# THE ARCHITECTURAL FORUM



SEPTEMBER 1938

# Announcing

# CELOTEX

REG U S PAT OFF

# TRIPLE SEALED SHINGLES

Inner Sealed

Outer Sealed

Face Sealed

## TRIPLE SEALED

**A Complete Range of Colors and Style in Shingles, Siding and Roll Roofing**

**Every Shingle is SEALED at Least Three Times For Extra Years of Dependable Service**

THE GREATEST name in insulation now gives you a better roof—extra years of roofing protection assured by the special TRIPLE SEALED PROCESS, which includes at least these three separate sealing operations:

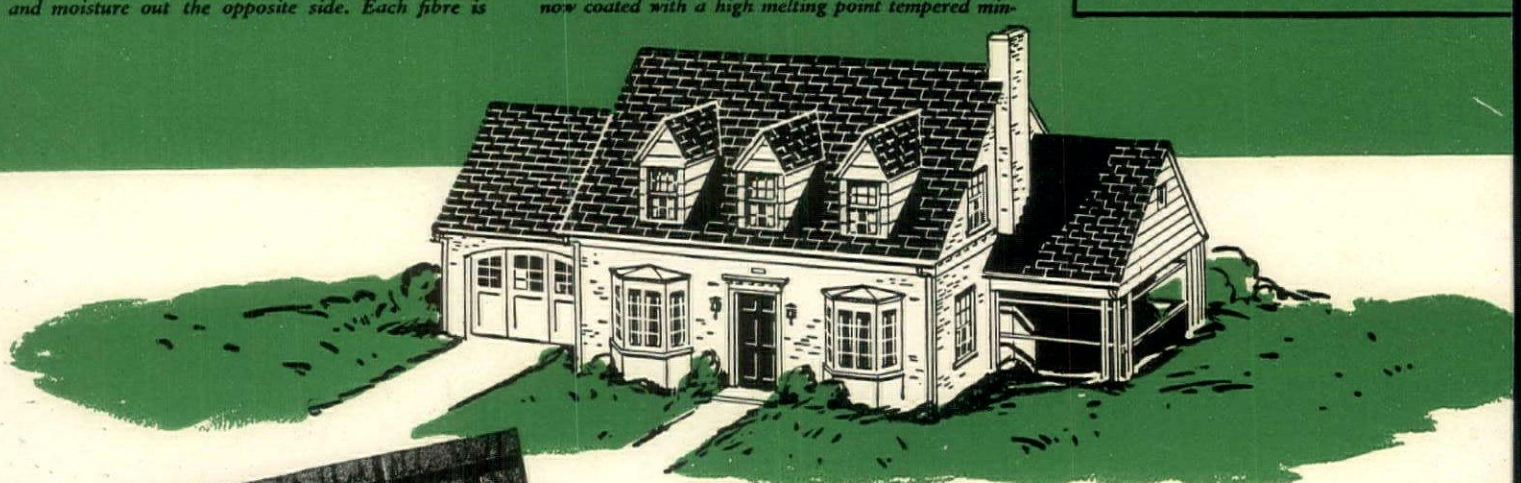
**1** *INNER SEALED . . . This process forces asphalt into the felt from one side only, driving pocketed air and moisture out the opposite side. Each fibre is thoroughly coated, the spaces between fibres filled with asphalt. This sealing process closes the* inside *of the felt.*

**2** *OUTER SEALED . . . Then the felt is submerged in hot asphalt. Thus the surface is uniformly coated on both sides, sealing the felt and the asphalt-coated fibres within, protecting all from atmospheric moisture.*

**3** *FACE SEALED . . . The felt, double sealed, is now coated with a high melting point tempered mineral-filled asphalt, providing tough, effective lasting protection.*

Thus TRIPLE SEALED Celotex Shingles o genuine extra protection without added c

**BUILT-UP ROOFING.** A complete line of built- roofing, made to the same rigid quality standar as other Celotex products, is now available. Spec Celotex Built-up Roofing for maximum protecti Let us send literature giving information.



***Complete Range of Colors and Styles to Meet Every Architectural Requirement***

Beauty as well as extra life has been a prime consideration in building this new line of Celotex Triple Sealed Shingles. Wide choice of colors and styles enables you plan a roof in complete harmo with the architecture of the ho Thus the greatest name in in lation brings the world-fam Celotex standards of quality to roofing field—color, style, and assurance of extra resistance to elements!

CELOTEX

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TRIPLE SEALED

THE CELOTEX CORPORATI

919 North Michigan Ave., Chicago, I

ARCHITECTURAL FORUM

# SEPTEMBER 1938





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VOLUME 69—NUMBER THREE

# THE MONTH IN BUILDING

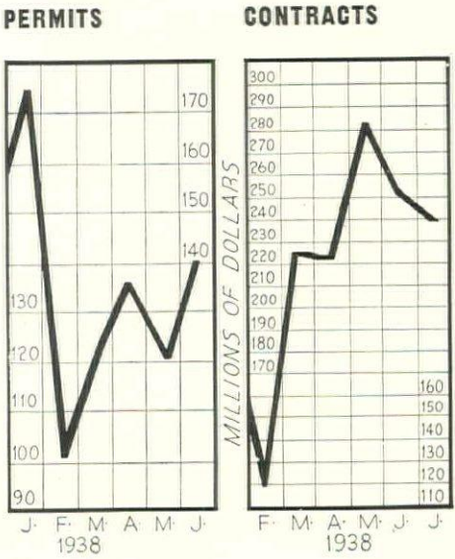
## VOLUME

| PERMITS (June) | $140,481,118 |
|---|---|
| Residential | 70,325,522 |
| Non-residential | 42,629,264 |
| Additions, repairs | 27,526,332 |
| May, 1938 | 120,466,345 |
| June, 1937 | 150,624,951 |

Source: U. S. Dept of Labor

| CONTRACTS (July) | $239,799,000 |
|---|---|
| Residential | 87,978,000 |
| Non-residential | 72,563,000 |
| Heavy engineering | 79,258,000 |
| June, 1938 | 251,006,000 |
| July, 1937 | 321,602,700 |

Source: F. W. Dodge Corp.




Running counter to a normal season decline, the volume of building permits increased 17 per cent between May and June. Leading this increase with a 43 per cent rise were June permits for non-residential structures which reversed their sharp decline of the preceding month. Additions and repairs also reversed earlier trends by increasing 2 per cent. The value of residential permits rose in June by 10 per cent. But, despite these favorable indications, the June level of total activity was still 7 per cent below June of last year.

Although the volume of residential building contracts increased 3 per cent from June, the gain was due to advances in one- and two-family house construction rather than to the building of large public projects. Strong declines in the non-residential and heavy engineering categories of 11 per cent and 5 per cent respectively served to carry total contracts downward.

**A.I.A. PAY.** To the long list of agencies actively cooperating with Government's sociological housing program have been added the Nation's architects. Evidence of this addition came month ago as USHAdministrator Nathan Straus made an agreement with the A.I.A. for architectural services on all large-scale housing projects financed by his Authority. Evidence of active cooperation on the part of architects is the fact that the adoped schedule of fees for these architectural services compares favorably with minimum standards set by the A.I.A. for work on private projects. The architectural fee for the average USHA project will be about 3.5 per cent.

Prepared by the A.I.A.'s Committee on Housing, chairmanned by Cleveland's Walter R. McCornack, the schedule of fees runs from 5 per cent on projects costing $100,000-$200,000 down to 2.5 per cent for $10 million projects. In between these extremes fees decrease unevenly as project costs jump by millions*:

4.75 per cent—$1 million
4.3 per cent—$2 million
3.8 per cent—$3 million
3.4 per cent—$4 million
3.1 per cent—$5 million
2.9 per cent—$6 million
2.75 per cent—$7 million
2.65 per cent—$8 million
2.55 per cent—$9 million

*Fees for projects of intermediate costs are determined by simple interpolation.

Finding but little data as to the cost of preparing drawings, Architect McCornack's committee intimated that these fees may not be fair, therefore hopes that architects employed on housing projects will henceforth keep accurate count of their expenses and make them available to the committee. In the meantime, the stipulated fees, which include normal engineering and landscape architectural services, are "on trial" for a period of one year.

**FANNY MAY.** Nicknamed "Fanny May" by Washington's bureau wags, the Federal National Mortgage Association (FNMA) had by mid-August purchased only $43 million of FHA-insured mortgages. Reason: the RFC, agency which last February supplied the Association's capital, now finds that private funds are flowing into the mortgage market in large amounts and therefore believes that daughter Fanny May should be a careful lass, not a bold, forward one. Still arguing for more liquidity in the mortgage market, FHA officials express the opinion that the RFC has too close a hold on Fanny's apron strings, too firm a grip on her purse strings.

**BALKY PUMP.** Index of the speed, or lack of speed, with which the Business pump is being primed by Government is the U. S. Treasury Department's daily statement of revenue receipts and expenditures. On August 13 it indicated a lack of speed. Thus, expenditures by the Government since July 1 for reclamation projects, public highways, river and harbor work, rural electrification, and "all other" public works projects totaled $37 million, or 32 per cent less than was spent in the corresponding period of the 1938 fiscal year. In this category, WPA expenditures alone were higher than a year ago. They totaled $255 million, as compared with $180.

Public works loans and grants to States and municipalities, the type that do most for Building, were also below those of last year. The figures: $14 million versus $2[illegible] million, a decrease of 47 per cent. Once the September 30 deadline for project applications has been passed, a reversal of these comparisons may be expected.

An item particularly worth watching in the Treasury's statement is that covering expenditures by the USHA. As of August 13 they came to $1.5 million—less than twice as much as has been spent by FHA which makes neither loans nor grants. USHA's corresponding figure for last year was, of course, zero.

**BERRY PICKING.** Digging through dirt, the joint committee investigating TVA last month came to marble. And, as chips began to fly, the drama of Senator George L. Berry's celebrated marble claims in TVA's Norris Dam area became more involved, more interesting.

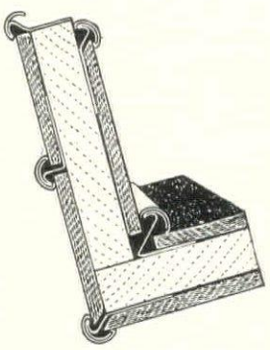
As the curtain went up some years ago Mr. Berry and several associates were seen acquiring leases to about 100 tracts of land that would eventually be flooded

**Practical bathroom planning calls for PRESDWOOD TEMPRTILE**

BEAUTY . . . durability . . . economy — these are the three necessary requirements of an ideal material for bathroom walls and ceilings. And PRESDWOOD TEMPRTILE and TEMPERED PRESDWOOD answer "Here" on all three counts.

Their marble-smooth surfaces are a perfect base for many kinds of paint or enamel finish. They are moisture-resisting. Properly applied, they will neither warp nor crack. And they are easy and inexpensive to install.

Look at the utilitarian features Genuine MASONITE has made possible in this smart bathroom. The tile-like walls are MASONITE PRESDWOOD TEMPRTILE. The upper walls and ceiling, with the unique indirect lighting arrangement over washstand and tub, are MASONITE TEMPERED PRESDWOOD.



## NEW! MASONITE METAL MOULDING

Masonite Corporation now introduces through its dealers an entirely new development in metal moulding. This cross-section shows the three types of clips now available to answer every construction problem. The clamp-on moulding is stainless steel.

A simple, single moulding with three ingenious metal clips provides edging strips, division strips, inside and outside corners. It will set a new standard in convenience, low cost and good looks. Mail the coupon below for full information.





THE ARCHITECTURAL FORUM

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VOLUME 69
Number 3

by construction of the Norris Dam, plans for which were actively under way. While the tracts contained marble, the only way to establish its value was for Berry to quarry and sell a few samples. This he decided to do.

The scene changes. In Washington, D. C. in the spring of 1934, General Contractor Walter Kidde of New York City was awarded the contract for constructing the million-dollar Federal Warehouse for the Treasury Department's Procurement Division in the southwest section of the Nation's capital. Reading the building's specifications, Contractor Kidde found, among other things, that two types of marble—brocatelle and imperial black—were to be used in the lobby of the building. He read on, found that the names of the marble were given only to indicate the desired types and that use of other marbles of the same class was not excluded. The contractor had his choice.

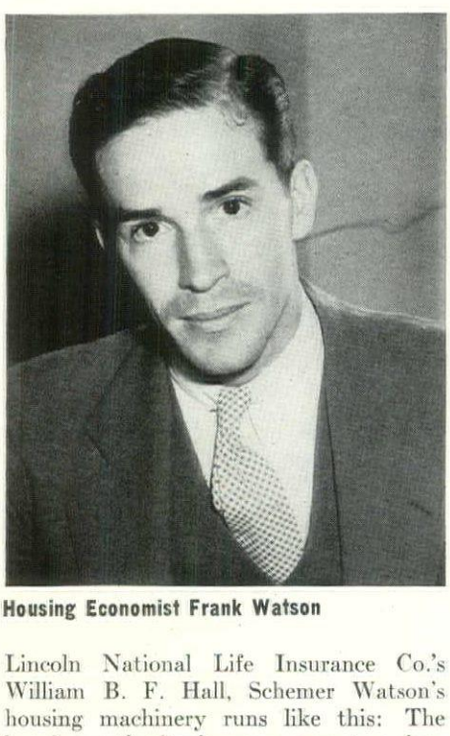
Later in this scene, his choice was made; and Mr. Berry, then affiliated with the NRA, "through the exercise of some influence . . . improper or not" received a $2,000 check for a shipment of his TVA marble. It is claimed that Berry's marble was purchased at twice the price of nearby Knoxville marble, and that on the basis of this sale and another to Jim Farley's Department covering marble in the Mamaroneck, New York, post office, he figured his inundated properties to be worth the tidy sum of $5 million. And, this is the amount that he tried to collect from the U. S. Government.

In the last act, late 1937, a commission appointed by a Tennessee Federal court held that Berry's marbles were without commercial value. But, as recently as two weeks ago, the curtain had not yet rolled down upon the finale. At that time the TVA investigating committee was informed that, in addition to the marble tracts, Berry pickings had included several thousand acres claimed to contain iron ore and other minerals in a section of land soon to be flooded by TVA's new $100 million Gilbertsville Dam.

**DREAM SCHEME.** From FHA via Fort Wayne, Indiana, last month came an original scheme for supplying low cost housing's basic need — low costs. Thus, by borrowing land as well as money from the public, the Fort Wayne Housing Authority plans to shelter the city's relief clients in single-family houses at the newsworthy rental of $3.33 per room per month.

Like most other U. S. cities, Fort Wayne has been shelling out thousands of dollars annually to pay the rents of local reliefers. Problem was how this sum could be reduced. The Federal large-scale housing program offered no solution in that regulations forbid renting USHA projects to relief clients. So, in search of a solution went FHA's 30-year-old Housing Economist Frank Watson, who, despite his youth, has helped solve problems for such notable agencies as the RFC, the Treasury and Interior Departments and Purdue University's Housing Research Project.

By early summer he had cooked up a scheme, served it to Fort Wayne. With land-acquisition details polished up by



**Housing Economist Frank Watson**

Lincoln National Life Insurance Co.'s William B. F. Hall, Schemer Watson's housing machinery runs like this: The housing authority borrows vacant or slum land near business districts; gives the owner in return a $1 deposit, tax exemption on the property and an option to reacquire it at will. Then, the authority erects three-room, prefabricated, plywood houses on the lots and rents them.

Although the Fort Wayne project is admittedly experimental, prediction is that many a downtown property owner will be happy to lend his unproductive land. For, while he has been holding it in anticipation of a neighborhood building boom, heavy taxes have been eating up future profits. Furthermore, when the boom does come and the property reaches the value for which he has been waiting, he may exercise his option, reacquire the property from the city and sell it. His only expense will be the cost of transplanting the authority's house to another lot; or, if he does not exercise his option for five years, he need only return the authority's original deposit of $1.

Watson's scheme is more than a dream. By mid-August the President had stamped it with his approval, the FHA had underwritten insurance on the Fort Wayne project's mortgage and WPA had agreed to supply construction labor. By early September the first three houses of the initial project's 50 were scheduled for completion. By next month the scheme will have had opportunity to prove its worth, and THE FORUM will more thoroughly report it.

**EARNINGS.** One-third of the building material and equipment companies reporting their earnings for the second quarter of 1938 lost money. To find hopeful signs in such dolorous reports is difficult but not impossible. Thus, during the first quarter of the year half the reporting companies showed even greater losses.

While 26 of the 41 companies used the blue ink bottle, only two measured up to 1937 levels. They were Holland Furnace Co. whose earnings went from $279,93[illegible] in 1937 to $316,777 in 1938, and Reliance Manufacturing Co., whose earnings jumped from $6,548 to $114,601.

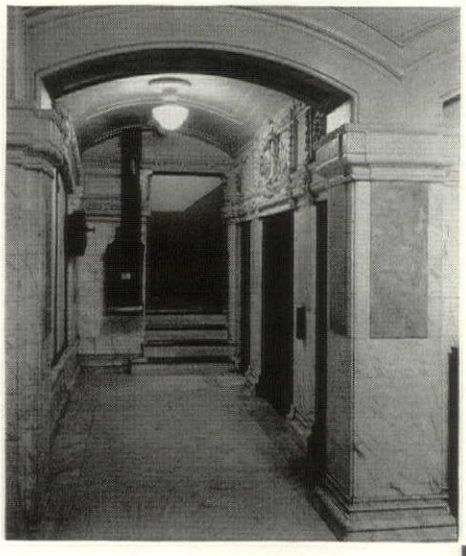
| Quarter ending June 30 | 1938 | 1937 |
|---|---|---|
| Acme Steel | 62,170 | 669,44[illegible] |
| Air Reduction | 888,757 | 2,289,49[illegible] |
| Allegheny Steel | 561,932* | 864,44[illegible] |
| Allis-Chalmers Mfg. | 1,475,410 | 2,636,85[illegible] |
| American Cyanamid | 430,572 | 1,479,68[illegible] |
| American Metal | 383,049 | 1,135,90[illegible] |
| American Radiator and Standard Sanitary | 151,103* | 2,080,78[illegible] |
| American Rolling Mill. | 525,854* | 4,321,95[illegible] |
| American Steel Foundries | 487,771* | 1,354,40[illegible] |
| Bethlehem Steel | 150,305 | 10,022,87[illegible] |
| Bridgeport Brass | 111,150* | 349,29[illegible] |
| Brunswick-Balke-Collender | 21,795 | 99,83[illegible] |
| Certain-teed Products | 106,619 | 163,05[illegible] |
| Cooper-Bessemer[1] | 208,063* | 242,88[illegible] |
| Crane Co.[2] | 3,880,944 | 9,444,35[illegible] |
| Hercules Powder | 571,107 | 1,561,42[illegible] |
| Holland Furnace | 316,777 | 279,93[illegible] |
| Inland Steel | 1,135,097 | 3,178,38[illegible] |
| Johns-Manville | 214,578 | 1,789,41[illegible] |
| Jones & Laughlin Steel | 1,654,303 | 2,451,97[illegible] |
| Ludlum Steel | 157,229* | 506,08[illegible] |
| Midland Steel Products | 162,815 | 654,57[illegible] |
| Minneapolis-Honeywell Regulator | 160,317 | 1,034,61[illegible] |
| National Gypsum[1] | 395,503 | 509,88[illegible] |
| National Lead[1] | 1,804,864 | 5,192,26[illegible] |
| National Steel | 1,005,863 | 6,013,07[illegible] |
| Otis Elevator | 337,104 | 1,054,15[illegible] |
| Otis Steel | 520,101* | 1,040,42[illegible] |
| Owens-Illinois Glass[2] | 5,806,617 | 11,856,19[illegible] |
| Reliance Mfg. of Ill. | 114,601 | 6,54[illegible] |
| Republic Steel | 2,856,317* | 487,25[illegible] |
| Revere Copper & Brass | 940,050* | 708,12[illegible] |
| Ruberoid Co. | 199,037 | 341,77[illegible] |
| Superior Steel | 121,290* | 120,64[illegible] |
| Truscon Steel | 204,130* | 274,44[illegible] |
| U. S. Gypsum | 1,492,871 | 1,989,63[illegible] |
| U. S. Steel | 5,010,426* | 36,173,68[illegible] |
| Westinghouse Electric & Mfg. | 2,469,372 | 5,990,26[illegible] |
| Wheeling Steel | 624,888* | 2,463,03[illegible] |
| Yale & Towne Mfg. | 152,624* | 344,15[illegible] |
| Youngstown Sheet & Tube | 118,033 | 2,022,11[illegible] |

* Net loss
1 = Six Mos. to June 30
2 = Twelve mos. to June 30

# FORMICA

## *Brings a Building Lobby*

## UP TO DATE!



**This striking job in red Formica shows how simply an old-fashioned marble lobby can be brought up-to-the-minute by the use of flat surfaces of Formica. It is an extremely useful material for modern effects . . . There are more than 70 colors and patterns, including linen finishes, and irregular effects of many sorts. There are several surfaces, high gloss, satin, morocco. Inlays of one color over another or of metal make attractive simple designs of all kinds possible . . . Let us send you all the facts.**

● **BEFORE:** This photograph shows the lobby of the office building at 261 Broadway, New York as it was a few months ago—an attractive marble treatment in good condition, but old-fashioned.

● **AFTER:** This photograph shows how the same lobby was thoroughly modernized by Eugene Schoen, architect, by the use of Formica refinishing stock on asbestos, and metal trim.

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

**FORMICA**

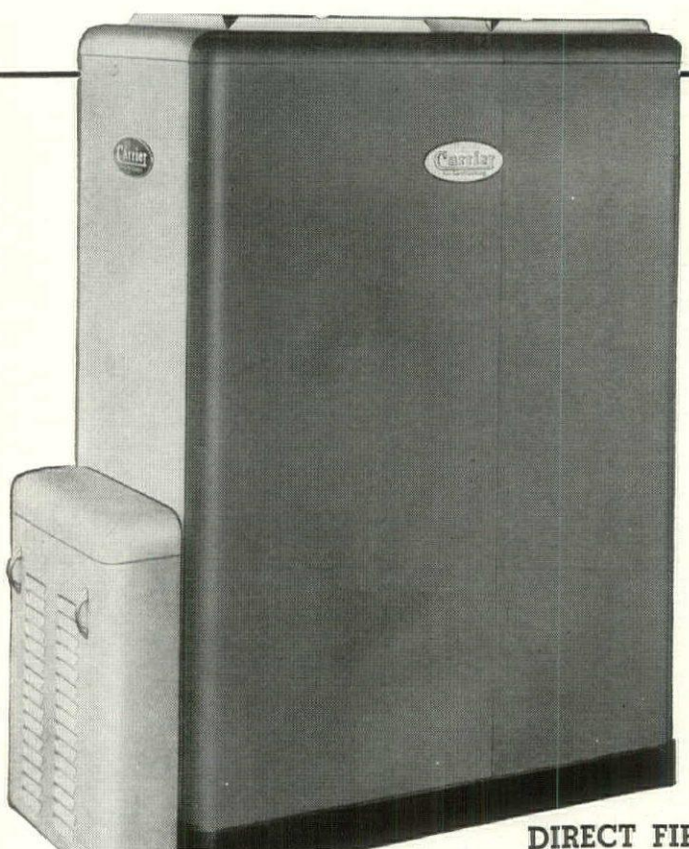
**FOR BUILDING PURPOSES**

# *Any Home Costing $6,500*

# (or more) Can Now Enjoy True

**11 Years of Continuous Development Reduces Price, Improves Performance and Solves Space Problems.**

## Carrier Air Conditioning



**DIRECT FIRED for Gas or Oil**

• No longer is Carrier Air Conditioning adaptable only to the larger, more costly home. Now—and without sacrifice of a single Carrier quality—the same comfort is available to homes of every price. Old homes *or* new.

**GENUINE CARRIER CONSTRUCTION.** All electric, simplified controls . . . cushioned fan assembly . . . non-rusting humidifier . . . gas and oil rates adjustable to meet exact load requirements . . . Gas and Oil Burners with similar flame characteristics effecting high combustion efficiency, quietness, safety. Matched Carrier cooling unit for year 'round air conditioning.

**MODERN DESIGN.** Exclusive scientific method of distributing air over heat interchanger gives uniform temperature . . . no hot spots, no cold spots. Result is more compact design, quieter operation, longer life.

**CARRIER-BUILT—CARRIER-ENGINEERED.** A true Carrier product—backed by Carrier Corporation's 36 years' experience in designing, manufacturing and installing air conditioning for every conceivable size and type of structure. Right now—fill in the coupon, let us send you all the facts!

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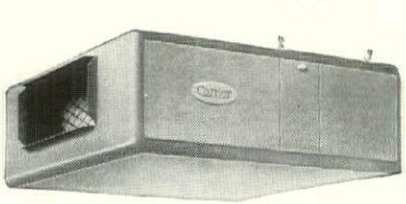
**NEW AUTOMATIC FURNACE . . .** For radiator heat and split systems. Residential heating in its most economical and dependable form. "Powered" by the Carrier Oil Burner, the Carrier Automatic Furnace provides an abundance of heat and automatic hot water. Available for use with matched Carrier Automatic Stoker and Gas Burner.



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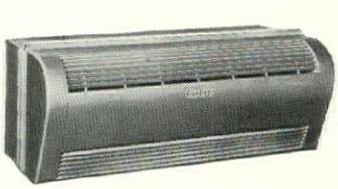
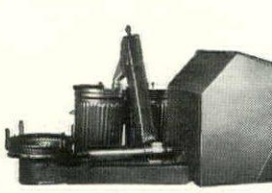
For use with automatic heating to provide humidification for selected rooms. Also ideal for use in split systems of residential air conditioning.



### CARRIER ROOM VENTILATOR

A year 'round home and office necessity because it provides positive ventilation, shuts out street noises and dust. The price? Within reach of everyone!



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Name.....

Address.....

City.....

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BRASCO has been the *advanced* construction of every period for 30 years past.

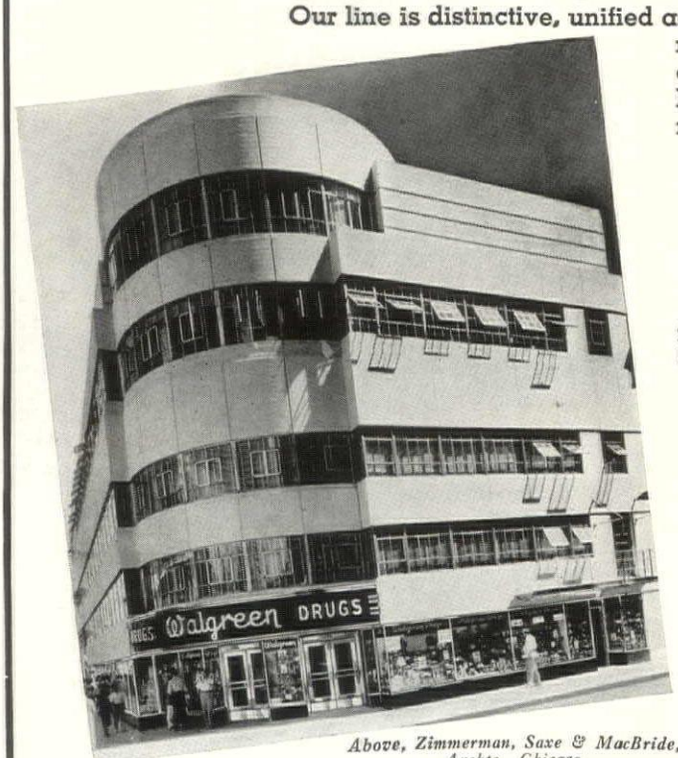
We have pioneered the trend toward modern design, modern metals, modern finishes, which has flowered into today's distinguished style of store fronts.

But the proven principles of sound construction have never been sacrificed for surface beauty. Every Brasco unit is thoroughly engineered for substantial strength, glass safety and permanence.

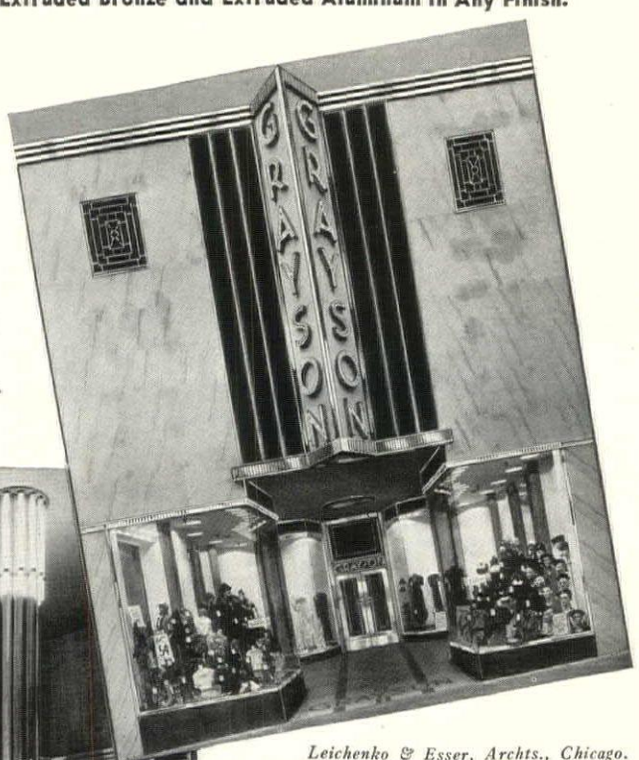
Our line is distinctive, unified and complete from sidewalk to coping—in both rolled and extruded constructions, offering all essential members of the modern store front, in harmonious modern design. Samples and new half-sized details on request.

**Brasco**
**MODERN STORE FRONTS**

**Solid Stainless Steel, Aluminum, Bronze, Copper, Extruded Bronze and Extruded Aluminum in Any Finish.**

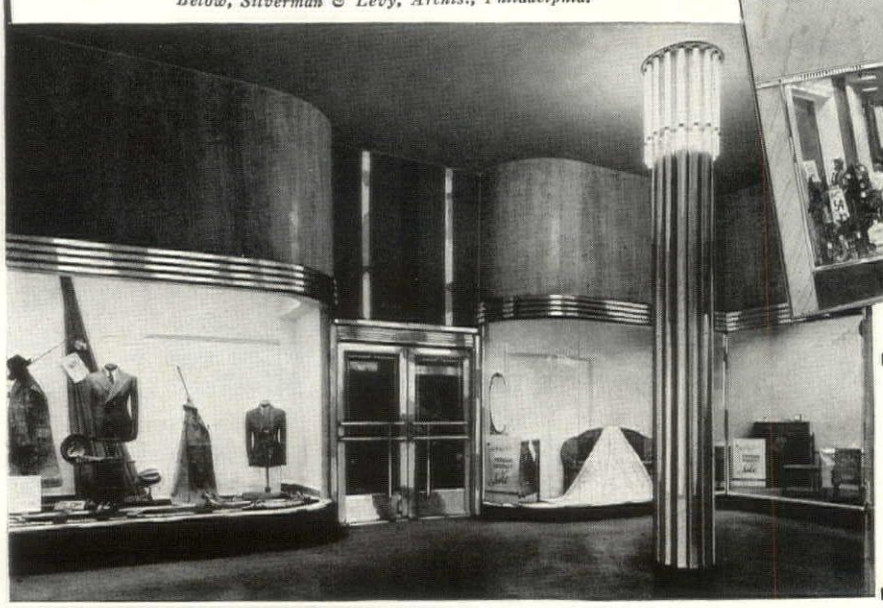



*Above, Zimmerman, Saxe & MacBride, Archts., Chicago.*




*Leichenko & Esser, Archts., Chicago.*
*Shepard & Stearns, Associates, Boston.*

*Below, Silverman & Levy, Archts., Philadelphia.*



BRASCO MFG. CO., Harvey, Ill.

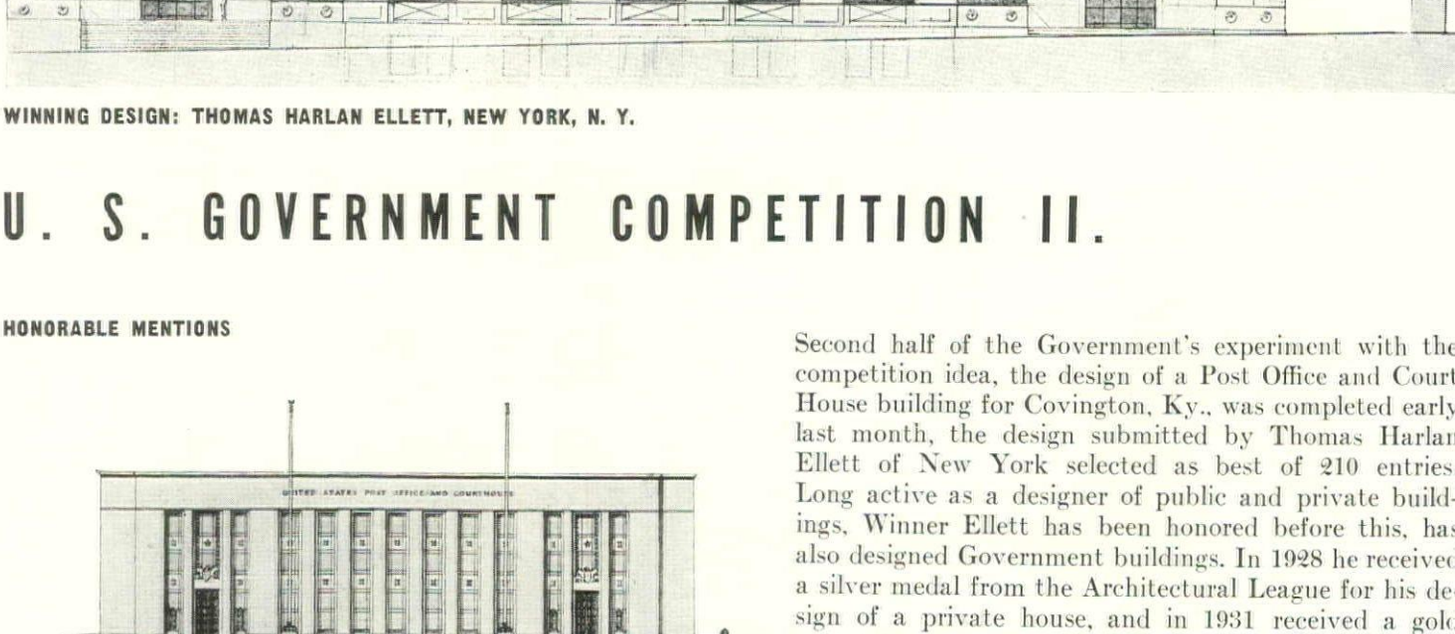
Send Details and Samples of Brasco Store Front Construction.

Firm .....

Address .....

Individual .....

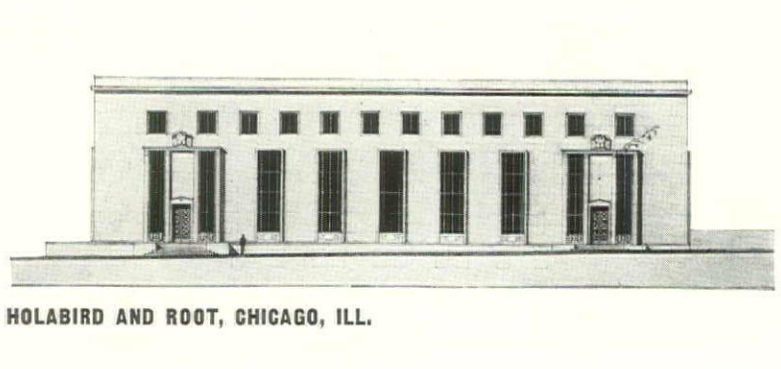
AF9



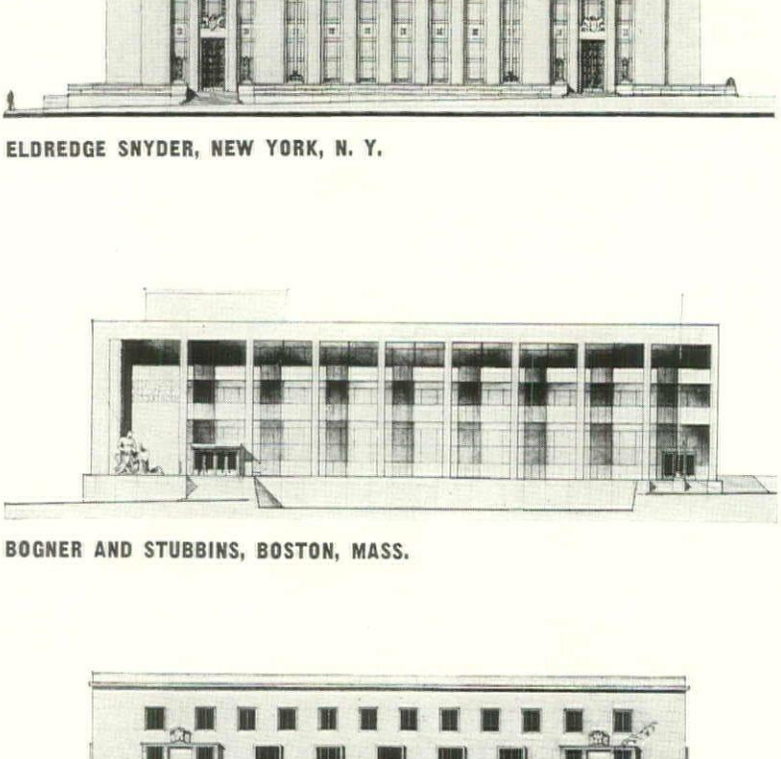

WINNING DESIGN: THOMAS HARLAN ELLETT, NEW YORK, N. Y.

# U. S. GOVERNMENT COMPETITION II.

HONORABLE MENTIONS



ELDREDGE SNYDER, NEW YORK, N. Y.



BOGNER AND STUBBINS, BOSTON, MASS.



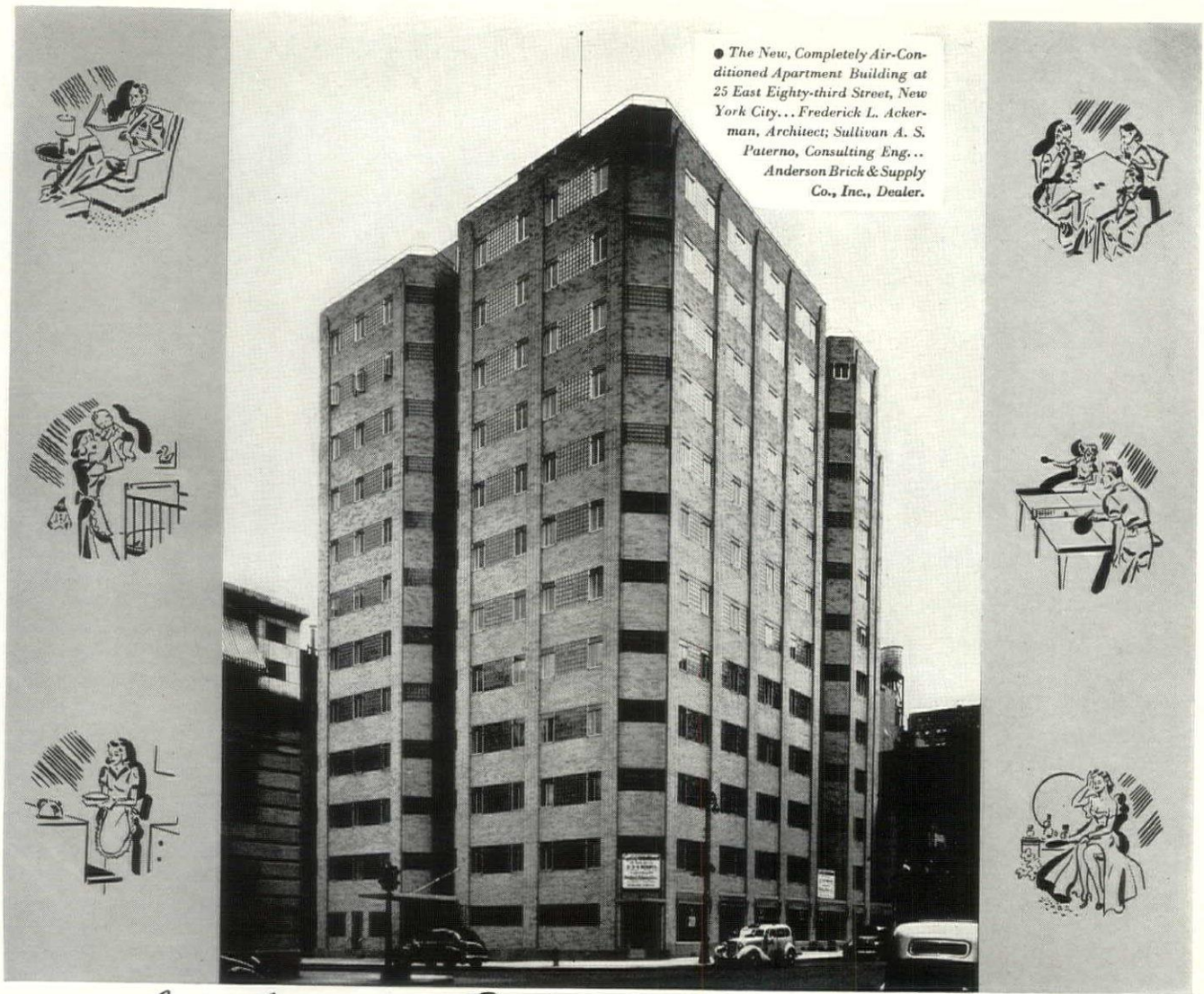
HOLABIRD AND ROOT, CHICAGO, ILL.

Second half of the Government's experiment with the competition idea, the design of a Post Office and Court House building for Covington, Ky., was completed early last month, the design submitted by Thomas Harlan Ellett of New York selected as best of 210 entries. Long active as a designer of public and private buildings, Winner Ellett has been honored before this, has also designed Government buildings. In 1928 he received a silver medal from the Architectural League for his design of a private house, and in 1931 received a gold medal for his design of the Cosmopolitan Club. From 1934 to 1936 he served as consulting architect to the Treasury Department. Awarded $4,500 for his premiated design, under conditions of the program Architect Ellett is retained as consultant, will receive an additional $4,500 for this service.

Like the Government's first competition (ten designs for small Post Office buildings) combinations of U. S. classic and modern treatments prevailed. Unlike the first competition, which did not lead to the erection of any particular building, Competition II drew the fire of staid A. I. A. members. Objectors claimed that since working drawings and specifications are to be prepared in the office of the Supervising Architect, the architect selected is allowed only partial participation in the erection of a specific building. Investigation of the Institute's Code for Competitions proved objections were unfounded, prompted Competitions Committee Chairman Eric Gugler to report: " . . . While it has been usual, perhaps the invariable custom to call for complete services, there is no mandatory provision in the Code to that effect."

Open only to registered architects, competition entries represented the full range of U. S. professional talent, heaped further substantial evidence on the side of competition advocates. That this method of selecting architects will be extended to larger buildings in the Government's construction program and ultimately to all Federal building design, little doubt remains.

*(Continued on page 10)*

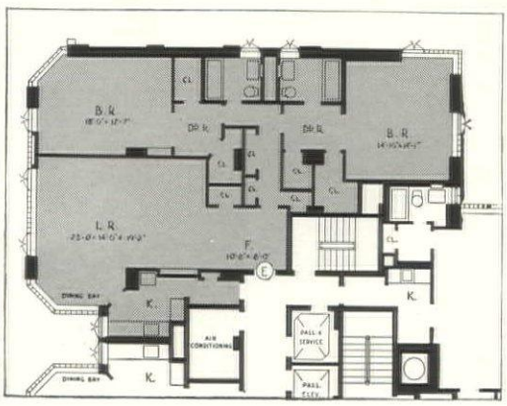


● *The New, Completely Air-Conditioned Apartment Building at 25 East Eighty-third Street, New York City... Frederick L. Ackerman, Architect; Sullivan A. S. Paterno, Consulting Eng... Anderson Brick & Supply Co., Inc., Dealer.*

# *They live in Light* THE MODERN WAY

**New . . . Completely Air-Conditioned Apartment Building utilizes INSULUX to reduce noise, retard heat flow and give abundant light.**

The new apartment building recently completed at 25 East Eighty-third Street, New York, offers an excellent example of the part that Owens-Illinois INSULUX Glass Block is playing in modern apartment house construction. In this building, approximately a third of the exterior walls are built of INSULUX to give an abundance of light—transmitting 84% of the available light, yet greatly reducing solar heat. Because of this, economical and efficient air conditioning and heating is possible. . . Then too, INSULUX deadens street noises almost to a whisper. Another advantage in apartments, claimed by construction experts, is that INSULUX makes rooms appear more spacious. Thus, INSULUX makes life brighter and living lighter than any past conception. Dwellers acclaim the owners as well as the architects and engineers who designed it. In every type of building, INSULUX has added much to living by making *Light—the modern way* possible. . . Write for complete illustrated details. Industrial and Structural Products Division . . . Owens-Illinois Glass Company, Toledo, Ohio.



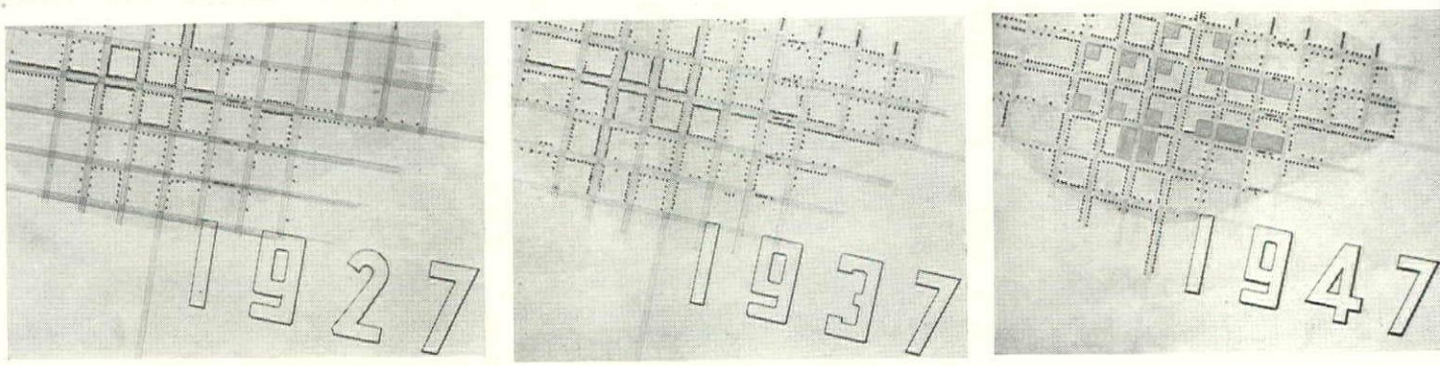

*Typical apartment floor plan illustrating the unusual amount of INSULUX used in exterior walls to assure Light — the modern way.*

*Insulux* GLASS BLOCK

PIONEERED AND PERFECTED BY **OWENS-ILLINOIS**

*"First in Glass"*

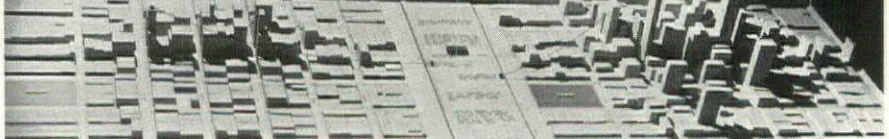
(Continued from page 8)

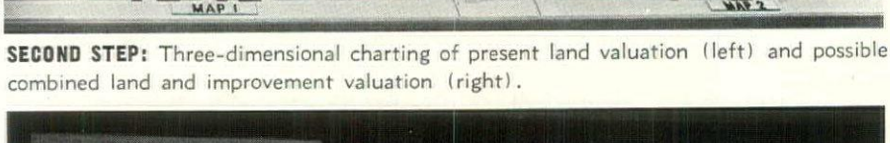



**FIRST STEP:** Plotting past development, predicting future growth.

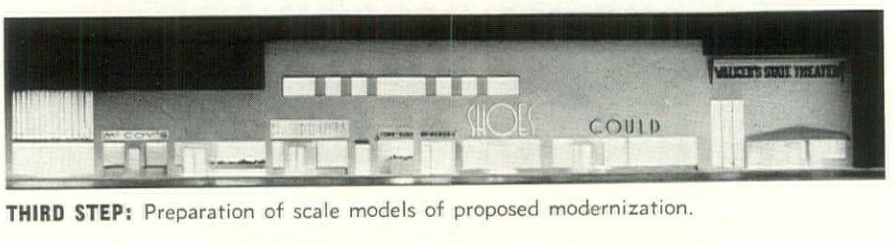
# ARCHITECTURE'S THREE "R's"—1938


**SECOND STEP:** Three-dimensional charting of present land valuation (left) and possible combined land and improvement valuation (right).




**THIRD STEP:** Preparation of scale models of proposed modernization.



*Rex Hardy Photos*

**PROFESSOR BALDWIN** and group of Santa Ana's modernizers.

A survey by the New York Chapter o the A.I.A. to determine the capacities o recent graduates of architectural school as measured by their ability to meet th demands of current office practice dis closed many weak points. Greatest weak ness was uniformly conceded to be lac of practical knowledge, both of detailed information and of procedure and man agement.

Safe from such criticism are the archi tectural students of the University o Southern California. Reason: under th direction of Professor Clayton Baldwi problems of real estate, finance, and man agement are made integrate with archi tectural projects. Typical and most recen undertaking of the group was the exten sive face-lifting program applied to Mai Street, Santa Ana, Calif. Assuring loca architects that the project was an attemp to promote an idea and not to compet for commissions, students interviewe bankers and realtors, photographed an measured existing buildings, reported o the advisability of modernization or ne construction.

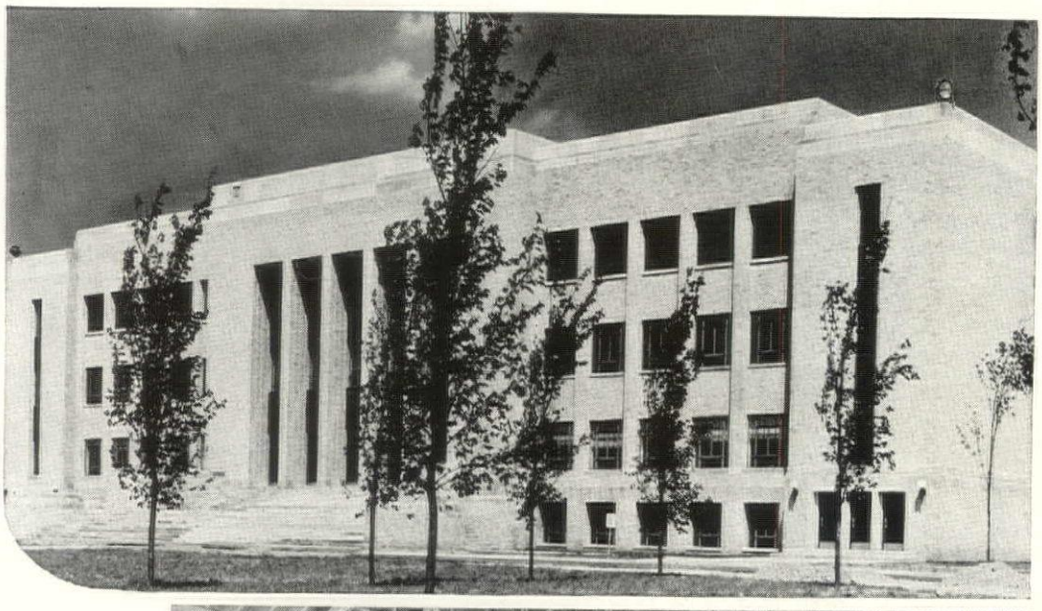
Further research involved the accumu lation of data showing the developmen of retail stores at five year intervals sinc 1918. From this information future growt of the retail section was safely predicte to 1947. Preparation of three-dimensiona charts showing 1) land values at presen assessed valuations and 2) combine land and improvement valuations, dis closed the unexplainable trend of build ing values to increase in the opposite di rection from high property values. Fina step consisted of making models of shop fronting on the two most importan blocks, presenting rendered perspective plans and sections.

The undertaking finished, results wer exhibited to community-proud Sant Anans and celebrated with a banquet b the Mayor. Sole sour note in the youthfu architects' comprehensive project was th aroused ire of a local property holdin banker, indignant at the disclosure of ex isting and potential value of his holding

(Continued on page 12)

# SIMPLE CONSTRUCTION . . EASY TO ERECT

## *Featherweight* PRECAST CONCRETE INSULATING ROOF SLABS



**This is the modern, permanent roof-deck, of individual factory-precast concrete slabs — strong, dense, yet light in weight to save structural steel.**

**They come to the job ready for use—are hoisted to roof and quickly and easily laid on the steel purlins, in any weather. There is no cutting—no field work. These slabs fit into position perfectly. The weather-proof covering may be applied immediately thereafter.**

**There is nothing to equal this modern, lightweight, permanent, fireproof, no-maintenance roof-deck, adapted to all buildings of steel construction. *It goes on the same light steel frame that carries other roofs.* Catalog and Details on request.**

*Hammond Civic Auditorium, Hammond, Indiana covered with Federal Precast Concrete Channel Slabs. Note that the under side of these slabs gives a finished ceiling effect. Architect, L. Crosby Bernard; Contractor, Langlois Construction Company, Berwyn, Illinois.*

## FEDERAL-AMERICAN CEMENT TILE CO.

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**For Over Thirty Years • • Sales Offices In Principal Cities**

# FORUM OF EVENTS

(Continued from page 10)

Paul Parker

**Audio-visual** Advocates Kimball and Briggs

**"Consult Your Architect"** series. Scenarist Bute and Cinematographer Nemeth.

## PICTORIAL PANACEA

"Thousands of persons in the country want doctors and a lot of doctors want patients, but they are starving to death."

Hurled at the National Health Conference held in Washington D. C., this statement of Mayo Clinic's famed Dr. Hugh Cabot bears little relation to architecture. Yet a substitution of architectural terms for medical terms forms a statement that makes sense to all concerned with building.

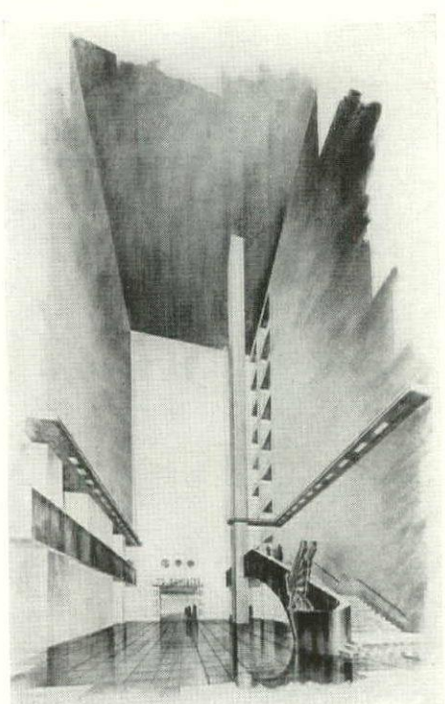
To cure this unhealthy condition and forestall leveling of a similar indictment at building professionals, "Consult your Architect" Motion Picture Council prescribes a two-part series of consumer education motion pictures designed 1) to awaken the building-buying consumers to the "one-stop" service of architects (from idea to completed project); 2) to streamline the industry by making available to architects through a new pictorial medium information about new products, materials.

First productions in the series are based on the idea that the family affords a firm foundation of emotional security and the orderly development of personality. Against this background the architect administers to the family's needs, becomes their best friend and counselor.

Sponsors of the films will be various building material, home furnishing and equipment manufacturers content to limit their advertising to a mere credit page at the beginning of the program; showings will be to local civic, social, professional and fraternal groups under the direction of architects and made possible through cooperation with local retailers.

The Council, a non-profit organization of architects and engineers, boasts an Executive Committee consisting of D. Everett Waid, James W. Kideney, Walter R. McCornack, Gilbert L. Van Auken, James W. Minick, Matthew W. Del Gaudio, John W. Becker, John T. Briggs, John P. Thomas, Samuel E. Homsey, Albert Kahn, Clair W. Ditchy, Roger Allen, and Robert B. Frantz. Represented on the Advisory Board are building industry executives and associations, and motion picture specialists. Terry Kimball, 551 Fifth Ave., New York, N. Y., is Acting Secretary of the Council.

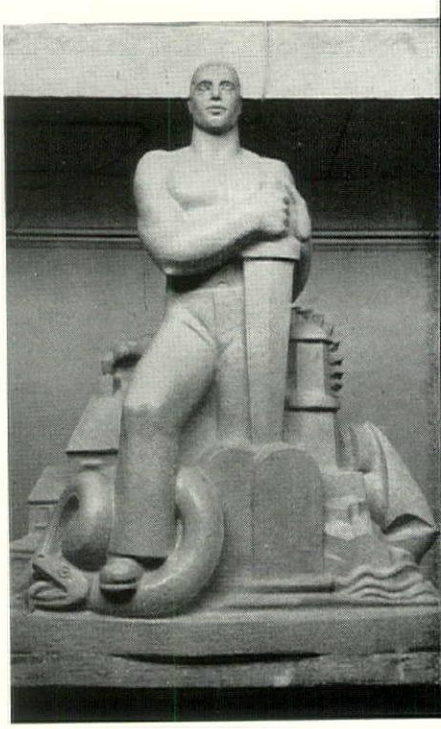
## ART FOR THE CROWDS



**One of two** great halls to serve as canvas for winner of mural painting competition.

To say that the U. S. New York World's Fair Commission has endeavored to have its art work spread among as many artists as possible is gross understatement; it is not too much to say that the decoration of the U. S. Building at the Fair represents the largest collaborative artist-craftsman undertaking of modern times.

In addition to the $10,000 sculpture competition won by Harry Camden (ARCH. FORUM, July, 1938), another $10,000 awaits the winner of the mural painting competition closed Sept. 1. Simultaneously, 24 other competitions are being conducted in cooperation with the Society of Designer Craftsmen for furnishing of various spaces throughout the building. Decoration of the Main Exhibition Hall is being done by contract and will consist of twelve sculptured masses symbolizing functions of the Government. Above the sculptures will be twelve mural panels each painted on continuous belts to afford motion and change of subject. Behind this program is no mere philanthropy to artists but carefully laid plans designed to attract more than the usual 10 per cent of Fair visitors.



**One of twelve** to be cast in plastic.

(Continued on page 14)

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EVEN A CHILD CAN OPERATE IT

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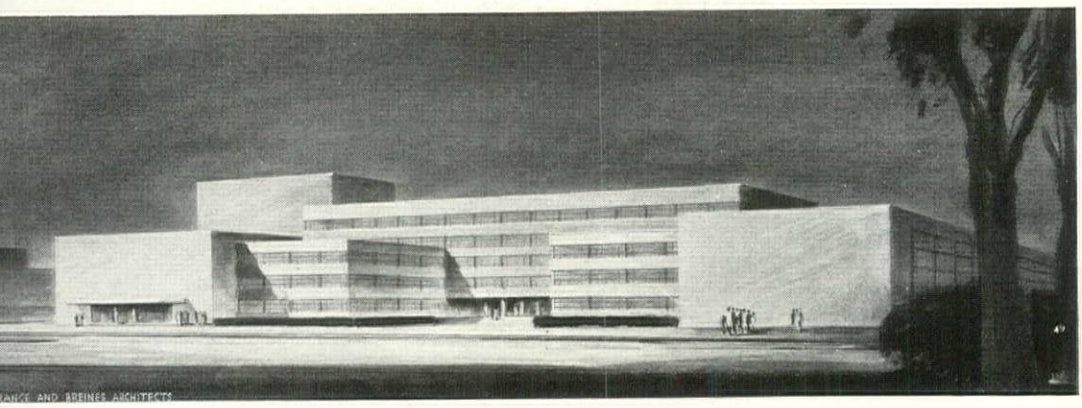
AF 9-38

**OVERHEAD DOOR CORPORATION • HARTFORD CITY, INDIANA U.S.A.**

# FORUM OF EVENTS

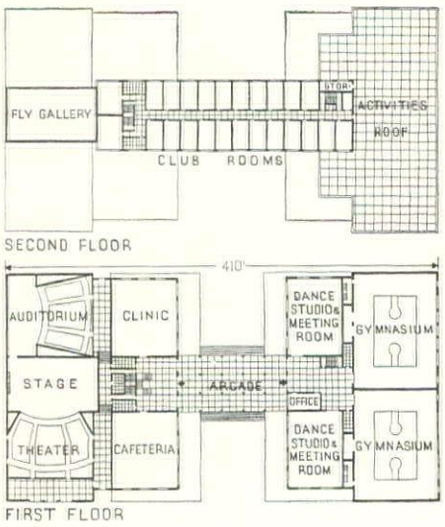
*(Continued from page 12)*



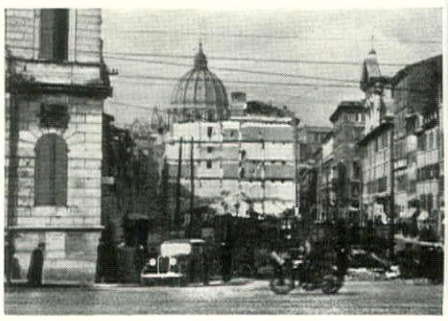
POMERANCE AND BREINES, ARCHITECTS

## YOUTH CENTER

In an attempt to relieve the virtual "state of emergency" that exists on New York's lower East Side due to unemployment and inadequate recreational facilities, 75 youth serving agencies presented this proposed Youth Center to City Council President Newbold Morris and Manhattan Borough President Stanley M. Isaacs. First of its kind in the U. S., the proposed building as designed by Architects Pomerance and Breines would meet the especial needs of young people between the ages of 16 and 25, cover an area 200 feet by 400 feet and accommodate between 6,000 and 10,000 young people daily. Separation of the physical facilities on the right from the cultural facilities on the left makes possible operation of either function without reference to the other.




**BEFORE AND AFTER.** Unable to prevent the much discussed Jefferson Memorial from going ahead despite their opposition, the Federal Fine Arts Commission last month did prevent the Jefferson nickel from going to mint. Changes insisted upon were: 1) new lettering, 2) changes in detail of Jefferson's head on the obverse, 3) redesign of the reverse so as to show Monticello in front instead of side view.



**GOING . . .**

**GOING . . .**

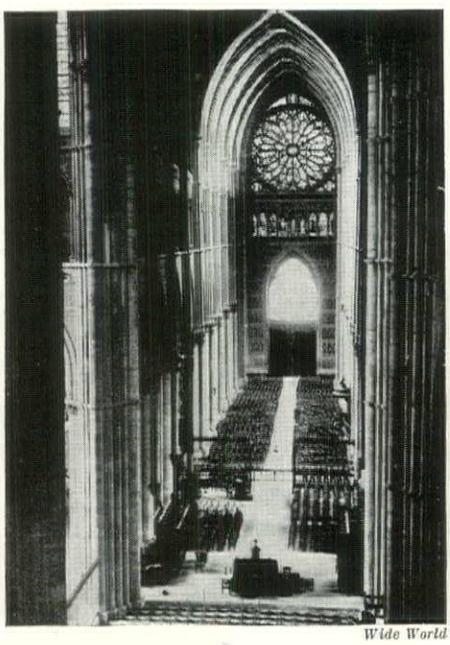
*Photos, Nadar from Monkmeyer*

**GONE.** Demolition of an entire block of houses in the Vatican City is mute evidence of the scale of Italy's vast re-planning program. Only its cupola visible at the start of demolition, St. Peter's once more regains its due majesty.

*(Continued on page 42)*

*Wide World*

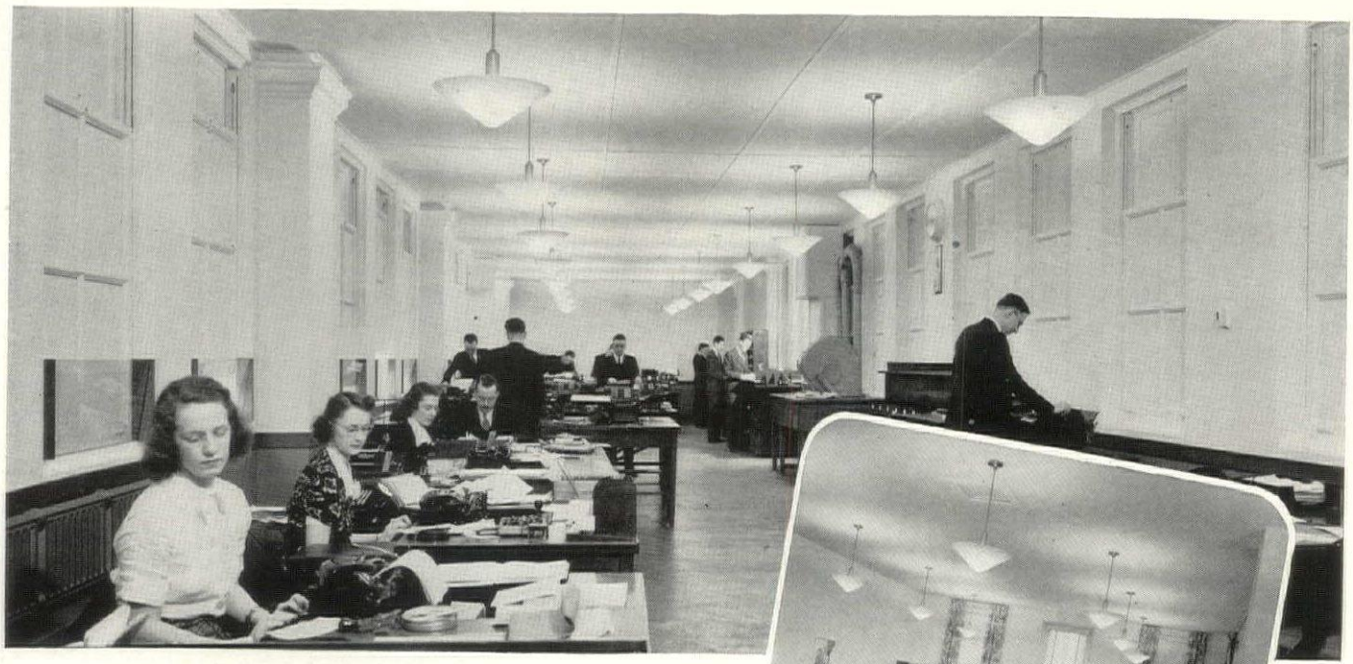
**CLOSED FOR MORE THAN 20 YEARS,** the reopening of historic Reims cathedral was marked by elaborate ecclesiastical and civil ceremonies. Wrecked by German artillery in the World War, restoration was possible largely through the generosity of John D. Rockefeller, represented at the ceremonies by Architect Welles Bosworth.

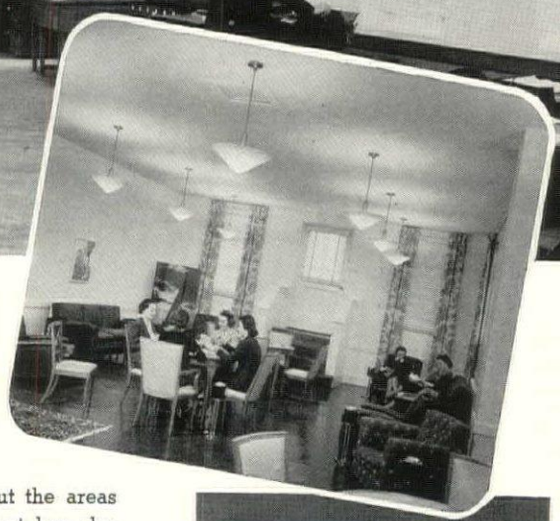


*Wide World*

NOTABLE APPLICATIONS OF WESTINGHOUSE LIGHTING EQUIPMENT

No. 4—Crocker First National Bank, San Francisco, Cal.





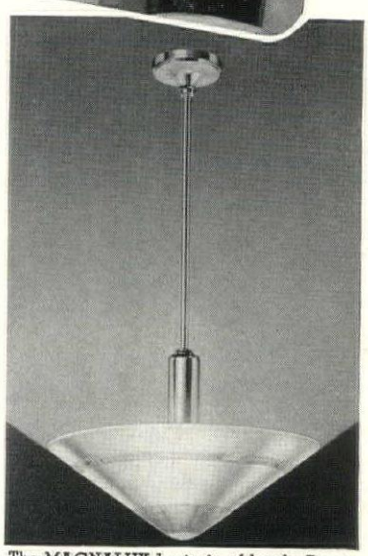
## WINDOWLESS ILLUMINATION ...WITH MAGNALUX

Windowless lighting has definitely removed eye strain and clerical fatigue in the Transit and Bookkeeping Departments of the Crocker First National Bank of San Francisco.

Before the present lighting system was installed, lighting intensities between windows and walls varied by as much as 20 to 1. Westinghouse Lighting engineers were called in. Their recommendations included painting over all windows to match ceilings and upper side-walls which were covered with high reflection factor flat-finish paint. Westinghouse luminous bowl MAGNALUX indirect luminaires were installed, at intervals of nine feet; and now provide 30 footcandles of uniformly diffused glareless and shadowless illumination throughout the areas relighted. Similar equipment has also been installed in the new employes' Recreation and Dining Rooms.

One of the Bank's officers is quoted as saying: "We have found that windowless, glareless illumination pays dividends in faster work and greater accuracy, in addition to the fact that two employes have already been able to discard their glasses."

For details concerning a wide range of Commercial lighting applications, both with Magnalux and other types of Westinghouse lighting equipment, consult your nearest Westinghouse Distributor; or write to Westinghouse Electric & Mfg. Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

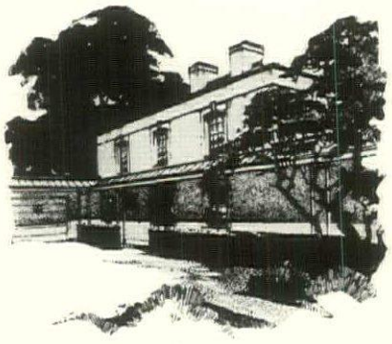


The MAGNALUX basin is of lovely Denax glass and combines the charm of low surface brightness with ample upward illumination.

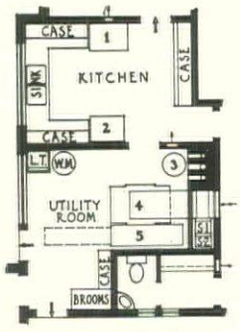
WHEN YOU THINK OF *Lighting Equipment* THINK OF

**Westinghouse**

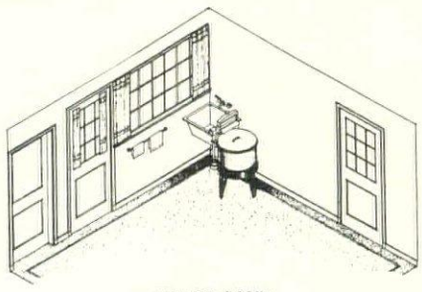
# No Basement in this Prize Winning A·G·A All-Gas Home



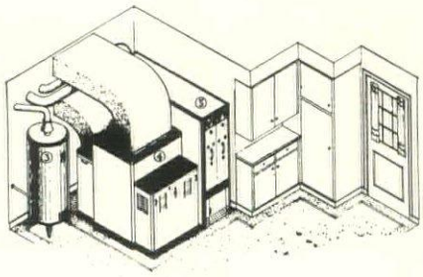
**ARCHITECTS:**
Malcolm P. Cameron
and Howard A. Topp
Los Angeles, California.



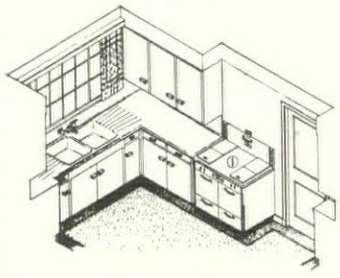

·FLOOR·PLAN·



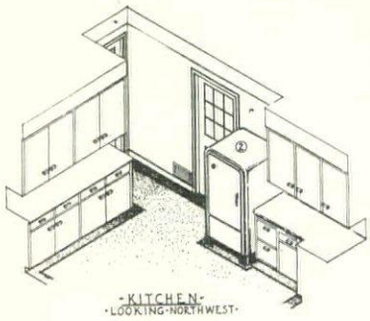
·UTILITY·ROOM·
·LOOKING·SOUTHEAST·



·UTILITY·ROOM·
·LOOKING·NORTHWEST·



·KITCHEN·
·LOOKING·SOUTHEAST·



·KITCHEN·
·LOOKING·NORTHWEST·

1. Gas range.
2. Gas refrigerator.
3. Gas water heater.
4. Gas-operated winter air-conditioner.
5. Gas laundry dryer.

**Now build an A·G·A All-Gas Home . . . enter the $10,000 prize competition for builders and their architects.**

*The All-Gas Home* Building *Competition closes July 1, 1939. Write for entry blank and free booklet, containing all the information you need. Competition Director, American Gas Association, 420 Lexington Avenue, New York City.*

## Modern gas appliances save space . . . cut building costs

THIS graceful design illustrates the practicality of providing the utmost in comfort and operating convenience without abandoning the more familiar architectural forms.

Because gas burns *cleanly* and requires no fuel storage space, expensive excavation has been avoided. The gas-operated winter air-conditioning unit has been placed near the center of the house to avoid elaborate duct work and prevent wasteful heat distribution.

All the major housekeeping equipment has been centralized in the kitchen and adjoining utility room. The detailed drawings show that the architect has carefully considered the exclusive advantages of *gas for the 4 big jobs.*

No other fuel affords such complete flexibility in planning and building. Your Gas Company will gladly give you full information and specifications of the new gas ranges, refrigerators, water heaters, and house-heating equipment.

**AMERICAN GAS ASSOCIATION**

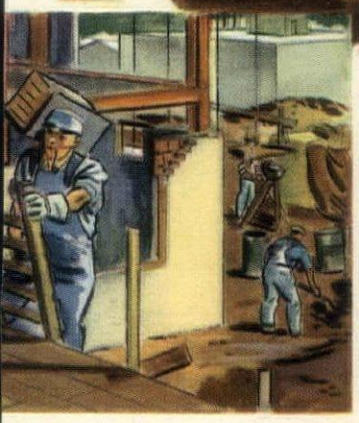
**LET Gas DO THE 4 BIG JOBS**

**COOKING**
**WATER HEATING**
**REFRIGERATION**
**HOUSE HEATING**

Be sure the gas appliances you specify bear the Approval Seal of the American Gas Association Testing Laboratories.

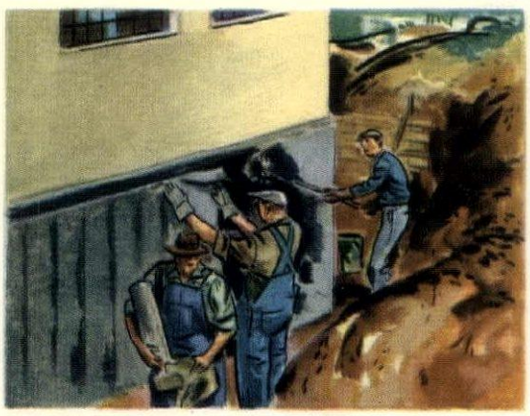
# This time we'll WATERPROOF the building

**M WAS** hardly more than youngster when his ther's death threw the siness into his lap. He anted to make a go of and, naturally enough, ed to cut cost corners herever he could.

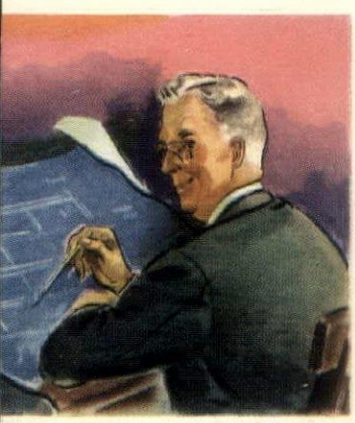


**OOMING** business made it necessary build an addition to the warehouse. Wiser heads advised waterroofed foundation, but Tom etoed the idea to save a few dollars.

**3. SEVERAL YEARS** later small breaks developed unnoticed in the concrete. Water seeped through and caused considerable damage to goods stored in the basement.

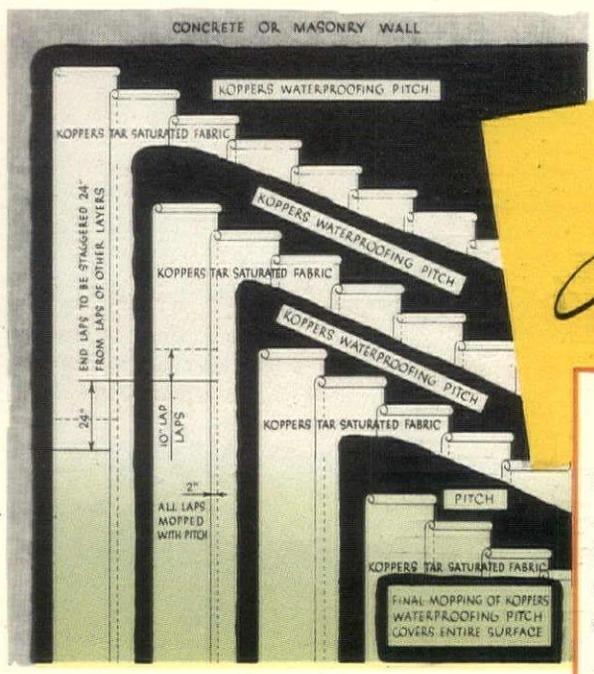


**4. EXCAVATIONS** had to be made around the warehouse, concrete had to be repaired and waterproofing applied. Of course it was the only course then . . . but it was costly.



**OM IS** more mature now. Business as been good and he's planning a ew, larger building. This time e specifies Koppers Membrane Vaterproofing.

**AYER UPON** layer of Koppers Tarred abric and Waterproofing Pitch orms a water-tight blanket for the oundation. No more seepage.




## KOPPERS *Waterproofing*

Cost of applying Koppers Membrane Waterproofing to new buildings is small compared to the potential loss which underground moisture can cause. Koppers Waterproofing proves its worth under severe conditions . . . prevents deterioration of concrete or masonry. If you have some question in mind about a general condition or some particular job, drop Koppers a line. Our representative in your territory will bring you the results of extensive research by Koppers engineers.

**KOPPERS COMPANY, Tar and Chemical Division, Pittsburgh, Pa.**

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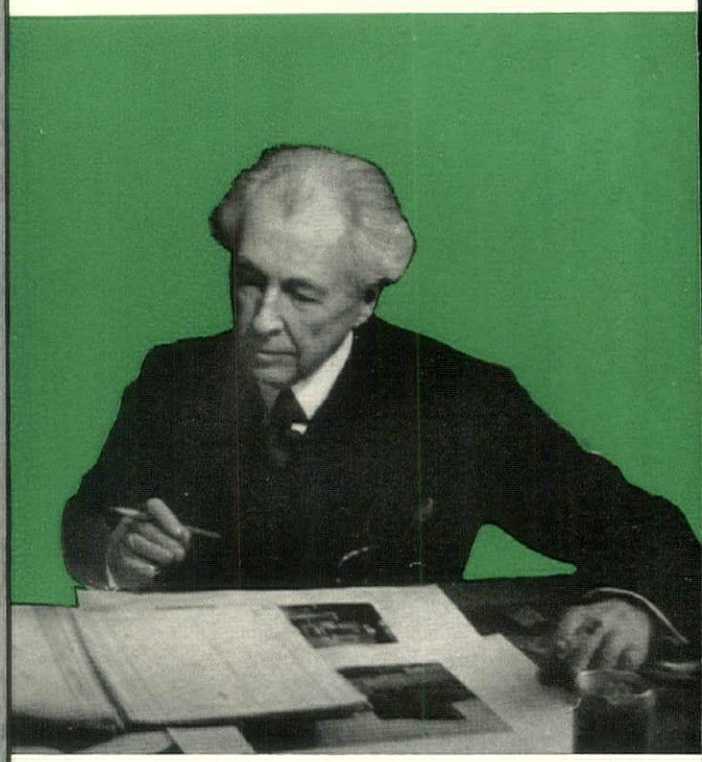
K O P P E R S *product*

# "to me PLYWOOD offers a new lead into a fascinating realm of form"

. . . Frank Lloyd Wright



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Sweet's Catalog contains complete data on Douglas Fir Plywood. Our well-equipped Technical Division offers cooperation to architects, engineers, and others in adapting Douglas Fir Plywood to special problems, and recommending the proper types and grades to produce utmost serviceability and economy. Address Douglas Fir Plywood Association, Tacoma Building, Tacoma, Washington.

## FRANK LLOYD WRIGHT

• *In discussing his "Honeycomb" home for Dr. Paul Hanna, of Stanford University, illustrated below, Mr. Wright says in part: "It might be said of this building that it is a plywood house, plywood furnished. To me here is a new lead into a fascinating realm of form . . . I find it easy to take a unit of any simple geometric pattern and by modern technology suit it to the purpose, adjust it to human scales, evolve not only fresh appearances, but vital contributions to a livelier domesticity."*

**DOUGLAS FIR PLYWOOD**

*Real Lumber*

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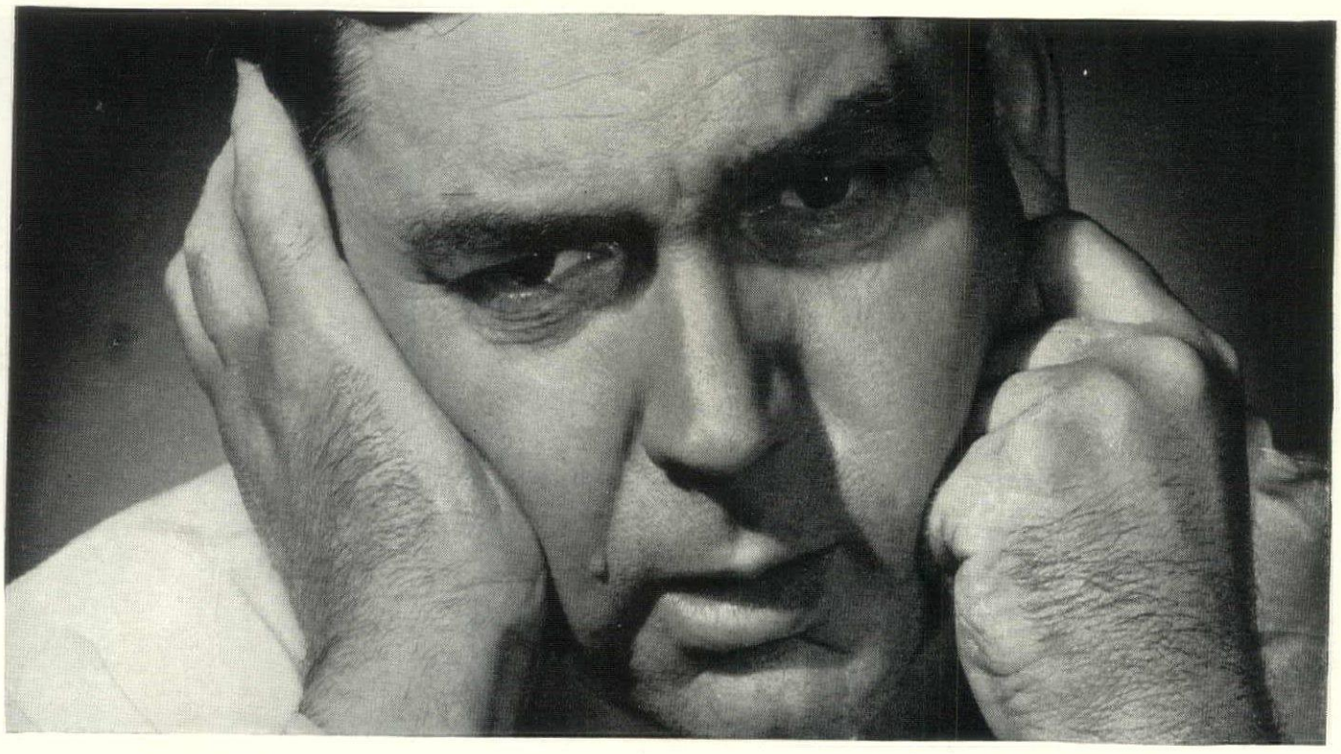
# DON'T WORRY

## about Sound System problems



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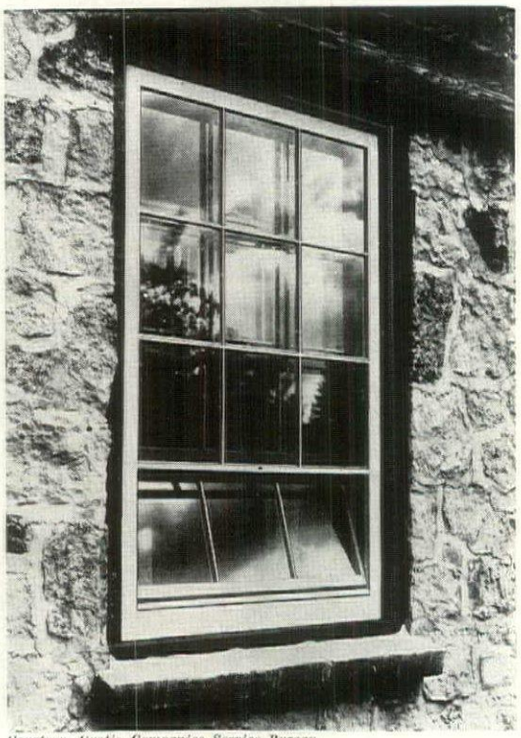
LEADERS IN SOUND-TRANSMISSION APPARATUS

Courtesy, Andersen Corp.



Courtesy, Curtis Companies Service Bureau

Left, inside winter window, metal frame, wood casement sash; right, outside winter window with vent, wood frame, double-hung wood sash.

# INSULATED GLASS

**an old idea in a new form; an investment which pays handsome dividends.**

At design temperatures*, the inside of a sheet of window glass has about the same effect on a heated room as would a piece of ice of the same area. As the outdoor temperature approaches zero, the inside surface of exposed glass goes down to freezing. With double glass, separated by an air space, the temperature of the inner glass is raised to about 60° F., or nearly that of the inside of an uninsulated frame wall.

These facts have made the double window one of the oldest accepted forms of home insulation. Thirty or forty years ago, the house which did not boast "storm sash", or outside winter windows, was considered incomplete. Thus long before the average home owner had even heard of sidewall and ceiling insulation he knew from his own experience the advantages of **insulated glass**, and was likely to be loud in its praises.

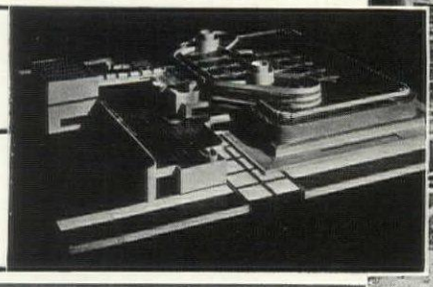
As heating equipment improved, however, the use of storm windows decreased. Such sash were an added expense, often unsightly, and something it was easy to put off 'till "later" and then forget entirely. As soon as better heating made it possible to maintain comfort without them, storm sash—for one or another of these reasons—were used less and less. The fact that double glass could be shown to pay for itself in reduced fuel bills did not, by itself, prove a sufficient incentive for its continued use. Meanwhile, sporadic attempts to work out simpler and more attractive methods of double glazing met with little success, often with failure. Such attempts usually took the form of two sheets of glass installed in the ordinary sash in place of one, with a small, sealed air space between. These nearly always proved unsatisfactory because of the tendency of moisture to condense on the inner surface of the outer glass, and of dust and dirt to accumulate in the inaccessible air space. Efforts to correct these difficulties centered on improving the method of sealing the glass in the frame but—for reasons which will be examined later—these were foredoomed to failure. After years of experimentation, the only successful installations which could be pointed out were those—in a few railroad cars and in refrigerated show cases—where a replaceable dehumidifying agent, such as a silica-gel cartridge, was installed in the air space.

More recently, the increased use of home insulation, and particularly of winter humidifying equipment, coupled with the tendency toward more and larger glass areas has renewed interest in the double window. Architects, builders, and home owners have begun to question how much of the value of sidewall and ceiling insulation is lost when there exists such a potent avenue for heat-escape as a window left unguarded. They have been confirmed in their suspicions by the discovery that the higher relative

(*Continued on page 20*)

* 0° F. outside, 70° F. inside.

# BYERS WROUGHT IRON IN A NEW SERVICE FOR JOHNSON'S WAX



## AN EXAMPLE BY FRANK LLOYD WRIGHT

In heating, also, the modern office building of S. C. Johnson & Son, Inc., strikes a unique note. Steam pipes of Byers Wrought Iron imbedded in the floor combine with tempered ventilating air to warm the structure.

Selection of Byers Wrought Iron was preceded by a Byers Engineering Service Department study covering all predictable corrosive conditions. It took into account the need for complete dependability—for no provision could be made for future access to the piping.

Byers Wrought Iron is recommended only after the application of sound engineering procedure. If you will tell us your problem, our Engineering Service Department will, without cost or obligation: (1) Determine the probable corrosive conditions. (2) Relate these to kindred conditions existing elsewhere. (3) Interpret the results in terms of experience gained in three quarters of a century of contact with corrosion problems... and (4) Confirm the recommendations with actual service records. "Wrought Iron for Piping Systems," an interesting bulletin, will be sent on request. Write our nearest Division Office... or to headquarters. A. M. Byers Co., Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

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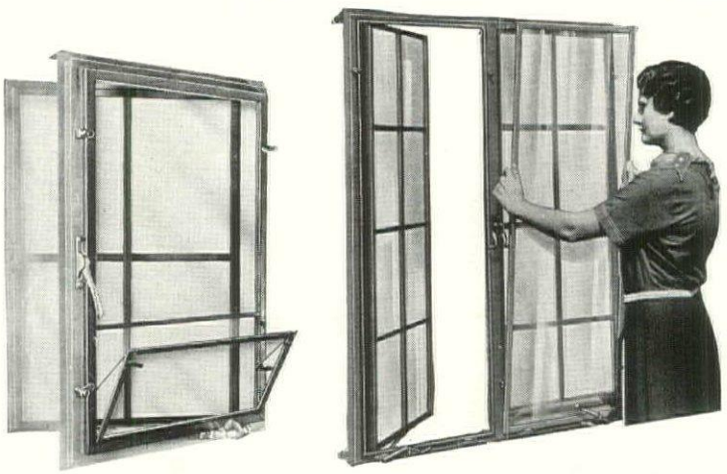


Left, inside winter window, with vent, metal frame, steel casement sash, Campbell Metal Window Corp.; right, "Insulaire" storm sash, Mesker Guildhall Casement, Mesker Bros. Iron Co.

humidity demanded by modern heating technique cannot be maintained because of the annoying accumulation of frost or condensed moisture on window panes and resulting damage to sash, stools, and below-window wall decorations. And even where these difficulties are not experienced, the vast improvement in domestic heating has made more apparent the contrast between comfort-conditions near the chill surface of single-glazed windows and those obtaining elsewhere, especially in modern work where large windows are the rule.

Net result has been an increased consumer-demand for insulated glass, a demand which has inspired the improvement of the winter window and its reappearance in a score of new and attractive forms adapted to every purpose and window-type. A demand which bids fair to increase still further as the result of a nation-wide consumer advertising campaign recently begun by one of the large glass companies* describing the advantages of insulated glass under the slogan "Window Conditioning." And because his client or customer will therefore almost certainly be thinking about double glass before building or afterward, it behooves the forward-looking architect and builder to bring his knowledge of the subject up to date.

The first thing which the architect wants to know about insulated glass is, Does it pay? and the second, If so, how should it be installed? He does not want to spend his client's money for insulated glass if this is wasteful or if it might be better spent for some other purpose. Even more important, he wants the installation to be entirely successful: neither unsightly nor a source of the troubles mentioned above. Only recently has research made it possible to answer fully both of these questions.

## DOUBLE-GLASS ECONOMICS

Like all forms of insulation, there is no question but that double-glass in a heated building will pay for itself eventually in fuel savings, thereafter return dividends which are so much gravy. The questions are rather: How long will it take to pay off? Does the client want to invest the money for the required period? and, Could the money be better spent for some other form of insulation? Naturally, it is impossible to answer these questions precisely except in terms of an actual house in a definite locality. It is, however, possible to list the factors on which such a computation depends, and to show by example how it might work out in a particular instance.

In discussing the economics of double-glazing, it is convenient first to consider the economics of insulation generally, then to compare insulated glass with other forms. And the first big fact to note about every form of insulation is, that while it costs about the same amount to install in different parts of the country, and saves about the same proportion of the fuel bill (slightly less in warmer climates), the value of this saving varies with the cost of heating. It costs about twice as much to heat the same house in Detroit as it does in Atlanta, four times as much in Devil's Lake, North Dakota, and the value of a 30 per cent fuel saving varies accordingly. Thus a one-third saving resulting from $200 spent on insulation in Detroit, with heating cost at $240 per year, equals $60 annually, while the same investment in Atlanta, where heating costs half as much, would return only $30. In the first instance the investment would pay-off in about 3½ years, in the second take nearly 7. Where you stand on this scale of heating costs and savings may be determined by looking up the average winter temperature (Oct. 1st to May 1st) in your locality. Detroit is 35.8. For every 15 degrees above this level, heating costs are halved; for every 15 degrees below it they are doubled.

In the average 6-room house most forms of home insulation save between .1 and .2 per cent of fuel per dollar of cost: 10 to 20 per cent for a $100 investment, 20 to 40 per cent for $200, and so on up to about $350. Thus if fuel per season costs $250 (Detroit), insulation should pay off in about 3 years. Another insulation saving often realized is in the initial cost of the heating plant which can be designed for the reduced load resulting from insulation at consequently lowered cost. In many instances the saving thus effected equals or even exceeds the cost of insulation, but this depends usually on whether the reduction in size spans the gap from a larger to a smaller heater.

The average of several independent tests and calculations indicates that the use of double windows—where they act to reduce infiltration around the sash as well as insulate the glass area—should reduce fuel bills in the ordinary uninsulated house from 20 to 30 per cent. In an insulated house the saving would be more percentage-wise and save the same number of fuel-dollars. It is divided about two-thirds for the insulated glass and one-third for reduced infiltration; insulated glass alone accounts for a 15 to 20 per cent saving.

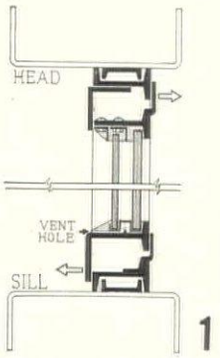
For comparison, maximum sidewall and ceiling insulation, such as 4 in. rock wool, would save up to 30 per cent of the fuel, cost about twice as much as winter windows. Insulated glass by itself therefore compares quite favorably with other forms of insulation. According to the calculations of Prof. G. L. Larson, of the University of Wisconsin, it saves more fuel per dollar than any other form of insulation. Prof. Larson supports this contention with the following data for an 8-room frame house in Milwaukee:

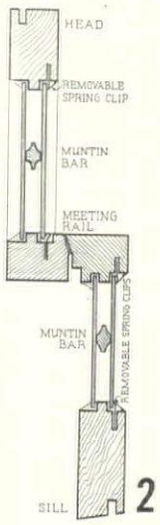
| | Uninsulated | 4 in. insulation ceiling & sidewalls | Storm sash and doors | Insulation and storm sash |
|---|---|---|---|---|
| Per cent saving . . . . | | 21.0 | 30.8 | 55.9 |
| Cost of insulation . . | | $284 | $106 | $390 |
| Fuel per season . . . . | $286 | $214 | $198 | $126 |
| Saving per season . . . | | $72 | $88 | $160 |

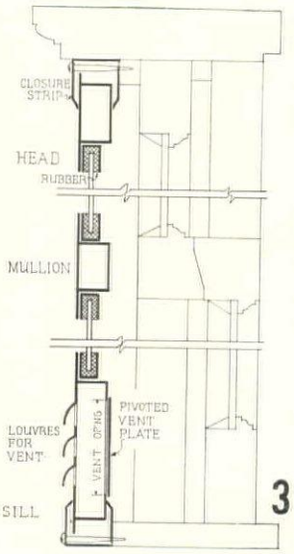
These data are extremely favorable to winter windows. The cost of the sash is quite low, and the estimated saving based on cutting down infiltration by one-half, which may not always be accomplished, and figured on the basis of Milwaukee heating costs, which are high. The point of the calculation, however, is not so much that double-windows are a superior form of insulation, as that the use of both forms results in substantial savings which quickly return the money invested.

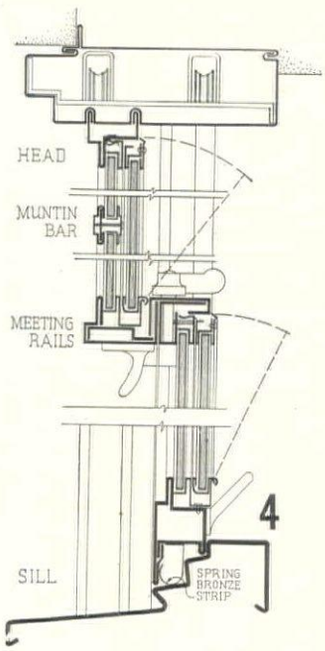
(*Continued on next page, text on page 22*)

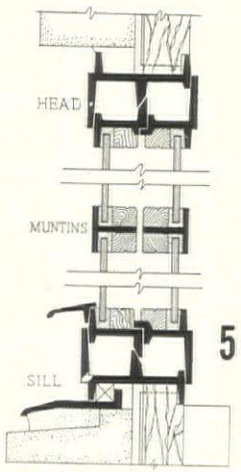
* Libbey-Owens-Ford Glass Co.

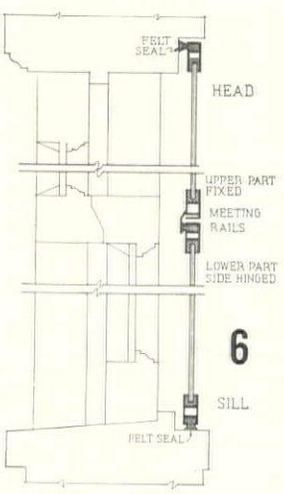


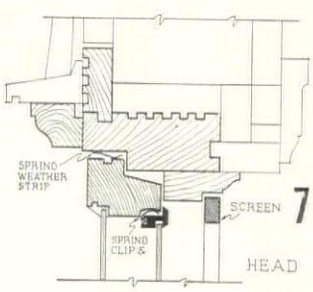



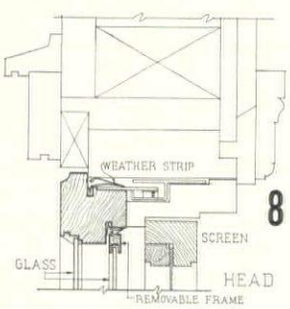



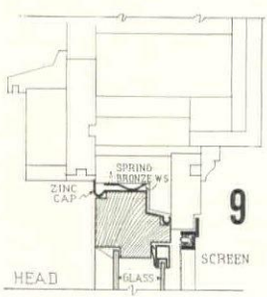



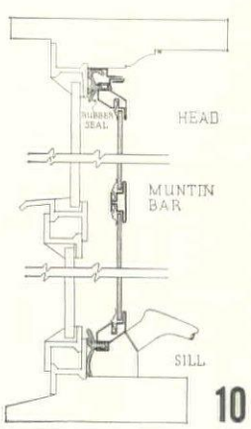



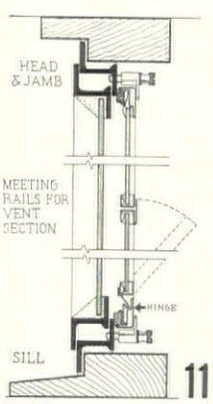



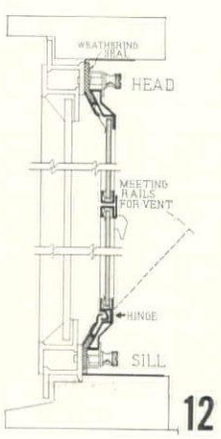




## DOUBLE-GLAZING AND WINTER WINDOWS

(Sections all same scale: one-fifth full size.)

**1.** Double-glazed industrial sash, William Bayley Co. Lower section typical, upper section Underwriters' construction.

**2.** Double-glazed double-hung wood sash, the N.S.W. Company. Space is vented to outside and inner light removable for cleaning.

**3.** Phoenix combination screen and outside storm window for double-hung wood sash, F. C. Russell Insulation Co. Glass and screen interchange in fixed frame.

**4.** Double-glazed, double-hung steel sash, S. H. Pomeroy Co., Inc. Inner light hinged for cleaning.

**5.** Crittall double steel casement window, Crittall-Federal, Inc. Sash open together, or separately for cleaning.

**6.** Burrowes inside storm window, side hinged, for wood or metal sash, Burrowes Corp. Vented lower portion bottom hinged.

**7.** Andersen casement window with double glass, Andersen Corp. Glass snaps in place, opens with sash.

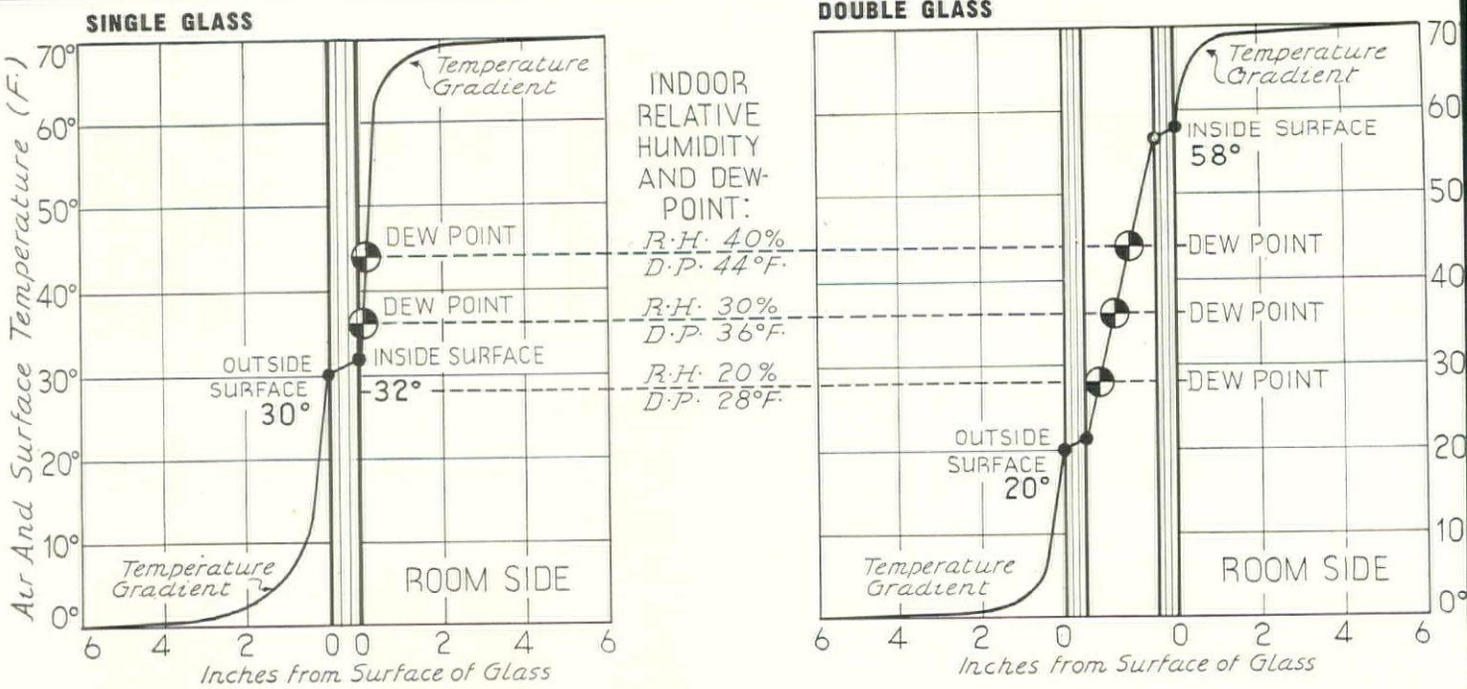
**8.** Curtis Silentite casement with inside insulating glass, Curtis Companies Service Bureau. Removable.

**9.** Unipak casement with double-glazing panel, Farley & Loetscher Mfg. Co. Glass and frame removable.

**10.** Fenestra air conditioning window, Detroit Steel Products Co. Glass clears hardware, rubber seal completely covers window frame.

**11.** Hope's inside winter window, with vent, Hope's Windows Inc. Winter window interchangeable with regular inside screen.

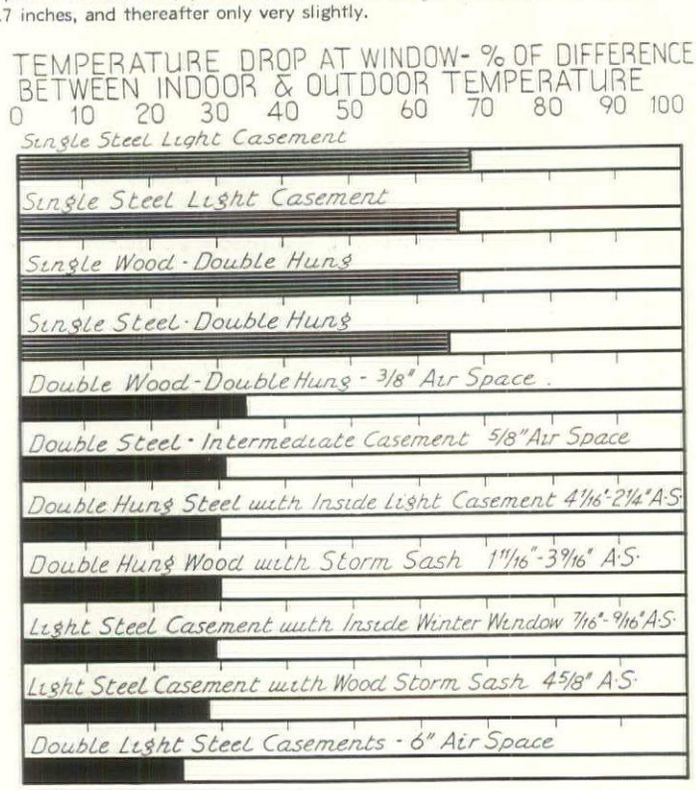
**12.** Tempryte insulating window, vented, Truscon Steel Co. Seal covers window frame, window interchangeable with screens.




**Temperature gradients for single and double glazing, based on tests by A.S.H.V.E. Research Laboratory. Curves show that double glass raises inside surface temperature to 58° F., well above room dewpoint, thus preventing condensation.**

### AIR-SPACE THICKNESS

Heat is transmitted through an air space by radiation, conduction, and convection. The amount transmitted by radiation depends on the nature and temperatures of the bounding surfaces, is independent of the thickness of the space. With "dead" air, the amount transmitted by conduction goes down as the thickness of the space is increased. The amount of heat transmitted by convection, on the other hand, increases as the thickness of the space is increased, owing to the increased tendency of the air to circulate. As an air space is increased in thickness the decrease in the amount of heat transmitted by conduction is greater than the increase in the amount transmitted by convection, but in decreasing proportion, so that the insulating effect of a vertical air space increases sharply between 0 and .25 inches, gradually between .25 and .7 inches, and thereafter only very slightly.




**Comparative insulating effect, various single and double-glazed windows, based on tests by Department of Engineering Research, University of Michigan. Double glass was found to more than double the insulating effect of windows.**

### DOUBLE-GLASS TECHNOLOGY

By itself, glass is an excellent heat conductor. Second among building materials only to metals, the coefficient of heat transmission for a single thickness of glass is 1.13 (Btu. per hour per square ft. per degree temperature difference—15 mile wind) as compared with 0.25 for an uninsulated frame wall: almost 3 times as much. For double windows, this figure is reduced to about 0.45, or more than halved. Triple glazing reduces the amount of heat transferred still further, to about 0.28. The precise amount of this reduction is dependent upon the thickness of the air-space between the panes of glass and—to a lesser extent—upon the size of the panes. The thickness of the glass itself is ignored because it has so little effect on the amount of heat transmitted.

*Air Space*

Many architects are under the false impression that in order to be effective an air space of this type must be several inches in thickness. This is untrue. As a matter of fact, recent tests have shown that so long as the space between the glass is at least ¼ in. thick it makes little or no difference whether it is increased beyond this point, its insulating effect going up slightly as the space is increased to about ⅝ in. and then levelling-off as the space is made larger. For those technically inclined, the explanation of this phenomenon given in the margin at the left may prove interesting, others will find the test data given in the graph below it sufficient evidence. These data show that in practice, the nature of the frame and type of window have more to do with the actual insulating effect of a double glass installation than the thickness of the air space, and that such differences as do occur are of small magnitude and little importance. The graph shows practically every type of single and double window likely to be used in residential work and indicates in terms of the temperature drop at the inside surface of the window, the insulating effect of the various types. This is found to be about 66 per cent of the difference between indoor and outdoor temperatures for single glazing, and from 24 to 33 per cent for the various double windows.

*Condensation*

Double windows prevent the condensation of moisture and formation of frost on the room surface of the glass under almost any conditions (limit: at 40 per cent indoor relative humidity,—20° F. outdoor temperature), and are as much used for this reason as for their insulating effect. At the same time, unless properly installed they are especially prone to condensation on the

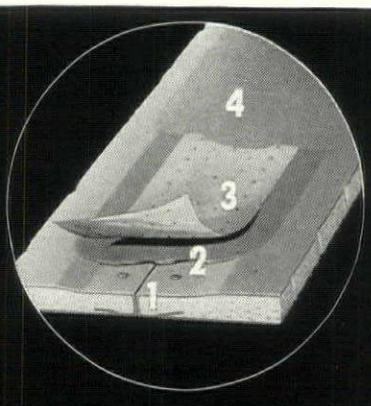
*(Continued on page 46)*

# *Joints are*

# HIDDEN

## in walls and ceilings built of Recessed Edge SHEETROCK *and* Perf-A-Tape

*THE FIREPROOF WALLBOARD*

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With the Recessed Edge Sheetrock—Perf-A-Tape combination USG has developed a system of wallboard construction in which *joint reinforcement is actually hidden* within the thickness of the board itself. This gives you strong, smooth walls that are a suitable base for any type of decoration your client may choose—paint, wallpaper, texturing or costly fabrics. And, *Sheetrock is the Fireproof Wallboard.*

Before you start your specifications for your next modernizing job, investigate Recessed Edge Sheetrock and Perf-A-Tape. You'll find that it will not only provide smooth, unbroken wall and ceiling areas—but that the price is surprisingly low.

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# LETTERS

### Alphabetical Allen

Forum:

A friend of mine who is an architect (some of my worst friends are architects) met me in the Hotel Olds at Lansing last week and says to me, "That letter of yours in The Forum last month was very good" and laughed heartily. I laughed heartily too because there was not any letter of mine in The Forum last month as I have been too busy learning to play billiards and taking lessons in same from Ora Morningstar who used to be national champion and after only six lessons he told me that by practicing faithfully, living a good clean life and doing deep breathing exercises I could in time become a really mediocre player.

Even if I had not been playing billiards I would still not have time to write letters to The Forum as clients have finally come around to the really sensible system of selecting architects in alphabetical order which is all right for me but is not going to be so good for another architect in town who is named Zillmer.

However if I did have time to write a letter to The Forum which I most certainly have not I would point out that the whole system of architectural education in this country is wrong because what do they teach young men in architectural schools? Architecture, that's what they teach them. Young men graduate from architectural schools knowing for instance that the Choragic Monument of Lysicrates was designed by Samuel Bulfinch in the year 1897, but what do they know about handling clients? Little or nothing.

And yet the art of handling clients is one of the most important factors in the success of a really outstanding architect such as I. Had it not been for my uncanny knowledge of human nature acquired from years of roughing it, first as a stowaway on a revolving door and later as continuity writer for the Manhattan telephone directory, I might never have gained that ability to estimate a client's fiscal condition that has made millions for me. (If television were only in operation you could have seen me at this point open my study window and toss out a double handful of diamonds to the sparrows on the lawn.)

How many architects know, for instance, that a client's desirability is in inverse ratio to the beauty of the client's appearance? Suppose a female client, for instance, is so entrancingly beautiful that she is obviously hiding out from the movie scouts; you can bet at least 8 to 5 that when you have drawn six different preliminary sketches she will just be getting warmed up and before you get anything that will come anywhere near suiting her and her technical adviser, the girl in the third booth at the beauty parlor, you will have used up so many pencils that whole counties will have been denuded of trees.

On the other hand, if a man client comes into the office with a countenance that looks very much like the third face from the top on a totem pole, the chances are that he will like the first sketch you make him, will leave for Terre Haute, Ind., on a business trip as soon as the contract is signed, and return only when the building is completed to give you three cheers and a large check.

This is only one sample of the type of information that should be passed on to our architectural students and I can only regret that our colleges are so deplorably backward that they do not hire me to lecture on this subject, which I happen to be full of, among other things.

ROGER ALLEN

*Grand Rapids Mich.*

### Albert Kahn

Forum:

We received our copy of the Kahn issue of THE FORUM, and want to commend you for a job well done. If one had any doubts about Mr. Kahn's right to an issue of THE FORUM completely devoted to his work, I should think the written material would dispel those doubts. This issue will go on our shelves right next to the Frank Lloyd Wright issue, as another valuable document on contemporary architecture. We didn't know who would be next after Wright, and think that the choice of Kahn was just as wise.

WILLIAM L. PEREIRA

*Chicago, Ill.*

### Synthetic Fence

Forum:

And L. J. Brooks (Letters, ARCH. FORUM, July, '38) the man who found The Forum on one side of a synthetic fence and thought them lost—because he didn't know that there is no fence! That is, in the development of true architecture. However, there are the fallow lands where growth is something of the past and upkeep all that is necessary.

If the editors answered "What is Modern" (it would take the rest of their life) they would have nothing to publish and the magazine would not be a forum. Because no building would literally live up to the definition—which is the life of architecture, past and present. However in the January issue (Frank Lloyd Wright), to those sincerely interested there was a very good hint at what the modern reality is and will be. The reality is more than particular concrete samples constructed at the moment—or combinations thereof—it is the thought and comprehension of life and the times. Of course if we had modern in a little nutshell like the Colonial—so everyone could tabulate it—we would not have modern reality but past reality. (And there would be no need for architects). And, incidentally, where are the prize winning Colonials when there is a jury representing the entire country?

I think THE FORUM, in order to conduct a forum for the growth and development of architecture, might "come out for Colonial" next month, etc., then continue with a larger letter section or forum. Then possibly we would begin to see, "Where is ARCHITECTURE now?"

JOHN LAUTNER

*Hollywood, Calif.*

### Mortgage Ratio

Forum:

My attention has been called to an article in the August Forum entitled "... Small Scale Housing Plan" wherein the writer refers to a mortgage loan made by the Phoenix Mutual Life Insurance Co., stating "And Warner got a ten-year 75 per cent mortgage for $30,750."

The facts are presented in such a way as to give the reader a distinct impression that the mortgage represents 75 per cent of the total value whereas it actually is 75 per cent of the building and landscaping costs and 61½ per cent of the total cost including land. . . .

. . . We operate under a State Law which does not permit us to make loans exceeding 66 2/3 per cent of the fair appraised value, and naturally this article as it is written, is likely to cause us considerable annoyance. . . .

EDWARD H. LITTLE

*Phoenix Mutual Life Insurance Co.*
*Hartford, Conn.*

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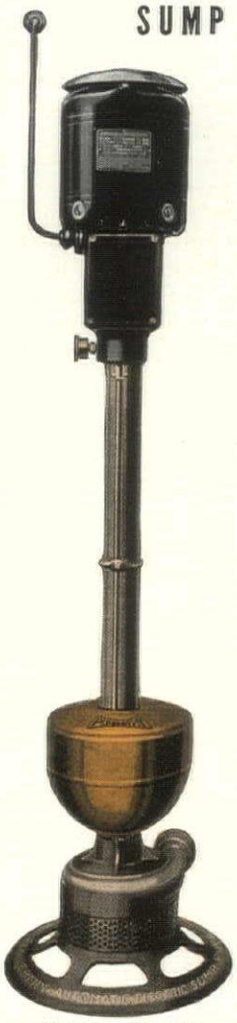

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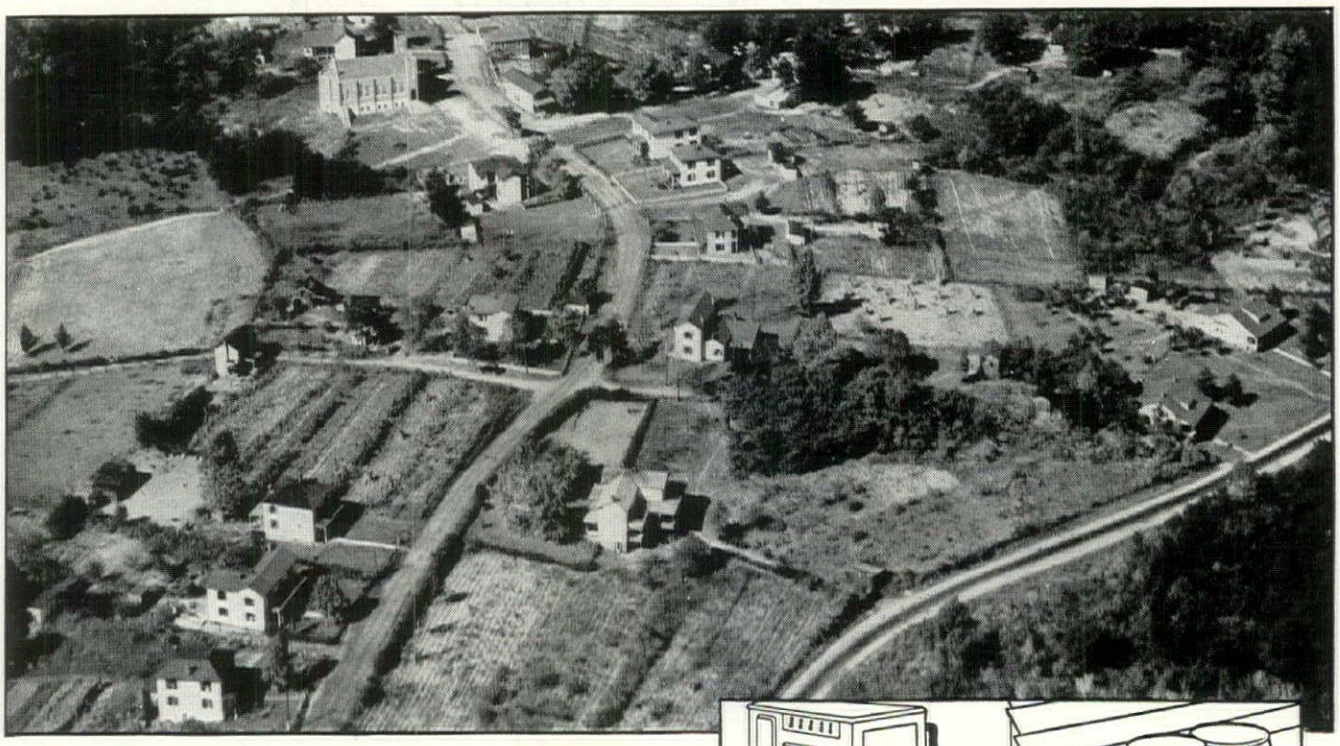
# IN THOUSANDS OF HOMES BEYOND THE GAS MAINS



## "PYROFAX" *Gas Service has proved its matchless worth*

After all, as one Architect friend told us, "I build for the woman of the house... she runs it." That he was right is proved by many letters from home-owners who use "PYROFAX" Gas Service. For instance, Mr. Lionel A. Elie, from Island Pond, Vt., writes, "Have used all types of fuel and find 'PYROFAX' by far the cleanest, hottest and most convenient."

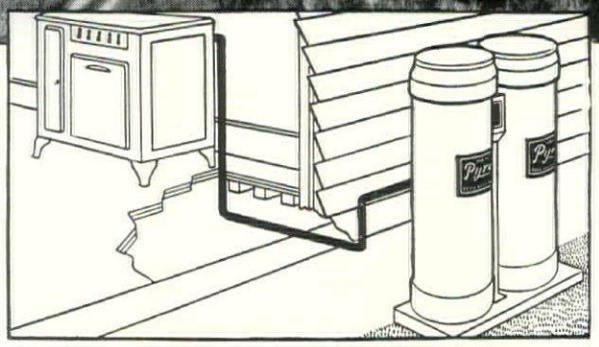
No wonder thoughtful, informed architects are specifying "PYROFAX" Gas Service for cooking, water heating and refrigeration, in homes beyond the gas mains.

"PYROFAX" Gas is real gas, not a liquid fuel. When burned, one pound produces 21,250 B.t.u's...approximately 6¼ times as many heat units as are produced by one K.W. hour of electricity.

It is not too much to say that the architect who specifies "PYROFAX" Gas Service will earn, through the years, the unfailing praise of clients who demand the utmost in modern convenience, economy and comfort beyond the gas mains. See Sweet's Catalog (28/65) for "PYROFAX" Gas Service specification data.

### THE EQUIPMENT

The "PYROFAX" Gas reserve cylinder system consists of a sturdy steel housing which encloses the pressure reducing regulator and two cylinders of gas—one for use, the other for reserve (large-scale systems have provision for as many as 24 cylinders). "PYROFAX" Gas equipment is placed outside the building. Then the gas passes from the cylinder in use through the regulating device which reduces the pressure to six ounces (same as city gas); thence to appliances in the home. Should city gas later become available, the same appliances and piping can be used.



*This diagram illustrates the basic simplicity of the "PYROFAX" Gas installation. Two types of equipment are provided. In Type "T," as shown in sketch above, the cylinders are not enclosed in cabinet. Type "A" Cabinet equipment completely encloses the cylinders.*

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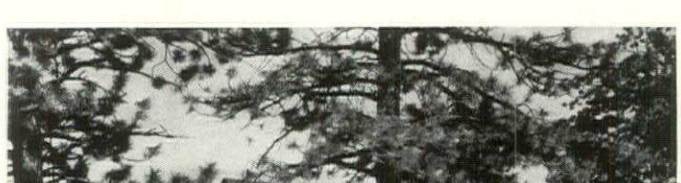
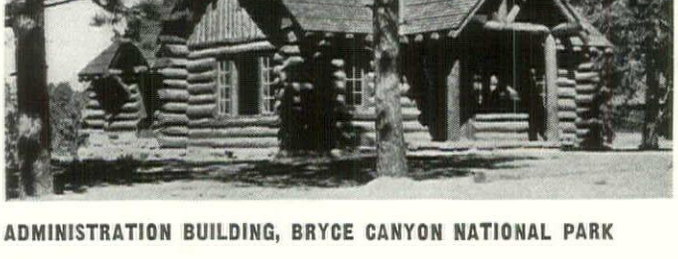
# BOOKS

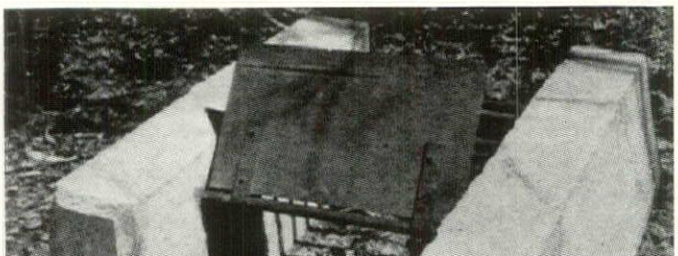
Work by the National Park Service, from signposts to hotels; an illustrated record in three volumes: Part I, Administration, Part II, Recreational, Part III, Overnight and Organized Camp Facilities.



RESTORED VILLAGE, MILL STATE PARK, INDIANA



ADMINISTRATION BUILDING, BRYCE CANYON NATIONAL PARK



PICNIC FIREPLACE, PICKETT FOREST, TENNESSEE

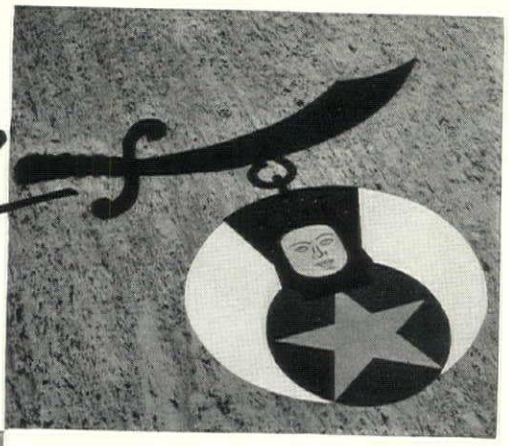
**PARK AND RECREATION STRUCTURES,** by Albert H. Good Architectural Consultant, National Park Service, United State Department of the Interior. Three volumes, about 200 pages each illustrated with plans and photographs. 9 x 11¾. For sale by the Superintendent of Documents, Washington, D. C., at 75 cents each (paper).

"In any area in which the preservation of the beauty of Nature is a primary purpose, every proposed modification of the natural landscape, whether it be by construction of a road or erection of a shelter, deserves to be most thoughtfully considered. A basic objective of those entrusted with development of such areas for the human uses for which they are established is, it seems to me, to hold these modifications to a minimum and so to design them that, besides being attractive they appear to belong to and be a part of their settings." This statement of policy by Director Cammerer of the National Park Service sums up not only the bureau's objectives, as far as design is concerned, but also indicates the character of the material illustrated in these books.

"Park and Recreation Structures" was first published in 1935 and was intended to serve as a handbook for the various local agencies engaged in building park structures. As a great deal of such construction was going on at the time, particularly under the CCC, the edition was quickly exhausted. This new edition has been revised and enlarged. Volume One deals with administration and basic service facilities, the second with recreational and cultural facilities, the third with overnight and organized camp facilities. Their contents include almost every conceivable element of construction in parks; to mention a few: signs, entranceways, fences, staff quarters, drinking fountains, bridges, overnight cabins, furniture, hotels. All types are profusely illustrated, both with photographs and dimensioned drawings. The text is equally useful: the program is stated in each case, and specific recommendations are made as to proper location, materials, and construction. One of the most interesting sections describes the work of preserving and reconstructing historic structures; many of these "living museums" have already been completed in various parts of the country.

In view of the splendid work done by the Park Service, both in the park themselves and in the publication of these books, it may seem captious to take exception to some of the results. The fact remains, however, that in their desire to violate natural surroundings as little as possible, many designers have gone to the other extreme, producing work which is excessively picturesque. This is particularly noticeable in small elements such as gates, signposts, and shelters, where logs are exaggeratedly rough-hewn, and where the masonry is treated so "naturally" as to lose all structural significance. Many of the larger buildings look as if they had been inspired by fairy-tale illustrations rather than the requirements of human use. One certainly cannot quarrel with the motives behind these excesses, but there is ample precedent in the Park Service's own work to show that well-designed buildings and accessories can be quite as unobtrusive in natural settings as bad ones.

# THIS *Standout Feature* MAKES THIS FLOORING STAND UP!



*The fresh, colorful appearance of Goodyear Wingfoot Sheet Rubber Flooring helps maintain a cheerful atmosphere in this ward of the Shriners' Hospital For Crippled Children, Philadelphia, Pa.*

ONE of the *chief* reasons why Goodyear Wingfoot Sheet Rubber Flooring gives such complete satisfaction to clients—and warrants such complete confidence on the part of architects—is that, once installed, it *stays in place* without creeping, buckling or stretching.

This feature traces directly to the fabric insert in every piece. Acting much the same as the "breaker strip" in auto tires, the insert diffuses the weight of heavy furniture, spreads traffic shocks over a wider area and stoutly resists any force tending to shift the flooring out of position. Also, it helps account for the almost unbelievable durability of Wingfoot Sheet Rubber Flooring.

The surface of this flooring is smooth, resilient, comfortable and quiet underfoot. Its colors do not "walk off" and its fresh, handsome appearance is easily maintained by occasional damp moppings—for alcohol, cigarette burns, inks, or even most acids do not permanently disfigure it.

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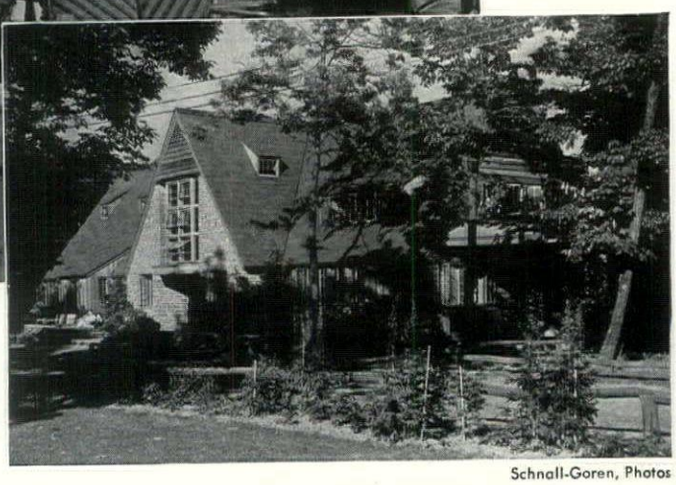

Schnall-Goren, Photos

ESPECIALLY appropriate for simple decoration in the above structure is the natural wood finish obtained with Pratt & Lambert materials. The charm of such interiors as this is enhanced by these finishes which are especially adapted for the purpose . . . and in addition there is the further advantage of preservation.

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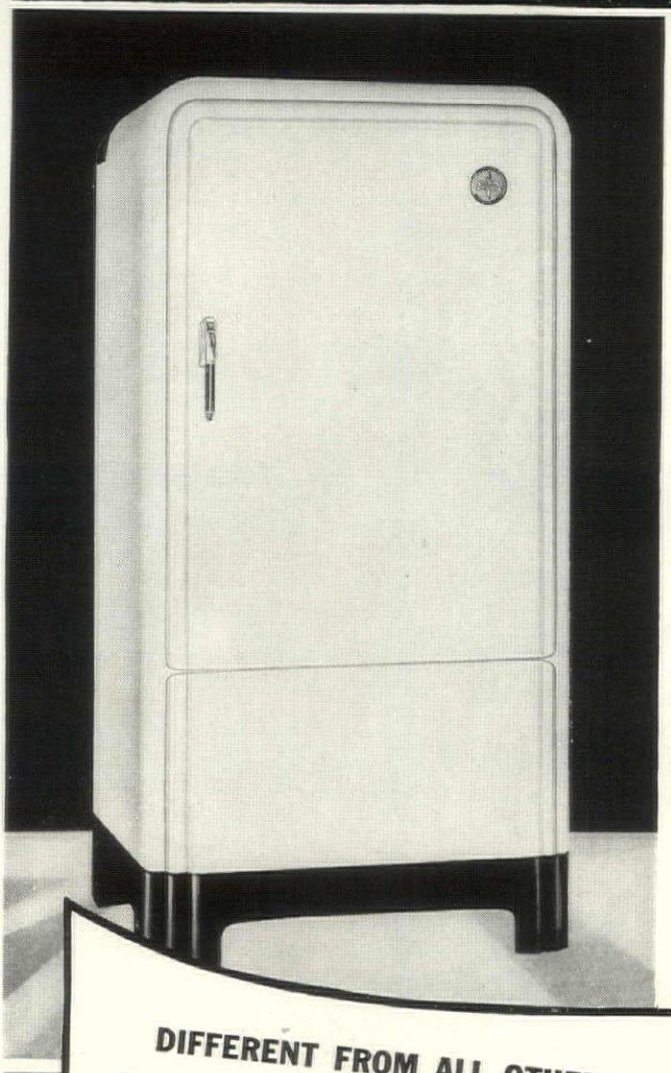

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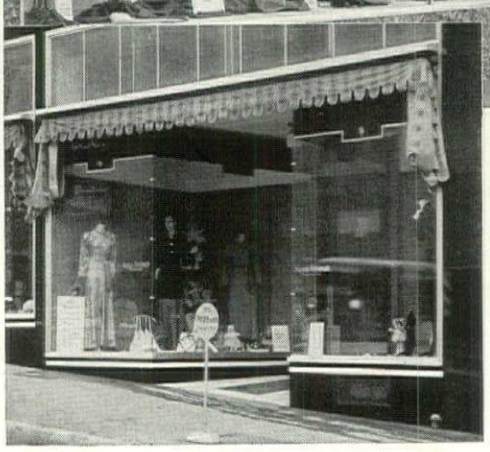
*Tenant* After having used a mechanical refrigerator we were fortunate in having a Servel Electrolux installed in our apartment. Its silence, lack of annoying repairs and perfectly controlled temperature make it the most satisfying refrigerator I've ever used. *Mrs. K. D. Vandervort, 824 No. Brand Blvd., Glendale, Calif.*

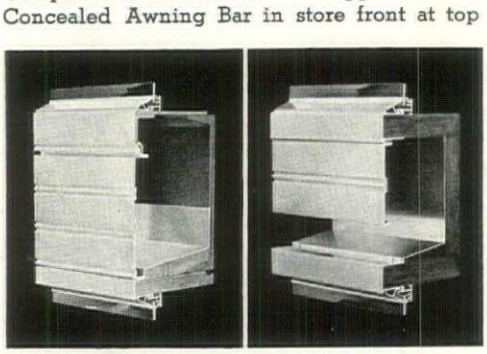
*Owner* As an owner of rental property, I have made a careful study of refrigeration. After the use of another type refrigerator, I am convinced that gas refrigeration is best. Tenants like the silent, dependable refrigeration Servel Electrolux offers. *Miss Lula E. Dykes, 820 No. Brand Blvd., Glendale, Calif.*

**SPECIFY THE REFRIGERATOR THEY HEAR ABOUT · BUT NEVER HEAR**

# STORE FRONT DESIGNERS— HIDE THAT AWNING!

Compare the two! Notice neat appearance of Concealed Awning Bar in store front at top



Kawneer Concealed and Recessed Awning Bars. In both rolled and extruded construction

A STORE FRONT may be of attractive design and have remarkable attention value, but its beauty is sure to be badly marred in time by a faded and worn awning—unless measures are taken to protect and hide the awning roll when not in use.

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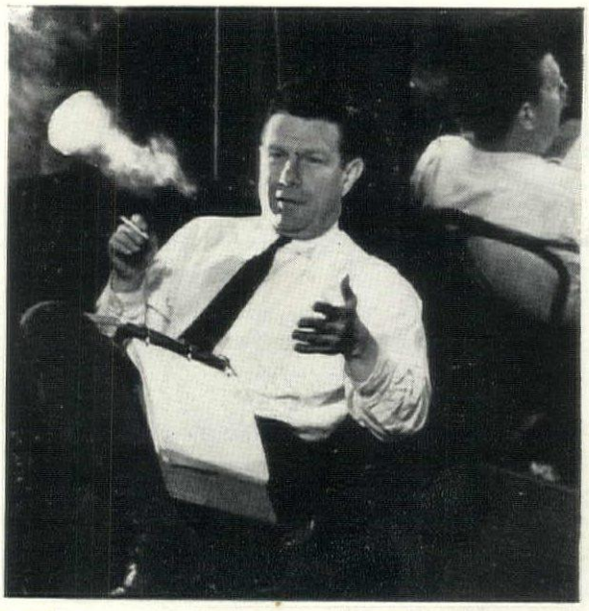
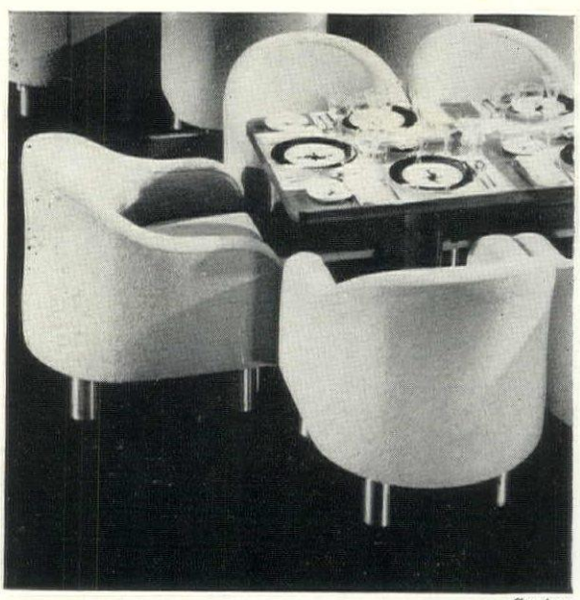
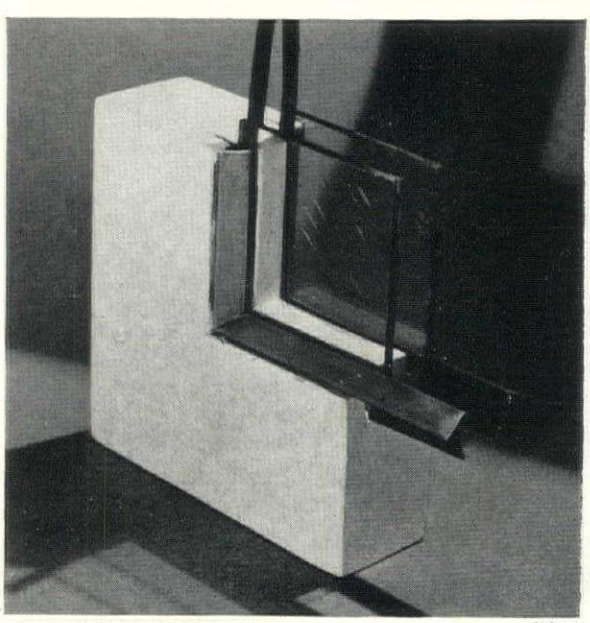


**MAN OF THE MONTH** ... Bel Geddes does a set for a two-a-day (page 172)



*Garrison*

**BUILDING OF THE MONTH** ... Room for Elbows (page 172)

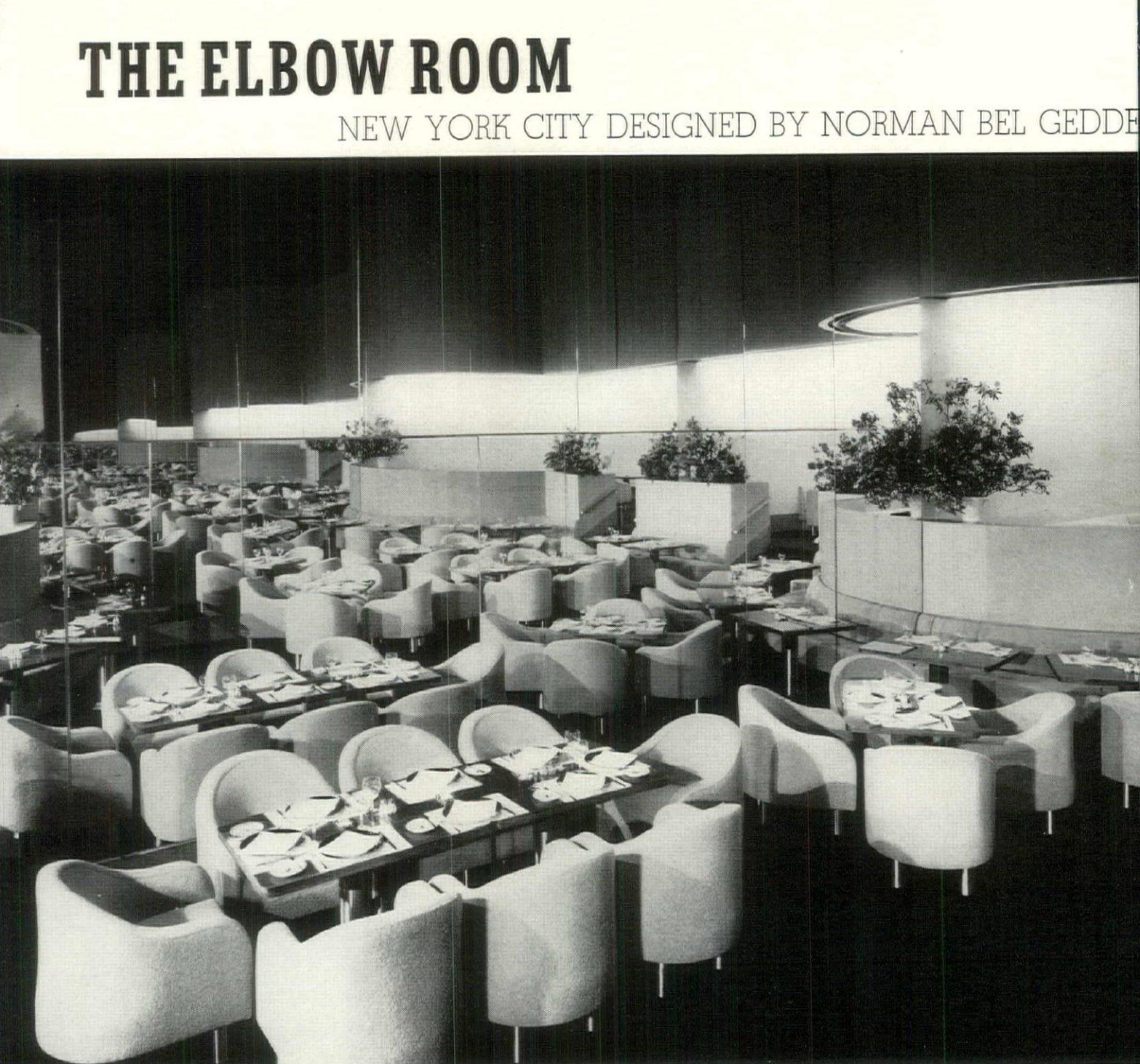


*Beinert*

**PRODUCT OF THE MONTH** ... Doubling in Glass (page 18)

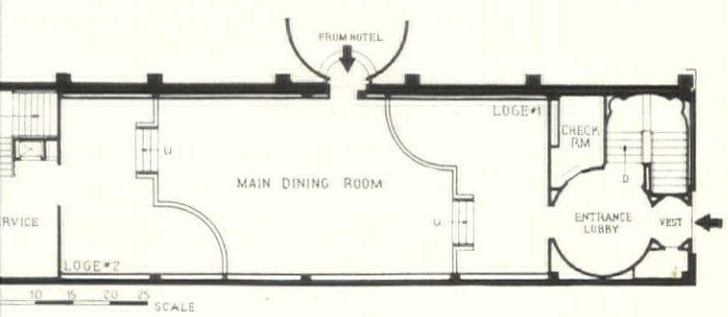
# THE ELBOW ROOM

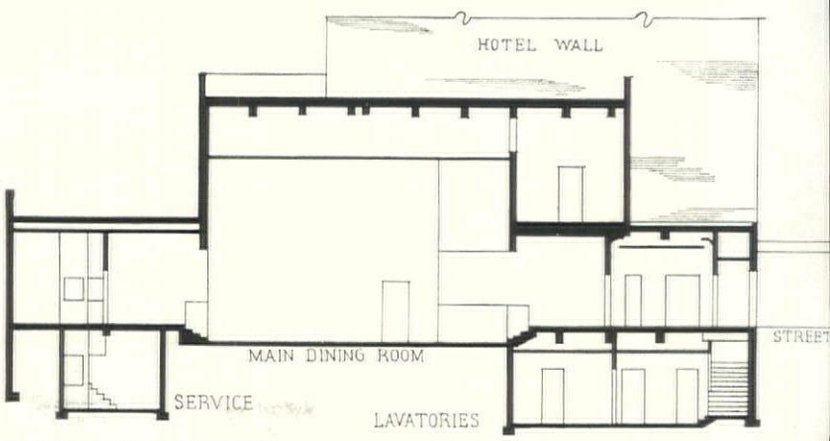
## NEW YORK CITY DESIGNED BY NORMAN BEL GEDDE



*Richard Garrison Photos*

A major disadvantage of New York restaurants is that the high rentals constitute an almost irresistible temptation for owners to increase their revenue by crowding as many tables together as possible. This small dining club was built by a group of people who wanted a place where good food could be obtained, and, as the name eloquently suggests, in reasonably spacious surroundings. The room adjoins a hotel kitchen where the food is prepared. The problem involved not only the creation of a quietly luxurious interior, but treatment of it in a manner that would give interest to what was originally a bare rectangular area. By the use of a dark ceiling, with lights kept well below it, the height of the room was minimized; mirrors on the side walls create an illusion of spaciousness, and the shape itself has been broken up by changes in floor level and by curved partitions.

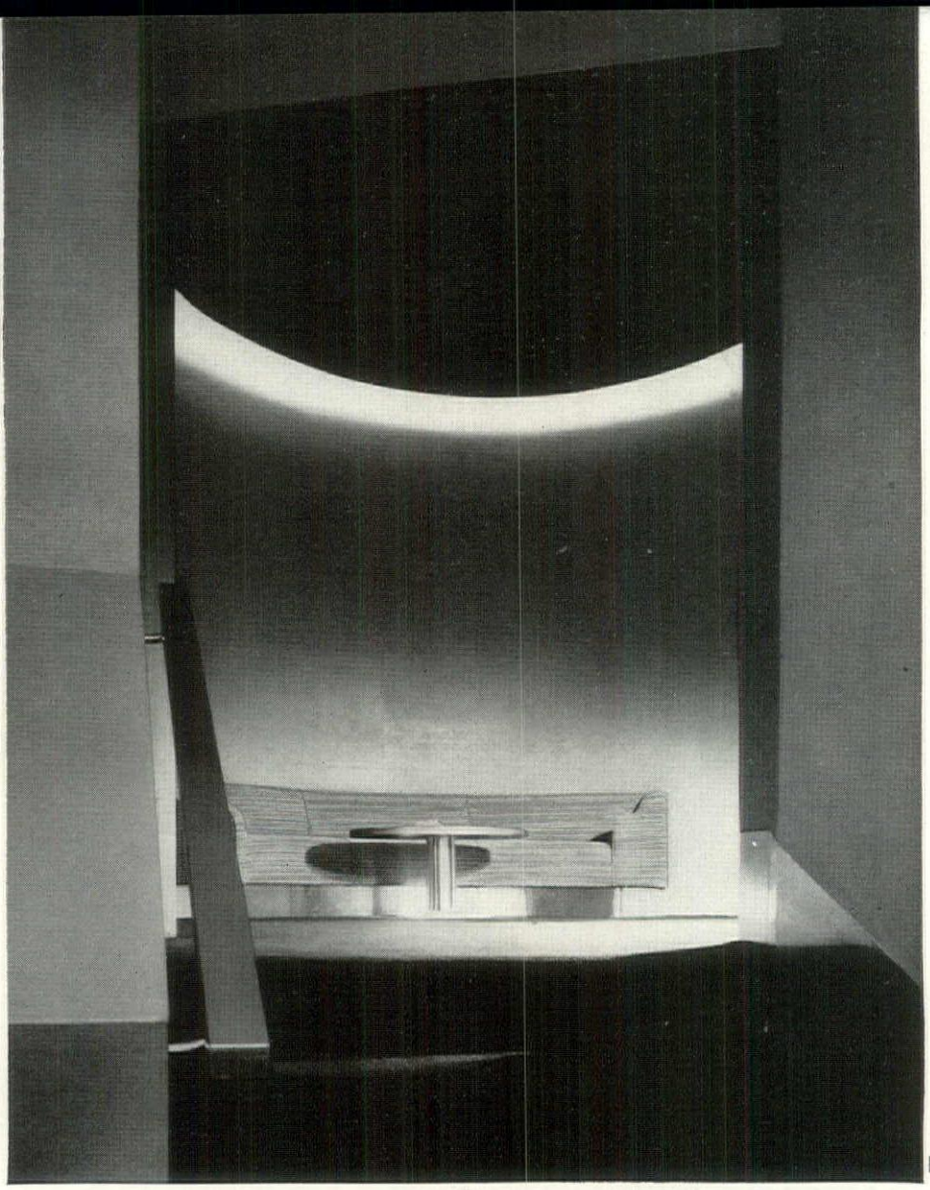


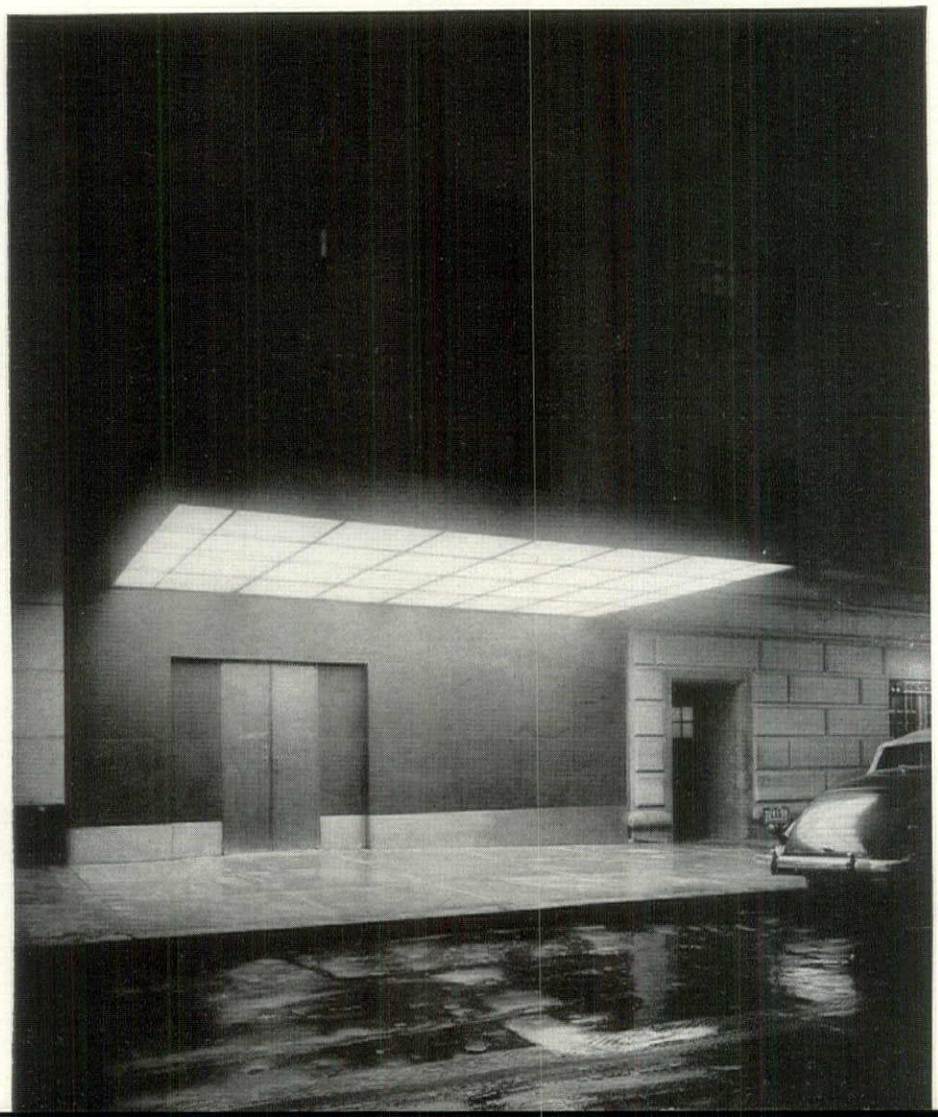

LONGITUDINAL SECTION

# THE ELBOW ROOM

DESIGNED BY
NORMAN BEL GEDDES



FOYER

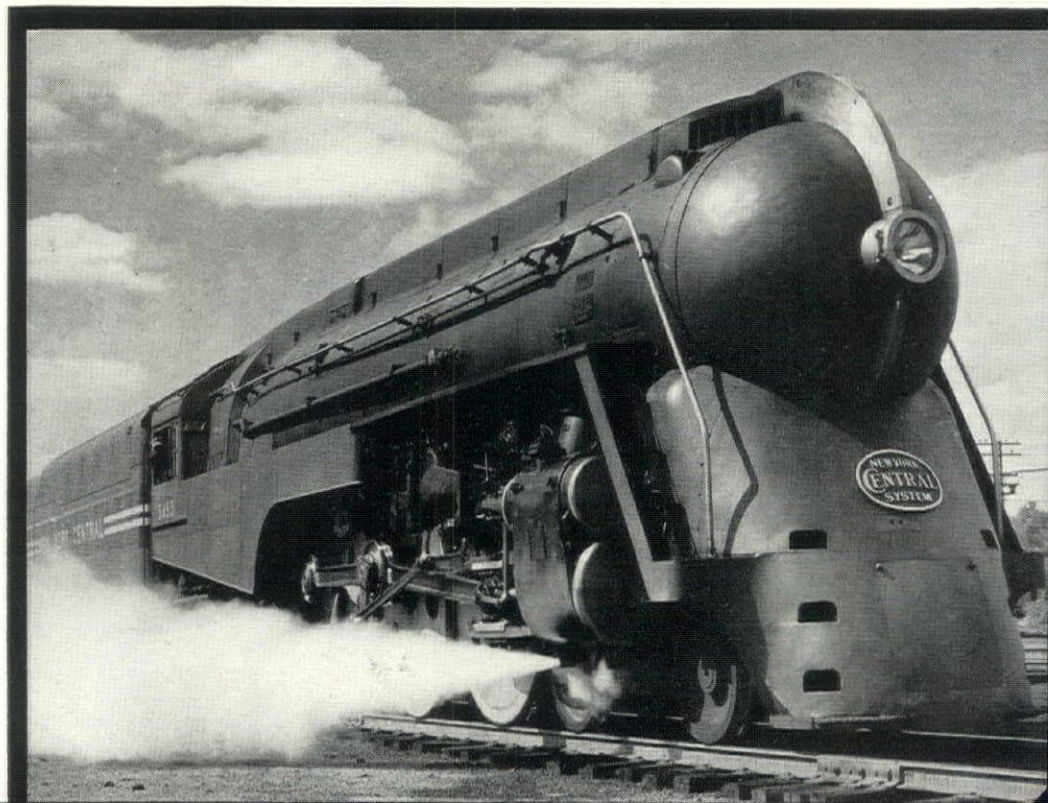


ENTRANCE

**BROADWAY LIMITED PENNSYLVANIA RAILROAD designed by RAYMOND LOEWY**

The simultaneous appearance of new trains on two competing lines not only marks a new step in the redesigning of U. S. passenger train equipment, but provides an unprecedented opportunity to compare two solutions of virtually identical problems. There could hardly be a better basis for comparison than the one provided: both lines compete for the same passengers, provide similar accommodations, charge the same prices, make their run in the same time. The Pullmans on each line are identical, save for variations in color. What differences exist are due to the designers' differing approaches, and the special desires of their clients. Thus in the locomotives, for instance, one emphasizes the smoothness of the streamlined form, the other the dramatic display of driving wheels. In the pages that follow this contrast is even more evident. It should be noted that while Mr. Dreyfuss' work shows one train, that by Mr. Loewy shows representative cars taken from the Pennsylvania Railroad's new fleet of trains. What is important is not that both designers are probably right, but that even in so restricted a problem there is no lack of room for variety, inventiveness, and imagination.

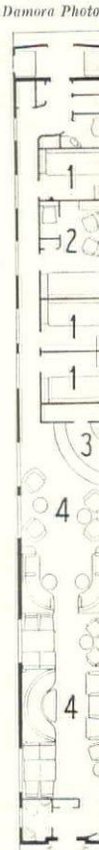
**20th CENTURY LIMITED NEW YORK CENTRAL designed by HENRY DREYFUSS**



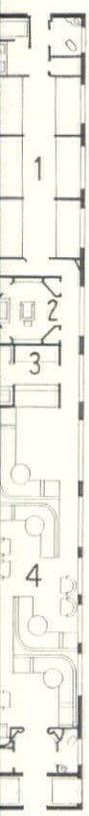
Robert M. Damora Photo

**BAR LOUNGE CAR**

Walls: gray harewood Flexwood. Ceiling: cove, gold leaf; lower deck, rust. Floor covering: mauve taupe carpet. Chairs: rust, and natural colored leather. Sofas: natural colored leather. All trim: bronze opalescent lacquer. Tables: gray Micarta, opalescent finish on pedestals. Venetian blinds: gray paint. Bar counter: mahogany. Bar: redwood burl Flexwood, bronze opalescent trim. Mirror: flesh tinted. Mural paintings: Allen Saalburg.




1. Bedroom 2. Drawing room 3. Bar 4. Club lounge



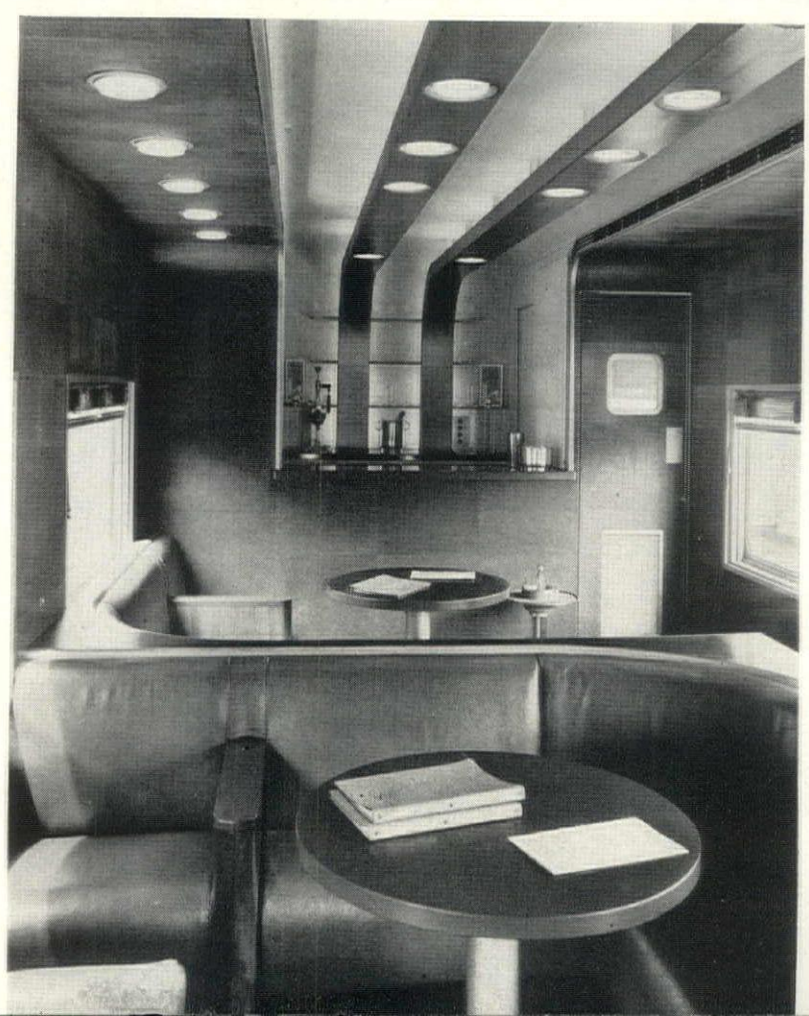

**BAR LOUNGE CAR**

Ceiling: light copper paint. Light troughs: copper finish. Walls and part of ceiling: cork. Floor covering: rust carpet, three shades. Venetian blinds: copper finish. Settees: rust leather, gray Formica arm rests. Chairs: gray leather, legs copper lacquer. Tables: dark gray Formica tops, copper finish on pedestals. Bar counter: dark gray Formica. Bar shelves: Plexiglass.

INNER VESTIBULE

Walls and doors: dark gray Formica. Model case frames: copper lacquer.

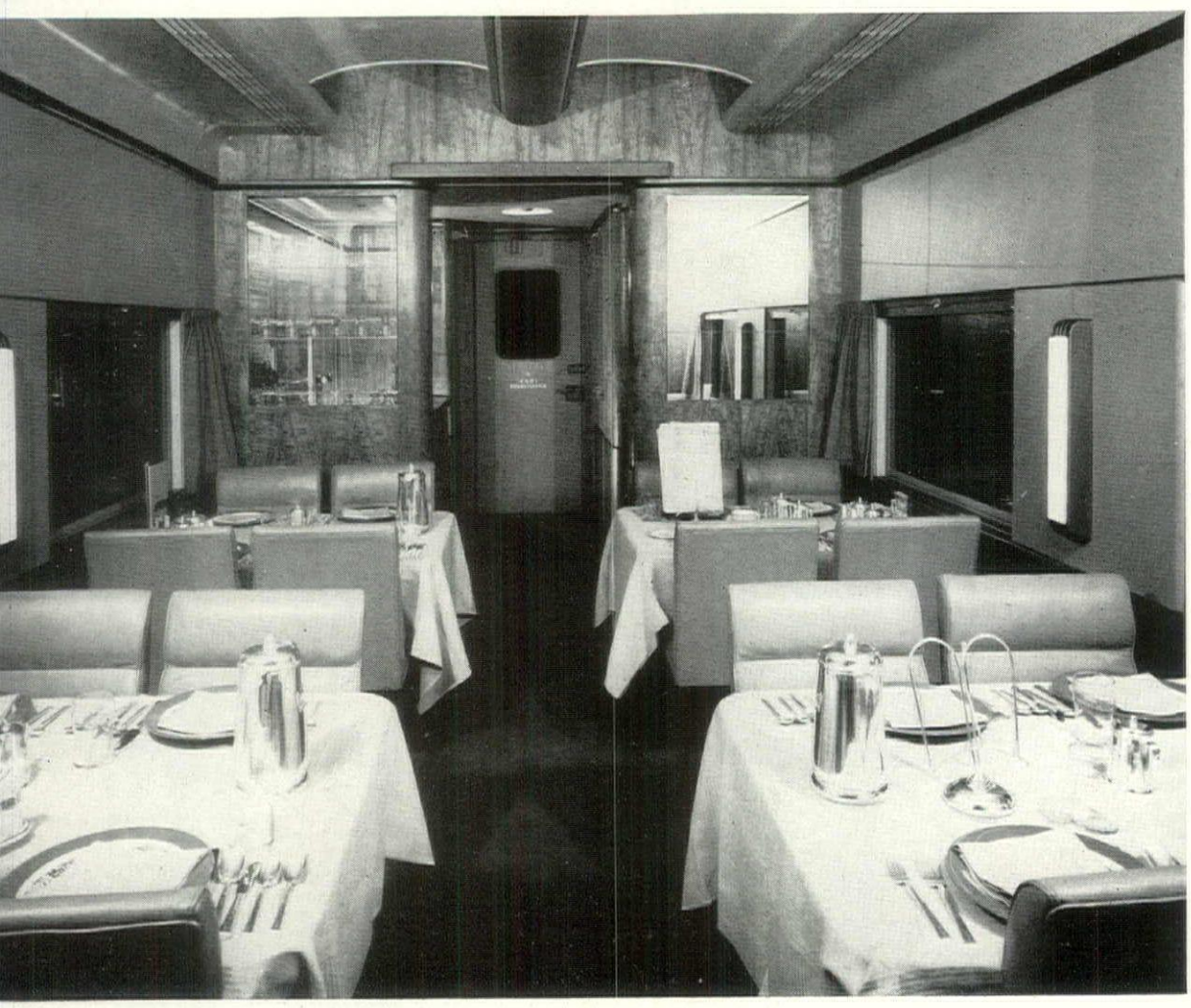
1. Crew's quarters 2. Barber shop 3. Service bar 4. Club lounge



*Drix Duryea Photos*

# THE LIBERTY, PENNSYLVANIA RAILROAD

*Richard T. Dooner Photos*



## DINING CAR

### CENTER SECTION

Ceiling: off-white. Walls: plain quartered walnut. Floor covering: green carpet. Upholstery: ivory leather. Tables: beige Micarta. Table linen: coral sand. Mural: painting on wood by Allen Saalburg. All trim: bronze opalescent lacquer.

### END SECTION

Ceiling: cream. Walls: blue-green paint, figured teak Flexwood. Floor covering: as above. Chairs: blue-green. Tables: as above. Table linen: as above. Trim: as above.

**5.** Kitchen **6.** Pantry **7.** Dining **8.** Bar

**DINING CAR**

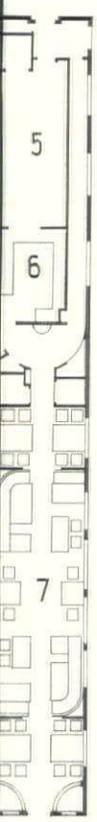
CENTER SECTION

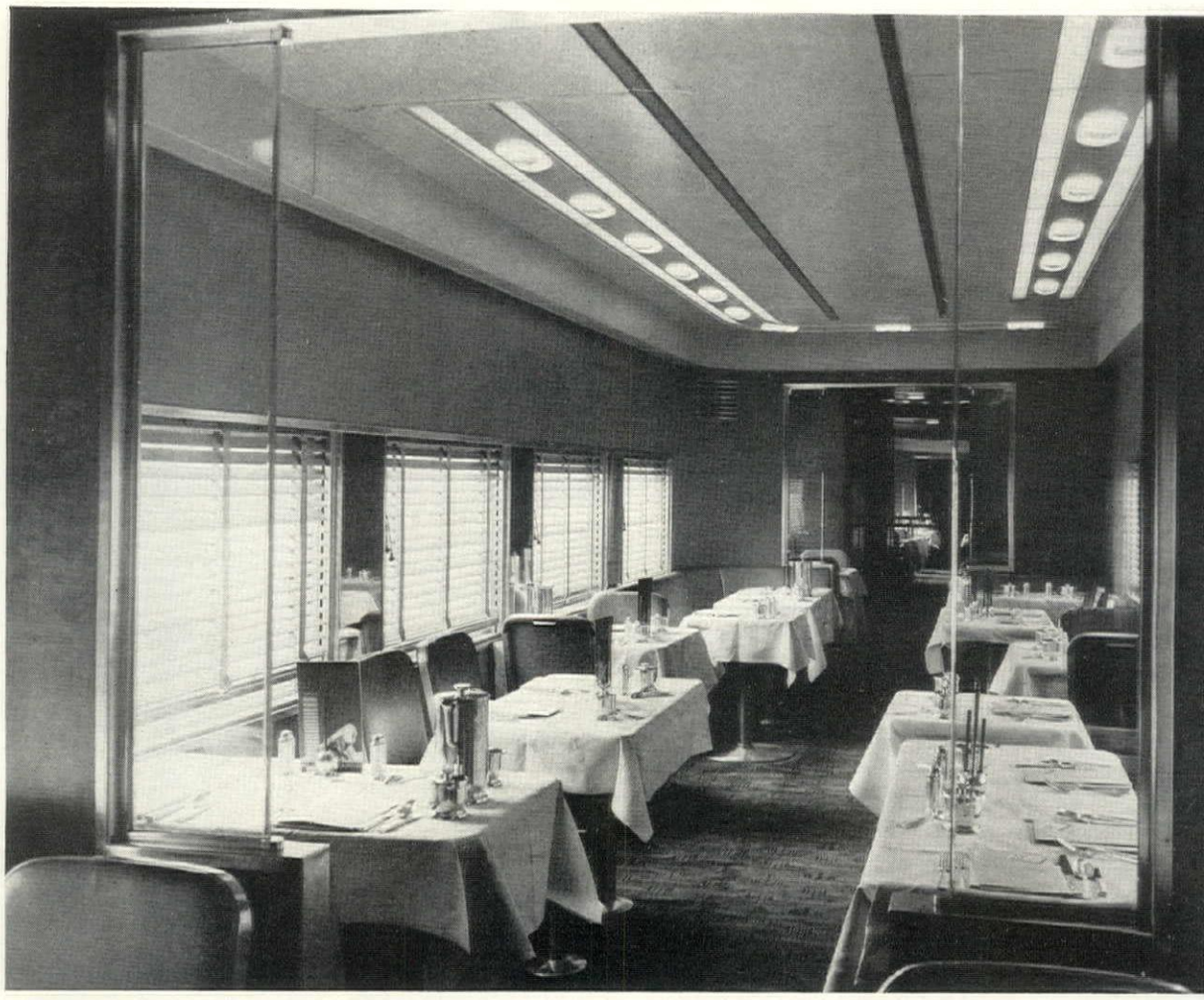
Ceiling: light gray paint. Walls: gray leather. Between windows: mirror. Window frames and sills: satin-finished aluminum. Carpet: rust, three shades. Benches: gray leather. Chairs: rust leather, aluminum frames and legs. Tables: dark gray linoleum, aluminum edges and legs.

END SECTION

Partitions: Plexiglass. Ceiling: rust paint. Walls: walnut Flexwood. Carpet: rust, three shades. Chairs: gray leather, aluminum frames and legs. Tables: as above. Corner cabinets: Flexwood, aluminum edge.

. Kitchen 6. Pantry 7. Dining




*Driz Duryea Photos*

# THE BROADWAY LIMITED, PENNSYLVANIA RAILROAD

## OBSERVATION CA

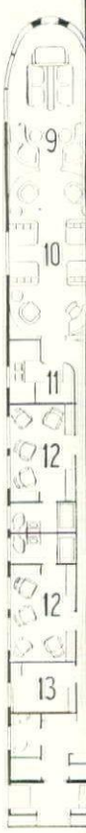
### MAIN LOUNGE

Walls: gold leaf; curved se
tions, light bronze opalescer
lacquer. Ceiling: gold lea
dome, rest in two shades
blue. Floor covering: blue ca
pet. Built-in sofas: gray-blu
leather. Chairs: steel-blu
Bridge tables: dark blue Fo
mica. All trim: bronze opale
cent lacquer. Venetian blind
and drapes: light blue.

### OBSERVATION END

Walls: cork; dado and cornic
flat cut walnut. Ceiling: crean
Floor covering: gray carpe
Upholstery: dark brown leat
er. Center sofa: light brow
Window sills: brown Formic
Window shades: beige. A
trim: bronze opalescent la
quer.

**9.** Observation **10.** Loung
**11.** Kitchen **12.** Drawing roo
**13.** Bedroom




*Photos: Above, Robert M. Damora; below, Richard T. Dooner.*

# 20th CENTURY LIMITED, NEW YORK CENTRAL

## BSERVATION CAR

### AIN LOUNGE

nd panels: photomurals on abric. Columns: gunmetal. enches: blue leather. Magane rack tables: walnut. hairs: pigskin, satin-finished luminum legs. Tables: gray ormica, aluminum pedestal nd base.

### BSERVATION END

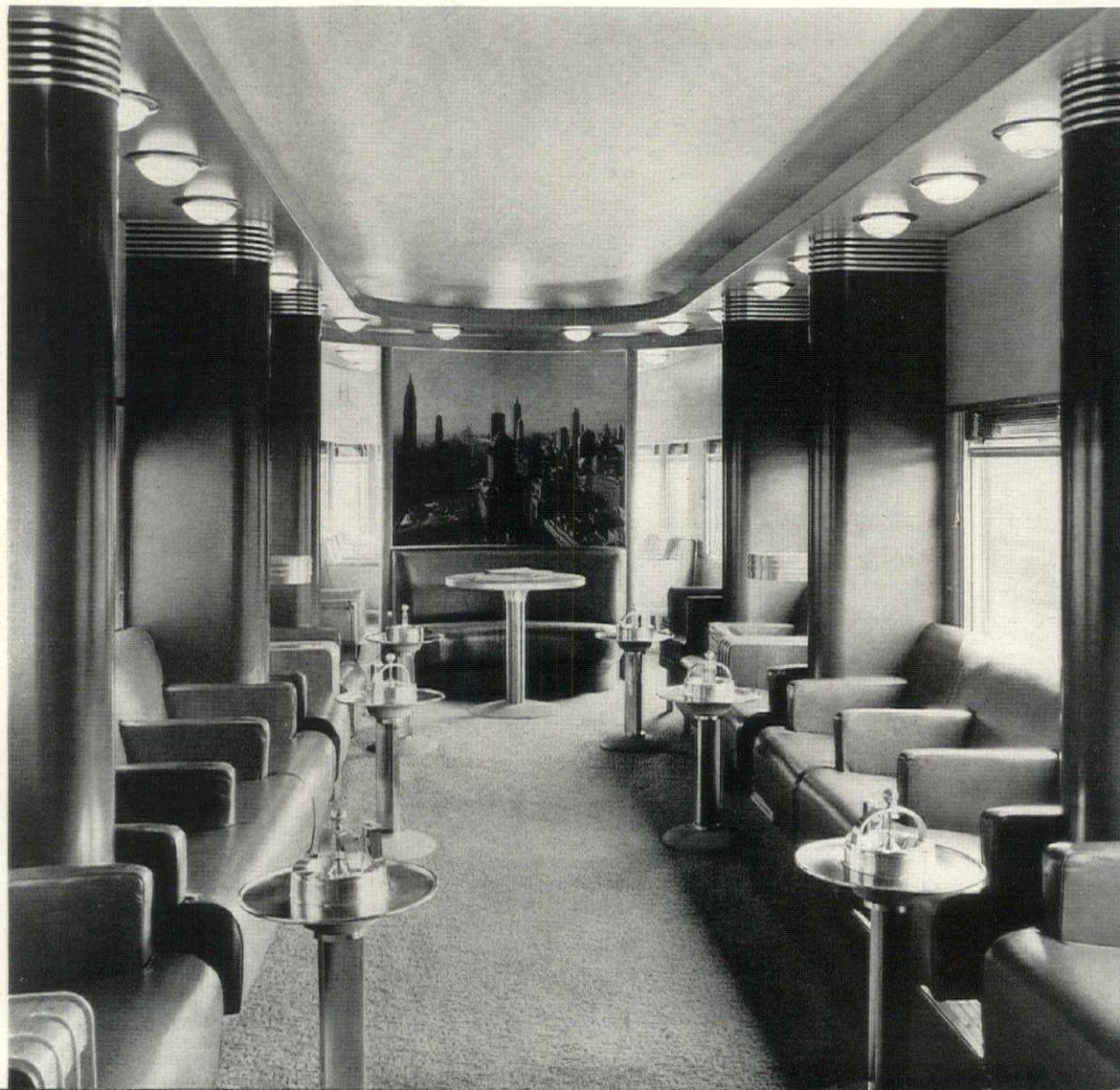
Vainscot: gray leather. enches: gray leather. Chairs: s above.

### AIN LOUNGE AND OBSERATION END

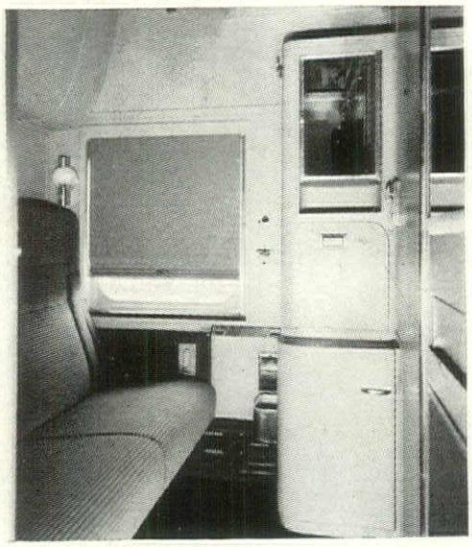
eiling: gray paint. Walls: ray leather. Floor covering: ray Looptuft carpet. Venetian linds: gray paint.

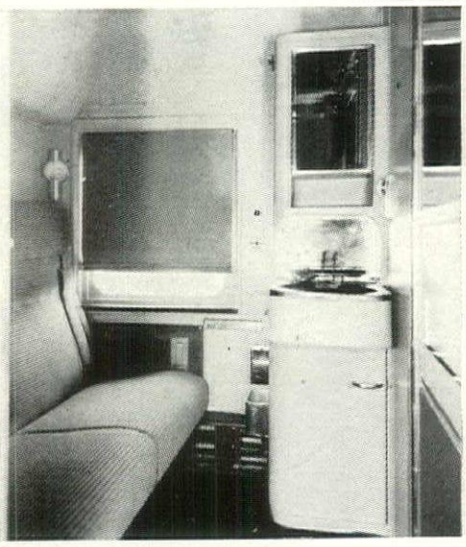
, Observation 9. Lounge 10. De uxe suite

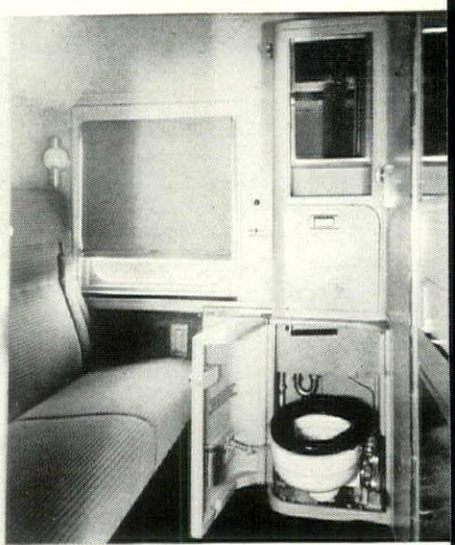

*Drix Duryea*



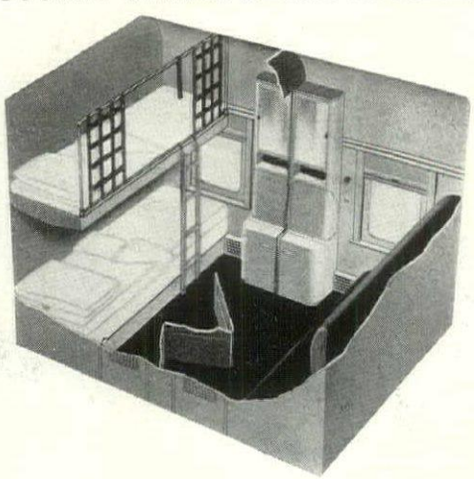
## PULLMAN COMPARTMENTS



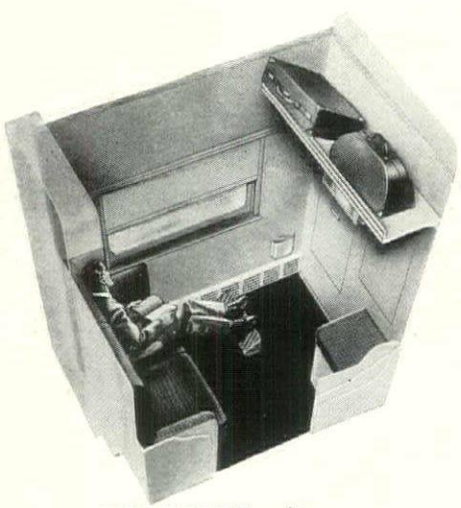




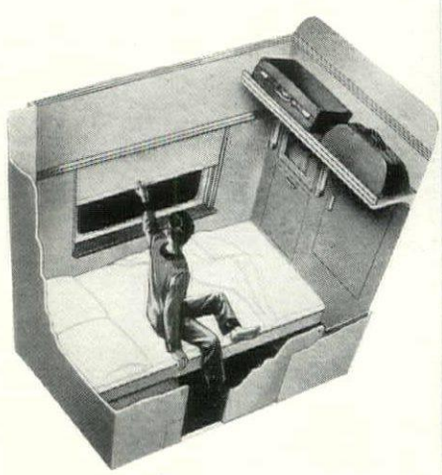
**DOUBLE BEDROOM**—three views of service unit



Six types of rooms are provided on the Pullmans used by the new Pennsylvania and New York Central trains. Two of these are shown above. The double bedroom contains a lavatory and water-closet; a number of these units are separated by folding partitions so that additional space can be obtained if desired. The Roomette is a private room with one bed and complete toilet facilities.



**ROOMETTE**—day



—night

## FINISHES AND EQUIPMENT

### TRAINS—PENNSYLVANIA RAILROAD

FLOORING: U. S. Rubber Products Co. and Manhattan Rubber Co. CARPETS: Charles P. Cochrane Co., A. M. Karagheusian, Bigelow-Sanford Carpet Co. and Olsen Rug Co. PAINTING: Material by E. I. du Pont de Nemours & Co., Inc., and Murphy Paint & Varnish Co. WALL COVERINGS: Flexwood—U. S. Plywood Co.; rawhide—Gilford Leather Co.; cork—Sigfrid Lonegrin. Etched glass panels—Harriton Carved Glass Co. Mirrors—Pittsburgh Plate Glass Co. and Semon Bache & Co. LIGHTING FIXTURES: Luminator, Inc. and Electric Service Supplies Co. FURNITURE: Tabletops by Formica Insulation Co. and Micarta, Westinghouse Electric & Mfg. Co.; remainder—S. Karpen Brothers, J. G. Furniture Co., General Fireproofing Co. and Heywood Wakefield Co. UPHOLSTERY: L. C. Chase, J. H. Thorp, Gilford Leather Co., Cromwell Fabrics, Massachusetts Mohair Co., Sidney Blumenthal and Collins & Aikman. CURTAINS: Pantasote Co., Orinoko Mills, Cheney Bros. and L. C. Chase.

### 20th CENTURY—NEW YORK CENTRAL

FLOOR COVERINGS: Light-weight cork mixture, Tucolith, Tucc Products Corp.; carpets—Bigelow-Sanford Carpet Co. WALL COVERINGS: Leather—Eagle Ottawa Leather Co. Veneer—Flexwood, U. S. Plywood Corp. PAINTING: Interior—Pittsburgh Plate Glass Co. Exterior—E. I. du Pont de Nemours & Co. ELECTRICAL INSTALLATION: Fixtures—Luminator, Inc. and Crouse-Hinds Co Lamp regulators—Safety Car Heating & Lighting Co. WINDOWS Sash—dehydrated, Pittsburgh Plate Glass Co.; frames for kitcher and pantry—Adams & Westlake. FURNITURE: Dining chairs—General Fireproofing Co. Folding chairs—Warren McArthur Corp Fixed seats, settees and dining tables—Pullman-Standard Car. Mfg Co. Dining tables covered with linoleum; leather seat and chair upholstery by Cleveland Tanning Co.

# WESTPORT ROOM FRED HARVEY RESTAURANT

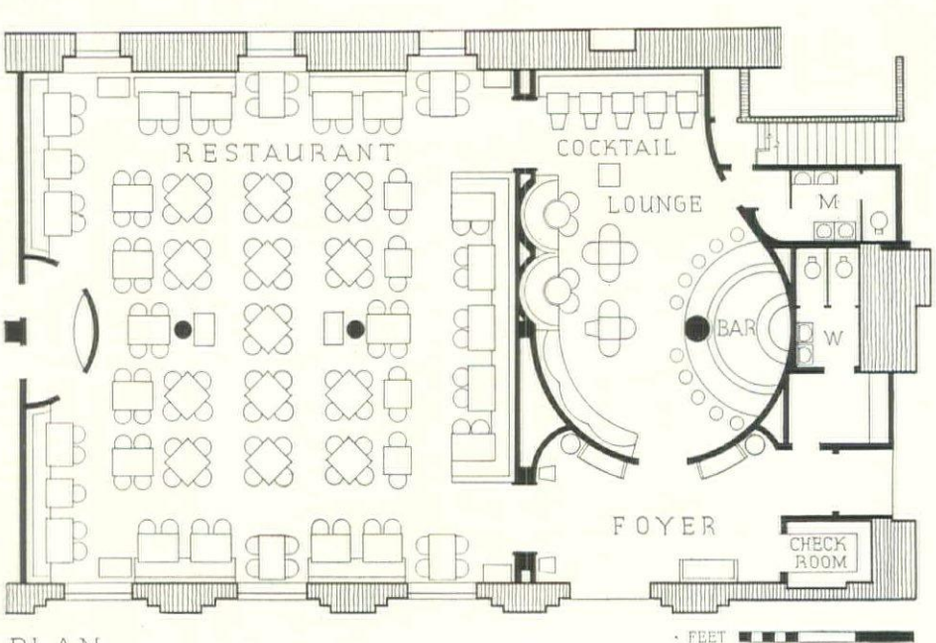
*Hedrich-Blessing Photos*

KANSAS CITY, MISSOURI

HOLABIRD & ROOT, ARCHITECTS

THIS restaurant shows the transformation of a typically depressing railroad station dining room. The space is divided into a large room seating about 140 patrons, a foyer, and an adjoining cocktail room and bar. Murals by Hildreth Meiere are the chief decoration of the main dining room, and depict the early stages in the development of the city; the room is rather quiet in color to avoid any clash with the paintings. Somewhat gayer in treatment is the cocktail lounge, whose amusing plan provides a variety of seating accommodations and makes possible the placing of the wall decorations so that they can be seen from anywhere in the room.

# WESTPORT ROOM, FRED HARVEY RESTAURANT




PLAN

## FINISHES AND EQUIPMENT

STRUCTURE: Structural steel—entire new second floor steel beams and girders. Columns—H, covered with extruded bronze. Floor construction: First—existing; second—concrete. Ceilings—plaster; acoustical in restaurant and cocktail room. GLASS BLOCKS: Entrance to restaurant and cocktail lounge—Owens-Illinois Glass Co. FLOOR COVERINGS: Entire first floor—carpet, Bigelow-Sanford Co. WALL COVERINGS: Main restaurant walls covered with U. S. Gypsum Co.'s aspen Flexwood and murals. Wainscoting and benches finished with Fabrikoid, E. I. du Pont de Nemours. HARDWARE: All material by McKinney Mfg. Co., Russell & Erwin, Payson Mfg. Co. and Schlanger Bros. PAINTING: All paint material by Pratt & Lambert except U. S. Gypsum Co.'s Texolite, water color paint for ceilings. ELECTRICAL INSTALLATION: Special cove lighting—Day-Brite Lighting Co. Switches—Bryant Electric Co. Fixtures—Livers Mfg. Co. Dimmer machine—Ward Leonard. Special panel board—Frank Adams. PLUMBING: All fixtures by Crane Co. AIR CONDITIONING: Existing plant used with new system of ducts.

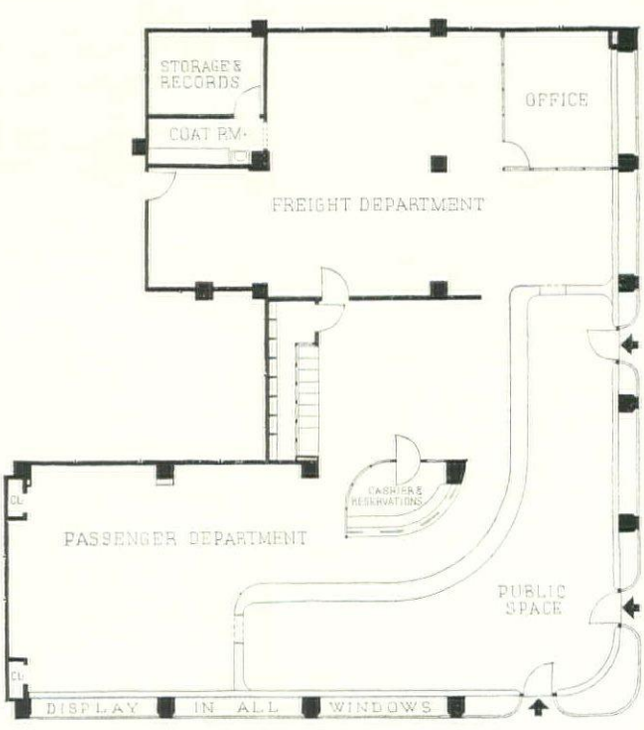
HOLABIRD & ROOT
ARCHITECTS

MURALS BY:
HILDRETH MEIÈRE
ASSISTED BY
DEAN & LYNN FAUSSETT


# TICKET OFFICE, DENVER, COL. BURLINGTON RAILROAD

*Hedrich-Blessing Photos*

As sleek as one of the Burlington's own streamliners, this new ticket office has succeeded to a remarkable degree in suggesting the type of merchandise dealt in. Chiefly responsible are the corrugated metal sections, which are similar to, if not identical with those used on the trains. Generally the use of architecture to suggest something else has disastrous consequences; here, however, the result is impeccable. The use of stainless steel sections is not forced, and the plan is well arranged for circulation and service. Particularly admirable is the use of the lighting design to emphasize the shape of the interior.

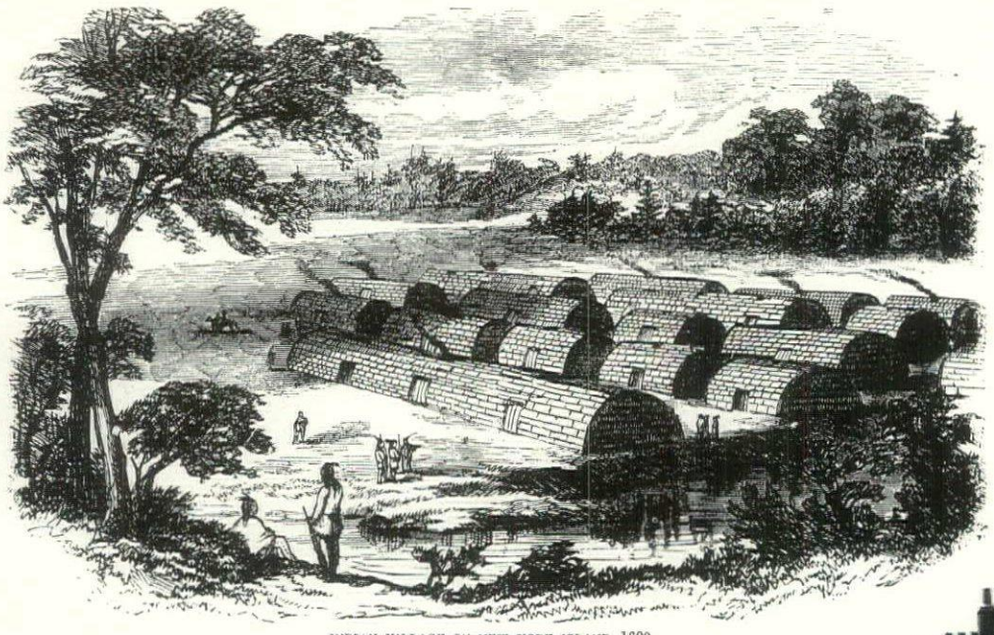



FLOOR PLAN


**FINISHES AND EQUIPMENT**

FLOOR COVERINGS: Rubber tile in public space, American Tile & Rubber Co.; asphalt tile in work space, Thomas Moulding Co. CABINETS: American Fixture Co.; built-in divans, Garland Furniture Co. STAINLESS STEEL: Allegheny metal, Allegheny Steel Co. LIGHTING FIXTURES: Curtis Lighting Co.; electric clocks, General Electric Co. VENETIAN BLINDS: metal, Chicago Venetian Blind Co.

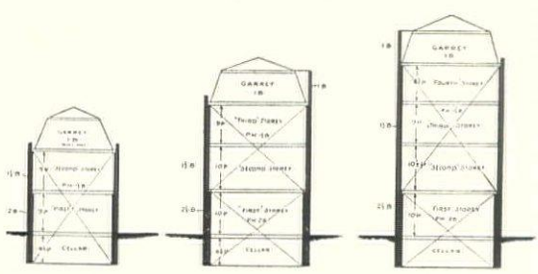
# THE STANDARDIZED HOUS



INDIAN VILLAGE ON NEW YORK ISLAND, 1609.

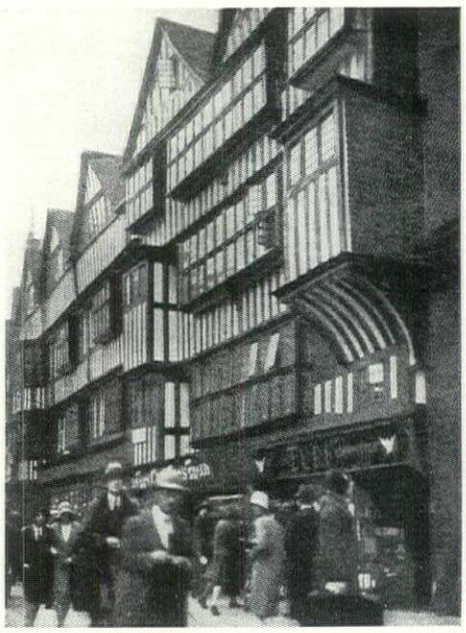
**Building fears standardization. Ever since William Morris first declared, in 1888, that "production by machinery necessarily results in utilitarian ugliness . . . and . . . this is a serious evil and a degradation of human life . . ." the idea has been drummed into us that nothing is worse than repetition. And the barracks called dwellings in industrial towns have been held up as proof. Today, in many types of commercial and industrial buildings, standardization has become an academic question; machine techniques and economic pressure have made it a fact. With this fact has come a realization that standardization works up as well as down, that historically it was a factor in all good architecture, and that in terms of the present it may well represent not only an economic, but also the esthetic solution.**

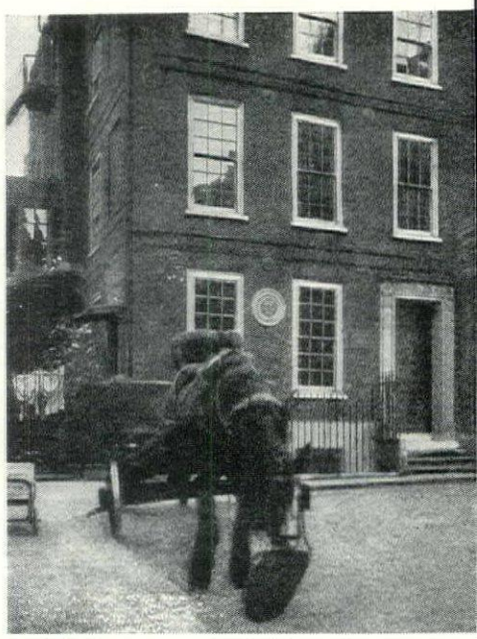
The complaint against the standardized house is no new thing. Modern literature is full of such fulminations against the builder's product of the writer's era, always somehow immensely inferior to the work of preceding generations. The hasty conclusion which might be drawn from this is that houses have always been much alike and that people have always complained about it. This is only half true. The fact is that, while house types have been highly standardized since primitive times, the idea that this is a bad thing is comparatively new. There is little evidence of striving for variety in early building styles. In fact, the very existence of styles belies this, and one of the first English building laws, passed in 1667 for the rebuilding of London after its destruction by fire, indicates a strong desire for the opposite. This was a highly successful attempt to produce uniform street facades by standardization, providing three standards of vertical height, fixing by decree the height and number of stories, window sizes and heights, location and slope of roofs, etc., for the three classes of streets: two-story houses on by-lanes, three-story houses on streets and lanes of note, and four-story houses on high and principal streets. It even required that the larger houses have balconies of certain dimensions. "Houses rose singly, . . but [were] keyed correctly one to another in continuous streets, precaution having been taken that all breast-summers . . . . . should range an equal height house to house. Roofs in the same way were made uniform . . ." (Walter G. Bell: *Great Fires of London.*)



This act provided the basis for the great Georgian style in England and had much influence on Colonial building in America, particularly in Philadelphia, where the Quaker migration coincided with the rebuilding of London, and where Colonial Georgian reached heights untouched in other parts of the Colonies. Elsewhere in America, and particularly in New England, the numerous carpenters' handbooks—standardization in another form—had a similar beneficial effect on Colonial building. These had their origin in the Italian Renaissance and the work of men like Robert Peake (1611), Inigo Jones (1615), Sir Henry Wotton (1624) (author of the famous quotation, "Building hath three CONDITIONS, COMMODITIE, FIRMENESS and DELIGHT"), all of whom traveled

*Photos on pages 188 to 193: Ewing Galloway p. 188, p. 193 (1., 3., 4., 7.) Museum of Modern Art, p. 188, p. 193 (12.). Prints: T. F. Healy p. 188. Otto Bettmann p. 190 and p. 191.*





LONDON BUILDING BEFORE AND AFTER THE GREAT FIRE 1666.

and studied in Italy and returned to England to publish books on architecture or to build in the Italian manner.

The handbooks used in America during the Colonial period, all of English origin, were free adaptations of the work of Jones and his followers, and had further to be adapted to the conditions of building in the Colonies, especially to the principal material at hand—wood—but nevertheless constituted rigid standards which were religiously adhered to. Even today one can find whole villages in New England where most of the houses were obviously built at the same time and out of the same handbook.

**If this Colonial high-point in American domestic architecture coincided with** a period of maximum standardization, it is equally true that the emergence of the idea that a man's home should be his—individualistic—castle marked the beginning of what is now regarded as an architectural retrogression of major proportions. Romantic eclecticism, the architectural equivalent of the ultra-individualism which accompanied the upsurge of the manufacturing class during the latter half of the 19th Century, is the antithesis of standardization. By making a fetish of style, the Romanticists destroyed—if not the substance of style—at least its meaning; and for the first time Architecture's audience, the whole people, were treated to a meaningless hodge podge of all the styles on earth. While this had a questionable effect on their collective architectural education, its effect upon the landscape was terrible.



In place of the pleasantly harmonious villages of Colonial times, where the fundamental style, basic materials, and most important details of every house were repeated in the next, our fathers and grandfathers built rows of houses each as different from its neighbor as possible, borrowing, in their conscious striving for variety, from every style the copybook afforded.

Beside the resulting grab-bag effect which is the heritage we must make a point of departure, the horrors of the jig-saw fretwork and shingled cupola of Hudson River Bracketed pale to insignificance. This, after all, was the work of a few brief years, while the cancer of eclecticism has spread for more than half a century.

Today we are no longer wedded to the individualistic excesses and gingerbread geegaws dear to the Nineties, but we have not yet abandoned the concomitant belief in the sacred right of every man to build a house as different from his

neighbor's as he can. Nor have we given up entirely the ridiculous theory—another 19th Century product—that it is better to build a hodge-podge of houses inappropriately dressed in the styles of another day and place than to build honestly and well of the materials and by the methods of our own time.

The deleterious results of this twin paradox have been somewhat lessened by the general post-War shift to Colonial, a domestic style still more or less appropriate to contemporary building technique and living habits. Another sign of health, less often recognized, has been the development of standard "Builder's houses," particularly the American Bungalow, and especially the typical lake-shore cottage, which show a distinct tendency toward the development of a genuine style: an honest, consistent expression of a way of living and building. And finally, of course, there is Modern, with its great professions of structural honesty and functionalism, its less fortunate tendency to interpret these exclusively in terms of stucco and flat roofs, and with it the increasing number of good modern houses which put the "modern" in lower case.

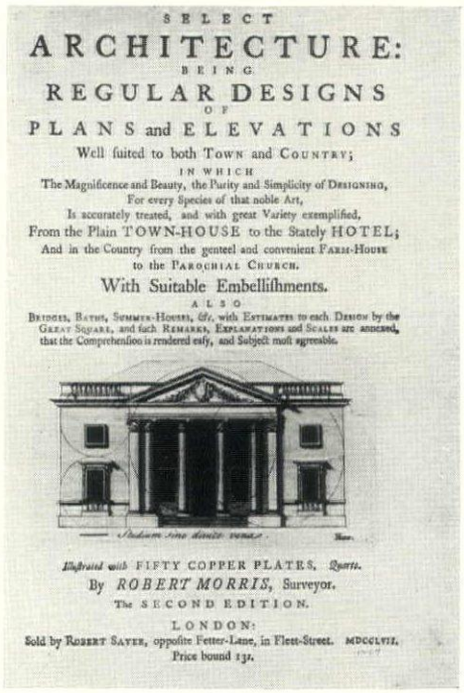
One of the things which is needed to combine these several healthy currents into the stream of an honest and genuine domestic style is recognition of the fact that architecturally the words Standardization and Style are in many ways synonymous. It is just as necessary for the Modernists to stop trying to earn their label by being as different as possible as for the Traditionalists to realize that it is more important to reproduce the spirit of Colonial house design than its substance. Each has much to learn from the practical builder. One of the identifying characteristics of eclecticism is that it makes a false distinction between Architecture and "just building," and this is a contradiction which the Modernists as well as the Traditionalists have yet to resolve. The healthy discipline of the present emphasis on lowered cost, and the standardization on which it must be based, should play an important part in creating a real modern style.

*Bettmann*

**There are more reasons for houses to be alike than** there are for them to be different. Historically, the principal ones are three:

1. In each era, the fundamental structure of most houses has been much the same, controlling their broader outlines and limiting the dimensions of their parts.
2. The unit housed, usually the family, has been more alike than different—as to size, composition and general living habits.
3. The component parts have been to varying degrees *manufactured*, and, especially when fabricated in advance of construction, were most conveniently made alike.

Modern conditions, while they have somewhat lessened the strength of the first of these reasons, have left the second unchanged, strengthened the third, and added a fourth: the universal building plot of nearly identical shape and size. Still another reason, the full importance of which is seldom appreciated, is the fact that once a satisfactory house-form in terms of a given time and place has been evolved, it is difficult to depart from the model without sacrificing some of its advantages. Which is, of course, another way of saying the above: so long



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## CARPENTER'S HANDBOOKS

Colonial carpenters religiously adhered to the rules laid down in the various architectural handbooks, mostly based on the work of Inigo Jones, interpreting the designs in wood or brick or stone depending on which was most easily available, thus producing, "without benefit of architect," largely standardized houses which nevertheless mark the high-point of our domestic architecture. Despite their wide usage, it was not until after the Revolution that the first original hand book was produced in America, Asher Benjamin's **Country Builder's Assistant.** 1797.

Below is a list of the better known and most used English handbooks.

Halfpenny, William. **Practical Architecture,** or a sure Guide to the true Working according to the Rules of that Science, 1724. **Useful Architecture,** 1755 includes 25 designs "with full and clear Instructions, in every Particular, for erecting Parsonage-Houses, Farm Houses and Inns."

Kent, William. **The Architecture of Inigo Jones** 1727

Gibbs, James. **Book of Architecture.** 1728. Gibbs was Christopher Wren's protege and one of the most able architects who succeeded him. His works found in libraries of Jefferson and Buckland.

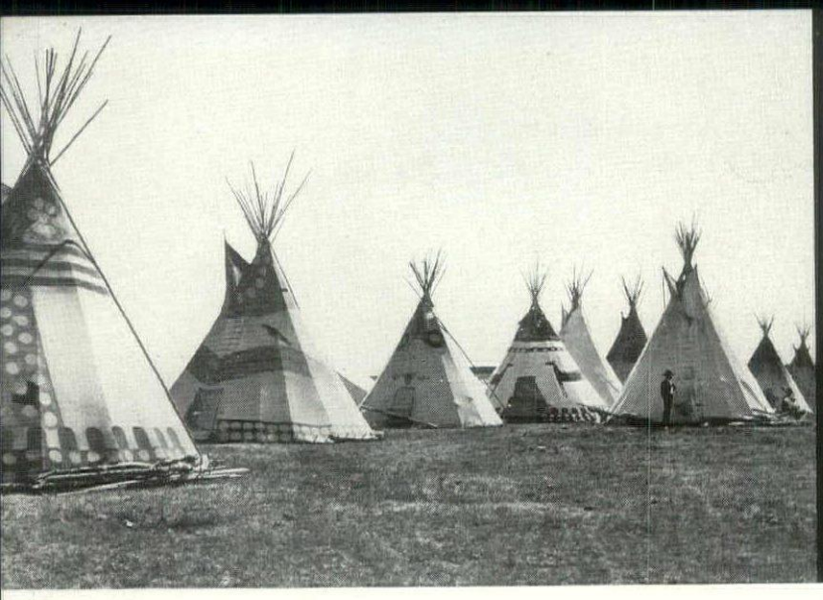
Langley, Batty and Thomas. Their works the most popular and widely used in England from 1729-1767, were deplored by contemporary architects and eclectics, and treasured by carpenters and builders. The **Builder's Jewel** had its first American edition 1800.

Swan, Abraham. **British Architect.** 1745. The first handbook to be republished in America. Its publication, 1775, was sponsored by 73 Philadelphia carpenters and builders and several plasterers, tanners, merchants, painters and gentlemen.

Morris, Robert. **Select Architecture.** 1755. Included in Jefferson's library, contains a plate of an octagonal building after which Jefferson undoubtedly patterned Monticello.

Ware, Isaac. **Complete Body of Architecture.** 1756. The most comprehensive of eighteenth century handbooks.

Pain, William. **British Palladio** 1788. **Practical Builder** 1793. These and five other volumes by Pain had, next to Batty Langley's works, the greatest sale in England. Four of them were reprinted in America in the 1790's.



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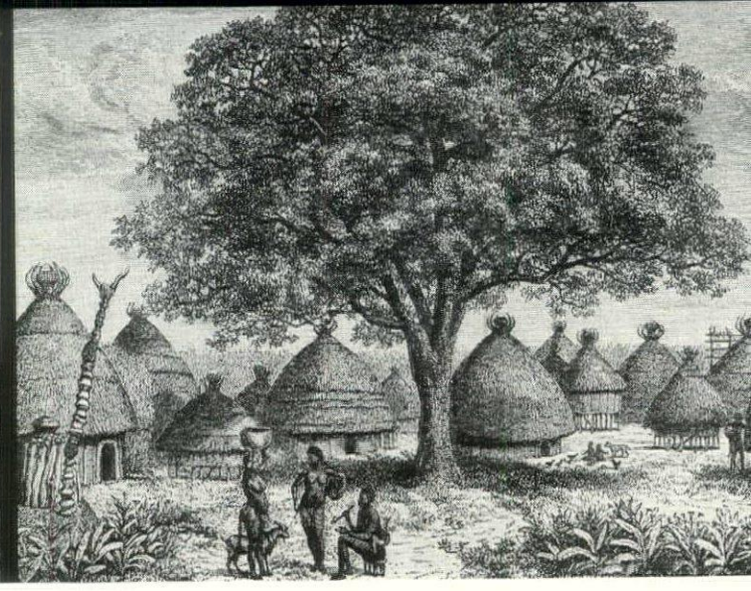

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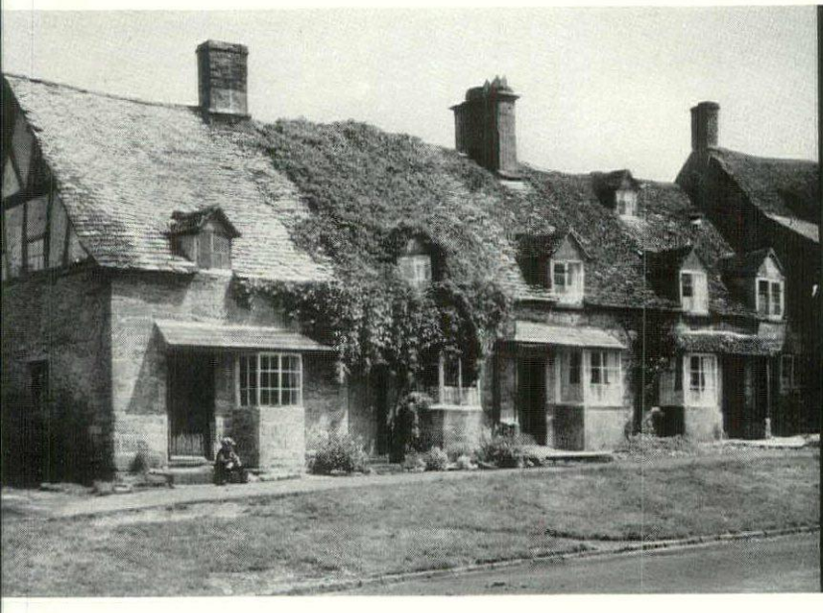

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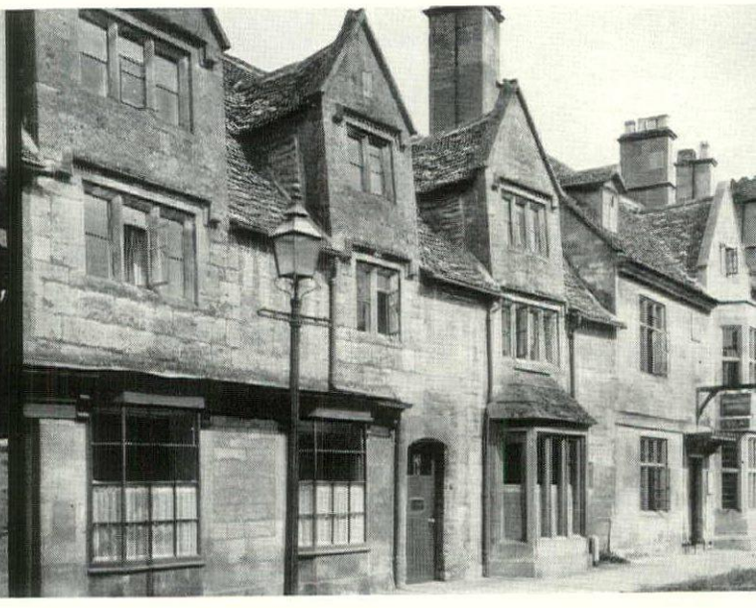

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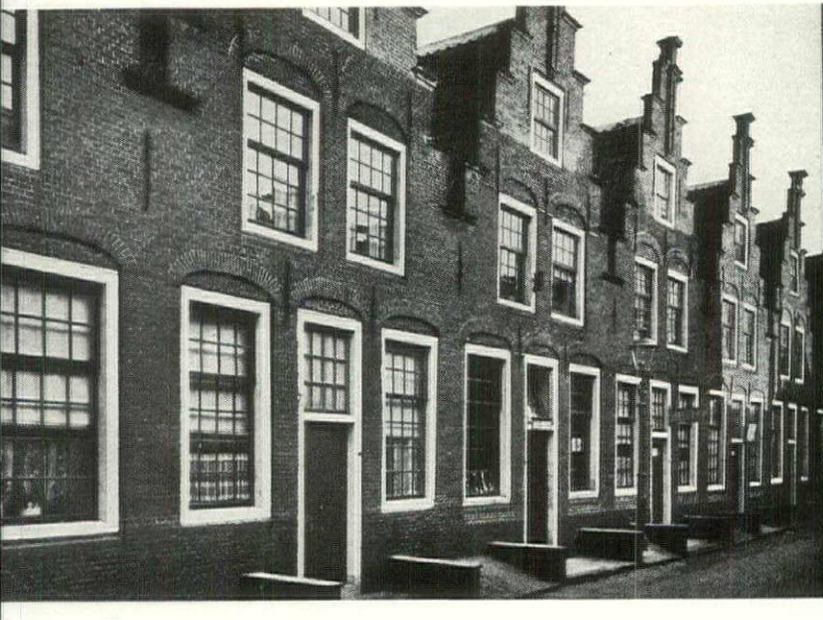

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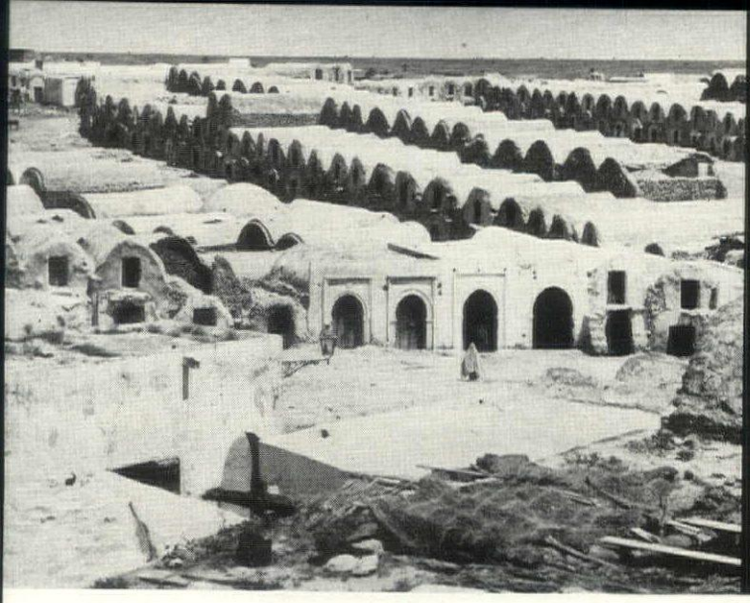
1. American Indian village. 2. East African native dwellings. 3. Mud houses in the Tunisian Sahara. 4. Village in New Guinea. All four illustrate the complete regimentation imposed by primitive materials and construction methods. 5. and 6, typical medieval English village streets, much of whose picturesque charm is due to the repetition of standard design elements. 7. Old houses, London. Laws determined the street width, economics the overhanging stories, and structural methods the



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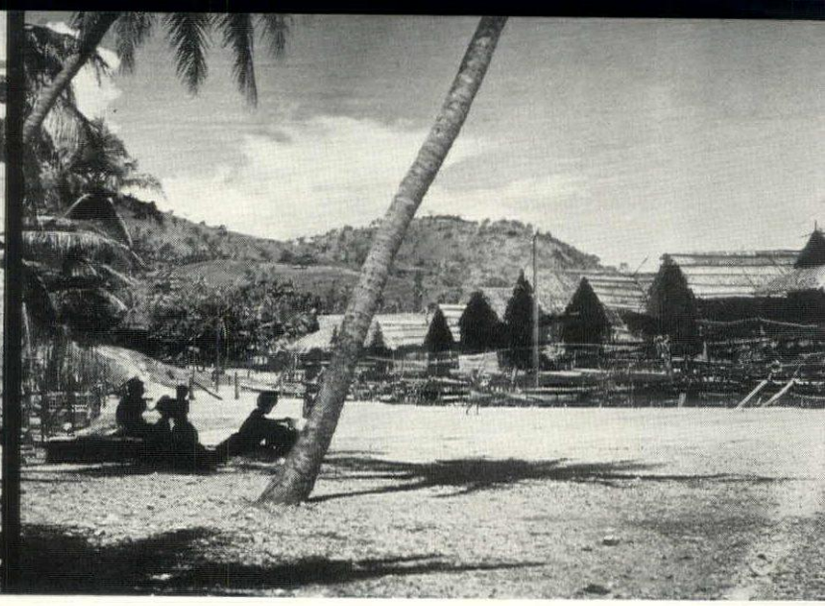

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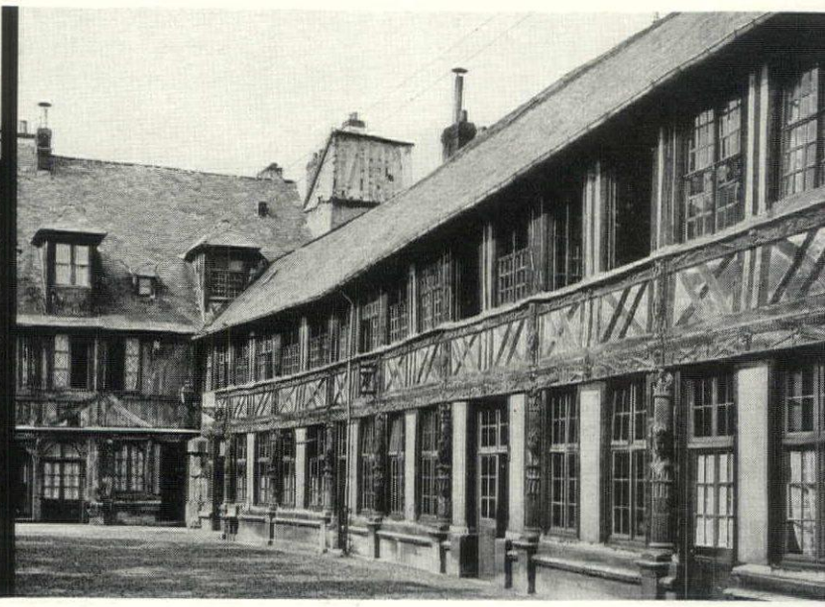

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characteristic timber and stucco treatment. **8.** 16th century building in Rouen: variation within the limits of accepted standards. **9.** Row houses in Haarlem. **10.** Row houses in London. **11.** Row houses in New York. All illustrate the architectural effectiveness of repetition. **12.** Twentieth century standards, with light and air entering as new factors.

## Standardized FORMS

The form of primitive dwellings was the result of simple needs and the low level of technical development of their builders, but even this type of house soon became highly standardized. Indeed, so tradition-bound did the question of house-form tend to become, that in many cases crude types persisted long after advances in the crafts might have improved the original model.

The first form of timber shelter was the **conical hut.** Of this the tepee of the Penobscot Indian is a good illustration of standardized shape. These are 10 ft. high and 10 ft. in diameter, with a framework consisting of two sets of poles, one inside and one out. Inner poles are nine in number and about 4 in. in diameter and 12 ft. in length, with four of these tied together at the top. Only openings are the entrance (rectangular), and the smoke-hole near the peak.

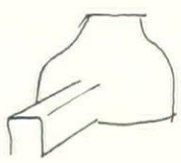
Other examples of conical form are Laplanders' huts of today, Eskimo summer huts, dwellings of charcoal burners in England.

The conical form was the dwelling of the nomad, easily and quickly erected and taken down. As life became more sedentary, a more spacious shape was developed: the conical roof on circular vertical walls. The Ba Venda huts (Africa) are an example of the standardization of this form.

Neolithic land villages followed the same circular pattern. Huts were small—from 5 to 7 ft. in diameter, and were built over a pit to increase head room. Materials: stone, clay, or wood. Narrow door, no smoke flue, no fireplace, small windows if any.

Another variant of this circular form was the **mound dwelling.** This was the form employed by the Mandan Indian tribes along the Missouri and still used by the Eskimo. The Eskimo dwellings are made of stone, turf, and sometimes of ice and snow blocks, accommodate a single family, and are entered by a low tunnel.

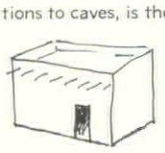
The Mandan hut, on the other hand, was a communal one, housing five or six families, with the tunnel entrance sufficiently high to walk erect. Seventy or 80 such huts, each 40 ft. in diameter, made up the typical Mandan village. These were built with a framework consisting of twelve upright wood posts with crotched ends connected by stringers, and covered with willow matting, prairie grass, and clay and gravel. A four-foot opening was provided in the roof for smoke from the central fire, and the interior divided into pie-shaped rooms separated by skins hung from the rafters.



The rectangular **tent form,** a more advanced building type, was developed somewhat later and much used in Medieval England. The rectangular roof supported on vertical walls was next developed and the fundamental form of the **gable house** evolved, the standard form for most cold-climate dwellings.

A primitive variant of this type is the Telok Djulo, an Ot-Danum "kampong," in Borneo. Here a cross section through the house takes the form of a pentagon, with sidewalls sloping in. Such huts are thatched on the inside, frame exposed on the outside.

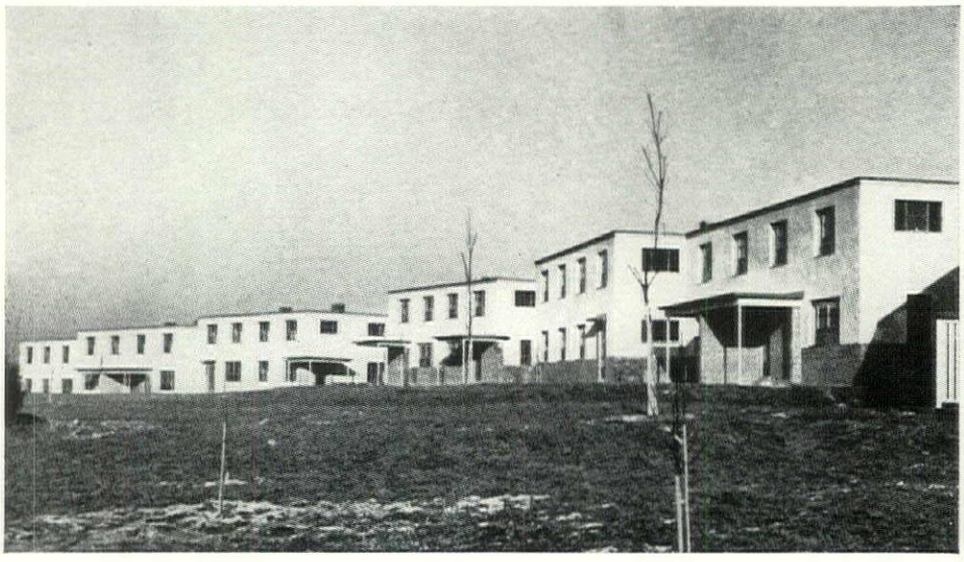
The **box form** house first evolved from additions to caves, is the standard form of cliff dwelling, much used in warm climates. It was most highly standardized by the Egyptians, in the form of a simple flatroofed dwelling substantially the same today as when first evolved.



as the problem remains substantially the same, its best solution will show but slight variations. This is important because of the tendency to overemphasize the standardizing effect of similar construction methods and identical details; actually these might produce quite different houses except for the fact that each family requires—or at any rate can afford—no more than certain minimum accommodations. A row of six-room houses, each consisting of a living room, dining room, kitchen, three bedrooms and a bath are likely to be pretty much alike however they are built, especially if each must fit a lot a trifle too small for so much space.

Thus standardization can be justified from the design point-of-view and as a matter of practical necessity without mentioning its greatest advantage: Economy. It is to this aspect of the question, however, that it owes its tremendous present-day significance. Not only is the need for low-cost housing greater than ever before in our history, and the need for productive employment a pressing national problem, it is also increasingly clear that the means for satisfying these needs lie close at hand. Modern machinery and manufacturing technique stand ready to resolve this equation of production and consumption as they have so many others.

One of the things which has hampered industry in its search for the low-cost, factory-fabricated house is the theory that this is a field in which its technique of standardization cannot be applied. Architects, accustomed to thinking of housing in terms of a custom-tailored house for the upper-income brackets, have helped to foster the illusion that people cannot be sold a standard house, that if they could the result would be calamitous. Nothing is further from the truth. Mass housing has always been standardized. People have been buying standardized houses for as long as houses have been built for sale, and even in the upper brackets standardization's effect upon design has been more good than bad. What is needed is standardization all along the line, from house parts to complete houses. For industry to drop the notion that it must serve the largely imaginary caprice of the buying public may do much to make the factory-fabricated house a reality.

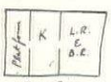


**A row of identical boxes is, of course, monotonous. At the same time, it is** equally true that efforts to force variety by alternating features such as porches, entrance doors, wall finishes, etc., may prove just as deadly; certainly the major sin is to mix several of the current imitations of the various styles. In the row house, both traditional and modern architects have made

## Standardized PLANS

Plan reflects, more than any other factor, the manner of living. Primitive one room huts are clearly differentiated from the communal long house or malokas by their plan which expresses the individualistic rather than communal manner of life. Custom and tradition made these plans standard among different tribes and peoples. In primitive societies, plan was—of course at its simplest; while the form and decoration of early huts varied from locality to locality, the same first plan was universal, the **circle.**

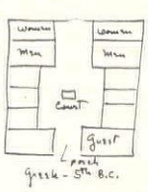
Bemis, in Vol. I. of **The Evolving House,** gives many examples of the circular plan from early times, and their modern counterparts in Africa, Lapland, Alaska, and even England. Not until the tent form was evolved did building make its first big advance in the **rectangular** plan. Early lake dwellings are a good standard example.

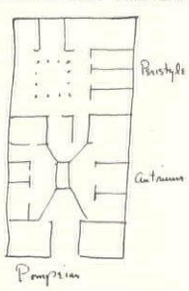



In **Egypt,** the typical upper-class house of about 4,000 B. C. consisted of a small court with several cubicles surrounding it and an external staircase leading to the roof, where people ate and slept, the enclosed portions being used merely for storage and noon-day siestas.

The simplest houses consisted of a shelter open on one side. To this there might be added a portico, a court opposite the entrance, a common room on one side, two storerooms on the other, and a stairway to the roof.

The plan thus evolved has been used with little variation in all tropical climates up to the present day. Greek and Roman builders used substantially

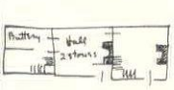



this arrangement for their houses, it is repeated again in modern Italy and Spain, and appears again in America in Florida and California.

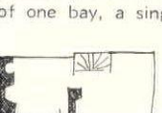
The **English Manor House** was first evolved by the Saxons before the withdrawal of the Romans in 420 A. D. This plan began with a central Hall, or large two-storied room, later divided by posts into a central nave and two aisles in order to provide support for the roof.

By the eleventh and twelfth centuries, the typical plan had evolved into one of three units: the hall, solar, and kitchen or store rooms. This was the typical medieval plan. A hearth in the center of the hall was standard until the fifteenth century when fireplaces were invented and the hearth moved to the side wall.



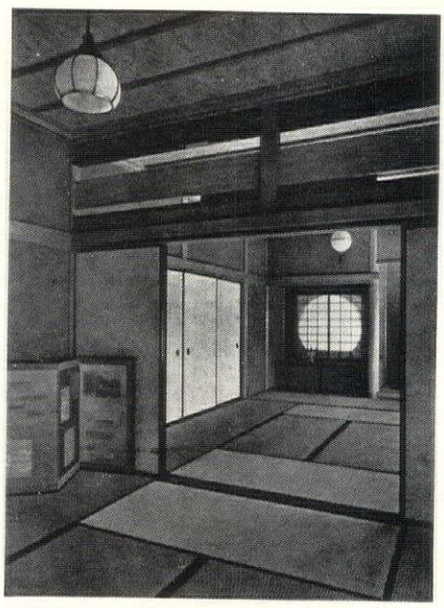
For the next 200 years, this plan in general persisted, but became more complex as rooms were tacked on to other rooms to serve the purposes of a more refined and complex life, until at the opening of the Renaissance there were few houses, halls or castles alike.

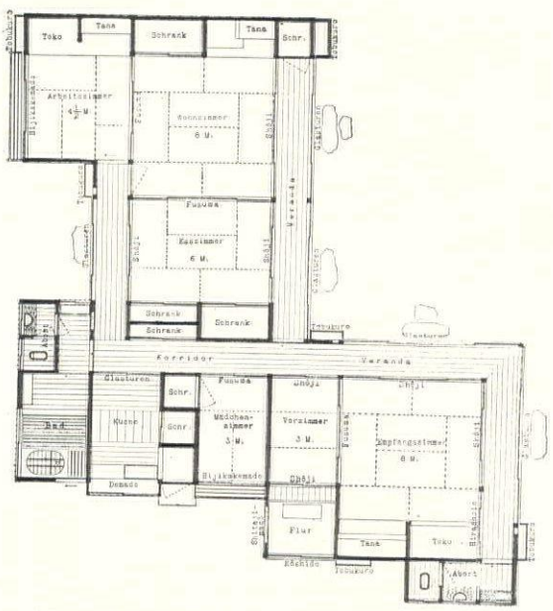
However, for the lower classes, the small cottage of one bay, a single rectangular room, has persisted for hundreds of years. In its second stage, the two-room house leads to the small house and row houses of the tenantry of early times and also of today.



With extensions added on either side, each of two stories, we get the standard plan of most English cottages. Two stairs are necessary because the central part extends to the roof. This plan is in essence the same as the great hall plan of the manor house. It is repeated in rural Norwegian and German houses.

The Medieval English cottage is the direct forerunner of the early American Colonial houses in a virtue of repetition, the first by obscuring the distinction between the separate houses in a group and making several count as one better-proportioned unit, the second by maintaining the distinction and setting up a sort of rhythmic repetition of the units, as in repetitive ornament. Each of these devices requires the standardized unit, produces results demonstrably superior to forced variation.



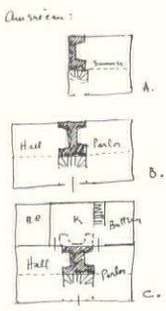



JAPANESE HOUSE: MATS FOR MODULES ARE REFLECTED IN STANDARD PLANS, STANDARD STRUCTURES.
*Das Japanische Wohnhaus*

Properly, variety should result *despite* attempts at standardization and through the operation of natural forces—notably: natural variations in the building site, difference in family size and requirements, proper orientation, and changes in building technique as time goes on; while standardization of details such as windows, doorways, materials, etc., guarantees sufficient harmony. On a country-wide scale, variety in house-types should be the product of differing social and climatic conditions.

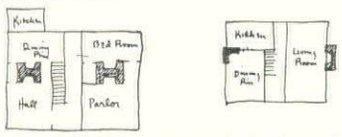
This was the formula on which the beauty of the Colonial village was based; here changes resulted in spite of efforts to avoid them, not because they were thought a virtue. Nor is the charming variety of old-world cities the result of conscious effort. Rather it is the product of improvements—sometimes gradual, sometimes revolutionary—in the manner of building and living. The fruit of long-established civilization, a fruit which must be earned, cannot be stolen. The true standard is not a fixed, immutable thing. Five thousand Ford sedans exactly alike are produced daily, yet one seldom sees two identical cars alongside one another on the street. Instead, one finds a 1934 Ford, a '33 Plymouth, a new Chevrolet, and occasionally an ancient Packard lined up together at the traffic light. Similarly, methods of building change, are constantly improved. For every change there must be an innovator who partially or wholly disregards the standard in an effort to find a better way of doing things. Many such attempts are failures. A few succeed and become in turn standards which replace and render obsolete older methods. The effort to standardize itself inspires such changes; anyone who had made any attempt at standardization will appreciate the truth of this. The fact is that it is quite impossible to disregard opportunities for improvement which suggest themselves once the standard is worked out and applied. The ideal standard is one to which the majority adheres strictly at any given time, but which is constantly being modified. Houses standardized according to this formula will produce, not monotony, but meaningful variety.

## PLANS *continued*

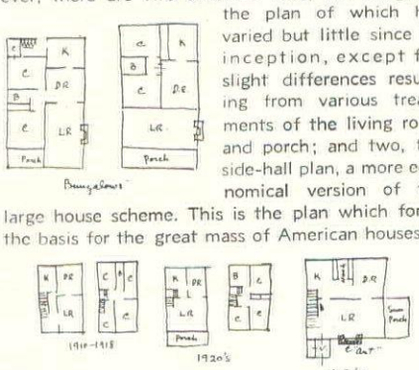


New England. The artisans who emigrated to the new world followed the principles of building as practiced in the old country, adapting them gradually to new conditions. The one-room, story-and-a-half New England cottage followed in essence its English prototype, except that the two-story hall form was seldom used. To this a second room was added on the other side of the chimney and finally, a lean-to containing the buttery, kitchen and a bed-chamber attached at the rear.

From this it was a rather difficult step to the center hall plan typical of Georgian Colonial houses; a step which was made in two stages, at first in which chimneys were provided in the middle of each on either side of the hallway, later with chimneys placed at the ends.



This is the basic plan employed for larger houses up to the present time. For the smaller house, however, there are two schemes. One, the bungalow the plan of which has varied but little since its inception, except for slight differences resulting from various treatments of the living room and porch; and two, the side-hall plan, a more economical version of the large house scheme. This is the plan which forms the basis for the great mass of American houses of



two stories; and has gone through various stages, notably the omission of the partition between hall and living room, but is still used more than any other today.

Walking down a street of such standardized houses, one would encounter more real variety than on the typical upper-class residential street of today, with all its strivings for "difference." The first thing one would notice would be that houses on the south side of such a street were quite different from those on the north; even the average depth of lawn on one side of the street would differ from the other, since one row might well have its gardens in front and one in back, to achieve proper orientation. Secondly, one's eye would be attracted by the pattern introduced by intelligent site-planning: instead of a row of houses—however different—toeing an imaginary mark labeled (but only on the plat) "building line," the houses, or groups of houses, would be set at varying distances from the curb in order to achieve side-light. And thirdly, one would notice that each family on the street had chosen a standard model exactly fitted to its needs: the Joneses, for instance, one with a downstairs bedroom for an aging parent; the Smiths, a four-bedroom type with an extra bath for their five children; the Browns, a smaller house designed for the childless couple. Certainly the variety introduced by such real needs would be infinitely more satisfying—to resident and observer alike—than that forced by whimsy on an underlying monotony, but the possibilities for change would not end with this. Somewhere on the street, or on the next, one would encounter the new 1950 models, not merely different, but discernibly better than those of 1945, not to mention those scattered here and there, left over from 1940—or 1920 for that matter. Thus the pattern of the variations would tell a story—as architecture should: the always interesting tale of people and their needs and their changing ways of satisfying them.

**Most schemes for Building's betterment, however sound, are hard to realize** because of their complexity. This need not be so with standardization. Building shows—has always shown—a natural tendency to standardize. What is mostly needed is to throw off the idea that this is bad, accept its advantages and develop them intelligently. The architect, as prime offender, must not only come to accept the virtues of standardization, he must also convince the manufacturer that he has changed his mind, that he no longer demands variety merely for variety's sake, and is ready now to accept an intelligently standardized product as readily as one custom made to his specifications. And the manufacturer must employ the proper talent to work out up-to-date standards for his product which will fit in with modern design and construction. When this is done, the public must be taught the advantages of the honest use of modern materials in a standardized pattern.

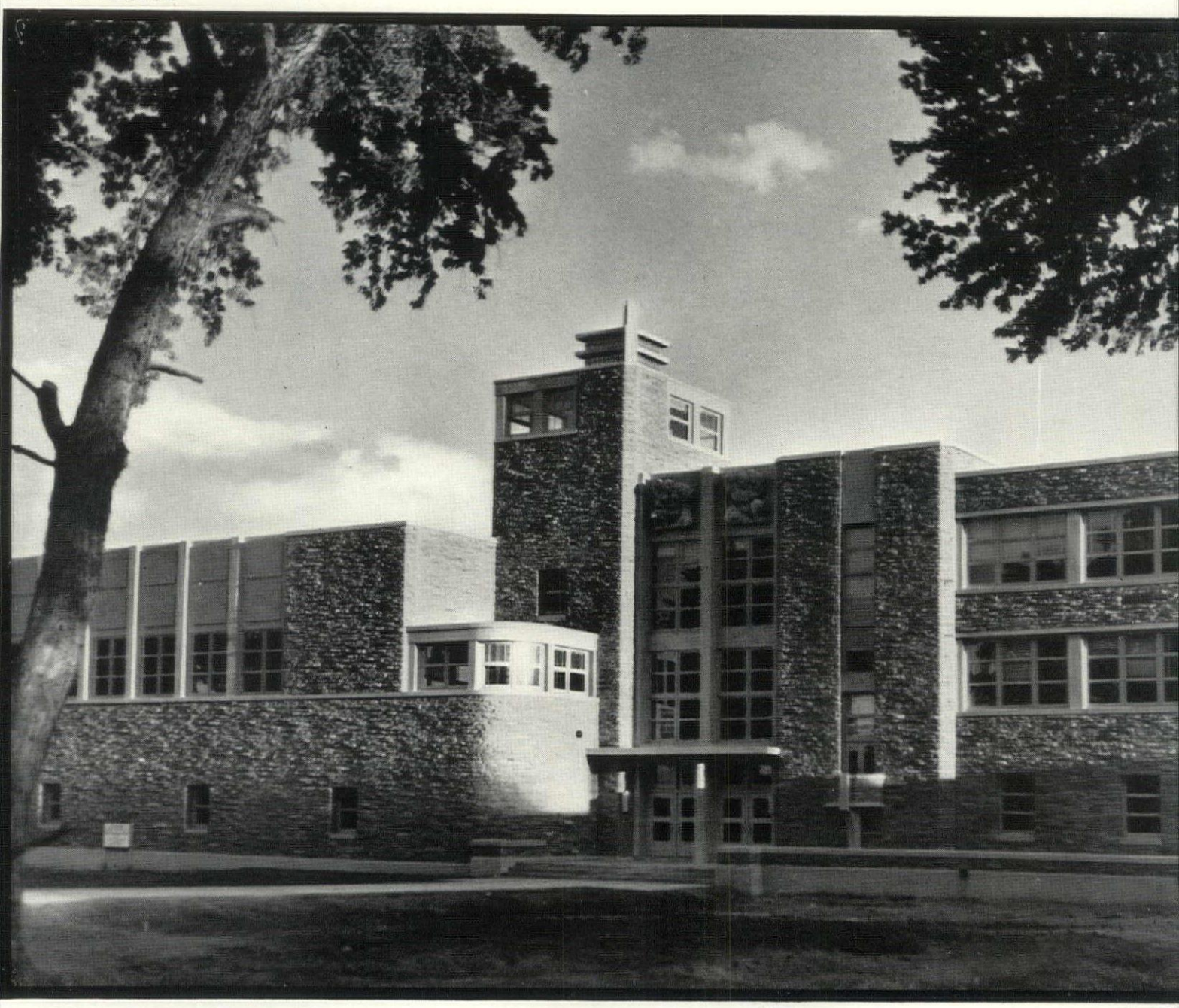
In a great many parts of the house, this has already been accomplished. Utilitarian devices, such as heating equipment, kitchen cabinets and plumbing fixtures, to mention only a few, have already been carefully standardized with attendant advantage to all concerned. To a lesser degree, standardized windows and trim are available and increasingly used, although these in many cases limit the architect to a choice of the traditional styles, with little available which is appropriate to modern design.

Large scale housing provides a proving ground for the standardized house. Most such developments are built up from a limited number of basic plans and forms, yet have more variety than the typical, higher-class suburban development, both in terms of appearance and in the variety of accommodations provided. Here the forward looking architect can do much towards developing a standard —or style—for our generation; designs which may provide the basis for the factory-fabricated unit still to come.

# BOULDER HIGH SCHOOL, BOULDER, COLORADO

FRANK W. FREWEN & EARL C. MORRIS AND G. H. HUNTINGTON, ARCHITECTS

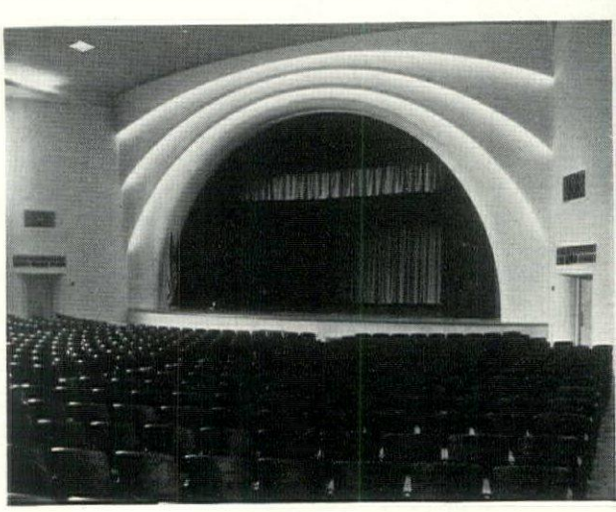
MAIN ENTRANCE



## BOULDER HIGH SCHOOL, BOULDER, COLORADO

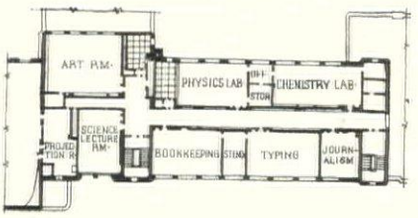
*Courtesy, Nation's Schools*

**AUDITORIUM**

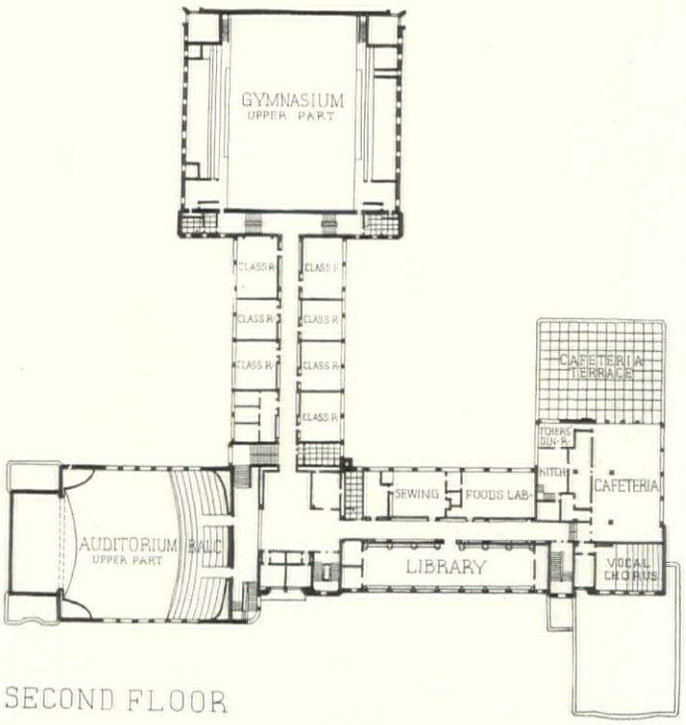


EVIDENCE of the growing maturity of modern work is to be found not only in the increasing number of good examples, but also in the new freedom with which local materials are being adapted to the modern idiom. An excellent case in point is the Boulder High School, in which the conventional smooth exterior has been replaced by richly textured walls of native sandstone. The building was designed to accommodate about one thousand students, and its very workable plan is the result of a cooperative planning study in which pupils, teachers, parents, and officials participated. An examination of the plans suggests that this study must have given the architects a very precise program on which to base their designs. The interiors are admirably simple in treatment, and the arrangement of clerestory windows in the gymnasium seems particularly successful. The cost of the site, landscaping, and building was $582,328, of which $247,041 was provided by a PWA grant

YMNASIUM AND LIBRARY




THIRD FLOOR

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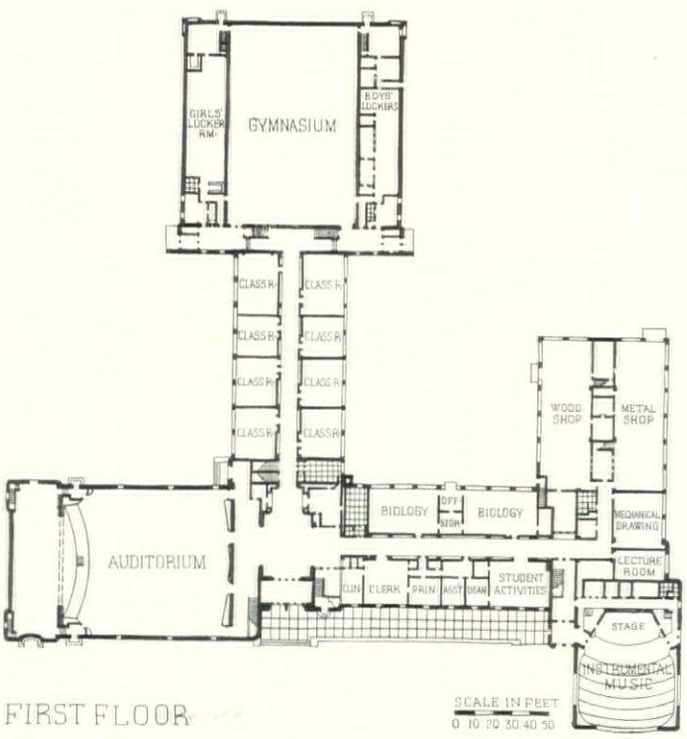
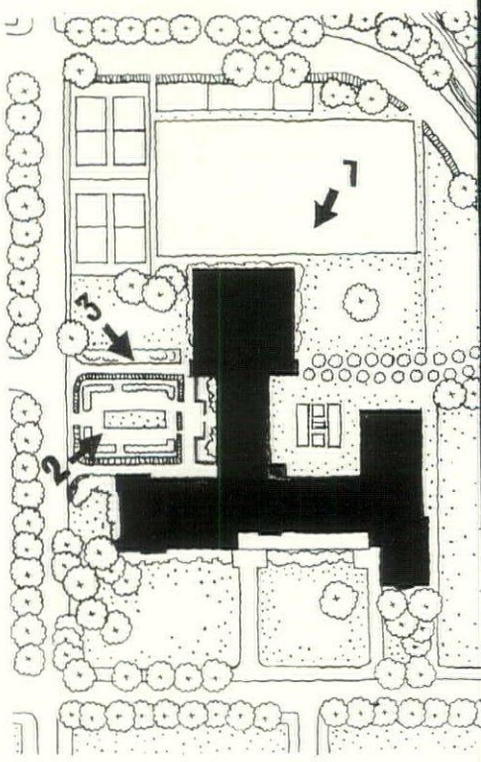



FIRST FLOOR

# BOULDER HIGH SCHOOL

FRANK W. FREWEN & EARL C. MORRIS

G. H. HUNTINGTON, ARCHITECTS

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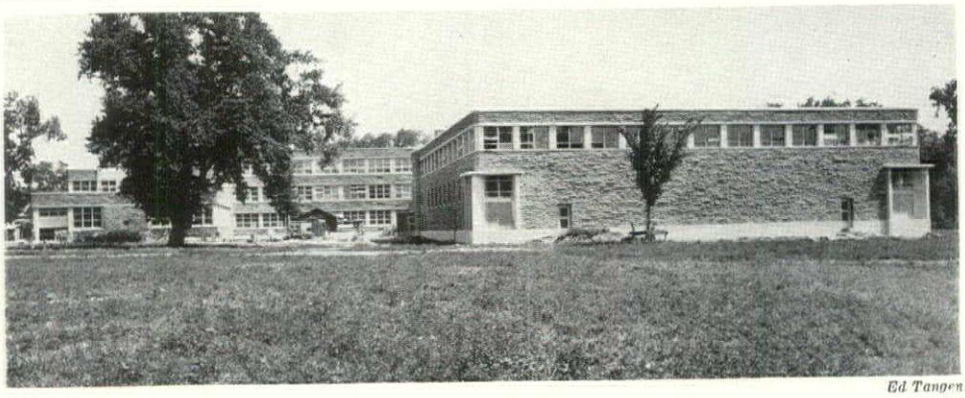

*Ed Tangen*

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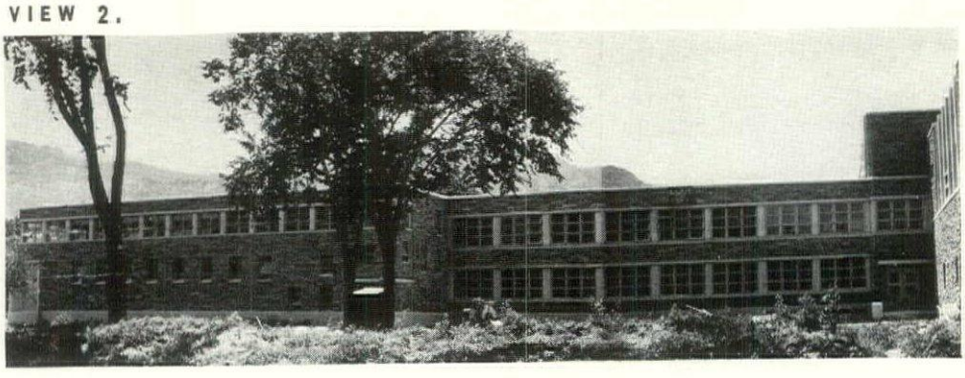

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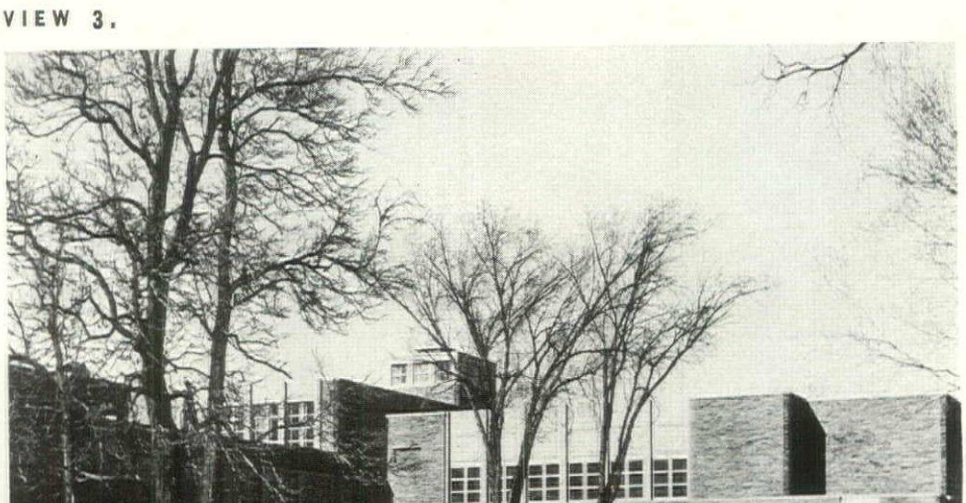


## CONSTRUCTION OUTLIN

FOUNDATIONS: Footings and walls—re enforced concrete. Waterproofing — mem brane, Western Elaterite Mfg. Co.

STRUCTURE: Exterior walls—concrete an local stone. Concrete poured in Masonit forms. Interior partitions—clay tile, plas tered. Columns—concrete. Structural steel i gymnasium and for roof construction of au ditorium. Floor construction—Truscon Stee Co. permanent type pans; shops—ingraine wood on concrete slab; gymnasium—woo over concrete slab, Thomas Moulding Co. remainder—asphalt tile on concrete.

ROOF: Composition roof over concrete, West ern Elaterite Mfg. Co.

INSULATION: Roofs—2 in. Thermax, Celo tex Corp. Sound insulation—acoustical plas ter, U. S. Gypsum Co. in auditorium and musi room; Armstrong Cork Co. cork on ceiling c choral room and tile floor of library, Celote Corp.

WINDOWS: Sash—Donovan awning type Universal Window Co. Glass—double strength quality A, Libbey-Owens-Ford Glass Co. Glas brick—Owens-Illinois Glass Co.

STAIRS:Concrete construction with non-sli nosing, Wooster Mfg. Co.

WALL COVERINGS: Standard gauge linc leum in main lobby and music room; U. S Plywood Co. Flexwood in library.

HARDWARE: Russell & Erwin Mfg. Co.

PAINTING: Walls and ceilings—3 coats McMurtry Mfg. Co. Exterior walls—Concret painted with Bondex, Reardon Co.

ELECTRICAL INSTALLATION: Main stag switchboard and all panel boards, Wurdac Mfg. Co. Switches—Harvey Hubbell & Co Fixtures—Sechrist Mfg. Co. Clock system- Stromberg-Carlson. Auditorium lights—Holo phane Co.; Proscenium arch lighted by Neo tubes, Electrical Products Co.

PLUMBING: All fixtures by Crane Co. Wate supply pipes—copper. Pumps—Nash Engineer ing Co. Water tanks—Kewanee Boiler Corp

HEATING AND AIR CONDITIONING: Vac uum system with direct radiation and un heaters. Unit ventilators—The Herman Ne son Corp. Auditorium Conditioning Corp. fa system; American Blower Co. blower fa Aerofin Corp. coils. Unit filters—American A Filters Co. Boilers—Kewanee Boiler Corp Coal stoker fired, Iron Fireman Mfg. Co Valves—Crane Co.; valves on radiators—War ren, Webster Co. Temperature control valv and dampers—Johnson Service Co.

# REMODELED DELFT THEATER, MARQUETTE, MICH.

## MICHAEL MEREDITH HARE, DESIGNER. CLEMENT G. HURD, MURALIST

NTRANCE LOBBY

*Edward Lemon Photos*

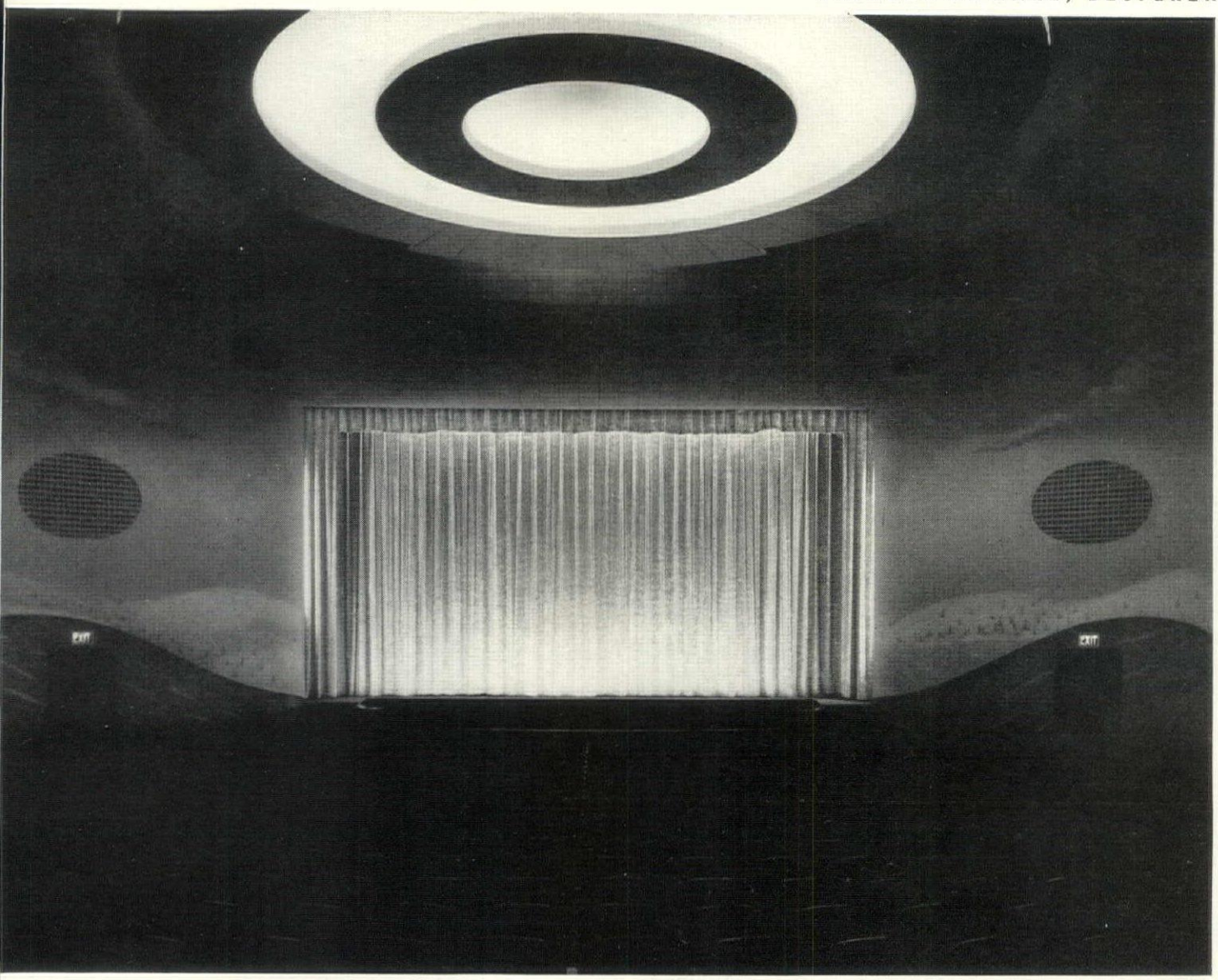
# REMODELED DELFT THEATER, MARQUETTE, MICHIGAN

LOBBY

BEFORE

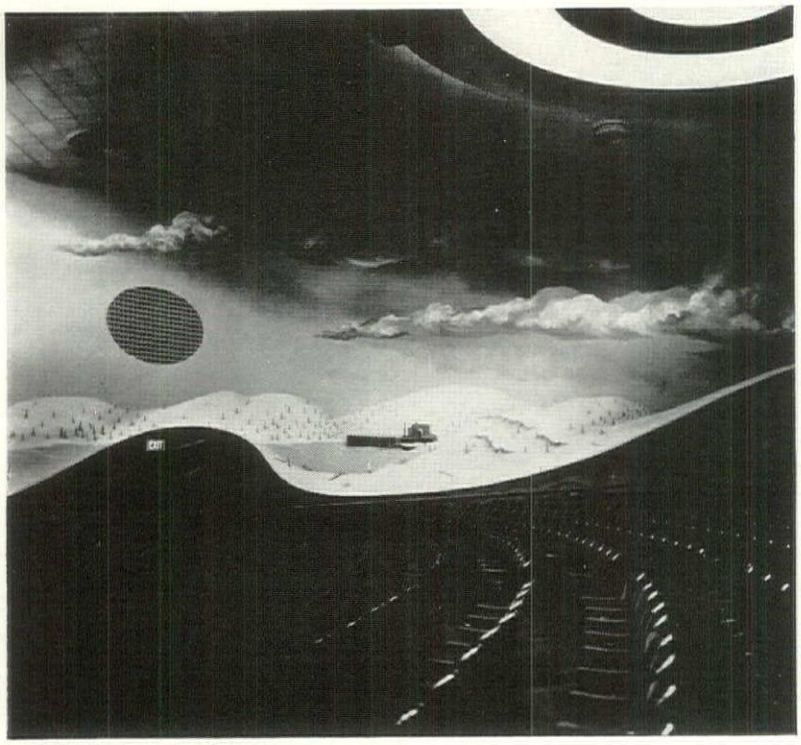
THE simplicity and assurance of this alteration is pe haps the best indication of its success. The origina rather hopeless-looking interiors presented two maj problems: an auditorium which looked as if it had bee designed for anything but the showing of motion pi tures, and an excessively long and unattractive lobb In the case of the latter a solution was found in th creation of two spaces, one with a sweeping curved wa following the line of circulation, the other, at the e trance to the auditorium, treated more intimately an less brightly lighted. In the auditorium the side wal were furred out, and murals were designed whose lin tend to direct the eye to the screen. The ceiling was al done over completely, the ridiculous little chandelier b ing replaced by a lighting unit in proper scale with th interior.

AUDITORIUM

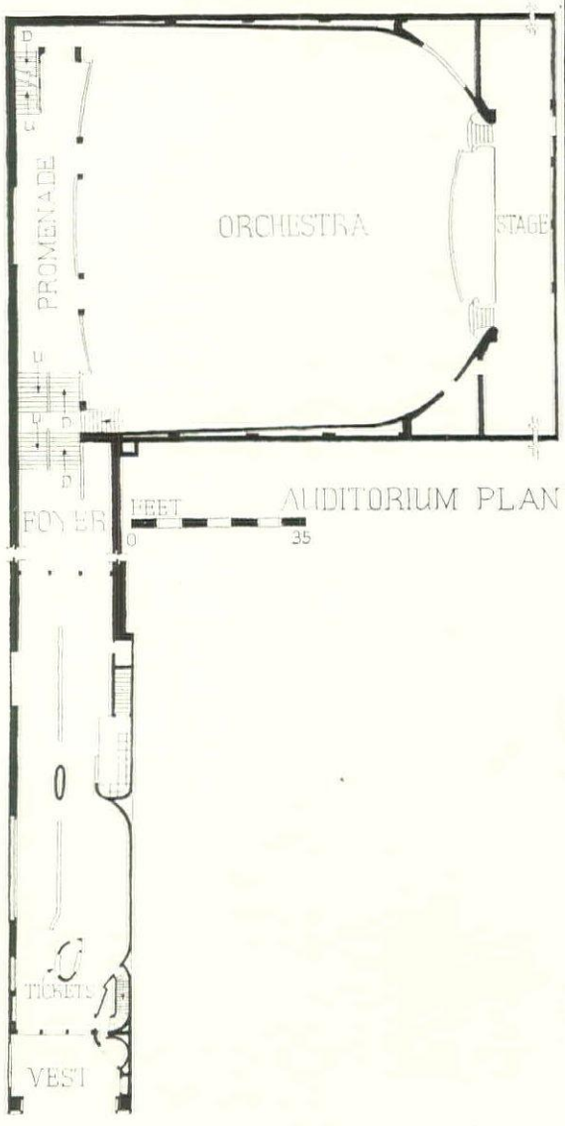


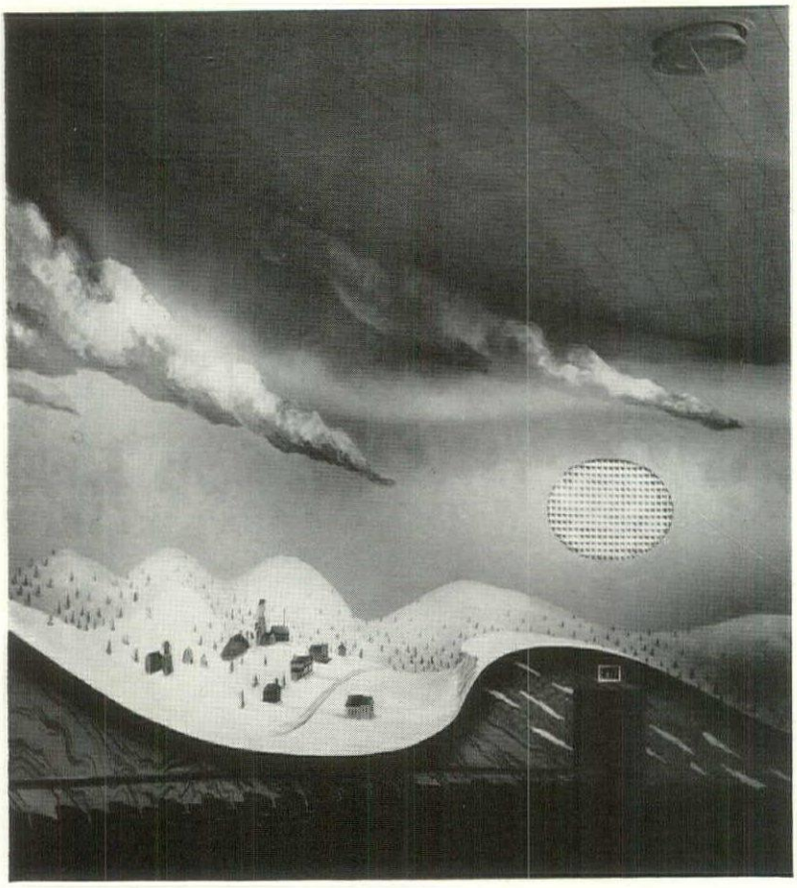

BEFORE

## REMODELED DELFT THEATER MARQUETTE, MICH. MICHAEL M. HARE, DESIGNER
## CLEMENT G. HURD, MURALIST



DETAIL OF MURAL



**THE MURAL DECORATIONS:** A north Michigan winter landscape, with buildings representing various phases of the iron industry at about 1860-70. The dark curving bases represent geological cross-sections typical of the region, showing iron deposits and characteristic rock formations.

## CONSTRUCTION OUTLINE

FLOOR COVERINGS: Lobby (front)—rubber Tile-O-Mat, American Mat Corp., carpet in rear, Mohawk Carpet Co.
WALL COVERINGS: Masonite for stage end of house, Masonite Corp.; balance Celotex for sound absorption, Celotex Corp.; wall murals on canvas, paneling on ticket booth, Martin-Parry Co.; plaster on remainder.
WOODWORK: Trim—Milcor expansion casing, Milcor Steel Co. Interior doors—flush panel, fir. Exterior doors and outside show cases—aluminum, Kawneer Co.
HARDWARE: Special throughout, J. L. Judd & Son.
PAINTING: Walls—oil, Sherwin-Williams Co. Ceilings—Luminall, National Chemical & Mfg. Co.
LIGHTING: Special throughout, Hub Electric Co.

# COMPETITIONS: THE FORUM takes the pulse of professional opinion

For years the subject of competitions has been the architectural profession's favorite topic of debate, and no convention of the A.I.A. would seem quite normal without at least one morning of heated discussion on it. Adding fuel to the controversy are the statistics presented here, the result of a questionnaire prompted by a letter* from Mr. L. Andrew Reinhard in which the case against competitions was ably set forth. Some 500 of these questionnaires were sent out, half of which went to architects who submitted drawings in the Wheaton College Art Center competition. Part of the questions dealt specifically with this competition, part with competitions in general, and the remainder with the comments made by Mr. Reinhard.

To what extent the 154 replies received may be taken as representative of professional opinion is difficult to say, as presumably only those strongly for or against competitions took the trouble to reply. Nevertheless, out of this sampling have come some interesting facts. The cleavage between pros and cons, for instance, can be plotted fairly definitely according to age: somewhere between nine and eighteen years in practice many pros apparently become cons. Also there is the strange—and illuminating—case of the Wheaton competition winners, who spent less money, have been in practice a shorter time, and have fewer members in the A.I.A. than either of the pro or con groups taken as a whole. Which seems to suggest that opinion is correct in regarding open competitions as a young man's game. And also that as long as there are younger men and older men, and not enough business for both, the fight will probably go merrily on.

For detailed answers to specific questions, see page 206. A general summary is given directly below.

## PRO

Those generally in favor of competitions are in a majority; most of this group approves not only the type used to select an architect for the Wheaton Art Center (open, with a few invited competitors) but several other types as well.

They have been in practice for an average of nearly ten years, and three-quarters have their own offices. They were much more modest in their expenditures on the Wheaton competition than those opposed to competitions, estimating their cost at less than $250. Those whose practice it is to include the cost of their time (about two-thirds), figured this item at about $400.

Slightly more than half are in favor of the open type of competition; others indicated a preference for a competition in two stages, the addition of invited competitors, geographical restrictions on entrants, and other variations. A minority prefer the completely closed type.

And most of these pros are apparently quite willing to take their chances on winning, as three-quarters consider it a perfectly fair deal if only successful competitors are compensated for their time and trouble.

## CON

About a third of those who replied are definitely against competitions of the type used for the Wheaton Art Center, and exactly one half of this group is against competitions in any form. A few of the replies (about eight per cent) were undecided, both as to competitions in general and specific types. These were not tabulated.

The cons have been in practice for an average of more than eighteen years, and nearly all of them have their own offices. Their estimates of actual or probable costs on the Wheaton competition were about seven times as high as those of the other group, and they figured their own time at nearly $900.

An overwhelming percentage approves of nothing but the completely closed competition, and many of these feel that even the closed competition is worse than none at all.

In view of the above, it is not surprising to find that most of this group feels that all competitors should be guaranteed some recompense for their work.

The two groups agree on only one point: that the Jury represents a major element of risk. Opinions diverge again, however, on what to do about it.

* See *Letters*, Arch. Forum, July 1938, p. 30.

**All replies have been grouped under "pro" and "con" on the basis of answers to the following question: "Do you believe in the competition method of selecting architects for such buildings as the Wheaton Art Center?"**

**PRO = 67%** | **CON = 33%**

| | | WHEATON COMPETITORS | | NON-COMPETITORS | | WHEATON COMPETITORS | | NON-COMPETITORS | |
|---|---|---|---|---|---|---|---|---|---|
| Which type of competition do you consider preferable? | Open | 53 | 88% | 6 | 60% | 2 | 60% | 3 | 14% |
| | Closed | 7 | 12% | 4 | 40% | 3 | 40% | 19 | 86% |
| Do you feel that it is unfair not to guarantee some recompense to all contestants? | Yes | 15 | 20% | 7 | 41% | 5 | 71% | 28 | 82% |
| | No | 60 | 80% | 10 | 59% | 2 | 29% | 6 | 18% |
| If you didn't place in the Wheaton Competition, do you feel that your time was entirely wasted? | Yes | 2 | 4% | | | 4 | 57% | | |
| | No | 52 | 96% | | | 3 | 43% | | |
| Average number of years in practice. | | | 10.83 | | 8.58 | | 17.27 | | 19.42 |
| | Own practice | 64 | 73% | 18 | 78% | 10 | 91% | 35 | 95% |
| | Employed | 27 | 27% | 5 | 22% | 1 | 9% | 2 | 5% |
| Are you a member of the American Institue of Architects? | Yes | 29 | 32% | 10 | 53% | 8 | 80% | 19 | 51% |
| | No | 61 | 68% | 9 | 47% | 2 | 20% | 18 | 49% |
| Excluding time, average expenditure on the Wheaton Competition. | | | $166.71 | | | | $537.50 | | |
| Best guess of average of probable expenditure made by non-Wheaton Competitors. | | | | | $325.00 | | | | $2680.00 |
| Is it your practice to include your time in the cost of competitions? | Yes | 48 | 69% | 2 | 100% | 5 | 83% | 3 | 50% |
| | No | 22 | 31% | 0 | 0% | 1 | 17% | 3 | 50% |
| Average value of time spent by Wheaton Competitors who include time in total cost. | | | $489.80 | | | | $880.00 | | |
| Average of time cost estimates made by non-Wheaton Competitors who include time in the total cost. | | | | | $312.50 | | | | $883.00 |
| Do you agree with the following criticisms of Competitions made by L. Andrew Reinhard. (See *Letters*, ARCH. FORUM, July 1938, p. 30). | | | | | | | | | |
| 1. Competitions represent a great and unjustifiable cost to the profession. | Yes | 12 | 16% | 5 | 41% | 6 | 86% | 26 | 81% |
| | No | 67 | 84% | 7 | 59% | 1 | 14% | 6 | 19% |
| 2. The odds are not much better than in a sweepstakes. | Yes | 19 | 24% | 8 | 62% | 6 | 86% | 25 | 90% |
| | No | 60 | 76% | 5 | 38% | 1 | 14% | 3 | 10% |
| 3. Competitions are responsible for lowering wages in architects' offices. | Yes | 13 | 16% | 2 | 20% | 5 | 83% | 19 | 79% |
| | No | 57 | 84% | 8 | 80% | 1 | 17% | 5 | 21% |
| 4. Irregular practices such as free competitive sketches may be directly traced to the competition system. | Yes | 17 | 22% | 4 | 40% | 6 | 86% | 23 | 89% |
| | No | 59 | 78% | 6 | 60% | 1 | 14% | 3 | 11% |

**All percentages and averages have been computed against the number of replies to each specific question. Light faced type indicates number of replies; bold faced type shows percentages and averages.**

# NOTES AND COMMENT

**WHEATON COMPETITION** Most of the comments and criticism revolved around the question of the jury. There was, however, no clear-cut consensus of opinion. Many felt that the names of the jurors should have been announced in the program; a smaller group favored keeping the names secret. Some felt that the jury should have included only architects; others preferred more laymen. Criticisms of the program objected to its limitations on rendering, the provisions for answering questions, scale of the drawings, etc. Some took exception to the fact that modern was not specifically called for; others objected because it was. All of which indicates that the writing of a foolproof program (from the points of view of all competitors) is not possible. The question of the jury is worth more serious consideration.

**JURY RISK** All replies indicated that the jury in any competition constitutes a major risk. Suggestions are as follows: let the competitors pick the winners; jury should be sent a questionnaire to see if they understand the program; jurors should be chosen by the competitors from a list submitted by the professional adviser; have a preliminary regional judgment to assure each drawing proper attention; all jurors should visit the site before being allowed to judge; have a national jury system —circuit, appellate, grand and supreme courts—with a chance for the architect to present his own case if need be. Many who replied could see no solution. Their comments: the risk in jury selection is unavoidable; the risk is not as great as in the selection of an architect; others were in the same vein.

**TYPES OF BUILDINGS SUITABLE FOR COMPETITIONS** A few (about 8 per cent) were in favor of competitions for all types. Many set cost minimums ranging from $50,000 to $500,000, with $100,000 as the most popular figure. Public buildings were outstandingly favored, with 73 in favor of competitions for them; institutional and "semi-public" types ran second with 22 replies in favor. Those against competitions naturally listed very few, and these were invariably described as public, non-utilitarian, monumental, or memorial structures.

**RECOMPENSE TO COMPETITORS** As indicated on the opposite page, opinions vary widely. Those in favor of recompense to all competitors suggested: each contestant should be guaranteed one-half of 1 per cent of the cost of the building (in the case of the Wheaton Art Center this would have exceeded by 26 per cent the cost of the building itself); have only closed competitions with each invited competitor paid 2 per cent of the cost of the building. Those against claimed any such scheme was impractical, that if everyone were paid "it would be just like public welfare," that it was unfair not to pay, but that if one did many would enter just for the compensation. A majority took a middle position, recommending: that one prize be given for every ten contestants; that there should be a greater spread of secondary awards than is customary; that instead of first, second, and third prizes there be a larger number of reasonable, and equal amounts; that 60 to 75 per cent of the entrants should be paid.

**VALUE OF COMPETITIONS** Of the replies to this question, 43 said "experience." Two wrote off competitions as fun, and four found the greatest advantage in the chance to compare their solutions with the others. Those who had never entered competitions found the risk too great, saw no compensation for the time and effort, felt that the money could be better spent on getting work. Other reasons: A.I.A. principles against competitions, juries are incompetent, too much politics, and too many competitors.

**OPEN VS. CLOSED COMPETITIONS** This brought forth the greatest number of comments. Those in favor of the open type commented: in a closed competition politics are apt to show up; closed competitions defeat the purpose of producing the best possible material; competitions should be open to all of acknowledged standing. Proponents of the closed type argued: young and inexperienced winners are likely to get out of their depth on big jobs; in a closed competition fair compensation can be made to all competitors; "open competitions mean publicity, closed mean results." Two suggestions predominated in the replies, one that competitions be limited geographically to avoid waste and to reduce the number of entrants, and the other that competitions be held in two stages, the first open, with contestants submitting sketches, and the second limited to the authors of a limited number of selected designs, each to be paid for preparing the more elaborate drawings required in the second stage. "Thus," says one reply, "you get the best thought of the profession with the least cost to the profession."

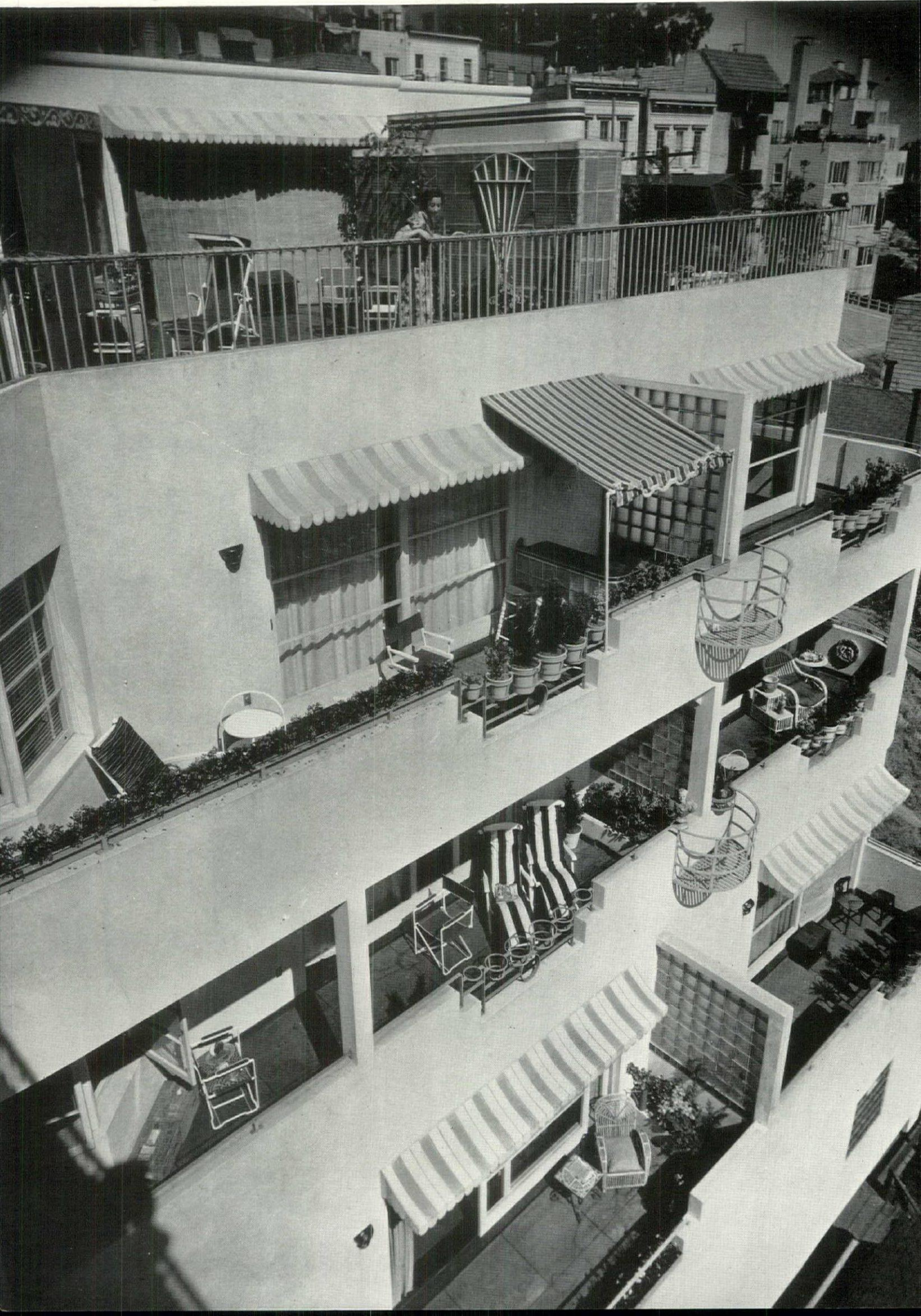
**"THE COST OF COMPETITIONS IS EXCESSIVE"** On this, and the other three points made in Mr. Reinhard's letter, only the opposing point of view is given, since those who agreed had nothing more to say. Many of those who disagreed claimed that the main element of cost was time, which is something most architects do not lack. Others found competitions less expensive than greens fees, club dues, entertainment, and following up leads. Many emphasize the fact that entry is optional. One reply suggested that if the architect did the competition work himself instead of hiring "experts," the cost might be materially reduced. A number were of the opinion that costs could be reduced by demanding qualifications, by regional limitations, by having more competitions so that fewer would enter each one and thereby reduce waste.

**"COMPETITION ODDS ARE NO BETTER THAN SWEEPSTAKES"** Here the emphasis is on the fact that a competition gives young men their only chance to work on big projects, and that the opportunity cannot be dismissed by the younger architects. A number claimed that the odds were not as great—for the young man—as trying to get a job on any other basis. Some felt that in spite of the risk, given a competent jury, the odds depend on ability.

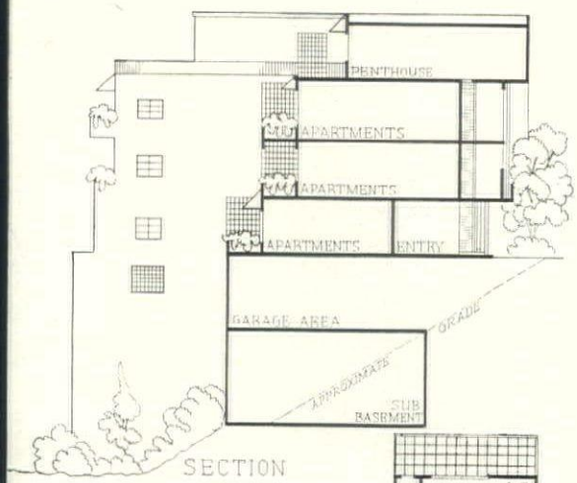
**"COMPETITIONS DEPRESS WAGES"** Many claimed that they were unable to see any connection between competitions and draftsmen's wages, blaming low wages on the normal operations of the law of supply and demand. Some even claimed that competitions create employment. Several asked why the draftsmen could not gamble their time against a bonus.

**"COMPETITIONS GIVE RISE TO UNFAIR PRACTICES"** This provoked the most indignant comments. Unethical practices, such as the submitting of free sketches, were blamed on the Beaux-Arts system of education, on cupidity and inferiority complexes, the competitive system of our society, economic necessity. Nineteen denied that there was any connection between competitions and free sketches.

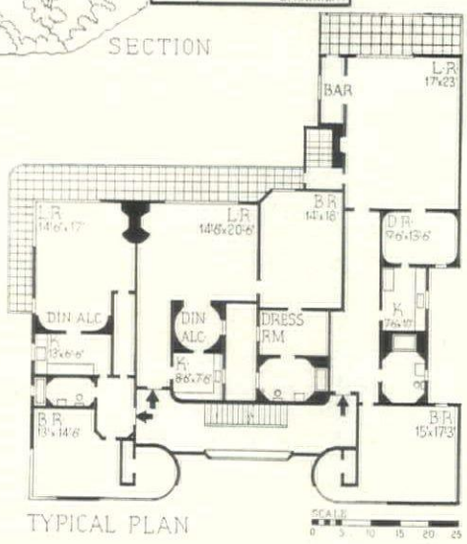
APARTMENT HOUSE, TELEGRAPH HILL, SAN FRANCISCO, CALIF.



FOR J. S. MALLOCH AND J. ROLPH MALLOCH. W. H. ELLISON, STRUCTURAL ENGINEER

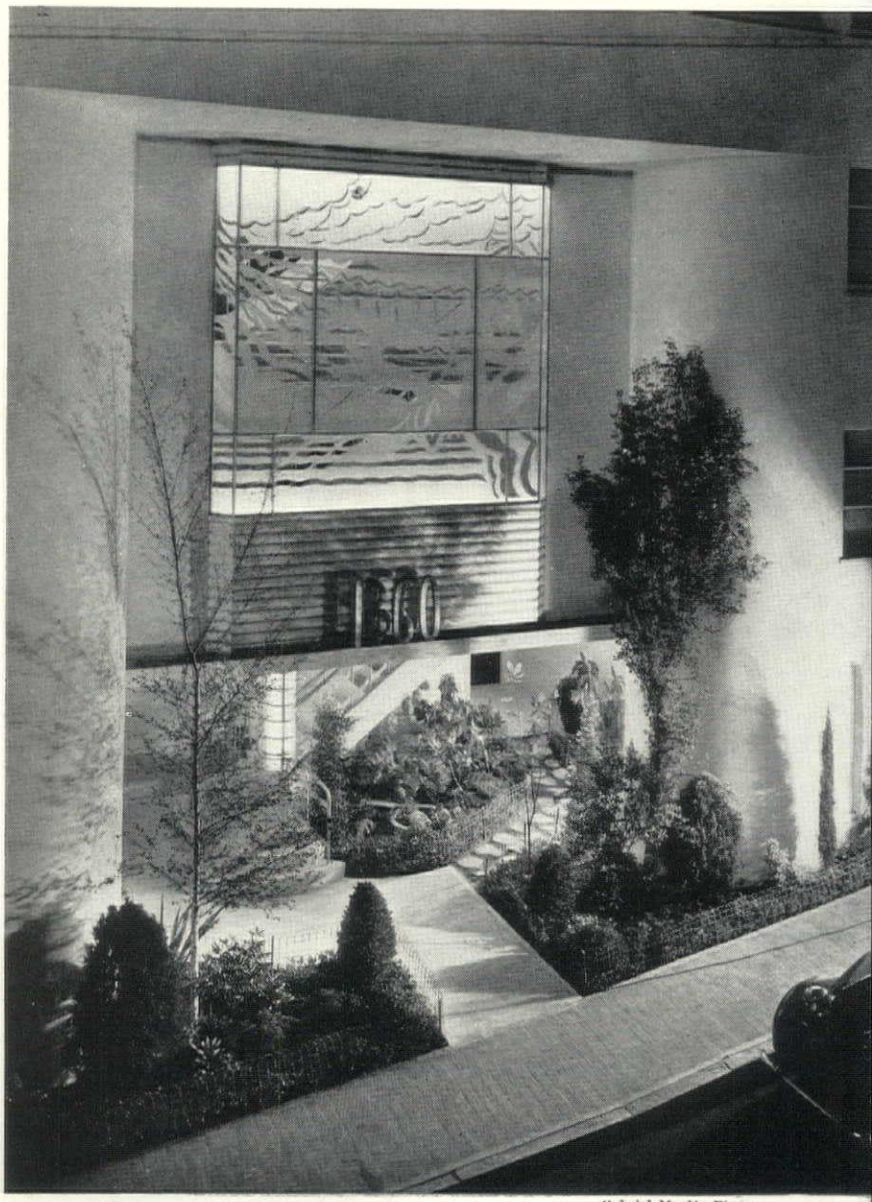



SECTION




TYPICAL PLAN

LIVING ROOM



ENTRANCE

*Gabriel Moulin Photos*

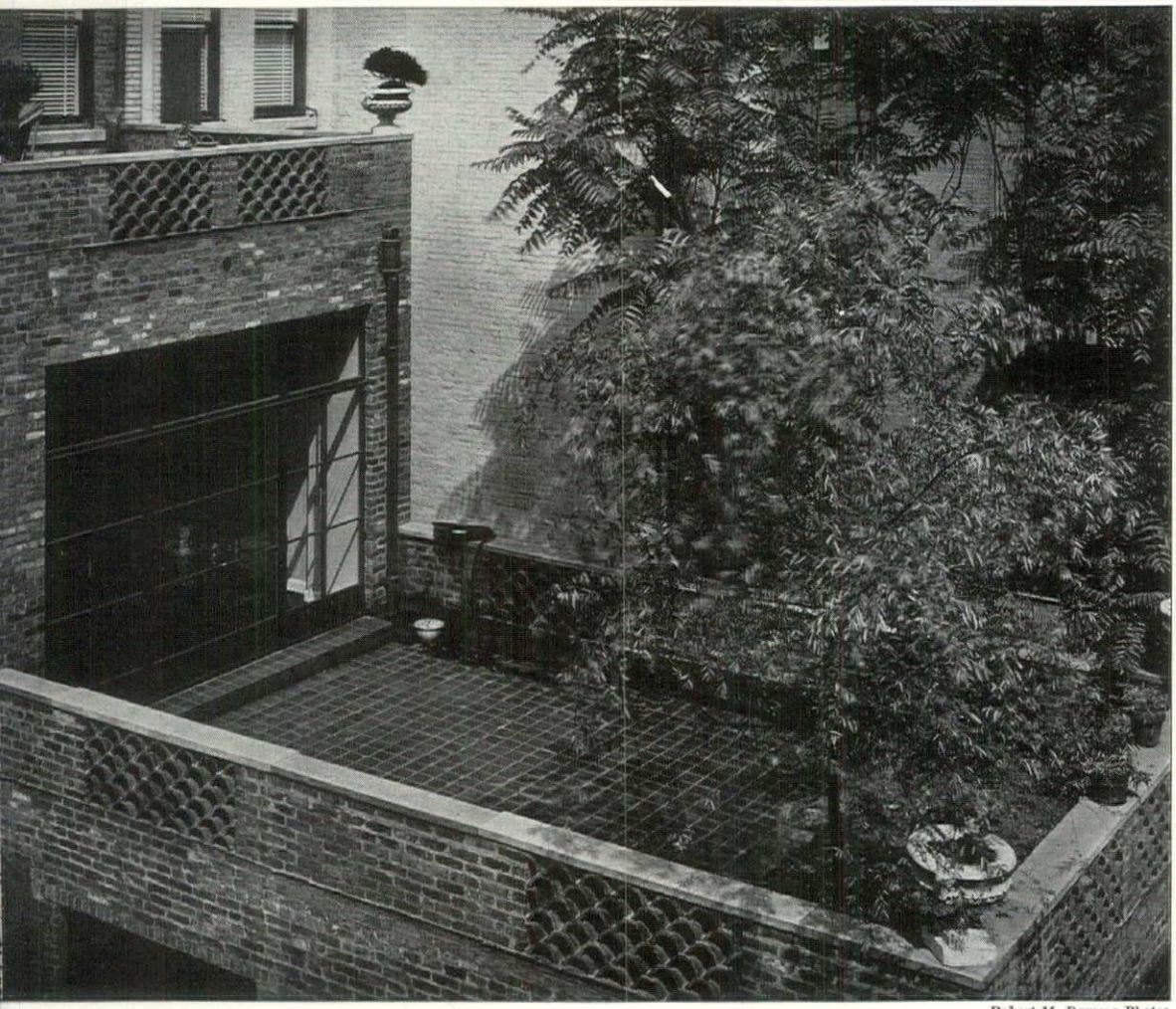
A PRECIPITOUS building site made possible the building of four stories of apartments with the lowest floor still three stories above ground. On the lower levels are a garage for fourteen cars and a series of basements for the tenants. The rear of the building has a magnificent view of San Francisco Bay and the 1939 Exposition site. One result of the use of porches and terraces has been the development of an extremely interesting elevation. The main entrance, shown at the right, has something of the Hollywood touch, but nevertheless illustrates an excellent idea: the use of unrentable ground space as a garden court to further emphasize the luxurious nature of the accommodations provided.

## CONSTRUCTION OUTLINE

FOUNDATIONS: Footings and walls—reenforced concrete. Waterproofing—sheet metal.
STRUCTURE: Interior partitions—frame with lath and plaster. Columns—wood. Structural steel on long spans.
SHEET METAL WORK: Flashing and gutters—copper.
WINDOWS: Sash—wood. Glass—Libbey-Owens-Ford Glass Co. Glass blocks—Owens-Illinois Glass Co.
STAIRS: Covered with rubber, Royalite, U. S. Rubber Co.
FLOORS: Oak, hardwood throughout; linoleum in kitchens.
WALL COVERINGS: Canvas on walls and ceilings.
ELECTRICAL INSTALLATION: Wiring system—conduit. Lighting—indirect.
PLUMBING: Fixtures by Standard Sanitary Mfg. Co. Water pipes—copper.
HEATING AND AIR CONDITIONING: Waterola Corp. system.

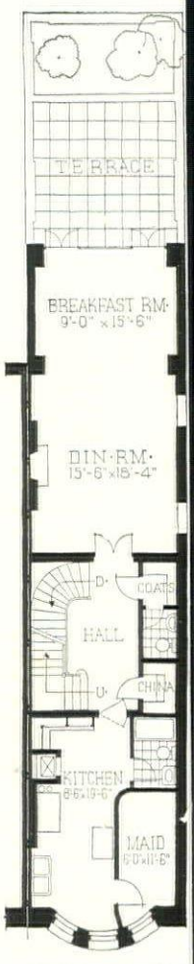
# REMODELED TOWN HOUSE FOR JASPER MORGAN, NEW YORK

DINING ROOM

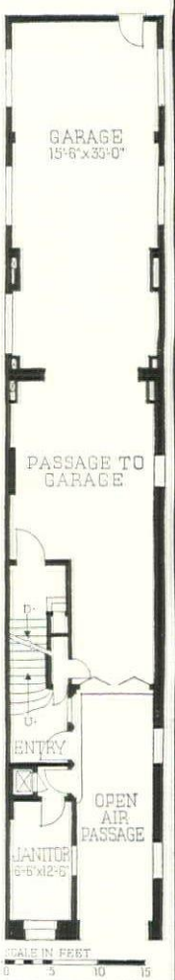


TERRACE

*Robert M. Damora Photos*

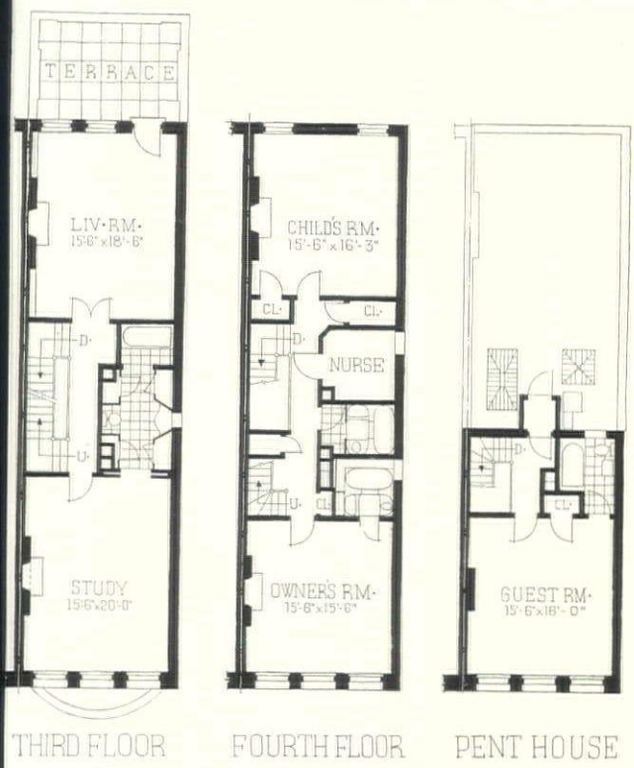



SECOND FLOOR

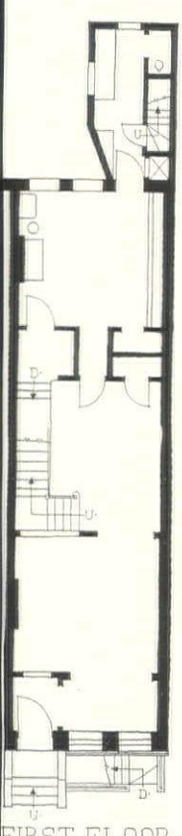



FIRST FLOOR

## L. BANCEL LA FARGE, ARCHITECT




THIRD FLOOR FOURTH FLOOR PENT HOUSE



FIRST FLOOR
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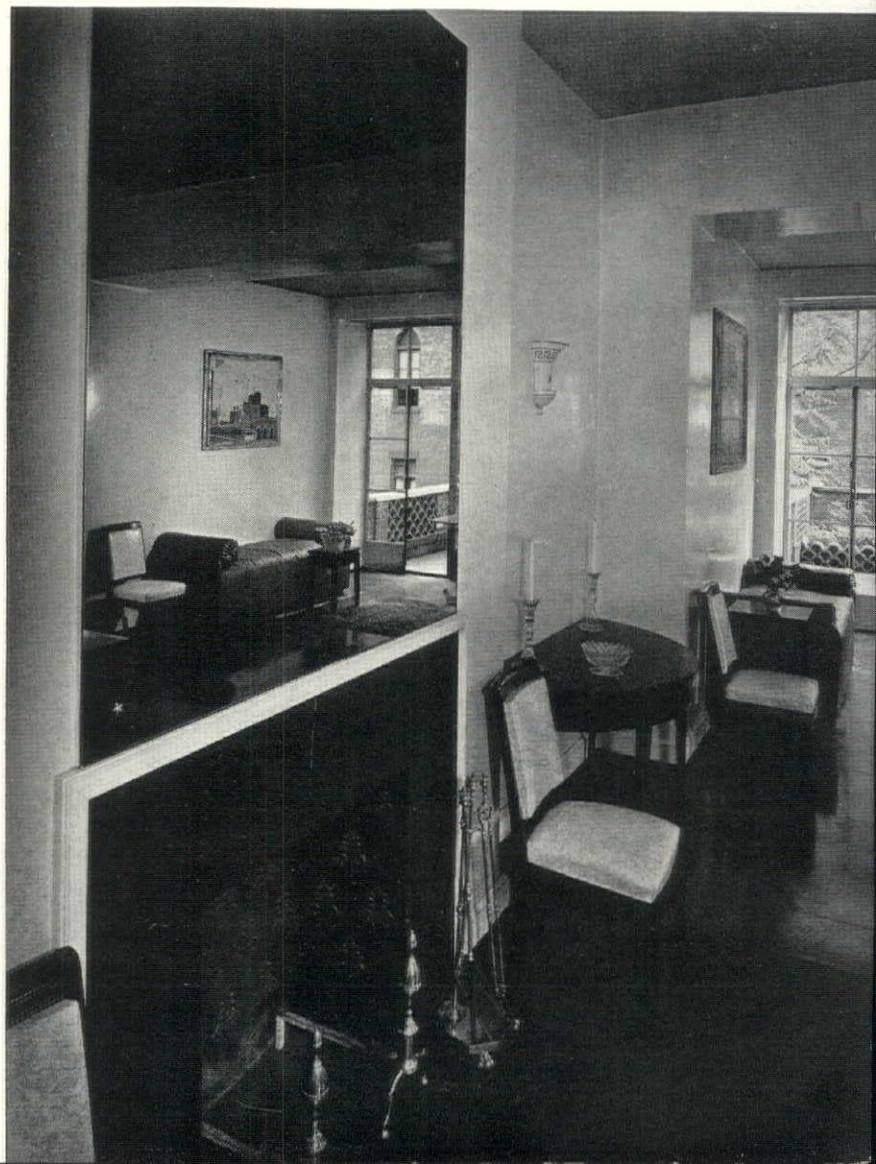
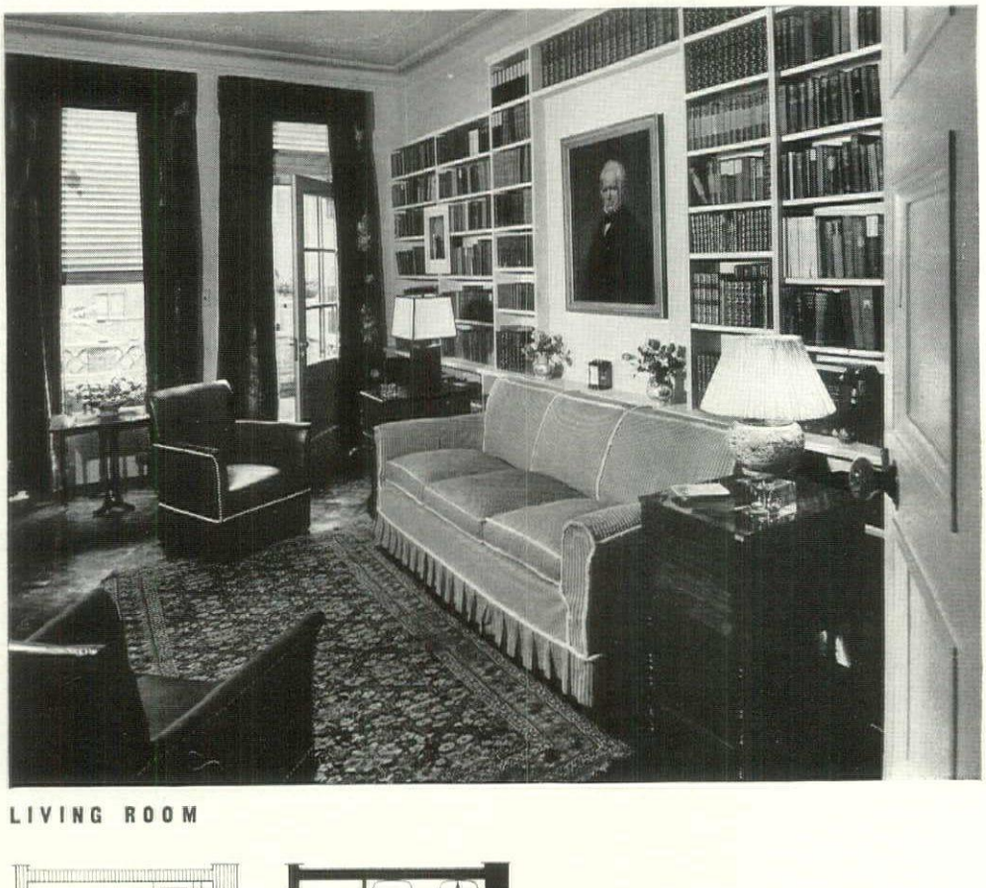


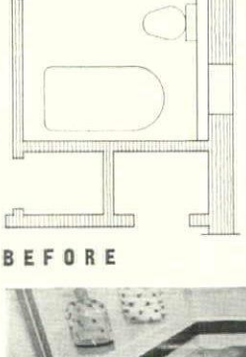
WHILE the designing of a house 17 ft. wide and about 60 ft. deep is by no means easy, particularly when blank side walls complicate the problem, the situation is so common in many large cities that a series of more or less standard solutions have been developed. Evidence of this appears here, where an old brownstone house was remodeled into a modern city residence with comparatively few changes in the basic arrangement. A garage was added on the ground floor, and the exterior steps were removed. Above, the alterations consisted of redecoration, replacement of antiquated plumbing, installation of a kitchen, and the addition of a breakfast room on the second floor. The interiors are interesting as examples of rooms which are neither traditional nor modern—or more correctly, as highly successful combinations of both. An unusual feature is the use of the bathroom recently developed by Buckminster Fuller; two of these are located on the fourth floor, and occupy only slightly more space than is normally required by one. Cost: $16,280.

# REMODELED TOWN HOUSE FOR JASPER MORGAN

L. BANCEL LA FARGE, ARCHITECT



LIVING ROOM



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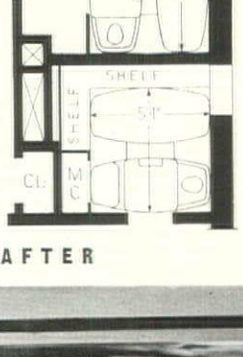
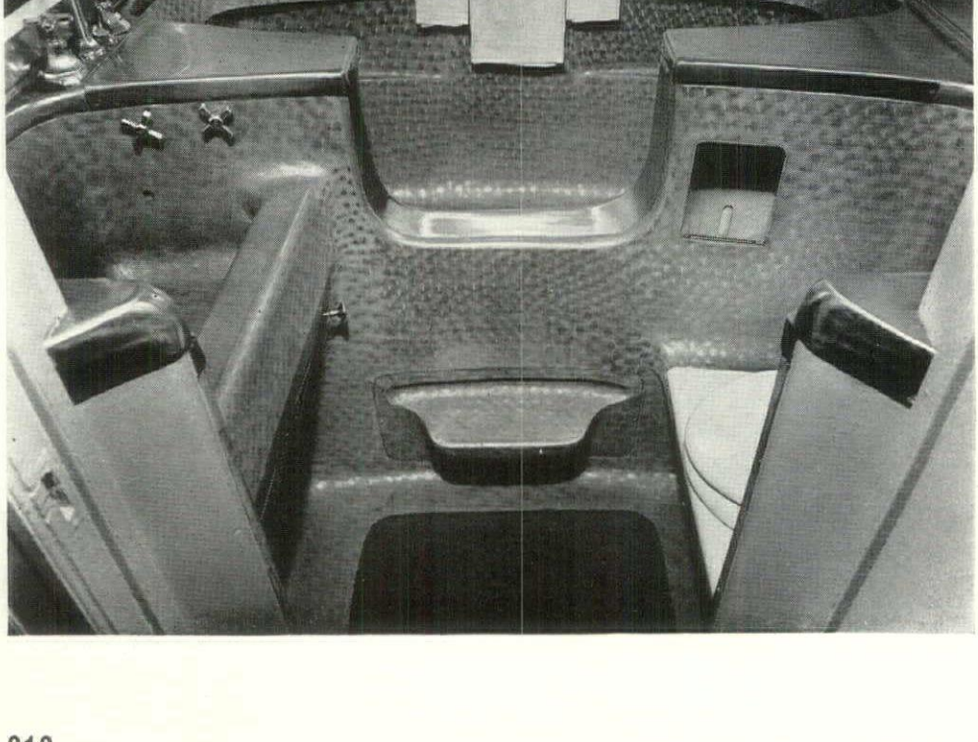



AFTER

BATHROOM



## CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—8 to 12 in brick furred, inside plaster. Interior partitions—studs, 16 in. o.c. Floor construction—Aerocrete Corp.

ROOF: Concrete and 6 in. I-beams, Aerocrete Corp., covered with quarry tile.

CHIMNEY: Lining—terra cotta. Dampers—H. W. Covert Co.

SHEET METAL WORK: Flashing—16 oz copper. Leaders—4 in. round copper.

INSULATION: Roof (new portion)—rock wool, Johns-Manville.

WINDOWS: Commercial projected and special casement types, Hope's Windows, Inc. Glass—double thick sheet, Pittsburgh Plate Glass Co.

STAIRS: Entrance to 1st floor, treads, risers and stringers—Asbestolith Mfg. Co.

FLOORS: Living and dining room—cushioned flooring, Masonite Corp. Bedrooms—linoleum. Kitchen—Asbestolith Mfg. Co. Bathrooms—Accotile, Armstrong Cork Co.

WOODWORK: Interior and exterior doors—wood paneled. Garage doors—Kalamein, J. G. Wilson Corp.

HARDWARE: Interior and exterior—P. & F. Corbin Co.

PAINTING: Lead and oil throughout.

ELECTRICAL INSTALLATION: Wiring and switches—General Electric Co. Fixtures—indirect and built-in, A. Ward Hendrickson Co.

KITCHEN EQUIPMENT: Refrigerators—General Electric Co. Sink and dishwasher—combined, Kohler Co.

BATHROOM EQUIPMENT: Special prefabricated copper metallized bathroom, Phelps Dodge Corp.

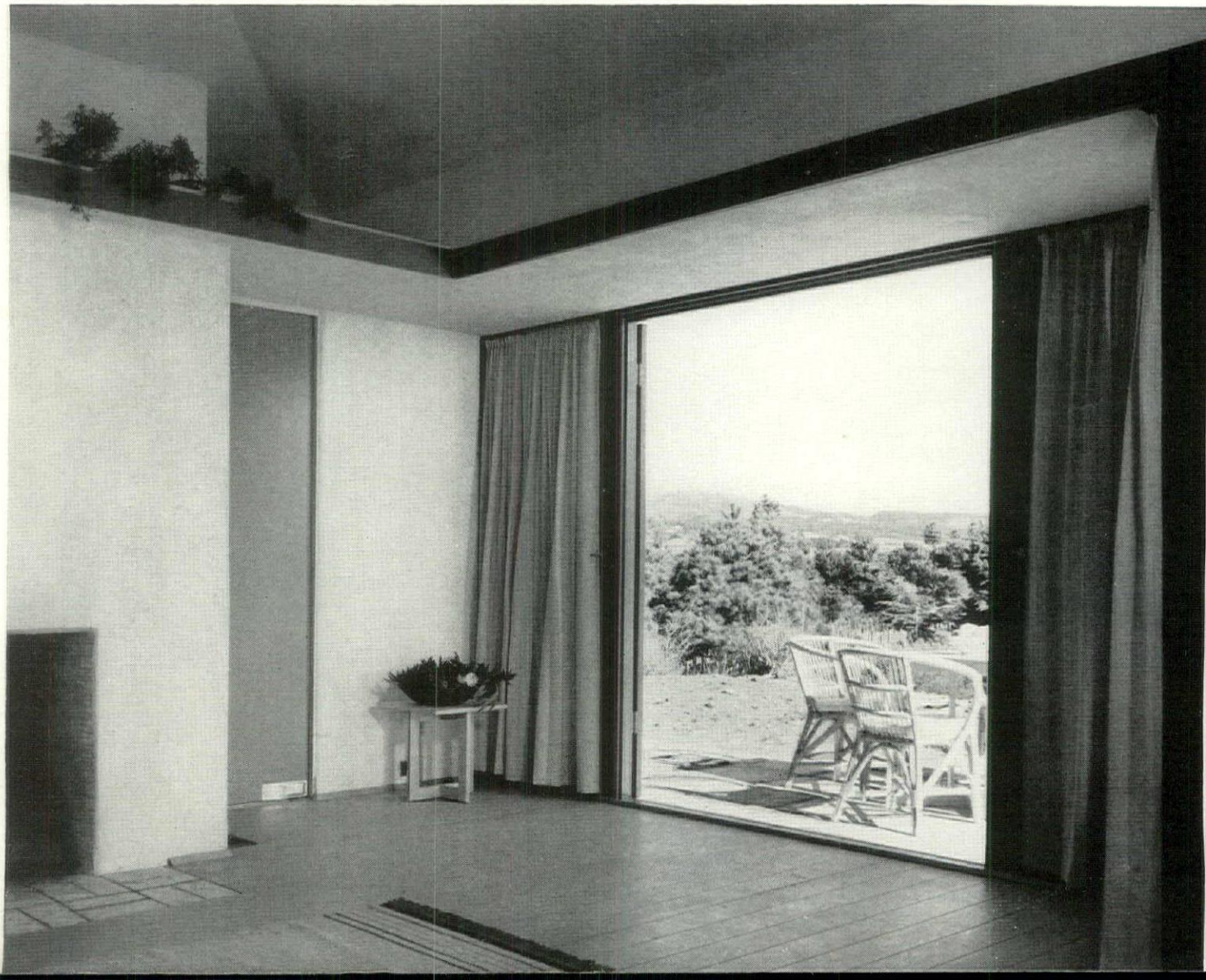
PLUMBING: Soil pipes—extra heavy, Reading Iron Co. Water pipes—Anaconda brass, American Brass Co.

HEATING AND AIR CONDITIONING: Circulated warm air system with special warm air furnace, automatic humidifier, Thomas Nugent. Oil Burner—Electrol, Inc. Regulator—manual, Penn Electric Switch Co. Hot water heater—Williams Oil-O-Matic Heating Corp.

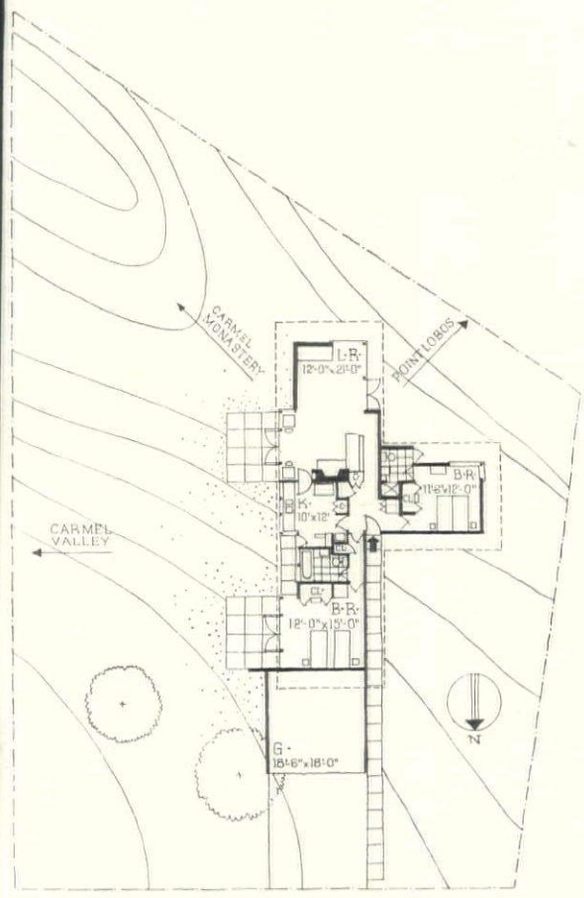
# HOUSES

*Fred R. Dapprich Photos*

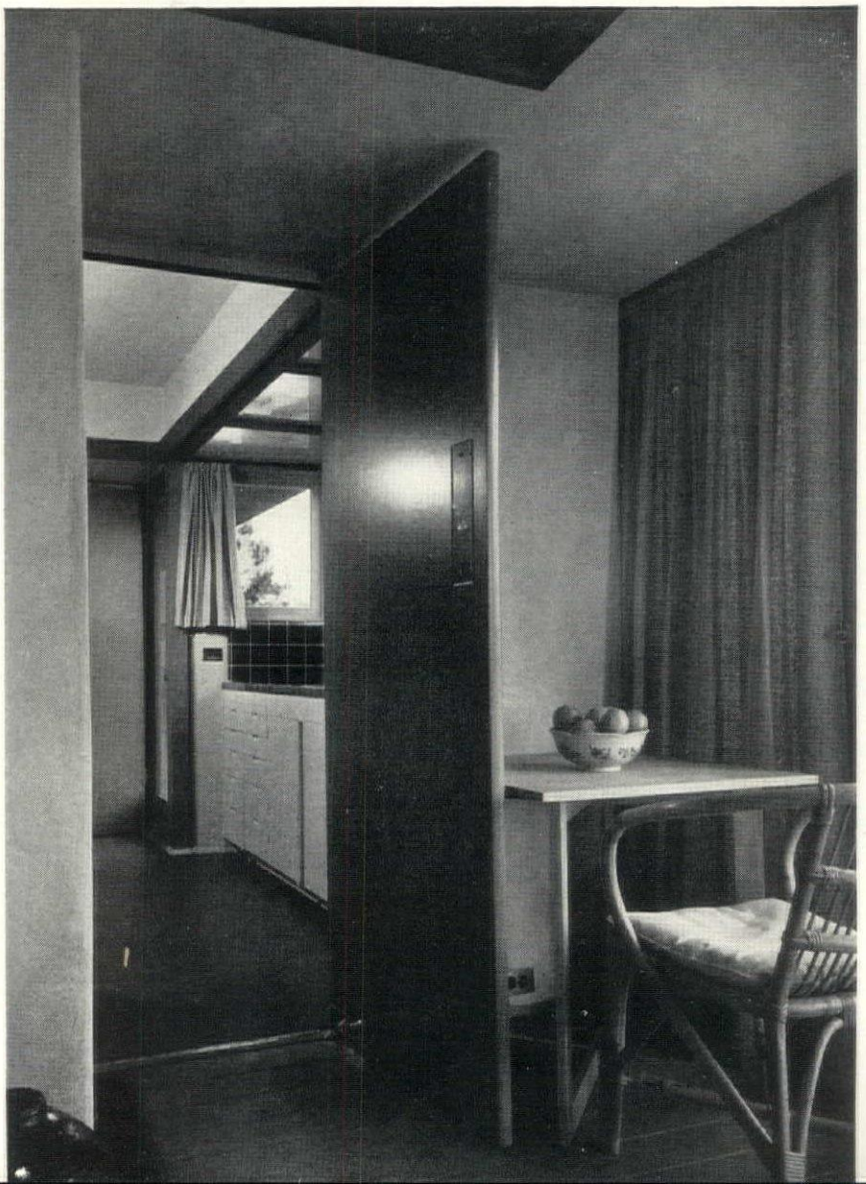
HOUSE FOR MISS MARION CLARK, CARMEL-BY-THE-SEA, CALIFORNIA. HARWELL HAMILTON HARRIS, DESIGNER



## HARWELL HAMILTON HARRIS
## DESIGNER

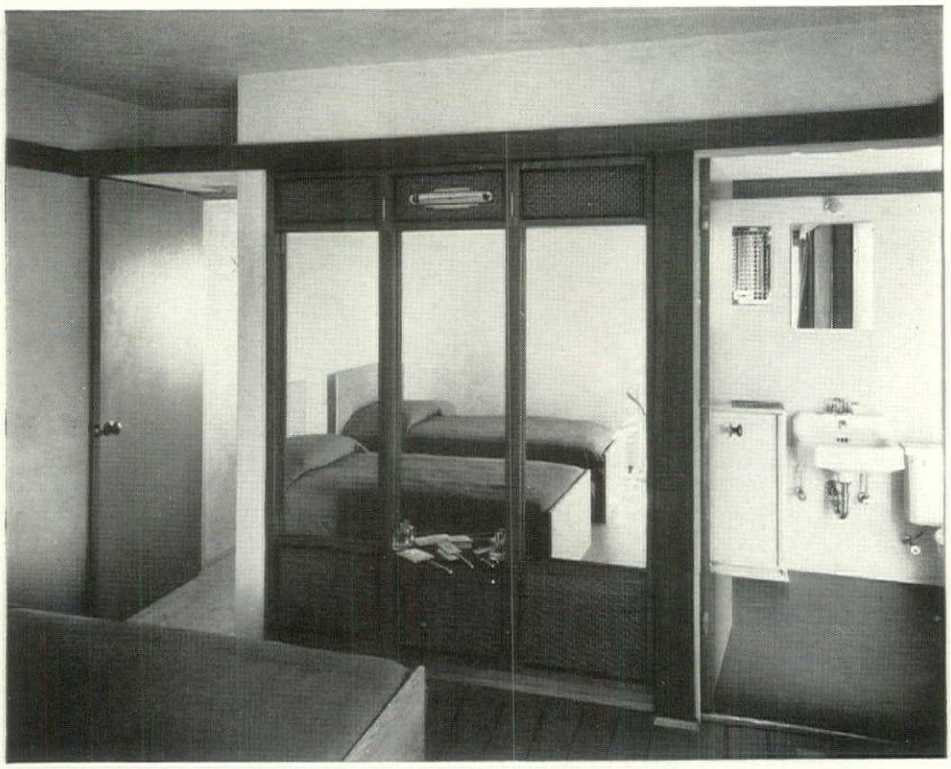


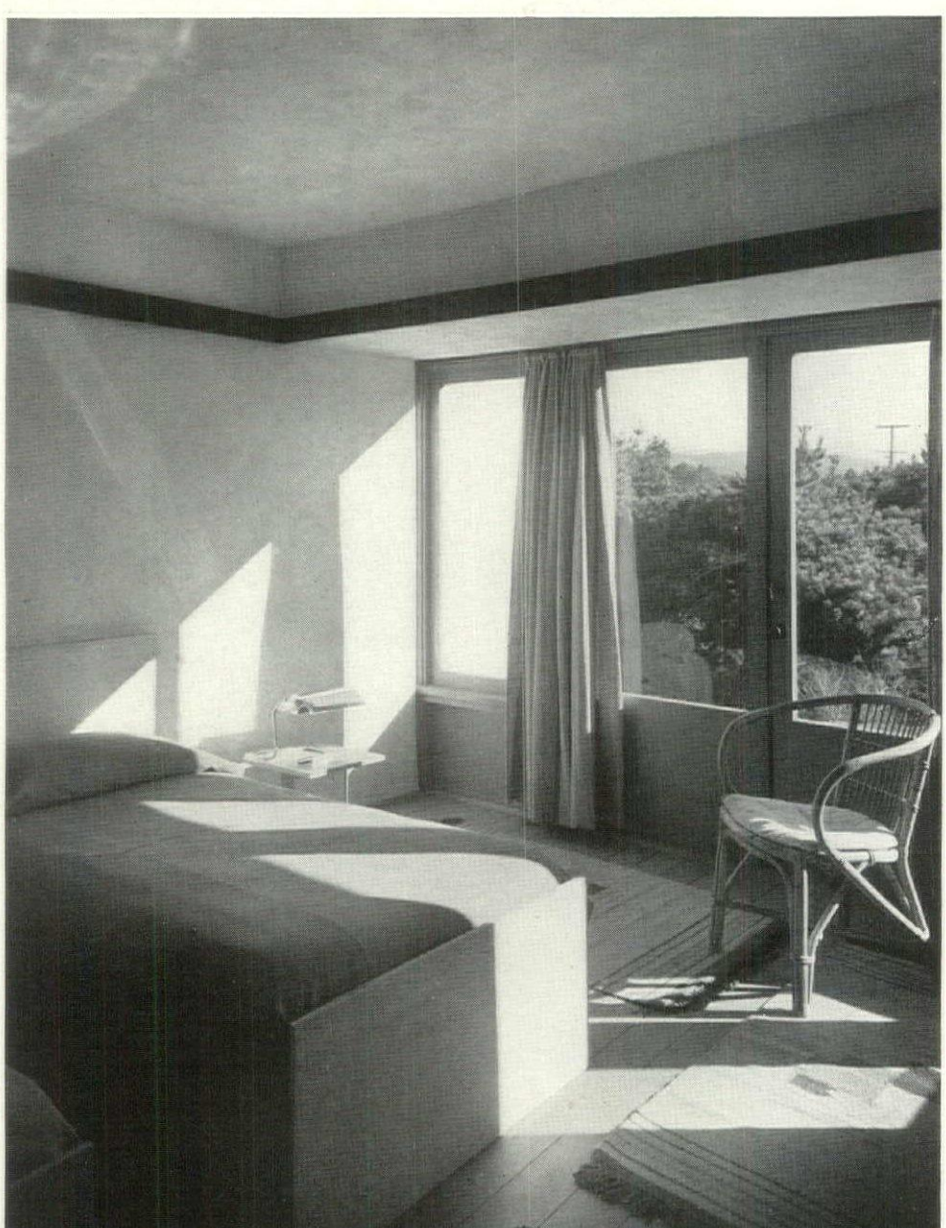

FLOOR & PLOT PLAN



A NOTABLE characteristic of this house, like others designed by Mr. Harris, is its complete lack of pretentiousness and its general air of livability. The plan is excellent. One entrance takes care of both living quarters and kitchen, and is placed to give an interesting view through the living room without any sacrifice of privacy. Bedrooms are separated, and each has been designed to take advantage of the view. The small dining bay is most ingenious: two small tables occupy the corners, leaving the center free for circulation; when in use the tables can be placed together, as shown in the photograph above, or put out on the terrace. The illustration at the right shows the compact, well-lighted kitchen; an interesting feature of the room is the lighting panel, three by nine feet, placed above the sink and work counter. Area: house, 1,130 sq. ft., garage, 350 sq. ft. Cost: $6,000, at about $4 per square foot.

# HOUSE FOR MISS MARION CLARK CARMEL-BY-THE-SEA, CALIFORNIA





BEDROOM

HARWELL HAMILTON HARRIS

DESIGNER

## CONSTRUCTION OUTLINE

FOUNDATION: Continuous concrete foundation under exterior walls, concrete piers under exterior supports.

STRUCTURE: Exterior walls—colored stucco over 16 gauge galvanized wire mesh, 60 lb. Mullen Test waterproof paper, 16 gauge wire, 6 in. o.c. on studs, 16 in. o.c. Interior—plaster on plaster board lath; smooth putty coat with enamel finish in kitchen and bathrooms; colored stucco for remainder, California Stucco Co. Floor construction—vertical grain Douglas fir tongue and groove planks on 4 x 6 in. girders, 4 ft. o.c.

ROOF: Douglas fir rafters, sheathing, covered with Redwood shingles. Eave soffit—T & G redwood. Deck—Douglas fir rafters, solid sheathing, covered with 4-ply built-up asphalt and felt roofing with gravel topping.

SHEET METAL WORK: Flashing—24-gauge galvanized iron; Dutch gutters.

WINDOWS: Sash—outswinging wood casements with Whitco hangers, Vincent Whitney Co. Glass—single strength quality B, Pittsburgh Plate Glass Co.; glazed doors—double strength, quality B, Libbey-Owens-Ford Co.; large corner window—3/16 in. Crystal. Screens—inswinging wood casement with 16 mesh copper fabric.

FLOOR COVERINGS: Living room, bedrooms and halls—Rusticon rugs, The Adamo Co. Kitchen and bathrooms—linoleum.

WOODWORK: Trim—clear redwood. Shelving and cabinets—sugar pine in kitchen and bathrooms, remainder redwood. Interior doors—Rezo flush panel, M. & M. Woodworking Mfg. Co. Exterior doors—sugar pine rails with glass panel. Garage doors—clear redwood, T & G; tilting overhead type.

HARDWARE: Locks and latches—Schlage Lock Co.; butts, Stanley Co.

PAINTING: Interior: Kitchen and bathroom walls and ceilings—enamel, E. I. duPont de Nemours. Floor—stain and dull varnish. Trim and cabinets—redwood, transparent stain. Exterior: Roof—1 coat fireproofing, 1 coat coldwater paint. Sash—oil paint, 3 coat work.

ELECTRICAL INSTALLATION: Wiring—steel conduit. Switches—tumbler. Fixtures—built-in and indirect; flush panel over kitchen sink; Lumilines over bathroom mirrors.

KITCHEN EQUIPMENT: Range—gas, Estate Stove Co. Refrigerator—Coldspot, Sears-Roebuck Co. Sink—Standard Sanitary Mfg. Co.

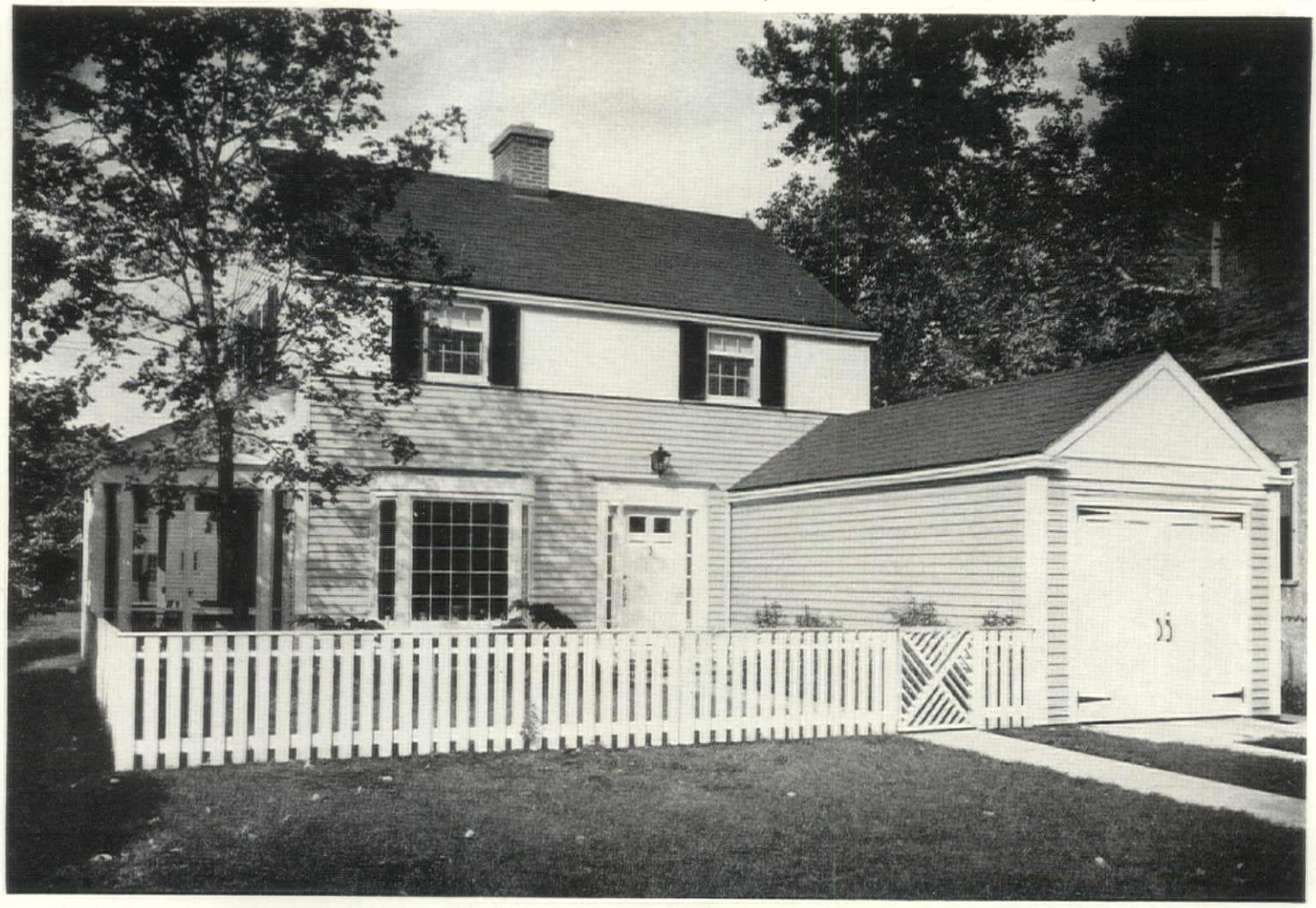
LAUNDRY EQUIPMENT: Sink—Standard Sanitary Mfg. Co. Ironing board—Dura Steel Products Co.

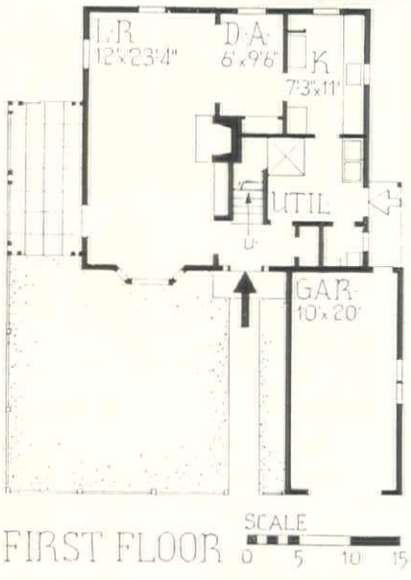
BATHROOM EQUIPMENT: All fixtures by Standard Sanitary Mfg. Co. Cabinet—Hall-Mack, Hallensheid & McDonald.

PLUMBING: Soil pipes—cast iron; water pipes—galvanized iron, National Tube Co. Pressure regulator—Mueller Co.

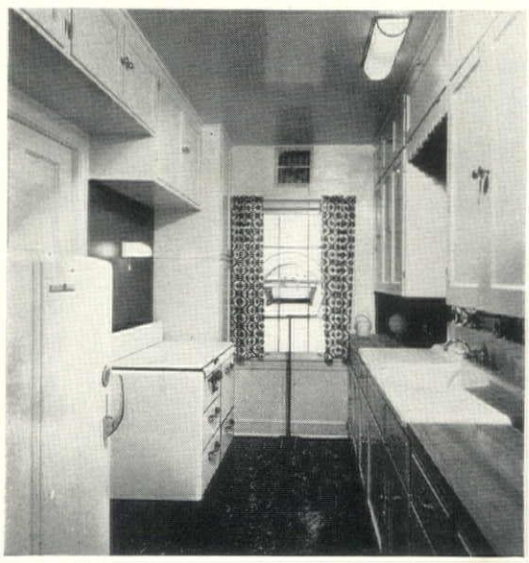
HEATING: Sunbeam Tuckaway gas fired hot air floor furnace, Fox Furnace Co.; Thermador electric Radiant heaters in bathrooms, Thermador Electric Heating & Mfg. Co.

# HOUSE FOR L. MORGAN YOST, KENILWORTH, ILLINOIS









L. MORGAN YOST, ARCHITECT

THE effect of omitting the basement from an otherwise conventional two-story house is well illustrated by this example. The dining room has been replaced by a dining alcove, the extra space being taken up by a utility room; upstairs a storage room of good size has been provided. The exterior makes good use of the pleasing contrast between clapboards and flush surfaces. Cubage: 16,300. Cost: $8,900, at about 55 cents per cubic foot.

## CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—wood frame, Weyerhaeuser Sales Corp.; Insulite lath, Insulite Co. Floor construction—(1st) concrete reinforced slab on fill; remainder—wood.

FLOOR COVERINGS: Living room—carpet over Ozite, Bigelow-Sanford Carpet Co.

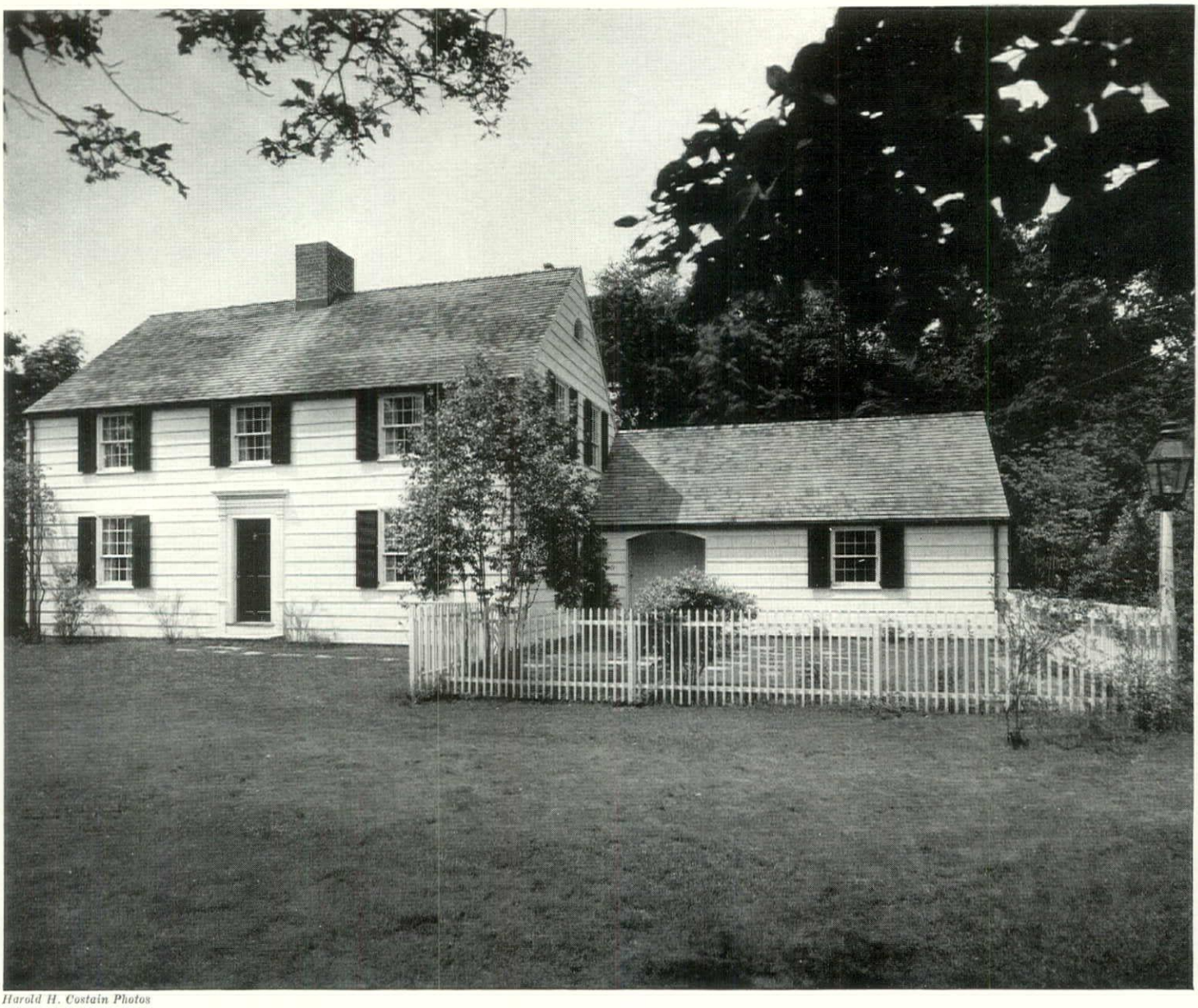
ELECTRICAL INSTALLATION: Wiring—steel conduits. Switches—Bryant Electric Co. Fixtures—Chase Brass & Copper Co.

KITCHEN EQUIPMENT: Range—Cribben & Sexton Co. Refrigerator—General Electric Co.

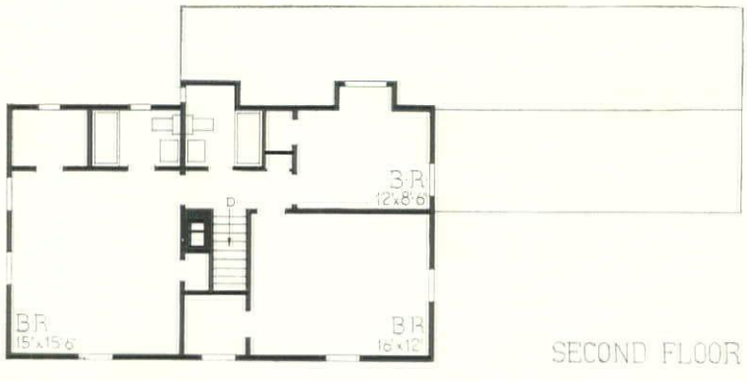
BATHROOM EQUIPMENT: Fixtures by Kohler Co.

HEATING AND AIR CONDITIONING: "Niagara," filtered and humidified, Forest City Foundries. Regulator—Minneapolis-Honeywell Regulator Co. Hot water heater—Par-X, Everhot Heater Co.

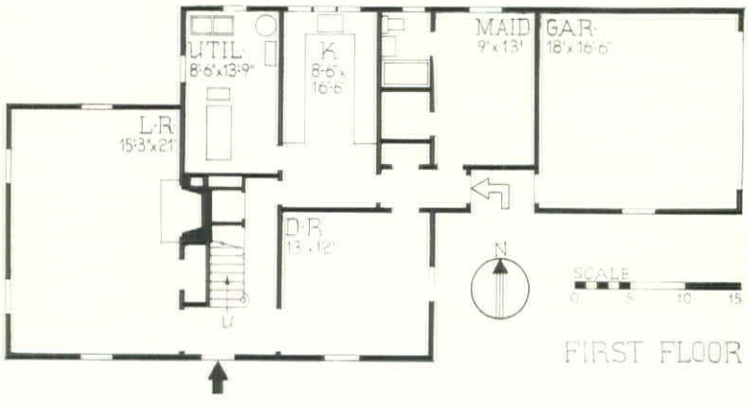
# HOUSE AT NOLEN LANE, DARIEN, CONNECTICUT



*Harold H. Costain Photos*




SECOND FLOOR




FIRST FLOOR

A SMALL Connecticut house which follows the local tradition so carefully that it might be taken for an original, an effect due not only to the great delicacy of the details, but to the simplicity of the mass and the absence of foundation planting. The plan is compact and workable: a centrally located utility room replaces the basement, and the other services are well located. Three bedrooms, each with cross ventilation, are provided on the second floor, and closet space is adequate. Cubage: 29,000.

DETAIL LIVING ROOM

DETAIL ENTRANCE

## CONSTRUCTION OUTLINE

FOUNDATION: Footings—concrete. Foundation walls—cinder block. Waterproofing—Anti-Hydro Waterproofing Co.

STRUCTURE: Exterior walls—wood shingle, McNair Shingle Co.; insulating paper, Neponset, Bird & Son, sheathing, studs, Weyerhaeuser Sales Co., 4 in. rock wool, Johns-Manville Corp., metal lath, Truscon Steel Co., perforated rock lath and plaster, U. S. Gypsum Co. Floor construction—8 in. steel girders, joists, subflooring, deadening felt, Birds-Eye, Bird & Son, random width oak plank flooring. Ceilings—metal lath and plaster.

ROOF: Rafters covered with wood shingles.

CHIMNEY: Lining—Robinson Clay Products Co. Damper—Old Style, H. W. Covert Co.

SHEET METAL WORK: Anaconda 16 oz. copper throughout, American Brass Co. Termite shields—16 oz. sheet copper laid between foundation walls and sills.

INSULATION: Outside walls, attic floor and roof—4 in. rock wool, Johns-Manville Corp. Weatherstripping—interlocking zinc for doors and windows.

WINDOWS: Sash—double hung, Curtis Companies; type C balances, Unique Balance Co. Glass—single strength, quality A, Pittsburgh Plate Glass Co.

STAIRS: Treads—oak. Risers and stringers—white pine, Curtis Companies.

FLOORS: Main rooms—random width oak plank. Kitchen and bathrooms—fir strip sub flooring, linoleum covered.

WALL COVERINGS: Main rooms—imported wallpaper. Kitchen and bathrooms—tile, Pardee-Matawan Tile Co.; wallpaper, Richard E. Thibaut Co., Lonegren Co.

WOODWORK: Shelving and cabinets—selected white pine. Doors—Curtis Companies. Garage doors—overhead steel rolling, Kinnear Mfg. Co.

HARDWARE: Polished brass and black throughout, Yale & Towne Mfg. Co.

PAINTING: Interior: Floors—stain, 2 coats shellac, 2 coats Traffic wax, S. C. Johnson & Son, Inc. Trim and sash—Sani-flat, Benjamin Moore & Co. Exterior walls—white lead Dutch Boy and oil, National Lead Co.

ELECTRICAL INSTALLATION: Wiring system—General Electric Co. Switches—Hart & Hegeman Mfg. Co.

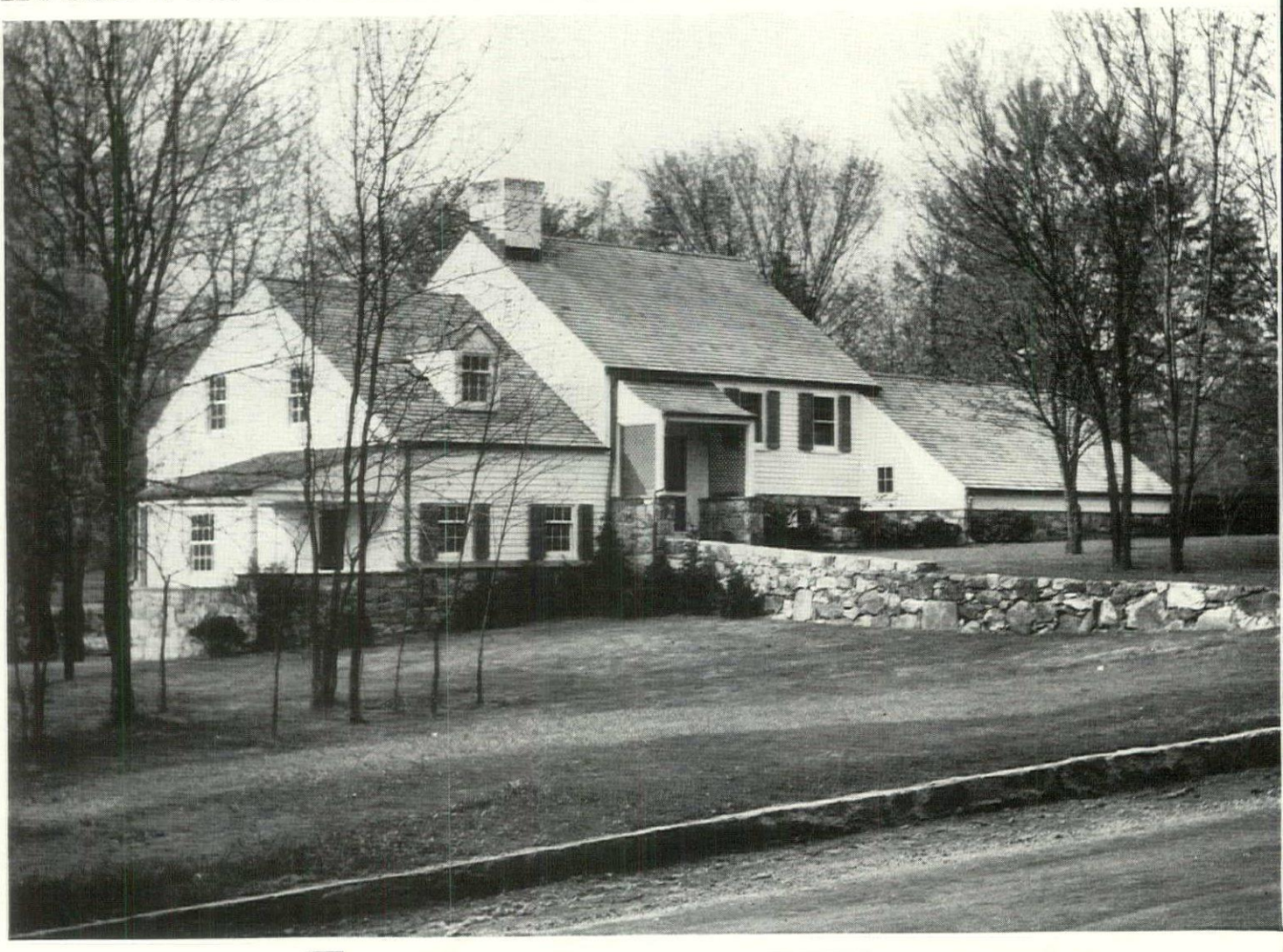
KITCHEN EQUIPMENT: Range and refrigerator—General Electric Co. Sink—Standard Sanitary Mfg. Co. Cabinets—Curtis Companies stock, special finish.

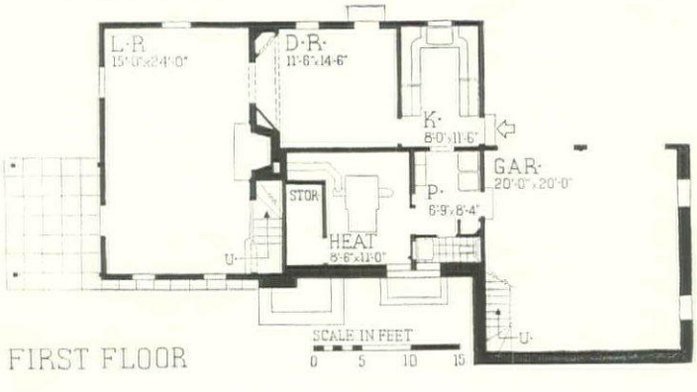
BATHROOM EQUIPMENT: All fixtures by Standard Sanitary Mfg. Co. Cabinet and accessories—standard chromium, Charles Parker Co.

PLUMBING: Soil pipes—National Steel Co. Water pipes—Anaconda brass, American Brass Co. Pump—Duro shallow well, Duro Pump Co.

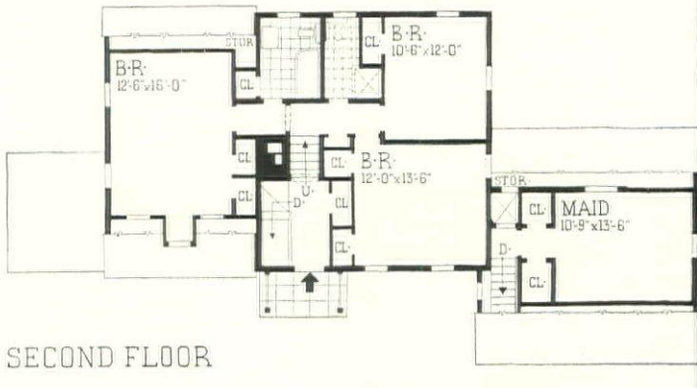
HEATING AND AIR CONDITIONING: Complete system including filtering and humidifying, General Electric Co. Grilles—Tuttle & Bailey Mfg. Co.

# HOUSE FOR GODFREY SHAW, SOUTH NORWALK, CONN.






FIRST FLOOR




SECOND FLOOR

ALBERT GRAESER, ARCHITECT

A DESIGN very much in the less formal New England tradition, with prominent roofs and an irregular mass. Due to site conditions an arrangement of staggered levels was used, the living room, dining room, and kitchen being placed at the ground level, with the main entrance half way between this floor and the bedrooms above. The maid's room occupies a separate wing, communicating with the kitchen by means of a stair through the garage. Cubage: 31,000. Cost: $15,407, at about 50 cents per cubic foot.

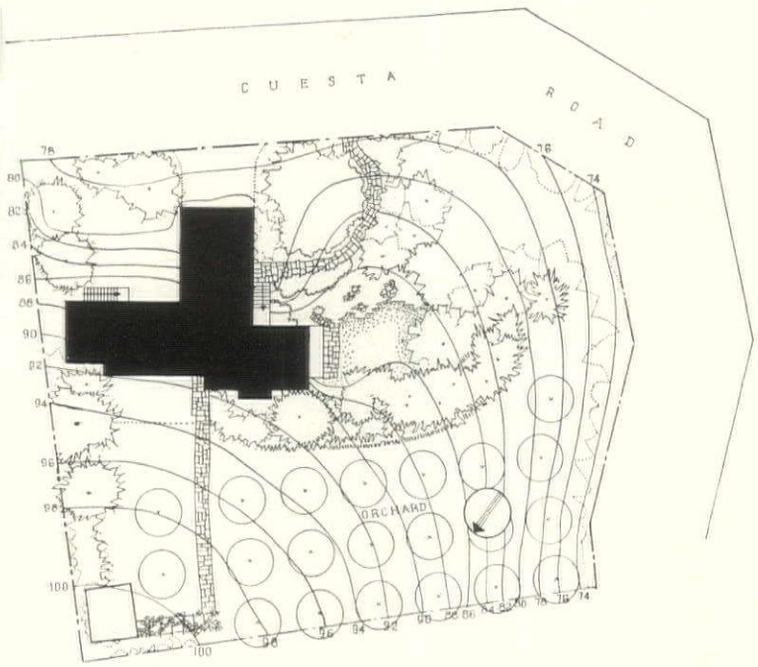
## CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—cedar siding, Sisalkraft Co. paper, studs, U. S. Gypsum Co. rock wool, sheet rock and plaster.
SHEET METAL WORK: Flashing, gutters and leaders—16 oz. Anaconda copper, American Brass Co.
WINDOWS: Sash—Silentite, double hung, Curtis Companies. Glass—single strength, Libbey-Owens-Ford Glass Co.
FLOORS: Living room—oak plank. Bedrooms and halls—pine. Kitchen and bathrooms—linoleum.
WOODWORK: Trim, shelving and doors—Curtis stock, Curtis Companies. Garage doors—Overhead Door Co.
HARDWARE: All material by Schlage Lock Co.
PAINTING: Interior walls, ceilings, trim and sash—Valspar semi-gloss, Valentine & Co. Floors—linseed oil, stain, 3 coats shellac, S. C. Johnson & Son, wax.
KITCHEN EQUIPMENT: Range—Magic Chef, American Stove Co. Refrigerator—Electrolux, Inc. Sink—Standard Sanitary Mfg Co. Cabinet—Kitchen Maid Co.
BATHROOM EQUIPMENT: All fixtures by Standard Sanitary Mfg. Co. Cabinet—Columbia Metal Box Co.
HEATING AND AIR CONDITIONING: Filtering, humidifying and summer circulating. Boiler—Bryant Heater Co. Regulator—Minneapolis-Honeywell Regulator Co. Water heater—Hotzone, Welsbach Co.

# HOUSE FOR ARTHUR HOFMANN, HILLSBOROUGH, CALIFORNIA

RICHARD J. NEUTRA, ARCHITECT

OTTO WINKLER, COLLABORATOR



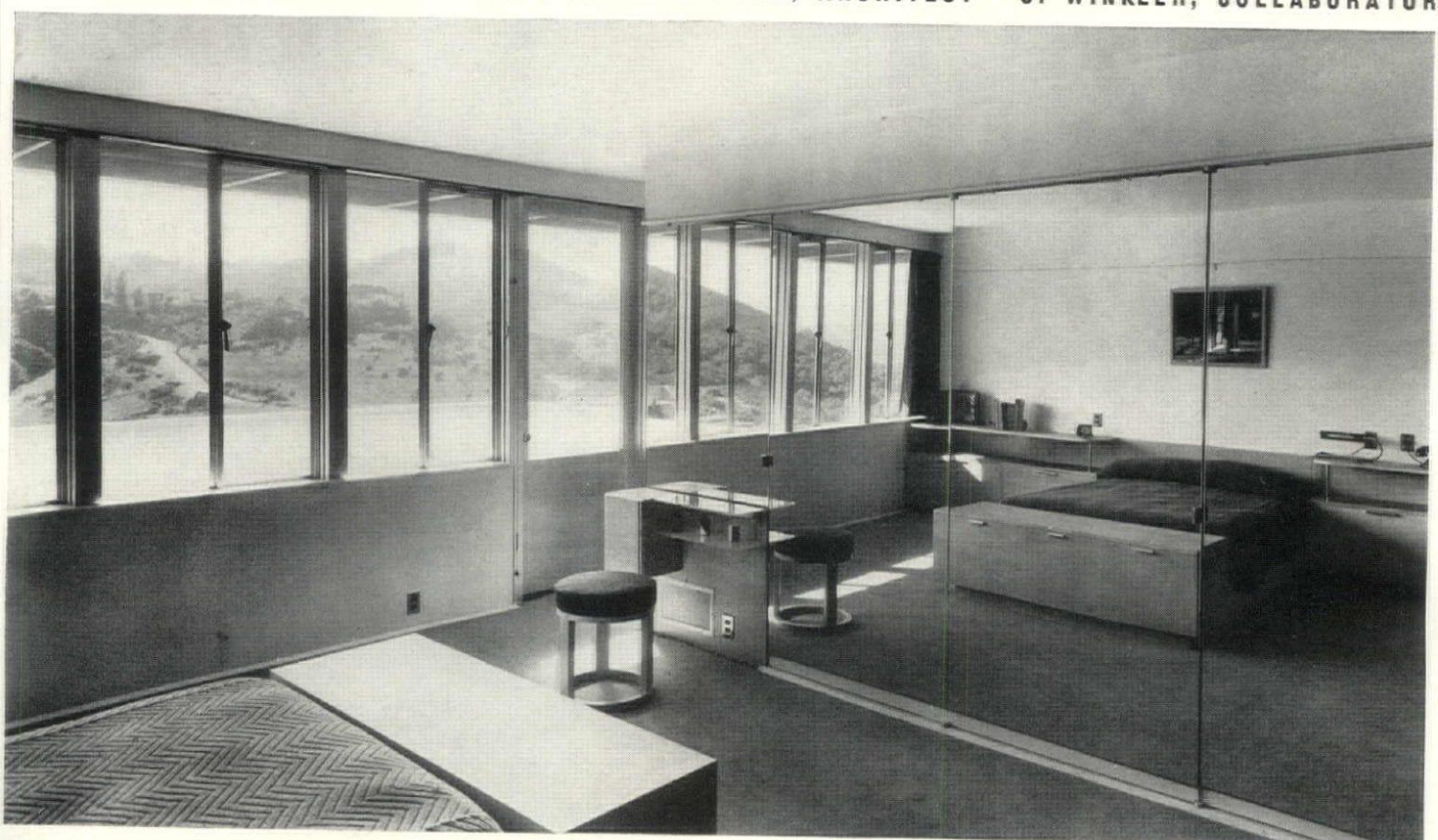

PLOT PLAN

# HOFMANN RESIDENCE, HILLSBOROUGH, CALIF.

J. H. Brenenstul

LIVING ROOM

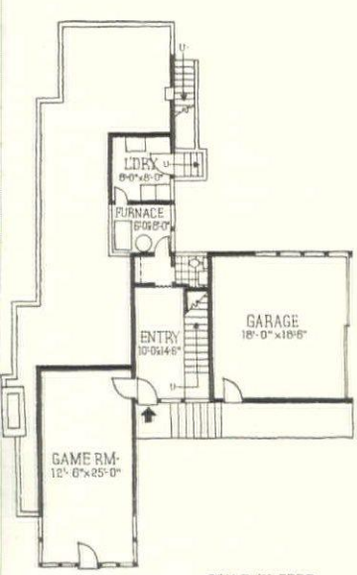
DESIGNED in Mr. Neutra's familiar manner, this house is situated on a hillside overlooking San Francisco Bay. The entrance is at the basement level, and leads up to a stair hall which has been skillfully combined with the large living room. Glass has been generously used to take advantage of the views. The color treatment is cool throughout: the living room has a silver-gray carpet, cabinets in Nara and African walnut, curtains and upholstery in dark salmon; the master bedroom, shown on the opposite page, has the same color carpet, light gray woodwork, and jade green fabrics. Cubage: 33,600. Cost: $17,600, at about 52 cents per cubic foot.



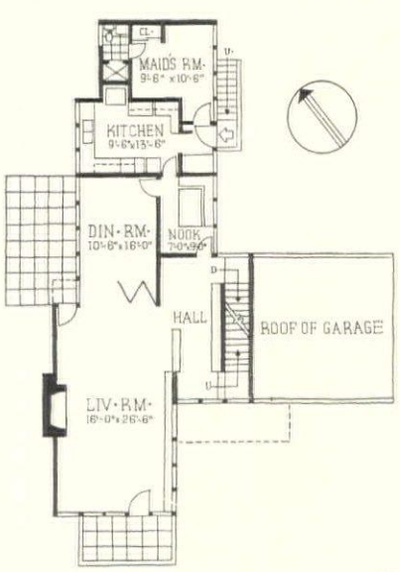
BEDROOM

J. H. Brenenstul


SECOND FLOOR




BASEMENT SCALE IN FEET 0 5 10 15 20




FIRST FLOOR

## CONSTRUCTION OUTLINE

FOUNDATIONS: Continuous reenforced concrete footings. Cellar floor—3½ in. reenforced concrete slab over 2 in. gravel bedding. Waterproofing: All concrete anti-hydro mix, Anti-Hydro Waterproofing Co. Retaining walls—asphalt coating. Floors—2 layers 15 lb. felt asphalt mopped.

STRUCTURE: Exterior walls—continuous truss-braced standard wood chassis, milled rabbetted, 4 x 4 in. posts spaced 39½ in. o.c., diagonal wood sheathing, 1 in. cement stucco over Sisalkraft paper, Sisalkraft Co., and galvanized wire netting outside. Inside—Celotex Corp. lath with smooth putty plaster over galvanized wire netting. Floor—wood construction, diagonally cross braced, ceiling Celotex Corp. lath with plaster over galvanized wire netting.

ROOF: Wood construction covered with 5-ply built-up tar and gravel, El Rey Products Co. Decks—covered with Mastipave, Paraffine Companies, Inc.

CHIMNEY: Lining—brick and terra cotta. Damper, ashdump and cleanout—Bennett Fireplace Corp.

SHEET METAL WORK: Flashing, gutters and leaders—24 gauge galvanized iron, Armco, American Rolling Mill Co.

INSULATION: Outside walls, ground floor and roof—Celotex, Celotex Corp. and ½ in. Cabot's Quilt, Samuel Cabot, Inc. Weatherstripping—Chamberlin Metal Weather Strip Co.

WINDOWS: Sash—steel casement, Ariston, Michael & Pfeffer Iron Works. Glass—double strength, Quality A, Libbey-Owens-Ford Glass Co. Screens—Rollway Screen Co.

FLOORS: All wood, covered in living room, master bedroom, stairs and halls with Wilton Frieze broadloom; remainder of floors covered with ⅛ in. linoleum.

WALL COVERINGS: Entire house white Remie canvas, Walltex, Columbus Coated Fabrics Corp.

WOODWORK: Trim—metal bullnoses around door jambs. Cabinet—vertical grain Douglas fir with flush Masonite doors, Masonite Corp. Interior doors—Cellular Rezo slab doors, Oregon pine, M. & M. Woodworking Co. Exterior doors—sugar pine. Garage doors—Richard Wilcox Corp.

PAINTING: Interior woodwork—4 coats of oil paint, Pittsburgh Plate Glass Co. Sash—Albron aluminum paint. Exterior walls—waterproofing brush coat.

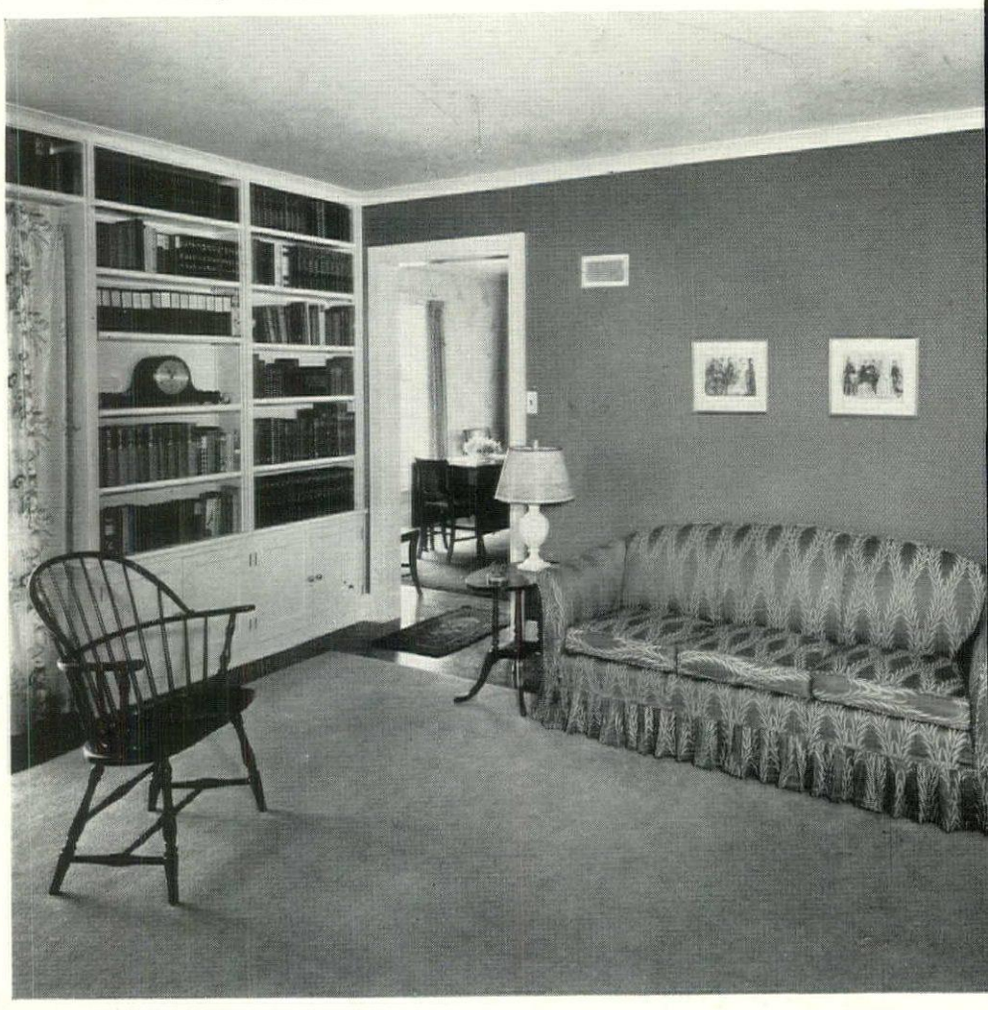
ELECTRICAL INSTALLATION: Wiring system—rigid steel conduits, General Electric Co. Switches—tumbler. Fixtures—built-in with diffusing glass and Lumiline lights.

KITCHEN EQUIPMENT: Range and refrigerator—electric. Sink—stainless steel with garbage disposal. Dishwasher—electric. All fixtures by General Electric Co.

BATHROOM EQUIPMENT: All fixtures by Kohler Co. Cabinet—Columbia Metal Box Co.

HEATING AND AIR CONDITIONING: Frazer warm air system, with blower, filters, humidifiers. Radiators—Air Flow, Tuttle-Bailey, Inc. Hot water heater—Ruud Mfg. Co.

# HOUSE FOR JOHN W. MILLER, CEDAR RAPIDS, IOWA

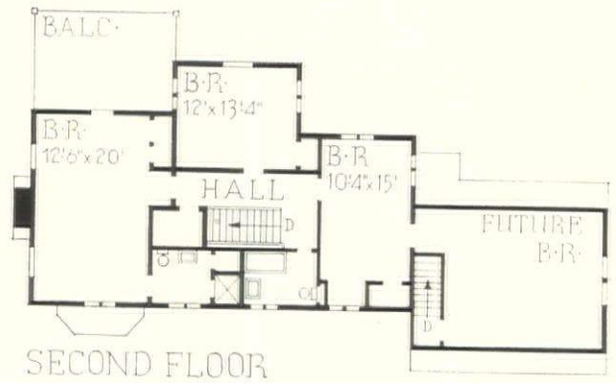


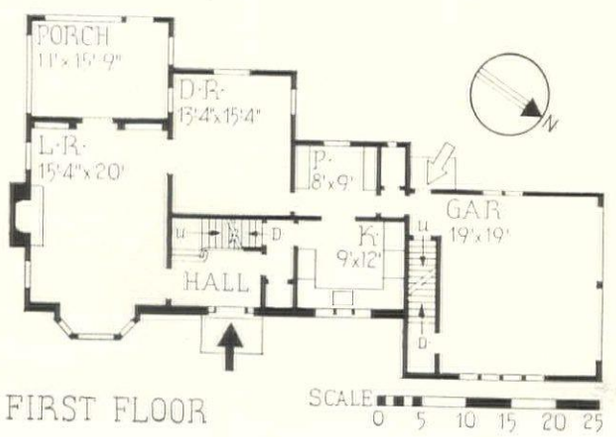
Thompson Photos

LIKE many of the middle western States, Iowa has drawn freely on New England precedents for its residences. One interesting local variation, the use of native stone, is illustrated in this house. The plan is conventional both in its provision of accommodations and arrangement, with three bedrooms of adequate size on the second floor, and space for a fourth over the garage. Cubage: 24,950 (without garage or porch). Cost: $11,500, at about 46 cents per cubic foot.

## DESIGNED BY BRUCE & KENNETH McKAY

LIVING ROOM

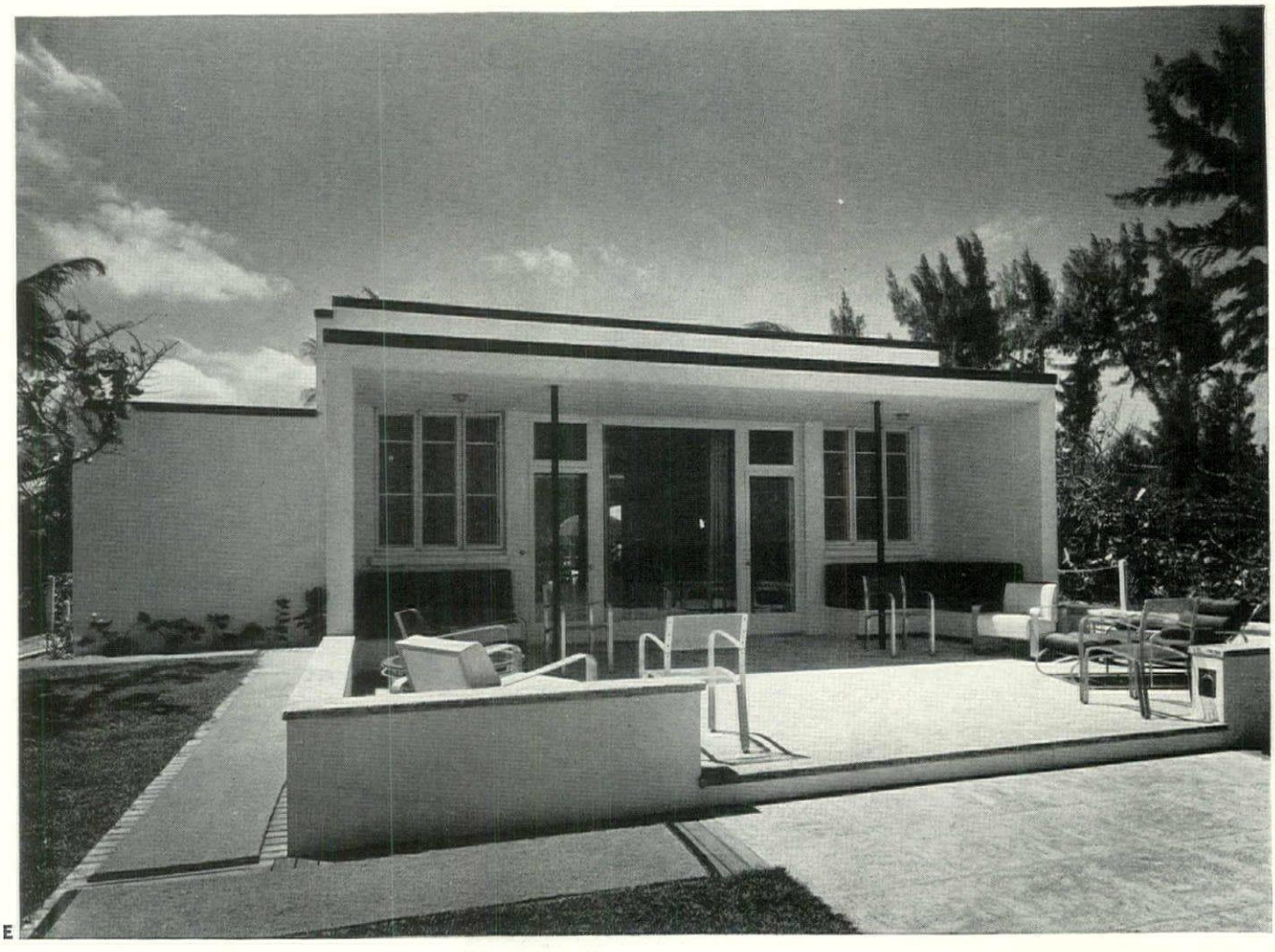



## CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—stone and shingles, Sisalkraft Co.'s paper, shiplap, 2 in. rock wool, studs, U. S. Gypsum Co.'s rock lath and plaster. Floor construction—joists, shiplap sub-flooring and clear oak, E. L. Bruce Co.
ROOF: Wood shingles, asphalt paper, The Ruberoid Co. Deck—Taylor's Old Style 40 lb. tin.
CHIMNEY: Damper—Colonial Fireplace Co.
SHEET METAL WORK: Flashing—copper, Chase Brass & Copper Co. Gutters and leaders—galvanized iron, American Steel Co.
INSULATION: Outside walls and attic floor—rock wool, Celotex Corp. Weatherstripping—Chamberlin Metal Weather Strip Co.
WINDOWS: Sash—casement and double hung, Farley & Loetscher. Glass—double strength, quality A, Libbey-Owens-Ford Glass Co. Screens—wood frames, copper bronze mesh, attached to casements.
STAIRS: Treads—clear oak. Risers and stringers—pine.
FLOOR COVERINGS: Main rooms—carpet, F. Schumacher & Co. Kitchen—linoleum. Bathrooms—tile.
WALL COVERINGS: Wallpaper, M. F. Birge & Co.
WOODWORK: Trim, cabinets and exterior doors—white pine. Interior doors—birch veneer, Cedar Rapids Sash & Door Co. Garage doors—Overhead Door Corp.
HARDWARE: Interior and exterior—P. & F. Corbin Co.
PAINTING: Interior: Wall and ceilings—3 coats paint. Floor—stain, filler, 2 coats varnish and wax. Trim and sash—4 coats enamel. All paint by Pratt & Lambert. Exterior walls and sash—3 coats lead and oil, National Lead Co. Chimney—Bondex, Reardon Co.
ELECTRICAL INSTALLATION: Wiring system—BX, Circle Wire & Cable Co. Switches—Bryant Electric Co. Fixtures—Novelty Mfg. Co.
KITCHEN EQUIPMENT: Range—Westinghouse Electric & Mfg. Co. Refrigerator—Frigidaire Corp. Sink—Kohler Co.
BATHROOM EQUIPMENT: Lavatory and tub—Kohler Co. Toilet—TN, The Case Co. Seat—C. F. Church Mfg. Co.
PLUMBING: Soil pipes—iron. Water pipes—copper. Hoosier deep well pump and water system.
HEATING AND AIR CONDITIONING: Airflow forced warm air, Lennox Furnace Co.; humidifier, The Chandler Co. Regulator—Minneapolis-Honeywell Regulator Co.

# BEACH HOUSE, HOBE SOUND, FLORIDA



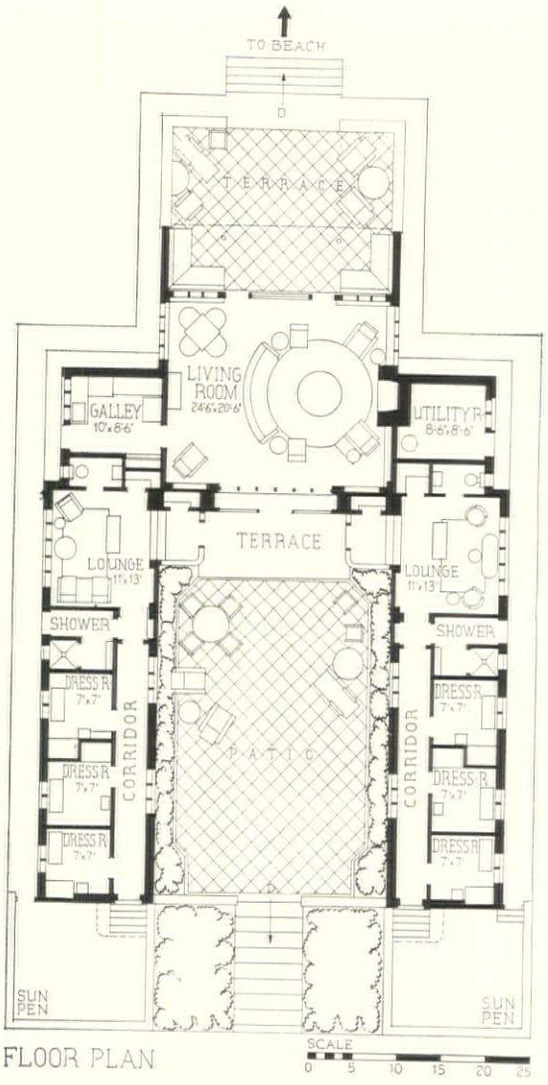
REAR TERRACE

LIVING ROOM

# HENRY CORSE, ARCHITECT. FURNISHINGS DESIGNED BY WALTER DORWIN TEAGUE

ENTRANCE PATIO

*Frank Turgeon Jr. Photos*




FLOOR PLAN

A FORMAL plan was used most successfully in the design of this beach house, and it provides an excellent balance between indoor and outdoor living; dressing rooms occupy the wings which flank the patio, and the living room has been placed so that it opens to both court and beach. The walls of the living room are pickled cypress with trim of dark brown bog cypress, and fabrics are in coral, coral-beige, and deep chartreuse; the rug picks up the dark brown of the trim. The furniture, designed to withstand the effects of sun and rain, is of particular interest. The tables and some chairs are in transparent plastics and anodized aluminum; the heavier outdoor pieces are done in waterproof fabrics over a latex material which replaces the usual springs and padding. Cubage: 26,800. Cost: $22,700, at about 84 cents per cubic foot.

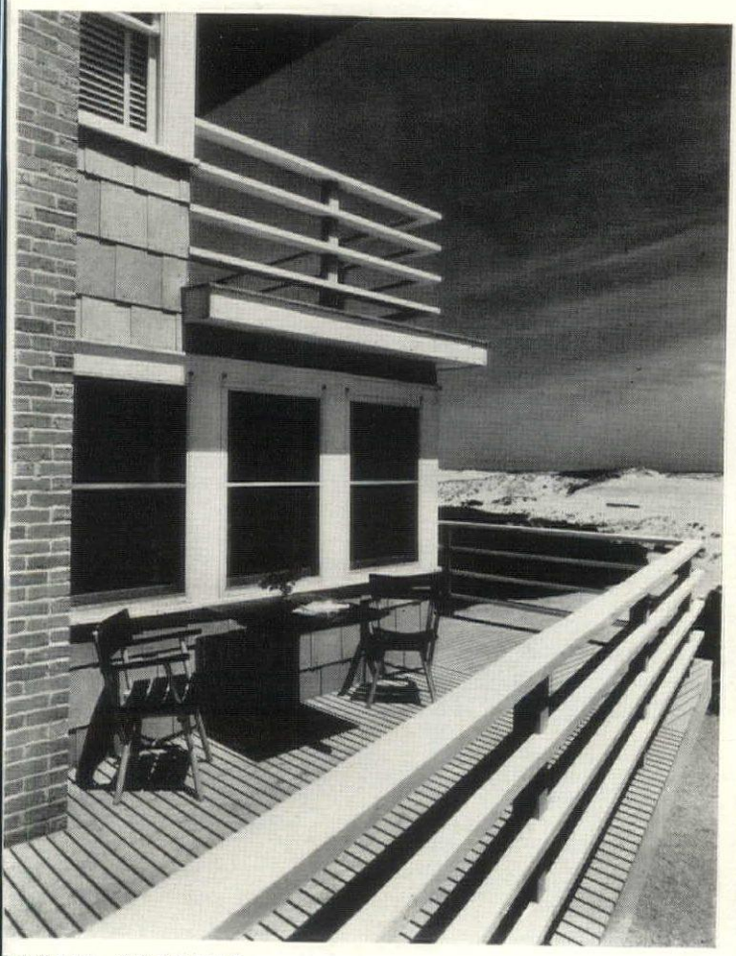
## CONSTRUCTION OUTLINE

FOUNDATION: Walls—poured concrete.
STRUCTURE: Exterior walls—hollow tile veneer, stucco, studs, sheathing, heavy building paper. Interior—studs, wood lath and plaster. Floor construction—reenforced concrete slab and wood joists.
ROOF: Covered with 5-ply built-up roof, Barrett Co.
WINDOWS: Sash and screens—wood casement units, Andersen Frame Corp. Glass—double strength.
FLOORS: Living room—stone. Dressing rooms—red oak. Kitchen—linoleum. Bathrooms—rubber tile.
WALL COVERINGS: Living room, dressing rooms and kitchen—cypress.
HARDWARE: Interior—bronze and chromium; exterior—brass, P. & F. Corbin.
PAINTING: Living room walls—pickled. Ceilings—paint. Floors—stain. Exterior walls—waterproof paint. Sash—lead and oil.
ELECTRICAL INSTALLATION: Wiring—Romex cable, General Cable Corp. Switches—tumbler. Fixtures—by Kurt Versen, Inc.
KITCHEN EQUIPMENT: Range and refrigerator—electric, General Electric Co. Sink—stainless steel, Crane Co.
BATHROOM EQUIPMENT: All fixtures by Crane Co.
PLUMBING: Water pipes—copper tubing.
Furnishings executed by W. & J. Sloane.

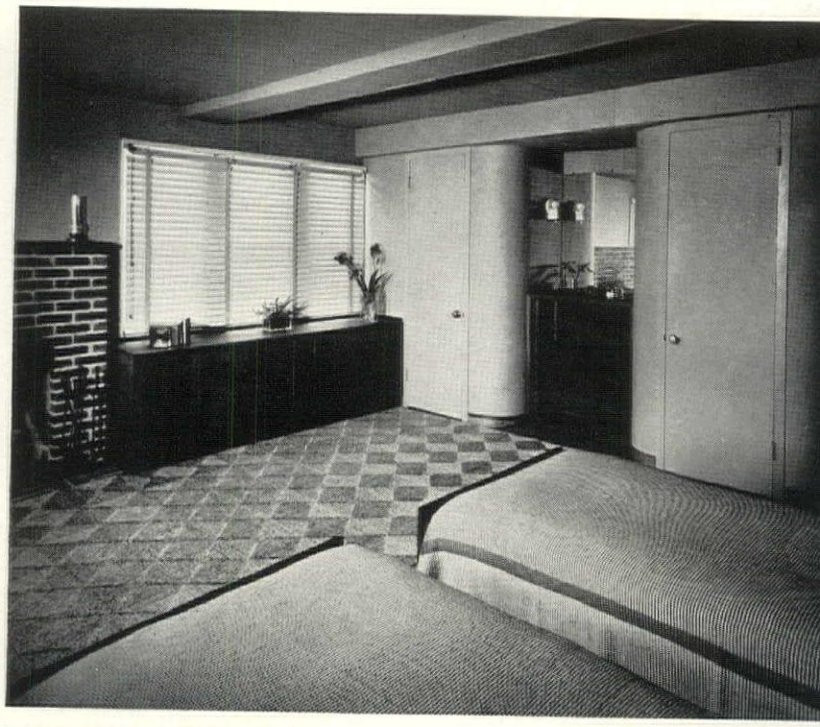
# HOUSE FOR F. MORSE ARCHER, JR., BARNEGAT CITY, N. J.

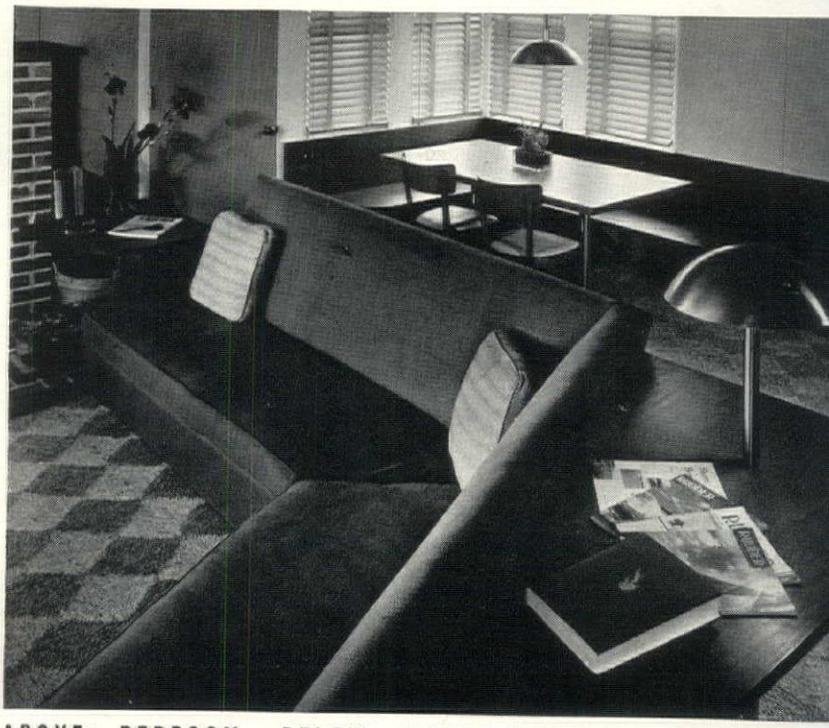
*Robert M. Damora Photos*

THE weather presents a major problem in the design of beach houses: moisture-laden salt air, sun, and wind are practically unlimited in their destructive possibilities, and as a result such structures have traditionally been built of the simplest durable materials. This precedent was followed here, with one distinct improvement: the use of asbestos shingles as a protection against the ever-present fire hazard. The house is built into a sand dune, and the difference in levels permitted the placing of the garage and maid's room under the main living quarters. The plan is simple and open, taking good advantage of the views, and provides four bedrooms, a large living-dining room, and a kitchen which overlooks the beach. Cubage: 27,200. Cost: $7,900 at 29 cents per cubic foot.



DETAIL TERRACE

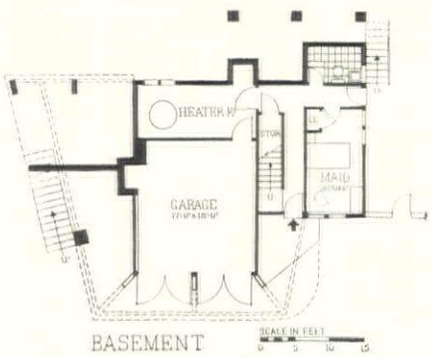




ABOVE: BEDROOM BELOW: LIVING ROOM


SECOND FLOOR


FIRST FLOOR

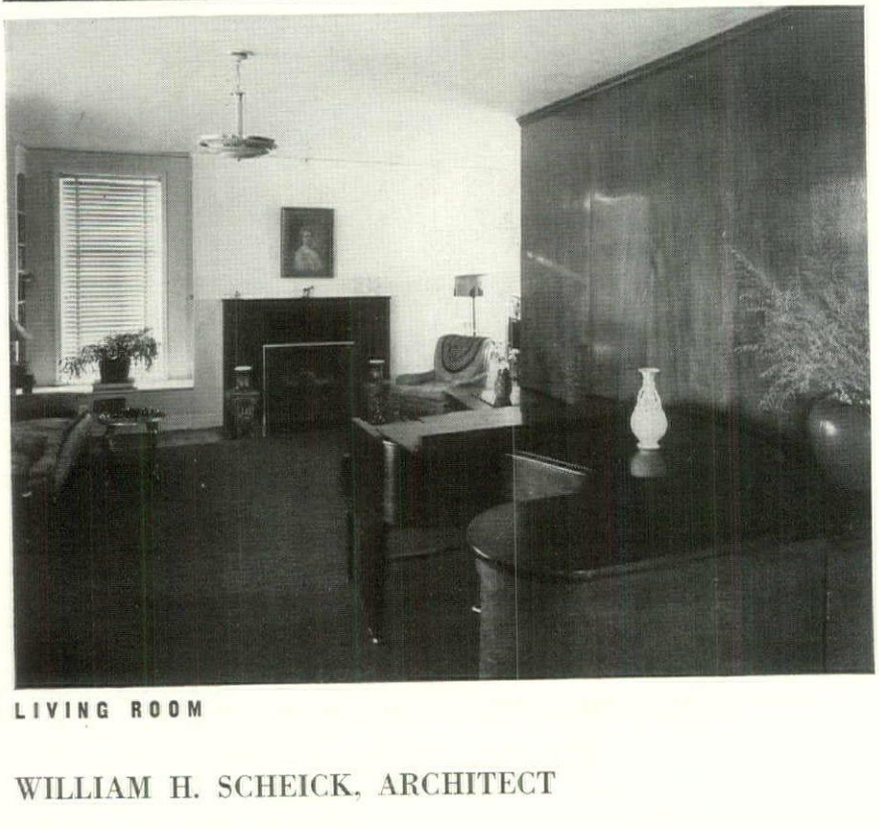



BASEMENT

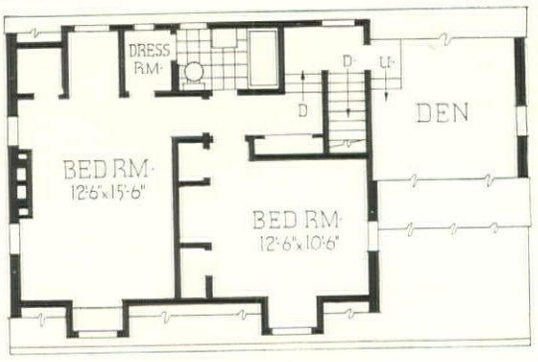
## CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—asbestos shingles, Keasbey & Mattison, building paper, diagonal sheathing, studs; inside—Thermosote, Homasote Co. Floors—N. C. pine. Ceilings—Thermosote.
ROOF: Joist and sheathing covered with canvas.
WINDOWS: Sash—wood, double hung. Glass—1/8 in. quality B, Libbey-Owens-Ford Glass Co.
WOODWORK: Trim and cabinets—white pine. Interior and exterior doors—flush panel, Rezo, M. & M. Woodworking Co.
PAINTING: All paint material, Pratt & Lambert Co.
KITCHEN EQUIPMENT: Range—Quality gas, Roberts & Mander Stove Co. Refrigerator—Frigidaire Sales Corp. Sink—Standard Sanitary Mfg. Co.
BATHROOM EQUIPMENT: All fixtures by Kohler Co. Cabinet—Charles Parker Co.
AIR CONDITIONING: Winter air conditioner, Sun Beam, Fox Furnace Co.

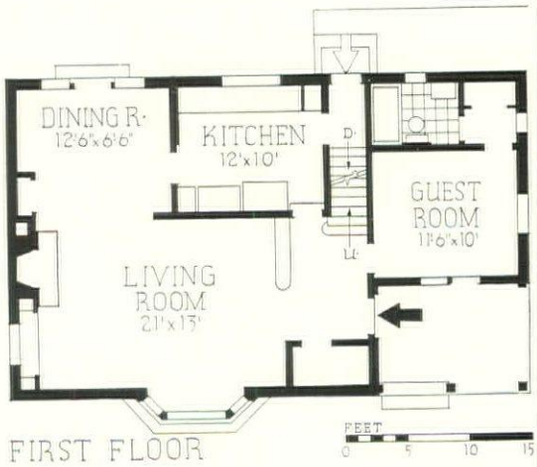
# HOUSE FOR J. T. COLVIN, URBANA, ILLINOIS



LIVING ROOM




SECOND FLOOR




FIRST FLOOR

WILLIAM H. SCHEICK, ARCHITECT

A VERY compactly planned small house; an effect of unusual spaciousness has been created on the first floor by the use of a minimum of partitions. Living and dining rooms are combined, and only a low counter marks off the hall from the living room. Two bedrooms of reasonable size are provided on the second floor, with a small study adjacent. The guest room is well placed for privacy. Cubage: 25,400. Cost: $9,414, at about 38 cents per cubic foot.

## CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—4 in. Joliet stone veneer, Celotex Corp. sheathing, 2 x 4 in. studs, 16 in. o.c., foil backed rock lath and plaster. Floor construction—fir joists, No. 2 common yellow pine subfloor, rock lath and plaster ceiling.

ROOF: Construction—2 x 6 in. rafters trussed, No. 2 shiplap sheathing, felt paper, covered with edge-grain red cedar shingles. Rear dormer—covered with Cop-R-Loy metal roof, Wheeling Steel Corp.

CHIMNEY: Flue tile with Donley Co. damper.

SHEET METAL WORK: Flashing, gutters and leaders —Arco iron, American Rolling Mill Co.

INSULATION: Outside walls—Celotex Corp. sheathing, foil backed lath. Attic floor—2 in. rock wool, Johns-Manville, Inc. Roof—layer Silvercote fabric under roof rafters, Silvercote Products, Inc.

WINDOWS: Sash—Curtis Pre-fit sash, Curtis Companies, Inc.; Hope's Windows, Inc. steel casement for bay, living room, west and south dormers; Fenestra steel basement sash, Detroit Steel Products Co. Screens—Curtis Pre-fit, 16 m. bronze wire, self lock hardware, Curtis Companies, Inc.

FLOORS: Living room and bedrooms—short lengths clear red oak. First floor hall—rubber tile; second—oak. Kitchen and bathrooms—linoleum.

WALL COVERINGS: Living room—fine sand finish plaster, Philippine mahogany plywood. Bedrooms—wallpaper. Bathrooms—Vitrolite tub alcoves, Libbey-Owens-Ford Glass Co.

WOODWORK: Trim—Mitretite white pine. Interior doors—1⅜ in. flush birch for first floor; 2-panel white pine for second. Exterior doors—1¾ in. white pine. Garage doors—paneled. All by Curtis Companies, Inc.

HARDWARE: Interior—dull brass, Lockwood Hardware Mfg. Co. Exterior—bronze, cylinder locks, P. & F. Corbin.

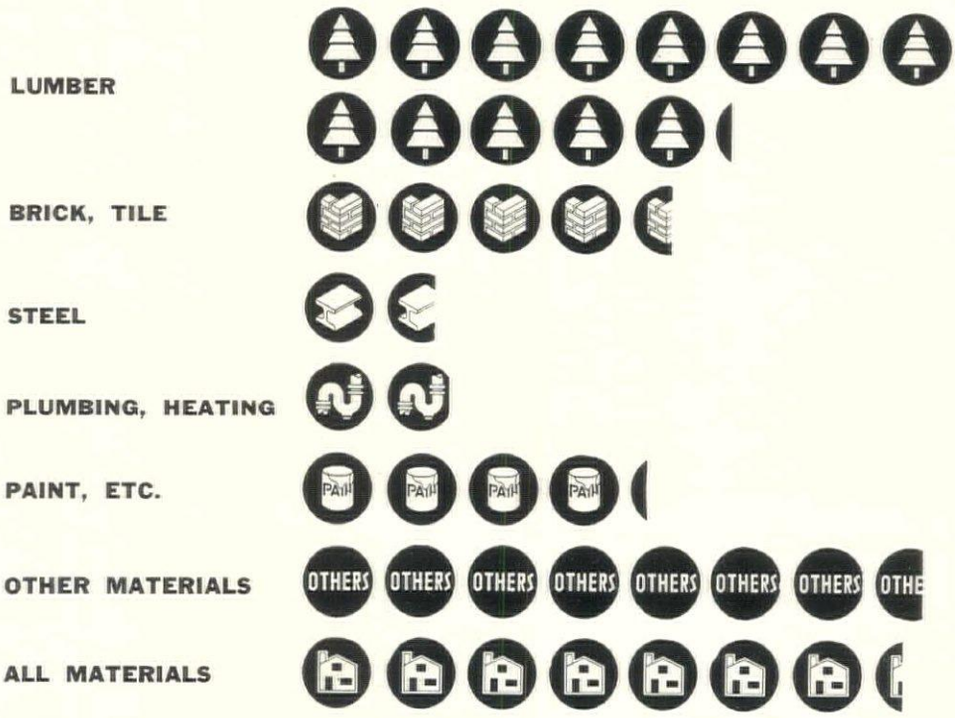
ELECTRICAL INSTALLATION: Wiring system—Romex cable, General Cable Co. Switches—chromium plated tumbler types. Fixtures—Moe Bros.

KITCHEN EQUIPMENT: Range—General Electric Co. Refrigerator—Servel, Inc. Ventilators—Westinghouse Electric & Mfg. Co.

BATHROOM EQUIPMENT: All fixtures, Kohler Co.

HEATING AND AIR CONDITIONING: Forced air system, filtered, float type humidifier. Boiler—gas-fired Janitrol, Surface Combustion Furnace Co. Thermostat —Minneapolis-Honeywell Regulator Co.

# BUILDING MONEY




INCREASE IN PURCHASING POWER OF THE BUILDING MATERIAL DOLLAR, JUNE 1937-JUNE 1938. EACH SYMBOL EQUALS 1 PER CENT.

## BEHIND THE BUILDING PRICE TAG

**are the ups and downs of seven major industries. A review of Recession, a look at the present and an appraisal of the future.**

For twelve consecutive months the cost of building a house has tended downward. Today, $6,000 will purchase a house that in September, 1937 carried a $6,600 price tag. Or, to put it another way, the home buyer who year ago had $6,000 to spend could build his house now with $600 left over—more than enough to cover the cost of a garage or the down payment required under a 90 per cent mortgage. If this buyer delayed his purchase, he is wondering if now is the time to build. Architects and builders are wondering if they can justifiably advise that now is the time to build. Answer to this question lies in an analysis of the factors affecting the cost of construction. And the apparent answer is "yes."

Unlike many other industries, Building gives no advance notice when prices of its products are to be changed. Only basis for prognosis is a study of the individual factors behind these prices, biggest of which is building materials. About 55 per cent of a structure's final cost may reasonably be attributed to the expense of materials and such basic equipment as wiring, plumbing and heating.

But, the trend of material prices is not readily predicted. Of all U. S. industries, Building is without doubt the most dependent. And more U. S. industries depend upon Building than any other single industry. A leading consumer of seven of the country's major commodities (lumber, brick, cement, steel, copper, paint and glass), Building has great influence in determining what their prices will do. But, since Building frequently ranks behind other consumers of these seven commodities, their prices in most cases are actually dictated by one or more of the seven sister industries, and Building becomes the goat.

While the price trend in all industries obviously does not depend in equal measure upon identical influences, there are certain factors which play leading parts in the determination of any commodity price. Uppermost in importance is the relationship between **supply** and **demand.** Year ago the margin between supply and demand expanded unduly, and upon the shoulders of resultant excessive inventories

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*Year ago* The Forum *published a series of articles explaining the $1,000 rise in the construction costs of a $5,000 house which had taken place during the preceding twelve months and presented a battery of simple, accurate facts about five of Building's basic materials: steel in the June issue, p. 66; copper and brick, July, p. 71; lumber, August, p. 155; cement, Sept., p. 237; summary, Nov., p. 448.*

*This month, with construction costs back to 1936 levels, The Forum brings up to date last year's analyses, includes two additional building materials—glass and paint—and offers basis for prediction of the future trend of construction costs.*

has been placed most of the guilt for business recession and the accompanying drop in prices. During the past months of drastically curtailed operations, however, inventories have been reduced to more favorable proportions. Furthermore, if Government spending coupled with improved business sentiment produces predicted results, continued improvement in the general supply-demand ratio will undoubtedly be noted.

Secondary price controlling factors are those affecting the cost of producing materials. They include raw material prices, labor wages, freight rates, power and fuel costs, taxes, rents, etc. In trend, prices of **raw materials** follow closely those asked for finished products, are therefore dependent for the most part upon the supply-demand situation.

As for **Industrial Labor,** unionization of Industry by the CIO reached fever pitch last year with the result that average weekly earnings of factory employes by June 1937 had advanced to $28.39—the highest recorded since 1920. By January 1938, this figure had dropped to $22.98, but by May had rebounded to $23.36. Talk of improving business conditions during coming months has cemented Industrial Labor in its stand for continued high wages.

In March 1938 the ICC authorized **rail rate** advances of from 5 to 10 per cent in answer to the railroad's request for a 15 per cent boost. Today, Southern interests are appealing to the ICC for lower rates, while the disappointed carriers still fight to stave off bankruptcy through further increases. The rails have a good argument. A significant reduction in railroad freight rates does not appear in the offing.

Large in manufacturing costs looms the price of **fuel** and **power.** Nearest index to such prices is that for fuel and lighting compiled each month by the U. S. Department of Labor. Covering wholesale prices of coal, coke, gas, electricity, and petroleum products, it is currently fluctuating around 1937's average level—the post-Depression high.

Little need be said regarding the trend of **taxes** and **rents.** The former has been sharply upward for several years, and with continued public spending there is little chance for a change in direction. Suffice it to say that rents have held surprisingly firm during Recession and will probably work upward again with the return of Recovery.

Such is the general picture of factors affecting the prices of Industry's products for Building. Following are seven short stories on the statistical position of the individual industries which supply Building with its basic materials. Their purpose: to show what the price of each material has done, why it has so behaved and what it may reasonably be expected to do during the coming months.

## LUMBER


Exceedingly erratic has been the line traced by the wholesale price of lumber during the past two-and-a-half years.* Rising almost steadily during 1936, it reached 103.0 per cent of the 1926 average in April and May, 1937. Then came precipitous monthly drops until in June 1938 (last point plotted above) it stood at 88.7 per cent.

Since home builders use more lumber than any other single material, the course of lumber costs is particularly important. Behind this price are three major factors: supply-demand, labor, and transportation. Due to the great distance between producing centers and markets, lumber inventories must be larger than in most industries. Thus, in normal times big retailers seldom let stocks fall below 80 per cent of anticipated needs. In May last year, when the price index was hitting the ceiling, inventories amounted to 5,502 million board feet, and again unlike most other industries they increased until a year later they totaled 6,277 million feet.

Shedding further light upon the current supply-demand ratio are production, shipment, and order statistics for the first half of the current year. Totaling 4,357 million board feet, production ran about 30 per cent below the like 1937 period. 4,722 million feet in shipments were 8 per cent above 1938 production but 28 per cent behind shipments in 1937's first six months. Orders at 4,798 million feet were 10 per cent above 1938 production and 23 per cent below 1937 orders. While these year-to-year comparisons present a far-from-rosy picture, it is to be noted that during each successive month of the past quarter, production, shipments, and orders advanced steadily and contra-seasonally. July saw still better demand, particularly on the East and West coasts where some prices sympathetically turned upward $3 and $1.50-$2 per thousand feet, respectively. Domestic production during the week ending July 16 was the largest in fifteen months.

Lumber labor on the West Coast, where more than half of all U. S. timber is sawed, is working on about the same wage scale as a year ago—77 cents per hour and the highest in history. Less stable are labor conditions in the South, another major production center, where many small, fair-weather mills may be forced to close down until prices rise.

*All charts presented on these pages show the monthly trend of wholesale prices between January 1936 and June 1938, both inclusive, as measured by index numbers whose base year in each case is 1926. All figures have been supplied by the U. S. Department of Labor.

The spring change in rail rates for lum ber transportation added 4 cents per 10( pounds to the western charge, less than cent to charges in other areas.

Combination of these factors as the have existed during the past twelv months of Recession pushed the price o yellow pine from $41 per 1,000 feet in Jul 1937 to $39 in July 1938; of Douglas fi from $34.75 to $29.50. Red cedar shingle dropped from $4.25 in July 1937 to $4.2( in April, 1938, thence rose to $4.27 i July. As they stand today, the net effec of the demand-supply, labor and trans portation factors should be to jack u lumber prices. Tell-tale changes took plac month ago: by August 1 the price o yellow pine had advanced to $40; Doug las fir, to $31.50; red cedar shingles, t $4.47.

## BRICK


While the above-plotted curve is base upon the prices of both brick and tile, i serves well as an index of wholesale bric prices alone. Highest point, 95.5 per cen of the 1926 average, was reached in Au gust, 1937 from which time the monthl trend was consistently downward unt May 1938. In that month it hit bottom a 90.5 per cent, then significantly bounce back one-tenth of a point in June.

Of all large industries serving Building the brick industry is one of the mos localized. Weight and bulk of the produc and the ease of manufacturing it in mos any section of the country make lon hauls of common brick uneconomi Largest producing area (20 per cent U. S. output) is along the banks of Ne York's Hudson River, and trend statistic covering the industry in this section a generally indicative of the country large. Thus, unless otherwise specifie figures used herein refer to the New Yor branch of the industry.

To cover the increased cost of labo both in the industry itself and in the rank of bargemen, brick manufacturers uppe their prices last fall from $11 to $13 p 1,000. But, of their own weight the dropped back to $12 before year-end. January and February six-month contrac were made at this price in anticipation a large upturn in construction activit Hopes proved to be ill-founded, and no observers predict an advance in pric when current contracts run out in Septen ber and October. Such will be necessa if the industry is to break even in 1938.

Reasons for this price behavior c readily be seen in the sales record. Wi an annual capacity of 960 million brick sales through July came to only 1 million, as compared with 236 million the corresponding period of 1937. To the

totals one-third more might well be added to cover the sale of bricks from out-of-state sources. (Half-year sales for the country approximated 650 million in 1938, versus 952 million in 1937.) Inventories are comparatively low, a conservative estimate placing them at 75-80 million.

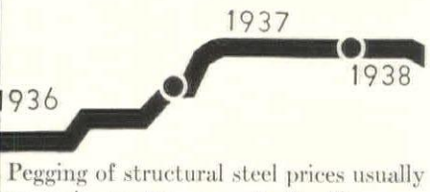
Producing an average of close to 6 million units a week, the industry is currently operating at about 30 per cent of capacity on a yearly basis. And, at this low ratio, biggest price controlling factor is competition. It would take only three or four of the 25 Hudson River plants now operating to meet the local brick demand.

Other factors that will probably push the price upward: fuel costs, all-important in that brick-making is baking, have gone up 10-15 per cent during the past year; coloring materials have advanced in the same proportion; labor is holding out for continued high wages; orders for July topped the 1937 figure for the first time this year; and the industry desires to show a profit for 1938.

That brick prices will not go down is almost a certainty. When today's price of $12 per 1,000 is stripped of 50 cents for cash payment, $1 for the unloading of shipments by purchasers and $3.50 for labor, the price per ton becomes $3.50 (1,000 bricks weigh about two tons). Comparison of this figure with the $1.75-per-ton price of common, every-day gravel indicates that the price of brick under present conditions is at an economic minimum.

Proof that the industry is looking for a price rise is the reported experience of the Metropolitan Life Insurance Co. in requesting bids for 70 million bricks for its Bronx housing project—the largest brick order in history. Despite the tremendous business involved, only one or two companies would even consider filling the order over the two-to-three year period specified.

## STEEL




Pegging of structural steel prices usually once each quarter accounts for the comparative stability of the index plotted above. Proving the rule, exceptions do occur. Thus, two successive increases in March and April last year shoved the price up to an all-time high, 114.9 per cent of the 1926 average. In June 1938, another out-of-season change cut steel prices to levels at or below 1928's, pulled the index down to 113.0 per cent.

Equally significant as the June price drop was the change in the steel basing point system which went into effect at the same time. Claimed by many to be the first fruits of Government's anti-monopoly drive, the action removes the price differentials between basing points with minor exceptions. U. S. Steel Corp., first to make the move, now quotes base prices at all mills (except Detroit) exactly the same as at Pittsburgh. Thus, the change in the basing point system might be interpreted as a second but somewhat disguised reduction in steel prices.

Due to this change large steel companies with far-flung mills will have a greater competitive advantage over small localized companies. Another result: a cloud of doubt has been thrown over the near-term future of prices.

One thing, however, is certain: Steel cannot make money if operations continue as they did in the first half of the year. The industry entered August with operations at 40 per cent of capacity. While maintenance of this ratio would have permitted Steel to break even at the former price scale, today's lower prices place the break-even point somewhere between 50 and 60 per cent of capacity. Reasonable expectation is that the operating ratio for the year will average from 35 to 45 per cent, that Steel will therefore lose money.

Production-wise, the industry is sick. Ingot production in the first half of 1938 totaled 10.7 million gross tons, less than half the January-June figure of 28.7 million tons for 1937. But, since building activity has held better than that of other industries, its use of steel was down by a smaller percentage. Production of structural shapes in the first six months amounted to 626,000 tons, as compared with 1,519,000 tons in 1937's first half. Figures for wire nails were 191,000 tons and 321,000 tons, respectively.

Chief single element in steel costs (more than 40 per cent) is labor, and as the operating ratio goes down, unit labor costs go up. Coupled with already high wage rates (85 cents per hour, compared with 65 cents in 1929), today's low production schedule gives Steel double trouble with Labor. It is doubtful that the SWOC's conversations with Steel bigwigs will result in lower wages. Only remaining chance for the industry to clamber back on the money-making plane is for the present experiment with the high-wage, low-price theory to produce more volume. If it does not, there must be a wage adjustment. That failing, prices must go up.

Another item accounting for about 40 per cent of the cost of finished steel is the cost of raw materials. Iron and steel scrap is the biggest component—60 per cent of steel's constituency. Although well below the $20-per-ton level of a year ago and despite reduced demand from foreign armament programs, recent months have seen the price of scrap go to $12, thence to $13 per ton, and with a shortage in prospect sellers in some cases have held out for more. Well stocked with scrap, mills are drawing on their supplies rather than making purchases at present high prices. But, if scrap prices hold firm, their effect on the price of steel will in time be upward.

Today, prices of Building's steel materials stand at $2.10 per 100 pounds for structural shapes at Pittsburgh, as compared with $2.25 year ago, $1.50 in the 1931-32 winter and $2.50 in 1923. Wire nails are quoted $4.25 per 100 pound keg, a 30 per cent drop during the year. Due to the cloud of doubt obscuring the future policies of the steel industry, there is little basis for anything but a cross-fingered prediction as to what these prices will do next. On the basis of PWA's eventual use of $282 million of steel items, the optimistic outlook for the automobile industry and general business' predicted upturn—a nod for steady-to-higher prices during the coming year.

## CEMENT


The closely controlled price of cement at its 60-odd basing points has since 1935 remained unchanged at $1.50 per barrel. Such is one reason for the lack of interest in the horizontal line above. Customers in markets close to basing points are required to help foot the cost of transporting cement to more distant points and make up the loss incurred in markets where foreign competition is stiff. Competition in the cement industry is therefore seen to be more a matter of mill efficiency.

Another reason for continual repetition of the price index at 95.5 per cent of the 1926 average is the fact that when the cement industry operates at 40 per cent of capacity, as it has for several years, overhead charges account for half the cost per barrel. Cement kilns are the largest moving machinery in the world, and power and fuel costs are tremendous.

Bread and butter of the cement industry depends on construction volume; and, since construction volume during 1938 has been far from discouraging, Cement is better off than many other industries. Production in the first six months totaled 43.2 million barrels, against 54.0 million in the 1937 corresponding period; shipments, 45.5 million and 52.5 million, respectively. Stocks on hand at the end of June amounted to 22.5 million barrels, a 1.5 million drop during the year. Production in per cent of capacity averaged 47.8 for the twelve months ended June 30, was higher than any yearly average since 1930.

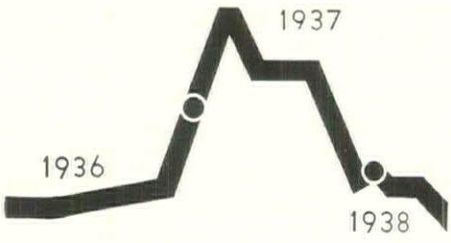
Less encouraging is the import situation. In 1934, 215,000 barrels were brought into the U. S., mostly from Belgium. In 1935 Secretary of State Cordell Hull made a reciprocal trade treaty with that country, and imports jumped to 619,000 barrels. In 1936 they totaled 1,659,000; in 1937, 1,804,000. While the value of these

imports is comparatively small (about $1,400,000 in 1937 or 80 cents per barrel which is 70 cents less than the price of domestic cement), bulk of them are dumped on leading U. S. cement markets along the Atlantic and Gulf Coasts.

So important is the import factor in Boston that every barrel of domestic cement sold there is done so at a loss. To combat this foreign invasion of their markets, cement producers two years ago cut prices in affected areas. The action proved futile, and prices were marked up again two months ago.

Freight rates, which were advanced last spring, figure prominently in the consumer price of cement, frequently account for as much as one-third the cost. Labor is less important. All factors considered, there is ample indication that the price of cement will continue at least at current levels.

## COPPER




Most volatile in price of all building materials is copper. Quoted at 62.6 per cent of the 1926 average at the beginning of 1936, Copper's price rose to 114.1 per cent by March, 1937, then settled to 63.4 per cent in June 1938. Not reflected in the chart above is the increase which took effect July 1, upping the price from 9 cents per pound (NRA standard) to 9½ cents and assuming significance as causing the first rise in the monthly index for sixteen months. Index number for July: 69.3 per cent.

Major reason for Copper's jumpy price trend is Copper's speculative character. War time demand would far exceed available supplies, might in short order hike the price of ready copper to as much as 37 cents per pound as it did in 1917. Thus, the price of copper depends more upon public opinion as to future developments than does any other building material.

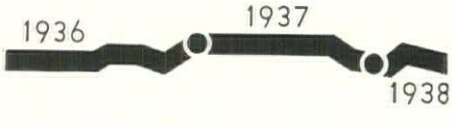
Production costs are comparatively stable, regardless of the industry's operating ratio. All leading mines are company-owned. Labor costs fall in the same category, miners' wages fluctuating by agreement with prices. The transportation factor is less predictable, but has already been outlined in preceding paragraphs.

Causing the price decline of the past year has been the drop in demand. For 1937, members of the Copper Institute reported deliveries of U. S. and foreign refined copper amounting to 2,148,177 tons, against production of 2,266,149 tons. During the first half of 1938 deliveries totaled 879,637 tons; production, 959,937 tons. Result: the 471,195 tons of refined stocks which existed at year-end had by June 30 increased 80,300 tons.

Building's participation in this consumption of copper is large and continually increasing. In 1937 Building ranked third behind Electricity (444,600 tons) and Automobiles (112,000 tons), used 70,500 tons of copper for plumbing, piping, flashing, etc. plus 7 470 tons of copper wiring computed on the basis of 30 pounds of wire per 1,000 sq. ft. of construction. Together these figures top all other years included in Statistician Dr. W. R. Ingalls' tabulation of copper in Building. It goes back to 1927.

Factors underlying the future trend of prices are unconvincing. If U. S. refined production continues at 54,000 tons per month (half-year average), the year's output would be about half the U. S. capacity of 1,250,000 tons. And, if deliveries continue at the average of 36,000 tons per month, refined stocks on hand will continue to increase, and call for no price advance. However, the industry is anticipating better demand, as witness the opening of several large mines which suspended operations in early summer. Making predictions hazardous is the fact that no one can read the minds of copper speculators nor accurately judge war and armament markets.

## PAINT




In February 1938 the price of paint and paint materials scraped bottom at 79.2 per cent of its 1926 average, duplicated the 1936 low point recorded in March of that year. In between, the index hit a high of 84.6 per cent in September 1937. Last point plotted is 80.1 per cent for June 1938.

Among building materials, paint is unique on two counts. First, like toothpaste it is a trade market article. Secondly, its price depends less upon the course of general business than do prices of other materials. When business and building activity fall off, people with less money to spend on new houses, new automobiles, etc. give their old belongings a fresh coat of paint, thus tend to level the peaks and valleys which would ordinarily occur in Paint's production curve. Example: production held up reasonably well during Depression; in 1932-33 the value of manufactures dropped about 50 per cent from the 1929 peak of $520 million per year. Comparable figure for 1937 was $450 million.

Big price factor in paint is transportation. And, since it is considerably cheaper to ship raw materials than finished paint, large factories have sprung up in all important market areas. Claim is that every city of 40,000 population has at least one paint factory. Best customer of these factories is Building which each year takes down about 60 per cent of the industry's volume, uses it largely for maintenance and large construction projects.

Emphasizing the comparatively slight price activity of raw materials and the absence of labor trouble during the past two years, the industry looks for little change in its prices. It is to be noted, however, that while manufacturing in the first six months of 1938 was about 19 per cent behind 1937, month-to-month acceleration of operations has been steadier and steeper than that of last year. In addition, dealers have been liquidating their inventories, have not been stocking up. Thus, if Building continues at current levels, there will be increased demand for paint. An upward adjustment of prices would logically follow.

## GLASS


As plotted above, the jobbers' price of single strength, "A" quality window glass entered 1936 at 76.1 per cent of the 1926 average, rose to 104.6 per cent during the 1936-7 winter and then declined to the present 69.7 per cent level in January 1938. Thus glass was one of three building materials to top 1926 prices in 1937. Lumber and steel were the other two.

There was ample reason: domestic production of sheet glass last year was the largest in U. S. Glass' 330-year history, 200 million pounds in excess of the previous peak production in 1925. Then came Recession. In June window glass output was 344,000 boxes or 21.3 per cent of capacity, versus 1,430,000 boxes or 80.6 per cent in June, 1937. Current plate glass production is no better; 25 million sq. ft. in the first six months, compared with 107 million in the first half of 1937.

Outlook for fall activity is brighter, according to industry spokesmen. While stocks are larger than a year ago, they are not considered excessive. Unpredictable, however, is the most important factor behind the price of glass—the policies of the Nation's three leading producers. For, of the dozen companies operating in the sheet glass field, this trio accounts for about 75 per cent of all window glass currently produced in this country. And an organized quartet of the other glass companies produces most of the remaining 25 per cent.

(*Continued on page 242*)

# RESIDENTIAL LABOR SIGNS

**with Philadelphia builders. A no-strike agreement is swapped for 100 per cent unionization. Term: seven months.**

LABOR'S day-by-day attempts to unionize business are no longer news, but a spontaneous offer by Business for the unionization of itself is news. And, when the goal of negotiations is to promote more business instead of settling petty disagreements, the news becomes front-page copy. Such a news-maker is Philadelphia, the first known U. S. city to submit to large scale unionization of labor in the home-building field.

Last May the Home Builders Association of Philadelphia representing the city's leading contractors and operative builders, offered the Building Trades Council of Associated Trades of Philadelphia and Vicinity (AFL) the opportunity to organize all construction labor of the Association's members. This meant the unionization of some 50,000 workers, so the Trades Council was naturally agreeable. Result: on May 19, 1938 a closed-shop agreement was signed, to be effective until December 31, 1938.

For 35 builders who account for 90 per cent of Philadelphia's residential construction to seemingly put themselves in union hands, some special incentive was needed. It can be found in Philadelphia's labor conditions during the first part of 1938 and in the distribution of Philadelphia's labor supply.

As in most U. S. cities, residential building in Philadelphia prior to the agreement was only partially organized, paid much lower wages than the more highly organized commercial building and consequently was frequently beset by disputes, strikes, and other disruptions. Residential builders had lower unit labor costs than commercial builders, but their total labor cost was unpredictable. Further, the volume of Philadelphia home building had fallen off to 319 units for the first quarter of 1938, as compared to a total of 382 units for the same period in 1937. Of course, that drop could not be laid directly to disruption within the industry, but the Home Builders Association felt that if stability were assured, speculative builders would have some incentive to speed up production.

Full price of stability was unionization, and the Home Builders Association did not want to pay union wages. The resultant increase in labor costs would have been too much for the wavering market. So they cagily offered the local union the chance to organize all building craftsmen in return for a wage scale approximately 10 per cent below the union standard for commercial and industrial construction—and peace until December 31, 1938.

Inspiration for the builders' approach to labor is credited to the Association's President Charles G. Erny whose firm, Erny and Nolan, is Philadelphia's largest home builder. On the other side, labor's protagonist was James L. McDevitt, president of the Building Trades Council, seconded by Norman Blumberg, secretary-treasurer.

**Agreement.** Like horse traders, Labor and Building cannot conclude a fair trade until each is convinced it has the better of the other. Factors which created this delicate balance in Philadelphia are:

1. Builders agree to hire none but members of the Trades Council, so long as they are available and competent.

2. Builders may accept or reject any men furnished by the Trades Council and shall have the further right to discharge any men once accepted who may thereafter prove to be unsatisfactory in their work.

3. There shall be no substantial or unreasonable interference with or substantial delay in the progress of work of any employe during working hours by a member of the Trades Council.

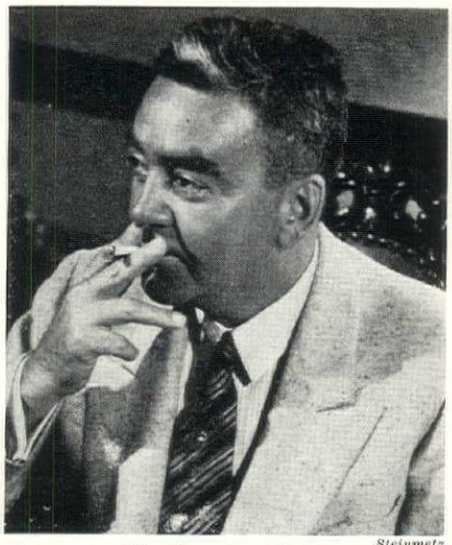
4. Employes of the builder or any subcontractors on existing work must make application to join the union within 15 days. Other persons employed by the builder or subcontractors have 30 days to make their application.

5. Subcontractors on a builder's present operations in Philadelphia must agree in writing to the wage and hour provisions and use union men in finishing all existing work and on all new construction.

**HOURLY WAGE RATES**

| Trade | Before agreement | After agreement |
|---|---|---|
| Bricklayers | $1.12½ | $1.20 |
| Hod carriers | .70 | .70 |
| Carpenters | .90 | 1.00 |
| Cement Finishers | .90 | 1.00 |
| Stone masons | .80-.90 | 1.00 |
| Electricians | .80 | 1.10 |
| Steamfitters | .90 | 1.15 |
| Floor layers | .75-.90 | 1.00 |
| Plasterers | 1.12½ | 1.25 |
| Plumbers | .90 | 1.15 |
| Painters | .80 | .90 |
| Glaziers | * | 1.25 |
| Paperhangers | .90 | 1.00 |
| Roofers | .75-1.12½ | 1.00-1.25 |
| Tile setters | .90 | 1.12 |
| Truck drivers | * | .71 |
| Shovel operators | * | 1.50 |
| Laborers | .75 | .60 |

* Data not available



Steinmetz

**Sponsor Charles G. Erny**

6. Foremen and stewards shall work with tools like other employes.

7. There shall be no strikes, and all disputes must be submitted to arbitration.

8. The union shall not require the displacement of any present employes of the builders or his subcontractors in favor of members of their own selection.

Like the horse, the worker engaged in Philadelphia's residential building was most directly concerned with the trade but had the least to say about it. Although he may have to meet the competition of inactive union workers from the commercial building field, his lot is not a bad one. As a union man he will receive a wage as much as 37.5 per cent higher than that he had been earning in the open shop, depending on his trade. He will have to work an 8-hour day, a 40-hour week, and will get double pay for Saturdays and holidays.

Two wage scales have been developed to bring about the change of wages gradually. On existing work completed within 90 days from the date the agreement was signed, the wage rate was set somewhat lower than on new work. A comparison of the wage schedule for new work with that prevailing prior to the agreement is shown on this page.

**Hopes.** Home building in "The City of Homes" during the first five months of 1938 having fallen off 100 per cent from 1937, the Home Builders Association pins its hopes for a revival on the recent agreement, in the belief that with assured freedom from labor disputes construction will be stimulated. Extent of these hopes is reflected in the Association's prediction that construction during the last seven months of 1938 will exceed 2,000 dwelling units, bring the year's total above that for 1937. Whether home purchases can be stimulated in like degree in the face of a $200 increase in labor costs on a $5,000 house remains to be seen.

# HOUSING IN A TEST TUBE

**puts New Albany, Ind., on the map. Prefabrication wins a victory over conventional competition.**

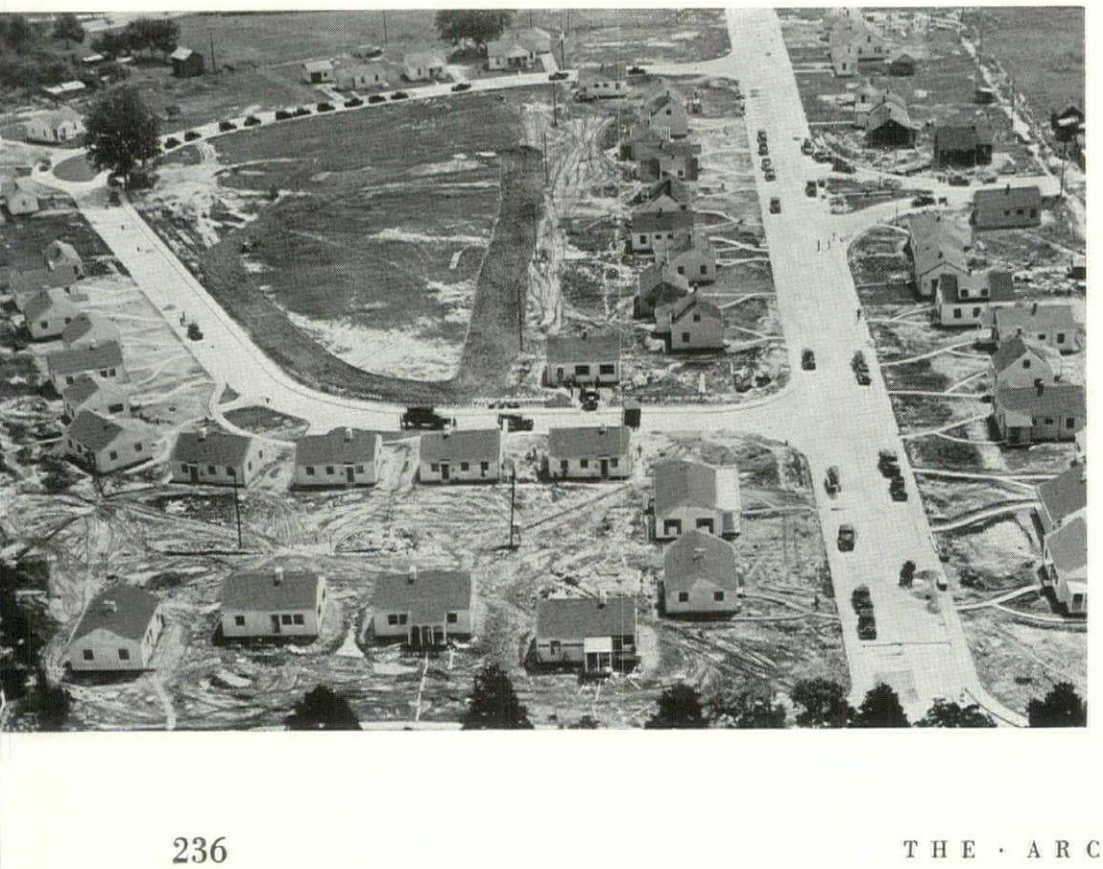
No new invention stands a chance of success unless it compares favorably with the accepted article it would replace. Prefabrication, a relatively new invention, has suffered not because it has compared unfavorably with accepted methods of construction, but rather because it has not had sufficient comparison. Newsworthy, therefore, is the experiment undertaken by the Housing Authority of New Albany, Indiana—erection of twenty prefabricated houses in competition with twenty conventional houses of comparable specifications. More newsworthy, the results: the prefabricated units appear to have bettered their competitors in cost and public acceptance.

**Project.** Situated directly across the Ohio River from Louisville, Kentucky, New Albany felt full force of 1937's disastrous spring floods, lost some 300 houses down the river. Before the town had dried itself off, however, plans were under way for rehabilitation. A local committee touched the Red Cross for $1,000, a Floyd County relief agency for $2,837 and other sources for the balance of an $8,000 fund. Of this amount, $5,000 went for the purchase of sixteen and a half acres about two miles from New Albany's business center. Here the Red Cross began to build 65 houses for flood-stricken property owners. But, as most of these river-bank dwellers refused to budge from their endangered homes, the program petered out as its sixteenth house was completed.

Cognizant of these faltering plans, local Lawyers John M. Paris and Charles D. Kelso conceived the idea of a substitute municipal project. It took shape on March 19, 1937 when the City Council set up a housing authority, appointed Mr. Kelso's handsome, brawny, lawyer-son Reed H. as chairman. There was at that time no USHA to furnish the necessary capital, so Kelso and colleagues went into a huddle with officials of the RFC Mortgage Co., emerged with an FHA-insured loan for $130,000—80 per cent of the proposed project's cost. The remaining 20 per cent was made up by land contributions and WPA labor.

Year later the construction contract was let—half to local contractor Calvin Brewer, half to the local Gunnison Housing Corp. Major requirements were that each build twenty small houses (two 3-room, seventeen 4-room, and one 5-room units) of comparable cost under the direction of one architect—James B. Hawkins.

For 22 years a prominent home builder, Contractor Brewer guaranteed to do his part with conventional type frame houses for $60,284. Prefabricator Gunnison, who is reported to have taken a loss on his contract, bid $57,540. From each of these figures was deducted $40 per house to be used by the housing authority for landscaping of individual lots, collectively named Valley View Court.



**Conventional Construction.** In March dirt began to fly from the spades of both competitors. Brewer set up a shop and power saw on the site, pre-cut lumber for ten houses at a time and thereby reduced his costs by 10 per cent. Although his labor item was small (he never had more than twelve carpenters on the project) he is reported to have bickered with AFL locals and to have paid lower-than-scale wages. A compensating factor in respect to the erection of the prefabricated houses was Gunnison's use of his factory employes. (See below.)

Other cost-reducing factors in the construction of the conventional houses are not of a type mentioned by promotional agents of the project. Thus, exterior walls have neither sheathing nor insulation. Instead: shingle battens covered with tar paper. Also unfortunate is the heating system of the conventional houses. Architect Hawkins' specification of a coal-burning furnace and hot water heater in the kitchen required that an unsightly coal bin be built into the service porches.

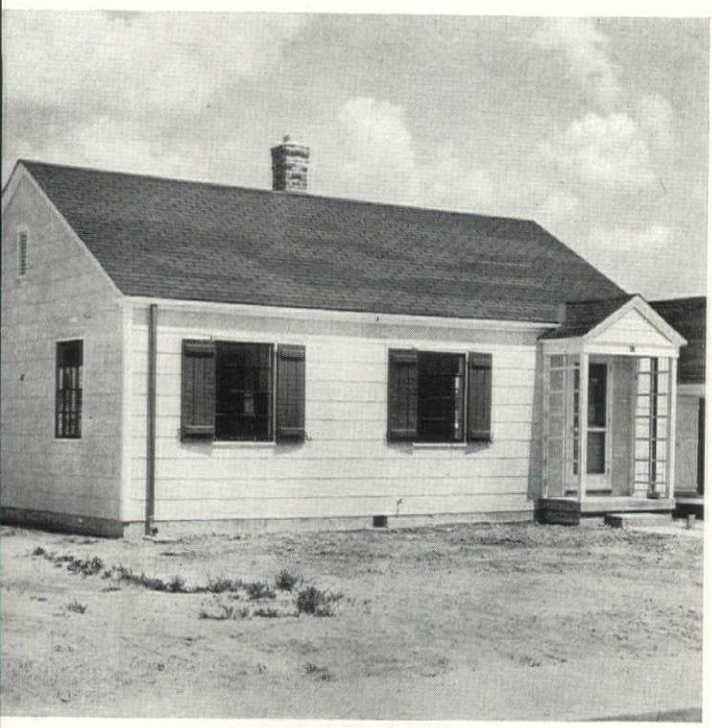
**Prefabricated Construction.** With several years research and experience as a promoter of packaged houses, Prefabricator Foster Gunnison in 1936 founded Gunnison Magic Homes, Inc., later changed its name to the more business-like Gunnison Housing Corp. To date 365 knocked-down houses have rolled through the straight-line production system of its New Albany factory (conveniently located only three miles from Valley View Court), have gone to purchasers in 22 States.

King pin of Gunnison's method of construction is a cross-braced frame of kiln-dried lumber to each side of which is secured a sheet of waterproofed plywood. These panels are filled with rock wool insulation and, being interchangeable, are used for supporting walls, partitions, floors and ceilings.

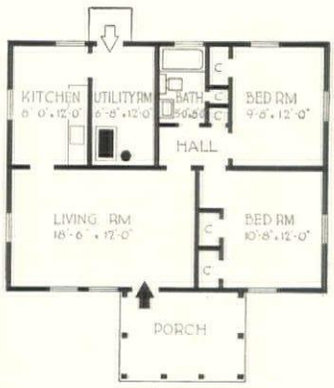
At the New Albany project, Gunnison erected his houses in two groups of ten. After foundations were laid, two carpenters and three laborers enclosed one house a day for ten days. When rain occurred, as it did on three days, the crew returned to the first houses to finish the interiors. By virtue of this procedure, workers were kept busy at all times, despite the weather.

To educate local labor during the early stages of the program, factory employes were transferred to the site. And during the erection of the last three houses, company executives donned overalls for sake of practical experience, reduced labor costs during several days of construction to zero. Rest of the time labor was hired in the open market.

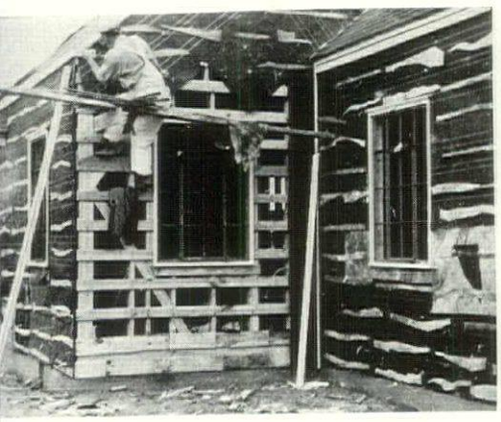
*(Continued on page 238)*

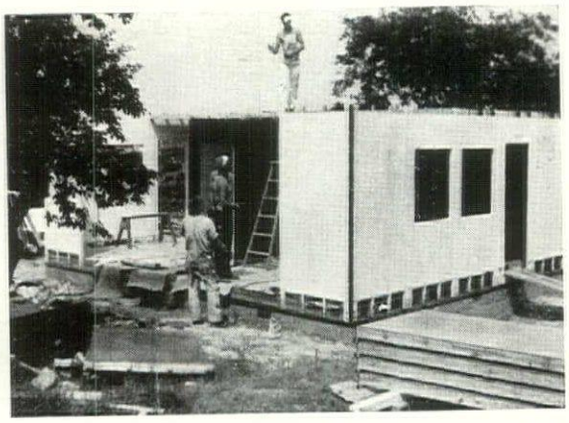



**Contestants** in the competition were the two pictured above—conventional construction, left; prefabrication, right. Each builder was required to erect seventeen units identical or similar in plan and exterior design. Unfortunate is the fact that the seventeen-times-repeated plan for the conventional house provides no closet for one bedroom. Contrasted construction, below, further points to the prefabricated house as the more popular.



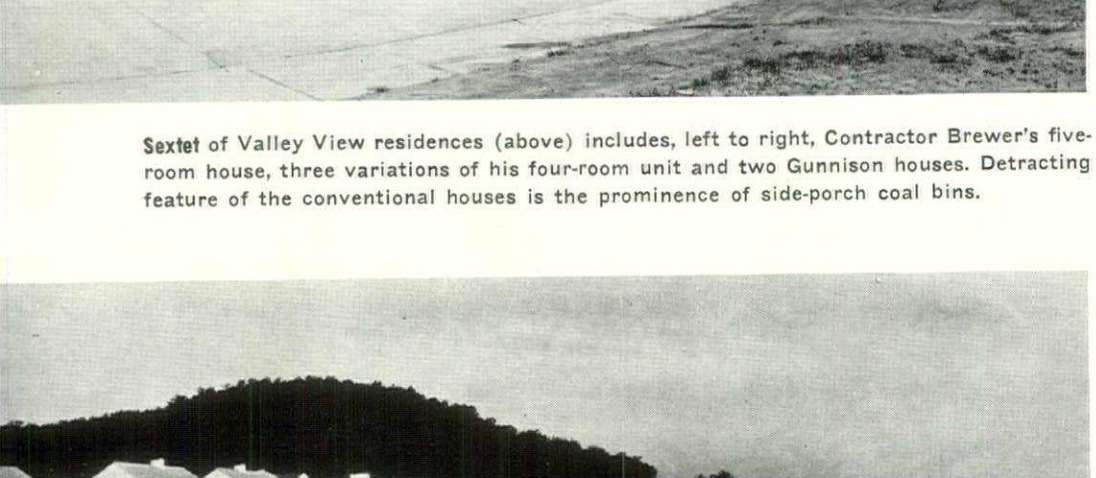

| | CONVENTIONAL HOUSE | PREFABRICATED HOUSE |
|---|---|---|
| FOUNDATIONS | Poured concrete, 8 in. walls, 16 in. x 8 in. footing. 16 oz. copper termite shields. | Poured concrete, 8 in. walls, 16 in. x 8 in. footing. 16 oz. copper termite shields. |
| BASEMENTS | None. | None. |
| STRUCTURE | Common No. 2 wood framing, shingle lath, asphalt building paper, asbestos shingles, gypsum lath, 2 coats plaster. | Floors, walls, ceilings, roofs and interior partitions made in factory fabricated and finished panels. Synthetic resin bonded hardwood surfaces bonded to frames of No. 1 grade marked, kiln-dried lumber, manufactured according to the "stressed covering" principle. |
| PARTITIONS | Common No. 2 wood framing, gypsum lath, 2 coats plaster both sides. | |
| FLOORS | Common No. 2 floor joists, ⅞ in. underflooring, No. 2 oak finish flooring. Kitchen: pine. | |
| CEILINGS | Common No. 2 ceiling joists, gypsum lath, 2 coats plaster. | |
| ROOF | Common No. 2 framing, ⅞ in. sheathing. | |
| ROOFING | Asphalt shingles, 210 lb. slate color. | Asphalt shingles, 210 lb. color blend. |
| INSULATION | None. | Floors, walls, ceilings, interior partitions: rock wool. |
| WINDOWS | Steel casement. | Steel casement. |
| INTERIOR DOORS | 2 in. panel fir. | Flush panel, hollow core, American walnut faced. |
| INTERIOR FINISH WALLS, CEILINGS | Sand finished tinted plaster. | All rooms wood paneled with synthetic resin bonded hardwood panels, waterproof lacquered, hand polished and waxed at factory. |
| FLOORS | Oak. | Quartered white oak, synthetic resin bonded. |
| HEATING | Coal-fired hot water system, exposed piping. | Automatic oil-fired winter air-conditioner. Squirrel cage blower mounted in attic. |
| HOT WATER | Bucket-per-day coal-fired heater. | Oil-fired hot water heater. |





**Ex-ray** of the conventional houses' frame construction is presented above, left. Asphalt shingles were applied to shingle battens, separated only by a layer of tar paper. More substantial are the cross-braced and insulated plywood panels, right. Taken at 1:30 p. m., the picture indicates the speed with which the prefabricated houses were erected —seven hours earlier only the poured concrete foundations were in place.

**Sextet** of Valley View residences (above) includes, left to right, Contractor Brewer's five-room house, three variations of his four-room unit and two Gunnison houses. Detracting feature of the conventional houses is the prominence of side-porch coal bins.



**Skyline** of prefabricated houses (above) shows in the foreground the most elaborate unit, now rented by Prefabricator Gunnison. It contains three bedrooms, corresponds in requirements to the five-room conventional house referred to above.

(*Continued from page 236*)

**Judgment.** Month ago actual construction at Valley View Court was completed—45 days ahead of schedule. Due to the delay of WPA in getting in its service, however, the project was not formally opened until September 1. Nevertheless, preliminary rental demand was encouraging and lopsidedly in favor of prefabricated houses. By mid-month nine Gunnison houses were leased, while none of the conventional houses had had a nibble. Claim of disgruntled hammer-and-saw enthusiasts was that no effort had been made to rent the conventional units and that Gunnison employes and their friends had accounted for the prefabricated house demand. Admitting that its president had leased the five-room house and that another official had taken a unit, the company denied that the rest of the cards were stacked.

On the basis of the foregoing comparisons and those presented on page 237, Prefabrication seems to have won a hands-down victory. However, in fairness to long-standing methods of construction it must be emphasized that competition offered by Valley View Court's conventional houses was not strong. Proximity of Gunnison's factory to the project's site detracted further from this victory; it permitted minimum costs and maximum supervision.

**Future.** Aside from Valley View Court's service as a test tube for Prefabrication, it will, when fully tenanted, be a money-making proposition—suitable for adoption with variations by private enterprise. At the established rental scale of $7 per room per month, the 40 houses with their 158 rooms will gross New Albany's housing authority a total of $13,272 per year. Annual disbursements from this income will approximate $5,200 for 4 per cent mortgage interest, $2,600 for 2 per cent amortization, $325 for ¼ of 1 per cent FHA insurance, $2,600 or $65 per house for maintenance and $664 or 5 per cent of gross income for the real estate agent's fee. Total of these expenditures, $11,389 is $1,883 less than the gross income.

Satisfied with this return but dissatisfied with the fact that its project is attracting white collar tenants in lieu of industrial workers, the authority may sell its houses. (Stubbornly sentimental river-bank dwellers still prefer their dilapidated homes, and preliminary demand points to Valley View Court as a haven for middle-class newly-weds.) In fact, agreements which would permit this step are currently being made with the Federal agencies involved. However, Houser Kelso is now considering a 75-unit project for future development. And, if Prefabricator Gunnison's salesmanship outweighs local demand that conventional building methods be used, this project will be 100 per cent prefabricated.

# FROM DERELICT TO DUPLEX

**Dayton realtor remodels $950 house with $6,500 and grosses $1,500 per year from two tenants.**

APPLICATION of a knowledge of real estate to the reconditioning of rundown properties is a highly profitable alliance. Such, at least, is the experience of Realtor L. H. Steinman of Dayton, Ohio. During the past few years, as a side line to his regular real estate business, he has remodeled and rented numerous properties, and has found it profitable to hold them as permanent investments.

Sample of Steinman remodeling is the two-family house illustrated below which was purchased for $3,350 in a bank liquidation. Although located in the heart of Oakwood, Dayton's most exclusive residential section, it had an outdoor privy, no plumbing, no furnace, and had been condemned. Because of the high land value, Steinman estimated that the house as purchased was worth only $950. Applying the realtor's axiom that no house should be improved in value to a level above that of its neighbors, Steinman found himself with plenty of leeway.

**Layout.** The original interior was so badly planned that almost all interior partitions had to be rearranged. The entrance opened into the dining room—largest of the first floor rooms. Having been of the farmhouse type, the kitchen equaled the "parlor" in size and was the only room in the house with running water.

Steinman's first move was to reverse the emphasis of eating-living by increasing the size of the living room and turning two-thirds of the kitchen into the dining room. What was left of the original dining room became a rather large hall. The result is a more functional first floor plan.

The second floor was divided into three rooms, the middle one also serving as a hallway. And there was, of course, no bath. On this floor, Remodeler Steinman turned the bedroom over the kitchen into a bath and added a stair hall to give privacy to the middle bedroom.

All the rooms were redecorated—one wall of each living room being paneled in knotty pine. Gauging tenant-appeal, Steinman installed such attractions as venetian blinds, despite their $130 cost. Purely decorative additions, as contrasted to structural repairs and alterations, amounted to only 25 per cent of his total outlay. Such proportioning is an indication of Steinman's sagacity in making the repairs preserve his investment first and attract tenants second.

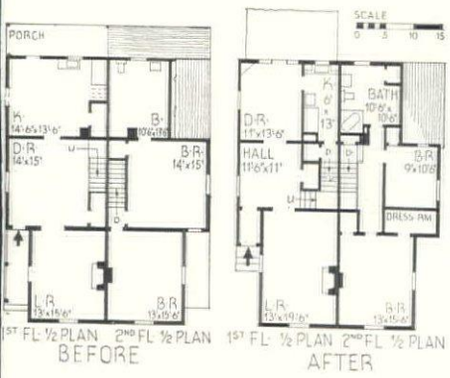
A basement was dug to provide for furnace and laundry rooms, and plumbing and wiring were installed. New sash was installed throughout, a 2-car garage built and the yard landscaped.

**Outlay.** Total cost of this extensive rebuilding was $6,547, bringing the total investment to $9,897. The accompanying table shows where the money went. Versatile Mr. Steinman kept the cost down by doing part of the work himself. Nevertheless, direct labor costs accounted for over half of his total expenditure.

Test of any reconditioning project comes when the house is opened to tenants, and the Steinman job stood it well. Once finished, each side was rented for two years at $62.50 per month. That adds up to $1,500 or an annual gross return of 15 per cent on the $9,897 investment.

**TABLE OF COSTS**

| | |
|---|---|
| **MATERIALS** | |
| Plumbing supplies and fixtures. | $541.73 |
| Furnace and rise (contract).... | 475.50 |
| Brick, cement and gravel..... | 212.40 |
| Electrical work, including fixtures ..... | 262.99 |
| Floor sanding (contract)..... | 79.00 |
| Copper screens and doors (contract) ..... | 104.87 |
| Venetian blinds (contract)..... | 130.00 |
| Hardware ..... | 93.21 |
| Linoleum (contract) ..... | 141.60 |
| Wall paper ..... | 120.00 |
| Paint ..... | 137.62 |
| Lumber, millwork, etc., including two-car garage ..... | 807.06 |
| Lawn and shrubbery..... | 44.96 |
| **LABOR** | |
| Carpenters, plasterers, painters, paperhangers ..... | 2,839.07 |
| Plumbers ..... | 557.00 |
| **TOTAL** ..... | **$6,547.01** |




*C. M. Bunting*

**Outside** evidences of modernization are fresh paint and new blinds. Inside, Realtor Steinman's house has a more workable plan than before and four more closets.

# A BUILDING CODE OUTSMARTED

**as Chicago is supplied with $3,500 brick houses. A home-show attraction moves outdoors, becomes a subdivision.**

ATTRACTION No. 1 of the Chicago Home Show last May was an appealing four-room bungalow which proved two things: First, the difficulties of the Chicago building code when applied to single-family dwellings. Second, the ability of Builder Arthur Bohnen and his assistants to vitiate the barriers of that code by sound planning and good design.

Titled the "Compleat House" because the use of time-tried building methods made Bohnen think of the "Compleat Angler", the bungalow is nevertheless modern in atmosphere if not in plan. Designed by Architect Victor Stromquist specifically to meet the needs of low-income families, it is priced at $3,500.

That the public appreciated the Bohnen home-show attraction and its price was demonstrated when 2,000 of the 30,000 visitors who passed through its four rooms paid 10 cents for a descriptive booklet. Following up those 2,000 evidences of interest, Salesman Bohnen took orders for fourteen Compleat Houses. Two are built (one of which will be used as an office), three are under construction and the rest await FHA approval. He expects to build by year-end a total of 50. Progress is being hampered somewhat by difficulty in clearing FHA applications, ascribed by Bohnen to the necessity for a more-rigid-than-usual investigation of his marginal purchasers.

**Code.** As with all laws inadequate to human needs, Chicago's building code made Builder Bohnen approach low-cost construction in a round-about, lawyer-like way. Principal predicators of the design were code requirements that 1) all dwellings in the fire zone, which embraces most of the metropolitan area, be built of fireproof materials*, 2) that first floors have 8 ft. 6 in. ceilings, but that second floor ceilings may be cut by roof lines and need have only 50 per cent of the ceiling area at that height. To meet requirement No. 1 he chose brick, used the low-maintenance-cost argument and clinched it by adding steel casement windows. (Maintenance has assumed a new importance, particularly to financing institutions, when houses are mortgaged for 20-25 years and built for the low-income group inexperienced in upkeep.)

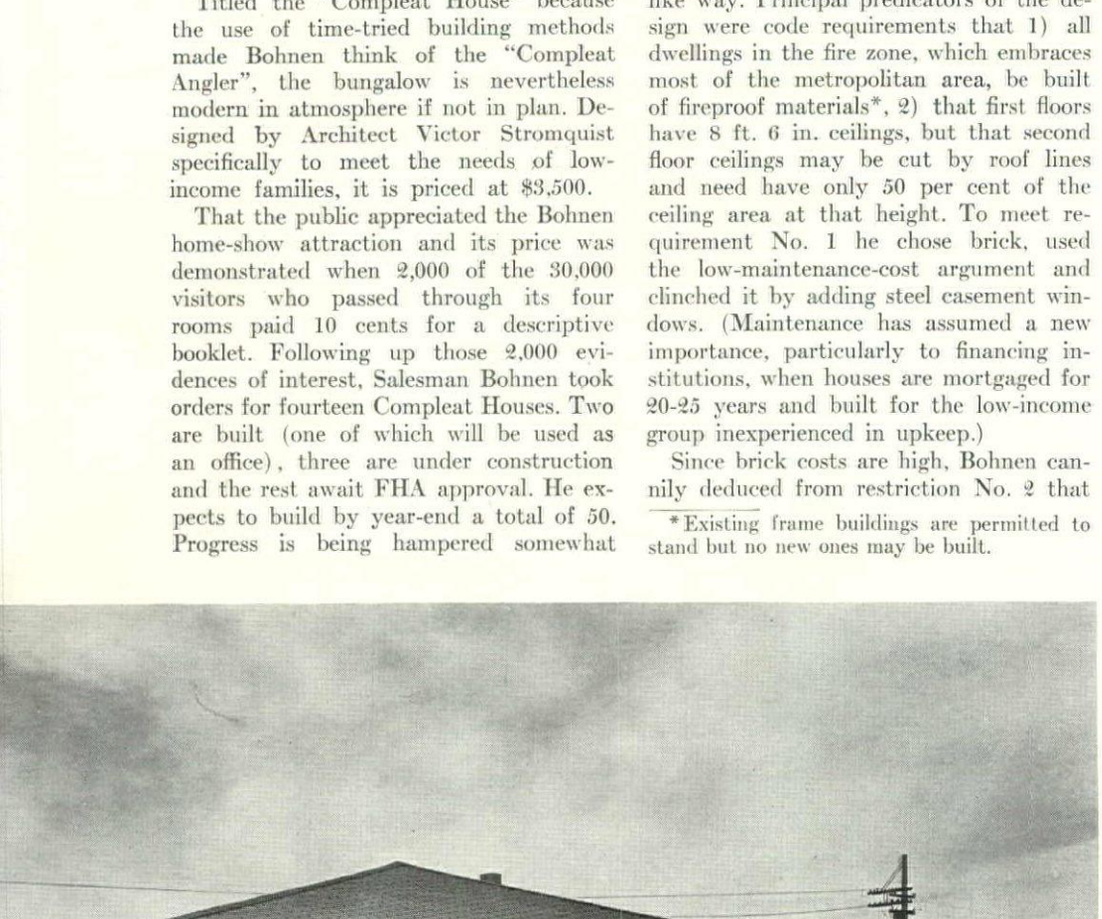
Since brick costs are high, Bohnen cannily deduced from restriction No. 2 that in planning a house with a single floor he could choose either first or second floor specifications. Bringing the second floor down to the ground, he built 7 ft. instead of 8 ft. 6 in. walls and let the roof line chamfer the ceiling. In this way he met requirements and eliminated 168 sq. ft. of wall surface (with brick costs at $15 per 1,000, that meant a saving of about $35). Windows in these low walls were logically designed flush with eaves, thus further eliminating the necessity of lintels. The result is not only cost-worthy but design-worthy; it has none of the boxiness expected of a 24 x 32 ft. house.

Chicago's code also requires that interior walls and ceilings be plastered and that closets have lights in them. To evade the latter restriction Bohnen left the closet doors off, the lights out.

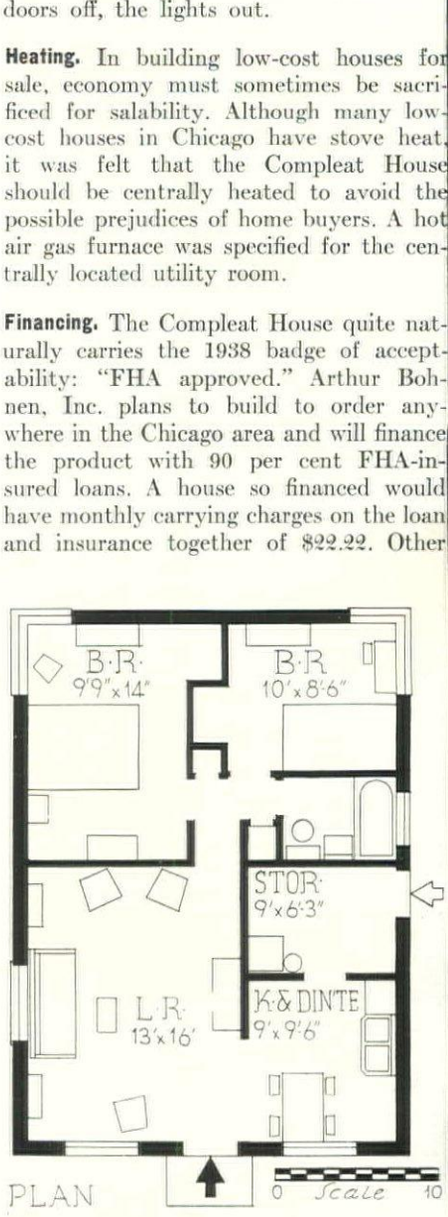
**Heating.** In building low-cost houses for sale, economy must sometimes be sacrificed for salability. Although many low-cost houses in Chicago have stove heat, it was felt that the Compleat House should be centrally heated to avoid the possible prejudices of home buyers. A hot air gas furnace was specified for the centrally located utility room.

**Financing.** The Compleat House quite naturally carries the 1938 badge of acceptability: "FHA approved." Arthur Bohnen, Inc. plans to build to order anywhere in the Chicago area and will finance the product with 90 per cent FHA-insured loans. A house so financed would have monthly carrying charges on the loan and insurance together of $22.22. Other

*Existing frame buildings are permitted to stand but no new ones may be built.



*Vandivert*




**Dwarfed** before 80 acres of undeveloped land, Compleat Houses in Bohnen's budding subdivision feature low brick walls, large areas of glass and a moderately open plan. The construction program calls for 48 additional houses by year-end.

monthly charges have been estimated at $5.50 for heat; $3.00 for gas; $2.50 for electricity; and $6.60 for taxes, bringing the total to slightly under $40 per month.

Bohnen has many irons in the fire. He is now building twelve Compleat Houses in his own subdivision near the PWA Trumbull Park Housing project. He plans to develop several rental projects under Section 210 of the National Housing Act. Another iron is his complete line of furniture based on designs of the Resettlement Administration which are well suited to small-house simplicity; will furnish the Compleat House, including carpets, drapes, a gas stove, and an Electrolux for $750. Finally, he has made arrangements with local furniture stores to sell Compleat Houses as stock merchandise.

Although the home-show house has received the spotlight of publicity, it is only the smallest child of a Compleat family, other members of which await patiently the varying demands of home-hungry Chicagoans.

This Compleat family, in turn, is only one of a number of Bohnen interests. One-time consultant to PWA's now defunct Housing Division, he has long counselled the Chicago Housing Authority, served NAREB, NAHO and the Chicago Real Estate Board in official capacities. In 1926 this volume of public activities together with his private real estate business prompted organization of Bohnen as Arthur Bohnen, Inc., to provide "the vehicle for the activities of myself."

LIVING ROOM—DINETTE

LIVING ROOM

**Commendably simple** in interior design, the Compleat House's model rooms attracted 30,000 people at Chicago's Home Show. Of side-show importance to these visitors was Builder Bohnen's line of modern furniture. Prominence of the kitchen readily seen from both the front door and living room, may have provoked criticism on the part of some.

## CONSTRUCTION OUTLINE

FOUNDATION: Walls— 8 in. concrete. Cellar floor—1½ in. concrete seal coat over cinder fill.

STRUCTURE: Walls—8 in. brick, 1 in. furring strips, plaster on foil-backed rock lath, U. S. Gypsum Co. Interior partitions—2 x 4 in. stud walls, plaster on rock lath. Floor construction—2 x 8 in. joists, 16 in. o.c., subfloor, paper, fur flooring.

ROOF: Construction—2 x 6 in. rafters, 16 in. o.c. roof boards, U. S. Gypsum Co. asphalt shingles.

INSULATION: Outside walls—foil-back rock lath, U. S. Gypsum Co. Roof—Junior wool batts, U. S. Gypsum Co.

WINDOWS: Sash—Fenestra Economy, Detroit Steel Products Co. Glass—single strength quality A, Libbey-Owens-Ford Glass Co. Screens—metal frames.

WOODWORK: Trim—gum. Shelving and cabinets—white pine, maple work tops. Interior doors—Rezo flush, birch, M. & M. Woodworking Co. Exterior doors—Roddis flush, birch, Roddis Lumber & Veneer Co.

KITCHEN EQUIPMENT: Laundry tub combination, sink with metal cabinet, Standard Sanitary Mfg. Co.

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

PLUMBING: Soil pipes—cast iron. Water pipes—galvanized steel.

HEATING AND AIR CONDITIONING: Bryant forced air Model VB 8, gas fired, Bryant Heater Co. Regulators—Minneapolis-Honeywell Regulator Co.

## MATERIAL COSTS

(*Continued from page 234*)

## SUMMARY

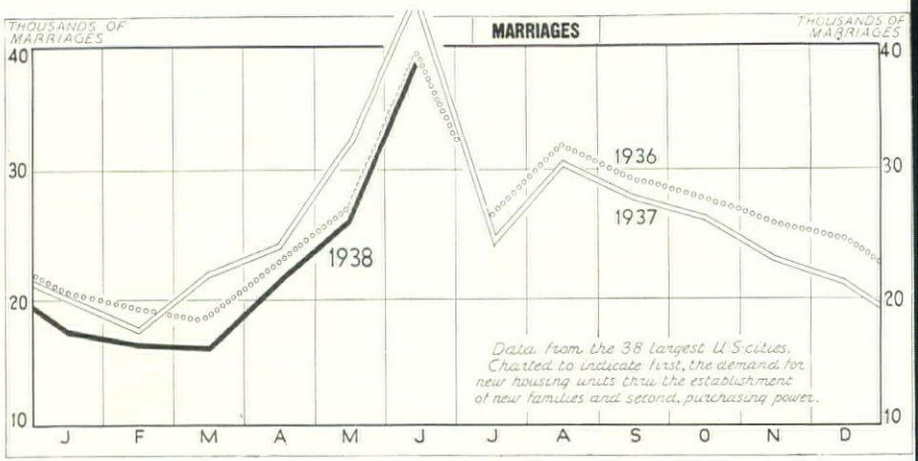
Composite wholesale price index of Building's basic materials is that below. It includes all indices individually set forth herein, except that a "plumbing and heating" index has been substituted for copper and that an index for "other building materials" has been incorporated, requiring that the glass index, per se, be omitted. Ushered into 1936 at 85.3 per cent of the 1926 average, the composite index went to 97.2 per cent in May 1937, has since declined steadily (except for an insignificant bounce in February) to 89.7 for June 1938.


Due to the normal time lag, effect of a change in this composite index of wholesale prices does not make itself felt on building costs for two or three months after the change. No significant advance in building costs, therefore, is anticipated before October. However, recapitulation of predictions based on the preceding statistical analyses of seven major building materials, points to a steady-to-upward movement of the composite index:

| MATERIAL | PRICE TREND PREDICTION |
|---|---|
| Lumber | Upward |
| Brick | Upward |
| Steel | Steady-to-upward |
| Cement | Steady |
| Copper | Steady |
| Paint | Steady-to-upward |
| Glass | Steady |

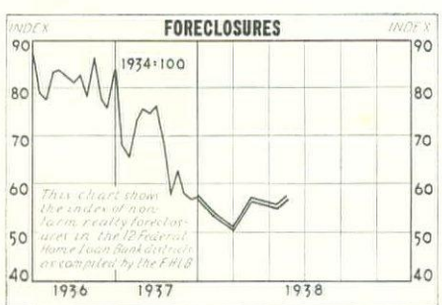
Grounds for these individual predictions, in sum, are 1) demands of Labor for continued high wages, 2) general reduction in inventories, 3) increasing taxes on all fronts, 4) improvement in business sentiment as reflected in higher stock market prices, 5) PWA and USHA programs and 6) the seasonal upturn in Business and Building.

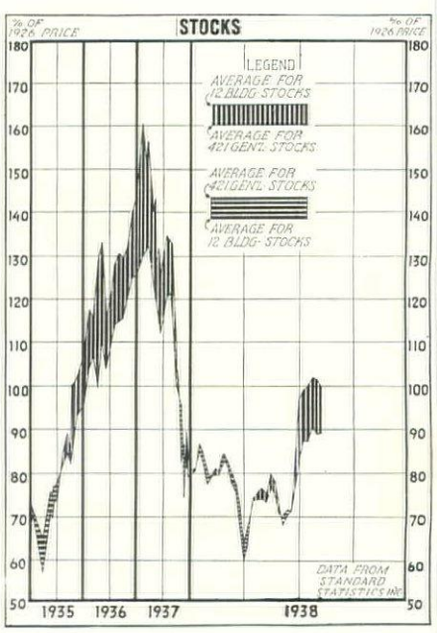
An additional factor, outside the realm of material prices and not considered in this article is the ever-increasing volume of mortgages selected for appraisal and accepted for insurance by FHA. Claiming "the rapid increase . . . is *not* due solely to the insuring of loans formerly made on a non-insured basis," Editor Roy Wenzlick of the *Real Estate Analyst* at mid-July backed up THE FORUM's predictions as to the future trend of construction costs, advised his clientele of realtors, mortgage men and investors that "now is the time to build. . . ." Editor Wenzlick in June 1933 published an identical statement—and was absolutely right.

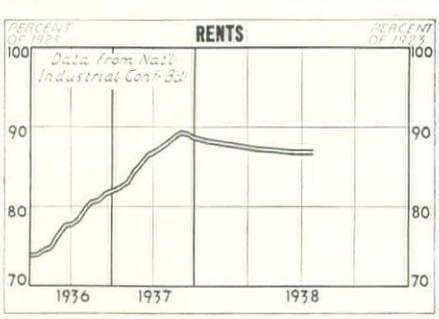


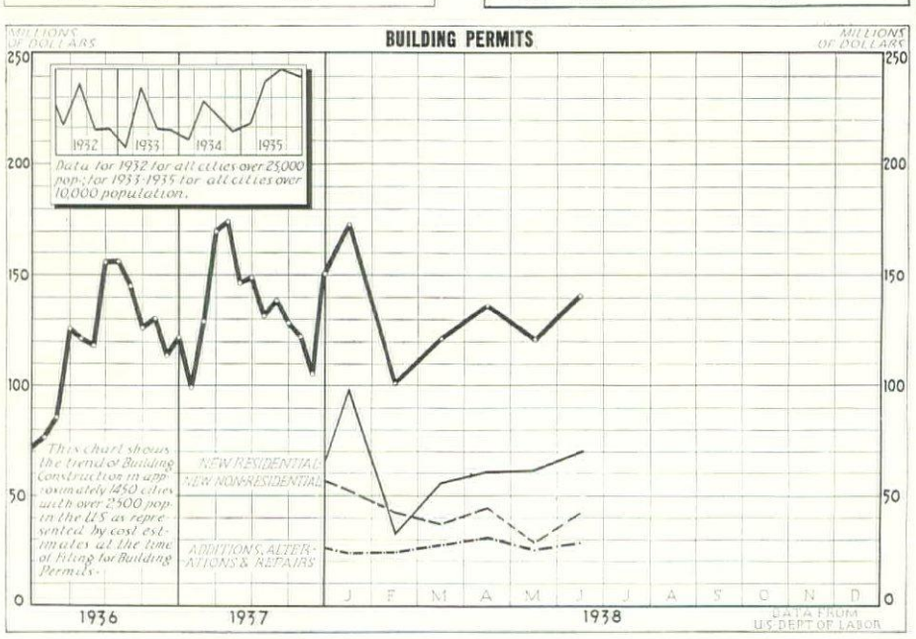

# MARRIAGE VOLUME LAGS

**behind 1937 levels. Rents continue steady as foreclosures, permits jog upward; building stocks, downward.**



# Permanent Kitchen Appeal . . . Sealex Linoleum

## *for Floors, Walls, and Ceilings!*

*Personal-ized* Floors of Sealex Linoleum enable you to give your clients designed-to-order floors at ready-made cost! The Sealex Veltone Floor here has been Personal-ized with the very appropriate Sealex Inset—"Mixing Bowl." A Sealex Border and Feature Strip complete the individual effect. Many low-cost, ready-cut Sealex Insets are available—and may be permanently installed anywhere you wish in a Sealex Linoleum Floor—quickly and inexpensively.*

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

STREAMLINED beauty and efficiency! That's what clients demand today. And this kitchen has it—from floor to ceiling! Quiet and resilient underfoot, Sealex makes the ideal floor. Perfectly smooth and sanitary, it is the perfect wall treatment. Crackproof and washable, it is equally ideal for the ceiling!

Your clients get freedom from costly maintenance with modern Sealex materials. For Sealex Linoleum eliminates the expense of scraping, painting, varnishing or repapering. And *you* get freedom of design. For the wide range of Sealex patterns, used singly or in combination, provides ideal decorative schemes for any room in the home.

Installed by authorized contractors, Sealex materials are fully covered by a guaranty bond. Write for details and samples now!

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

# SEALEX LINOLEUM

TRADEMARK REGISTERED

*Floors and Walls*

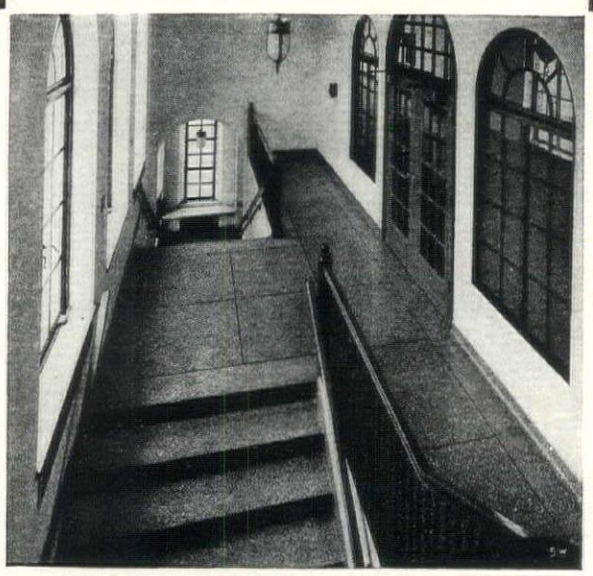
# *Swing note* for dance floors

## ...*and* THE LATEST STEPS FOR SCHOOLS

SMART ENOUGH for a modern dance setting . . . sturdy enough to stand up under scuffling feet year after year . . . Terrazzo is the ideal material wherever play-time or workaday flooring must look well and wear well at the same time.

Too, Terrazzo is the coming favorite with architects and clients for wainscoting, and for all sorts of modern interior decoration. It can be as colorful and individual as you care to make it . . . and you can be sure that the finished job will be exactly as you planned. Terrazzo is always handsome, even in plain patterns. It's economical, hard to stain, easy to keep clean.

For helpful, detailed information about this remarkable decorative material, write the National Terrazzo and Mosaic Association, 1406 G Street, NW, Washington, D. C.

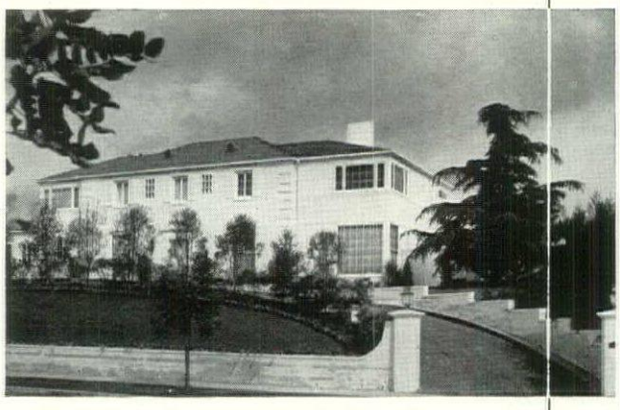


● Terrazzo is ideal for stairs and hallways. Placed in a plastic condition, it can be shaped to any form. Or it can be pre-cast in special shapes and placed in units.

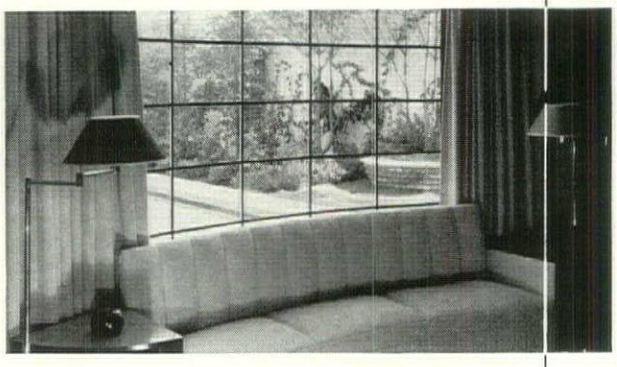
**THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION**

# Payne

## ADDS WARMTH..



## ..TO LOVELINESS!

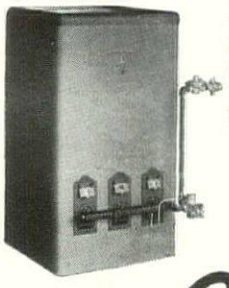


*The distinctive Westwood Village home of Joe Penner, star of stage, screen and radio. Architect, Leland Fuller. Builder, Rollin Pierson.*

This beautiful home was designed for more than ordinary liveability. That's why Payne Unit Furnaces were chosen to heat it!

Payne has given this home controlled warmth—the occupant may heat as many or as few rooms as desired. Payne automatic unit furnaces give thorough, even distribution of warm, healthful air and eliminate cold spots.

Let Payne engineers help you carry out your ideas on home heating and ventilation. Write today for information.



*Payne Series "A" (Unit) Furnace. Combined with a Modernair Unit it becomes a Semi-air Conditioning System.*

**Payne**

**FURNACE & SUPPLY CO., INC.**

BEVERLY HILLS • CALIFORNIA


IN THE next house you design, plan on one more bathroom — a Kohler Lavette. 3½ feet by 4½ feet is ample for this downstairs bathroom that saves time and steps, pleases host and guests alike, makes clients more receptive.

Illustrated is what we mean by "Kohler Lavette." This particular combination consists of Kohler's compact Strand vitreous china lavatory with convenient shelf for comb, soap, brush, powder, and the one-piece Integra closet that flushes so quietly it can hardly be heard outside a closed bathroom door.

It is to your advantage to specify plumbing equipment from *one* source. Kohler vitreous china and enameled iron fixtures and closet seats, assure you of uniform quality, matched design, and harmonizing colors — especially in white, which varies greatly. Kohler's is the "whitest" white obtainable. But, most important, the fittings should be Kohler. They are planned and built primarily for service on Kohler fixtures. Write for free booklet, "Planned Plumbing." Kohler Co. *Founded 1873.* Kohler, Wisconsin.

**KOHLER OF KOHLER**

**PLANNED PLUMBING AND HEATING**


**This advertisement will reach millions, including thousands of prospective home builders. It is one of a series of L·O·F advertisements that will appear in 8 leading national publications.**

●

Thousands of new homes will have the added comforts and economies that "Window Conditioning" afford. And the quality of the glass specified for these double windows becomes doubly important. For your clients will be looking through two panes instead of one. L·O·F Quality Glass is today, as it has been for many years, clearer, brighter and flatter than any that the industry has ever offered.

Libbey • Owens • Ford Glass Company, Toledo, Ohio.

## *Question:*
# MUST AIR CONDITIONING COST A FORTUNE ?

## *Answer :*

### NOT IF YOU CONSULT THE "WORLD'S LARGEST INSTALLERS OF HOME HEATING AND AIR CONDITIONING SYSTEMS"

● The thousands of home owners who installed the Holland Automatic Furnace Air Conditioner (for oil or gas) have had ample proof that home air conditioning need not cost a fortune. Every promise of efficiency and economy has been more than fulfilled in spite of Holland's surprisingly low first cost. In virtually every case, operating costs were substantially below the most optimistic estimate, yet perfect comfort was automatically maintained in every room throughout the winter. During the summer, too, these homes were made far more comfortable by circulating the air on hot days.

To architects, this signal success means that the range of homes in which it is feasible to specify automatic winter air conditioning now extends well into the lower price brackets.

If not already fully informed about this remarkable unit, you will surely want full details. Data sheets prepared especially for architects by the well-known Don Graf, BS., M. Arch., may be had by mailing the coupon at left.

HOLLAND FURNACE COMPANY
Dept. AF9, Holland, Michigan

Please mail information on subjects checked below:

☐ Automatic Furnace Air Conditioner for Oil or Gas. ☐ Coal Burning Heating and Air Conditioning Systems. ☐ Automatic Coal Burner. ☐ Automatic Oil Burners. ☐ Data Sheets. ☐ Have Engineer call.

*Name*_____

*Address*_____

*City*_____

*State*_____

# HOLLAND FURNACE COMPANY
## HOLLAND, MICHIGAN

# ANNOUNCING THE NEW *Brunswick* RUBBERCEPTOR

FOR THE SHOWER STALL FLOOR


**ONE-PIECE SEAMLESS SHOWER RECEPTOR**
It's a tough job to make a shower stall watertight—settling of the house—chemical action on lead pans—any one of a hundred hazards can cause leakage and a dissatisfied client.

**PERMANENT—OF NON-OXIDIZING RUBBER**
But not with the Rubberceptor. This receptor of odorless, non-oxidizing rubber, one piece and seamless, cannot leak—it's permanent. The pyramid tread prevents slipping; and being molded of rubber, it is warm and comfortable to the feet—unaffected by soap and easily cleaned. It's sanitary and germproof. The Brunswick Rubberceptor is sold through and installed by Plumbing Contractors; and only one trade is needed in their installation, which means a saving in time as well as in money.

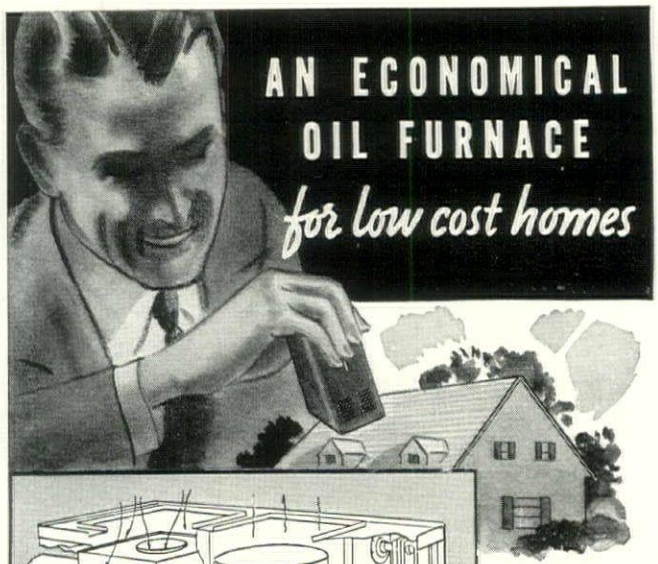
**LOW-COST INSTALLATION**
Because of the low cost of shower receptor installations with Rubberceptors, you will find that it is possible to include an extra shower without straining the appropriation. Many less expensive wall coverings such as wall rubber, linoleum or imitation tile can be successfully used in combination with the Rubberceptor. Write for complete information on this new money-saving receptor.

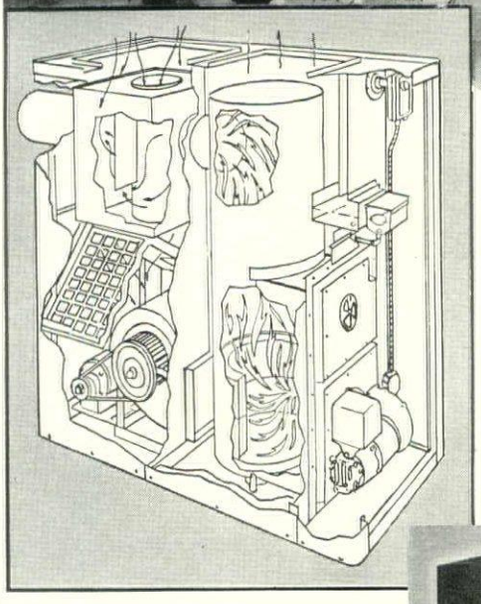
**THE BRUNSWICK-BALKE-COLLENDER CO.**
*Plumbing Equipment Division*
**627 South Wabash Ave., Chicago, Ill.**

## *Brunswick* RUBBERCEPTOR

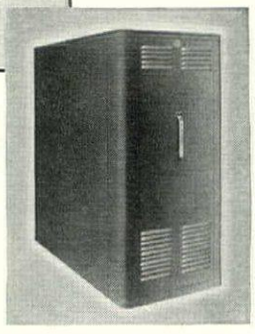
OF SEAMLESS RUBBER WITH SLIP-PROOF TREAD

U.S. PATENT NO. 2025814, 12-31-35



HEATS
HUMIDIFIES
CLEANS
CIRCULATES



# ROUND OAK X-80

***PERFORMS ALL FUNCTIONS OF WINTER AIR CONDITIONING***

Architects and builders seeking an economical oil furnace for low cost homes will find the Round Oak X-80 ideally suited to their needs. Designed as a complete winter air conditioning unit, it delivers up to 80,000 BTU's per hour at unusually low cost. Heating unit is of steel, specially designed for the efficient combustion of oil which is delivered by the time-tested Round Oak "Contraflow" burner. Quiet circulating blower moves large volume of air through highly efficient air filters. Attractive 24 gauge steel casing—Hammerloid blue finish.

X-80 is an outstanding development in small home heating. Call your Round Oak dealer for complete information, or write direct to the factory.

# ROUND OAK

STOVES · RANGES · FURNACES
OIL BURNERS · AIR CONDITIONERS

The Round Oak Company, Dowagiac, Mich., Dept. 208
Please send literature and complete information describing your
☐ X-80 AIR CONDITIONER, ☐ LARGER EQUIPMENT
Name_____
Street_____
City_____ State_____

# NOISE

## DOESN'T BELONG IN MODERN STRUCTURES WHEN IT'S SO EASY TO ACHIEVE MONEY-SAVING

# QUIET

### *Acousti-Celotex Increases Efficiency, Cuts Absences, Reduces Errors*

More and more, business men are coming to realize the terrific penalties exacted by costly, wasteful NOISE—and are doing as Campana has done in the beautiful modern plant shown here: *They are using Acousti-Celotex to replace money-wasting NOISE with money-saving QUIET.*

Office buildings, schools, hospitals—theatres—churches—restaurants—stores—to be truly modern, all these demand efficient acoustical treatment. Acousti-Celotex with its patented noise-trapping perforations *has proved the correct answer in thousands of cases.* Great latitude of decorative treatment is afforded, and light-reflecting values are maintained *at minimum cost,* because Acousti-Celotex may be cleaned or painted repeatedly without affecting its acoustical properties. And remember: Acousti-Celotex sound-absorbing tile is only one of *five* modern acoustical materials offered by Celotex through the service of *thoroughly qualified acoustical experts.* Feel free to call on these men for consultation, or to supervise the application of the material you choose. Their experience is yours to command, whenever any acoustical problem confronts you.

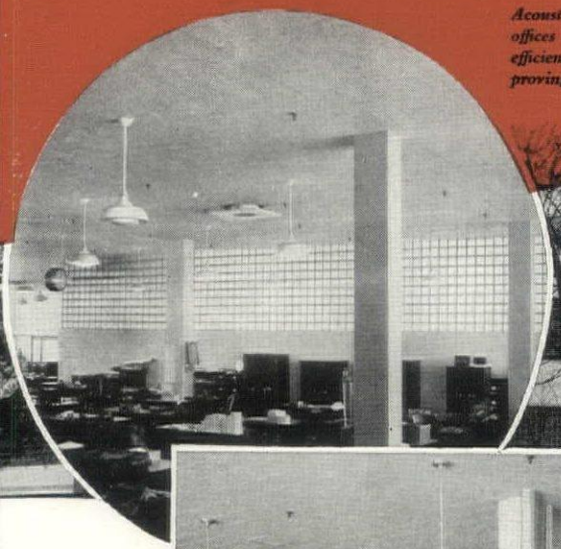
THE CELOTEX CORPORATION
919 N. Michigan Avenue Chicago, Illinois
*World's Largest Manufacturer of Acoustical Materials*

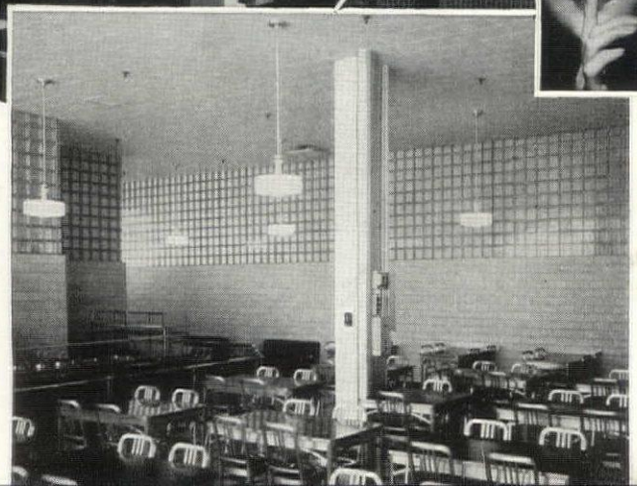
PAINTABLE **ACOUSTI-CELOTEX** PERMANENT

TRADE MARK REGISTERED U. S. PATENT OFFICE

*Acousti-Celotex quiets the general offices of Campana, increasing efficiency, reducing errors, improving morale of office workers.*

*This beautiful modern plant of Campana Company, Aurora, Ill., has solved all acoustical problems with Acousti-Celotex. Architect: Frank D. Chase of Childs & Smith, Chicago. Acoustical Contractor: James L. Lyon Co., Chicago.*





*mpana believes the tfulness of quiet uld accompany noon cheon, so Acousti-otex stills the clatter voices, china, and er in the cafeteria.*



ACOUSTICAL PRODUCTS BY

**CELOTEX**

REG. U.S. PAT. OFF.

ACOUSTI-CELOTEX CALICEL CALISTONE

VIBRAFRAM ABSORBEX

*Sales Distributors Throughout the World*

# FORUM OF EVENTS

*(Continued from page 38)*

## PERSONALS

SAMUEL SPERLIN ABRAMSON has opened an office for the practice of architecture and for consultation for store and business installations at 62 West 45th St., New York, N. Y. Manufacturers' data are solicited.

Henry G. Markel has opened an office for the general practice of architecture at Deposit Guaranty Building, Jackson, Miss. Manufacturers' catalogs and samples are requested.

James A. Malcolm and Associate have opened an office for the general practice of architecture at 210 Builders' Building, Charlotte, N. C., and will appreciate receiving catalogs and other data covering building materials.

Theodor Carl Muller has opened an office for the practice of architecture and industrial design at 3 Pinckney Street, Boston, Mass., and will divide his time between that office and his New York office at 9 Rockefeller Plaza.

Hoener, Baum & Froese have announced reorganization of their firm. Albert H. Baum, Jr., and Ewald R. Froese will continue practice of architecture and engineering at 3605 Laclede Avenue, St. Louis. P. John Hoener, architect and construction consultant, has offices at 3417 South Kingshighway, St. Louis.

Arthur A. Fisher has formed a co-partnership with Alan Fisher and Edward L. Hubbell as the firm Fisher, Fisher, and Hubbell, 827 Denver National Building, Denver, Colorado, successors to William E. and Arthur A. Fisher.

George F. Root, 3rd has opened offices for the general practice of architecture at 56 Palmer Avenue, Bronxville, N. Y.

Hobart A. Walker of East Orange, N. J., and Augustus R. Archer of Somerville, N. J., announce that they have associated for the practice of architectural and engineering work with offices as noted above.

E. Keith Lockard of Santa Barbara, Calif., and Roy Walling Cheesman formerly of Dayton, O., announce the formation of a partnership for the practice of architecture under the firm name of Lockard & Cheesman, 117 East De La Guerra St., Santa Barbara, Calif.

Walter P. R. Pember, 24 James Street, Albany, N. Y., has succeeded the firm of Pember & Demers.

Alonzo J. Harriman, formerly of the firm of Harry S. Coombs-Alonzo J. Harriman, has opened an office for the practice of architecture at 270 Turner Street, Auburn, Maine, and would appreciate catalogs of building products.

Malcolm F. Seavey, architect, has taken offices at 4 Alleyne Terrace, Quincy, Mass., and requests catalogs.

Changes of address:

Walter F. Martens, from 306 Medical Arts Building to 507 Great Kanawha Building, Charleston, W. Va.

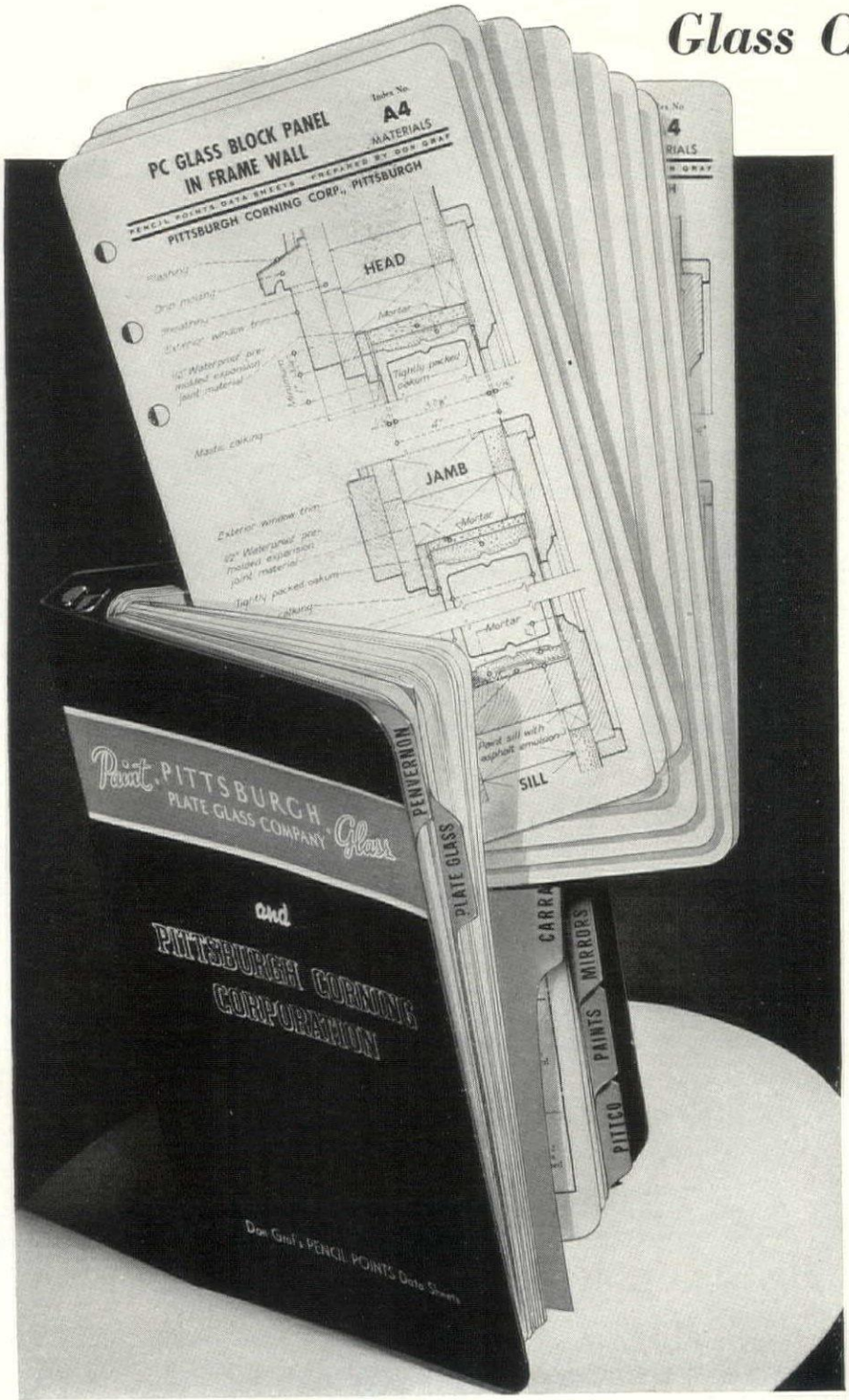
Roger C. McCarl, from Wrightsville Sound, N. C., to 306 Stearns Building, Statesville, N. C.

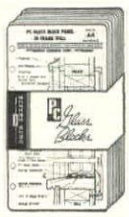
Herman B. Gelfand, to 875 Broad Street, Newark, N. J.

Robert C. Weinberg, from 1 Christopher St. to 21 Washington Square, North, New York City.

Charles F. Ackerman, from 45 Clinton St. to 105 Halsey St., Newark, N. J.

# NOW READY... 14 Don Graf Data Sheets on PC Glass Blocks... *and One Sheet on Seloc Glass Chalkboard*



FOR INSERTION IN YOUR PITTSBURGH DATA SHEET HANDBOOK

WITH glass block construction more widely used every day, these new Don Graf data sheets on PC Glass Blocks will prove invaluable to you in your work. Prepared *by* an architect *for* architects and draftsmen, they contain complete, accurate data on the use and application of PC Glass Blocks, with helpful installation details for different types of walls. The set of Glass Block sheets comprises 14 pages. There is also one page of details on another interesting new product, Seloc Glass Chalkboard.

This set of 15 data sheets is specially prepared for easy insertion in the Pittsburgh Data Sheet Handbook, which contains information on other glass and paint products of Pittsburgh Plate Glass Company and Pittsburgh Corning Corporation. You probably already have this complete Don Graf Handbook of Pittsburgh Products. If you have, and your name appears on our records, the new Glass Block data sheets will be sent to you automatically for insertion. Be on the lookout for them. But if you do not have the Pittsburgh Handbook, and are a practicing architect, contractor or engineer, sign and mail the coupon below for your free copy of it. The copy sent you will contain the new Glass Block and Seloc data sheets.

PITTSBURGH PC CORNING *Glass Blocks*

PITTSBURGH CORNING CORPORATION

*Manufacturers of PC Glass Blocks*

•

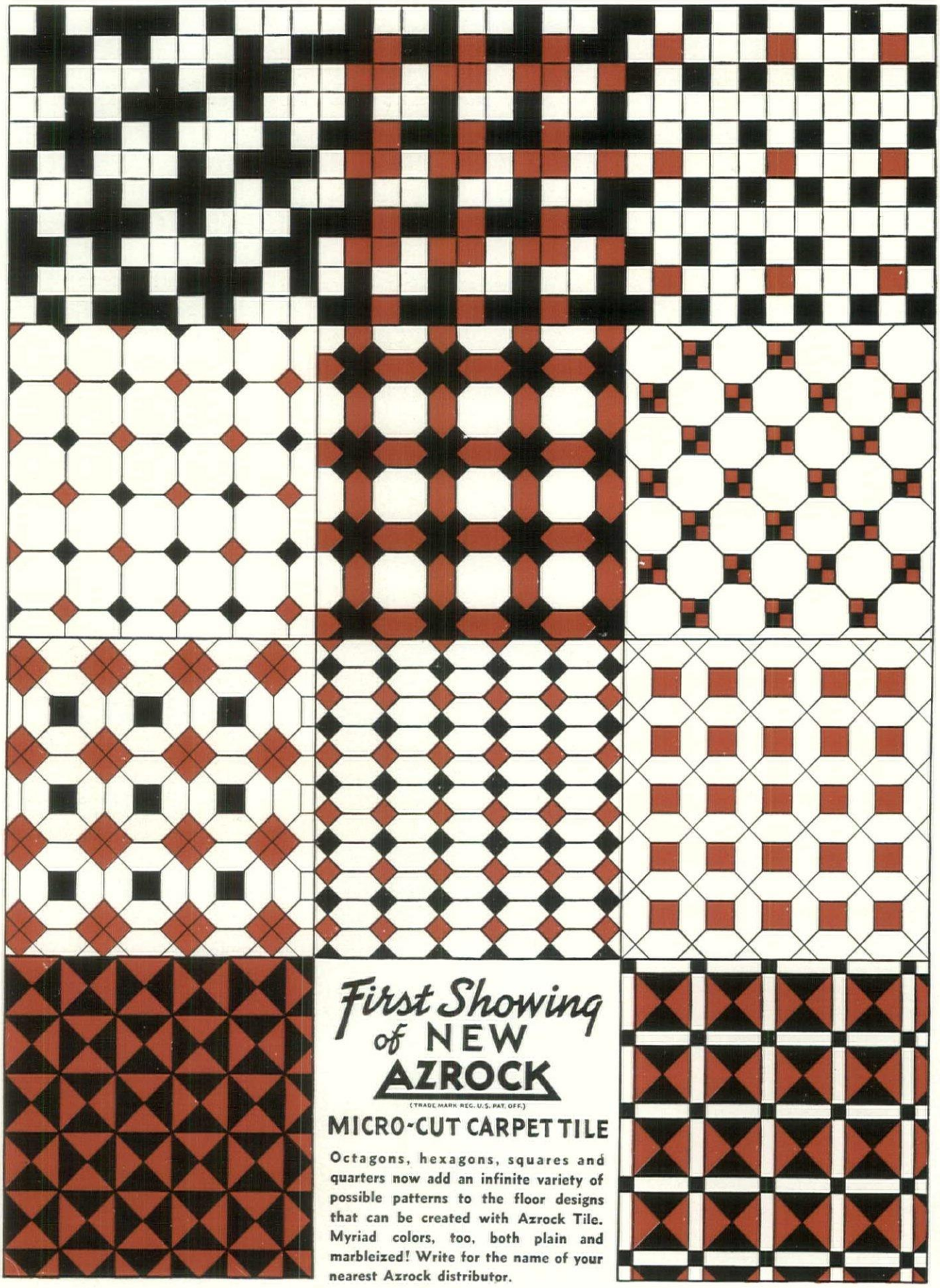
PITTSBURGH PLATE GLASS COMPANY

*Manufacturers of Seloc Glass Chalkboard*

Pittsburgh Corning Corporation
2361A Grant Bldg., Pittsburgh, Pa.

Please send me, without cost or obligation, the Pittsburgh Data Sheet Handbook, complete with the new sheets on PC Glass Blocks and Seloc.

Name.....
Firm.....
Position.....
Address.....
City.....State.....



# *First Showing* of NEW AZROCK

(TRADE MARK REG. U.S. PAT. OFF.)

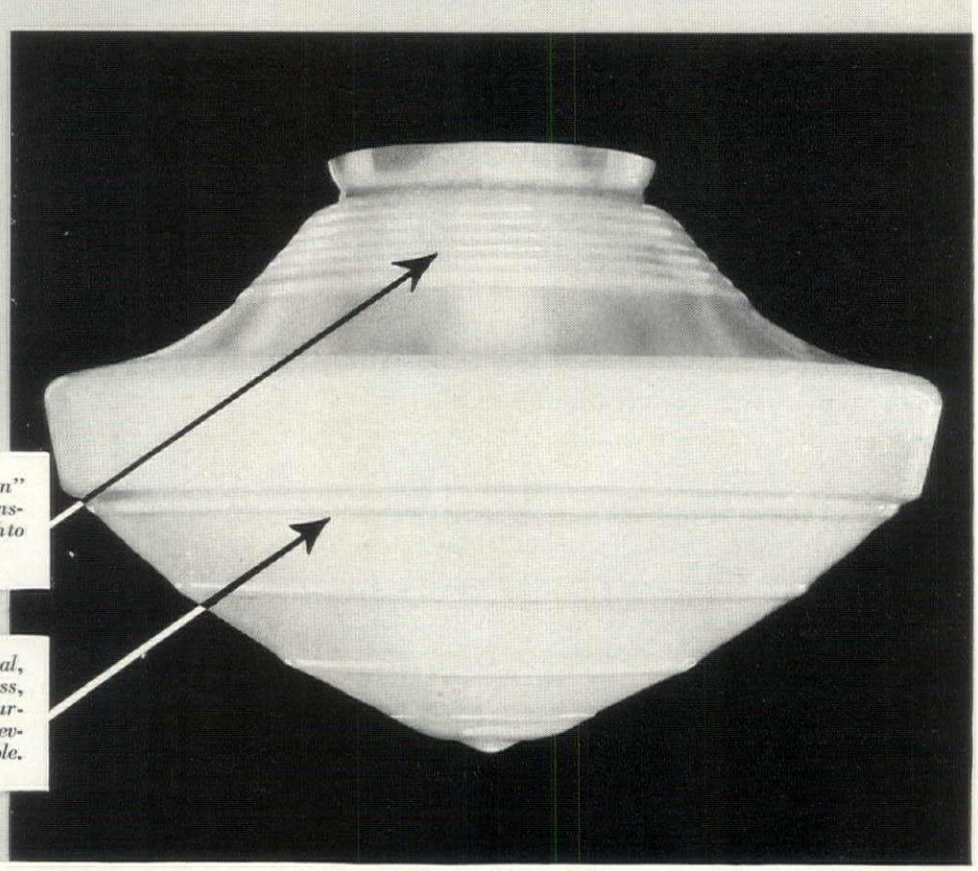
## MICRO-CUT CARPET TILE

**Octagons, hexagons, squares and quarters now add an infinite variety of possible patterns to the floor designs that can be created with Azrock Tile. Myriad colors, too, both plain and marbleized! Write for the name of your nearest Azrock distributor.**

*Note: The top three designs are made with 6" x 6" tile; the next three, with 12" octagons combined with 4¼" x 4¼", 6" x 12" hexagon and 3" x 3"; the next three with 6" x 12" hexagons combined with 4¼" x 4¼" and 6" x 6"; the lower two are made with 12" quarter tile. It's simple with Azrock!*

**UVALDE ROCK ASPHALT COMPANY • FROST BANK BLDG. • SAN ANTONIO, TEXAS**

# 2 KINDS OF GLASS IN ONE SOLID PIECE



1 *Upper part of this "Astron" Galax globe is semi-transparent. Light goes through to ceiling. Dust stays out.*

2 *Lower part is dense opal, with low surface brightness, high inner reflecting surface. "Astron" is one of several Galax designs available.*

***That's how Macbeth Galax brand globes give efficient semi-indirect light without harmful glare!***

HERE at last is a one-piece glass enclosing globe that combines high efficiency with low surface brightness. A globe that fits any standard fixture and does not need frequent dusting to retain its efficiency!

This combination of qualities, heretofore unobtainable, was arrived at by a special composition and heat-treating process that produces *two different textures in one piece of glass.*

The lower part of a Galax globe is very dense opal with a high inner reflecting surface. The upper section is semi-transparent, which lets light through to the ceiling and at the same time keeps out dust.

The result is that Galax globes meet A.I.A. and I.E.S. requirements for semi-indirect school or hospital lighting. Galax globes are sold by representative jobbers everywhere.

For a free sample cut from a Galax globe showing the unique "dual density", mail the coupon or write us on your office letterhead. Address Illuminating and Optical Division, Dept. F-9, Corning Glass Works, Corning, N. Y.

Illuminating & Optical Division,
Department F-9
Corning Glass Works, Corning, N. Y.

Without obligation, please send me a free sample cut from a Galax globe.

Name .....

Firm Name .....

Street Address .....

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

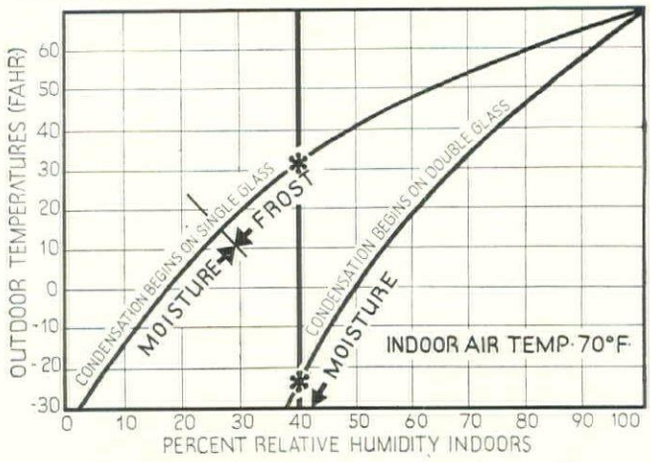
CORNING *means* Research in Glass

# PRODUCTS and PRACTICE

(*Continued from page 22*)

inner surface of the *outer* glass—much more so than ordinary windows. The reason for this, while not generally understood, is simple. Double glass prevents condensation on the inner glass by *raising* its temperature above the room dewpoint, owing to the insulating effect of the air space. By the same token, this insulation *lowers* the temperature of the outer glass—in most cases about 15 per cent of the difference between indoor and outdoor temperatures: at design temperatures more than 10° F. Thus if room air gets into the air space between the sheets of glass, moisture is even more likely to collect—and freeze—on the outer glass than on a single-glazed window. Experience has shown that it is a practical impossibility to seal the air space so that no air gets in from either side. The reason for this is the "vapor pressure"* in the air adjoining the space on the room side, in some cases as much as .3 of an inch of mercury. If the air in the space is "dry", this has about the same effect as submerging the window in water to a depth of more than 3 in., and under such conditions almost any glazing seal is bound to break at some point eventually. Fortunately, a much simpler solution exists. This is to permit the air-space to "breathe" dry outdoor air through small vent-holes between the outside of the sash and the air-space, thus maintaining a vapor pressure within the space equal to that outdoors, and—more important—permitting any vapor which enters the space through the inside seal to escape to the outdoor air.

**CONDENSATION ON WINDOWS**




**Curves showing point at which condensation will occur, single and double glass windows, for various outdoor temperatures and indoor relative humidities.**

In the case of inside winter windows installed behind operable casement or double-hung sash, this is accomplished by the normal infiltration around the sash, and no special precaution need be taken except to see to it that the seal of the winter window to the frame is tighter than the fit of the outer sash. Where outside winter windows are used, these must be vented or fit more loosely than the window itself; if weather-stripping is to be employed, it should always be on the inner—rather than the outer sash. Where inside winter windows fit over fixed lights, vent holes should

(*Continued on page 50*)

*See *Condensation*, ARCH. FORUM, April 1938, p. 22.

# EFFICIENT!

## Stops Heat Losses at Every Point

# KIMSUL

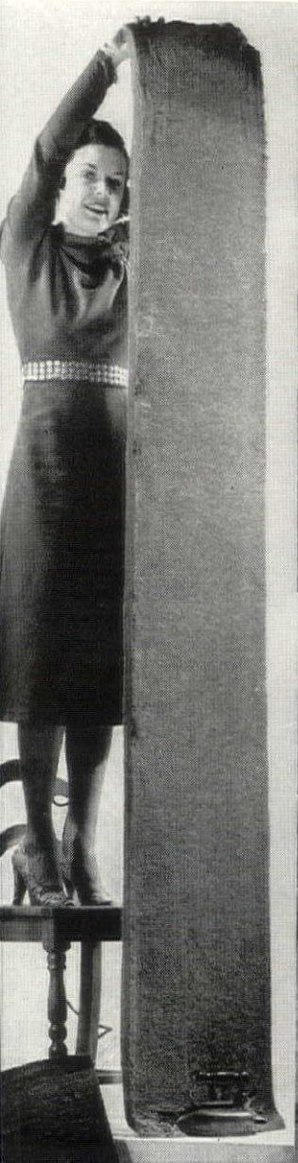
REG. U.S. & CAN. PAT. OFF.

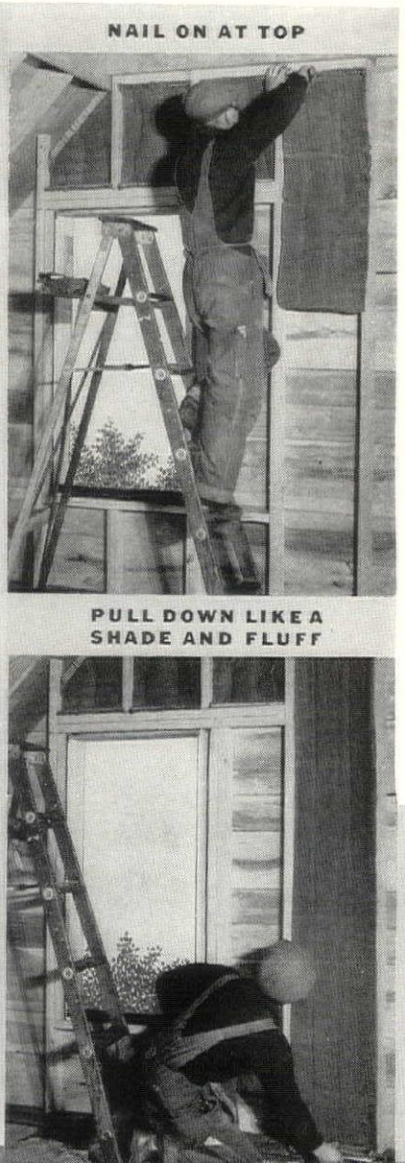
*Expanding Blanket*

# INSULATION

## EXPANDABLE
### CUTS LABOR COSTS

• Kimsul is delivered in fiber cartons containing 24 blankets one inch thick, in widths to fit standard stud openings. At time of installation each 20" length is first nailed on at the top, then expanded the full length of the studs (as shown below), providing a continuous, efficient heat barrier from top to bottom. *This speeds up and lessens installing costs.*





NAIL ON AT TOP

PULL DOWN LIKE A SHADE AND FLUFF

**• Made of wood fibers, whose natural resistance to heat is increased by interweaving, creping and laminating — Kimsul's "K" factor of .27** *ranks it as one of the most efficient insulating materials known.*

Kimsul blankets are made the correct width to fit snugly into standard spaces between studs. Pliant as cloth, they likewise fit snugly around door and window frames and into irregular spaces. Thus even those *openings so often neglected are provided with adequate protection.*

*Kimsul is now being Regularly Advertised in "Better Homes & Gardens" and "American Home," having a combined circulation of more than 3 million copies monthly. If you haven't all the facts about this modern insulation, use the coupon below.*

### *See that the Insulation you choose meets all these requirements*

1 EFFICIENCY: Kimsul is made of wood fibers, their natural high resistance to heat increased by interweaving, creping and laminating.

2 FLEXIBILITY: Kimsul fits snugly. It can be tucked into odd spaces, around windows, electric wires, pipes, etc.

3 PERMANENCE: Kimsul is highly resistant to fire, vermin and moisture.

4 NON-SETTLING: Kimsul stays put. Leaves no unprotected spots; will not shred, sift or settle.

**Reg. U. S. & Can. Pat. Off.*

5 LIGHTNESS: 1,000 sq. ft. of Kimsul only weigh 131.5 lbs. It adds practically nothing to the structural load.

6 PROPER THICKNESS: One-inch Kimsul provides maximum comfort and fuel savings for the investment.

7 NO WASTE: Every square inch is usable.

8 EASE OF HANDLING AND INSTALLING: Practically no cutting or fitting when installing Kimsul.

9 EXPANDABILITY: Kimsul speeds up work and reduces installation costs.

**KIMBERLY-CLARK CORPORATION (Kimsul Division), Neenah, Wisconsin**

*Established 1872*

NEW YORK, 122 East 42nd Street • CHICAGO, 8 South Michigan Avenue

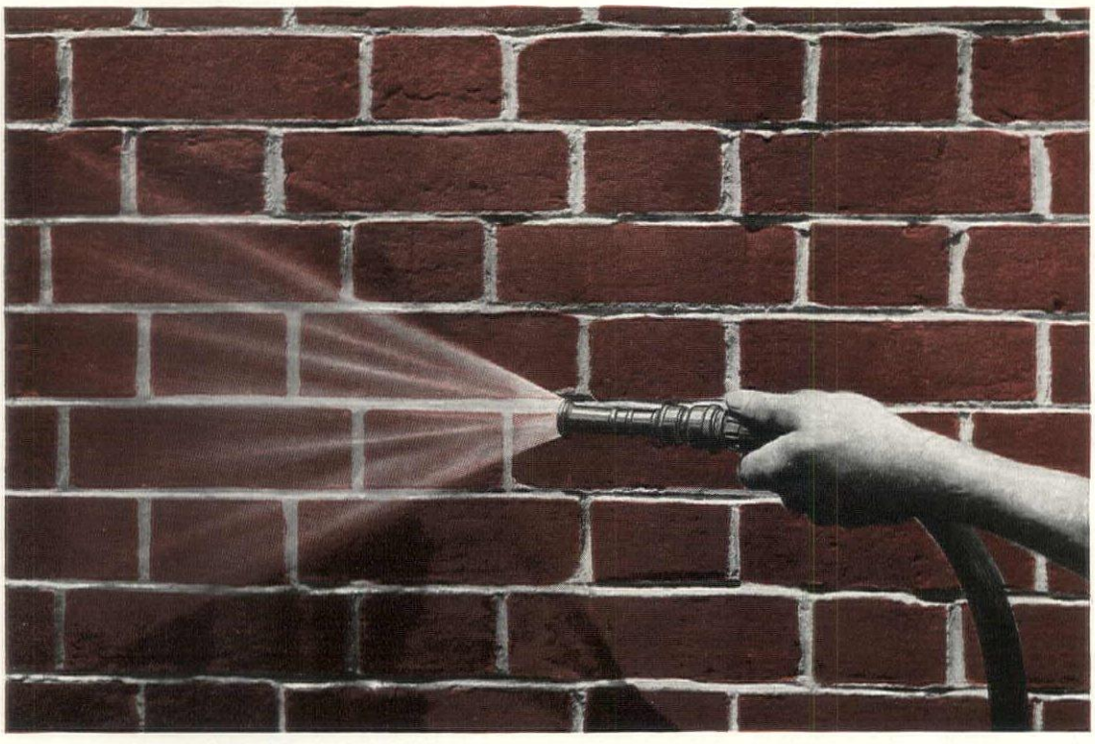
AF9

Mail me, without obligation, copy of booklet describing Kimsul, also a full sized sample.

*Name* _____

*Address* _____

*City* _____ *State* _____



# BRIXMENT IS WATERPROOFED

NO WATERPROOFING admixtures are necessary when Brixment is used for mortar. Brixment mortar alone is permanently waterproofed with the most effective waterproofing agent known—which is integrally mixed with Brixment during manufacture. *Leakage through Brixment mortar itself is therefore impossible.* ★ ★ But more important still in securing dry walls, Brixment helps prevent cracks between the brick and the mortar, through which water can penetrate. Brixment mortar gives a tighter, more durable bond between the brick and the mortar, because: . . . (1) It is so plastic that it assures a more complete bedding of the brick. This gives an increased area of contact between the brick and the mortar. . . . (2) Its higher water-retaining capacity keeps the brick from sucking the water out of the mortar so fast, and prevents the mortar from drying out before a better, tighter bond is formed. . . . (3) It hardens slowly enough to permit deeper penetration and more thorough keying into the pores of the brick. ★ ★ *Because of its waterproofing and its excellent bonding qualities, Brixment mortar furnishes as great protection against leaky walls as can be had from any kind or type of mortar material.*

LOUISVILLE CEMENT COMPANY, INCORPORATED, LOUISVILLE, KENTUCKY

*Cement Manufacturers for Over a Century*

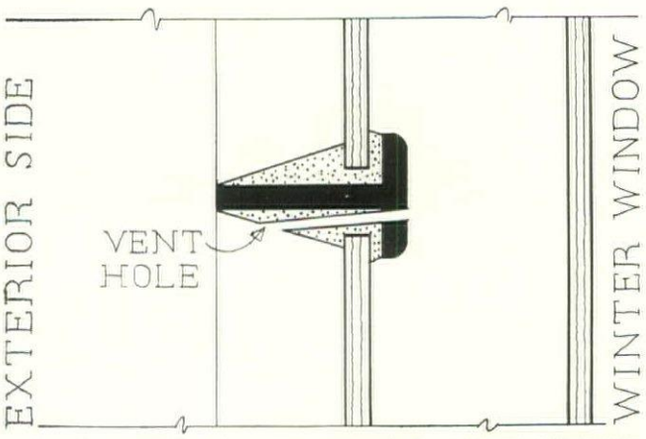
# PRODUCTS and PRACTICE

*(Continued from page 46)*

be bored through the muntin bars or sash frame so as to permit the space to "breathe."

In the special case of what is properly called "double glazing"—where two sheets of glass are installed in the sash in place of one, every air space must be provided with a vent hole to the outdoor air. Tests indicate that such a vent one-inch in length in each light of a steel sash reduces the insulating effect of double-glazing only about 5 per cent. To summarize: condensation between double glass may be effectively prevented if in all cases the seal of the *inner* light in the frame is made as tight as possible, while the *outer* light is loosely fitted or otherwise vented to the outdoor air.

When double windows are used to prevent condensation on the inside of the window, precautions must be taken to assure that the temperature of the window frame and muntin bars does not fall below the room dewpoint. In the case of wood sash, this is not a problem. With metal sash, however, where a high indoor relative humidity is to be maintained, the winter window should be designed to cover entirely and insulate the steel frame of the window. Most of those now on the market are satisfactory from this point of view if properly installed.




Full size section showing method of venting air space through steel sash by boring holes in muntin bars, necessary where windows are fixed.

*Dust and Dirt*

It is now generally conceded that where continued 100 per cent visibility through the double window is important, one of the panes of glass should be readily removable for cleaning the inside surfaces. This is necessary not only because a certain amount of dust and dirt is bound to accumulate in the space eventually, but also because of the tendency of glass to oxidize, forming a barely perceptible but annoying film on the surface. Such cleaning may be required only annually, or even once in two or three years, but it is best to make some provision, at least in residential work, so that cleaning is not too difficult. Winter windows, of course, are satisfactory from this point-of-view, since they can easily be removed for cleaning as often as necessary. For true double glazing, removable glass beads have been developed to solve the problem. In industrial work, where windows are considered primarily a source of light, it is common to ignore the slight reduction in visibility and make no provision for cleaning the inside of the glass.

# FOR THAT EXTRA-SPECIAL OFFICE

## *design a Cork Tile floor*

IN THIS PRIVATE OFFICE *of the Coca-Cola Bottling Company, Los Angeles, the floor is 12" x 12" blocks of light and medium Armstrong's Cork Tile with a light feature strip.*

### *Your clients will like the quiet dignity of this luxurious resilient flooring*

NEXT time you plan a room where quiet, dignified luxury is the keynote, consider Armstrong's Cork Tile for floors and walls.

Cork offers a combination of quietness, comfort, and distinctive texture found in no other material.

Armstrong's Cork Tile is quiet and restful because it provides an "air-cushion" floor. Each cork cell encloses a dead-air space that makes the material resilient and exceptionally quiet under impact.

The three rich shades of brown combine harmoniously with furniture and woodwork.

Cork Tile is available with either squared or beveled edges. The beveled material is often preferred for its decorative effect and because it requires no sanding when installed on uneven subfloors.

In addition to Cork Tile, Armstrong also manufactures Linotile (Oil-Bonded), Asphalt Tile, Armstrong-Stedman Reinforced Rubber Tile, and Linoleum. Armstrong's Architectural Service Bureau will gladly furnish technical data and design suggestions if you wish.

See *Sweet's* or write for a file-sized copy of "Cork Tile Floors." Armstrong Cork Products Company, Building Materials Division, 1204 State Street, Lancaster, Pennsylvania.

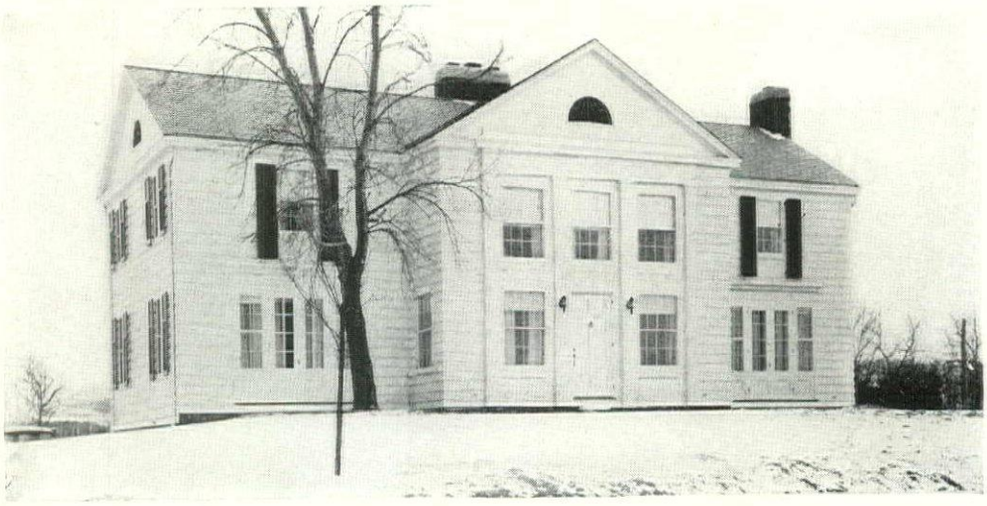
**RUBBER TILE • LINOTILE (OIL-BONDED) • ASPHALT TILE**

**Armstrong's LINOLEUM and RESILIENT, NON-CERAMIC TILES**

**CORK TILE • LINOWALL • ACOUSTICAL CEILINGS**

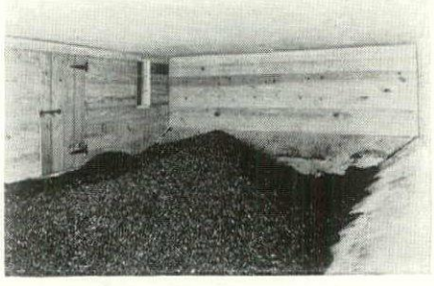
# MODERN HEAT

## in "MODEL HOMES"



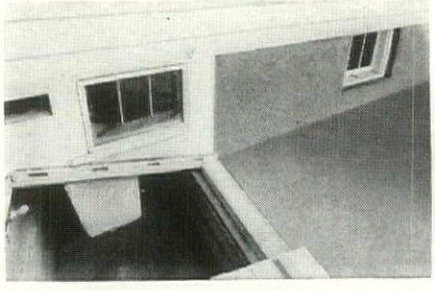
*Model Anthracite Home of W. Yates Lansing, Rensselaer, New York, before landscaping. Anthracite heating and air conditioning exclusively.*

ANTHRACITE INDUSTRIES INCORPORATED approved



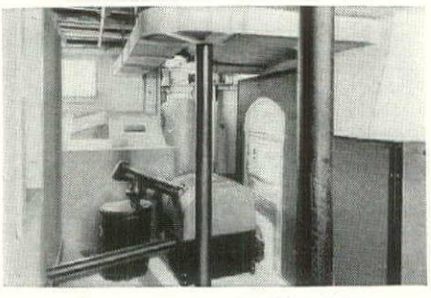
**DUST-PROOF ANTHRACITE BIN**

*Filled from the outside, its sloping floor keeps constant supply of coal over stoker worm which feeds it to the heater.*



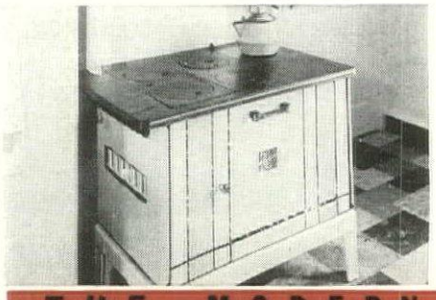
**OUTSIDE ASH DISPOSAL**

*Anthracite is put into the home and ashes removed without entering house. Spacious pit holds a season's ashes.*



**AIR CONDITIONING, TOO**

*Clean, compact installation of warm air heater and air conditioning units, with stoker and ash remover.*



**COOKING**

*Anthracite is used exclusively in this modern cooking range.*

### MORE EVIDENCE OF THE ADVANTAGES OF ANTHRACITE HEAT AND AIR CONDITIONING

Many clients who are demanding automatic heating conveniences, can not afford to give up the fuel economy they have enjoyed with Anthracite.

Architects can now provide both the convenience and the economy. The heating and air conditioning system in the house shown here is an example.

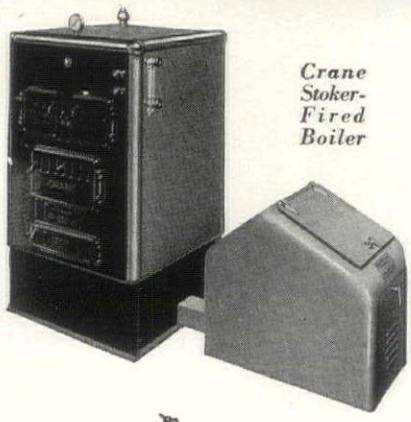
Fuel is fed from a closed bin, ashes are removed to a dust-proof vault—both automatically. Year 'round hot water is automatic. With all of this convenience, the total annual cost for fuel is far below the cost of any other type of automatic heat.

Anthracite Industries, Inc., has prepared a book describing all types of Anthracite equipment, from the modern inexpensive hand-fired boiler or warm air furnace, to the completely automatic fuel-and-ash-handling modern stoker. Copy of this book will be gladly sent upon request. Anthracite Industries, Inc., Chrysler Building, New York, N. Y.

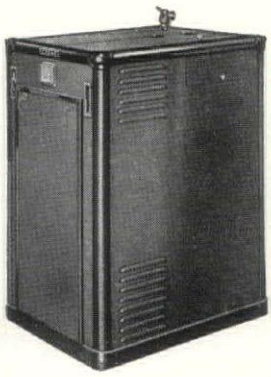
*Pennsylvania*
**ANTHRACITE**
**COAL**

**THE MODERN FUEL FOR SOLID COMFORT**

# YOUR CLIENTS WANT THE ADVANTAGES OF *Automatic Heating*



*Crane Stoker-Fired Boiler*



*Crane Sustained Heat Oil Boiler-Burner Unit*

*The Basmor Gas-Fired Boiler*

## . . . WHETHER THE FUEL IS COAL, OIL OR GAS

● What advantages modern heating bring to the home owner! A constant temperature twenty-four hours a day—summer comfort regardless of how low the thermometer goes outside; and, best of all, freedom from laborious work, from dust and dirt.

Home owners, too, recognize the importance of having the whole heating system designed and supplied by one manufacturer—they are thus assured of a completely automatic system, one that will operate year in and year out with the utmost efficiency.

The Crane line not only includes boilers for every fuel, coal, oil and gas, but stokers and oil burners as well, to operate those boilers, and those countless other vital parts of the heating system, the convectors, radiators, valves and fittings, piping and controls.

It will pay you to investigate the important benefits you and your clients will derive from the single responsibility in the whole heating system made possible by completeness of the Crane line. Consult your Architect's Catalog; and, remember, Crane Co. is always at your service with unbiased recommendations on any heating problem.

**CRANE**

VALVES · FITTINGS · PIPE · PLUMBING · HEATING · PUMPS

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO

**NATION-WIDE SERVICE THROUGH 134 BRANCHES AND MORE THAN 500 WHOLESALERS**

# A BIG FACTOR IN MODERN BUILDING CONSTRUCTION ★


## STREAMLINE

TRADE MARK REG. U. S. PAT. OFFICE

## COPPER PIPE AND FITTINGS

● Every Architect, Building Manager or Realtor knows that a reliable piping system for plumbing and heating is one of the most important factors in the building. It is a surprising fact that a great deal of thought and money is frequently spent on outward appearances, while vital matters are quite often taken for granted. Of course, the home should be modern in design, its kitchen, bathroom and laundry fixtures should be handsome and conveniently located . . . but unfortunately, good looks do not assure good service.

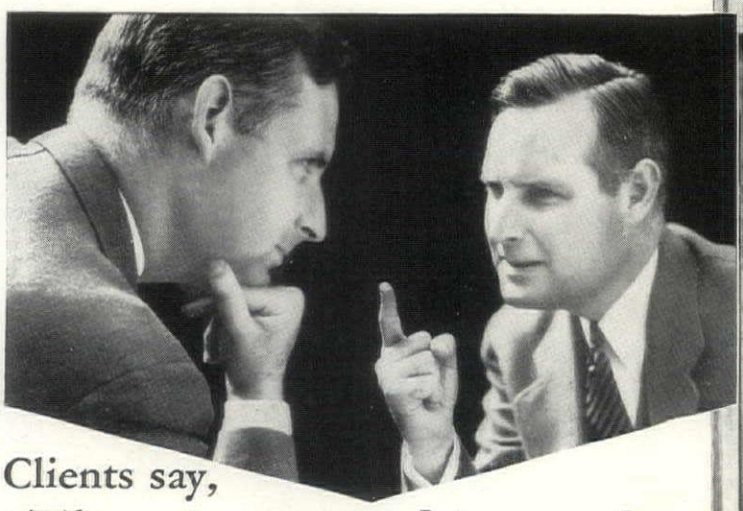
The efficiency of these modern fixtures and the very livability of the home itself depend upon a permanently reliable piping system for the plumbing and heating—in a word—A STREAMLINE COPPER PIPE AND FITTINGS SYSTEM.

A STREAMLINE Piping System cannot rust, clog or leak. It is a trouble-free system that will always provide efficient service without costly and annoying interruptions or replacements.

Even the first cost of STREAMLINE Copper Pipe is but slightly higher than one of rustable materials, and in the long run it costs much less. Its first cost is the last one.

Plan for efficiency as well as appearances, investigate STREAMLINE before you decide.

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



Clients say,

"There's *an architect who knows his business"*

when you save money for them

*with the new*

# MILCOR

## Solid Partition and Furring System

Accepted on sight by leaders in the building industry, and already installed in a number of nationally known projects, this Milcor development is *the most important news in years* in fireproof construction.

Only three simple prefabricated members (patented) are required to erect the interlocking web of steel which forms a sturdy base for Milcor Metal lath and plaster as a solid partition or free-standing furring wall. It is erected with amazing ease and speed, cutting labor costs as much as 40% on the job. A regular worker can erect studs on an average of 150 per hour.

Your client appreciates the clean, swift erection of Milcor Solid Partitions — there is no muss on the job, no expensive clean-up after completion.

For large or small projects, remodeling or new construction — the Milcor Solid Partition and Furring System is the tested way for economical, lasting construction.

*Write for the Milcor Solid Partition Bulletin, today.*

Patent No. 2,105,770 F-35

**MILCOR STEEL COMPANY**

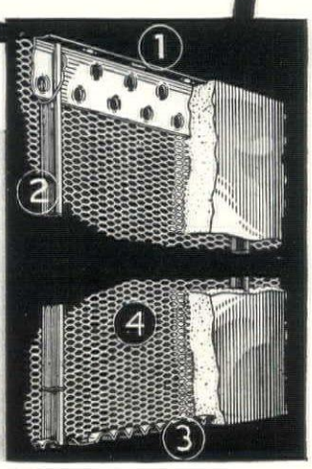
MILWAUKEE, WISCONSIN CANTON, OHIO

Chicago, Ill. Kansas City, Mo. La Crosse, Wis. Atlanta, Ga.

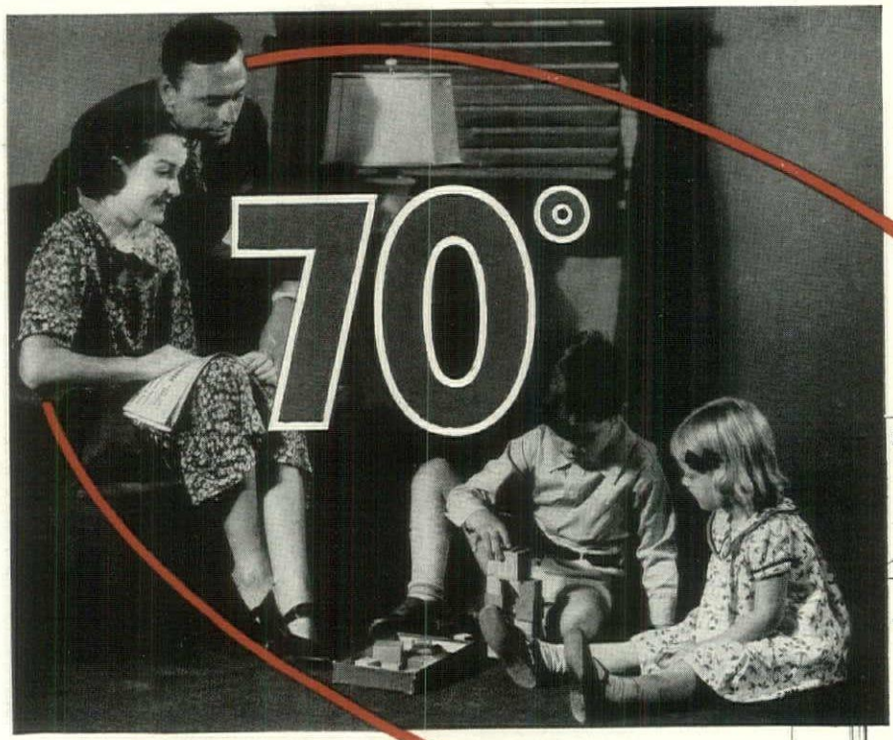
*All these recognized advantages of 2" Solid Plaster Partitions — at much lower cost!*

1. A saving of floor space — 4" per partition, as much as one room per floor.
2. Full 2 hour fire rating.
3. Increased strength, especially under impact.
4. Reduced dead floor load — 1/3 as much as some types.
5. Reduced sound transmission.

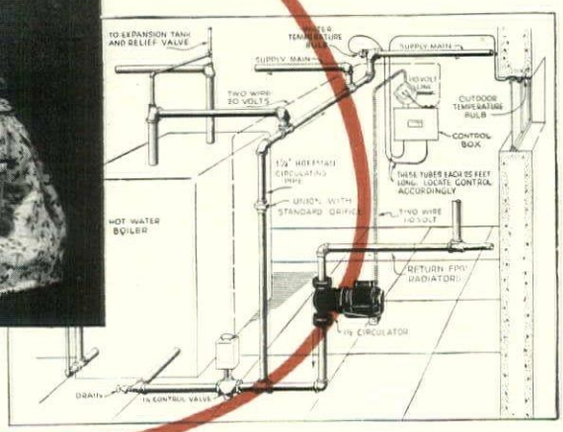
**Unit of MILCOR System of Fireproof Construction**




1. *Ceiling Angle Runner* is attached to ceiling with bolts, nails or rawl drives.
2. *Slotted Channel Studs*— notched at top for varying ceiling heights.
3. *Continuous Crimped Floor Runner* — with grooves for inserting Channel Studs at any point in the wall.
4. *Standard Sheets of Milcor Metal Lath* — Tying done completely in one operation with ordinary tie wire.

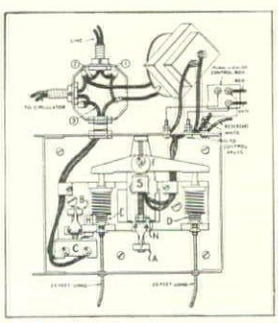



**70°...OR ANY TEMPERATURE YOU DESIRE, UNIFORMLY MAINTAINED**




*Hair line*

# TEMPERATURE CONTROL ACHIEVED!



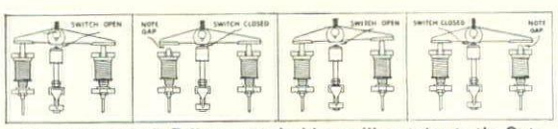
The Hoffman Temperature Controller—Mechanical Brain of the System.

## NEW HOFFMAN HOT WATER CONTROLS SMOOTH OUT TEMPERATURE FLUCTUATIONS . . END "COLD 70°"

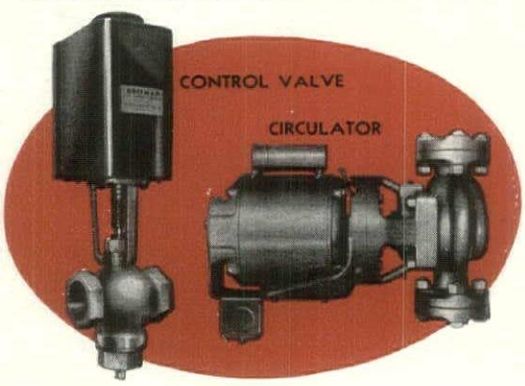
Hoffman Hot Water Controlled Heat employs an operating principle genuinely unique in the heating field . . . a system of controls which *regulate radiator temperatures to the degree which exactly offsets the heat loss of the building!*

This balanced condition is made possible by the use of *continuously* circulated water, the temperature of which is governed by the coordinated action of Outdoor and Water Temperature Bulbs so sensitively controlled that radiators will maintain an unvarying room temperature under all conditions, from mild to sub-zero weather.

Tested for three years in actual installations, Hoffman Hot Water Controlled Heat has an amazing record of successful operation. It is completely automatic and completely dependable. Write at once for new Manual which fully explains this revolutionary heating system. Hoffman Specialty Co., Inc., Dept. AF-9, Waterbury, Conn.

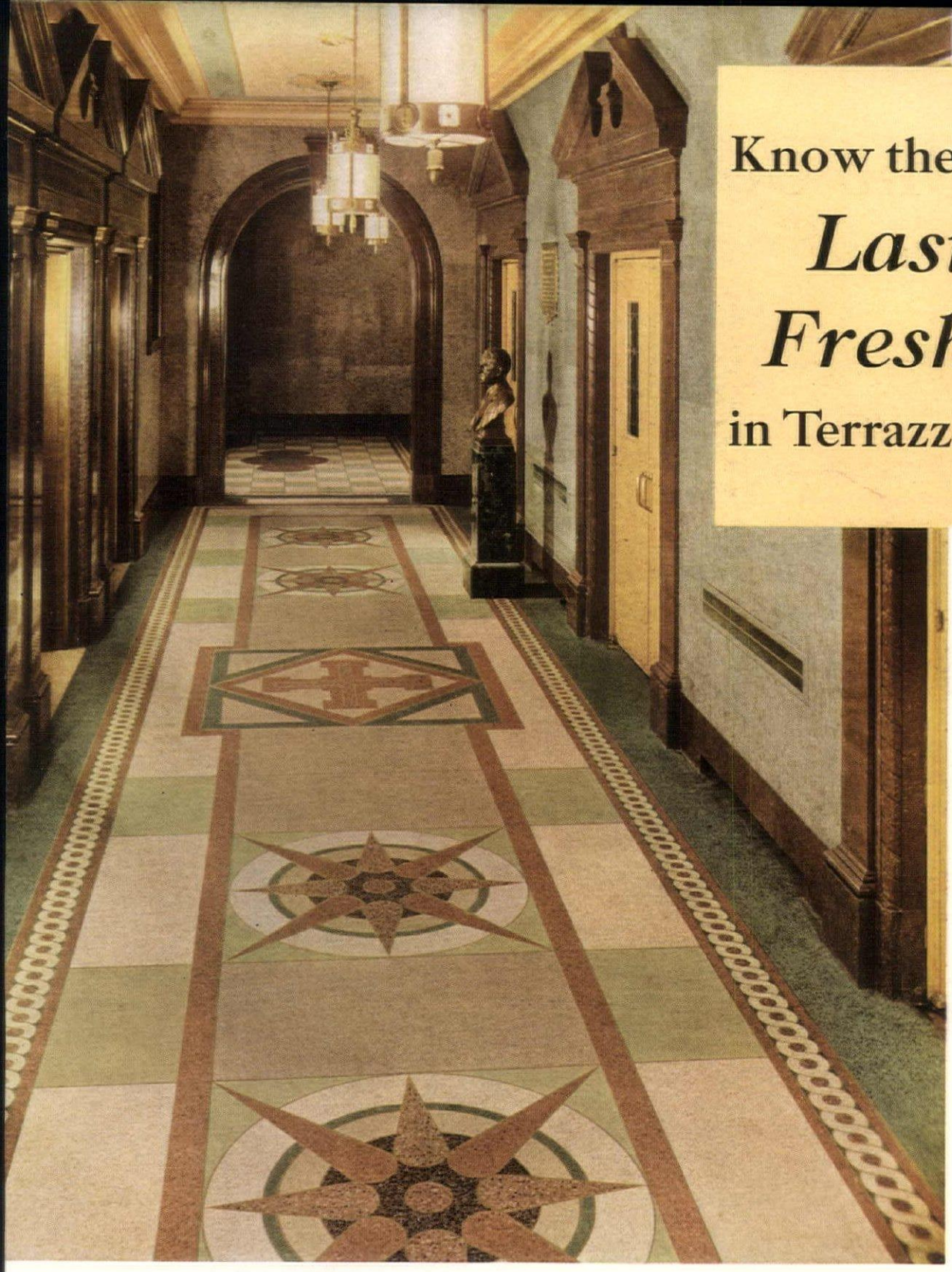



Two Thermostatic Bellows, attached by capillary tubes to the Outdoor and Water Bulbs, expand and contract to control the temperature of the continuously circulating water. An accurate balance between heat loss and heat supply is always maintained.




# HOFFMAN *Hot Water* CONTROLLED HEAT

*Hoffman quality heating specialties are sold everywhere by leading Wholesalers of Heating and Plumbing equipment.*



# Know the Secret of *Lasting Freshness* in Terrazzo Floors?

*Terrazzo floor of Atlas White portland cement in City Hall and Auditorium, Montgomery, Alabama. Architect, Frank W. Lockwood; General contractor, Algernon Blair, both of Montgomery. Sub-contractor for terrazzo, J. S. Fornara Tile & Terrazzo Co., Atlanta, Ga.*

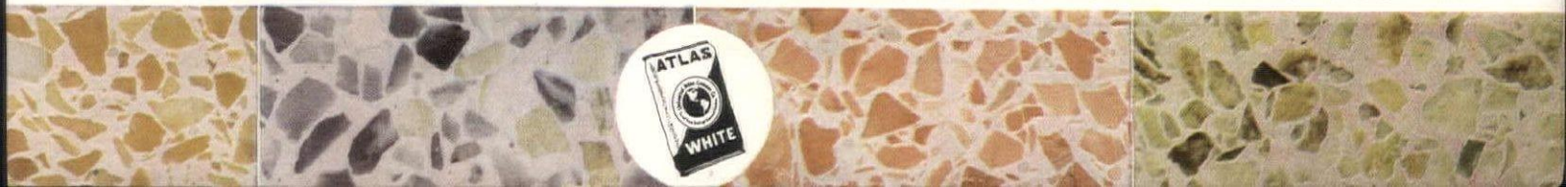
THE secret is simple, yet the effect is both instantly and *permanently* parent. It lies in the use of *white* rtland cement matrix. Only with *white* ment can you get exact color control, nding or contrasting with the marble ips precisely as desired. Only with ite cement can you get patterns that truly clean-cut, faithful to specifi- tions to the minutest detail.

And these qualities of fine terrazzo will be retained for the life of the floor. Whatever color motif you choose—pure white, delicate pastels, or bold vivid shades—will hold to its original value through the years. Add to this the fact that fine terrazzo is unsurpassed in wearability, moderate in first cost, low in upkeep cost, and you have the reasons why its use in new and remodeled buildings of all kinds is growing so rapidly.

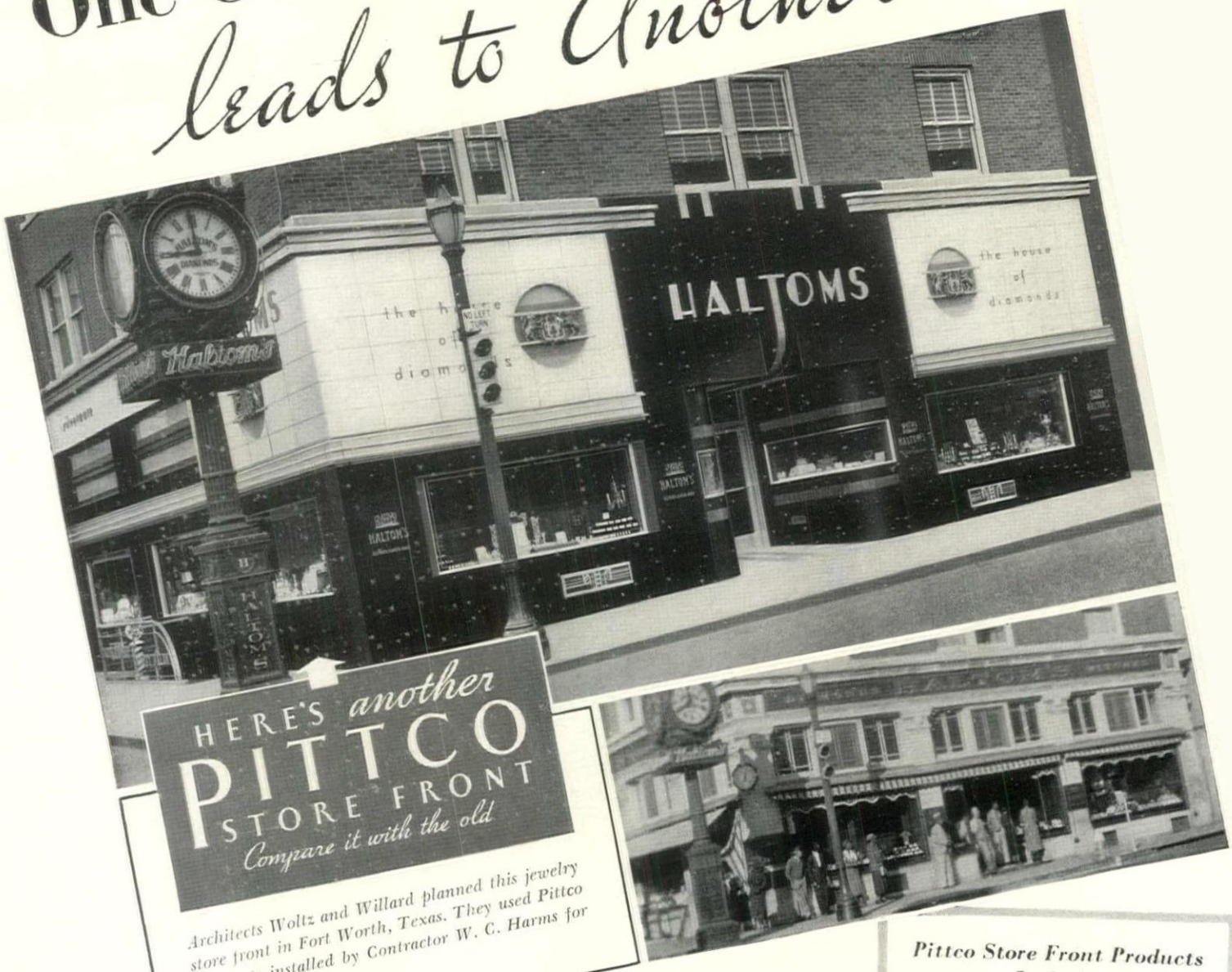
Specify "Atlas White" on your next terrazzo job. Atlas White (plain and waterproofed) is pure white. It exceeds specification requirements for portland cement strength. It assures fine terrazzo at its best. Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), 208 South LaSalle Street, Chicago, Illinois.

**FINE TERRAZZO** SPECIFY **ATLAS WHITE PORTLAND CEMENT**

RITE FOR FREE BOOKLET SHOWING 24 TRUE-COLOR SPECIMENS OF FINE TERRAZZO T-11



# One Good Store Front Job *leads to Another*




HERE'S *another*
PITTCO
STORE FRONT
*Compare it with the old*

*Architects Woltz and Willard planned this jewelry store front in Fort Worth, Texas. They used Pittco Products installed by Contractor W. C. Harms for a successful job.*

ONE successful store front installation will do more to further your reputation as a designer of business-building fronts than any other single factor. When store owners see it and admire it, they usually ask "Who put it in" —and if it's your front it means more clients for you.

The use of Pittco Store Front Products—glass, metal and paint — when properly installed, will help you to develop fronts that are outstanding . . . that permit a wide range of original treatment.

Get acquainted with the Pittco line. Specify Pittco Products in your store front work to bring more jobs your way. We will gladly send helpful facts, figures and photographs that will assist you in planning better, more unified fronts. We invite you to mail the coupon now for your free copy of the Pittco book of store front information.

***Pittco Store Front Products Include:***

CARRARA STRUCTURAL GLASS
PITTSBURGH POLISHED PLATE GLASS
PITTCO STORE FRONT METAL
PC GLASS BLOCKS

Pittsburgh Plate Glass Company
2182A Grant Bldg., Pittsburgh, Pa.
Please send me, without obligation, your new book entitled "Pro
Bigger Profits with Pittco Store Fronts."

Name _____

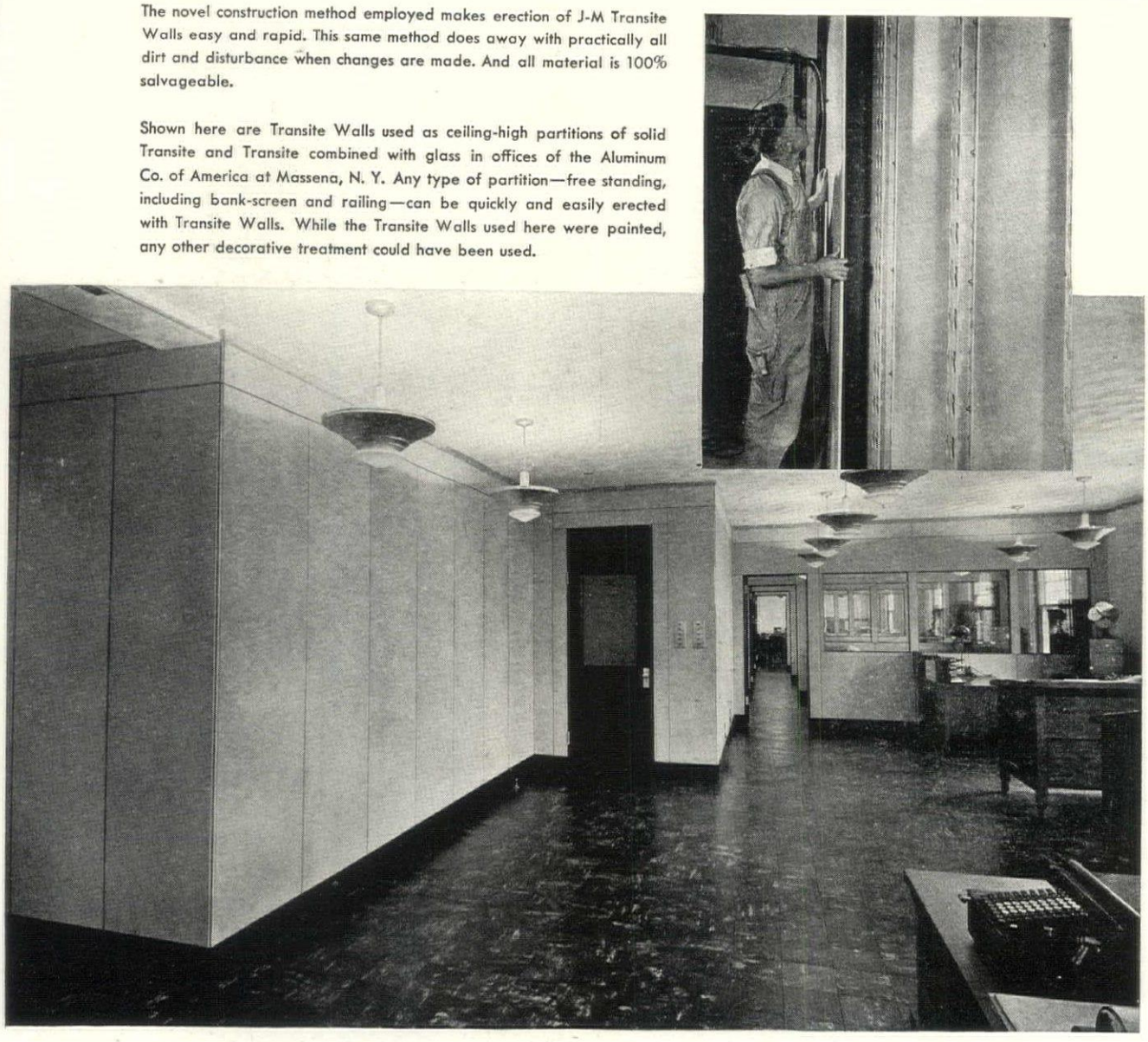
Street _____ State _____

City _____

PITTSBURGH PLATE GLASS COMPA

The novel construction method employed makes erection of J-M Transite Walls easy and rapid. This same method does away with practically all dirt and disturbance when changes are made. And all material is 100% salvageable.

Shown here are Transite Walls used as ceiling-high partitions of solid Transite and Transite combined with glass in offices of the Aluminum Co. of America at Massena, N. Y. Any type of partition—free standing, including bank-screen and railing—can be quickly and easily erected with Transite Walls. While the Transite Walls used here were painted, any other decorative treatment could have been used.



# MODERN MOVABLE WALLS ADD FLEXIBILITY TO PERMANENT OFFICE LAYOUTS

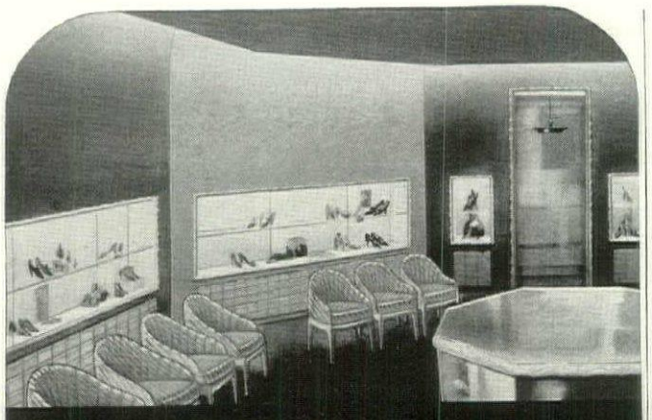
SOONER or later, the partitions in those offices you're planning now will be changed. That, however, doesn't alter the fact that the material you select must be solid and provide the required privacy.

To meet these requirements, architects all over the country are turning more and more to J-M Transite Walls. For in this asbestos-cement material are combined all the advantages of both fixed and movable partitions.

Initial installation of Transite Walls is easy and rapid. The dry, clean construction method employed eliminates practically all dirt. Relocation is an equally simple matter . . . can even be carried on without interruption of office work. And since time has little, if any, effect on these durable partitions, all material may be re-used in the new locations.

Moreover, Transite Walls reduce fire hazard because they cannot burn. Offices are quiet, too, for this material is highly resistant to the passage of sound. And, while their natural finish lends an attractive appearance to general office areas, any decorative treatment—paints, lacquers, veneers, fabrics, etc.—may be successfully applied.

Whatever your clients' requirements may be, you can meet them easily with J-M Transite Walls. The interesting new Transite Walls brochure contains full details. For your free copy, write Johns-Manville, 22 East 40th Street, N. Y. C.



# How to write specifications that meet *the new trend in interior decoration*

PRESENT-DAY merchandising methods, demanding rich and striking color treatments in store and shop interiors, have placed a new demand on the ingenuity of the architect. But, through the discovery of a new "vehicle" of crystal-like transparency for paint pigments, America's architects have been provided with a medium which solves this challenge to their skill.

The United States Gypsum Company has had an important role in the development of this new medium through the creation of Texolite*—a new principle paint.

Now, to give you complete information on the use and specification of Texolite as well as its other modern paints, colors and decorative textures, USG has prepared a 40-page manual illustrated in full color.

If you do not have one of these manuals—"Modern Principles in Paint and Decoration" in your files, USG would like to send you one, feeling that in its 40 pages you will find the solution to one or more of your perplexing interior decorating problems.

**United States Gypsum Company**
300 WEST ADAMS ST. CHICAGO, ILL.

*Sales Offices at:*
Atlanta, Ga. • Baltimore, Md. Birmingham, Ala. • Boston, Mass. • Buffalo, N. Y. • Cincinnati, Ohio • Cleveland, Ohio • Dallas, Tex. • Denver, Colo. • Detroit, Mich. • Houston, Tex. • Indianapolis, Ind. Kansas City, Mo. • Los Angeles, Cal. • Milwaukee, Wis. Minneapolis, Minn. • New York, N. Y. • Omaha, Neb. Philadelphia, Pa. • Pittsburgh, Pa. • Portland, Ore. • St. Louis, Mo. • San Francisco, Cal. • Washington, D. C.

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☐ I have a painting problem. Please have your representative call.
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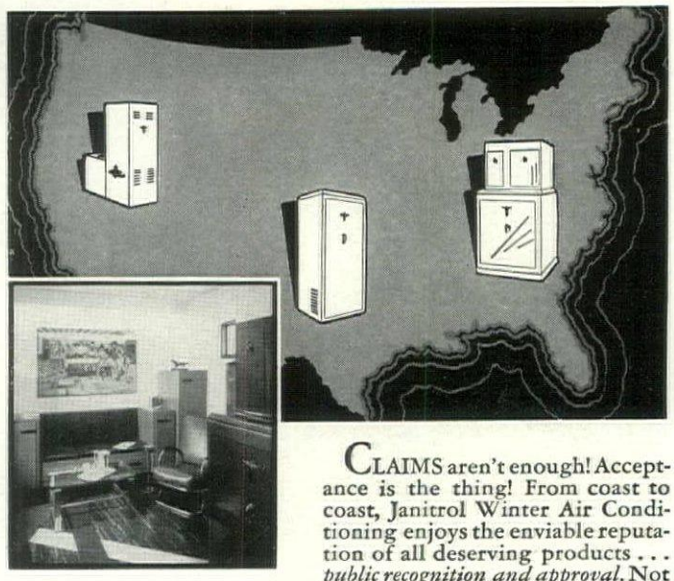
# JANITROL

## WINTER AIR CONDITIONING EQUIPMENT IS SPECIFIED WHERE THE CLIENT DEMANDS

# RECOGNIZED ACCEPTANCE





Keeping constantly ahead of demand, Janitrol is designed for tomorrow's home, circulating fresh, clean, humidified air throughout the entire house. Scientifically designed, automatically controlled, Janitrol enhances every basement plan.

CLAIMS aren't enough! Acceptance is the thing! From coast to coast, Janitrol Winter Air Conditioning enjoys the enviable reputation of all deserving products . . . *public recognition and approval.* Not by chance . . . not by extensive advertising and sales promotion alone . . . Janitrol owes its success largely to years of experience, development and unlimited facilities in the manufacture of gas-fired heating equipment exclusively.

When the layout of your plan calls for winter air conditioning, specify Janitrol with confidence that you are recommending the finest equipment available at any price. Turn to the accepted conditioner whose thousands of users proclaim it the standard of winter home comfort. Look to the background of the manufacturer if you would protect the interests of your client. Refer to Sweet's catalog for detailed information.

SURFACE COMBUSTION CORPORATION
TOLEDO

WINTER AIR CONDITIONERS, FURNACES & BOILERS, CIRCULATING HEATERS, WATER HEATERS, UNIT HEATERS

**JANITROL**
**GAS-FIRED HEATING EQUIPMENT**

# For Elegant Railroad Car Interiors . . .


Photo: Robert M. Damora

*Gray Harewood Flexwood treatment, Bar-Lounge Car, The Broadway Limited, Pennsylvania Railroad Company; Raymond Loewy, Consulting Designer; The Pullman Company, Builders, who installed Flexwood in three other Pennsylvania Streamliners, also.*

Photo: Drix Duryea

• *Butt Walnut Flexwood treatment, Dining Car, The Twentieth Century Limited, New York Central Railroad Co.; Henry Dreyfuss, Designer; The Pullman Co., Builders.*

• *Flexwood is genuine veneer, mounted on cloth and made flexible for direct wall application. Samples and data will be sent gladly.*

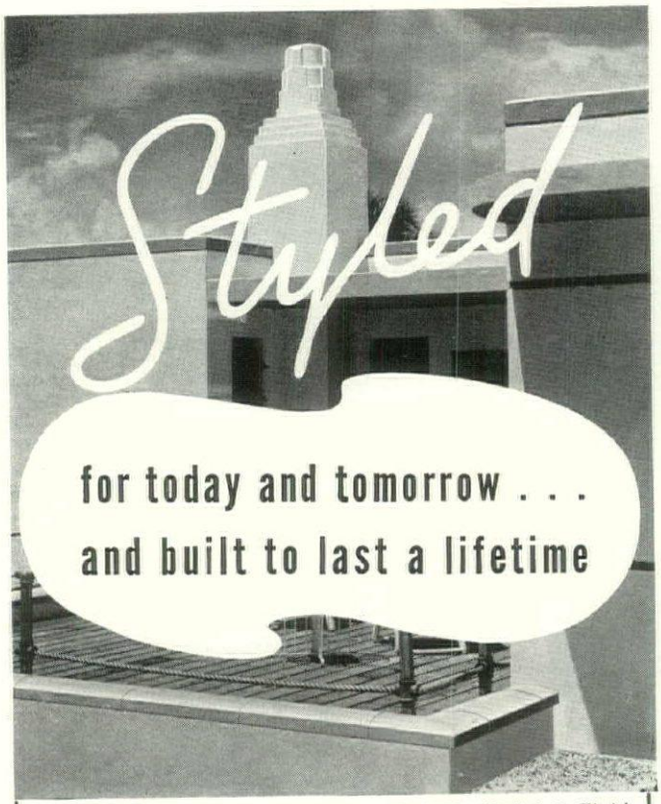
Two of America's foremost designers, working independently to create train interiors which would be outstanding in luxury and comfort, chose wood because of its inherent quality appeal. Wood interiors radiate friendliness and warmth and both Raymond Loewy and Henry Dreyfuss took advantage of the modern medium for expression in wood . . . Flexwood. Flexwood, because it is real wood, is alive . . . colorful . . . elegant.

Wood has always been preferred for fine interiors, and because of Flexwood, passengers on The New York Central and on The Pennsylvania Railroad now enjoy surroundings as mellow and as beautiful as those in the finest buildings. The designers, the railroads, and The Pullman Company, whose craftsmen handled the installations, are to be complimented on the execution of the distinctive modern wood treatments in these modern trains.

**UNITED STATES PLYWOOD CORPORATION**
**103 PARK AVENUE, NEW YORK**

**Manufacturers of**

**Flexwood, Plywood, Armorply . . . and Kindred Products**




*Designed by Vladimir E. Virrick*

## ROBINSON Lap-Lok Wall Coping and ROBINSON Chimney Pots

In the Eastman Tropical Exhibition House, "Futura", at Miami Beach, Florida, modern simplicity of design and durability of construction were insured in both chimney and terrace lines through the use of Robinson Chimney Pots and Lap-Lok Wall Coping.

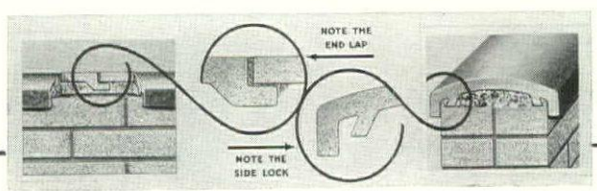
The photograph above shows the clean modern lines of the Robinson "Middlebury" Chimney Pot . . . lines that not only blend with the rest of the building, but add to the attractiveness of the architecture.

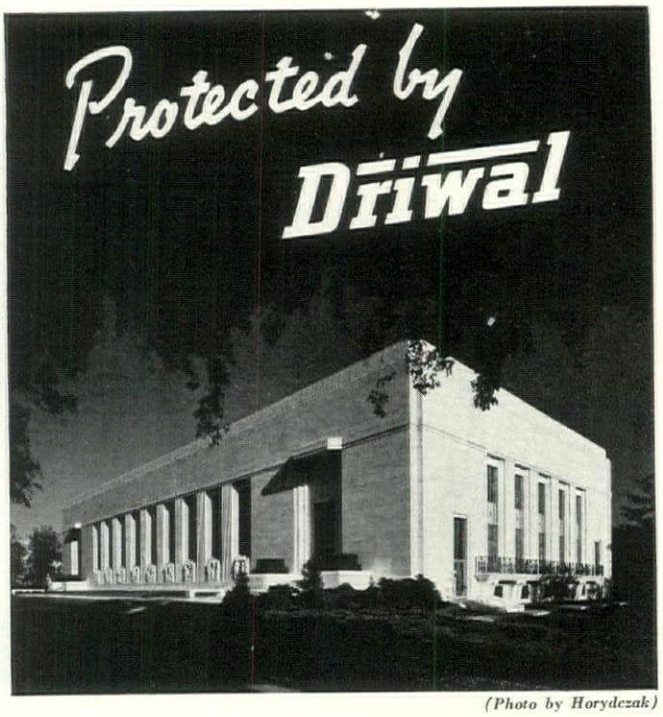
Robinson Lap-Lok Wall Coping as used on the stuccoed terrace walls of "Futura" not only adds a smooth, unbroken line to these walls, but will protect them permanently against disintegration from salt air and tropical rains.

Both Robinson Lap-Lok Wall Coping and Robinson Chimney Pots are made of durable hard-burned clay and will last as long as the building itself. Both can be painted or stuccoed to blend with the building.

Every architect should send for complete information on these modern materials for modern building construction . . . the modern home, apartment, office or business building. Simply ask for Catalogs CP-37 and L-38; there is no cost or obligation.

**THE ROBINSON CLAY PRODUCT COMPANY, AKRON, OHIO**
BRANCHES IN PRINCIPAL CITIES




*(Photo by Horydczak)*

The Folger Shakespearian Library joins the Williamsburg Restoration buildings, the new Supreme Court building, the Parthenon Restoration and many others in the long list of prominent structures stainproofed and damp-proofed with Clear Driwal.

One reason for this widespread use of Clear Driwal is its *remarkable sealing action.* By impregnating the pores with an insoluble preservative it completely prevents the entrance of moisture, staining agents and dirt.

Another characteristic of Clear Driwal that makes it doubly acceptable is its *safety.* Clear Driwal is utterly colorless, and unlike ordinary preservatives does *not* form a surface film that darkens or alters the natural color or texture of the finest material.

Clear Driwal can be used on stone, concrete, brick or stucco, and is equally effective in prolonging the attractiveness of new or freshly cleaned buildings.

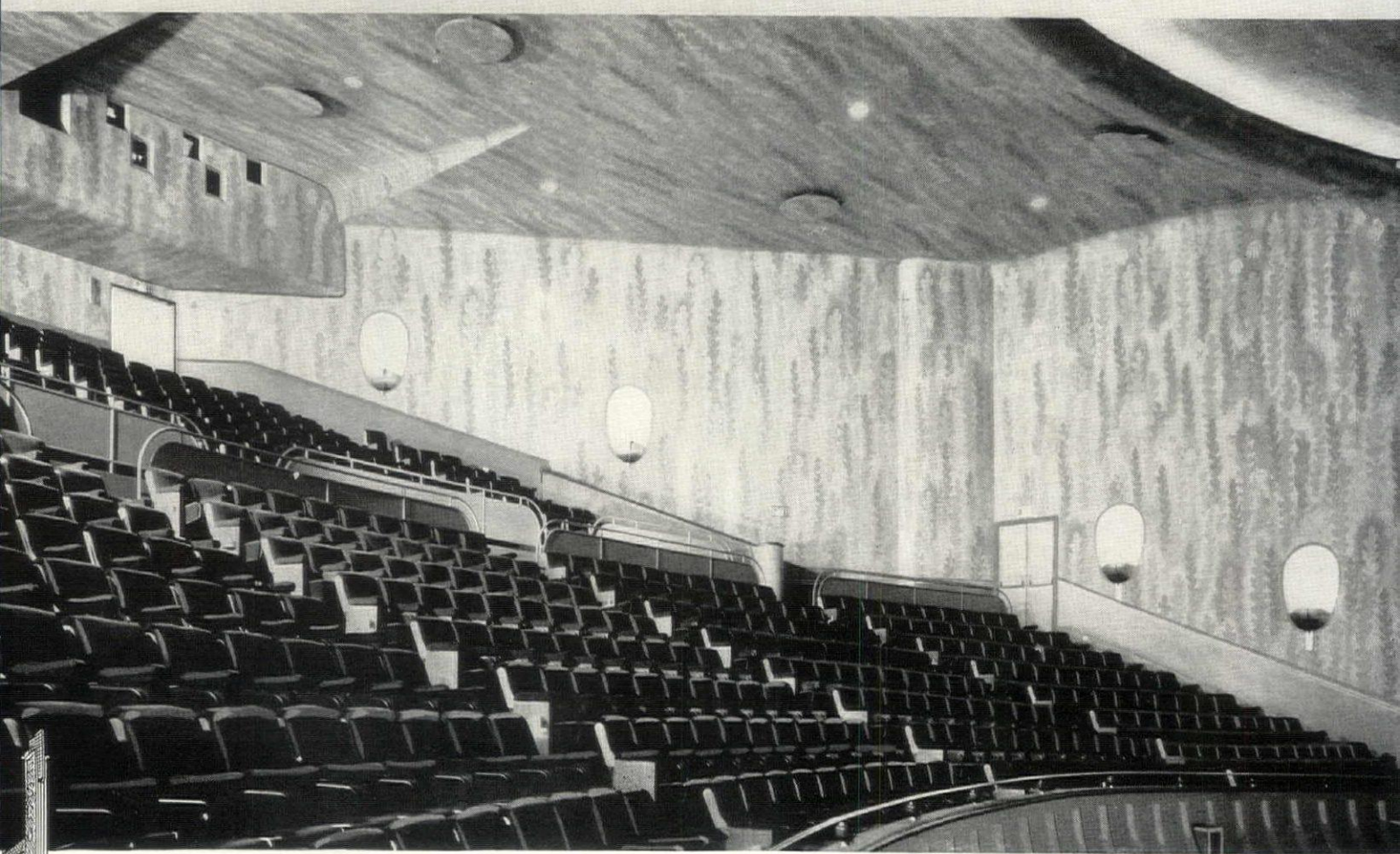
See our listing in Sweet's Catalog. Further information will be gladly sent upon request.

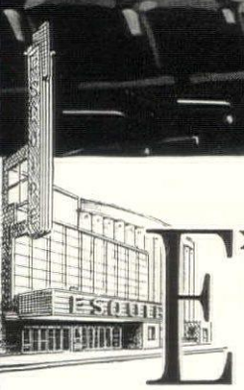

**THE BILLINGS-CHAPIN CO.**
Boston • Cleveland • New York

# Driwal

**THE 25-YEAR OLD PROVEN METHOD FOR STAINPROOFING AND DAMPPROOFING STONE, BRICK, CONCRETE AND STUCCO**

# The one material for this difficult, double job at the new Esquire Theatre—*Acoustone*






EXPERTS said that Chicago's new Esquire Theatre could not be made acoustically perfect, owing to its size and shape. But the Esquire today has splendid acoustics—thanks to research and the careful planning of Architect W. L. Pereira, who used Acoustone* to solve a difficult phase of his problem.

According to Architect Pereira, Acoustone does the double job of eliminating objectionable reflections from offending surfaces and produces a proper reverberation time for good hearing. The Acoustone is painted to match the theatre's decorative scheme—for Acoustone can be painted without damage to its sound absorbing ability.

Acoustone, the most beautiful of acoustical materials, is constantly solving problems for architects wherever noise absorption and acoustical correction are needed. Available in beautiful colors, and with a travertine-like texture, it is incombustible, high in light reflection and easily kept fresh by simple vacuum cleaning. Let us tell you all the facts about Acoustone and about its many uses in buildings, both large and small. Complete information is yours for the asking.

## United States Gypsum Company

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PLASTERS . . ROCKLATH* . . METAL LATH
SHEETROCK* . . FIBER WALLBOARD . . SHEATHING . . INSULATING BOARD . . INSULATING WOOL
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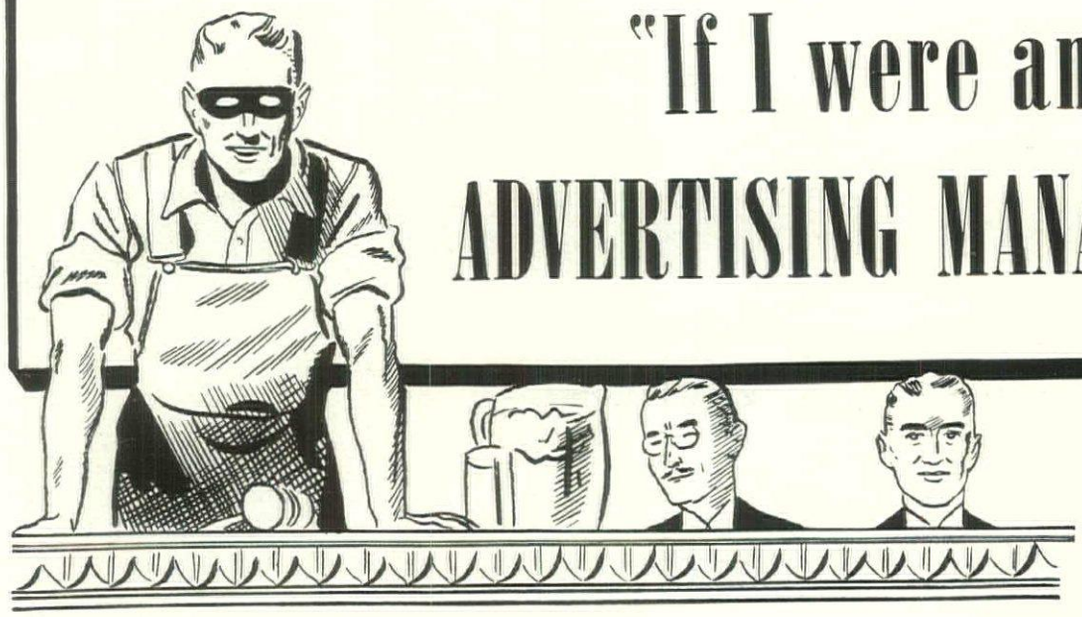


# "If I were an ADVERTISING MANAGER"•

That's just one of the talks to be delivered anonymously by a masked speaker that will set every man thinking at the Annual Conference of National Industrial Advertisers Association in Cleveland, September 21-23. A second masked speaker will tell what he would do if he were a publication representative.

We're not going to tell you much here—just highlight the program enough to make your mouth water and your brain tingle.

T. M. Girdler, Chairman, Republic Steel Corporation, is scheduled for the opening address and when "T. M." talks he says something.

J. H. McGraw, Jr. will talk on "What I Would Do *Now* If I Were An Industrial Advertising Manager."

The new Publisher's Statement will receive full discussion.

Clinic sessions, so popular last year, will again cover a wide range of interesting subjects. Two half-day sessions instead of one.

A general conference session will cover such subjects as "Preparing the Plan", "How to Gather Usable Material", "Copy Technique", "How to Sell Management", "Co-ordinating Sales and Advertising" and "How and Why to Use an Industrial Agency."

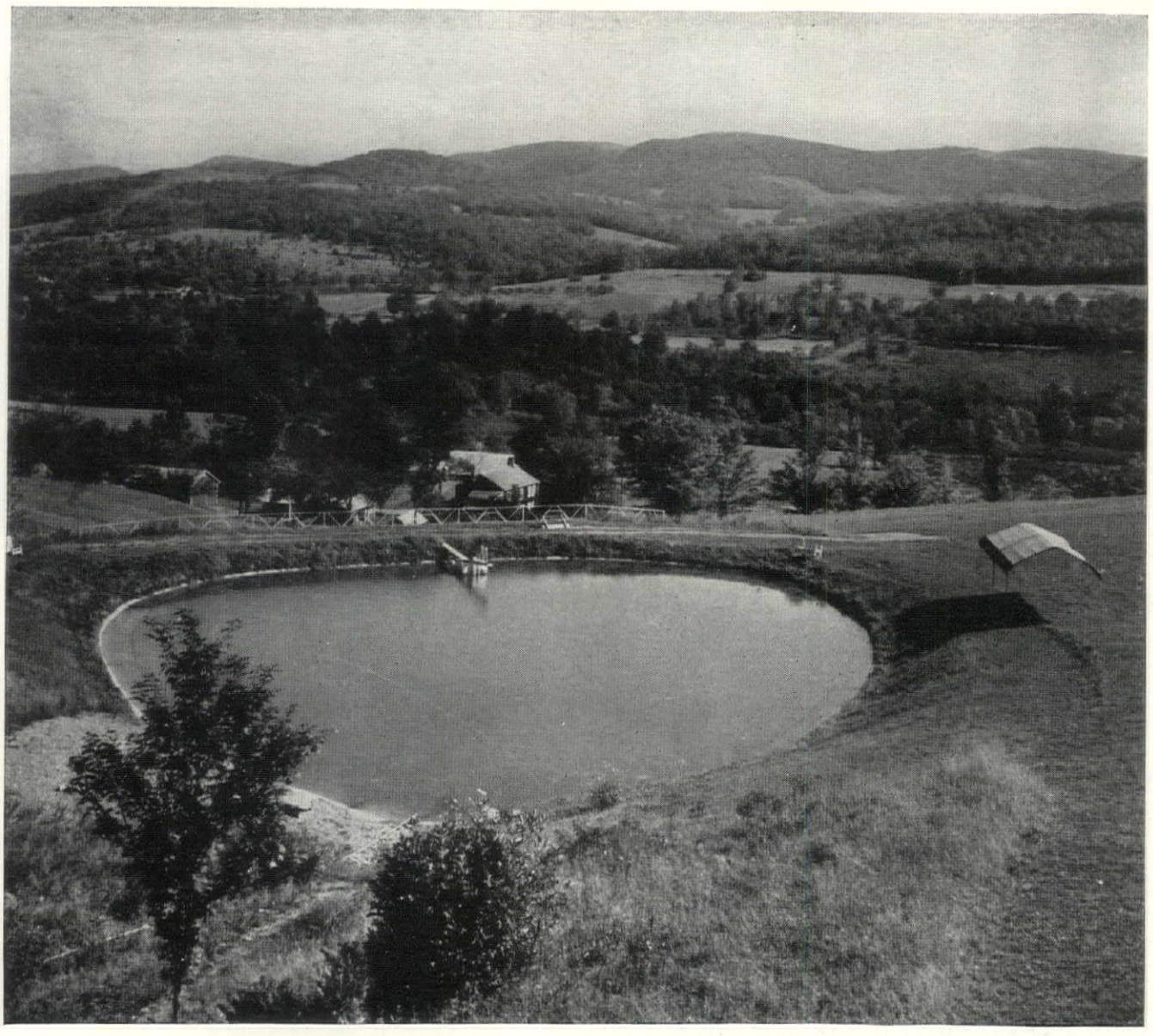
Another session will deal with "Problems of the Small Advertiser", "Production Problems", "Public Relations"—and there are many others.

If I were an Advertising Manager, I certainly would start now to make plans to attend the 16th N. I. A. A. Conference even if I had to hitch-hike to Cleveland. And I would send in my advance registration now to—Ed. Bossart, Bailey Meter Company, Ivanhoe Road, Cleveland, Ohio.

**IF I EMPLOYED AN ADVERTISING MANAGER**—I would make certain that he attended this Conference, because changing times and markets demand a changed viewpoint—a new viewpoint that can be obtained only by hearing discussions by men whose experience is up-to-the-minute—right up to September 21st.

**NATIONAL INDUSTRIAL ADVERTISERS ASSOCIATION**

100 EAST OHIO STREET • CHICAGO, ILLINOIS



# CONCRETE 'DIMPLE'

## MADE WATERTIGHT WITH 'INCOR'

LINED with 'Incor' concrete, the bed of a small pond (above), was converted into a swimming pool, on West Acres estate, New Lebanon, N. Y., in the beautiful Berkshires.

It is easy to get watertight concrete: A good mix; place carefully; then, *keep the concrete wet until thoroughly cured.* Use either Lone Star Cement or 'Incor' 24-Hour Cement, depending on job conditions. Both are quality Portland cements; both give you watertight concrete. Only difference is, 'Incor'* cures thoroughly in 24 to 48 hours. That makes curing easier and surer. Write for copy of "Watertight Concrete." Lone Star Cement Corporation, Room 2278, 342 Madison Avenue, New York.

*Reg. U. S. Pat. Off.

# LONE STAR CEMENT CORPORATION

MAKERS OF LONE STAR CEMENT···'INCOR' 24-HOUR CEMENT

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## *Replaces Wood and Building Paper*


Why ask clients to pay for both insulation and sheathing? Fir-Tex provides both in one board, at one moderate cost.

Fir-Tex is one of the most effective insulating materials—a wood fiber building board containing millions of air cells per square inch. Specify Fir-Tex Sheathing Insulation Board because:

1. It is strong, all wood board which, when applied, has greater bracing strength than lumber.
2. It is termite proof.
3. Only one application cost, as against two for lumber and building paper.
4. Clean and easy to handle; self-supporting; quickly nailed up. Gloves not needed.
5. Comes in large sheets 4′ x 7′, 8′, 8½′, 9′, 10′ and 12′.
6. No waste.
7. Glazed; will not gum, clog or dull saws. Little sawing required, except for window and door openings.

*You are invited to send for samples and architect's catalog*

**Dant & Russell, Inc., National Distributors**

**Porter Building, Portland, Oregon**

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**DOUBLE-DUTY INSULATION BUILDING BOARD**

Kills 2 Birds with 1 Stone

Does 2 Jobs at 1 Cost

# NO DAMP PLASTER TROUBLE *If you use* LUMINALL


● Apply Luminall on damp plaster without harm to either plaster or paint. You get a beautiful decorative job of paint and the plaster cures underneath it in its normal way—no waiting—no later complaints on ruined paint or plaster. Subsequent re-decorating may be either Luminall or other type paints.

Many of the finest stores, theatres, offices, public buildings and residences are painted with Luminall solely for the reason that the true color values look better. Economy and speed are "plus" values. Luminall is a popular paint with the painter and decorator. It is the world leader among casein paste paints.

***Now—"Outside" Luminall for Masonry Exteriors Easily Applied—No "Wetting Down"***

"Outside" Luminall, with the synthetic resin and casein binder, is a new and better paint for masonry exteriors. Has splendid weatherproof qualities. Bonds permanently with concrete, brick, or stucco. Does not flake or peel. "Outside" Luminall may be applied on painted walls as well as on bare surfaces. One coat covers in most cases. Comes in white and 8 colors. The ideal paint for protecting and renewing masonry.

**SPECIAL OFFER TO ARCHITECTS**—Architectural firms are invited to make their own tests of either Luminall or "Outside" Luminall. Simply request it on business letterhead and an extra generous sample will be sent you free.

**NATIONAL CHEMICAL & MANUFACTURING CO.**
*Home Office:* 3617 So. May Street, Chicago, Ill.
*Eastern Offices:* 25 Forrest Street, Brooklyn, N. Y.
In Canada: Standard Paint & Varnish Co., Ltd., Windsor, Canada

# LUMINALL

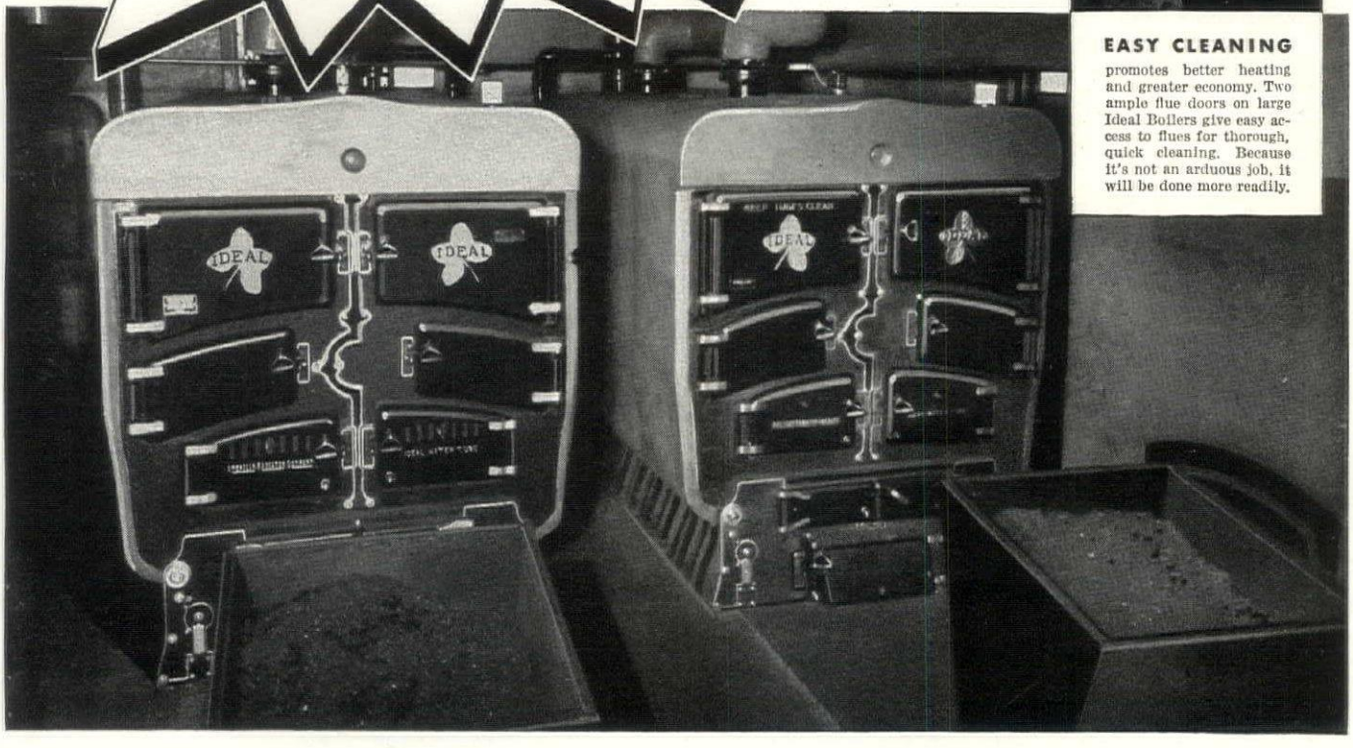
For plaster and all interiors, use Luminall in the maroon and yellow pail . . . for masonry exteriors, use "Outside" Luminall in blue and green pail.

# IDEAL *Cast Iron* BOILERS

# SAVE MONEY ON UPKEEP

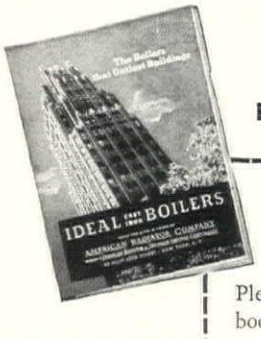
**EASY CLEANING**

promotes better heating and greater economy. Two ample flue doors on large Ideal Boilers give easy access to flues for thorough, quick cleaning. Because it's not an arduous job, it will be done more readily.




IN NOW for a lifetime of service to the Seward Grade School, Seattle, Wash., these two Ideal Cast Iron Boilers replace two boilers of another type, which in their short 10 year span had cost practically the price of the new installation for maintenance and retubing. The change was decided upon by the school board because more expensive repairs were imminent.

This is another of the long file of cases which demonstrate the economy of cast iron's longevity. Where costs must be watched and economy is the watchword Ideal Cast Iron Boilers are the logical choice. The new book "Boilers that Outlast Buildings" shows other advantages of Ideal Cast Iron Boilers. Its 16 pages are crammed with interesting data. Mail the coupon for your copy.

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**MAIL COUPON NOW**
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AMERICAN RADIATOR COMPANY
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Please send me a copy of the new 16-page book, "The Boilers That Outlast Buildings".

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*City*_____ *State*_____

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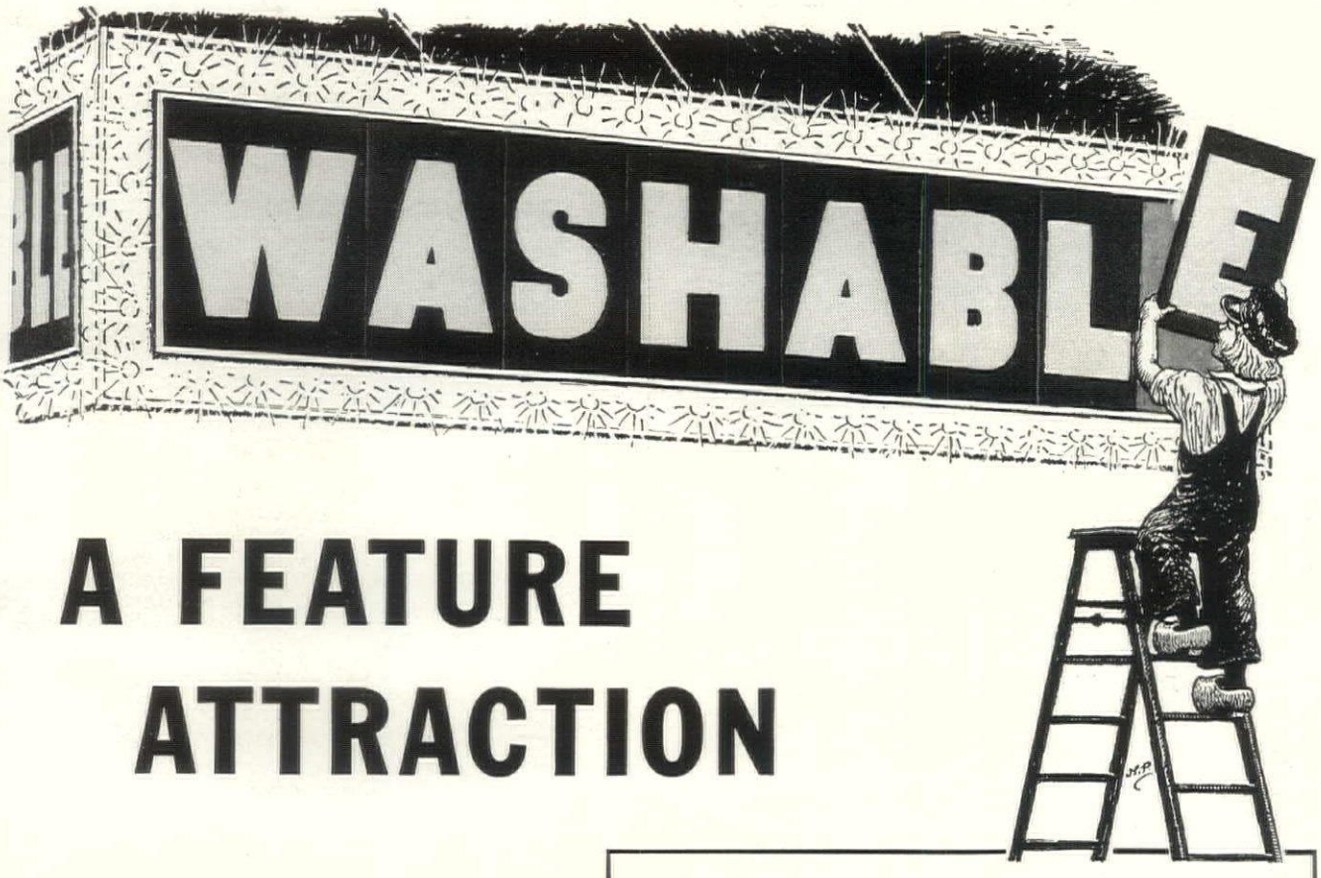
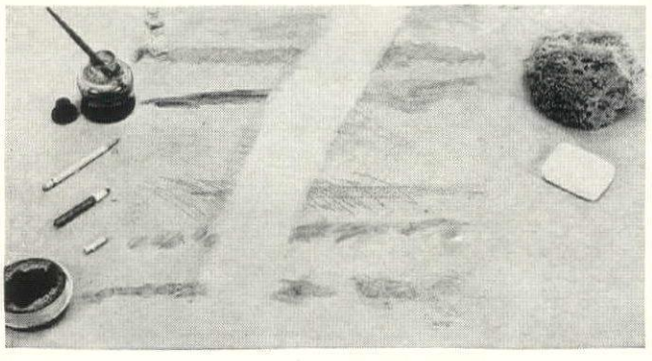



# A FEATURE ATTRACTION

WHY put "washable" in lights? Answer: Because washability is one *feature* of interior paint that is very *attractive* to everyone responsible for the maintenance of property. It's one big reason for the great success of paint made with Dutch Boy White-Lead and Lead Mixing Oil.

You know the importance of having walls and woodwork that are really washable. Again and again, you've seen paint jobs that needed to be done over not because the finish had *worn off* but because stains and smudges insisted on *staying on*. Therefore, paint that is not afraid of a scrubbing means substantial savings for your client.



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

### *A Real Clean-Up*

Saying that this Dutch Boy paint is really washable means two things: (1) Its beauty is not destroyed by hard scrubbings. (2) Those scrubbings actually get you somewhere. The test panel on the right shows how stubborn stains and dirt really do "come out in the wash". It explains why paint made with this Dutch Boy combination saves money formerly spent for over-frequent repaintings.

Of course, washability isn't the whole story. This paint has all the beauty and durability for which white-lead has long been famous. Because of its excellent sealing power, it stops suction and hides firecracks. And it saves money in more ways than one. It mixes quickly, spreads easily and has high coverage—800 square feet per gallon on smooth plaster. Those three qualities mean low first cost. Then add long wear and real cleanability, and you have *long-run* economy also.

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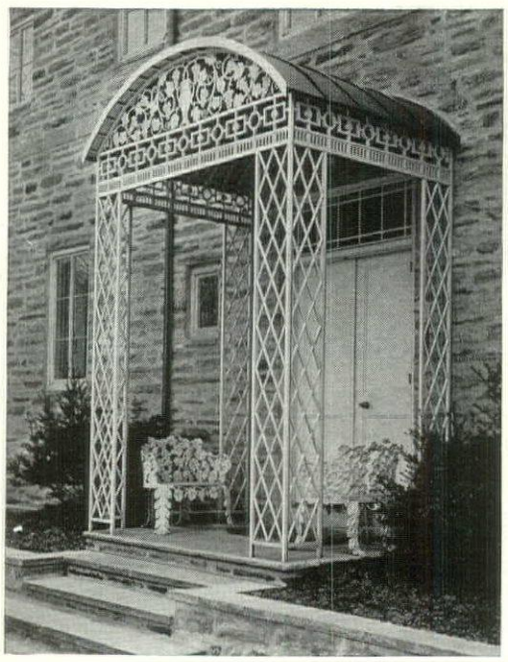
## DUTCH BOY WHITE-LEAD AND LEAD MIXING OIL



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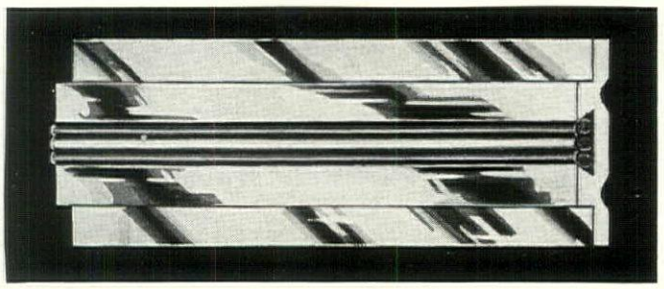

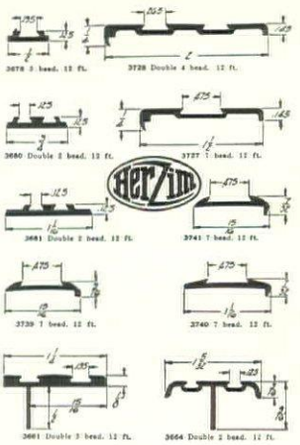


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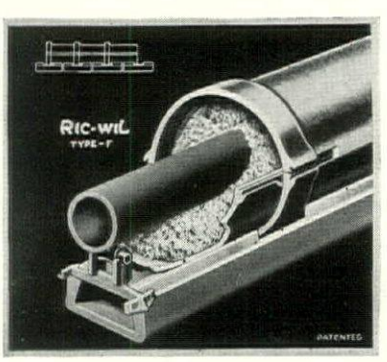


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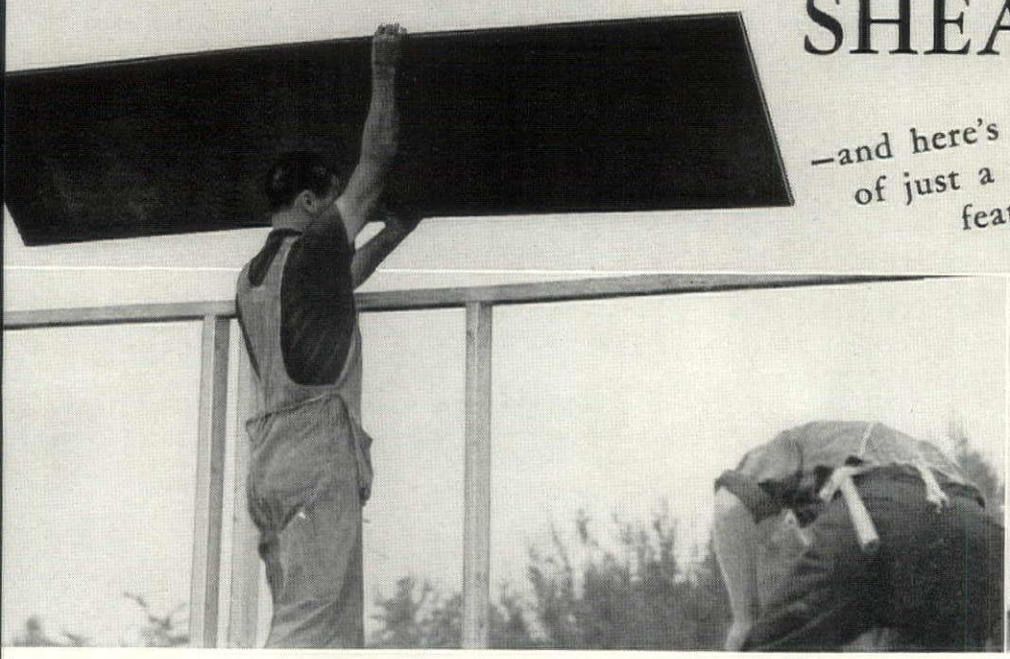

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