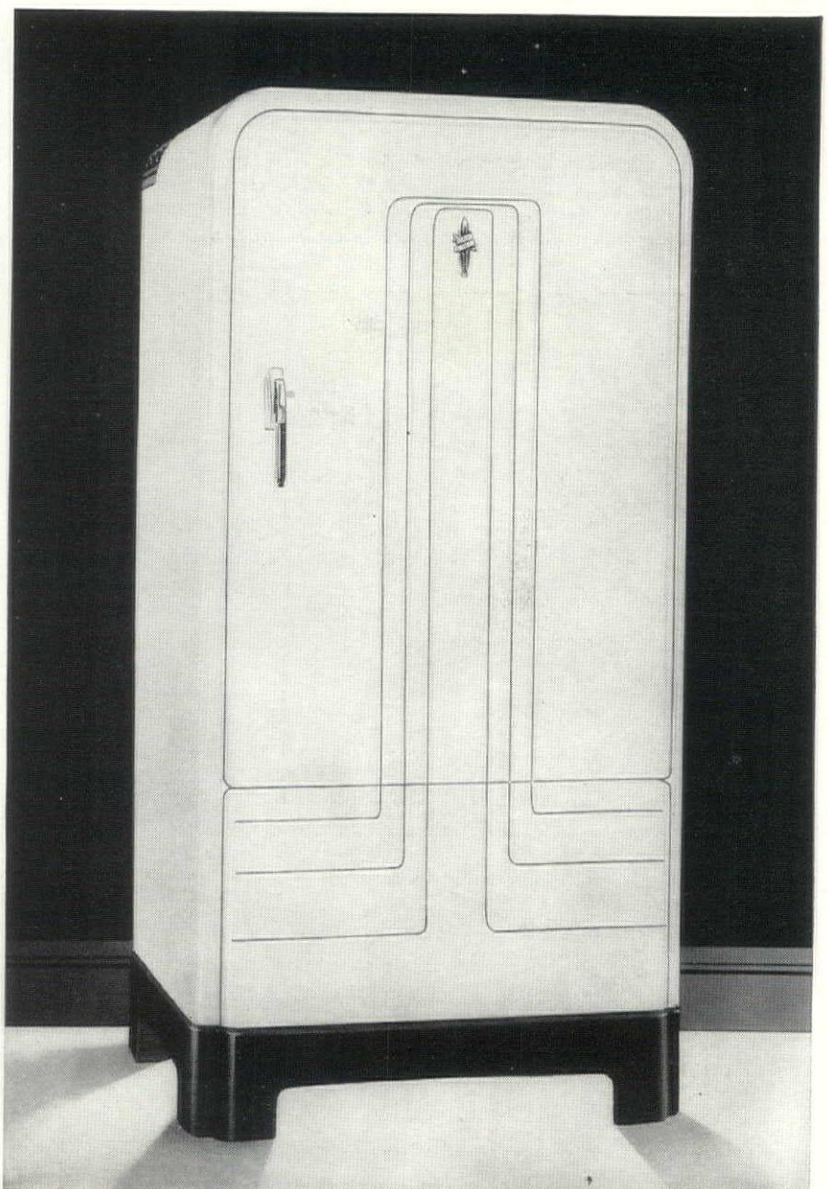
Builder

"My tenants praise Servel Electrolux silence, dependability and constant cold; and find this different refrigerator has an extremely low operating cost." *Mr. J. H. Walpin, 210 Republic Bldg., Denver, Colo.*

DIFFERENT FROM ALL OTHERS

- **No Moving Parts in its freezing system**
- **Permanent Silence**
- **Continued Low Operating Cost**
- **More Years of Dependable Service**
- **Savings that Pay for It**

The SERVEL ELECTROLUX *Gas Refrigerator*



SPECIFY THE REFRIGERATOR THEY HEAR ABOUT · BUT NEVER HEAR

FORUM OF EVENTS

(Continued from page 18)

AWARDS

To THE Philadelphia Savings Fund Society Building, the Gold Medal of the Philadelphia Chapter, A.I.A., which has not been awarded since 1930. George Howe and William Lescaze were the architects. Jury of Awards: William G. Perry of Boston and William J. H. Hough of Philadelphia.

To C. VALENTINE KIRBY, director of art education, Department of Education of Pennsylvania, 1939 Gold Medal of the Eastern Arts Association on the occasion of its 30th annual convention, New York.

COMPETITION

BARRE GRANITE ASSOCIATION'S 1939 COMPETITION. A change in closing date has been announced—August 1 instead of September 1 as originally planned. Prizes totaling $1,500 are offered for designs of memorials. Entry cards and further information may be had from Barre Granite Association, Inc., Barre, Vt.

EDUCATIONAL

ART STUDENTS' LEAGUE OF NEW YORK. Tuition scholarships have been awarded to ten winners in the Annual Scholarship Competition. A jury of the faculty selected the following out of entrants from 29 States. Lawrence W. Beach, Columbus, Ohio; Frances V. Bear, Staunton, Va.; Jacqueline Bowen, St. Paul, Minn.; Caroline P. Coates, Baton Rouge, La.; D. E. Drake, Jr., Lexington, Ky.; Helen M. Haley, Minneapolis, Minn.; Liesel Kahn-Wolz, New Rochelle, N. Y.; Alex Minewski, Detroit; Jane Sinnickson, Cincinnati; Melvin Tapley, Peekskill, N. Y.

PRINCETON UNIVERSITY. Award of the Leonard M. Palmer Fellowship has been made to Edward A. Moulthrop, a student of Western Reserve University, Cleveland. The Fellowship carries $700 plus a year's tuition. Mr. Moulthrop, a fifth year student—incidentally, the son of an architect—held last summer the Schweinfurth Scholarship at Fontainebleau.

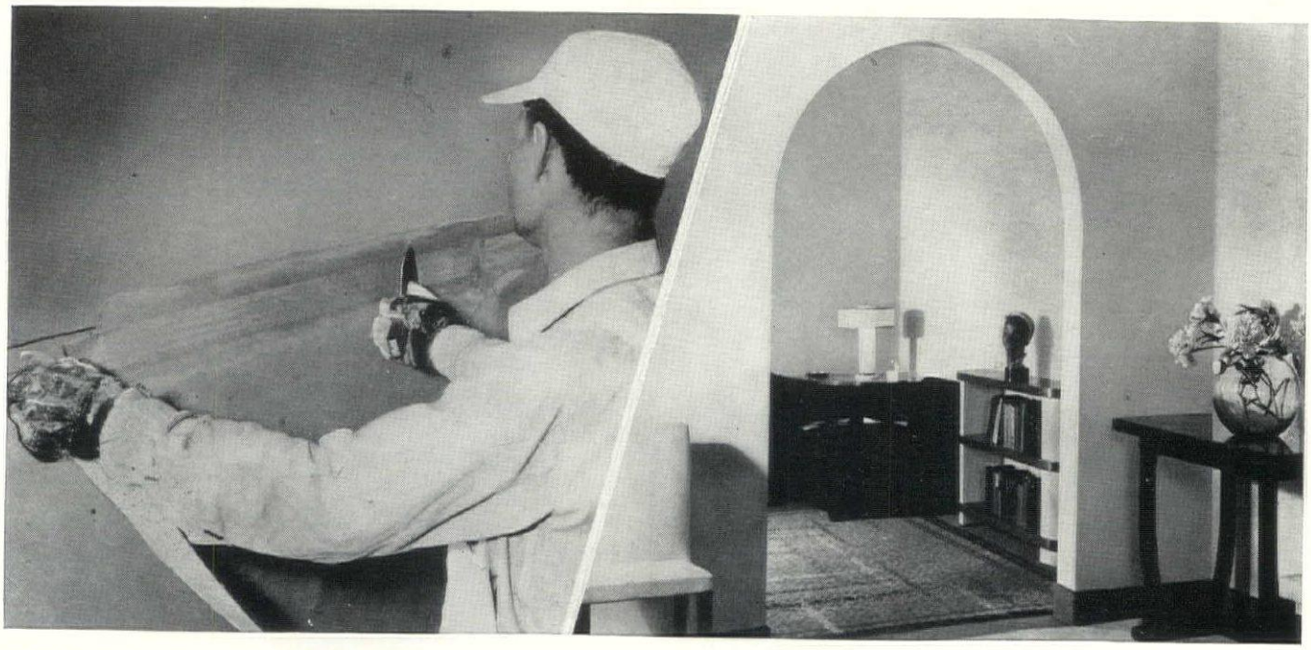
UNIVERSITY OF ILLINOIS. Eighth Annual consideration of candidates for the Kate Neal Kinley Memorial Fellowship, yielding $1,000 toward expenses of a year's advanced study of the fine arts in America or abroad. Open to graduates of the College of Fine and Applied Arts of the University of Illinois. Applications due not later than May 15, 1939. For application blanks and instructions, address Dean Rexford Newcomb, Urbana, Ill.

CRANBROOK ACADEMY OF ART. There is one scholarship open to architects and craftsmen who wish to study advanced architecture and civic design under the direction of Eliel Saarinen. Requests for application forms and details should be sent not later than June 1, 1939, to Richard P. Raseman, Executive Secretary, Cranbrook Academy of Art, Bloomfield Hills, Mich.

AMERICAN ACADEMY IN ROME. Finalists for the 24-hour competition, Rome Prize in Architecture, are: Maurice W. Bacon, Yale; Joseph F. Balis, Pennsylvania State; Fred W. Bucky, Jr., New York University; Edward H. Burgener,

(Continued on page 46)

BESTWALL APPLIED YESTERDAY . . . READY TO PAINT TOMORROW



STRONG SMOOTH CRACK-FREE WALLS "READY ON TIME" *when you specify* BESTWALL

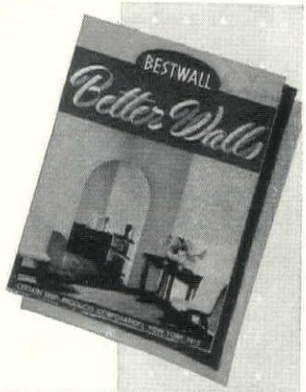
REG. U. S. PAT. OFF.

Nothing is more vexing than building delays that bring down complaints from impatient clients.

But now you can speed up every job by using walls and ceilings of Recessed Edge Bestwall, with joints concealed by the Bestwall Reinforcing Joint System. There will be no sacrifice in appearance. You will get the smooth, fire-proof, crack-free surfaces you demand.

Bestwall sheets go up as soon as plumbing and heating are roughed-in. Joints are concealed immediately. Walls and ceilings are ready for trim and finish with any decorative treatment almost as soon as erected.

Bestwall, the Original Gypsum Wallboard, is also available as Insulating Bestwall (with reflective insulation), or as beautiful reproductions of Knotty Pine or American Walnut paneling. Let us send you our new 16-page illustrated book showing just how to get smooth, straight walls with the characteristic Bestwall strength, permanence, fire-safety and resistance to moisture and vermin.



MAY WE SEND THE NEW BESTWALL BOOK?

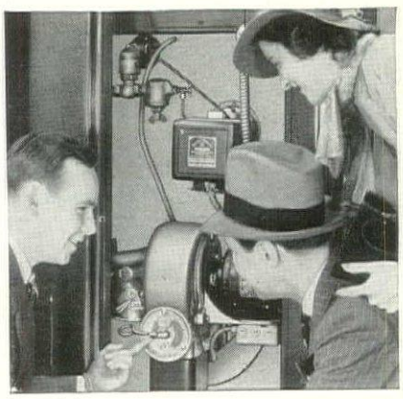
Illustrated 16-page book, "Fire-proof Bestwall for Better Walls", is now off the press with complete descriptive information and specifications. Your request for a copy will have immediate attention.

Certain-teed

QUALITY MADE *Certain-*
SATISFACTION GUARAN *teed*

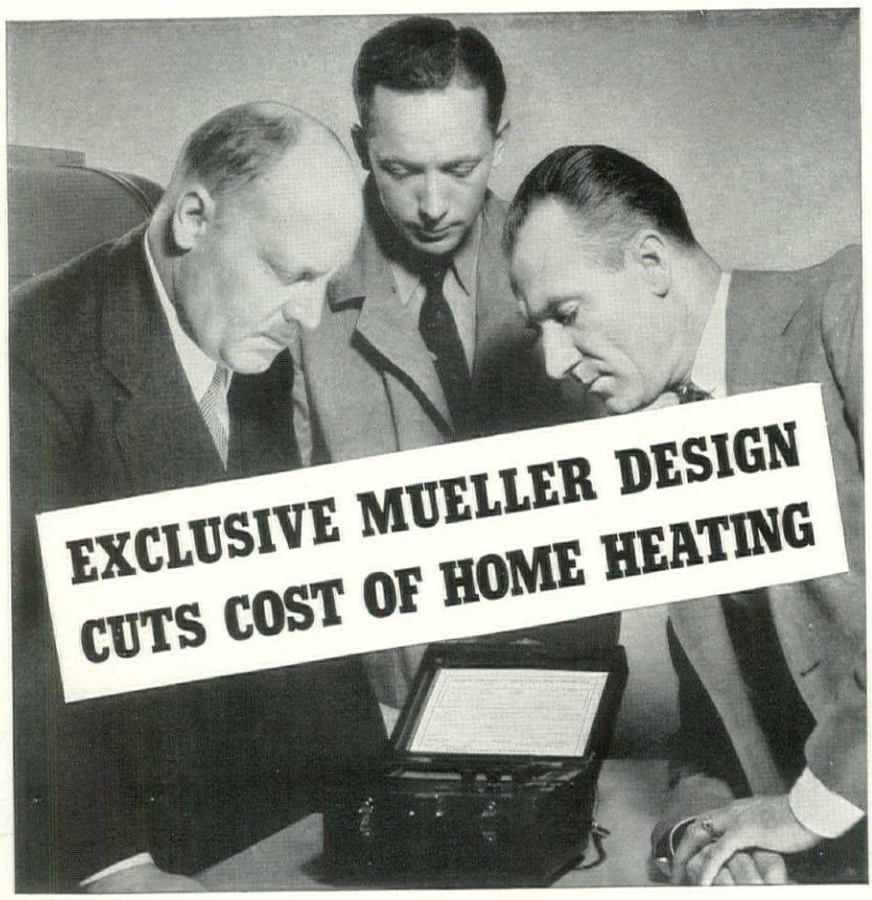
CERTAIN-TEED PRODUCTS CORPORATION • GENERAL OFFICES • NEW YORK, N.Y.

1 Gas. Mueller offers gas equipment that delivers low cost heat for homes in every price range. Heat Speeder, Mueller's exclusive steel Gas Furnace Section transfers heat six to eight times faster than old style units. Saves fuel.



2 Oil. Mueller's streamlined Series "O" complete Air Conditioning Oil Furnace sets new standards of efficiency. Mueller provides patented features found in no other oil heating equipment.

3 Coal. New stoker furnace simplifies clinker removal and eliminates fly ash accumulation. Mueller manufactures a complete line of coal-fired furnaces.



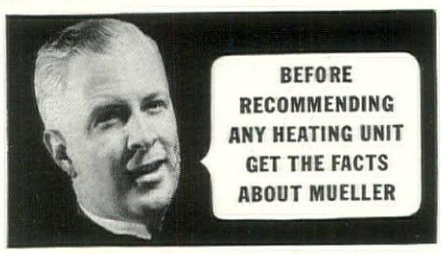
Pace Setter. Mueller's Gas Era Furnaces out-perform them all. Compare Mueller with any other gas furnace for low operating cost, heat response, and over-all efficiency. The Gas Era Steel Furnace with exclusive Heat-Speeder and new Heat-Levelizer keeps temperature at desired level at surprisingly low cost.

The Mueller gas fired line includes Climatrol and Climatrol Jr., air conditioning gas furnaces; Flor-Aire for small homes and Gas Era Boilers for residential use. Above, taking a pyrometer reading, H. P. Mueller, President, (right), E. A. Jones, Chief Engineer, (left) with laboratory assistant.

4 Free Book. "The New Trend in Home Furnace Design" is nationally advertised to potential home owners in your community.

READ THIS GREAT BOOK

The New Trend in Home Furnace Design is proclaimed by experts as the most informative and clearly written book on home furnace design in recent years. It describes the progress of heating units and the important changes taking place in present day coal, oil and gas units. Send coupon below, today.



MUELLER (M) MILWAUKEE
HEATING AND AIR CONDITIONING
COAL • OIL • GAS

Send coupon today for sensational book, "THE NEW TREND IN HOME FURNACE DESIGN"

•

L. J. MUELLER FURNACE CO.
2001 W. Oklahoma Ave.
Milwaukee, Wis.

L. J. MUELLER FURNACE CO.
2001 West Oklahoma Avenue, Milwaukee, Wis.

Please send me "THE NEW TREND IN HOME FURNACE DESIGN": also literature describing

☐ Gas Furnaces ☐ Coal Furnaces
☐ Oil Furnaces ☐ Gas Boilers

Name_____
Address_____
City_____ State_____

FORUM OF EVENTS

(Continued from page 42)

Pennsylvania State; Walker O. Cain, Western Reserve; Joseph P. Ceruti, Western Reserve and Princeton; Raleigh T. Daniel, Catholic University; J. C. L. Didinger, Pennsylvania State and Princeton; John E. Dundin, Catholic University; Fred R. Eley, University of Southern California; James H. Finch, Georgia School of Technology; James W. Fitzgibbon, Syracuse and Pennsylvania; Chester H. Philips, Princeton; Robert A. Strauch, University of Illinois; Charles C. Taylor, Pennsylvania State and Princeton. The final competition will extend over a period of five weeks, beginning April 29. The Jury: Eric Gugler, chairman, Louis Ayres, Paul Cret, John A. Holabird, and Henry R. Shepley.

CALENDAR

May 13-21. National House and Garden Exposition, Coliseum, Chicago.

May 15-16. Acoustical Society of America: Tenth Anniversary Meeting, Hotel Pennsylvania, New York.

July 4-6. American Society of Heating and Ventilating Engineers: Michigan and Western Michigan Chapters, Semi-annual Meeting, Mackinac Island, Mich.

September 24-28. Seventy-first Convention, American Institute of Architects, Washington, D. C.

September 25-30. Fifteenth International Congress of Architects, Washington, D. C.

MISCELLANEOUS

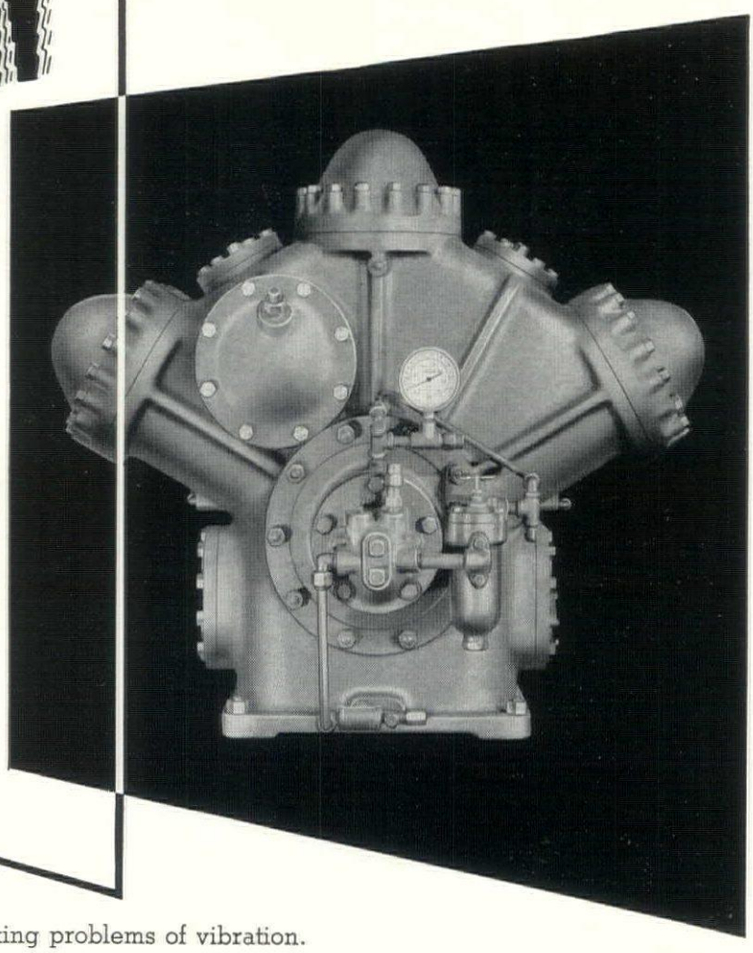
Fifteenth International Congress of Architects will be held in Washington, D. C., September 25 to 30 with the U. S. Government and the A.I.A. as hosts to delegates from foreign countries. Invitations have been extended through the State Department to 50 foreign governments and 100 foreign architectural societies. Secretary Hull has appointed the official U. S. delegation: Charles D. Maginnis, chairman; Edwin Bergstrom, Harvey Wiley Corbett, Richmond H. Shreve, Louis A. Simon, George Oakley Totten, Jr., Stephen F. Voorhees, and Clarence C. Zantzinger, who will be secretary general.

Organization committees are as follows: Institute Committee: Richmond H. Shreve, chairman; Messrs. Bergstrom, Corbett, Charles T. Ingham, Julian Clarence Levi, Maginnis, Voorhees, Zantzinger. Federal Committee: Charles D. Maginnis, chairman; Messrs. Bergstrom, Corbett, U. Grant-Smith, Warren H. Kelchner of the Department of State, Shreve, Simon, Voorhees, Zantzinger. A third group, the American Section of the Comité Permanent International des Architectes, will cooperate. It includes Harvey Wiley Corbett, president; Messrs. Frank C. Baldwin, Edward H. Bennett, Welles Bosworth, Arthur Brown, Jr., William A. Delano, William Emerson, J. Monroe Hewlett, John A. Holabird, Frederick V. Murphy, James Otis Post, David J. Witmer, Voorhees, Zantzinger.

A New York Committee, which will direct arrangements for the City's reception to the foreign architects, including a visit to the World's Fair, is headed by Mr. Voorhees. A sub-committee on exhibits is headed by Mr. Levi, with Mr. Shreve vice chairman. Sub-committees on student participation and program are under the chairmanship of Mr. Zantzinger. Sub-committee on publicity, Mr. Simon, chairman.

(Continued on page 50)

ANNOYING VIBRATION GOES OUT WHEN THE YORK "W-TYPE" GOES IN!



AIR CONDITIONING no longer entails perplexing problems of vibration. The new, sensationally compact York "W-Type" machine puts an end to that!

For this machine, which is scarcely larger than a good sized office desk . . . yet capable of providing the cooling effect necessary to air condition an entire commercial building . . . requires *no special foundation* even when installed on upper floors!

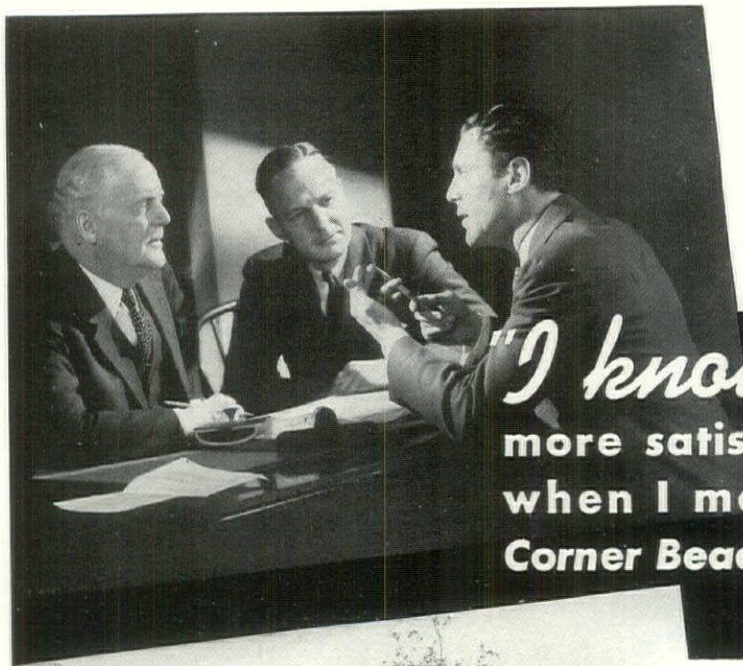
Size and weight per ton of air conditioning are reduced to the absolute minimum. The York "W-Type" Machine is statically and dynamically balanced. All cylinders are provided with removable nickel iron liners. Light weight, large free acting valves insure quietness and high efficiency.

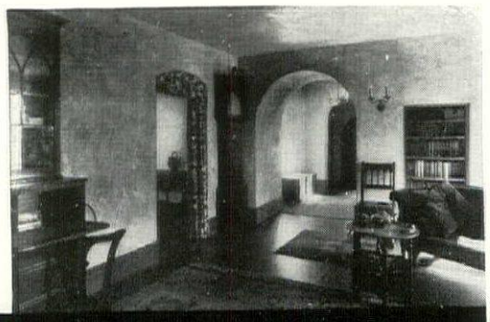
To get full particulars about this outstanding development in air conditioning . . . or for consultation about *any* mechanical cooling problem . . . look in the classified section of the phone book for the York Trade-Mark.

York Ice Machinery Corporation, York, Pa. Headquarters Branches and Distributors throughout the world.

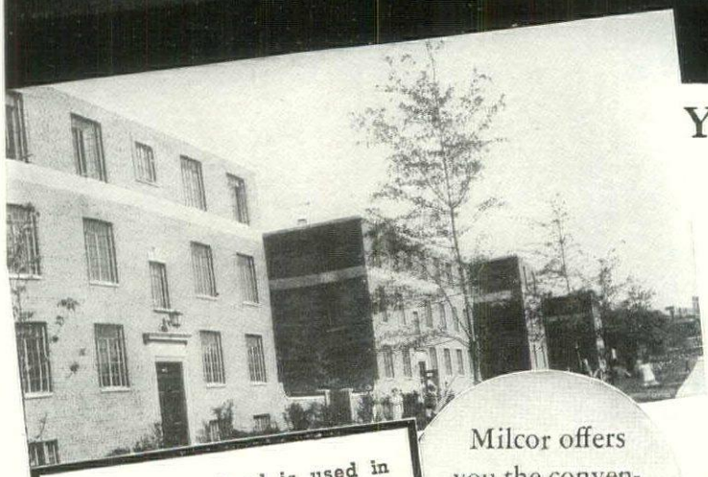
york refrigeration air conditioning

HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885





"I know I am giving you a more satisfactory plaster interior, when I make MILCOR Expansion Corner Bead a definite specification"



Milcor Corner Bead is used in Techwood Homes, a U. S. Government housing project in Atlanta. Photo courtesy U.S.H.A.

Milcor offers you the convenience of *the most complete line on the market.*

You can stake your reputation on MILCOR *Expansion Products*

Milcor Corner Bead is part of the Milcor *fireproof system* that insures permanent plaster beauty and an enthusiastic client.

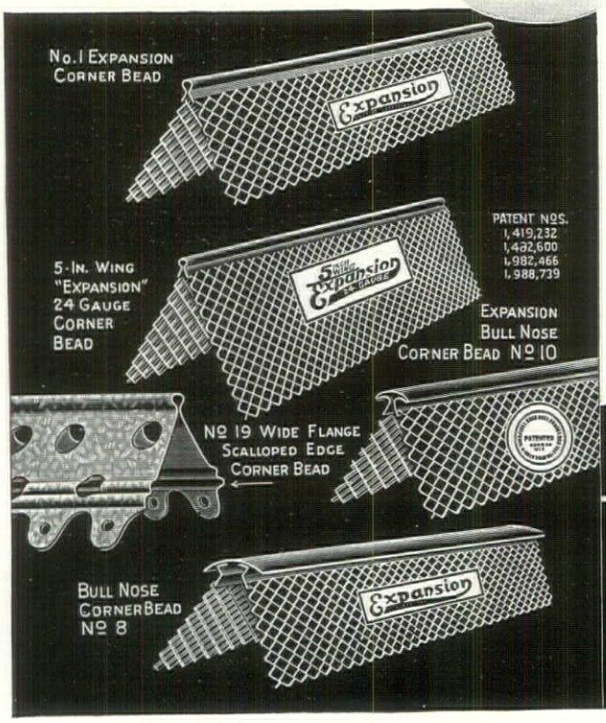
Milcor's interlocking web of expanded metal reinforces corners against unsightly cracks, chipping, or cleavage. The job stays *new*-looking — a credit to your reputation years from now.

Milcor originated and patented Expansion Corner Bead and provides everything you need, in all types of expansion products, to meet any structural condition — makes it so you can depend on it.

Your interior details can't name a Corner Bead, Picture Mould, or Base Screed that Milcor doesn't carry as a stock item. Only Milcor offers the new cove lath. Only Milcor gives you the major savings of Milcor fireproof partition systems — the most important development in years in fireproof construction. Your contractors get prompt service, without delays, from strategically located Milcor plants and warehouses, through local Milcor dealers.

Write for your copy of the Milcor Manual, a practical reference book on fireproof building materials.

F-48



Unit of the MILCOR SYSTEM of fireproof construction

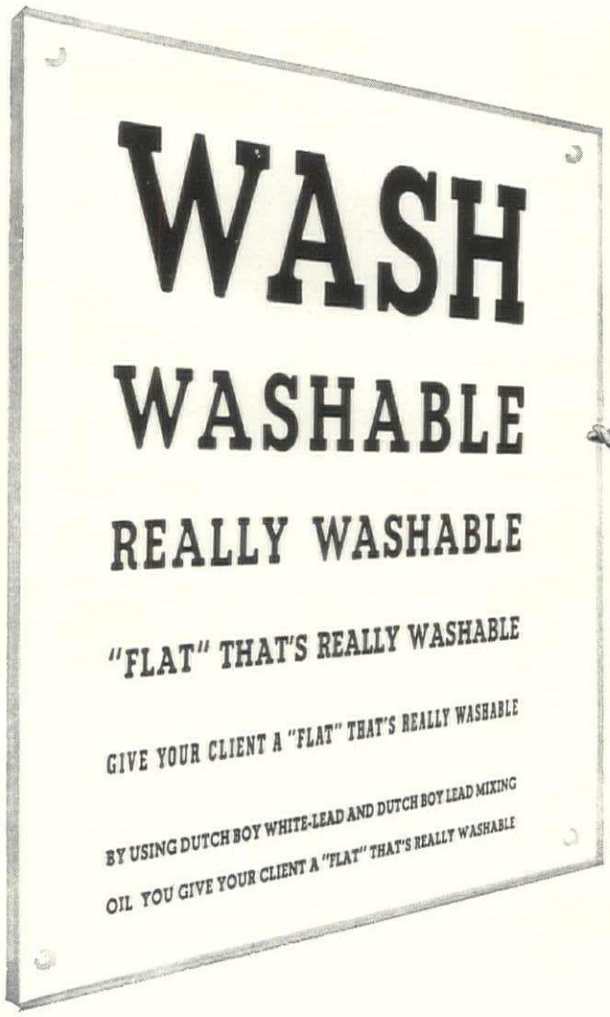
Milcor here uses the word "system" in its true sense — not to signify a limited, inflexible setup applicable only under certain conditions, but to represent so great a range of individual products, types, weights, metals, etc., that a **complete, coordinated metal backbone** can be designed to suit any condition of fireproof construction — all with Milcor products engineered to work together.

MILCOR STEEL COMPANY

MILWAUKEE, WISCONSIN — CANTON, OHIO

CHICAGO, ILL. • KANSAS CITY, MO. • LA CROSSE, WIS. • ATLANTA, GA. • NEW YORK, N.Y. • ROCHESTER N.Y.

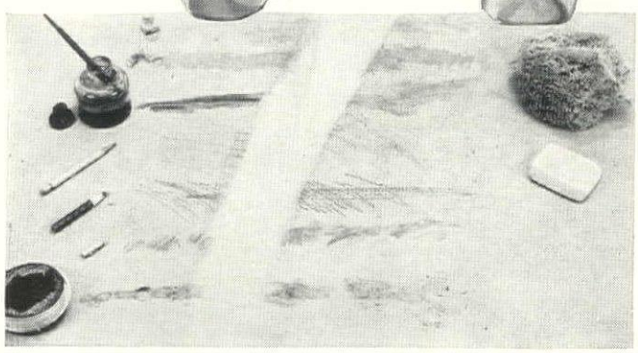
Sales Offices: Minneapolis, Minn., Little Rock, Ark., Dallas Tex., Denver, Colo., Washington, D.C., Boston, Mass.



Be far-sighted when you choose interior paint. Make sure that the "flat" you specify is *really washable*. Walls that can be kept clean do not need to be repainted so often. Therefore, real washability means *real* economy for your client.

Flat paint made with Dutch Boy White-Lead and Lead Mixing Oil is washable in both senses of the word. (1) The beauty of this paint is not destroyed by hard scrubbings. (2) Those scrubbings actually get you somewhere. The test panel at the right shows how stubborn stains and dirt really do "come out in the wash."

But there's more to the story of Dutch Boy money-saving than that. This paint has all the durability for which white-lead has long been famous. It mixes quickly, spreads easily and has high coverage—800 sq. ft. per gal. on smooth plaster. Those three qualities mean low first cost. Then add long wear and real cleanability, and you have *long-run* economy also.



This test panel is a 2' by 3' piece of wallboard, painted with Dutch Boy White-Lead and Dutch Boy Lead Mixing Oil. For a solid week, this panel lay in a busy corridor. The test panel was walked on by hundreds of people daily. Horizontal streaks show how it was then defaced with grease, ink, pencil, crayon, shoe blacking, lipstick, etc. Swath shows marks completely removed by washing with soap and water.

. . .

NATIONAL LEAD COMPANY—111 Broadway, New York; 116 Oak St., Buffalo; 900 West 18th St., Chicago; 659 Freeman Ave., Cincinnati; 1213 West Third St., Cleveland; 722 Chestnut St., St. Louis; 2240 24th St., San Francisco; National-Boston Lead Co., 800 Albany St., Boston; National Lead & Oil Co. of Penna., 316 Fourth Ave., Pittsburgh; John T. Lewis & Bros. Co., Widener Bldg., Phila.

DUTCH BOY WHITE-LEAD AND LEAD MIXING OIL

FORUM OF EVENTS

(Continued from page 46)

ARCHITECTS FOR NEW YORK HOUSING. At the request of Alfred Rheinstein, chairman New York City Housing Authority, the names of 33 architects and architectural firms have been listed from whom the designers of future low rent housing projects will be chosen. George McAneny served as chairman of a committee with Gilmore D. Clarke and Jay Downer. Firms chosen were listed in groups of three as follows: Corbett & MacMurray, Arthur C. Holden and Grosvenor Atterbury; Eliot Cross, William I. Hohauser and Ely Jacques Kahn; Harrison & Fouilhoux, Rosario Candela and Albert Mayer; Daniel P. Higgins, Carl A. Vollmer and Frederick G. Frost; Kohn, Butler & Stein, Matthew Del Gaudio and Henry S. Churchill; Morris & O'Connor, William Lescaze and Archibald M. Brown; Skidmore & Owings, Slee & Bryson and Starrett & Van Vleck; Reinhard & Hofmeister, L. A. Goldstone and Leon N. Gillette; Shreve, Lamb & Harmon, W. F. R. Ballard and Sylvan Bien; Voorhees, Walker, Foley & Smith, C. W. Schlusing and Alfred Easton Poor; York & Sawyer, Howard B. Burton and Aymar Embury II.

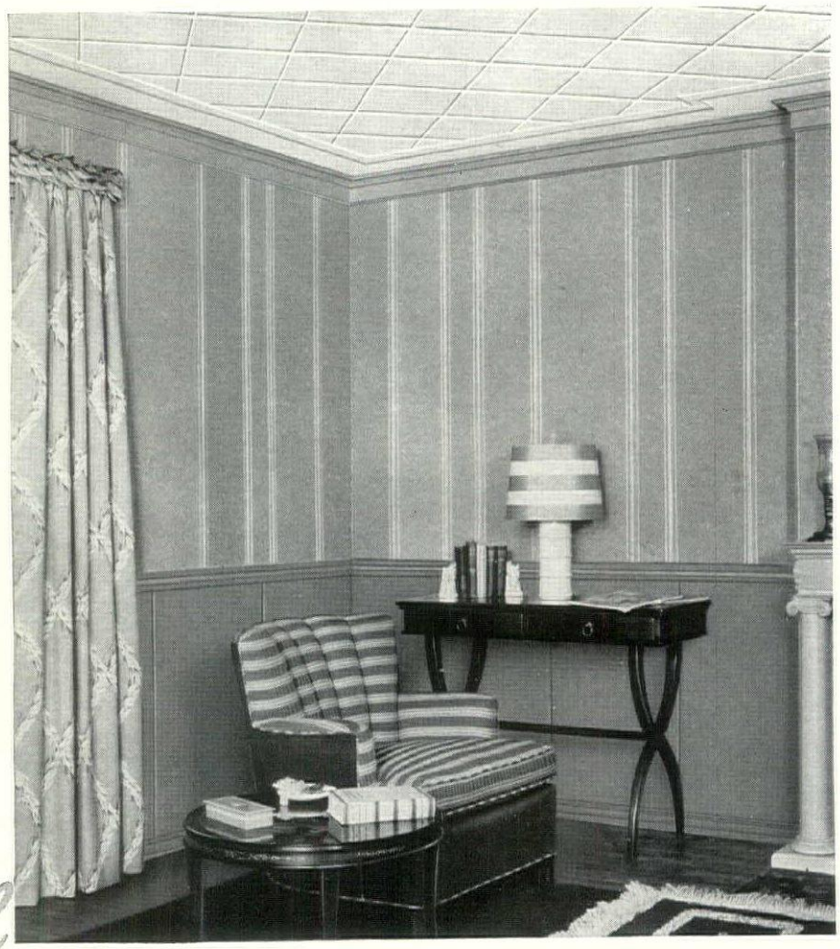
NEW YORK STATE SUPERINTENDENT OF PUBLIC WORKS. Following the death of Col. Frederick Stuart Greene on March 25, Governor Lehman nominated as his successor Capt. Arthur W. Brandt, acting head of the Public Works Department during Col. Greene's illness and since his death. Capt. Brandt has been with the Department since he was graduated from Tufts College Engineering School in 1912. In 1920 he was appointed deputy commissioner of highways, and in 1924 was made commissioner of highways.

DEATHS

FREDERICK STUART GREENE, 69, engineer, in Washington, D. C. Col. Greene, New York State's Commissioner of Public Works, was first appointed by Governor Alfred Smith and reappointed continuously by Governors Roosevelt and Lehman. Ill health brought about an announcement of his retirement only shortly before his death. Col. Greene was a redoubtable supporter of the bureau system of design for public works, thereby clashing frequently with the architects of the State. He served with distinction with the 302nd engineers, A.E.F.

HARRY V. K. HENDERSON, 56, architect and painter, in Newfane, Vt. Mr. Henderson was associated with the late Raymond Hood when the latter designed the American Radiator, Daily News, and McGraw-Hill Buildings in New York, and the Chicago Tribune Tower. He retired in 1931, three years before Mr. Hood's death, and devoted his time to painting and travel. He was a member of the A.I.A., the Architectural League of New York, American Water Color Society, and the New York Water Color Society.

WILLIAM B. MUNDIE, 76, architect, in Evanston, Ill. Born in 1863 at Hamilton, Ontario, he came to Chicago at 21 to work for Major William Lebaron Jenney, and seven years later became a partner—Jenney & Mundie (Jenney, Mundie & Jensen, 1905; Mundie & Jensen, 1907; Mundie, Jensen, Bourke & Havens, 1936). One of the last members of the group of architects who developed the skyscraper in Chicago, Mr. Mundie was supervising architect for the Board of Education 1898-1905, and designed the Horticultural Building for the Exposition of 1893. He was a charter member of the Cliff Dwellers and a Fellow of the A.I.A.—at one time its vice president.



That's the "Extra" Architects Get When NU-WOOD *Is Specified*

Style—as exclusive and distinctive as in a new model from Paris—that is what makes Nu-Wood appeal to architects and clients alike! For every Nu-Wood interior is *different*—different from every other Nu-Wood interior—and different from every other interior finish.

Each Nu-Wood "model" is exclusive—designed to fit the wishes of the architect and the needs of the home, church, theatre, restaurant or other building in which it is applied. And many architects today agree that the only material which can duplicate Nu-Wood is *Nu-Wood.*

Nu-Wood, with its unique texture, its variety of soft, harmonious colors, is always in the best of taste. And today, new Nu-Wood developments such as Sta-Lite—Nu-Wood Wainscot—and Kolor-Trim Moldings—give Nu-Wood an even greater "edge" in providing interesting interiors for the widest variety of requirements at low cost.

As an architect, you'll want to have full information about Nu-Wood—about its insulating and acoustical value—and about the scope it gives you in planning modern and traditional interiors for every type of building. Write today for the complete facts.

Why Nu-Wood Leads the Style Parade

COLOR. The subtle, soft colors of Nu-Wood—available in seven shades—have never been duplicated in other interior finish materials.

TEXTURE. Nu-Wood has a unique texture which is outstanding in beauty—and which has never been successfully imitated.

ADAPTABILITY. Because of its charming appearance, Nu-Wood is adapted to the widest possible range of interior decoration uses. It is equally at home in residence, church, school, restaurant or theatre.

KOLOR-TRIM MOLDINGS. Kolor-Trim Moldings are wood moldings predecorated in a range of jewel-like colors, harmonizing with the shades of Nu-Wood. Kolor-Trim Moldings make possible a complete interior decorating job without "extras."

STA-LITE. Nu-Wood Sta-Lite has better than 70% light reflection—and actually grows lighter with exposure! Available in tile, plank and board, Nu-Wood Sta-Lite ties in with "better sight" movement.

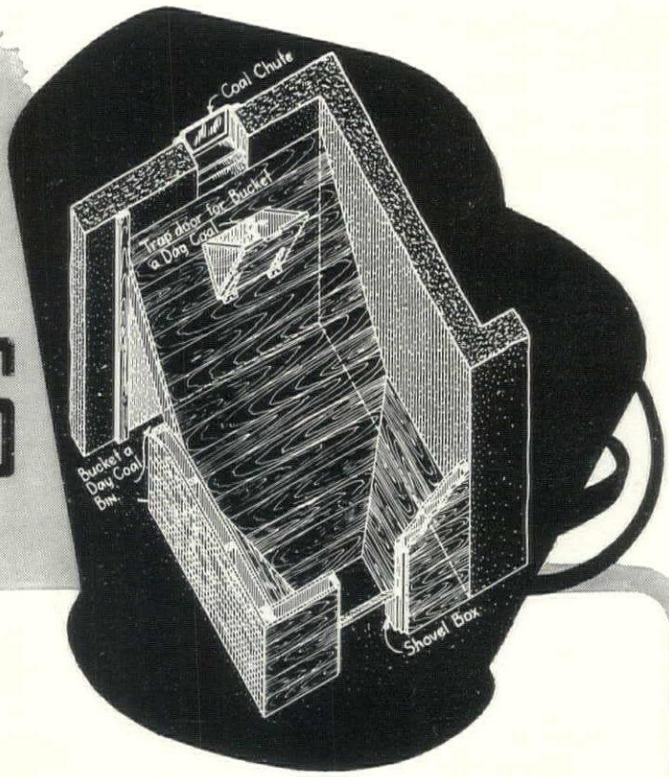
WOOD CONVERSION COMPANY

Room 147-5 First National Bank Building

St. Paul Minnesota

NU-WOOD AND BALSAM-WOOL INSULATIONS

Designs FOR SPACE-SAVING MODERN COAL BINS



COAL BINS, like fuels, are local problems. Some buildings have plenty of space; in others, space must be rigidly conserved. Coal bins that can be tucked away into unusual places or that perform double duties are helpful in solving designing problems.

YOU WILL FIND details of such bins in our free book, the 1939 Basement Book. You will also find constructional details of other modernly built bins, plans for basements and for basementless houses that illustrate the fundamental principles of designing for the use of modern, low-cost bituminous coal or coke.

MORE AND MORE PEOPLE are turning to scientifically cleaned and prepared bituminous coal or coke. They desire the steady heat it provides. They like the savings which the low-cost universal fuel gives them. Fuel problems, after all, are local problems. Your local coal merchant can give you valuable information on local fuel performance and fuel costs which is important in solving your clients' heating requirements. See your local coal merchants for local costs—write for the 1939 Basement Plan Book for helpful hints in designing.

NATIONAL COAL ASSOCIATION

The Nation-Wide Organization of Bituminous Coal Producers

HEADQUARTERS: 804 SOUTHERN BLDG., WASHINGTON, D. C.
WESTERN OFFICE: 307 N. MICHIGAN AVENUE, CHICAGO, ILLINOIS

Please send me a copy of your Free Booklet "*The 1939 Basement Plan Book.*" A. I. A. File 30-G.

Name..... *Firm*.....

Street..... *City*..... *State*..... AF-5

Bituminous Coal—the "Universal Fuel"

FOR HOME HEATING • FIREPLACES • HOT WATER • INDUSTRY • INSTITUTIONS • BUILDINGS • POWER • TRANSPORTATION

BOOKS

(Continued from page 20)

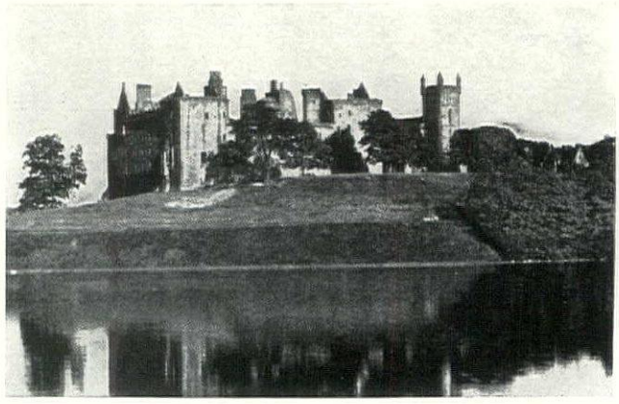
DESIGN OF STEEL BUILDINGS, by Harold Dana Hauf. John Wiley and Sons, Inc. 232 pp. 6 x 9. $2.75.

STEEL CONSTRUCTION, by H. J. Burt and C. H. Sandberg. American Technical Society. 438 pp. 6 x 8½.

Both of these books are revised and enlarged to cover changes and new developments in structural practice. The former, designed specifically for the use of students and young architects and engineers, has the advantage of brevity and simplicity. "Steel Construction" begins with the process of making steel, discusses fabrication, welding, protection of structural members, and devotes a considerable amount of space to specific building types. Both are recommended.

THE STONES OF SCOTLAND, edited by George Scott-Moncrieff. Charles Scribner's Sons, New York. 132 pp., illustrated. 9 x 6. $4.50.

By 1700, Dr. Johnson's well-known statement that the noblest prospect a Scot ever sees is the high road leading into England became particularly true of architects. Before



that time, however, Scotland possessed an indigenous architecture which, while based on the styles of Western Europe, was yet separate and distinct from the work on the other side of the border. The five essays in this book trace Scottish building traditions from the cairns and hill forts of prehistoric times to the eighteenth century when native Scottish forms were supplanted by the classic style. The author's analysis is amply documented by excellent photographs.

PAINTING AND DECORATING, by J. Ralph Dalzell and Alvah Horton Sabin. The American Technical Society, Chicago. 152 pp. 5¾ x 8½. $1.50.

A very useful handbook outlining the basic compositions and general applications of the commonly used paints. The chief value to the architect of such a book is, of course, in the preparation of specifications, and there is a chapter devoted to this subject, with outline specification forms and descriptions of various formulas. A considerable amount of information is given on checking, alligatoring, blistering, and the other difficulties that arise on paint jobs, with explanation of their causes and recommendations for their correction. There is a section on mixing paints, another on the proper uses of the different types, and a series of questions and answers which deal chiefly with quantities of paint required for various kinds of surfaces.

BEFORE STUCCO

●California Stucco, made with Atlas White and produced by the California Stucco Co. of Los Angeles, helped work a modernizing miracle on the Los Angeles Auditorium. Architect: Claud Beelman; General Contractor: the Baruch Corp.; Plastering Contractor: W. D. Lindsay, Jr.;—all of Los Angeles.

Modernizing miracle transforms noted Los Angeles Auditorium

THE REMODELING of this center of business and culture in Los Angeles is a tribute to architects and builders of today—and the modern materials they use.

Stucco is one of these materials. Here, it is factory-prepared stucco made with Atlas White portland cement which wraps this Auditorium in a modern, permanent, fire-and weather-resisting wall.

Consider Atlas White stucco for your next modernizing job and for new buildings. You can specify it in white and a range of colors. Both initial and maintenance costs will be surprisingly low. Let us send you information on the many ways in which stucco is being used today. Write Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), Chrysler Building, N.Y.C.

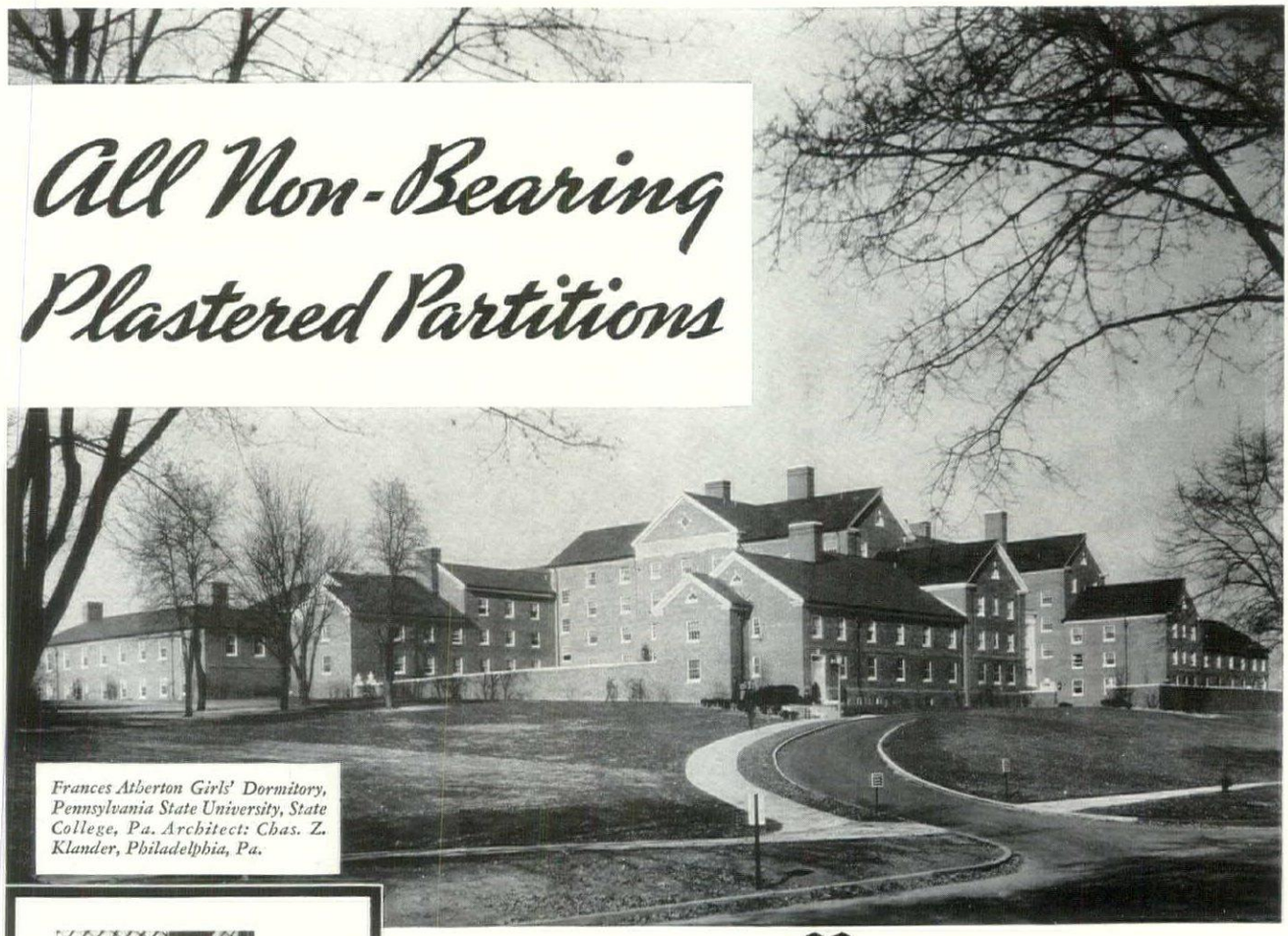
A FACTORY-PREPARED STUCCO IS PREFERABLE

AFTER STUCCO

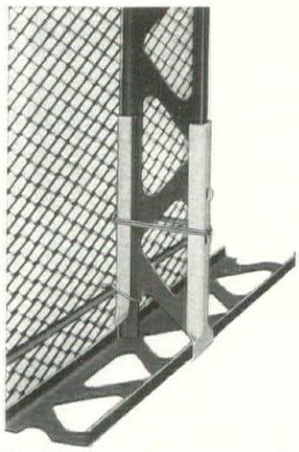
AF-S-4

STUCCO MADE WITH **Atlas White** PORTLAND CEMENT

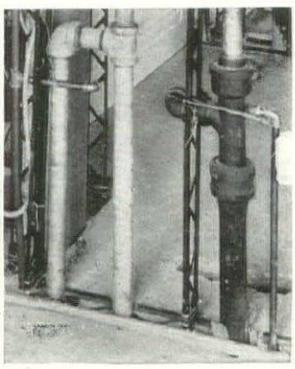
All Non-Bearing Plastered Partitions



Frances Atherton Girls' Dormitory, Pennsylvania State University, State College, Pa. Architect: Chas. Z. Klander, Philadelphia, Pa.



Bar-Z-Stud on track with Bar-X-Lath tied to one side.



The hollow design of Bar-Z-System partitions and the triangular openings in the Bar-Z-Studs facilitate installation of plumbing and conduits as shown here.

are **Steelcrete**

BAR-Z-SYSTEM

TO SAFEGUARD the interior beauty of modern buildings, architects, more and more, are specifying Steelcrete Bar-Z-System—the original system of hollow plastered partitions. This rigid construction, consisting of Bar-Z-Studs and Bar-X-Lath (the diamond mesh expanded metal lath with twin reinforcing rods), provides a perfect reinforced base for plaster and assures maximum protection against cracking. It also offers high resistance to the penetration of sound. You can specify the Steelcrete Bar-Z-System for any type of building. Write for the latest catalog containing complete details.

"IT'S WHEELING STEEL"

The **CONSOLIDATED** *Expanded Metal* **COMPANIES**

WHEELING, WEST VIRGINIA

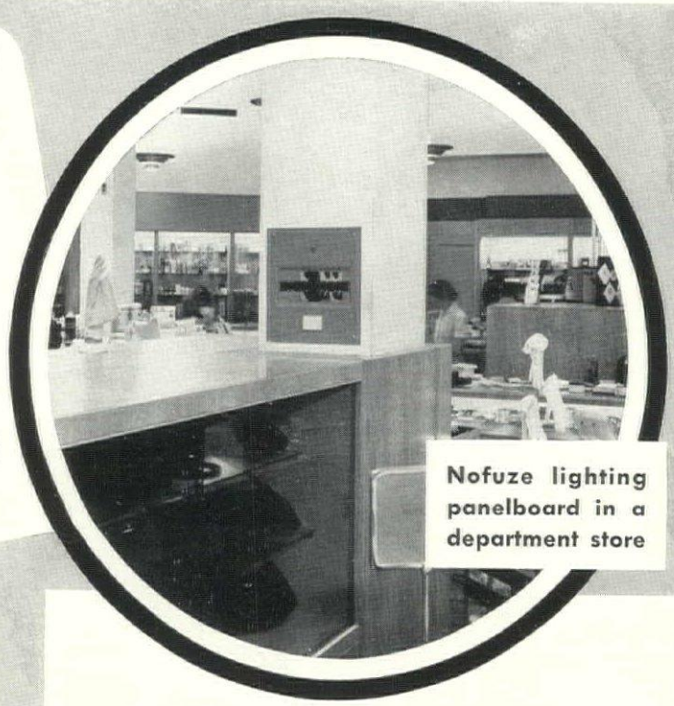
Branch Offices and Warehouses:

New York • Chicago • Cleveland • Pittsburgh
Philadelphia • Detroit • Boston • Buffalo • Houston • Atlanta

Export Office: 330 West 42nd St., New York, N. Y.

a Detail?

SURE, BUT YOU NEED TO INCLUDE IT IN YOUR PLANS



Nofuze lighting panelboard in a department store

Nofuze circuit protection in a chain of modern service stations

Nofuze Multi-Breakers in thousands of homes

Fingertip control now extends to Electrical Circuit Distribution

One of the details the architect is expected to know about today is the all important detail of electrical outlets and circuits . . . including fuseless circuit protection.

You can be posted on the newest developments by referring to A. I. A. File 131, Westinghouse Architects' and Engineers' Data Book, Nofuze section. This explains the bi-metal principle of circuit protection . . . safe, convenient, making it possible to restore service by a flip of the switch.

If you do not have a copy of this book, be sure to send for one today. Simply write to:

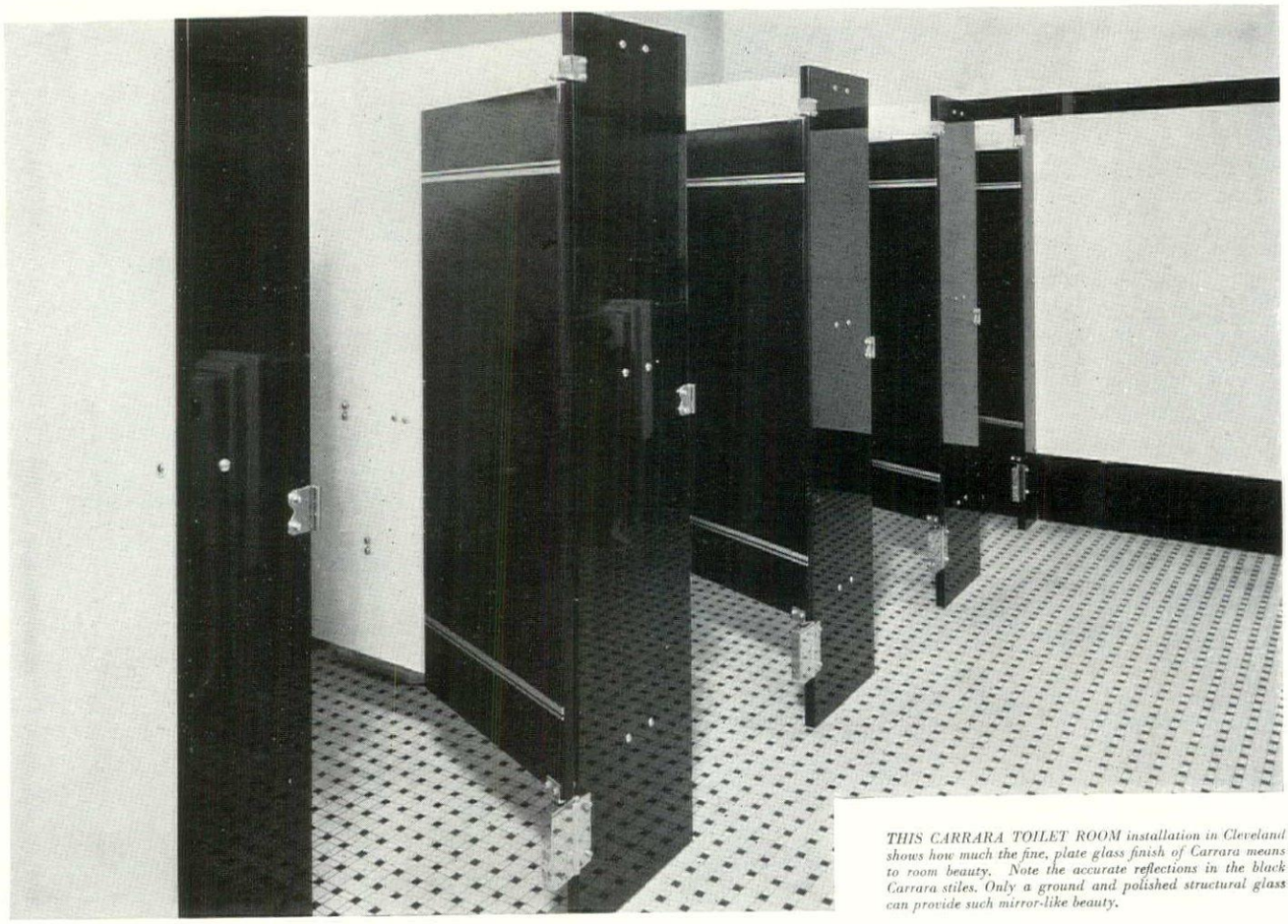
J-60298

Westinghouse Electric & Mfg. Company
East Pittsburgh, Pa.

Westinghouse Nofuze Protection

Here's Structural Glass with the *Perfect Finish*

OF THE FINEST POLISHED PLATE GLASS!



THIS CARRARA TOILET ROOM installation in Cleveland shows how much the fine, plate glass finish of Carrara means to room beauty. Note the accurate reflections in the black Carrara stiles. Only a ground and polished structural glass can provide such mirror-like beauty.

THE perfect finish of fine plate glass is obtained by mechanical grinding and polishing. And the brilliant, mirror-like finish of Carrara Structural Glass is obtained the same way. Every piece of Carrara produced is mechanically ground and polished.

What this means to effective design is obvious. When working with large areas of transparent glass, you specify polished plate glass for best results. Similarly, when working with structural glass, where slabs are usually quite large, Carrara with its ground and polished finish will inevitably produce a far superior job.

The permanence, easy cleaning, sanitation and wide choice of colors offered by Carrara Glass assure a long life of beauty and usefulness, and wide design possibilities for architects. Whether you use Carrara for toilet room walls, stiles and partitions, for wainscoting, for decorative purposes in the large building or the home, you will find it an ideal material to work with.

PITTSBURGH PC CORNING Carrara THE MODERN STRUCTURAL GLASS

Write today for our free booklet, "Carrara, the Modern Structural Glass," which contains complete information. Address Pittsburgh Corning Corporation, 2148-9 Grant Bldg., Pittsburgh, Pa.

At the New York World's Fair, see the exhibits of Pittsburgh Glass in the Glass Center Building, the Forward March of America Building, and the All-Glass House; and, at the Golden Gate International Exposition, see them in the Homes and Gardens Building.

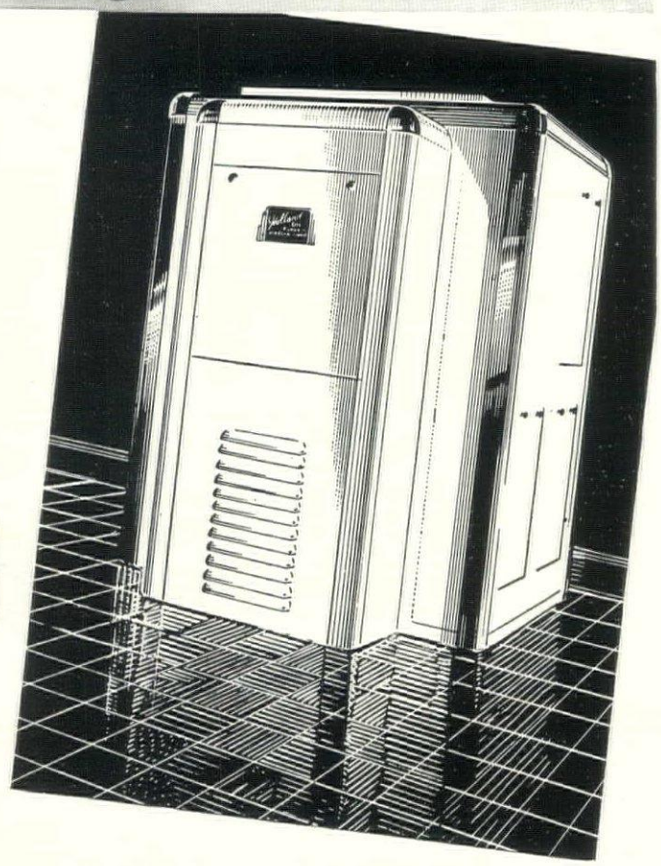
Distributed by

PITTSBURGH PLATE GLASS COMPANY

and by W. P. Fuller and Co. on the Pacific Coast

Just Snap this Switch Twice a Year

FOR WINTER... FOR SUMMER



HOLLAND

Automatic Furnace

AIR CONDITIONER

FOR OIL OR GAS

ENDS FURNACE TENDING . . . YET ACTUALLY COSTS LESS!

YOU are indeed providing a luxury when you specify the above smartly styled unit for any home. It is, however, certainly not an extravagance to enjoy the clean, healthful, labor-free comfort of a Holland Automatic Furnace Air Conditioner. Matched part for part and size for size, it is lower in price than any other of comparable efficiency. Furthermore, thousands of installations throughout the country have shown remarkable savings in operating costs in comparison with heating systems they replaced.

No less welcome to owners than economy, is their greatly increased comfort and convenience. On the first cold day, one flick of a switch does all their furnace tending for the rest of the winter. From then on, the Holland tends itself—insures proper warmth in every room, thoroughly humidifies, filters and circulates the air, in short, supplies complete automatic winter air conditioning. Then when summer comes that same switch is snapped again. Thereafter, filtered air is automatically circulated throughout the home with decided cooling effect.

To be sure many different kinds of equipment are available to supply these same services. If, however, you will study Holland specifications, we are sure you will agree that none equal it in efficiency and economy. A complete description is yours for mailing the coupon below.

HOLLAND FURNACE COMPANY

HOLLAND, MICHIGAN

World's Largest Installers of Home Heating and Air Conditioning Systems

HOLLAND FURNACE COMPANY, Dept. AF-5, Holland, Mich.
Please mail information on subjects checked below:

- ☐ Automatic Furnace Air Conditioner for Oil or Gas
- ☐ Coal Burning Heating and Air Conditioning Systems
- ☐ Automatic Coal Burners
- ☐ Automatic Oil Burners
- ☐ FREE DATA SHEETS
- ☐ Have Engineer Call

Name .....

Address .....

City ..... *State* .....

Victory in Sports goes to Steel

★The theme song of America is improvement and speed, and so Sport joins the long list of activities that turn for both to steel. Your drive is longer, truer because of a steel shaft on your golf clubs; your play more enjoyable due to perfect conditioned, well watered courses made possible through the use of steel pipe sprinkler systems; shoe cleats of steel grip golf fairway and running track; steel horse shoes speed the favorite across the finish lines; and racing automobiles, airplanes, speedboats, yachts would be impossible without fine steels.

Every moment of our lives we depend on steel in not one but many forms. We get up in the morning after a restful night on steel springs, we shave with a steel razor, we eat meals prepared on steel ranges, we ride in steel trains or cars, we work in steel-framed plants or buildings.

The steel for every one of these products must be *exactly right for each particular use.* At Youngstown every pound of steel sold is developed through research for its special use, no matter how small the order may be.

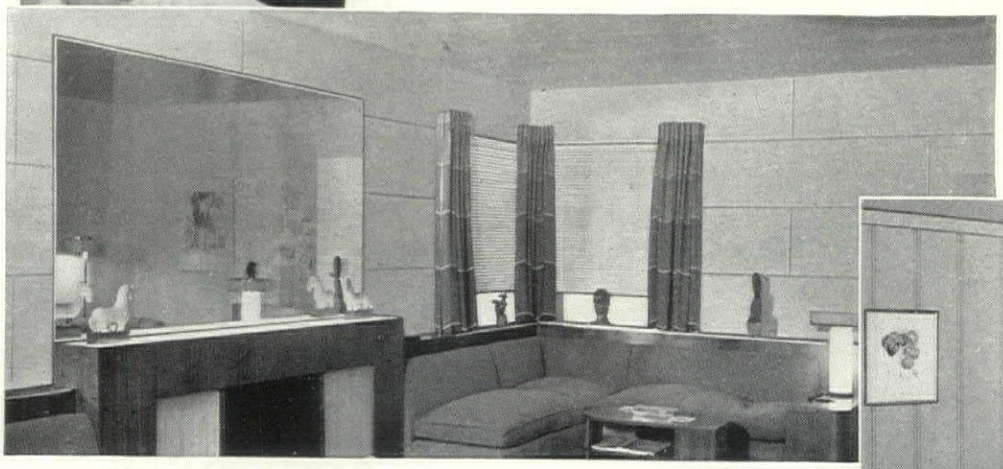
THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon and Alloy Steels
General Offices - YOUNGSTOWN, OHIO
Sheets - Plates - Pipe and Tubular Products - Conduit - Tin
Plate - Bars - Rods - Wire - Nails - Unions - Tie Plates and Spikes
25-12B

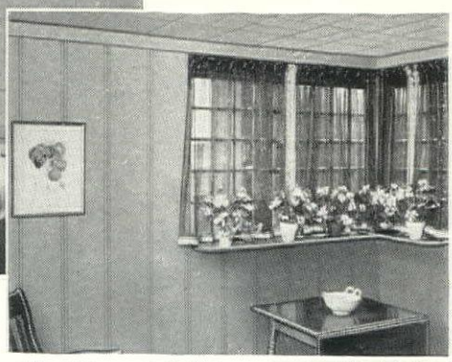
QUALITY
TRADE MARK
YOUNGSTOWN
SERVICE

YOUNGSTOWN

TAKE A TIP FROM THE JONESES SEE WHY HOME BUILDERS WANT MODERN WALLS



MRS. JONES: "Here is a light, inviting room that owes its charm to the fact that the walls are built of Insulite, the modern wall material. It has just the individuality of design and surface I want in my living room.



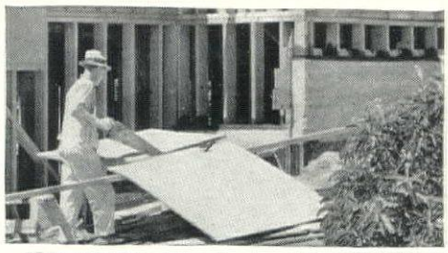
"In this paneled dining room, with fabric textured walls built of Insulite materials, we will have the quiet, cleanliness and comfort I've always dreamed of in our new home."

The INSULITE WALL OF PROTECTION

MEETS THE JONES' DEMANDS! Cash in on the demands of the home building Jones families in your community! Show them how Insulite materials for inside and outside walls go together to make Walls of Protection.

There are combinations of Insulite materials to fill every need in new building and remodeling. For 25 years, Insulite materials have been making homes more beautiful, more comfortable, more satisfying . . . and besides, Insulite materials *insulate!*

Learn how easily you can turn these demands into profitable business; write today for samples and complete information about Insulite building materials. The Insulite Company, Dept. AF59, Minneapolis, Minnesota.



MR. JONES: "Yes, dear, and I want Insulite modern materials in the outside walls. They too are made especially to save labor costs, cut fuel bills, protect against wind and moisture, and provide *insulation* as part of the wall material."

INSULITE

● Modernistic, colorful Terrazzo in the Bond Clothing Store, Philadelphia, Pa., makes a permanently attractive floor. Here the colors are white, yellow and black. At the store entrance, the Terrazzo floor contains white and red.

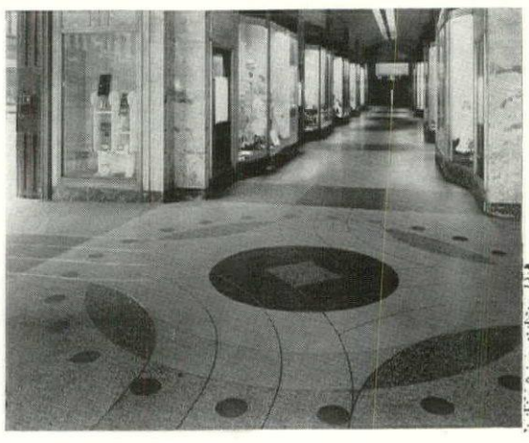
What a floor for a store!

(INSIDE AND OUTSIDE)

YOU needn't sacrifice either beauty or durability in floors for modern retail stores. You can be sure of lasting beauty, with unusually low maintenance costs included, by specifying Terrazzo. And you can use Terrazzo inside or outside with equally lasting and beautiful results.

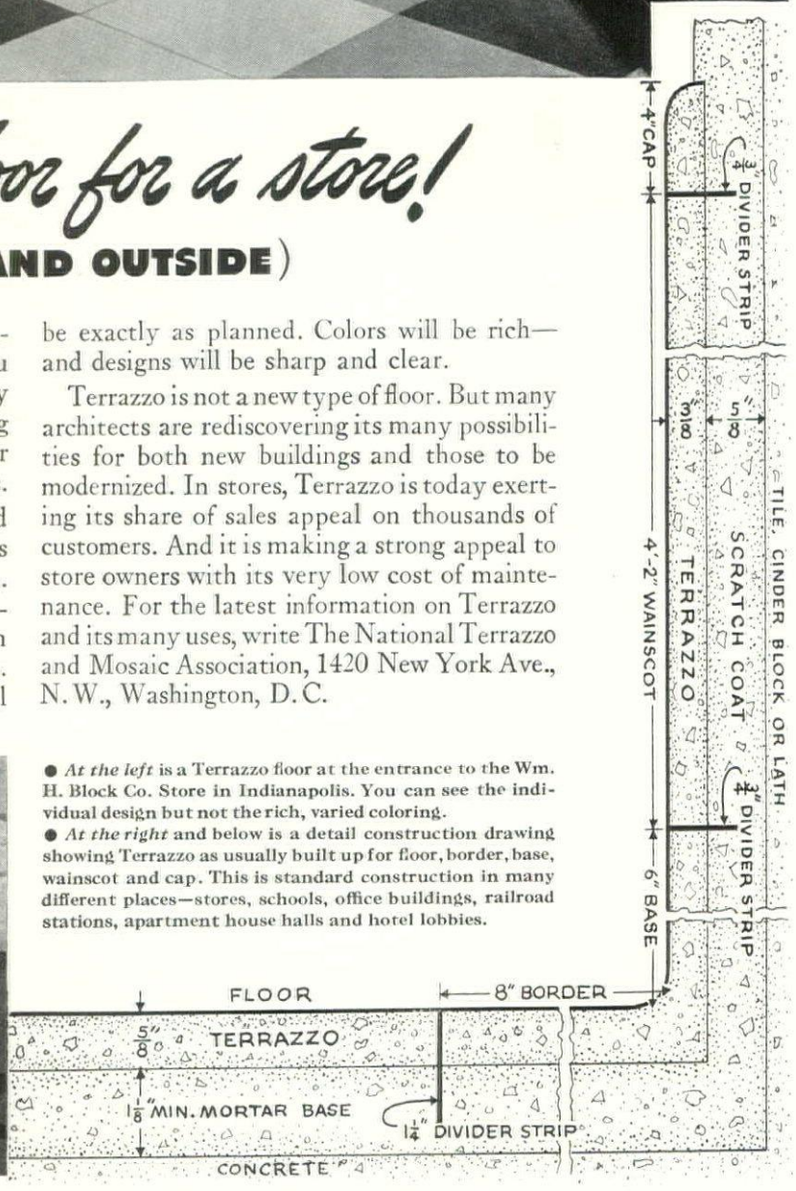
Terrazzo is a combination of cement and marble. You can see where its durability comes from. The picture above shows a simple design. But you can specify any standard or individually designed pattern—simple or intricate—in practically any color or combination of colors. And you can be sure that the finished job will be exactly as planned. Colors will be rich—and designs will be sharp and clear.

Terrazzo is not a new type of floor. But many architects are rediscovering its many possibilities for both new buildings and those to be modernized. In stores, Terrazzo is today exerting its share of sales appeal on thousands of customers. And it is making a strong appeal to store owners with its very low cost of maintenance. For the latest information on Terrazzo and its many uses, write The National Terrazzo and Mosaic Association, 1420 New York Ave., N. W., Washington, D. C.



● *At the left* is a Terrazzo floor at the entrance to the Wm. H. Block Co. Store in Indianapolis. You can see the individual design but not the rich, varied coloring.

● *At the right* and below is a detail construction drawing showing Terrazzo as usually built up for floor, border, base, wainscot and cap. This is standard construction in many different places—stores, schools, office buildings, railroad stations, apartment house halls and hotel lobbies.



THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION

Clients' chorus next winter ... if you specify "Window Conditioning" *Now!*

● This picture illustrates the contentment of all of your clients—if you include "Window Conditioning" in houses planned for spring, summer or fall building.

For "Window Conditioning" brings more comforts, greater fuel savings, than any single improvement of comparable cost. It effectively insulates the coldest spots in the house—the windows. It helps to maintain more even temperatures throughout ... minimizes chilly drafts ... reduces fuel bills—in many cases as much as 30%.

And "Window Conditioning" permits the use of smaller and less costly heating equipment without impairing heating efficiency. It is essential for the complete enjoyment of the benefits of winter air conditioning.

With double glazing, the quality of the glass becomes doubly important—for your client will be looking through two panes instead of one. L·O·F Quality Glass is ideal for "Window Conditioning." It is clearer, brighter and flatter than any window glass that the industry has ever offered—noted for its greater freedom from waviness and distortion. Libbey·Owens·Ford Glass Company, Toledo.

LIBBEY·OWENS·FORD
QUALITY GLASS L·O·F

"School's almost over"

Yes, the present school year will soon end for millions of boys and girls throughout the nation. As usual, summer vacation will be welcomed by every healthy, red-blooded youngster.

Yet, most of them—whether they admit it or not—will be happy to return to school next fall. This applies particularly to those children who will attend modern schools, now under construction or recently completed. Most attractive in appearance, these new schools have been designed and constructed with a full understanding of educational and health needs as well as social requirements.

We are proud that Architects and School Authorities have selected the New Herman Nelson Air Conditioner in preference to any other unit for these modern schools.

herman nelson moline illinois

THE HERMAN NELSON CORPORATION

HOME OFFICES AND FACTORIES AT MOLINE, ILLINOIS

Sales and Service Offices in the Following Cities:

Portland, Me.
Boston, Mass.
Westfield, Mass.
New York City
Watervliet, N. Y.
Syracuse, N. Y.
Buffalo, N. Y.
Rochester, N. Y.

Washington, D. C.
Richmond, Va.
Roanoke, Va.
Nashville, Tenn.
Memphis, Tenn.
Indianapolis, Ind.
Chicago, Ill.
Philadelphia, Pa.

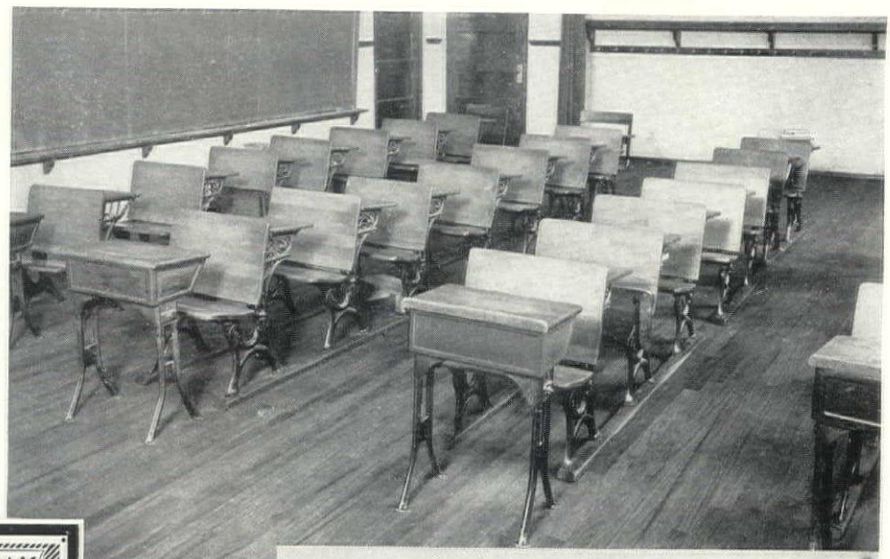
Harrisburg, Pa.
Scranton, Pa.
Pittsburgh, Pa.
Johnstown, Pa.
Milwaukee, Wis.
St. Louis, Mo.
Kansas City, Mo.
Emporia, Kans.

Minneapolis, Minn.
Omaha, Neb.
Oklahoma City, Okla.
Detroit, Mich.
Grand Rapids, Mich.
Saginaw, Mich.
Cleveland, Ohio
Cincinnati, Ohio

Dallas, Texas
Missoula, Mont.
Denver, Colo.
Salt Lake City, Utah
Spokane, Wash.
Seattle, Wash.
Portland, Ore.
Los Angeles, Cal.

Approved for Federal Specifications for Hardwood Flooring

NOFMA OAK FLOORING



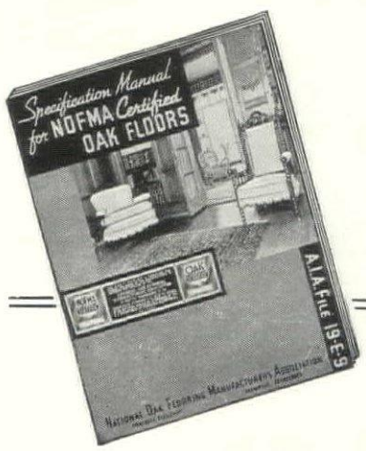
qualifies equally for

SCHOOL FLOORS

Qualifying for Federal specifications under Commercial Standards CS-56-36, U. S. Dept. of Commerce, NOFMA Oak Flooring, produced exclusively by the members of the National Oak Flooring Manufacturers' Association, has long been the criterion of value in hardwood flooring. So it is that the NOFMA label shown here, specifies a traditional material of extreme strength, handsome appearance, and wearing qualities that stand up under the rigorous treatment imposed on school floors.

As a plus value to this guarantee of stabilized quality, NOFMA has developed authentic specifications for trouble-proof framing and sub-floor construction, as well as specifications for the laying, finishing and care of NOFMA Oak Floors, and has incorporated them in the comprehensive NOFMA Specification Manual, A. I. A. File 19-E-9.

A copy of this manual is yours for the asking, and remember, NOFMA Oak Flooring, produced by the leaders in the hardwood flooring industry, is available anywhere in the United States through local distributors.



National Oak Flooring Manufacturers' Association

115 DERMON BLDG. MEMPHIS, TENNESSEE

Reg. U. S. Pat. Office

NOFMA CERTIFIED OAK FLOORS

This NOFMA Specification Manual greatly simplifies preparation of specifications . . . serves as a Master Work Sheet . . . and includes complete NOFMA grades. *Your copy will be mailed free on request.*

Isn't this the way to

Probably all of us capable of seeing beyond the ends of our noses have, within recent years, dreamed hopefully of:

1—A nation once more busy, prosperous, reasonably content.

2—Better homes for ourselves and our fellow Americans to live in.

Happily, these two dreams are eminently realizable—*together*. Our business history unquestionably shows that a full-blooded prosperity is definitely linked up with progress in home building.

INTO NEW HOMES GO NEW BATHROOM FIXTURES

Happily, too—throughout America today there rises an encouraging crescendo of the hammer and saw!

A number of factors account for the definite increase in building activity recorded within the past six months. The past two years have witnessed a *steady decline* in the cost of building materials. At the same time, there has been an *inspiring improvement* in home design, human comforts, labor-saving conveniences, health-preserving devices. And today, the whole subject of home building is *much more clearly and generally understood*.

LIFE, from its inception, has seen an opportunity to *co-ordinate* all the diverse information one must grasp when building a home. So, LIFE has consistently presented, analyzed, and clarified for its *many millions of readers* such hitherto puzzling and disunited matters

INTO NEW HOMES GOES NEW KITCHEN EQUIPMENT

as—house design, equipping, furnishing, practical landscaping, building and land costs, financing and relating financing to earning power. It is *the first time* that so complete an educational treatment of this subject has reached so huge an audience.

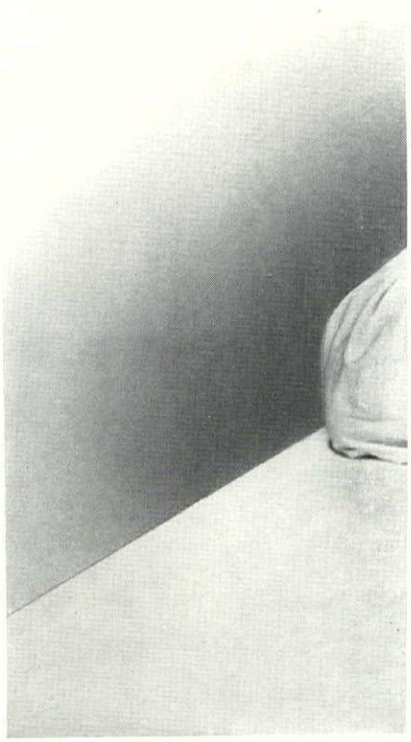
Fully aware of the "ill-housed third" problem, LIFE regularly reports on this pressing economic question. But, realizing that the driving force behind any

INTO NEW HOMES GO NEW FURNISHINGS

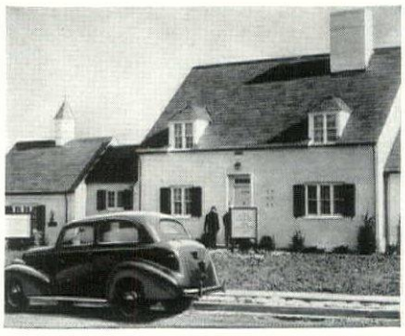
considerable building revival is *private home building* by the millions who can afford it, LIFE has tried to show these millions that they *can* and *should* afford the thrilling adventure of home building.

An instance of LIFE's practical encouragement of this cause:

LIFE recently sought out a group of representative, geographically scattered, American families who admitted being unsatisfactorily housed and harboring



dreams of better homes for themselves. Their incomes ranged from $2,000 to $10,000 a year. Then LIFE commissioned eight of the country's most distinguished architects to design new homes that would meet the needs of these families. The architects' plans met the challenge brilliantly—the families were delighted—and, simply, vividly, the entire project was reported in LIFE . . . revealing

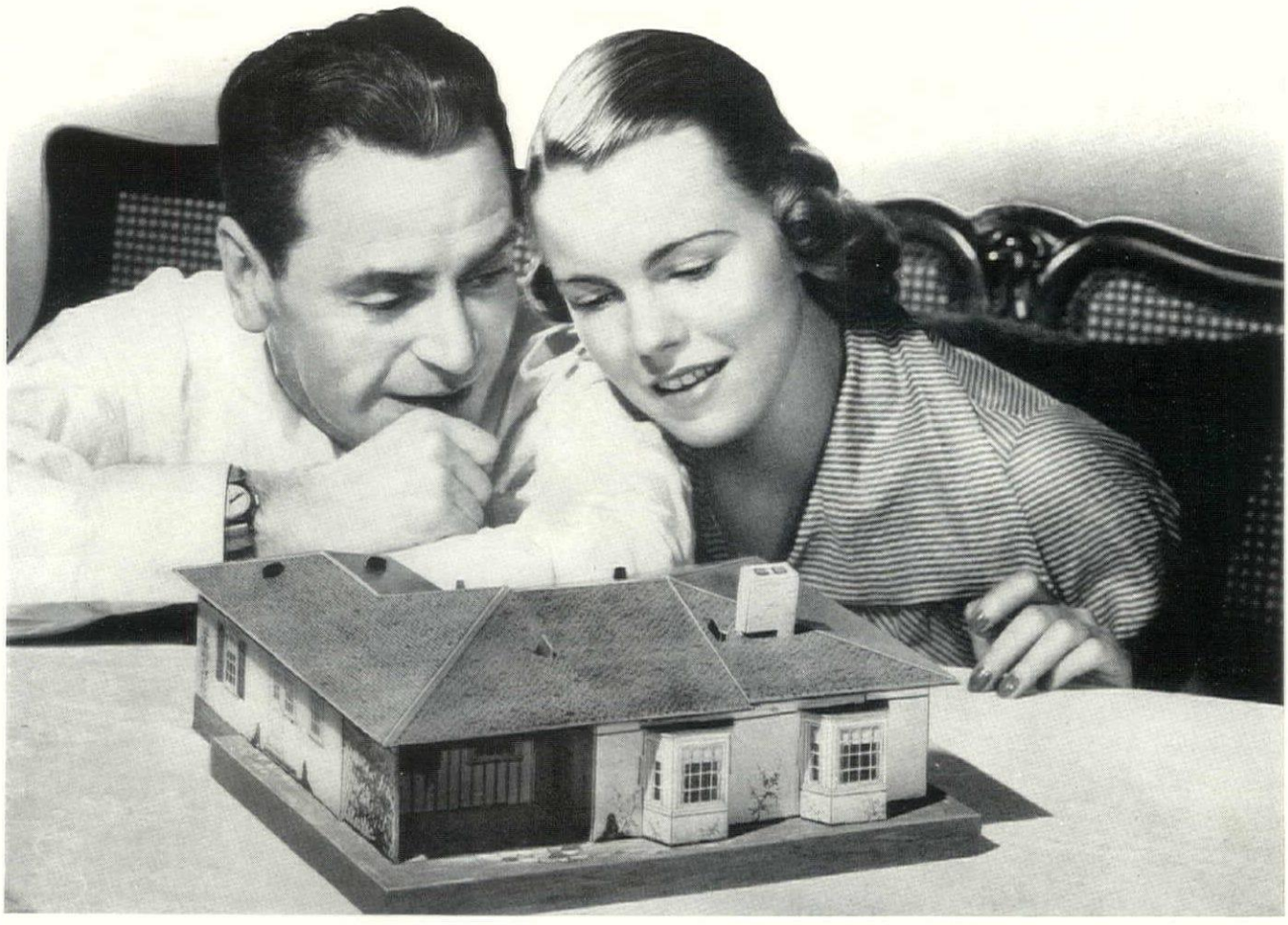


INTO GARAGES OF NEW HOMES GO AUTOMOBILES

each step involved in home owning, from the original "dream" to amortization of the occupied home's financing.

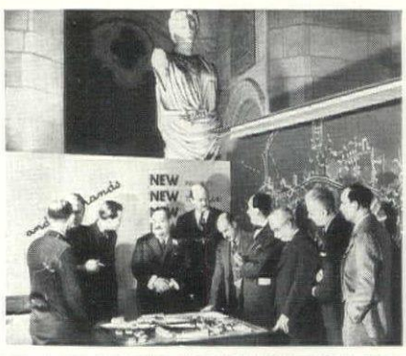
This advertisement has also appeared in the N. Y. Herald Tribune, N. Y. Times, Cleveland Plain Dealer.

handle Dreams?



The result of this *single* stimulus?

More than 40,000 people have purchased exact miniature models of the eight original LIFE houses . . . many more thousands have seen finished LIFE houses on display . . . and today, dotted over America from Boston to San Diego, from Atlanta to Seattle, *LIFE houses are actually up and going up!*



FROM LIFE'S REPORT OF THE YALE-LIFE BUILDING CONFERENCE

Issue after issue, LIFE shows that its attention to the many factors involved in home making is no mere flash-in-the-pan enthusiasm. We are enthusiastically committed (as witness the recent provocative Yale-LIFE Conference on House Building Techniques) to the long-haul job of dramatizing to all Americans how much they have to gain from an intelligent and active support of the home building movement.

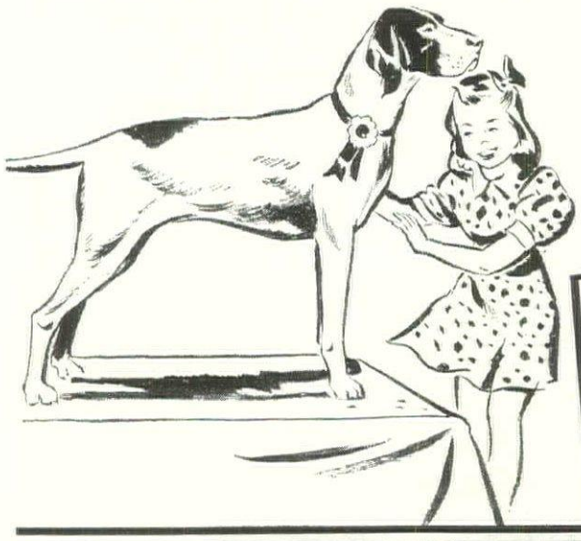
This is a most natural task for LIFE to set itself. For, in every one of its stimulating pages, LIFE is intensely concerned with *all* things in the world that shape and color *you and your life.* And of all these things, LIFE believes there is none more vital, more basic in importance than—*your home!*

LIFE

"AMERICA'S MOST POTENT EDITORIAL FORCE"

Chicago Tribune, Detroit Free Press, Philadelphia Bulletin, LIFE, Fortune, and advertising magazines.

THE CHAMPION MUST RATE HIGH *On All Points*



● In every Bench Show many dogs win ribbons. But the Grand Champion of the Show must win a high rating on all points. Likewise good building insulation such as Kimsul* must meet not only one or two requirements, but all of them. It must be Efficient; and Permanent; and able to Repay its Cost in fuel savings.

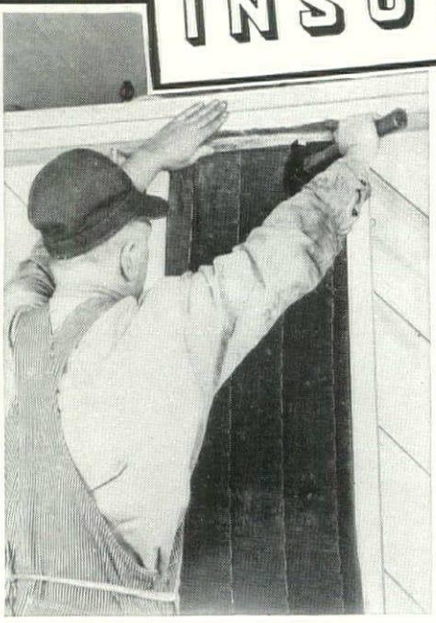
Presstitched

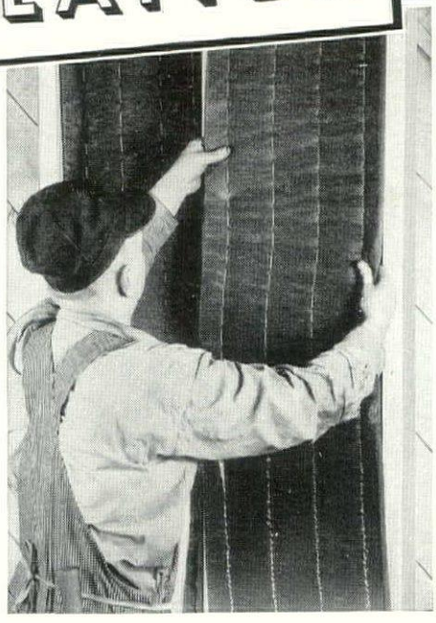
KIMSUL

REG. U. S. & CAN. PAT. OFF.

Expanding Blanket

INSULATION





Efficient

With its "K" factor of .27 Kimsul* ranks high as a heat stopper, providing year 'round insulation. It fits snugly and being flexible is easily worked around pipes or wires so no areas need be left unprotected.

Permanent

Kimsul is highly resistant to fire, moisture, vermin, fungi and time! Properly installed (nailed both top and bottom) it remains in place. Even when walls settle "transoms," thru which heat can leak, are not apt to develop.

Low in Cost

Kimsul costs so little to buy, and so little to install that its cost is soon repaid thru fuel savings. In new homes the cost of Kimsulating is often paid by savings in the size of the heating plant.

**Reg. U. S. & Can. Pat. Off.*

OF SPECIAL INTEREST TO ARCHITECTS

The new Presstitched Kimsul is made in thicknesses of ½, 1, 1½ and 2 inches, and in widths to fit snugly between studs of any standard spacing. When Kimsul is selected the thickness and width most applicable to the job may be used. Kimsul is equally efficient for insulating walls, roofs, or top floor ceilings. Left over pieces make ideal caulking.

KIMBERLY-CLARK CORPORATION (Kimsul Division), Neenah, Wisconsin
Established 1872

NEW YORK, 122 East 42nd Street • CHICAGO, 8 South Michigan Avenue

AF5

Mail me, without obligation, copy of booklet describing Kimsul, also a full sized sample.

*Name*_____

*Address*_____

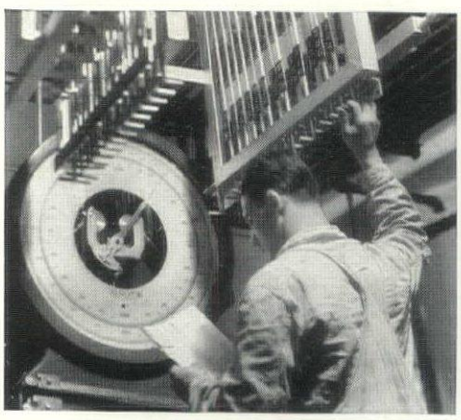
*City*_____ *State*_____

PLEASE CHECK: **ARCHITECT** ☐ **BUILDER** ☐ **DEALER** ☐

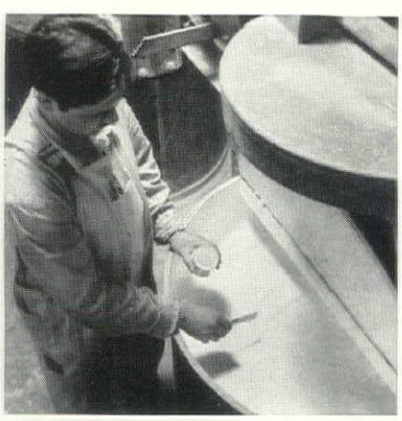
For Paint Jobs That Stand Up!

FOR more than 80 years Pittsburgh Paints have brought beauty and protection to homes, business and industrial properties—inside and out. Architects, painting contractors, painters have faith in these field-tested, factory-tested finishes—depend on them. We are proud of our fine reputation throughout the trade—a reputation that has been built only through years of maintaining the very highest standards of uniformity and durability. If you want paint jobs that stand up, specify Pittsburgh.

RIGID FACTORY CONTROL ASSURES UNIFORMITY AND DEPENDABILITY!



AUTOMATIC SCALES AND MEASURES control the exact quantities of every ingredient used in Pittsburgh Finishes. These quantities are set up in printed formulas, must be followed to the smallest fractions.



CONSTANT TESTING all along the line assures the high quality of every Pittsburgh Finish. Samples of different batches are subjected to many ingenious mechanical devices to gauge their spreading, hiding, wearing and lasting qualities.

AT PITTSBURGH PROVING GROUNDS, strategically located in different parts of the country, Pittsburgh Paints are tested under every climatic condition. That's one reason you can be SURE they'll stand up in actual service.

See Sweet's Catalogue!

● For further information and addresses of all Pittsburgh Branches, see Sweet's Catalogue. Call our Pittsburgh representative and ask him for complete specifications. Pittsburgh Plate Glass Company, Pittsburgh, Pennsylvania.

PITTSBURGH PAINTS

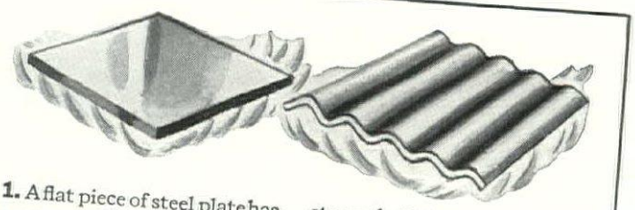
Smooth as Glass

WALLHIDE • FLORHIDE • WATERSPAR • SUNPROOF

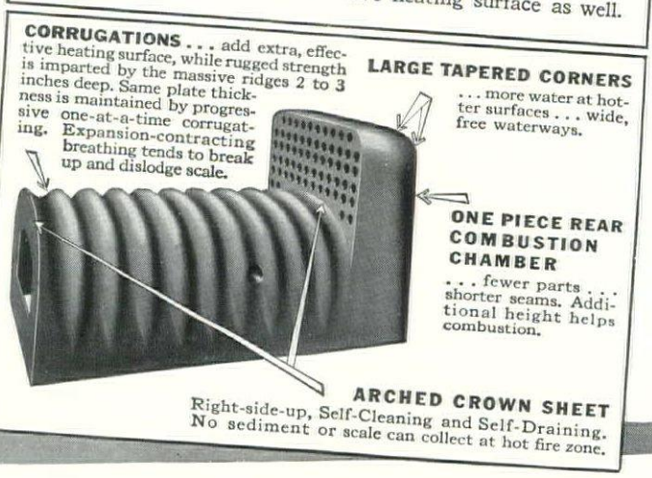
Why a---
CORRUGATED!
CROWN SHEET?

In a Kewanee Type "C" the Corrugated Crown Sheet ***adds Strength*** and extra ***Heating Surface*** . . . permitting the ***Most Effective Use*** of the intense heat.

Thus Higher Efficiency and an unhampered output of steam are provided in a compactly built boiler which requires less floor space.



1. A flat piece of steel plate has great *known* strength...But **2.** Add corrugations and that strength is tremendously increased, with additional effective heating surface as well.



TYPE C KEWANEE

with the CORRUGATED CROWN SHEET

PLUS: these features

Following are other reasons why Type "C" Kewanee has become the largest selling steel heating boiler:

Furnace big and high enough to promote complete combustion.

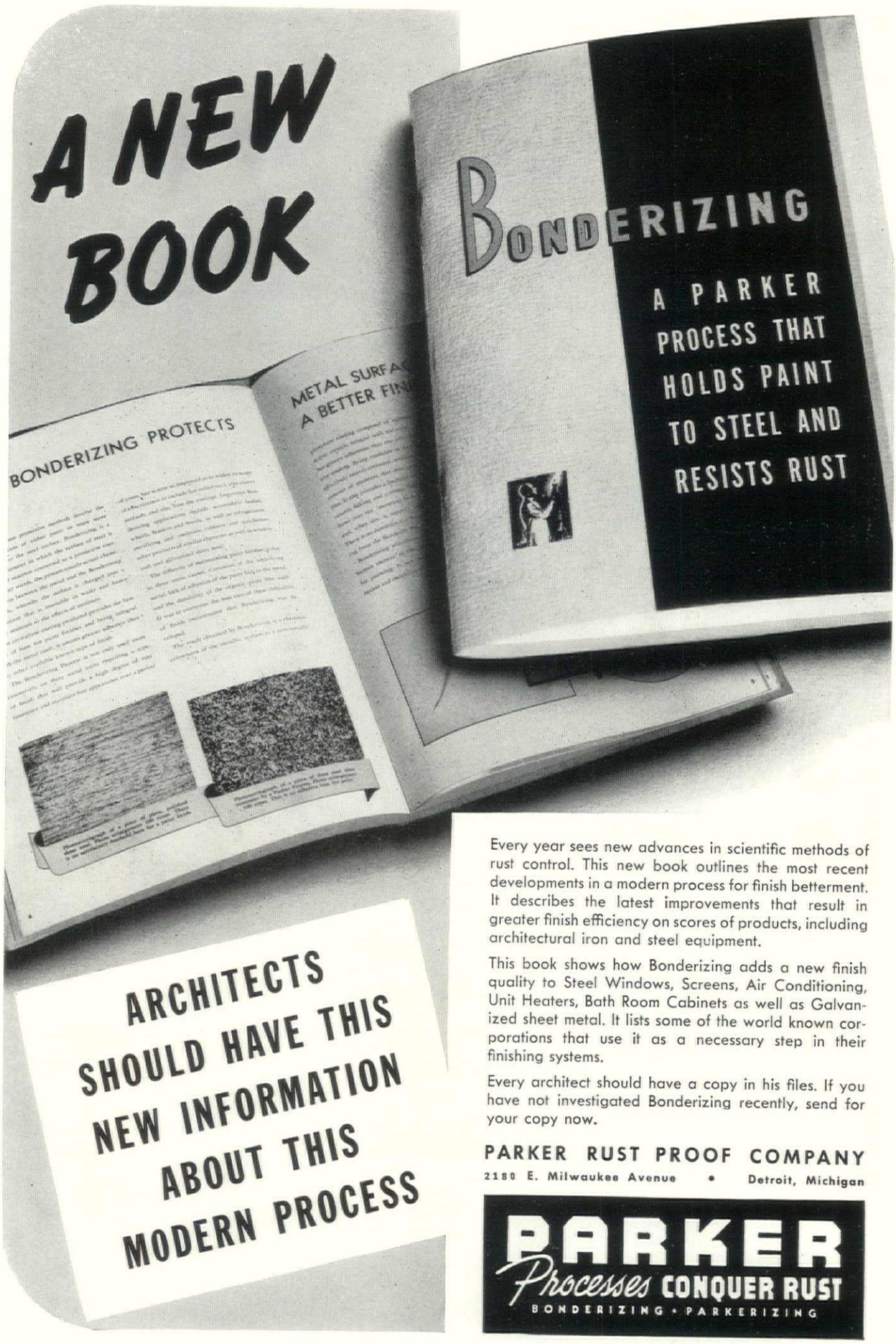
Flues with sufficient area to handle the expanded volume of hot gases as they travel back and forth while their heat is transferred to the water.

Large water content to absorb the heat and keep itself in active circulation with unbroken surface for free steaming.

High steam space to prevent priming and insure a continuous flow of plenty of dry steam into the heating system.

KEWANEE BOILER CORPORATION
KEWANEE, ILLINOIS

Branches in 64 Cities—Eastern District Office: 37 West 39th St., New York City
division American Radiator & Standard Sanitary Corporation



Every year sees new advances in scientific methods of rust control. This new book outlines the most recent developments in a modern process for finish betterment. It describes the latest improvements that result in greater finish efficiency on scores of products, including architectural iron and steel equipment.

This book shows how Bonderizing adds a new finish quality to Steel Windows, Screens, Air Conditioning, Unit Heaters, Bath Room Cabinets as well as Galvanized sheet metal. It lists some of the world known corporations that use it as a necessary step in their finishing systems.

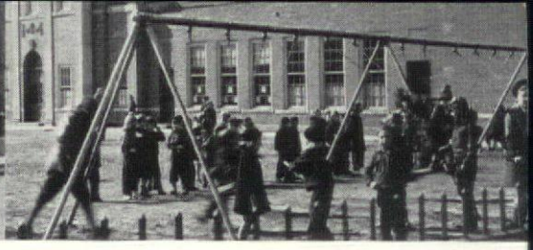
Every architect should have a copy in his files. If you have not investigated Bonderizing recently, send for your copy now.

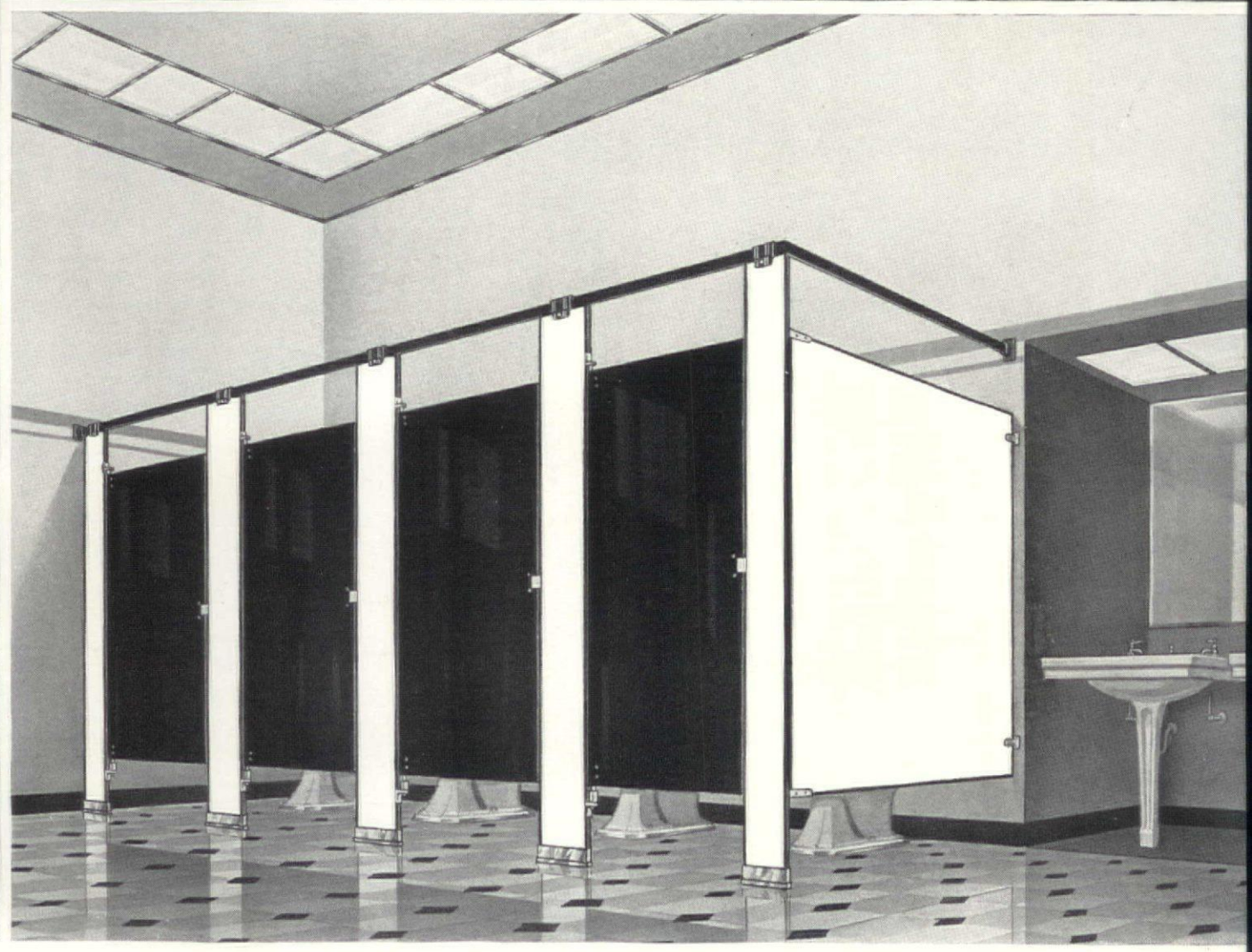
PARKER RUST PROOF COMPANY

2180 E. Milwaukee Avenue • Detroit, Michigan

PARKER *Processes* **CONQUER RUST**

BONDERIZING • PARKERIZING





Toilet Room Environments NEED NOT BE THE BARRIERS THEY SOMETIMES ARE TO THE NORMAL DEVELOPMENT OF STUDENTS

● **Toilet room environments are just as important as other environments, often more so . . . Clean, cheerful and orderly environments make lasting impressions upon sensitive youth. Toilet and shower conveniences should be up to the standards of other educational facilities, and comparable to home standards of orderliness and cleanliness.**

The most suitable toilet room environments for an educational building can now be created by utilizing any one of five distinct types of Sanymetal Toilet Partitions, ranging from the ultra-modern to the standard. "The Academy," one of three types available in the ageless material, porcelain enamel, is particularly suitable for educational buildings, because it is built to stand up against the abusive treatment often accorded to such equipment. Furthermore, the flint hard, glistening surface of porcelain enamel finish can be wiped clean as easily as the surface of a kitchen range.

Simplicity of design, combined with sound mechanical construction, insures rigidity and promotes ease of installation. "The Embassy," one of five types, is offered by Sanymetal as the result of twenty-three years of experience in making over 45,000 toilet partition installations. "The Embassy" is certain to survive obsolescence and rough usage years longer than conventional type installations. The Sanymetal representative in your vicinity can be helpful in planning suitable toilet room environments for educational buildings. Consult him or write for Catalog 76.

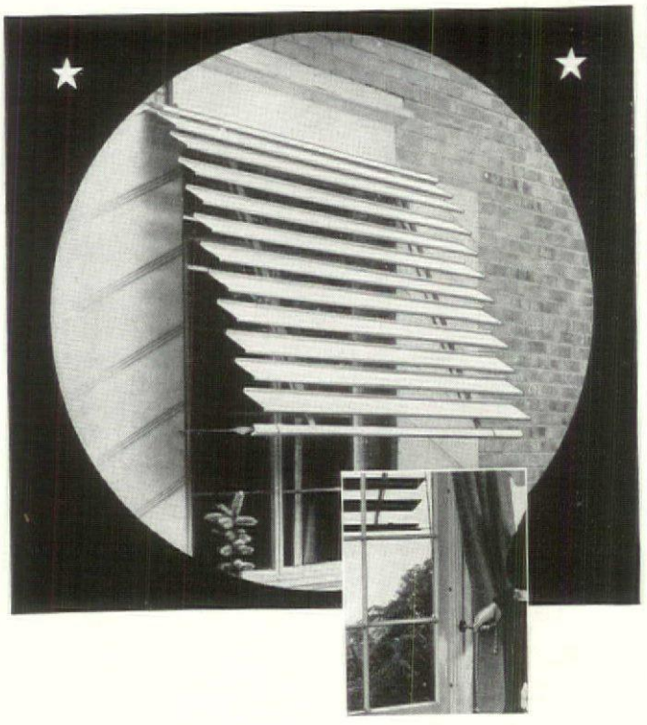
R A FULL DESCRIPTION OF EACH OF THESE FIVE TYPES, REFER TO SANYMETAL SECTION OF *SWEET'S* FOR 1939, CATALOG 20/21.

Sanymetal

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

TOILET AND OFFICE PARTITIONS

Craftsmanship in Metal
The Sanymetal Symbol



RUSCO ALL METAL Venetian AWNINGS

Permanent Year-Round Sun Protection

- **Full Ventilation**
- **Light Control**
- **Clear Vision**

At Low Cost

● Conditioned shade becomes an integral part of the building with Rusco Venetian All-Metal Awnings. And, by eliminating the annual service and maintenance factors—offer the owner an opportunity to save money over a short period of time.

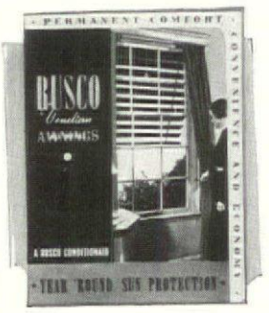
By blending harmoniously into the surroundings, Rusco Venetian Awnings become an inobtrusive contributor to the outward appearance of any building and coincide with the trend in modern design.

To include Rusco Venetian All-Metal Awnings in your specifications is to assure long-lasting comfort and satisfaction to the client.

•

Made exclusively of Armco 20-guage rust resisting Paint Grip Ingot Iron. To assure long, satisfactory service.

Simple finger-tip control inside adjusts vanes for the desired light, shades, and ventilation.



***Send** for illustrated folder showing actual installation and containing complete information.*

THE F. C. RUSSELL COMPANY
235 EAST 131 STREET • CLEVELAND, OHIO

MACKIN PREMIER BLINDS

Consider these Distinctive features:

- *Slats removable without disturbing operating parts*
- *Mechanically constructed to afford positive level lift*
- *Guided to prevent blowing in the wind*
- *Longer life to the tape—no cords to destroy the ladders*
- *Chain and sprocket used for raising and lowering, not cord and pulleys*
- *Ventilator brackets attached to channel guides without screws*
- *Easiest to clean, either by removing slats individually or the entire body of the blind*
- *Proven lower maintenance*
- *Ball bearings provide for ease of operation*
- *Installation on other locations a simple alteration job*
- *All materials of highest quality obtainable*

Rockefeller Center windows throughout are equipped with over 13,000 Mackin Premier Blinds. Other thousands in Hotels, Hospitals, Schools and Commercial Buildings.

A few territories available for selected representatives

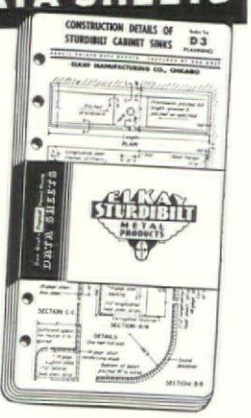
MACKIN
VENETIAN BLIND COMPANY

Factory
BRADLEY, ILLINOIS

Mail Address
KANKAKEE, ILLINOIS

Sales Offices in principal cities

FREE DON GRAF DATA SHEETS



MR. ARCHITECT:
Here's the latest complete information you've been looking for on Kitchen Cabinet Sinks and Tops. Handy, convenient. Detail Drawings and Specifications. A concise presentation of

ELKAY "Sturdibilt"

STAINLESS STEEL

Cabinet Sinks and Tops

for both new building and modernization projects. Be sure to note the new extra heavy reinforcement and new rounded corner construction as well as other exclusive ELKAY "Sturdibilt" Features.

FREE KITCHEN PLANNING SERVICE

ELKAY Engineers render FREE Kitchen Planning Service to Architects, Builders, and Plumbing Contractors. Send us your specifications and we will submit plans and estimates without cost or obligation.

Write today for Data Sheets AF-539

ELKAY MANUFACTURING CO.
4704 Arthington Street : : : Chicago, Illinois

You can't fool a BASKETBALL COACH

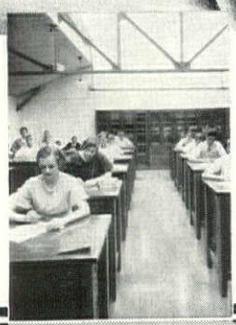
Over 5000 have chosen Seal-O-San as a tougher, less slippery gym floor finish

WHEN you specify Seal-O-San for that gymnasium floor, you know you are using a tried and tested product. For Seal-O-San is being used today in more than 5000 schools in all parts of the country.

Most of these installations have been ordered by basketball coaches — men who *know* how a gym floor finish should perform. These men respect the tough, slip-proof Seal-O-San surface and the way it withstands the punishing action of basketball and other gymnasium activities.

Seal-O-San is a *combined* seal and finish. It penetrates deeply into the wood, then forms a tough, elastic surface finish that quickly dries. It cannot crack, chip, or peel. Applied with a mop, Seal-O-San offers definite savings in labor over ordinary hand-brushed finishes.

A detailed folder and complete specifications will gladly be sent to architects. Write for *your* copy — today.



PENETRATING SEAL-O-SAN

For classrooms and other heavy-traffic wood floors, you can find no sturdier product than Penetrating Seal-O-San.

Here is a soft-lustre seal and finish that penetrates deeply, reinforcing the surface fibres and locking out dirt and moisture. Applied with a mop like Gymnasium Seal-O-San, it also dries quickly.

Your client will appreciate the easy maintenance of Seal-O-San finished floors, for they seldom need scrubbing and never show traffic lanes.

SEAL-O-SAN

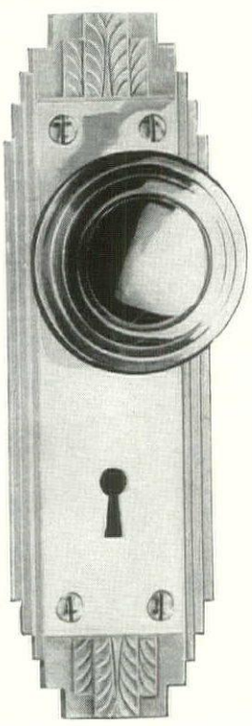
PERFECT SEAL AND FINISH FOR WOOD FLOORS

MADE EXCLUSIVELY BY

The HUNTINGTON LABORATORIES Inc

DENVER HUNTINGTON, INDIANA TORONTO

WHEN IT'S A *Contemporary* DESIGN



Match IT WITH SAGER

Sager has captured the true spirit of modern architecture. Its clean, functional design is as modern as this moment . . . an inspired interpretation of the prevailing movement toward simplicity of style for greater utility.

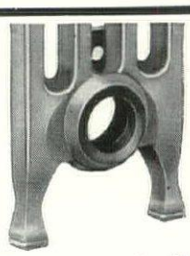
Give full expression to your modern building ideas with Sager.

SAGER LOCK WORKS

Division of The Yale & Towne Mfg. Co.

NORTH CHICAGO, ILL.

SAGER *Locks* AND *Authentic* PERIOD HARDWARE



Look At Their Feet — It Tells The Story of Slenderized Radiator Design

THE same care and attention given to make a pleasing design to the feet of our Slenderized Radiators, is reflected in the entire radiator.

Simplicity is the key note, with just enough modeling to lend attractiveness. Castings particularly smooth.

Their good looks have led many an architect to recess them, without fronts, the radiators themselves acting as a grille. See Sweets.

BURNHAM BOILER CORPORATION

Irvington, N. Y. *Zanesville, Ohio*

Burnham Boiler

"We wanted Duct Work that would last the life of the building . . . that's why we chose U·S·S COPPER STEEL"

"REPLACING duct work is a costly job in any building. We had to be certain that the steel selected for air-conditioning ducts would give the longest possible service—at moderate cost. U·S·S Copper Steel was the logical choice. It lasts longer. Costs just a little more. And our clients recognize the label. They have confidence in the name 'United States Steel'. That's why I don't hesitate to recommend it for the important jobs."

U·S·S Copper Steel is proving to architects everywhere that it is the ideal material for countless uses In heating and air-conditioning ducts, it stands up against high humidity conditions and wet-air condensation. For roofing, siding, downspouts, gutters—wherever atmospheric corrosion must be encountered — actual tests have shown that Copper Steel is more serviceable. The copper addition gives it a double defense against most of its natural enemies

Look at the chart on this page — here's proof of extra life that may be expected from U·S·S Copper Steel. Further information may be obtained by writing to one of the companies listed below. U·S·S Copper Steel Sheets are quickly available—plain or galvanized—in principal cities.

Look for this symbol on steel products. It represents the highest quality, the finest metallurgical service.

COPPER STEEL SHEETS

CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*

Scully Steel Products Company, Chicago, *Warehouse Distributors*
United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

USABLE...

on almost every sort of interior wall surface

Mural-tone has been tested and proved under practically *every* condition, from coast-to-coast, during the past four years. *One* coat covers and hides on practically every sort of surface... plaster, cement, insulating wallboard, concrete, etc.... whether new or old construction.

You save on time, on labor and on material when Mural-tone is used. The beauty of its velvet flat finish plus the worthwhile reduction in cost, are two reasons why this high quality paint is used by shrewd property owners and managers, specified by architects and preferred by painting contractors and operation builders. The Muralo Co., Inc., 574 Richmond Terrace, Staten Island, N. Y. Branches: Atlanta, Boston, Chicago, Los Angeles, San Francisco. Founded 1894.

PEDAC

The *new* PEDAC

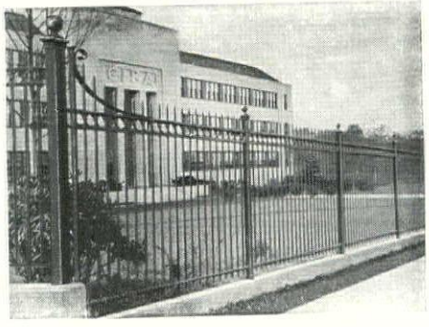
Display Rooms are painted with Mural-tone, and various types of wall materials are on view showing some of the effects possible with this amazing flat paint.

mural-tone

THE MONEY-SAVING PAINT IN THE ORANGE CAN

CASEIN WALL PAINT

What Are The 3 Essentials OF A GOOD IRON FENCE?



1. Strength—To insure permanent alinement and freedom from sagging. 2. Long life in order to reduce maintenance expense. 3. Beauty which will add to the property it encloses.

The new Anchor Weld Catalogue shows a large number of representative installations of Anchor Weld Fences and Gates. Technical Bulletin No. 97 shows, by means of detail drawings and carefully written specifications, how you can be sure of obtaining beauty, combined with strength and long life—*the three essentials of any good iron fence.* It shows how you can be sure to avoid ugly diagonal gate braces. It brings out clearly why it is not necessary to prop up panels in the center to keep them from sagging of their own weight. Center supports and diagonal gate braces are *the two characteristics of weak construction.*

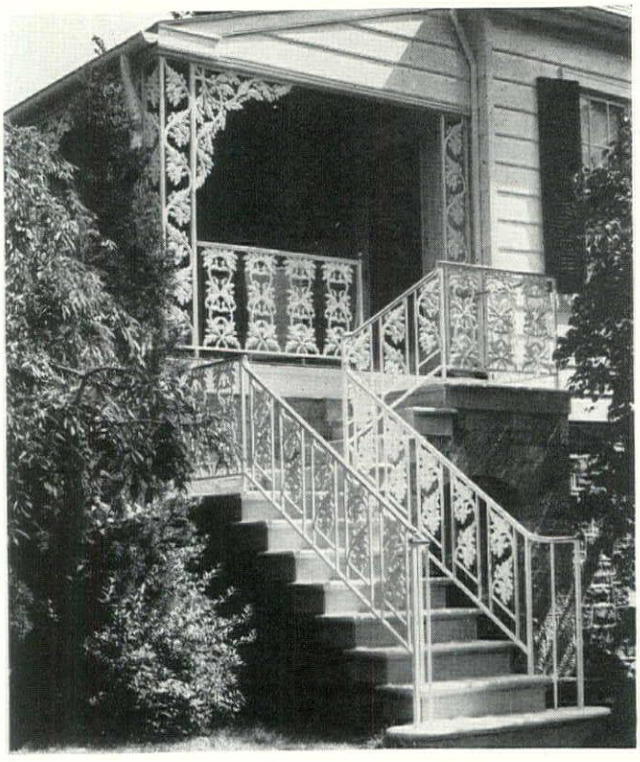
Write today for the new Anchor Weld Catalogue showing the many styles and designs available in Anchor Weld fences and gates and for Technical Bulletin No. 97 giving complete specifications. Anchor Post Fence Co., 6635 Eastern Ave., Baltimore, Md.

ANCHOR FENCES

CHAIN LINK

IRON PICKET

RUSTIC WOOD

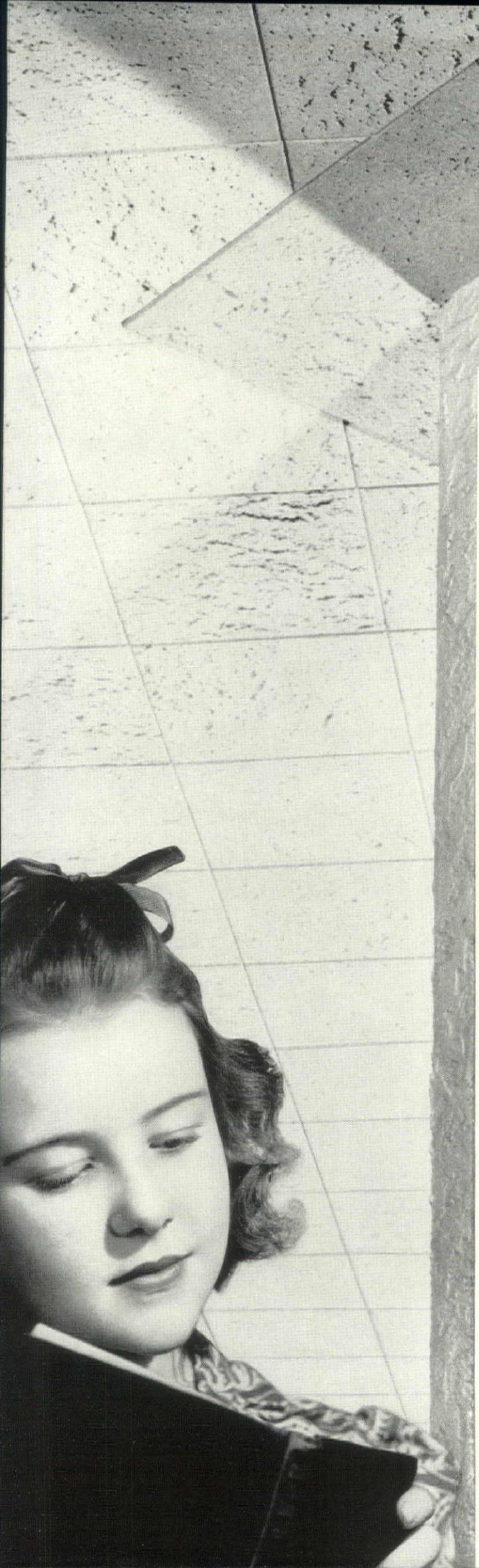


Smyser-Royer Design No. 72.
Residence of H. L. Mason, Esq., Sewickley, Pa.

CAST IRON VERANDAS AND RAILINGS

Write for prices and complete catalogue.
MAIN OFFICE, YORK, PA.
Philadelphia office, Architects Building, 17th and Sansom Sts.

SMYSER-ROYER COMPANY



Help for her...

FROM THE CEILING

Generations of school children will owe a debt of gratitude to the architect who recommended and specified the Acoustone* ceiling of this classroom. For such a ceiling offers definite aid in helping students to concentrate . . enabling their report cards to show higher averages . . because distracting, intruding noise has been lastingly banished.

Acoustone, the USG acoustical tile, fully meets *both* requirements of an efficient acoustical material. First, it absorbs distracting noise coming into the building from the outside, or into a particular room from other rooms. Second, Acoustone absorbs noise and reverberation due to sound created within the room. Acoustical perfection is thus made possible. Incombustible —high in light reflection—with maintenance cost nominal because it needs only occasional vacuum cleaning—Acoustone has every quality that a discriminating architect demands. In addition, it can be painted without damage to its noise absorbing ability. Investigate Acoustone for the buildings *you* plan—full information and installation examples are yours on request.

Acoustone is one of a full range of USG materials for sound control, fitting every need and pocketbook, and including Sabinite Acoustical Plaster—Perfatone*—Quietone*—and the USG System of Sound Insulation.* *Registered Trade-marks

ACOUSTONE

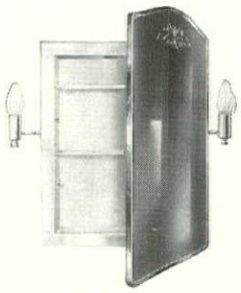
Outstanding in Natural Beauty
High in Efficiency

UNITED STATES GYPSUM COMPANY
300 West Adams Street, Chicago, Illinois

AF-5

MIAMI BATHROOM CABINETS AND ACCESSORIES · · ·

420 of this MIAMI MODEL Installed in OLENTANGY VILLAGE

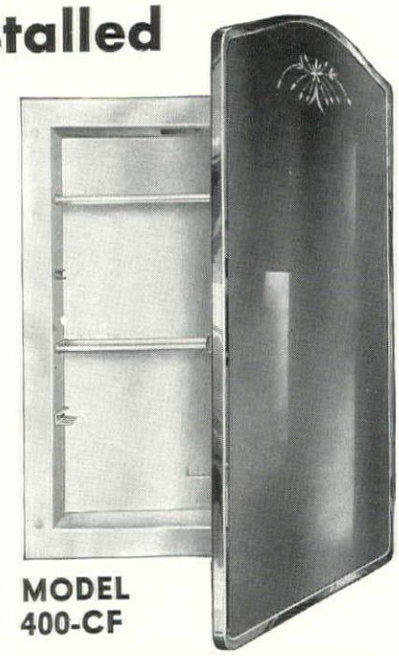


Model 400-CF with built in lights, light switch and convenience plug. Completely wired at factory. Eliminates necessity for more than one electric outlet in bathroom.

Olentangy Village, Columbus, Ohio, sets a new standard in multiple housing developments by private capital. Planned by Raymond E. Snow, architect, Washington, D. C. Built by L. L. Leveque, Columbus.

In both public and private housing projects throughout the nation, MIAMI Cabinets and Accessories have been the most popular choice of architects, engineers and builders. The selection of MIAMI Cabinets for 25 out of 42 of the larger public housing projects is further evidence of leadership.

Over 140 cabinet models—Deluxe ensembles, lighted cabinets, towel supply cabinets, hotel cabinets, etc. See our Catalog in Sweets, No. 98, section 27, or write for it. Address Dept. J.

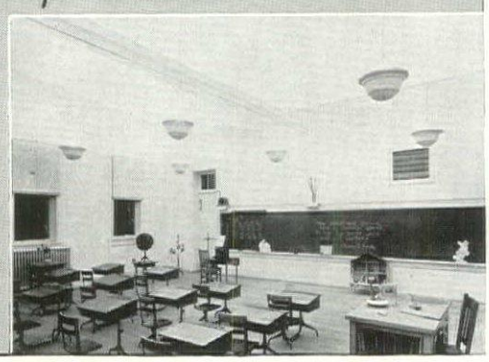


MODEL 400-CF

MIAMI CABINET DIVISION · · *The* PHILIP CAREY COMPANY, Middletown, Ohio.

SCHOOL LIGHTING

brought up to date . . . . . easily · correctly · at low cost ·



WITH THE WIREMOLD SYSTEM

Here is the simple, modern, economical way to provide the higher standards of lighting now demanded in schools.

Where existing installations are to be modernized, Wiremold Wiring Systems eliminate costly structural changes while giving the architect and engineer complete latitude in layout.

Where new installations are being made, Wiremold methods and Wiring systems combine unobtrusiveness with provision for easy extension or changes to meet future needs.

WIREMOLD SERVICE TO ARCHITECTS

Wiremold Wiring Systems are backed by a complete and competent engineering service to assist the architect. Recent data sheets showing typical school wiring projects will be sent on request.

FOR FURTHER INFORMATION SEE OUR CATALOG IN SWEET'S

Get to know WIREMOLD

Quick Service through Electrical Contractors everywhere

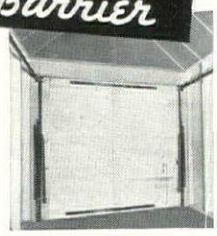
FRANTZ ANNOUNCES

Junior

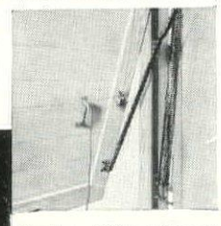
"OVER-THE-TOP" LIGHT DOOR EQUIPMENT

Here *is* big news! "Over-the-Top" Door Equipment has a baby brother! Yes, the device that startled the building field back in 1930 with its radically new principle and amazing simplicity has an "understudy." Frantz introduces JUNIOR "Over-the-Top" *Light* Door Equipment . . . a lighter, inexpensive, yet none the less efficient model . . . especially designed for doors weighing up to 150 lbs., within the limits of 6'-6" to 7' high and up to 8' wide. It sweeps away the last vestige of overhead door sales resistance of the mass market. Strike while the iron is hot. Write!

FRANTZ MANUFACTURING COMPANY
Sterling, Illinois

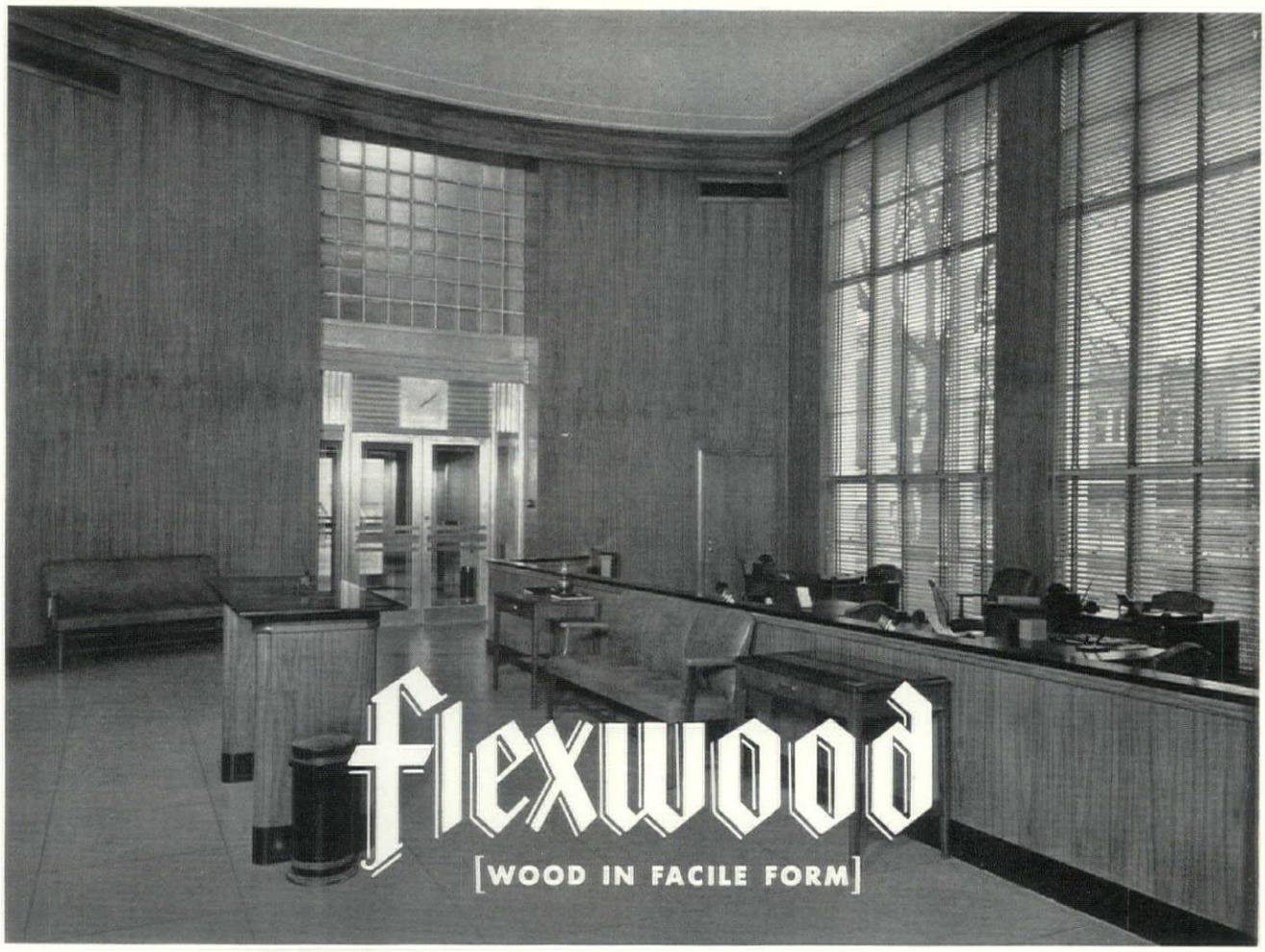


Though weight and cost have been reduced, "JUNIOR" has what it takes for light doors.



Simple, yes! That and its cost are what make it a "natural" for the vast small-home market.

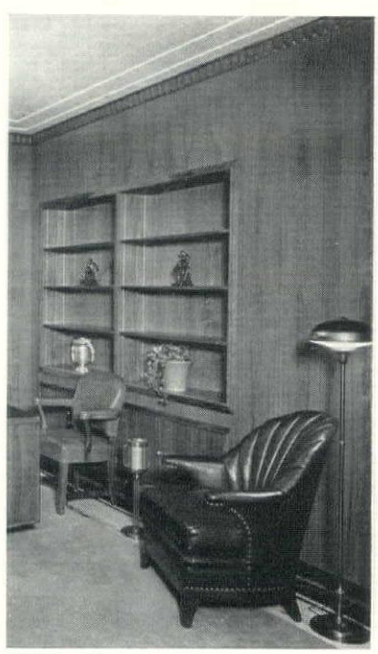
FRANTZ *Guaranteed* **BUILDWARE**



San Antonio Building & Loan Association, San Antonio, Texas, 7000 square feet of Flat Cut Walnut Flexwood used for treatment of all walls, counters, railings, etc.; Morris, Noonan & Wilson, Architects.

In your "stop-over-cities" en route to either Fair are flexwood installations well worth the seeing!

Whether you start from Portland, Oregon or Portland, Maine, from Key West or El Paso, your route to either Fair will take you through cities in which unusual and interesting Flexwood installations await your easy and speedy examination. This affords the opportunity you have sought to see outstanding examples of modern wood treatment. The bank interior designed by Morris, Noonan & Wilson, Architects, is well worth seeing because of the harmonious combination of Walnut Flexwood, glass brick and metal. Tell us your route to the Fairs, and we will send facts about important Flexwood installations you can take in your stride. Installations which will convince you that Flexwood meets every requirement of today's designers. Samples, of course, are yours for the asking.



Flexwood is thin wood mounted on cloth and made flexible for direct application to flat and curved surfaces. Wood in no other form approaches Flexwood in cost, ease and speed of application in modern wood treatment.

UNITED STATES PLYWOOD CORPORATION, 103 PARK AVE., NEW YORK

Manufacturers of Flexwood, Plywood, Armorply, Weldwood, and kindred products

THE CRAFT SPIRIT

That thing which William Morris called "a real vivid interest in the work in hand" is needed in school buildings as well as in the schools themselves. Marble is the embodiment of that spirit. For centuries it has represented the highest degree of craftmanship.

As an object lesson in building integrity, the St. John the Baptist School owes much to its Vermont Marble trim.

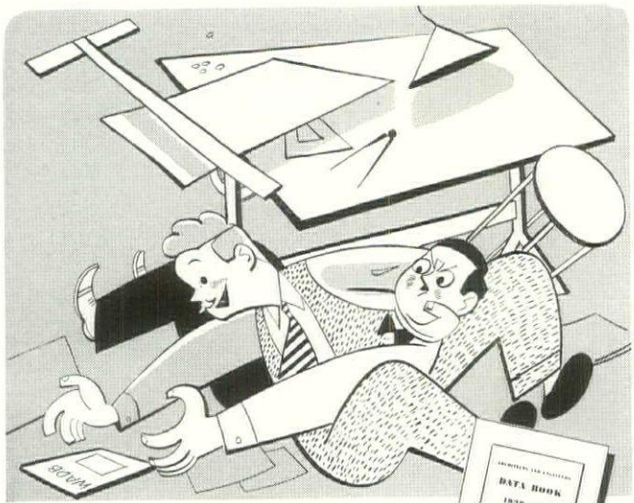
St. John the Baptist School, Fall River, Mass. W. F. Fontaine & Son, Architects
White Vermont Marble and Brick

VERMONT MARBLE COMPANY

PROCTOR, VERMONT

Branches and Sales Offices:

ALBANY, 75 State St.; BOSTON, 44 School St.; CHICAGO, 5535 No. Wolcott Ave.; CLEVELAND, 4300 Euclid Ave.; DALLAS, 1513 Wall St.; HOUSTON, 310 Bringhurst St.; LOS ANGELES, 727 West 7th St.; NEW YORK, 101 Park Ave.; PHILADELPHIA, 22nd & Westmoreland Sts.; SAN FRANCISCO, 525 Market St.; TACOMA, 1120 East "D" St.; CANADA, Ontario Marble Co., Ltd., 403 Manning Chambers, Toronto.



GIMME MY WADB!*

*Westinghouse Architects' Data Book.

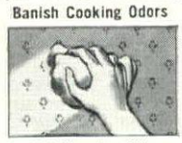
Go to it brother! No holds barred. The mental gymnastics WADB will save on electrical design and specifications are worth all of the physical exertion. And remember, while you've got him down, exact a promise that he'll either use the office copy, or refer to Sweet's.

J-94051

Westinghouse

INCREASE THE SALES APPEAL OF THE HOMES YOU BUILD WITH VICTOR *In-Bilt* VENTILATORS

Banish Cooking Odors



Cut Cleaning Bills

Keep Air Fresh

"More sales punch per $ of cost than any other single feature you can build into the modern home." That's what architects and builders all over the country are saying about Victor In-Bilt Ventilators. Women appreciate the freedom from cooking odors—the elimination of grease and smoke that lowers cleaning costs—the fresher air for the whole family that Victor In-Bilts provide. Every home needs at least an In-Bilt in the kitchen, and Victor's line includes a model for every size house—even low-cost homes. Put these profit-boosters in *your* houses and see how they'll pep up sales!

WRITE FOR PRICES TODAY

Free Ventilation Data Book includes prices and all the exclusive In-Bilt features. Write today!

FREE!

VICTOR ELECTRIC PRODUCTS, INC.
3017 Robertson Ave., Cincinnati, Ohio

Builders!

Cash for pictures and plans of your all-gas homes

$10,000 IN PRIZES!

BUILDERS! ARCHITECTS!—YOU MAY HAVE BUILT A WINNER ALREADY! Any home built or modernized in the period from July 31, 1937, to July 31, 1939, is eligible, as long as gas equipment does the cooking, water heating, refrigeration, and house heating.

New homes or modernized, semi-detached or row houses. There are no limitations as to size, style, cost or location of houses entered. Enter now! The competition closes midnight, July 31, 1939. Mail the coupon today for booklet containing all the information you need.

AMERICAN GAS ASSOCIATION

ENTER NOW!

THIS IS ALL YOU NEED

1 A clear exterior photograph of house.

2 Interior photographs, showing gas equipment.

3 Floor plans—blueprints or new drawings.

4 List of gas appliances installed, giving manufacturer's name.

5 Description of special features of plan and construction.

Mail Entry Coupon Today!

LET *Gas* DO THE 4 BIG JOBS

COOKING
WATER HEATING
REFRIGERATION
HOUSE HEATING

Be sure the gas appliances you specify bear the Approval Seal of the American Gas Association Testing Laboratories.

A-7

Competition Director
American Gas Association, 420 Lexington Ave., N. Y. C.

Date.....

Last Name.....First.....
(Please Print)

Address.....City.....State.....

I wish to enter A.G.A. Builders' Competition. I am a builder ☐

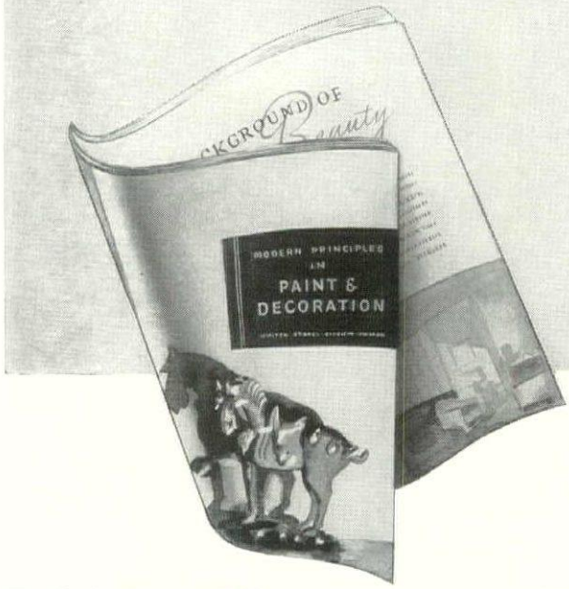
Note: Architects may enter homes in this contest with the written permission of the builder. Architect ☐

Kindly forward complete details.

Signature.....

40 Pages of Facts

on the new trend in interior decoration



In this book you will find answers to questions about:

INTERIOR DECORATING PROBLEMS—the proper selection of colors—mixing and blending colors—textures and when to use them—stenciling, and how it is done—glazing and antiquing.

PROPERTIES OF MODERN WATER-THINNED PAINTS—drying time—light reflecting and diffusing properties—durability—washability—maintenance and redecoration.

HOW TO SELECT THE PROPER PAINTS—comparative data in chart form.

PREPARATION OF SURFACES FOR PAINTING OR TEXTURING—gypsum wallboards, plaster, fiber wallboards, wood, metals, masonry.

CLEANING AND MAINTENANCE—proper methods of washing painted walls—washing versus redecorating.

If you do not have one of these manuals—"Modern Principles in Paint and Decoration"—USG would like to send you one, feeling that in its 40 pages you will find facts that will solve many of your decorating problems. Use the coupon below to get your copy.

TEXOLITE*

Product of UNITED STATES GYPSUM COMPANY

**Registered trade-mark*

United States Gypsum Company, AF-5
300 West Adams Street, Chicago, Illinois

Send me your 40-page book, "Modern Principles in Paint and Decoration."

Name.....

Address.....

City.....State.....

MODERN KITCHENS FOR HOMES OF ANY SIZE—ANY PRICE

Metal drawers . . . light in weight and easy to clean . . . operate smoothly on hardwood guides and slides.

BUILT BY THE ORIGINATOR OF STANDARD UNIT CABINETRY

With Kitchen Maid cabinets now available in three price ranges, it is a simple matter to design and build smart, modern kitchens in homes of practically any size or price. Owners really appreciate them, too . . . for they know that Kitchen Maid cabinetry cannot be surpassed in beauty, quality, convenience and efficiency. Write today for full color catalog and details.

The Kitchen Maid Corp., 695 Snowden Street, Andrews, Indiana
Send new catalog and details on standard unit Kitchen Cabinetry.

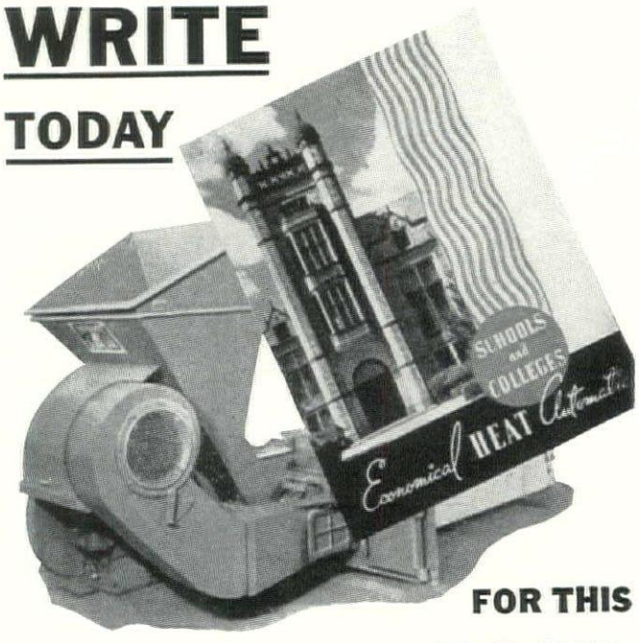
Name_____

Address_____

☐ Architect ☐ Builder ☐ Dealer ☐ Owner

KITCHEN MAID
STANDARD UNIT CABINETRY

WRITE TODAY



FOR THIS

"SCHOOL HEATING" BOOK

■ It shows how prominent educational institutions reduced heating costs 20 to 40%.

Write for Bulletin 391.

DETROIT STOKER COMPANY

DETROIT, MICH. Fifth Floor General Motors Bldg. Works at MONROE, MICH.

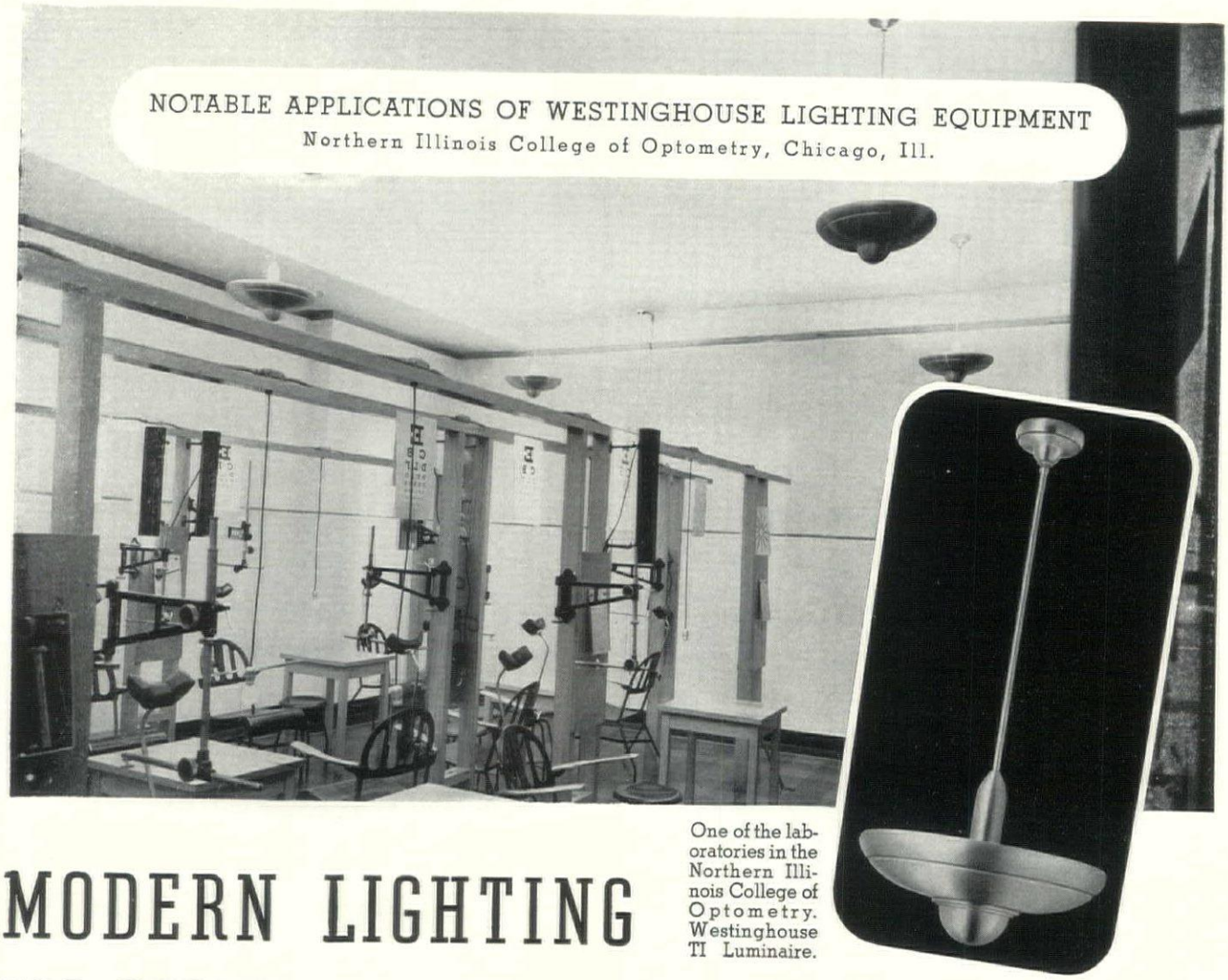
District Offices in All Principal Cities

MODERNIZE AND ECONOMIZE WITH

DETROIT SINCE 1898 **STOKERS**

NOTABLE APPLICATIONS OF WESTINGHOUSE LIGHTING EQUIPMENT

Northern Illinois College of Optometry, Chicago, Ill.



One of the laboratories in the Northern Illinois College of Optometry. Westinghouse TI Luminaire.

MODERN LIGHTING

FOR EVERY SCHOOL NEED

Classrooms and laboratories in the world's largest optometric college are illuminated with Westinghouse TI Luminaires. This installation in the Northern Illinois College of Optometry, Chicago, is another notable example of Westinghouse illumination engineering practice.

Westinghouse provides a complete line of direct, semi-indirect and totally indirect luminaires. These lighting units are engineered to provide adequate, glareless, well-distributed illumination for every type of school or college classroom activity. Such lighting makes seeing easier, reduces fatigue, improves schoolroom atmosphere and consequently, makes education more efficient and more effective.

For recommendations on classroom lighting practice, call your nearest Westinghouse Lighting Distributor; or write Westinghouse Electric & Manufacturing Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

Westinghouse makes available two Special Direct Luminaires designed for NEW schoolroom lighting efficiencies at lower cost. Desirable features of these enclosing globe units include:

Diffusing, single-layer, homogeneous glass...a chip-resisting fitter that eliminates sharp edges and minute fissures. Ceiling and semi-rigid suspension hanger types are provided. The luminaires are especially well suited for classroom installations.

Your local Westinghouse Distributor has specifications.

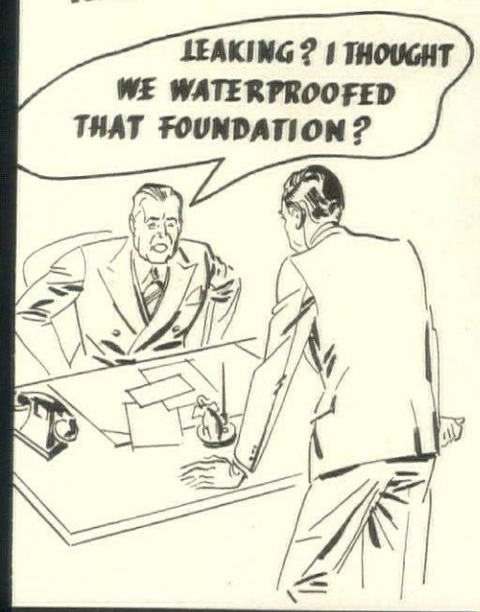
Westinghouse Lighting Equipment

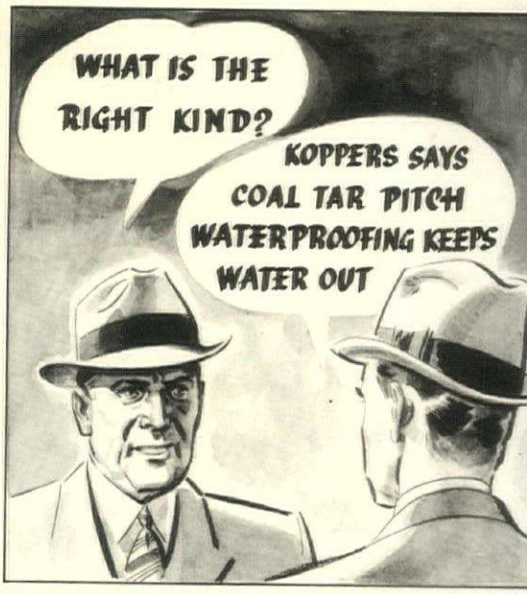

SUN-SCORCHED? No Sir!
It's SUN-PROTECTED!
The gravel or slag wearing surface of a Barrett Specification Roof does more than guard the roof membrane against fire and mechanical damage.
It provides positive protection against the sun's harmful actinic rays. It also permits the use of greater quantities of coal-tar pitch—the world's greatest built-up roofing compound. Pitch is actually preserved by water.
These are reasons why Barrett Specification Roofs laugh at conditions that spell trouble for most other roofs. Applied only by Barrett Approved Roofers according to time-tested Barrett Specifications, these famous roofs are bonded for 20 years, and regularly outlast their bonds by decades.
THE BARRETT COMPANY
40 Rector Street, New York, N. Y.
2800 So. Sacramento Avenue, Chicago, Illinois Birmingham, Alabama
In Canada: The Barrett Company Ltd., Montreal, Que.
The nearest Barrett Approved Roofer may be found in the Classified Telephone Directory under "Roofers."
*Trade-mark of The Barrett Co., Reg. U. S. Pat. Off.
Barrett Specification* Roofs
AMERICA'S LEADING MANUFACTURER OF COAL-TAR PRODUCTS • ROOFINGS • TARVIA • CHEMICALS

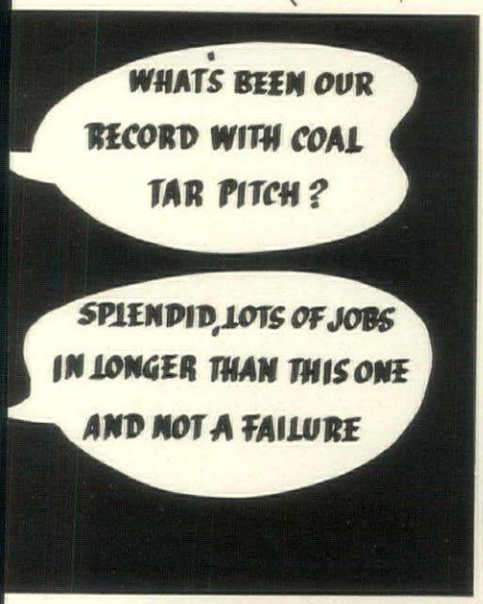
SPECIFICATION AND BUYING INDEX

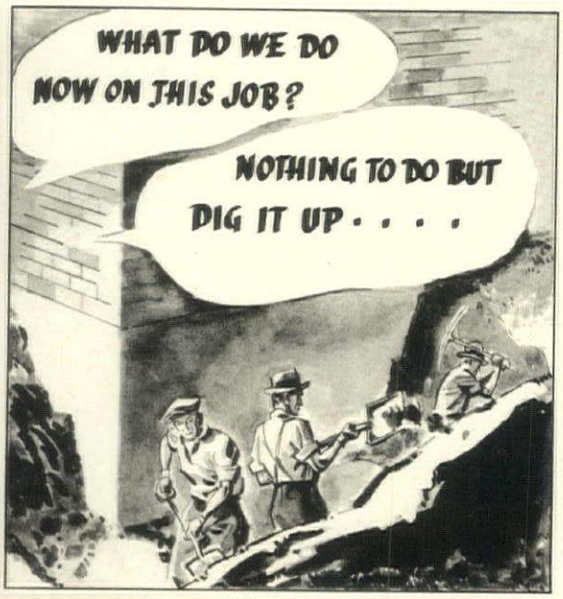
The advertising pages of THE ARCHITECTURAL FORUM have become the recognized market place for architects and all others engaged in building. Each month these pages offer the most complete guide to materials, equipment and services to be found in any magazine. A house or any other building could be built completely of products advertised in THE FORUM. While it is not possible for a magazine to certify building products, it is possible to open its pages only to those manufacturers whose reputation merits confidence. This THE FORUM does.

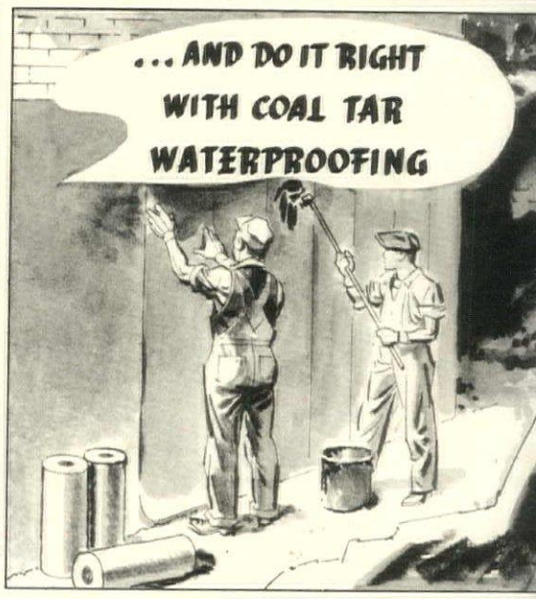
KEEP OUT WATER WITH KOPPERS COAL TAR WATERPROOFING ★





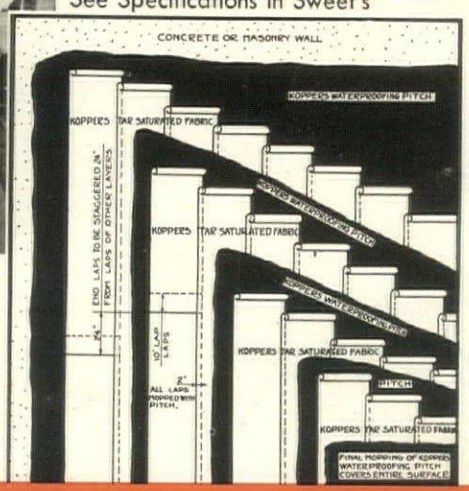






LET'S STICK TO KOPPERS WATERPROOFING

See Specifications in Sweet's



OTHER KOPPERS PRODUCTS: Koppers Roofing . . . Dampness Resisting Paints . . . Bituminous-base Paints . . . Tarmac Road Tars for paving drives, parking areas, walks, etc. Pressure-treated Piling and Other Timber Products . . . Platework . . . Tanks . . . Pipe . . . Gas, Air, and Water Valves.

KOPPERS COMPANY · PITTSBURGH, PA.

a KOPPERS product

Window Combinations

that ADD *Personality* BUT NOT COST TO RESIDENTIAL DESIGN

♦ Pleasing departures from conventional window treatments are provided by well-planned combinations of Truscon Residential Double-Hung Steel Windows and Casements. ♦ An almost infinite variety of such individualized window combinations is made possible by the many standard types and sizes in each of these two general window classifications. ♦ Here is a practical solution to the problem of giving a house a distinctive "personality" without adding to its cost. Obviously, the idea may be as successfully employed in the house of moderate size as in the more pretentious residence. ♦ Owner satisfaction is made doubly sure by recent important technical advances in the design, construction and operation of modern Truscon Steel Windows. ♦ In addition to Truscon's 80-page catalog in "Sweet's", specialized catalogs containing complete construction details of standard types and sizes are quickly available upon request. ♦ Make these informative catalogs your guides in planning individualized window treatments. Your request for this information will be given our immediate attention. Write . . .

TRUSCON
Steel company

57 SALES ENGINEERING OFFICES • 27 WAREHOUSES
YOUNGSTOWN · · · OHIO
SUBSIDIARY: REPUBLIC STEEL CORPORATION

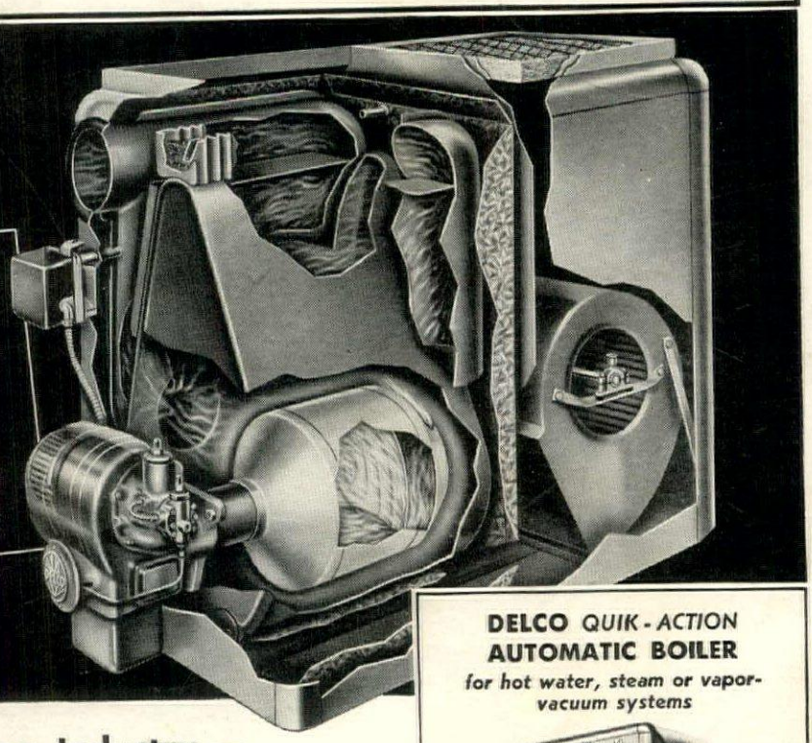
DELCO CONDITIONAIR

NOW EQUIPPED WITH

QUIK-ACTION HEAT TRANSMITTER

Built and Backed by
GENERAL MOTORS
GM

AMAZINGLY QUICKER HEAT
AT FAR LESS COST
PLUS TRUE
WINTER AIR CONDITIONING



New Sensation of the Heating Industry—
Acclaimed Most Important Development in Years!

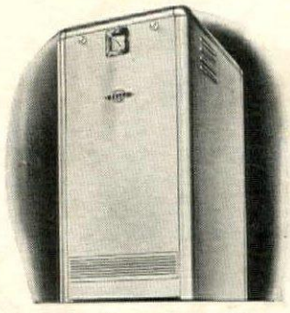
● Exhaustive tests prove the Delco Conditionair with the *Quik-Action* Heat Transmitter generates heat in the fire box almost *9 times faster with the same quantity of fuel.* This means warm comfort provided faster and for less money than ever before. Is it any wonder General Motors' exclusive *Quik-Action* Heat Transmitter has the entire heating industry rubbing its eyes! Here's how it works:

The *Quik-Action* Heat Transmitter is a scientifically constructed chamber of special alloy steel which is suspended in the center of the fire box. The oil-and-air mixture is confined and burned within the Heat Transmitter, which becomes a glowing hot ball of radiant heat in *seconds!* There is no slow-heating refractory material of any kind in the fire box of the Conditionair. The clean, radiant, intense heat from the Heat Transmitter is flashed *directly* to the entire surrounding surfaces of the furnace. There it is immediately picked up by filtered air that is circulated over these surfaces. Then, properly humidified, the warmed, purified air is forced into rooms by the automatic blower.

Practically all of the fuel is converted into heat in the Heat Transmitter. Virtually none escapes unburned.

Consider the Conditionair for your new homes and for modernizing old homes. It provides true winter air conditioning at the cost of automatic heat alone! Complete summer air conditioning equipment may be added at any time, if provision is made at time of installation.

DELCO *QUIK-ACTION*
AUTOMATIC BOILER
for hot water, steam or vapor-vacuum systems



Has the Heat Transmitter — raises steam 20 to 25% faster

If your plans call for a hot water, steam or vapor-vacuum system, you still can have the extraordinary advantages of General Motors' exclusive *Quik-Action* Heat Transmitter, because it is the heat generator of this boiler, also! Learn about the many other sensationally effective features of this advanced heating machine.

DELCO-FRIGIDAIRE

DIVISION GENERAL MOTORS SALES CORPORATION

AIR CONDITIONING & HEATING PRODUCTS

Unit Air Conditioners · Portable Air Conditioners · Commercial Air Conditioning
Oil Burners, Stokers, Oil & Gas Boilers · Oil & Gas Winter Conditioning Units