

**LIFE
HOUSES**

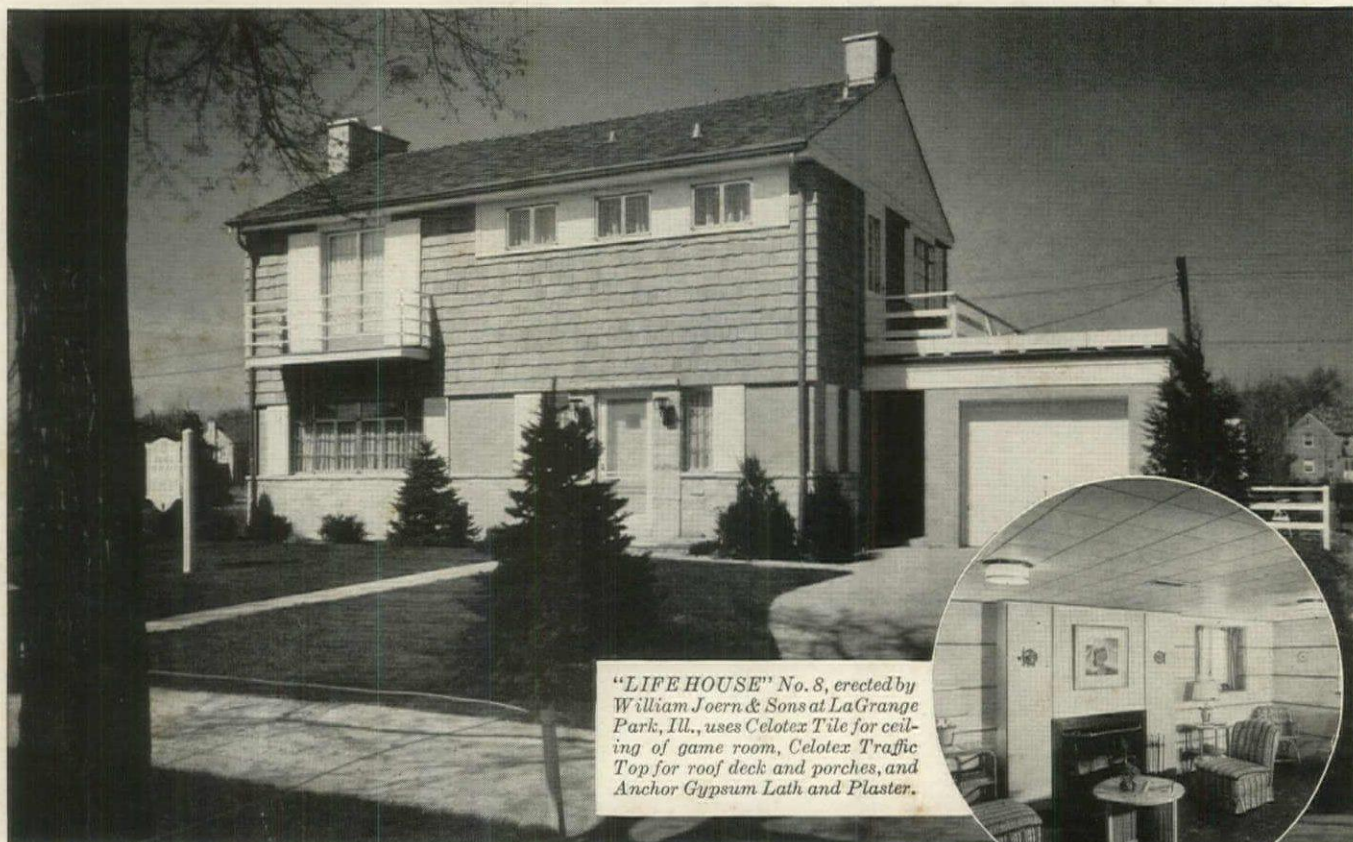
G. Brown
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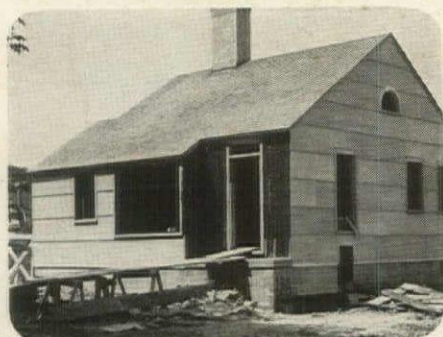
THE ARCHITECTURAL FORUM

JULY 1940

"LIFE HOUSES" DEMONSTRATE MODERN ECONOMIES OF CELOTEX PRODUCTS



"LIFE HOUSE" No. 8, erected by William Joern & Sons at LaGrange Park, Ill., uses Celotex Tile for ceiling of game room, Celotex Traffic Top for roof deck and porches, and Anchor Gypsum Lath and Plaster.



"LIFE HOUSE" No. 1, erected by Edward S. Reque Organization at West Chicago, Ill., insures winter fuel economy with Celotex Vapor-seal Insulating Sheathing.



"LIFE HOUSE" No. 5, erected by Roberts & Longworth at Lexington, Ky., uses Celotex Vapor-seal Insulating Sheathing for winter and summer comfort.

Builders Carry Out Architects' Ideas Effectively...and at Minimum Cost!

CELOTEX Vapor-seal Insulating Sheathing... Celotex Insulating Interior Finish... Celotex Traffic Top surfacing... Anchor Gypsum Products... these are all being used to carry out architects' ideas in many individual units of the famous "LIFE HOUSES."

Experienced builders naturally look for ways to build these houses as economically as possible, without sacrifice of appearance, endurance, or efficiency. Celotex Vapor-seal Sheathing and Lath

meet this demand for modern economy by replacing other materials. Proved insulation, correct vapor barrier, and structural strength are obtained at one cost!

Celotex Traffic Top for roof decks, porch and basement floors, affords a weather-proof, resilient, fine-appearing surface. And Celotex Insulating Interior Finish provides its own decoration, which means further saving. Write for latest information on any or all of these products! There is no obligation!

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THE MONTH IN BUILDING

DEFENSE BULLETIN. As THE FORUM went to press, Congress gave the President a National Defense Bill "to expedite shipbuilding and for other purposes." Significant for Building, these "other purposes" permit the Army, Navy, and USHA to house military personnel, defense industrial workers and their families. Moreover, the bill permits conversion of USHA projects now under construction into defense housing. Chances are that conversion will be used only to eliminate bottle-necks, that bulk of USHA's released funds (p. 4, col. 1) and anticipated new money will go for defense housing.

DEFENSE. Last month as Italy's war declaration and France's surrender clarified the course of events in Europe, the U.S.'s recovery from an attack of jitters clarified the course of its national defense program, made clearer the meaning of this program to the building industry. Most obvious fact is that, while the \$5 billion program will be spread over five years, its keynote is to be speed. To keep their feet on the throttle, the President drafted for the Advisory Commission to his Council of National Defense two of Building's biggest manufacturers: handsome young (39) Edward Reilly Stettinius who has resigned his \$100,000 a year post as U. S. Steel's chairman to handle the procurement of raw materials, and energetic President John D. Biggers of Libbey-Owens-Ford who will serve as Executive Assistant (handy man without portfolio) to production genius Signius Wilhelm Paul Knudsen, Danish-born president of General Motors. These defense men and their defense dollars will affect building on every front:

Industrial construction will zoom—Washington experts look for a 50 per cent increase this year over 1939, almost double THE FORUM's January forecast of a 27 per cent rise. New factories will be required to handle the hoped-for 50,000-per-year airplane production. The President has estimated that for this purpose alone the need is 30 new plants at \$10 million each. Government wants existing

manufacturers to shoulder privately a large part of this plant expansion, but is ready to build the balance which will be operated by existing concerns on a fee basis and closed down when the emergency is met. Plan is that many of these new factories be located in small, out-of-the-way communities, comfortably remote from bombable industrial centers.

Airplane production, however, is only part of the industrial expansion program. New factories and additions to existing plants will be required for the manufacture of all sorts of war equipment ranging in size from battleships to bullets. And behind these first lines of defense, increased demand for machine tools, storage space, etc., will call for still more factories and for new warehouses. Unfortunately, most existing, vacant factories are of the multi-story variety and do not lend themselves to modern, straightline production methods. Much new industrial construction is necessary.

Public construction, according to Washington observers, will probably stave off the 6 per cent decrease predicted by THE FORUM, finish 1940 on a par with last year. Reasons: 1) While defense appropriations are still in a state of flux, it appears that the Army and Navy Departments' 1940 construction expenditures will be at least two and a half times 1939's \$80 million total. 2) WPA will probably get a \$976 million appropriation, a larger than average percentage of

which will go for building projects of a defense nature as opposed to boondoggles. Thus, defense projects (armories, airport buildings, etc.) will be exempt upon recommendation of Army or Navy Departments from the requirements that local sponsors ante at least 25 per cent of the cost and that projects be limited to a certain cost (old limit: \$52,000; new limit: \$100,000.) 3) Much of the industrial plant expansion (see above) will be handled by Government; maybe some of the residential construction (see below).

Residential construction: Industrial expansion for defense will give the market for residential construction an upward jolt. New housing will be required for workers in many of the proposed new plants—particularly for those located in small communities. Unemployment will diminish; part-time workers will be given full-time jobs; new families will enter the housing market. Moreover, existing housing demand, in the face of inevitable inflation, will become more insistent.

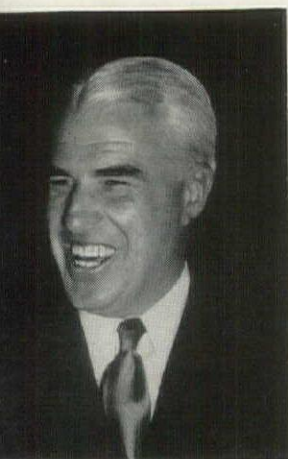
Government housing economists see no unmanageable boom, but believe THE FORUM's forecast for an 11 per cent advance will be on the short side. Their arguments: 1) Housing demand will continue satisfactory throughout the country. Prices are not expected to get out of hand. There is no danger of a building material shortage. Building labor is plentiful. And, the 1940 record to date indicates that people are in a house-buying mood. 2) In some communities—where defense industries are already located or will be located—acute housing shortages will develop. (Examples: small ship building cities such as Charleston, Newport News, and Portsmouth; aircraft industrial centers such as Bridgeport and Hartford.)

Chances are that Government will rely on private enterprise to supply the general housing market. Where it fails to keep abreast of demand and where special housing problems arise (i. e. provision of shelter for workers in a publicly financed temporary industrial plant) Government, itself, may do the building. Month ago steps in this direction had already been taken: (see p. 4)

PERMITS

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

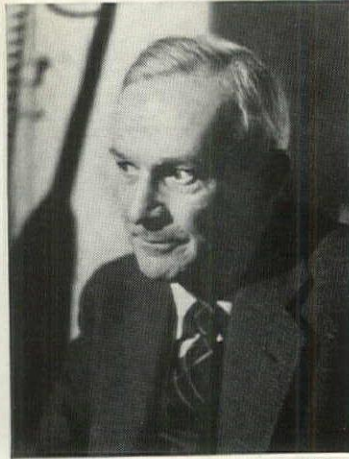
	Monthly Data			Four Months	
	Apr. 1940 (millions)	Comparison with Mar. '40	Apr. '39	1940 (millions)	Comparison with 1939
Residential	\$119.8	+21.9%	+42.2%	\$359.1	+ 5.9%
Non-residential	46.3	+11.8	+14.9	157.4	—17.2
Additions, repairs	31.6	+22.9	+12.8	101.3	— 7.4
TOTAL	197.7	+19.4	+26.8	617.8	— 2.2



Edward Stettinius *Acme*



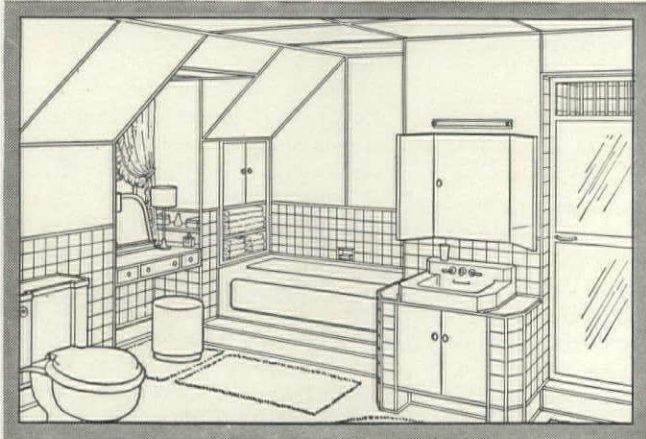
John Biggers



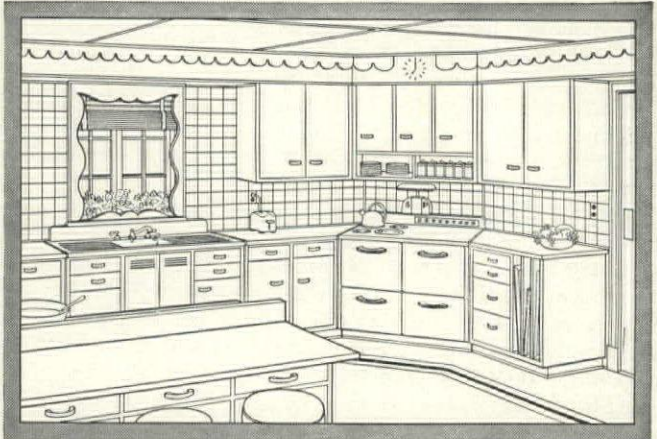
Lowell Mellett

Paul Dorsey

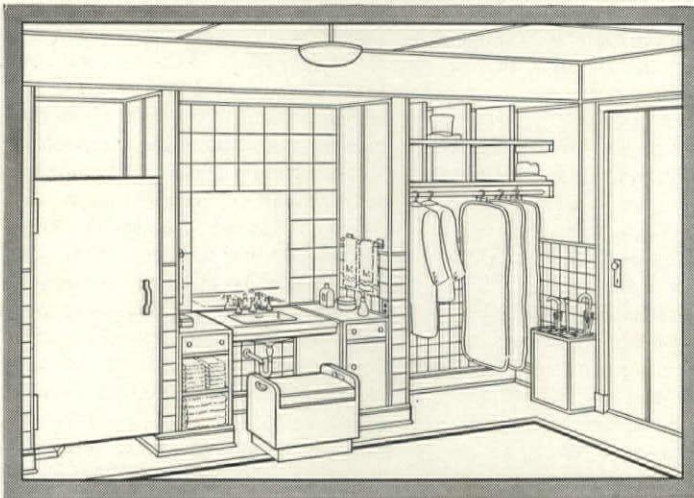
Tile-like walls add cheery smartness to the home



Tile effects by Masonite Presdwood Temprtile make a big difference in the finished appearance of certain rooms . . . and they're surprisingly inexpensive. This bathroom, for example. Wainscot of Presdwood Temprtile and upper walls of Tempered Presdwood, enameled white. The handy cabinet under the lavatory shows an interesting result that can be easily achieved by using all-wood, grainless Masonite Presdwood Temprtile with metal molding.



Cut it to fit! That's a big advantage of Presdwood Temprtile, particularly in a kitchen like this. And when it's properly fitted and applied, it will not warp, chip, split or crack. Nor will it absorb cooking odors. Here, white enamel with red striping makes an attractive color scheme. Masonite Tempered Presdwood is ideal for kitchen cabinetwork because it can stand hard usage without scuffing. Note the "Dutch Kitchen" effect produced with scalloped trim.



Presdwood Temprtile makes this first-floor lavatory the last word in modern design. The Presdwood Temprtile forms a wainscoting, and upper walls are Tempered Presdwood. Masonite's newest Temprtile, grooved with 8-inch squares, forms a background for the lavatory mirror. Masonite boards are exceptionally easy to keep clean—by wiping with a damp cloth. Both are dry materials, inexpensive to buy and apply.

● Masonite Presdwood Temprtile has found wide favor with the architect because it enables him to offer permanent, expensive-looking tile effects and still keep well within the budget. These suggestions for its use are offered in the hope that they may demonstrate the wide flexibility of the board, and assist you in determining its application to your plans. If you would care to examine a sample of Masonite Presdwood Temprtile at close range, below is a convenient coupon for you to mail. No cost or obligation, of course.



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THE MONTH IN BUILDING

Central Housing Committee's Chairman Lowell Mellett has launched a survey of Federal agencies concerned with housing, will soon submit to the President a report showing how these agencies may fit into the defense housing program. It will probably show that the Farm Security Administration is Government's best bet for direct building—its experience in low cost prefabricated construction for migratory farm workers admirably suits it to the hasty production of the type of temporary housing mentioned above. FHA could help meet this market by insuring what private capital would otherwise consider risky mortgages, but would probably do so only if the U. S. put up a special insurance fund divorced from FHA's regular reserves.

U. S. Housing Authority's Administrator Nathan Straus has called a meeting of local housing authority representatives to learn the extent of defense housing problems in their communities and to discuss methods of attack. While existing and future USHA projects may play an active part in the defense housing program, it appeared at mid-month that the ever-changing legislation to amend the USHA Act (ARCH. FORUM, May 1940, p. 4) would finally give the agency none of its desired \$800 million increase in borrowing-lending power, but would boost annual subsidies by \$5 million and thus thaw out \$150 million of the \$600 million existing loan authorization which was frozen tight by a short-sighted clause in the original legislation. Also anticipated is a reduction in the amortization period from 60 to 45 years and a reduction of 1/2 per cent in the interest rate charged to local authorities. It is probable that USHA will give special consideration in lending the released funds to projects which fit into the defense program. In fact, on June 14 the President approved two USHA loans which will provide 424 dwellings units for enlisted personnel and civilian employees at Montgomery, Ala.'s Maxwell Field Army Air Base and 200 at Pensacola, Fla.'s Corry Field Naval Air Station.

While defense plans are still fluid, it is safe to say that the Council of National Defense will not soon involve itself directly in the housing problem. It is known that the Administration favors solving it via private enterprise with the help of existing Government agencies and that it favors detached houses to multi-family buildings. To coordinate these activities and keep the Council posted, it is probable that some Government official will be appointed as a liaison officer to work with the building industry. High on the list of qualified candidates are Lowell Mellett who came to the Central Housing Committee from the Press

via directorships of the National Emergency Council and the Office of Government Reports, N. Max Dunning of the Treasury Department's Procurement Division and one-time official in the PWA's defunct Housing Division and John D. Biggers who has served the Government before as director of the 1937 National Unemployment Census.

AIASTERS. Month ago in Louisville the American Institute of Architects at their 72nd annual convention played with the legal phraseology of their by-laws, downed mint juleps, gave a vote of confidence to the Federal Home Building Service Plan sponsored by its manufacturing affiliate, Producers Council, and the Federal Home Loan Bank Board, re-elected its official quartet: President Edwin Bergstrom of Los Angeles, Vice President Walter R. McCornack of Cambridge, Secretary Charles T. Ingram of Pittsburgh and Treasurer John R. Fugard of Chicago. Also elected were three regional directors (to fill vacancies left by Richmond H. Shreve, Albert Harkness, and Alfred Shaw) and a dozen fellows (see p. 14). For comments on the day-by-day doings of the 600-odd AIAsters, see page 29.

LABOR. Wage reductions aimed allegedly at increased residential construction but obviously at increased union membership has been the subject of recent building labor activities:

► In New York City union bricklayers by a vote of 3,109 to 378 have refused to cut their \$1.90 hourly wage in the first test of an AFL plan uncorked this spring to set up a uniform daily wage (\$9.50) for all house building mechanics. Called by AFL a "significant" attempt to lower housing costs and boost construction volume, the uniform wage plan has been impartially interpreted as a flanking attack to halt CIO's entry into the building industry, to bolster AFL ranks where they are weakest. Since non-union wages paid on most home building projects are considerably below AFL's proposed \$9.50 standard, establishment of this rate throughout the industry would actually up costs, depress house building activity. New York's house builders may well have sighed with relief, therefore, when the city's union bricklayers blackballed AFL's plan, apparently decided to content themselves in their well-organized fields of industrial, commercial and apartment building. House builders elsewhere may also be relieved, for, unless President Thomas A. Murray of the local Building and Construction Trades Council can get President Harry C. Bates of the international union to change the minds of his New York bricklayers, chances are that the AFL's much

publicized uniform wage movement will peter out, that 90 per cent of all U. S. house construction will continue as usual without union labor.

► In Pittsburgh, the Building and Construction Trades Council, representing some 20,000 AFL members in Allegheny County, has signed a seventeen-month contract with the Master Builders' Assn. (employers) which lopped about 20 per cent off existing union wage rates for house construction and guaranteed no strikes or other work-delaying tricks. Commented Chairman Charles J. Lawrence of the Council's wage committee: "Labor contends that price savings are needed in the small home, single- and double-dwelling field to improve chances for wage earners to own their own homes. At the same time, the reduction will bring the abilities of trained workers on the Trades Council into this type of work." Latter half of Lawrence's statement hints at the real motive behind the wage reduction: Pittsburgh's non-union labor offers organized mechanics stiff competition in the house building field, and AFL's wage reduction may cause non-union laborers further to reduce their already sub-union wage scale, may even force them to join AFL ranks for self-preservation.

► In Westchester County, N. Y., building labor performs against a decidedly different backdrop—it is one of the few localities where house building is strongly unionized. Its builders and municipal officials have long complained that the county suffers from AFL domination and its comparatively high wage scale, have recently suggested that the unions take a cut. Surprisingly, labor did not laugh off the proposal as it did in nearby Manhattan (see above); the Bricklayers, Plasterers and Masons International Union has asked a county official to name a joint committee to study the situation. The union is in favor of encouraging increased house construction but will not commit itself to a wage reduction until assured that it will not be used as a "guinea pig." Opposition was also expressed to benefiting "fly-by-night" speculative builders who might invade Westchester to capitalize on the building boomlet which lower wages would probably touch off. To crystallize the rank and file's attitude toward the proposed payout, Labor month ago mailed 30,000 ballots to members in 72 trades, refused to predict the result.

► In Milwaukee, labor news was made by Realtor-Builder Frank Kirkpatrick, the city's No. 1 private houser, who launched a new low cost house program for the benefit of low income building mechanics. Required down payment on a Kirkpatrick house is \$50 plus 600 hours of work. Kirkpatrick supplies a \$450 lot plus \$600 credit for the promised labor which, to quiet AFL's Building and Construction Trades Council, may not include any plumbing, heating, sheet metal, electrical, masonry or sewage work. Month ago two houses were under construction by their owners—two of AFL's carpenters.

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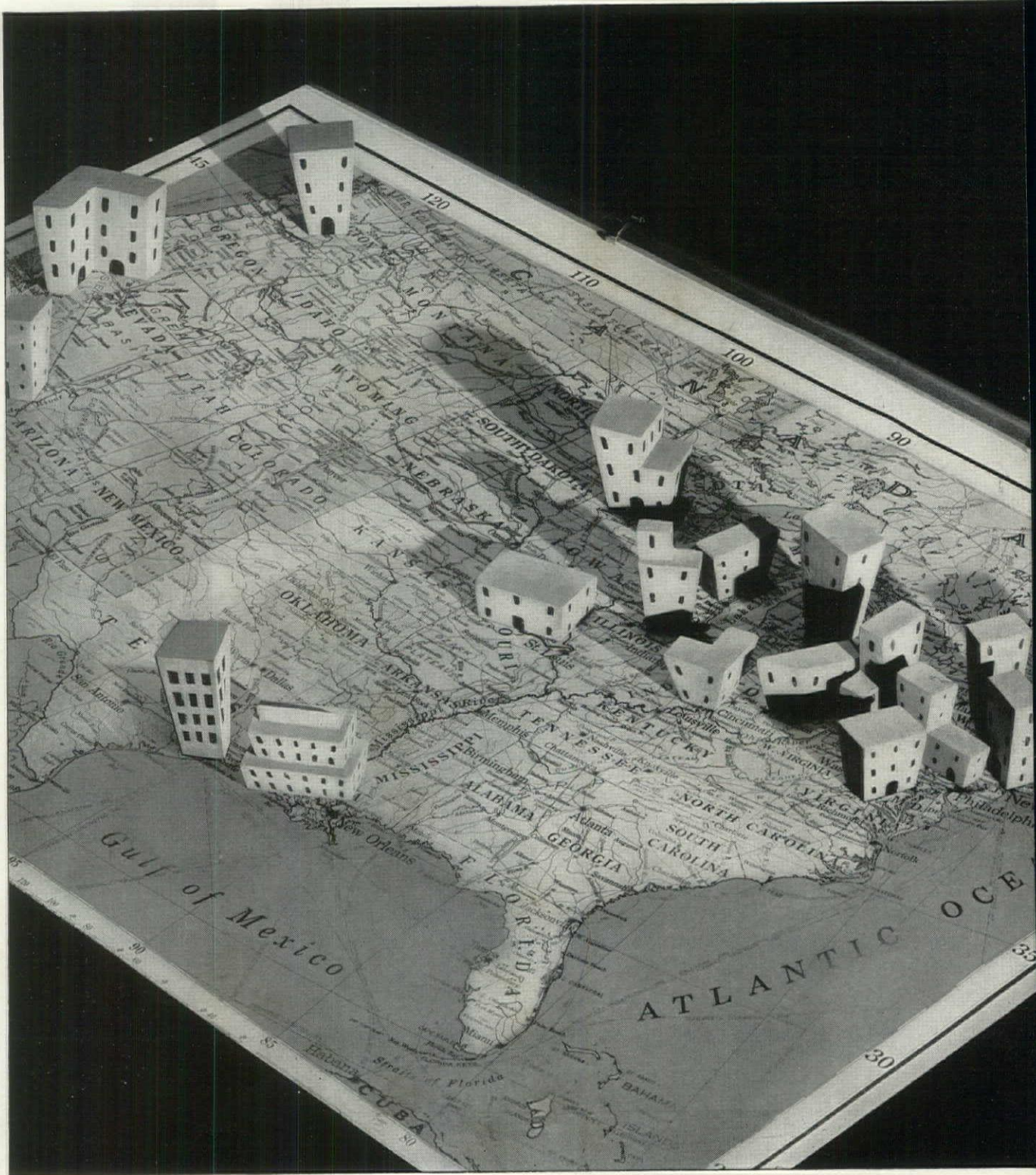


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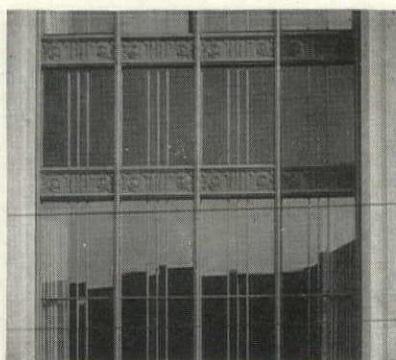
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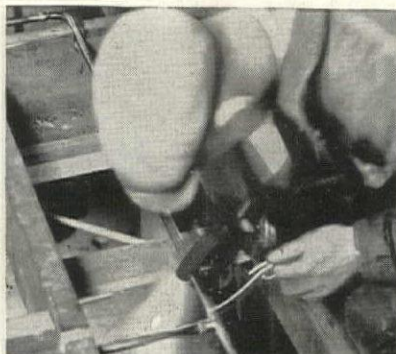
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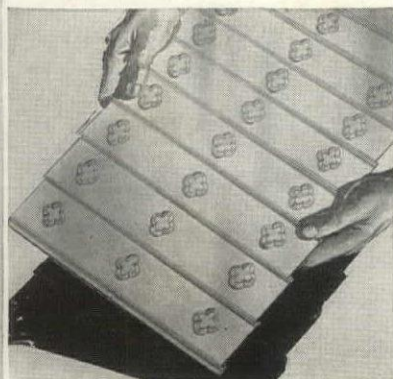
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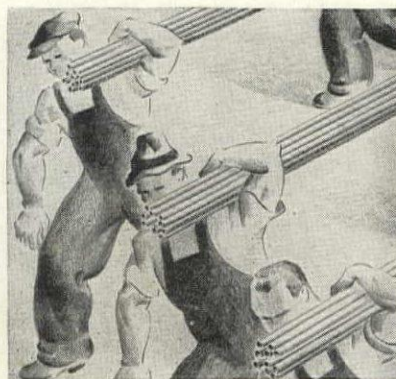
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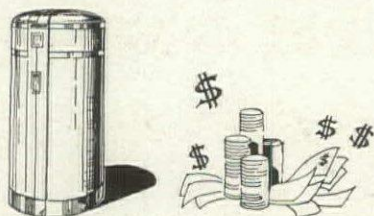
This is the man whose smile was bright
Who bought the house that jack built.



This is the girl with step so light
Who married the man whose smile was bright
Who bought the house that jack built.

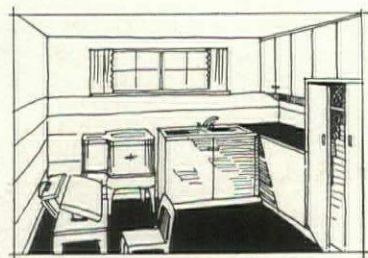


This is the kitchen that appealed on sight
To the beautiful girl with step so light
Who married the man whose smile was bright
Who bought the house that jack built.

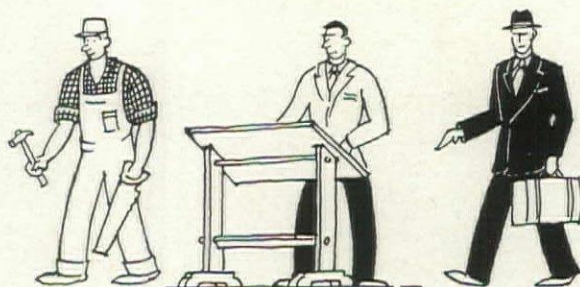


This is the furnace quiet as a mouse,

Whose operating economy helps pay for the house
That has the kitchen that appealed on sight
To the beautiful girl with step so light
Who married the man whose smile was bright
Who bought the house that jack built.




This is the wiring and laundry too
And sight-saving lighting of cheery hue
That do their bit for the home, so new,
That has the furnace, quiet as a mouse;
Whose operating economy helps pay for the house
That has the kitchen that appealed on sight
To the beautiful girl with step so light
Who married the man whose smile was bright
Who bought the house that jack built.




This builder and architect had seen the light
And determined the house be equipped *right*
To enable the house salesman to do his mite
In explaining the wiring and laundry, too
And sight-saving lighting of cheery hue
That do their bit for the home, so new,
That has the furnace, quiet as a mouse,
Whose operating economy helps pay for the house
That has the kitchen that appealed on sight
To the beautiful girl with step so light
Who married the man whose smile was bright
Who bought the house that jack built.

This is the HOME BUREAU whose help, you can see,

Makes  s and  s say “ for me.”


The Home Bureau helped these men see the 



And determine the  should be equipped *right*


To enable the house  to do his mite


In explaining the  and  too

And sight-saving  of cheery hue



That do their bit for the , so new,

That has the , quiet as a ,

Whose operating economy helps pay for the 

That has the  that appealed on sight

To the beautiful  with step so 

Who married the  whose  was bright—

WHEN he bought the  that Jack * built.

*Refers to progressive Architects and Builders who build houses to live in—comfortably, conveniently, economically—and who include complete high-quality operating equipment at the time of construction. Complete General Electric equipment—G-E Kitchen, G-E Heating, G-E Wiring—under today's long-term, single mortgage system would in most cases increase the carrying charges on a new house by less than the cost of a package of cigarettes a day.

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☐ I am an architect

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City.....State.....County.....

GENERAL  ELECTRIC

FORUM OF EVENTS



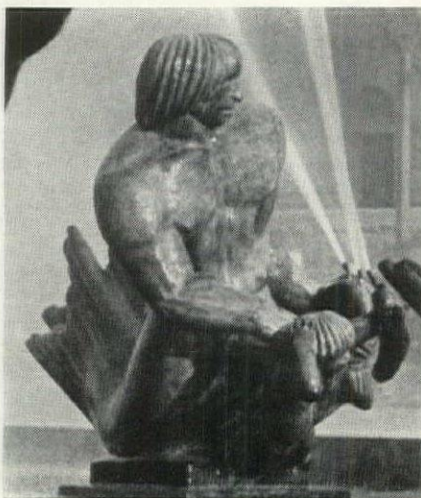
Jean Jackson

CARL MILLES' NEW ST. LOUIS FOUNTAIN

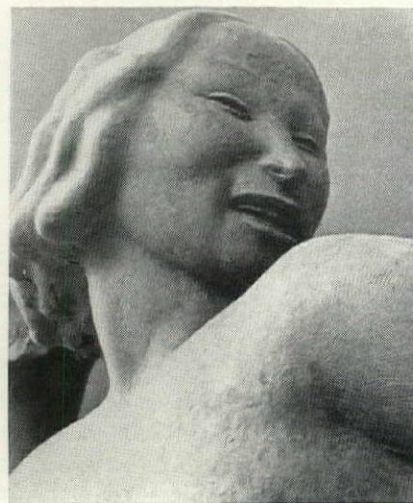
Following the usual municipal disturbances over too much or too little dependence on realism—too much nakedness, too little similarity to local fish—St. Louis recently unveiled Carl Milles' "Wedding of the Rivers," symbolizing the confluence of the Mississippi and the Missouri. Mrs. Louis P. Aloe (left, congratulating Milles) and the city gave the \$150,000 basin for the plaza before Union Station. Most obvious present need—an encirclement of worthy architecture.



Torkel Korling

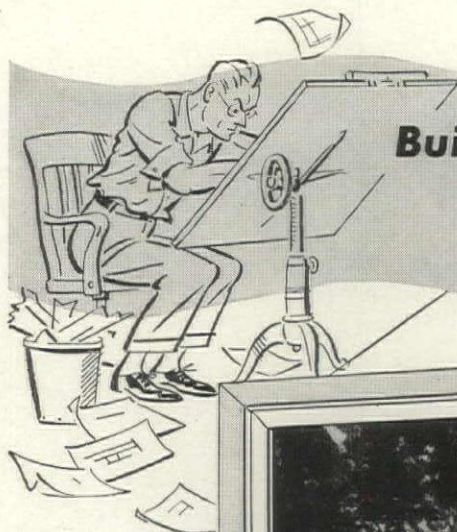


Jean Jackson



Pix

(Forum of Events continued on page 12)



**Built by an architect, for an architect
... WITH STUCCO**



● James Lawrence, Jr., of Brookline, Mass., Architect, frames his own home in attractive, protective covering of Portland Cement Stucco, made with Atlas White cement. Stucco contractor, Lowell-Whipple, Worcester, Mass. Stucco manufacturer, California Stucco Products Co., Inc., Cambridge, Mass.

IN Brookline, Mass., an architect planned to build his own home. Said the architect to himself as client: "I recommend a portland cement stucco finish for your classic-modern house."

Said the client to himself as architect: "It's O. K. with me. Go ahead." And so white portland cement stucco over cinder block supplied the exterior and enhanced the design of the house above, including all the fine detail and recessed trim.

Whether for themselves or their clients—for homes or business structures—architects are demonstrating today the versatility, beauty, durability and low upkeep of this overcoating of steel and concrete made with Atlas White portland cement. Portland cement made with Atlas White stucco blends well with different types of architecture and with other materials—wood, stone and brick. It is a most attractive finish by itself. It's easily tinted to a wide

range of colors. It retains its original fresh appearance for many years. It's fire-safe and weather-resistant. Its first cost is moderate. Its upkeep amounts to practically nothing.

Consider the appearance and cost advantages of stucco, made with Atlas White cement, in connection with your next job. Think of it for new work or modernization. Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), Chrysler Building, New York City.

A FACTORY-MADE STUCCO IS PREFERABLE

AF-S-18

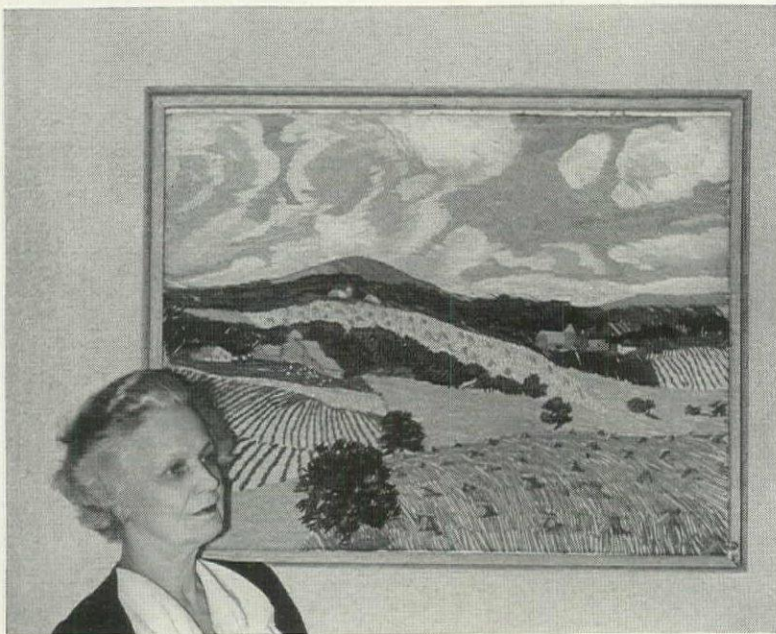
ATLAS WHITE CEMENT

A UNIVERSAL ATLAS PRODUCT



FORUM OF EVENTS

(Continued from page 10)



Long point is the name given this form of decorative needlework by its creator, Maginel Wright Barney, whose brother, Frank Lloyd Wright, framed it.



American Design Awards (of \$1,000 each), for 1940, presented by Lord & Taylor's Walter Hoving (center) to Ray Patten, Norwalk, Conn., head of G. E.'s design staff, for an electric stove; to Mrs. Altina Sanders, New York, for her harlequin spectacles; to William Joyce, Jr., Pasadena, for zipper shoes; and to Henry Dreyfuss, New York, for his washing machine.



John Gass

Producers' Council Club of New York held its tenth annual golf outing at Larchmont, June 5, recklessly matching architects against producers.



Hedrich-Blessing

Heredity again justifies its power in the garden sculpture of Sylvia Shaw Judson, a daughter of the late Howard Van Doren Shaw, Chicago architect, whose country houses in the Midwest were never without their well-studied garden settings.



Versus. On this corner of Rockefeller Center ye olde Holland House Taverne has taken over. When the little Dutch boy put his thumb in the dike, this is the plum he pulled out.

(Forum of Events continued on page 14)

The MODERN GARAGE DOOR CHOSEN BY Famous Architects FOR "LIFE HOUSES"...

The
"OVERHEAD DOOR"
TRADE MARK
WITH THE
MIRACLE WEDGE

POINTS OF SUPERIORITY:

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"LIFE House" No. 6—
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souri.



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on doors for the purpose checked:

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ADDRESS.....
CITY.....STATE.....

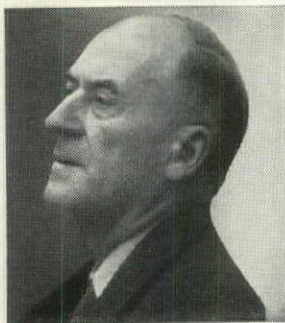
- ☐ Private Garage
- ☐ Public Garage
- ☐ Warehouse
- ☐ Factory
- ☐ Greasing Station
- ☐ Other Buildings
- ☐ Wood Sections
- ☐ Steel Sections
- ☐ Hand Operated
- ☐ Electric
- ☐ Standard Model
- ☐ Master Model

**OVERHEAD DOOR
CORPORATION**
Hartford City, Indiana, U.S.A.

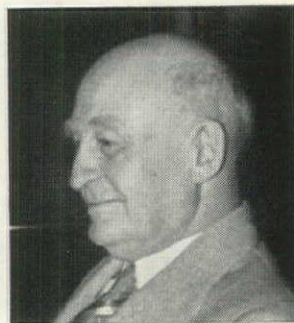
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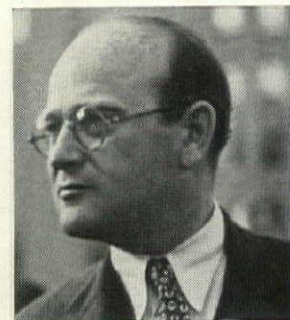
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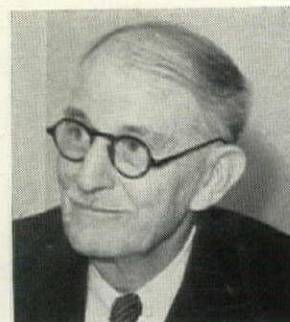


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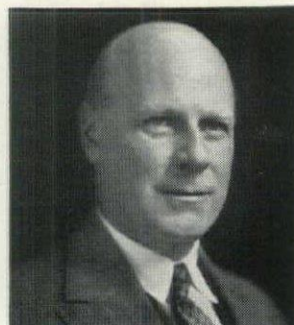


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Kazanjian



(Forum of Events continued on page 60)



4* OF THE 8

Life Houses
call for

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TO ALL designers and builders alive to this conspicuous trend in modern design, WIN-DOR offers new details for functional wood casements:

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THESE New WIN-DOR equipped casements are now available in several territories in stock units . . . but Win-Dor FULL SIZE details make it easy for you and your millwork manufacturer to utilize all of these newly engineered features. Send the coupon today for your copy.

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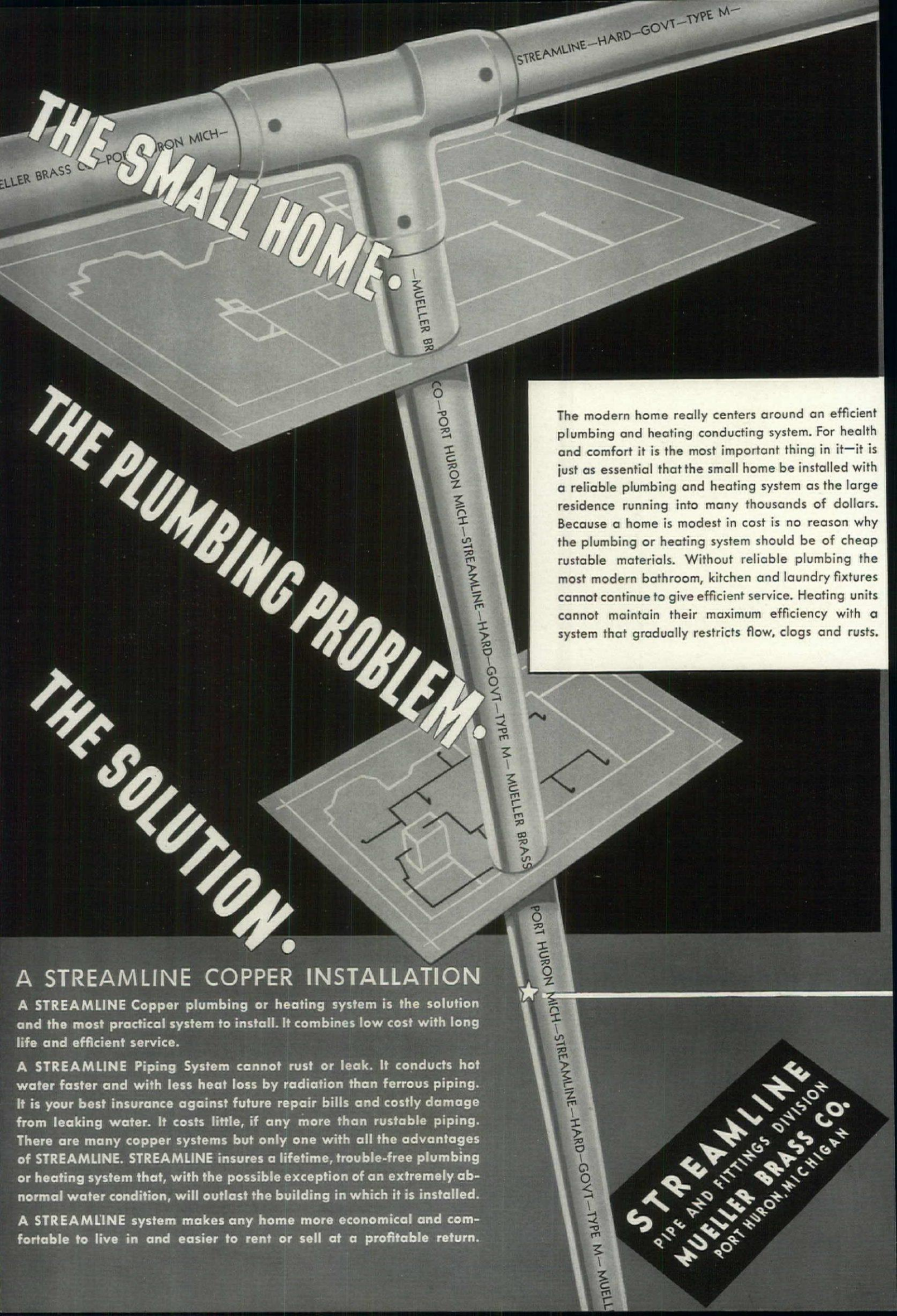
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THE SMALL HOME.

THE PLUMBING PROBLEM.

THE SOLUTION.

The modern home really centers around an efficient plumbing and heating conducting system. For health and comfort it is the most important thing in it—it is just as essential that the small home be installed with a reliable plumbing and heating system as the large residence running into many thousands of dollars. Because a home is modest in cost is no reason why the plumbing or heating system should be of cheap rustable materials. Without reliable plumbing the most modern bathroom, kitchen and laundry fixtures cannot continue to give efficient service. Heating units cannot maintain their maximum efficiency with a system that gradually restricts flow, clogs and rusts.

A STREAMLINE COPPER INSTALLATION

A STREAMLINE Copper plumbing or heating system is the solution and the most practical system to install. It combines low cost with long life and efficient service.

A STREAMLINE Piping System cannot rust or leak. It conducts hot water faster and with less heat loss by radiation than ferrous piping. It is your best insurance against future repair bills and costly damage from leaking water. It costs little, if any more than rustable piping. There are many copper systems but only one with all the advantages of STREAMLINE. STREAMLINE insures a lifetime, trouble-free plumbing or heating system that, with the possible exception of an extremely abnormal water condition, will outlast the building in which it is installed.

A STREAMLINE system makes any home more economical and comfortable to live in and easier to rent or sell at a profitable return.

STREAMLINE
PIPE AND FITTINGS DIVISION
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Speaking of PAINT!

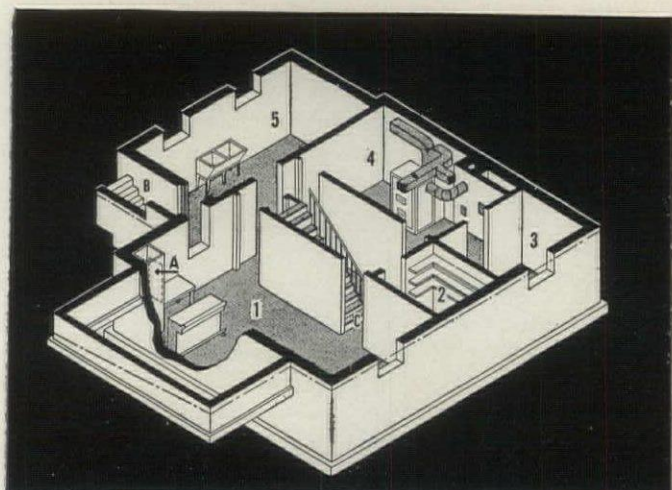
Here's Where You Should Use BONDEX and MODEX

There's a place for everything—and there are lots of places where BONDEX Waterproof Cement Paint and MODEX Powder Casein Paint are just right. The floor plans below show you exactly where to use the two outstanding paint products—they even go so far as to show you where another type of paint is more suitable!

MODEX—the concentrated casein paint in powder form . . . requiring no priming coat and is washable. Permanent and economical.

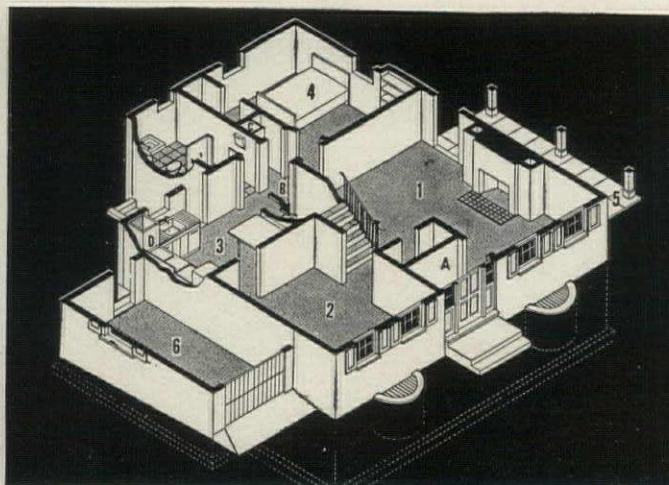
BONDEX—the waterproof cement paint . . . waterproofs, beautifies and preserves in one treatment. Stops basement leaks; weatherproofs stucco homes.

BONDEX-PRIMER—prepares any surface for BONDEX whether it is porous or non-porous; painted or non-painted.



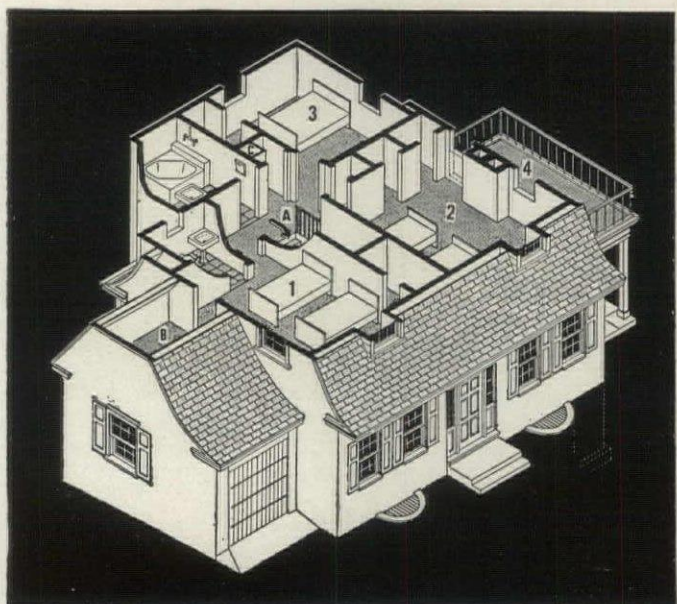
BASEMENT

1. Recreation Room—Walls Bondex, ceiling Modex.
2. Fruit & Vegetables—Walls Bondex, ceiling Modex.
3. Fuel—Walls Bondex, ceiling Modex.
4. Heater—Outside wall Bondex, inside wall Modex, ceiling Modex.
5. Laundry—Walls Bondex, ceiling Modex.
- A. Areaway—Walls Bondex.
- B. Stair Hall—Walls and ceiling Modex.



FIRST FLOOR

1. Living Room—Walls* and ceiling Modex.
 2. Dining Room—Walls* and ceiling Modex.
 3. Kitchen—Use good oil paint or enamel.
 4. Bedroom or Den—Walls* and ceiling Modex.
 5. Garage—Walls Bondex, ceiling Modex.
 - A. Vestibule—Walls* and ceiling Modex.
 - B. Hall—Walls* and ceiling Modex.
 - C. Bathrooms—Use good oil paint or enamel.
- *Walls of plaster, wallboard, gypsum or fibre board.



SECOND FLOOR

1. Master Bedroom—Walls* and ceiling Modex.
 2. Bedroom—Walls* and ceiling Modex.
 3. Bedroom—Walls* and ceiling Modex.
 - A. Stair Hall—Walls* and ceiling Modex.
 - B. Storage—Walls* and ceiling Modex.
 - C. Bathrooms—Use good oil paint or enamel.
- *Walls of plaster, wallboard, gypsum or fibre board.

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COMPLETE
LITERATURE**

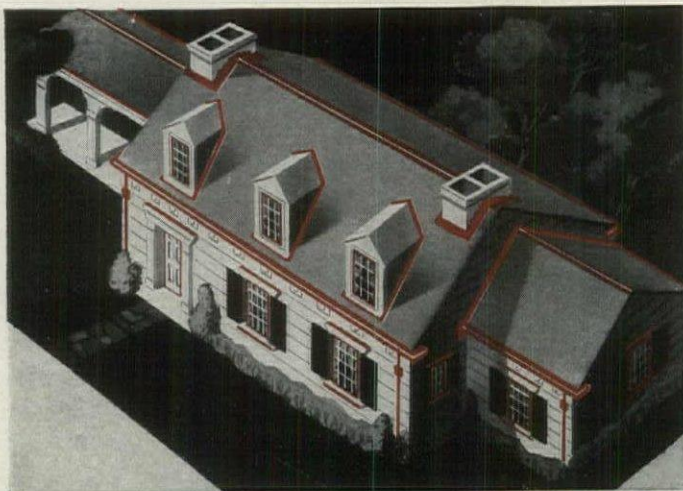


EXTERIOR

Use Bondex if outside walls are stucco, brick, stone, or concrete blocks.
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THE REARDON COMPANY • St. Louis, Chicago, Los Angeles, Montreal

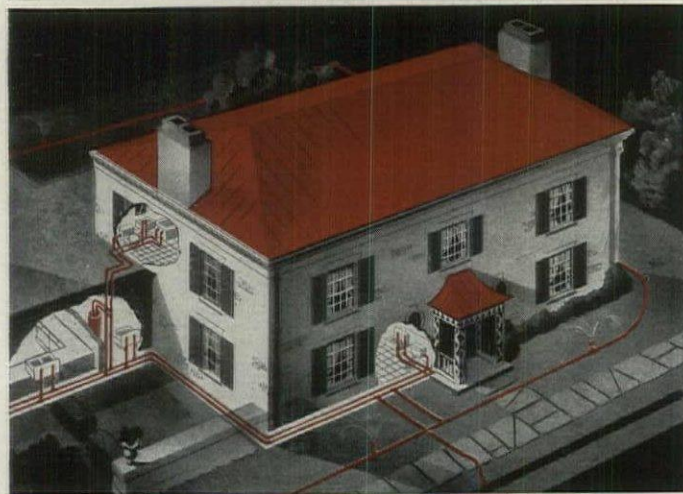
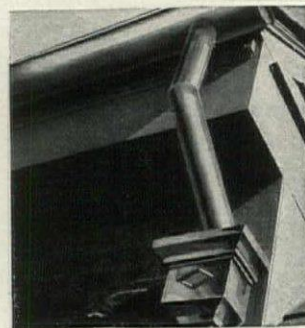
MORE VALUE THROUGH COPPER...



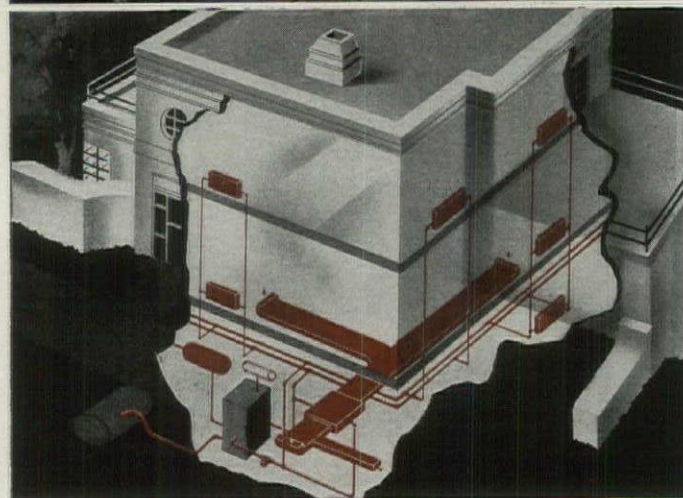
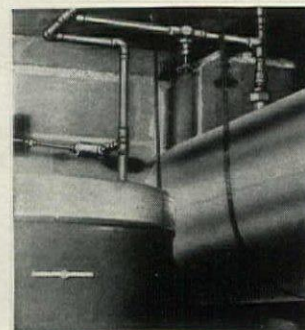
● In all homes—and noticeably in small homes all over the country—each year shows an increase in specifications for copper or copper alloys.

For the public recognizes that copper or a copper alloy is worth far more than its cost in providing extra protection and extra service in the vital parts of a home.

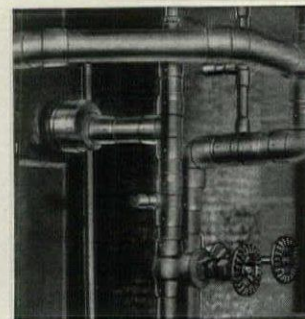
IN ROOFS... Protection is essential at the vulnerable points shown at top left. The use of copper at these points provides *long-lived* protection, eliminating the worry and expense of repairs. A close-up of an economical drainage installation of Revere Copper is shown at right.



● **IN WATER SUPPLY SYSTEMS...** The use of Revere Copper Tube or Brass Pipe from main to faucets, as shown middle left, insures a constant supply of clear, sparkling water for the life of the home. Since hot water usually presents more corrosion problems than cold, tanks as well as piping are available in copper, or Herculoy (silicon-copper) as shown at right.



● **IN HEATING AND AIR CONDITIONING** ... The combination heating and air conditioning installation diagrammed at lower left uses copper throughout. In forced circulation systems, small pipe sizes in *copper* can be used, making the cost competitive with iron or steel pipes. At the right, the compactness and adaptability of Revere Copper Tube joined with Streamline Fittings is illustrated.



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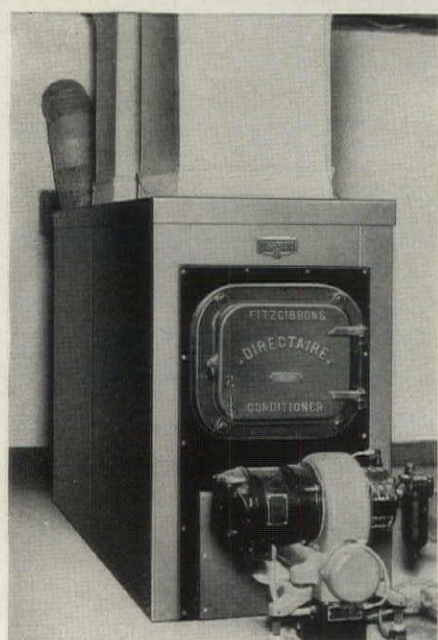


*America is on the COPPER STANDARD -
AND THE STANDARD FOR COPPER IS REVERE*



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COMFORT with operating
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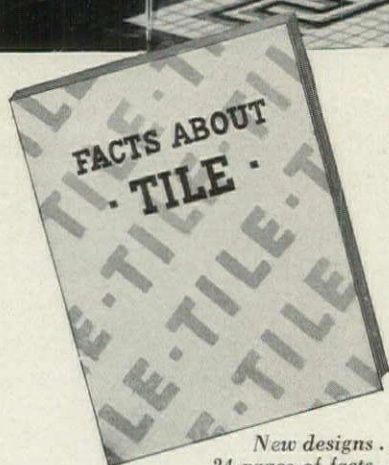
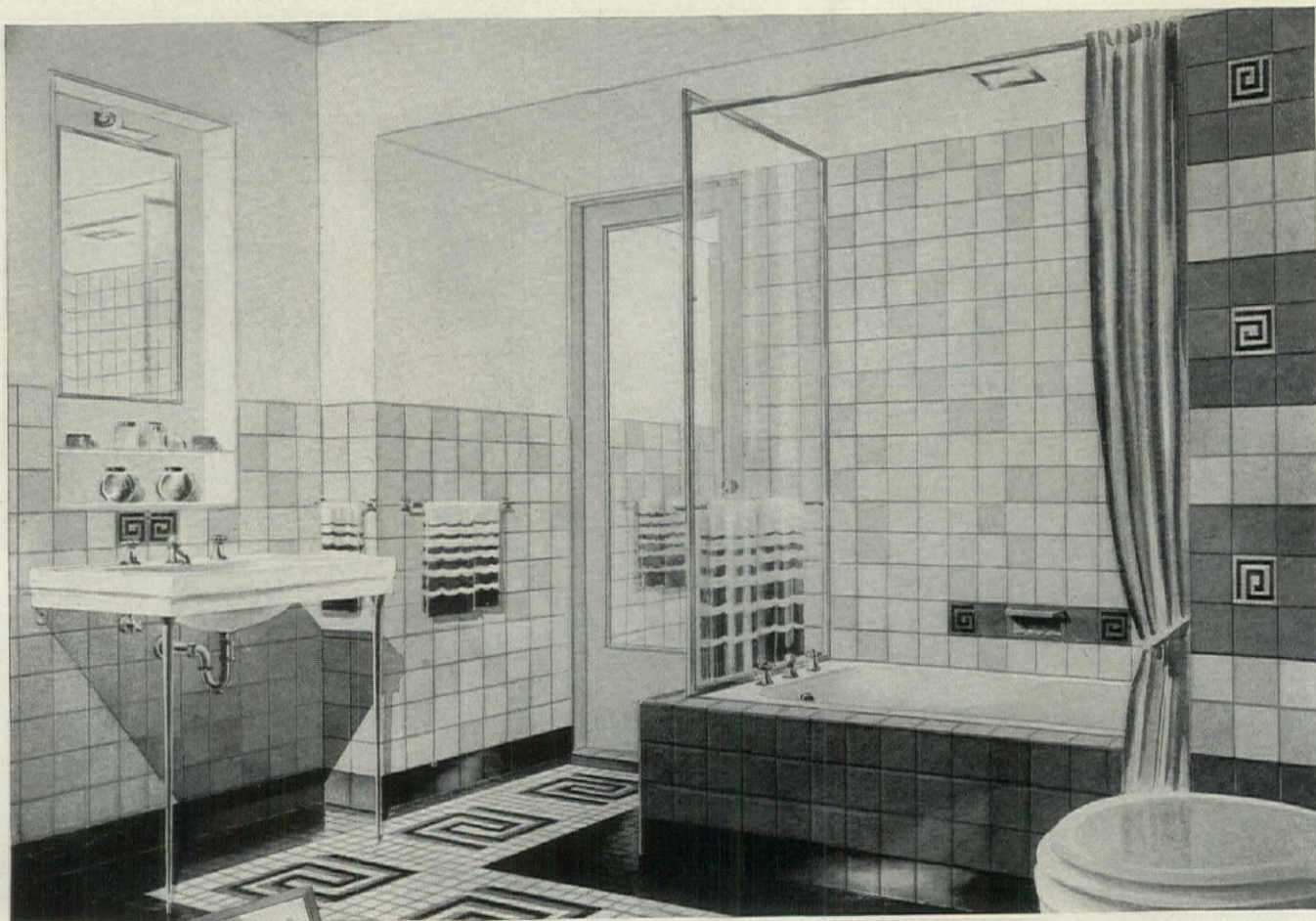
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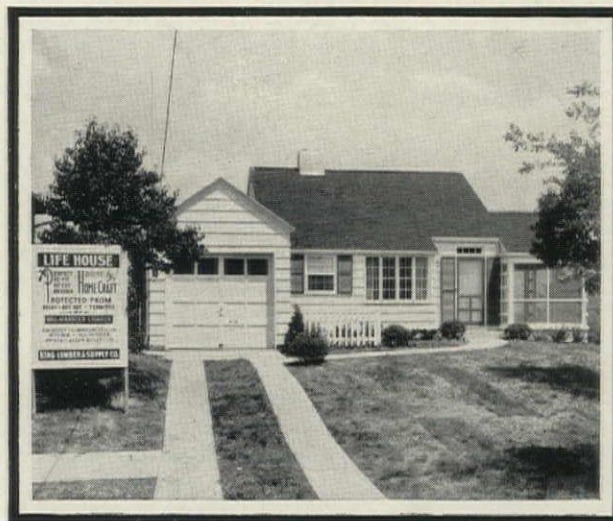
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Two time-tested General Electric appliances — the G-E Dishwasher and G-E Disposall — are now combined into one beautiful unit that replaces the old-fashioned kitchen sink. The G-E Dishwasher and Disposall are available separately for installation in new or existing kitchens.



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ends accumulation of garbage by disposing of food wastes right at the sink.

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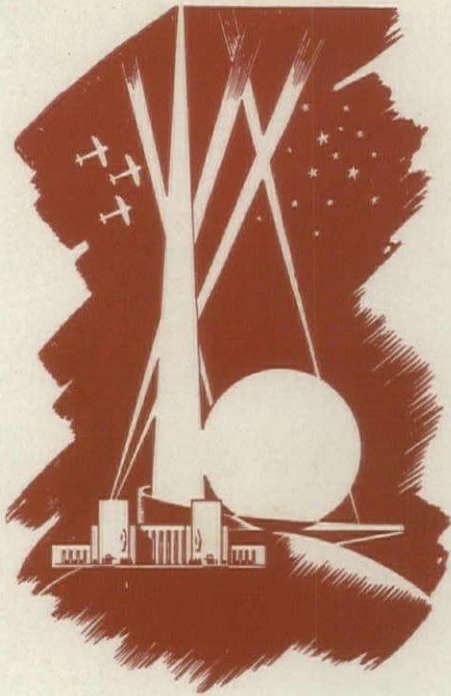
City and State.....



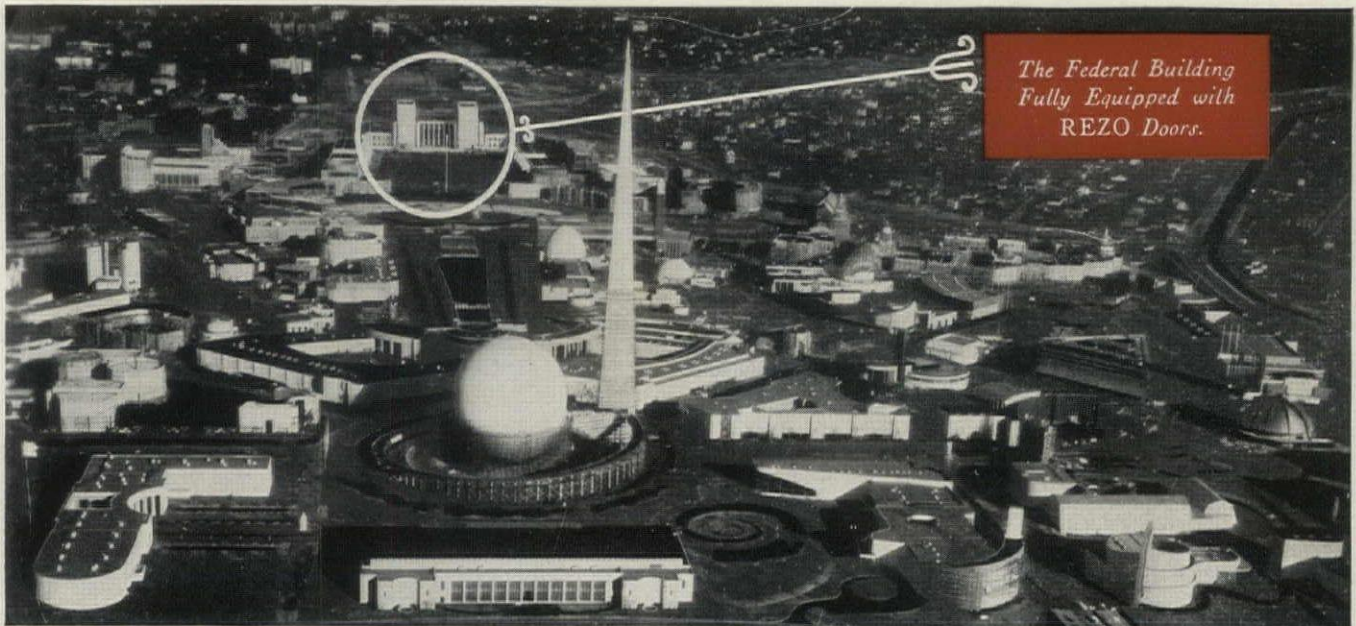
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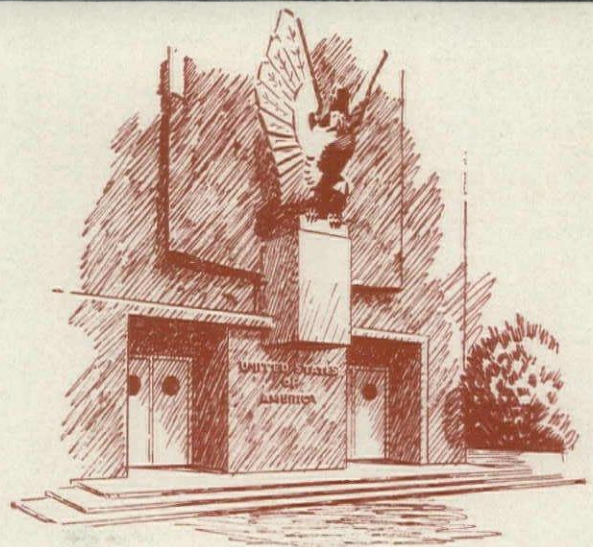
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BOOKS



MAGIC MOTORWAYS, by Norman Bel Geddes. Random House. 297 pp., illustrated. 8 x 10½. \$3.50.

By all odds the most successful exhibit at the New York World's Fair—this year as well as last—is General Motors' "Futurama." A thirteen-minute ride through the world of 1960, it shows a captivating picture of an America rebuilt, with magnificent motorways, clean sunny cities, modern farms, and most of the other appurtenances of Utopia. For the troubled citizen of the 1940's, wondering just what he is going to be in for during the years to come, its appeal has been irresistible, and thanks to Norman Bel Geddes' consummate showmanship, the story is told in the most dramatic possible fashion. If the exhibit has a defect, it is that this brief ride is inadequate to explain the details of a scheme worked out in the most minute detail.

Norman Bel Geddes has never been awed by bigness. His theatrical productions could only be described in superlatives, his industrial designs were often advanced far beyond the limits of public acceptance, and his first venture into urban planning was appropriately a project for a hypothetical city of fifteen million population. Designed for use by the Shell Oil Company in a series of advertisements, its major focus was brought to bear on the problems of traffic and proper street and highway design. In the "Futurama" the emphasis is unchanged, but the pattern has been expanded to fit a continent. This book picks up where the "Futurama" ride ends.

"Magic Motorways" is probably the most complete study on traffic, past, present and future, ever presented to a non-technical audience. It has most of the advantages of the Fair exhibit, and the reader can take his time getting through it. Beginning with the "first transcontinental road engineers"—a photograph of a herd of buffalo—the book follows the early development of roads and leads to the complete frustration which is the lot of the average city driver today. Causes of accidents of various types are explained, and the illustrations leave nothing to be desired. There is a complete history of road design for automobile traffic, with descriptions of the palliatives adopted as congestion has become worse: one-way streets, parking meters, stop-lights, bumps at intersections, painted lines, raised traffic separators and all the rest. None of these will be news to the motorist, but the story of how, when and where they were tried and how they have worked is one that has not been told before. After tormenting the driver-reader with all the familiar nightmares and a few not so familiar, and after piling up such facts as the five mile per hour decrease in speed

through New York City streets since carriages were used, Mr. Geddes tells how it is going to be in 1960. It goes something like this: say one is in a hurry to get across the continent by car (—or truck). He leaves town at 5:15, goes for twenty-five miles across improved secondary roads, and then picks up a feeder lane to the motorway. An automatic control takes over, accelerating the car to 50 miles per hour and slips it into a gap between the regularly spaced cars on the motorway. The driver presses a button and presently he is in the 75-mile lane and in a similar manner he enters the 100-mile lane. After dark his lights stay off, the car automatically turning on road lights for a certain distance ahead. By 1:30 he is outside Chicago, having maintained the same speed all the way. His radio tells him where he is at all times. Gas stations are located every twenty miles, and to stop he shifts from lane to lane as he entered the motorway. At the Rockies the three speed lanes separate. The 100-mile lane goes as nearly straight as possible, with bridges and tunnels to maintain an easy grade; the other lanes follow the natural contours more closely. By 4:45 he is turning off on the feeder to San Francisco, and if he has had a friend to drive while he slept, the trip will have taken twenty-four hours.

This is fantasy, but very carefully documented fantasy. Mr. Geddes gives all the details, in drawings and in photographs of the Futurama. It can all be built. We might even see something like it in 1960. Basically it is a completely practical scheme because it accepts the car as a high-speed vehicle, removes an overwhelming percentage of the human element in driving risk, and presents a road design in which the car can operate to the full extent of its potentialities. The trend is clear and Mr. Geddes carries it to a logical conclusion. If the details should be changed by 1960 it is not very important. And the planners have plenty to do in the meantime.

AN AIR-CONDITIONING PRIMER, by William Hull Stangle. The McGraw-Hill Book Company, New York City. 236 pages, illustrated. 6¼ x 9¼. \$2.50.

An elementary textbook written for the use of non-technical readers interested in air conditioning. In simple language the author discusses the nature of heat, the reactions of the human organism to external physical conditions and the characteristics of various types of enclosures from the point of view of heat and air conditioning. The second half of the book deals with applications of these basic principles and illustrates design methods and standard types of apparatus. The author has done a difficult job very well indeed, and the book is an excellent introduction to the subject.

DECORATIVE ART 1940, The Studio Year Book. The Studio Publications, Inc., New York City. 144 pp., illustrated. 8¼ x 11½. Paper \$3.50. Cloth \$4.50.

The 1940 edition of *Decorative Art* maintains the high standard established in previous issues. The basic pattern is unchanged. A number of contemporary houses are shown and there are the usual chapters on the various rooms with sections on furniture, lighting, accessories, etc. The value of the book lies in the thoroughly workmanlike job of editing that has been done, and the excellent material which is included. It is virtually the only publication to which the architect or decorator can turn with the certainty that the great bulk of work illustrated will be of high quality and widely varied. There are a number of introductory articles, one on domestic architecture by Howard Robertson, well-known English architect, and another on interior decoration and furnishing by Grace Lovat Fraser.

What paint do most architects prefer?



Drucker & Baltes Co.

PRESERVED FOR THE FUTURE—Protection against time and weather of this beautiful old Long Island residence, built in 1705, is entrusted to pure white lead paint.

EVERY architect wants his work to stand the test of time—and paint has a lot to do with that.

That is why so many architects favor the use of paints made with white lead—because long experience proves there's nothing like white lead in making paint resistant to time and weather.

Made from lead, one of the most durable of metals, white lead endows paint with the same kind of slow-wearing quality—gives it a tough elasticity that prevents cracking and scaling—makes it cling in a smooth unbroken film that protects the surface underneath from moisture and rot.

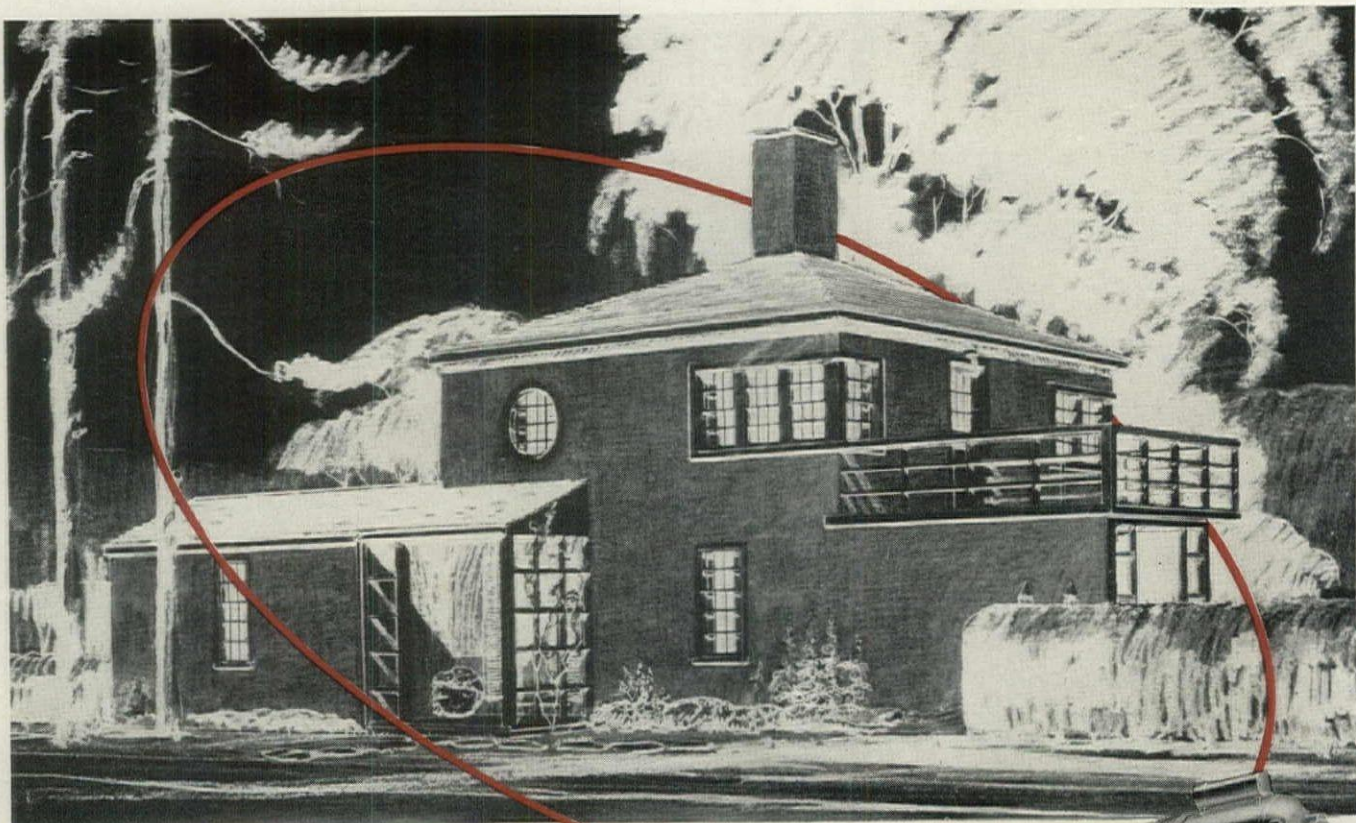
The best proof of that is the many fine old buildings that have been preserved down through the years by white lead paint.

So it's a good idea when specifying paint to know how much lead it contains. And it's a pretty safe rule to say: *the higher the lead content*, the better the paint. You can't, for example, get a more durable paint than one containing 100% white lead. This is the kind good painters mix from lead-in-oil. In many localities it is also sold ready for use.

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

HOW LONG SHOULD A GOOD PAINT JOB LAST? You'll find the answer to this and many other important paint questions in the booklet "WHAT TO EXPECT FROM WHITE LEAD PAINT." Send for your free copy today.





The above house is one of "Life's" prize winning homes, reproduced by permission.

THIS STRIKING BIT OF MODERN DESIGN DESERVES NOTHING LESS THAN *CONTINUOUSLY CIRCULATED HEAT*

Modern home planning urgently calls for better heating . . . and here it is! Hoffman Hot Water Controlled Heat . . . utterly different . . . equalling in every respect the very latest improvements in home design.

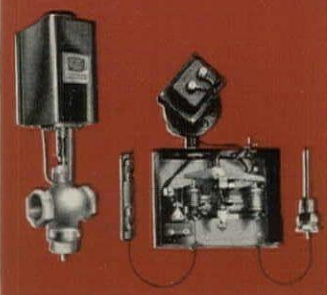
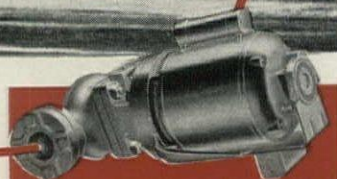
Hoffman Hot Water Controlled Heat offers first the comforting, all-pervading warmth of Radiant Heat. Second, it provides a hairline regulation of that heat. Its system of controls holds a constant balance between heat demand and supply, so that the temperature in the home never varies from the desired degree!

The system is not elaborate—it is simplicity itself. Its operation is based on *continuous*

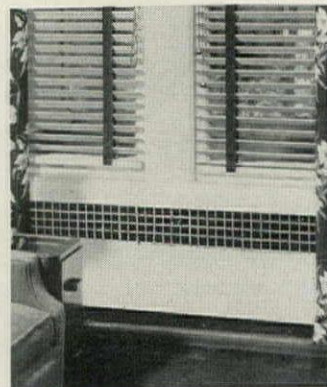
circulation of heated water through the radiators, with the temperature of the water regulated by coordinated outdoor-indoor temperature bulbs. No needless heat is ever delivered, hence fuel consumption is held at rock-bottom.

This is heating comfort at its best, yet the cost is within the budget requirements of even modest homes. Send for detailed information. Hoffman Specialty Co., Inc., Dept. AF7, Waterbury, Conn.

This system, when equipped with an indirect heater, will furnish a boundless supply of low-cost domestic hot water the year around.



Any hot water boiler can be equipped with these three operating units of Hoffman Hot Water Controlled Heat.



Designing the system for a 240 BTU heat emission means small, easily concealed radiators.

HOFFMAN

Hoffman Valves, Traps, Pumps and Hot Water Specialties are sold everywhere by leading wholesalers of Heating and Plumbing equipment.

Hot Water CONTROLLED HEAT

Everywhere

HOME OWNERS ARE MAKING
NEW CLIENTS FOR YOU!



The NEW INSULITE WALL OF PROTECTION

When home owners are satisfied with a product they don't keep the name of that product a secret.

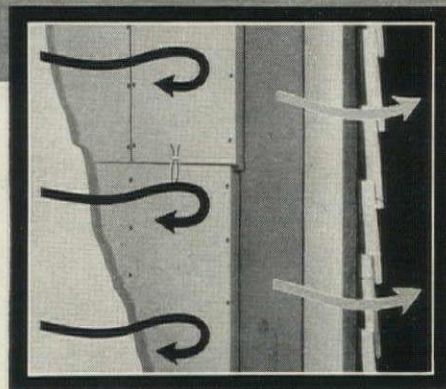
Thousands and thousands of homes have been built with the New Insulite Wall of Protection. These owners talk with pride to their friends and neighbors.

And no wonder, for Bildrite Sheathing applies quickly, easily, thus reducing labor costs. Bildrite has four times the bracing strength of wood sheathing when applied horizontally. It offers insulation against summer's heat and winter's cold, saves fuel and gives lasting comfort and protection.

Sealed Lok-Joint Lath, the other half of the Wall of Protection, is a smooth, safe plaster base. Its patented "loks" form one continuous strong wall with more than twice the bond of wood lath, thus reducing the danger of plaster cracks to a minimum.

Every day in every section of the country, satisfied home owners are talking about the New Insulite Wall of Protection and making new clients for you.

If you have not already done so, write for samples and specifications of this new development. Insulite, Dept. AF70, Minneapolis, Minn.



Here's how the New Insulite Wall of Protection eliminates moisture and solves the condensation problem. Sealed Graylite Lok-Joint Lath, made with an asphalt barrier on the stud side of the wall, effectively stops vapor. Then, Bildrite Sheathing allows what traces of vapor may escape the barrier, to flow freely toward outside air.

INSULITE PRODUCTS INCLUDE

Structural: Sealed Graylite Lok-Joint Lath, Graylite Lok-Joint Lath, Ins-Lite Lok-Joint Lath, Bildrite Sheathing.

Interior Finishes: Ins-Lite, Graylite, Smoothcote, Satincote in 4 washable colors, Hardboards, Acoustilite, Fiberlite.

Copyright 1940,
by Insulite

INSULITE



MINNEAPOLIS
MINNESOTA

THE ORIGINAL WOOD FIBRE STRUCTURAL INSULATING BOARD



"Life Houses are Great; there's one we'd like to have. But we have so many questions to ask about owning a home. Where can we find the answers?"

What do you want to

Know about owning a Life House

~ or any house?



How to select a neighborhood—answers to questions about location of transportation, schools, churches—details about budgeting and financing. You'll want to know all this.



How to plan all your rooms for comfortable living and for greatest utility. You will want to design your kitchen, living room, dining room, bedroom and your closets efficiently.



How to guard against fire. Do you know that your home can be protected with fireproof materials, which actually cost less than those which burn? Be sure you have this important advantage.



How to choose insulation—practically, sensibly, economically. Assure lasting year-round comfort for your home. With this guidance you may choose your insulation wisely.



How to assure smooth, durable room surfaces. You'll want to know how to have better, stronger, safer walls and ceilings, whatever size, price or style of home you build, buy or remodel.



How to decorate—make small rooms look larger, high ceilings look lower. Get hints on wallpaper patterns and paint colors. You'll want these many practical tips on decorating every room.

"This valuable book helped us make a better, safer home investment. It will help You, too!"



Before you build or buy, you'll want all this information! You'll want to know how best to use the services of architect and builder—how to select heating and air conditioning equipment—characteristics of building materials—why USG materials are the best for home construction. By now you know.

can be obtained. That's easy! The United States Gypsum Company, makers of quality building materials for over 116 years, has published all this valuable data in a 116-page book, "How to Have the Home You Want." To get your copy of this valuable book, ask your local dealer for a coupon with 10¢ for handling.

THIS ADVERTISEMENT APPEARS IN THE "LIFE HOUSE" ISSUE OF LIFE, TYING UP TO THE NEW 1940 LIFE HOUSE PROGRAM. OTHER USG ADVERTISEMENTS ARE APPEARING IN SATURDAY EVENING POST, COLLIER'S, GOOD HOUSEKEEPING, WOMAN'S HOME COMPANION, PARENTS', AMERICAN HOME, BETTER HOMES AND GARDENS, AMERICAN MAGAZINE, HOUSE & GARDEN AND HOUSE BEAUTIFUL



UNITED STATES GYPSUM COMPANY
300 West Adams Street, Chicago, Illinois
We want a copy of "How to Have the Home You Want"—10¢ (coin or stamps) enclosed.
Name _____
Address _____ State _____

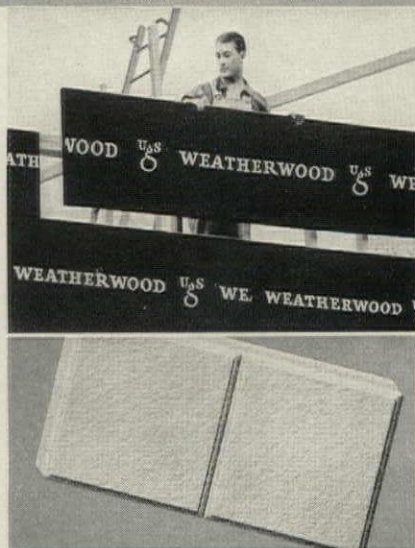
THIS IS WHAT USG SAYS TO PROSPECTS...

WHETHER YOU BUILD OR BUY

YOU NEED AN ARCHITECT"

USG Promotes Better Building . . .

Explains these and other better, safer building materials



It Punched It Full of Holes to Make a Stronger Wall—Perforated ROCKLATH, the fireproof gypsum plaster base. Perforated rocklath, properly plastered with USG Red Top Plaster, will hold fire at bay for at least 1 hour!

SHEETROCK, the fireproof wall-board, won't warp, buckle, rot, check or burn! It goes over old walls or builds smooth new ones . . . its joints vanish . . . it takes any kind of decoration your client wants, easily and quickly.

WEATHERWOOD Insulation—a complete line of colorful tile and plank units, insulation lath and 2' x 8' tongue and groove asphalt-coated sheathing. Also USG Hard-board, in several thicknesses, with both sides smooth.

Red Top Insulating Wool Blanket—a fibre-glass product designed to fill every insulation need. Three thicknesses to meet varying efficiency requirements. Vapor-Seal; stays in place; easily cut to fit any space.

So far this year USG has recommended architectural advice to over 200,000 prospective homeowners



These are the two USG books that are selling your services to America . . . one on New Home Building . . . one on Home Remodeling

THE United States Gypsum Company believes that sound architectural guidance is essential to good construction. That is why USG advertising emphasizes your ability and intelligently sells your services! These two books are doing both jobs for you. In addition, they are telling people what they want and need to know about home building, home buying and home remodeling.

USG distributes these books by offering them in advertisements in many national magazines—makes them available to architects, dealers and builders at 10c a copy for distribution to their clients and customers. To date over 200,000 have reached good prospects. A nation-wide checkup shows us that 3 out of 5 intend to *act* within a year!

We'd like you to have these books for your own use. Scores of architects are using them to illustrate fundamentals of good planning and sound construction. And we'd like to make you better acquainted with the complete line of USG materials. Won't you write us, please?

UNITED STATES GYPSUM COMPANY

General Offices: 300 W. Adams St., Chicago, Ill.



—where research develops better, safer building materials

H & H

E-Z-find

PATENT APPLIED FOR

convenience



Duplex Outlets

Behind tables, lamps, davenports — in dark corners anywhere — as easy to use as if spotlighted! The plug blades slide into the center from any point on the curved surfaces of the plate.

At left: No. 4600 Receptacle and plate complete; brown Bakelite. Same in Ivorylite, complete, No. 4600-I. Receptacle alone, brown Bakelite, No. 4601. Same in Ivorylite, No. 4601-I. One-gang Plate, brown Bakelite, No. 4602. Same in Ivorylite, No. 4602-I.



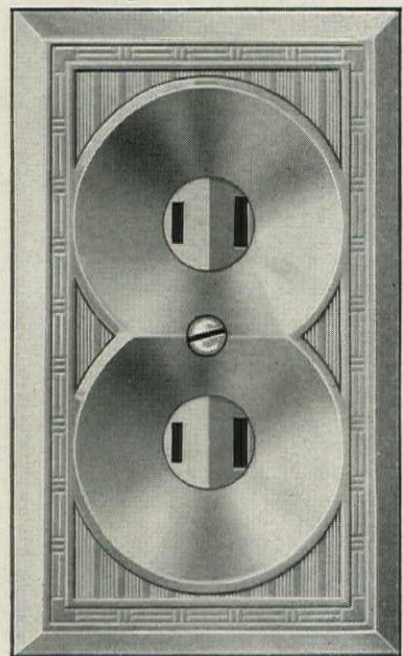
Above: No. 4601
Below: No. 4600-I

Entirely new approach to the slot-finding problem

Here's the design that finally accomplishes the aim of every Convenience Outlet — a real *E-Z-Find* feature. Note that the center-finding surface extends *beyond* the receptacle body; it's in the *plate*! The flaring, curved surfaces of the plate guide the plug-prongs to the center of the "dished" area, so a slight pressure against the central (vertical) ridge slips the blades into the slots.

This device gives to competitive-price wiring jobs a utility and style **DISTINCTION** that steps-up the quality in a way your clients can *see*! Specify by catalog numbers given above — in time to get the initial advantage of exhibiting this number *while it's new*!

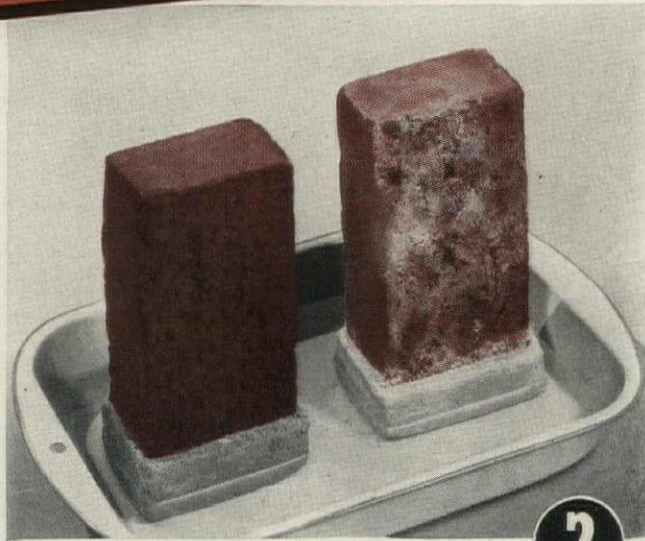
HART & HEGEMAN DIVISION
THE ARROW-HART & HEGEMAN ELECTRIC CO. HARTFORD, CONN.



MAKE THIS TEST - *Prove* **BRIXMENT** is BEST!



1 "Cap" one brick with Brixment mortar, and one brick with mortar made with portland cement and lime. After mortars have hardened, place both brick in a pan of shallow water. (Photo 1.) . . .



2 Keep about an inch of water in the pan. Even if soluble salts are present in the brick or sand, you will soon be convinced that *Brixment* mortar helps prevent efflorescence. (Photo 2.)

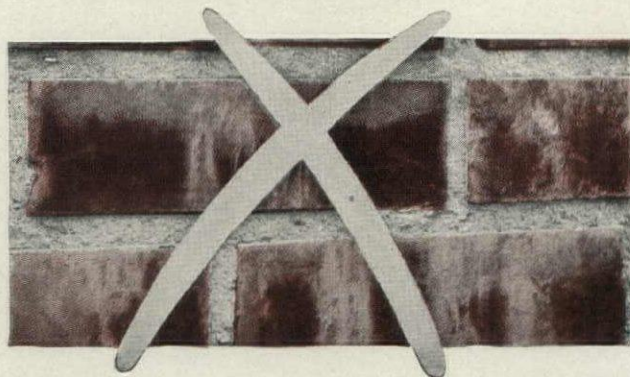
BRIXMENT Mortar Helps Prevent EFFLORESCENCE!

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

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

Brixment *never causes efflorescence* because it is practically free from soluble salts. Even when such salts are present in the sand or brick, the waterproofing in Brixment mortar usually *prevents them from coming to the surface*.

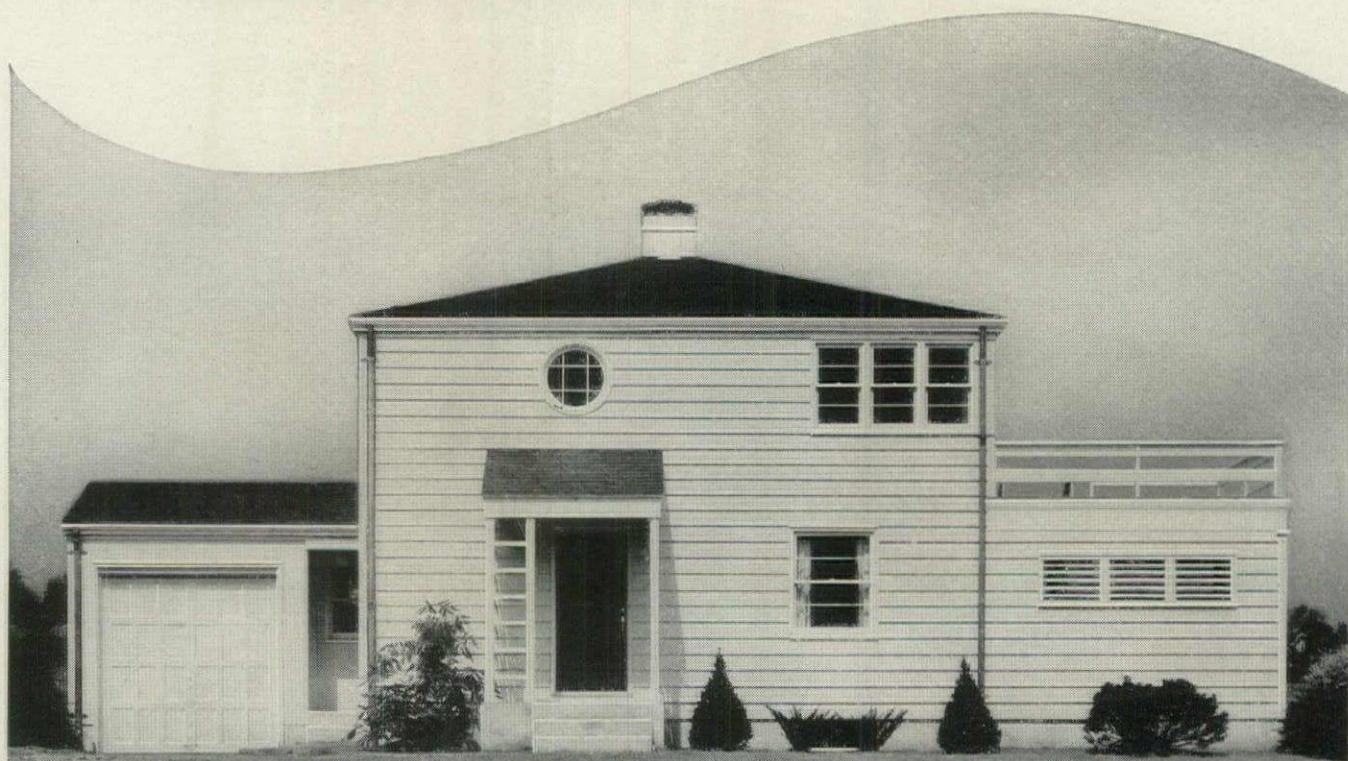
Bricklayers who have used Brixment mortar for years say they have *never seen* a case of efflorescence on a Brixment wall. If you have been troubled by efflorescence, we suggest that you *try Brixment*.



BRIXMENT

For Mortar and Stucco

● This "Life" Model Home is a part of Wells Quarter Village, Wethersfield, Conn. It was built by Joseph de Paolo.



A "LIFE" MODEL HOME EQUIPPED FOR MODEL HOME LIFE

● With rapidly gaining momentum, the trend to gas is spreading. Day by day, more architects and builders are specifying gas equipment than ever before.

Why?

Because of one fact alone—it makes houses easier to sell!

Profit figures, re-sale prices, rental statistics . . . no matter how you read them, they show you the nation is "comfort conscious," that the home buyers of today are looking for the "easy living" luxury that gas

and gas equipment have made possible.

On top of this, brokers are finding that sleek, compact gas units are eye-winning salesmen for the houses they've transformed into homes.

Lower initial cost—better looks—greater convenience—extra comfort—smoother living . . . these are just a few of the reasons for letting "GAS DO THE FOUR BIG JOBS." Ask your local gas company to tell you about the other one—the *extra profit for YOU!*

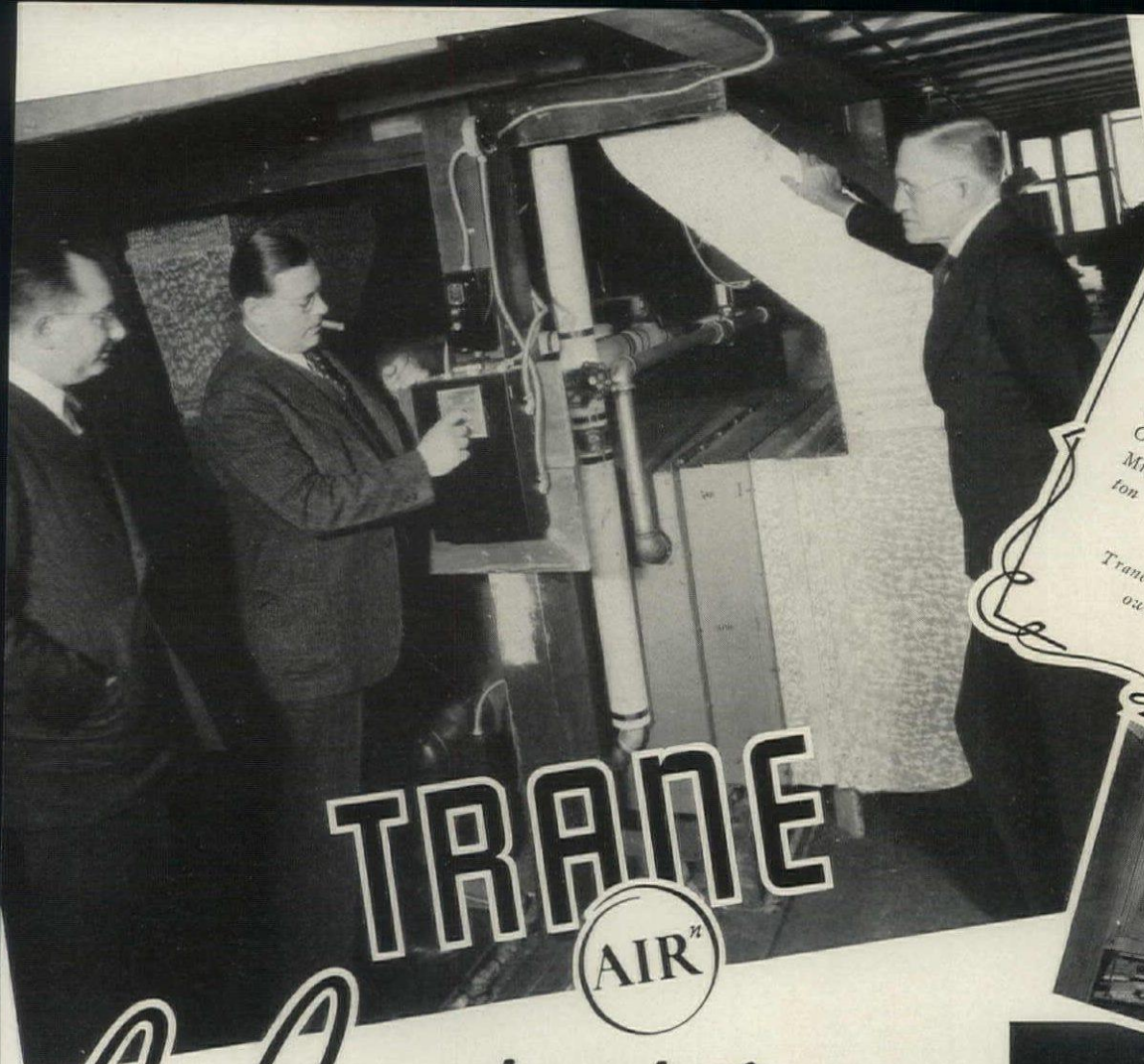
AMERICAN GAS ASSOCIATION

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.



TRANE



Air Conditioning

HELPS YOU PROVIDE SUMMER COMFORT FOR
Every Purpose

Practical demonstration of TRANE slogan

"TEAMWORK with ARCHITECTS · ENGINEERS · CONTRACTORS"

TRANE offers the solution to the summer comfort problem with a wide range of cooling and air conditioning equipment to meet every requirement.

The enjoyment of true air conditioning is by no means limited to large establishments—hotels, apartments, hospitals and department stores. This year, more than ever, practically every type of commercial establishment—small stores and shops, restaurants, bowling alleys, cocktail lounges—is finding air conditioning the key to greater comfort, efficiency and profits.

In the case of the distinctive Hillman Jewelers, Inc., in Canton, Ohio, a Trane Climate Changer was selected to provide year 'round conditioning. For the job you have in mind there are not only Trane Climate Changers but Trane Water Cool-

ing and Direct Expansion Coils, Trane Self-Contained Air Conditioners, Trane Reciprocating Compressors and the Trane Turbo-Vacuum Compressor. There's a size and model to fit your job.

The same Trane Teamwork which has distinguished some of the nation's largest air conditioning installations is available to the architects, engineers and contractors who are cooperating to bring correct air conditioning within the reach of all.

Trane recommends to the public: "Buy Heating and Air Conditioning through your . . . Architect — Engineer — Contractor."

TRANE

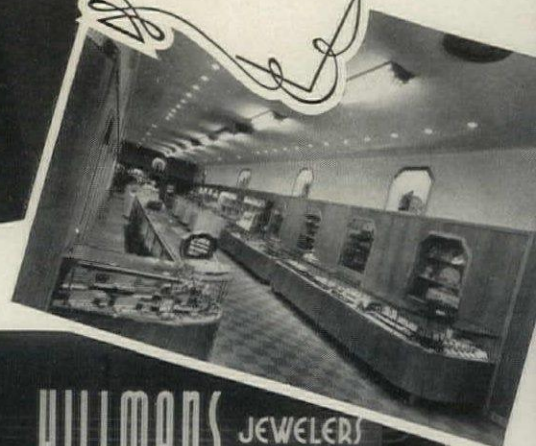


THE TRANE COMPANY LA CROSSE, WISCONSIN

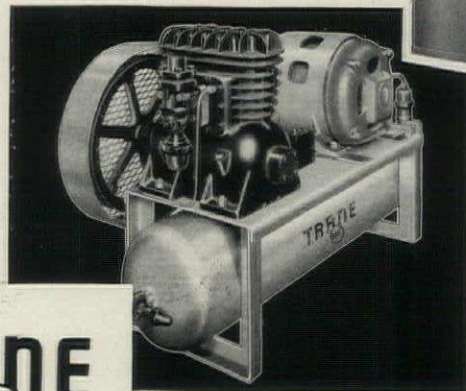
Also TRANE COMPANY OF CANADA LTD., TORONTO, ONTARIO
Heating...Cooling...Air Conditioning Equipment from 85 Offices

Unit Heaters · Specialties · Convectors · Cooling Coils · Blast Coils · Unit Ventilators · Compressors · Air Conditioners · Low Pressure Refrigeration

The Trane Climate Changer which provides year 'round air conditioning to Hillman Jewelers, Inc., in Canton, Ohio, receives the attention of (left to right) Mr. G. I. Felstein, secretary-treasurer of Lee H. Hillman, Inc.; Mr. R. G. Harrison of Harrison Heating and Air Conditioning Co. of Canton; and Mr. J. J. Ratchford, Trane Canton representative.
Trane Teamwork to assure owner satisfaction!



Trane Self-Contained Air Conditioners in 3, 5, 7½, 10 and 15 ton sizes for application with or without ducts and Trane Reciprocating Compressors ranging from 3 to 50 tons in capacity are available to bring the benefits of correct air conditioning to practically every type of establishment.





KOPPERS Water-Cooled ROOFS Make Top-Floor Apartments RENT-able

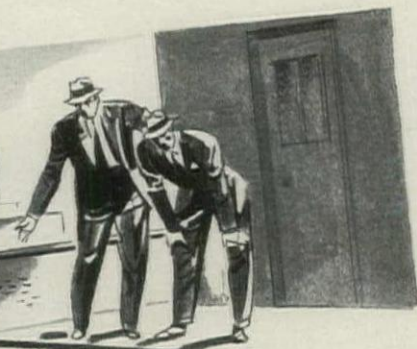
THE OWNERS OF MANY APARTMENT HOUSES and office buildings have to give reduced rents on apartments and offices on the top floors during the summer.



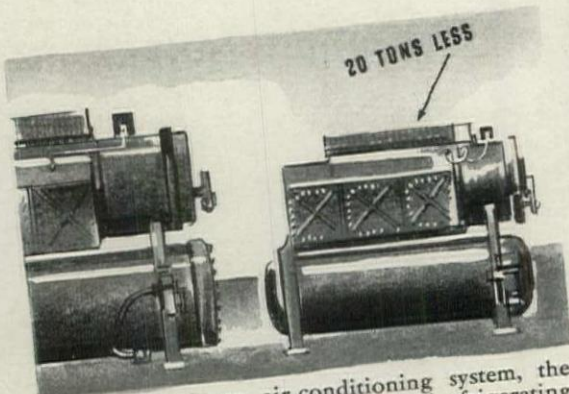
IN ONE CITY where many roofs have been water-cooled, building owners report that tenants now prefer the top floors in these buildings.



THE OWNERS get full rent all year round, and have less trouble keeping buildings filled. This increased revenue soon pays for the water-cooling.



ROOFS ARE WATER-COOLED by maintaining a trickle of water on them, or by spraying water on them. Even where there is no air-conditioning system, this water reduces the peaks of summer heat 10° to 20°F. on the top floor.



WHERE THERE is an air-conditioning system, the water-cooled roof reduces the cost of refrigerating the air. In a one-story department store with 30,000 square feet of roof, the water-cooled roof cut 20 tons from the needed refrigerating capacity and reduced its operating cost \$100 a month.



WATER-COOLED ROOFS demand roofing materials that are not adversely affected by prolonged contact with water. Koppers Coal Tar Pitch and Tar-Saturated Felt have proved their ability to withstand this exposure. Specifications Sweet's.

OTHER KOPPERS PRODUCTS:

Waterproofing and Dampproofing . . . Bituminous-base Paints . . . Tarmac Road Tars for paving drives, parking areas, walks, etc. . . . Pressure-treated Piling and other timber products.

KOPPERS

Water Cooled
ROOFS

KOPPERS COMPANY · PITTSBURGH

use K O P P E R S products

How would you air condition a city?

For equipment that answers
air conditioning problems



...TURN TO



FOR THE FINEST RADIATOR HEAT

G-E Oil Furnaces (for steam, hot water or vapor); compact, high heat transfer rate and low water content offer quick steaming—unusually economical in operation. Year 'round domestic hot water coil optional. Also a complete line of G-E GAS FURNACES.



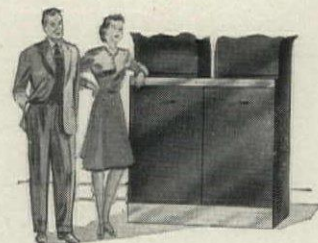
"PACKAGED WEATHER" FOR STORES

G-E Unit Air Conditioners for low-cost air conditioning in shops, restaurants, offices, etc. Available in a complete range of sizes. Low in cost. Easily installed, little or no duct work needed.



In the San Fernando Valley, Cal., are the new Walt Disney Studios...the world's first completely air conditioned studio city. General Electric air conditioning not only aids the comfort and health of all Disney people but is important also for certain processes in creating films. In winter, heat is provided through the same G-E system.

This Disney Studio-City installation is still another indication that no matter what your heating or cooling needs, G-E has the right equipment. For details on the complete G-E lines, see Sweet's ²⁶/₁₀, or write General Electric Company, Division 190-713, Bloomfield, N. J.



FOR CONDITIONED WARM AIR HEAT

G-E Winter Air Conditioners (oil or gas fired) circulate warm, clean, moistened air from one compact unit. Highly efficient in operation. Adding a single switch, offers the advantages of air circulation in summer. Cooling equipment can be added.



AIR CONDITIONING FOR HOMES

Compact G-E Units for cooling a single room, a group of rooms, or for conditioning the whole house. And for attic ventilation, inexpensive G-E Air Circulators, which are ideal for small houses!

GENERAL  ELECTRIC

HEATING...AIR CONDITIONING...COMMERCIAL REFRIGERATION



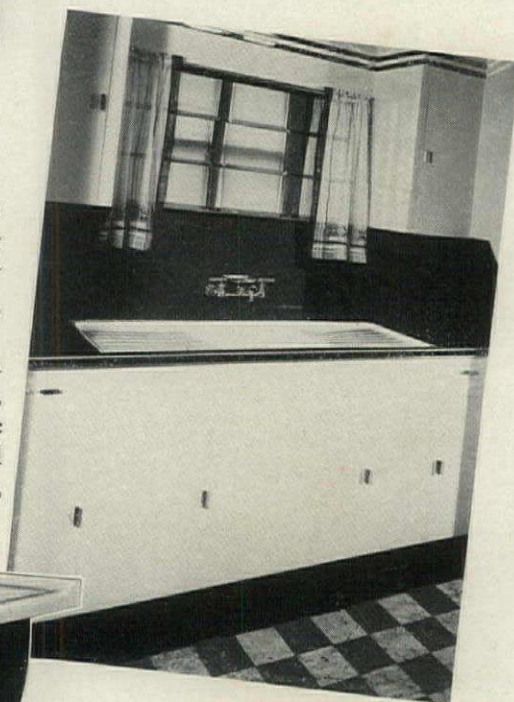
IT'S FORMED FOR TODAY!

With architecture placing increasing emphasis on functional design, it is interesting to look at Formed Iron Plumbing Ware from the aspect of beauty and usefulness.

On the side of beauty: these modern fixtures are available in lustrous pastels, and enduringly beautiful colors that increase the decorative possibilities of bathroom and kitchen. Add to this the smooth, flowing lines, the brilliant styling, and you have the reason why so many people want Formed Iron Plumbing Ware on sight.

On the side of usefulness: this modern ware is *formed* from ARMCO Ingot Iron, a special-purpose metal that has long been noted for its excellent bonding qualities. The porcelain enamel is acid-resisting at no extra cost, and its exceptionally high luster makes for striking beauty, ease of cleaning, and long life.

For more complete information about Formed Iron sinks, lavatories, bathtubs and laundry tubs, write to The American Rolling Mill Company, 1721 Curtis Street, Middletown, Ohio.



ARMCO INGOT IRON

A NAME KNOWN TO MILLIONS

Here is one of the panel heating coils (made of standard Youngstown Pipe) in the residence of Mr. Denison Bingham Hull, owner and architect, Winnetka, Illinois.



YOUNGSTOWN PIPE CONTRIBUTES TO LIFETIME SERVICE ON PANEL HEATING JOB

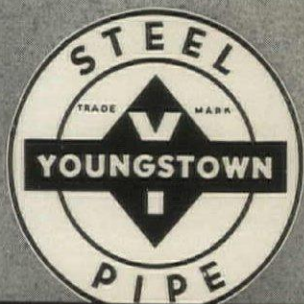
A panel heating job is one of the toughest pipe assignments in the heating business. All work is concealed and a life time of service is the normal expectation.

Youngstown is an ideal pipe for such exacting requirements. Steel made for this particular product, is rolled into pipe with exacting care. It is of uniform quality and threads easily. *Each length of Youngstown Pipe is hydrostatically tested.*

Even for the unusual jobs you can pick Youngstown Pipe and be sure you're protected. The owner will get his money's worth, the architect will have no comebacks, and you, the contractor, will keep your costs down to your estimate, and get the job in as planned.

Ask your distributor for Youngstown Pipe and Tubular Products - Sheets - Plates - Conduit - Tin Plate Bars - Rods - Wire - Nails - Tie Plates and Spikes.

Adv. 19-8C



**THE
YOUNGSTOWN
SHEET AND TUBE COMPANY**

Manufacturers of Carbon and Alloy Steels

General Offices - YOUNGSTOWN, OHIO

CHICAGOLAND'S 1940 "LIFE" HOUSE FEATURES SQUARE D MULTI-BREAKERS



Alfred Shaw of Shaw, Naess & Murphy, adapted the above Colonial house from his plans for the second annual "Life" House program. It is located in LaGrange Park, Illinois, near Chicago. More than 2000 people visited the home the first day it was opened for inspection. An estimated 150,000 more will visit it before it is closed to public inspection in September.

Why are **Square D Multi-breakers** being installed in so many new homes? Why are they being spotlighted as an important selling feature? Because they have an instant and tremendous appeal. Because people are actively interested in a simple, inexpensive device which affords new convenience and safety and eliminates fuses.

More and more architects are specifying **Square D Multi-breakers** in the homes they design. Clients are appreciative of this modern electrical feature which costs little if any more than the ordinary switch and fuse equipment it replaces.

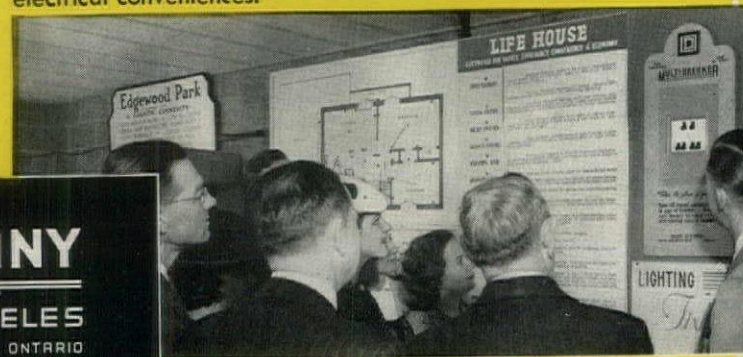
Ask any good electrical contractor for the complete story. Or write for Bulletin 543-B.

CALL IN A SQUARE D MAN



Above—Charles Joern of Wm. Joern & Sons, builders, explains how the Multi-breaker operates. When a short circuit or dangerous overload occurs, the Multi-breaker cuts off the circuit—automatically. A simple movement of the lever restores the current unless danger still exists. No annoying delays. No parts to replace. There is a Multi-breaker on each floor of the "Life" House.

Below—Notice how the Square D Multi-breaker is merchandised to visitors by means of an ingenious display with animated lighting, installed in the garage. Mr. Joern is explaining the electrical conveniences.



SQUARE D COMPANY

DETROIT-MILWAUKEE-LOS ANGELES

IN CANADA: SQUARE D COMPANY CANADA LIMITED, TORONTO, ONTARIO

*Inch by inch—
mile by mile*

BETHLEHEM ELEVATOR ROPE IS UNIFORM

The new Bethlehem elevator wire rope was designed with a major objective in view—uniformity. Beginning back with the ore, it was planned as a rope which would, under the same service conditions, deliver substantially the same high car-miles of life.

To produce the desired uniformity in this new elevator rope, both engineering and manufacturing procedure were improved. Steel quality was stepped up. Designs were made to closer tolerances. Wire-drawing, stranding and closing plants were re-equipped to make this better rope. Lubrication manufacturers, cordage manufacturers, elevator manufacturers and elevator-repair companies were called in for consultation and cooperation.

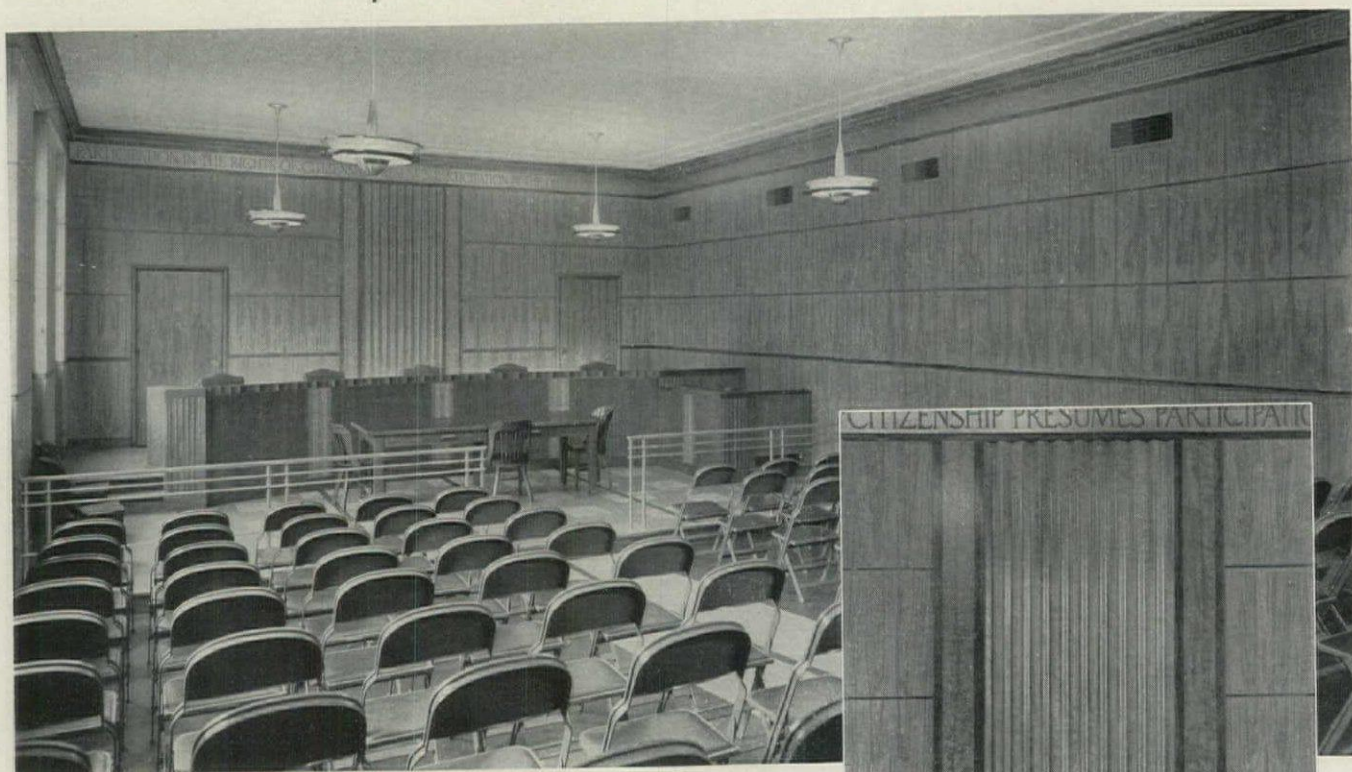
The new Bethlehem Elevator Rope is now a reality and is stocked by warehouses in practically every large city. It is ready to go to work for your clients. Inch by inch and mile by mile, it is uniform.

If you are looking for a uniform elevator wire rope, if you want to insure clients the extra car-mileage that a really fine rope will deliver, we invite you to specify Bethlehem's new Elevator Wire Rope.



BETHLEHEM STEEL COMPANY

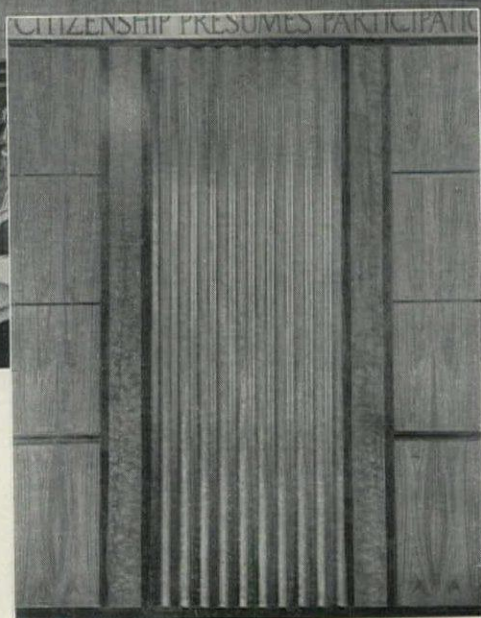
The art of modern wood treatment



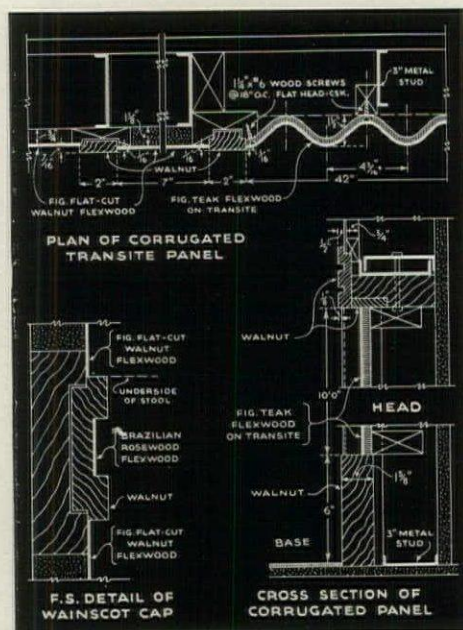
Hearing Room, State Office Bldg. #3, Sacramento, Calif., Flexwood wall treatment of Figured Flat-cut Walnut with inlaid bands of Brazilian Rosewood: Designed by Division of Architecture, Department of Public Works, Sacramento, Calif.

PANEL, WITH FLUTES OF $1\frac{1}{2}$ INCH RADIUS, TREATED WITH FIGURED TEAK FLEXWOOD; WALLS OF FIGURED FLAT-CUT WALNUT WITH BRAZILIAN ROSEWOOD INLAID BANDS

In conceiving the treatment of the rooms in the new California State Office Building #3, the designers in the Division of Architecture took full advantage of the great variety of rare and exotic veneers available in Flexwood. Among the ten different species selected were Teak from the jungles of Burma, Rosewood from Brazil, and English Oak. The areas treated with Flexwood amounted to more than ten thousand sq. ft. The Hearing Room typifies the ingenuity of the designers. It also indicates the almost unlimited possibilities of wood in facile form. The center of interest is the fluted panel treated with Figured Teak Flexwood. The ease and speed of application of Flexwood makes it a logical choice when the luxury of real wood is desired, and its use puts no strain on the normal budget.



Figured Teak Flexwood on corrugated Transite: Radius of flutes is $1\frac{1}{2}$ " ; center panel of platform wall, Hearing Room.



Construction details of fluted panel, and of wainscot cap.

flexwood

[WOOD IN FACILE FORM]

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Manufacturers of Flexglass, Plywood, Armorply and Weldwood

Flexwood is manufactured and marketed jointly by The Mengel Co., Louisville, Ky., and the United States Plywood Corp., New York



Again, as in hundreds of monumental structures from coast to coast, Fenestra "Fenmark" Steel Windows are enhancing the architectural beauty and adding to the utility of this Liberty Mutual Insurance Company Building, Boston, Massachusetts. By the attractive tracery of their slender muntins and their narrow frames, these better steel windows have played a part in creating true design harmony throughout this stately building.

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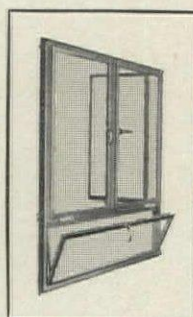
tect has a wide choice of types... Some types are designed for 100% ventilation, with large, open-out swing leaves, always easily operated; also with integral, projected-in sill vents constructed to act as wind guards when open. When less ventilation is desired, fixed sections may be specified at head, jambs or sill. Projected, open-out (or open-in) transoms are available.

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tenants are assured of easy opening without warping and sticking. Screen type units can be provided with hardware to permit vent operation without touching screens.

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LETTERS

Kriegproof

Forum:

Please send me any information you might have about bombproof underground shelters and all types of air raid shelters. Also, could you give me the source of such information . . .

J. W. H.

Dallas, Tex.

Forum:

Have you any more information concerning bombproof shelters than what you published in your magazine of January, 1937? If you have I would like to receive such information . . .

O. W. C.

Sacramento, Calif.

Forum:

Please send me what information you have on air raid shelters.

Please print something on them in your next number. It's a subject every architect should consider, and *Life* and *Time* should too. Why we should consider ourselves living in a safety zone, heaven knows. . .

A. P. McC.

Tucson, Ariz.

FORUM correspondents abroad are gathering data on bombproof shelters, other Kriegproof structures. This, with other data pertinent to U.S. defense, will appear in an early issue.—Ed.

Stop o' the Mark

Forum:

Knowing how difficult it is for architects to get publicity, I thought you might be interested in the following from Herb Caen's column "It's News to Me," in the *SAN FRANCISCO CHRONICLE*:

"Add embarrassing moments: When the famed Diego Rivera flew into town Wednesday night, he was met at the airport by Albert Bender, the art patron, and Architect Tim Pflueger, chief of the Fair's Palace of Fine Arts . . . With true professional zeal, Pflueger insisted that they all rush immediately to the Top o' the Mark (which Pflueger designed) and cast their eyes over the splendor of S.F. at dusk. . . As they got into the elevator, the operator glared at Rivera's open blue shirt and said coldly: 'Sorry—can't go to the Top o' the Mark without a tie.' . . . Pflueger flushed and tried to look as much like Timothy Pflueger, designer of Top o' the Mark, as possible—but the operator only repeated: 'Sorry—no exception . . .' As the distinguished trio walked out of the elevator and back into the night, Rivera scoffed at Pflueger: 'Well that proves the necktie is mightier than the architect.'"

S. J. MCGIVERAN

Toledo, Ohio

Cubic Costs

Forum:

. . . While this is primarily a letter of thanks, I am prompted, through the courtesy of your complete response, to register one complaint-and-its-cure on the matter of a FORUM policy. I feel that my use of THE ARCHITECTURAL FORUM is typical of hundreds of other architects throughout the land. The houses shown therein, while never used by me as a basis for copying, are at the same time often suggestive and helpful—sometimes, oddly enough, for layouts entirely different. In the comparisons which are a part of this preliminary design process, a statement of cubage is often most useful. On the other hand, costs are less than useful; they are necessarily misleading to both architect and client.

Visualize the usual process. Mr. Client sees just what he wants in THE FORUM for, say, "\$8,000." He says "make it like that, except . . ." After several hours work, the architect has got enough house planned to cube it and he finds that he is away off and has to start off, all over again. He damns THE FORUM and originates perhaps an entirely unique layout. But not often! (Every time I've thought I had originated one, I'd sooner or later see its twin someplace, or at least one remarkably like it!) Perhaps he thumbs through old FORUMS, finds one that with half an hour's work will meet the client's needs but from the start—and this is the point—he's been told what the cubage is and thus can govern his layout work accordingly. *Cubage!* Not cost per cu. ft.! Not total cost! Not cost per sq. ft.! They are worse than useless. But *cubage* is a real index, and as you can see, most helpful in those early stages. Also, cubage embarrasses no owner, compromises no one and gives intelligent help to those who know how to use it and not abuse it. What do you say?

SEWALL SMITH

Niagara Falls, N.Y.

Forum:

The present practice in estimating house costs is based on a cost per cubic foot, for example, 35 cents. But in each house there are costs for plumbing and electric wiring that have a fixed minimum value for the type of house and are not materially changed by the cubic foot size.

THE FORUM for April 1939 gives a breakdown cost for small, one story house, from which is obtained the average cost, neglecting special designs, as follows: plumbing \$300, electric wiring \$85. The variations are probably due to the fixtures selected.

The cost per cubic foot is not given but it could be expressed without plumb-

ing and wiring and then add \$385+ depending upon fixtures. This method would show a more accurate cost for adding a room or altering other dimensions.

It would be useful in computing rent. THE FORUM has pointed out that renting 3-4-5-6 room houses at the same value per room is in error as the kitchen, bathroom and living room cost more than the bedrooms. The rent should be less per room for 5 and 6 room houses. You have also shown that 5 and 6 room houses cost less if two stories are used which means that the cost per cubic foot depends upon the general shape. Heating is a fixed plus, a variable factor for each locality, and other similar factors exist, all of which require experience in selecting the correct cost per cubic foot when making an estimate.

If costs were reported on a cubic foot basis with an additional constant factor, it would reduce the error in estimating the cost of different size houses of the same type. A second bathroom might add 50 per cent to the plumbing constant, etc.

The above suggestion adds complication to a method of estimating which is used because of its simplicity and is recognized as being only approximate. It does however reduce the judgment required in comparing costs of additional rooms and other spaces and also in estimating rents for a group of houses. It also makes it easier to follow changes in the cost of wiring and plumbing which frequently vary more rapidly than general costs.

H. D. JAMES

Pittsburgh, Pa.

If Reader James could suggest a technique for getting this information out of the architect, FORUM editors would publish it. Henceforward total cubage figures will be given when possible.—Ed.

Indigenous

Forum:

. . . As time passes, I feel somewhat more certain that my main thesis as to regional styles is correct (May FORUM, p. 345), though the exact part which local past traditions will play in the new developments is still, I concede, unclear. Two or three new houses in the May issue—especially the one in St. Louis by Murphy & Wischmeyer (p. 331)—seem to reinforce my argument, besides gladdening my heart because they are what I think architecture ought to be.

Permit me so say again, what a perfectly grand job I think all of you do on the THE FORUM. The quality of the magazine, in all its departments, editorial and technical, is always a source of amazement to me. More power to you.

HUGH MORRISON

Hanover, N. H.



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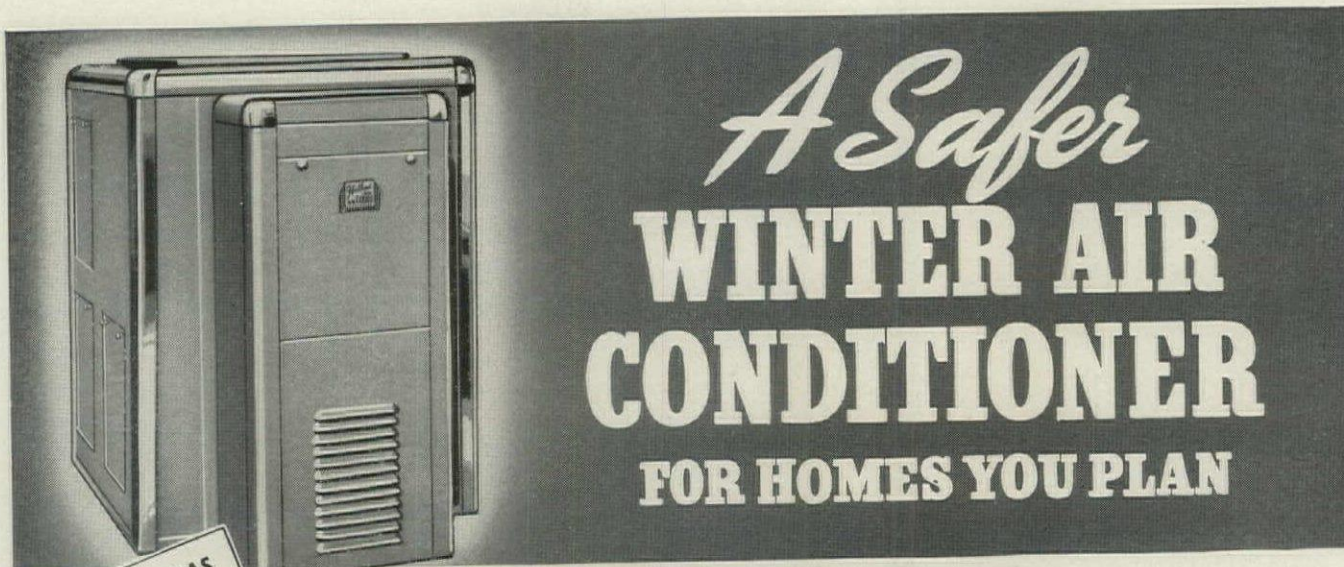


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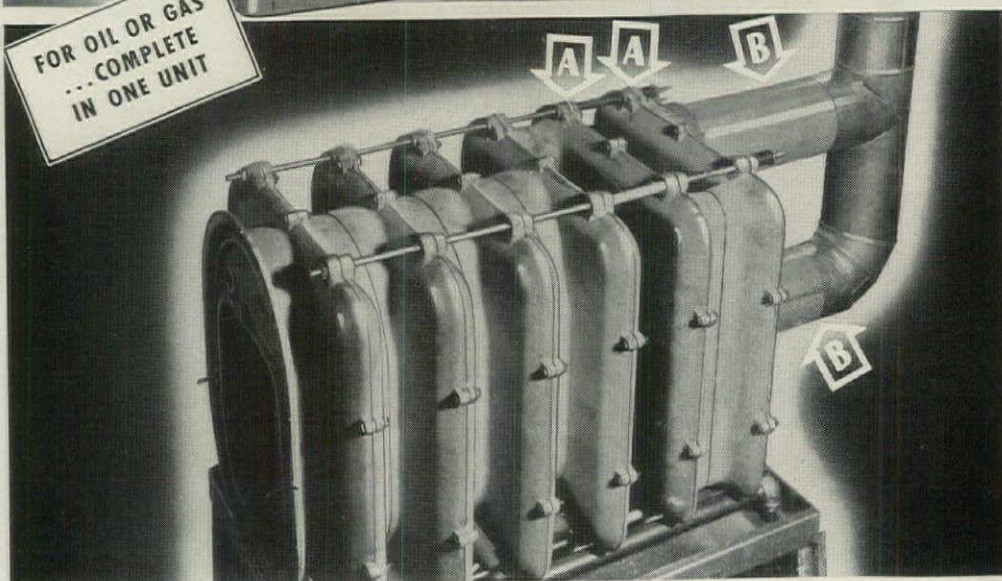
Canadian Plant: WINDSOR, ONTARIO

DETROIT, MICHIGAN



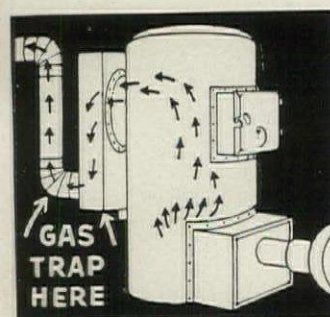
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5 Pace-setting Improvements



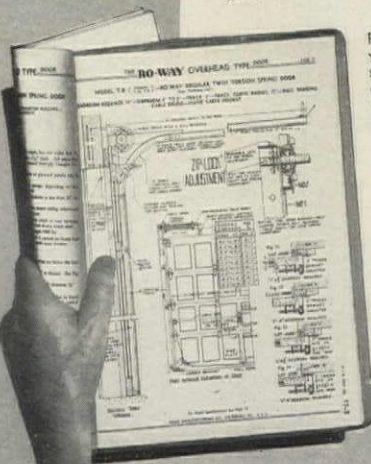
Modernistic Service Station. Note the slender vertical lines with horizontal lines emphasized to conform to architect's requirements.



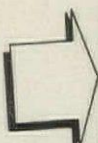
Home of F. L. Hendrickson, Maysville, Ky.
Architect, H. A. Churchill.
Contractor, Skinner Bros.



Garage of U. S. Government Marine Hospital, New Orleans, La. Contractors, R. P. Farnsworth & Co., New Orleans, La.



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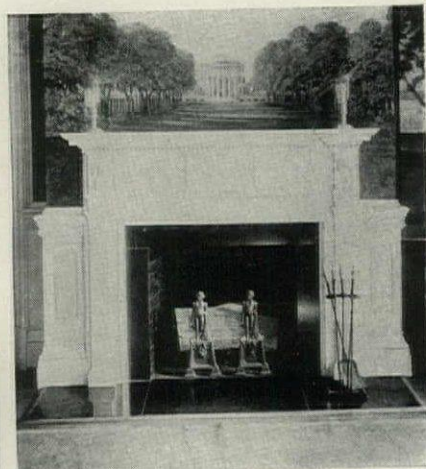
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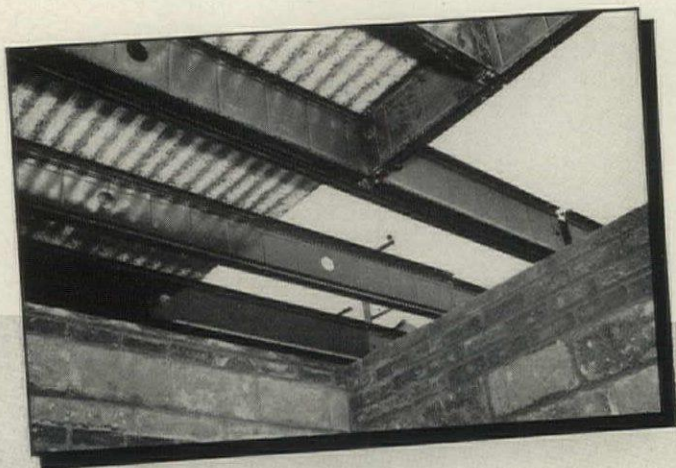
*Polished Alberene Black Serpentine Fireplace in Life Cape Cod Cottage built by Wm. Joern & Sons,
Chicago, according to plans of Royal Barry Wills, Architect; Alberene Soapstone Lining and Inner Hearth.*

The appearance of the fireplace is important because it is the center of attraction in large homes, small homes . . . "LIFE homes," and mansions. Alberene Black Serpentine is the popular choice for fireplace facings and hearths, because it is both stylish and economical. Its rich blackness is particularly suitable to popular Colonial interiors and their adaptations, and its moderate cost suits every pocketbook. The qualities inherent in the stone as it comes from the quarries give it great durability. Being dense and close-grained, it is unaffected by lifetime usage. Slabs are carefully cut to size and assem-

bly is quick and simple. The stone takes a high polish, naturally, and retains it indefinitely. Alberene Black Serpentine is the stone you may have noticed on store fronts or for exterior trim and decoration on buildings in your locality. For inner hearths and linings we suggest the use of 2" thick specially selected Alberene Soapstone. We will be happy to send samples, but ask that you advise us the reason for your interest when requesting samples. Alberene Stone Corporation of Va., 419 Fourth Ave., New York. Quarries and Mills at Schuyler, Va. Sales Offices in principal cities.

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FROM THE ALBERENE QUARRIES



Mass production and an efficient building program have saved time and money on the 200 Westmont homes built and sold by Mace Properties, Incorporated. Five-room houses (11,800 cu. ft.) sold at \$4,335.00 to \$4,485.00; six-room homes (16,600 cu. ft.) at \$5,600.00. All were available on low-cost F.H.A. 25-year insured mortgages. Brick, steel and concrete construction, steel cabinets, steel insulation, bronze screens, cross ventilation in nearly every room, copper piping throughout, oak flooring and efficient heating systems make these smart-looking homes as enduring as they are livable. Mace specifications required the use of 4,870 pounds of steel in each home. Although each home is individual in outward appearance, only two basic designs were used.



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Mace Properties, Incorporated, is setting the pace for low-cost home building in Westover Hills, its latest subdivision, located less than five miles from the center of Washington, D.C., in Arlington, Virginia. This beautiful group of 514 distinctive, detached homes covers an area of approximately one hundred and twenty acres.

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ment. These features mean *low cost* to both builder and home owner.

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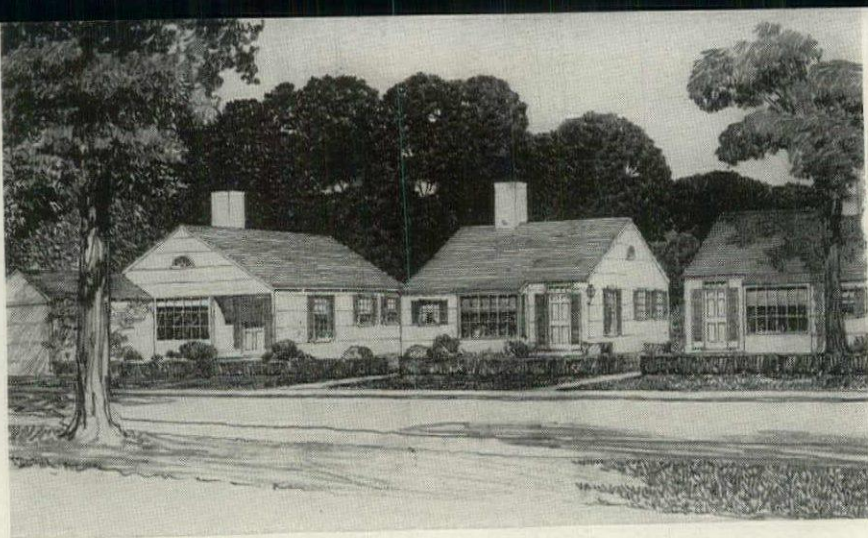
LIFE in collaboration with THE ARCHITECTURAL FORUM presents its second series of eight Houses for Modern Living.

In city apartments, in old-fashioned houses husbands and wives are spending hours over sixteen pages in the July first issue of LIFE featuring the second series of LIFE Houses. Thousands of these readers are waiting their chance to inspect one of the 121 LIFE Houses erected throughout the U. S. by authorized builders and furnished by cooperating stores. These houses represent the investment of more than a million dollars by these builders and stores. Thus, LIFE, in collaboration with THE ARCHITECTURAL FORUM, has added a new dimension to the most talked about promotion of home building ever carried out with magazine sponsorship.

When the first LIFE House program was presented twenty-two months ago, so great was the response from the public and building industry that a new group of outstanding architects was commissioned to design eight houses for a second program. And for this new series it was determined to encourage the building of demonstration houses in strategically selected communities. Chiefly through the participation of the National Association of Real Estate Boards, each of the LIFE Houses has been built, furnished by a leading store and will remain open to the public for a demonstration period.

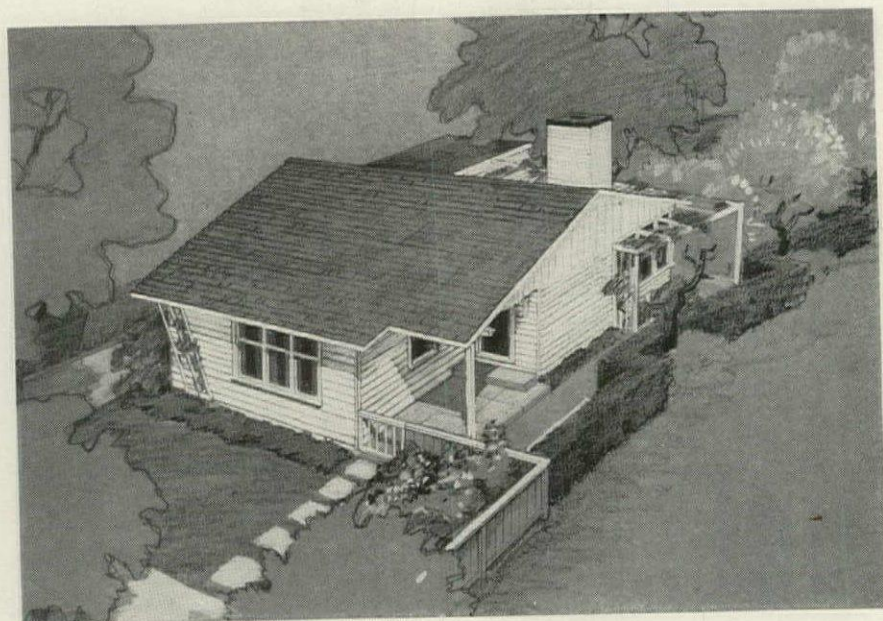
For LIFE readers the major change in the new program is the shift from pretty pictures to executed houses. Last year perspectives were shown, with estimated prices; this year the house program opens with photographs and plans of the complete, furnished houses, with selling prices. With 121 LIFE houses built, under way or planned for to date—there is not only an increase in demonstration houses of some 400 per cent, but clear evidence of a thoroughly realistic approach to the promotion of home building.

The success of LIFE's houses, and particularly the remarkable increase over last year, indicates beyond possible doubt the potency of vigorous, intelligent promotion and of organization of the separate factors in the building picture. It also suggests the existence of a powerful instrument for improving the quality of residential design. The houses shown on these pages are open to criticism. Any group of houses would be. Important is the fact that while builders have made frequent changes from the architects' designs, in no case is there evidence of improvement in appearance or plan as a result. The bulk of U. S. houses are produced without benefit of architect. The bulk of U. S. houses are also uniformly dull if not in actively bad taste. If ever the architect had material for proving his contention that his services are worth his fee the LIFE Houses provide it.



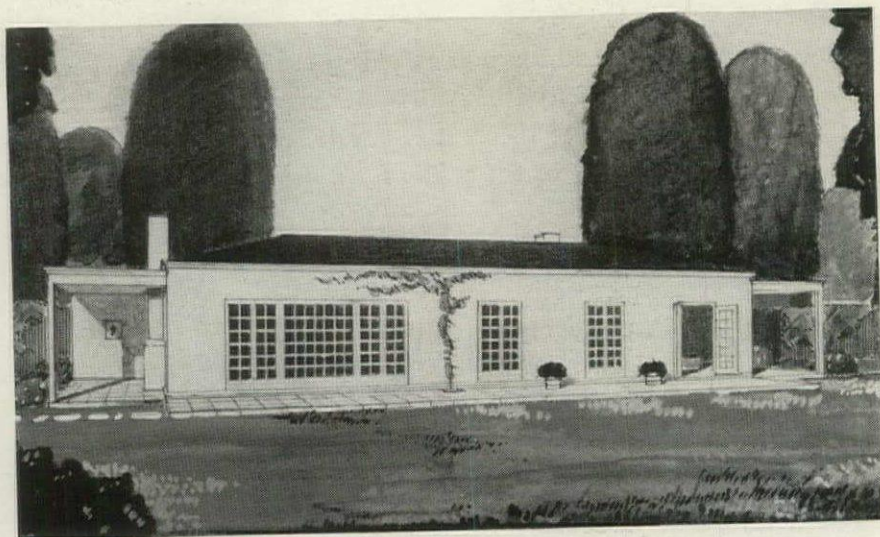
NO. 1 CAMERON CLARK, Architect
New York, N. Y.

PROBLEM: A 1-story house for parents and two children. Garage provisional. For the family with an income \$1,800 to \$2,300 a year. The house to be planned for northeastern U. S., for a level interior lot about 35 x 100 ft.



NO. 2 GARDNER A. DAILEY, Architect
San Francisco, Calif.

PROBLEM: A 1-story house for parents and two children. Garage provisional. For the family with income \$2,300 to \$3,000 a year. The house to be planned for a southern climate, for a level interior lot about 50 x 100 ft.



NO. 3 HOLABIRD & ROOT, Architects
Chicago, Ill.

PROBLEM: A 1 or 1½-story house for parents and three children. Garage provisional. For the family with income \$3,500 to \$4,100 a year. The house is to be planned for the country, on a level lot.



NO. 4 GEORGE HOWE & ROBERT M. BROWN, Architects
Philadelphia, Pa.

PROBLEM: A 1 or 1½-story house with attached garage, for parents and two children. For the family with income \$3,000-\$4,000 a year. The house is to be planned for southern U. S., for a level interior lot about 50 x 100 ft.



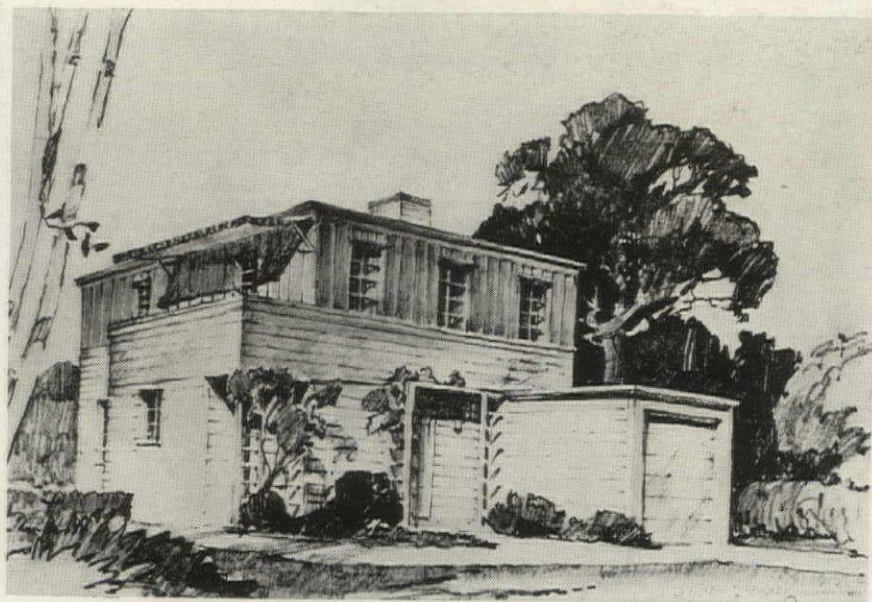
NO. 5 PERRY, SHAW & HEPBURN, Architects
Boston, Mass.

PROBLEM: A 1½ or 2-story house with attached garage, for parents and two children. For the family with income \$3,600-\$4,500 a year. The house to be planned for northern U. S., for a level corner lot about 50 x 150 ft.



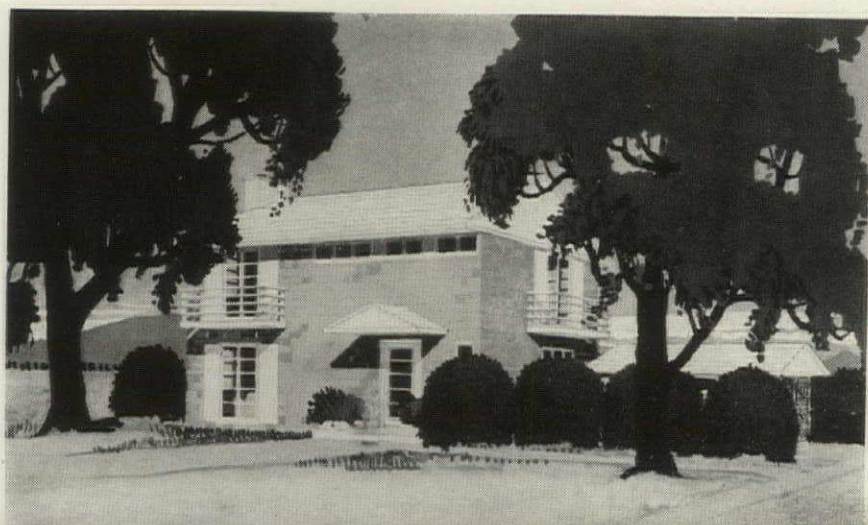
NO. 6 TREANOR & FATIO, Architects
Palm Beach, Fla. and New York

PROBLEM: A 1, 1½, or 2-story house with attached garage, for parents and three children. For the family with income \$4,400 to \$5,500 a year. The house to be planned for the country.



NO. 7 SHREVE, LAMB & HARMON, Architects
New York, N. Y.

PROBLEM: A 1½ or 2-story house with attached garage, for parents and two children and provision for a third child or guest. For the family with income \$5,000 to \$5,500 a year. The house to be planned for northeastern U. S. for a level interior lot about 55 x 150 ft.



NO. 8 SHAW, NAEISS & MURPHY, Architects
Chicago, Ill.

PROBLEM: A 2-story house with attached garage, for parents and two children and provision for a third child or guest. For the family with income \$5,200-\$6,200 a year. The house to be planned for southern U. S., for a corner lot about 60 x 150 ft.

LIFE HOUSE NO. 1 PORTLAND, ORE. CAMERON CLARK, ARCHITECT

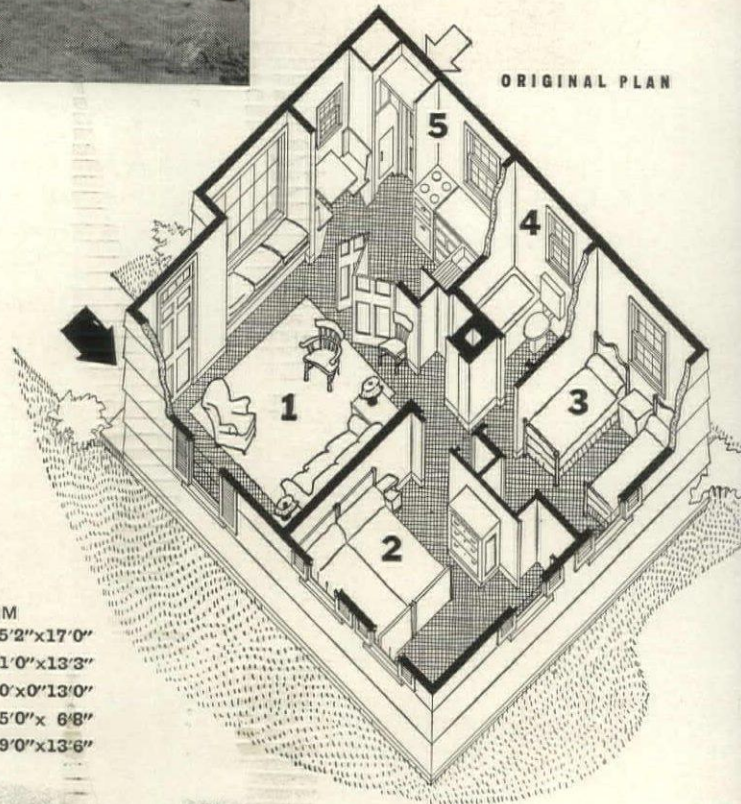
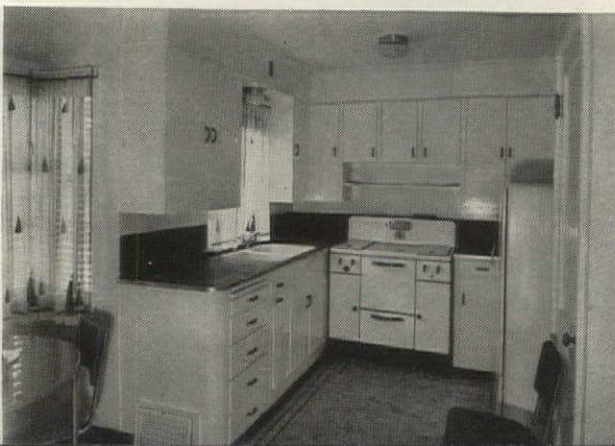
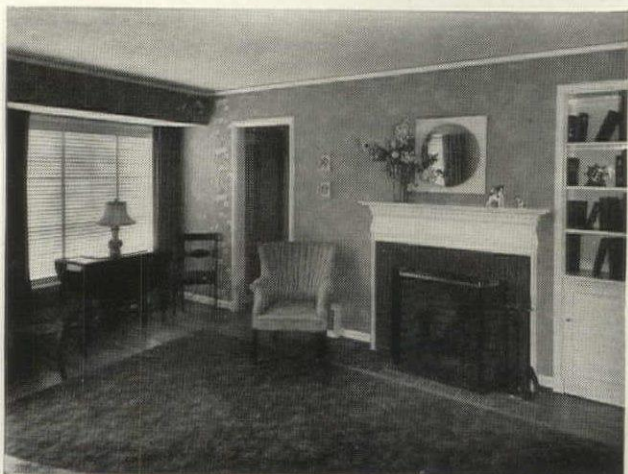
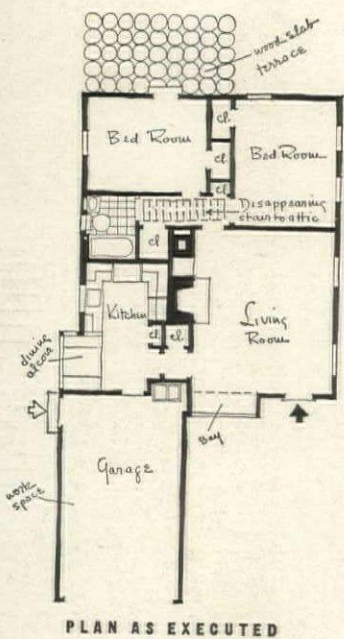


The smallest of the eight houses, designed for construction in groups, has been widely built, and in this example it has been well handled. Changes were made to increase its size, and an attached garage was added. A service entry and a laundry are included in the rear of the garage. Of interest is the use of a resin-bonded plywood for the exterior; cut into two-foot strips and laid up like clapboards, the solution is attractive and practical. The terrace of redwood logs is an amusing change from customary paving materials. The house was visited by 4,000 people on the first day and was sold immediately.

Financed by a FHA-insured mortgage of \$3,600, the house was purchased with a down payment of \$1,150. The mortgage cost is \$23.76 monthly. With other charges* the monthly rent equivalent comes to about \$38.

*Estimated other monthly costs: taxes \$9, heat and hot water \$5.50, maintenance and depreciation \$6, fire insurance \$1.

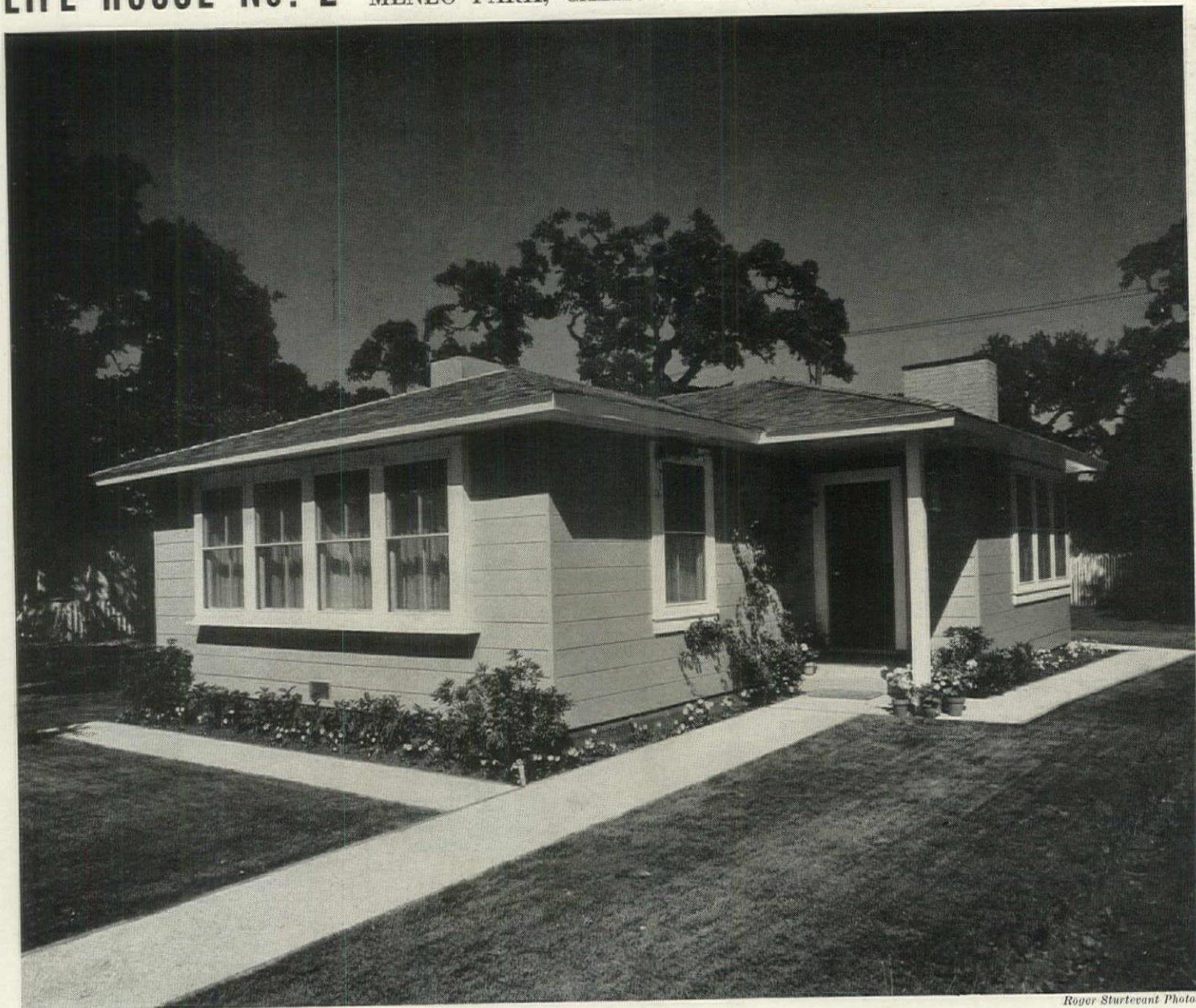
SELLING PRICE:	\$4,750
HOUSE:	\$4,210
LAND (60'x130'):	\$ 540



- 1. LIVING ROOM 15'2"x17'0"
- 2. BEDROOM 11'0"x13'3"
- 3. BEDROOM 10'0"x13'0"
- 4. BATH 5'0"x 6'8"
- 5. KITCHEN. 9'0"x13'6"

LIFE HOUSE No. 2

MENLO PARK, CALIF. GARDNER A. DAILEY, ARCHITECT



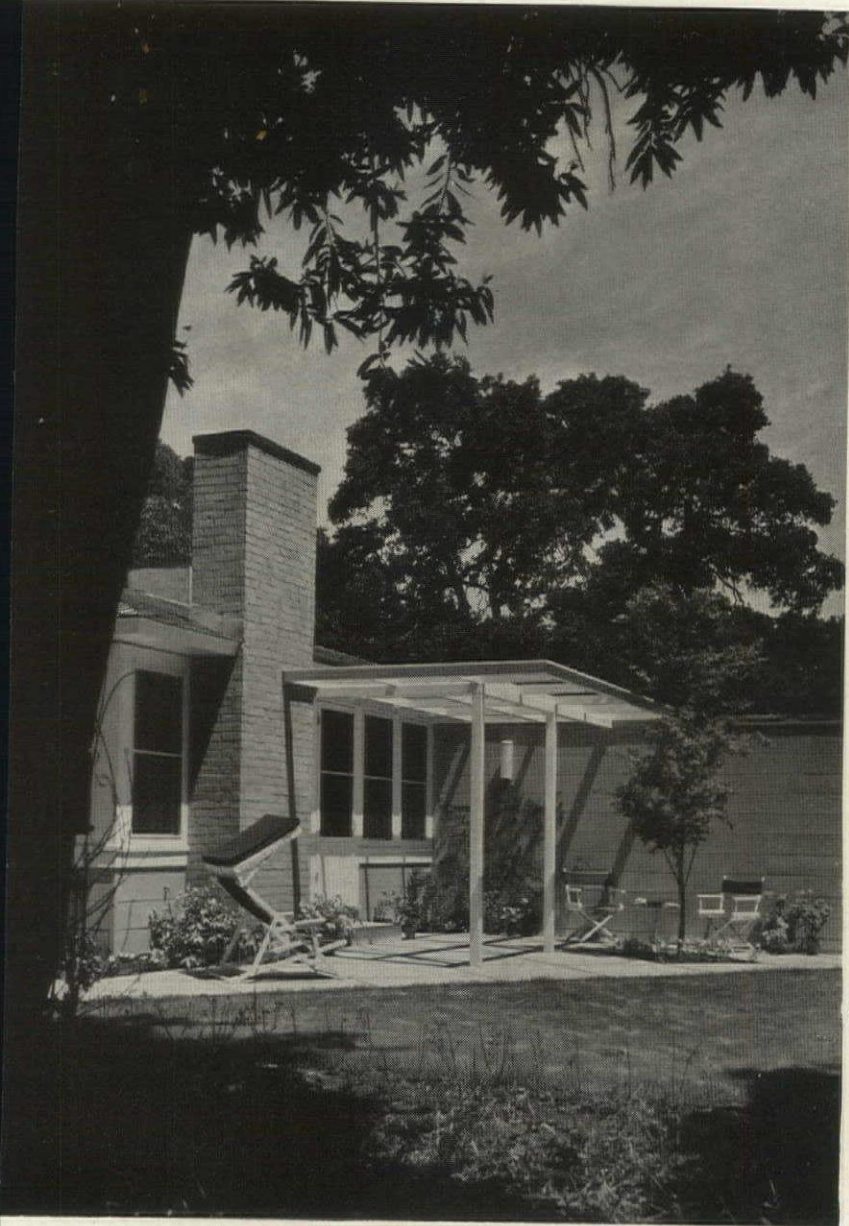
Roger Sturtevant Photos

This house follows the architect's drawings faithfully, with highly satisfactory results. Changes are of a minor nature and include the addition of one window at the front and a reduction in the size of the trellis over the rear terrace; neither alters the character of the design. While the roof does not correspond with the sketch on page 2, it cannot be considered a builder's change, since Mr. Dailey prepared three roof treatments, of which this hip roof is one. An ingenious device is the combined cupboard and partition between the kitchen and the dining space. The plan (shown in greater detail in the April, 1940 issue) is excellent—compact, economical and shows very good circulation, particularly in the relationship between the kitchen, bath and bedrooms.

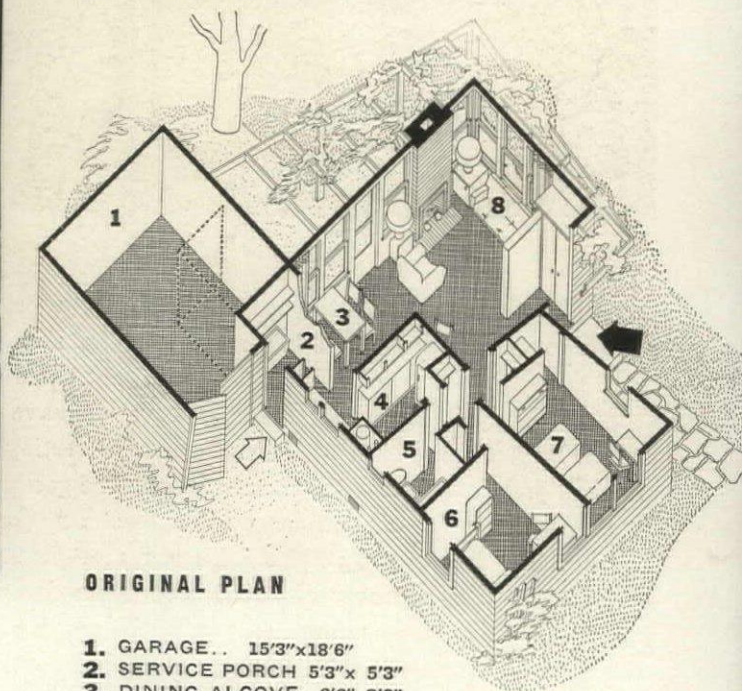
Redwood siding forms the exterior finish, with cedar shingles on the roof. Interior partitions are of composition board covered with wallpaper. There is no insulation, and heating is provided by a gas floor furnace. Financed by a FHA-insured mortgage, the house would require a down payment of \$475, with a maximum mortgage of \$4,200. Monthly payments of \$25.03, plus other costs* would produce a total rent equivalent of approximately \$39.

SELLING PRICE:	\$4,675
HOUSE:	\$3,575
LAND (45'x120'):	\$ 900

*Estimated other monthly costs: taxes \$5, heat and hot water \$2, maintenance and depreciation \$6, fire insurance, \$1.



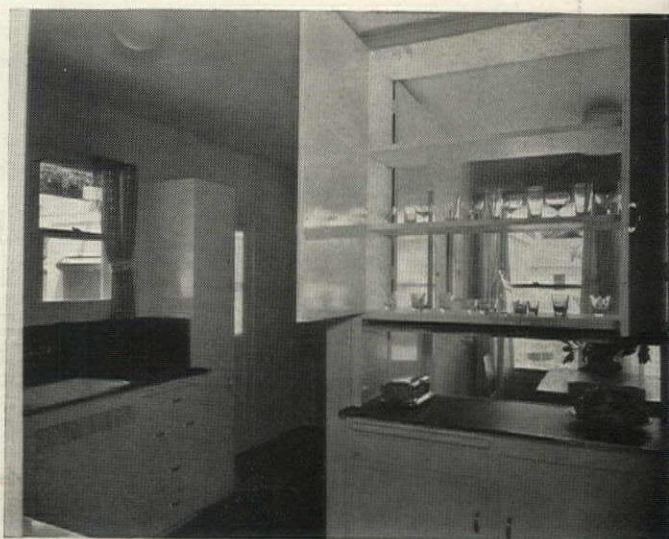
SMALL
BEDROOM



ORIGINAL PLAN

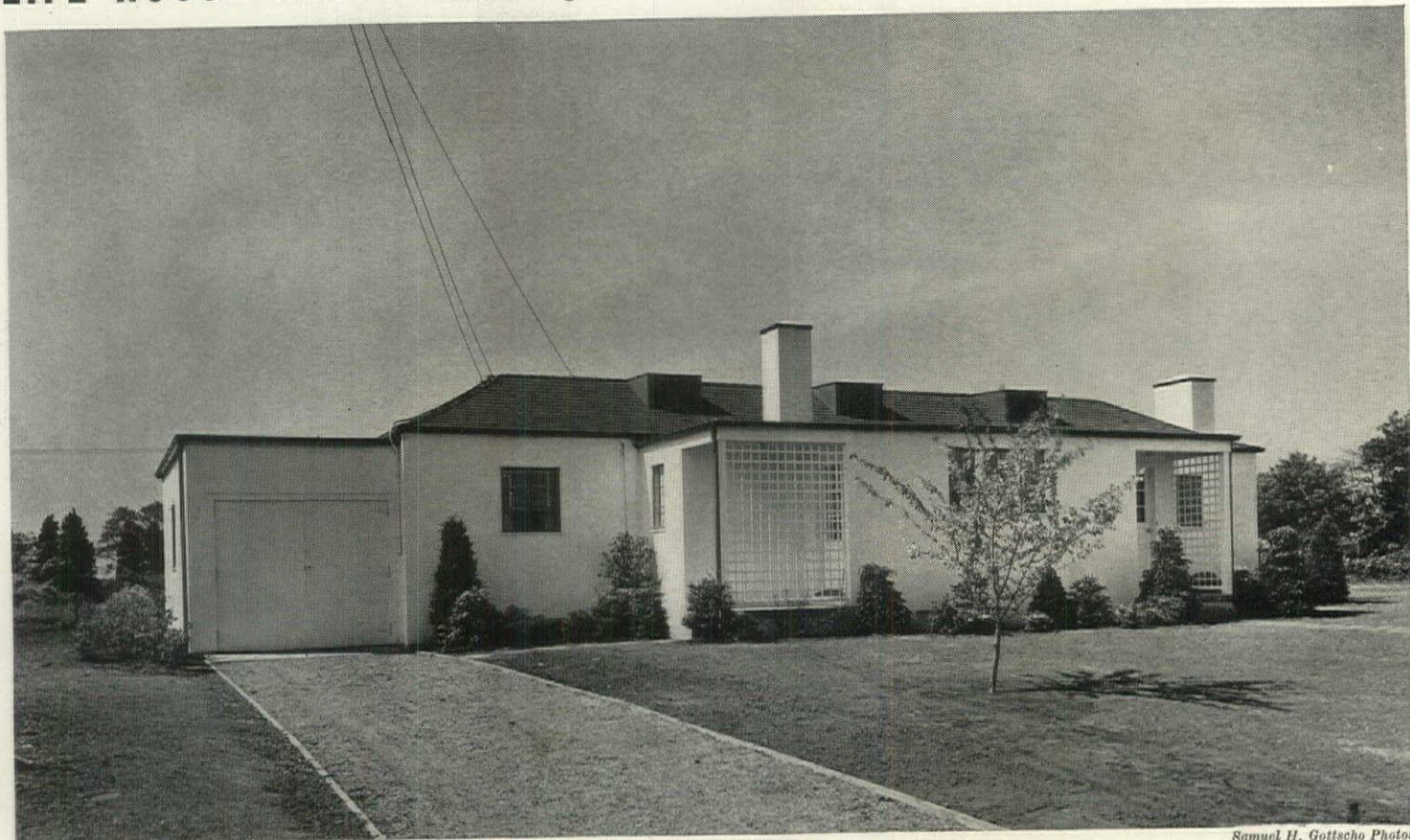
1. GARAGE... 15'3"x18'6"
2. SERVICE PORCH 5'3"x 5'3"
3. DINING ALCOVE. 6'6" 8'0"
4. KITCHEN 7'6"x12'6"
5. BATH 5'6"x 6'6"
6. BEDROOM 9'6"x11'0"
7. BEDROOM 10'2"x13'6"
8. LIVING ROOM 15'3"x16'0"

ING—DINING



CUPBOARD—PARTITION

LIFE HOUSE NO. 3 MASSAPEQUA, N. Y. HOLABIRD & ROOT, ARCHITECTS



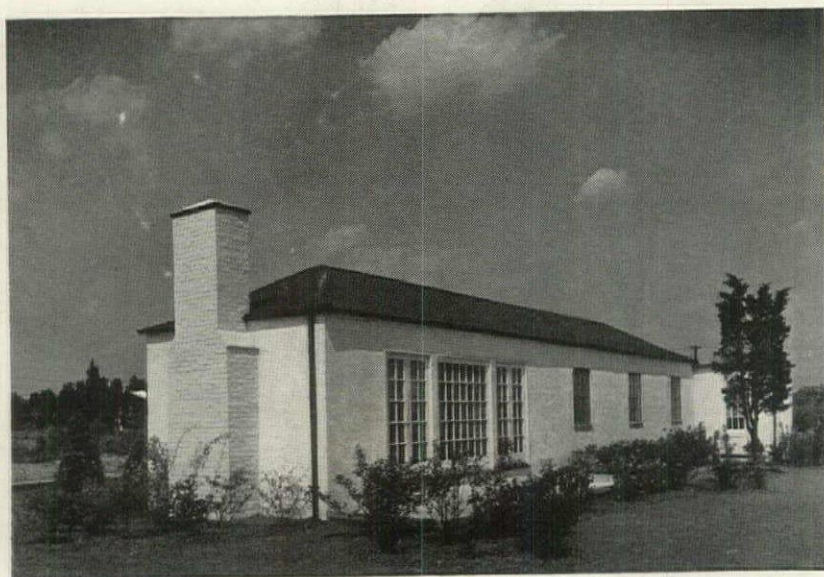
Samuel H. Gottscho Photos

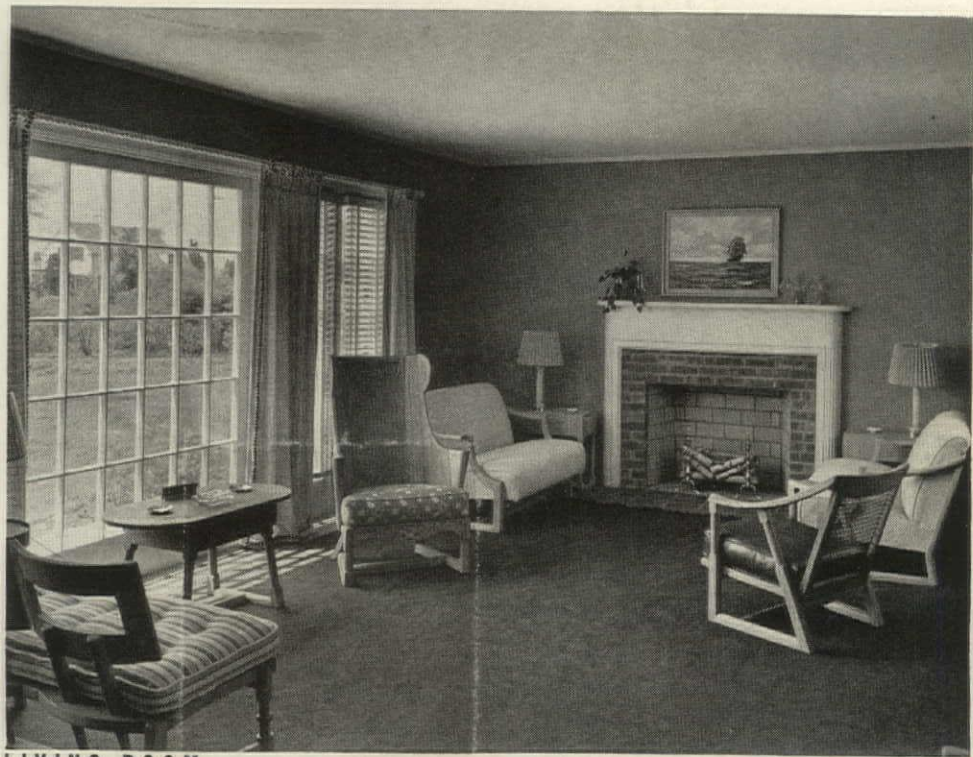
Only minor changes from the architects' design appear in the completed house. Most important, perhaps, is the shift from vertical wood siding to stucco. It will also be noted that three sets of French doors originally indicated for the rear elevation have been replaced by windows; while this does produce a less interesting exterior there are good practical reasons for the alteration. The garage was designed by the architects as a possible addition to the minimum plan.

The house if financed by a FHA-insured mortgage would require a minimum down payment of \$1,050, with a maximum mortgage of \$6,500. Monthly mortgage payments would be about \$43.36 and other costs* would produce a total monthly rent equivalent of about \$79.

*Estimated other monthly costs: taxes \$17.50; heat and hot water \$6.35; maintenance and depreciation \$10.20; fire insurance \$1.30.

SELLING PRICE:	\$7,550
HOUSE:	\$5,925
LAND (100'x100'):	\$1,625





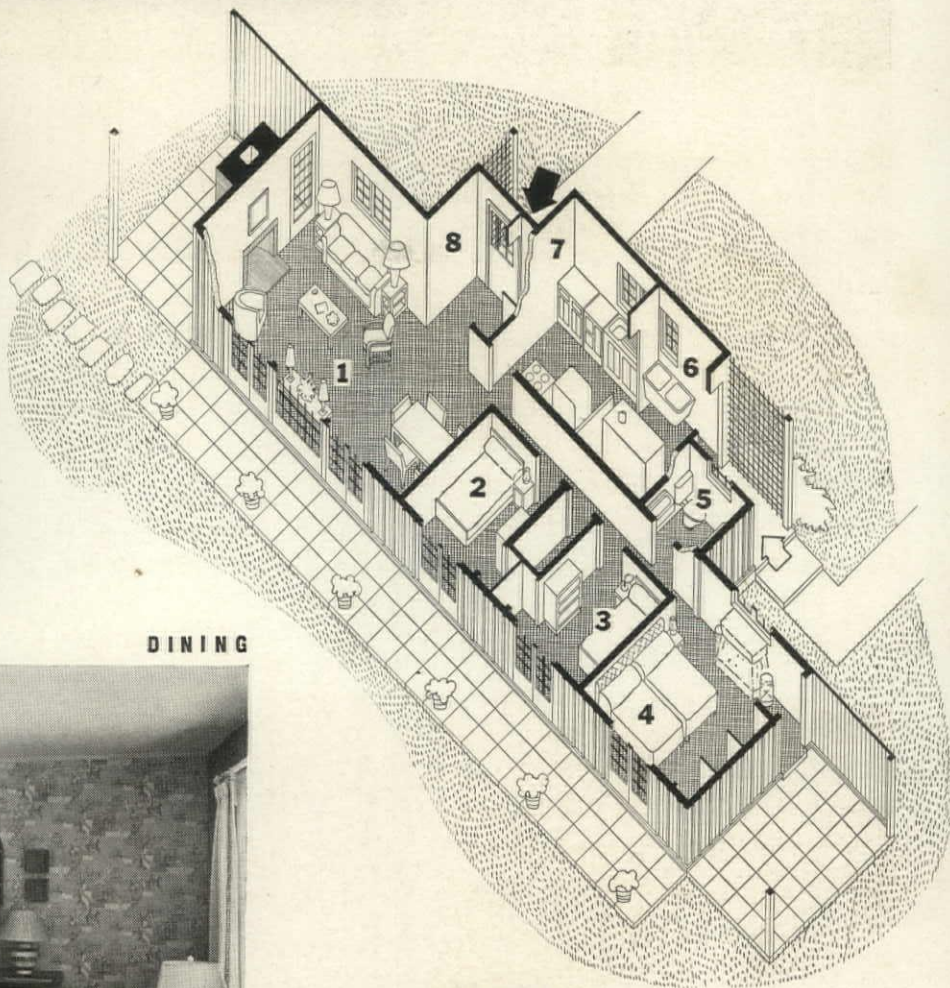
LIVING ROOM



BEDROOM-HALL

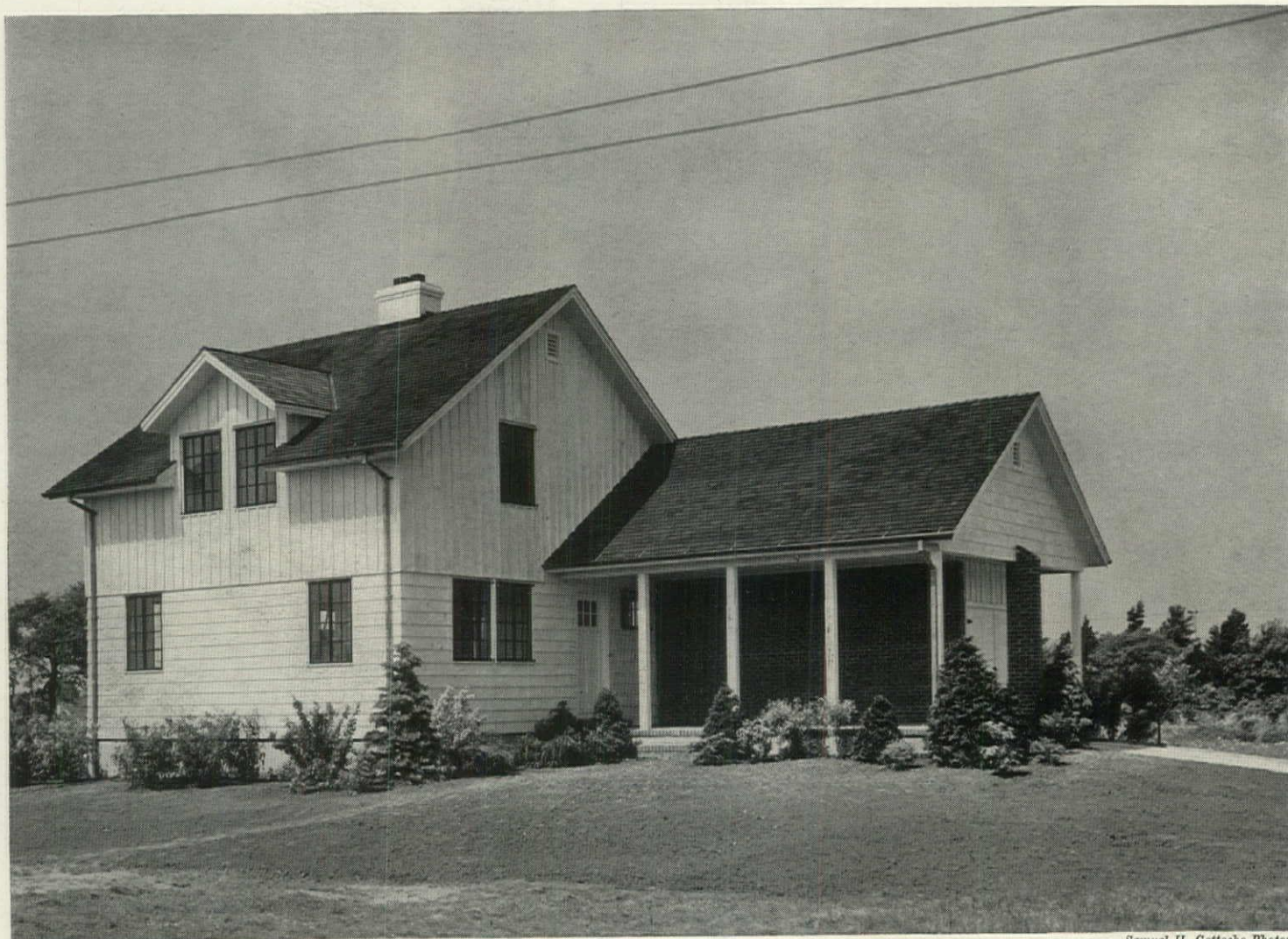


DINING



ORIGINAL PLAN

1. LIVING-DINING ROOM	13'2" x 23'0"
2. BEDROOM	8'0" x 9'3"
3. BEDROOM	8'0" x 9'3"
4. BEDROOM	12'0" x 13'2"
5. BATH	5'0" x 6'6"
6. UTILITY	7'0" x 9'2"
7. KITCHEN	9'2" x 9'5"
8. ENTRY	4'6" x 8'0"



AMITYVILLE, N. Y.

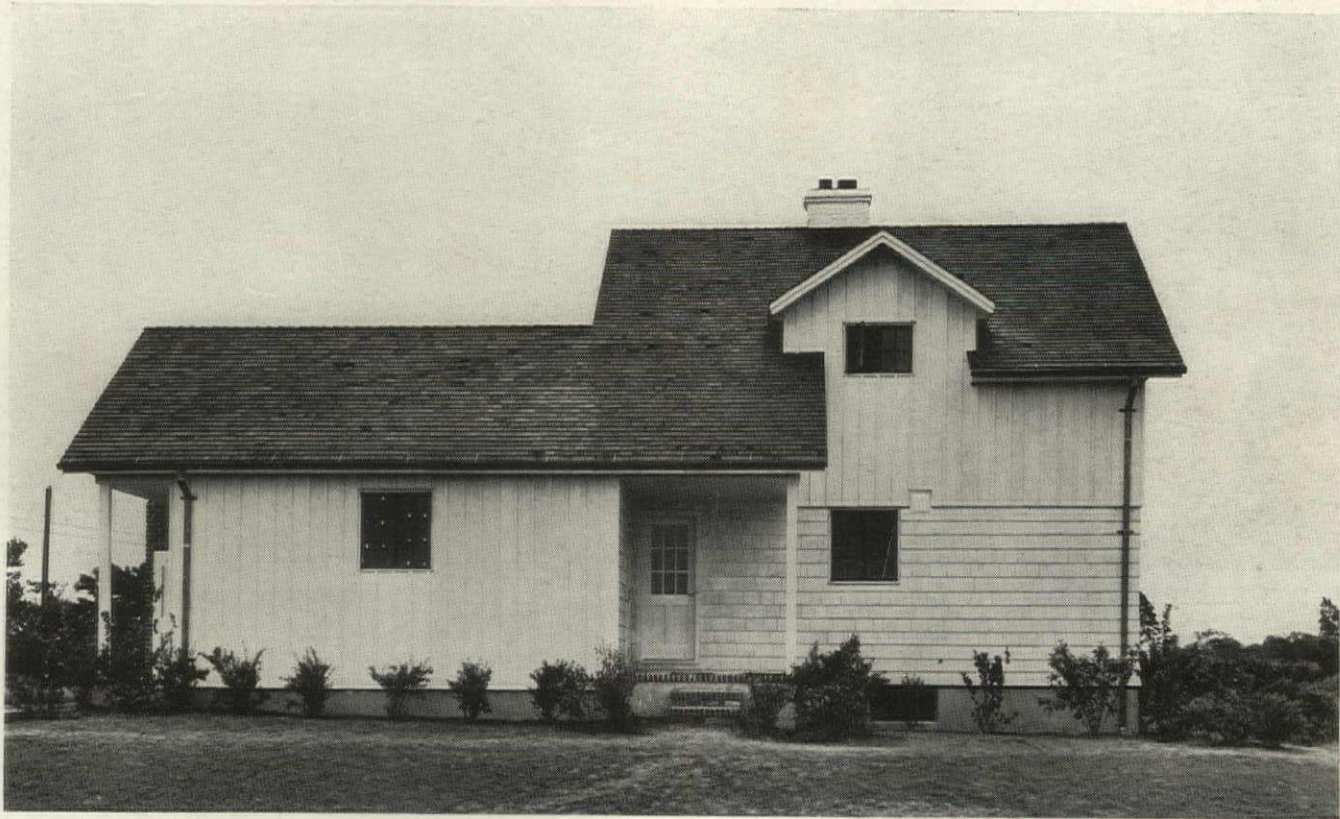
Samuel H. Gottscho Photos

An extremely economical design, following a rural style precedent whose influence on contemporary residential work has been slight. The house was originally planned for a frame of 4 in. members, placed 4 ft. on centers and sheathed with 2 in. planks. This structural scheme was not followed, but the only visible change is in the roof overhangs, which are heavier than they would have been otherwise. The plan has been closely followed by the builder and the exterior also shows only minor changes. No interiors shown as these were not completed at time of going to press.

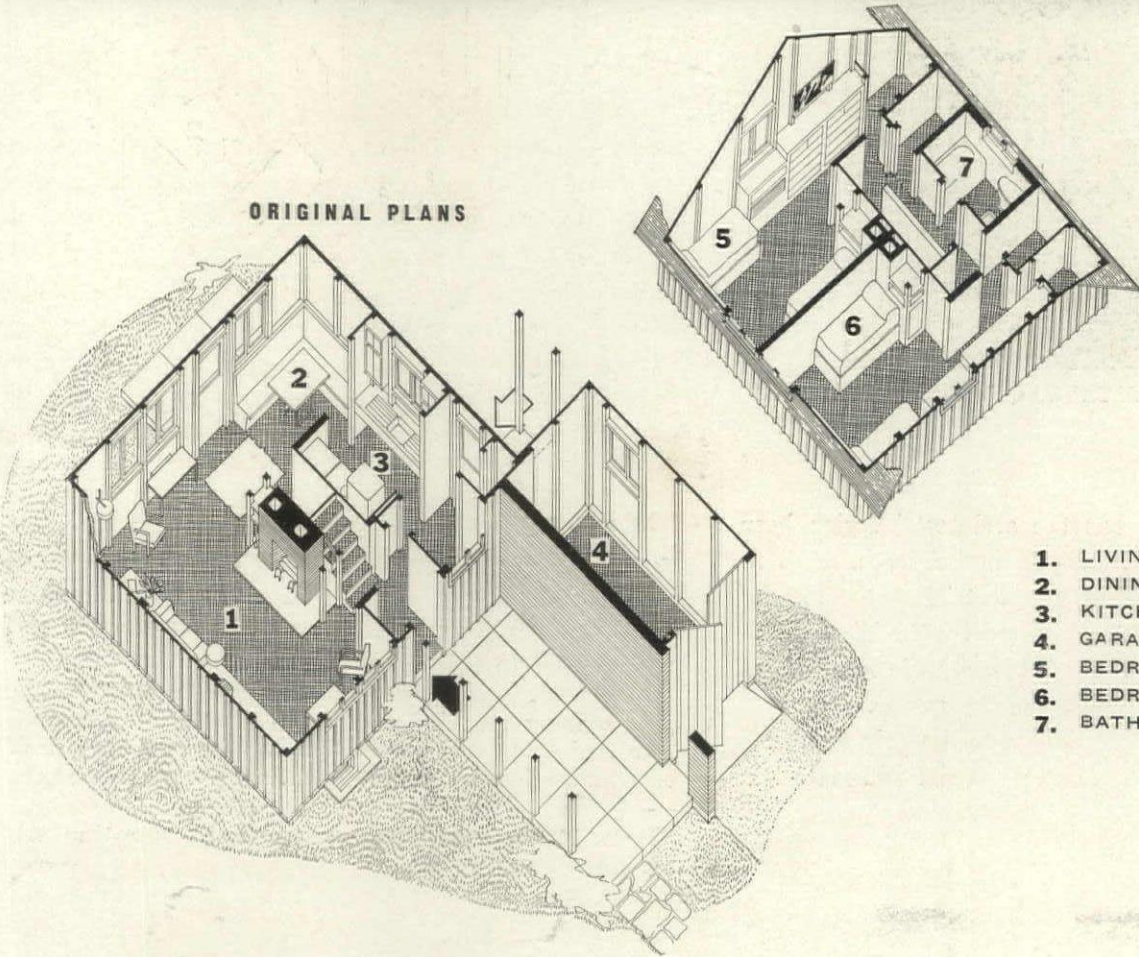
The house could be financed by a FHA-insured mortgage of \$5,400, with a monthly mortgage cost of \$31.37. Other estimated costs* would produce a total monthly rent equivalent of about \$60.

*Taxes: \$14, heat: \$6, maintenance and depreciation: \$8, fire insurance: \$1.

SELLING PRICE: .. \$6,150
HOUSE: \$5,490
LAND (60 x 100).. \$ 660

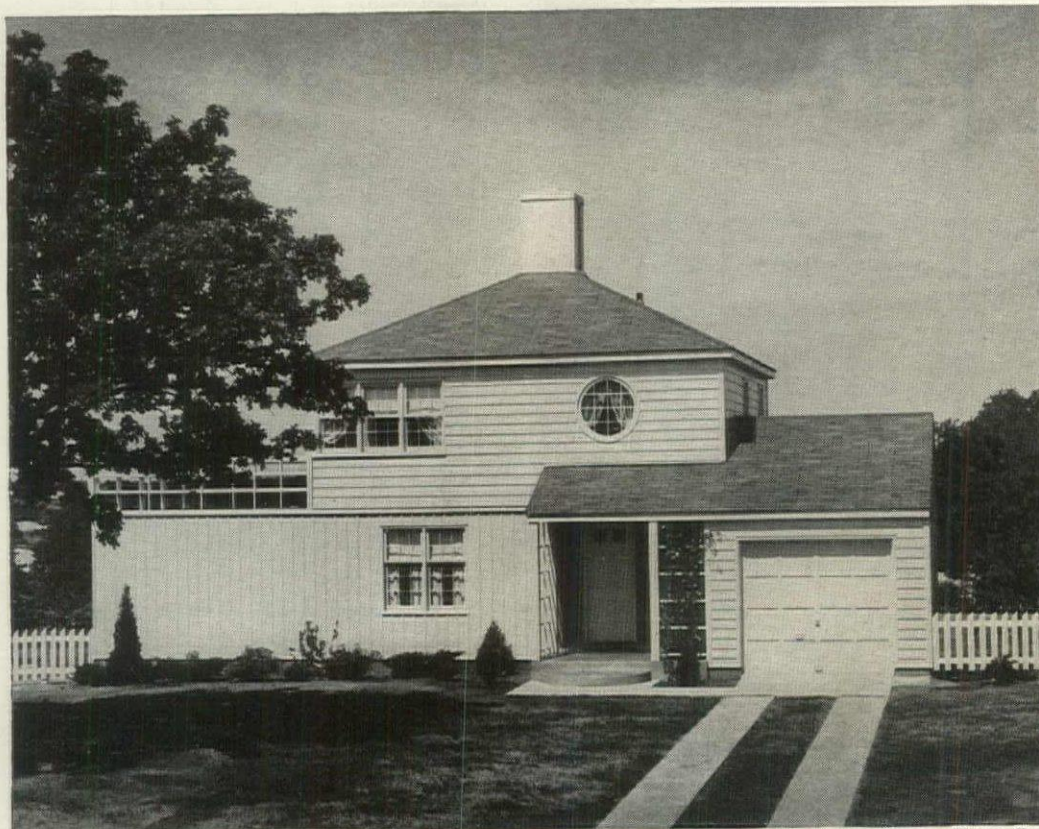


ORIGINAL PLANS



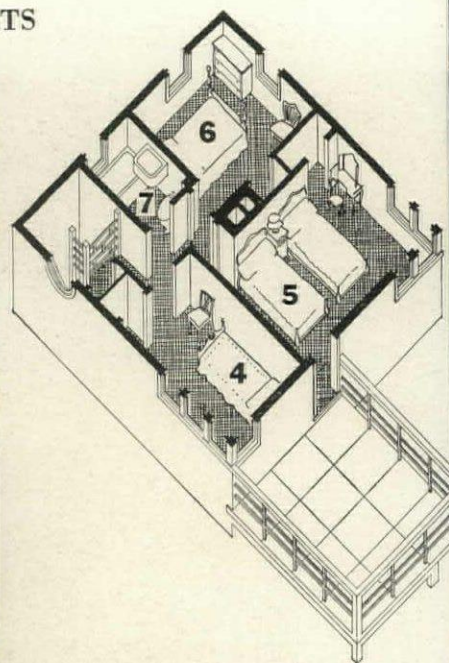
- | | | |
|----|--------------|-------------|
| 1. | LIVING ROOM | 12'0"x23'6" |
| 2. | DINING SPACE | 7'6"x13'6" |
| 3. | KITCHEN | 6'8"x15'6" |
| 4. | GARAGE | 9'6"x19'0" |
| 5. | BEDROOM | 11'6"x13'6" |
| 6. | BEDROOM | 11'6"x19'6" |
| 7. | BATH | 6'0"x 8'0" |

LIFE HOUSE NO. 5 PERRY, SHAW & HEPBURN, ARCHITECTS



Thomas Korn

JOPLIN, MO. R. E. STEPHENS AGENCY, BUILDERS

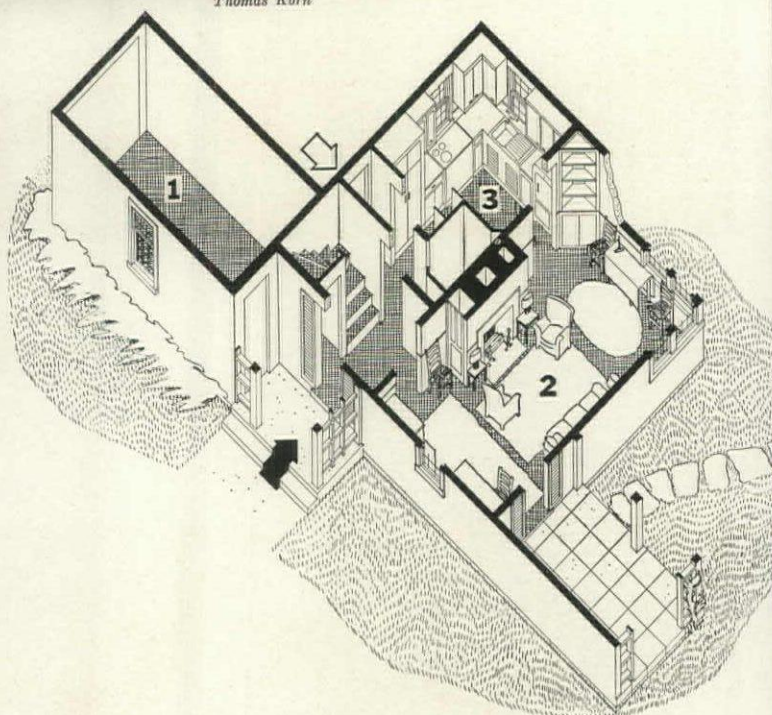


1. GARAGE 9'6" x 19'0"
2. LIVING ROOM 12'1 1/2" x 22'4 1/2"
3. KITCHEN 11'11 1/4" x 12'3"
4. BEDROOM 8'2" x 12'1 1/2"
5. BEDROOM 11'0" x 13'10 3/4"
6. BEDROOM 9'10 3/4" x 10'10"
7. BATH 5'6" x 7'5"



Wm. C. Shrout

WASHINGTON, D. C. WAVERLY TAYLOR, INC. BUILDERS



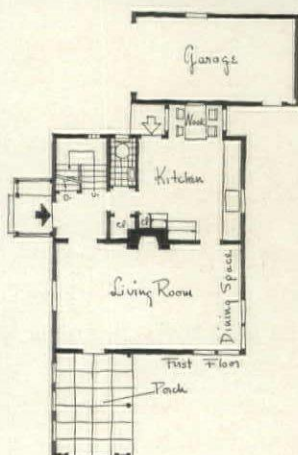
In none of these examples has the architects' design been executed without change. The Joplin house, modified to fit an inside lot, comes closest. The architects' intentions as far as color is concerned are best illustrated by the Washington house. In this example the site condition made necessary a drastic shift in the planned location of the garage. Price variations are interesting, but unfortunately no direct comparison is possible due to variations in size and materials.

The selling prices are as follows:

Joplin house: \$8,250. House: \$7,050. Land: \$1,200. With an FHA-insured mortgage of \$7,100 the monthly rent equivalent would be about \$85, including a mortgage cost of \$46.65 plus other estimated charges*.

Washington house: \$13,750. Land price not available. The great difference in price between this and the above house is accounted for by the fact that the Washington house is built on expensive land, has full basement and several more rooms.

*Taxes: \$19, heat: \$6.60, maintenance and depreciation: \$11, fire insurance: \$1.45.

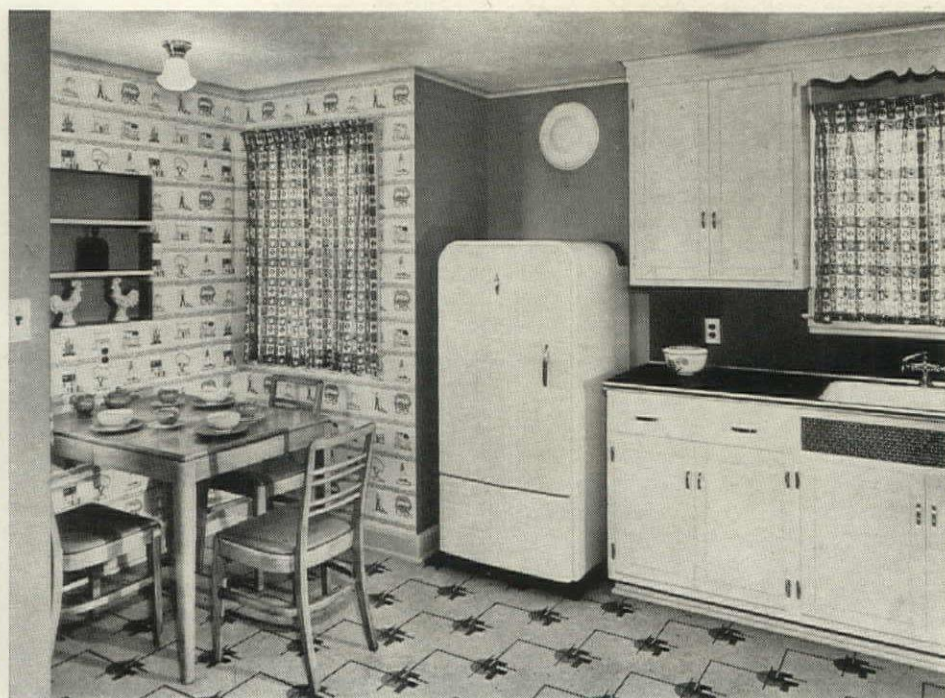


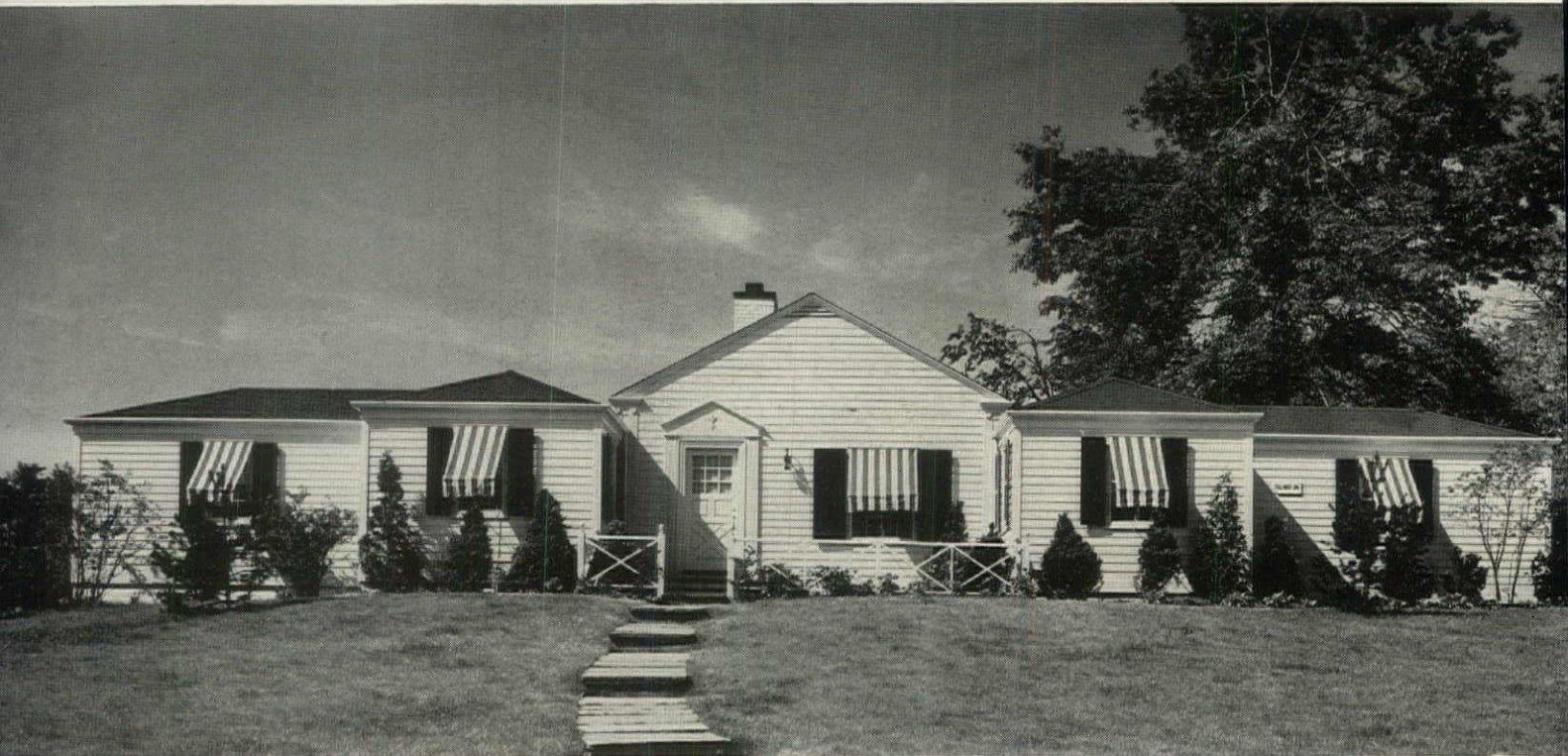
PLAN AND INTERIORS of House in Wethersfield, Conn.

Selling price: \$7,989. House: \$6,689. Land (75 x 190 ft.): \$1,300. With a FHA-insured mortgage of \$6,900 the monthly rent equivalent would be about \$75, including a mortgage cost of \$45.33 plus other estimated charges*.

*Taxes: \$12, heat: \$6.50, maintenance and depreciation: \$10.75, fire insurance: \$.75.

All photos, Robert M. Damora





SCARSDALE, N. Y. H. & B. HOUSING CORP. BUILDERS

Robert M. Damora Photos



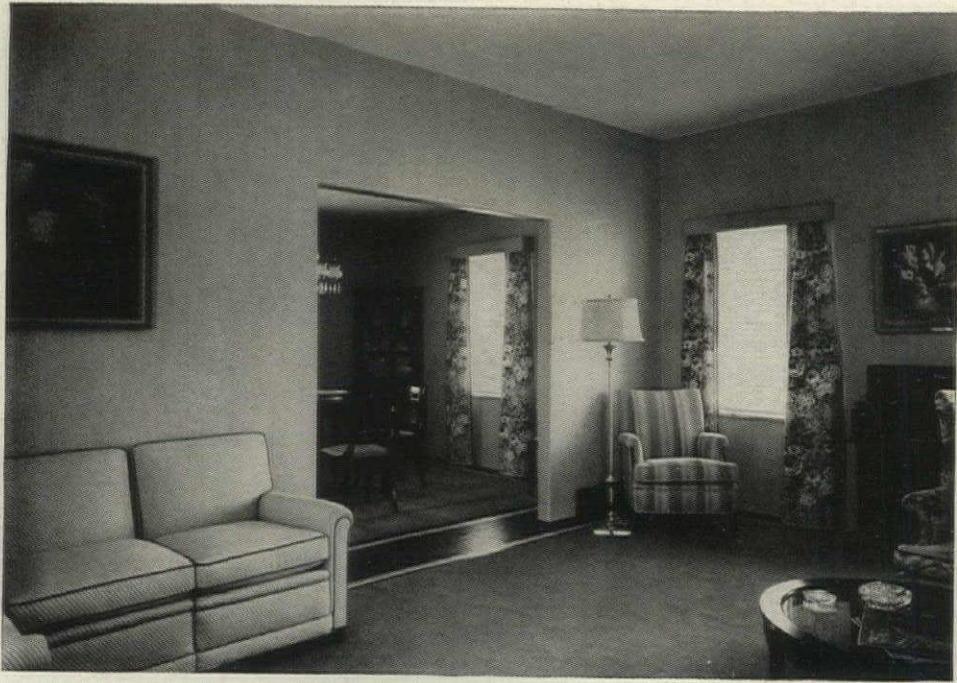
The architects for this house were given a rural location; the example shown was built in a suburb of New York City. While the house is thoroughly appropriate to its present surroundings, the shift has naturally been reflected in increased costs for construction, land, taxes. Following the original design closely, the house makes it possible to judge the architects' intentions on the basis of a completed structure. A pleasant, informal plan provides for comfortable living and good natural lighting and ventilation.

Photographs of interiors from a similar house built in Webster Groves, Mo., are shown on the facing page.

The Scarsdale house could be financed with a \$9,200 FHA-insured mortgage with a monthly mortgage charge of \$60.44. Other estimated monthly costs* would give a monthly rent equivalent of about \$112.

*Taxes: \$23, heat: \$12.50, maintenance and depreciation: \$15, fire insurance: \$1.25.

SELLING PRICE:	\$11,500
HOUSE:	\$ 8,500
LAND (100 x 126 ft.):	\$ 3,000

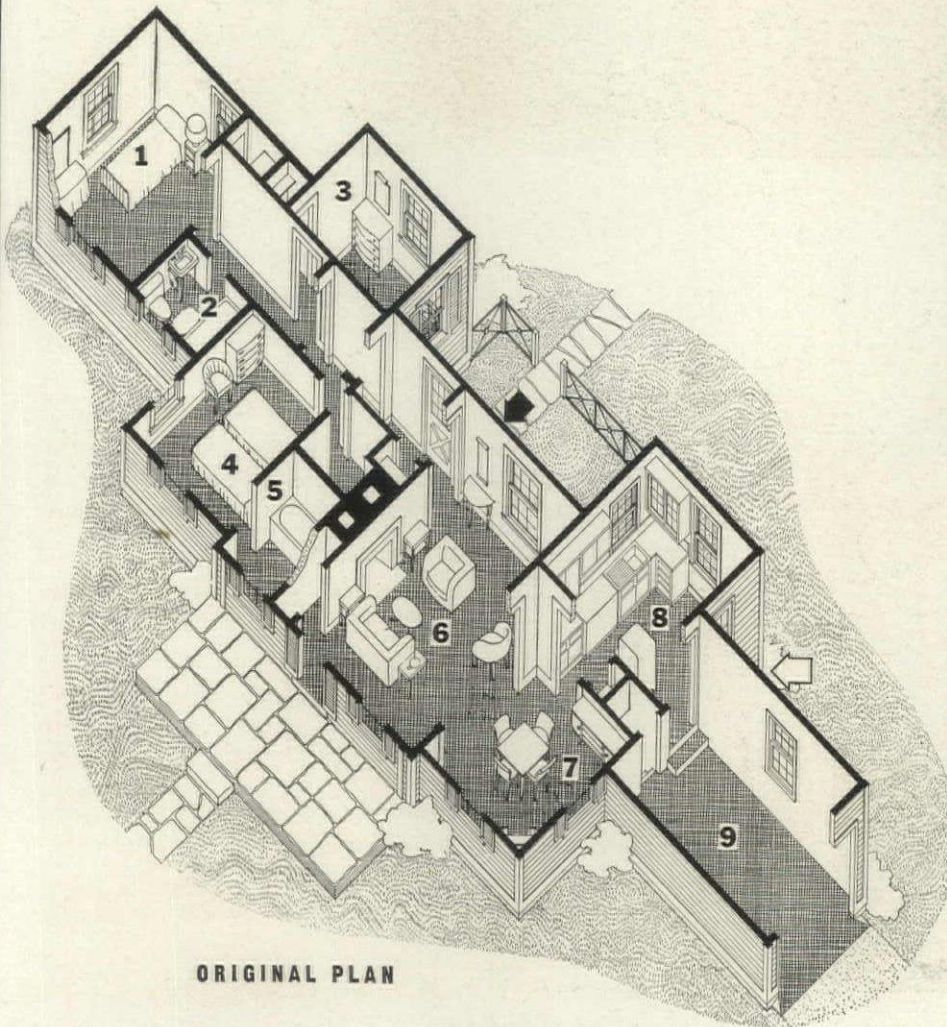


INTERIORS of House in Webster Groves, Mo.

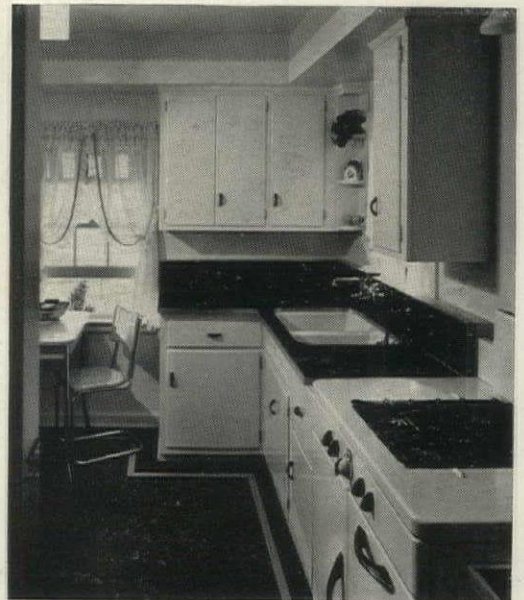
Day



Day



ORIGINAL PLAN

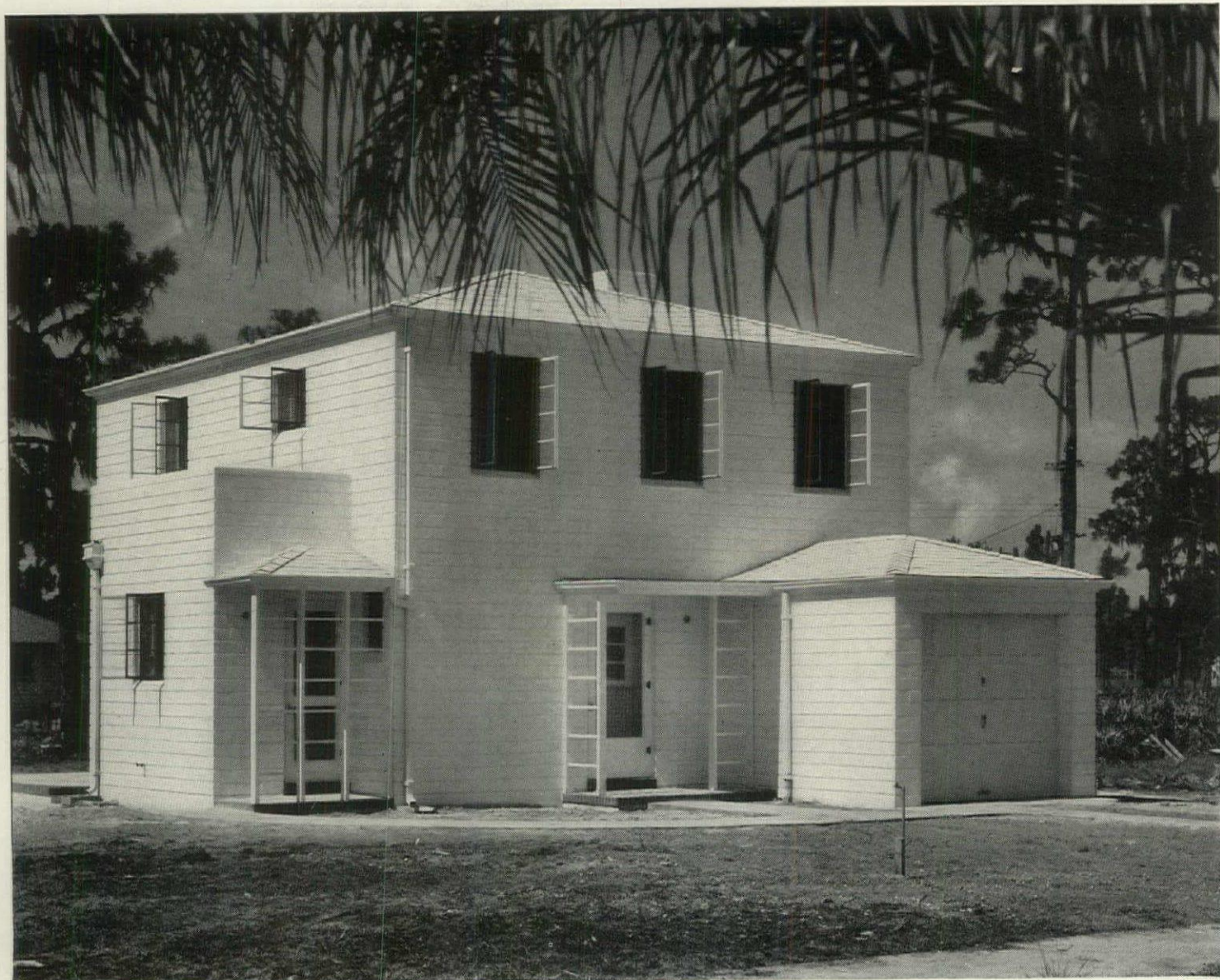


KITCHEN in Scarsdale House

Robert M. Damora

	as planned	as built
1. BEDROOM	10'0"x12'0"	11'0"x14' 0"
2. BATH	5'6"x 6'6"	5'0"x 7' 0"
3. BEDROOM	10'6"x 8'0"	8'8"x11' 0"
4. BEDROOM	12'6"x10'6"	11'0"x15' 0"
5. BATH	5'0"x 7'6"	7'0"x 7'10"
6. LIVING ROOM	12'6"x18'0"	13'0"x19' 0"
7. DINING ROOM	10'6"x12'0"	11'0"x13' 0"
8. KITCHEN	12'0"x10'9"	10'2"x11' 0"
9. GARAGE	9'6"x17'6"	10'0"x19' 0"

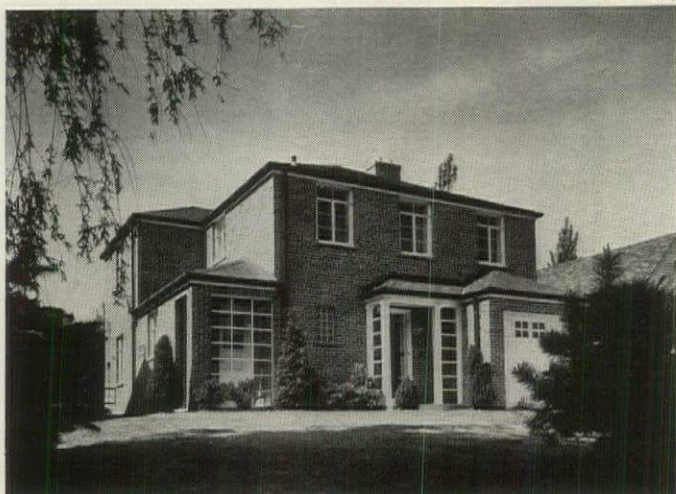
LIFE HOUSE NO. 7 SHREVE, LAMB & HARMON, ARCHITECTS



TAMPA, FLA. G. A. HANSON CO. INC. BUILDERS

Burgert

Day



WEBSTER GROVES, MO. C. C. WILLMORE ORGANIZATION BUILDERS

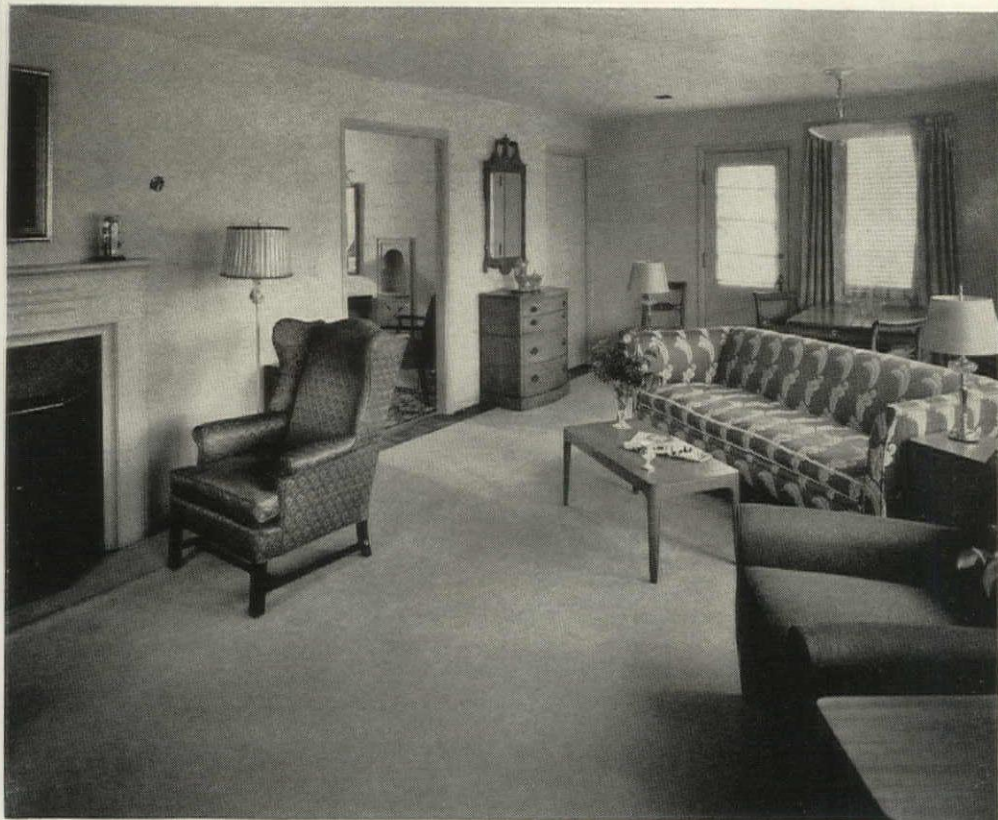
Designed for construction in the northern part of the country, this house has been adapted to a Florida background chiefly by a change to white walls and roofs. It still has the same excellent plan, however, with good circulation and plenty of closets. The brick house below is larger. A dining room and additional sleeping space have been incorporated in the design, and brick has been substituted as a facing material.

Tampa house: \$9,177. House: \$8,277. Land and landscaping (lot 55 x 132 ft.): \$900.

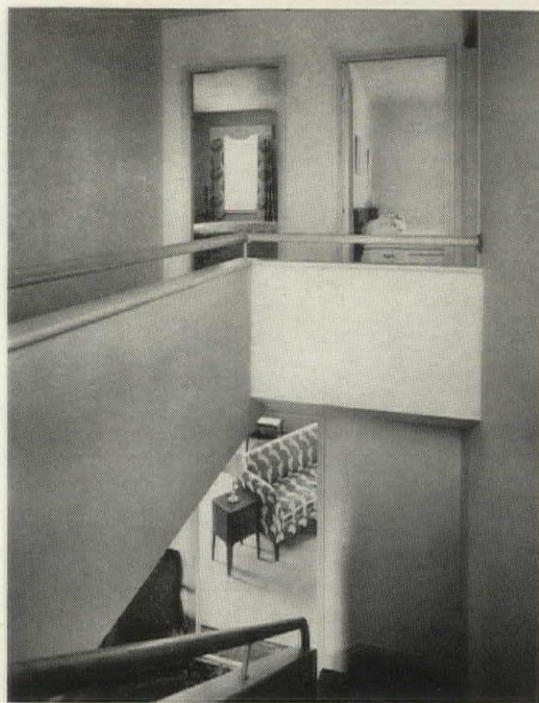
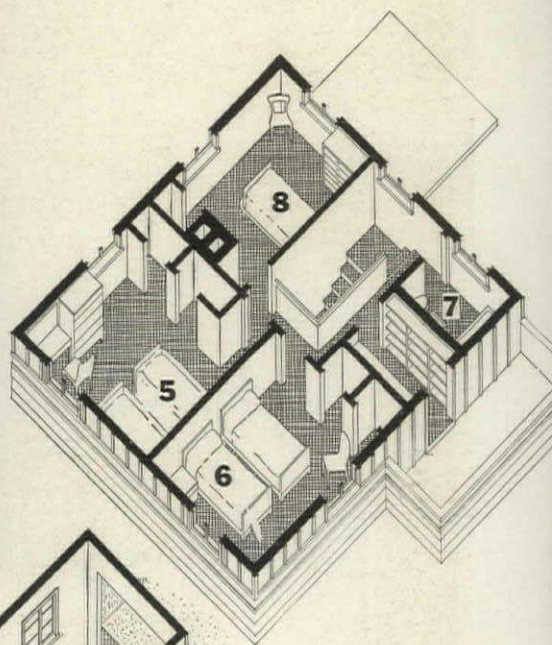
The house could be financed by a mortgage of \$7,800, with a mortgage charge of \$51.25 monthly. Other estimated costs* make up a rent equivalent of about \$74.

Webster Groves house: \$12,150. House \$9,750. Land: (lot 60 x 140 ft.) \$2,400.

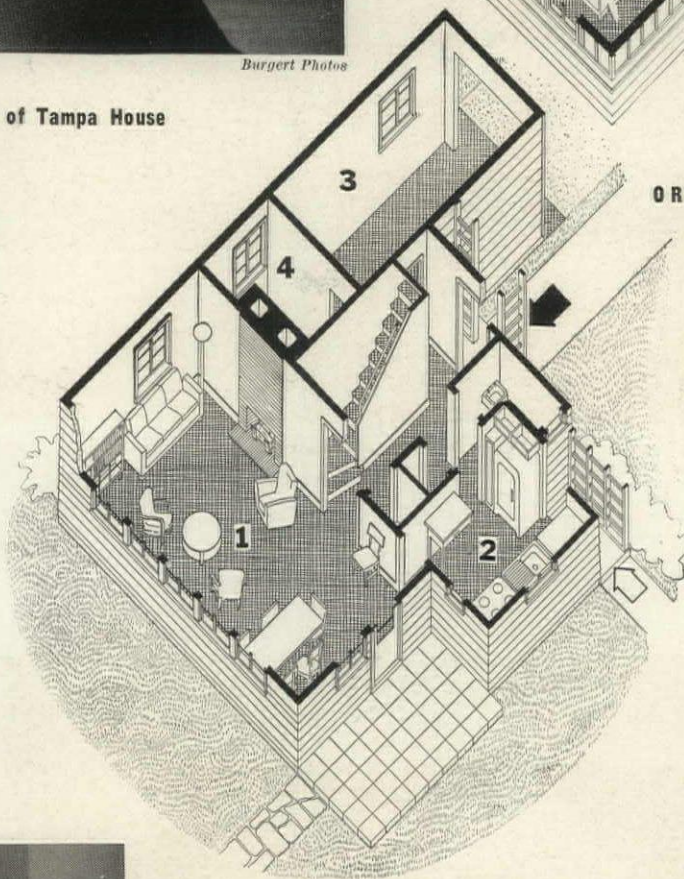
*Taxes: \$3.50, heat: \$2.50, maintenance and depreciation: \$12, fire and wind insurance: \$5.



Burgert Photos



Interiors of Tampa House



ORIGINAL PLANS



- | | |
|-----------------------|------------------|
| 1. LIVING-DINING ROOM | 13' 0" x 24' 0" |
| 2. KITCHEN | 8' 11" x 10' 5" |
| 3. GARAGE | 9' 4" x 17' 10" |
| 4. HEATER ROOM | 4' 6" x 9' 4" |
| 5. BEDROOM | 10' 11" x 12' 9" |
| 6. BEDROOM | 10' 9" x 13' 3" |
| 7. BATH | 5' 0" x 6' 6" |
| 8. BEDROOM | 9' 3" x 11' 1" |



HOUSTON, TEX.

Francis Miller

SELLING PRICE:	
HOUSTON HOUSE:	\$11,750
HOUSE:	\$ 9,000
LAND (approximately 140 x 70 ft.):	\$ 2,750
LA GRANGE PARK HOUSE:	\$20,672
HOUSE:	\$17,500
LAND (60 x 133 ft.):	\$ 3,172

Both of these houses are larger than provided by the original scheme; aside from the increase in size, however, the Houston house follows the drawings with great fidelity and is an especially interesting example of a modified traditional type. Plan changes include the erection of a partition dividing the living and dining spaces into two rooms, the addition of another bathroom upstairs, and the use of the utility room as a morning room. The house in La Grange Park is much larger and has a full basement with recreation room, heater and storage space. Even here, despite the drastic alterations, much of the character of the architects' design is visible in the exterior.



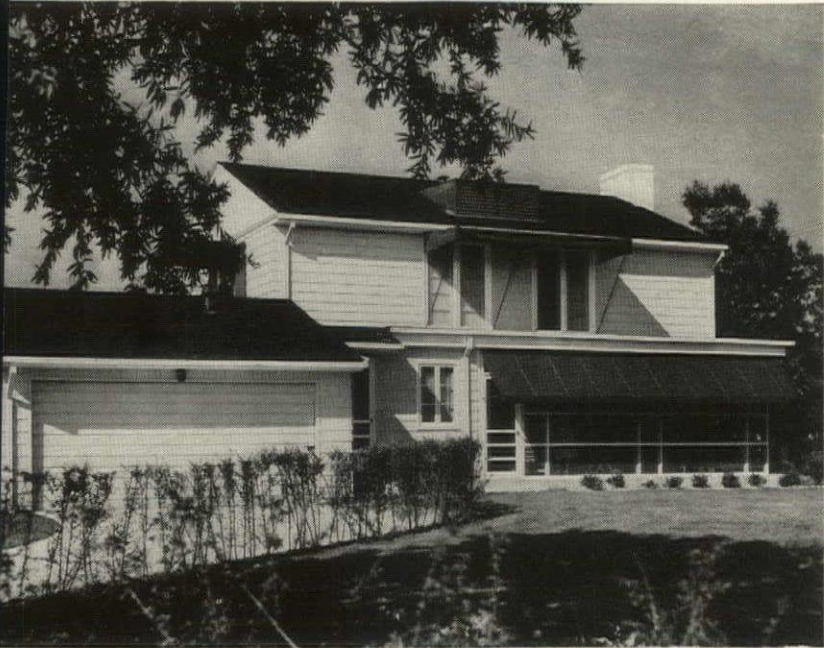
LA GRANGE PARK, ILL.

WILLIAM JOERN & SONS, BUILDERS

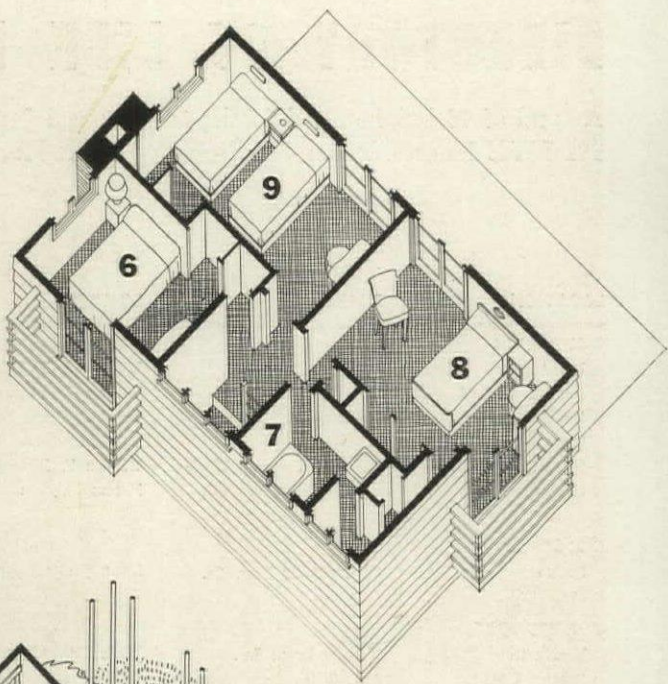
Hodrich-Blessing

The Houston house could be financed by a \$9,400 FHA-insured mortgage with a down payment of \$2,350. Its monthly mortgage payments of about \$61.76 plus other estimated monthly costs and charges* make up a rent equivalent of approximately \$98.

*Taxes: \$16.50, heating: \$3, maintenance and depreciation: \$16, fire insurance: \$1.50.



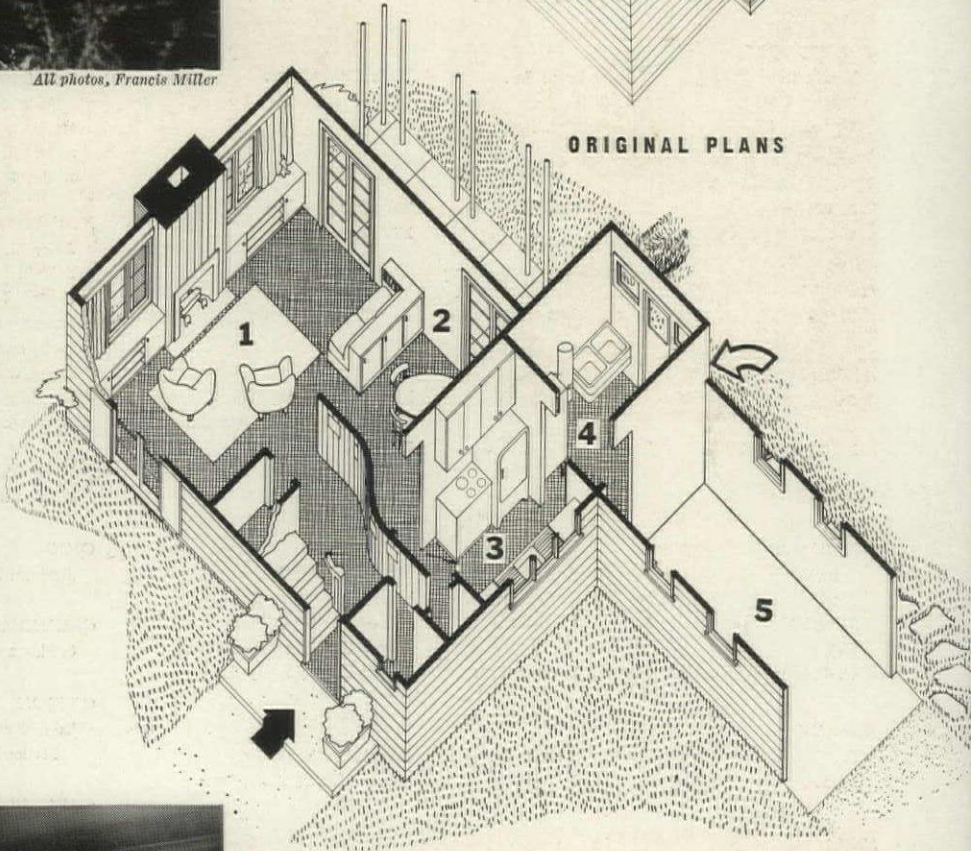
All photos, Francis Miller



ORIGINAL PLANS



HALL



LIVING ROOM

	as planned	as built
1. LIVING ROOM	13'0" x 20'8"	14'0" x 24'6"
2. DINING ROOM	9'6" x 10'6"	10'0" x 14'0"
3. KITCHEN	9'0" x 10'6"	10'0" x 13'0"
4. UTILITY ROOM	9'0" x 10'0"	10'0" x 13'0"
5. GARAGE	10'0" x 18'0"	19'0" x 19'0"
6. BEDROOM	12'6" x 9'0"	10'0" x 14'0"
7. BATH	6'6" x 6'0"	5'0" x 8'6"
8. BEDROOM	15'0" x 10'6"	13'0" x 16'7"
9. BEDROOM	16'6" x 9'0"	12'0" x 13'0"

DIRECTORY OF LIFE HOUSES

A total of 73 builders and 37 department and furniture stores have cooperated in building, decorating and furnishing the 121 LIFE Houses. Below is a directory of the Houses, with their locations, builders and furnishers.

LOCATION	FURNISHER	BUILDER
CALIFORNIA		
Los Angeles		William T. Richardson
North Hollywood		William Mellenthin
San Francisco	The Emporium	David D. Bohannon Org.
Santa Cruz		Wilson Brothers
Santa Monica	The May Company Wilshire	William T. Richardson
Sherman Oaks		Marcus Shipman
COLORADO		
Pueblo	Calkins-White Bros. Co.	Leach Realty Company
CONNECTICUT		
Manchester	Watkins Bros., Inc.	Watkins Bros., Inc.
Saugatuck Shores	A. J. Collins Co.	W. W. Stewart Syndicate
Wethersfield	Watkins Bros., Inc.	Joseph De Paolo
DIST. OF COLUMBIA		
Washington	Palais Royal	Waverly Taylor, Inc.
Washington		Life Estates Company
FLORIDA		
Tampa	Maas Brothers	G. A. Hanson Company
ILLINOIS		
Galesburg		Marc S. Parsons
Geneva		Edward S. Reque Organization
La Grange Park	Carson Pirie Scott & Co.	William Joern & Sons— Harmon Organization, Inc.
Lincolnwood		Thomas J. Crowe
Naperville		Edward S. Reque Organization
Northbrook		
Highlands		The Bills Realty Inc.
Peoria	Montgomery Ward & Co.	Wildwood Development Co.
Springfield	A. Dirksen & Sons	R. Bedell Hines & Co.
Wayne		Edward S. Reque Organization
W. Chicago	Chas. E. Norris & Sons	Edward S. Reque Organization
INDIANA		
Fort Wayne	Maumee Furniture Co.	John R. Worthman, Inc.
Munster		Indiana Housing Assn., Inc.
IOWA		
Davenport		Mel Foster Company
KENTUCKY		
Lexington	J. D. Purcell Co.	Roberts & Longworth, Inc.
Louisville	Stewart Dry Goods Company	Kenneth A. Barker, Sr.
MARYLAND		
Baltimore	The May Company	Roland Park Company
Baltimore		Life Estates Company
Hagerstown		Hagerstown Realty Co.
Hagerstown	Shockey Furniture Co.	Betty M. Winn
MASSACHUSETTS		
Boston	Jordan Marsh	Homer T. Brown, Inc.
MICHIGAN		
Muskegon	Fawley Abbott Company	W. B. Taylor Co.
Port Huron	J. B. Sperry Company	W. L. Cooper
MINNESOTA		
Minneapolis	Boutells	Thorpe Brothers

LOCATION	FURNISHER	BUILDER
MISSOURI		
Ferguson	Scruggs, Vandervoort, Barney	Moresi-Nauman-O'Neill Co.
Joplin	Newman Furniture Division	R. E. Stephens Agency
Kansas City	Davidson's Furniture Company	Allen Realty Company
Kingshighway Hills		C. C. Willmore Organization
St. Louis Hills		C. C. Willmore Organization
Webster Groves		C. C. Willmore Organization
Webster Groves	Scruggs, Vandervoort, Barney	Webster Bldg. & Supply Co.
NEW JERSEY		
Cedar Grove		Jenkins Realty Company
Chatham		Harmon Organization, Inc.
Ho-Ho-Kus		Cheel Construction Co., Inc.
Lake Lenape,		
Andover	Kresge	A.N. & A.V. Lockwood
Matawan		Lake Lefferts Estates
Short Hills	Kresge	Cross Roads, Inc.
Westfield	Kresge	Colonial Homes in Westfield
NEW YORK		
Amityville	Franklin Shops, Inc.	Harmon Organization, Inc.
Baldwin	Franklin Shops, Inc.	Sweet Briar
Crestwood		Harmon Organization, Inc.
Massapequa	Franklin Shops, Inc.	Harmon Organization, Inc.
Port Chester		Hawthorne Developing Co.
Rochester		Thomas Bryan & Assoc., Inc.
Scarsdale	W. R. Thorne, Inc.	Wilmot Woods
Tarrytown	Cartoon's Furniture Store	County Homes, Inc.
Westbury	Franklin Shops, Inc.	V. & B. Building Corp.
White Plains		County Homes, Inc.
W. New Brighton		Mathews Homes, Inc.
OHIO		
Steubenville		B. L. Batey
OKLAHOMA		
Oklahoma City	Doc & Bill Furniture Co.	Martin-Nashert Company
OREGON		
Lake Oswego,		
Portland	Powers Furniture Company	Murphy & Dean Company
PENNSYLVANIA		
Bear Creek		Harry F. Goeringer
Drexel Hill	Gimbel Brothers	J. S. Mozino Company
Orwigsburg		Eben Kingsbury
Pittsburgh	Kaufmann's	Displayed Within Store
Uniontown		Edward Brown, Jr. & Assoc.
TEXAS		
Brownsville	Edelstein Better Furniture	R. L. Brockman
El Paso	American Furniture Company	John W. Phillips
Houston	Helene Sprong & Company	River Oaks Corp.
UTAH		
Salt Lake City		Woodbury Corporation
VIRGINIA		
West Falls Church		Curtis S. Greve Co.
WEST VIRGINIA		
Huntington	Sears, Roebuck & Co.	E. B. Kyle
WISCONSIN		
Appleton		Daniel P. Steinberg
Milwaukee	The Boston Store	A. P. Stark Company
CANADA		
Mount Royal	Henry Morgan & Co., Ltd.	Mount Royal Bldg. Co., Ltd.



THE PUMP ROOM

SAMUEL A. MARX, ARCHITECT

Its success unchallenged since the day it opened, the Pump Room in Chicago's Ambassador East is proof again that attention to even the smallest detail is repaid times over in creating atmosphere. And since atmosphere is the key to seductive dining and wining Mr. Marx's deceptively simple scheme suggests that gracious design knows no style limitations.

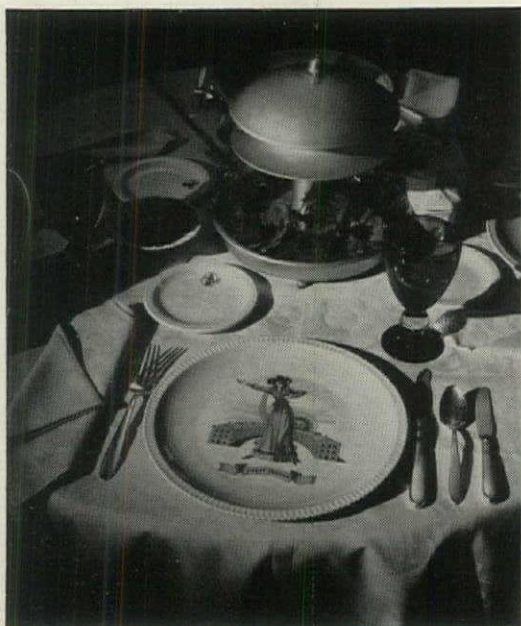
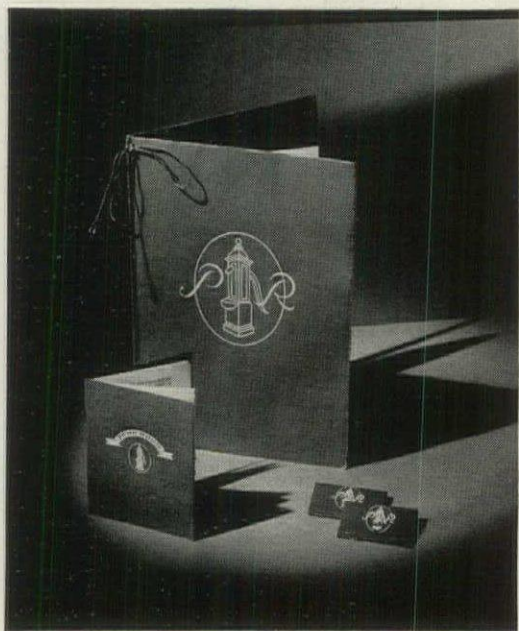


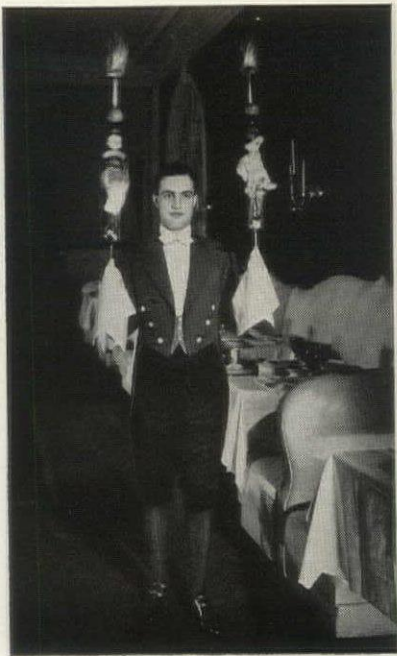
Hedrich-Blessing Photos

THE PUMP ROOM

SAMUEL A. MARX, ARCHITECT

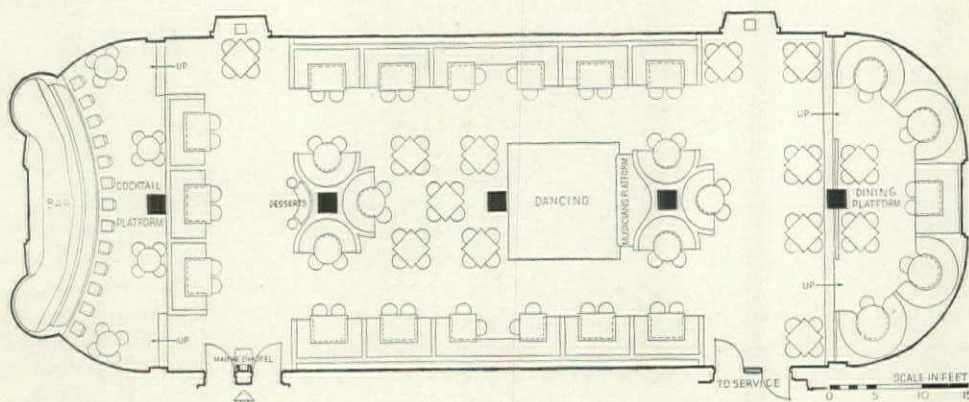
The decoration of the Pump Room is based on that of a famous eighteenth century restaurant of the same name in Bath. Remodeled from a simple Georgian room, the interior depends for its effect on color, and on the carefully integrated design of the china, silverware, accessories and costumes which were suggested by the architect. The dark side walls are an intense blue-violet, a deeper shade of which was used in the carpeting. The old entrance to the room has been filled in with glazed doors and a pump, the latter executed in bright green and silver. Lighting is provided by troughs behind the booths on the side walls, and by table lamps which also serve as shallow flower bowls. The original chandeliers have been retained and remodeled as indirect lighting fixtures. In general, the scheme depends on low intensity lighting combined with extremely brilliant colors. The brightest color accents in the room are the costumes; those of the waiters are in scarlet and black, and the coffee boys are dressed in bright viridian green.







The curved ends of the room are executed in off-white, with hangings of blue-violet. Lighting in the bar is provided by a continuous indirect lighting system underneath the counter above the work space.



THE ARCHITECT'S WORLD

THE ARCHITECT IN WAR TIME

Excerpts from an editorial in *The Builder*, London, for March 22nd, 1940

The failure of the Government to make proper use of architects' services in the national war effort has taken many people by surprise, and among architects themselves there has been serious heart-searching to discover the reason for this neglect. . . . The root cause of the trouble is, we believe, to be found in the past.

It is only within recent years that architects themselves have troubled to emphasize the importance of the planning side of their work. There had been far too much talk of the "art" of architecture and too much insistence on the architect's value to the community as an artist. It is now generally realized that these things, no matter how fundamentally true they may be, are better taken for granted; otherwise, over-emphasis of them is apt to produce in the public mind the suspicion that architecture is merely an esthetic exercise and the architect an impractical dreamer, possibly wearing a velvet jacket, floppy bow tie and baggy trousers—not to mention long hair and whiskers.

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But the architect himself has not been entirely or even mainly responsible for such wrong impressions; he has been to a great extent the victim of the writers and art critics, who, by their pre-occupation with style and ornament, have obscured the real nature of architecture. The principal offenders in the more unenlightened years of the last century were Fergusson and Ruskin. Fergusson was not, perhaps, much read by the general public, but he did a great deal of damage in his limited sphere by preaching that architecture was the art of applying ornament to building. Ruskin, however, did enormous harm. Architecture

to him *was* ornament and decoration, and he preached that gospel with an eloquence, a conviction and fervor that completely misled the so-called intelligent lay public of his day.

In the meantime the . . . rift between architecture and engineering was becoming plain. Engineers, disclaiming any particular interest in esthetics . . . went quietly on with their profitable job of building docks, harbors, roads, bridges, warehouses, factories, railways and so forth, and establishing themselves firmly in the estimation of the public as practical men. Architects might be more "in the news" (the "Battle of the Styles" was raging) but it brought them little profit.

This state of things existed well into the present century. The predominance of the historico-esthetic note in professional affairs, even as recently as 1910-11, is shown by a glance at the titles of the papers read at the R.I.B.A. during that period: "Monumental Work of the Cosmati at Westminster Abbey"; "Pierre Lescaut and Jean Goujon"; "Cardinal Medici's Pleasure House." . . .

As a contrast, here are some of the titles of recent papers: "Heating and Air Conditioning"; "Economics of the Building Industry"; "The Prevention of Noise in Buildings." . . . Prose has taken the place of poetry, the dream become the business—and the gain in usefulness from the point of view of the practicing architect cannot be denied.

Simultaneously with this emphasis on practicality in its papers, the R.I.B.A. developed as a medium of popular propaganda on behalf of architecture the traveling exhibition. Many of these, showing clearly the contribution that the architect

can make to the health and happiness of the community by orderly design and planning, have gone the round of the country and have been seen by some hundreds of thousands of people. At the same time recent Presidents have laid strong emphasis on the need for planning in almost every department of life and stressed the competence of the architect, as a result of his special training, to do the work. So far as the war is concerned, all this effort seems to have been virtually wasted. The architect, where he is employed on Government work, is generally found in a subordinate position and the engineer in control. War-time building does not, apparently, need to be planned. . . .

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We believe that the architect is suffering largely because of the mistakes of the past. He has not lived down his undeserved reputation of being an artist who designs elaborately ornamental and rather expensive buildings, and invariably lets his client in for a large bill of extras. Unhappily there are such architects, but they form a very small proportion of the profession. Let it be stated that the average architect is not a particularly great artist but rather a competent man of affairs, trained to do a practical job of work. He does not wish to invade the special province of the civil engineer, but he does claim to be competent to plan and superintend the erection of buildings that shall not be an offense to the sight, as many engineers' buildings are.

The Government has made a big mistake in not employing architects more fully. What the consequences may be, who can say?

LIGHTING IN ARCHITECTURE

By Stanley McCandless

ASSOCIATE PROFESSOR OF LIGHTING, YALE UNIVERSITY

Not long ago I dropped in on the Editor of THE FORUM to ease my mind of pent-up feelings. I had just come from an architect's office where I had been struggling to find the answer to a lighting problem. It was one of those round-peg-in-square-hole situations that raised the blood pressure because there seemed to be no right solution. The feeling of inadequacy (self-admitted) expresses itself most nat-

urally by shifting the responsibility to some person or practice that may or may not be wrong. The Editor listened patiently to my tirade and then tossed the ball back by asking me to write it all down so that his readers might sympathize too.

To sum it up in a sentence, something has to be done about the architect's approach to lighting.

Artificial light, when used to give only

simple illumination, no longer presents a problem. Edison developed a source of light that provides economic and effective illumination. But the extensive use of artificial light is increasingly affecting—and in some cases even dictating—architectural design.

How many architects will take the time, and have the special training to investigate these new possibilities? Illumination

is the problem of the illuminating engineer, who by training and profession deals with the technical and scientific aspects of lighting. He cannot be expected to help the architect to any greater extent, for example, than can the structural steel engineer, in solving the technical problems involved in the process of designing a building.

The simile is inadequate, for light has far more to do with design than steel. Lighting bids fair to affect and alter the present approach to architectural design more fundamentally than the advent of steel construction dictated a form different from stone and brick architecture. A lighting fixture using electrified candles is about as sensible as an H-column camouflaged by a Doric shaft and cap. Both have their place no doubt, in a transitional era, but both present a picture of misapplication that has no part in fundamental architectural design.

Few architects today would, in designing a building, ignore either the characteristic properties of steel construction or the available forms of steel members. Yet this is precisely the practice of the average architect with regard to the characteristics of light and the available lighting equipment today. What is the result? Elaborate, expensive, uneconomic, pretentious candle-light architecture.

In all fairness it must be said that many architects are searching for an answer to this problem. Just how can light be used most effectively in design practice, what are its characteristics, and why has not equipment been developed to meet the most immediate architectural demands? A brief statement of fundamentals may help to answer these questions. It can also serve as an outline for an educational program.

FUNCTIONS: How can artificial light be used effectively? Due to control, it can in many ways extend and even exceed the benefits of natural illumination.

a) *Visibility.* There must be light in order to see. Good visibility of all things under natural illumination is an exception. With artificial light it is possible to provide the amount of light necessary and desirable for different purposes and to choose a color which will promote clear seeing.

b) *Comfort.* Fatigue is caused by inadequate as well as excessive brightness in the line of vision. Strong colors in light soon become tiring. Extreme contrasts, such as glare sources on the one hand and monotony of even illumination on the other, tend to cause discomfort. Flickering sources and rapid changes of light are distracting, but on the other hand static lighting may cause restlessness. These are liabilities that even nature is guilty of perpetrating. They can be avoided with controlled artificial light, so that even greater comfort than we are accustomed to should be expected.

c) *Composition.* Design is basically the

process of selecting and arranging visual elements—brightness areas, colors, and forms. Under natural light we can control only things and their relationships, not the illumination that makes them visible. With artificial light it is possible to reveal objects in proportion to their importance. It is possible also to determine the general and specific levels of brightness, to tone in color, to emphasize or subdue, to change the arrangement of accents, or to shift from one extreme to the other.

d) *Atmosphere.* The "feel" of a visual pattern of architectural forms can be approached much as it is in the theater. The amount of illumination creates gaiety if bright, depression if dim. Color makes a room cold or warm. Detail is gay, mass impressive. A change in any of the above provides a dramatic coordination between visual effect and changing purpose.



CHARACTERISTICS: The use of light is conditioned by optical laws. Every architect has some idea of reflection and absorption and, by training, more than casual acquaintance with the physical nature of color. A little experience in the application of these laws is just as necessary as it is in designing structural supports to conform to the laws of gravity. Engineers can generally provide a solution to any complex application of these characteristics.

a) *Distribution.* Light radiates from a source (a point) in all directions in space in invisible straight lines. When it strikes an object some of the rays are reflected, some are absorbed, and if the surface is transparent or translucent some of the rays are transmitted. All practical sources send out more rays in some directions than in others.

In spreading out through space the rays become less dense. Thus the illumination in foot-candles on a surface 10 ft. from a source is one-quarter of the illumination on a surface at 5 ft. distance.

Surfaces facing the direction of the light rays are brighter than those receiving the rays on a slant.

b) *Reflection.* When a ray of light strikes a mirror or a polished metallic surface it is reflected at the same angle (with respect to a perpendicular to the surface at the point of incidence, as the incident ray makes with this perpendicular): *regular*.

By etching the surface to a more or less degree the reflected rays are slightly diffused but follow the general direction of regular reflection: *spread*.

When rays strike a surface like blotting paper or flat paint, consisting of microscopic planes at all angles to each other, they are reflected in all directions regardless of the direction of the incident rays: *diffuse*.

Mixed reflection takes place when light strikes surfaces with enameled or varnished

finishes. Some regular and some diffuse reflections are present.

Selective reflection indicates that pigments can reflect only that part of the incident light which is of their apparent color. The rest is absorbed. A red pigment looks black under a green light; so that there must be some of the same color in the light and the pigment it illuminates if the eye is to be conscious of color at all. The strength or brilliance depends upon the degree of similarity.

Reflectors of all forms and materials are used to gather and redirect the natural emanation from a source in useful directions.

c) *Refraction.* When a ray of light enters a dense transparent material like glass, it bends toward a line drawn perpendicular to the entering surface at the point of incidence in proportion to the degree of density of the substance and away from this line to the same extent when it emerges. Thus lenses and diffusers alter the straight line direction of the ray and also tend to absorb a limited portion of it. Various shapes and combinations of lenses are used to create special beam patterns and projected distributions.

d) *Color.* White light consists of a balanced proportion of all visual wavelengths. Each hue can be assigned a wave length of visual radiant energy in the color spectrum. Tints consist of dominant zones of the spectrum mixed with smaller amounts of other wave lengths or white.

The *primary colors* of light—red, green and blue—when added together in equal quantities on a white surface make white light and when varied in proportion can produce within limits almost any recognizable tint or shade.

Selective transmission takes place when rays pass through a color filter. Only those of the apparent color of the filter are allowed to pass. The others are absorbed.

TECHNICAL ELEMENTS: Equipment and the methods of use must be selected or developed in view of the characteristics of light to provide a practical and efficient solution to a lighting problem. An orderly procedure is to consider the source, the instrument or fixture, the composite distribution of all the equipment and the object lighted.

a) *Lamps.* Wattage is roughly proportional to intensity in incandescent lamps, but the new fluorescent tubes are from two to four times as efficient as tungsten lamps. These tubes create color directly whereas incandescent sources require filters and are correspondingly less efficient. There are over four thousand shapes of ordinary lamps, generally of a size proportional to their wattage. All are equipped with varied filament forms; some approximate a point, while tubes gives the distribution of a line source.

The recent development of special shapes of lamps with inside reflecting surfaces, similar to the new "sealed beam" automobile headlight, opens up a vast new field

where the only apparatus involved is a socket. They are made to give special distributions with high efficiency.

All sources are subject to almost immediate switch control but only the incandescent lamp can be varied in intensity by means of a dimmer. Wiring must be adequate to supply the maximum wattage contemplated.

b) *Instruments or fixtures.* Only reflector lamps are designed primarily to deliver light in a useful direction without supplementary equipment. Instruments consist of optical equipment, to be used with a particular lamp as a rule, to give a specific distribution. Fixtures are exposed decorative units generally designed for period and to house optical equipment. Unless they perform some function in delivering light where it is wanted they have nothing to do with lighting. Even space-filling abstract sculpture (a charitable name for electrified archeology, which some call a fixture) should be made to *work* if it houses any kind of light source.

Instruments should not be bright when viewed at a normal angle, particularly if seen against a dark background. The contrast should not be over 100 to 1, better 10 to 1. Color can be given by the use of glass filters. The chief characteristic of an instrument lies in its ability to give a specified distribution. In other words the form of light output desired should determine the type of instrument used. One instrument may give a variety of distributions, colors and intensities through the combination of several sources with different optical equipment on separate circuits in the same housing. In some cases dimmers may prove practical to provide remote intensity control.

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DISTRIBUTION IN SPACE: The instruments or fixtures and all reflecting surfaces provide a composite distribution of rays of light in a space. The amount, color and directions of the rays from each instrument combine to light not only walls and ceilings but more particularly to fill space with invisible illumination so that people and objects in that space are seen in a definite manner.

The lighting layout (the wattage, color, location, direction, distribution and control of all the instruments) is evolved from the design of space and surface illumination. To the extent that lighted surfaces contribute to the illumination of space they must be treated as instruments. It is difficult to judge the exact weight-bearing characteristics of a steel beam simply by looking at it. In the same respect is it hard to picture the distribution of invisible rays of light in space; but the trained eye soon learns to make provisions which the engineer can convert into working drawings and specifications. A study of photographs of artificially lighted rooms and buildings shows how little relation the lighting layout bears to the rendered

drawings the architect uses to indicate what he hopes to obtain. The architect should be able to indicate the amount, color and distribution of light he desires in any portion of a room or on any exterior detail. Eventually he must adapt his approach to the design of spaces and forms to incorporate the natural distributions of available equipment. He must learn how he can produce 1) even, 2) graded, or 3) specific illumination patterns in the proper degree of brightness and color.

OBJECT LIGHTED: Traditionally architecture is designed to look well under (the uncontrolled conditions of) natural illumination. The bright, warm, directional, shadow-producing rays of sunlight combined with the cool diffusion of daylight constantly varying in brightness and direction during the day and altering from day to day, establish a standard that can only be simulated approximately even on the stage. Puny artificial sources (compared to the sun) must be multiplied in number and located relatively near the object to be lighted. As a result, if architecture is to be seen properly under arti-

ficial light, it must be designed in view of these limitations. Beyond this, due to control, the mute, static forms of architecture can almost be made to live—to create new visual compositions with each change of light. Brightness is the result of illumination and reflection from a surface. Color is the result of the color of light and the selective reflection from pigment. Visual composition—light and shade, shape, position and texture—is determined by the directions and densities of light falling on reflecting surfaces.

This outline is an attempt to clarify and organize the approach to the use of artificial light in architecture. Its inclusive nature indicates an entirely new conception of architectural design—one which must exist with complete conviction in the mind of the architect before he can hope to use it successfully. It must be instinctive—a feeling.

This vast new horizon in the field of design stands as a challenge to the architect. May he be inquiring and courageous, because he only, by training, profession and disposition, is equipped to exploit this opportunity.

ART AND AMERICA

By Archibald MacLeish

Foreword to a program of the Cranbrook-Life Exhibition of Contemporary American Painting, Bloomfield Hills, Mich., May 17—June 2, 1940

An art is not something which requires only an artist. An art is something which requires an artist living in a land. It is something which happens between a man and the earth he lives on. It needs an understanding. And it takes time—it takes a long time, many generations—for a new people and a new land to understand each other. It takes time because the understanding between a new people and a new land is an understanding in terms of time: an understanding by habit, by repetition, by expectation, by use . . . most of all by use. It is when the people and the country have put their mark on each other, so that the country is a likeness of the people and the people are a likeness of the country, that they understand each other. And it is only then that a new country has an art of its own.

The beauty of a country cannot produce this understanding—beauty in itself and detached from its habit and isolated from its uses. A savage and unused country is always a beautiful country but the art it produces is the art of the traveler, the art of the visitor, the art of the postcard. Until they cut the hay on the South Fork of the Shoshone so that the scent of men and of seasons and of uses began to gather in that place, it was a wild valley for a painter of landscapes, an Englishwoman or a Dane. The countries which have produced the arts which are so surely theirs that they could have existed no-

where else are not the countries like landscapes. They are China, where the habits of men and of land make one habit; and Japan, where the men and the land have shaped each other so that each is recognizable in the other; and Italy, where the air is like the voices; and England, where the weather and the light are in the words, so that English poetry, wherever it is written, carries the seasons of that island.

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There was no possibility of an American art until the continent of America had been used by the people who came to it and had itself used them. It was a strange land to all of them: stranger than we remember. To come from Scotland of the black hills and the black sea and the sun silver with rain; or from France of the February spring and the slow evenings and the imperceptible summers; or from any part of Europe; or from beyond the Mediterranean in Asia—to come from any of these countries into this continent of enormous light and of violent spring and of thunder riding up over a whole valley and of wind from the west like a sea, and of sun, of pure sun—to come from any part of the familiar earth into this earth where everything was unfamiliar—the winds, the signs of weather, the time of year—to come from the old countries to this new country was a strange and difficult thing. And it was not until the

strangeness had worn off—not until the dead had been buried here, making their mute commitments to the earth, and the look of the land had been changed, and the trees cut, and the prairies fenced, and the town built, and the roads made and then made again and then left for the new roads—not until the men too had changed in their look and in their voices and the words they used and the way they walked—it was not until the strangeness had worn off, and the land had come to look like the men and the men had come to look like the land, that an American art was possible.

Which is why American art is such an art as we see now in the pictures brought together at Cranbrook near Detroit in the great basin of the Lakes. The America which men have found to paint is not the America of the Sierra Nevada or the untouched plains or the New England forests, beautiful as these things are. The America which men have found to paint is the America which the men and the land have made between them: a country altered by a people and a people whom a country has altered: an earth marred by men but made alive: faces changed and in some way saddened but belonging here. A few American painters have done this before. There are pictures of Winslow

Homer and of Eakins which were painted at that difficult point of perception where the lives of men cross the meaning of a country—pictures painted in the perspectives of a land. But they are not many. And it is only now that a generation of painters has appeared to whom the perspectives of the land are truly and easily familiar, so that men and women take their places in the pictures of this continent as before in the small green valleys of Botticelli or on El Greco's iron earth.

That this American art is a great art as such things go is not asserted. Its masters are not masters of the stature of Piero della Francesca. But that it is an American art, an art truly American, an art from which a great American art could grow, no one will seriously deny. If it is true, as it is true, that the art of painting is an art which must inhabit the earth, and if it is true, as it always has been true, that the beginning of a new art of painting is a new understanding of the relation of the earth and men, then this is the beginning of a new art of painting. Because an understanding has been found. For the first time we in this country have seen ourselves against the continent in which we live. We have seen that we belong here. And we know now what the word America could mean.

PURPOSE AND FORM IN ARCHITECTURE

By H. S. Goodhart-Rendel

PAST-PRESIDENT, ROYAL INSTITUTE OF BRITISH ARCHITECTS

An excerpt from a paper on "Architectural Education," read before the Architectural Society, Liverpool University

Now almost all architecture has to have a purpose, otherwise it would never be called into being. Architectural stage settings and memorial monuments are the only modern works of architecture I can think of that are useless practically; all others have to shelter man or to provide convenient space for some definite human requirement. It is usual to propound as an architectural law that buildings must serve their several purposes as exactly as possible, but I think the law is less an architectural one than one of common sense. If a building depended upon serving its purpose for its architectural beauty, the beauty would unfold its wings and fly away the very moment the building was used for some other purpose than its original one. Obviously it does not do this, since very likely no sign of the perversion will be noticeable by the eye at all. . . .

You all know what happened in the period when architects seemed only able to build parthenons. Most of the parthenons they built began very soon to grow chimney-pots and break out with windows and doors in unexpected places. This served the architects right. The first law in every building is that it must fulfill its purpose as completely as possible. This

law, however, is to the architect not so much a law of art as a law of rational conduct. It does not take him very far in his pursuit of architecture. He will not want to build parthenons that are not parthenons, but he will want to build something that satisfies the part of his being to which the original Parthenon makes its appeal. As an architect he will want to produce architecture.

Make no mistake about it, a building can be perfectly convenient, perfectly solid and perfectly unobjectionable in appearance without having any claim whatever to be a work of architecture. . . .

Now, how is this architecture to be studied? First, I think, by cultivating the greatest possible sensitiveness to the language of form. Every shape and every proportion you use are highly charged with emotional significances. You will never be able to analyze those significances exactly or to turn any particular one on with a tap. But if you look in the right way at architectural designs, those of others and those you make yourself, you will become able to recognize what, for want of a better word, I must call their moods. You will notice increasingly as you go on that some designs look stern,

others gentle, some serious, others gay, some healthy, others as if they had indigestion. Those of you that have the habit of drawing people and animals must know well how a very small change in a line or shadow can change the whole expression in a face. You arrive at what you want by concentrating your mind upon it (you know exactly what it is, although you could not express it in words) and you experiment until something clicks that tells you you have succeeded. The great architects have been as sensitive as this in arriving at the expression of their architecture. Architects not great do not get so far, but nobody unresponsive to expression in this sense is an architect at all.

I have put this cultivation of sensitiveness first because I think it smooths the way for the study of planning. Planning is not only the basis of architecture; it is architecture in length and breadth. Design in it is like design in a musical work—you cannot see it all at once; you have to move through it, piling up your impression bit by bit. Many people never may move through your building, but may see it only from the outside. But, even though the direct beauty of your plan may be unperceived by them, its beauty will appear indirectly in your elevations, unless you have deformed those by refusing your plan its proper expression. . . .

Behind everything you do must be the very best and most painstaking thought of which you are capable. As a nation we do not love either logic or clearness, and are apt to think rather admiringly of the artist as a temperamental muddle-head. . . .

What I urge upon you now is never to lose sight in your art of the necessity of clear, painstaking, exact thought. Men of action may sometimes get on without it, our politicians frequently try to get on without it, but to artists it is always indispensable.

THEY SAY—

"Success in architecture is to have created at least one beautiful and lasting thing."—EDGAR I. WILLIAMS.

"The automobile industry was developed from a new conception of transportation, not in a search for new uses of steel and glass. The radio industry grew out of a search for a new mode of sound transmission, not from a hunger for utilities expansion. Housing, on the other hand, has been too often approached not for the purpose of providing better types of shelter, but out of a desire to find new ways for using materials; to find methods of hastening land sales; to find sources of employment, means of reviving the heavy industries, and methods of clearing slums. Complex enough in itself, the housing problem has been lost in the confusion of all sorts of other problems. It has been used in an effort to solve everything else."—MILES L. COLEAN.

THE DIARY

Henry J. Saylor

Thursday, May 16.—This is supposed to be the time of year for "light summer reading." That annual respite may in time return, but in its place this year a salutary substitute is found in the English architectural journals. Here are reflected civilization's muscular reflexes in behalf of self preservation. A particularly poignant one is in *The Architects' Journal* (London) for April 11. The annual Ideal Home Exhibition, for which it is impossible to provide air raid protection for its customary attendance of 30,000, is carried out this year on paper. One exhibit is a design for a \$7,500 house that shall recognize wartime shortages and restrictions—little if any timber, provision for black-out and air raid protection, mounting costs—and yet be something that a client will be content to live in after the war. One of its most ingenious features is an inspection pit in the garage floor, covered for the present with an armored slab to make of the pit a shelter from bombs that are not too destructive.

Saturday, May 18.—A clipping arrives from a Miami newspaper bringing a cloud into what might otherwise have been a pleasant day. The Florida National Bank and Trust Company advertises under a catch line, "Architects Attention." Sketches are asked for an entertainment project "which a group of our customers propose to build." A prize of \$500 is promised the architect whose sketch is most acceptable "and his office will be considered for future employment in developing the completed plan." In a word, a competition without any of the professional safeguards. If the Miami bank were to advertise instead to the surgeons, offering a prize for what might seem to it the best scheme for a contemplated operation upon one of its officers, would it expect any replies worthy of serious consideration? Some softly spoken Floridian should point out to the Miami bank that architects too are professional men and are not likely to enter any such unregulated, free-for-all, imitation of a competition.

Or are they?

Louisville, Ky., Tuesday, May 21.—Arrived here just in time to hear the last of the morning session, 72nd Convention, A.I.A., when Mr. Maginnis was reading his characteristic and deeply significant address. I was sorry to miss the ceremony of advancing members to Fellowship, which occasion seems to have been shuffled about considerably in recent years. A

business session seems rather less appropriate to this ceremony than at the time of the final banquet, the president's reception, or one of the more formal and colorful occasions. Twelve men were honored this year (See page 14).

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A drive around Louisville was on the program for this afternoon, but George Howe, Howard Myers and I accepted Foster Gunnison's invitation to cross the river to New Albany to see his plant for the prefabrication of houses. Formerly a furniture factory, the large plant has been transformed into a compact and highly efficient production line. Cars of lumber come in at one end, packaged houses go out the other. Structural forms and plywood surfaces are cut and hot-pressed, doors and windows are put into their wall panels, complete with hardware and screens. So thoroughly are the technical operations broken down that untrained farm boys from the countryside quickly learn their individual tasks and keep the assembly line moving. Whether hot-pressing resin binders between the raw sheets of veneer, putting hardware on doors, filling wall panels with insulation, spraying varnish on floor panels, or wiring a heating unit for thermostatic control, each operation is simple in itself and contributes to an accurately sized, craftsman-like element, ready to be assembled on the site. The parts for one complete house go into a motor truck, or for two houses into a freight car, to roll away and be assembled in a day, if necessary, on a foundation already built by the local dealer. A complete house for \$2,750, plus cost of lot. There are few alternates in the type—three colors of roof, oil or gas fired heater. The dealer furnishes, in addition to the foundation, plumbing piping and fixtures, the Bx wiring; all else is in the package, down to heat ducts, lighting fixtures, soap dishes and window boxes.

At eight o'clock this evening the president's reception and dinner dance at the Pendennis Club was a colorful and gay affair, in keeping with traditions of the South, and as yet unshadowed by news of the deepening cataclysm in Europe.

Louisville, Ky., Wednesday, May 22.—A regular business session, following the president's address, in which the machinery seemed to roll on well-oiled bearings without quite so much of the traditional arguments over if's, and's, but's and semi-colons.

Group luncheons had been scheduled, in which tables were reserved for officers, directors, honorary members, committee chairmen, Producers' Council members—in fact, so far as I could learn, for everyone except the regular delegates. Nevertheless, the delegates did not go hungry.

As a result of the explosion ending last year's Convention, the round table idea was put into practice for this afternoon and far into the night, and worked very well. Everyone had a chance to speak his mind on the particular subject that was irritating him at the moment, and yet the various chairmen presiding seemed to have arranged for enough leading speakers to keep the argument from wandering too far afield. Miles Colean presided over "The Architect's Equipment for Housing"; Edmund R. Purves over "The Relation of the Architectural Profession to Society"; William L. Steele over "Rural Practice"—which, it was quickly explained, was not to be interpreted as too rural; Arthur B. Holmes over "The Fields of Architectural Practice"—Federal, State and municipal, schools, local housing authorities, real estate field, land and home development, appraisal and property management; Frederick Bigger over "Regional Enhancement"; and Charles F. Cellarius over "Incomplete Architectural Services."

In attempting to dash from one round table to another, I succeeded in missing much of the interesting discussions and practically all of the final conclusions, suggesting perhaps the one drawback of the round table scheme. One is obliged to make up his mind to specialize, else he might as well go out to the movies, which I suspect was a choice not entirely overlooked.

Louisville, Ky., Thursday, May 23.—To summarize for the whole Convention the conclusions reached yesterday by the various round table groups, the chairmen were called upon, one after the other to report. A perfectly logical scheme, but one calling for brevity. Arthur Holden led off by repeating almost verbatim all that was said in his group, and the chairmen who followed him were thereby invited also to give good measure. The round table idea, therefore, might well be hedged in a bit next year by requiring summaries not to exceed three minutes by the stop watch.

Frank Voorhees presented to the Convention Dr. Constantine E. McGuire, economist, under whose dark forebodings the delegates slumped lower and lower in

chair and spirit. Mr. Maginnis confided to me afterwards his indecision as to what he had better do first—poison his family or shoot the cook.

In an afternoon darkened by rain and threat of worse, our hosts conducted us by buses to a horse show at the Rock Creek Riding Club. Neither the weather nor the morning's jeremiad were effective in dampening our enthusiasm for the horsemanship of ten-year-old riders and the flower of the famous Kentucky saddlehorse breed. In fact, one might go farther with this subject of dampening, and record that to the three or four hundred visitors, during the late afternoon and as an accompaniment to a barbecue dinner, the club stewards served just twenty-four hundred mint juleps. Having in mind the local tradition that one julep should occupy one person for one hour, it will be seen that architectural appreciation of the Bourbon in its native dress might almost be said to have gotten out of bounds.

Louisville, Ky., Friday, May 24.—A more pronounced unanimity of opinion in A.I.A. Convention history does not readily come to mind. No argument, no parliamentary challenges, no invective—just peace. I was particularly impressed with the Convention's decision on one matter: under Part II of the Standards of Practice code, Section 7 had been devised in painstaking committee work, had been studied and accepted by the Board, printed in *The Octagon* and officially urged for adoption. Two or three delegates suggested that this paragraph might endanger the whole fabric of regulated competition, built up after years of struggle. Without defense and without further talk the Convention voted unanimously to delete the whole paragraph. Either the architect is tired of strife or he has developed a new quality of sweet reasonableness.

Alvar Aalto, unexpectedly introduced by Julian Levi, brought the Convention to its feet in spontaneous appreciation of a great architect and his indomitable Finland. Within a month he will be sailing, to help direct the rebuilding of that land in which hundreds of thousands of his countrymen have seen their homes dashed to ruin by the invader's bombs.

Far too much had been scheduled for this morning session. That seventeen featured speakers could set forth each his architectural school's philosophy and techniques, within two hours squeezed from a business session, seems to indicate a dizzy optimism on the part of the program makers. Pre-printing the papers and leaving an hour or so for free discussion would perhaps have taught most of us a lot more than we learned of present-day school methods.

After a joint luncheon of the A.I.A. and Producers' Council, Richmond Shreve introduced successively four eminent technicians, with the purpose of conveying to the architects, not selling talk but a frank

exposition of the characteristics and also the limitations of certain comparatively new materials—glass block, exterior decorative metals, architectural plywood, and plastics. It was a hot afternoon, the ballroom chairs designed for looks rather than comfort, and the supply of technical information too great for easy absorption. When one speaker called upon the Negro attendant to switch off the lights for a film showing, the attendant had to be roused from a nap—and his were not the only closed eyes in the room. As a matter of fact, I doubt the wisdom of combining education in materials with all the other matters which a professional convention must encompass. There was talk among the delegates that four days were too long—for most of the travelers a week or more away from the office. With the packing of more and more scheduled meetings into the program, these conventions are in danger of losing their greatest appeal, which is the opportunity to foregather with one's friends while seeing something of a community and its architecture. The enthusiasm with which most of the men approved next year's tentative plans for a convention in the Yosemite was a clear hint as to what brings out large delegations.

However that may be, the final banquet this evening held a disappointingly small number of survivors, and the pall of Europe's holocaust hung over the banquet hall. Even the singing of Stephen Foster's songs, the good offerings of an able chef, the dialect stories told by Alabama's William Warren—none of these, nor all together, was capable of bringing the spirit of the occasion back to the high pitch of earlier sessions. President Bergstrom's announcement that the hopes and plans of years regarding the new administration building had finally brought about a signed contract for immediate building—a piece of news that might have brought a normal convention to its feet cheering—induced only a feeble bit of applause.

★

Louisville, Ky., Sunday, May 26.—Lingering on after the Convention had left behind it only the new Board to deal with unfinished business and organize the coming year's efforts, Conway Todd and I motored over the highways and byways of the Louisville we had been too busy to see. Like so many of our larger cities it carries a heavy burden of architecture that could at best have pleased only those who designed it forty or fifty years ago. I found myself thinking I may have erred when I turned away from the fork of the road that would have led to landscape architecture. For Louisville's beauty lies almost solely in its great system of parks. What the Olmsteds and their associates created at the end of the last century gains in beauty with the years; what their architectural contemporaries created looks

tawdry and foolish today. The landscape men were sure of their results then, and they are now. The architects of that day were no less sure they were right than are we of today sure that they were wrong. Parks and gardens—if decently maintained—will continue to delight the people of 1980; but what will they think of our buildings?

Tuesday, May 28.—Try your own arrangement of this on the saxophone, in the key of F Minor: "A golden key flashes. Three thousand miles away, on the azure waters of San Francisco bay, skies blaze with iridescent light. A president speaks. The star-embroidered curtain of Pacifica sings in the gentle west wind. A breathtaking modern ballet creates the rhythm of the world's pageant of 1940 . . . and the show is on. The dynamic panorama of the Americas unfolds itself to millions of visitors. For one hundred and twenty-eight days and nights, the Pacific Coast is host to the world."—Lyric by Golden Gate's Magazine Division.

Friday, May 31.—Esmond Shaw, assistant art director at Cooper Union, tells me he has been putting his first year architectural students over some new jumps. He has had the boys make scale models of houses, but instead of seeking a merely pictorial representation in cardboard and glue, he has required actual construction in wood and cement. With sill anchored to foundation, joists properly notched and nailed to the sill, rough floor, paper and finished floor laid, insulation put between studs and between rafters, the model making teaches construction first, design as its offspring. Of course one cannot go all the way in these half-inch scale models; masonry is simulated in sculptural plaster, rock wool insulation in cotton, but the wood construction at least is a faithful miniature. Interior wall and floor treatment, and suitable furniture, are worked out and are inspected through interrupted walls and roof. Shaw credits Gropius with the basic philosophy underlying this experiment.

Monday, June 3.—The old adage to the effect that an architect, to make the headlines, must jump out of a high window or shoot his wife, was disproved today. Lorimer Rich made the headlines, portrait and all, in company with a captain of industry and an eminent jurist. Syracuse University conferred upon him the degree of Doctor of Fine Arts. The citation will be found on page 64. When an architect is publicly honored, that is news.

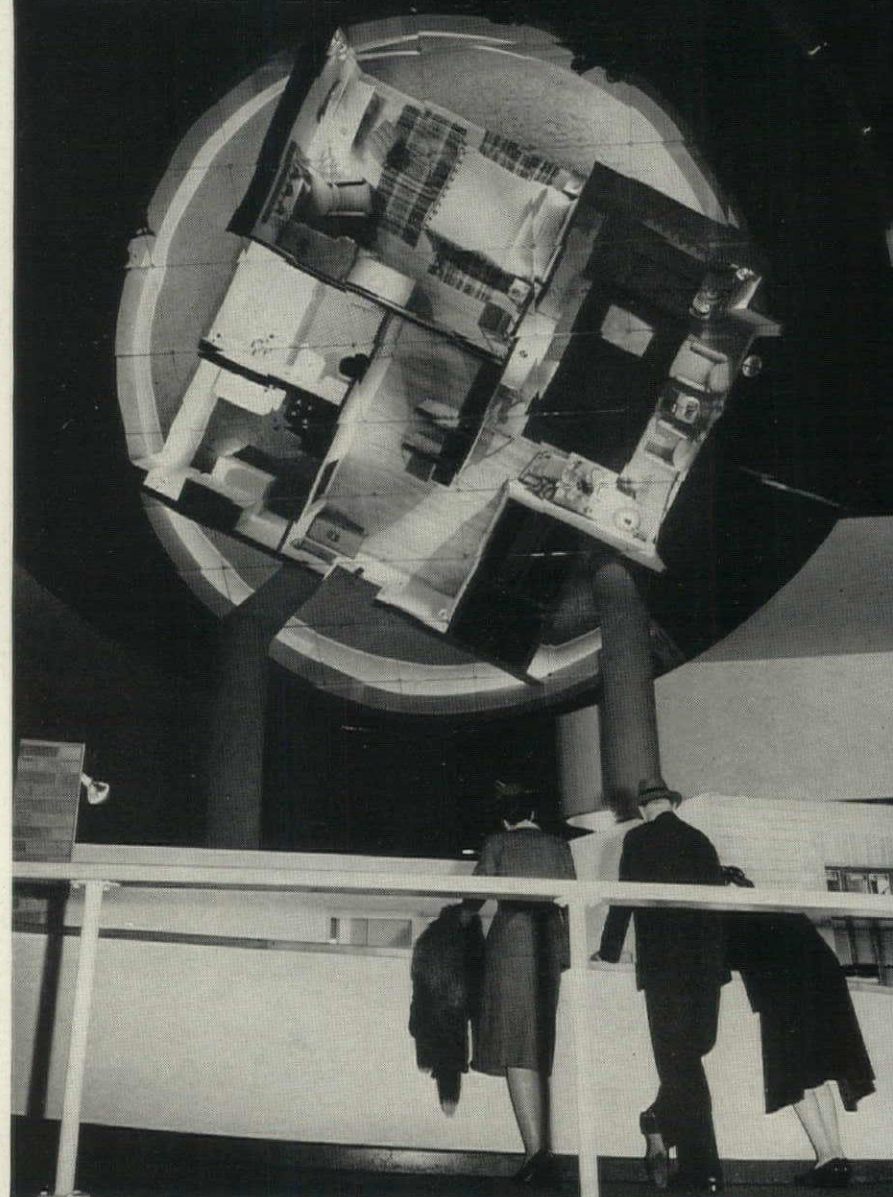
Monday, June 10.—Former Governor Walter Kohler of Wisconsin, shortly before his death, said that in spite of plumbing fixture offerings in pink, red, green, blue and yellow, the American homeowner holds fast to white as his first choice.

NEW YORK WORLD'S FAIR 1940

Text and captions by George Howe

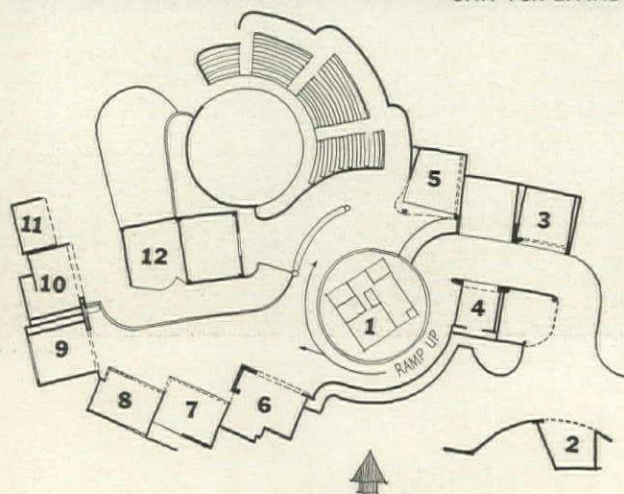
In a serious attempt to "catch up" on Contemporary Design, last year so sparsely represented in The Town of Tomorrow the new Fair presents "America At Home." Your commentator has chosen for this issue of THE FORUM those exhibits which appeal to him as most deserving to be called "at home." Several of the rooms achieve an interest and distinction, if comparison is in order, beyond anything found in the Metropolitan Museum potpourri. If the Metropolitan show in general appeared to make its appeal to cafe society that at the Fair takes to the highways of the prosperous Sunday driver. For this reason its direction is more realistic, but it is inevitable that a display of this character should be rather remote from life. As some of the titles, "Parents' Retreat," "Winter Hideout" and "Retired on an Income," suggest, the theme is escape rather than participation. The "Unit for Living," though perhaps necessarily the least interesting of the designs as personal invention, probably represents the closest approach to the requirements of the industrial application of "Design for Living" in America.

In "America At Home" first honors in design go to Shepard Vogelgesang, who laid out its general plan. As its name suggests the exhibit consists of a number of interiors, by well-known architects, designers and decorators from various sections of the country, forming a central group surrounded by industrial domestic products. Mr. Vogelgesang has created an interesting irregular composition, with separate rooms distributed along a system of curving ramps (see plan below), meandering about a "Unit for Living." A gigantic mirror suspended over the "Unit" gives an interesting bird's-eye view of the three-dimensional plan in reverse (see illustration above). The plastic treatment of the contents of the building succeeds in making a space composition of an otherwise meaningless void. Allowing for the weakness inherent in exhibition designs in general, the present show is one of the best we have seen and demonstrates a distinct advance in the free use of furniture elements as an integral part of architectural composition. The preponderance of examples of architectural form as distinguished from merely decorative is important and should give a new impulse to sound interior design. The success of the undertaking is due in no small measure to the able direction of Louise Bonney Leicester. The other major new exhibit is that of the Federal Works Agency, a striking example of skillful display technique, perhaps too striking. The subject matter, which is of paramount importance, is in many cases submerged in a complexity of arresting forms which tend to confuse and distract the mind. At the same time it must be said that too much fun in our Government displays is a valuable corrective to the overpowering dullness which has prevailed most of them in the past. It is easier to restrain exuberance than to breathe life into cloddishness. The mass of accomplishment represented by the structures displayed is impressive, as it is intended to be.



Kossel

"UNIT FOR LIVING" reflected in Mirror



1. "UNIT FOR LIVING," Gilbert Rohde, Industrial Designer. 2. "WINTER HIDEOUT IN THE ADIRONDACKS," Russel Wright, Industrial Designer. 3. "BEGINNER'S LUCK," Theodor Carl Muller, Industrial Designer. 4. "SEVEN DAYS," Virginia Conner, Decorator. 5. "PENNSYLVANIA HILL HOUSE," George Howe, Architect, Wharton Esherick, Sculptor. 6. "LIVING KITCHEN," Allmon Fordyce, Architect. 7. "SOUTH OF THE GOLDEN GATE," Harwell Hamilton Harris, Designer, Carl Anderson, Associate. 8. "NORTH PACIFIC SLOPE," John Yeon, Architect. 9. "RETIRED ON AN INCOME," Albert Pierce, Architect. 10. "PARENTS' RETREAT," William Muschenheim, Architect. 11. "MUSIC CORNER," John Vassos, Industrial Designer. 12. "COFFEE AND CIGARS AT 16-B," Michael Hare, Architect, John B. Manzer, Interior Designer.



LIVING ROOM

Richard Averill Smith

BEDROOM



Richard Garrison



Table closed . . .



. . . set for two



. . . set for four

D. Kessel Photos

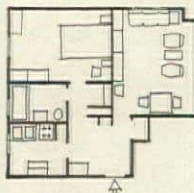


D. Kessel

"UNIT FOR LIVING"

Gilbert Rohde, Industrial Designer

As the plan and illustrations show, the rooms are well composed, with good circulation and adequate wall space for furniture. The entire unit duplicates one of the typical plans used in a New York City public housing project. The general arrangement and design are an example of how much a competent technician can do within narrow limitations of space, cost and personal freedom in composition. The furniture elements, with their simplified forms and expansible utility units, show an advance in commercial production. The color-scheme is low in key and more or less monochromatic to fit the needs of a necessarily rather accidental accumulation of objects.

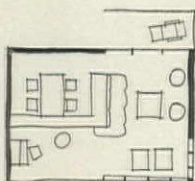


"SOUTH OF THE GOLDEN GATE"

Harwell Hamilton Harris, Designer;

Carl Anderson, Associate

Mr. Harris's and Mr. Anderson's room, with its outside terrace visible through a large window opening, is one of the best examples in the exhibition of the integration of architecture, materials, furniture and lighting in a homogeneous composition. The arrangement of dining and living units in a single room is graceful and practical. The use of redwood walls, the doors and floors covered with matting, rattan chairs, black lacquer table and sash, makes a subdued but lively color scheme in harmony with the plan.



D. Kessel; right, Richard Garrison

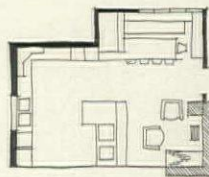




"LIVING KITCHEN"

Allmon Fordyce, Architect

Mr. Fordyce's satisfying arrangement of kitchen, dining room and open-fire grill, all in one, shows the same characteristics as Mr. Harris's composition in the integration of architecture, materials, furnishing and lighting. The use of color in the kitchen, both in the equipment and in the natural wood finish of the cabinets, serves to bridge the gap between the work space and the areas for dining and relaxation. Open shelves above cabinets create the proper degree of separation between the two main units, and provide an admirable example of the combination of utility and pleasing appearance.



D. Kessel Photos

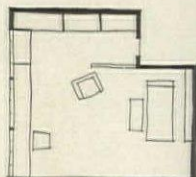




Richard Averill Smith

"PARENTS' RETREAT" William Muschenheim, Architect

Mr. Muschenheim's room shows a severe restraint and architectural sense in the composition of the elements of utility and comfort with the space of wall and window. The use of black and white with subdued relief in the color scheme suggests release from a jitterbug atmosphere elsewhere in the house, but it may be questioned, without critical intention, whether the somewhat mechanistic quality of the design will meet the taste of the public to whom the exhibition is supposedly addressed.



D. Kessel

D. Kessel



"PENNSYLVANIA HILL HOUSE"

George Howe, Architect

Wharton Esherick, Sculptor

The plan of this room is conceived by the architect as a setting for Mr. Esherick's spiral stair (which is taken bodily from his workshop) and furnishings rather than as a simulation of reality. The peculiar quality of the sculptor's products comes from the fact that he actually lives and works on a Pennsylvania hillside among the trees—oak, hickory, walnut and cherry—which he cuts down, seasons in his lumber yard, and tools with his own hands. Every form is a result of his personal sense of the direction of the grain and natural color value of the wood, and every surface is determined by his feeling for the infinite variety of the sense of touch. The pottery, textiles, rug (invisible in the illustration) and books, which provide color accents, are by local craftsmen. Obviously this work, which is the product of individual artists, cannot well be compared to designs adapted to the industrial process, nor is it within reach of the average American householder.

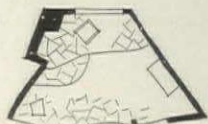
Richard Garrison



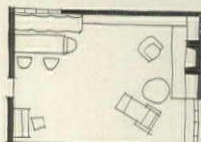
"WINTER HIDEOUT IN THE ADIRONDACKS"

Russel Wright, Industrial Designer

Mr. Wright's venturesome excursion into the wilds is perhaps less successful than the attacks on the cocktail bar and the breakfast table which have made him famous. The Adirondack Log Cabin Company, Majeska Inc., and Mr. Albert G. MacInnis, seem to lack that delicate sense of craftsmanship which distinguishes the work of Mr. Esherick (see opposite page), so that the designer's gift of invention is obscured in the execution. This is a pity, for the plan and form of the composition, as well as the furnishings, are subtle and ingenious, perhaps unnecessarily so. The use of chocolate-brown stain instead of a natural color on logs and adze-hewn timbers produces a heavy and artificial color scheme.



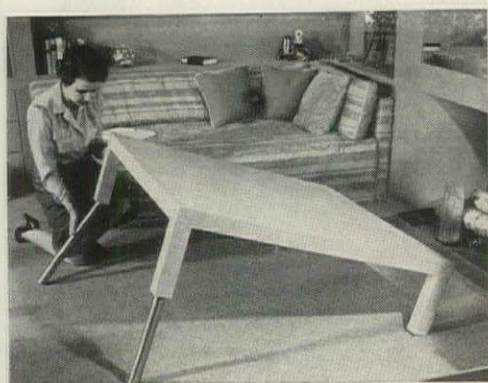
Richard Averill Smith Photos



"NORTH PACIFIC SLOPE"

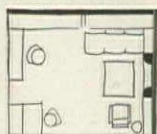
John Yeon, Designer

With Mr. Yeon's room we begin to approach the field of decoration as distinguished from architecture. Delightful though his forms may be and gay his colors, they seem applied on, rather than built into, the structure.



D. Kessel Photos

"SEVEN DAYS" Virginia Conner, Decorator

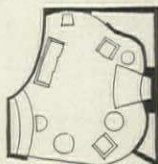


Miss Conner's arrangement for comfortable living, put together, it is understood, in the incredibly short space of seven days, is an excellent illustration of what the decorator can contribute in a sense of stability to the life of the modern apartment-house nomad. It may be questioned whether the adjustable table legs are more conducive to flexible living than what we used erroneously to call the one-man top on the touring car. Its "grape-gray" walls and floor, its "off-white" ceiling, suggest feminine moods.

"COFFEE AND CIGARS AT 16-B"

Michael Hare, Architect and John B. Manzer, Interior Designer

Rectangularity has its virtues when it is used freely and creatively, as other rooms in the exhibition show, but when it is reduced to the bare necessities of economic and practical utility in a multi-story group dwelling it is soul-destroying. Mr. Hare and Mr. Manzer show what can be done to mask its stark corners and at the same time increase its effective space. The unobtrusive brown tones of curved walls and furniture adapt themselves to cigar-butts and the thoughts of the tired business man.



"BEGINNER'S LUCK" Theodore Carl Muller, Industrial Designer

A very young lady, consulted by this critic on one of his tours of inspection, when asked what she liked best in Mr. Muller's room, replied without hesitation "the blackboard." The fact that blackboards are now white may in part account for the confusion of modern thought. She added, on further inquiry, that she liked the whole room, and it is indeed a work of nice imagination. It may only be questioned whether more might not be left to the whim of the youthful tenant. The color scheme, in brown neutral tints and bold primary colors, is good, and the furniture is simply designed.



Richard Averill Smith

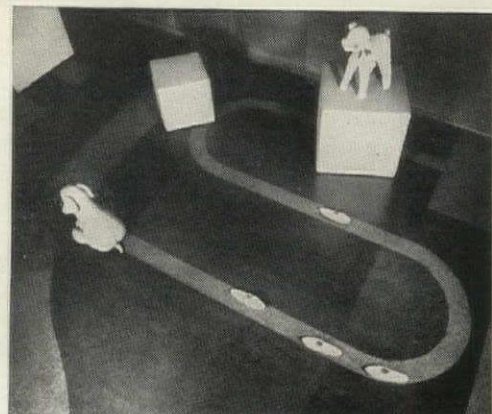
"RETIRED ON AN INCOME"

Albert Pierce, Architect

Mr. Pierce's room is gay in color, with its coral, green and gray tones and its suggested atmosphere of Florida sunlight, but somehow one cannot help wondering whether the owner would have been more content if he had stayed in business instead of gluing sea-shells to mirrors and weaving garlands of flowers to hang over the fireplace in the intervals between yawns on an upholstered rattan chair.



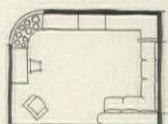
Richard Garrison



D. Kessel

"MUSICORNER"

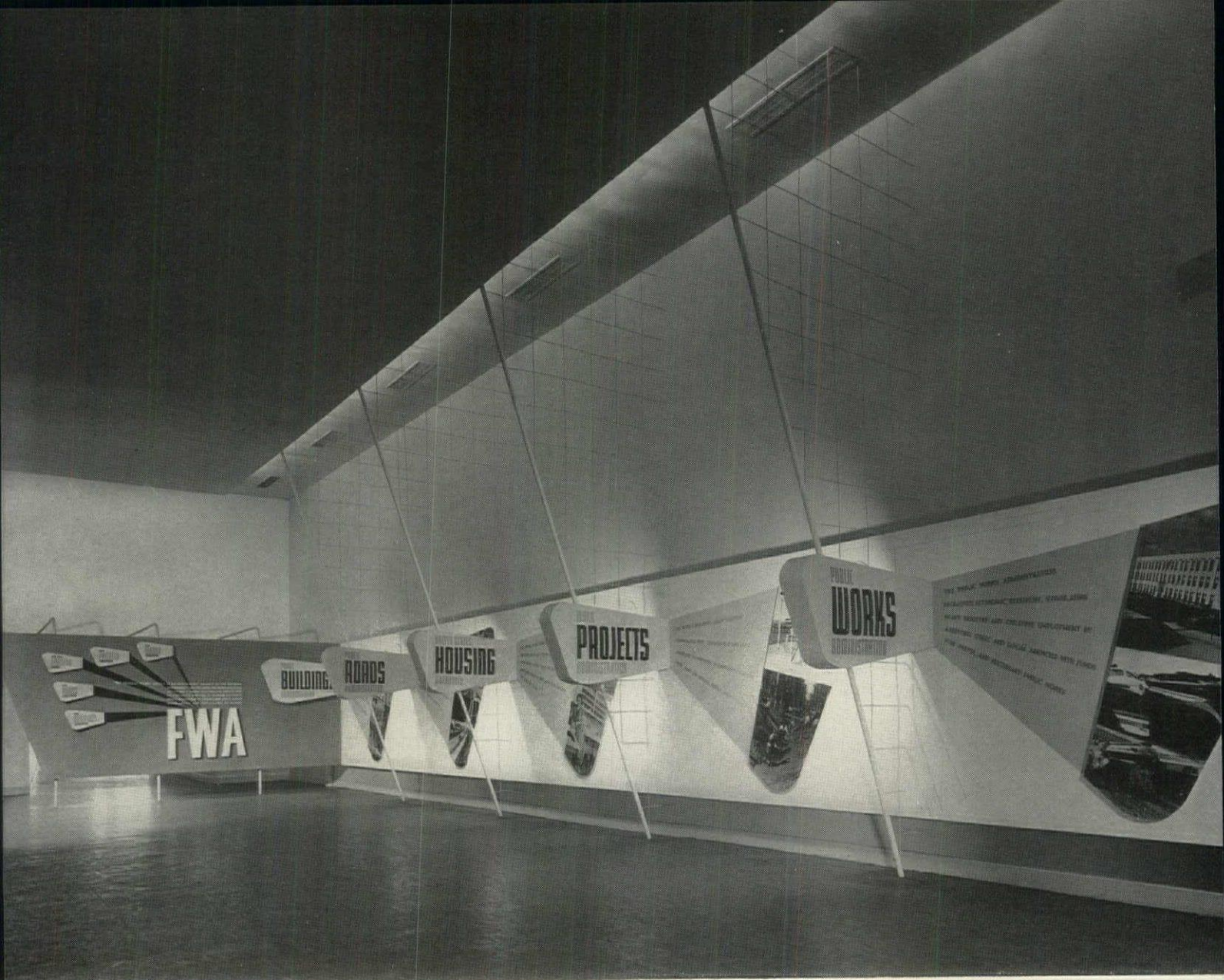
John Vassos, Industrial Designer



Some provision for the complex mechanisms of sound and sight reproduction seems indispensable in a modern house, and Mr. Vassos has composed his elements with skill and taste, but anyone who has suffered from the rapid obsolescence of mechanical appliances may venture to doubt whether any permanent discipline of design can be applied to them with success. With this reservation, only admiration can be expressed for a furniture composition which combines a practical solution of the problem with interesting forms and colors.



Richard Averill Smith

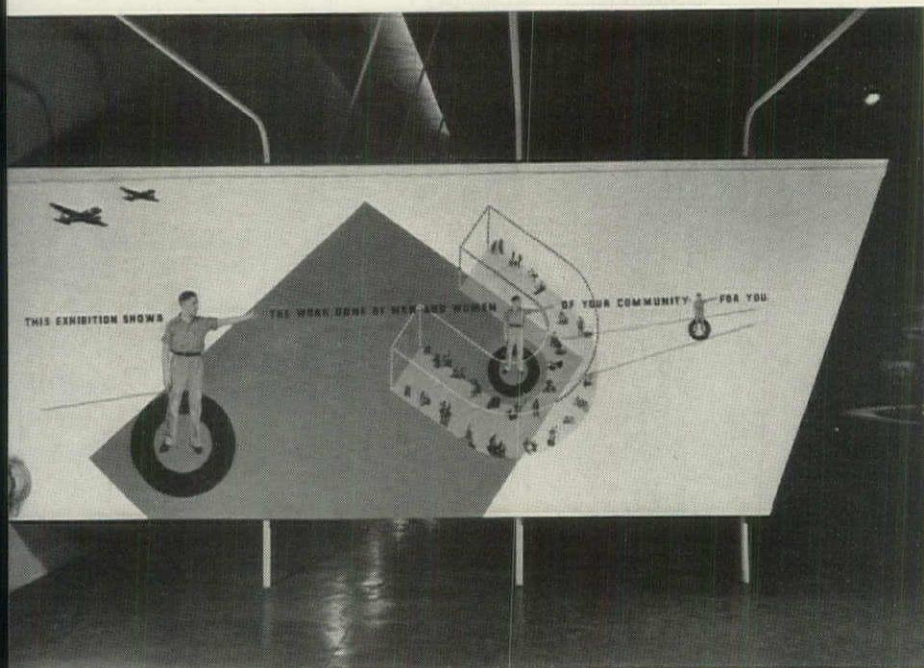


Ezra Stoller

FEDERAL WORKS AGENCY EXHIBIT

LEONARD C. RENNIE, Director of Exhibits

WILL BURTIN, Designer



The group of large signs above indicates the five government agencies whose work forms the subject of the exhibit. This introductory display is one of the most effective features in the FWA's demonstration of power, a maximum result having been produced with economy of means and money. As the adjacent illustrations show, the same simplicity and directness are not found throughout.

The work of the display designer is complicated when the material to be shown is a large and disordered mass of pictures and objects not too carefully selected. In the present case there were additional difficulties. The building formed none too happy a framework for the display, and it was necessary to include a quantity of last year's material which had to be revamped. Given the problems imposed on them, the designers of the FWA exhibit have shown skill and ingenuity in their solution.



Ezra St

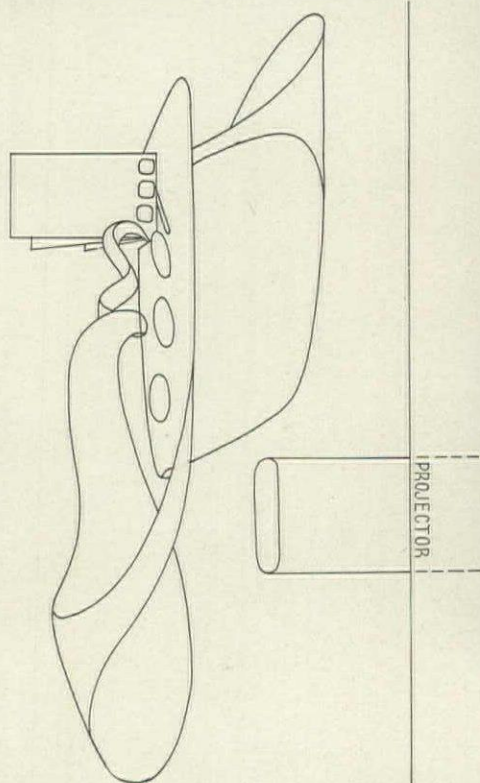


Present-day display technique attempts to organize complicated collections of photographs, documents, graphs, and captions. While these could be arranged in rows at proper heights for easy inspection, the result would be a wearisome monotony that would certainly defeat the purpose of the exhibit. Hence the photographs, the divisions into distinct areas, the varied backgrounds, the frequent changes of pace. Where one encounters as magnificent a display of virtuosity as here the question inevitably arises whether a preoccupation with forms may not tend to obscure the subject matter itself.

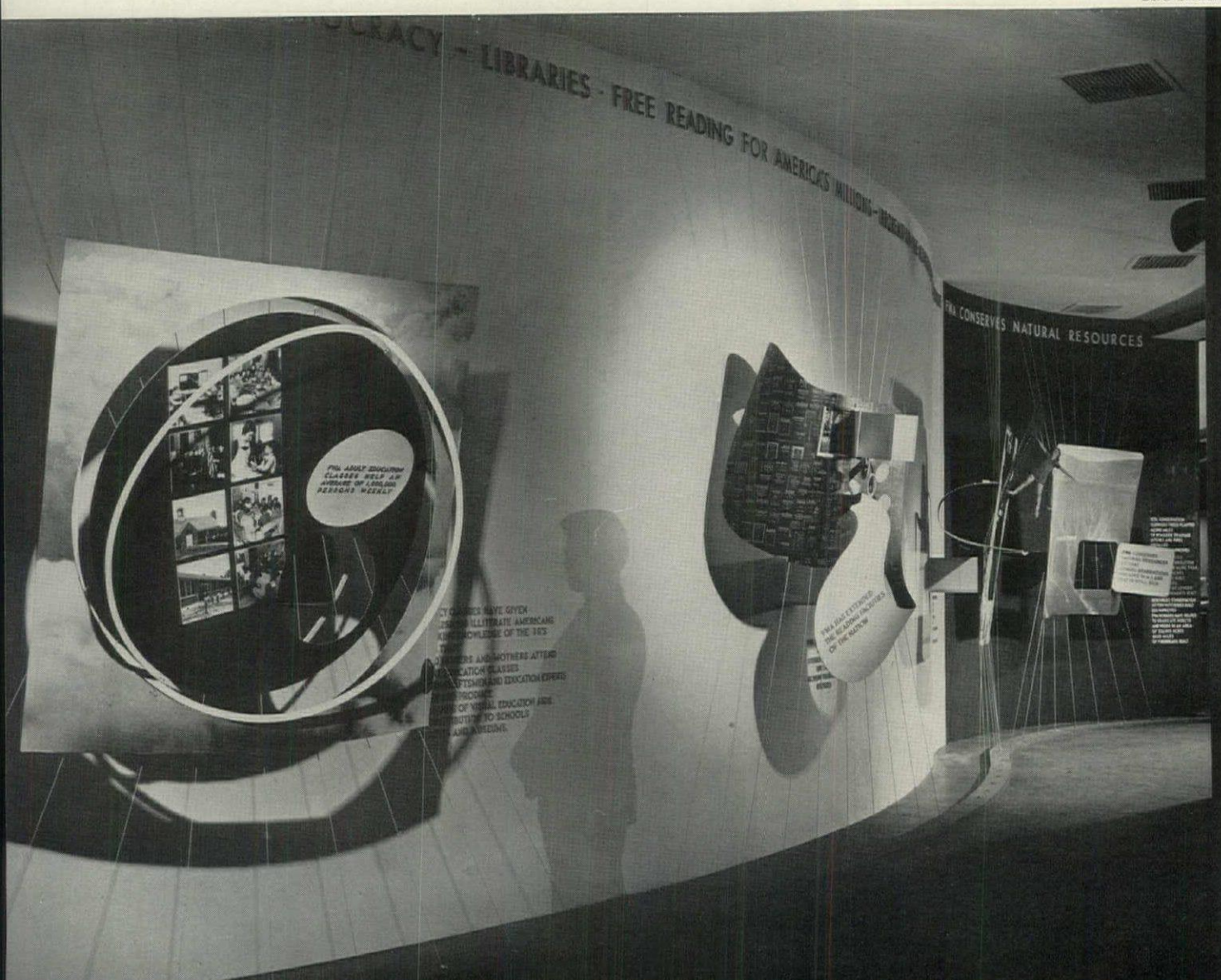
To a limited extent this criticism might be applied to the FWA exhibit. Nevertheless, despite the complexity of the subject matter, the main themes are skillfully dramatized (as in the "Work" panel above) and made instantly comprehensible. If the visitor is interested in government efforts to create employment, he can stop and examine the more detailed exhibits below. If not, he can pass on without having to stop to see what the display is about. This technique of combined general and specialized exhibits is well handled here. It must also be noted that so progressive an attitude toward design in a large Federal agency is one of the more encouraging aspects of the 1940 Fair.

FEDERAL WORKS AGENCY EXHIBIT

The four panels on the curved wall show WPA activities in education, libraries, recreation and conservation of natural resources. Each panel has a small projector and screen which give animation to the static displays. The arrangement of the mechanism is shown in the detail below.

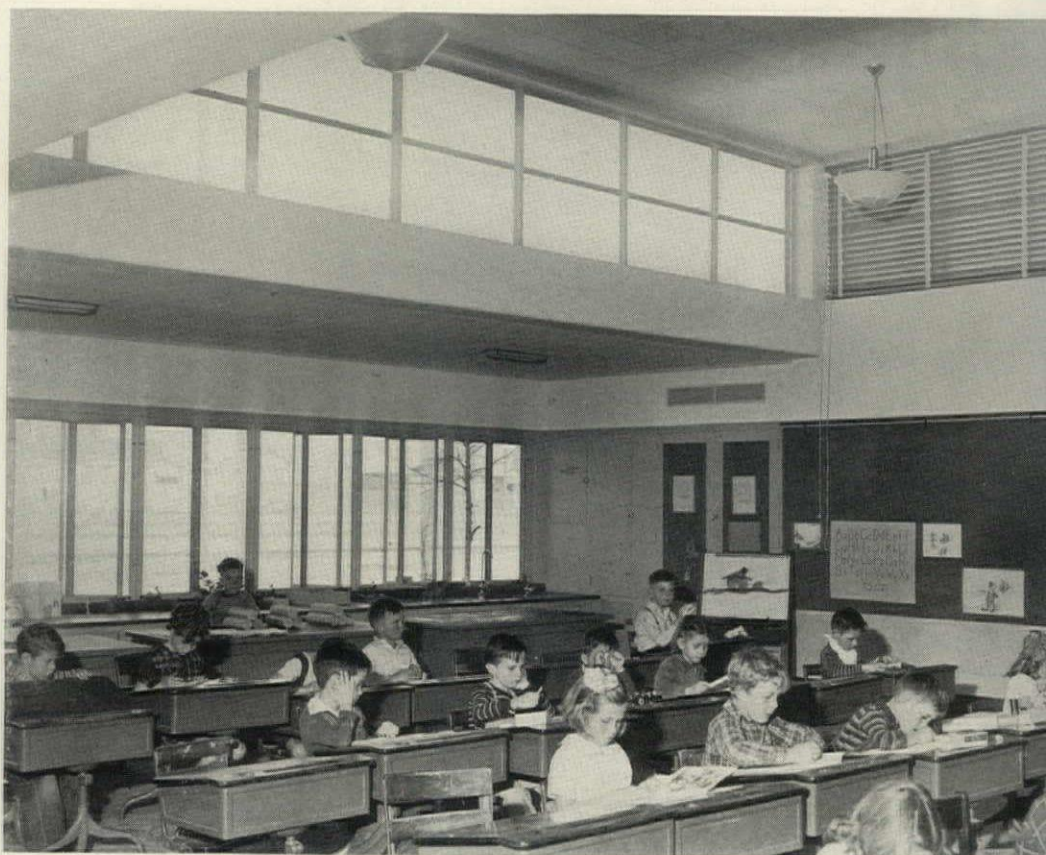


Ezra Stoller



PRODUCTS AND PRACTICE

CLASSROOM in Avenal Elementary School, Calif., Frank Wynkoop, Architect, which is typical of the highly successful way in which West Coast architects are experimenting with unusual forms in an effort to produce better daylighting. Section and additional data on this and other classrooms on page 48.



DESIGN FOR DAYLIGHT

Consciously or unconsciously, the architect acts as "daylight engineer" for every building he designs. His control over glass area, ceiling height, and room proportions determines the quantity and quality of natural illumination which will be available in the finished structure—still the preferred light source for most work and study hours. Once he has fixed these essentials, nothing short of structural alterations will permit "stepping up" natural lighting levels. And, since the factors which control daylight are of utmost

importance from every other design standpoint, the architect is unwilling to delegate this responsibility.

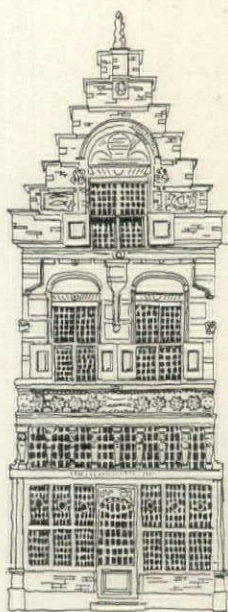
Traditional architecture met this need by a compromise between lighting requirements and the limitations of the structural systems at its disposal—developed by intuitive, trial-and-error methods. Some of these solutions were brilliant, most satisfied the standards of their time and place. The medieval Dutch town house, for example, surmounted the problem of extremely narrow streets and deep, narrow plans without side light by increasing fenestration on the lower floors, despite the fact that this created the structural difficulty of supporting masonry gables on wood posts. Conversely, the Gothic Cathedral, built according to a structural system which tended to

admit more light than was wanted, produced the stained-glass window.

The experience thus accumulated obviously provides a good basis for correlating daylight needs and structural and design limitations, and has been so used by generations of architects. A major failure of present-day traditionalism, however, has been its tendency to copy these solutions without taking into account the factors which determined their peculiarities. At the other extreme, the more militant modernists are prone to assume that since structural technique now permits glass areas almost unlimited in size and position, they are duty bound to employ maximum openings in every instance.

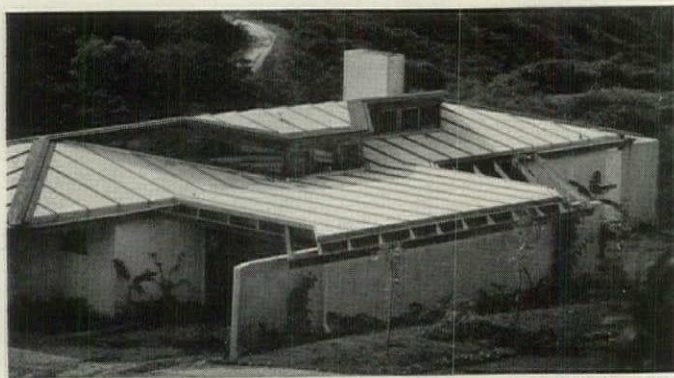
Meanwhile, lighting standards have improved enormously. The immense advance in artificial lighting of the past fifty years, coupled with parallel development of the knowledge of optics and eye-health, has raised and reraised acceptable minimum levels of illumination to many times the values formerly regarded as adequate. And, while artificial lighting has played the more conspicuous part in fostering this trend, natural lighting has not failed entirely to keep pace, especially in the case of school buildings and factories.

As a matter of fact, it is only now that "good lighting" has begun to mean 100 foot-candles of thoroughly diffused illumination, that natural lighting really has a chance to come into its own. Conscious design for daylight, taking advantage of modern structural potentialities, can meet these and higher standards at a real saving in running expense. For it to succeed in this purpose it is necessary that architects become more aware of the daylight factor in design.



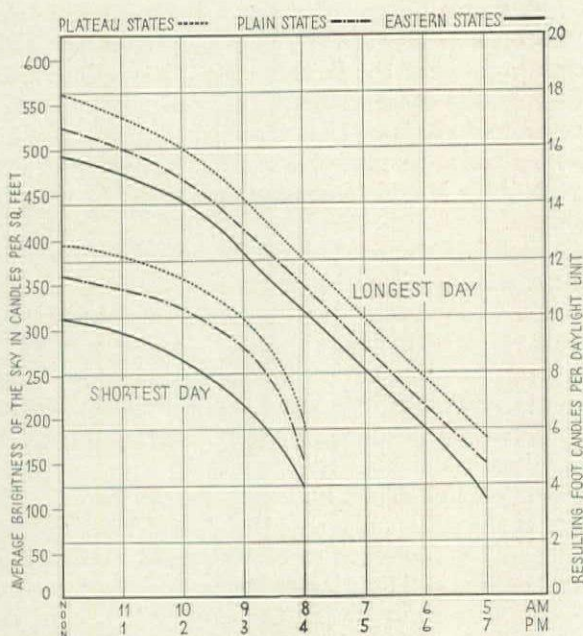


FACTORY design has long been conditioned primarily by daylighting requirements, with top-lighting, as in the above example by the Austin Co., a favorite solution. Sawtooth roofs are used where directional light is not objectionable, faced north to exclude sunlight, and monitors where light from opposite directions is a requirement.



Fred R. Dapprich

HOUSE design is more and more influenced by design for daylight. Photo shows a characteristic roof dormer by Architect Harwell Hamilton Harris, designed to provide cross light for a living room.



SKY BRIGHTNESS in various parts of the country and seasons of the year, and resulting illumination in "daylight units." Curves are drawn for 42° North Latitude; southern values will be slightly higher, and northern values slightly lower than those shown.

PROBLEM

Good daylighting should provide diffused light of adequate intensity and uniform distribution, from the proper direction, without glare. To meet these criteria, it has at its disposal two sources of illumination, an immensely powerful, directional, constantly shifting source in the sun, and a diffuse, non-directional, but highly intense source of huge area—the sky vault. Theoretical daylighting discards at the outset the first of these light sources as much too contrasty for ordinary seeing, and concentrates its attention on skylight. In practice, much the same result is achieved by the diffusing media commonly employed to filter direct sunlight—window shades, venetian blinds, and so forth.

The average brightness of the sky vault, exclusive of the portion effected by direct sunlight, is usually somewhere between 150 and 500 candles per square foot during daylight hours. Its illuminating effect on a horizontal plane shielded from direct sunlight is on the order of 500 to 1,600 foot-candles of perfectly diffused light—five to fifty times the intensity produced by the best artificial lighting installations. And, since all parts of the sky are normally of substantially the same brightness, this immense source of light is equally potent in all directions.

Thus, if a substantial part of the sky is visible from a point within a building, and the point shielded from direct sunlight or the sunlight filtered to about sky brightness, most of the objectives of good daylighting will be satisfied. However, three factors tend to complicate the daylight problem, render it a vexing one from the architect's point of view:

1. Even in rooms with large, unobstructed windows, there is rarely more than a small fraction of the sky vault visible, 5 to 10 per cent being quite exceptional.
2. The amount of sky visible from various parts of most rooms varies considerably, producing wide variations in illumination.
3. Since most rooms have side-, rather than top-lighting, the light from the sky is admitted at an angle which reduces its effect on horizontal work surfaces and increases glare.

If daylighting were the only factor to be considered in design, correcting these deficiencies would be a simple matter. But since building has other requirements, such as a need for multi-storied structures, L-shaped plans, and so forth, and since windows function not only to let in light but for vision and ventilation as well, it is rendered more difficult. Due to the importance of these other—and often contradictory—considerations, the problem of daylighting resolves itself into one of providing adequate light where needed without undue departure from ordinary design practice.

MINIMUM INTENSITY

As has been indicated already, daylighting has at its disposal intensities much higher than are commonly thought to be necessary. Actually to realize these high levels throughout an enclosed space of any size, however, would require either extremely high ceilings or huge, horizontal skylights, neither of which is practicable in most instances. It is therefore necessary, in daylighting as an artificial illumination, to decide upon minimum acceptable intensities of illumination for various purposes, and then to attempt to achieve this minimum as evenly as possible.

In artificial illumination, the standard unit of measure is the foot-candle. This unit may also be applied to daylighting, but another standard measurement, more applicable to the problem, has been worked out—the so-called "daylight unit." This unit is defined as one one-hundredth of the light falling on an unobstructed horizontal plane from the whole sky vault, exclusive of direct sunlight. For a sky of very low illuminating power—say, at four p. m. of a dull December day, it has a value of about 4 foot-candles. For a

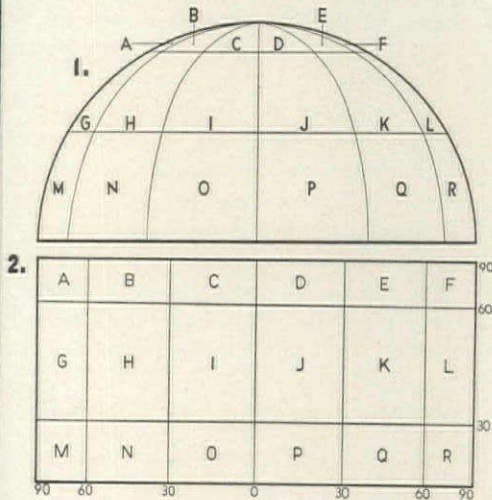
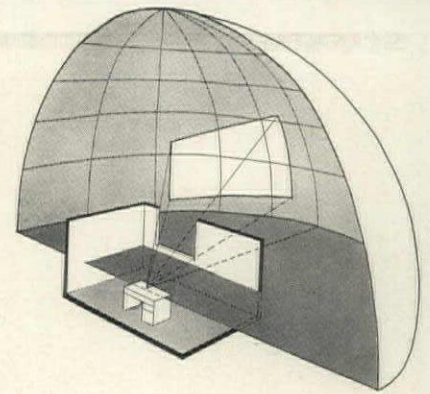
(Text continued on page 46)

PREDICTION OF DAYLIGHT — A SCIENTIFIC METHOD

Like all engineering, the value of daylight design depends upon its ability to predict results. In England, where the law holds that inter-property interference with daylight is subject to pecuniary damage, a number of highly ingenious ways of determining this factor have been worked out—all depending in essence on how much of the effective area of the sky will be visible from a given point. Recently, with the completion of a monumental research project by the U. S. Public Health Service,* sufficient data have been made avail-

able to check the accuracy of these methods. The method given below stems directly from the pioneer work of P. J. Waldram and other British illuminating engineers, but takes into account factors other than sky area which the U. S. study showed as having an important bearing on results. It is no more difficult to use than systems depending solely on sky area alone, and gives results which check closely with actual simultaneous readings of sky brightness and indoor illumination.

* Studies in Illumination, IV. Daylight in Buildings; Public Health Bulletin No. 218, U. S. Government Printing Office, 15 cents.



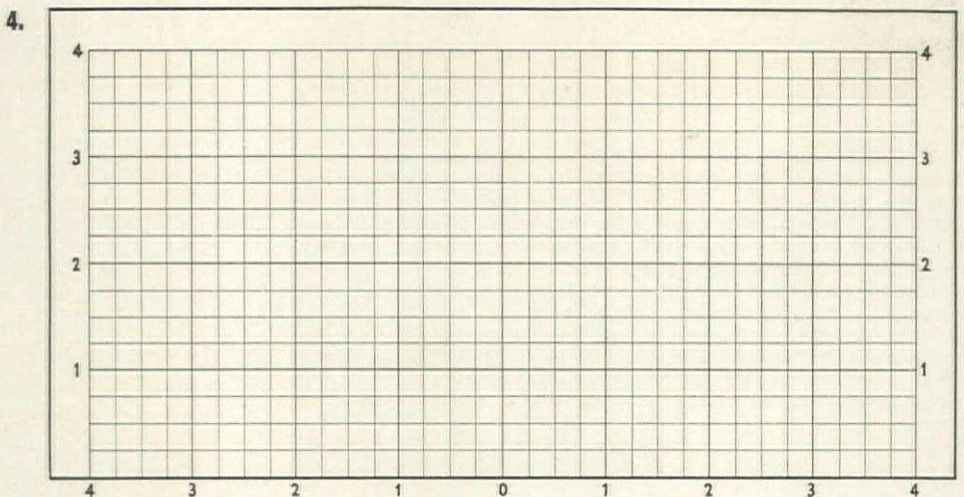
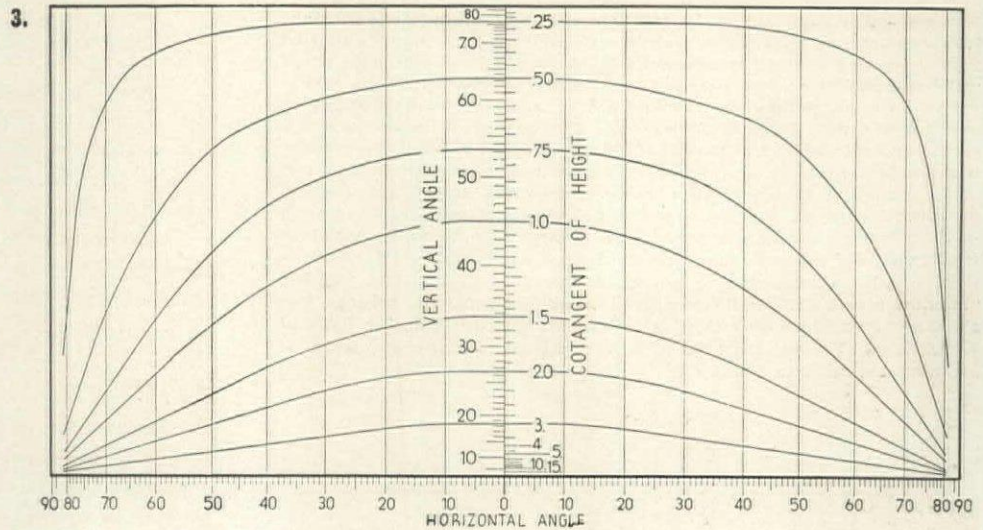
For the predetermination of daylight, the sky may be considered as consisting of twin quarter-spheres of uniform brightness, divided vertically and horizontally into 30° segments (1.). The varying areas thus produced may be more simply represented as a pattern of rectangles of similar area, as in 2.

However, the lower portion of the sky vault has less illuminating effect on a horizontal surface than the middle and upper portions, and the effectiveness of the upper and side segments is reduced more sharply by reflection from vertical glass windows than the middle and lower parts. Diagram 2. has therefore been distorted to represent the effect of these additional factors, so that the relative area of sections A, B, C, etc., corresponds to the actual illuminating effect of segments A, B, C, etc. of the sky vault when viewed through a vertical glazed opening at right angles to the line of sight.

THREE STEPS

Diagrams 3. and 4. are simply other versions of diagram 2. designed to make the examination of the illuminating power of various windows a simple, graphic, three-step process:

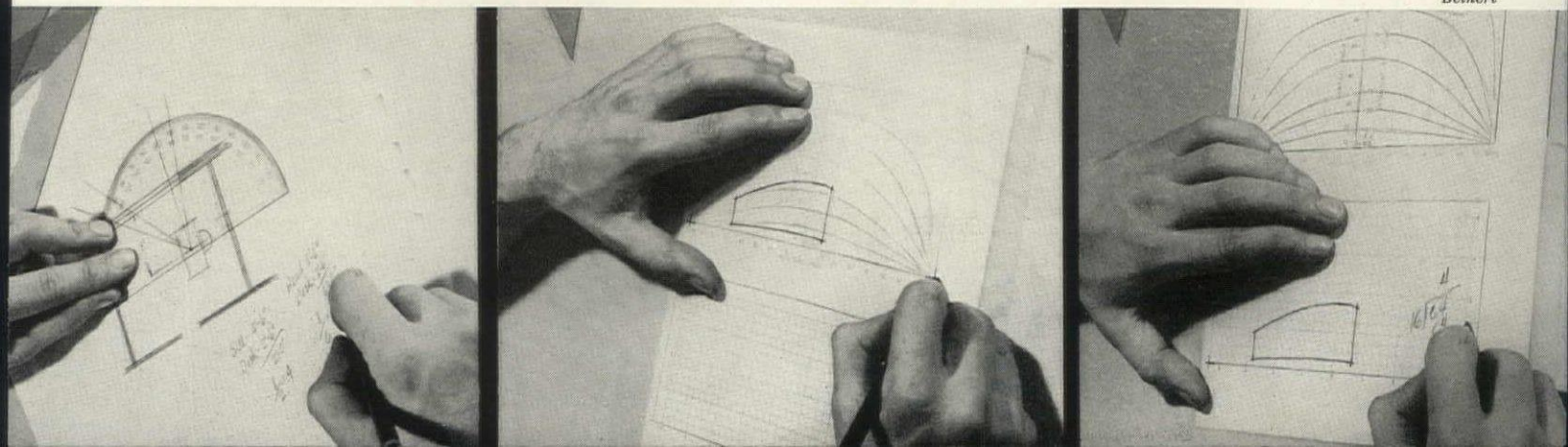
1. From the point in question, determine the horizontal angles to the obstructing window jambs, measured from a line at right angles to the window wall (in the picture, 50° and 10°); and divide the distance to the window, measured along the same line, by the height of the sill and head above the working plane to obtain their respective "cotangents of height" (picture: sill—4.0, head—1.33).



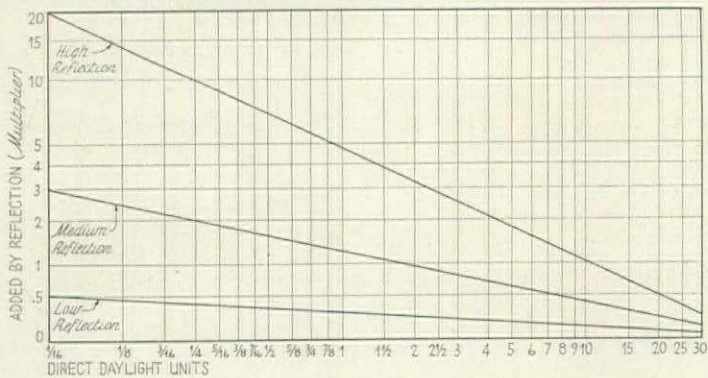
2. On a sheet of tracing paper over diagram 3., locate points on the vertical scale corresponding to the cotangent of elevation of the window sill and head, and points on the horizontal scale corresponding to the horizontal angles of the window jambs; outline the rectangle thus formed, following the curved lines on the chart for top and bottom lines, verticals for side boundaries.

3. Move the tracing to diagram 4., and count the number of small squares contained within it. Each square represents one-sixteenth of a daylight unit; divide the result by 16 to obtain answer in daylight units (pictured example works out to 4. d.u., ample for close work). Effect of obstructions outside the window may be estimated by same process, provided their position and height are known.

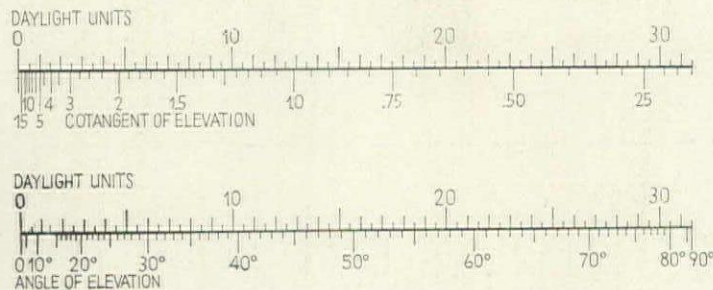
Beinert



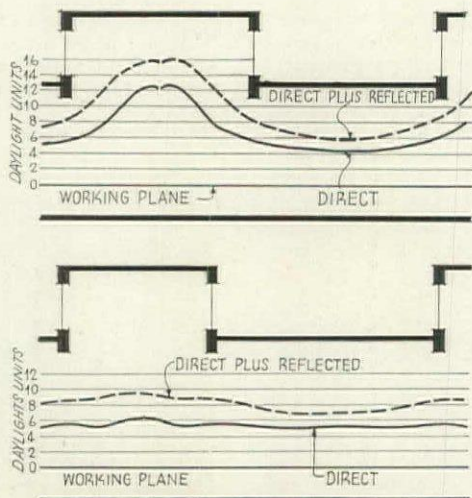
SCIENTIFIC PREDICTION OF DAYLIGHT, cont'd



The method of daylight prediction given on the preceding page does not take into account light reflected from walls and ceiling. Results obtained by this method therefore correspond to conditions in a room with black walls and ceiling, or a very large space lighted by small windows, where reflection is practically nil. In most rooms, however, and especially in small rooms with large windows and light-colored walls and ceilings, reflection contributes a good deal of illumination. As direct light becomes less and less, reflected light becomes a more and more important factor, as illustrated by the chart above which shows how much light is added by reflection under varying conditions. This chart must be used with caution, remembering that only points very near to white walls in small, well lighted rooms may be considered as receiving "high reflection." In the example given in the pictures on the preceding page—a "medium reflection" condition with light-colored walls and ceilings, the chart gives as added by reflection (above the figure "4" on the scale of direct daylight units) the multiplier .7, or 2.8 additional daylight units, bringing the total to 6.8.



Where continuous "ribbon" windows, sawtooth or monitor construction make the position of the window jambs unimportant, daylight prediction is greatly simplified. With the two scales given above (based on a method worked out by the British Building Research Station) it is possible to obtain direct daylight readings in a moment, by simply locating on the scale the cotangents of elevation or the vertical angles of the sill and window head (always relative to some specific point within the building), and counting the number of daylight units between the two points of the scale. The example below shows how the illumination of a monitor-roofed factory building was improved by this method without increasing the volume of the building or changing the spacing of the monitors. Greater uniformity was obtained in this instance by slightly raising the ceiling and—oddly enough—making the monitors more narrow.



NOTE: Measurements by Albert Kahn, Inc., architects and engineers, indicate that monitor windows set at a 60-degree inclination are twice as efficient in daylighting as those set vertically. However, vertical sash is easier to keep clean.

bright, mid-summer sky it may be as high as 18 foot-candles. For design purposes, where the major concern is with minimum acceptable levels at times when adequate daylight might normally be expected, its value may be taken as 6 foot-candles.

This unit has two big advantages for daylight work. First, it is a direct expression of the illuminating power of the sky rather than an abstract unit, and therefore makes the objective of daylighting more readily comprehensible (obviously, one daylight unit requires roughly that one one-hundredth of the area of the sky vault be visible). Second, its absolute value, measured in foot-candles, goes up and down in proportion to outside conditions, and since it is recognized that minimum levels of illumination should also rise and fall in naturally lighted rooms relative to conditions outside the windows, it adjusts itself automatically to lighting needs.

English lighting engineers, who developed the daylight unit, have chosen the value .2 daylight units as representing the minimum acceptable value for daylight illumination. This quantity has been determined as the point below which the average person will feel that daylighting is definitely inadequate, and is worth remembering for that reason, but modern optical science would regard such a value (1.2 f.c. on dull days) as too low for any but the least critical lighting tasks. One daylight unit (minimum value, 6 f.c.) is a better bottom limit for general illumination, while two, or even three daylight units (min. 12 and 18 f.c.) should be the objective for most work surfaces, four units (min. 24 f.c.) for close work such as drafting or sewing.

DISTRIBUTION

The big problem of natural lighting is not so much one of intensity as one of distribution. The intensity on the stool just inside of almost any window—however obstructed the view—is likely to be from 20 to 40 daylight units, or 120 to 500 f.c. Unless the window is quite high, the intensity on a horizontal surface only a few feet within the room will be much less, while at a distance within the room equal to the height of the window it will in most cases be less than a third as bright as the window stool. If the depth of the room is twice window height, brightness at the inside wall will probably be less than a tenth of that at the window stool.

In artificial illumination, the standard of distribution commonly followed is that minimum intensities within a space should at no point fall below one-tenth of maximum levels. This 10:1 ratio is equally applicable to daylight design, with the added proviso that no such diversity should exist between areas within a room which are used for essentially the same purpose.

In deep rooms with exclusively side-lighting, these specifications are difficult to meet. As the diagrams on the facing page indicate, improved daylight distribution demands that window proportion and position be carefully adjusted to meet the specific lighting task, and especially the shape of the space they are expected to illuminate. Higher sills are a good way to flatten out the characteristic distribution curve, and projecting hoods over the windows a good substitute where view from the windows is important. Not shown in the diagrams, but an especially potent corrective, is cross lighting, from opposite sides of the rooms, such as is now being used in many single-story school rooms.

GLARE

Glare in natural lighting is partly a matter of contrast, partly a matter of direction, and partly a matter of reflection. The common idea that large windows produce more glare than small ones is almost entirely false, but to see why this is so requires a rather elaborate analysis of the whole question.

Excessive contrast between the general level of illumination within rooms and the brightness of objects outside the window is the original source of most glare. Since large windows raise the level of

(Continued on page 48)

PREDICTION OF DAYLIGHT - RULE OF THUMB DATA

LIGHT DISTRIBUTION

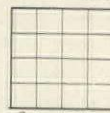
Scientific daylight prediction has one marked deficiency—it is necessarily a "point by point" method. For this reason, it fails to provide any generalized picture of light distribution, the critical factor in daylighting, unless a number of points are analyzed. Where a number of schemes are under consideration, this may prove laborious. In order, therefore, to provide a general guide to window design the examples shown at the right have been worked out.

All of the diagrams are scaled only in relation to the height of the window head, are applicable to rooms of almost any dimension. Curves are taken on the center lines of the windows. Shaded areas show light distribution for windows of various shapes but the same area, are therefore directly comparable. Dotted curves show the effect of doubling the width of the window shown, or dividing it in half. Besides showing typical distribution curves applicable to almost any side-lighted room, the diagrams furnish the basis for the following deductions:

- Area for area, high, wide windows provide more light, more evenly distributed, than lower, narrower windows (cf. 1 & 2).
- Shallow rooms are easily lighted with windows of almost any shape (1a, 2a, & 3a).
- Increase in window width adds to intensity, especially near the window wall, increase in height improves distribution (1 & 2).
- High sills reduce excessive brightness near the window wall without equally reducing intensity further within the room, thus improve distribution (2 & 2a).
- Projecting hoods vastly improve distribution at some sacrifice of intensity, permit use of lower sills for vision, shield part of room near window from sky-glare (3 & 3a).

WINDOWS-ELEVATION

ORDINARY WINDOWS



Sill at Working Plane

HIGH WINDOWS



Sill midway between Working Plane & Window Head

HOODED WINDOWS



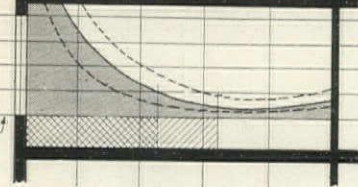
Sill 1/4 of distance from Working Plane to Head

Adequate Illumination For Close Work
 Adequate Illumination For Simple Work

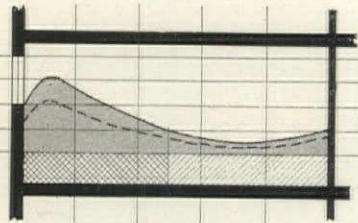
DEEP ROOMS-SECTION

Depth in terms of Window Head

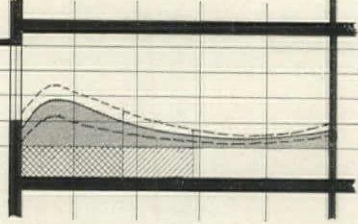
$x \frac{1}{2}$ $x 1$ $x 1 \frac{1}{2}$ $x 2$



1-DIVERSITY 1:15 (Excessive)



2-DIVERSITY 1:6 (Fair)

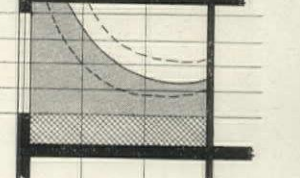


3-DIVERSITY 1:5 (Good)

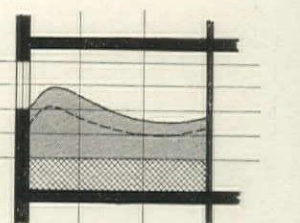
SHALLOW ROOMS-SECTION

Depth in terms of Window Head

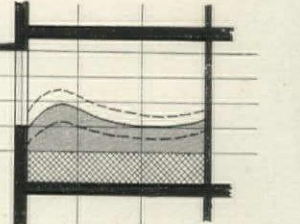
$x \frac{1}{2}$ $x 1$



1A-DIVERSITY 1:4 (Good)

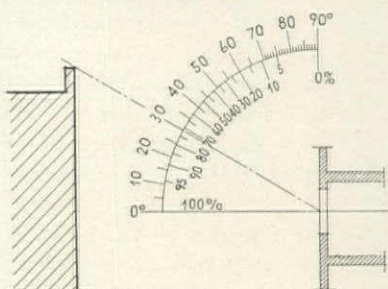


2A-DIVERSITY 1:2 (Excellent)



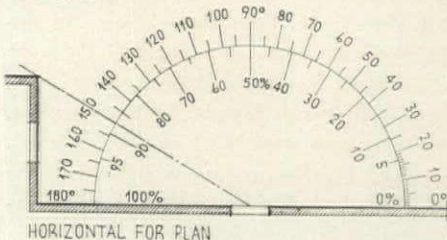
3A-DIVERSITY 1:2 (Excellent)

OUTSIDE OBSTRUCTIONS

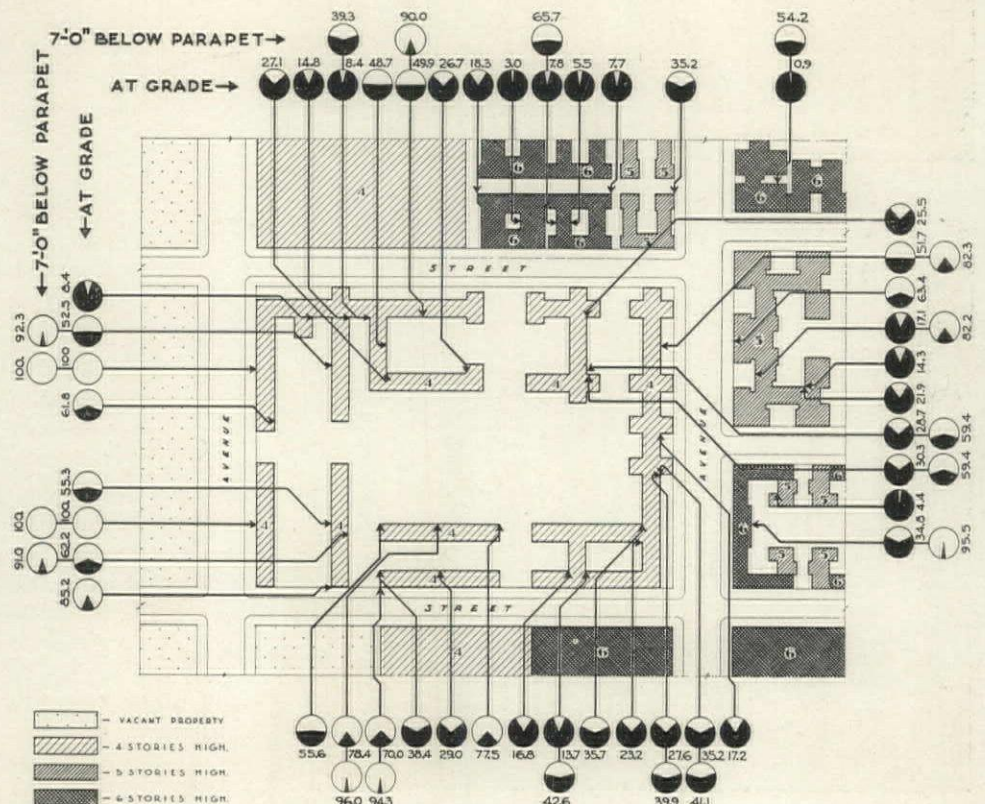


VERTICAL FOR SECTION

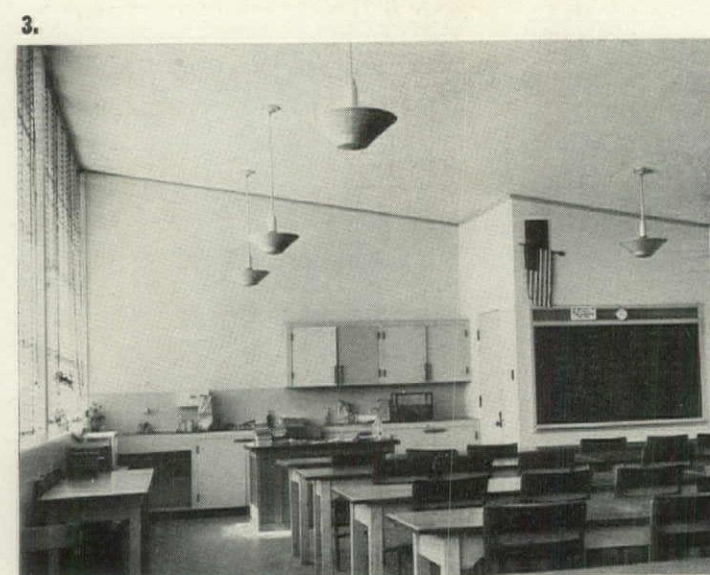
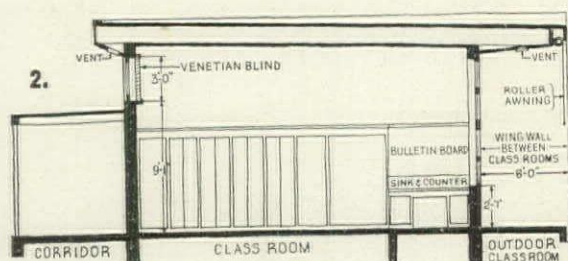
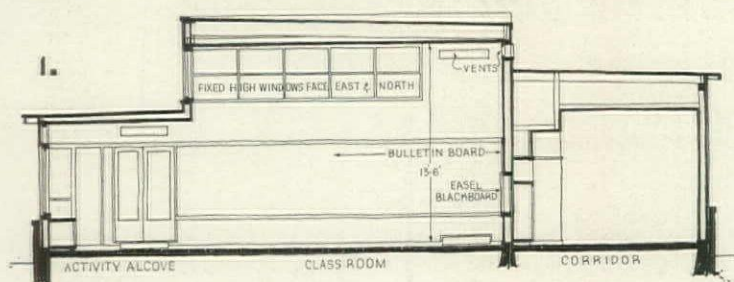
Similarly, it is valuable to have an approximate, general idea of the effect of obstructions outside the window on daylighting within rooms. For this purpose, the protractors above and below have been prepared. They are inaccurate in that they assume that the obstruction extends to infinity in either direction (impossible in the case of obstructions in plan), and ignore the fact that the angle of the obstruction becomes less when measured in an oblique plane. On the other hand, they reveal the important fact that the first 10° to 20° of obstruction has little effect on daylight.



HORIZONTAL FOR PLAN



Herbert S. Swan and George W. Tuttle prepared this chart for the New York City Housing Authority to show the effect of obstructions on daylight in housing work, including conditions common in "old law" tenements. Circles and figures show the amount of light—in percentage of the total falling on wholly unobstructed walls—reaching various points on walls obstructed by other buildings, or other parts of the same building.



SCHOOLROOMS by various California architects which have been tested for daylight quality. Section 1 shows the room illustrated on page 43, where Architect Frank Wynkoop succeeded in reducing the diversity of illumination to 2:1 and the brightness range within the field of vision to 15:1—exceptionally fine results. Photo and Section 2 show a cross-lighted room by Franklin and Kump with a diversity ratio of only 1.66:1 and a brightness range of 360:1. Photo 3, classroom with sloping ceiling and high windows, by H. L. Gogerty.

illumination within rooms and reduce the difference between indoor and outdoor levels they reduce this contrast and therefore tend to reduce glare at its source.

Glare, however, is as much a matter of the direction of light as a matter of intensity. Light from an overhead source which illuminates the working plane and is not within the field of vision is useful light and not a source of glare. Sidewall lighting is likely to fall within the field of vision and therefore to cause glare.

Thus rooms with small, low windows, in which the occupant is forced to face a window wall, are prime offenders. Window shades, as commonly employed merely aggravate the problem by still further reducing the level of illumination within the room, although they do have the advantage

of cutting off the view of the sky, usually too bright relative to the level of illumination in poorly lighted rooms. Wide windows, high in the wall, are better from the glare standpoint because they raise the level of indoor illumination to a point more nearly approaching the brightness outside the window and because they are

further removed from the field of vision. If, in addition, such windows are shielded by projecting hoods to cut off the direct view of the sky, they are rendered practically glare-proof. Hoods of this kind must, however, be employed with caution, since they considerably reduce the intensity of the resulting daylight.

Another exceedingly important factor in producing glare is the factor of reflection. Intense sunlight, reflected from objects and especially vertical walls of buildings outside the window, is particularly potent, since such surfaces are commonly low in the field

of vision and often several times as bright as the sky. For this reason, the question of glare is important in the case of windows facing north. Within the room, glare may be reflected from various surfaces such as work surfaces and floors. In considering such reflections, it is important to remember that the percentage

of light reflected is controlled not only by the nature of the surface but also by the angle of incidence, since a larger percentage of light incident at oblique angles is reflected by surfaces of every type.

not only by the nature of the surface but also by the angle of incidence, since a larger percentage of light incident at oblique angles is reflected by surfaces of every type.

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CONTROL

The actual lighting performance of any glazed opening is, of course, dependent upon control devices such as shades, etc., and by the kind of glass used. The effect of flexible control devices is so much dependent on the human factor of operation as to be almost unpredictable, except that in general most such devices, besides performing the valuable function of filtering and diffusing direct sunlight, usually improve light distribution, although often at the expense of intensity. Fixed light control, such as that provided by the various diffusing glasses and by glass block, has much the same effect. Prismatic glasses, and the new directional type glass block, are designed to direct light against the ceiling, whence it is reflected deeper into the room, and thus to correct daylighting's major deficiency. Precisely how well they accomplish this purpose is as yet not known, as there are not sufficient performance data to establish this point. Unquestionably, improvements in design for daylight will be paralleled by development of control devices to the immense improvement of natural illumination in every field.



Hedrich-Blessing Photos

THEATER AND ART CENTER UNIVERSITY OF WISCONSIN

MICHAEL M. HARE, CORBETT & MacMURRAY, ASSOCIATED ARCHITECTS

LEE SIMONSON, THEATER CONSULTANT

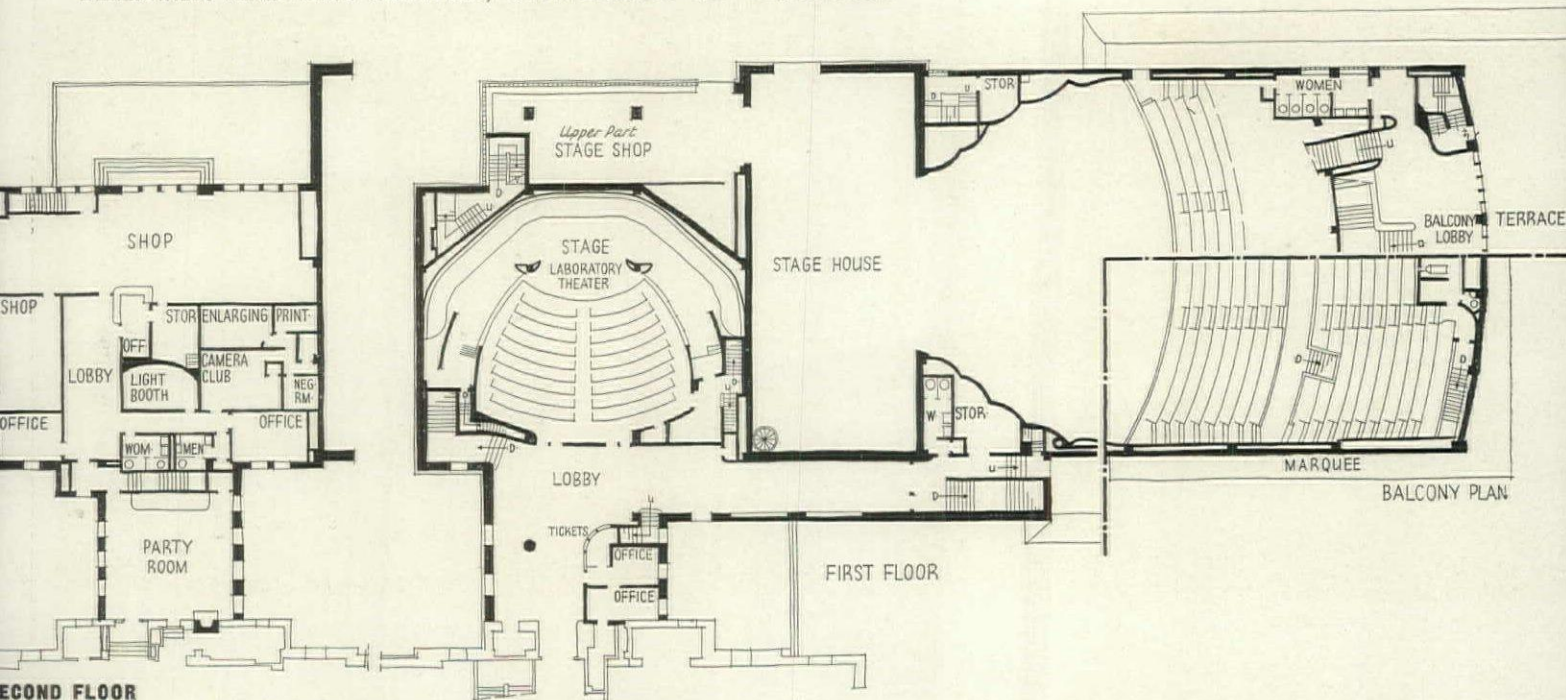
The dilemma facing the specialized theater is that the building always involves a large cubage at a high cost per cubic foot, while it is rarely used more than thirty hours per week for more than six or eight months of the year. This obviously means high admission prices and a consequent narrowing of the audience, and in practice the result has been a restriction of theaters to a handful of metropolitan centers. Aside from private or Federal subsidy, the solution is to combine a number of functions within the structure so that the cost per hour of use becomes less prohibitive. The typical expression of this solution is the community center, sometimes a separate building and sometimes a part of the local school. But for the highest development of the multi-use theater one must turn to the universities, where the existence of numerous groups ready to use such a structure ensures its success from the start.



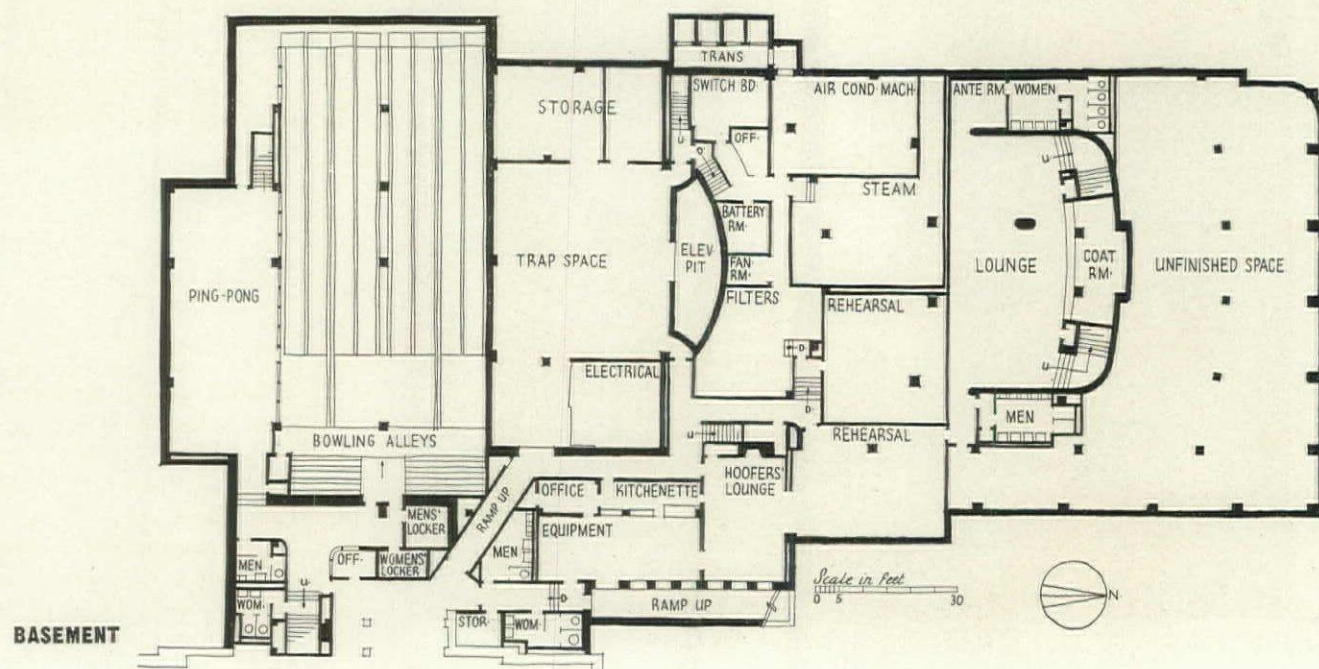
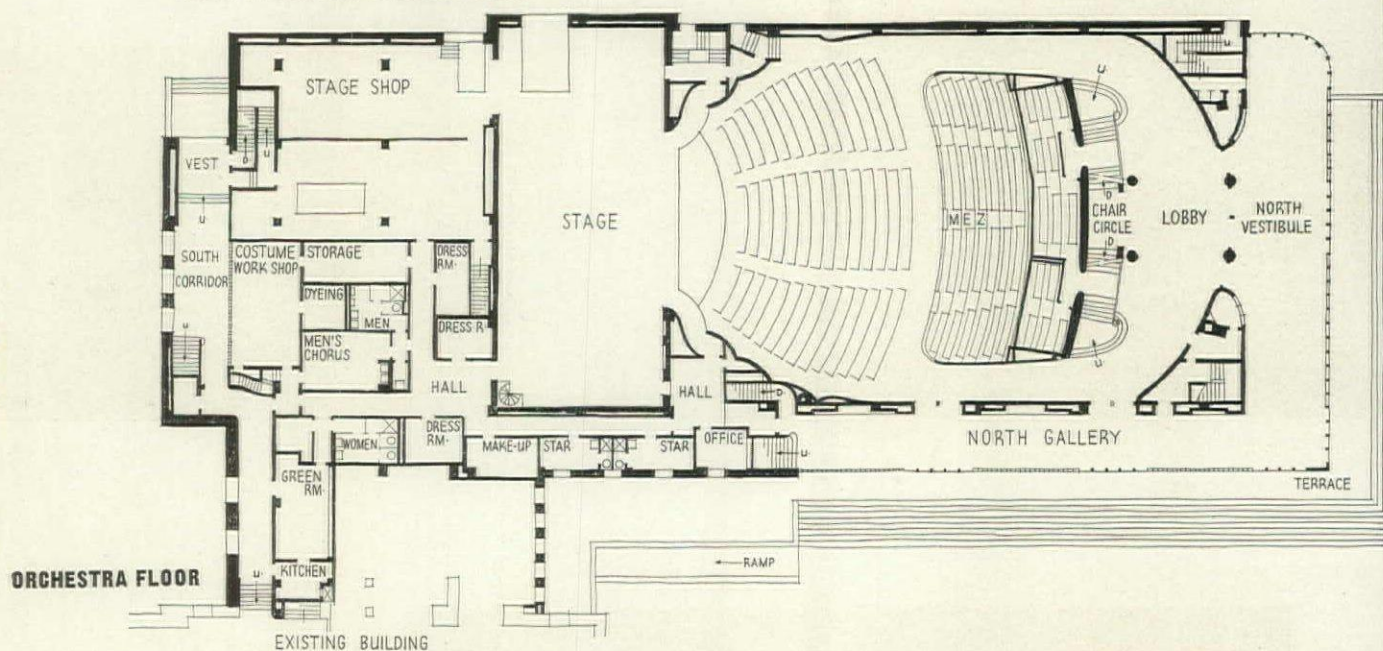
The building illustrated here is based on a planning precedent firmly rooted in the colleges; there is little precedent, however, for its complete disregard of the stylistic trimmings generally considered an inevitable part of campus scenery. The theater forms part of the Wisconsin Union, and it is to the eternal credit of the school authorities that the architects were not forced into a repetition of the undistinguished Italian Renaissance treatment of the original unit.

The most important part of the building is the large theater, a flexible interior suitable for all types of productions and concerts. Surrounding the auditorium is a glazed gallery, big enough to accommodate capacity crowds in comfort; at the balcony level there is an open terrace in addition to the lobby. A smaller "laboratory" theater, equipped with projection and broadcasting facilities, is also located at this level. Services include a stage shop, costume shop, storage rooms, offices and dressing rooms. Recreation rooms include quarters for the ski club, bowling alleys, billiard and ping pong rooms, and work space for the camera club. The plans on page 52 show these diverse elements combined in an admirable solution to the problem of the multi-purpose theater.



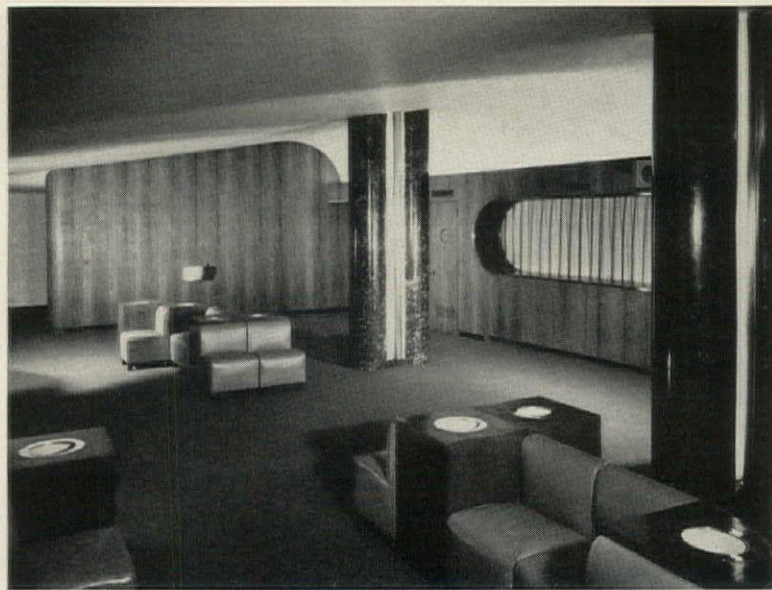


FIRST FLOOR AND BALCONY PLAN

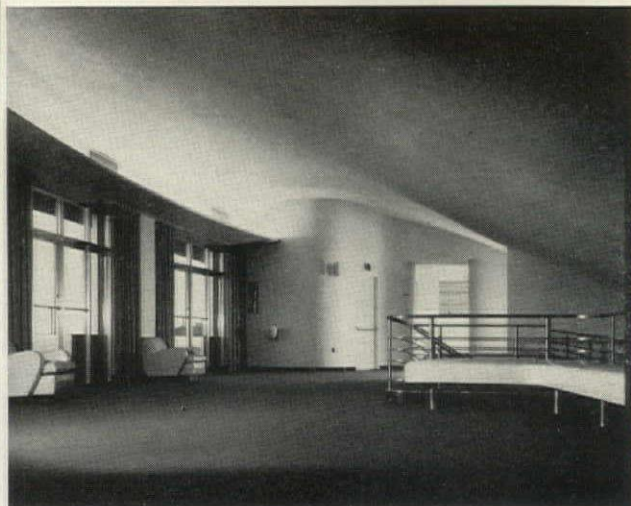




VESTIBULE



LOUNGE



BALCONY LOBBY

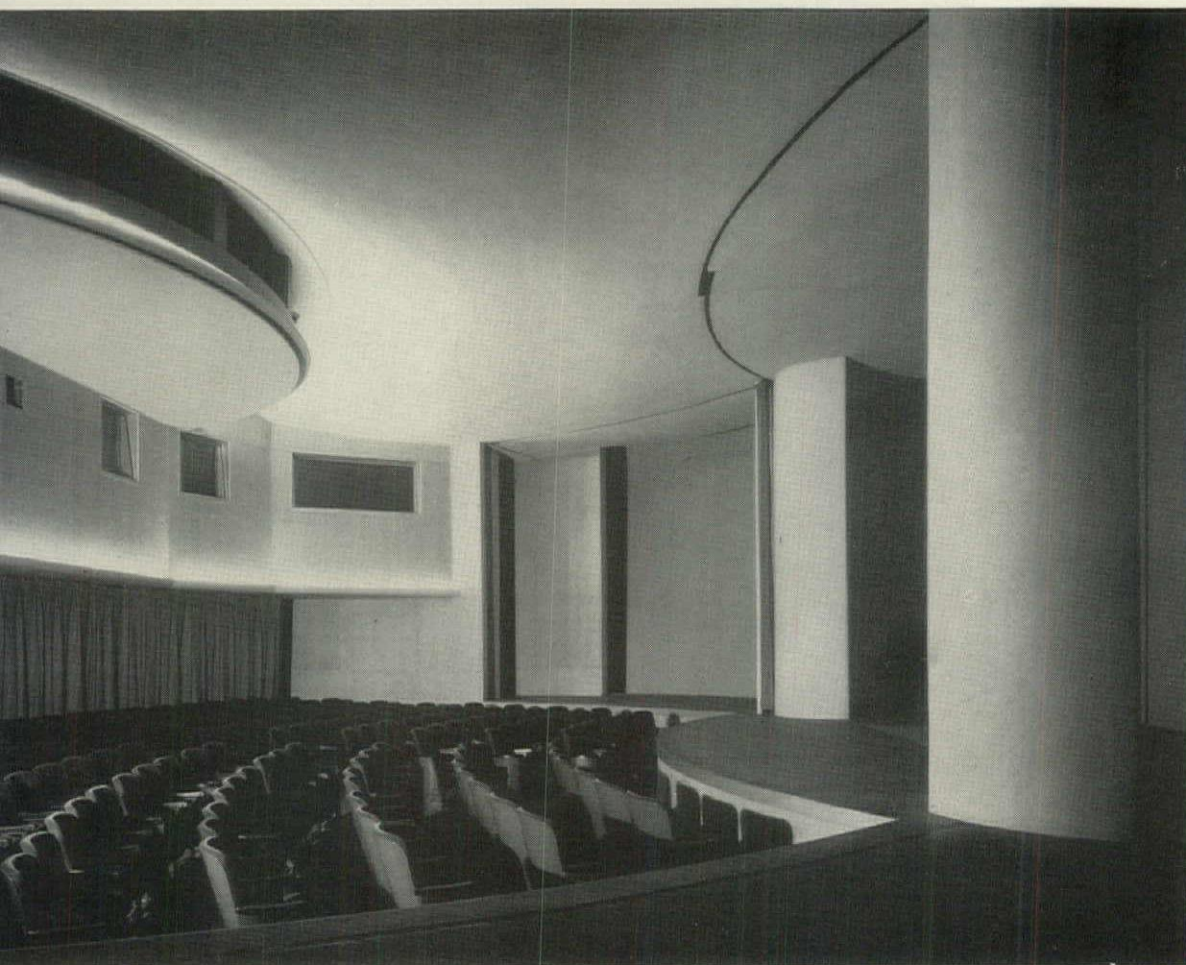


GALLERY



AUDITORIUM

Perhaps the most interesting feature of the large theater (left) is the use of curtains to create a room seating 400, 700, 1,000 or 1,300. There is never a half empty house with its depressing effects on performers and audience alike. The boxes at the rear are unique: equipped with disappearing glass fronts, they can be used for class discussions during performances and a variety of other purposes.



LABORATORY THEATER



CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—stone facing, brick backup, aluminum foil insulation, metal furring, metal lath and plaster. Interior partitions—Natco hollow tile, National Fireproofing Corp., glazed terra cotta tile, American Terra Cotta Co., plaster. Columns—steel. Floors—concrete slab. Ceilings—plaster.

ROOF: Gypsum plank, U. S. Gypsum Co. and Barrett Co. roofing.

SHEET METAL WORK: Flashing and gutters—copper, Cheney Co. Ducts—galvanized iron.

INSULATION: Walls and roofs—aluminum foil, Aluminum Co. of America. Sound insulation—tile, perforated asbestos cement sheets and rockwool blankets, U. S. Gypsum Co.

WINDOWS: Sash and screens—aluminum, Flour City Ornamental Iron Co. Glass—double strength and plate, Pittsburgh Plate Glass Co. Glass blocks—Owens-Illinois Glass Co.

STAIRS AND ELEVATORS: Stairs—steel, Wagner Iron Works. Ramps and orchestra lift—Heller Elevator Co.

FLOOR COVERINGS: Carpet—Mohawk Carpet Co. Tile—rubber and asphalt, Wright Rubber Co.

WALL COVERINGS: Flexwood and plywood—U. S. Plywood Co. Silver cloth—F. Schumacher & Co.

FURNISHINGS: Theater chairs—American Seating Co. Furniture—Chas. Sundquist, Inc., Treitel-Gratz, E. Wiener Co., Frautschi Furniture Co., WPA Handi-

craft Project and Dorset Furniture Co. Stage equipment—I. Weiss & Sons, Inc., Twin City Scenic Co., Novelty Scenic Studios. Bowling alleys—Brunswick-Balke-Collender Co.

METAL TRIM: Interior doors—steel, Art Metal Co. Exterior doors and special sash—aluminum, Flour City Ornamental Iron Co. Millwork—A. Lentz Co.

HARDWARE: By Yale & Towne.

ELECTRICAL INSTALLATION: Wire and Cable—Crescent Insulated Wire & Cable Co. Switches and receptacles—General Electric Co. Lighting panels—Square D. Co. Fixtures—Daybrite Mfg. Co. and Nessen Studio. Stage lighting—Major Equipment Co., R. E. Major & Co. and Century Lighting Co. Sound control system—Operadio Co. Radio equipment—Radio Corp. of America.

PLUMBING: Toilet fixtures—Kohler Co. and Crane Co. Kitchen equipment—A. L. Kiefer Co.

HEATING AND AIR CONDITIONING: Heating and complete air conditioning system, Trane Co., Harnischfeger Corp., Philip Carey Co., Cutler-Hammer Co., Carrier Corp., Bagley Blower Co., American Air Filter Co. Pipes—Spang Pipe Co. Controls—Johnson Service Co. Radiators—Kohler Co. Grilles—Barber-Colman Co. Valves—Ohio Injector Co. Pumps—Dayton Dowd Co.

GENERAL CONTRACTOR: Jacobson Brothers.

TWO NEW HARVARD BUILDINGS

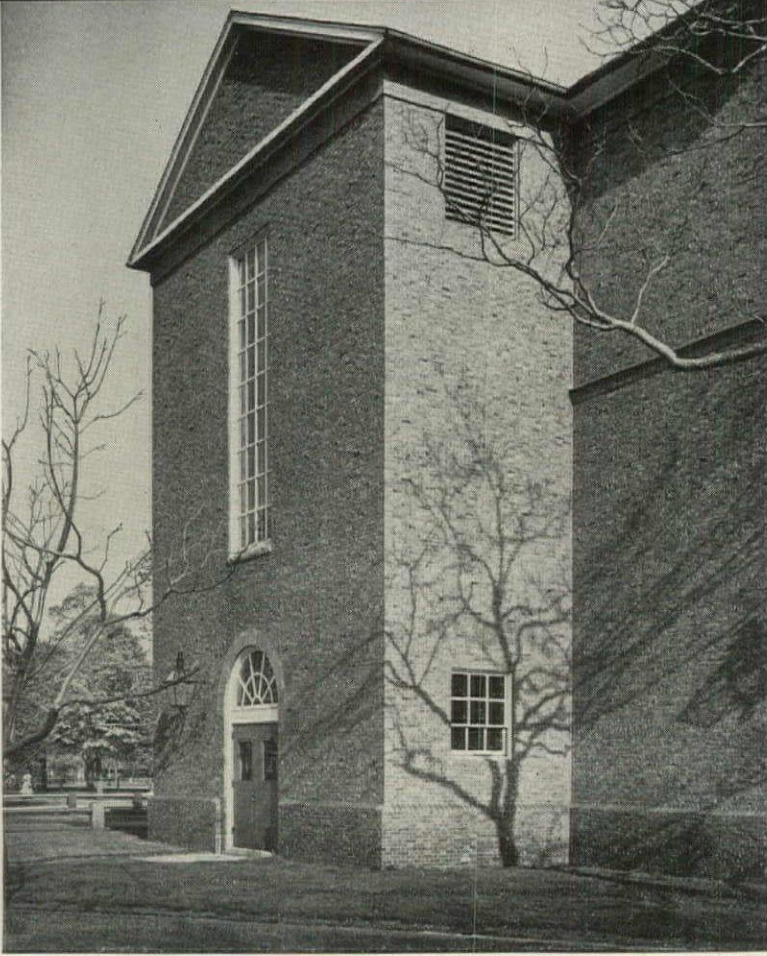
COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS



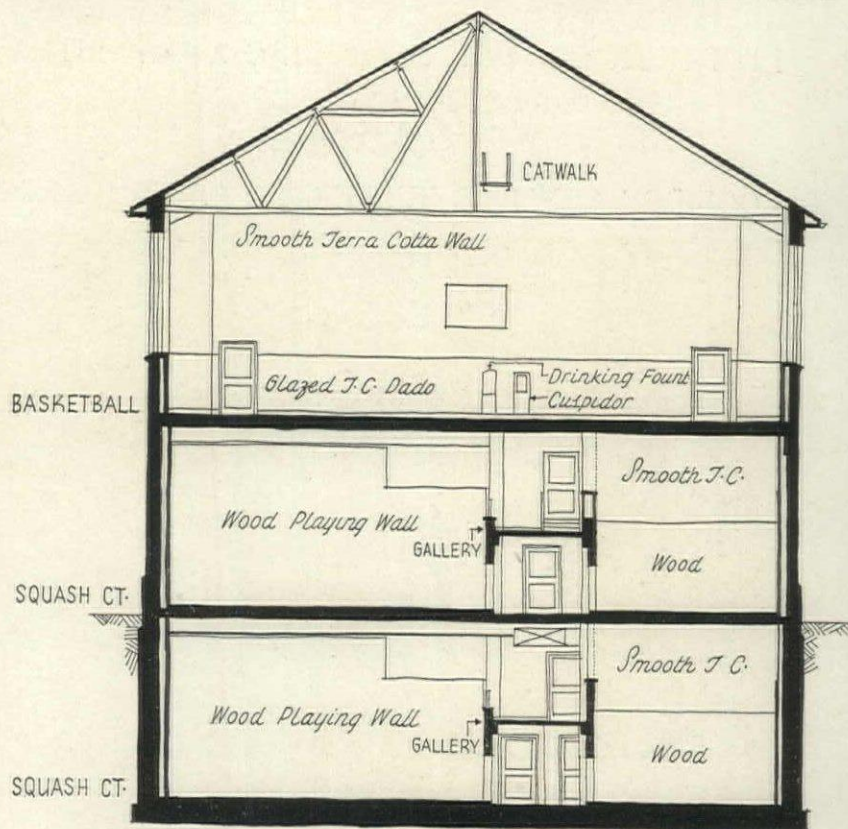
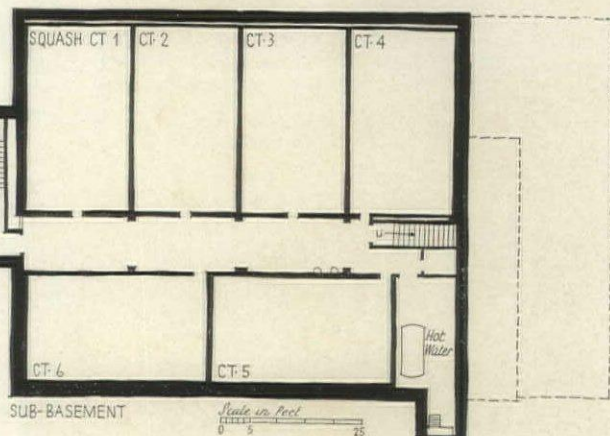
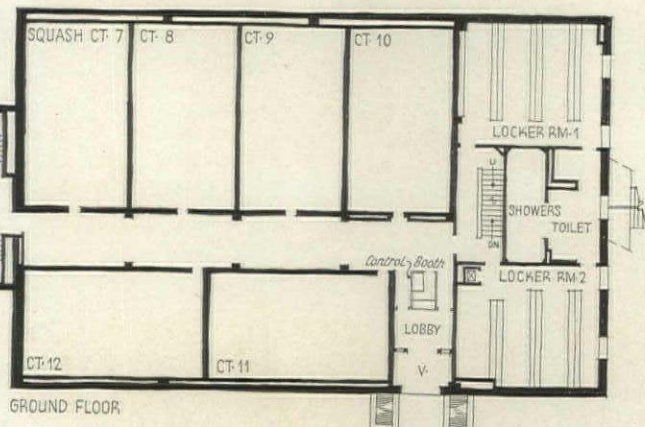
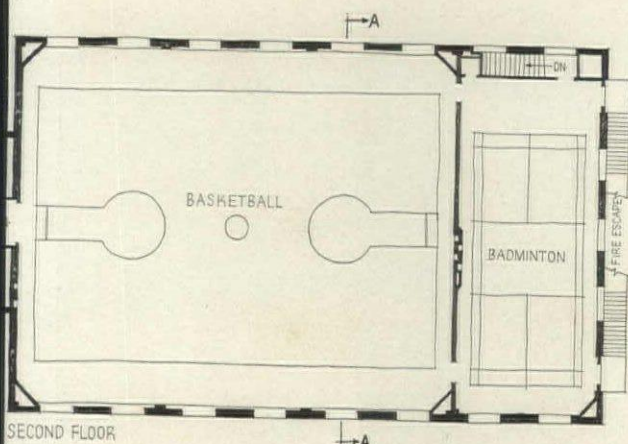
Sigurd Fischer Photos

HEMENWAY GYMNASIUM

Rigid requirements were imposed on the architects in the design of a new building to replace the old Hemenway Gymnasium: a cornice height of 40 ft. to conform with neighboring buildings; a cupola to bear the historic weathervane; twelve squash courts; a basketball court; a badminton court; locker-shower rooms—all in a limited ground area. The disposition of squash courts became something resembling a Chinese block puzzle, with six of the courts forced below ground. An ingenious doubling of corridor levels (see section) provides floor access and gallery views. Each court has its own supply of fresh air, filtered and tempered, brought in through grilles in the telltales, exhausted through galleries and



corridors to outdoors. A separate system supplies air for the larger upper courts through diffusers 20 ft. above the playing level, exhausting it from near the floor level and out through the cupola. Direct radiation is provided in entrance vestibules and galleries for the benefit of spectators, the steam supplied from yard tunnel mains.



CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—steel frame, 12 in. non-bearing brick wall furred, 2 in. glazed terra cotta. Interior partitions—terra cotta. Floors—concrete slab.

ROOF: Covered with slate.

INSULATION: Walls, ground floor and roofs—cork.

WINDOWS: Sash—wood, double hung and Truscon Steel Co. metal sash. Glass—sheet, Pittsburgh Plate Glass Co. Screens—Cambridge Screen Co.

FLOOR COVERINGS: Entrance—marble, Crab Orchard Stone Co. Playing space—granolithic and maple flooring. Remainder—clay tile, Matawan Tile Co.

FURNISHINGS: Metal lockers—Metal Office Furniture Co. Athletic equipment—Narragansett Machine Co.

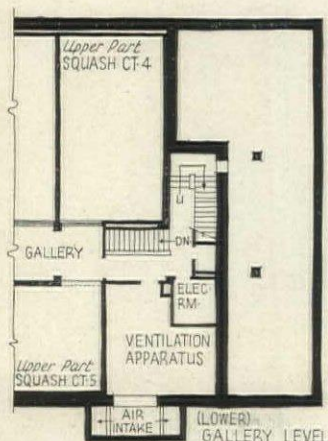
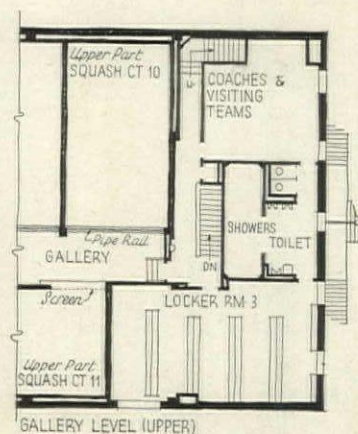
WOODWORK: White oak throughout. **HARDWARE:** By Yale & Towne Mfg. Co., Stanley Works, Oscar C. Rixson Co., Soss Mfg. Co.

PAINTS: By Hancock Paint & Varnish Co., E. I. Du Pont de Nemours & Co., National Lead Co. and Pittsburgh Plate Glass Co.

ELECTRICAL INSTALLATION: Conduits—Youngstown Sheet & Tube Co. Wire—General Cable Co. Schedule material—Bryant Mfg. Co. Switches and panel boards—Trumbull Electric Mfg. Co. Fixtures—Miller Co. Electric clocks—Warren Clock Co.

PLUMBING: Soil pipes—cast iron, Star Pipe Co. Water tank—Ruggles Klingmen Co. Pumps—Jennings, Nash Engineering Works. Toilet fixtures—Crane Co. Drains—Josam Mfg. Co.

HEATING AND AIR CONDITIONING (Richardson & Gay, consulting engineers): Convectors—American Radiator Co. Grilles—Hendricks Mfg. Co. Motors—Crocker Wheeler Co. Basketball fan—Debothezat, American Machine Metals, Inc. Blowers and fans—American Blower Co. Valves—Spence Engineering Co. and Jenkins Bros. Vacuum pumps—Nash Engineering Works.



LITTAUER CENTER OF PUBLIC ADMINISTRATION, HARVARD UNIVERSITY

COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS



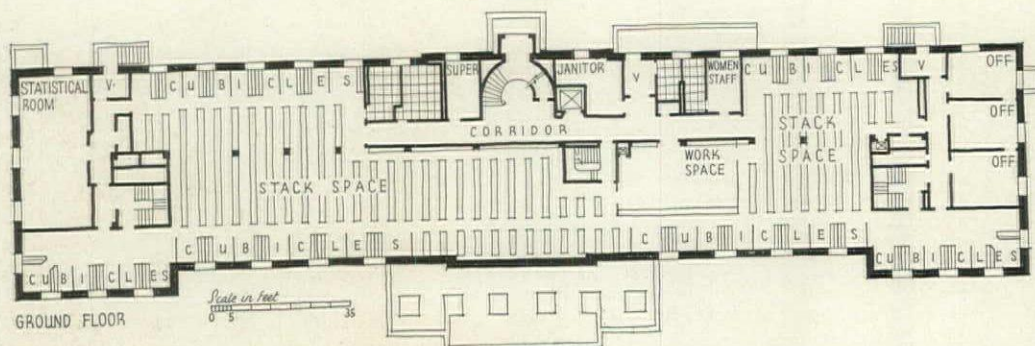
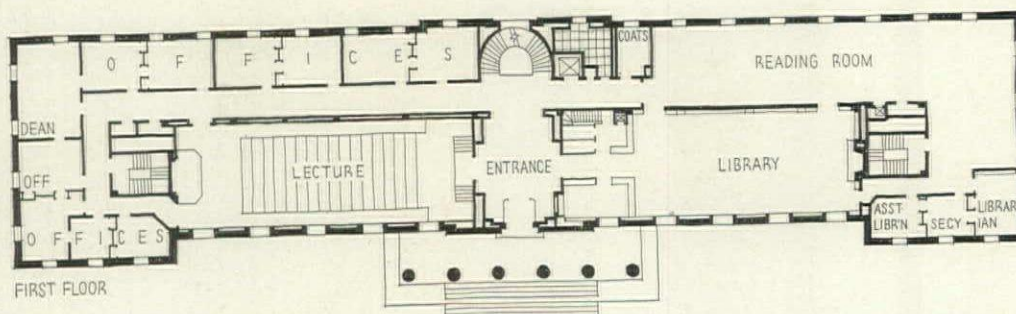
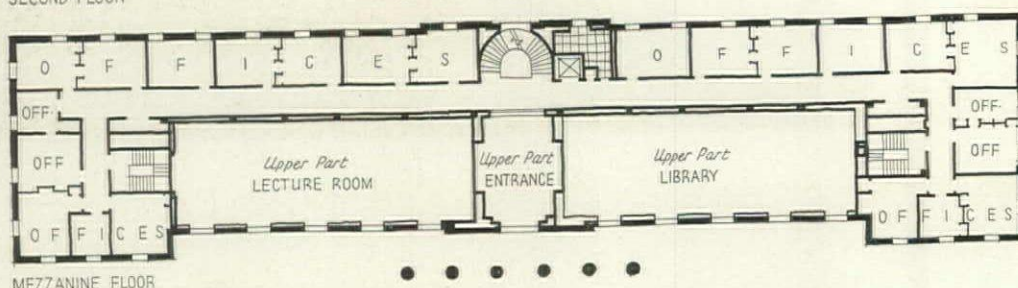
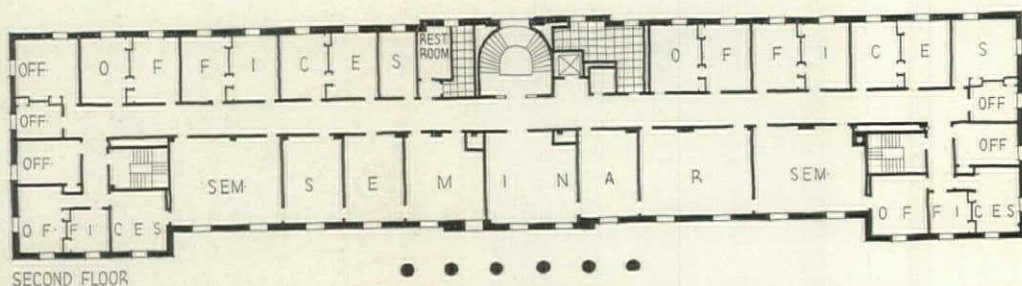
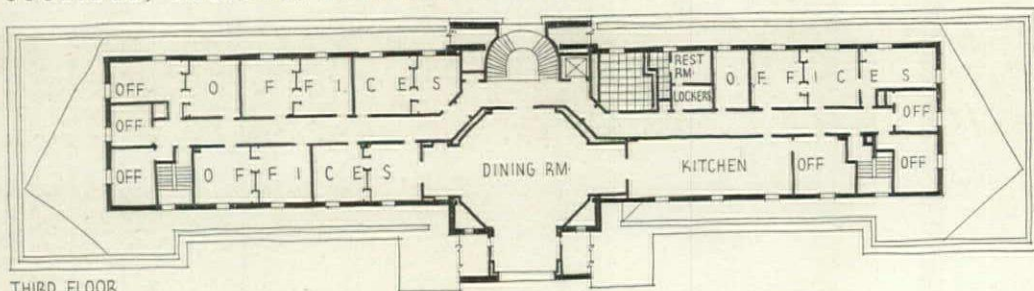
Sigurd Fischer Photos

The Littauer Center is a graduate school to promote the science and art of government administration. Holding fast to the classical traditions that have governed in the design of the University since its founding, the building nevertheless proclaims its own epoch of greatly simplified detail and austere restraint. This acknowledgment of a changing taste is the more emphatic in the rear facade (at right), away from the Ionic portico, where no moldings in trim or division lines have been permitted to detract from the large units of gray-white Chelmsford granite. Inside, as will be seen in lecture room and library, no cornice, molded paneling, overmantel or other impedimenta confuse the utilitarian functions of a school.



LIBRARY

LECTURE ROOM



CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—Chelmsford granite facing, backed up by common brick furred with 2 in. terra cotta, 3 coats gypsum plaster. Floor construction—reinforced concrete slab. Ceilings—plaster.

ROOF: Covered with 5-ply tar and gravel.

INSULATION: Walls—cork. Sound insulation—Acousti-Celotex, Celotex Corp.

WINDOWS: Sash—wood, double hung. Glass—sheet, quality A. Screens—Cambridge Screen Co.

ELEVATORS: F. S. Payne Co.

FLOOR COVERINGS: Lobby—marble. Corridors, offices, etc.—Durite asphalt tile, Royalite rubber cove base, Paul Coste, Inc.

Library—cork tile, United Cork Co.

FURNISHINGS: Metal furniture—Educational & Institutional Cooperative Service. Birch chairs—Nichols & Stone. Auditorium furniture—Heywood Wakefield. Mahogany tables—Gilbert & Estabrook, Ltd. Special furniture—Brooks Gill. Book lifts—F. S. Payne Co. Stack construction—Art Metal Co. Pneumatic tube system—Lamson Co. Venetian blinds—Geo. T. Hoyt Co. Mail chutes—Cutler Mail Chute Co.

WOODWORK: Trim and lecture room—cherry, Smith & Rumery. Doors—bronze and white pine.

HARDWARE: By Oscar C. Rixson Co., Glynn Johnson, Yale & Towne Mfg. Co. and Stanley Works.

But for the inclusion of the library with its stack, a lecture room, a reading room, a dining room and its kitchen, the graduate school has become an office building.

PAINTS: By Samuel Cabot, Inc., L. Sonneborn Sons, Inc., National Lead Co., Pittsburgh Plate Glass Co.

ELECTRICAL INSTALLATION: Conduits—Youngstown Sheet & Tube Co. Wire—General Cable Co. Switches and receptacles—Bryant Electric Co. Panel boards—Trumbull Electric Co. Floor ducts—Walker Bros.

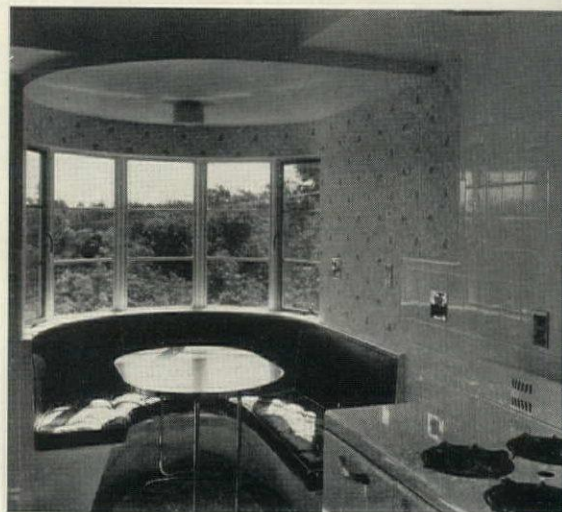
PLUMBING: Water pipes—American Brass Co. Valves—Jenkins Bros. Toilet fixtures—Crane Co. Ejectors—Yeomans Co. Water tanks—Enterprise Mfg. Co.

HEATING: Radiators—American Radiator-Standard Sanitary Corp. Thermostats—Powers Regulator Co. Valves—Jenkins Bros. Vacuum pumps—Nash Engineering Co. Filters—American Air Filter Co. Air washers, fans and heaters—American Blower Co.

BUILDING MONEY

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Apeda Photos

SELF-SELLING DETAILS

move one house a week for New Jersey's smartest subdividers. A complete building service in the \$13,000-and-up market.

With a little ballyhoo about low down payments and monthly mortgage costs, houses priced at less than \$5,000 sell themselves, go like hot cakes. Above the \$13,000 level, however, the market is ten times thinner, the selling job ten times tougher. And, subdividers serving this buyers' market usually content themselves with less than a dozen houses per year. A newsworthy exception is New Jersey's General Properties, Inc., a closely knit building organization in the \$13,000-and-up field, which recently made New York headlines by selling six new houses at \$107,000 in a single day and at mid-year was only a step behind its one-house-a-week construction and sales schedule. Worthy of examination by every U. S. subdivider are General Properties' houses (61 to date), the company which builds them and the design and equipment features which sell them.

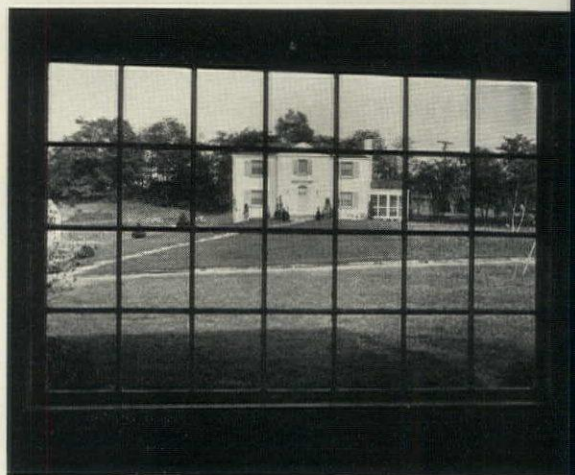
With the initiative and backing of two New York brother businessmen, General Properties was organized in 1936 to do for New Jersey what famed subdividers Levitt and Sons have long been doing for Long Island, N. Y.—to offer the benefits of integration, quantity purchasing and mass production to the high cost house buyer. To that end they invited one of New Jersey's leading architects and one of its top-flight builders to serve with them on the board of directors, and to head the operating personnel which now numbers eleven and draws on experience in practically every branch of Building: architecture, engineering, contracting, construction, interior decoration, mortgage finance, real estate selling and bookkeeping (see page 64).

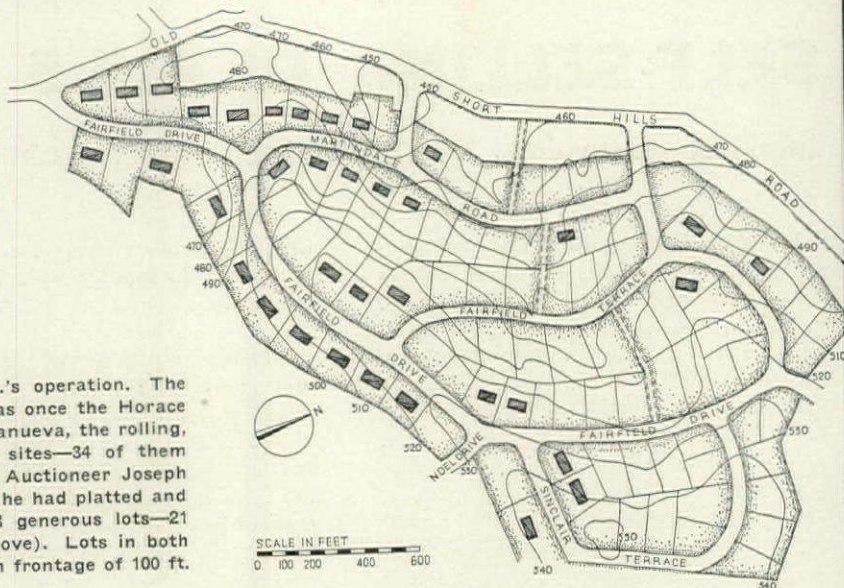
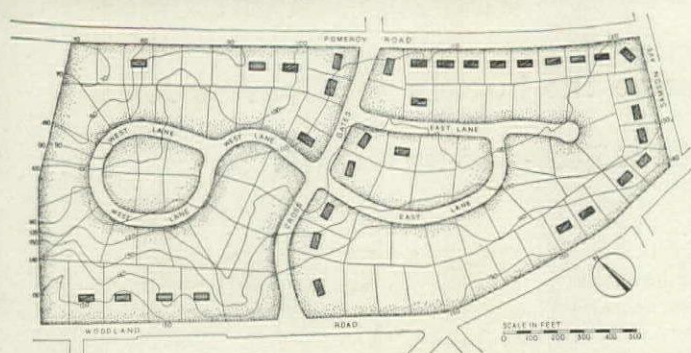
Fired with the success of its initial venture—a small (ten-house) cul-de-sac sub-

division—General Properties in the last two years has rapidly expanded its building activities to include a 103-lot subdivision in swank Short Hills, a small residential community nineteen miles and 35 commuting minutes from Downtown New York, and a 97-lot development in equally swank Madison, seven miles and twelve minutes beyond. Moreover, the company has developed a trio of complete building services to satisfy the whims of every prospect and to capitalize on the three types of business naturally presented in the high cost house market.

Service No. 1 is, in effect, a ramification of the old "stock plan" idea—without its usual evils. Called the "predesigned, pre-priced plan," its spark plug is an elaborate brochure of 36 floor plans and colored exterior renderings by the architect—houses whose costs have been accurately figured by estimators in accordance with General Properties' standard specifications. With minor changes to suit individual family requirements and to adapt the buildings to the site, any of these houses will be completed in either subdivision for the stated price. To date, however, this plan library has served only as a springboard for General Properties' two other programs.

Service No. 2 is aimed at prospects who demand major alterations in the predesigned houses or desire to start their planning from scratch. Under this so-called "plans to completion" service, a company representative takes the prospect in tow, shows them through exhibit houses (see below) notes their likes and dislikes, helps them select a lot, arranges a conference with the architect. In short order, preliminary sketches are submitted to the unobligated prospect along with an estimate





Subdivided estates are the theaters of General Properties, Inc.'s operation. The 55 acre "Cross Gates" development at Madison, N. J. (above) was once the Horace Work Estate. Admirably platted in 1938 by Architect Marcel Villanueva, the rolling, wooded property now makes room for 97 attractive building sites—34 of them developed. Year ago General Properties took over from Realty Auctioneer Joseph P. Day the northern corner of his Short Hills, N. J. estate which he had platted and partially sold. Called "Old Short Hills Estates," it boasts 103 generous lots—21 developed by Day, 15 by General Properties (see street view above). Lots in both subdivisions have a minimum area of one-third acre, a minimum frontage of 100 ft.

of the all-inclusive maximum cost. If satisfied, he plunks down \$250 to \$500 in cash toward the cost of working drawings and specifications. When completed, the company cost estimator again goes to work, figures the actual contract price for the entire job. If it exceeds the original maximum estimate, the prospect may back out of the deal, collect his deposit; if he backs out for any other reason, he forfeits the \$250 to \$500. Finally, if the prospect decides to go ahead with the plans, his deposit is applied toward the cash down payment, which is the signal for construction to begin. While only 26 of the company's 61 houses have been built under the "plans-to-completion" service, practically all of them have cost more than \$20,000 each. Consequently, this part of the production program accounts for more than 60 per cent of the total dollar volume of business.

Service No. 3 offers the prospect a house completely landscaped and wall papered—ready for occupancy. While this part of the program is speculative building, pure and simple, General Properties shies away from the term, describes these houses as built "for its own account" as replacements

for exhibit houses already sold. Erected from plans shown in the company's design portfolio and according to its standard specifications, these exhibit houses are priced at \$14,000 to \$18,000, account for more than half (35) of the total number of houses built to date but for only about 40 per cent of the gross dollar volume.

Gearing its production schedule to the trend of sales, General Properties tries to keep seven completed exhibit houses on display in both subdivisions throughout spring, summer and fall. Two months ago, however, these careful plans were kicked into a cocked hat when six houses were sold in one day at prices ranging from \$14,850 to \$22,000; four of them were exhibits.

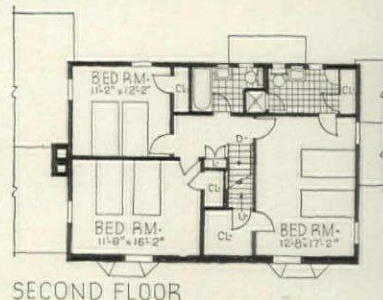
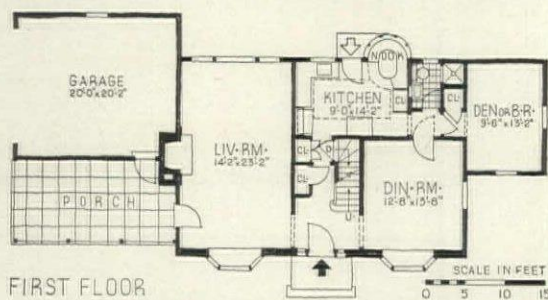
Behind this record turnover in high cost speculatively built houses are the intelligent policies of General Properties. Periodically, its architect, construction supervisor, salesmen, purchasing agent, and estimator sit as a board, discuss the design, construction, finish and equipment of the next batch of houses scheduled for construction and amend the company's standard specifications to capitalize on lessons learned in the erection and sale of preceding

houses. Thus, if the sales force has noted a strong consumer demand for a certain item, chances are that their recommendations will be incorporated in subsequent houses—provided the purchasing agent does not object. Likewise, the builder's suggestion for the simplification or improvement of some construction detail will certainly be heeded.

There is not, however, much room for improvement in General Properties' specifications. Mindful of its market, the company realizes that most of its prospects are already home owners, that they are unimpressed by a new house of just average quality. Consequently, General Properties keeps posted on new developments in its industry and, once they are proved, includes them in its plans and specifications. As shown on pages 61 and 65, its houses feature as "standard" many an item which the average house builder includes only as an "extra"—if he includes it at all. While they would be neither missed or expected by the purchaser of a low cost house, all told they account for at least \$1,000 of the cost of a \$15,000 house. The company is convinced, however, that this



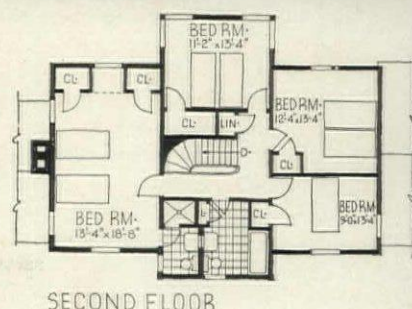
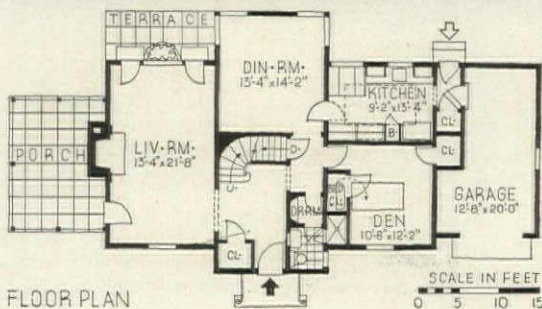
Design of General Properties' houses by Architect Marcel Villanueva meets local consumer demand—claim is that about 70 per cent of the prospects have acquired a New England background either by living or vacationing there. But, the Colonial architecture is modified with modern details: corner and strip windows at the rear of the houses, simplification of ornamental details, larger than average windows, low first floor level, etc. Accompanying floor plans and those on page 64 feature built-in sales appeal: attached garages, ample outdoor living space, large entrance halls, dining alcoves off kitchens, a den which may become a guest room or maid's room, first floor lavatories with stall showers, generous closet space. House above sold for \$15,500 including land, landscaping and decoration; house below, with two-car garage, for \$17,000.

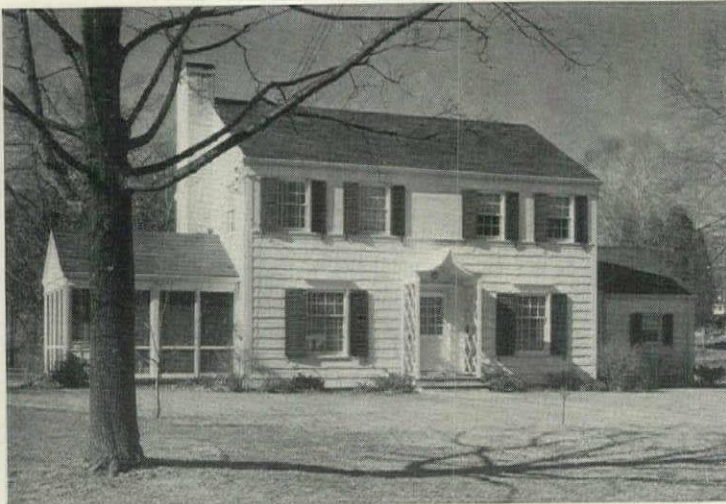


\$1,000 of "extras" sells the rest of the house. Silent mercury toggle switches, for instance, are mighty attractive to high cost house shoppers when they are not told that they add an extra \$20-25 depending upon the house's size. Also: flush doors instead of the usual six-panel variety at an extra \$50-\$60; leaded glass entrance doors and windows at \$50-100; wrought iron stair rails at \$25-50. While these and other items may run to \$1,000 or more, their additional cost means little to the purchaser when divided among the monthly payments on a long term mortgage.

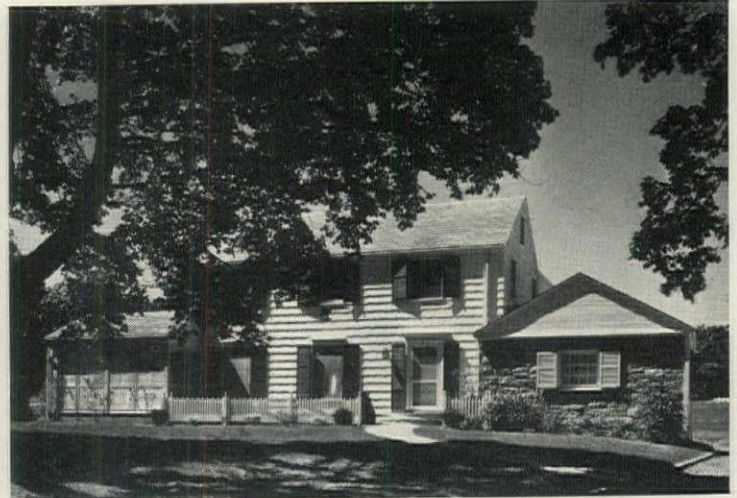
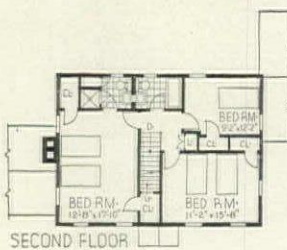
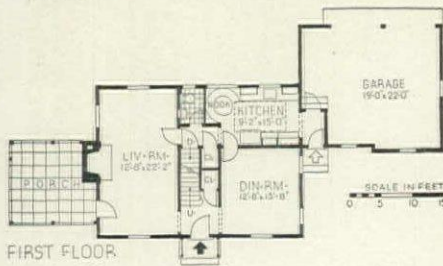
Helping the houses sell themselves is a unique sales policy for subdivisions in the high price field. Instead of tagging a house with an "asking price" which the prospect may knock down as much as 5 per cent, General Properties accurately figures and sticks to one "sales price" which includes no wash or padding. Either the prospect buys at the quoted price, or he does not buy. Result: there is no prospect-salesman dickering, and purchase contracts close with gratifying speed.

Salesmen use no tricks, no pressure; they realize that high incomers are not easily

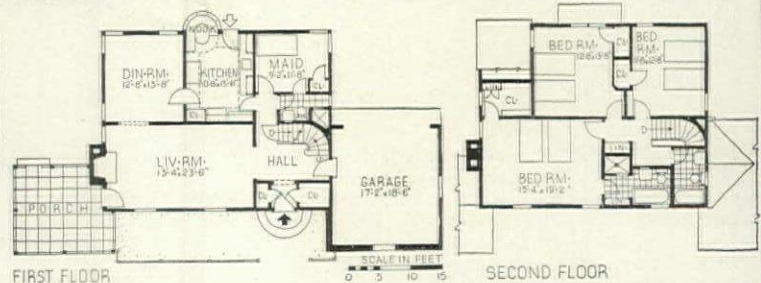




\$13,500



\$15,800



stamped into buying something they do not want. With unusual frankness, a General Properties salesman first sells himself and his company. Among other things, this step is essential to convince the prospect that the house's construction and other concealed details are in accordance with the company's much-touted standard specifications. (Helpful in this respect is the offer of a one-year guarantee on all workmanship, materials and equipment.) Then the salesman sells the site by pointing out its ample dimensions (see page 62), wooded surroundings, proximity to shopping and transportation centers and the community's moderate tax rate. When it comes to the house, sales talk is concentrated on overall quality and interior finish. Before disclosing the price, the salesman frequently asks the prospect to guess, is invariably rewarded by an over-valuation. (This reflects the economies which General Properties effects through efficient operation, large scale cash material purchases and mass production—seldom achieved in the one-house-at-a-time high price field.)

To attract prospects to the subdivision, the company relies on regular display advertising in nearby Newark's No. 1 newspaper; because inquiries from the other side of the Hudson River are difficult to follow, it uses only the classified columns of New York City newspapers. Other promotion includes an unpretentious sign at each subdivision's main entrance, an intensive mail campaign launched once each spring and an invitation to local realtors to help sell the houses for the usual 5 per cent commission.

As part of its one-stop house building service, General Properties handles all details in the financing of its sales. One out
(Continued on page 50)

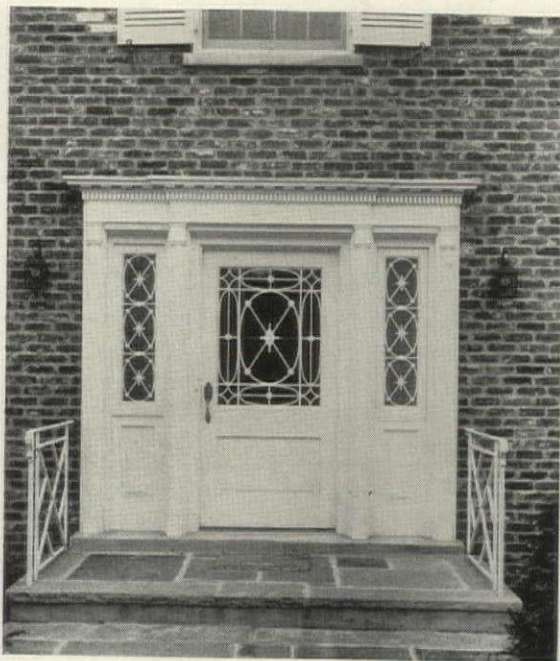
OPERATING PERSONNEL of General Properties boasts experience in most every branch of the building industry:

Production	Function	Experience
Fred Naef	Vice president and general manager	Building
Marcel Villanueva	Architect	Architecture
John J. Kentz	Engineer	Engineering
Marguerite Wharton	Decorator	Int. decoration
Porter Varney	Estimator and purchasing agent	Contracting
Robert Alexander	Comptroller	Mortgage finance
Carolyn Tichener	Bookkeeper	Bookkeeping
Sales		
William M. Merrick	Director of sales	Building & sales
William T. Smith, Jr.	Sales manager	Building & realty
Ransom P. Rathbun	Asst. sales manager	Banking & realty
W. Kelton Evans	Cooperating realtor at Madison	Realty

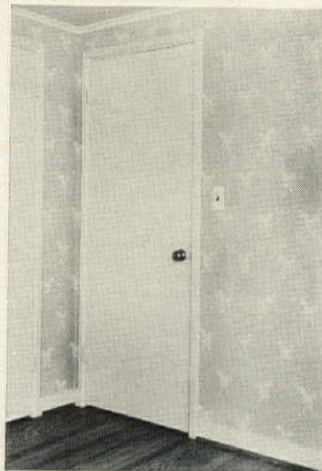
CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—red cedar shingles or 4 in. brick or stone veneer, U. S. Gypsum Co. or Flintkote Co.'s building paper, diagonal sheathing, studs, Calvin-Tompkins Co.'s rockwool; inside—perforated rock lath and U. S. Gypsum Co.'s hardwall plaster. Girders—steel, Joseph T. Ryerson & Son. Floor construction—oak finish.
ROOF: covered with No. 1 clear black Pennsylvania slate.
SHEET METAL WORK: Flashing, gutters and leaders—16 oz. copper, Anaconda Copper Co. Ducts—galvanized iron.
INSULATION: Outside walls and roof—rockwool.
WINDOWS: Sash—wood double hung with Unique Window Balance Co. equipment. Casements—steel, Fenestra, Detroit Steel Products Co. Glass—single strength, quality B, Pittsburgh Plate Glass Co. Screens—aluminum, Orange Screen Co. Weatherstripping—R. C. Busch.
STAIRS: Wrought iron railing—Architectural Wrought Iron Shops.
FLOOR COVERINGS: Kitchen—linoleum, Armstrong Cork Co. and Congoleum-Nairn, Inc. Bathrooms—tile, Architectural Tile Co.,

National Tile Co., Robertson Tile Co. and American Encaustic Tile Co.
WALL COVERINGS: Main rooms—wallpaper. Kitchens and bathrooms—tile.
DOORS: Interior—Paine Lumber Co. Garage—Welbilt-Huck & Gerhart and Crawford Door Co.
HARDWARE: By Schlage Lock Co.
PAINTING: Material by Pratt & Lambert.
ELECTRICAL INSTALLATION: Wiring system—General Electric Co. Fixtures—Lightolier Co. Door chimes—Edwards & Co.
KITCHEN EQUIPMENT: Ranges—Norge Corp., Perfection Stove Co., American Stove Co. and Estate Stove Co. Sinks—American Radiator-Standard Sanitary Mfg. Co. Cabinets—metal, General Electric Co.
BATHROOM EQUIPMENT: All fixtures by American Radiator-Standard Sanitary Mfg. Co. Cabinets—Hoegger, Inc., and G. M. Ketcham Mfg. Co.
PLUMBING: Water pipes—brass, Bridgeport Brass Co. and Chase Brass & Copper Co. Remainder—cast iron and lead.
HEATING AND AIR CONDITIONING: Gas fired air conditioning system, General Electric Co.



FLUSH DOOR



LINEN CLOSET



DESIGN AND EQUIPMENT DETAILS in General Properties' standard specifications help sell its houses:

- Dining alcoves off kitchens with built-in leather upholstered seats and chrome-legged tables. (See p. 61.)
- Provision of a double-use room (study or maid's room) conveniently served by a lavatory-powder room which contains a stall shower.
- Furred down soffit around kitchen ceiling containing recessed lighting fixtures and exhaust fan and duct.
- Plastered ceiling in entire basement.
- Large window areas—corner windows in many dining rooms. (See p. 61.)
- Studied interior decoration—average allowance of \$1 per roll for wall paper.
- Special trim throughout—designed by Architect Villanueva.
- Leaded glass in front entrance doors and windows.
- Wrought iron stair and balcony railings. (See p. 61.)
- Flush or slab interior doors.
- Marble sills and saddles in all bathrooms and kitchens.
- Complete, modern equipment in bathrooms and kitchens.
- Full wall tiling behind range—tile wainscot on balance of kitchen walls and in all bathrooms.
- Slate roofs.
- Noiseless mercury toggle switches.
- Large mirrors in bathrooms and powder rooms—frequently more than one mirror per room.
- Steel casements in kitchens, bathrooms, basements and dining alcoves—continuous horizontal window in circular dining alcoves.
- Venetian blinds throughout.
- Overhead-type garage doors.
- Side sprays and chrome-trimmed glass doors in stall showers.
- Aluminum screens throughout.
- Built-in shoe racks in closets, built-in drawers in at least one closet per house.
- Built-in wood hamper in linen closet.



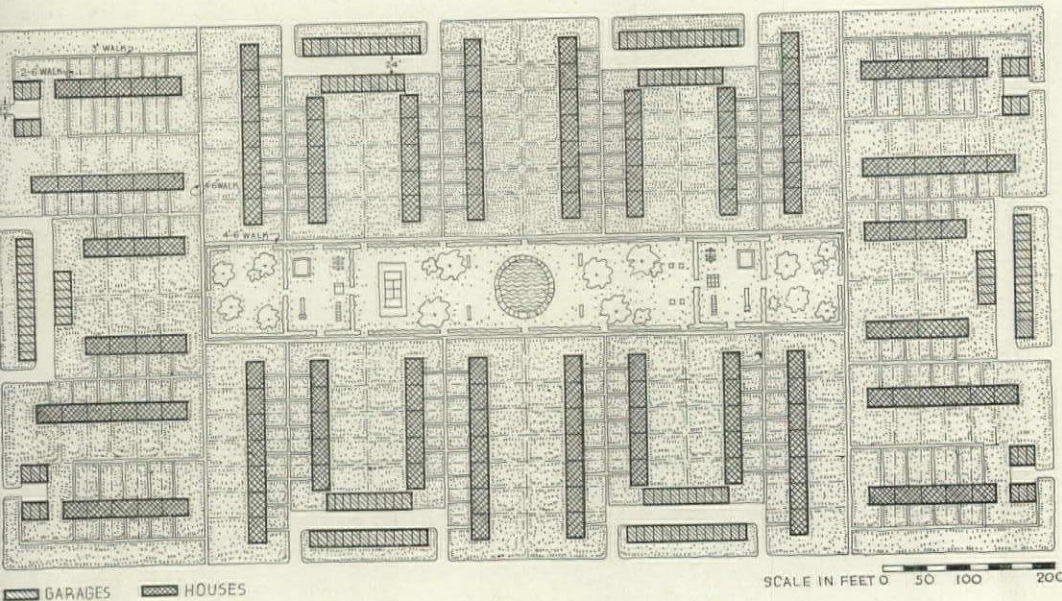
FIRST FLOOR LAVATORY



POWDER ROOM

KITCHEN





SUPERBLOCK PLAN

17.2 ACRES - 152 DWELLING UNITS

BREAKDOWN OF SITE IMPROVEMENT COSTS*

Walks and Streets:	Entire Project	Per Family
2' 6" walks.	\$ 2,832.45	\$ 18.63
(12,315 sq. ft. @ \$.23)		
3' 0" walks.	2,679.96	17.63
(11,652 sq. ft. @ \$.23)		
4' 6" walks.	1,790.55	11.78
(7,785 sq. ft. @ \$.23)		
Asphalt drives.	6,391.00	42.05
(4,261 sq. yd. @ \$1.50)		
Total	\$13,693.96	\$ 90.09

Garages:	Entire Project	Per Family
40 end units @ \$250	10,000.00	65.79
112 interior units @ \$200	22,400.00	147.36
Total	\$32,400.00	\$213.15

Water System:	Entire Project	Per Family
3/4" house connections	2,717.00	17.88
(4,180 ft. @ \$.65)		
2" mains	612.00	4.04
(680 ft. @ \$.90)		
2 1/2" mains	1,050.00	6.91
(1,050 ft. @ \$1.00)		
4" mains	4,345.00	28.59
(3,476 ft. @ \$1.25)		
Total	\$ 8,724.00	\$ 57.42

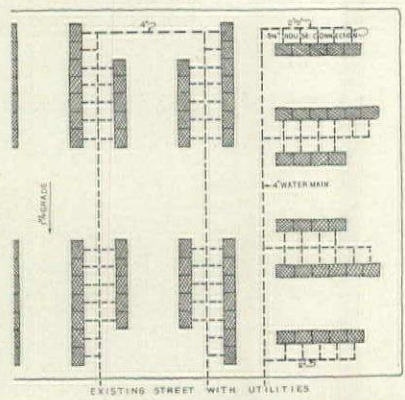
Sanitary Sewer System†:	Entire Project	Per Family
4" house connections	4,290.00	28.22
(4,290 ft. @ \$1.00)		
6" sewer mains	4,968.00	32.68
(3,312 ft. @ \$1.50)		
8" sewer mains	920.00	6.05
(460 ft. @ \$2.00)		
Total	\$10,178.00	\$ 66.95

Storm Sewer System†:	Entire Project	Per Family
(2,790 ft. @ \$2.25)	\$ 6,277.50	\$ 41.30

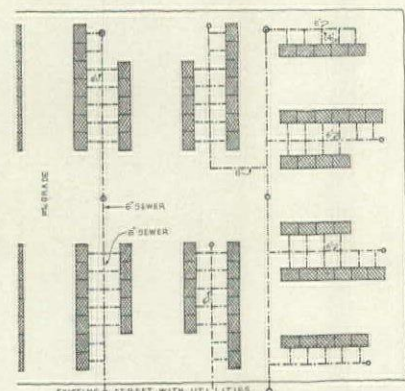
TOTAL IMPROVEMENTS. \$71,273.46 \$458.91

*Basis: current construction costs in Washington, D. C. area. Quantities listed permit calculation of costs in other areas by substitution of local prices.

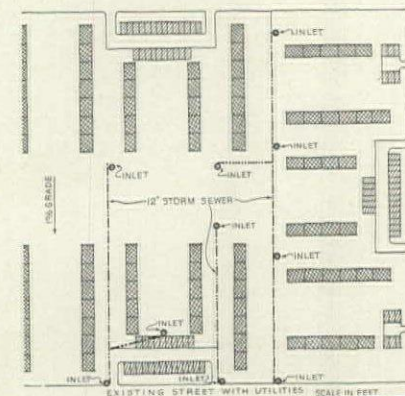
† Includes cost of manholes and inlets.



WATER SYSTEM



SANITARY SEWERS



STORM SEWERS

Esthetically, the superblock has it all over the conventional grid pattern of U. S. cities. Planning is more flexible. Dwellings have more light and air. Areas otherwise taken up by streets may be advantageously used for recreation. Traffic hazards are reduced. Admitting all these virtues, critics nevertheless have questioned the economy of the unorthodox grouping of houses, have held that it ups the costs of utilities.

Welcome by superblock advocates therefore are the recent findings of Architect O. Kline Fulmer. Unable to discover any precise development cost comparisons in the voluminous literature on housing and town planning and determined to settle this moot point, Fulmer selected an existing superblock, drew up a comparable gridiron plan with the same acreage and the same number of houses. Then he spent many a leisure hour at Greenbelt, Md. (where he is assistant manager of Farm Security Administration's rental housing) computing for each the cost of walks, drives, garages, water lines, sanitary and storm sewers. In cold dollars and cents, as his cost breakdowns testify, the superblock also outweighs the gridiron plan.

Tipping the balance are these findings:

For a project of 152 dwelling units on a 17.2 acre site, the improvements cost about \$71,000 if developed as a superblock, \$102,000 if developed on a grid pattern. The handsome saving of \$31,000, or \$202 per family, for the superblock represents an economy of roughly 30 per cent.

Largest single saving occurs under the heading of walks and streets; for the gridiron scheme this item runs to \$38,000, whereas for the superblock it is only \$14,000. The \$157 per family difference is an economy of about 23 per cent.

Other superblock savings: \$37 per family, or 6 per cent, in garages; \$3, or a little less than 1 per cent, in water lines; \$15, or about 2 per cent, in sanitary sewers.

Analysis. In scoring his victory for the superblock, Architect Fulmer tried to make the theoretical comparison critic-proof by utilizing practical experience so far as possible. The superblock plan is based on Greenbelt's actual layout. The gridiron plan is hypothetical but resembles closely the street and alley pattern usually found in suburban areas. The four 290 x 600 ft. blocks, together with the intervening 30 ft. streets, match exactly the superblock area of 17.2 acres. Each scheme provides 152 rowhouse dwelling units with garages, which could be either rented or sold.

Most gridiron solutions show a much higher density than 8.83 families to the acre, but for accurate comparison the coverage has been kept the same in both cases. For the gridiron plan the typical lot size is 30 x 127 ft., for the superblock 30 x 90 ft. Dwelling units are identical in size (20 x 30 ft.). So are the 10 x 20 ft. garages.

S. GRIDIRON

Criticism. Despite Fulmer's care not to put his thumb on the superblock side of the scales, skeptical critics may still question the comparison's validity. Comments already offered by private and public housers indicate that the moot point of economy is not easily settled:

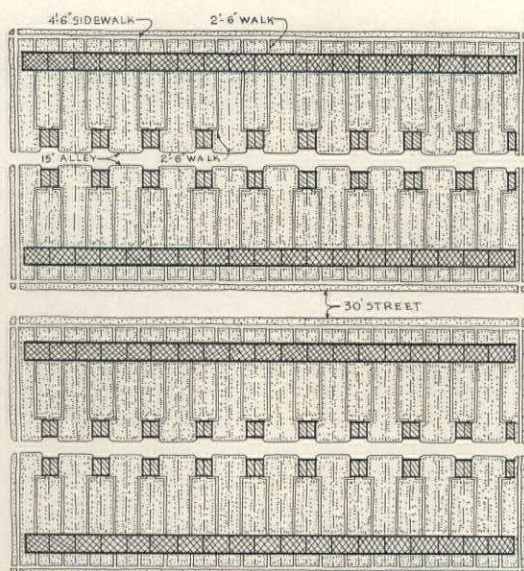
► Rowhouse buildings in the superblock are more numerous, require more endwalls, would presumably be more expensive to build. Rebuttal: End units are also easier to rent or sell, could therefore be higher priced to offset extra construction costs.

► The gridiron plan shows walks paralleling all boundary streets. If similar walks are included in the superblock scheme, the saving on this item is largely canceled. Rebuttal: Walks in both plans have been put in only where necessary for the families to reach their dwelling units. However, even if 3 ft. perimeter walks should be required by the city, the added cost would be only \$16.61 per family, still enabling the superblock to show a substantial saving.

► If utilities are assumed to exist in both streets running the length of the property, then logically the gridiron layout should be the more economical. Rebuttal: A street with utilities flanking only one side of the property is more typical of suburban development, since subdivisions are usually platted progressively along each side of a main road radiating out from the expanding city. Granting that the water mains could be tapped from two streets, in the superblock this would permit 2½ in. lines to be substituted for all 4 in. lines with a saving of \$11 per family, whereas in the gridiron plan 1,230 ft. of 6 in. lines could be completely eliminated for a saving of \$14 per family. The gridiron's water system would then offer a comparative saving of \$3 per family.

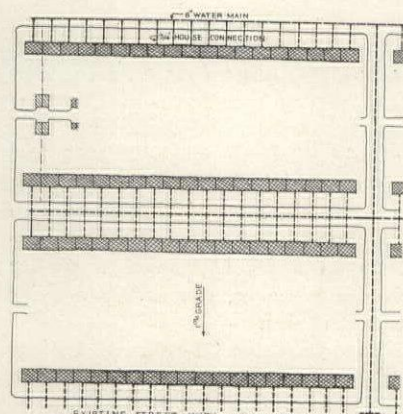
► Since relatively few U. S. cities would collect garbage from all dwelling units in the superblock project, the cost of garbage collection stations should be included in the analysis. Rebuttal: In many rental projects, as in Greenbelt, garbage is collected by the management. If dwelling units were sold to individual families, they undoubtedly would have to initiate a garbage collection system.

► Developed for recreation, the superblock's central parkway would involve large maintenance charges. Rebuttal: If already wooded, the central area could be left as a natural park. If sodded, maintenance should not be more than \$3.50 per family annually. Greenbelt experience indicates that mowing and trimming the two-acre central strip costs \$200 a year, leaving more than \$300 for care of shrubs and trees. Playground equipment would of course involve additional expense. In exchange for money saved by the elimination of streets and alley maintenance, the municipality might be persuaded to share the cost of the interior park.

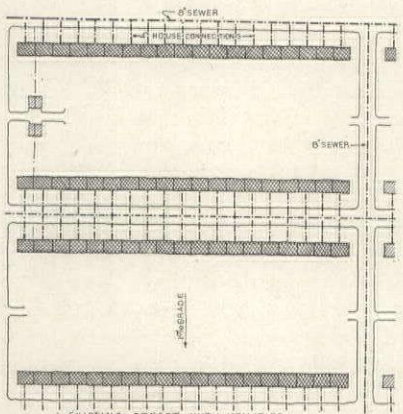


GARAGES HOUSES

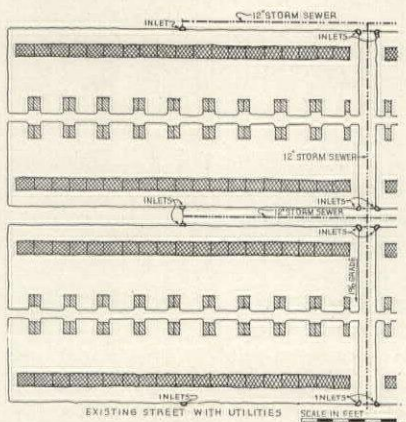
SCALE IN FEET 0 50 100



WATER SYSTEM



SANITARY SEWERS



STORM SEWERS

GRIDIRON PLAN

17.2 ACRES - 152 DWELLING UNITS

BREAKDOWN OF SITE IMPROVEMENT COSTS*

Walks and Streets:	Entire Project	Per Family
2' 6" walks. (35,100 sq. ft. @ \$.23)	\$ 8,073.00	\$ 53.11
4' 6" walks. (31,176 sq. ft. @ \$.23)	7,170.48	47.17
Asphalt alleys (4,844 sq. yd. @ \$1.50)	7,266.00	47.80
Asphalt streets. (6,033 sq. yd. @ \$2.50)	15,082.50	99.23
Total	\$37,591.98	\$247.31

Garages	\$38,000.00	\$250.00
152 end units @ \$250)		

Water System:		
¾" house connections (6,156 ft. @ \$.65)	4,001.40	26.32
6" mains (2,980 ft. @ \$1.75)	5,215.00	34.31
Total	\$ 9,216.40	\$ 60.63

Sanitary Sewer Systems†:		
4" house connections (6,156 ft. @ \$1.00)	6,156.00	40.50
8" sewer mains (3,160 ft. @ \$2.00)	6,320.00	41.58
Total	\$12,476.00	\$ 82.08

Storm Sewer System†	\$4,680.00	\$30.78
(2,080 ft. @ \$2.25)		

TOTAL IMPROVEMENTS . **\$101,964.38** **\$670.80**

Superblock Costs (opposite) . **\$71,273.46** **\$468.91**

SAVINGS IN FAVOR OF SUPERBLOCK . **\$30,690.92** **\$201.89**

HOUSING VACANCIES IN U. S.

bump along new statistical bottom, show conflicting local trends with market generally favoring the single-family house.

As a statistical snapshot of market conditions in a community, the vacancy survey, properly focused, is an excellent guide for planning new construction. If it reveals a large number of vacant dwellings, new housing obviously is not urgently needed. But, if it shows a drop in vacancies beyond levels registered in earlier surveys, then Building should get busy.

Highly significant therefore are the residential vacancy data for more than 80 U. S. cities compiled by fact-finders in the Commerce Department's Construction and Real Property Section and turned loose last month by Economist S. B. Barber. Although spotty in coverage and not strictly comparable because of local differences in making surveys, the statistics provide a fairly clear photomontage of current market conditions for the entire country. Covering the period beginning with 1928, they also give a sweeping panorama of changing trends in the housing market, the most comprehensive recorded so far by any organization.

Outstanding landmarks in the nationwide picture: First, the rapid fall of vacancy percentages, which began with the high Depression-fostered levels of 1932-1933 and continued well into 1936, has definitely come to an end in most cities. (See tabulation, right.) In general the 1939 figures show vacancies hovering around or below 3 per cent.

Second outstanding fact is that the downward national trend has recently given way to a diversity of local trends reflecting local conditions. Changes last year varied greatly in the surveyed communities. Of the 35 cities for which comparable figures were obtained in 1938, twenty report lower percentages in 1939, fourteen higher percentages, one no change. A geographic concentration is not noticeable in these changes.

Actual vacancies are probably greater than the tabulated ratios indicate. Most percentages are based on private surveys which often understate the vacancies by a large margin. However, such understatement does not undermine the observation that vacancies fell sharply between 1933 and 1936 and that the statistical average for the whole country is now moving at a point well below that prevailing in pre-Depression years.

Whether the current percentages can be interpreted as evidence of a national housing shortage it is hazardous to say. There is no exact measure of a normal or healthy vacancy ratio. The old 5 per cent rule of thumb used by real estate operators may possibly need revision in light of the new statistics. At the same time it is undeniably true that the statistical average is close to rock bottom. Many occupied dwellings are of poor quality. With any increase in incomes and undoub-

ling of families, the demand for improved housing would undoubtedly be intensified in most localities.

Community trends. In evaluating local vacancy fluctuations many factors pop up for consideration—construction of new dwellings, demolition of old, doubling and undoubling of families, migration to and from the city, deaths, marriages, divorces, etc. Each affects the community trend in varying degree. In one city business improvement and higher incomes may result in the undoubling of families and an influx of new families, thus decreasing the vacancy ratio. In another city the percentage may be boosted by a large volume of new construction, which ups the supply of unused dwellings. In still another city such trends may offset each other.

Noteworthy as specific case-studies are: ► Denver, Detroit and Oklahoma City, where residential vacancies by 1937 had fallen so far from their earlier high levels that residential construction revived with a bang. Result: an increase in vacancies by 1939 to a level permitting greater margin for turnover, remodeling activity and tenant choice.

► In Cleveland, the Oranges and Springfield the vacancy ratio did not fall so low. However, new dwellings were built in sufficient quantity to outstrip new demand. Statistics now indicate a more nearly adequate supply of housing.

► In Indianapolis, Lansing, St. Louis and South Bend, the 1937 business recession made itself felt by higher vacancy figures in the early and middle months of 1938. By the end of the year, however, vacancies had returned to their former level.

► In Brockton, Des Moines, Duluth, Kansas City, San Antonio, Seattle, Tampa and Utica, vacancies for the past two or three years apparently have been little affected by changing business conditions or local building booms. The trend has been comparatively stable; in some instances it has sloped continuously downward.

Housing trends. Unfortunately, few cities reporting vacancies break up the statistics to show exactly what types of dwellings are unoccupied. Even when breakdowns are available, designations may vary. Row houses may be classified in one city as flats, in another as single-family dwellings. Awed by these difficulties of classification, the Commerce Department's statistical sleuths are fearful of intercity comparisons, make no attempt to interpret the vacancy data by type of structure.

Somewhat bolder, Federal Home Loan Bank Board economists on the basis of the same data have made a newsworthy observation: even though trends in over-all ratios are decidedly mixed for the twelve cities reporting vacancies by structural

type (five up, five down, two unchanged), there are definitely divergent movements in the single-family and multi-family classifications. In ten cities—Cleveland, Denver, Des Moines, Kansas City, Minneapolis, St. Louis, St. Paul, San Antonio, South Bend and Racine—the percentage of unoccupied single-family dwellings in 1939 remained approximately the same or showed a drop from the preceding year's mark. Excepting St. Louis, San Antonio and South Bend, these cities also showed a rise in multi-family vacancies. So, too, did Oklahoma City and Syracuse. Net conclusion: favorable declines in unoccupied single-family houses are being largely offset by marked vacancy increases in multi-family units. All twelve cities report vacancies higher for the multi-family houses than for the single-family units.

(Continued on page 52)

VACANCY PERCENTAGES

NEW ENGLAND	1930	1933	1936	1939
Boston	—	—	6.1e	8.1
Brockton	8.6	9.6	6.4	4.2
Fall River	13.8	12.4	6.4	2.7
New Bedford	—	12.5	5.8	3.6
Springfield	4.5	6.5	2.7	2.4

MIDDLE ATLANTIC				
New York (apts.)	8.9a	17.8	5.8	4.6
Syracuse	5.2	5.3	4.1	2.7
Utica	3.5	4.9	2.7	1.8
Elizabeth	—	—	2.4e	2.1
Oranges & Maplewood	5.3	7.4	3.6	3.4
Trenton	5.4	—	2.3	1.7
Westfield	3.7	3.7	2.3	3.3
Allentown	3.1a	1.7	1.0	0.9
Pittsburgh	—	9.4	3.0	2.2
Williamsport	3.5	8.8	0.9	2.0

EAST NORTH CENTRAL				
Cleveland	4.1	7.4	2.1	2.9
Columbus	5.9	7.8	1.7	1.7
Lima	—	—	1.2e	1.6
Elkhart	—	4.2d	2.3	1.3
Indianapolis	8.8	10.2	3.6	1.8
Muncie	1.3	8.6	1.3	1.8
South Bend	3.0	7.4	1.8	2.5
Rockford	2.3	10.6	1.3	1.8
Detroit	—	9.2	1.0	2.0
Lansing	—	6.4	0.9e	1.2
Madison	2.6	4.3c	0.9	1.3
Racine	6.3b	7.7	1.3	2.1

WEST NORTH CENTRAL				
Duluth	6.2b	9.2d	2.6e	1.5
Minneapolis	—	—	1.5e	1.9
St. Paul	4.2b	3.5	1.5	1.8
Cedar Rapids	2.8	4.8	1.7	1.0
Davenport	1.2	3.8	0.8	0.9
Des Moines	5.2	5.1	1.7	1.5
Kansas City	8.8	12.4	7.2	6.6
St. Louis	8.4b	8.5d	3.8	3.5
Omaha	3.2	4.0	1.5	1.5

SOUTH ATLANTIC				
Asheville	—	8.8	3.7	1.9
Tampa	11.8	8.5	4.4e	2.4

SOUTH CENTRAL				
Oklahoma City	1.5	9.7	1.5	4.7
Tulsa	8.7	10.6	—	4.3
Houston	5.0	1.4d	1.1	2.7
San Antonio	5.3	7.2	3.0	3.1

MOUNTAIN & PACIFIC				
Denver	6.8	6.7	1.0	2.0
Salt Lake City	3.4	5.5	—	3.0
Seattle	—	—	2.1	1.4
Spokane	5.2	5.2	2.2	2.0
Portland	6.2a	8.9c	2.1e	2.7
Pasadena	4.2	4.7	1.7	2.2

Footnotes: a—ratio covers 1929; b—1931; c—1932; d—1934; e—1937.

MORE INTEGRATION, LESS PREFABRICATION spell success for

American Houses, Inc. \$2,750 houses, \$20-per-room apartments come from a factory.

Long heralded as the one answer to Building's many problems, Prefabrication has fallen far shy of boastful advance notices, has produced far less than 1 per cent of all houses built since its debut eight years ago. As an industry, it has been a miserable flop, belittled by builders the country over. But, proving the rule is a handful of individual prefabricators who have learned costly lessons in design, construction and merchandising, and are probably in the business to stay. Atop this heap alphabetically and production-wise is American Houses Inc. whose New Jersey plant is turning out two houses a day, whose New York office is turning a profit for the first time in history. With a public display of 136 low cost prefabricated houses completed this month in a Maryland subdivision and 48 high rent prefabricated garden apartments just opened in suburban New York, the company foresees still bigger production, bigger profits.

What American Houses Inc. has that will sell 700 dwelling units a year (1940 estimate) at a profit should interest Building, because today less than 5 per cent of the 75,000 U. S. builders come anywhere near 100 units per year.

Experience. In the first place, American Houses in eight years has had more experience in all phases of house building than most builders acquire in a lifetime. Organized in 1932 by Architect Robert W. McLaughlin, then and now a partner of Arthur C. Holden, American Houses took prefabrication honors by being the first company to go afield and erect a house (right, above). Its steel frame work, asbestos composition wall panels and the flat aluminum-insulated steel roof were almost hand-made. Satisfied with the behavior of this guinea pig, McLaughlin in January 1933 incorporated American Houses, rented a roomy New York office, bought a 15,000 sq. ft. plant in Kearny, N. J., put the house into production. (ARCH. FORUM, April 1933, p. 327).

Two years later after American Houses had established itself as the No. 1 U. S. prefabricator by erecting about 20 houses, General Electric and American Radiator lent McLaughlin some of their engineers and laboratories, helped him perfect his product. (Their stake was in Houses Inc., an ill-starred holding company for the prefabrication industry which had acquired a financial interest in American Houses. ARCH. FORUM, May 1935, p. 508.) Principal change was the streamlining of the kitchen and bathroom located on either side of a factory assembled stack containing all the house's plumbing and mechanical equipment (right center). Narrowing down its 120 stock models to an even dozen, priced between \$5,000 and \$15,000, the company in the next two years sold some 150 of these so-called Motohomes via licensed dealers throughout the East.



1932. American Houses, Inc. gave the U. S. its first outdoor prefabricated house. Location: Hazleton, Pa. Occasion: president of Jeddo Highland Coal Co. liked Architect McLaughlin and his house; wanted cheap dwellings for his miners and a new outlet for his coal-fired, humidified warm air furnace. Six unskilled laborers put the 4½-room house together in one month at a cost of \$3,500. Construction: steel frame; 2¼ in. wall panels of insulating board faced on both sides with asbestos cement board, secured to the frame with exterior aluminum pilasters; floors of open truss steel joists, gypsum planks and wood finish; partitions of 2 in. gypsum planks; roof of rolled steel insulated with a paper-thin sheet of aluminum. Sales: about 20 houses.



1934. With the technical and financial assistance of General Electric and American Radiator, American Houses developed a unique factory-assembled core for its prefabricated house, made some minor changes in construction. In 1935's spring, the President's mother, Mrs. James Roosevelt, undraped the cellophane-wrapped "Motohome" No. 1 in Wanamaker's New York department store. Its metal core, or "moto-unit" housed the heating and air conditioning equipment and all plumbing lines, supported all the usual kitchen fixtures (including cabinets stocked with food) and all the usual bathroom fixtures (plus built-in shelves stocked with books). Before the Motohome was discontinued (because its moto-unit required servicing by American Houses and for other reasons—see below), about 150 were sold.

Samuel H. Gottscho Photos



1936. To overcome sales resistance to modern architecture and prefabricated appearance, American Houses eliminated its vertical asbestos panels and aluminum pilasters, substituted paper-wrapped glass wool insulation, clothed the exterior of its house with wood sheathing and clapboards, the interior with plywood. Concealed was its light steel frame of interlocking parts whose 10-hour assembly required no nuts, bolts or nails. Sales: about 200. In 1938 the steel frame was discarded in favor of conventional wood framing because the latter is more flexible, is easier to treat with interior and exterior finish and requires less elaborate fabricating equipment at the plant. For American Houses' current construction system, see next page.

Then, since production continued small and profits nil, McLaughlin about-faced. From the very beginning, he had been designing flat roofed, corner-windowed houses radically different from the average family's idea of "home," had been finishing them with materials unknown to the layman, had been pricing them beyond reach of the mass market. Like his fellow pioneers, he had been tackling three tough sales jobs at once: modern architecture, new materials and prefabrication. Moreover, he had been trying, and with considerable success, to produce a better house for the same money, instead of the same house for less money. In 1936, McLaughlin decided to let modern architecture and new materials take care of themselves, to concentrate solely on low cost prefabricated houses. Illustrative of this revolution is the small peak roofed, clapboarded house shown at the bottom of page 69. Its only unusual element was a concealed steel frame.

Integration. Selling more of these houses in two years than it had produced in the preceding six, American Houses in the summer of 1938 eliminated the steel frame, went whole hog for conventional design, construction and materials. As erected today, the American House is of traditional platform frame construction like almost every other U. S. house, except that its members are 100 per cent pre-cut and partially pre-assembled in panels. Designed on the basis of a 16 in. module, the house involves considerably more site labor than its predecessors, is therefore more aptly described as "integrated" than "prefabricated."

While these changes were taking place in American Houses' product, equally important changes were made in its personnel and operation. To become its president, the company called John C. Taylor, Jr., who had been seriously engaged in the steel industry (as vice president of Taylor Wharton Iron and Steel Co.) for seventeen years and had dabbled in frame house prefabrication during enough spare time to learn the facts of housing. McLaughlin continued as chairman of a six-man board of directors whose best known members are Retired-banker Marshall Field III and Theatrical Producer Dwight Deere Wiman. Gone with the demise of Houses Inc. was Prefabrication's holding company. Left behind, however, was one of its prime doctrines: promotion and salesmanship are the biggest cogs in Prefabrication's machinery.

That the McLaughlin-Taylor duet is mindful of this and another cardinal essential to efficient operation—integration of the building industry as well as integration of the house—has come to light in recent development: To handle the promotion of all its activities and to sell all its houses, American Houses has obtained the services of Auctioneer Joseph P. Day, the best known, most experienced real estate salesman in the U. S. To erect its houses and coordinate local subcontractors, American Houses has enlisted the aid of several large contracting companies



Dayton Snyder Photos

1938 and TODAY. Illustrating the construction system used in American Houses' 135-unit Dundalk, Md. development (opposite) are the progress photographs above and right. Atop poured concrete foundations go 4 x 12 ft. sub-floor panels of $\frac{5}{8}$ in. plywood delivered to the site with 2 x 8 in. joists affixed 16 in. o. c. Exterior walls are comprised of 4 x 8 ft. units of factory-assembled studs, plates, sills, $\frac{5}{16}$ in. plywood sheathing, 2 in. mineral wool batts, windows or doors as required and plywood ribbon pieces to reenforce the units and provide a nailing surface for the interior panels of $\frac{1}{2}$ in. plaster board. Finish floor is laid after pre-assembled partition frame units are in place. In foreground (right, above) note 4 x 16 ft. roof panels as delivered with

who will operate on a territory basis. For example: New York City's noted Charles T. Wills, Inc. and Arthur Olson, Inc. have agreed to handle construction activities in the East from mid-New England to the Baltimore area, where Virginia's Allen J. Saville, Inc. will pick them up. And there will be others. To complete these communities of interest, McLaughlin and Taylor are currently seeking the cooperation of several large financial institutions, who will agree, as has the Morris Plan Bank of Virginia, to make construction loans and permanent mortgages on all projects in their bailiwicks. With McLaughlin and his architectural department to handle design and land planning (although outside the corporate organization, his Architect-Partner Holden is always on tap for consultation), American Houses' round-up of cooperating builders, financiers and a top-flight, roving sales organization, makes it even at this early date a close relative of the long-awaited big building corporation.

Operation. Although it was launched prior to this industrial integration program, analysis of American Houses' Maryland subdivision illustrates the part it will play in future developments. Year ago, Bethlehem Steel Co. began usual negotiations for the design and construction of housing to serve its strip mill workers and to be built on company-owned land near its Dundalk plant—about 5 miles southeast of Baltimore. American Houses broke into the picture after six months and thousands of dollars had been spent developing on paper a project whose houses would have had to sell at a disappointingly high price. President Taylor boasted that with Charles T. Wills handling construction he could supply four-room houses to sell at \$2,750 with 50 by 80 ft. lots (valued at about 10 per cent of the total price) and including a 10 per cent builder's profit,

a 5 per cent salesman's commission. In January, he and Wills' President Frank J. Helmle proved their claims by building four differently planned exhibit houses. Between March 1 and last week (100 working days) the remaining 132 lots were developed with duplicates of the exhibit house which proved most popular.

Houses. During this period an average of two houses per day rolled 200 miles via truck from the Kearny plant to the Maryland site. In the factory all framing members are cut, and partially assembled (see caption, above).

Shop prefabrication is carried up to the point where it ceases to be more economical than conventional construction. Thus, to permit the prior installation of a conventional wiring system, interior finish is applied at the site; to strengthen the platform, oak finish flooring is laid across the plywood sub-flooring after interior partitions are in place. Exterior wall panels are covered with building paper and shingles for two reasons: 1) they disguise the telltale marks of prefabrication, increase the house's sales appeal and 2) the resultant wall is said to be cheaper than one of phenolic plywood which would be required if exposed.

While size and erection schedule of the Maryland project dictated delivery of floor members for several houses at a time (then a batch of exterior wall panels, etc.), American Houses supplies smaller developments by packaging a complete house upon the 30 ft. straight body of each of its independently operated trucks. This load normally includes all structural panels and members plus a box of hardware, a bundle of trim, bales of asbestos side wall shingles and asphalt roof shingles and a stack of plaster board panels for interior wall and ceiling finish. For the Maryland project, American Houses ordered most of these especially manufactured interior and



2 x 8 in. rafters attached. Exterior finish (right): asphalt roof shingles, asbestos wall shingles. Initiator of the project, Bethlehem Steel Corp. originally negotiated with local builders, but found that conventionally built houses of comparable size and materials would have had to sell for 20 per cent (\$550) more than the \$2,750 houses supplied by American Houses. Floor plan, below, proved most popular of four exhibits, was duplicated 132 times.



Rodney McCay Morgan Photos

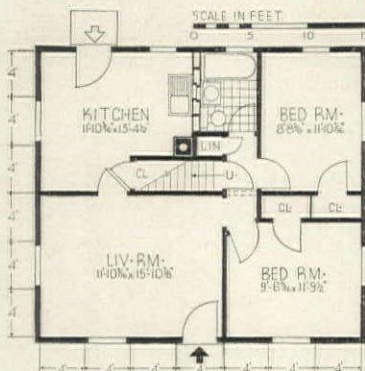
exterior finish materials to be delivered on a time schedule directly to the site.

Locally supplied materials, equipment and union labor, which account for about 55 per cent of the Maryland houses' \$500 per room cost, were required for erection of the house parts and a half dozen sub-contracts coordinated by Contractor Charles T. Wills, Inc.: excavation, masonry (poured concrete foundation walls and a cinder block chimney topped above the roof by brick work), electrical wiring, sheet metal work, plumbing (ranges and refrigerators are not supplied; American Houses helps the local contractor buy other fixtures at a sizable discount), painting (one coat on shop-primed trim and interior walls) and heating (oil-fired space heater sunk in a concrete block pit below the living room floor).

Not wishing that its housing development be occupied entirely by its employees, Bethlehem Steel was pleased when the final count showed 60 per cent were outsiders. Annual incomes of all purchasers average \$1,600. Interestingly, most of the houses were sold to groups of families (from two to eight) who had become acquainted through previous neighborhood activities, common recreational or business interests.

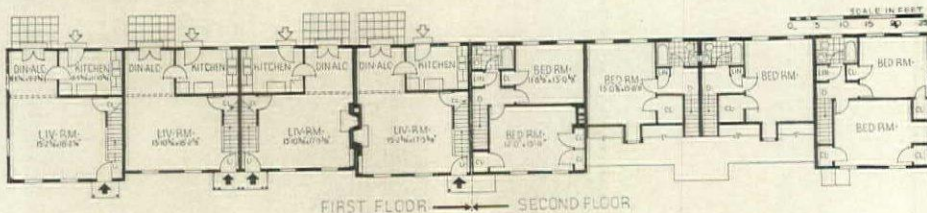
On every count, the Dundalk subdivision has been a success. It moved 20 acres of Bethlehem Steel's excess land, gave business and a profit to local contractors, put a \$120,000 order on American Houses' books, supplied well built, well designed low cost housing for 136 low income families. Vouching for Bethlehem Steel's satisfaction, was the announcement last week that the same organizations would soon bite off for development another chunk (800 lots) of the steel company's extensive holdings.

Apartments. Equally successful has been American Houses' first venture into large





Rodney McCay Morgan Photos

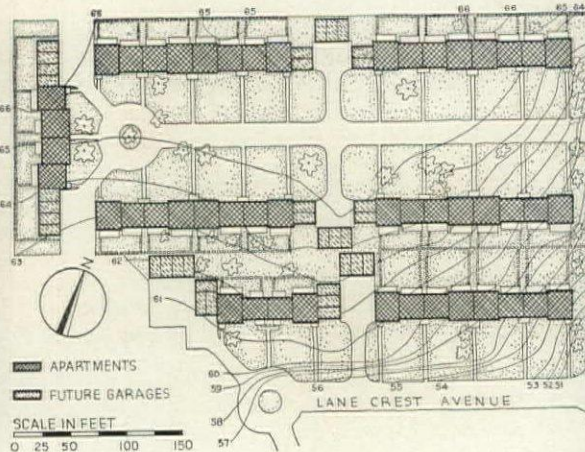


scale high rent housing, whose background closely parallels the Maryland operation. Last fall Promoters Neale Kelley and James Todd, Jr. purchased a wooded five-acre site in residential New Rochelle—35 commuting minutes from midtown New York, commissioned Architect Benson Eschenbach to design a two-story Colonial garden apartment project. Learning the cost estimates for conventional construction were too high, American Houses stepped in, offered to prefabricate the project for considerably less. The promoters accepted, and Holden, McLaughlin and Associates, modestly calling themselves “consulting architects,” revamped the plans to fit American Houses’ modular system. Construction began in mid-December, and despite much severe weather by mid-April (73 working days later) 28 of the three and a half and four and a half room duplex dwelling units were completed. Moreover, on the same date the three buildings were 100 per cent rented at an average of \$20 per room per month. Under construction are another 20 dwelling units in four more buildings which will boost the project’s cost to \$210,000, excluding land and landscaping—about \$4,380 per unit.

In basic construction, the high rent New Rochelle apartments are the same as the low cost Maryland houses, and American Houses’ Kearny plant played exactly the same part. Principal differences and reasons for the apartment’s higher cost: larger dimensions, slate roof instead of asphalt shingles; asbestos clapboards instead of shingles on exterior walls; ornamental exterior details such as porches, cornices and pilasters; interior walls partially paneled in knotty pine (see cuts, below); basements; fireplaces and central heating

(Continued on page 54)

First prefabricated apartments on record, New Rochelle’s high rent (\$20 per room per month) units are built of panels identical to those used in the low cost (\$2,750) house development in Dundalk, Md. (page 71). Principal difference in American Houses’ two projects: dimensions, equipment and finish. When completed by Builder Arthur Olson, Inc., the 48 units will cost \$210,000, excluding land and landscaping. Note commendable open planning of first floor space and interesting site layout by Architects Holden, McLaughlin & Associates.



Unlimited Service

BY

TERRAZZO

FINE TERRAZZO removes color and design restrictions from the designer. Whether it is a floor for an office building or hotel, or a wall for a church as here shown, you can adapt terrazzo easily to its surroundings. Here is unlimited service at your command.

In color and pattern no two terrazzo designs are alike. Yet they are identical in permanent beauty—in wear resistance—in low-cost upkeep. And they are alike also in that truly *FINE TERRAZZO* with warm, rich colors and clean-cut patterns is made only with *white* cement.

You can be sure of terrazzo at its best when you specify Atlas White portland cement for your job. Atlas White (plain and waterproofed) is *pure white*. It makes the terrazzo that today is used in new and remodeled buildings of many different types to enhance their beauty and value. For more data see Sweet's Catalog, or write us for free book showing 24 true color specimens of *FINE TERRAZZO*. Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), Chrysler Building, New York City.

T-18



... FOR FINE TERRAZZO SPECIFY

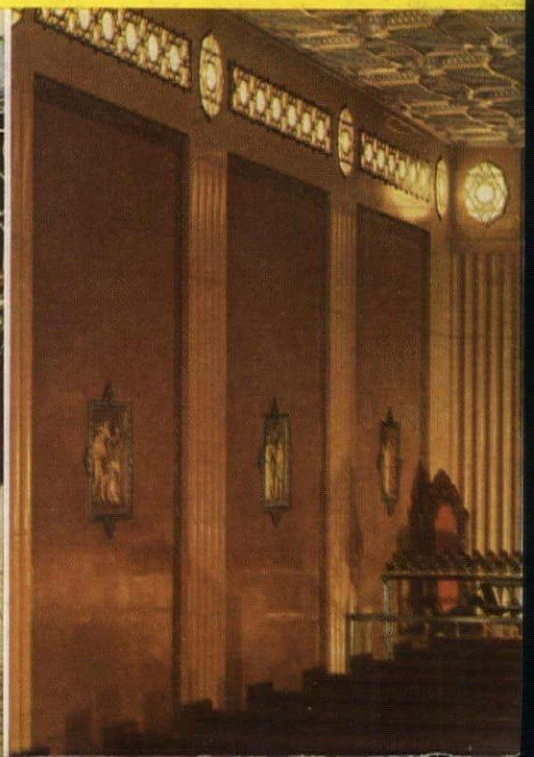
ATLAS WHITE PORTLAND CEMENT



Terrazzo floor made with Atlas White cement in the Administration Building of the Chrysler Corporation, Detroit. Architect, Albert Kahn, Detroit. Terrazzo Contractor, Art Mosaic & Tile Company, Toledo.

In the Hotel Victor, Miami Beach, Florida, is this terrazzo floor made with Atlas White cement. Architect, L. Murray Dixon; General Contractor, L. & H. Miller Company; Sub-contractor for terrazzo, Miami Tile & Marble Company — all of Miami Beach.

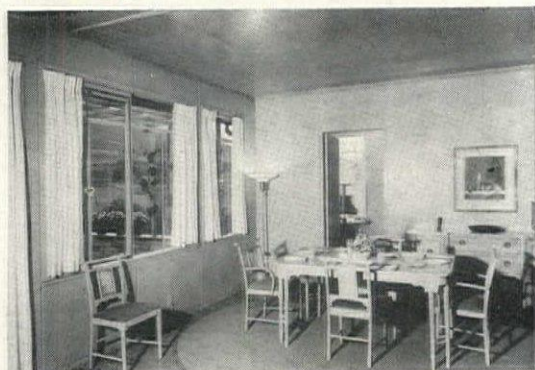
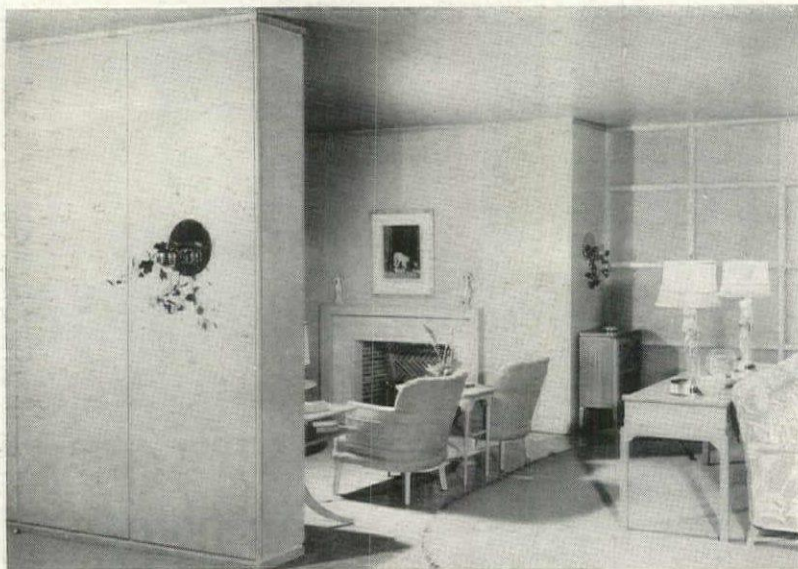
In the Oratory of St. Thomas More, Pilot Chapel, Boston, walls, columns, pilasters and altar as well as floor are of fine terrazzo made with Atlas White cement. Architect, Richard Shaw; Terrazzo Contractor, De Paoli Mosaic Co.—both of Boston.



For better built-ins and finer walls always specify **PLYPANEL**

THE CABINET GRADE OF DOUGLAS FIR PLYWOOD

These photographs of "The House in the Sun" show the amazing possibilities of Plypanel!



• Both the living room (left) and the dining room walls (above) are 3/8" Plypanel installed vertically and lightly stained. The ceilings are 1/4" Plywall. "The House in the Sun" was designed by Sumner Spaulding and built by Kersey Kinsey as a demonstration home in North Hollywood, California. It was furnished by Bullock's.

**There is a grade and thickness
of Plypanel for every need!**

Plypanel is the grade of Douglas Fir Plywood made for cabinetwork, built-ins, substantial walls, fine paneling, furniture and similar uses where the finest appearance is desired.

Plypanel comes in three classifications: (1) Good 2 Sides (G2S) in which each face is a single veneer of 100% heartwood, free from defects. This type should be used for the highest quality interior work where both sides of the panel will be exposed to view and natural or light stain finishes used. (2) Good 1 Side (G1S) which has a good face and a sound back. This is the type to use for high quality walls and cabinets where only one side is exposed to view. (3) Sound 2 Sides (So. 2S) in which each face may be made up of one or more pieces of veneer, well-joined and reasonably matched for color and grain at joints. Each face of this type is equivalent in quality to face of the Plywall (wallboard) grade.

Plypanel is made in a variety of thicknesses and sizes. It conforms to strict requirements of U. S. Commercial Standard CS45-38 and is edge-branded with a distinctive Plypanel "grade trade-mark" to make specification and identification easy.



PLYPANEL D.F.P.A.

• The built-ins are naturally Plypanel. 3/8" Plywall was used for the ceiling and as a wall base for enameled hardboard.

• The "Grade Trade-mark" above is stamped on the edge of every genuine Plypanel. For further information about Plypanel, consult Sweet's catalog or write Douglas Fir Plywood Assn., Tacoma Building, Tacoma, Wash., for free literature.

**DOUGLAS FIR
PLYWOOD**
Real Lumber
**MADE LARGER, LIGHTER
SPLIT-PROOF
STRONGER**



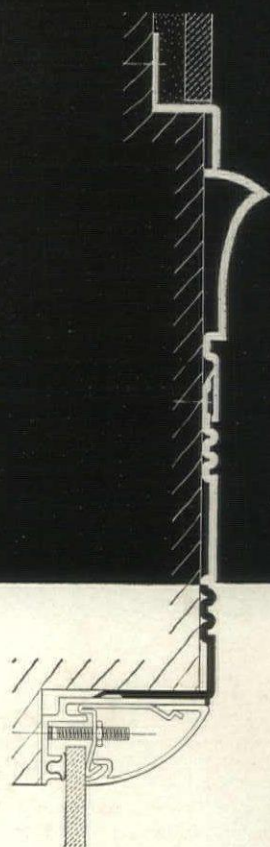
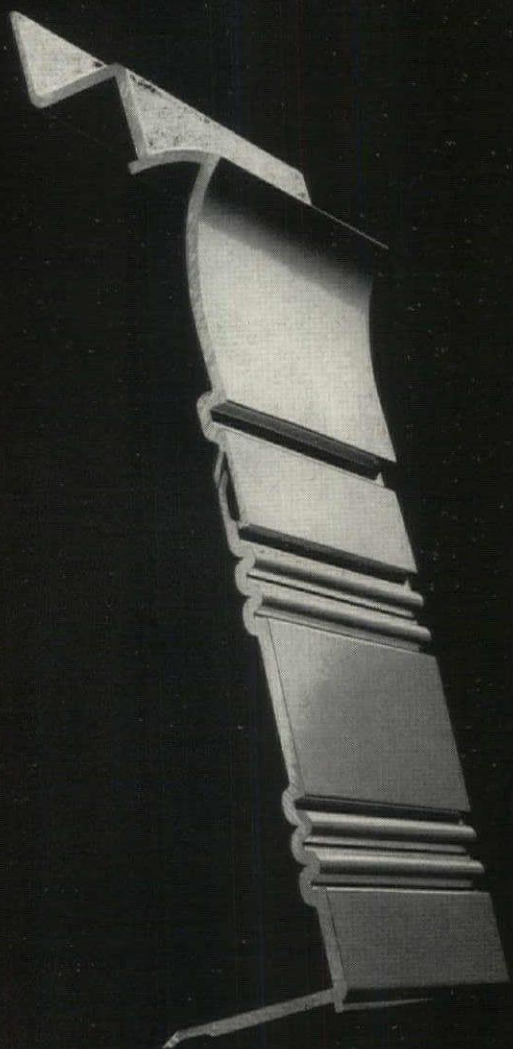
**SPECIFY DOUGLAS FIR PLYWOOD
BY THESE "GRADE TRADE-MARKS"**

PLYPANEL D.F.P.A.

EXT.-D.F.P.A.



CLEAN, SHARP PROFILES



DETAIL:

Cross-section showing how interlocking Pittco mouldings, repeated, permit easy adjustment in size, plus or minus, without exposed screws and fastenings.

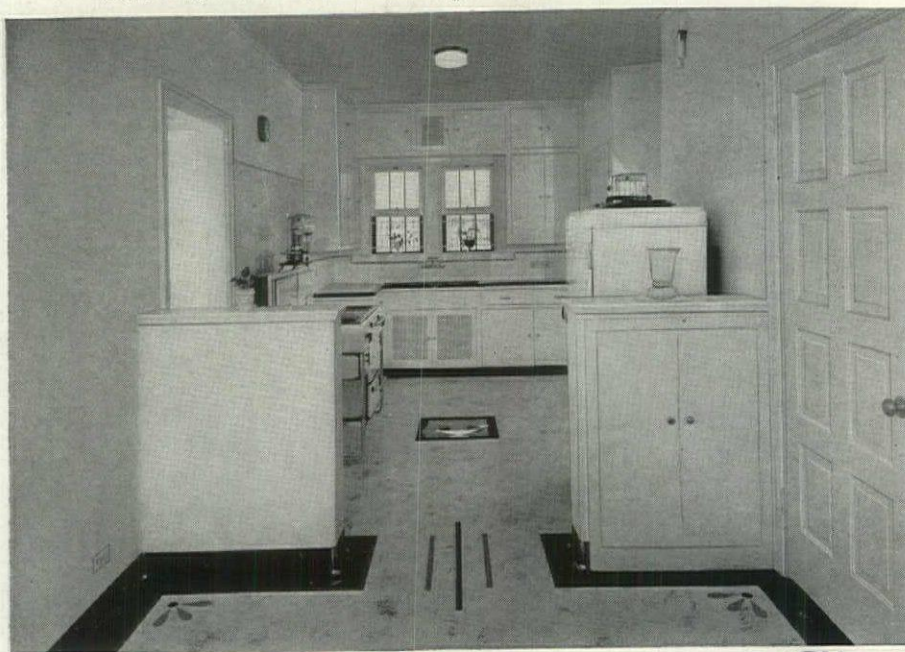
At the New York World's Fair, visit the Glass Center Building and the Pittsburgh House of Glass.

● PITTCO Store Front Metal is *extruded* metal. This fact has an important bearing upon the uniform high quality of Pittco construction. For the extrusion process endows Pittco Metal members with clean, sharp profiles. Not only the metal itself, but the entire Pittco Store Front of which the metal is but a part, achieves greater distinction, refinement and beauty because of these pure contours. And Pittco Metal also benefits in strength and durability because its members are extruded. The architect will find Pittco Store Front Metal a versatile tool to work with in his store front planning. There are Pittco bars, mouldings and sash to meet practically every need. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pa.

PITTCO STORE FRONT METAL
PITTSBURGH PLATE GLASS COMPANY

"PITTSBURGH" stands for Quality Glass

The versatility of Armstrong's Linoleum is most fully demonstrated in this kitchen floor of L. E. Fite & Company, San Antonio, Texas. The field is Marbello, with Armstrong's Linostrips, Ready-Cut Linoset, and Custom-Craft Die effects in the corners to add interest.



I'll buy your house
IF IT HAS
AN EASY-TO-CLEAN KITCHEN



IF the kitchens you plan make housework easier, they are bound to make your houses easier to sell . . . or rent . . . or live in. And here's why floors of Armstrong's Linoleum can play a major part in helping you design such kitchens.

The lucky housewife finds a sanitary linoleum floor a joy to clean with the whisk of a dry-mop and occasional washing and waxing. She finds it gay and colorful. She finds it restful, no matter how long she is on her feet. And even the man who pays the bills is in favor of it—because it never needs expensive and troublesome refinishing.

But that's not all!

There's the additional appeal of durability in an Armstrong's Linoleum floor. The colors run right through to the burlap backing—so scuffing feet can't wear them off. Over 200 patterns are available; and custom effects can be planned most inexpensively with Armstrong's Ready-Cut Linosets, one of which is seen in the rear of this kitchen.

Data in Sweet's

For full information—and file-sized literature—write Armstrong Cork Company, Floor Division, 1203 State Street, Lancaster, Pennsylvania.



ARMSTRONG'S FLOORS LINOLEUM

Rubber Tile - Linotile (Oil-Bonded) - Asphalt Tile - Cork Tile - Linowall Wall Covering

SELF-SELLING DETAILS

(Continued from page 64)

of every seven or eight purchasers simplifies the problem by paying cash in full. Most of the others put about 30 per cent on the line, sign a 5 per cent mortgage for the balance, pay it off in twenty years at the rate of \$6.60 per \$1,000 per month. If the purchaser cannot get up the requisite 30 per cent, Prudential Insurance Co. of America, as mortgagee, requires that the loan be FHA-insured for 80 per cent of appraised value. (To date only two houses have been sold under this plan.)

Since most of its purchasers already own their own homes, General Properties is faced with the trade-in problem. To solve it, the company keeps the two businesses entirely separate, thus does no actual trading in the true sense of the word. It buys a used property at its fair market value less the estimated cost of reconditioning, carrying and selling it, credits this amount to the new house purchaser's account. Since it seeks no profit from these transactions, the acquired properties move fast at low prices. Sales are entrusted entirely to outside brokers.

To date the company has sold new houses and lots valued at close to \$1.3 million to 50 purchasers—most of whom are either at the top of small business concerns or well up the ladder in large ones. Their freely voiced satisfaction speaks well for General Properties' integrated organization and its quality product and, as in the past, will be called upon to help seal the sales of additional houses.

COST BREAKDOWN of a typical General Properties house con- taining about 31,000 cu. ft., costing about \$11,500:

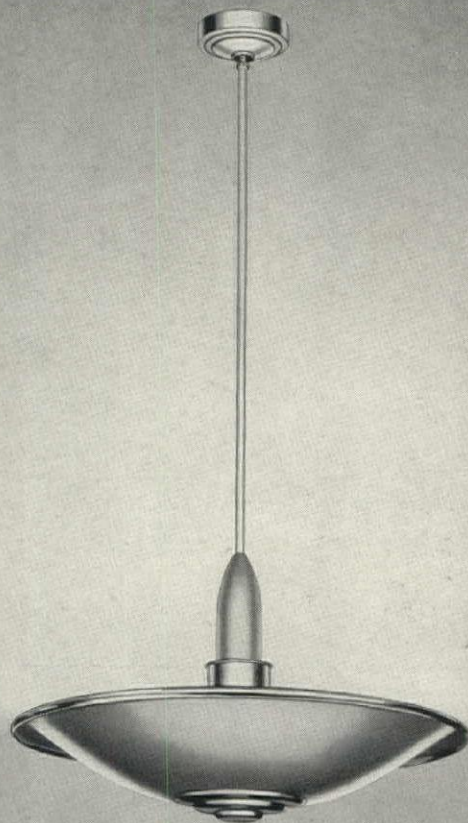
Excavation	00.9%
Walks, grading & landscaping	04.3
Foundation walls & footings	06.4
Chimney, fireplace & misc. masonry	02.8
Basement & garage floors	01.2
Wood framing, sub-floors & sheathing	15.1
Siding (shingles)	02.5
Windows & weatherstripping	03.8
Roofing (slate), gutters & leaders	03.6
Hardwood floors laid, scraped & finished	02.9
Interior trim	06.5
Electric wiring	01.9
Electric fixtures	00.7
Rough plumbing & built-in fixtures	06.7
Finish plumbing & fixtures	02.9
Complete heating system (air conditioning)	06.7
Lath & plaster	07.5
Tile work	04.6
Kitchen cabinets	01.8
Insulation	01.6
Exterior painting	02.6
Interior decorating	05.8
Screens & shades	02.4
Linoleum	00.4
Gas range	00.6
Miscellaneous	03.8
Total labor and materials	100.0%

lighting

THAT IS DISTINCTIVE



WESTINGHOUSE MB LUMINAIRE



Where high-intensity, totally indirect illumination is desired, Westinghouse MB Luminaires provide a new motif for smart interior design combined with the utmost in lighting effectiveness. MB Luminaires are designed specifically for Bipost Incandescent Lamps.

The modernly-styled aluminum reflecting basin of the MB is finished by the Alzak process to maintain permanently the attractiveness and high reflection factor of the fixture. The inside basin assembly consists of both an outer and inner reflector which

utilizes to fullest advantage the characteristic butterfly spread of illumination from the Bipost lamp. Such a design assures high intensity at lower cost; unusually high maintained lighting efficiency and wide, over-all light distribution.

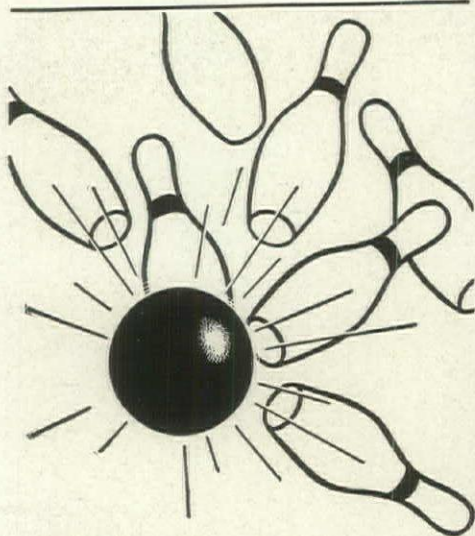
Westinghouse Lighting Distributors, in cities from coast to coast, have complete information and specifications. Call your nearest Distributor today, or write Westinghouse Electric & Manufacturing Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

Tune in "Musical Americana," N. B. C. Blue Network, every Thursday evening.

Westinghouse

Lighting
Equipment





What's the WORST thing you can do to a floor?

Short of lighting a bonfire right in the middle of the floor, there's nothing that can ruin it as easily and quickly as using it for *bowling*. When those 16-pound bombs plunge down the alley, they mean business! If there weren't a tough finish to protect it, the floor would look as hacked up as a butcher's slab at the end of the first day.

The finish that gets the toughest treatment in the world. That's why you'll find professional bowling alleys finished with a *good grade of shellac*. Shellac takes on all comers—hammer blows, hundreds of dancing feet in ballrooms, furniture moving, children's roller skates—and comes out without a white scratch or a crack. Because of its extraordinary elasticity, shellac bends when the floor dents, but does not break.

How to make floors beautiful and KEEP them that way. Protection like that is what every floor should have—whether it's a bedroom or a ballroom, an office or a play room. And of course no finish ever made can bring out the rich tones of a beautiful wood so effectively as shellac.

* * *

That building you're planning right now will keep its good looks better and longer—if you specify a pure shellac. Write to the Shellac Information Bureau, 70 Pine Street, for a free copy of the standard specifications for architects as approved by the American Bleached Shellac Manufacturers Association.

**SHELLAC
INFORMATION BUREAU**
70 PINE STREET • NEW YORK CITY

HOUSING VACANCIES

(Continued from page 68)

Vacancy surveys. Hesitancy of the Commerce Department's economists to go very far in evaluating their round-up of available vacancy data serves to underscore the insufficiency of existing data. Most cities make no surveys. Where information has been collected, it is usually incomplete or not readily accessible to those who might make good use of it.

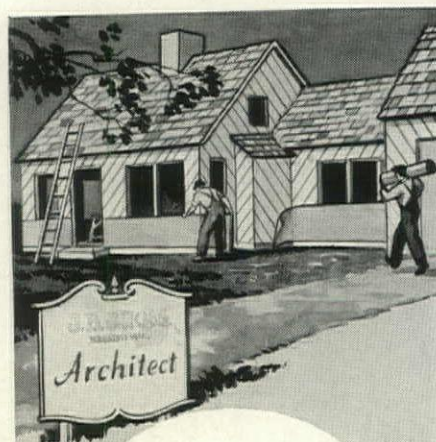
No existing survey method gives an *exact* measure of the usable vacant dwellings in a city. Private surveys usually understate the vacancy condition—and the amount of understatement varies between cities. Reason: real estate boards and housing agencies, doing yeoman duty in this field, have had to rely chiefly on untrained volunteer canvassers to fetch the facts.

More comprehensive are Government-sponsored real property inventories, conducted as relief projects in some 200 cities during the past six years. Although more complete, they are not repeated each year on the same thorough scale, are therefore excluded from this study. In contrast, private surveys are more flexible: admittedly inadequate, they are nevertheless readily made at regular intervals, are therefore more valuable in showing trends.

When the material collected in the 1940 Census of Housing is tabulated, complete and accurate data on vacancies for the entire country will be available for the first time. These new statistics may then be used as a baseline for measuring future changes in dwelling shortage. More frequent collection of vacancy data may also be possible with the simplified, but as yet untried, survey procedure developed by the Work Projects Administration.

For most cities a breakdown of vacancies according to type of dwelling is desirable. If arranged according to districts within the city, so much the better. Low vacancies in single-family houses in a certain district may reveal an unsuspected demand; a large number of empty apartments in another area may suggest the advisability of transferring construction activities elsewhere. Also to be desired are vacancy figures bracketed according to property rental or selling price, number of rooms in the dwelling unit, age or condition of the building, type of tenancy.

With these objectives in mind, the Commerce Department's increasingly useful Construction and Real Property Section has established itself as a clearing house for information on vacancy data and survey procedure for the benefit of local organizations interested in initiating and conducting surveys. A brand of Government assistance welcomed by private business, this service should help Building provide itself with a scientific rather than a trial-and-error means of gauging the need for new construction.



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Home owners turn to you for the "better" homes — for individuality in design — for experience and unbiased judgment in matters of construction, and choice of materials.

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SISALKRAFT is reinforced with miles of tough, interlacing sisal fibres bonded with two layers of kraft. It provides an impervious barrier to air and moisture infiltration. It will not disintegrate within the wall.

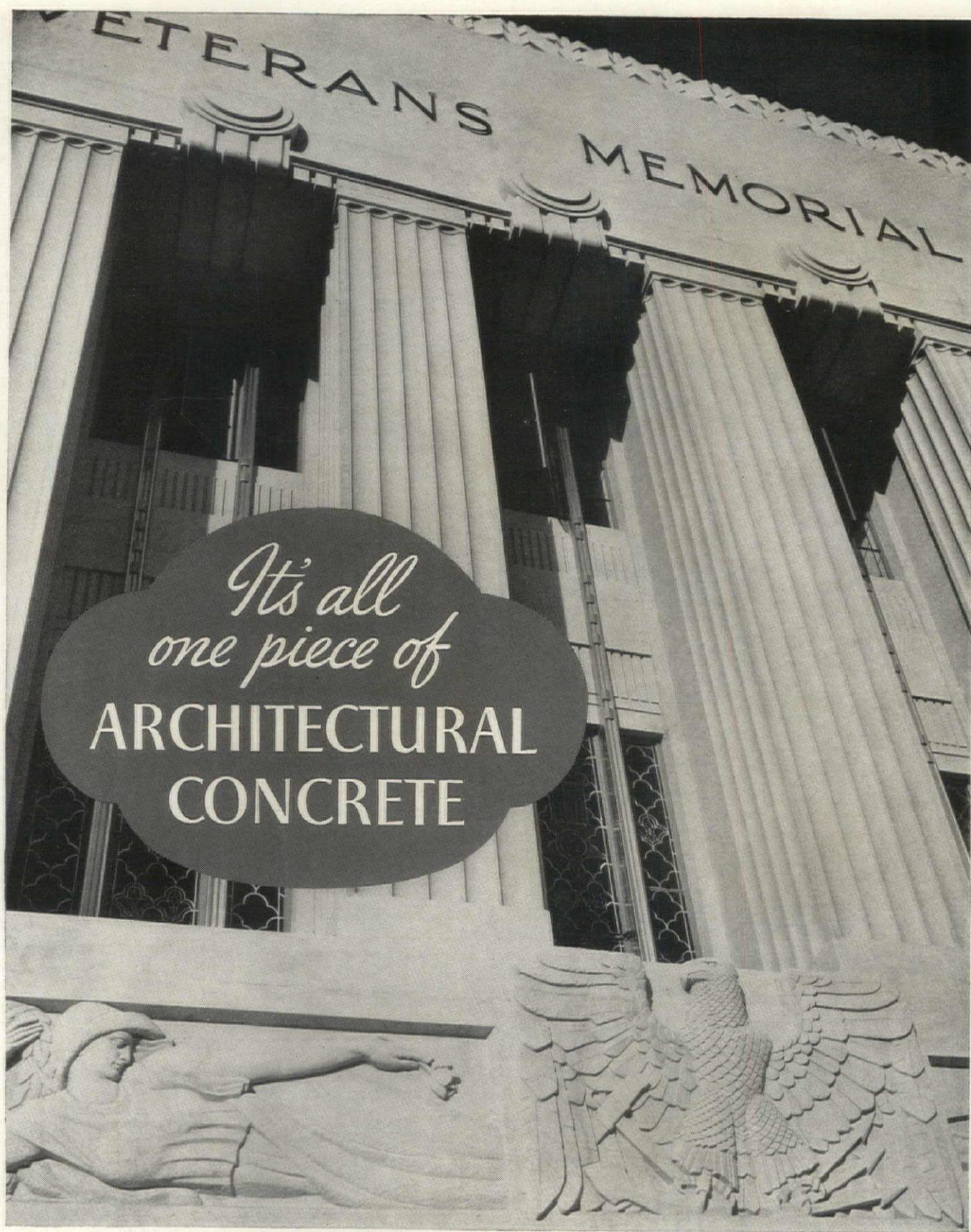
Its applied cost is little, if any, greater than even the flimsiest of building papers.

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**ARCHITECTURAL
CONCRETE**

FIVE advantages of designing your building for Concrete are demonstrated in this view of the Long Beach (Calif.) Veterans Memorial. • Concrete is a design medium adaptable to any style. • Texture is under the architect's control—smooth, rough, board marked as desired. • Enrichment is achieved economically; the clean figures and fluting shown here are integrally cast. • Money is saved by casting walls, frame, floors and detail as a unit. • The result is a

firesafe weather-resistant building, low in maintenance. Have you the full facts on Architectural Concrete? See Sweets 4/48 or write us.

*George W. Kahrs, architect. J. K. Thomas, contractor.
J. H. Davies, structural engineer.*

PORTLAND CEMENT ASSOCIATION

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

Making WHITER Houses



New York: House at Purchase, N. Y., painted with Cabot's DOUBLE-WHITE. Architect, Lucius S. Beardsley, Stamford, Conn.



Illinois: House at Highland Park, Ill., painted with Cabot's DOUBLE-WHITE. Architects, Dubin & Leamon, Chicago.



California: House at Bel-Air, Cal., painted with Cabot's DOUBLE-WHITE. Architect, Winchton Leamon Risley, Los Angeles.

From coast to coast, from North to South—architects use Cabot's DOUBLE-WHITE for *extra* whiteness that lasts for the life of the paint. DOUBLE-WHITE is made of carefully chosen pigments which are not discolored by gases in the atmosphere. Our patented Collopaking process of manufacture gives greater hiding power, greater bonding power, and longer life.

FREE—The White Book. Shows many prize-winning houses painted with Cabot's DOUBLE-WHITE, *Old Virginia White* and *Gloss Collopakes*. Contains full information. Write for your copy today. Samuel Cabot, Inc., 1276 Oliver Bldg., Boston, Mass.

Cabot's DOUBLE-WHITE

and Gloss Collopakes
—The Colloidal Paints—

AMERICAN HOUSES

(Continued from page 72)

systems instead of space heaters, higher quality kitchen and bathroom equipment.

Next. While concentrating recently on its Dundalk and New Rochelle projects, American Houses has supplied houses of its current construction system for numerous small subdividers, for a few individual buyers. All told they number, perhaps, 600 dwelling units. And, chances are this two-year total will be more than doubled in the next twelve months. Besides proposed additions to its two pioneering large scale projects, American Houses has many another development in the bag or close to it: 1) A large subdivision on the outskirts of Princeton, N. J. where houses will sell for \$5,000 to \$15,000. 2) Three separate developments in Virginia. 3) A 24-unit high rent (\$20 to \$22 per room) garden apartment project in Hastings, N. Y. 4) Several company housing projects whose room rents will hit a newsworthy low of at least \$10 per month.

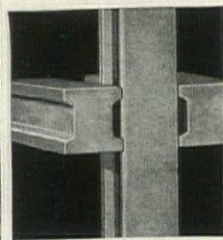
These signed and prospective orders are bound to boost the Kearny plants current two-houses-a-day production, may even tax its ten-houses-a-day capacity and have already prompted President Taylor to consider paying his 30 factory employees (now earning union wages but under open shop conditions) a guaranteed annual wage. Moreover, since a plant can efficiently serve only a 250 mile radius, it is likely that the company by year-end will be filling orders from more than one source. A new factory is already under consideration for Virginia.

American Houses has worked hard for its new-found success, attributes it to a quartet of salient developments in its eight-year history: 1) Use of accepted materials in traditional style—the first house was steel and modern. 2) Adjustment of dimensions and costs to the mass market—its early houses were large and expensive. 3) Acknowledgment that a large part of any house building operation is best entrusted to local contractors—at the start American Houses did 85 per cent of the job in the factory. 4) Enlistment of cooperation from top-flight sales, financial and construction organizations—American Houses used to handle by itself all three specialized functions as well as prefabrication.

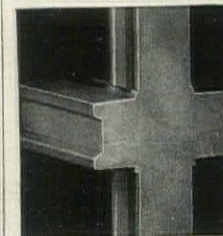
With the fourth development just taking shape, house builders and buyers—notoriously skeptical—will follow with interest American Houses' attempt to capitalize on industrial integration and to become the nations' first big house building corporation. Meanwhile, Architect Robert L. McLaughlin and company, proud as punch of current operations, have already distinguished themselves as one of the first prefabricators to make good.

What Constitutes A GOOD

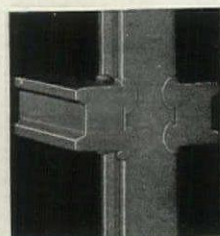
IRON FENCE?



Right—Showing picket and rails after welding has fused them permanently together at eight points.



1. Inseparably Welded Joints—in Anchor-Weld Iron Fences the use of electric-pressure-welding at every point of contact insures a permanent union between rails and pickets. At left are picket and rails before welding.



Left—Same picket and rails, with ends of rails ground down to show perfect union of members.

2. Rails and Pickets of same weight. In

Anchor-Weld Iron Fences permanence of alignment and freedom from sagging is brought about by the use of the same size section for both rails and pickets.

3. No Center Supports. A support in the center of an iron fence panel is an indication of structural weakness. In Anchor-Weld Iron Fences there are no center supports, but each panel will stand a ton of distributed load without showing permanent set.

You really should be familiar with Anchor-Weld, the Iron Fence that combines great strength with charming beauty. Let us send you a sample weld that will prove to you that Anchor-Weld is definitely better. Send the coupon for catalogs and sample weld. There is no obligation.

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Please send Architect's catalog showing Anchor-Weld Iron Fence, and a sample weld for my examination.

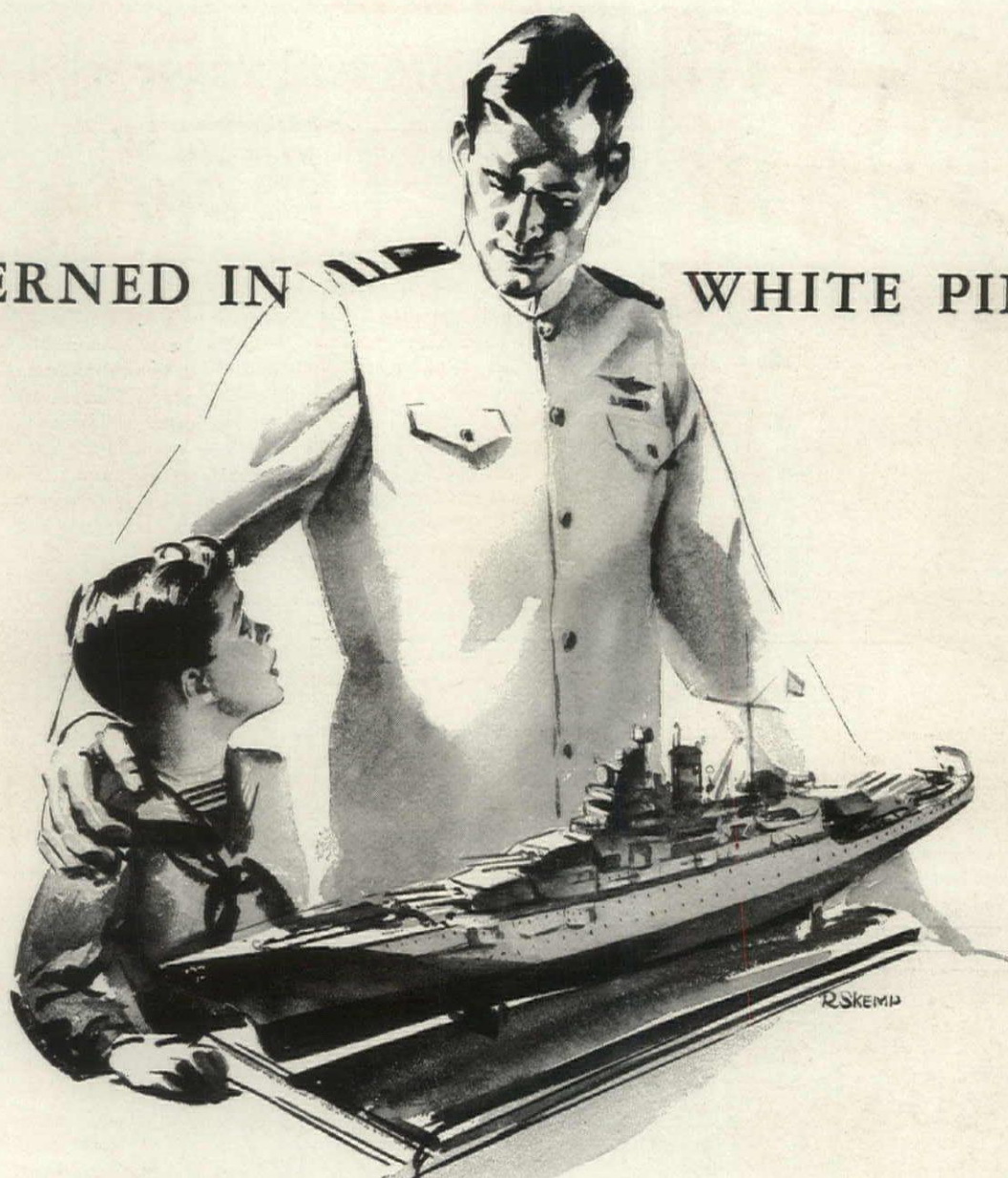
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Firm.....

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PATTERNED IN WHITE PINE



The Mighty Battle Cruiser conceived in the Naval Architect's imagination gestates through plans and blueprints into the miniature reality of a Genuine White Pine model. Its countless parts grow from intricate patterns made from this famous lumber. The mighty ship at last is born and slips from the ways to be cradled for her destiny on the sea. Genuine White Pine is the choice of pattern makers because of inherent qualities which are not present in other species. It, likewise, is the choice of architects in expressing creative genius in terms of beautiful enduring homes.

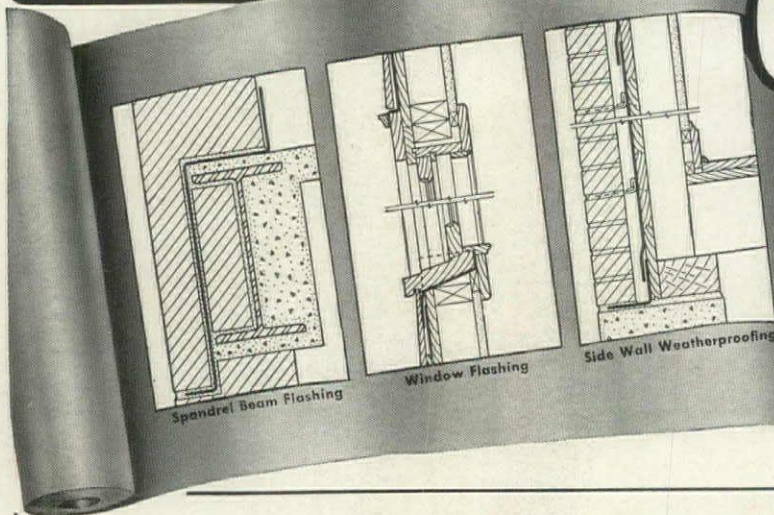


Genuine White Pine is neither scarce nor expensive. To safeguard the architect's specifications, we have double endmarked each board "Weyerhaeuser 4-SQUARE" and "Genuine White Pine."

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Seal against water, moisture and vapor with metal!

It's Best by Test!



ITS USES AND AVAILABILITY

In thicknesses of 1 oz. (.0013"), 2 oz. (.0027"), 3 oz. (.004") and 5 oz. (.0065")—bonded to high-grade building papers, fabric and asphaltic compounds—"Electro-Sheet" Copper is widely used for door and window flashing . . . foundation water-proofing . . . and side wall weatherproofing behind wood, stucco, brick and stone veneer; also for concealed spandrel beam flashing and shower pans.

Reinforced "Electro-Sheet," supplied in compact rolls, is extremely flexible and easy to install. It is generally available from material dealers.

4081

Anaconda "Electro-Sheet" Copper is rustproof, verminproof, non-inflammable, strong and impervious to air, water and dampness. When reinforced with building papers, fabric or asphaltic compounds, it is ideal for sealing buildings against heat, cold and wind.

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Write today for free samples of these materials and names of the manufacturers. (We do not make or sell "Electro-Sheet" bonded to other materials, but furnish the plain copper to leading manufacturers.)

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Structural strength of Armco Hel-Cor Conduit—Ric-wil engineering throughout.

Choice of grade and type of insulation—either bulk hand-packed or sectional pipe covering.

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Eyes spend more time *Seeing* when the lighting is good



Good lighting calls for

ALZAK
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**ALUMINUM
REFLECTORS**



Eyes do less looking for things to see when the lighting is good. Their owners get things done better and faster, and find tasks more agreeable. Accidents are fewer.

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Alzak Reflectors include a series of finishes; bright, specular finishes or matte, diffuse surfaces. Some are intended for indoor use. Others are able to withstand out-of-door exposure and the corrosive conditions encountered in certain industrial processes. Whatever your use, be sure to *specify the right Alzak finish*.

We do not manufacture reflectors. Names of those companies licensed under Aluminum Company of America patents, and able to take care of your requirements, will be furnished by us on request.

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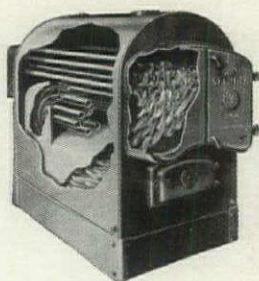
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Good or bad—two-coat painting is here. There are times when clients will insist upon a two-coat job.

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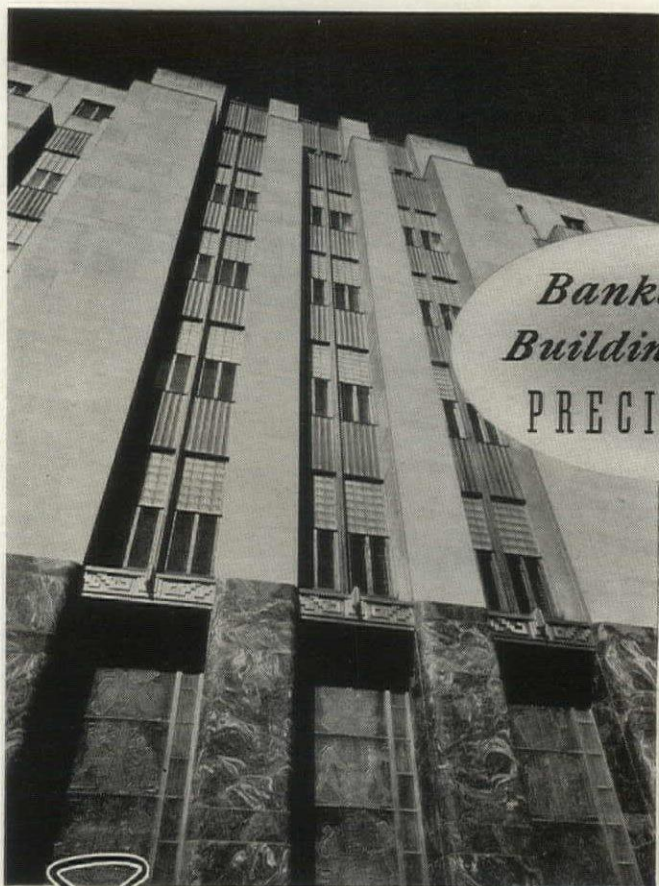
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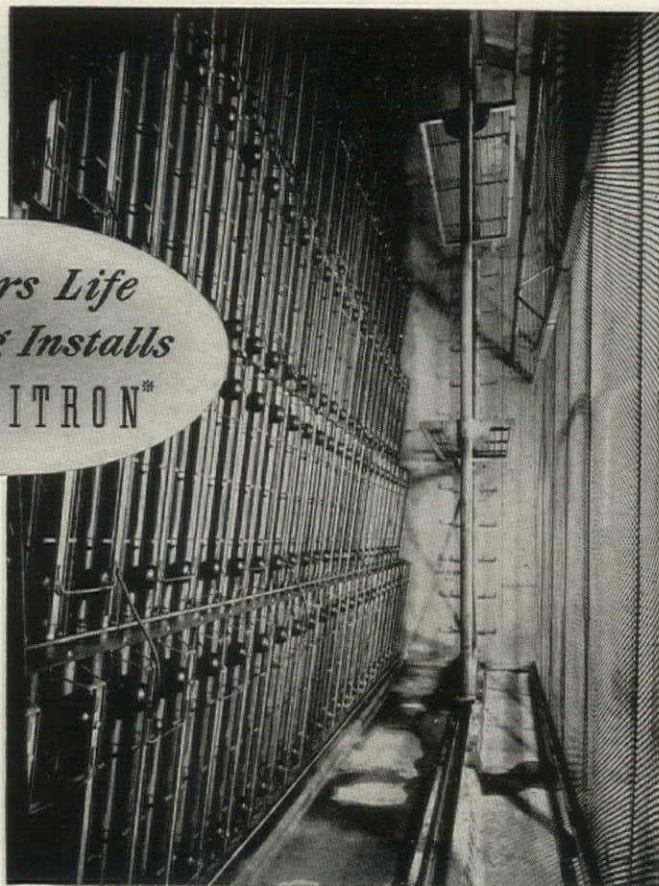
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Tune in "Musical Americana," N. B. C. Blue Network, every Thursday evening.

Westinghouse Precipitron



FORUM OF EVENTS

(Continued from page 14)

AWARDS

TO WALTER O. CAIN, Lakewood, Ohio, the Rome Prize in Architecture by the American Academy in Rome. Mr. Cain is a graduate of Cleveland School of Architecture of Western Reserve University, and a candidate for his Master's degree in Fine Arts at Princeton University, where he held the Palmer Fellowship last year. The appointment is for two years with an estimated value of \$4,000. Mr. Cain has chosen the option of deferring the

Fellowship until European conditions improve. Honorable Mentions to Alexander Kouzmanoff, Bensenville, Ill., a graduate of the University of Illinois; and to Seymour R. Joseph, New York, a student at New York University.

TO JAMES W. BREED, Richmond, Va., the LeBrun Traveling Scholarship, a \$1,400 award by the New York Chapter, A.I.A., for travel and study to be designated by the Jury. Honorable Mention was awarded

to John Louis Rochon Grand, Gainesville, Fla., an assistant professor of architecture at the University of Florida.

TO DAVID LEAVITT, Leigh, Neb., a senior at the University of Nebraska, the Princeton University \$1,000 Prize in architecture.

TO TRUMAN MATHEWS, Santa Fe, N. M., the Arnold W. Brunner Scholarship, a \$1,200 award of the New York Chapter, A.I.A., for advance study. Mr. Mathews will study and photograph the architecture of southwestern U. S. Honorable Mentions to Theodor Carl Muller, Boston, Mass., and to Norman R. Sturgis, Albany, N. Y.

TO DEAN CORNWELL, painter, membership in the City Art Commission, New York, succeeding Ernest Peixotto as the painter member.

TO WALLACE K. HARRISON and J. ANDRÉ FOUILHOX, architects, the Apartment House Medal award for work built between January 1, 1933, and October 1, 1938, in one of New York's five Boroughs, in Group I (houses over six stories), by the New York Chapter, A.I.A., for Rockefeller Apartments, 17 West 54th St., New York. The owner, receiving a certificate, is the 17 West 54th Street Corporation.

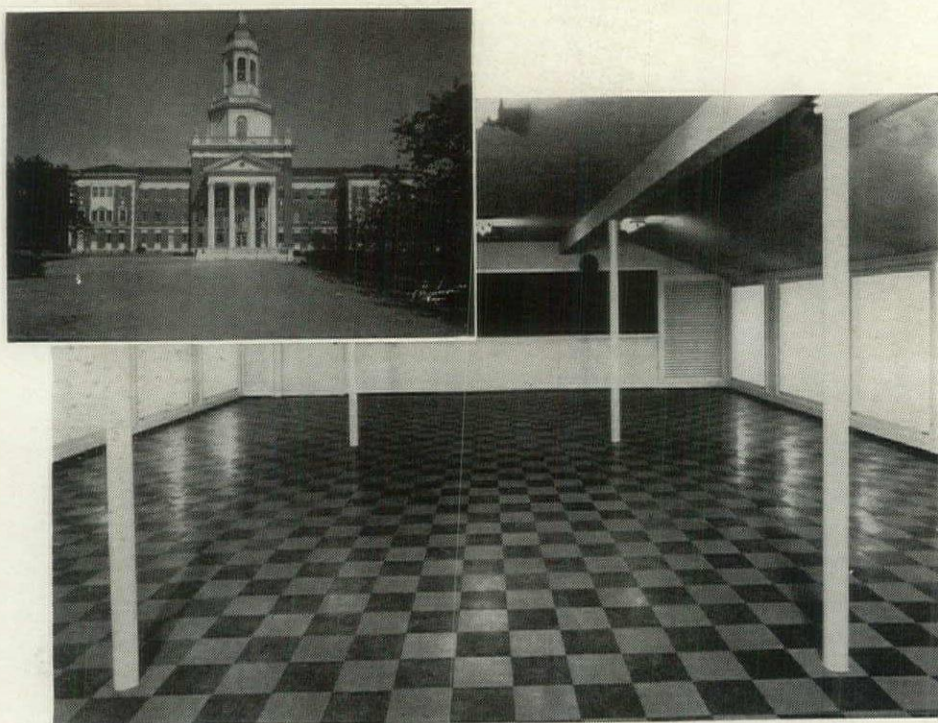
TO CLARENCE S. STEIN, architect, the Apartment House Medal award for work built between January 1, 1933, and October 1, 1938, in one of New York's five Boroughs, in Group II (houses six stories or under), by the New York Chapter, A.I.A., for the second unit of the Phipps Garden Apartments in Long Island City. The owner, receiving a certificate, is Phipps Houses, Inc.

TO WALTER B. SANDERS and JOHN S. BRECK, architects, the commendation of the Jury for work built between January 1, 1933, and October 1, 1938, in one of New York's five Boroughs, by the New York Chapter, A.I.A., for their three-family house and architectural offices at 235 East 72nd St., New York.

TO JOSEPH F. CARNEY, building superintendent of the Waldorf-Astoria, New York, the Robert Grimshaw Medal, given annually by the New York Association of Power Engineers to the member selected as a leader in the engineering field.

TO LAWRENCE E. BARRINGER, of General Electric Co., Schenectady, the annual Benjamin G. Lamme Medal for achievement "in the field of research and development of materials for electrical insulation."

(Continued on page 64)



WHEN architects and engineers plan a school building, they must provide for many different types of flooring. There are corridors and classrooms, library and offices, cafeteria and gym to be considered. Too, in some schools, there are vocational training shops.

Each of these areas needs a floor covering to fit its usage. All must be quiet, comfortable underfoot, attractive, able to stand heavy traffic. Also, and this is important in every school budget, floors must be inexpensive in maintenance.

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PUBLIC SEATING QUIZ for Architects

1. What space in addition to the sum of the chair widths must be allowed for the width of a section of theatre chairs?
2. What extra space must be allowed for a back row of chairs?
3. When must a properly designed floor be bowl-shaped instead of a straight incline?
4. What are the economies and advantages of Clearfloor Ventilators in comparison with the mushroom type?
5. What concrete mixture is best for floor to which chairs are to be attached by means of expansion bolts?
6. From what points of a chair should seat-height be measured on floors of various inclination?
7. What is the ideal length of a church pew section? Why?
8. What are the eye-strain hazards of unilateral classroom lighting? How may they be obviated?
9. In what respects would any of these problems be affected by the particular seating used?

BUT why should an *architect* be annoyed with such technical details. They are the business of seating engineers. These, and countless similar technicalities, are the daily work of our engineering department. They apply the answers to thousands of special situations every year. They have to be right. Their consulting assistance is available on request.



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FORUM OF EVENTS

TO DANIEL BRENNER, New York, the Perkins and Boring Traveling Fellowship, a \$1,350 award by Columbia University School of Architecture, for a year of study in Mexico and South America.

THE THREE MOST BEAUTIFUL BRIDGES completed in the U. S. during 1939, as selected by a jury sponsored by the American Institute of Steel Construction: Class A costing \$1,000,000 or more—Bronx-Whitestone Bridge across the East River, New York (engineers: Triborough Bridge Authority, O. H. Ammann, chief engineer; Allston Dana, engineer of design; Leon S. Moisseiff, consulting engineer on design; Aymar Embury II, architect; Madigan-Hyland, consulting engineers on construction; H. W. Hudson, engineer of construction; fabricators, American Bridge Co.). Honorable Mention—Highland Park Bridge over the Allegheny River, Pittsburgh (engineers: Allegheny County Department of Works, John F. Laboon, director; Levi Bird Duff, chief engineer; Parsons, Klapp, Brinckerhoff & Douglas, advisory engineers, with Waddell & Hardesty as associate engineers; fabricators, Bethlehem Steel Company).

Class B costing \$250,000 to \$1,000,000—No prize award. Honorable Mention—Howard Street Bridge, Baltimore (engineers: J. E. Greiner Co.; fabricators,

American Bridge Co.) Second Honorable Mention—Grove Highway Bridge, Delaware County, Okla. (engineers: designed by Victor H. Cochran for Holway & Neuffer, engineers for the Grand River Dam Authority; fabricators, Virginia Bridge Co. and Patterson Steel Co.).

Class C costing less than \$250,000—Valley River Foot Bridge, Murphy, N. C. (engineers: Tennessee Valley Authority, T. B. Parker, chief engineer; Harry A. Hageman, chief designer; F. W. Webster, head highway engineer; Erwin Harsch, senior structural engineer; fabricators, Lloyd E. Jones Co.). Honorable Mention—Waverly Bridge near Lansing, Mich. (engineers: J. G. Rakowsky, Ingham County engineer in charge; F. A. McCowan, assistant engineer, design and inspection; fabricators, The R. C. Mahon Co.). Second Honorable Mention—Alton Railroad Overhead Bridge near Gardner, Ill. (engineers: Ernst Liebermann, chief highway engineer; Alfred Benesch, engineer of grade separations; fabricators, Bethlehem Steel Co.).

Movable Bridges—Second Avenue Bridge, Alpena, Mich. (engineer, Clifford E. Paine; fabricators, The R. C. Mahon Co.). Honorable Mention—N. W. 27th Avenue Bridge, Miami, Fla. (engineers: Edmund Friedman, county engineer; Har-

ington & Cortelyou, consulting engineers; fabricators, Nashville Bridge Co.).

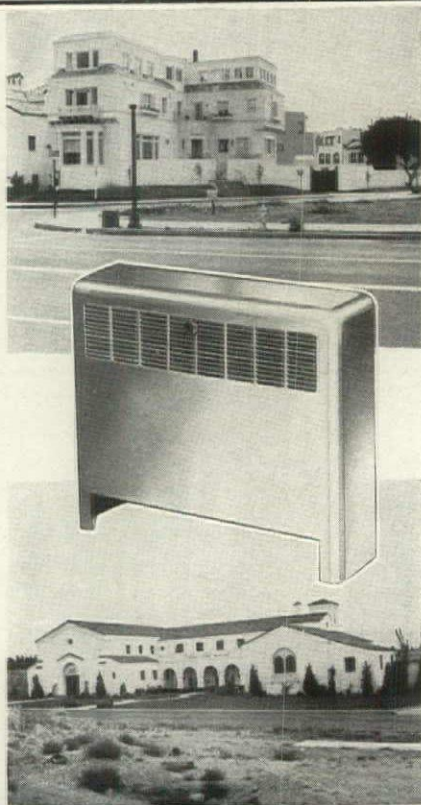
TO GILMORE DAVID CLARKE, the honorary degree of Doctor of Humane Letters by Yale University. "... Vigorous, versatile, broad in his interests, he is with fruitful results devoting his life to making his community, his State and the nation a finer and more beautiful human abode."

TO PAUL PHILIPPE CRET, the honorary degree of Doctor of Arts by Harvard University. "A masterful designer of public buildings, imbued with the best traditions of the past, he brings new beauty to the present."

TO LORIMER RICH, New York, the honorary degree of Doctor of Fine Arts by Syracuse University. "Alumnus of Syracuse, distinguished practitioner in the field of architecture, designer and constructor of many buildings, both public and private; consulting architect for the U. S. Treasury Department; you have achieved undying fame through the Tomb of the Unknown Soldier at Arlington—Mecca of all true Americans."

TO ELIEL SAARINEN, the honorary degree of Doctor of Arts by Harvard University. "Versatile architect and teacher of design, famed in many lands, an explorer in quest of new forms of art engendered by modern cities and machines."

(Continued on page 68)



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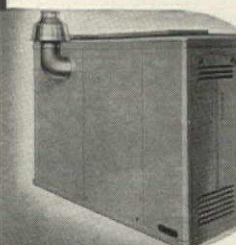
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Dept. AF-3

Cincinnati, Ohio

FORUM OF EVENTS

(Continued from page 64)

To **WILLIAM L. PEREIRA**, Chicago, the Scarab Gold Medal Recognition Award by the Scarab Fraternity, the national architectural student organization, "to emphasize and recognize outstanding professional achievement to one under 35 years of age for meritorious work in his or her professional field."



To **EUGENE WASSERMAN**, M.S. from the University of Illinois, now an instructor in architecture at Kansas State College, the Paris Prize by the Society of Beaux-Arts Architects. The award, with an estimated value of \$4,000, entitles the winner to study at the Ecole des Beaux-Arts in Paris and travel for two and a half years. Alternate: **A. A. Moulthrop**, a student at Princeton.

To **ARTHUR B. WHITE**, Philadelphia, a graduate of this year's Department of Architecture, University of Pennsylvania, the Theophilus Parsons Chandler Fellowship for graduate study in architecture, the Arthur Spayd Brooke Memorial Gold Medal, the Paul Philippe Cret Prize, the Faculty Medal of Architecture, the Thornton Oakley Medal for achievement in creative art, and a T Square Club Prize for meritorious scholarship.

To **CHARLES G. LEE**, Roanoke, Va., a graduate of this year's Department of Architecture, University of Pennsylvania, the medal of the Alpha Rho Chi, an honorary fraternity in architecture, the American Institute of Architects' Medal for the highest record in his class throughout his course, the Charles Merrick Gay Prize in construction, and a T Square Club Prize in scholarship.

EDUCATIONAL

BOOTHBAY STUDIOS, Boothbay Harbor, Me. Harold Van Doren, industrial designer of Toledo, Ohio, will conduct a course, Design in Industry, July 22 to August 3. This is in addition to the course previously announced by Faber Birren, Color in Industry.

COOPER UNION, New York. Recent appointments to the faculty are Morris Kanter, painter, and Warren Wheelock, sculptor and designer.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY has established a department of building engineering and construction, which subject has for several years been under the department of civil and sanitary engineering. Prof. Walter C. Voss is head of the new department. Associated with him on the staff will be Prof. Dean Peabody, Jr., Prof. Howard R. Staley and Albert G. Dietz.

NEW YORK UNIVERSITY. The second annual Housing Management Training Institute is being held July 8 to August 2, in cooperation with National Association of Housing Officials, the New York City Housing Authority, and the New York State Division of Housing. The Institute's course is designed to equip a limited group of 50 students for management positions in public and private housing developments.

SCHOOL OF DESIGN, Chicago. Three full tuition scholarships of \$351.50 each for the school year of 1940-41 are offered:
(Continued on page 72)

Avoid the "Sameness" Imposed by Limited Budgets

Use *Marlite* for walls and get smartly styled rooms like these in your "Life Houses"—economically

Marlite COMES IN LARGE WALL-SIZE PANELS
(4 feet x 12 feet, readily cut to size)
PLAIN COLORS, TILE and MARBLE-PATTERNS, and
WOOD-VENEERS. WOOD and METAL MOULDINGS

● The problem of creating smart and distinctive—yet economical—interiors for homes in every price range is readily simplified by using Marlite for walls. Its decorative possibilities and reasonable first cost enable you to give low and medium priced homes a smart, highly distinctive styling of their own and avoid the "sameness" usually imposed by limited budgets. Marlite's luxurious quality readily appeals to clients

in the \$10,000 and up home group, too.

An unequalled range of colors and patterns (over 100 in all, in Marlite, Marlite Genuine Wood-Veneers, and *Carstenite Panels) plus all the practical advantages of low first cost, ease of installation, adaptability to a wide range of uses, low upkeep, ease of cleaning, and durability recommends Marlite highly to architects and designers as a decorative material for the home.

Write for a FREE Colorful Booklet of Home Interiors. See our Catalog in Sweet's 11/34.

The interiors shown are from the home of M. B. Delaney, designed by A. A. Hoefler, Jr., N. Plainfield, N. J., and serve to illustrate Marlite's adaptability to many home interiors.

MARSH WALL PRODUCTS, INC.

71 MARSH PLACE • DOVER, OHIO

*Carstenite is the trade name of the raw, unfinished panels.



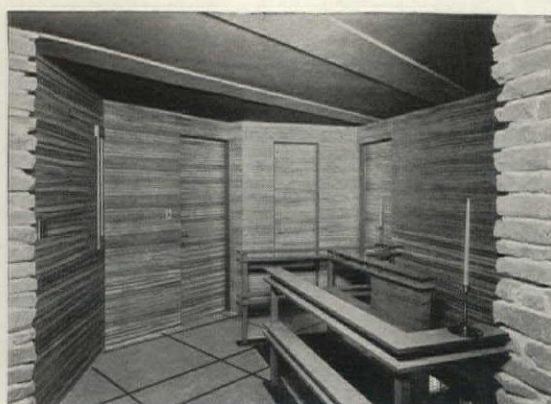
THE EXCITING SWEEP of horizontal panels of vivid-patterned Marlite Genuine Zebrawood give this smart and modern living room an exhilarating "lift" that keynotes the creative styling of the other Marlite interiors of this unusual home designed by Mr. Hoefler.



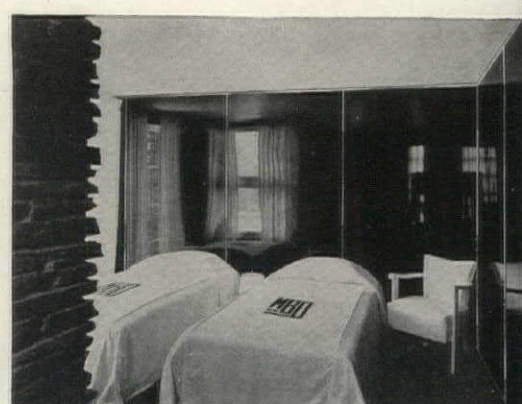
A SMARTLY STYLED KITCHEN that sparkles with charm and efficiency. Sidewalls are of White Marlite—door is laminated with White Marlite and edged with Marsh Extruded White Alloy Mouldings. Marlite Plain-colors are equally suitable for bathrooms, recreation rooms, powder rooms, etc.



SIMPLICITY OF DETAIL accented by the luxuriousness of walls of Marlite English Harewood Pattern marks this distinctive departure in bedroom decorative treatment. Doors are laminated with sheets of the same material. Glistening White Alloy Mouldings impart an interesting panel effect.



IN HARMONY with the unusual and original decorative scheme employed throughout this home, the designer has used Marlite Genuine Zebrawood to impart an enlivening smartness to this second floor stairway corridor. Other Marlite Genuine Wood-Veneers are equally suitable for home interiors.



AN UNCONVENTIONAL and smartly modern effect—one unattainable with ordinary decorative materials—is this unusual bedroom with sidewalls of glistening mirror black Marlite panels and a white ceiling. Extruded White Alloy Mouldings lend an added note of modernity.

SEE THE MARLITE EXHIBIT AT THE NEW YORK WORLD'S FAIR, HOME BUILDING CENTER



Marlite

FOR CREATING
BEAUTIFUL INTERIORS

WALL-SIZE PANELS IN LUSTROUS COLORS, TILE-PATTERNS,
MARLITE GENUINE WOOD-VENEERS AND *CARSTENITE PANELS

MARSH WALL PRODUCTS, INC.
71 Marsh Place • Dover, Ohio

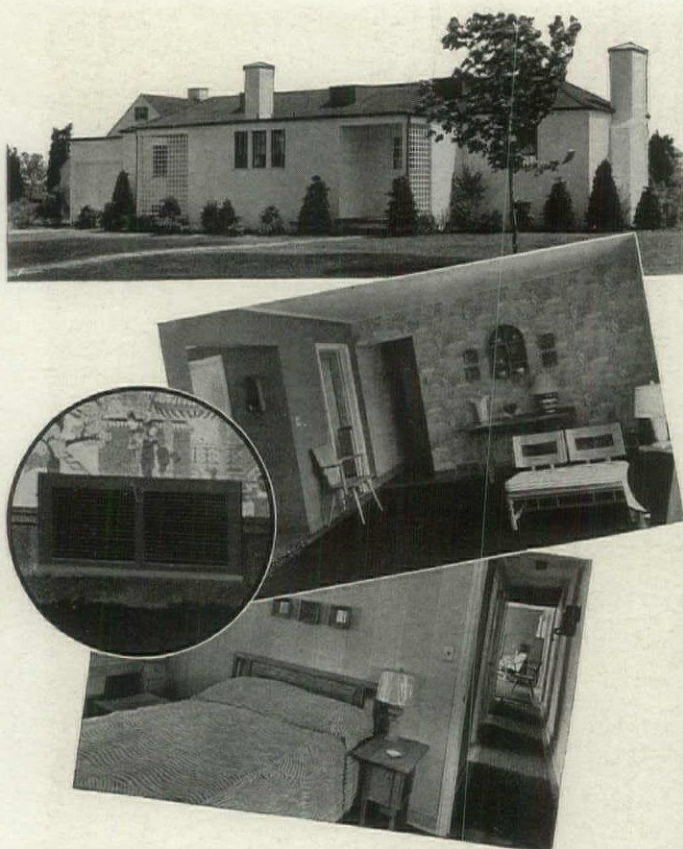
Please send me your free book showing how beautiful interiors can be created with Marlite.

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Firm.....

Address.....

City.....State.....



AUER Registers Chosen for this "LIFE HOUSE"

Among the residences built in the 1940 "Life" Magazine House Program, for which Auer Registers were selected, is the one shown in these illustrations. It was erected at Massapequa, L. I., by the Harmon Organization, Inc.

We are naturally proud of this recognition, proving again that Auer Air Conditioning Registers find a place of eminence among the kind of products which go into better class buildings throughout the country. We like to cooperate with architects everywhere who keep pace with modern heating and air conditioning practice, and who appreciate the value of attractive and practical registers.

Complete line of registers and intakes for both warm air and air conditioning shown in Auer Register Book 40, sent on request. If you have not received special Auer Grille Catalog "G", with full sized details and range of dimensions, by all means let us know and your copy will be sent.

THE AUER REGISTER COMPANY
3608 Payne Avenue Cleveland, Ohio

AUER DISTINCTIVE **REGISTERS**
& GRILLES  For Air Conditioning and Gravity

KITCHEN VENTILATION

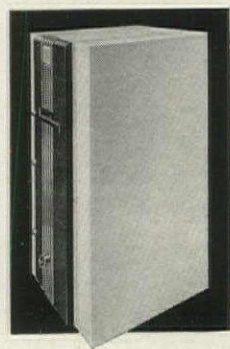
made easy

The day is long gone when an architect designed a kitchen without some form of ventilator to remove greasy cooking fumes. Today the only question is, "Where shall we put it?" The new Victor Panel-aire is the answer for homes or apartments where openings through the wall are impractical. This weather-sealed super-powered fan may be installed in a few minutes time in steel sash windows, transoms, or any place where facilities for a panel opening already exist. Standardized ventilator unit is mounted on any size panel (11" x 11" minimum) to conform with glass dimensions. Flush inside mounting. Beautiful Silchrome grille. Sold by Victor Electric Products, Inc., Dept. IB-14, 2950 Robertson Road, Cincinnati, Ohio.

FREE!
Write today for the new
Victor Panel-aire and In-
Silt catalog.

The **NEW**
VICTOR *Panel-aire*

**This
Definitely Means
Something
To You**



Several Life Houses are equipped with Burnham Yello-Jacket Boilers because they sting the fuel bill. See Sweets'. See for yourself.

Burnham Boiler Corporation
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contributing to the solution
of general company problems

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Measuring Results

ALLOCATION OF BUDGETS

Programs that management
will approve

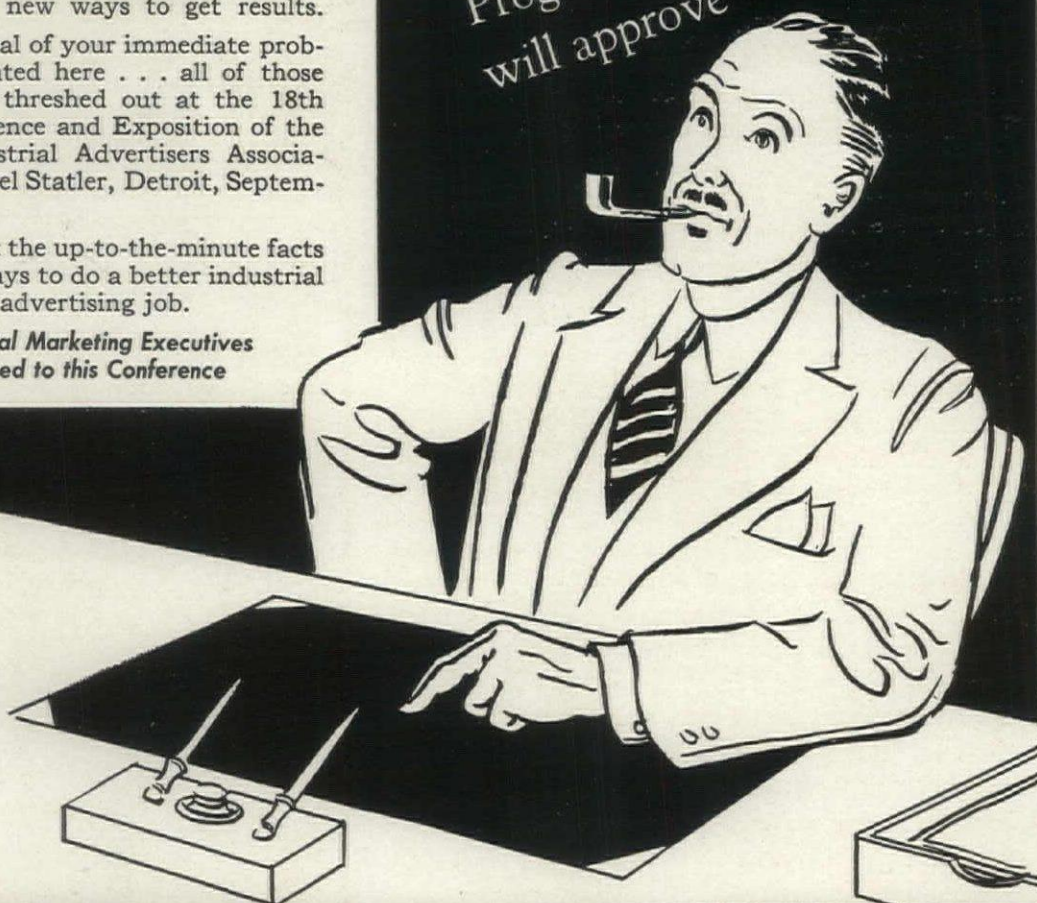
WHAT'S YOUR PROBLEM?

Your business . . . in at least one respect . . . is no different from others: *Your marketing problems are constantly changing.* You must ever be on the search for new ideas . . . for new ways to get results.

No doubt several of your immediate problems are indicated here . . . all of those shown will be threshed out at the 18th Annual Conference and Exposition of the National Industrial Advertisers Association, at the Hotel Statler, Detroit, September 18, 19, 20.

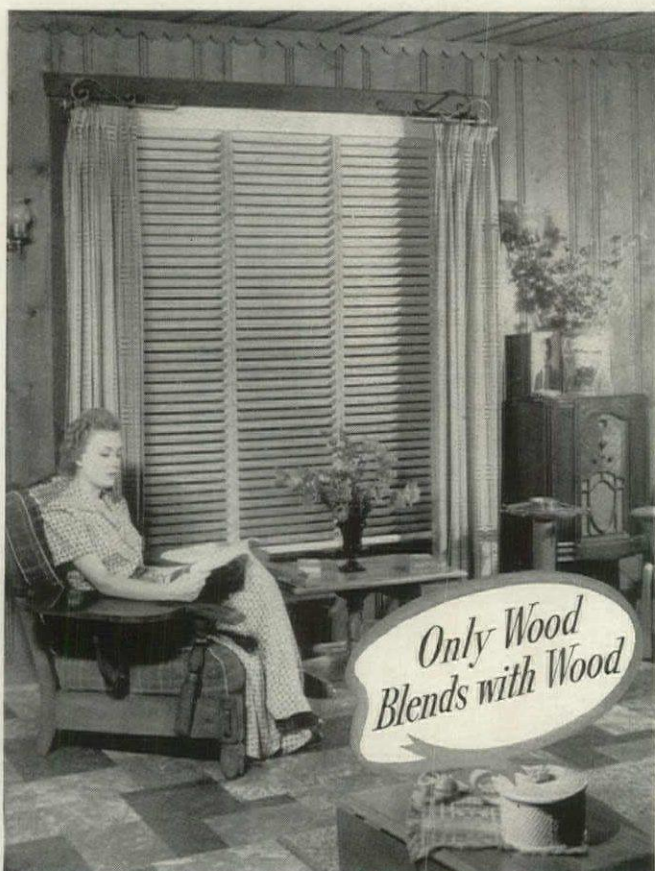
Plan now to get the up-to-the-minute facts on the latest ways to do a better industrial marketing and advertising job.

*All Industrial Marketing Executives
are Invited to this Conference*



1940 INDUSTRIAL ADVERTISING CONFERENCE

DETROIT . . . HOTEL STATLER . . . SEPTEMBER 18, 19, 20



Weather-Right Windows

Right now, the architect who specified Wood Venetians for the house completed in the spring is reaping a new reward of gratitude from his satisfied client. For the client, who wanted Wood Venetians because only wood blends with wood, now finds that his window treatment is practical, as well as beautiful and harmonious.

With the touch of a cord, slats can be tilted to keep out the burning rays of the summer sun and yet welcome each stray breeze. As a poor conductor, wood resists the heat, instead of holding it. And costly, troublesome awnings, with their fire hazard, are not required when Wood Venetians close out the sun.

To add to your store of knowledge regarding modern window treatment, write to the Wood-for-Venetians Association for the Wood Venetian primer—"Only Wood Blends with Wood." This booklet shows graphically that Wood Venetians cost less and provide greater comfort than other blinds over a period of years. Recommend Wood Venetians, and your client will have weather-right windows in every season.

Wood Venetians

Wood-for-Venetians Association

939 RUSS BLDG.

SAN FRANCISCO, CALIF.

FORUM OF EVENTS

(Continued from page 68)

one to a graduate of high school; two for graduates of a liberal arts college and of a technological institute. All applicants must be under 24 years of age. Inquiries should be addressed to L. Moholy-Nagy, Director, 247 East Ontario St., Chicago, not later than July 30.

MISCELLANEOUS

ACCREDITING SCHOOLS OF ARCHITECTURE. A national board for accrediting the schools of architecture in the U. S. has been organized by the American Institute of Architects, the Association of Collegiate Schools of Architecture, and the National Council of Architectural Registration Boards.

"The primary objective of the accrediting program," the announcement states, "is to ensure that the graduates of an architectural school which gives a degree in architecture have a sound background for entering and practicing the profession. . . ."

Edwin Bergstrom of Los Angeles, president of the A.I.A., has been chosen as the first president of the National Architectural Accrediting Board. Together with Charles D. Maginnis of Boston, he will represent the Institute. Professor F. H. Bosworth, Jr., of Cornell University and Professor Roy Childs Jones of the University of Minnesota have been named representatives of the Association of Collegiate Schools of Architecture. William L. Perkins of Chariton, Iowa, and Clinton H. Cowgill of Blacksburg, Va., will represent the National Council of Architectural Registration Boards. . . .

"At the present time there is no list of architectural schools that is based on a competent evaluation of the schools from the standpoint of the profession as to the adequateness and quality of their educational programs. The three societies believe that such an evaluation by an autonomous and especially qualified board and the establishment and keeping current by it of a list of the schools it accredits will be of great benefit to the schools, the profession, and the public.

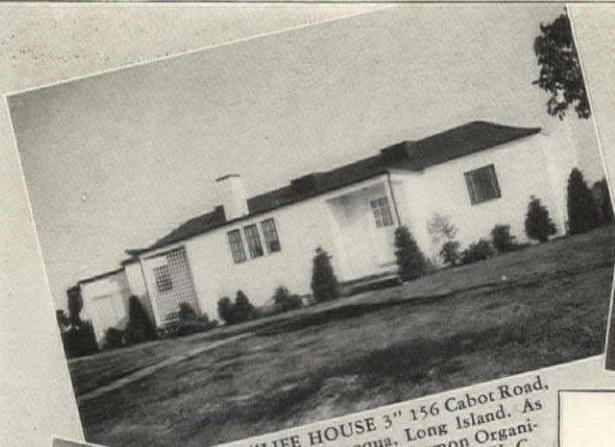
"The agreement setting up the accrediting program makes it plain that the Accrediting Board must not create or recognize conditions which will tend toward standardization of educational philosophies or practices, but rather that it should be its intention to create and maintain conditions which will encourage the development of practices suited to the conditions that are special to the individual school.

"The Accrediting Board must not set up or publish any standards concerning the manner in which or concerning the basis on which its accrediting is or will be done. The Accrediting Board is to issue only a list of the schools it accredits, and will have no authority to impose any restrictions or standardization on any school.

"There is prevalent a notion that being a member of the Association of Collegiate Schools of Architecture was in effect an accreditation of the school, but that has never been the case. The notion, however, has led to situations which will be corrected as one of the corollary benefits of the accrediting program."

The committee which carried out the organization of the new Board consisted of John R. Fugard of Chicago, Professor George Young, Jr., of Cornell University, Professor Goldwin Goldsmith of the University of Texas, Professor Sherley W. Morgan of Princeton University, Messrs. Bergstrom, Cowgill, and Perkins.

(Continued on page 76)



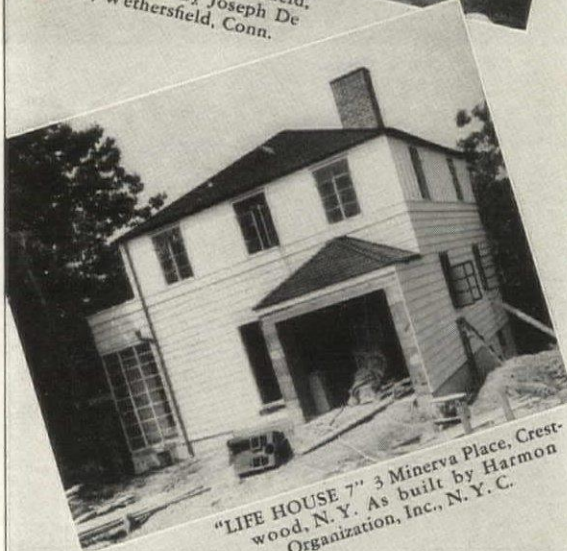
"LIFE HOUSE 3" 156 Cabot Road, Massapequa, Long Island. As built by Harmon Organization, Inc., N. Y. C.



"LIFE HOUSE 4" 14 Nassau Rd., Massapequa, Long Island. As built by Harmon Organization, Inc., N. Y. C.



"LIFE HOUSE 5" Wethersfield, Conn. As built by Joseph De Paola, Wethersfield, Conn.



"LIFE HOUSE 7" 3 Minerva Place, Crestwood, N. Y. As built by Harmon Organization, Inc., N. Y. C.



"LIFE HOUSE 7" 46 Rowan Road, Chatham, N. J. As built by Harmon Organization, Inc., N. Y. C.

Builders Select

KIMSUL

INSULATION

for these Five New "Life" Houses!

● The builders of the "Life" houses illustrated here are typical examples of KIMSUL* boosters. And no wonder — for like hundreds of other architects and builders they have discovered in KIMSUL, an insulation that is highly effective yet remarkably low in cost.

KIMSUL's ever-growing popularity is undoubtedly due to the many outstanding advantages it offers. With a conductivity of 27 B.t.u./hr./sq. ft./°F. inch. (J. C. Peebles) KIMSUL is one of the most efficient insulating materials known. It is clean, light in weight and installs with remarkable speed and ease. Furthermore KIMSUL is highly resistant to fire and moisture. And because of the unique stitching feature which holds it in place, KIMSUL stays put — won't sag, sift or pack down inside the walls.

KIMSUL is an insulation that lives up to the claims made for it—and, as a result is specified nationally by architects, builders and contractors. Investigate KIMSUL for your new homes. For complete information about how much more KIMSUL will do for the money — mail coupon today!

*Reg. U. S. and Can. Pat. Off.

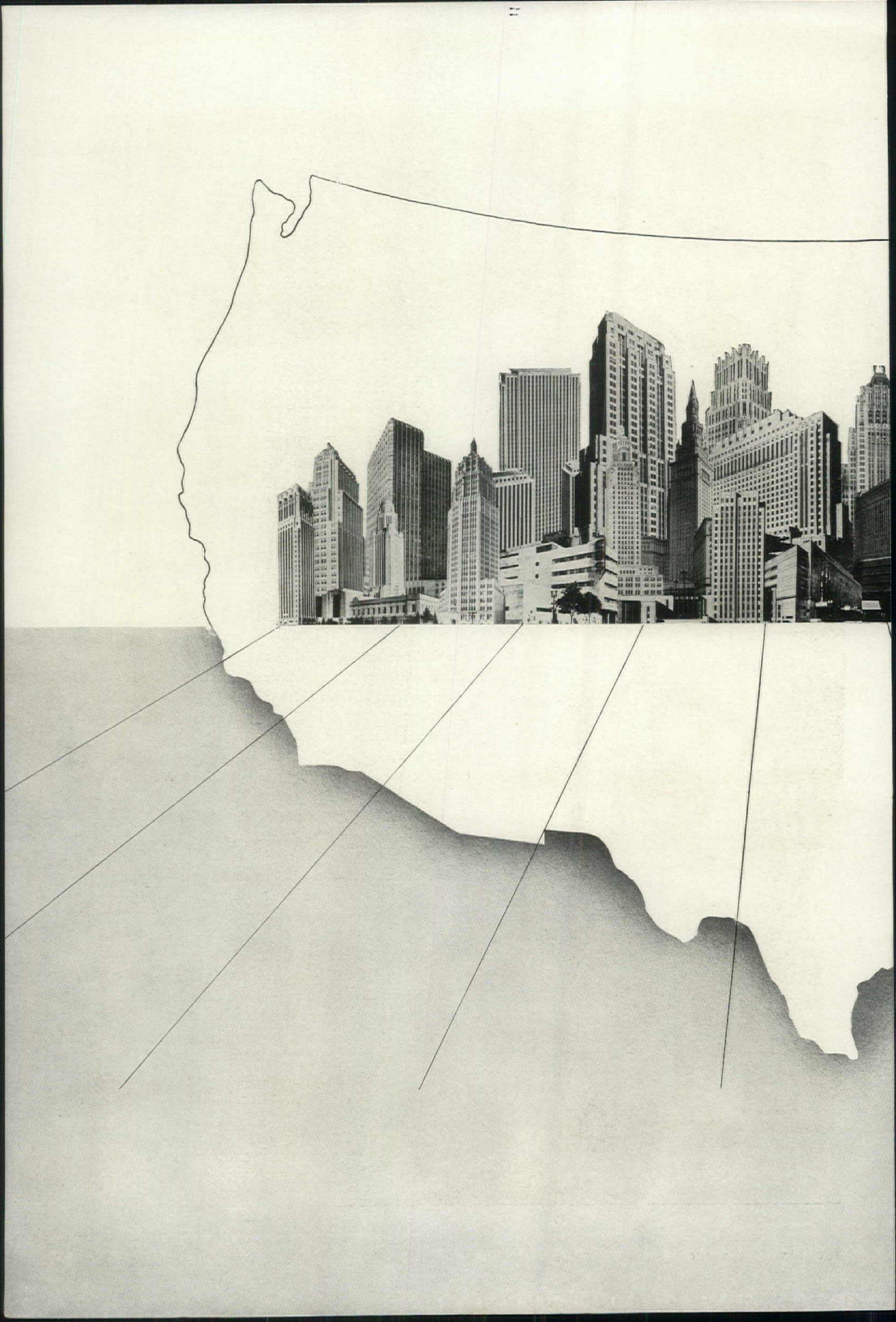
**COMPARE!
and you'll
choose
KIMSUL**

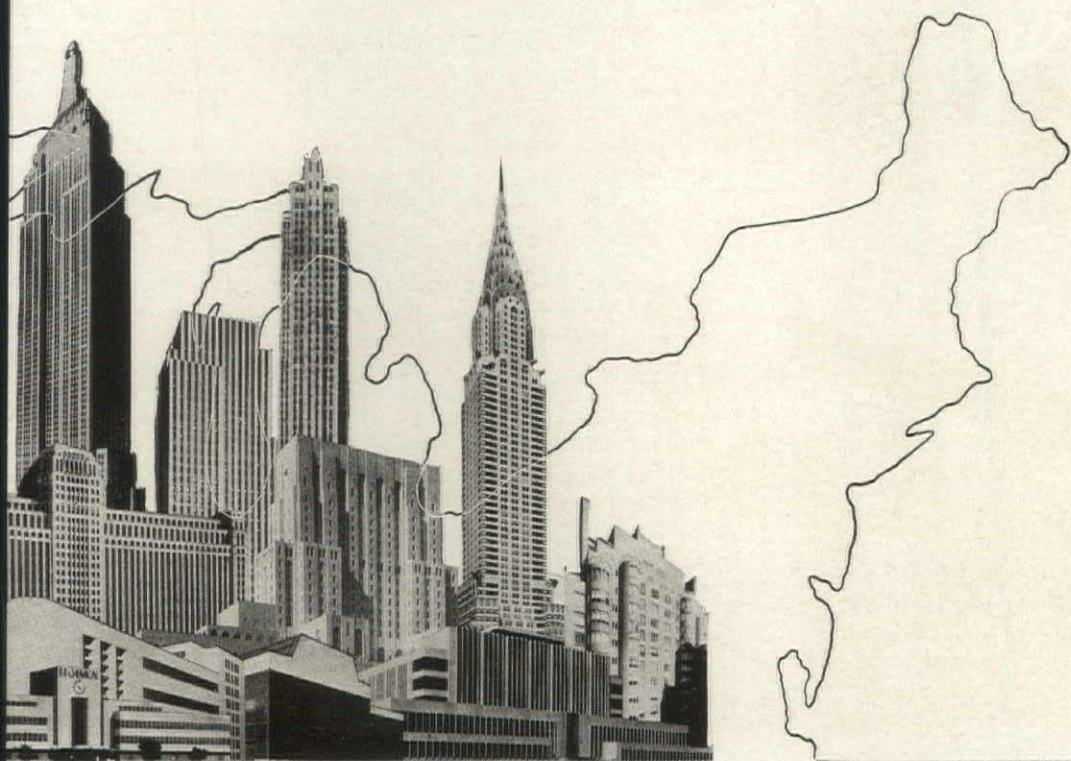
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8 South Michigan Avenue, Chicago
☐ Please send a representative
☐ Please send Free Book — "Greater Comfort — Winter and Summer."

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The Skyline of the U.S.

has been built twice — once on the ground, again in the pages of THE FORUM . . . First through the doors of most notable new buildings are FORUM photographers, researchers and writers. Even the stay-at-home is a seasoned traveler via his FORUM subscription. . . . See architectural America every month in

THE ARCHITECTURAL FORUM



Sta-tite

FOR CONCRETE CURING

For low cost uniform concrete curing and protection, Angier's Sta-tite has gained wide acceptance. No expensive handling or guesswork. Automatic — roll out Sta-tite — no supervision. Waterproof; 3-ply; crossed fibre reinforcing imbedded in asphalt. Also a splendid all-purpose building paper. Send for sample.

SEND FOR CATALOG OF SAMPLES
and THESE 2 A. I. A. FOLDERS

Whether your houses cost \$5,000 or \$15,000 it's risky business to gamble with heat and cold losses; high oil and fuel bills; stained ceilings and walls; damp basements, draughty rooms and leaks — let alone the decaying of structural materials. Brownskin or Copperskin prevents all these.

Brownskin is a new type of protection that is unique because (1) it is creped to s-t-r-e-t-c-h; (2) is specially treated to resist deterioration, passage of water or moisture. Brownskin will last as long as the building.

Copperskin is pure copper bonded to Brownskin. 100% vapor-seal. 1/5 the cost of copper.

ANGIER CORPORATION

74 WIDDELL ST., FRAMINGHAM, MASS.



FORUM OF EVENTS

(Continued from page 72)

DIED

A. TEN EYCK BROWN, architect, 62, at his home in Atlanta, Ga. Born in Albany, N. Y., Mr. Brown was graduated from the Architectural School of Design, New York. After a period in the Supervising Architect's Office in Washington he established a practice in Norfolk, Va., in association with Thornton P. Mayre. In 1906 he moved to Atlanta and thereafter practiced on his own account. He was a member of the A.I.A.

ALEXANDER C. ESCHWEILER, SR., architect, 74, at North Lake near Hartland, Wis. Mr. Eschweiler, in 50 years of practice, designed many of Milwaukee's best known buildings. He was a former president of the Milwaukee Art Commission, the Milwaukee Architects' Club, and of the Wisconsin Chapter, A.I.A. He was a Fellow of the Institute.

F. LUIS MORA, painter, 65, at his home in New York. Born in Montevideo, Uruguay, Mr. Mora received his early education at Manning's Seminary, Perth Amboy, N. J., and in the public schools in New York and Boston. His art training came through the School of Drawing and Painting at the Museum of Fine Arts in Boston and at the Art Students' League, N. Y. After completing his studies at the latter institution, he was chosen as a vice president of the League and later taught drawing and painting for nine years at the New York School of Art. Mr. Mora has been represented at most of the important art exhibitions in America since 1924, and his works are in many museums. He had been a member of the National Academy of Design since 1906, and of many professional organizations, including The Architectural League of New York.

JANET SCUDDER, sculptor, 66, at Rockport, Mass. Born in Terre Haute, Ind., Miss Scudder attended the Cincinnati Art Academy, studied with Lorado Taft in Chicago, and worked on the Chicago World's Fair of 1893. In Paris where she made her home for 45 years until last fall, she was a student at Vitti's and Colarossi's Academies and of Frederick MacMonnies. Miss Scudder's sculpture is to be seen in many museums. Among her best works are fountains and other garden sculpture. She was a member of the National Sculpture Society, an Associate Academician of the National Academy of Design, and a Chevalier of the French Legion of Honor.

FRED J. WOODWARD, architect, 60, at Alexandria, Va. Mr. Woodward came to Washington from his birthplace, Durham, England, at the age of three. In 1906 he entered the Government service and retired after 32 years in the Supervising Architect's Office.

PERSONAL

William Briggs & Associates, industrial designers, have moved their offices from Knoxville, Tenn., to James Building, Chattanooga, Tenn.

Gilmore D. Clarke and Michael Rapuano, landscape architects, have set up new offices at 10 Rockefeller Plaza, New York.

Charles Collens and Harold B. Willis, constituting the firm of Allen, Collens & Willis, architects, announce that they

(Continued on page 80)



CARRIER CELEBRATES ITS SILVER ANNIVERSARY

Architects have been quick to accept the new opportunities which Carrier Air Conditioning has brought. Today, in skyscraper, factory and home, they plan for future utility too, knowing that Carrier Indoor Weather will *keep* buildings modern for years to come.

Many still regard Air Conditioning as but a lusty infant. And yet—

★ The *first* air conditioning installation was made but a few years after the turn of the century, by Willis H. Carrier.

★ As long ago as 1911, Mr. Carrier presented his famous Rational Psychrometric Formulae, the basis of modern air conditioning.

★ In 1915 the present Carrier organization was founded, to put into wide practice the principles of this modern science.

1940 is the silver anniversary of air conditioning's coming of age... the 25th year of the Carrier organization. Thanks to the knowledge gained in a quarter-century of

development and experience in 99 countries, there is but one rule for you to follow: call air conditioning by its *first name*...call *Carrier*. Representatives are listed in the classified section of your phone book.



Visit the Carrier Igloo of Tomorrow at the New York World's Fair.

CARRIER CORPORATION DESK 8G
SYRACUSE, NEW YORK
"Weather Makers to the World"
(In Canada, 30 Bloor St. West, Toronto, Ontario)
Please send me complete information on Carrier Air Conditioning.

NAME _____
COMPANY _____
ADDRESS _____



He knew what they'd find in that old cowhide trunk



YOUNG HEIRS MIGHT BE SURPRISED—but he knew the fortune that was paid the Hawkinses when the railroad came through in '78 and how they never spent or banked a cent of it.

The old-time country editor was like that. He knew his county like the back of his hand, from the secret thoughts of the supervisors to the last thank-you-marm on a dead-end road.

He knew every man, woman, and child and their Great-Aunt Nellie who ran off with the lightning-rod agent. He knew the story of every yellow old record in the courthouse—and what the boys were laughing at in the livery stable last Sunday. He knew what chance the town had of getting that button factory, and why the parsonage would have a new tenant soon.

► The people he wrote for were just as much an open book to him as the news he wrote for them. He wasn't being quaint when he put the results of the school spell-down on page one, or filled five pages with country correspondence.

That was meat and drink to the folks out on the R.F.D. routes—far more important than the Boer War or even silver at 16 to 1—and he knew it.

► That old-time country editor had *grasp* . . . complete, integrated understanding of all the news of his locality, and the whole of the mind for which it was written. And his formula, "the nearer the news, the bigger," was essentially the formula of all old-time journalism—in the big cities, as well as in the county seats.

But when Dewey entered Manila Bay and boys in bicycle shops began tinkering with the front ends of buggies, the old order began to pass away. The great, complex world forced itself into the affairs and thoughts of easy-going, turn-of-century America.

Economics, world politics, finance, industrial management, material resources, labor, social theory—they all began to matter somehow. They got you into wars and strikes and hard times. Science began to matter when diphtheria and

t.b. were found not to be acts of God. Art began to matter when your daughter came back from Paris or Peoria calling you a Philistine.

► America's mind, stretching, pushing out its horizons, called for more news . . . more kinds of news . . . news from beyond the railroad depot. And the news poured in—from the just-hatched wire services, from specialists of all kinds from the syndicates, the feature writers, the correspondents.

Soon the old one-man grasp was gone. The torrent of news was too great and too swift, its sources too many and too remote, for any one man to handle and absorb it all.

And if the editor was swamped, the reader was drowned. In self-defense, he learned to pick his way about his newspaper, snatching a bit here and a bit there, mostly according to the ingenuity of the headline-writer. Often he missed news of importance; often he failed to see what a series of day-by-day stories added up to in the end.



There was a crying need for a new experiment in journalism. A need for somebody with a national viewpoint—free from the pressure of daily and hourly deadlines—to bring the news together so that the intelligent reader could get its essentials, grasp them, make them his own.

► That somebody turned out to be The Weekly Newsmagazine. With its advantage of time for reflection and discussion, the Newsmagazine made this task its single-minded purpose. It set out to do the country editor's job with a world-wide scope and on a national scale.

... To take all the week's news and make the picture make sense to the average intelligent American. To set it against a fully comprehended background. To write it vividly, compactly, forcefully ... with full appreciation of the mind for which it is intended ... with the touch of human understanding that brings people and events to moving, breathing life.

The Newsmagazine is written by experts, but never *for* experts. No story in *TIME* can go galloping off on a hobby; it must be paced firmly and smoothly to the brisk stride of the whole magazine, whether the subject is world affairs or politics, or business or finance, or medicine, religion, or the arts.

► That is why *TIME* seems to be written by one man, who knows *TIME* readers as the old-time country editor knew the folks in his county. That is why the average *TIME* reader starts at the beginning and goes through to the end, feeling that every line gives him something that he wants and needs and can use.

This is one of a series of advertisements in which the Editors of *TIME* hope to give all the readers of *Architectural Forum* a clearer picture of the world of news-gathering, news-writing, and news-reading—and the part *TIME* plays in helping you to grasp, measure, and use the history of your lifetime as you live the story of your life.



TIME

-- THE WEEKLY NEWSMAGAZINE

NEW COSMOPOLITAN

Bench Bath

Three special features!



1 . . . New bench front! See how the front rim makes a useful 6-inch-wide bench—fine for foot washing, getting in or out, bathing children. Full-size inside space.

2 . . . No more high stepping! The side is low, less than sixteen inches above the floor. A great help to all the family—especially youngsters and oldsters.

3 . . . Safety first! The bottom is flat and wide to provide surer footing for shower bathers—and extra safety for every one. Regular gentle slope at end.

• The new BENCH BATH is one piece, of rigid cast iron—finished in Kohler's famous *super-luster* enamel. Three sizes—4½, 5, 5½ feet.

Write TODAY for the latest news about Kohler fixtures and fittings—a complete line of quality products for bathroom, kitchen, laundry. . . Kohler Co. Founded 1873. Kohler, Wisconsin.

KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING

FORUM OF EVENTS

(Continued from page 76)

are including in partnership Edward A. Hubbard. The firm continues practice under the name of Collens, Willis & Hubbard, 75 Newbury St., Boston.

Allmon Fordyce, architect, announces the removal of his practice to 127 East 55th St., New York.

James H. Garrott, architect, announces the removal of his offices to 672 South Lafayette Park Place, Los Angeles.

Pierre M. Ghent, former town and site planner in USHA, has joined a group of technical consultants who will specialize in the site selection, site planning, site engineering and landscape work on large scale housing operations, both public and private. The group will be known as Pierre Ghent & Associates, and will maintain offices in Washington, D. C. Temporary address, 8308-16th St., Silver Spring, Md.

Daniel P. Higgins and Otto R. Eggers, architects, announce the association of George F. Denniston who will assume administrative direction of the firm of Eggers & Higgins, 542 Fifth ave., New York.

Gerson T. Hirsch, architect, announces the removal of his office from 373 Fourth Ave., New York, to 127 Soundview Ave., White Plains, N. Y.

Mills, Rhines, Bellman & Nordhoff, Inc., Toledo, Ohio, architects and engineers, announce that John N. Richards has been admitted to membership in the firm.

S. Russ Minter, architect, announces the opening of his office for the general practice of architecture in the Liberty Trust Building, Cumberland, Md.

Announcement is made of the association of Morris & O'Connor, Harvey Stevenson, architects, as of March 15, 1940. The new firm will occupy the offices heretofore used by Morris & O'Connor at 101 Park Ave., New York.

P. M. O'Meara and G. E. Quick announce the resignation of J. B. Hills as a member of the firm of O'Meara & Hills, architects, G. E. Quick, associate. The three offices located in Minneapolis, Minn., St. Louis, Mo., and Detroit, Mich., will continue the practice of architecture under the name of P. M. O'Meara & Associates.

The partnership of Peter & Stubbins, 1062 Park Square Building, Boston, has been dissolved as of April 1, 1940. Marc Peter, Jr. will retain the same address while Hugh A. Stubbins, Jr. will have offices at 1134 Glenview Road, Birmingham, Ala.

Frank J. Pichler, architect, has opened an office for the practice of architecture at 404 Huntington Bank Building, Columbus, Ohio.

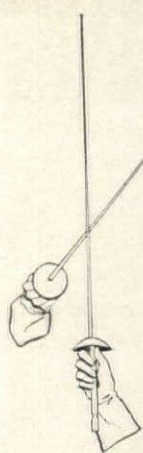
Benjamin Webster, industrial designer, announces the removal of his office to 15 East 48th St., New York.

Lawrence H. Wilson, industrial designer, has opened offices at 913 Stephenson Building, Detroit, Mich.

Charles I. Wolf, architect, announces the opening of an office for the general practice of architecture at 60 East 42nd St., New York.

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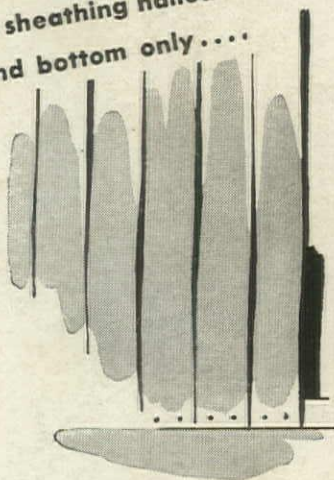
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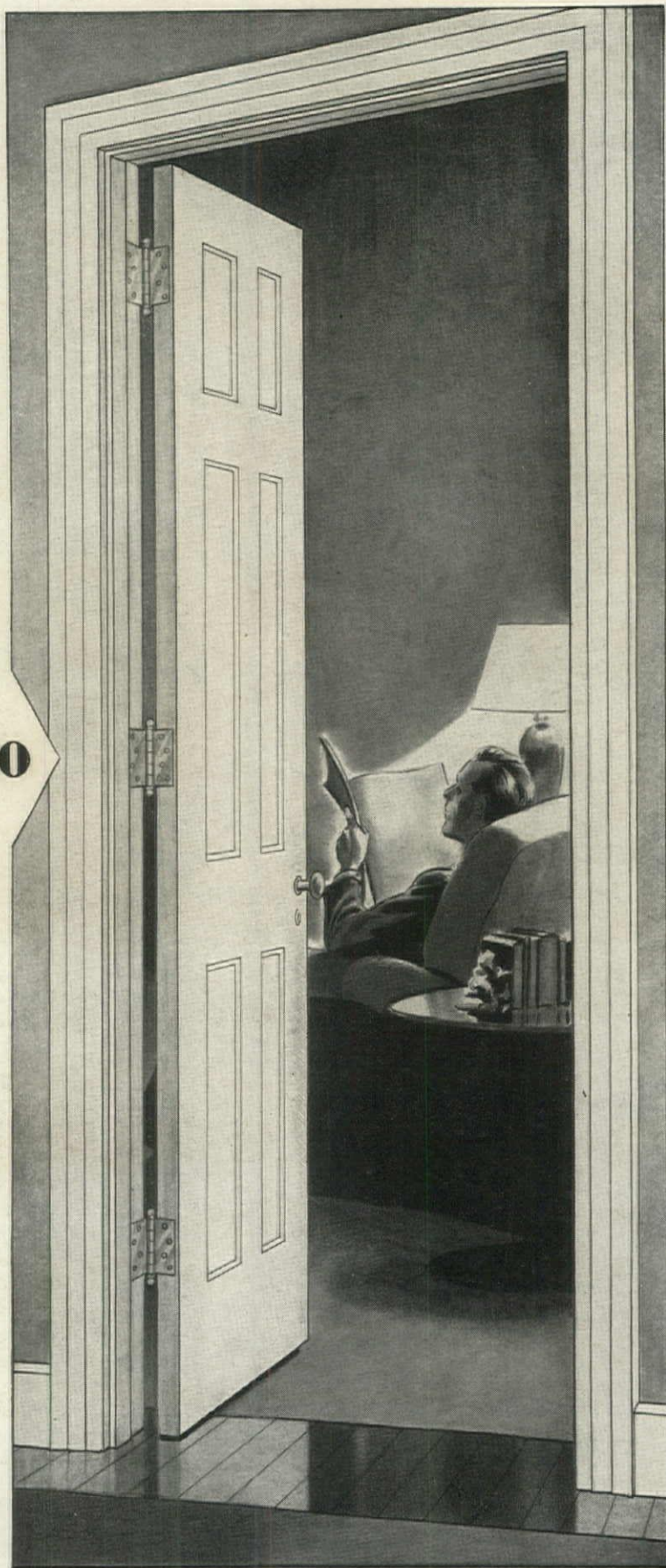


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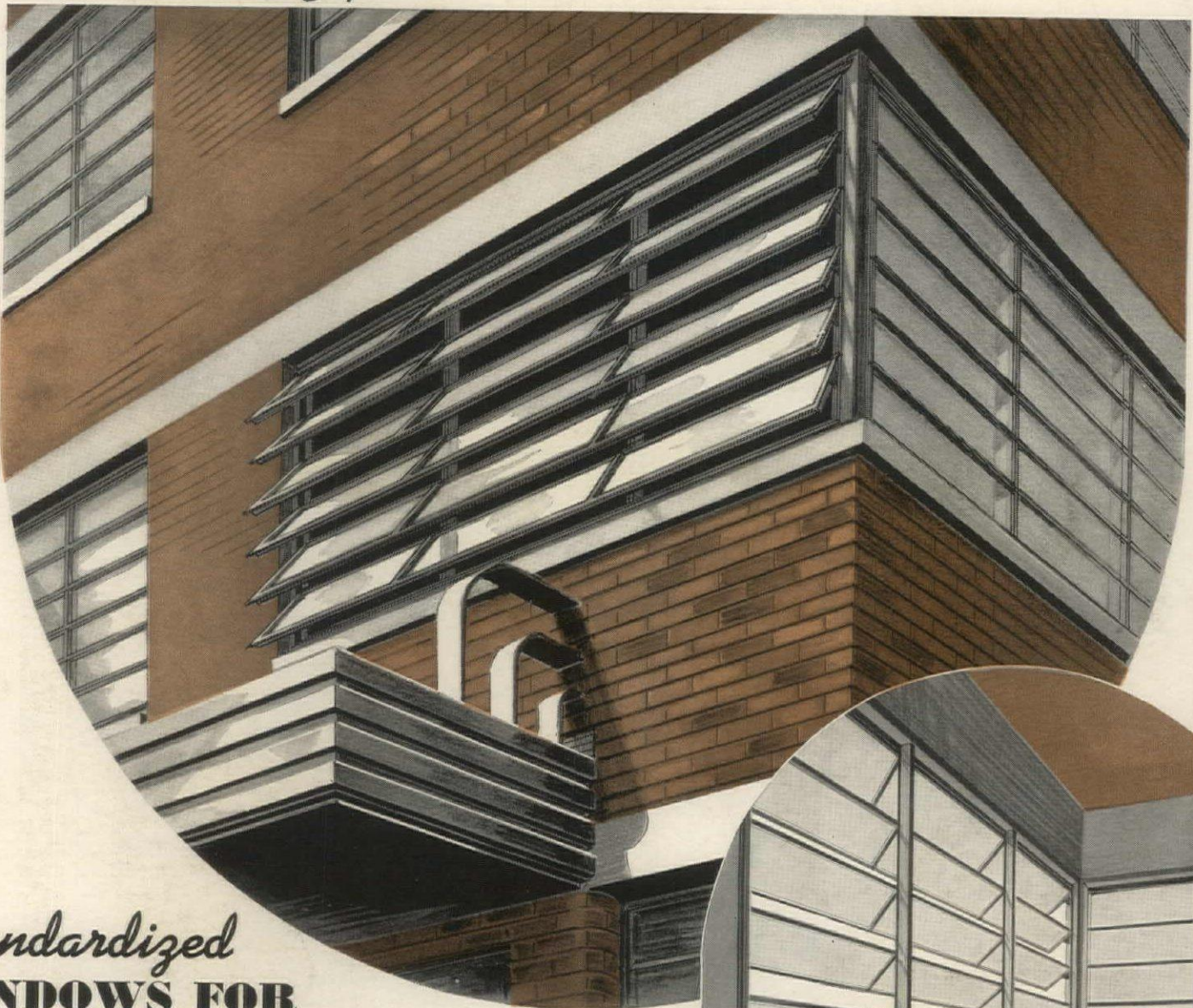


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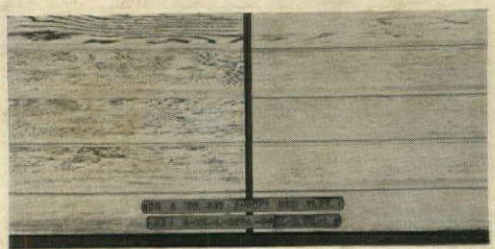
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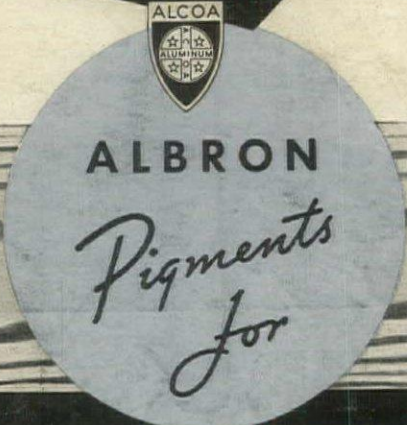
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