

AMERICAN BUILDER

Including "BUILDING DEVELOPER" and "HOME BUILDING"

A SIMMONS-BOARDMAN PUBLICATION

Vol. 48.

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No. 6

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—next month Our 25th Anni- versary Number

THE American Builder
is twenty-five years
old. Our birthday party
will be our APRIL issue;
and you are all invited!

Some remarkable
changes and develop-
ments have been wrought
in the building field dur-
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next month in our big
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—The Editors.

Published on the first day of each month by the American Builder Publishing Corporation. *President*, Edward A. Simmons; *Vice-Presidents*, Henry Lee and Samuel O. Dunn; *Treasurer*, John T. DeMott; *Secretary*, Elmer T. Howson; *Editors*, Bernard L. Johnson and Charles G. Pekar; *Associate Editors*, P. W. Hanna, E. B. Quigley, L. E. Arent; *Business Manager*, Robert H. Morris; *Advertising Staff*, Delbert W. Smith, C. R. W. Edgcombe, L. H. Reich, O. H. Sutter, Cecil W. Blashill, R. E. Clement, Homer Beach.

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Railway Engineering and Maintenance	Airway Age
Railway Electrical Engineer	House Furnishing Review
Marine Engineering and Shipping Age	
Railway Engineering and Maintenance Cyclopedia	
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ADVERTISING RATES—Furnished on application. Advertising forms close on the 10th of the month preceding date of publication.

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AND OF THE ASSOCIATED BUSINESS PAPERS

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Car Builder's Cyclopedia	Locomotive Cyclopedia

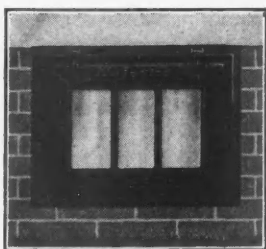
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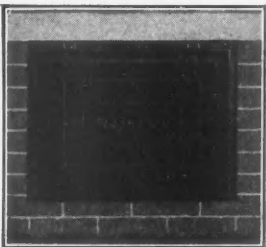
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MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS
AND OF THE ASSOCIATED BUSINESS PAPERS

MAJESTIC QUALITY PRODUCTS THAT HELP SELL HOMES



This Glass Panel coal window protects and beautifies the home—and lights the coal bin. Rust resisting throughout, and absolutely break-proof. Panels are of heavy plate glass.



The Solid Door type has heavy pressed steel door—Certified Malleable Iron frame and hinges—Keystone Copper Steel body and hopper. Rust-proofed. Construction positively break-proof.

EACH Majestic Product is made to serve the ultimate purchaser with greatest efficiency and at the least possible cost. This is one big reason why realtors and builders are using more and more Majestic Quality Products in the homes they build to sell. Majestic Products appeal strongly to home buyers because of their convenience, utility and long, trouble-free service. Lot of good sales points that ring the bell because most folks know about Majestic, through twenty-five years of persistent advertising.

Write for catalog.

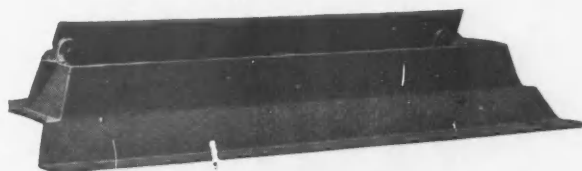


The Milk and Package Receiver for milk, groceries and other packages. Saves countless steps, and protects from annoyance and intrusion. Makes a hit with women. Inexpensive.



The Underground Garbage Receiver puts the garbage can out of sight; out of reach of dogs and flies. Odorless, sightly, sanitary, convenient. Backed by ten-year guarantee.

THE MAJESTIC COMPANY, 330 Erie Street, HUNTINGTON, IND.



The Fireplace Damper with the Built-on Lintel. Assures correct height of damper throat above finished opening (the most important dimension of the whole fireplace). Also insures correct position of damper, with room for smoke shelf behind throat. Trouble-proof poker or face control. Built-on Lintel makes installation easier and less expensive.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



*"The Carpenter's
Own Board"*

"About three years ago we took on your Gold Bond Board because we felt that you had an outstanding piece of quality merchandise. This decision on our part has resulted in a very comfortable increase in our Gypsum Wall Board sales, which this year will triple those of two years ago.

CLARK & COMPANY,
Newark, N. J.

**Gold
Bond**

**Less
Weight**

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

There is More Than One Reason Why You Have Better Luck With Gold Bond Mineral Wallboard

GREAT days, these, for carpenters! New work and old work. New methods and new materials. Folks thinking, talking and doing things once more to keep their homes up to date. Carpenters on the jump all over the land answering the call of the greatest home modernizing campaign in the history of the country.

But in these great days of carpenter activity no carpenter can afford to be wrong or behind the times in the materials he uses. As the recognized expert on remodeling he must be dead right about his chief remodeling material—gypsum wallboard.

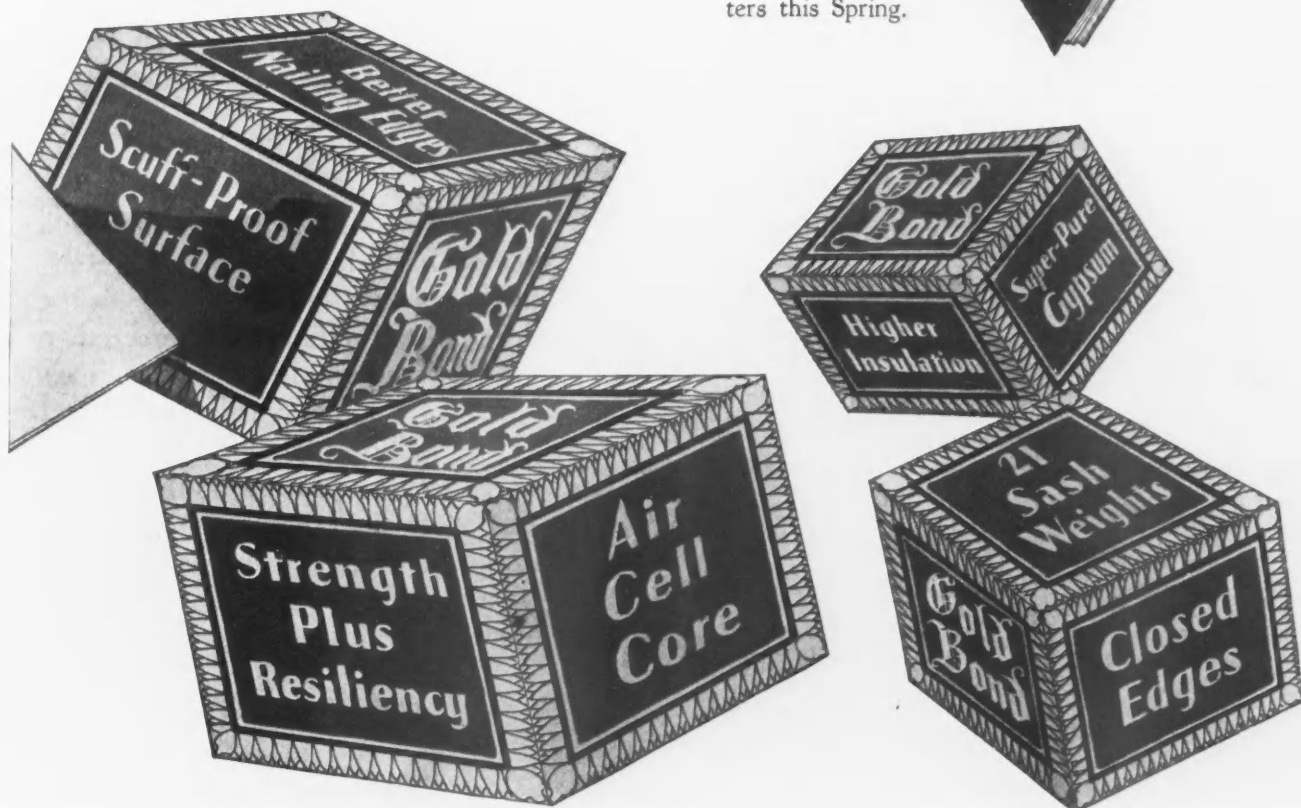
The more you know about wallboards the greater preference you will find for Gold Bond among your brother carpenters — a preference founded on definite advantages that any Gold Bond dealer will quickly demonstrate to you.

In Gold Bond you have the maximum combination of strength with lightness. It is many

pounds lighter per panel — your back knows what that means — but it carries 4 to 6 more sash weights in the famous deflection and breakage test.

This startling lightness and greater strength result from the use of newly discovered gypsum of surpassing purity *plus* the patented Gold Bond air-cell core. This core not only makes the board resilient rather than brittle but gives it greater insulating value against heat or cold. And it costs no more!

To know how Gold Bond will bring you new business, be sure you write at once for a copy of "ROOMS OF ROMANCE"—the new Gold Bond book that is creating so much profitable work for carpenters this Spring.



NATIONAL GYPSUM COMPANY

Buffalo, N.Y.

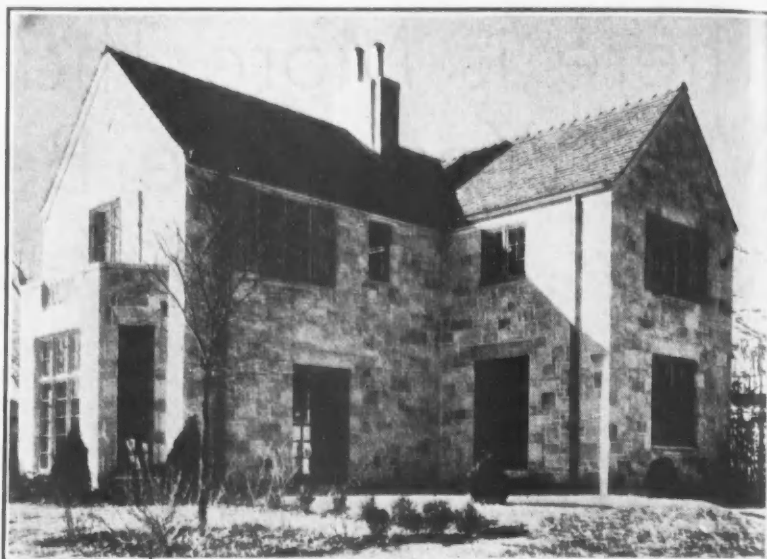
Chicago, Ill.

Clarence Center, N.Y.

National City, Mich.

Luckey, O.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Rear elevation of Indianapolis, first Steel Frame House, showing beauty of the stone work. At right is seen a portion of the framework of another Steel Frame House in course of construction.

A HOUSE that has a FUTURE



The twelfth day after operations were started. Steel Frame completely finished ready for the stone work

Convince the prospective owner that the beauty and sturdiness he finds in his house today will endure for years to come—and he's sold once and for all.

That's the first thing Steel Framing will do for you! But not the only thing.

The handsome steel-framed stone residence just erected in Indianapolis—completely finished in the space of only 100 days—is typical of hundreds of dwellings now erected, or in course of construction, in over a dozen leading cities. Beautiful homes, varied in architecture, proving the practical adaptability of Steel Framing. Dwellings erected more quickly, erected more easily. Houses that will stand as permanent examples of good design—*good building*.

Structural steel framing for residences is here to stay. It satisfies architects. For it is

STEEL



Residence in Indianapolis built by the Steel Framing method, and developed in blue-gray Indiana Limestone. Frederick Wallick, Architect.

adaptable to all types of design—and safeguards the original design by closer adherence to the architect's plans—rarely the quarter of an inch variance.

Steel Framing satisfies builders by the speed and ease of erection it brings. The entire frame is pre-fabricated at the mill. Every part comes plainly marked for its position. No fitting about. No guesswork. Only the most ordinary tools are necessary—tools for tightening nuts and bolts. No rivets or electric welding needed. No special skilled workmanship is required.

Steel Framing satisfies the building developer because it gives him more and better sales arguments. He can offer a house whose walls will not sag, settle, or crack. Construction that insures safety from fire, wind, weather. A home easier to heat in winter—easier to keep

cool in summer on a thermos bottle principle. A residence that will not depreciate in value for years to come.

There is so much in Steel Framing—what it is and what it does—that the full story cannot possibly be told in an advertisement. It's a story that will mean a great deal to you right now—for Steel Framing is unquestionably the Modern method of residence construction. It *may save* you money. It *will* make money for you—if you'll investigate now. Let us send you catalog and practical data—and the experience of the men who are now using this modern method. A letter from you will bring full information at once.

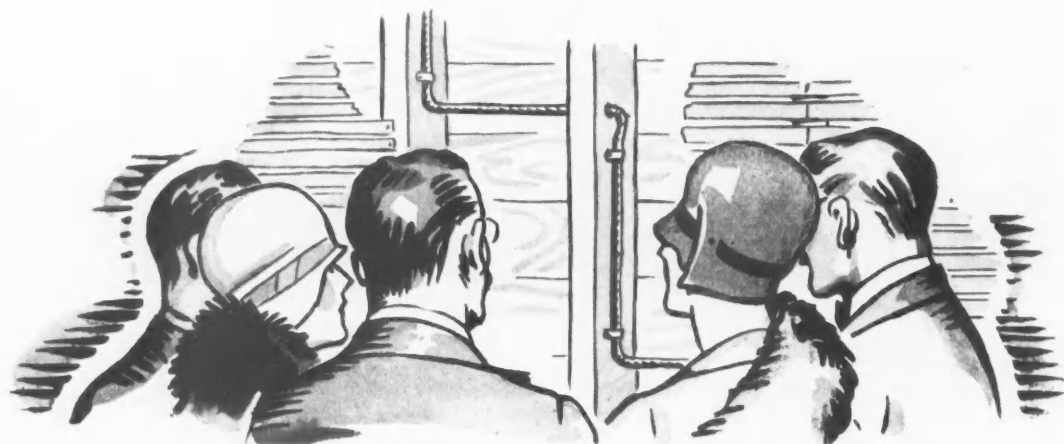
STEEL FRAME HOUSE COMPANY
Subsidiary of McClintic-Marshall Corporation
 OLIVER BUILDING PITTSBURGH, PA.

FRAMING

The modern method of house construction

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

What happens under the plaster ?



4 points for Sheathed Cable that help sell houses!

1 Non-Metallic Sheathed Cable costs much less to install...more circuits and outlets are possible.

2 Non-Metallic Sheathed Cable is safer because it contains its own safety ground wire.

NON-METALLIC

3 Non-Metallic Sheathed Cable cannot rust or corrode.



4 Non-Metallic Sheathed Cable will give uninterrupted service for as long as the house stands.



Non-Metallic Sheathed Cable wiring is a better method for the builder. Its installation is so speedy that it gets your wiring out of the way in a hurry, at lower cost.

For complete information, ask your electrical contractor — or write to any of the Licensed Manufacturers listed below for the booklet — "Where and How to Use Non-Metallic Sheathed Cable".

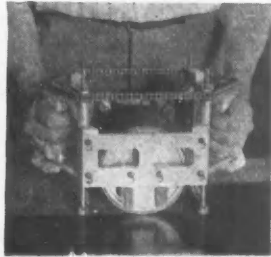
American Circular Loom Company
 Anaconda Wire and Cable Company
 Collyer Insulated Wire Company
 Eastern Tube and Tool Company
 General Electric Company
 National Metal Molding Division
National Electric Products Corporation
 Rome Wire Company
Division of General Cable Corporation
 The Wiremold Company
 Triangle Conduit Company, Inc.

The above Manufacturers are Licensed under Non-metallic Sheathed Cable Patents number 1439323; 1520680; 1203788; 1673752.

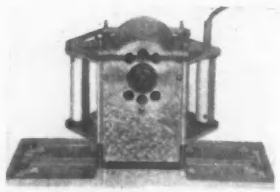
SHEATHED CABLE

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Pictures of Progress



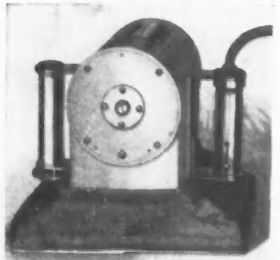
Before the War We Built This



In 1919 This



In '21 and '22 This



In '23 and '24 This



In '25 This

from

before

the

war

Remember Way Back When

A. A. Clarke applied his new found principle of light weight and high speed to his Clarke Vacuum Portable Sander? There were only a few who shared with him the conviction that a new era had dawned in this industry, and many who were sincerely skeptical openly stated that this radical departure could not result in either efficiency or stamina. Gradually the scoffers and skeptics have "signed off"—the advocates of outdated clumsy sanders have been converted to the light weight, high speed, fast cutting Clarke. WHY?—Because the 31 lb. Clarke runs rings around the heavy 200 to 400 lb. sanders in quality and quantity of work. We'll go further than that. There is no sander of any size or weight that can do as much good work, quantity and quality, as the Clarke.

THE CLARKE ALWAYS WAS—and ALWAYS WILL BE—THE BEST SANDER

The CLARKE

Still Outclasses Them All In Every Way Every Day

POWER The CLARKE bites a planing cut 1/4" deep across an 8" plank in 20 seconds. The specially designed CLARKE motor is the most powerful unit of its size in existence and delivers more than 1 HP at about the same current consumption as the ordinary 1/2 HP motor.

SPEED The CLARKE will finish 900 to 2,200 sq. ft. of floor velvety smooth in 8 hours. It works so close to the wall that the baseboard and quarter-round practically cover what's left, that saves time too.

QUALITY The CLARKE easily capable of cutting 1/4" deep, is almost instantly adjustable to a touch so fine that it puts a cabinet finish on a thin veneer. Fills all your sanding requirements.

ECONOMY The CLARKE weighs only 31 lbs., a boy can carry it to the job. Works in closets and out of the way places. Saves laborious and costly hand finishing. No special power wiring needed, attaches to light socket. So solidly built that you can work it 24 hours a day for years on the toughest kind of work.

GUARANTEE The CLARKE is definitely guaranteed for **Performance** and **Quality**, and, of course, for mechanical construction. And we put this guarantee in actual figures. Here it is. The CLARKE will finish from 900 to 2,200 sq. ft. of new floor in 8 hours, 300 to 1,000 sq. ft. of old floor in 8 hours (and that means floors covered with 2 to 20 coats of varnish), and do this without the use of varnish removers. Further, the CLARKE will outclass and outperform any other sander, and this ability is inbuilt—the powerful, speedy, fast cutting CLARKE makes good the terms of this guarantee.

No Other Sander CAN Equal The CLARKE

Modern science, modern ingenuity, the last word in engineering skill and precision workmanship have produced this machine. A machine so powerful, so fast, so dependable, so easy to operate, so convenient, and capable of so much good work that it is years ahead in the field.

Give us the opportunity to prove that everything we say about the CLARKE is the absolute truth, and only the truth. Use the handy Coupon, or write us Today—DO IT NOW.



The CLARKE Does the Work the Way You Want It Done.

Do not buy any sander, at any time, at any place, at any price, until you know what work the Clarke can do for you.



CLARKE SANDING MACHINE COMPANY
Dept. A-43 3815 Cortland Street Chicago, Ill.
For 13 years, Originators and Manufacturers of Portable Sanding Machines

Clarke Sanding Machine Co.
Dept. A-43, 3815 Cortland St.
Chicago, Ill.

Gentlemen: Please send me, without obligation, the guaranteed facts about the CLARKE.

Name.....

Address.....

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

A fire-safe floor construction for dwellings . . .

50% of all serious residence fires originate in the basement . . . and most of this tremendous loss would be saved were the homes built with HAVEMEYER Steel Joist for the ground floor!

Used for such construction, Havemeyer Steel Joists insure a floor

that will not shrink, sag, spring or warp, thus minimizing cracking of plaster on walls and ceilings. This construction also insures a clear, spacious basement without pillars or supports of any kind. It results in the utmost in strength, rigidity and permanence; it saves in foundation and framing costs; it gives maximum sound-proofness and freedom from rat and mouse annoyance. Finally, it is low in first cost and easy to install.



THE GROUND FLOOR IS THE LIFE LINE OF YOUR HOME



... A clear, usable basement!

HAVEMEYER

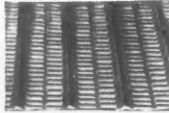
STEEL JOIST

Concrete Steel Co.

HAVEMEYER FIRE-PROOFING PRODUCTS



Havemeyer flat lath is an expanded metal product made from sheet steel, painted or galvanized; copper bearing steel; or pure iron.



Havemeyer rib lath is furnished in easily-handled sheets. Ribs are straight, absolutely uniform and reinforce the lath to provide maximum strength and rigidity. Prompt shipments.

Havemeyer Fire-proofing Products include all types of metal lath, expanded metal, corner beads, channels, angles and similar products used in the construction of fire-proof dwellings and buildings of all types.

CONCRETE STEEL COMPANY
42 BROADWAY, NEW YORK CITY

(AB)

Please send information regarding Havemeyer STEEL Joist and other fire-proofing products.

Name

Address

Executive Offices

42 Broadway, New York City

Sales Offices: Birmingham, Boston, Chicago, Detroit, Milwaukee, Minneapolis, Philadelphia, Pittsburgh, St. Paul, Syracuse, Washington.



for NEW WORK

Carl Anderson, a successful builder of Bridgeport, Conn., in designing this modern home combined the value of long, thick butt 24-in. WEATHERBEST in special Ivory on sidewalls with an 18-inch WEATHERBEST Roof in variegated shades of Brown-Red-Yellow.

TO sell new homes today, real estate operators and builders appreciate the extra value of WEATHERBEST Stained Shingles for roofs and sidewalls. No other material, especially for sidewalls, gives so much value in first cost and also in saving of upkeep expense that appeals to the owner in search of a new home.

There is better insulation to reduce fuel bills; there is greater beauty and charm with lasting colors that save continual cost of repainting when clapboards or siding are used. The superiority of WEATHERBEST Stained Shingles becomes better known each year because time is the real test to prove the actual wearing values of their colors. There is eighteen years' experience behind the WEATHERBEST policy: "Not to cheapen materials or process to meet price competition."

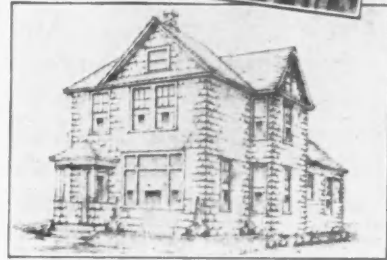
Write for Portfolio of full-color Photogravures showing colors used on WEATHERBEST Homes, and check your files for current data.



for MODERNIZING

Take advantage of the WEATHERBEST Sketch Service to help you develop this new business.

YOU, too, can turn to the steady volume of business, modernizing old homes, regardless of what your situation may be in connection with new work.



If you received your folder explaining the success of the 1929 WEATHERBEST Home Modernizing Contest, you will realize the growing importance of this business. Ask for our Modernizing Booklet and full details of our plan to help you develop sure profits when new work is quiet. Address WEATHERBEST STAINED SHINGLE Co., Inc., 160 Main St., North Tonawanda, N. Y. Plants: North Tonawanda—Cleveland—St. Paul. Distributing Warehouses in Leading Centers.



WEATHERBEST STAINED SHINGLE Co., Inc.,
160 Main St., North Tonawanda, N. Y.

Send WEATHERBEST Modernizing Service Dept. blanks and full details and suggestions for developing a modernizing business.

Send Sample Color Pad and Portfolio of full-color Photogravures of WEATHERBEST Homes.

Send Modernizing Booklet, "Making Old Houses into Charming Homes", and pictures of prize-winning homes in the 1929 Second WEATHERBEST Home Modernizing Contest.

Name.....

Address.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Greater Power, Strength and Durability

• • at greatly reduced prices!

In every section of America, the new Chevrolet six-cylinder trucks are constantly winning greater favor every day. And logically so! For in these new and finer trucks—Chevrolet has provided feature after feature that adds to performance, economy and dependability. *Yet the prices have been greatly reduced!*

Think of the extra-value features now incorporated in these remarkable new units—

—a great 50-horsepower six-cylinder valve-in-head motor that delivers greater power, smoothness and flexibility, with amazing economy of both gasoline and oil—

—a bigger, more rugged rear axle, with an increased gear ratio—

—powerful, non-locking 4-wheel brakes—

—unusually long semi-elliptic springs that cushion the load against bumps and shocks—

—a heavy, over-size channel-steel frame that accommodates large bodies without need of frame extension—

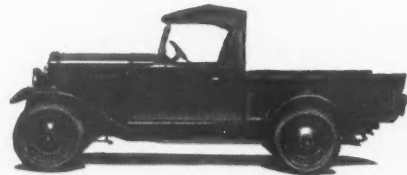
—and scores of additional advancements that add to strength, durability and long life.

See your Chevrolet dealer today—arrange for a trial load demonstration—and judge for yourself the greater value these new trucks represent!

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN
Division of General Motors Corporation

1½ Ton Utility Chassis	\$520
1½ Ton Chassis with Cab	\$625
Light Delivery Chassis	\$365
The Sedan Delivery	\$595

All prices f. o. b. factory, Flint, Michigan



The New Chevrolet Roadster Delivery

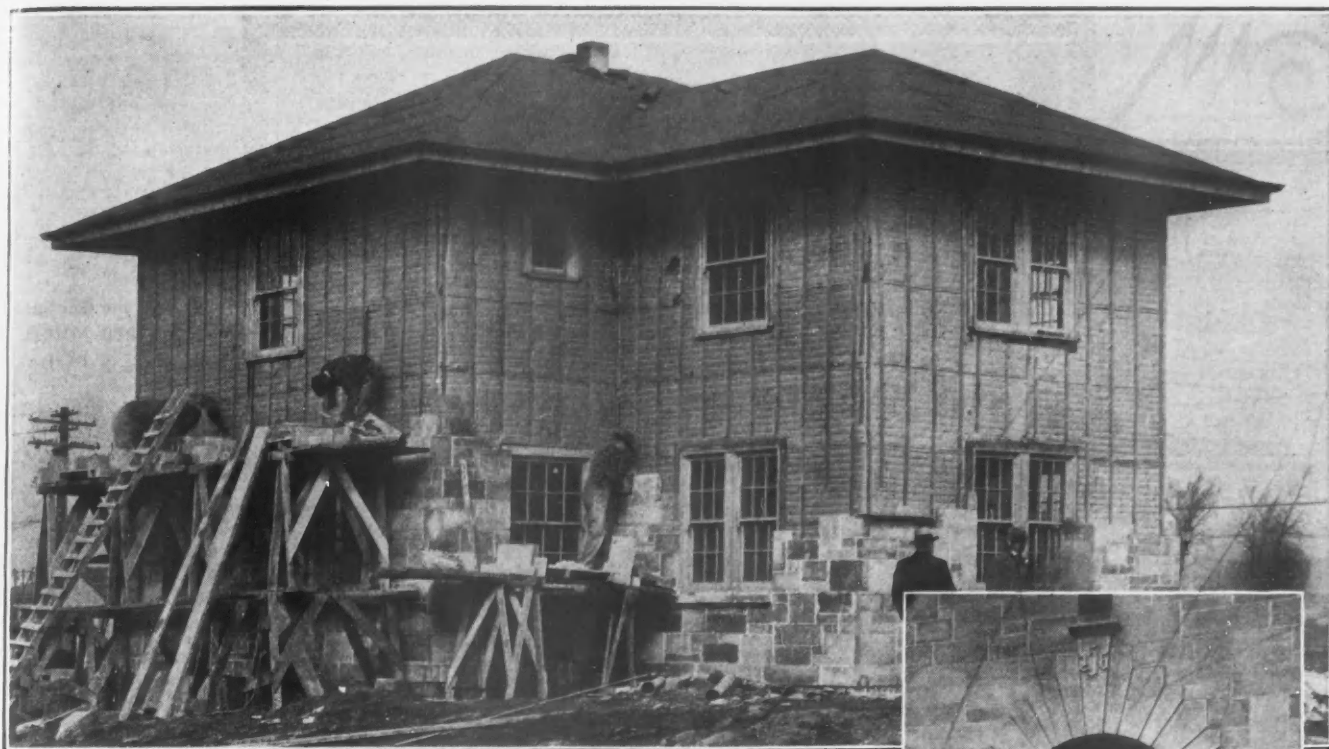
The new Chevrolet Roadster Delivery with its low price, smart appearance and large loading space, is an exceptionally desirable unit for light delivery service.

\$440

f. o. b. factory
Flint, Michigan
(Pick-up box extra)

A SIX IN THE PRICE RANGE OF THE FOUR

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE



Residence, Oak Park, Illinois, under construction. Built by Gauer Bros.

Gauer Bros. tell you here of their success with Indiana Limestone

Send for free booklets

"We used Indiana Limestone as a veneer to stud-frame walls on the residence at 1224 Euclid Avenue, Oak Park. We are pleased with the results from every angle."

(Signed) GAUER BROTHERS,
Builders—Real Estate, 811 North Ave., Oak Park, Ill.

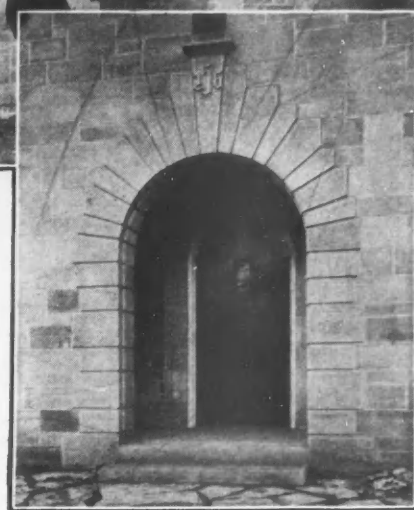
WHY not get started in the profitable field of building houses with Indiana Limestone facing? We'll give you every bit of help you need. Our expert goes right to your job and shows your men every detail of construction.

Our free booklets will tell you all about this new way to use Indiana Limestone. You, too, can build a house that "looks like \$20,000 yet costs only \$10,000." Dozens of builders all over the country have done it. They're enthusiastic.

INDIANA LIMESTONE COMPANY

General Offices:
Bedford, Indiana

Executive Offices:
Tribune Tower, Chicago



Detail, Residence, Columbus, Ohio, showing beauty of stone facing.

When you work with us, we supply you with stone that is carefully selected to make a wall of attractive pattern, texture, and color. Far more satisfactory than trying to use local stone. Far better than buying "ends" and "scrap" from just any stone company. *The Indiana Limestone Company plan of building stone houses has been carefully worked out in every detail. You are guaranteed success.*

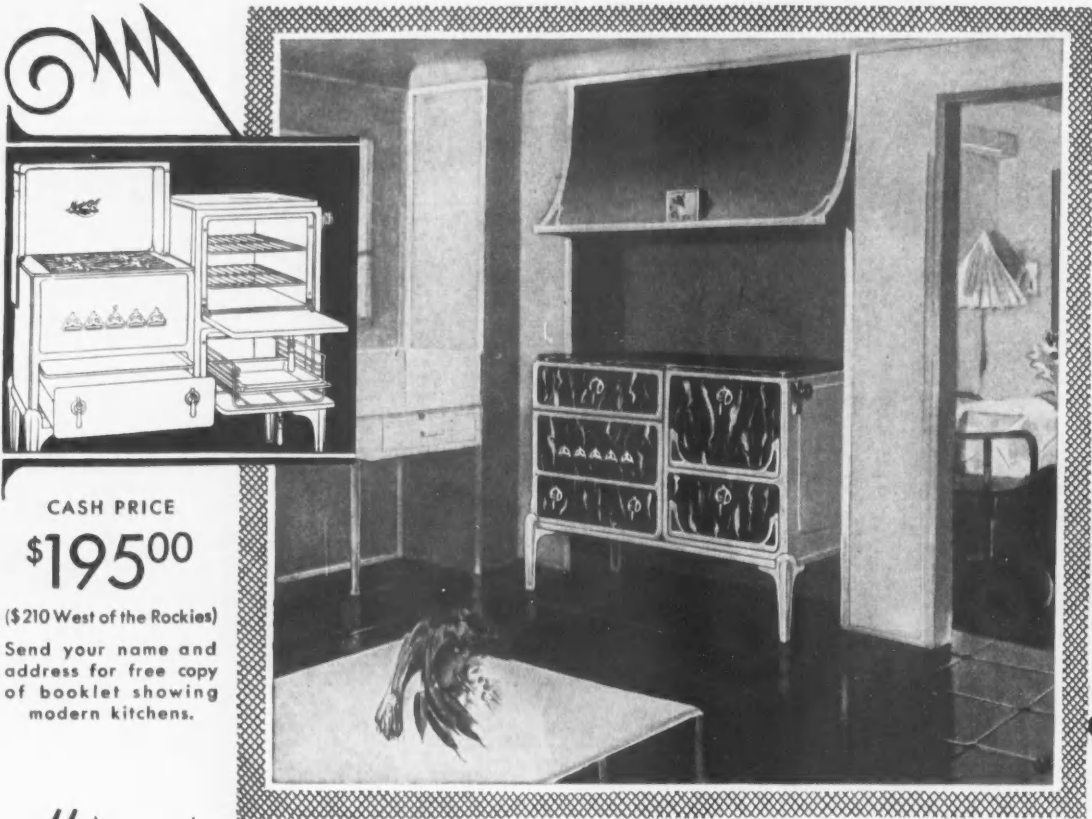
Send for our free literature now. The coupon shown here . . . signed, clipped, and mailed . . . will bring it to you.

Clip this out—Mail today

Box 757, Service Bureau, Bedford, Indiana:
Please send literature and full information regarding Indiana Limestone for residences.

Signed.....
Street.....
City..... State.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



CASH PRICE

\$195⁰⁰

(\$210 West of the Rockies)

Send your name and address for free copy of booklet showing modern kitchens.

UNLESS the Gas Range has a RED WHEEL it is NOT a LORAIN



"MAGIC CHEF" Will Make Any Home Easier to Sell

NO MATTER what kind of a kitchen you plan, large or small, plain or colorful, "Magic Chef," the New Vogue in Gas Ranges, will make this important room more beautiful, more efficient, more inviting, and the home, therefore, easier to sell.

Of all types of cooking appliances, "Magic Chef" is undeniably the most modern. Unlike any gas range ever built, "Magic Chef" possesses beauty, charm, distinct individuality. "Magic Chef" has the endorsement of famous engineering experts and of leading authorities on architecture and interior decoration. In addition to being a

product of real beauty, "Magic Chef" incorporates every widely approved service-feature, including the famous Red Wheel Oven Heat Regulator, to make home-cooking an easy, economical, pleasant task.

From every standpoint Magic Chef is a most sound investment for builder or owner. "Magic Chef" is now on display by leading dealers and gas companies throughout the United States for public inspection.

One glance at it and you'll realize how appealing to the prospect any home must be when the kitchen is furnished with a Magic Chef Gas Range.



AMERICAN STOVE COMPANY

Dept. B, 233 Chouteau Avenue • St. Louis, Mo.

LARGEST MAKERS OF GAS RANGES IN THE WORLD

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE



Residence of Walter Boschen, Architect, St. Joseph, Mo. Roofed with IMPERIAL Straight Barrel Mission Tiles

**THESE COLORFUL TILES ARE HELPFUL
IN MAKING PROSPECTS SAY "I'LL BUY!"**

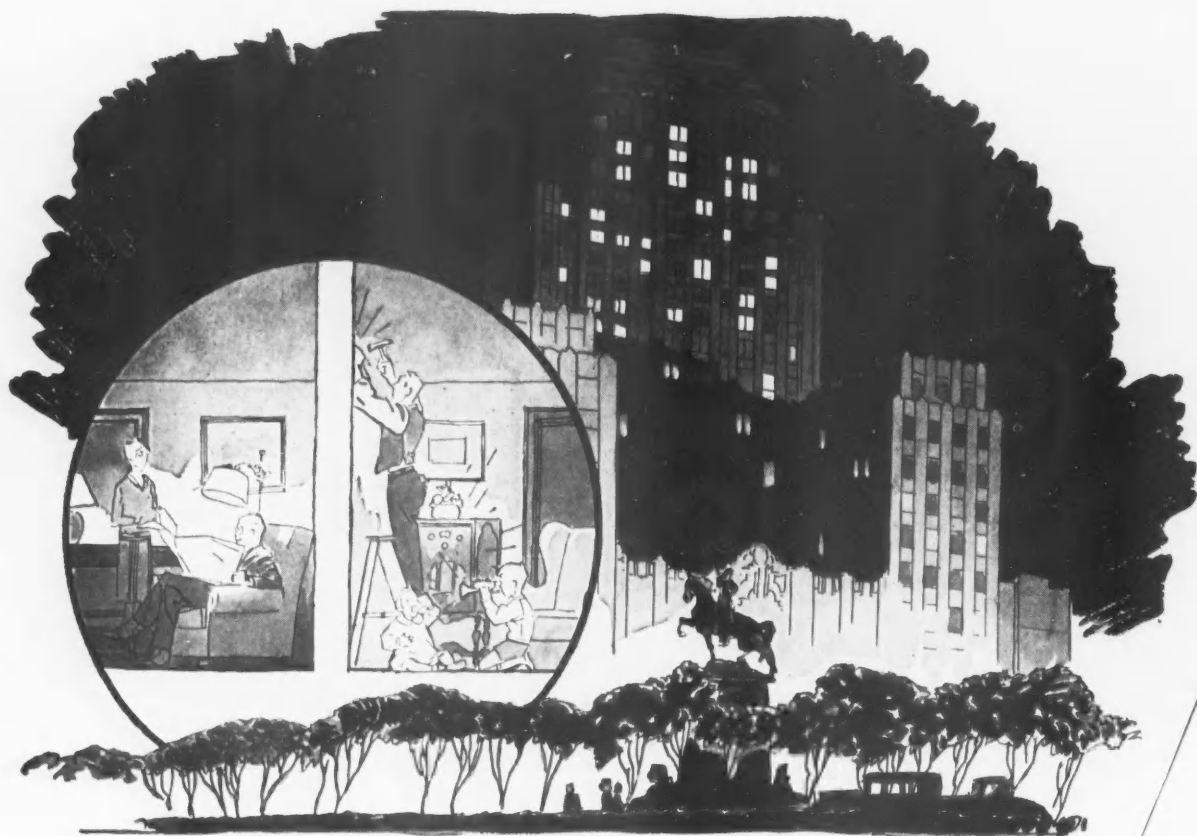
Roofs of IMPERIAL Roofing Tiles attract the best class of prospects and are helpful in converting them into buyers. Home seekers are impressed when you point out that such roofs provide *lifelong* protection from weather and fire without upkeep expense, and also that they keep houses cooler in summer and warmer in winter. There now are IMPERIAL Roofing Tiles which cost no more than less attractive materials of shorter life. Write for color folder.

L U D O W I C I - C E L A D O N C O M P A N Y
Makers of IMPERIAL Shale Roofing Tiles

NEW YORK: 565 FIFTH AVENUE

104 S. MICHIGAN AVENUE, CHICAGO

WASHINGTON: 738 FIFTEENTH ST., N. W.



*Are you troubled with
"Noisy" Apartments*

THERE are no "noisy" apartments, no "noisy" rooms in a properly insulated structure. For insulated construction means sound-proof construction.

MAFTEX effectively absorbs and smothers the transmission of room-to-room noises and makes every part of the building equally quiet and therefore equally liveable.

Made from the tough roots of licorice, MAFTEX is the ideal four-in-one board that combines Insulation, Sheathing, Plaster Base and Sound Deadening. It is moisture resisting, does not attract rats or vermin and does not mold or disintegrate. It is of single ply construction, is easily handled, quickly installed and economical in cost.

MAFTEX Insulation enhances property value, which results in increased income with little or no increase in cost of construction. Let us send full particulars.

MACANDREWS & FORBES COMPANY
Business Established in U. S. A., 1870
200 FIFTH AVENUE, NEW YORK

Also Manufacturers of Fiberlic Wall Board

MAFTEX

*The "Thermal-Insulating" Board
that has Structural Strength*

MAFTEX
*has exceptional
sound-proofing
qualities*

MAFTEX fulfills the requirements of the ideal sound-proofing material, such as—

- High degree of resistance to sound waves.
- Lightness of weight.
- Reasonable thickness.
- Ease of alteration.
- Reasonable cost.

Send for a sample of MAFTEX and test it yourself.

Nothing roils a new home owner more than doors that stick stubbornly to their frames! Now such trouble is avoidable



“What was your builder’s Name?”

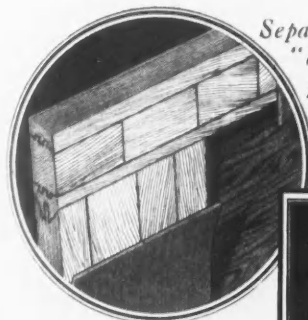
That veiled query many a time has lost a builder future jobs . . . just because his doors *swelled* and stuck!

THAT the usual solid door will swell and stick in a newly completed home isn't the builder's fault — yet invariably *he* is held responsible!

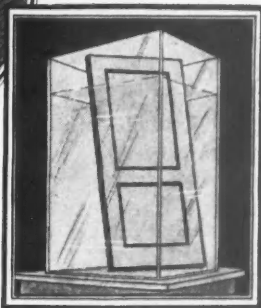
“New doors certainly shouldn't stick!” a woman, who doesn't know better, reasons . . . and as far as she and

her friends are concerned, *that* contractor *thereafter* is taboo.

Unfair. Silly! Yet so often have builders suffered grief with ordinary doors, hundreds of them have sworn off using them. Now it's nothing but Laminex doors for them!



Separate core blocks, with “bulkheads” of water-proof cement, explain why Laminex doors “don't shrink, swell, or warp”



Publicly held in hundreds of cities, famous Laminex Water Tests have proven to millions that here at last is a trouble-proof door

Laminex doors are built a special way so they can't warp. So they can't even swell or shrink. You'll find a positive guarantee of that on the bottom of every Laminex door.

With carefully selected veneer faces, these doors are actually much finer in appearance than the average solid door. They come in a wide choice of styles in your favorite woods . . . fir . . . pine . . . and Philippine Laminex.

For Your Next Job — Doors of This Wood of Tomorrow

Philippine Laminex doors should interest you especially right now. Built of that sensational, newly imported hardwood, with the tropic wood's lovely ribbon grain, they offer a new beauty for any job. They will take almost any finish you can name. And for hardwood doors of such quality they are really inexpensive.

Fill out the coupon for a copy of the Philippine Laminex manual. Others have found Laminex doors well worth looking into . . . they've since bought over three million of them! Write for further information *today*.

THE WHEELER, OSGOOD COMPANY, Dept. E-150, Tacoma, Washington.

I want to avoid door troubles on my next job. Please send me, free, your manual and name of local Laminex dealer.

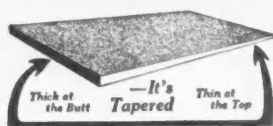
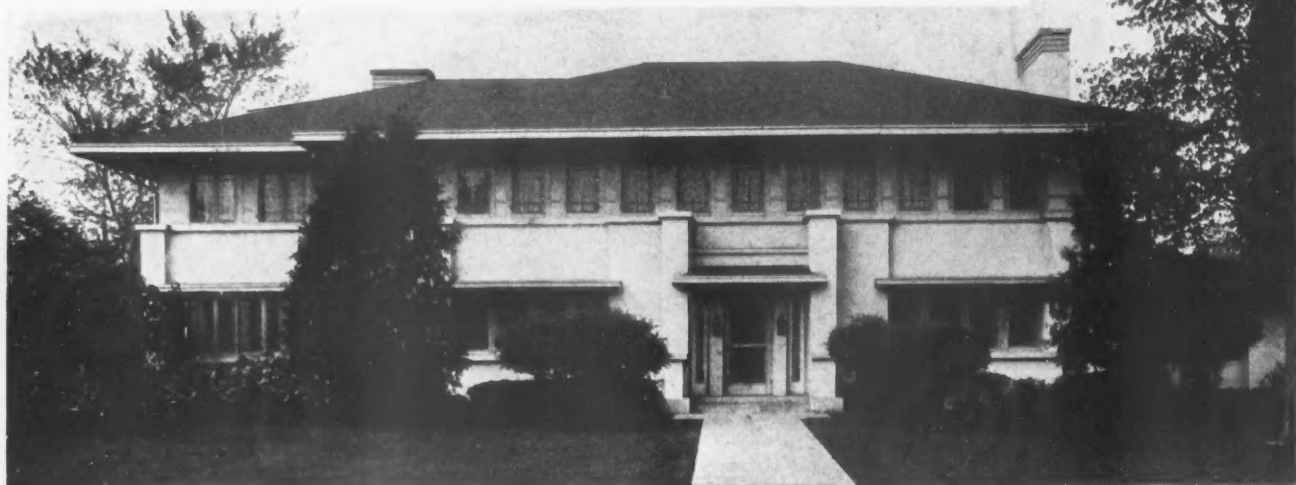
Name.....

Address.....

LAMINEX DOORS

Will not shrink, swell, or warp

WINTHROPS Covered Wood Shingles ON THIS ROOF



When Edward P. Newberg, clothing merchant of LaCrosse, Wisconsin, had to re-roof his fine home on

King Street, he bought sixty squares of Winthrop Tapered Asphalt Shingles.

For five years, Winthrops have proved weather-tight on this low-pitched roof and their turkey red color is still in lively, pleasing contrast with the light gray walls and the surrounding foliage.

The thick butts of Winthrops—built up of extra coats of enduring asphalt on both sides the heavy felt cores—lie close and also double the wearing thickness where exposure to weather comes. The twenty colors of Winthrops—solid and

blended—are the lasting natural colors of the crushed slate surfaces. Winthrops are fire-resisting. They carry the Class C Label of Underwriters' Laboratories.

Winthrops can be laid in a variety of interesting ways. They are unequalled over old roofs. For beauty, durability, and economy you can do no better than recommend Winthrops—the only tapered asphalt shingles.

Samples Free

Most good lumber dealers sell Winthrop Tapered Asphalt Shingles, but contractors often like samples to show to their prospects. We will send you a sample—of the color you wish—if you will just drop us a postal card asking us to do so.

BECKMAN-DAWSON ROOFING COMPANY
1032 Brooks Building, 223 W. Jackson Boulevard, Chicago, Illinois
Factories at Chicago, Detroit, Lockport, N. Y., and New Orleans

-the Big Butt Shingle
Winthrop
Tapered Asphalt Shingles

Argotile (slate surfaced) Roofing, Supreme (mica surfaced) Roofing, Wearproof (talc surfaced) Roofing, Ced-A-Roc Shingles

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE



WHERE ECONOMY POINTS TO SHEET STEEL

NOT only in up-to-date offices, but where ever economy points to sheet steel for security and continuously efficient service, there you will find AMERICAN sheets.

For thirty years AMERICAN sheets have proved their worth, and are constantly improved as research and experience point the way.

An AMERICAN engineer is ready to help you select the proper sheet for your product. We manufacture a complete line of Black and Galvanized Sheets, Formed Roofing and Siding Products, Tin and Terne Plates, for all uses in the construction field. KEYSTONE Copper Steel Sheets and Tin Plates give maximum endurance and rust-resistance. Time and service prove this.



The Sign of Superior Rust-resistance

Save with Steel

CONTRIBUTOR TO TRADE RESEARCH DIVISION. NATIONAL ASSOCIATION OF FLAT ROLLED STEEL MANUFACTURERS

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:

AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY

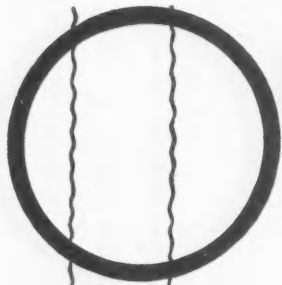
CARNEGIE STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPBUILDING AND DRY DOCK COMPANY

ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY

THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R. R. COMPANY
UNIVERSAL PORTLAND CEMENT COMPANY

Pacific Coast Distributors—United States Steel Products Company, San Francisco, Los Angeles, Portland, Seattle, Honolulu. Export Distributors—United States Steel Products Company, New York City

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



OPENED *in* 24 HOURS

to heavy Bus and Truck traffic



YOU may not be interested in street work, but you are interested in the practical application of ALPHA CEMENT in concrete where high early strength is required.

The photograph above, taken late in 1929, shows the intersection of West Liberty and Seneca Streets, Oswego, N. Y., after being in use for over three years.

A mix of 1 part standard ALPHA PORTLAND CEMENT, 1.17 parts sand and 2.33 parts coarse aggregates, with only enough water to make the concrete workable, was used.

RESULT—*Opened to traffic at 24 hours.
No scaling or cracking evident after
the grind of three years of heavy traffic.*

The use of ALPHA CEMENT for high early strength, watertightness or for general work will give you the results you desire.

Helpful literature sent upon request.

ALPHA
PORTLAND
CEMENT

TRADE MARK REGISTERED

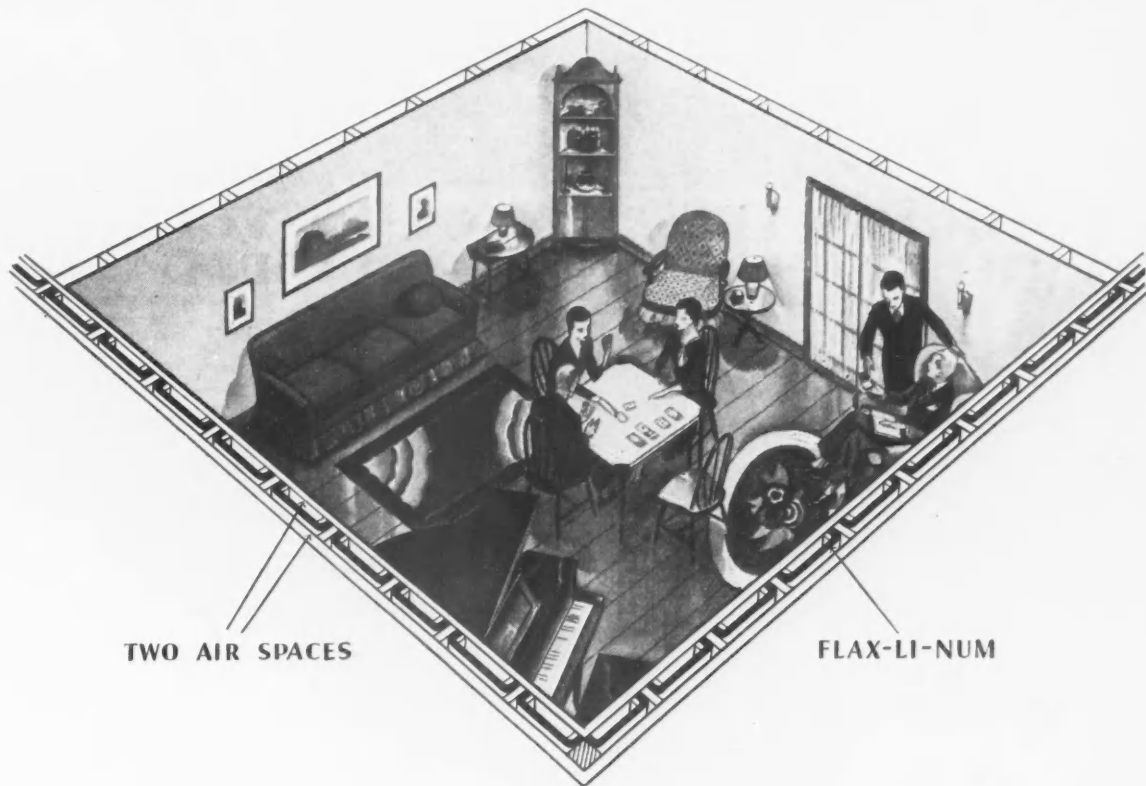
**ALPHA PORTLAND CEMENT
COMPANY**

BALTIMORE - BATTLE CREEK, MICH. - BIRMINGHAM, ALA. - BOSTON - CHICAGO
EASTON, PA. - IRONTON, OHIO - NEW YORK - PHILADELPHIA - PITTSBURGH - ST. LOUIS

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

To State the Case Bluntly

Insulation is most Effective when used as Insulation



FLAX-LI-NUM, Through Its "Two-Air-Space" Method of Application, is 50% More Effective in Preventing Heat Leakage

INSULATING a home in such a way that the owner will receive full benefit from the added layer of insulating material, is a separate and distinct step in construction. To combine it with some other step, such as plaster base or sheathing means the forfeit of a certain amount of insulating value. The principle is clearly illustrated by the FLAX-LI-NUM "two-air-space" method of application which makes possible a 50% increase of efficiency merely by correct application.

FLAX-LI-NUM is a semi-rigid insulating material, designed to be applied between the studs in a wall. It divides the air space into two parts, adding the resistance of two air spaces instead of one. The insulating value of an ordinary air space more than about one inch in width is the equivalent of about 1/4 inch of insulating material. Therefore, by its application, FLAX-LI-NUM adds the equivalent of an extra 1/4 inch of insulation. According to the U. S. Bureau of Standards, "The addition of a half inch layer of insulation in the middle of the air space in a frame

wall is, therefore, the equivalent of adding about a 3/4 inch layer at some other place in the wall".

It is this extra 50% insulating value that has made FLAX-LI-NUM the outstanding home insulant when great comfort and fuel economy are the results desired. It is this extra 50% insulating value that proves the truth of the statement that insulation is most effective when used as insulation.

FLAX-LI-NUM is made in uniform sized sheets . . . of 1/2 inch and full one inch thickness. So perfectly has it been developed that its correct application is simple and fast. It slips between the studs and is held permanently in place with binding strips. It will not break, tear, crack or otherwise lose its insulating value. There is no loss from waste material . . . In the FLAX-LI-NUM Manual are complete recommended specifications. It is a valuable piece of literature for your reference files. You may have a copy.

**FLAX-LI-NUM INSULATING COMPANY
ST. PAUL, MINNESOTA**



Flax-li-num

A CORRECT BUILDING INSULATION AND SOUND CONTROL MATERIAL

FLAX-LI-NUM INSULATING CO.
St. Paul, Minnesota

AB-3

Send me complete information about Flax-li-num.
Also facts about the "two-air-space" method.

Name.....
Address.....
City.....
State.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



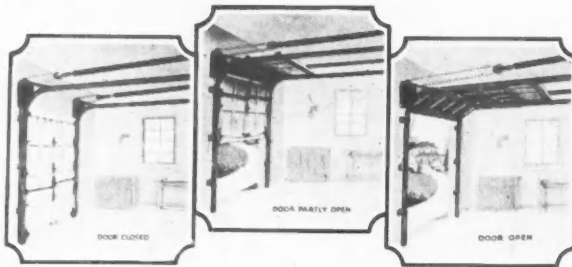
TO BE MODERN THE GARAGE IN YOUR NEW HOME MUST BE EQUIPPED WITH



The "OVERHEAD DOOR"

The garage is an important part of the modern home. If it is to keep step, to blend harmoniously with the general scheme, and to provide real efficiency and convenience, it must be as modern as any part of the house. That means it must be equipped with the Overhead Door.

The Overhead Door lends real beauty and real attractiveness to the whole garage. It is easily and inexpensively installed. In fact, it can be adapted to difficult installations where any other door is simply out of the question. The Overhead Door is the last word



in easy, convenient operation. Your prospective purchaser knows the Overhead Door through years of national advertising. In fact, there is no single construction feature which adds more real sales value than the Overhead Door.

Overhead Doors are offered in many different styles, to harmonize with any type of architecture. They are available in any desired size; and may be operated manually, or automatically, with the Overhead Door Electric Control System. The Overhead Door Representative in your community is a specialist. He will be glad to demonstrate the Overhead Door to you and to help you with plans for installation. Mail the coupon for his name and complete information.

Overhead Door Corporation
Hartford City, Ind.

Overhead Door Corporation of Canada, Limited
Toronto, Ontario, Canada

Overhead Door Corporation.
Dept. 130.
Hartford City, Ind.

Please send complete information on "Overhead Doors" for the modern garage.

Name.....
Address.....
State.....

Once a Luxury

... now an aid to any sale

SOME years ago the builder saw that by investing about \$75 more for brass pipe in the average eight-room house, he greatly increased its value and speeded up the sale. He talked this point to those who bought his houses. They liked the advantages of non-rusting pipes and told their friends. Their friends and their friends' friends realized the great saving too—no leaks or repairs later on, nor any replacement of rust-worn piping with damage to walls, ceilings and floors.

Out of this insistence upon brass pipe came the demand for Chase Alpha Brass Pipe. Alpha Brass Pipe contains 66% copper and enough of lead to make cleaner threading and cutting which are vitally important to permanent leak-proof connections. It is marked every twelve inches with the Chase-mark and the name, Chase Alpha Brass Pipe.

This mark and this name are



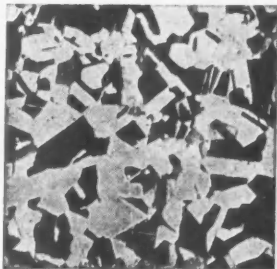
nationally known and nationally advertised. Point them out to the customer when he asks about plumbing. They add to the customers' confidence in you and help you sell homes.

CHASE *Alpha* BRASS PIPE

A PRODUCT OF CHASE BRASS & COPPER CO.—Incorporated—Waterbury, Conn.

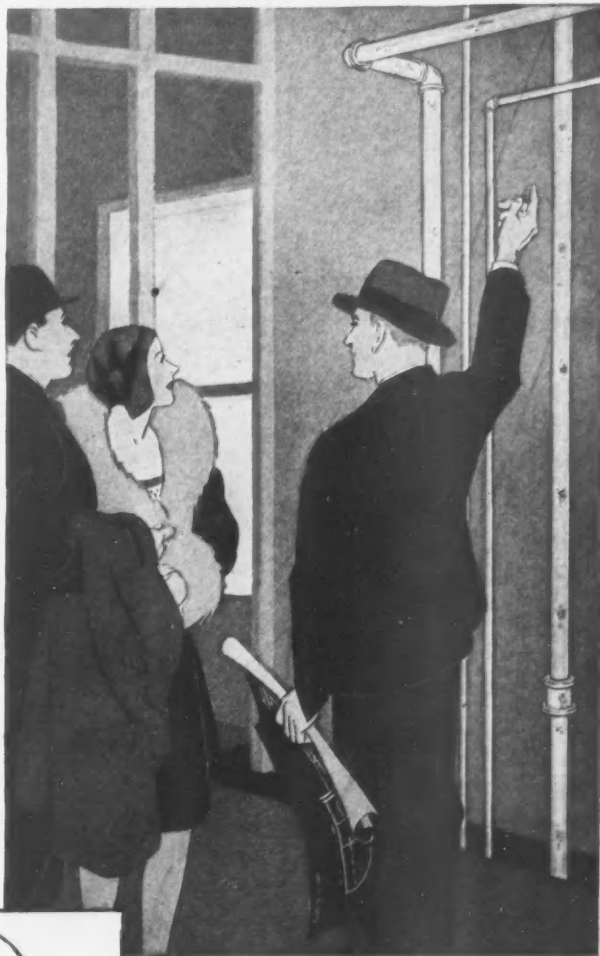
Chase Leaders and Gutters—Chase Bronze Screen Cloth—Chase Plumbing Supplies—Chase Copper and Brass in Sheets, Tubes and Rods for every industrial use

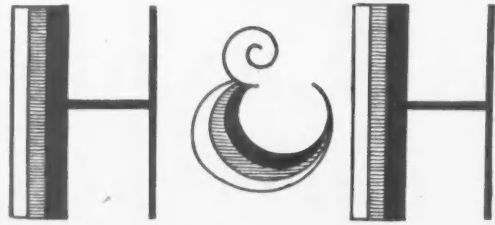
*Alpha Brass Pipe Under the Microscope shows all Alpha crystals. The 66% copper in Alpha insures this all-Alpha structure. When only Alpha crystals are present, the brass is resistant to even corrosive waters. In only a few parts of the country, we have found peculiar water conditions that require special kinds of pipe. Therefore, if you are in any doubt, write to us and our Research Department will be glad to advise you.



For Reconstruction—Chase Copper Water Tubing. The newest rust-proof piping is Chase Copper Water Tubing for replacement work. It is made of copper, 99.9% pure. It bends easily and may be worked down through narrow openings, eliminating the trouble and expense of cutting into floors and walls. Costs less because it is a strong tube and not a rigid pipe. Send for free descriptive booklet telling about this profit-making product.

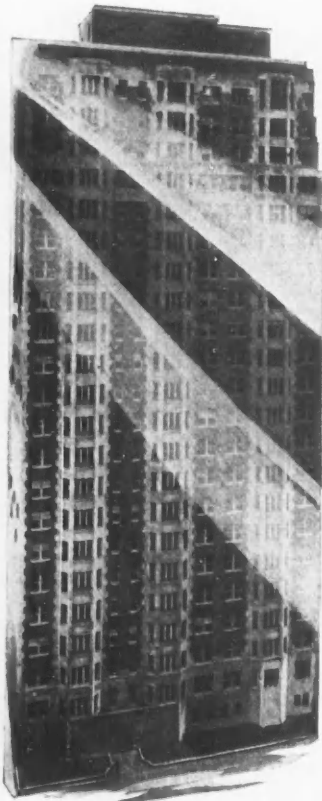
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER





8601 TUMBLER SWITCHES

NEW CHICAGO INSTALLATIONS



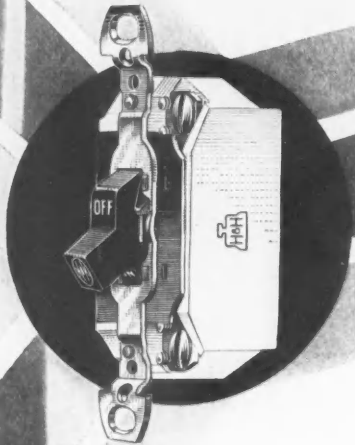
EDDY STONE APARTMENTS
Architect: Holabird & Root
Electrical Contractor: Hoffman
Electric Company

3600
here

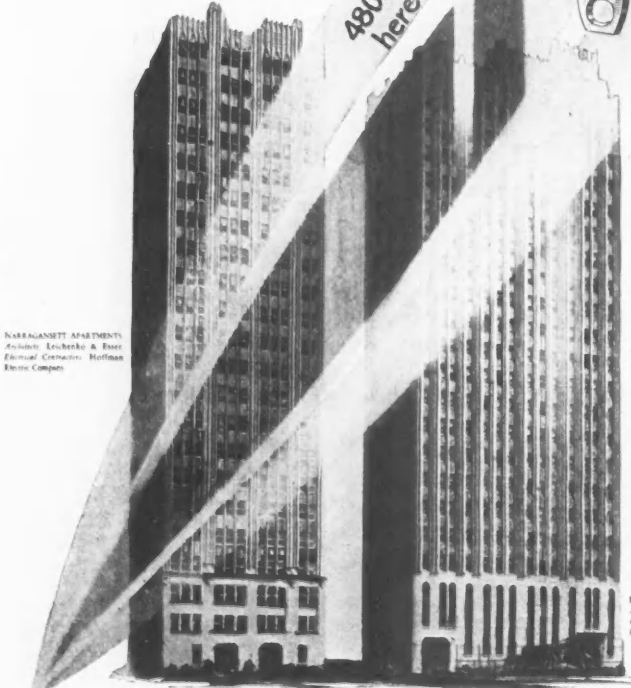


UNION CARBON & CARBIDE BUILDING
Architect: Burnham & Sons Incorporated
Electrical Contractor: White City Electric Co.

1800
here



4800
here



NARAGANSETT APARTMENTS
Architect: Enckebach & Root
Electrical Contractor: Hoffman
Electric Company

PURHATAN APARTMENTS
Architect: Robt. S. DeGroot
Electrical Engineer: W. E. Clark
Electrical Contractor: Loomis & Shaw

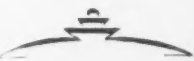
NEWLY at home in more of Chicago's finest. In these buildings, more than ten thousand switches testify to the confidence of Builders and Contractors in the *balanced movement* of the H & H Tumbler. Specify these switches for lasting assurance of lighting systems that *work!* Have you written for new *Catalog "U"*—with the data complete?

HART & HEGEMAN DIVISION

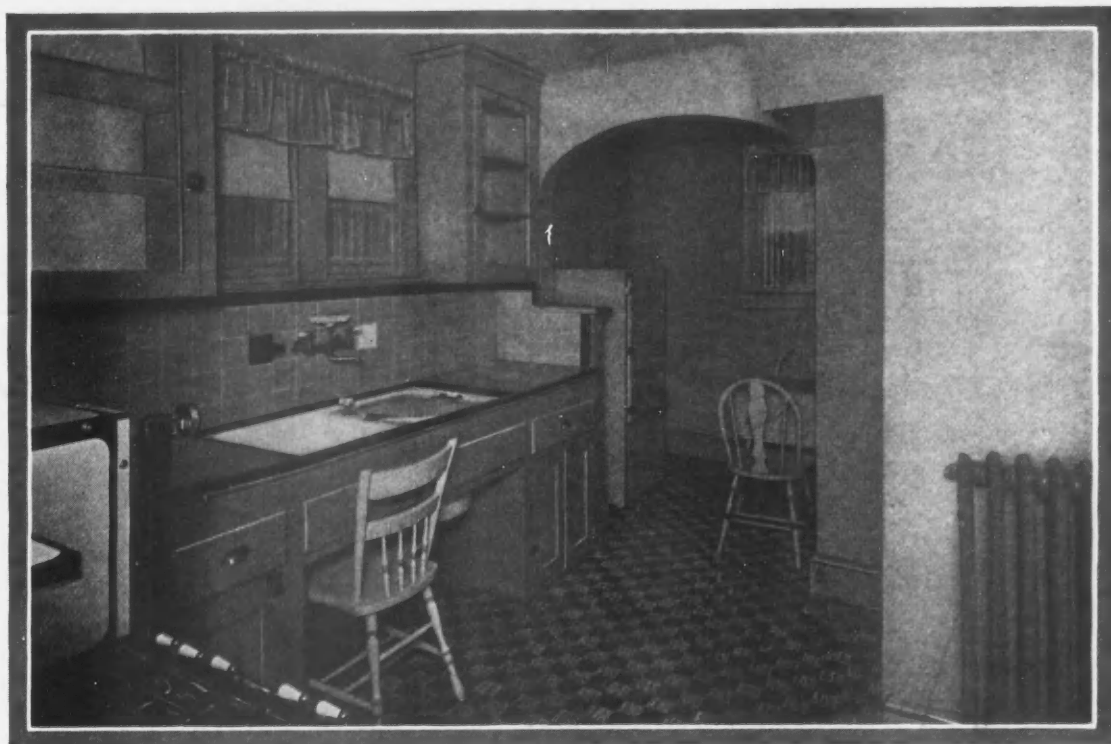
THE ARROW-HART & HEGEMAN ELECTRIC CO.

HARTFORD, CONN. MAKERS OF ELECTRIC SWITCHES SINCE 1890

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE



There's a direct appeal to the housewife in this "Sunshine" kitchen, made bright, clean, and easy-to-care-for by its attractive Armstrong's Linoleum Floor. Floors like this will put direct appeal into your kitchens, sun porches, and other rooms, too.



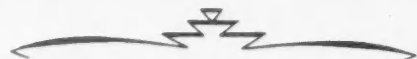
Sunshine City features the model kitchen

THERE once was a time when nationally advertised products were installed only in expensive homes. But realtors have learned a great deal about prospect-appeal. And today one of the notable examples of the installation of advertised products in small homes is given by Sunshine City, at Wood-Ridge, New Jersey.

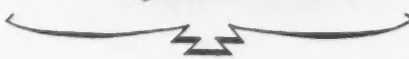
At this development, since September, 1927, more than 650 homes have been built and sold. Not one of these six-room houses cost more than \$7950; the purchaser was required only to make a cash payment of \$250 down, and \$500 more when he moved in. And yet *all* the products in Sunshine City Homes are nationally advertised!

Especially interesting is the kitchen, featured in all Sunshine City advertising. Here are many popular labor-saving devices; the tiled sink beneath the window—the gas range just in the right place—the cosy space set aside for that neat breakfast set—the Armstrong's Linoleum on the floor.

Newland C. Prior, vice-president of Charles H. Reis, Inc., developers, acknowledges the power of pros-



\$7950 Homes Offer Housekeeping Ease with Labor-Saving Devices and Armstrong Floors.



pect-appeal in explaining this choice of Armstrong's Linoleum Floors. "Our main reason for using Armstrong's Linoleum is due to the fact that all of the products in our Sunshine City Homes are nationally

advertised. We feel, as many of the purchasers do, that an advertised product is generally the best."

Realtors feel the same way. You know how advertising places the name of Armstrong's Linoleum before the buying public. The idea of linoleum floors for every room in the house is no longer "just an idea." It's being done in every community. You know, too, how the advantages of Armstrong Floors have become bywords with prospective buyers. Let us send you our book, "New Ideas in Home Decoration," which demonstrates how effectively modern linoleum floors can be used in living-rooms, dining-rooms, and bedrooms, as well as in the kitchen.

If there are any sales arguments for Armstrong Floors unfamiliar to you, this book will supply them. Write to us for a free copy. Armstrong Cork Company, Floor Division, Lancaster, Pennsylvania.

Look for the
CIRCLE A
trade-mark on
the linoleum book



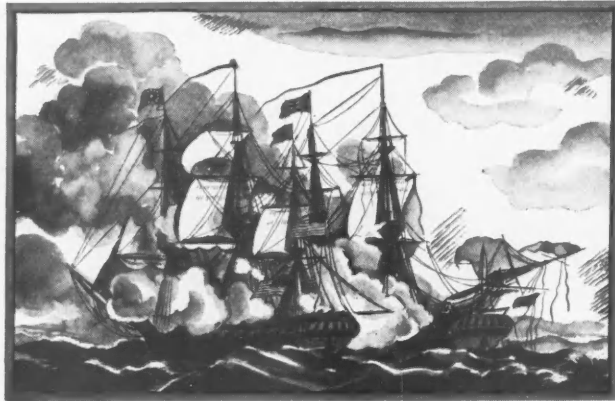
Armstrong's Linoleum Floors

for every room in the house

PLAIN ~ INLAID ~ EMBOSSED ~ JASPÉ ~ PRINTED ~ ARABESQ ~ ARMSTRONG'S QUAKER RUGS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

It started with SHIPS
AND
Paul Revere



THE BATTLE BETWEEN THE U. S. S. CONSTITUTION AND H. M. S. GUERRIERE

THE CRY OF 1800 was for ships. And the cry of the shipbuilders was for copper to sheath hulls...because copper does not rust.

This was the need that inspired Paul Revere. It was he who discovered the secret of drawing malleable copper under the hammer. It was he who established the first copper rolling mill in America.

Paul Revere drew the copper bolts that fastened the timbers of the historic Constitution. He rolled the copper sheets for this and many another famous frigate.

Revere sheet copper also became popular for roofing. It was used on the dome of Boston State House, Old North Church, City Hall in New York, and other fine public buildings followed suit.

Revere rods found a most significant use as lightning arresters, the beginning of the union between copper and electricity. When the automobile came, its inventors naturally turned to copper and brass for the radiator, the electrical connections, the supply lines, the hundred and one special parts. Since then, almost every new invention has brought a new use for copper and brass.

THUS... in 130 years, those shipyard beginnings of Paul Revere have led to the electro-automotive-copper age of today. And in all these new needs, the name Revere is still in the very front ranks of the march of industry. Under it today are seven plants operating 25% of the country's copper and brass rolling mill capacity, including the two largest copper mills of the country.

Revere Copper *and* Brass

INCORPORATED

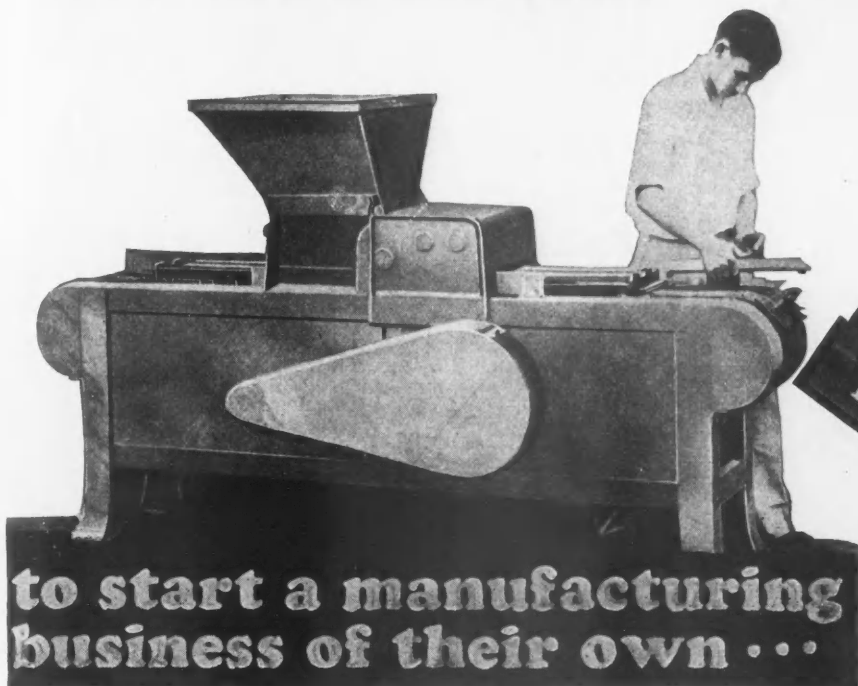
Divisions: Baltimore Copper Mills, Baltimore, Md. . . Dallas Brass & Copper Co., Chicago, Ill. . . Higgins Brass & Manufacturing Co., Detroit, Mich. . . Michigan Copper & Brass Co., Detroit, Mich. . . Rome Brass & Copper Co., Rome, N. Y. . . Taunton-New Bedford Copper Co., Taunton, Mass

GENERAL OFFICES: ROME, N. Y.

"Member of the Producers' Council."

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

Wanted: Contractors - Builders



Roof-a-Day
Capacity
In Any Color

THESE
TILE COST TO MAKE 2.0¢
SELL FOR 10¢
ea.

This
Roof



to start a manufacturing business of their own...

WHY not own a manufacturing business in which competitors do not set your price or fix your profits—for that is what really occurs in competitive bidding? Why not pay yourself a good salary, have a fixed income each month, and pocket a big surplus at the end of the year? Why not write your own insurance with the best policy ever written—a manufacturing business of your own, whose high earnings guarantee an equally high cash value?

Learn what Duntex can do for you. Become a Duntex manufacturer. We show you how. You stay right in your chosen field, for Duntex is a building material, the finest and most beautiful you ever beheld. You make it in any color. Send for a sample tile. Inspect it, test it, show it to architects, builders, friends. It is as permanent as it is beautiful, yet it is not an expensive roof. You

can sell it for less than other good roofs and still make the handsome profits shown in the Duntex Survey & Manufacturers' Manual which is yours for the return of the coupon. Send for it. Show its facts and figures to your banker.

Big Profits in Manufacturing

A very modest investment starts you and you can pay from earnings. Thousands of contractors have far more invested in their present equipment than the cost of a whole Duntex plant. Probably you already have a small building that will do, or can easily arrange for one. Your raw materials are sand and cement. You need only two men. But those two men, in one day, can turn \$16.32 worth of raw materials into \$90.00 worth of finished product! And the Duntex straight line production machine will be operating only 30% capacity! Note the house shown here, Duntex over an old roof. Big profit to manufacturer—great satisfaction to owner, who says his property is worth \$2,000 more because of Duntex.

Exclusive Franchise

We grant you a franchise, which costs you nothing. Only one plant to a territory. Protected earnings. No royalties. Profits and earnings all yours. Extensive cooperation in Sales and Advertising.

Get the facts about this great manufacturing opportunity. It is open for you now—right in your own city.

You owe it to yourself and to your future to investigate. Don't let someone else beat you to it. Return the coupon to-day.

**\$178,000
in One Year**

This machine has helped this man do a business of \$178,000 in one year! The man is George Saffert, of New Ulm, Minn., president of the Saffert Cement Construction Co. The machine makes the perfected building unit that is in so much demand because it builds better buildings of all types for less money. Its big profits and increasing demand, offers you a proven road to manufacturing independence in your community. Get this free book "Basic Facts." Learn how you, like Mr. Saffert, can start modestly and expand from earnings. Check coupon.

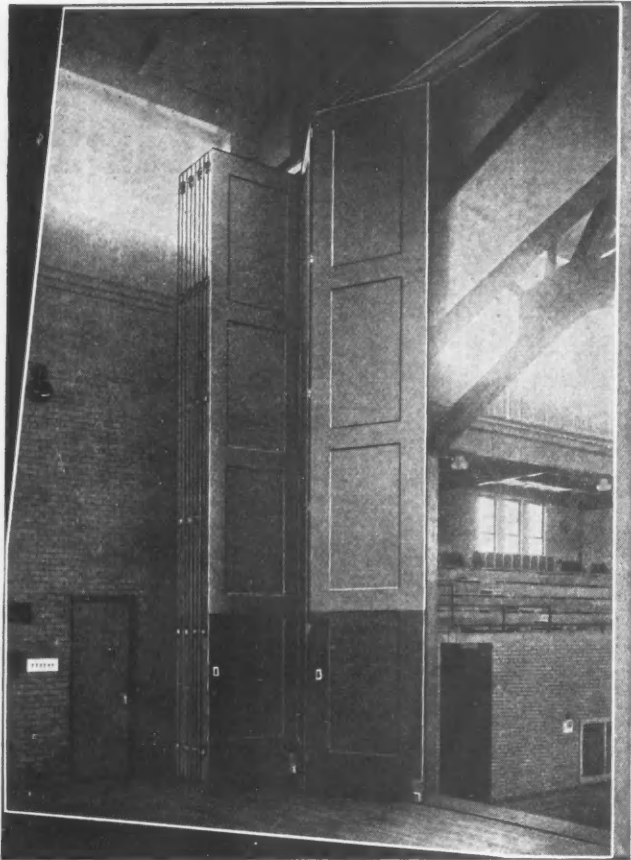


W. E. DUNN MFG. CO.
430 W. 23d St. Holland, Michigan

W. E. Dunn Mfg. Co. 3-30
430 W. 23rd St., Holland, Michigan

Please send the book that describes the Duntex opportunity for me in my city. Also (check) send sample tile. Send "Basic Facts," the book that tells about a business like Saffert's.

Name.....
Address..... City.....
Occupation..... State.....



Twenty R-W FoldeR-Way doors, each 24 feet high, 4 feet 2 inches wide and 3 inches thick, form the sliding, folding, disappearing wall which closes the 83 foot wide opening between the boys' and girls' gymnasiums in the New Trier High School, Kenilworth, Ill.

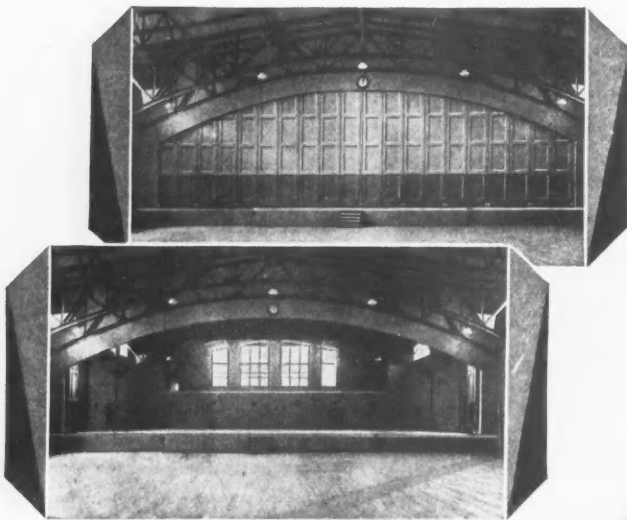
The whole wall disappears and reappears with FOLDER-WAY!

The high cost of floor space and the necessity for making one big room do the work of two or more smaller ones—this is the problem which finds its complete solution in FoldeR-Way equipment.

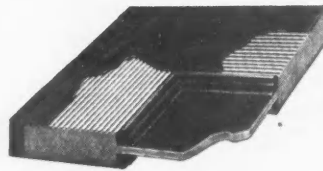
With FoldeR-Way, the wall is built to fold and slide away out of sight and to slip quietly and easily back into place at will.

The exclusive features of FoldeR-Way equipment assure certainty of operation that places R-W above and apart from all competition in the field of doorway engineering and equipment.

No opening is too large for FoldeR-Way. No problem is too intricate for R-W engineers. Write today for Catalog No. 43.



The beauty and smooth operation of R-W Compound Key Veneered doors are LASTING. Sagging, warping, swelling, shrinking, are practically eliminated by tongue and groove method of applying extra heavy sawed veneer to rails and stiles of laminated core construction. Sold exclusively by Richards-Wilcox.



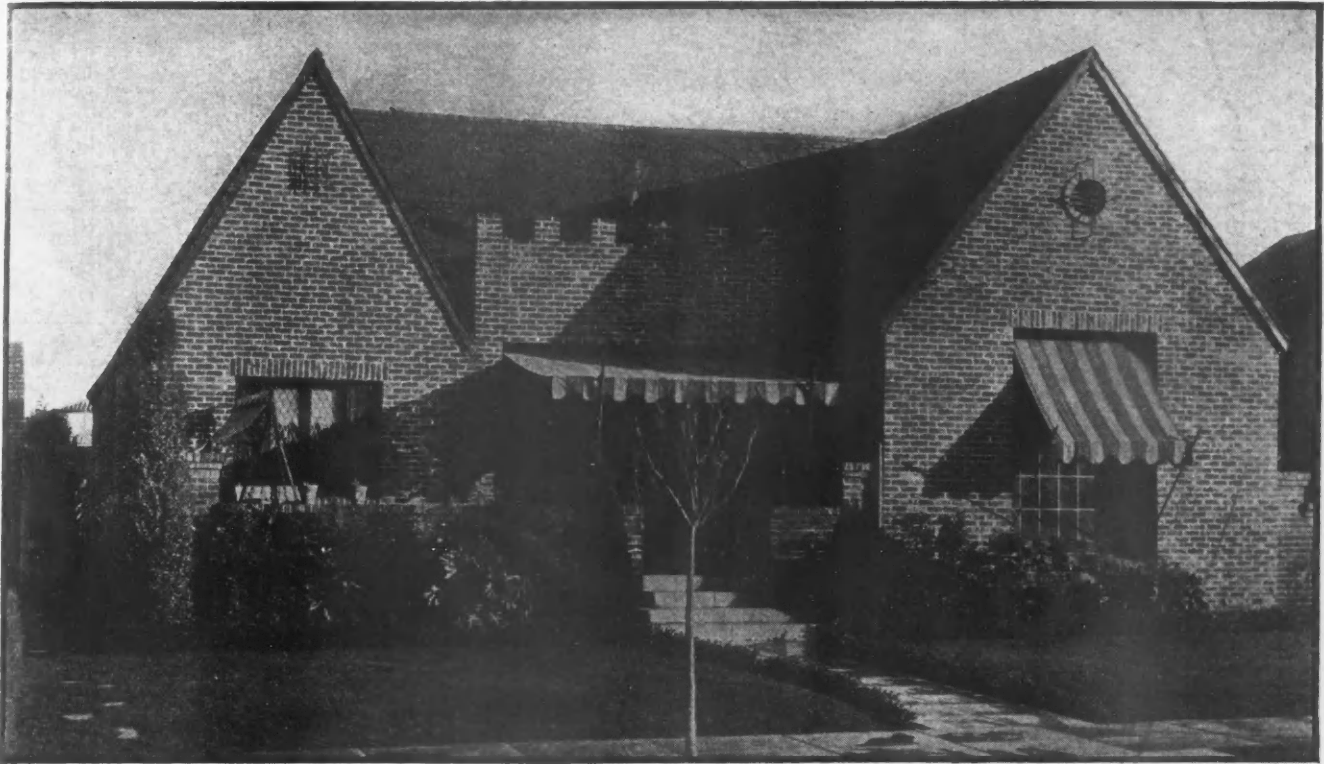
"Quality leaves its imprint"

Richards-Wilcox Mfg. Co.

"A Hanger for any Door that Slides"

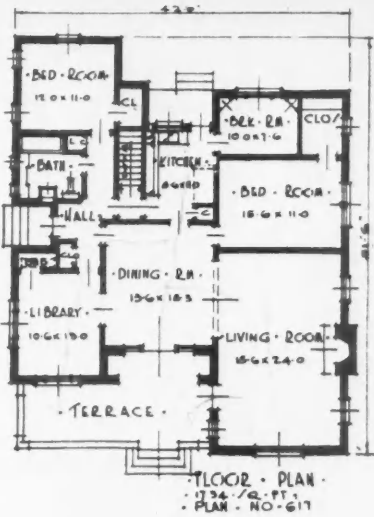
New York AURORA, ILLINOIS, U.S.A. Chicago
 Boston Philadelphia Cleveland Cincinnati Indianapolis St. Louis New Orleans Des Moines
 Minneapolis Kansas City Atlanta Los Angeles San Francisco Omaha Seattle Detroit
 Montreal • RICHARDS-WILCOX CANADIAN CO., LTD., LONDON, ONT. • Winnipeg

FoldeR-Way flush bolt, two being required when doors divide at center, one when doors all fold one way. Brass or dull black finish.



THE OLDS

C. B. M. A. Architectural Plan Service



Build the Kind of Homes that People Buy

Most people prefer brick houses. They know that Brick is more beautiful, more comfortable and more enduring. However, many people do *not* know that the initial cost of a Brick house is but a fraction more than other kinds of construction. Its long life, economical upkeep and high resale value much more than offset the slight first-cost difference.

People are buying Brick homes. Why not build that kind?

The Olds, pictured above, is but one of hundreds of plans, by leading architects, available to you, at cost, through this Association.

COMMON BRICK MANUFACTURERS ASSOCIATION
of America

M-2131 GUARANTEE TITLE BUILDING / / / CLEVELAND, OHIO



This bronze is placed in the wall of all brick houses that pass an Association inspection. It is a certificate of Sound Materials.

BRICK

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*District Association Offices
and Brick Manufacturers
Everywhere at Your Service*

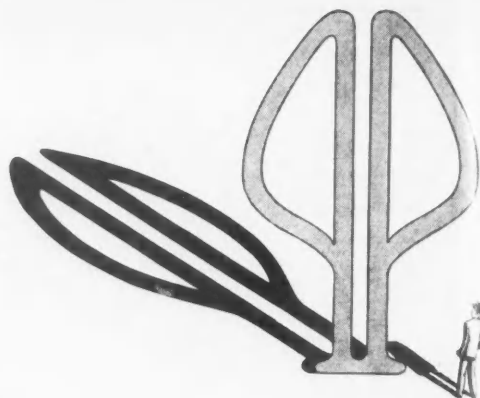
Clip and Mail This TODAY

Without charge, please send me a copy of "Common Brick."
I am enclosing cash or stamps for the booklets checked.

- "Homes of Lasting Charm" 25c.
- "Beautiful Homes" (1 Story) 25c.
- "Skinted Brickwork" 15c.
- "Farm Homes of Brick" 5c.
- "Brick, How to Build and Estimate" 25c.
- "The Heart of the Home (Fireplaces)" 25c.
- "Spanish Book" 25c.

(Enclose \$1.40 if you want all the books)

To the builder
who asks
"Where shall I use
Pondosa Pine?"



You've read about this good wood. You know how easy it is to work. How it takes nails and screws without splitting; how it holds paint tenaciously, and gives a smooth, beautiful surface. If you've used Pondosa, you know what a splendid soft wood it is. But if you haven't, here are a few suggestions:

Pondosa Pine has been called a versatile wood. That's a pretty apt description, for it's certainly an all-purpose lumber. Use it for exterior and interior trim (it resists the rigors of storm and cold admirably)—siding, entrances, surbases, moldings, cornices, window frames, sash. For built-in features—breakfast nooks, window closets, cupboards, bookshelves, sun porches. For balusters, stairways, fireplaces, doors, newel posts. In fact, *anywhere* that a light, strong soft wood is required, Pondosa Pine is ideal.

There's another use for Pondosa especially profitable. Knotty pine paneling. This good wood is clean in grain, and silky smooth, with a minimum of pitch, shake, warp and wane. The painted surface is free from ripples and ridges. Pondosa



Pine makes a splendid choice both from the home owners' and architects' viewpoint . . . whether used inside or outside.

In short, Pondosa Pine gives complete satisfaction wherever you use it. . . . The lumber dealer in your town handles trade-marked Pondosa Pine. He can get you any quantity you want, in quick time. Western Pine Manufacturers Association, Portland, Oregon.

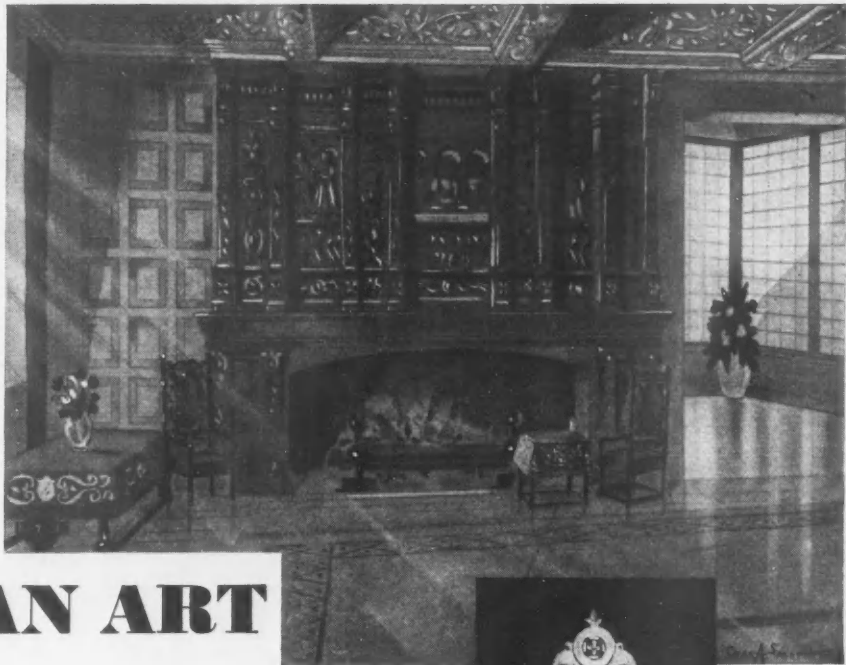
Pondosa Pine

The Pick o' the Pines



FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

The mellow
and seasoned
beauty of



ELIZABETHAN ART

is offered you in the **EXCLUSIVE DESIGNS**
by **RUSSWIN**



HARDWICK

THE ELIZABETHAN PERIOD is above all domestic in its appeal. Born under the Renaissance influence it offers beauty, comfort, and sturdiness. It insists on durability. For nearly a century **RUSSWIN** . . . actuated by the ideals of Elizabethan art . . . has combined grace with faultless mechanical operation. **Hardwick**, herewith illustrated, is one of the exclusive **RUSSWIN** designs in this delightful period. It will enhance the little manor house, the baronial home or the monumental business structure and provide unfailing, trouble-free, lasting service. Whether it be a sturdy, handsome door knob, a lock, door closer, night latch, or even such as small hinges and locks for the corner cupboard . . . all will be in perfect accord if you select **RUSSWIN**. Consult your architect or interior decorator, when making plans, or write to us for descriptive booklet covering **RUSSWIN** Hardware expressly made for leading periods of design. Russell & Erwin Manufacturing Company (The American Hardware Corporation, Successor) New Britain, Connecticut—New York, Chicago, London.



*For the Architect's convenience **RUSSWIN** Hardware is illustrated and described in Sweet's catalogue, pages C-3137: C-3216.*

*Two other exclusive **RUSSWIN** designs
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SINCE 1839
RUSSWIN
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DISTINCTIVE
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Hardware that lasts - Base Metals of Bronze or Brass

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Stanwin Casements—Residence of Swayne P. Goodenough, Esq., Rochester, N. Y., A. Storrs Barrows, Architect

MAKE YOUR SMALL-HOME WINDOWS PAY BIG DIVIDENDS!

By installing Crittall Casements, you can make the windows of your speculative houses more than pay for themselves in added profits.

The beauty, comfort and convenience that these modern windows provide have led American home-buyers to accept Crittall Casements as a distinguishing mark of the carefully designed, well built home. They are quick to appreciate—willing to pay for—the many advantages Crittall Casements offer.

And to you, this acceptance of Crittall Casements on the buyer's part means better prices, quicker sales and consequently, larger and more certain profits on your Crittall-equipped buildings.



Stanwin Casements are available
with screens by Crittall

You can profitably add the sales appeal of Crittall Casements to all of your houses. For your competitive jobs, Stanwin Casements are available in a complete line of standard designs, styles and sizes. For your best buildings, the Norman line offers a wide range of standardized casements of the highest quality.

Upon request we will mail you our latest literature describing the complete Crittall line and, if you wish, put you in touch with our nearest representative.

CRITTALL CASEMENT WINDOW COMPANY
10982 Fern Avenue • • • Detroit, Michigan

CRITTALL CASEMENTS

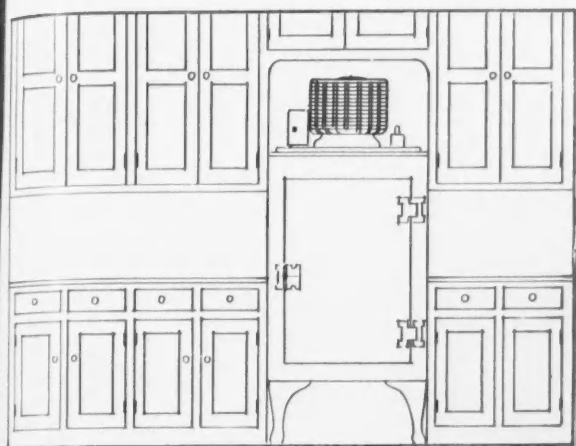
STANWIN CASEMENTS

NORMAN CASEMENTS

UNIVERSAL CASEMENTS

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE.

Arrange for a GENERAL ELECTRIC REFRIGERATOR *in the kitchen*



*... it will enhance the value of
the property and make it easier to sell*

THE General Electric Refrigerator shown in the plan is well suited to the average small home of six or seven rooms. This kitchen, while simple in arrangement, includes desired features of good routing and convenient working space.

We have prepared a helpful booklet describing this arrangement in detail, also many others for larger kitchens. The plans include complete first floor arrangements as well. We shall be glad to send you this booklet . . . simply address, Section QSA 3 Electric Refrigeration Department, General Electric Company, Hanna Building, Cleveland, Ohio.



FORESTALL annoying afterthoughts on the part of your clients by anticipating their refrigeration requirements and allow a proper place for a modern electric refrigerator just as you do for radiators, up-to-date plumbing and large closets. Of course your clients will want General Electric Refrigerators—the public preference for them is far greater than for any other make.

But you know how it is: people often forget to mention this or that convenience in time for you to include the space for it in your plans. Then adjustments have to be made.

Why not provide General Electric Refrigerators as *original equipment* in your specifications, as many other architects and builders are doing? The efficiency and economy of General Electric are so outstanding, their quality so

generally appreciated, that their installation readily indicates the rest of the recommended equipment is also of the highest grade.

Builders, owners, selling and renting agents have all found that the cost of General Electric Refrigerators is not so much an addition to the price of the home as an investment enhancing the value of the property.

Their superiority is definitely established through this amazing record . . . of the hundreds of thousands of owners not one has paid a cent for service.

Listen in on the General Electric Hour broadcast every Saturday evening at 9 o'clock, Eastern Standard Time, over a nationwide N. B. C. network.

GENERAL ELECTRIC

ALL-STEEL REFRIGERATOR



Connecticut furnishes two interesting pine rooms for architectural study—the early eighteenth century room in the Morris House at New Haven and the twentieth century library of the modern home at Greenwich designed by H. W. Rowe Associates. Here fireplace cupboards and built-in book shelves combine to create an unusually cozy setting.

PINE WALLS WITH BOOK NOOKS

In designing pine-walled rooms architects take delight in built-in book nooks, odd cupboards and other quaint Colonial conceits. The inviting warmth of knotty pine walls is enhanced by the whimsical charm of fireplace cupboards and ample book shelves where bright bindings shine with friendly radiance.

The pine room illustrated uses simple feather-edged knotty pine boards. Shevlin Pine is especially prepared for this use and is thoroughly kiln dried, carefully milled and finely finished, ready for installation at a minimum cost for labor.

As time goes on, the pine-walled rooms you design will prove not only their decorative sufficiency but their economy of upkeep. They need never be re-finished. Age, sunlight and use only make Shevlin Pine more mellow.

To be sure of getting genuine Shevlin Pine insist on the trade-mark. You need have no difficulty obtaining Shevlin Pine as there is a plentiful supply available in five varieties — Shevlin Northern White Pine, Shevlin Norway Pine, Shevlin California Sugar Pine, Shevlin California White Pine (*Pinus Ponderosa*) and Shevlin Ponderosa Pine. For complete data, write for the booklet, "Specify Shevlin Pine."

Shevlin, Carpenter & Clarke Company
903 First National-Soo Line Building
Minneapolis :: :: Minnesota



Your dealer can easily obtain Shevlin Pine by getting in touch with the nearest office:

Chicago: 1866—208 South La Salle Street Building

New York: N. H. Morgan, Sales Agent, 1205 Graybar Building

San Francisco: 1030 Monadnock Building

Toronto, Ontario: 606 Royal Bank Building

All Shevlin mills now make grade-marked and trade-marked lumber. Insist on the Shevlin trade-mark. If you have any difficulty getting Shevlin Pine, write and our nearest branch office will see that you are supplied.



Police Headquarters Garage, St. Louis, Mo. . . . R-W equipped

RW ELECTRICALLY OPERATED DOORS

fully meet all doorway problems

Positive and unfailing control of large, heavy doors! That's the certain sure result of using R-W doorway equipment and Aut-O-Dor, the electric operator that always works.

R-W engineers can handle any and all problems of door hanging or control. In St. Louis, when the new Police Headquarters garage was completed, R-W engineers were called upon to solve the doorway problem.

R-W engineers installed R-W

industrial doorway equipment for four 9-foot high, 800-pound doors. Each door operates separately on ball bearing hangers. They are controlled electrically from three points and can be stopped instantly at any point. Delays and accidents are thus prevented.

Call upon R-W engineers at any time to help you solve difficult doorway problems. No door is too high, no opening is too wide, to be met by R-W equipment.



"Quality leaves its imprint"

Richards-Wilcox Mfg. Co.

A Hanger for any Door that Slides

New York AURORA, ILLINOIS, U.S.A. Chicago
 Boston Philadelphia Cleveland Cincinnati Indianapolis St. Louis New Orleans Des Moines
 Minneapolis Kansas City Atlanta Los Angeles San Francisco Omaha Seattle Detroit
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U. S. MINERAL WOOL

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*Keeps Heat and Cold
 Where They Belong*

Summer heat or winter cold are kept outside of homes protected with U. S. Mineral Wool. You are not only assured greater all-year-round indoor comfort but effect worthwhile savings in winter fuel as long as the building stands. U. S. Mineral Wool is all mineral, indestructible and sound-deadening. It saves the installation cost within a short period of time and keeps fuel upkeep expense at a minimum. It's sanitary, easily applied and inexpensive. Investigate it before you build—a properly insulated home has a far greater resale value. Free sample and illustrated booklet will be forwarded upon request.

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 IT

BOSTON BUILDERS SAY:— “Modern to the Minute”



A Noble & Nutting residence in this Company's big Newton Center, Mass., development.



Other attractive homes in the Noble & Nutting development at Newton Center, Mass.

In over 25 beautiful homes, ranging in price from \$50,000 to \$100,000, Noble & Nutting, Boston Investment Builders, have used Fenestra Fenwrought Casements since they started their big Newton, Mass., development. Mr. Nutting, in his letter shown opposite, gives the prime reasons for this choice, one of which is “Fenestra Casements help sell.” Today Newton Hills is one of the best known developments in Greater Boston. “Modern to the Minute” houses equipped with “Modern to the Minute” windows have SOLD as soon as completed.

Saving Money for Builders Everywhere

Their first cost is low — This is due to large production in many types and sizes by America's largest and oldest steel window manufacturer.

Installation costs reduced to the minimum — because these windows reach the job complete, already fitted, hinged, hung, painted, with bronze screens ready to attach. There's less labor on the job.

Interior trim costs eliminated — the builder can carry the plaster direct to the window frame, eliminating interior trim costs at both the head and the jambs. Weight boxes are not required.

For complete information call “Fenestra Steel Window Company” in your own city or write to —

DETROIT STEEL PRODUCTS COMPANY
2281 East Grand Boulevard, Detroit, Mich.

Factories: Detroit, Michigan, and Oakland, California
Convenient Warehouse Stocks

**NOBLE & NUTTING
CONSTRUCTION CO.**
Newton Center and Chester Hill,
Massachusetts

Gentlemen:

We use Fenestra Windows because they give our homes those essentials a modern home must have: appearance, convenience, permanence and style.

Style is very important. We build these homes to sell, and when we sell a customer a home for from \$50,000 to \$100,000, it must be “modern to the minute.” Fenestra Casements help us to create this impression. We like them very much.

Yours very truly,
Merrill C. Nutting.



Easily opened without touching the screen.



Screen easily removed when washing window.

Fenestra

Fenwrought Casements (Screened)

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



ROT *always starts around a Rusty Nail*

Once a nail rusts moisture gets in and rots the wood. And rust itself tends to rot wood. That's why a rusty nail is quickly followed by rot.

How often you see something like this. For the minute a nail starts to rust, water gets in and rots the wood. The only way it can be prevented is by using nails that won't rust.

The same with shingles and siding. No matter how good the shingles a **roof can't be better than the nails that hold it on.** If the nails rust and let the shingles become loose the roof is soon gone—even though the shingles may still be in perfect condition.



Permanently holds shingles, siding or any other out-door work.

REG. U.S. PAT. OFF.

RUST PROOF NAILS

There's a big difference in zinc coated nails. Some have only a thin "film" of zinc that can't do much good. Zinclid Nails are coated in the good old-fashioned way, *being entirely immersed in pure molten zinc.* That's why they are truly rust proof.

Many roofs put on 20, 30 and even 40 years ago—with Zinclid Nails — are as tight as the day they were laid.

Cost Very Little More

The extra cost is practically nil. For instance: On the average roof (house or barn) the additional cost for Zinclid Nails is only about \$1.50.



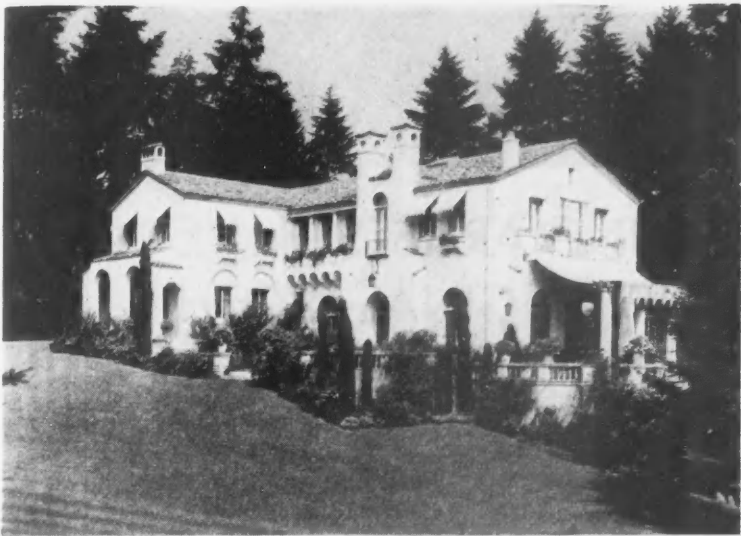
In Handy Cartons
Containing 5 lbs.—easy to take up on the roof.

Insist on using good shingles, or roofing, of course. You can't build a good roof without them. But also *insist on making the roof permanent* by using nails that won't rust.

Zinclid Nails are made in all commonly used sizes for Wood (cut or wire styles) Asbestos, Asphalt, or Metal Shingles, Roll or Corrugated Roofing or siding. Also for general outdoor construction work.

Sold by most Lumber and Building Material Dealers. WRITE us for a miniature carton of Zinclid Nails.

W. H. MAZE COMPANY, Peru, Illinois



Architect: Kirtland Cutter, Spokane, Wash.
General Contractor: Dawson & Dahlberg

HOW to Use White Portland Cement to Secure Beautiful Effects...

Builders who want to secure unusual, permanent and beautiful effects in their work should study the possibilities in Medusa White Portland Cement, either plain or waterproofed.

This Cement is used in homes of modest or elaborate design, public buildings, institutions—in fact, it has a place in any type of construction. The possibilities of Medusa White for striking effects are unlimited.

The Medusa White Portland Cement book shown below tells where to use Medusa White and how to use it to gain a tone of quality that attracts home owners and makes homes easy to sell. It gives the detailed specifications for stucco. It tells why this particular cement has no equal for setting and backing up marble, granite and stone work and laying up face or common brick with nonstaining mortar.



A copy of this useful and valuable book will be sent to any builder who sends in the coupon below.

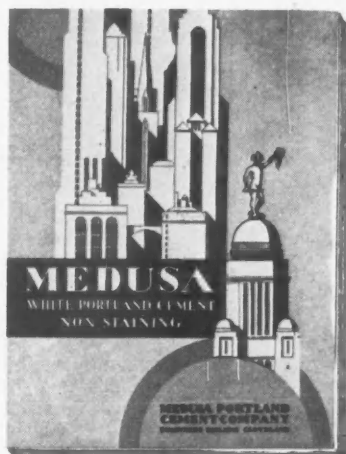


MEDUSA PORTLAND CEMENT CO.

1002 The Engineers' Building
Cleveland, Ohio

Manufacturer of

Medusa Gray Portland Cement (Plain and Waterproofed);
Medusa Waterproofing (Powder or Paste); Medusa
White Portland Cement (Plain and Waterproofed);
Medusa Portland Cement Paint and Medusa-Mix,
the Masonry Cement.



Medusa Portland Cement Company
1002 The Engineers' Bldg., Cleveland, Ohio

Gentlemen:

Please send us your booklet on the use of Medusa White Portland Cement.

Firm
Attention of
Address
City State

SEE WHAT LEADING ARTISTS HAVE DONE TO MAKE THE ORIGINAL CLOTH WALL COVERING MORE BEAUTIFUL THAN EVER.

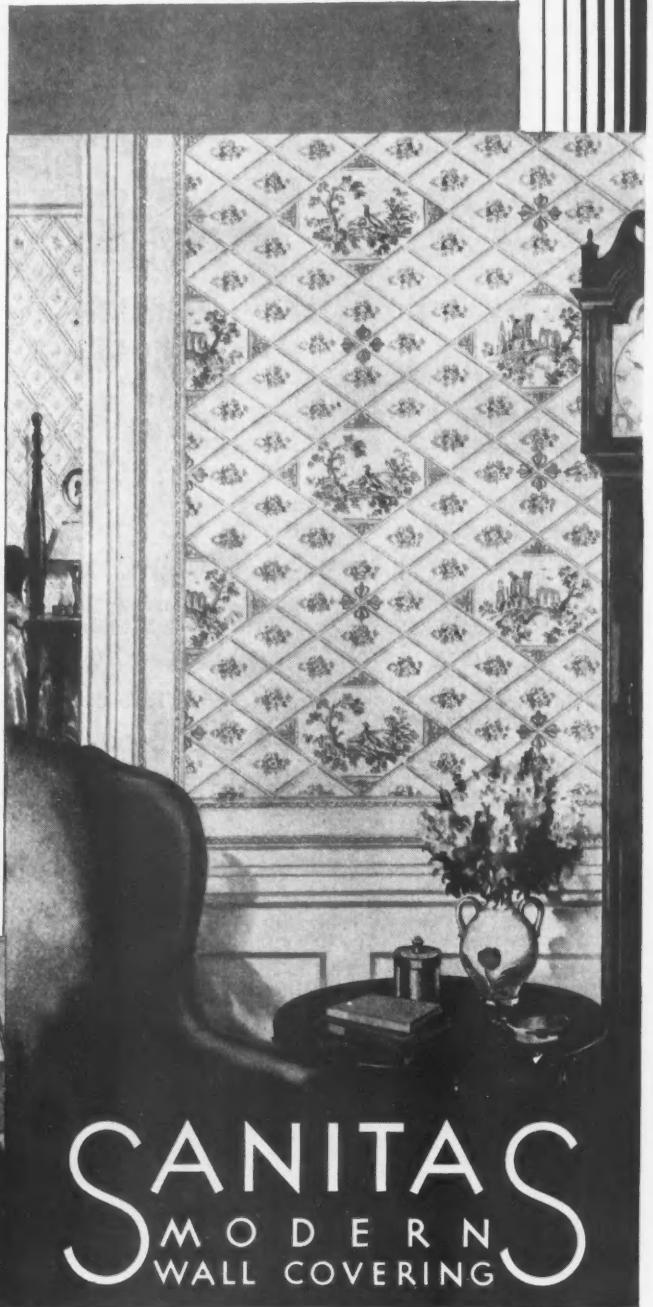
Twenty-five years ago, Sanitas was merely an experiment. Today, millions of homes, thousands of apartment houses and hundreds of hotels provide ample evidence that Sanitas is a success.

Sanitas has proved its practicability—doesn't fade, crack or tear. Easily cleaned with a damp cloth.

And now the Twenty-fifth Anniversary line of Sanitas is the talk of the trade—painters, decorators, builders and home-owners are enthusiastic about the designs and colorings. You'll never know how beautiful the new Sanitas styles are until you see them. Sanitas is nationally advertised in many of the leading publications reaching 15,000,000 homes.

THE STANDARD TEXTILE PRODUCTS CO.
320 Broadway Dept. 51 New York

Let your prospects select their Sanitas styles from the Twenty-fifth Anniversary Sanitas Sample Book



SANITAS

MODERN
WALL COVERING

Why are some builders "born lucky"?

DO you believe in luck? We do. But luck is made, not born. No man is "born lucky." There are no lucky stars. There are no talismans. We wish there were.

The man who is lucky has found out the secret for himself. What people call chance is usually something else. It is not chance at all. Chance is the most unreliable thing in the world.

Builders who seem "born lucky" because they always sell their houses at a profit are not "lucky" unless you define "luck" in selling as the ability to pick out and feature those important "little things" that impress people far beyond their cost.

It is one of these "little things"—hardware—that has helped many a keen-brained builder to easier sales. We know, because they have told us—and they have told us why. If you want to be lucky, here is one tip on selling houses that may help . . . "use Good Hardware—Corbin—throughout every house you build."

Why? The reason is simple. Corbin is famous for making good hardware. Yet using Corbin throughout a house adds only a fraction of 1% to your cost of building. Small as this is, many builders shy away from the stray fifty or a hundred dollars extra. They forget three things about Corbin hardware that have helped many a builder to be known as "lucky". These three things are:

FIRST: Your prospects cannot take a house apart piece by piece, to satisfy themselves that they are built of good materials. They must judge by externals. When you talk about the care with which one of your houses has been built and emphasize it by saying "For instance, look at the hardware. It is not cheap or flimsy. It is good hardware—Corbin—throughout", this "little thing" im-



presses people. It clinches your argument.

SECOND: By emphasizing the fact that you have been careful enough to put burglar-proof Corbin Cylinder Locks on *all* your ground floor doors, back and cellar as well as front, you strike another responsive chord in peoples' natures. You make them think

even more highly of your homes. You say, "What use is it to have a good lock on the front door and flimsy locks on the rear door and the cellar door? These are the places a thief tries first anyway. They are back in the dark, out of sight. Did you ever notice that the ordinary house is all dressed up with a good cylinder lock on its front door but has flimsy locks on the back doors?"

THIRD: You are in business to sell houses and keep on selling houses. If you put cheap hardware on the first ones in your development the purchasers will probably not notice the difference until after they have moved in. Then they discover doors whose locks fail to lock. Cupboards whose doors keep flying open. Windows that jerk or stick.

Do these owners kick? They do. Do they think your houses must be cheaply built? They do. Do they tell good prospects of yours about it? They do. These are the things that kill "luck".

Luck isn't born. It's made. Make some for yourself. Pick out and feature those "little things", like Corbin Hardware, that impress people far beyond their trifling extra cost.

P. & F. CORBIN SINCE 1849 NEW BRITAIN CONN., U. S. A.
The American Hardware Corp., Successor
New York Chicago Philadelphia

GOOD BUILDINGS DESERVE GOOD HARDWARE



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There are numerous reasons why so many builders prefer to use Genfire products. Immediate shipments from nearby warehouse stocks insure that your Genfire products arrive on your job when wanted. Secondly, they are easy to install, for they are fabricated in standard units and require little field labor. Thirdly, Genfire products are modern in design, and add immeasurably to the appearance of the building. Also, because they are nationally known and preferred, they reflect credit on the builder who uses them. Build quality into your job by relying on Genfire.

GENFIRE STEEL COMPANY
YOUNGSTOWN, OHIO

Warehouse locations indicated on map.
Offices in Principal Cities

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STANDARD STEEL CASEMENTS WITH SCREENS

PIVOTED STEEL WINDOWS

STEEL BASEMENT WINDOWS

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HERRINGBONE METAL LATH

WATERPROOFINGS

DUPLEX STEEL BRIDGING

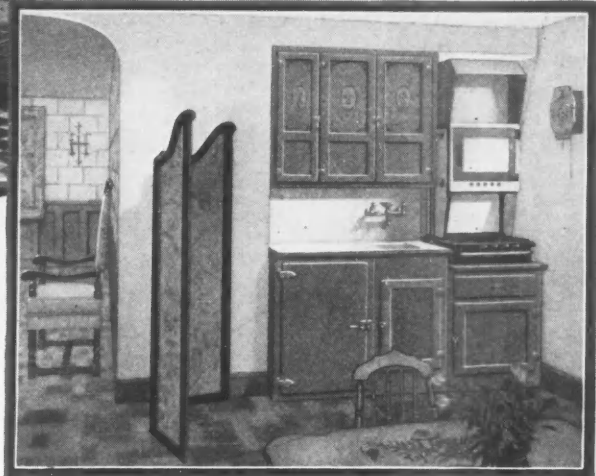
PRESSED STEEL LINTELS

UTILITY STEEL DOORS

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE



*For largest
or smallest
kitchens*



Your Best Prospect wants a modern kitchen

*See the Sellers extras offered in
convenience, sturdiness and beauty*

Sell the wife. She is the key to most home sales. Give her what she wants—a smart, convenient, modern kitchen.

Sellers built-in Kitchen Furniture Units offer exclusive labor-saving convenience found in no nailed-together job. Also colorful beauty, sturdy durability and the superb finish of the finest furniture.

Every prospect will prefer this modern nationally advertised equipment to the old-fashioned, nailed-together kitchen. And you can give it at no extra cost.

Sellers Units come beautifully finished ready to set in place. To install them, you merely tighten a few bolts and the job is completed. Over 60 units enable you to equip the largest or smallest kitchen without extra millwork.

You are in a Buyer's Market now. That changes selling conditions materially. The builder who gives the greatest values will sell the most houses in 1930. *Just remember that.* Sellers Kitchen Units enable you to give the greatest *kitchen* value—at no extra cost. Write today for full information on this modern kitchen equipment.

G. I. SELLERS & SONS CO.
Dept. A-3 Elwood, Indiana

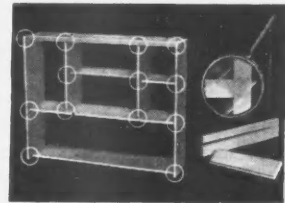
SELLERS

KITCHEN FURNITURE UNITS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

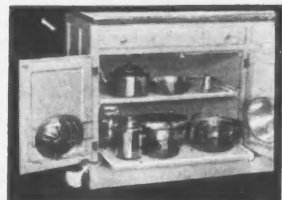
Furniture Construction

The Sellers wedged tenon dovetail joint is the strongest and most accurate of all wood joints. It is air-tight and dust-proof. Note how the tenon tapers its full length.



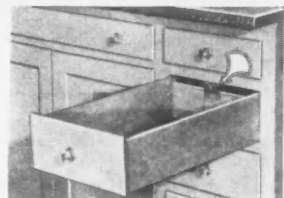
Convenience

Open the base door of Sellers master unit and the shelf *automatically* slides forward bringing pots and pans within easy reach. This is but one of its 15 famous features.



Non-Jamming Drawers

The patented Sellers 3-point suspension drawers insure free movement even in the wettest weather. A Sellers drawer can be opened or closed from any angle at a *touch of the finger*. Compare this with the heavy drawers in a nailed-together job that stick with every change in weather.



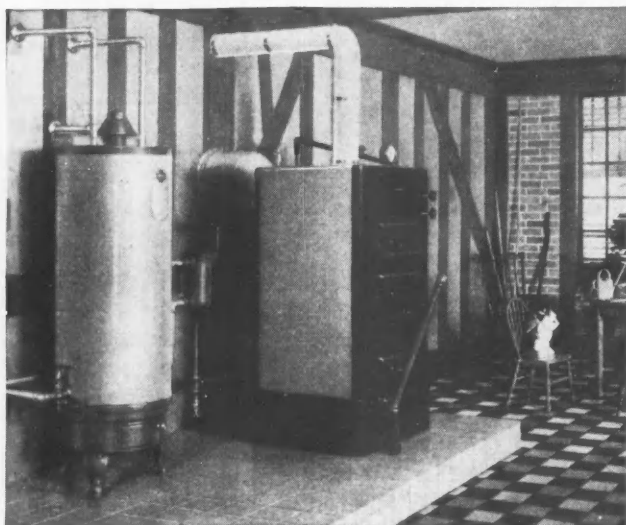
Beauty and Durability

Five coats including 3 enamel baked-on coats insure a beautiful satin finish which will withstand years of abuse. Colors: Jade Green, Ivory, Gray and White—all handsomely decorated.





THESE HOUSES SOLD QUICKLY *in spite of a dull market*



"IN spite of a dull real estate market," writes Louis Segal, the builder of these houses, "they have sold well." In each one is an "All-American" heating system including a Redflash Boiler, Corto Radiators and Hotcoil Gas Water Heaters. "In supporting your products," he continues, "Mr. Picker, our heating contractor has met with our ideas too that the appeal of your products makes homes more salable."

Here is another example of how the "All-American" job makes houses sell easier and faster.

We have a number of the signs shown above on hand and we will be very glad to send you one if you will write us.

AMERICAN RADIATOR COMPANY

40 WEST 40TH STREET, NEW YORK

Division of

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

You can make a sales point
of the roof, *when it's topped with these*
Colorful Carey Shingles!



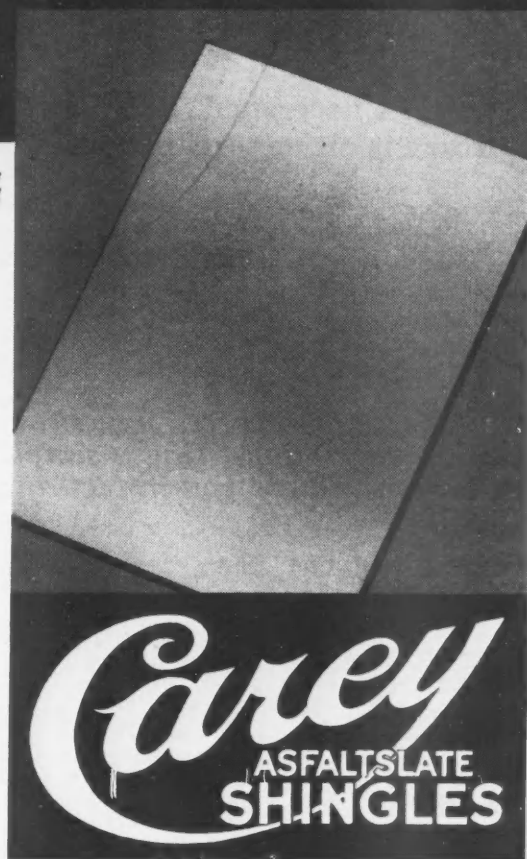
Two beautiful residences in Morningside, fashionable suburb of Atlanta, erected for the market by Thomas K. Windham, Inc., well-known Southern builders. Both are roofed with Carey color-blend Asphaltslate Shingles, in the super-shadow-line size.

Roof your fine residences with Carey Asphaltslate Shingles and you'll give home buyers just what home buyers want. Color! Color over the top!

For Nature's softest hues and shades are blended into these oversize shingles—blended by Carey's own experts in home harmony. Spanish and Indian Reds, Golden and Chocolate Browns, Carey Silver Green, Blue-Blacks and Delft Blues—any number of eye-pleasing color combinations.

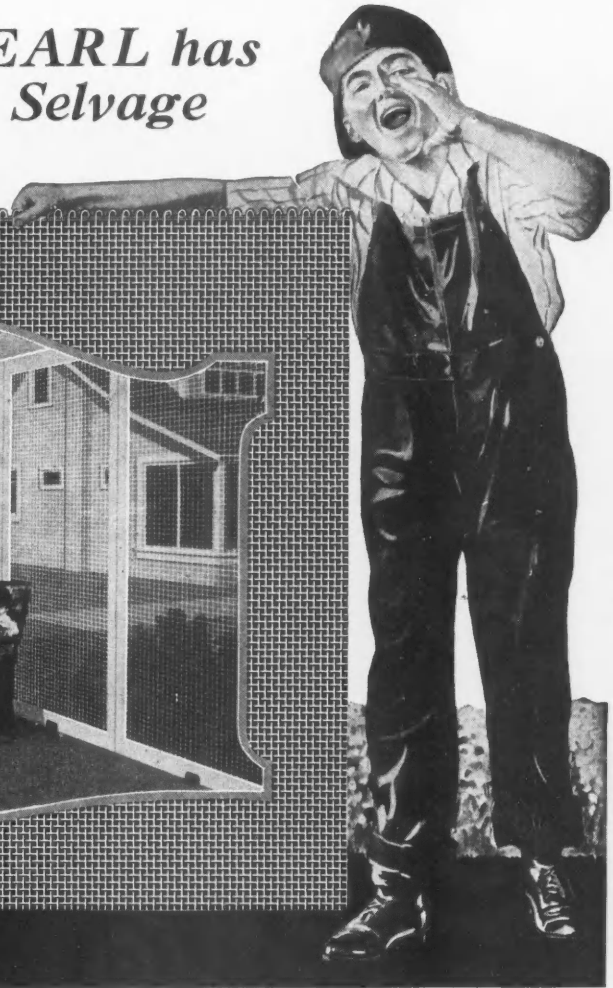
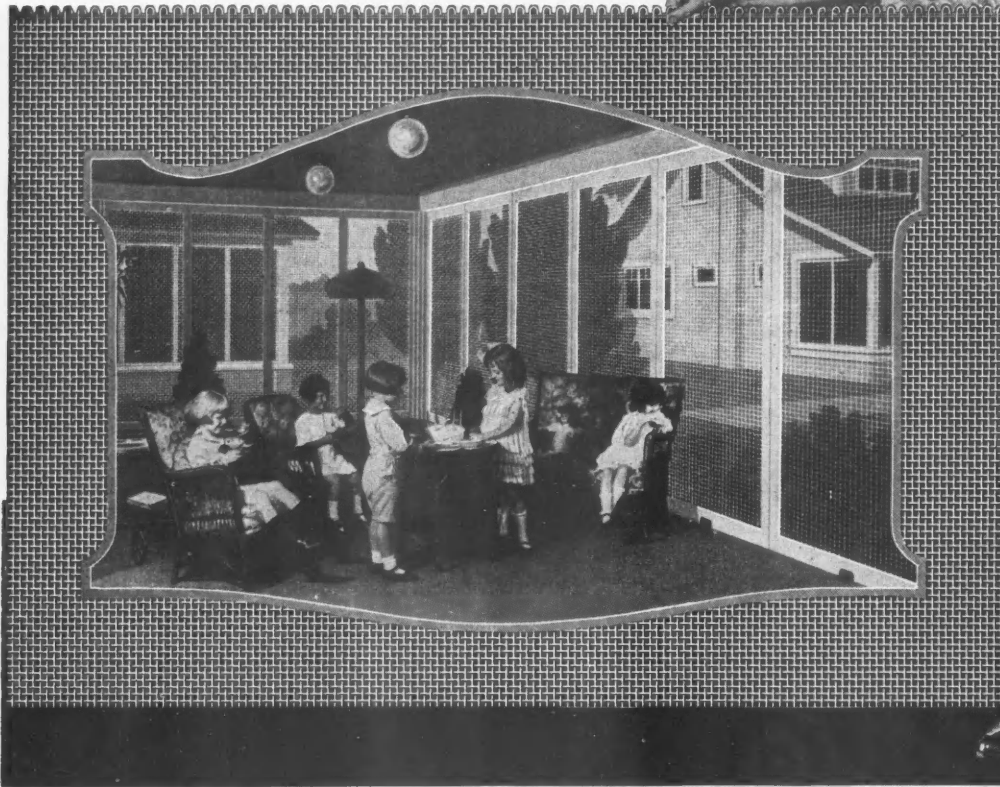
And you'll have lots more than color to talk about when you roof with Carey Asphaltslate Shingles! They are time-resisting, weather-proof, highly fire-retardant. They're *stay-put* shingles, too—once on, they're on for a long, long time. Certainly you'll want samples and details.

THE PHILIP CAREY COMPANY
Lockland, CINCINNATI, OHIO



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

*Make sure! Genuine PEARL has
2 Copper Wires in the Selvage*



Profit with "Pearl" NOW!

Every Unscreened Porch — Every Rusted Porch and Every New Home is an opportunity for you to Make Money Screening Porches

Home owners prefer PEARL wire cloth because of its beauty and durability. PEARL is highly rust-resisting—made so by a process exclusive with us. No competitor can use this process, consequently no imitation of PEARL can be "just as good."

Clean, Sanitary, Easy on the Eyes, firmly woven so as to make no-bag, no sag screens, requiring no painting, PEARL is the most economical, as well as the most handsome screen wire cloth on the market today. Outwears Galvanized Wire Cloth several times.

SEND FOR PORCH PLAN NOW!

SHOW these prospects how simple and economically porch screens can be installed. Submitting a simple floor plan showing portable screen panel construction will aid you in securing more business.

We have a dealer in your town. See him or write us if you are interested in permanently screening doors, windows or porches. Samples and literature FREE.

Address Dept. "A"

The Gilbert & Bennett Mfg. Co.

New York Georgetown, Conn. Chicago Kansas City

*PEARL is made in Regular Grade [12 x 13 Mesh] and 14, 16, 18, 20, 24 and 30 Mesh, also Extra Heavy Grade [14 Mesh only]
The best hardware dealer in your city sells "PEARL"*

MAIL THIS COUPON

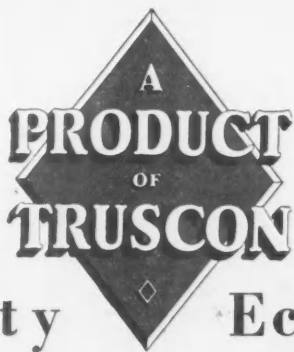
The Gilbert & Bennett Mfg. Co.
Dept. "A"—Box 760
CHICAGO, ILL.

Gentlemen:

Please send complete information on PEARL WIRE CLOTH and PLAN for screening porches to

NAME.....
STREET.....
CITY.....STATE.....





Quality Economy
FOR EVERY BUILDING

The use of Truscon Steel Building Products not only assures the highest quality of finished results but enables contractors to do the job in quicker time and at lower cost. The complete line of Truscon Products has been developed by over a quarter-

century of practical experience to meet every requirement of permanent construction. Their superior quality and many distinctive features have earned them preference among architects, owners and contractors.

Write for quotations, suggestions and catalogs

**TRUSCON STEEL COMPANY
 YOUNGSTOWN, OHIO**

Truscon Steel Company of Canada, Limited, Walkerville, Ontario

Warehouses and Offices in all Principal Cities



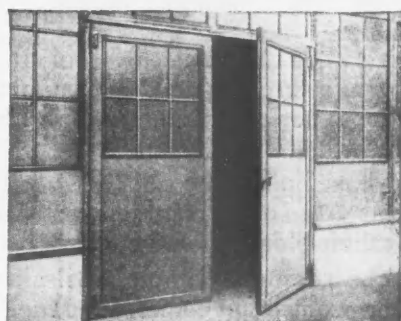
TRUSCON STEEL CASEMENTS
 add charm and distinction to the modern home



TRUSCON STEELDECK ROOFS
 fireproof, light in weight, insulated to any degree, economical



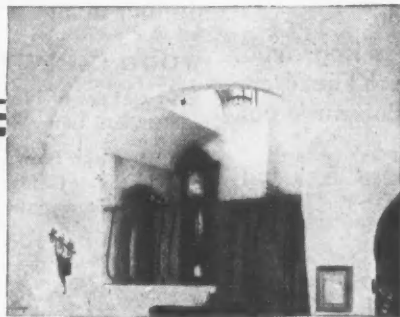
TRUSCON STEEL JOISTS
 for permanent floor construction, quickly erected at low cost



TRUSCON STEEL DOORS
 for industrial buildings, service entrances, garages, etc.

OTHER TRUSCON PRODUCTS

REINFORCING STEEL for concrete, all types of STEEL WINDOWS and DOORS, STANDARDIZED STEEL BUILDINGS, STEEL DOOR FRAME and TRIM, CONCRETE ROAD REINFORCING.



TRUSCON METAL LATH
 for plastered walls and ceilings, prevents cracks and stops fires

OTHER TRUSCON PRODUCTS

WELTRUS STEEL POLES and TRANSMISSION STRUCTURES, STEEL BOXES, SKID PLATFORMS and FACTORY TRUCKS, FOUNDRY FLASKS and PRESSED STEEL, WATERPROOFING and MAINTENANCE PRODUCTS



8 NEW IMPROVEMENTS

1. *Flexlined*—new heavy waterproofed Kraft paper liners are creped, capable of 25 per cent stretch and virtually puncture-proof.
2. Increased flexibility, toughness and strength—easier to "tuck in."
3. Creped paper insures better and stronger bond between liner and wool mat.
4. All 17" and 25" material increased $\frac{1}{4}$ " in width to make application easier.
5. Trade-marked every six feet for sure identification—the stamp of quality.
6. All 17" and 25" widths ruled and scored for quick and easy flanging between framing members.
7. A measuring mark every foot length, simplifies measuring.
8. New convenient package-opening device. Quickly opened at the pull of the tape.

*It answers in your favor....
all questions of quality—this*

True insulation

BUILDING Balsam-Wool into your houses is the safe sure way to hold customer confidence. That is the experience builders report from all parts of the country.

Those building to sell find Balsam-Wool helps close deals. Men doing contract work find it a factor in making their bids preferred against price competition.

The reason is simple. Balsam-Wool makes good your promises of comfort and fuel economy. Because it is thick, *flexible*, efficient it permits you to insulate the right way. It protects your reputation.

This year Balsam-Wool is still further improved. The sheets are wider, easier to *tuck in*. There are tougher, *creped* Kraft liners on the new Balsam-Wool. It is practically puncture-proof.

There are other important improvements. You will find them listed above.

For still another reason builders choose this true insulation. The Saturday Evening Post and 14 other big national magazines carry powerful advertisements throughout the year. Some of the 39,000,000 people who get these magazines live in your community. They are your prospects. Each of these advertisements is an endorsement of your judgment when you recommend Balsam-Wool.

Let Balsam-Wool go to work for you on every job you do. See the new improved Balsam-Wool at your lumber dealer's. He'll gladly give you all the facts.

WOOD CONVERSION COMPANY, Cloquet, Minnesota
Also makers of Nu-Wood—the All Wood Insulating Wall Board and Lath. Sold only through retail Lumber Dealers

Branch Offices: New York, 3107 Chanin Bldg.—Detroit, 515 Stephenson Bldg.—Chicago, 360 N. Michigan—Kansas City, 231 W. 47th St.—Minneapolis, 414 Baker Bldg.—Seattle, 621 Liggett Bldg.



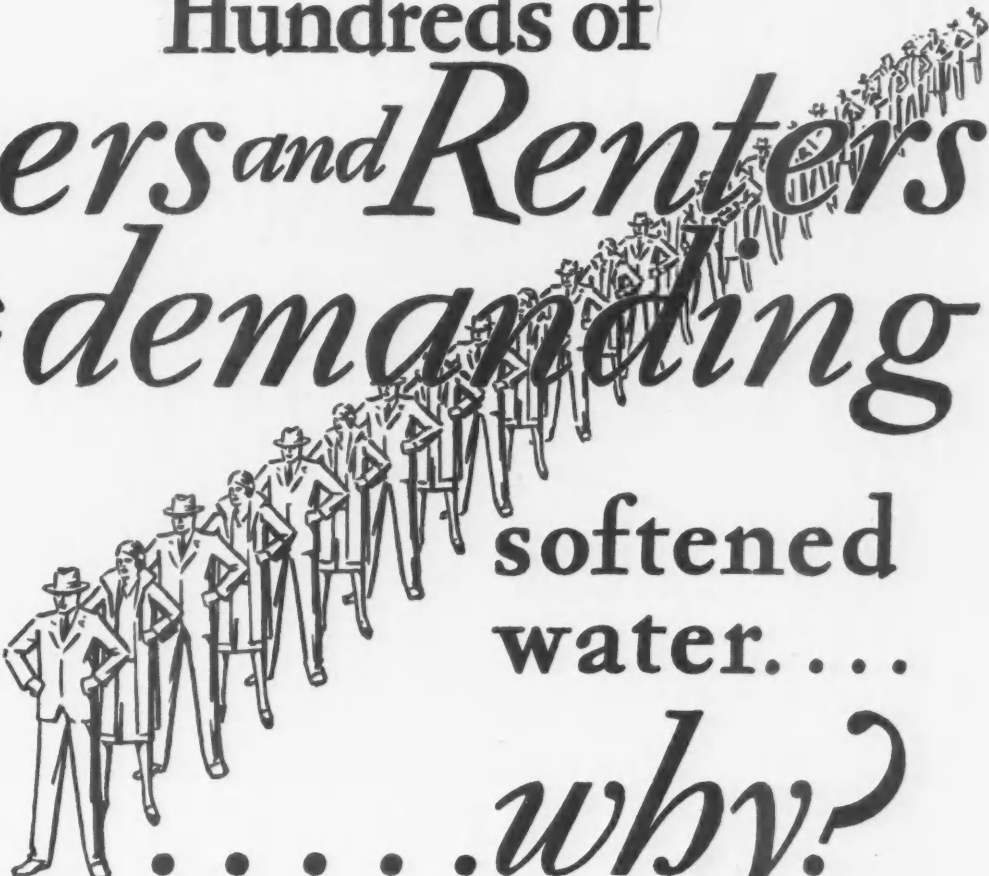
A guaranteed
Weyerhaeuser
product

Balsam-Wool Blanket

THICK... FLEXIBLE INSULATION... EFFICIENT

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

Hundreds of Buyers and Renters are demanding softened water.... why?




**VITREOUS
PORCELAIN FINISH**
Duro Convertible
Water Softeners are
finished inside and out-
side in Vitreous Porce-
lain fused on Armeo
Ingot Iron—the most
lasting material known
to science — non-cor-
roding and non-rust-
ing.

BECAUSE home buyers and renters are unwilling to tolerate disagreeable hard city water when pure softened city water can be had at little cost. Because they know hard water not only means hard work, rough, red skin and gummy hair, but it also ruins clothing, linens and dainty pieces and forms scale in pipes, causing plumbing repairs.

In your homes the Duro Convertible Water Softener saves toil, time, clothes, soap, plumbing repairs, and protects the health of every member of the family. It supplies pure softened water for all household cleaning purposes, cooking, drinking, bathing, and the laundry. No other household convenience is so appreciated by the home buyer or renter.

The Duro Convertible idea appeals especially to builders. You can install the marvelous Duro Convertible Softener in modest homes or in the highest priced homes. In your lower priced homes install the semi-automatic Duro Convertible Softener. Later on, at any time, it can be converted into a Remote Control or a Full Automatic Softener simply by adding the proper regenerating control unit. In your highest type of home install the ultimate in water softening plants—the Duro Full Automatic Softener.

Write for catalog describing fully the remarkable line of Duro Convertible Water Softeners.

THE DURO COMPANY

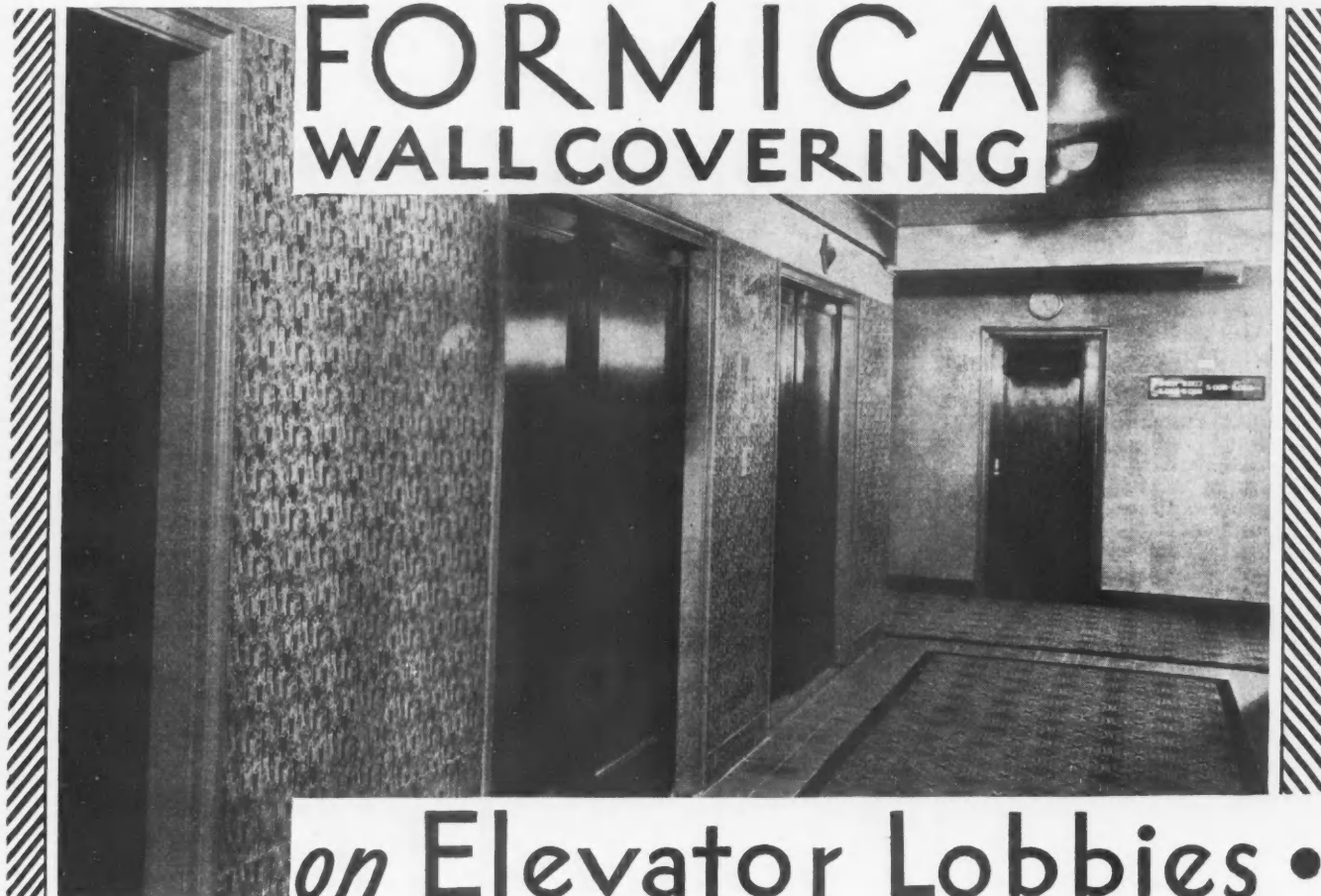
103 Monument Ave.

Dayton, Ohio

DURO

Convertible Water Softeners

FORMICA WALL COVERING



on Elevator Lobbies •

... *T*HE fact that Formica does not stain or discolor, and is easily cleaned with almost any kind of cleaning solution . . . has made it very popular for plates around elevator push buttons and in similar places.

The owners of the St. George Hotel . . . after having used Formica for a long time for many purposes . . . developed that idea still further. They covered the entire wall of the elevator lobby around the elevator doors with Formica No. 3 finish.

This adds a very attractive touch of color . . . and makes it easy to keep the walls looking clean and fresh. The material is also used for tops on bedroom furniture throughout this large new hotel, and for wall coverings in several of the restaurants.

Write for samples and literature

THE FORMICA INSULATION COMPANY
4660 Spring Grove Avenue - - CINCINNATI, OHIO

FORMICA
FOR FURNITURE & FIXTURES

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE



Why is the Red Cap better for oil heating?

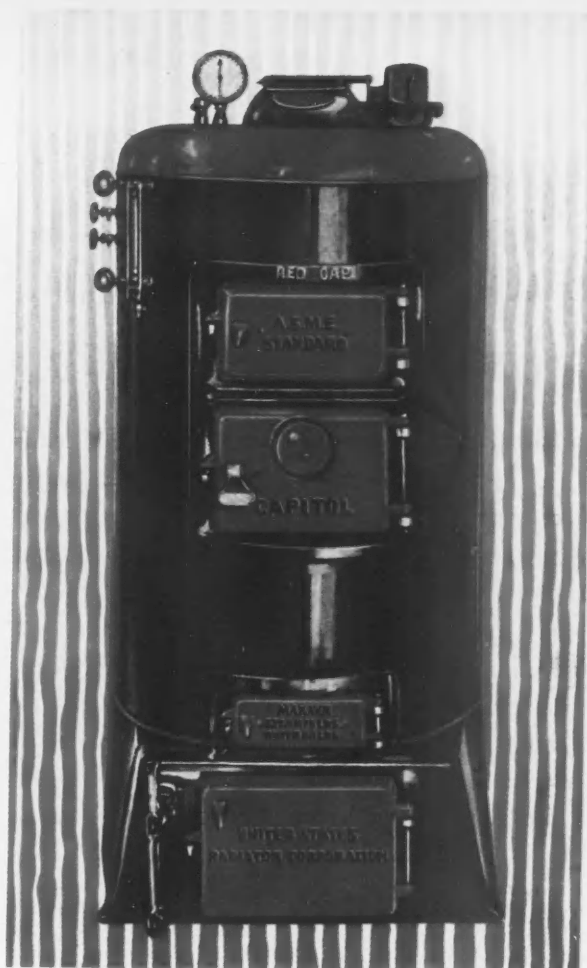
. . . Let us ask you another . . .

Why is a truly great race horse better on any kind of track? Because his breeding and stamina and speed will tell, whether the going underfoot is fast or heavy.

In exactly the same way, the truly fine *Capitol Red Cap* proves its heating qualities, no matter what the fuel. Capitol engineers have designed it to permit easy installation of any type of oil burner. They have given it the plentiful combustion space, the long fire travel, important with coal or coke and especially important with oil. But primarily, the *Red Cap* is better for oil burning because it is a better boiler. Every advantage

that it has with coal is present equally or magnified with oil. Whether coal or oil is burned, it saves fuel, heats rapidly, has ample reserve power, and operates easily.

Actual experience of home-owners burning oil in the *Capitol Red Cap*, *Red Top*, and *Red Head*, as well as Capitol unjacketed boilers, proves their merit. A check of Capitol boilers recently installed shows a remarkable percentage being fired with oil. Whatever the fuel chosen to serve them, Capitol boilers and radiators give a new pinnacle of modern heating that delights home buyers. Why not let these materials help you sell houses? Write us for the valuable book, "A Modern House Warming."



**The Capitol
Red Cap**

Because it embodies every improvement known in round boilers, it is a good boiler to use with oil or any other fuel. A staunch jacket of baked enamel is in red and blue. A thick blanket of rock wool, the finest obtainable, suggests its quality in every particular.

UNITED STATES RADIATOR CORPORATION - DETROIT, MICHIGAN

8 Factories and 35 Assembling Plants Serve the Country—For 40 years builders of dependable heating equipment

THE PACIFIC STEEL BOILER CORPORATION—Division of the United States Radiator Corporation, builds welded steel heating boilers for large installations—business buildings, factories, schools, hotels, and large apartments.

© 1930. U. S. R. Corp

Guaranteed Heating WITH
Capitol Boilers
AND RADIATORS

ASK NEC

NO matter what you need in building equipment — concrete mixers, tilting or non-tilting, mortar mixers, pumps, saw rigs, hoists, bar benders, cutters, mast hoists, etc. . . . just tell your needs to N. E. C. — because in this one line, with National service behind it, you'll find type and price-range to meet your need! If you don't know exactly what you want, here's the place to look first! Every N.E.C. line is a famous line, perfected from years of leadership experience!

KOEHRING
Pavers, Mixers; Power Shovels,
Pull Shovels, Cranes, Draglines;
Dumpsters.

INSLEY
Excavators; Concrete Placing
Equipment.

T. L. SMITH
Tilting and Non-tilting Mixers,
Pavers, Weigh-Mix.

PARSONS
Trench Excavators, Backfillers.

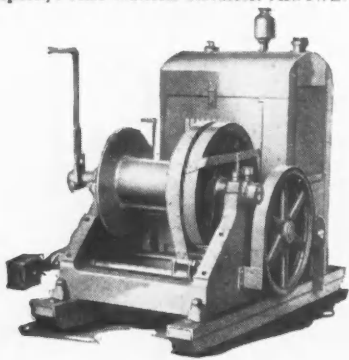
C. H. & E.
Portable Saw Rigs, Pumps,
Hoists, Material Elevators.

KWIK-MIX
Mixers: Concrete, Plaster
and Mortar.



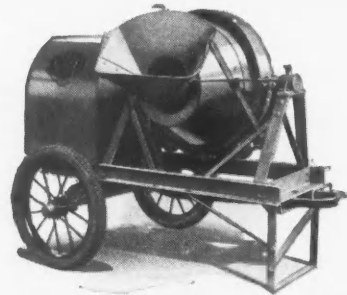
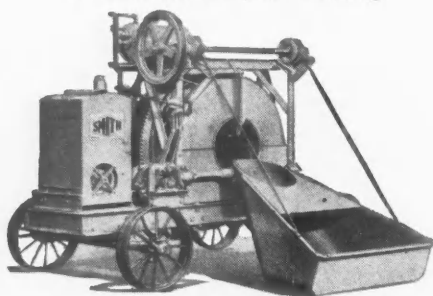
C. H. & E. No. 19 Hoist

Right priced unit. Single-acting one-way hoist. No. 20 reversible, direct gear drive — 4 and 8 H. P. National Equipment line of C. H. & E. hoist meets every demand for hoists of every capacity! Also material elevators. Ask N.E.C.



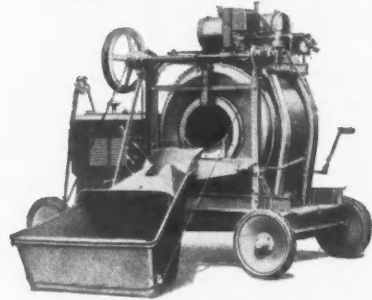
Smith Non-tilting Mixer 7-S

Big liberal drum openings permit wide skip throats and wide discharge chutes which mean fast charging and discharging! Wide, roomy high-speed charging skip! Paver type — drum crosswise of frame, and distributing spout! Automatic water measuring tank! Auxiliary water pump when city system is unavailable! Wide feed chute or power charging-skip! Steel wheels or rubber tires! Ask N. E. C. for Smith Non-tilting Mixer Catalog.



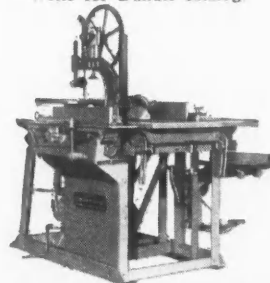
Smith 2 1/2-S and 3 1/2-S Tilters

Short swing of drum means fast discharge! Big wide feed chute, only waist-high, saves your back and means fast charging. Smith end-to-center mixing action delivers uniform quality concrete! 3 1/2-S may be equipped with power charging skip, steel or rubber tires; water tank.



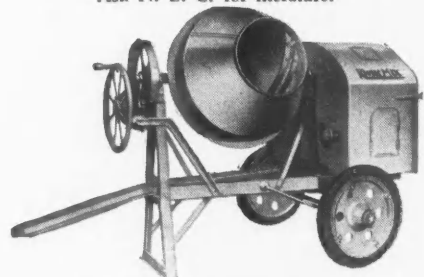
Koehring Dandie

The famous Koehring Dandie — handy, long-service quality mixer. Worm gear drive enclosed in oil bath, charging skip low enough for wheelbarrows without runway! Folding steel platform, wide batch hopper, hoist! Batchmeter, automatic water measuring tank. Write for Dandie catalog.



C. H. & E. Saw Rigs

Home Builder's Saw Rig (illustrated) with rip and cross cut saws; band saw, jointer and boring attachments; gasoline or electric power, built in and under table. Other C. H. & E. Saw Rigs for every need; also pumps, hoists, material elevators. Ask N. E. C. for literature.



Kwik-Mix 3 1/2-S

Low-cost outfit for smaller work. All roller bearings! Big drum openings for fast charging and discharging! Easy, fast-tilting, automatic drum return! Ask N. E. C. for Kwik-Mix Catalog.

National Equipment Corporation

30th St. & Concordia Ave.
Milwaukee, Wisconsin

A5697-1

Sargent's New Door Closer

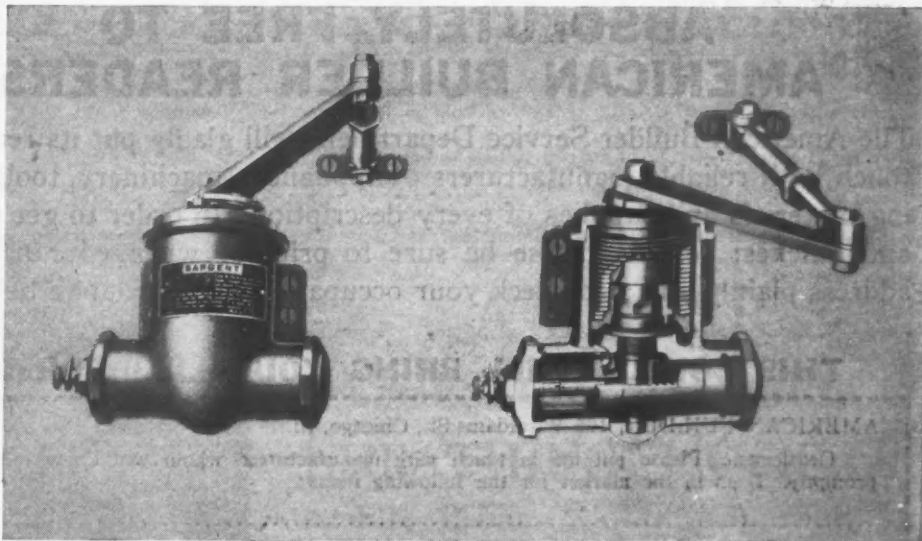
with all those features needed in the most modern buildings

SARGENT DOOR CLOSERS have been recognized for many years as standards of quality, dependable in effective operation. Now, to meet the latest requirements of the most progressive architects, engineers, building managers, owners, Sargent offers a new modern Door Closer or Controller.

Extensive research and experiment have resulted in the noiseless and complete control of the closing of any swinging door at the desired rate of speed. This new Sargent Door Closer is made in sizes suitable for all doors, from the simple passage dwelling door to the heavy entrance doors of the most modern commercial structures.

The control valve, of dual type, may be set for any one of three control points, 90, 45, or 10 degrees. The speed valve regulates the speed of closing and can be readily adjusted for changing draft conditions. This Door Closer offers the greatest possibilities of control. In order that the door may not strike against a wall or a piece of furniture, a valve is provided to stop the opening at about 90 degrees.

This Door Closer is reversible, right or left hand, without changing any of its parts and without affecting any of its other efficient features. Each Sargent Door Closer is packed in a strong fiber box without excelsior or other loose packing. To make application and adjustment simple, a template and complete directions are packed with each Closer. Read the other feature points as listed. Sargent & Company, 51 Water Street, New Haven, Connecticut.



SARGENT

LOCKS AND HARDWARE

- 1 **CASE**—Spring and piston chamber in relative size give a pleasing, symmetrical appearance. The back plate is cast solid with the case. No screws to work loose. No undue strain on any one part.
- 2 **SPRINGS**—Highly tempered manganese carbon steel wire, wound in a helical coil. From 130" in length for the smallest size to 184" for the largest. Great elasticity, with fine graduations of power adjustment are obtained.
- 3 **PISTON**—Of cast metal of high tensile strength. Of the Rack and Pinion type, giving a balanced wear and a continuous travel when the door is in motion. The piston is always in constant control. Of large diameter, it is machined with the case to a tolerance of 1/1000 of an inch—smooth and effective operation is guaranteed.
- 4 **ARMS**—Of cold rolled steel without swivel adjustments. Adjustments can be made without loosening the arm from the Closer or removing the screws from the foot of the arm. Arms are of extra length—to permit Closer to be placed further from the butts, still allowing the door to open the full 180 degrees without strain.
- 5 **HOLD OPEN DEVICE**—A door may be held open at 10, 45, 90 or 180 degrees as convenience requires, and without strain on the Closer or butts. The pawl on the arm engages with projections on the cap of the Closer. All unusual requirements are met for hospital, school, booth, office doors.
- 6 **SPINDLE AND PACKING**—Spindle and pinion are in one piece of hot forged alloy steel. The spindle is strongly seated in a bearing in the bottom of the case and held in alignment at 4 points. The piston chamber has enough overflow space to relieve the spindle packing from excessive strain.
- 7 **LIQUID**—Piston chambers are filled with a liquid that long experience has proved most satisfactory.
- 8 **BRACKETS**—When desirable to place the Closer inside where doors open out, the usual soffit, flush and corner, hanging brackets, and also 4 convenient brackets for circular top doors are designed to care for a great range of varying conditions.
- 9 **FINISH AND COLOR**—Standard finish is dark, rich bronze to harmonize with various wood finishes. Other finishes can be furnished as desired.

KEEP YOUR CATALOG FILE UP-TO-DATE

New appliances, materials, machinery and equipment are constantly being brought out and perfected by manufacturers. Your file should contain the latest catalogs of these articles. When a client asks you about some new improvement—you have the information at your finger tips. Perhaps you contemplate enlarging your scope of activity—your catalog file will contain suggestions as to the machinery or equipment best suited to your needs.



What Information Do You Need? American Builder Will Get It For You

If you are interested in power shop equipment, heating systems, plumbing supplies, water supply systems, lighting systems, elevators, school or church or theatre equipment, farm building equipment, building hardware, home conveniences or anything that is used in constructing or equipping any kind of building—the American Builder will help you get all information. Just send the coupon below telling us in what you are interested.

ABSOLUTELY FREE TO AMERICAN BUILDER READERS

The American Builder Service Department will gladly put its readers in touch with reliable manufacturers of appliances, machinery, tools, building materials and supplies of every description. In order to get the best and quickest results, please be sure to print or write your name and address plainly and also check your occupation in the coupon below.



THIS COUPON WILL BRING YOU ALL INFORMATION

AMERICAN BUILDER, 105 W. Adams St., Chicago, Ill. MAR.

Gentlemen: Please put me in touch with manufacturers whom you know to be reliable and can furnish goods promptly. I am in the market for the following items:

.....

.....

Name.....

Address.....

Please check your occupation. Building Contractor Dealer in Building Materials Prospective Home Builder Architect

.....

A SMILE AS YOUR UMBRELLA IS BETTER THAN A LEAKING ROOF



Many a roof in your community needs attention this spring. Whether the house be new or old, it deserves a lasting roof—one that will protect against fire and weather; one that needs no painting or repairs; one that is not too costly for the average home owner.

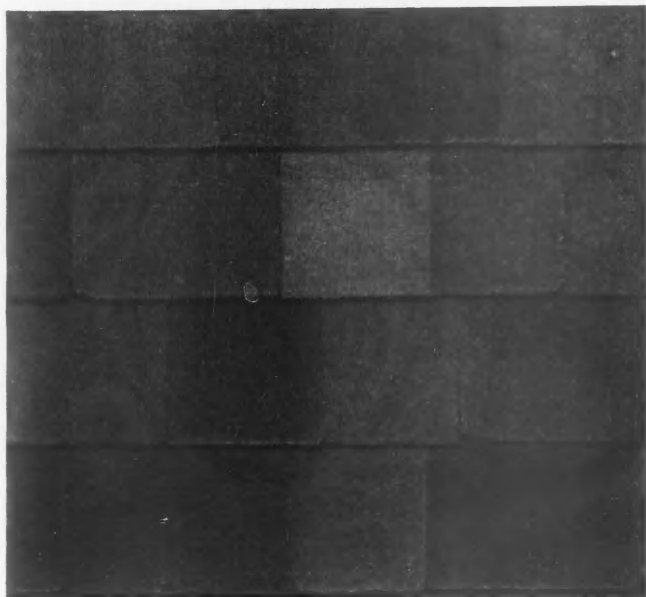
Ambler Asbestos Shingles provide such a material. An Ambler Roof means satisfaction for your customer and costs you no more to lay.

Above all - lasting protection

This slogan headlines Ambler's 1930 advertising to consumers. You can profit by it.

The section of roof at the left is our new "Rustic Blend" which, in colors, presents a delightful blend of purplish browns. This is the No. 90 Colonial Tapered that meets price competition.

Use the Coupon below for full information.



AMBLER ASBESTOS SHINGLE & SHEATHING COMPANY

Ambler, Penna. - - St. Louis, Mo.

Gentlemen:1930
 Please send me data on the Ambler Asbestos Products
 checked below:
 Shingles. Linabestos. Waltile.
 Name
 Street
 City AB-3

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

FORESTBLEND FACE BRICK IS PERMANENTLY BEAUTIFUL



THE CONTRACTOR *who builds for resale*

The dwelling shown above was built in a large mid-western city for resale. It was sold quickly and at a profit. Its very convenient floor plan had a lot to do with this. The Forestblend face brick walls helped a great deal, too.

As a practical contractor you know the selling advantages of an impressive exterior. Forestblend face brick can assist you materially in this respect. This face brick has an exceptionally wide color range and a unique texture secured by a patented method of manufacture. Its advantages are further enhanced by the fact that mixed carloads are shipped without extra charge. You can vary the mix to suit your requirements.

The house shown above is one of the forty-five illustrated in "Beauty in Brick" the Forestblend plan book of model homes. Send for this book, it's a great selling help. The cost is only fifty cents.



The Finzer Bros.
Clay Co., Dept. E.,
Sugarcreek, Ohio

Gentlemen:

Enclosed find fifty cents. Kindly send me your Plan Book "Beauty in Brick".

Name.....

Address.....

City.....

THE FINZER BROTHERS CLAY CO.

Members of the American Face Brick Association

SUGARCREEK

--

--

OHIO

Forestblend
FINZER FACE BRICK
Trade Mark Registered

ILG AIR
Electric Ventilator
 -- no kitchen is truly
 modern without it --



... If there is any single feature that identifies a home or apartment as being thoughtfully planned, well built, and completely modern, it is the Ilgair Electric Ventilator.

... Here is one electrical device that has become a standard specification in up to date building construction everywhere. Enthusiastically proved by housewives because it solves the problem of removing cooking odors, and greasy fumes, and makes for a cleaner, cheerier home.

... When you buy or specify an Ilgair you choose the only electric ventilator made with a *fully enclosed, self-cooled motor*. It is made, tested, sold and guaranteed as a complete unit. It's painted green. Clip, sign and mail coupon for illustrated booklet.

ILG ELECTRIC VENTILATING CO.

Manufacturers of Electric Ventilators — Blowers — Unit Heaters
 2852 N. Crawford Ave., Chicago, Ill.

*new
 book*

— of special interest to
 architects, contractors,
 builders.

ILG ELECTRIC VENTILATING CO.

2852 No. Crawford Ave., Chicago, Ill.
 Without obligation send me the Ilgair
 book.

Name _____

Full Address _____

TRADE MARK
ILG
MARK

HIGH EFFICIENCY
 VENTILATING MACHINE

Ventilation

FOR OFFICES, FACTORIES,
 STORES, RESTAURANTS,
 THEATRES, HOMES, PUBLIC
 BUILDINGS, ETC.

Reg.
 U. S. Pat. Off.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



It takes **THREE** *to make a deal*

CONFIDENCE" is the phantom aide that stands at the buyer's elbow when he signs on the dotted line. You make no sale alone. It takes three to strike a bargain—you, the buyer and confidence.

Holland Vaporaire Heating is deep in the public's favor. People everywhere know that this modern heating, cooling and air-conditioning system guarantees lifetime comfort and satisfaction. Among these warm friends, their acquaintances and

neighbors, are countless prospective home buyers—people whose confidence you can win and justify by installing Holland Vaporaire Heating in the homes you build.

A Holland in the basement is one of the greatest sales inducements a builder can offer. Let us tell you how Holland cooperates with builders, supplying live leads that can be turned into sales. Call the local Holland branch. Get the facts. Investigate without obligating yourself.



HOLLAND VAPORAIRE

The electrically controlled air conditioning system for winter heating and summer cooling

THE HOLLAND FURNACE CO., HOLLAND, MICHIGAN



USE THIS COUPON

HOLLAND MEN KNOW WHO PLANS TO BUILD OR BUY IN YOUR NEIGHBORHOOD
Get the facts. There's no obligation.

HOLLAND FURNACE COMPANY, HOLLAND, MICHIGAN
 Without obligation on my part, please have a Holland man call. Send me literature.

Name _____ Address _____
City _____ State _____

AR-1

for
\$169
 NET CASH
 F.O.B. COLUMBUS

only Jaeger
 could build
 the **HANDY**
3½S Trailer!

Any Car Trails It!



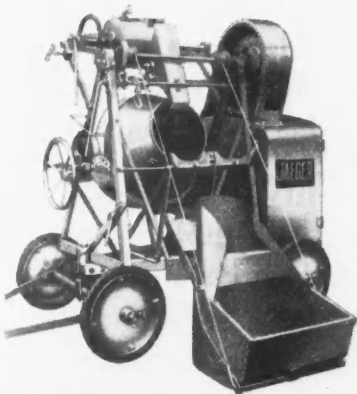
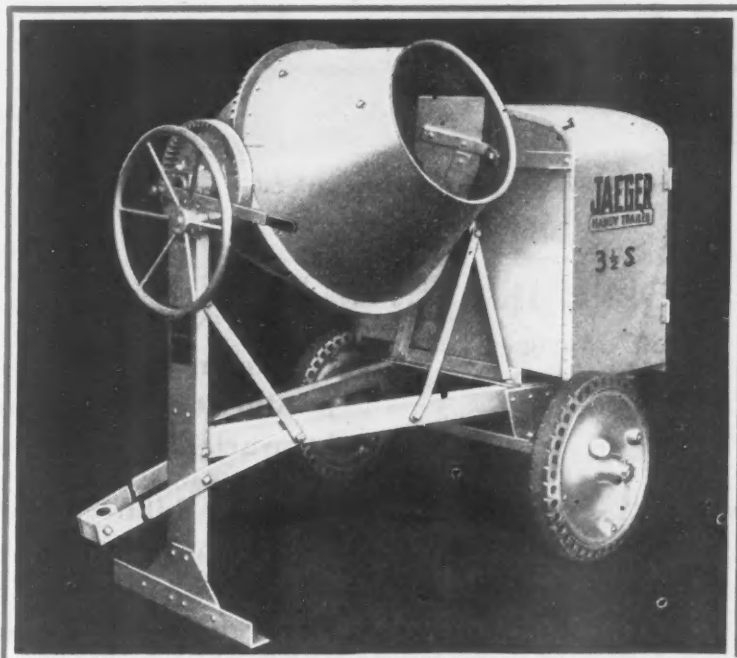
1 Man Lifts and
 Handles It!

2 H. P.
 F. & J.
 Engine

HERE'S what the biggest mixer company can do when it sets itself to give you "Value"!

It's an all-steel, all-purpose mixer, with roller bearing wheels and husky power plant, good for its 35 cu. yds. a day...it's priced at bed-rock bottom...and it's 100% Jaeger, with "Flat Spot" drum, 5 second discharge and the "stuff" built into it that keeps Jaeger on top of the world in sales.

Our 1930 catalog and prices are news. Get them!



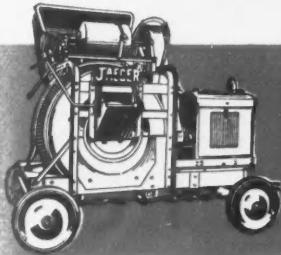
Skip Shaker Loader Gets You 30 to 40 Extra Batches a Day...with Same Crew

You'll get the top limit of half-bag speed with this outfit...and without straining. While one batch is mixed and discharged, the loader is filling for the next. All-steel, skip shaker, accurate measure tank, Timken bearings, springs...same as our biggest mixers.

Over 100 cities have Jaeger Service Stations.

\$179.50

buys the Handy with Steel Disc Wheels and Cushion Tires!



NON-TILT MIXERS: 7, 10, 14, 21, 28, 56S.
 TILTERS: 3½, 5, 7, 10S.
 PUMPS: all sizes, types.
 HOISTS: 10 to 50 h. p.

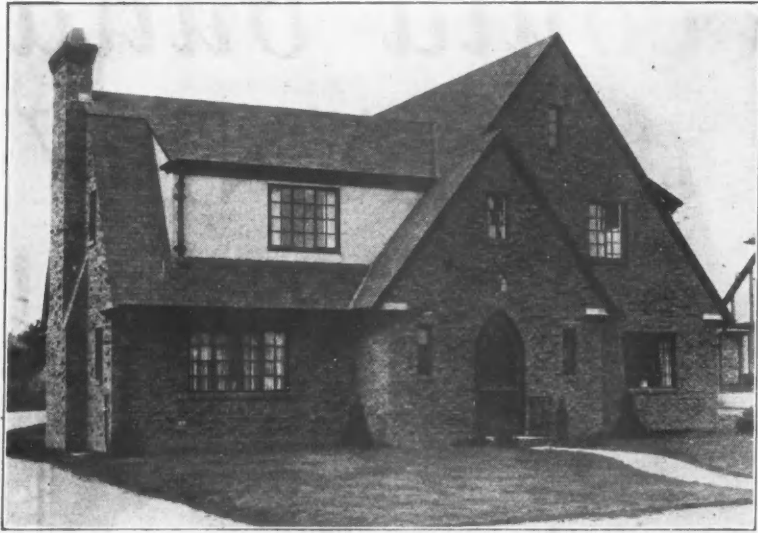
MAIL FOR CATALOG AND PRICES

JAEGER MIXERS...PUMPS...HOISTS...Information Slip
 THE JAEGER MACHINE CO., 521 Dublin Ave., Columbus, Ohio
 Send catalog, prices and full data on—
 Jaeger-Barnes Pumps Jaeger Mixers Hoists

Name

Address

There's an Incentive to Purchase When There's an Evidence of . . .



Residence in Waban, Mass., Glazed with Libbey-Owens Glass

Quality



NOTHING stimulates a purchase more than the confidence of the buyer in the product to be sold. The product that is nationally recognized as a *quality* product is invariably the easier to sell.

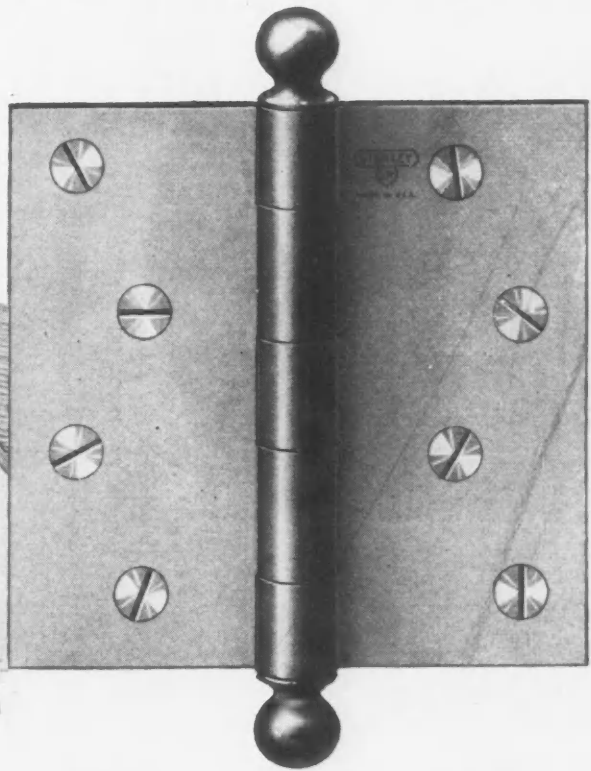
Because Libbey-Owens has made known the higher quality of Libbey-Owens Glass in its vigorous, year-round advertising program, millions of people who will ultimately own homes will specify Libbey-Owens "A" Quality Glass when they build. Or if they purchase a home, they are predisposed to favor the home that is glazed with Libbey-Owens. To contractors and builders, then, the advantages of using Libbey-Owens "A" Quality Glass are apparent.

Every light of Libbey-Owens "A" Quality Glass carries the familiar L/O label. Make sure of getting Libbey-Owens, and leave the labels on until the building is completed or sold. Libbey-Owens Glass Company, Toledo, Ohio.

Libbey-Owens

**FLAT DRAWN CLEAR
SHEET GLASS**

"ON EVERY DOOR"



STANLEY 241 HINGE

More doors are swinging on Stanley 241's than on any other hinge

ASK any good builder, "Did you use Stanley Hinges on your new building?"

In the big majority of cases his answer is "...on every door."

Check this further and you will find Stanley 241's on the job.

This selection of Stanley 241 Hinges is not a chance occurrence. Years of satisfactory association determine the choice. Builders like Stanley 241's because the gauge of metal is always uniform. This means that the leaves fit in the mortises and the work of applying is speeded up.

The non-rising, long wearing pin together with reamed barrel means easy operation of the door for the life of the building — no sagging —no binding. A fine planished finish with durable plating makes the Stanley 241 a finished piece of hardware.



Ask your hardware dealer for Stanley 241's for your next job.

THE STANLEY WORKS
New Britain, Conn.

STANLEY HARDWARE



Lupton Casements enhance the charm of the James P. Henry residence, Wallingford, Pa. Flounders Bros., Builders, E. Kenney Crothers, Architect.

LUPTON WINDOWS

USUALLY INDICATE THE BUILDING JOB IS RIGHT!

QUALITY PRODUCTS are usually found together. When the prospect inspects your *Sample Home*, or your apartment, and finds quality hardware, quality doors, quality windows, he is correct in his assumption that the whole job is of the same high caliber. Confidence is born. Sales-resistance is lowered.

Lupton Steel Windows need no introduction to your customers. Extensive advertising campaigns, year after year, have made their name a household synonym for quality from coast to coast. It has been advertising that has

LUPTON

where steel is fused with sincerity

been justified by the product. Lupton Windows embody improvements that are years ahead of the current market. Among their conveniences are included the special Lupton friction-hinge, and attachments for screens, shades and draperies. Lupton Steel Windows can also be obtained completely equipped with screens.

Over a period of years, they will give you and your clients an honest hundred cents of value for each dollar you spend upon them. As an investment builder, it is important that you know the facts about these famous windows. When writing, mention the type of structure you plan to erect, and we will send you the exact catalog which you need. David Lupton's Sons Company, 2203 East Allegheny Avenue, Philadelphia, Pa.



DEWALT PRODUCTS CORPORATION,
152 FOUNTAIN ST., LANCASTER, PENNA.
Please send me full particulars of the DeWalt Wonder
Worker. Also the DeWalt-Wodack Electric Hand Saw.

Your name _____

Firm name _____

Address _____

Machine comes
complete with
motor, table,
saw blade, safety
guard, switch and
connecting cable.

NOW— a complete cutting range

THE DeWalt line now covers the entire field of wood cutting—from the comparatively small work so quickly handled by the DeWalt-Wodack Electric Hand Saw to the largest lumber so easily cut on the DeWalt Wonder Worker.

Regardless of the type of job—if there's wood to be cut, the DeWalt will effect real savings. To cite just two instances of DeWalt performance—

"On a 16-house operation, the operator with a laborer cut all the joists for the first floor, 3" x 10" with five cuts in two working days, approximately 1280 cuts. He cut 4000 2" x 3" studs in a day."

"I was able to cut out all material for 74 drawers as well as all material used in 20 cabinets in one 8-hour day. The edges of all tops were shaped with a molding cutter mounted on the DeWalt, which is an ideal shaper."

Let us show you what the DeWalt will do on your job.

DEWALT PRODUCTS CORPORATION

152 FOUNTAIN ST., LANCASTER, PENNA.

Sales and Service in All Principal Cities in U. S. A.
and Foreign Countries

Made for Canada by DeWalt Products Corp. of Canada,
Calgary, Alberta



DEWALT-
WODACK
Electric Hand Saw
—speedy, accu-
rate, powerful.
Three sizes 2 1/2"
to 4 1/2".

DEWALT

Wonder Worker

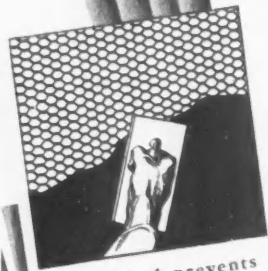
The Economy Wood Worker

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



SPOTLESS, HEALTHFUL, BEAUTIFUL, DESIRABLE
The Steel Equipped Basement

EVERY WOMAN dreams of having a completely modern basement . . . one that is practical as well as beautiful . . . a colorful enameled furnace that beautifies and saves endless dust and muss—a basement with glistening walls of enameled steel tiling, adding another inviting room to the house—with sanitary, gleaming vitreous enameled steel laundry trays and washing machine, saving labor and time—a steel laundry dryer which makes every wash day a sunny day, saves endless steps, promotes health. ¶ Today's housewife recognizes that these products made of steel are actually saving necessities that increase home convenience and home value. ¶ All engaged in building are finding that more and more steel products are going into the truly MODERN building. For steel is far more durable, clean, fire resistant and adaptable in design. ¶ We shall be glad to send you complete information on any steel building product. Write



Steel lath prevents plaster cracks and provides fire-resistant construction.

Trade Research Division
 National Association Flat Rolled Steel Manufacturers
 Terminal Tower, Cleveland, Ohio



Steel roof tile are harmonious, fire-proof and comparatively inexpensive.

Save  Labor  Space  Money with Steel

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

A Plaster Base that Insulates!

INSULITE

the Wood-Fiber Insulating Board

**Builds Stronger—Grips Stronger
Protects Against Heat and Cold**

BY USING Insulite you not only efficiently insulate against heat and cold but you secure a plaster base that grips plaster with twice the strength of wood lath. Because of the ship lap edge and the staggered application, plaster applied to Insulite is remarkably free from cracks, and no case has ever been recorded where plaster has fallen off an Insulite surface.

Insulite Plaster Base is made in two thicknesses, full 1/2" and full 1" standard Insulite, cut in a convenient and practical size—18" x 48". The 1" Plaster Base is built of two layers of 1/2" Insulite firmly stapled together with an offset of 1" on all four sides of the panel. The 1/2" Insulite has a ship lap edge only on the 48" sides. Insulite is an all wood-fiber product made from the tough fibers of hardy northern woods—it is chemically treated to resist moisture and is not subject to deterioration.

Insulite adds great strength and durability to the building. In a recent laboratory test the four best known insulating boards were tested for strength, and Insulite proved to be 14 per cent stronger than any. Not only is Insulite stronger, but—full 1/2 inch thick—it gives 12 1/2 per cent more efficient insulation than ordinary 7/16" insulating boards.

May we tell you more about the superior features of Insulite as a plaster base, as sheathing, wall board, attic lining, and the many other uses you should know about? Our Engineering Department is maintained to assist you. Write today.

THE INSULITE COMPANY

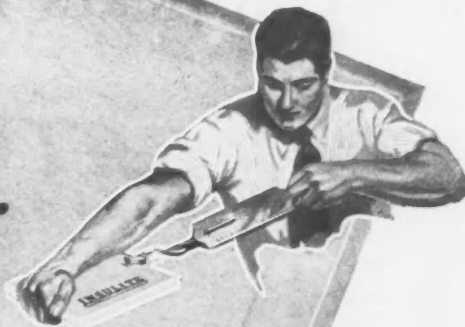
(A Backus-Brooks Industry)

1200 Builders Exchange, Dept. _____ Minneapolis, Minn.

OFFICES IN ALL PRINCIPAL CITIES

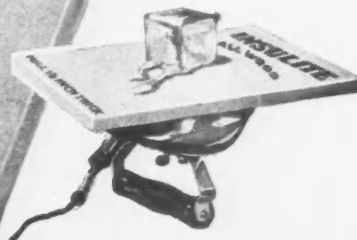
INSULITE

the Wood-Fiber Insulating Board



**Test for Strength
PROVE—INSULITE
14% STRONGER**

DRIVE a nail a half inch in from the edge and through a board of Insulite. Loop a strong cord around the nail and with hand scales see how much greater pull is required to tear the nail through Insulite than through any other insulating boards similarly tested.



**Test for Efficiency
PROVE—INSULITE**

FULL 1/2 INCH THICK—MEANS
12 1/2% MORE EFFICIENT INSULATION
THAN ORDINARY 7/16" INSULATING BOARDS

PLACE a cube of ice on a piece of Insulite over an automatic electric iron set at hot. See how long it takes the heat to penetrate the Insulite and melt the ice. Make the same test with other insulating boards. The results are convincing.

MAIL THIS COUPON

THE INSULITE COMPANY,
1200 Builders Exchange, Dept. 25C
Minneapolis, Minn.
Gentlemen: Please send me additional information about Insulite and a sample to test.

Name

Address

City State

Read the CROMAR Full Page Advertisement as it appears in the March 8th issue of

The Saturday Evening Post

THE SATURDAY EVENING POST March 8, 1931

Cromar is a milled-and-groove flooring — which means that the strips are driven one through the surface but through the grooves — and are thus connected by the grooves of the adjoining strips.

A CROMAR OAK FLOOR is ready to use when it is nailed down

... because, like furniture, it is completely finished at the factory: milled, filled, double varnished and even treated to resist moisture — by machines.

CROMAR offers you the most amazingly simple way of changing a worn softwood floor to an oak floor whose rich beauty will be your lasting pride. When the many tedious and irritating and home-upsetting operations of hand-finishing ordinary flooring begin, at that very moment all the work of installing a CROMAR Oak Floor is actually completed, and the CROMAR owner is enjoying the full use of his new oak floor! CROMAR is nailed right over your old floors. It is laid and used the same day.

Aside from this tremendous convenience, CROMAR offers you a finish which is superior to any hand-finish.

The base for the ultimate finish is the "filler." Because machines do the filling, a much heavier filler can be used, and that heavier filler is driven deep into every single pore of the wood, under tremendous machine pressure. No human hand can duplicate the thoroughness of that work. Nor what follows —

Over those strips, all the pores of which are now completely sealed, are spread two coats of varnish. Again, because precise and powerful machines do the work, a special varnish much heavier than is used in hand-finishing, is spread with an evenness that handwork cannot hope to duplicate.

These two operations alone assure you of the longer life of CROMAR finish, its amazing resistance to daily wear. Assure you also of that characteristic charm and beauty of CROMAR Oak Floors.

And yet — a CROMAR Oak Floor costs no more than a hand-finished floor!

THE CROMAR COMPANY, WILLIAMSPORT, PA.

Pacific Greater West Distributor: HILLS AND HAMILTON COMPANY
 Office and Warehouse: 200 Davis St. - San Francisco, Cal.

CROMAR
 FACTORY FINISHED
Oak FLOORING

Write for a free sample and booklet which explain these advantages in full detail and describe other exclusive CROMAR features. CROMAR is sold by lumber dealers, but carpenters and contractors install it. Consult any of these for further information. If you have the slightest trouble in getting satisfaction, write us and we shall give your inquiry immediate personal attention.

When planning the floor of a NEW home, large or small, the advantage which results from building CROMAR completely at the factory, are just as far-reaching as they are in remodeling work.

This is a photographic reproduction (in reduced size of course) of the full page CROMAR advertisement as it appears in the March 8th issue of *The Saturday Evening Post*.

This page will reach the homes of well over Three Million families.

It tells you how you can make more money by laying CROMAR FACTORY FINISHED Oak Flooring.

CROMAR is milled, filled and double varnished before it reaches your job. There isn't a thing for you to do but *nailed it down!*

That means independence for you. *Your* men do the work and *you* get the profit. *All* of it!

And with the same number of men you can lay a greater number of floors.

"Carpenters and Contractors install CROMAR." You'll find that line in every CROMAR advertisement in the "Post." It is creating business for you.

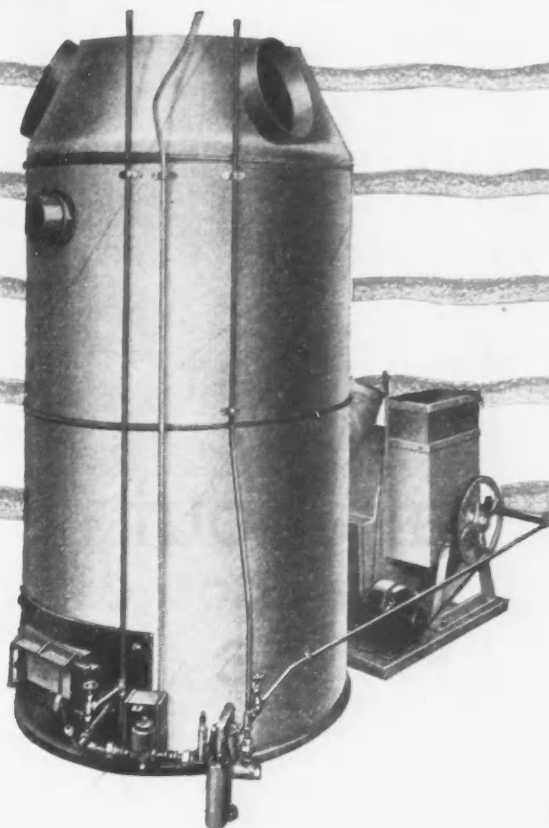
Take advantage of it in re-laying as well as new construction work.

THE CROMAR COMPANY
WILLIAMSPORT, PA.

Pacific Greater West Distributor:
HILLS & HAMILTON COMPANY
Office and Warehouse: 200 Davis Street, San Francisco, California

**STARTLING!!! A FURNACE PLUS
 POSITIVE AIR CIRCULATION
 PLUS AN AUTOMATIC
 OIL-BURNER... ALL
 FOR THE PRICE OF A
 GOOD OIL-BURNER
 ALONE**

BURN OIL. . . SAVE TOIL



Add This New Sales Feature

Here is a heating plant that delights home builders. It can be placed in the cellar out of the way. The piping is smaller. Never was there so much value crowded into one single unit. Just think—an oil-burner built on the Piatt principle, proved on battleships, improved by experienced engineers, with no moving parts, no wicks, no weights—safe, fully automatic.

It is combined with a heating plant which forces warm, fresh air to all parts of the house

in winter and circulates cool, fresh air in the summer. It can be set in a corner out of the way and give more floor space. Smaller pipes can be used and provide more head room. There is no single feature that will add to the sale of a home as the Piatt Air-Circulating Oil-Burning Furnace. Send for complete data on this, and make it one of your big sales features.

MOTOR WHEEL CORPORATION
 Heater Division

LANSING

MICHIGAN

PIATT OIL BURNING APPLIANCES

made by **MOTOR WHEEL CORPORATION**

With
 gas 
 or oil 
 for heat
 what about
 Waste
 Disposal?



THE use of modern fuels in heating has given rise to a very definite problem in the disposal of waste and rubbish. Oil- or gas-fired heating plants are obviously out of the question for the destruction of wrappings, wilted flowers, sweepings and other refuse; it is dangerous to accumulate them in the basement, and ordinances—in most cities—prevent burning them out-of-doors. Convenience, the keynote of modern housekeeping, makes the Kernerator a necessity when modern fuels are used. The Kernerator in your homes and apartments will increase *rentability* and *saleability* because, with the Kernerator, they measure up to today's demands for convenience . . . The Kernerator and its unqualified success in thousands of installations are evidence enough of the correctness of its principle and the quality of its service.

Send for A. I. A. Folder or see our Catalog in Sweet's.

KERNER INCINERATOR COMPANY

1221 North Water Street

Milwaukee, Wisconsin

KERNERATOR
REG. U.S. PAT. OFF.
INCINERATION

FOR NEW AND

EXISTING BUILDINGS



Will it please
the man who buys?



There is an interesting variety in these handsome little brick houses. The use of varying color schemes in J-M Asphalt Shingles contributes to the effect. Architect and builder—A. F. Witte, Evanston, Ill.

The builder who fits his house to popular taste is the man who makes quick sales

BY misjudging or overlooking the public taste you can easily knock many thousands of dollars off the total selling price of a building development. Are you giving sufficient thought to the question of roofs? There was a day, perhaps, when you could go along a line of houses on a plan and mark the roofs "red, green, red, green, red, green" right down the line. And the reds and greens were often dull and unattractive shades, too.

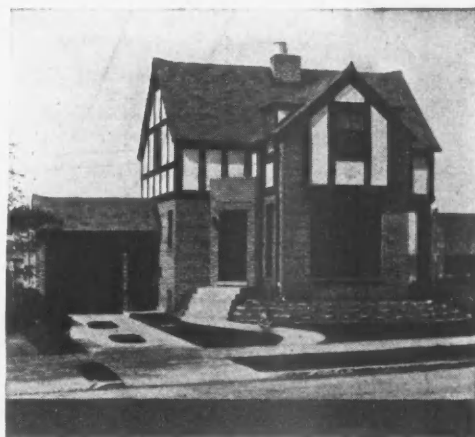
But now, plans must be made on a different basis. The public is educated to colorful roofs. The commonplace roof is as much out of style as slip-shod designs for the houses themselves. Buyers want variety and no one wants his roof duplicated right in the same neighborhood. It is because of these conditions that builders have turned to Johns-Manville Asphalt Shingles. These J-M Shingles are modern in every sense of the word. There is a wide range of colors and blends from which to

choose. Colors are fresh and attractive. The blends are in keeping with modern ideas and were conceived by a committee of architects specializing in residence designing.

May we send you samples?

These colorful shingles are substantial, sturdy, and weather defying. They are unsurpassed for quality in the Asphalt Shingle field. Send for samples, study them, and convince yourself that they will help you to win greater approval of your finished houses.

We are also prepared to offer you suggestions as to the proper color and type of shingles to be used on any house, if you will let us have information showing the contemplated setting and design. We will gladly give you free advice regarding the shingles which can be used to obtain the best effect in relation to the architectural style. Address Johns-Manville, 292 Madison Avenue, New York City.



Another example of an interesting house roofed with J-M Asphalt Shingles. The color is Brittany Blend and the builder was the Hartman Corporation. The house is on South Irving Avenue, Chicago, Ill.

How are your trucking costs? J-M Brake Lining cuts time for repairs, and makes trucks safer and easier to handle.

Address JOHNS-MANVILLE

At nearest office listed below

New York Chicago Cleveland
San Francisco Toronto
(Offices in all large cities)

Please send me samples of J-M Asphalt Shingles.

Name.....

RF-3-3

Address.....

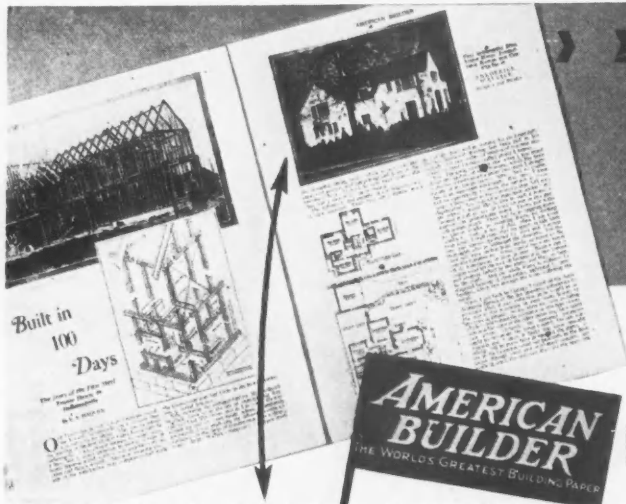
Town.....

Approximate Number of Houses Being Planned.....



Johns-Manville
ASPHALT SHINGLES

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



IN THIS ISSUE THERE IS AN INTERESTING ARTICLE ABOUT MODERN CONSTRUCTION METHODS ★

*Read this informative story about the model steel frame house that was built in 100 days. It appears in this copy of American Builder . . . the issue you are now reading.



STEELTEX was used throughout in this Indianapolis steel frame house . . . for plaster lath . . . for floors . . . for stone facing. Frederick Wallick, architect and builder.

There are now more than a quarter million STEELTEX installations . . . over steel framing . . . over wood framing . . . in homes (large and small), apartments, schools, hotels and every type of building.

RIBBED STEELTEX FOR PLASTER >>>>>



PROTECTS AND REINFORCES . . . BUILDS LIFETIME WALLS & CEILINGS

STEELTEX, because of its many modern advantages, became a major part in the development of steel frame house construction. In the model steel frame house, built at Indianapolis, STEELTEX was used for interior plaster lath, for floors and for stone facing.

Ribbed STEELTEX is the up-to-date plaster lath and reinforcement . . . and is the only plaster lath actually reinforcing plaster with a network of embedded steel. Ribbed STEELTEX lath gives these results: Minimizes plaster cracking hazards . . . blankets every room with its heavy backing (preventing air infiltration) . . . insulates against heat and cold . . . retards sound . . . adds structural strength to the building . . . and finally protects the investment.

Send for our new book that gives detailed information about STEELTEX. Simply sign and mail the coupon (below) for your free copy.

FOR BRICK & STONE VENEER



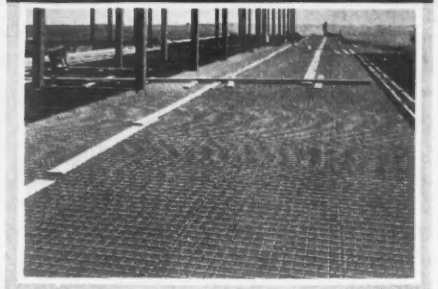
STEELTEX for brick or stone facing, seals the entire house with its heavy, double-layer of moisture-proof backing. The result is a one-piece, monolithic wall of moisture-proof backing, cement, reinforcing, steel, and brick or stone.

FOR INTERIOR PLASTER



Ribbed STEELTEX lath for walls and ceilings, permits the plaster to flow under and around the steel network,—actually reinforcing the plaster with embedded steel. Note how the wall is entirely blanketed with STEELTEX lathing.

FOR FLOORS



STEELTEX for floors,—a scientific REINFORCEMENT and FORM. It is quickly rolled in place over the beams or joists. STEELTEX insures automatic embedment of the wire network in the slab . . . the backing minimizes droppings and prevents loss of concrete.

NATIONAL STEEL FABRIC COMPANY

UNION TRUST BUILDING PITTSBURGH, PA., U.S.A.

National Steel Fabric Company, Dept. 58-B-B
Pittsburgh, Pa.
Gentlemen—Please send your book (without obligation), "Better Walls for Better Homes."

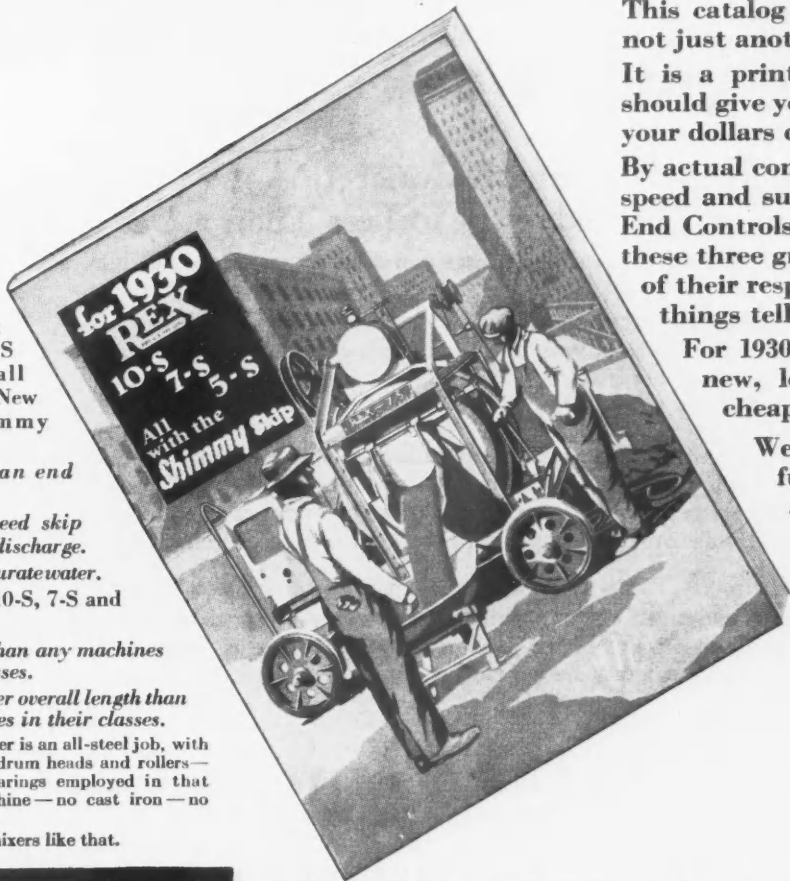
Name.....

Address.....

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

(Indicate your business here)

In this Book You Will Find the Greatest Story of Mixer Value Ever Written



The Rex 10-S, 7-S and 5-S all have the New Rex Shimmy Skip—

the one-man end controls.

the high-speed skip and fastest discharge.

no-leak, accurate water.

The Rex 10-S, 7-S and 5-S all—

weigh less than any machines in their classes.

have a shorter overall length than any machines in their classes.

And each mixer is an all-steel job, with pressed steel drum heads and rollers—the finest bearings employed in that type of machine—no cast iron—no open gearing.

Try to beat mixers like that.

This catalog on the Rex 10-S, 7-S and 5-S is not just another catalog.

It is a printed record of what every mixer should give you if it is to be the finest machine your dollars can buy.

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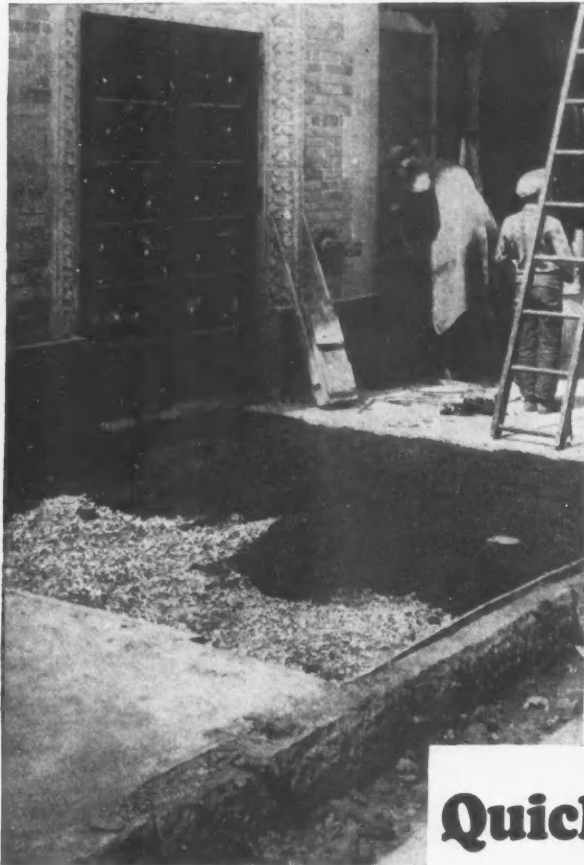
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Immel Construction Co., Fond du Lac, Wis., contractor; Russell Barr Williamson, Milwaukee, architect

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FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

AMERICAN BUILDER

Including "Building Developer" and "Home Building"

BERNARD L. JOHNSON and CHARLES G. PEKER, *Editors*



Shall I Join?

"BILL," said the energetic visitor, "we are going to form an association of the best builders in this town, like you and myself; we are going to be the 'Goldseal Association.' We are going to get discounts from the dealers, going to put the gyps out of business, and going to compel all our members to lay their joists on fourteen inch centers instead of sixteen. We are going to charge \$100 a year dues and a \$150 initiation fee."

Shall I join this association? Each of our readers has been confronted with such a question time and time again.

Let us examine the aims of the proposed Goldseal. Taking up in the order given by our visitor the first aim is to get discounts from the dealers. This is a touchy subject—very touchy. No matter how the proposed discount is worked out, bear in mind that the dealers are not going to give the discount just to please the members of Goldseal, neither are they going to be scared into giving it. There must be some sort of bargain. *Find out what the bargain is.* Weigh that and see whether or not it sounds good to you. If the bargain depends upon each of the members buying from a picked list, remember that this procedure will not easily be enforced.

The second aim is to put the gyps out of business. That is always a good sounding aim, though little has been done about it yet, even with all the associations in existence. In the first place it is very hard to legislate gyps out of business either by providing license requirements for contractors and builders or by other means, for they have several ways to get around laws and doing what might be termed a bootleg business. If this new association proposes to put them out of business by commanding distributors and dealers to desist from selling to them, the path to accomplishment is well nigh impassable, because when associations try to compel non-member groups to live up to anything under pain of being put under ban by the group issuing the ultimatum, they must use a full sized police power to make the members refuse to do business with those who violate the dictates of the association.

If this Goldseal, on the other hand, has in mind the raising of a considerable fund to be spent in the daily press on joint advertising to teach the public just what

a gyp is and what good building is and what poor building is, its prospects should be weighed very carefully, because the results may be very interesting. Such a message carried to the public effectively is bound to do considerable good.

The third aim is to make the members conform to certain rules in their operations. Here again is a ticklish thing for an association to spend your money trying to accomplish. One of the very best ways to determine whether a rule of an association will be lived up to or not is to decide whether you would or would not live up to it if you were a member.

Any one considering an association from the standpoint of its policing influence who decides that he cannot live up to its rules is not only wasting his own money by joining but is hurting his industry by joining.

An association is a cooperative effort to do something. Its aims and purposes are the first things to be considered. Its leadership is the next thing to be considered, and its membership is the third and perhaps the most important thing to be considered.

You will remember that the visitor started out by saying that the association would be recruited from only the best builders. That is generally the way with associations; but in evaluating an association the analysis of its membership should take into consideration its purposes.

If an organization is going to affix a goldseal to the product of each of its members, the standard of the least efficient and trustworthy member in good standing will determine the value of the seal in the long run. Such an organization's seal will be of value to you only to the degree of the organization's standing in the community.

If, on the other hand, the organization's purpose is to educate competition and, along that general line, to better conditions, not through coercion but through conferences and the like, it is essential to success that the membership includes those who need the education the most. If you believe in this method and have found it produces results *you should contribute to the support of the association* not only by joining but by taking the active part you are capable of taking. If you need education yourself, such an association will be a wonderful thing for you to join.

Backward Bankers

THE financing of homes continues to be the difficult problem of the present season. Just how soon money will be plentiful enough so that the bankers and the mortgage loan directors will resume an *encouraging* attitude remains to be seen.

Conditions right now, as revealed by an extensive AMERICAN BUILDER survey, may be described as "spotty."

These confidential letters from prominent men in building loan circles indicate typical banker conservatism, reinforced by the idea, pretty generally held, that the country in many places is overbuilt and that a "building holiday" will do the country good.

The AMERICAN BUILDER does not agree with the viewpoint disclosed in these letters, although we do not question the sincerity or the patriotism of these bankers. They are simply taking too narrow a view.

There is no oversupply of really modern, adequate housing. Two million old homes need modernizing to bring them up to present-day standards; and business buildings and public buildings by the hundreds of thousands are in like need.

New homes, apartments and business buildings are required, and will find a market if properly financed and constructed. This entire building program is an essential part of the president's economic plan for 1930, and a prompt start should be made by bankers, dealers and builders to get all needed work going.

So long as money has to be borrowed from men with such views as these letters to the AMERICAN BUILDER disclose, conditions in the building industry will be along the lines of safe, but poor merchandising. No department store or manufacturer of automobiles or radios ever made good in this modern competitive market on the ultra conservatism which these bankers advocate.

Central Clearing House for Home Financing Being Organized

THE announcement of Fenton B. Turck of New York, chairman of the National Building Survey Conference, that this organization has initiated plans to set up a central finance holding corporation to supply funds to home owners who desire to go ahead with immediate repairs and improvements is recognized as a logical step in the nation-wide movement to encourage necessary construction and modernizing activities.

The proposed central finance holding corporation would bring together a group of existing finance corporations now engaged in financing individual home improvements but at present lacking a connecting link.

Simplification of this financing, Mr. Turck said would go a long way toward enabling the home owner to make necessary improvements without the need of immediate payment for the work. Mr. Turck added:

Such a holding company would in no way represent a merging of present agencies. It merely would co-ordinate their operations in such a way as to give the greatest benefit to the owner of a home who desires to modernize his property, but who has not enough ready cash on hand to go ahead with his plans. There has long been felt the need of such a central organization. At present the owner has to deal with so many separate agencies that the handicap tends to deter him from going ahead.

Throughout this present movement to encourage needed building operations as a means of reducing unemployment and of stimulating general business it has been emphasized that the field of home improvement offers a major opportunity for obtaining immediate results. Surveys have revealed that as many as 2,000,000 homes are in need of repairs and improvements. Later on as the weather opens up there will be a rush to get work done. The wise man will go ahead now before the others start, when both labor and materials will be harder to obtain.

We believe that the setting up of the finance plan proposed will go far toward encouraging immediate home modernization operations.

It is with marked interest that we are watching the building and loan associations, said Mr. Turck, because they play such a large part in home construction and renovating finance. The increasing supply of funds flowing into these channels at this time, particularly in the eastern district, is a most interesting reflection. The Railroad Cooperative Building and Loan Association (New York City) with assets of \$58,000,000, has just made seven building loans, the first group it has made since October 23.

The general tendency seems to be to pay courteous attention to applications which represent real value and for loans involving betterments and renovation to property. Careful examination of data would indicate that the better classes of people seeking mortgage loans are active at this time and will benefit by filing applications so that their cases may receive consideration as surplus funds come into the mortgage market.

No Modern Merchandising Without Vision and Courage

HOUSES, like clothes and automobiles, are subject to style changes. While there is no reason why we cannot continue to live in the house in which we were born and get along without modern improvements, still when we educate the buying public to spend on new and improved housing, the people are better off and all business is very much improved.

If we don't want the newer and better things we might as well live in a cave where we will be perfectly safe for generations and generations.



First Indianapolis Steel Frame House, Pennsylvania Avenue and East 57th Street; Limestone Exterior.

FREDERICK WALLICK
Architect and Builder

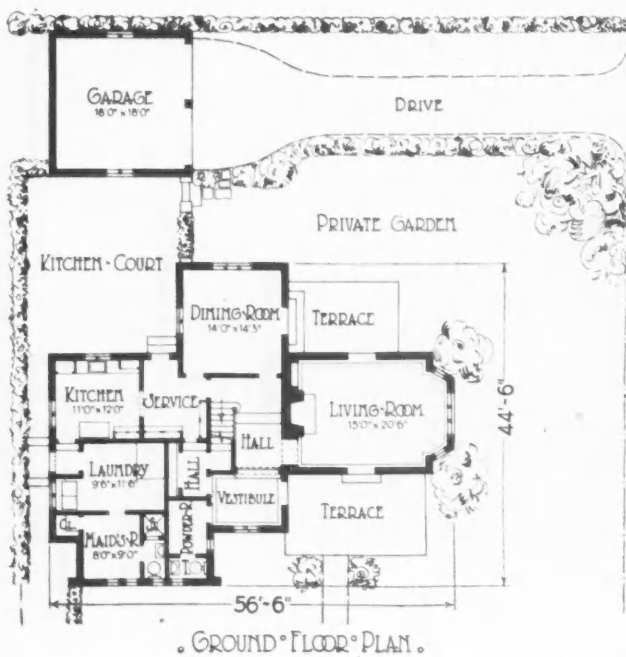
the beautiful dining room, which is just over the excavated portion, and jumped up and down on the hardwood floor. At least, he said, most visitors did that, and I took it for an invitation.

The difference—the rigidity of construction—was at once apparent. There was not a tremor, not a

give of any kind, and no wonder, for the beautifully finished hardwood flooring had been laid in hot asphalt over two inches of reinforced concrete supported by steel I beams—called junior I beams.

Now, I'm going to confess that, when I first heard about this system of steel framing, which has been in process of perfection for about two years, I thought mainly of its fire-protective value. And, of course, this is an important advantage. But, since I have had an opportunity to study the subject at closer range, I have come to the conclusion that "old man depreciation" has received an important set-back and the reason I would like to live in such a house is because it will always—at least for one or two generations—be permanently sound. Floors and walls will remain plumb. There will be no sagging doors, no plaster cracks, no creaking floors, no sticking windows. And, on top of that, when I am away from home, I shall know that my family is safe from fires and storms—protected by steel and concrete thoroughly able to withstand the elements. For the steel sills have anchor bolts firmly anchored to the concrete foundations. Wind cannot move the house off its foundations or blow it over. Neither can a violent wind lift the roof off because it is steel framed and securely bolted to the plates and they, in turn, to the studs. And the whole frame is stiffened by diagonal bracing of steel cables, tightened by turn-buckles, which run through the walls stiffening the panels.

When I got back to Chicago I called on the State Actuarial Bureau of the fire insurance companies to ascertain what, if any, reduction there would be in the cost of fire insurance on steel frame houses of this type in Illinois. So far, there has been no ruling which would reduce the premium on this type of construction but some of the other states may have taken such action. Certainly, the insurance companies ought to encourage the trend towards fire-safe construction and I think it likely that more favorable rulings will be made later in most of the states. A fire in the basement could not penetrate to the floor above through steel and reinforced concrete, nor could it reach the bedroom floor for the same rea-



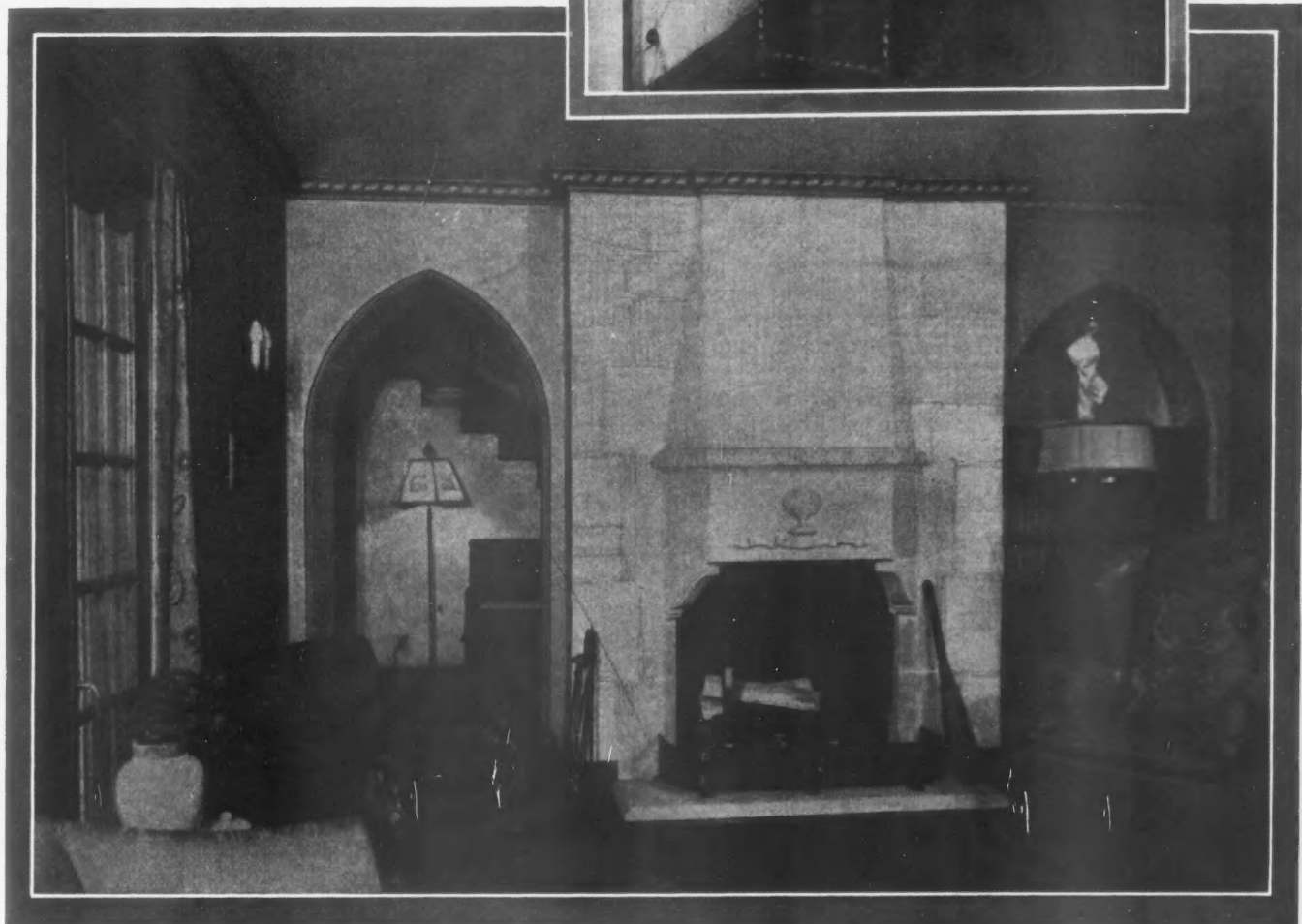
son. The steel framing is so thoroughly bonded to the masonry walls that they are integral and, even if the furnishings and draperies burned from a fire starting within, I cannot conceive of a degree of heat caused thereby which would cause any deformation in the steel members through the reinforced plaster on the inside.

Builders will be interested in the time of construction of this house. Mr. Wallick told me that it ran 100 days, up to the interior decoration, regarded as a record for this type of construction. The steel framing itself requires only a week or two. However, now that he has an Indianapolis gang broken in on this work, Mr. Wallick states that future construction of this type will go even faster. For instance, each frame member comes from the factory with identification marks corresponding with those shown on the assembly drawings. At first, each piece had to be traced down before they had any idea where it went; now, they can tell, at a glance, where many of these parts go without reference to the assembly drawings.

While available for an attractive range of stock plans, steel framing of this type can be used for any original designs. In fact, Mr. Wallick's design for this house is original. One reason why the system is so readily adaptable is that angles,

studs, channels, etc., are all punched with 7/16-inch holes spaced two-inch centers. All clips and fittings have the same spaced holes. The studs are built up of angles and these have tie plates spot-welded in

(Continued to page 150)



Two Views of the Interior of the First Indianapolis Steel Frame House.



Creating a VILLAGE to P

ONE of the most important development projects in the country is now under way at Lawrence Farms, Westchester County, New York, on a section of countryside less than an hour by train from New York City.

The Lawrence Farms operation is an attempt to establish a *protected* country village on *accessible* yet *open* terrain. It is being undertaken by the Lawrence interests of Bronxville, N. Y., whose apartment operations were described in the October issue of the *AMERICAN BUILDER*.

Of interest to all big-scale developers among the readers of *AMERICAN BUILDER* is the original idea behind the whole program at Lawrence Farms. This was to subdivide ground for small estates (3 to 20 acres) and to plan the whole community in such a way as to provide commercial and social facilities, as well as transportation routes, without harming the property values and the general "liveability" of the place.

In effect, the ruling purpose of the village of Lawrence Farms is the complete protection of country life.

The Lawrences feel that this feature has been overlooked in America up to this time. Networks of automobile routes have been laid down all over our countrysides and have left hardly a section, particularly in the East, that is safe for the perma-

nent establishment of a home with a reasonable amount of land around it. Under these circumstances, the Lawrences felt that the time was ripe for the creation of an entire village, so planned as to maintain the values of country life in the face of the increasing mobility of our population.

Readers will agree that to plan such a village, taking at the same time a large part of the surrounding countryside and dividing it into estates of substantial size and importance, and weld the entire property into an efficient and harmonious whole, is indeed a real enterprise. Such is the task now being undertaken by Dudley B. Lawrence of Bronxville and by Thomas Adams, director of the Regional Plan of New York, and Penrose V. Stout, for many years architect of Lawrence construction. The plan which is the result of their efforts is shown in the accompanying illustrations.

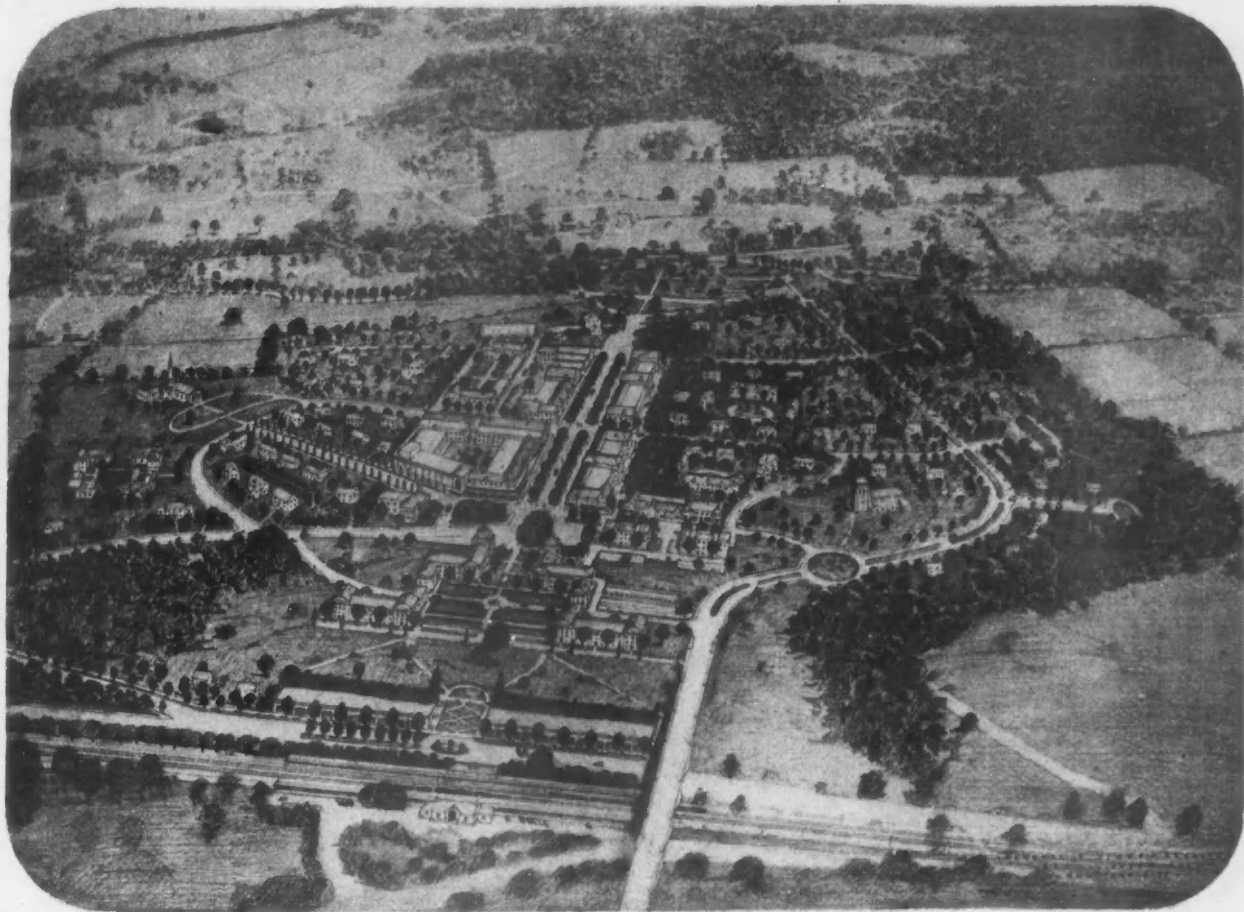
The village is to arise on approximately 90 acres of land at Lawrence Farms between Mt. Kisco and Chappaqua, New York. Lying among the rolling hills and woodlands of Westchester County, with Mount Chappaqua rising to a height of 739 feet nearly opposite, one of the chief problems in its planning was to fit it adequately to its lovely environment. Some of the ways in which it will meet the new conditions caused by heavy traffic will be by the construction of a by-passing road to divert

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to *Protect* COUNTRY LIFE

through traffic from its streets, by segregating the business district, and by treating the highway frontage of the entire property in a manner both useful and attractive.

Protected Country Life

A member of the Lawrence family which has been identified for many years with the effort to make the village of Bronxville, N. Y., the place of outstanding beauty which it is, said in a recent interview:

"Protected country life is a very definite thing, which is coming in this country, but which has not existed hitherto. While our countryside still remained fairly open, people failed to realize that they would ultimately need protection from unsightly surroundings and noisy or disturbing neighbors in the country, just as much as they need it in the suburbs or in town.

"Now that the need for such protection has so obviously come, the zoning laws have not generally been extended into the country. The result has been that a man may buy a beautiful four or five acre estate and erect a handsome house upon it, only to find that a twenty-four-hour gas station has been set up next door, a dog kennel with scores of noisy, yapping dogs has been established just across the way, or a low-class settlement has intervened between his estate and the railroad station.

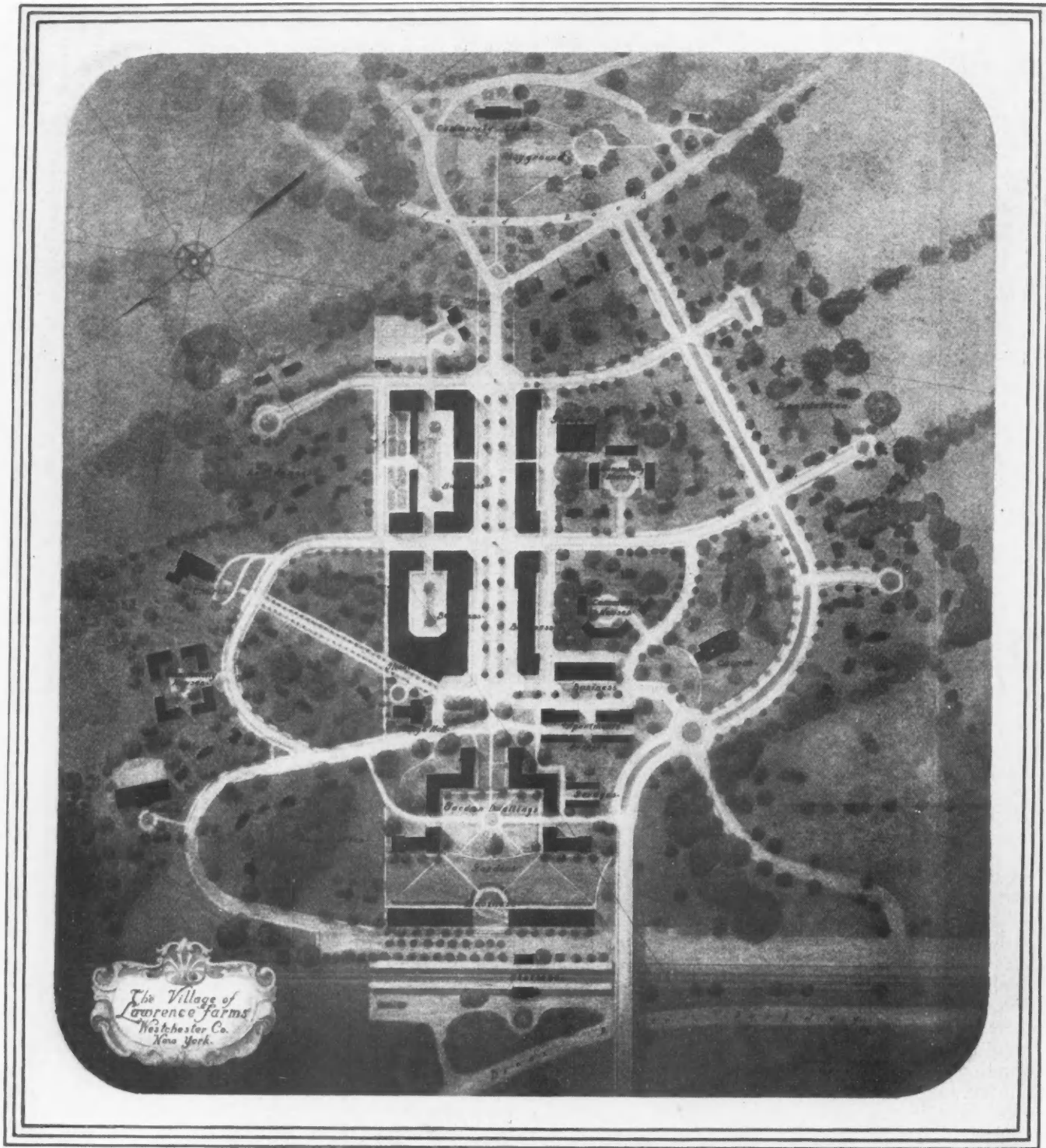
"The consequence is that it becomes impossible for this man to take his guests to and from the station without passing through unsightly surroundings, architecturally displeasing if nothing worse. With no zoning laws in effect there is nothing to stop anyone from utilizing land adjacent to large estates in practically any way he pleases, and I know of hundreds of instances in which fine homes have been ruined by something of this sort which the owners could not stop."

A Complete Village

The site of the village of Lawrence Farms has been well chosen to preclude the possibility of any such catastrophe. It will be distinct from the Lawrence Farms estates, but conveniently accessible to them just as a modern skyscraper comprises within its walls all the comforts, conveniences and necessities for the particular purpose to which it is to be devoted, so this new village has been planned both to meet all modern needs as a shopping center for the Lawrence Farms estates and the surrounding country, and to anticipate every possible traffic contingency for many decades to come.

It provides every sort of store needed—private dwellings and community houses—sites for schools, churches, garages, a town hall, a theatre, and a post office, and also many attractive house sites. Ample

Business Section of
the LAWRENCE FARMS village



This Is a Bird's-eye View Showing in Greater Detail How the Village of Lawrence Farms Will Look When Completed. The spacious central plaza stands out prominently. Cars may be parked on this square without the necessity of backing and cramping. Grouped round are the commercial structures, then the community buildings farther away and at a still greater distance the residences are seen off to the right. Note the presence of apartments in the foreground.

parking space, and a gyratory system of traffic will make for the utmost ease of circulation in its streets.

In connection with this last provision, the by-passing road already mentioned has also been planned (shown to the right of the village in the illustration) to divert all through traffic away from the village center.

The whole center of the village including the main street and public square, will be in effect a spacious plaza, and this will be the shopping center. The main street will be 120 feet wide, with a double row of shade trees down its center, and will thus provide a broad central through road on which traffic can move freely through the town, one service road next to the sidewalk on each side, and two margins between the center road and the service roads wide enough to permit the parking of cars obliquely in the spaces between the two lines of stately shade trees. Thus shoppers will be able to drive into this parking space from the service roads next to the sidewalks and out again into the central roadway without ever having to back their cars into traffic. This will also bring about the additional advantage that there will be no wall of cars blocking the fronts of the shops.

Space has also been provided behind the stores on the right of the main street for large alleys for truck deliveries, and in addition to this there is provision for interior parking in the structures on its left, and this will still further simplify the traffic problem.

A Harmonious Whole

Penrose V. Stout, architect of the commission, has had exceptionally wide experience in country house and suburban work, and has many beautiful structures to his credit. Discussing the architectural aspects of Lawrence Farms, he said:

"In developing the architectural character of the village, a sincere effort is being made to avoid all appearance of the usual quickly conceived and built town development. The architectural character of the buildings will be varied, avoiding the monotony of one style or one color scheme. It will suggest rather a natural growth. The flavor of the country suggests that the predominant architectural characteristic of the village should be early American and Georgian, through which medium charm and quaintness can be expressed in a manner both simple and dignified. Some of the buildings will be harmoniously designed in the Tudor and Elizabethan manner.

"The architectural character of the houses in the village will be definitely controlled by the owners, and a pamphlet is being prepared showing a number of houses widely ranging in size and variety which would be acceptable to them. The village, when completed, will show that the architecture has been determined by the individual occupants rather than being the wholesale creation of a preconceived unit, but it will remain a harmonious whole. It will be built gradually to fit into the complete plan which has been prepared in response to definite needs."

Ample provision has been made for outdoor sports for the occupants of the large estates which surround this village. An 18-hole golf course is now nearing completion, and there will be a country club, riding stables and other facilities for sports on the large acreage on Lawrence Farms reserved for these purposes.

Based on Experience

The man who played the principal part in laying out and landscaping this village is Mr. Thomas Adams who was appointed Chairman of a group of city planners to study the New York region in 1923. Each of the planners was assigned a sector, and Mr. Adams was given the Westchester sector which assignment naturally endowed him with special qualifications for planning the village of Lawrence Farms.

Subsequent to this preliminary study Mr. Adams became general director of the Regional Plan of New York and Its Environs. He is also associated with both Harvard University and the Massachusetts Institute of Technology in connection with their city planning departments, and is an honorary member of the American Institute of Architects.

He has had extensive experience in planning towns and villages in Great Britain and America and is a consultant on the plan for Radburn, the town which is being built by the City Housing Corporation near Ridgewood, New Jersey.

To Be a Model of Its Kind

Mr. Adams made the following comments on model villages in the New York Region and especially on this new Westchester plan:

"There is nothing more significant in connection with the development that is taking place in the New York Region than the increasing tendency for residential development to spread itself to the extremities of the area within which convenient transit can be obtained to the centers of business. This suburban tendency of residential growth is taking place in Long Island, Westchester and New Jersey counties. At the moment, the movement northward in Westchester is particularly strong, especially along the edges of the parkways which have been such a powerful influence in causing wider dispersal of the population.

"There is no more beautiful locality for providing homes for those moving out into the suburbs than that part of Westchester County which lies to the north of White Plains. Within this part of the county, between the villages of Chappaqua and Mt. Kisco, Messrs. Lawrence, who have had long experience in developing the beautiful village of Bronxville, are starting a new community which promises to be a model of its kind. It is certain that with good planning and sound management, such a community can be made financially successful. It is necessary that it should be so, if it is to have a good social influence and stimulate other efforts. Following the example of Bronxville, Messrs. Lawrence are likely to provide a foundation on which such success can be achieved. Studies made in connection with the New York Regional Plan indicate the likelihood of the outward movement being continued so as to provide the necessary demand for housing and recreation facilities which are going to be offered by Lawrence Farms.

"The planning of the area is being carried out in such a way as to provide exceptional attractions for the residents. While regard is being paid to the desirability of making the scheme financially sound, it will be free of those forms of wasteful speculation that impose such excessive burdens on residential communities. In an important sense, Lawrence Farms will fit in with the neighborhood idea of development, the tendency toward which is so pronounced and so welcome."



Jesse A. Higgins

ALTHOUGH construction is in the forefront of American industry and has passed through an era of unusual prosperity, it still has many problems to confront, most of which can be solved by intelligent education and co-operation. Fortunately, leaders have arisen within the industry—men of genius and administrative ability—who have done much to expose these evils and bring about better conditions. Organization has been the cry—that is, the solution. And so we find organizations everywhere—organizations of builders and contractors, city, state and national; organizations of lumber, steel, brick, cement, and all sorts of building material manufacturers, distributors and dealers—also city, state, sectional and national; and, finally, organizations of building trades unions—local, state and national.

The AMERICAN BUILDER believes in organization; but, having the good of the building industry at heart, is in favor of greater unity than there has been in the past. The local builders' exchanges and the associations of building trades employers have done and are doing good work but are they always in perfect accord and supporting wholeheartedly both local and national officers of the Associated General Contractors? Or, take the local contractors' organizations, such as the employing plasterers or the master plumbers or any one of the long list, are they not each more interested in their own particular problems—even where there is some division and conflict—than they are in the good of the industry as a whole?

There can scarcely be too much organization, provided it is all lined up in unified support of the best interests of the industry. It is this unity and co-operation which AMERICAN BUILDER strongly urges upon the many organizations in the building industry. And the building industry of Cincinnati, under the wise leadership of its local officers and the unified plan of that master organizer—Jesse A. Higgins—has shown the way.

Here is a plan which the building organizations in every city of the United States can follow to advantage.

Solving The Problems of the Construction Industry

*Describing the Allied Construction
Industries' Organization in
Cincinnati*

For it unites under one roof and one unified plan of operation practically all the building organizations and construction interests of the Queen City of the West. The name adopted—Allied Construction Industries—expresses perfectly the purpose and plan of this organization which has been perfected during the past year.

Before outlining the organization of the Allied Construction Industries of Cincinnati, it will be instructive to consider briefly the problems of the construction industry—in other words, the need for organization and what this organization can hope to accomplish. First and foremost, is the need for fair competition. To use a much-abused phrase, contracting is work for real "he-men." Such men do not fear honest competition. They ask no special privileges. Perhaps this is one reason why many abuses have crept into the awarding of contracts tending to injure responsible contractors. These men, today, realize the need for letting in the light on unfair practices which do not benefit owners or architects but do injure reputable contractors.

Jobs let to irresponsible low bidders almost always cost more in the long run, to say nothing of delays, litigation and buildings of poor quality. This practice has given the building profession a "black eye." Here originated the public idea that builders and contractors are always looking for a chance to "skin the job," whereas, builders and contractors as a class, are above the average in honesty and fair dealing. The irresponsible contractor, lacking bona fide capital and equipment, can only gain the right to bid on important jobs through misrepresentation.

Sometimes, bonding companies, sometimes bankers, sometimes manufacturers of building material or equipment, sometimes their distributors or dealers are parties to misrepresentation on bidders' qualifications. There are cases constantly on record where building and public works' contracts are left partially completed, tied up with mechanics' liens. Bids from bidders of this character should not have been entertained in the first place. It is obviously unfair competition. Therefore, the elimination of irresponsible contractors will be a blessing to the entire industry. But there must be a united front

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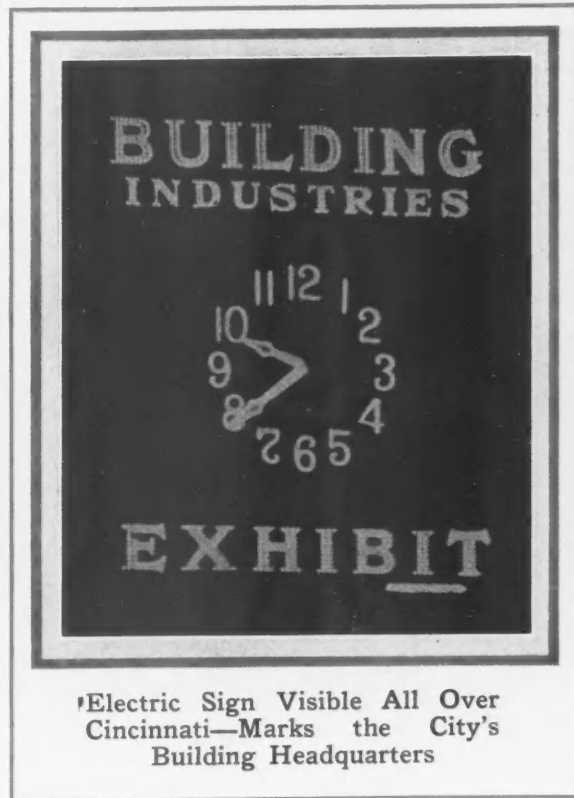
in order to safeguard the industry against these irresponsibles. Uniform and strict standards of credit will go a long way to weed out these irresponsibles in any city where stringently applied through a centralized credit bureau.

Such a credit department is one of the strongest features of the Cincinnati plan and it gives every prospect of accomplishing its purpose.

There are many other benefits of a constructive character in connection with such a complete organization as that of the Allied Construction Industries in Cincinnati. What are these benefits, you ask? It is difficult to summarize them. Mere phrases and generalities do not do them justice. "Greater efficiency" is a cold term. "Reduced expenses" may seem a questionable motive. "Smoothly working members of a harmonious whole" sounds complicated.

"Elimination of unfair competition"—undoubtedly a main objective. "Reduction of credit losses"—this will surely interest building material and equipment dealers. A law department to watch and construe legislation affecting builders, quantity surveys, safety engineering, quick adjustment of labor disputes and jurisdictional awards—these are all live issues in the building industry; and the method of handling them under the Cincinnati plan will be of interest to architect and engineers, builders, contractors and dealers everywhere.

This brings us to the organization of the Allied Construction Industries and its various departments and divisions as now constituted. It consists of seven officers, a board of directors numbering 40 and a staff consisting of a general manager, general counsel and the managers of the four departments of credit, engineering, membership and publicity, under the supervision of the general manager, in this case, Jesse A. Higgins, the author of the plan. Then, there are the various divisions, each operating separately on matters within



'Electric Sign Visible All Over Cincinnati—Marks the City's Building Headquarters

their separate jurisdictions. These will be listed a little later. Each is represented on the board of directors and has full membership privileges as individuals. The elected officers of the Allied Construction Industries in Cincinnati are:

- G. Ellis Hummel, President.
- Gus Sauer, Jr., 1st V. Pres.
- David Gordon, 2nd V. Pres.
- G. E. Jones, 3rd V. Pres.
- Frank Agness, 4th V. Pres.
- W. F. Ahlbrandt, Secretary.
- George Jones, Treasurer.
- Lem S. Miller, General Counsel.

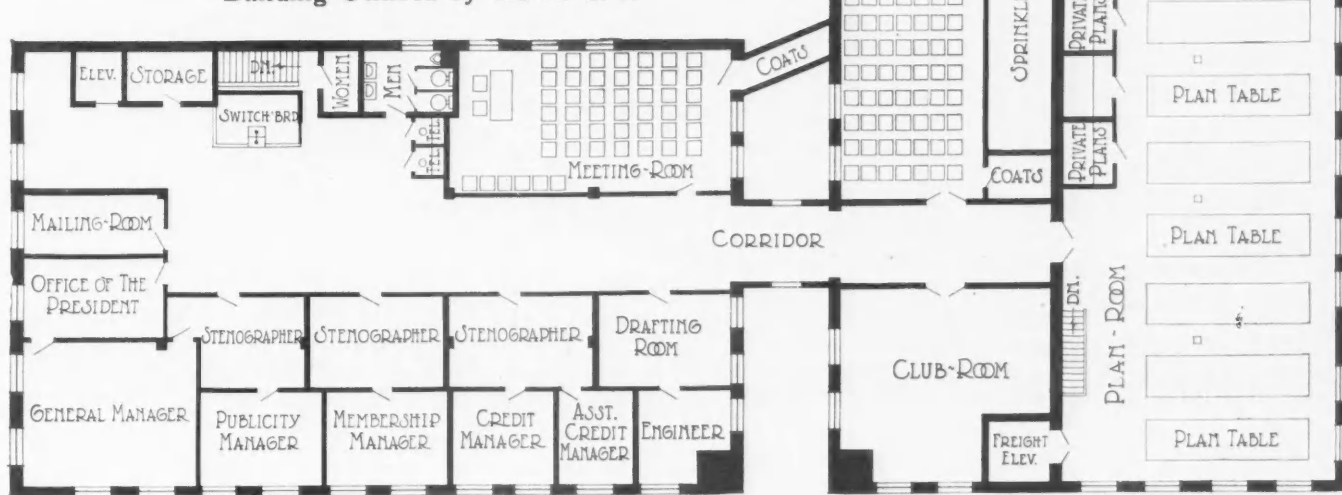
Of these, one is a cut stone contractor, one a plastering contractor, one a public works contractor, one a general contractor, one a building supply dealer, one a sheet metal contractor and one a plumbing fixture dealer. Twelve out of the 37 directors are general contractors and a majority of the others, sub-contractors.

In his last mid-year message, President Hummel said, in part:

"As a means of solving industrial problems and improving conditions generally, the trade association movement is constantly attracting more and more attention. Everywhere, business executives are showing their faith in association work by aligning themselves with their proper trade group. Many agree that results are possible through associated effort that could not be attained in any other way. . . . Truly it has been said, that in association work we must make haste slowly. Especially slow is the development of a plan so comprehensive as Allied Construction Industries. Within my knowledge, there is no other city in the

(Continued to page 152)

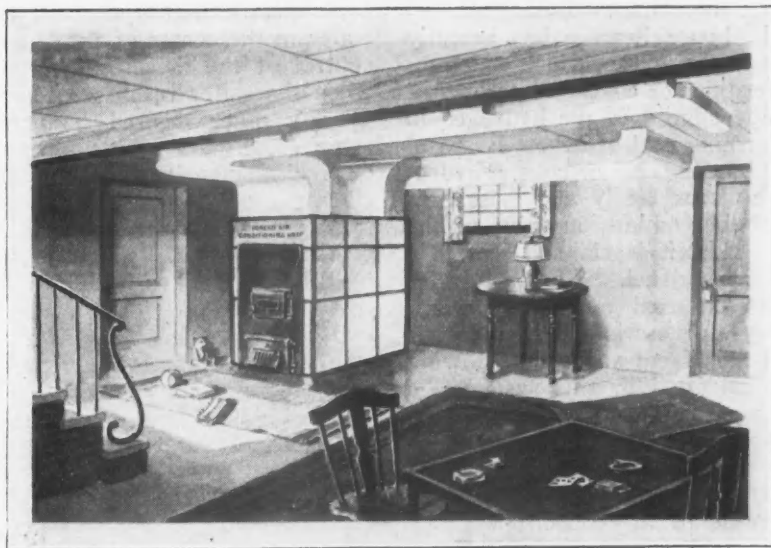
Layout of Entire Floor in the Building Industries Building Utilized by the A. C. I.





CONSERVATIVE *Modernism in the Furnishing and Decoration of the Dining Room in an All-Electric Home at Flossmoor, Ill.*

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*Warm Air Furnace with
Electric Fan Circulation*

Better Equipment in Modern Basements

By E. A. MAGURN

IN the January issue I made some comment on the proper design of modern basements and coal bins for the clean handling of coal. This, naturally, leads us to a consideration of heating systems.

Of all the equipment in a basement, the heating plant is probably the most important. Generally speaking, steam heat is best adapted for very large homes or apartment buildings, although vapor heating is becoming increasingly popular for small, as well as large, buildings. Special heating systems are now available with valves at each radiator which operate a vacuum and suck the hot vapor into the radiator when the temperature in that radiator falls below a pre-determined point. These heating systems are giving great satisfaction. Whether steam, vapor or hot water is used, it pays to install a good boiler—some well advertised and reliable brand—which will add to the resale value of the property.

Warm air furnaces have many adherents and it is a fact that a well designed and well installed warm air furnace of proper size will provide healthful, efficient heat. The recirculation of the air in the house is an important health factor, especially where the air is properly purified and humidified. One of the latest developments in warm air furnace heating is the use of electric fans to cause a more rapid and even circulation of the air than where gravity is relied on for circulation. With the fan driven circulation, there need be no rooms favored by the heat on one side of the house and colder rooms, with little or no heat on the other. Furthermore, with forced circulation, the warm air pipes do not require constantly ascending angles, but can be installed so as to leave more headroom in the basement.

In connection with the fan-driven circulation, enterprising furnace manufacturers have introduced air filters in furnaces. These filters consist of chemically treated fabrics stretched tightly on frames extending across the cold air duct at a point just before it enters

the furnace and directly in front of the fan. Any dust in the air of the rooms is drawn off by the air circulation, drops through the cold air duct and adheres to the oily surface of the air filter fabric. Provision is made for convenient removal, cleaning and renewing of these fabrics. This is a feature contributing both to health and housekeeping ease, and one which has a strong appeal for the feminine contingent. Frequent dusting of furniture and fixtures should be unnecessary in a home having this equipment.

A comparatively recent development in coal heated homes is the domestic stoker, which provides a clean form of heat. It also has an economy feature which will pay for its cost. A metal hopper is installed alongside the furnace which must be filled by hand from the coal bin. After the hopper is filled, the burner will operate automatically anywhere from 24 hours to a week, depending on outdoor temperatures. Then, of course, it must be refilled. These domestic stokers are driven by electric motors, one motor serving the double purpose of operating a screw conveyor and also providing forced draft at the burner. A thermostat controls the motor, starting it when the temperature in the house drops below the predetermined level and stopping it when the temperature in the house rises above the set point.

The principle upon which the domestic stoker functions is a small volume of fuel burned at a very high rate of combustion and renewed by automatic feeding. This does away with any bed of ashes. The little ash and clinker formed is pushed out of the burner by the moving coal and drops into the ashpit. The flame from one of these burners is copious, rising high and bright, resembling the flame from an oil burner. The economy feature in connection with these stokers is that they use the cheaper, smaller grades of coal, such as pea coal, having a price several dollars a ton below that of egg or lump. There is also an economy in the more perfect combustion, which burns all the coal gases,

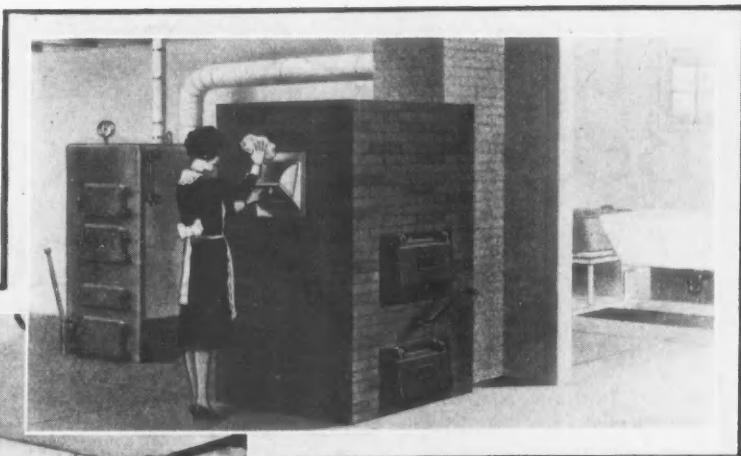
instead of wasting them up the chimney flue.

A new development in house heating has recently been perfected and placed on the market which generates its own gas from coal screenings or coke. The principle on which it operates is the affinity of the hydrogen in steam for the carbon in burning coal or coke. By passing the steam through the burning coal or coke, a hydrogen gas is formed which burns freely and is said to add to the B.t.u.'s in coal the combustion value of the hydrogen in the water. This, it is claimed, forms a very economical and efficient fuel. Endless grates moved by an electric motor are used to form a continuous, automatic method of gas generation. The resulting fuel gas burns clean and free from soot. As showing the power value of gas generated by this system, the inventor, several years ago, equipped an automobile with a special gas generator built on this principle which traveled from Chicago to New York entirely on the gas generated by this device, without the aid of gasoline or any other type of fuel for the internal combustion motor.

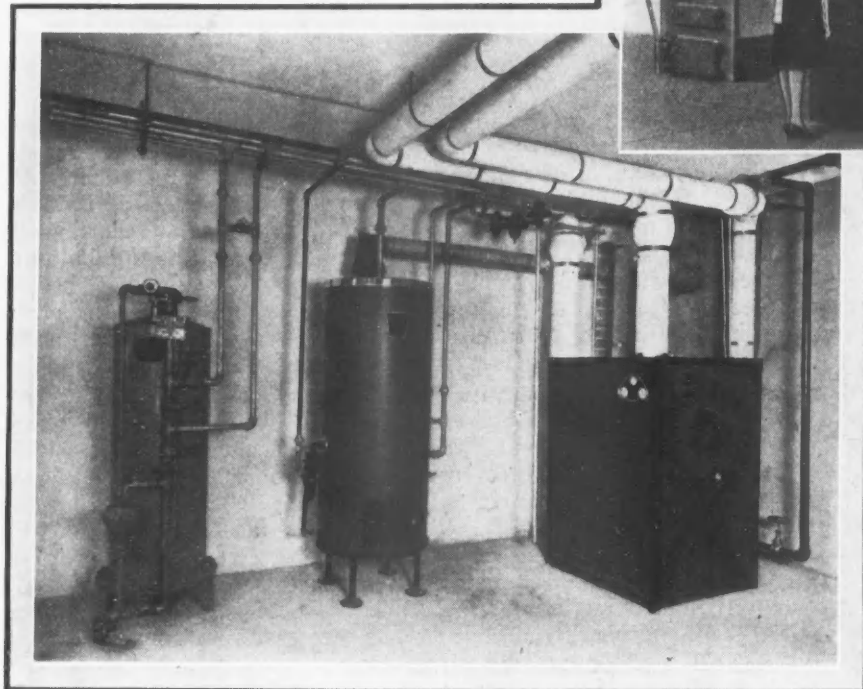
The house heater which is an outgrowth of this form of gas generator occupies about the same basement space required for the ordinary coal furnace or boiler and adds to the range of choice another form of

An electric heating element stands in contact with the water in the center of the storage tank. An automatic control of the thermostatic type turns off the current when the water reaches a temperature of 150 degrees, or any other desired temperature, and turns it on again when the temperature of the water falls below the desired point. The cost of heating water with this electric heater varies with the cost of current in different localities. At two cents per K.W.H.—a rate procurable near the source of hydro-electric power—the device will heat 100 gallons of water to 150 degrees, Fahr., at a cost of 50 cents. This would provide bath water for two persons. The tank has a capacity of 18 gallons at one draw-off; this is equal to 40 gallons of water tempered to bath temperature.

A prime necessity in any house is the water supply. To those of us living within the corporate limits of



Above: Bricked-In Basement Garbage Incinerator.



To Left: Water Softener, Automatic Storage Water Heater, and Gas-Burning Heating Plant—All Popular Necessities for the High Class Home.

clean automatic heating, as there is but very little ash residue.

The automatic hot water supply is another feature which every man, as well as every woman, appreciates, meaning, as it does, hot water for bathing, shaving, kitchen or laundry purposes on tap day or night. The automatic hot water supply is not wasteful or expensive to operate since it is well insulated and a hydrostatic governor turns down the gas flame when the temperature of the water reaches a predetermined point.

Another recently perfected system of domestic hot water supply is electrically operated and heated. This type is super-insulated against heat loss, having five inches of plastic asbestos between the heavy sheet steel storage tank and the outer shell of sheet steel, which is handsomely finished in blue Wedgewood.

city or village, this seems a simple matter of connecting up to the municipal pipe lines. However, it should not be forgotten that a large percentage of the population reside beyond the areas having municipal water supply. These are not all farmers, by any means. Country estates are becoming increasingly popular for people of means. In the Adirondacks, along both coasts and around most of our principal cities, these country estates will be found. Then, there are the summer resorts and outlying golf colonies, also the newly opened residential districts just beyond the boundaries of our big cities and suburbs. All the comforts of water under pressure are available for these dwellers—for kitchen, laundry and bath—by means of motor-driven pumps and pressure tanks. Complete water systems for private installation are to be had at reasonable prices. By means of such

(Continued to page 154)

Tests Prove Diagonal Sheathing Best



Fig. 1 (Above)
— Diagonal
Sheathed Test
Panel Un-
braced.

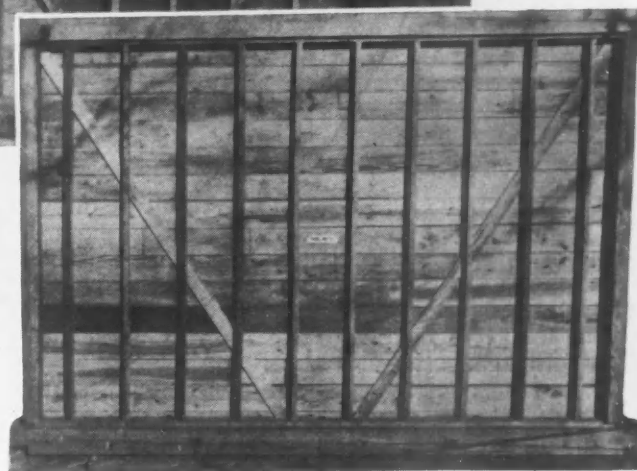


Fig. 2 (Above)
— Herringbone
Braces Add
Little Stiff-
ness.



Fig. 3 (Above)
— Diagonal 2
by 4 Cut-In
Braces Im-
prove Stiffness
60%.

Fig. 4 (Be-
low) —
Braces of
Let-In
Strips Are
Most Ef-
fective, In-
creasing
Stiffness
2 1/2 to 4
Times.



Found to Increase Stiffness
400 to 700 per cent

By FRANK P. CARTWRIGHT
Chief Engineer,
National Lumber Manufacturers' Association

RECENTLY completed tests at the United States Forest Products Laboratory, Madison, Wisconsin, answer many long-standing questions about design of light framed buildings and show how to increase vastly both strength and stiffness in comparison with current practice.

For years builders have been told that diagonal sheathing makes a much stronger and more rigid frame house than horizontal sheathing. No one could say what the difference was; whether it justified the additional expense; or whether the weakening influence of windows and doors in the wall offset the benefits of diagonal sheathing. Are diagonal strips, let in to the studs, better or poorer bracing than 2 x 4 corner braces cut in between studs, or herringbone bridging at half story heights? Do three nails in each board make a wall stronger and more rigid than two nails?

These and many other questions have occurred to thousands of master carpenters, builders, architects and engineers charged with producing a strong, rigid and permanent frame structure. They were given point by tornadoes and hurricanes which in the last few years alone have wrecked thousands of buildings of both frame and masonry construction, and by earthquake insurance rates which in some parts of the country far exceed those for fire.

Definite answers to these questions are given by a series of tests just completed by the United States For-

est Products Laboratory at Madison, Wis. Prefacing its work by personal investigations in a number of storm damaged areas, the Laboratory decided that the walls contribute most to the strength and rigidity of a building as a whole. The government engineers determined also that typical, lumber framed and sheathed walls are strong enough to resist any pressure likely to be caused by wind blowing directly against them. Wall resistance to end thrust, caused when the pressure against the front is transmitted to the side walls, is a more critical point.

With this in mind, the Laboratory built and subjected to end thrust nearly fifty frame walls of full story height, (8 and 9 feet) and long enough, (12 and 14

feet) to show how a real wall would act under extreme conditions. These walls were framed with 2 by 4's at the usual 16 inch spacing; the sole plate or sill was bolted to a fixed base, and pressure was applied horizontally at the top plate in the plane of the wall surface. End posts, corresponding to the corner posts of a house, were built up in the usual way with three 2 by 4's. (See Fig. 1).

Both the rigidity of the walls, as shown by the end

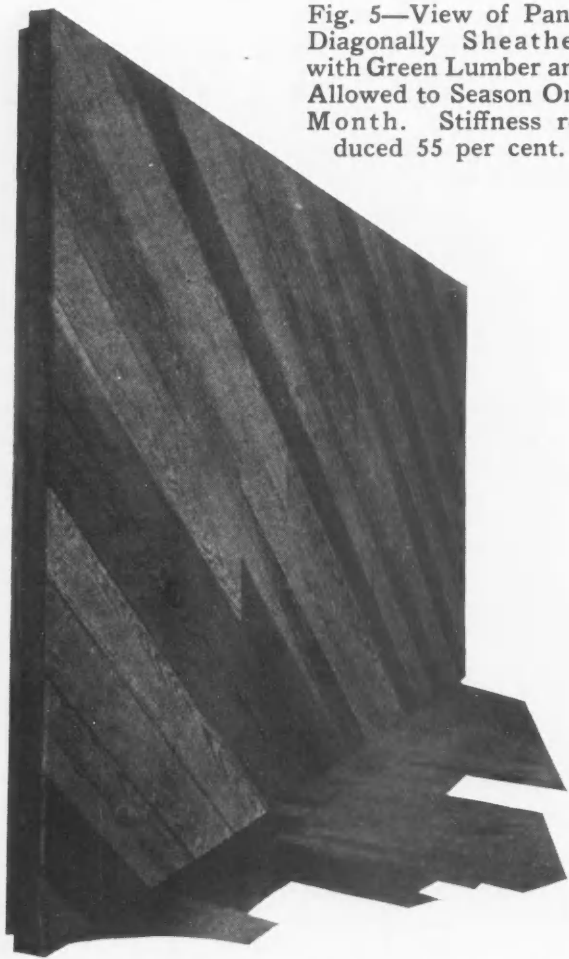


Fig. 5—View of Panel Diagonally Sheathed with Green Lumber and Allowed to Season One Month. Stiffness reduced 55 per cent.

thrust necessary to cause a given movement of the end posts from their upright position, and the strength, as evidenced by the end thrust necessary to cause failure of the whole panel, were measured. The results given hereafter are in pounds, but are far better understood by using the average strength and stiffness of a double-nailed horizontally sheathed panel as a basis. Thus, if we take as (1) the strength of the horizontally sheathed panel with two nails in each board at each stud, the strength of a diagonally sheathed panel will be about (8) eight times as much. If the stiffness of the horizontally sheathed panel is also taken as (1) that of the diagonally sheathed panel with the boards in compression is about (7).

Conclusions from Tests

The tests covered the following principal factors affecting strength and rigidity of light framing:

1, Frequency of nailing; 2, Size of nails; 3, Inclination of sheathing; 4, Types of bracing; 5, End matching; 6, Seasoning of lumber; 7, Effect of window and door openings; 8, Effect of lath and plaster.

Frequency of Nailing

Three nails per stud in horizontal sheathing boards do not increase the wall stiffness appreciably, since the

middle nail of the three is about at the center of the resistance couple set up by the outside nails. It acts, in other words, just as though it was the only nail in the board.

Four nails per stud in 1 by 8 inch horizontal sheathing increase the strength and stiffness about 40 per cent. The resistance of the inner pair of nails to twisting is naturally less than that of the outside pair.

The effect of more nails on diagonal sheathing is much more important. Here the sheathing boards act with the framing as tension or compression members of a small truss, and each additional nail holding them in place adds considerably to the strength of the whole. Three nails instead of two increased the stiffness from 3.8 average to 5.2 and four nails brought it up to 7.5. Increases in strength were not measured but were well beyond any strength likely to be required of frame construction.

Size of Nails

When a horizontally sheathed panel gives way, due to end thrust, it is usually the nails which give way first. They bend and twist before the wood splits. Heavier nails therefore might be expected to make a stiffer, stronger panel, and such in fact was the case. Two 10d nails instead of two 8ds, increased stiffness of a horizontally sheathed panel 50 per cent and strength 40 per cent. When 12d nails were used strength and stiffness fell off again, perhaps because the large shanks split the boards more seriously.

Larger nails made little improvement in strength of diagonally sheathed panels, because the boards are not twisted about the studs when such panels resist pressure, and the greater strength of the nails was not brought into play.

Diagonal Sheathing

With two 8d nails per stud, a diagonally sheathed panel is about eight times as strong, and from four to seven times as stiff as a similar panel horizontally sheathed. When it is realized that this tremendous increase is secured in the average building with very little sacrifice of time and material, it is hard to believe that horizontal sheathing will continue to be used in any amount.

Types of Bracing

Several types of bracing are in common use to stiffen frame walls. Three of these methods were tested. Her-

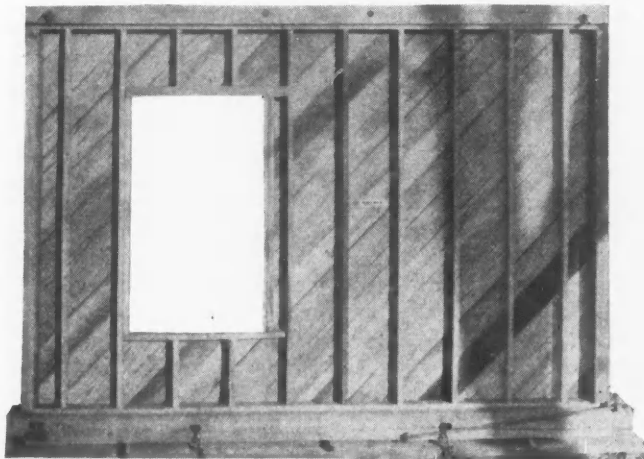


Fig. 6—A Window Opening Framed in a Diagonally Sheathed Panel Reduced Its Stiffness 28 Per Cent and Its Strength About 40 Per Cent.

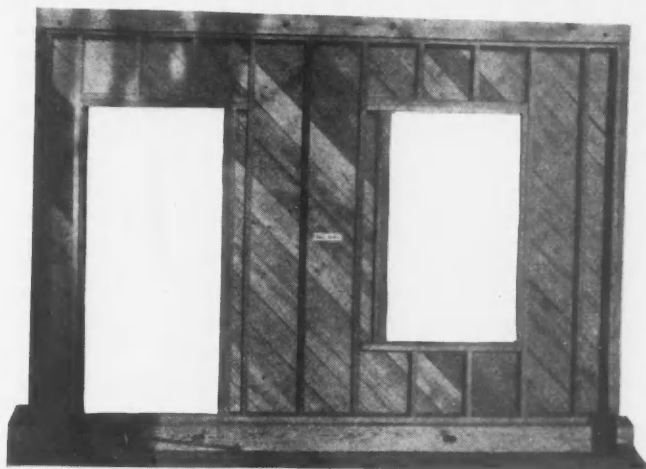


Fig. 7—A Door and Window in a 9 Foot by 14 Foot Diagonally Sheathed Panel Reduced the Stiffness 63 Per Cent and the Strength 50 Per Cent.

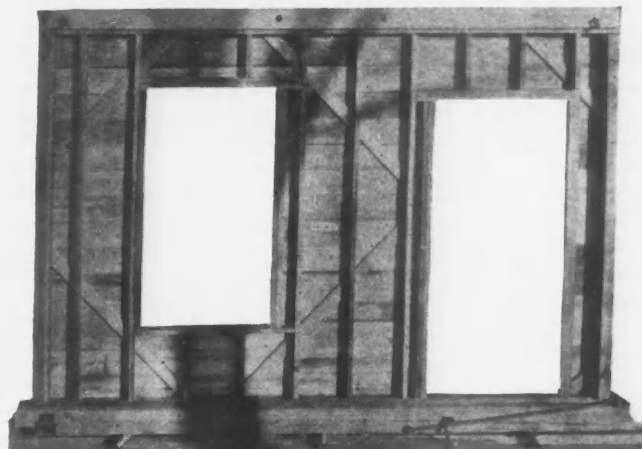


Fig. 8—Diagonal Let-In Braces in a Horizontally Sheathed Panel More Than Make Up for the Weakening Effect of a Door and Window.

ringbone bracing, Fig. 2, or "fire-stopping" as it is sometimes wrongly called, increased the stiffness of a horizontally sheathed panel only 30 per cent and the strength only 10 per cent. Two by four braces cut in between the studs, Fig. 3, brought improvements of 60 and 40 per cent.

The important discovery made in this field was that 1 by 4 inch strips, let into the faces of the studs beneath horizontal sheathing (Fig. 4), increase the stiffness from two and one-half to four times, and strength about three and one-half times. For situations such as in farm buildings, airplane hangars and small garages, where sheathing is omitted and siding applied horizontally, the let-in bracing strips offer far the best assurance of stiffness and strength.

End Matched Sheathing

Relatively few builders have had experience with the side- and end-matched roofing and sheathing boards just becoming commercially available. Their advantage is that the ends do not have to be butted over the studs and no sawing is necessary except at openings or corners. Waste is almost eliminated.

Tests were made to find out if walls thus sheathed are as strong and rigid as when the boards are butted over the studs. 1 by 6 inch side- and end-matched boards gave as good results as 1 by 8 inch butt edged boards.

Seasoning of Lumber

In some parts of the country, and particularly on farms or for low-grade building operations, buildings are often built of green or partly dried lumber. Results are seldom satisfactory. To discover what happens when such lumber dries out two panels were sheathed horizontally and two diagonally with green lumber. These were given a month under cover to dry out, and were then tested. The horizontally sheathed panels lost in drying about 40 per cent of the normal stiffness and 30 per cent of the strength of dry-sheathed panels. The diagonally sheathed panels decreased in relative stiffness from about 4. to 1.7. Strength tests were not made after seasoning.

The test described represents of course the most extreme conditions likely to occur as a result of using green lumber, and it would appear that several other factors may have as much or more influence on stiffness and strength than the use of green lumber.

Effect of Window and Door Openings

Openings reduce the resistance of a wall to longitudinal thrust. A double 28-inch window in a diagonally sheathed wall reduced its stiffness about 20 per cent and its strength about 40 per cent. Adding a 3 by 7 foot doorway decreased the stiffness 65 per cent and the strength 50 per cent. The wall was still twice as rigid and several times as strong as a horizontally sheathed wall with the same openings. Certain critical positions of openings may cause even greater reductions, but are not likely to occur under practical conditions.

Framing a door and window into a horizontally sheathed panel decreased strength and stiffness 20 and 30 per cent respectively.

Effect of Lath and Plaster

Wood lath and plaster, according to the tests, contributes surprisingly to strength and stiffness of a building. Installed on a panel without sheathing it afforded seven times the stiffness and four times the strength to be expected from horizontal sheathing. It increased the stiffness of a horizontally sheathed panel with window and door openings over 200 per cent. Wood lath and plaster with horizontal sheathing and let-in braces around openings as in Fig. 8 made a panel slightly stiffer than diagonal sheathing with the same openings, and nearly as strong.

The influence of wall and partition openings in causing plaster cracks is thoroughly apparent from the results with plastered panels. The top plates of those without openings moved about $\frac{3}{8}$ -inch and a thrust of 8,000 to 12,000 lbs. was necessary before plaster cracks developed. Eight hundred to 1,500 lbs. thrust and only a few hundredths of an inch movement caused cracks in those with openings. The cracks in Fig. 9 show plainly the direction of stress. Such cracks are often observable in windracked houses.

Effects of Vibration

The question naturally occurs as to whether the extra stiffness and strength of walls, secured by bracing, diagonal sheathing or other expedients will survive the loosening effects of many storms, occurring throughout the life of a building. To discover what these effects might be, several panels were set in a vertical position on the table of a large box-testing machine. This machine is designed to jerk a box of merchandise,

placed on its table, sharply back and forth, imitating the racking and swaying effect of railroad or truck transportation.

In this instance the "throw" of the machine table on which they were placed was such as to jerk the panel out of plumb at each vibration about two-thirds as far as it would go under the regular pressure test without permanent damage. Two horizontally sheathed panels and two diagonally sheathed panels were thus subjected to 50,000 cycles of vibration. One panel was horizontally sheathed with green lumber, allowed to dry out one month, and then give *one million* cycles of vibration.

Fifty thousand cycles, 100,000 severe endwise jerks, did not decrease the stiffness or strength of the dry-sheathed panels perceptibly. The losses in stiffness and strength of the green-sheathed panel after 2,000,000 jerks were only what might be expected of a green-sheathed panel subsequently dried out.

earthquakes or destructive winds, the further consideration of safety to life makes it almost imperative that the benefit of such precautions be widely advertised and certain features perhaps included in building codes.

Commenting on the tests, the Forest Products Laboratory's report states:

"Plaster on wood lath may furnish all the rigidity necessary for most purposes under normal conditions. However, as the plaster begins to crack from shrinkage, settlement, or other causes, the rigidity of the sheathing comes more and more into play, thus in violent winds or earthquakes it is the sheathing that becomes all important in preventing complete destruction. It is logical too that slightly more resistance than is necessary to resist ordinary distorting influences will in the long run more than pay for itself through diminishing, if not entirely eliminating, needless annoyances and frequent maintenance costs that result from the structure getting out of alignment. Diagonal or well-braced hori-

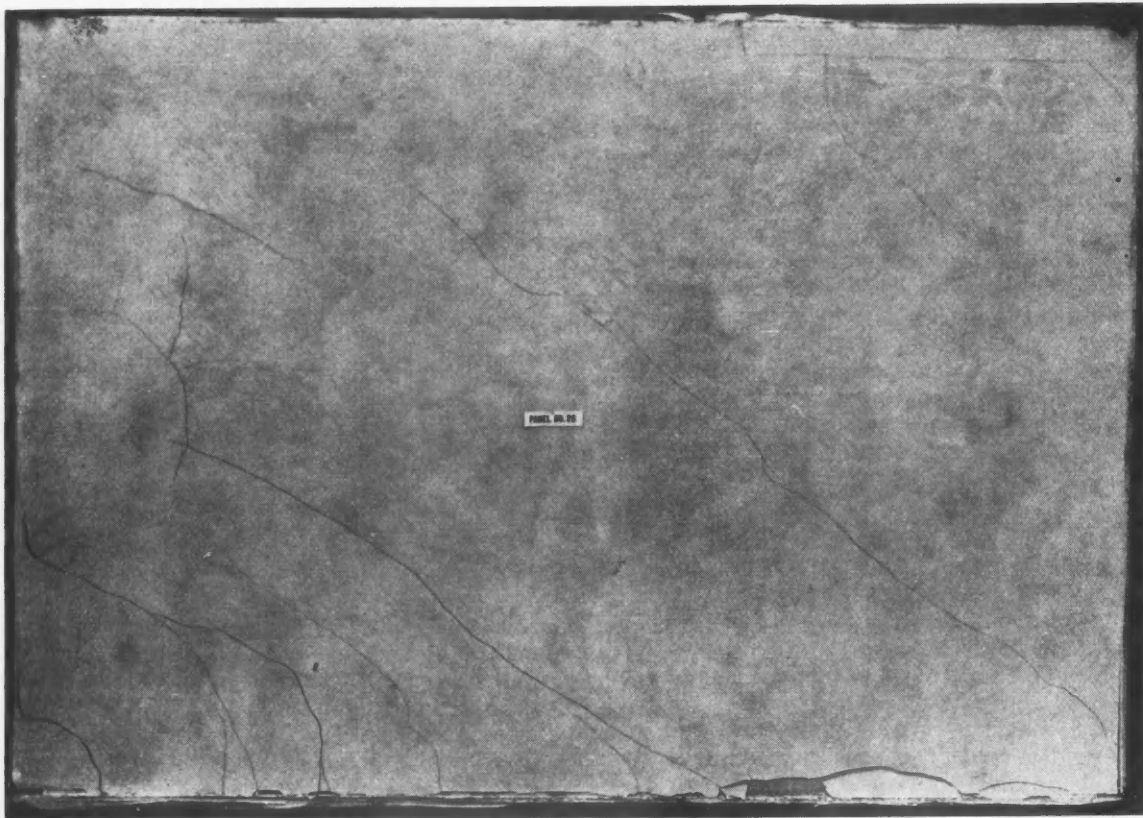


Fig. 9—
Plaster
Cracks
Show
Plainly
the Di-
rection of
Stress.

Significance of Tests

Over four-fifths of the houses in this country are of frame construction. When the number of garages, shops, barns and other farm buildings built of lumber are added to this total, the significance of the tests described becomes apparent. Easily a billion dollars is expended on lumber farm buildings annually. Perhaps another billion is spent on small garages, on airplane hangars and on other light framed structures. Much more is expended on dwellings. A few simple precautions, such as use of diagonal sheathing; or effective let-in bracing, the use of heavier nails on horizontally sheathed structures or of more nails on those diagonally sheathed; the employment of lath and plaster with its tremendous stiffening influence on the structure; and of reasonably dry lumber, will increase the strength and stiffness of these buildings much more than now generally realized, and will extend their consequent prospect of structural durability correspondingly.

In portions of the country threatened constantly with

zontal sheathing affords far more rigidity than horizontal sheathing without bracing. Either diagonal or horizontal sheathing is important from the standpoint of insulation and also assists in distributing concentrated loads. The amount of stiffness essential to good construction is not yet known and must be determined by experience.

"The old 'braced-timber' frame which originated in New England had far more rigidity than was needed perhaps, but the hundreds of old houses still standing bear witness to the fact that rigidity went hand in hand with permanence. Today we cannot afford to use in moderate priced houses the heavy type of construction employed then. The modern adaptation of the braced frame with its small built-up corner posts and light corner bracing or the present-day balloon frame with the studs carrying through for two stories represent a great economy of material over the old style of braced frame.

"Through a modern tendency to cut costs, bracing is often omitted and horizontal sheathing is used."

"It is only by having prosperous contractor customers that we can continue to operate at a profit."

—GUY BURRUS,
Sales Mgr.
Indiana Lumber & Mfg. Co.



*Sample and Display Rooms
in the Offices of the In-
diana Lumber & Mfg. Co.,
South Bend, Ind.*



Dealer-Contractor Teamwork

*How Home Building and Modernizing Are
Successfully Handled in South Bend*

THE building material dealer and the building contractor are both essential factors in the building industry, essential to each other as well as to the prospective owner. That is the principle on which the Indiana Lumber & Mfg. Co. operates and on which it has built up an outstanding business success in the industrial community of South Bend, Indiana. More than 30 years ago the business which is now known by this name was started as a contracting organization. As the dealer end of the business developed it continued to engage in building, though on a less extensive scale, until a few years ago. It was then decided to get entirely out of contracting and today the company is a strictly dealer organization. This was in direct line with the principle stated above, a principle which involves 100 per cent co-operation between dealers and contractors.

This idea of co-operation is carried out all along the

line. Several advertisements typical of the copy being run regularly in the two South Bend papers are reproduced here. The Indiana Lumber & Mfg. Co. offers complete service to home builders including the service of putting them in contact with a reliable contractor.

Through this advertising the company is able to make contact with many prospective home owners. It assists them to plan a home suitable to their needs and financial resources, furnishes them high grade materials and, when necessary, assists with the financing problem and turns the making of the contract over to one of its regular contractor customers. This same method is followed with every job which the company lines up whether it be a new house, a remodeling job, reroofing or painting.

"We keep a salesman on the job all the time," said Guy Burrus, sales manager of the Indiana Lumber & Mfg. Co. "This salesman not only follows up the

jobs which we contact through our advertising but also assists our regular contractors to sell their jobs.

"Often a contractor will have a prospect on which he has called two or three times but has been unable to close a contract with. If he continues to call the prospect gets the idea that he is too anxious for the job. That is where the danger of price cutting comes in. When the prospect thinks the contractor is too anxious he starts to bargain and the contractor may be forced

to take the job at a price which will leave him no profit.

"Now we believe that it is better to lose a contract than to take it at a figure which does not permit a fair profit, better for the contractor and better for the owner, since the contractor won't be tempted to shave a bit on quality to save a loss, and better for us since it is only by having prosperous contractor customers that we can continue to operate at a profit.

"When such a situation comes up our salesman calls on the prospect. When a third party steps in and tells the prospect what is a fair price he is pretty likely to believe it. Many contracts are closed for our contractors in this way.

"This is especially helpful to the smaller contractors. Many of these are first class workmen and can do as good a job of building as the bigger organizations. They lack business and selling experience, however, and are likely to make mistakes in making contracts. Some of them do not know how to draw up a contract themselves and it is surprising to see what is often left out of contracts drawn by some of these contractors.

"Many of them do not have any proper system of estimating and here, again, our co-operation serves by keeping them from costly errors. It is very easy for a small contractor who does not do a great deal of estimating to omit completely some large item in the cost of a house. We had a case like that not long ago.

"One of our regular contractor customers came to us with a job on which he was figuring. The house was almost identical with another on which he had actual cost figures. His estimate on the new job, however, was about \$600 less than the other and he could not understand why. Our estimator checked the figures and found that he had left the plumbing out of his estimate entirely. It is such mistakes that make the contracting business hazardous when they are not discovered until after the contract is signed and it is such mistakes that we are anxious to help our contractors to avoid."

The Indiana Lumber & Mfg. Co. is a member of the Associated Leaders of Lumber & Fuel Dealers. This organization provides a financing service on second mortgage financing. The company adopted this service primarily for use on what it terms "finance jobs." This term is used to indicate jobs where the bulk of the financing must be arranged for the prospective owner. For example, a prospect may have a lot worth \$1,000 and no cash. He wants to build a house costing about \$5,000. His income justifies such a program but both first and second mortgage financing are necessary to carry it out. Here is where this service is used.

The service is used quite generally by the company's contractors. Of course many of the larger contractors are in a position to handle the entire financing problem for themselves. But for the smaller contractors this service makes it possible to handle many jobs that otherwise could not be handled. This service is just one more point in the program of co-operation.

According to James W. Taylor, Jr., secretary of the company, there are a number of the younger group of contractors who are coming to the front in South Bend. These younger men appreciate the importance of selling. They are rapidly getting more and more work and will, within the next few years, be an important factor in the city's building operations. They are just the men who are most aided by this financing plan. The co-operation which the Indiana Lumber & Mfg. Co. gives them through this plan is enabling them to get started in the contracting business and will make them long time customers of the company.



We'll send you a reliable contractor

JUST CALL 3-6131. Ask for our **HOME SERVICE DEPARTMENT**, and tell us the nature of the work you wish to have done.

Most people, particularly for odd jobs of repairing and remodeling, do not know the man for the job. We do. With Branches in every section of the city, we are always in a position to find for you a reliable contractor.

There is no charge for this service. Feel free to call on us at any time.

You will get
PROMPT
ATTENTION



INDIANA LUMBER & MFG. COMPANY

Main Yard & Factory, 742 South Michigan St. 3-5131

NORTH SIDE BRANCH 518 North Scott Street. 3-6768
EAST SIDE BRANCH 120 South Niles Avenue. 3-6370

SOUTH SIDE BRANCH Cor. Miami & Penna. Aves. 2-5692
WEST SIDE BRANCH Cor. W. Wash. & Brookfield. 3-3071

MISHAWAKA LUMBER YARD
Cor. Fourth & Union Sts. Mish. 5-1086

Advertising Like This Is Used in Local
Newspapers.

<input type="checkbox"/> new home	<input type="checkbox"/> screens	<p>PLEASE FURNISH ME WITH FURTHER INFORMATION ON THE ITEMS CHECKED AT LEFT—WITHOUT ANY OBLIGATION ON MY PART</p> <p>NAME _____</p> <p>ADDRESS _____</p>
<input type="checkbox"/> garage	<input type="checkbox"/> storm doors	
<input type="checkbox"/> remodeling	<input type="checkbox"/> storm windows	
<input type="checkbox"/> financing	<input type="checkbox"/> folding stairs	
<input type="checkbox"/> new roof	<input type="checkbox"/> ironing board	
<input type="checkbox"/> insulation	<input type="checkbox"/> folding table	
<input type="checkbox"/> lattice	<input type="checkbox"/> rubber tile	
<input type="checkbox"/> oak flooring	<input type="checkbox"/> _____	
<input type="checkbox"/> steel sash	<input type="checkbox"/> _____	
<p>WE WILL ARRANGE WITH RELIABLE CONTRACTORS OR MASONS FOR ANY CONSTRUCTION OR REPAIRS WE SELL LUMBER, MILLWORK, STEEL SASH, ROOFING, FLOORING, INSULATION, SPECIALTIES AND SUPPLIES</p>		

To Left: Return Post-cards Like This Bring in Many Definite Jobs.

"There was a man who came to us for some materials about two years ago," said Mr. Taylor. "We had a talk with him and learned that he was a high class workman who had decided to branch out into contracting. He knew how to sell and had built two or three houses. We gave him our full co-operation. The next year he built about half a dozen houses. Last year the number increased to 10 or 12, and he is rapidly developing into one of our really strong customers.

"We have rooms in our building where the contractors are always welcome to bring their prospects. Many contractors do not maintain regular offices or at least offices which are conveniently located from the point of view of the prospect. Our building serves as an office for these men, an office located right in the heart of the city where it is most convenient to meet prospects.

"We also have a very complete catalog file which is always at the disposal of our contractors. We ourselves handle a large line of materials and specialties with samples on display in our store for contractors to show to their prospects. Besides this we are glad to co-operate with contractors in obtaining any specialty which they may require."

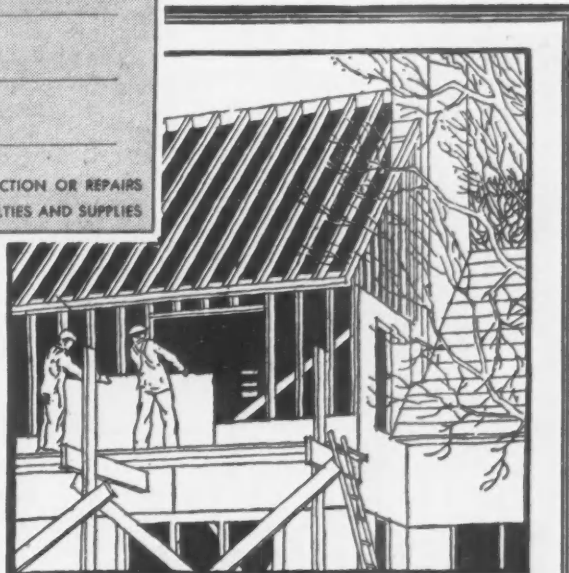
The Indiana Lumber & Mfg. Co. maintains a conservative policy on credit, which has been an important factor not only in preventing credit losses for itself but also in protecting its contractors against such losses. Each account is checked separately by three persons. Only one of these has any connection with the sales department. This individual checking guards against any prejudice which might arise from the personal point of view, interest in a particular section of the city and so forth.

The company believes that it is advisable to have credits checked by men not connected with the sales organization as their opinion is less likely to be prejudiced. The small contractor who does not have an organization in which one person can devote his time to credits, is greatly aided by the impartial co-operation of the company men. He is often saved from a credit loss arising from the prejudice of his desire to make a sale.

Strict credit investigation is justified by the fact that the actual financial situation of a prospect may be quite different from what it appears to be superficially.

"A case of the sort occurred not long ago," said Mr. Burrus. "We had a prospect who was completely sold on building a new home. He lived in a rented bungalow, held a good position at a good, though not

(Continued to page 156)



Complete BUILDING Service

BEFORE YOU BUILD or repair see us About materials, financing, plans, reliable contractors. We'll gladly give you the benefit of many years' experience. You build but once—we're in touch with building problems every day of the year.

Let's have a conference. Just call 3-6131, stop in at our office, or Send the Coupon.

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NORTH SIDE BRANCH MISHAWAKA LBR. YARD
 518 North Scott Street. 3-6768 Corner Fourth & Union Sts. 4-1086



INDIANA LUMBER & MFG. CO.
 742 South Michigan St., South Bend, Ind.

Gentlemen: I'm interested in building [], remodeling [] and I would like information on your complete building service (working through reliable Contractors) without obligation on my part.

Name.....
 Address.....
 See me (when)..... Phone.....

With Help of Local Builders Complete Service Is Offered.



Modernism in Furnishings

By KATHRYN E. RITCHIE

Assisted by the Decorative Dept., Mandel Brothers.

TO refurnish and re-decorate an old house in the modern manner would necessitate an upheaval such as few householders would be willing to undergo. A new house, however, where the proper room backgrounds which are so necessary for the use of modern furniture, can be treated in conformity with the principles of the style is the more logical starting point. We in America have up to the present time been hesitant about adopting modernism as the decorative scheme for a complete house, but are using it rather for individual rooms, a bed-room, a living-room, a dining-room, a small dressing-room perhaps, or a billiard room.

Whether or not the modern movement in interior decoration will dominate other styles to any great extent in the future, or will prove to be merely transitory in its effect, it is nevertheless a form of artistic expression which is making itself felt with gradually increasing persistence as the understanding of its principles becomes more widespread. It is interesting because it is new, but the home builder who is attracted by its originality will do well to devote a certain amount of time to studying its underlying ideas in order to be able to distinguish what is really beautiful from that which is merely eccentric or "different."

Modern furniture derives its inspiration from the planes and angles of geometry, the lines of aeroplanes, the set-back principle in architecture, the squareness and blockiness of cubistic forms. It is

marked by a plainness consisting in lack of applied ornament. Its beauty lies in its purity of line, and in the inherent loveliness of materials used—the beautiful woods with occasional bits of ivory and ebony inlay, the decorative fabrics and textiles, and the use of metals such as silver and aluminum in combination with wood.

Furniture which shows the influence of the German designs and craftsmen is generally conceded to be of the best. The rooms in the accompanying illustrations exhibit this influence in such features as the horizontally striped wallpapers, the German hand-blocked linens, and the absence of eccentricity for eccentricity's sake alone in the furniture design.

The walls of a modern room may be plain from floor to ceiling, with or without woodwork, tinted in soft tones of lavender, peach, beige, silver, or they may be covered with wallpaper of modern design, horizontal bands of graduating colors, or be covered with large squares of parchment, silver leaf, or other materials. Floors may be of large square tiles, marble or composition material resembling marble or tile; or they may be of hard wood, either partially covered with rugs or completely carpeted with soft plain thick pile carpeting in shades of beige, gray, or dark tones of plum or black.

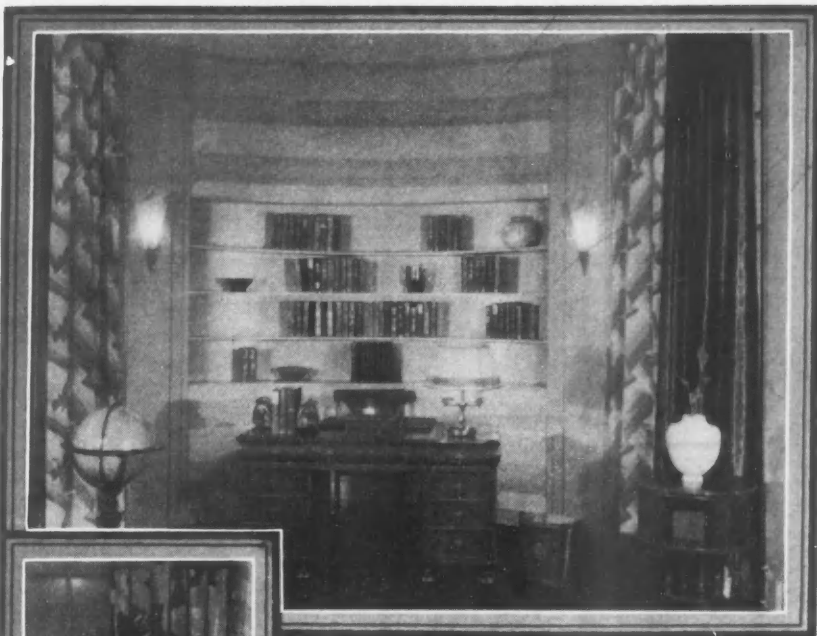
Lighting is sometimes indirectly reflected from the ceilings, which are usually plain and light, or shines diffused through frosted white glass side lights of various triangular or rectangular shapes,

which are frequently set in flush with the walls. For window curtains filmy voiles or chiffons, plain or patterned, are used with over curtains of cloth of silver or gold, velvet, brocades, satin, damasks, or hand-blocked linens hanging in long folds to the floor. The decorative accessories for a room done in the modern manner include mirrors of varying shapes and sizes, lamps with simply decorated shades, colorful books, lacquered screens, alabaster vases, metal bowls, silverware showing plain unadorned and flat surfaces.

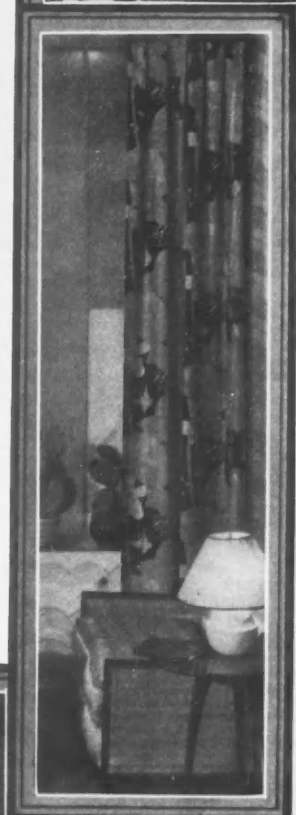
Colors favored by the modern style include many that have not been commonly used heretofore—tones such as smoke or dust; shades in the color scale ranging from cream to brown; mauve, tangerine, citron yellow, chartreuse, black and white used in strongly contrasting proximity, and silver.

The introduction of the last named as a color note is one of the most interesting developments of the modern style. It appears frequently in silver leaf used for ornamentation in combination with lacquer; and frequently in metals, such as aluminum and nickel plate in furniture construction. Aluminum book-shelves, screens, wall-niches and table tops are not uncommon. Wrought iron is also used in furniture construction and for elaborate doors, gates between rooms, stair balusters and hand-rails, and fire-screens.

Equally interesting is the use of glass, especially crystal and Lalique, and mirrors, the latter serving as wall-panels, lamp-shades, shelves, wall decorations, and tops for tables, large dining-room tables as well as various small occasional types.



One End of a Living-room or Library in Which Traditional and Modern Furniture Have Been Successfully Used Against a Modern Background.



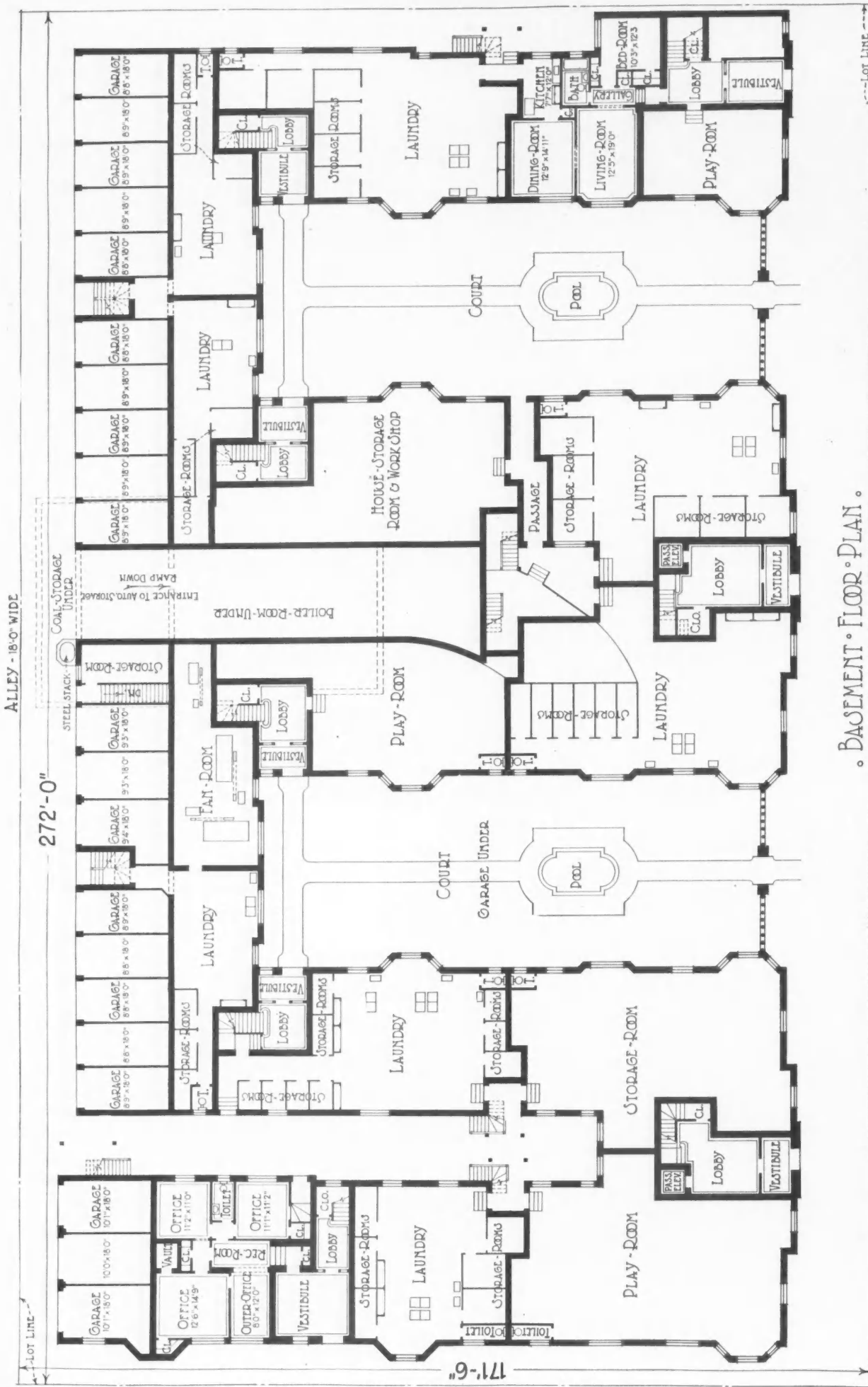
A Dressing Alcove Showing the Influence of the Modern German Style in the Horizontally Striped Wallpaper.

It is sometimes thought that modern furniture cannot be successfully used in the same room with older types of furnishings. This is not always the case. Charming effects may be obtained by a proper mingling of modern with traditional furniture, although it requires unusual discrimination to select the right pieces of each style to be combined.

To the contrary, the effect is one of greater livableness than if the interior were strictly modern in every detail. The latter treatment is better, at least during the present transition period, to hotel lobbies, foyers, ships' lounges, and public places of like character.

One of the illustrations shows a decidedly modern background created by horizontally striped wallpaper, brown and white patterned chiffon or marquisette curtains, with rich brown velvet over-draperies and modernistic side lights. The blocky grouping of the books on the book shelves carries out the modern idea further. Against this background, certain traditional pieces of furniture are used. A desk, a revolving book-table and globe-stand, and in other parts of the room not shown in the illustration, wing chairs and a drum top table are harmoniously combined with chairs and small tables of modern design, grouped about a modern fireplace. There is not the slightest feeling of incongruity or lack of harmony in the combination.

In general it may be said that only the more restrained pieces of the traditional furniture combine best with the more restrained pieces of the modern type.



• BASEMENT • FLOOR • PLAN •

Floor Plan of the Basement Space in the Pleasant-Maple Apartment Building, Showing the Large, Fully Day-Lighted Play Rooms, Laundry Rooms and Storage. The fan room for the underground garage is also on this floor.

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Leichenko & Esser, Architects.

Puts Garage in Sub-Basement

C. A. Klooster, Oak Park (Ill.) Builder of "Pleasant-Maple" Apartments, Provides Auto Storage for Every Tenant

THESE are three features in connection with the "Pleasant-Maple" apartment building which mark it as of the most advanced type. These all contribute to luxurious modern comfort—an underground garage with connecting automatic elevators, a private bath en suite with every bed room and electrical equipment in the kitchens, including electric ranges, individual electric refrigerators and kitchen ventilators.

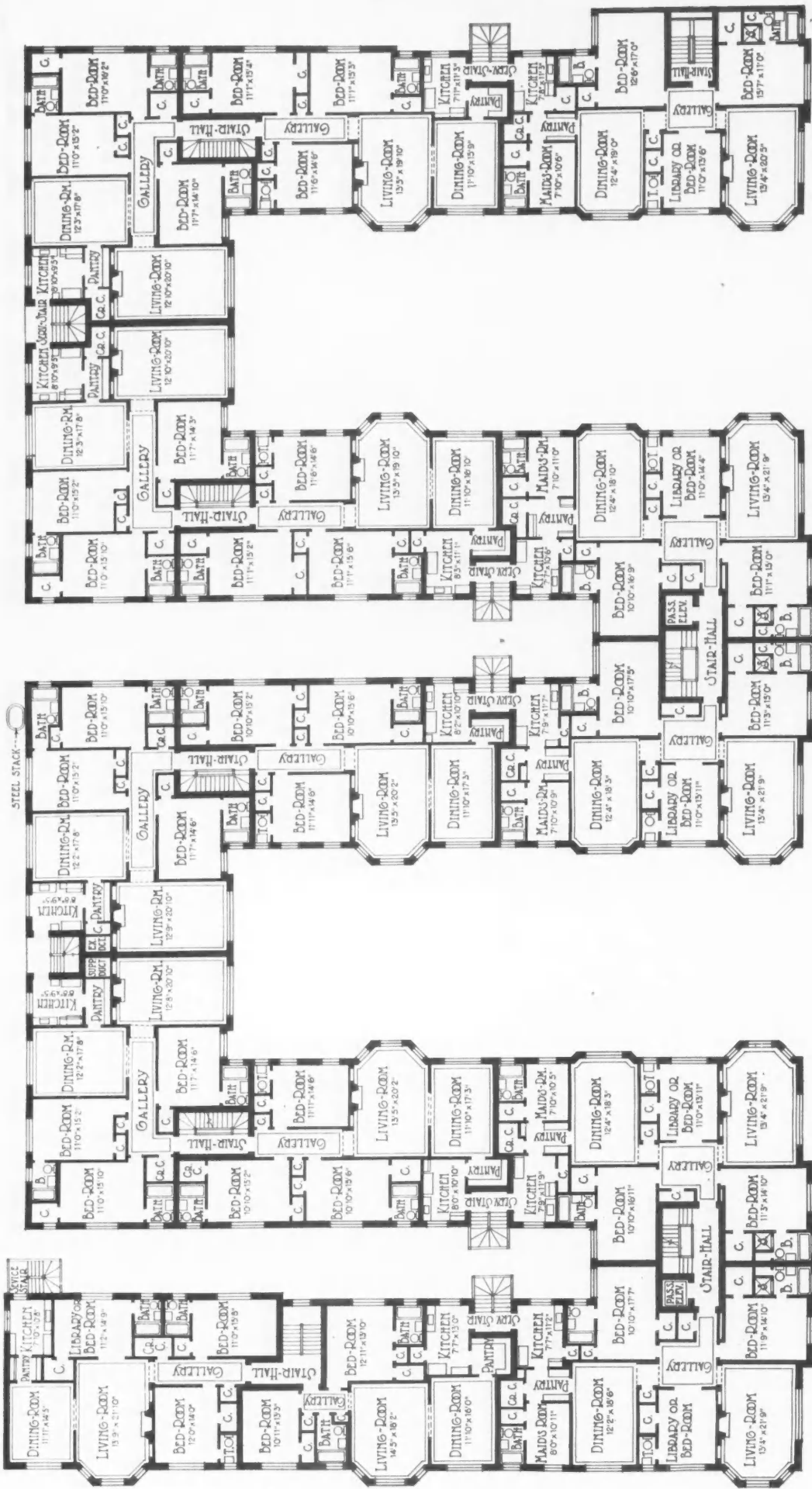
The building is M shaped, has three wings and two large landscaped courts each 38 feet wide by 105 feet in depth, and each having a pool or fountain. It contains 45 suites of apartments of five, six and seven large rooms. There are eight vestibuled entrances and lobbies on the ground floor, which is an English basement. The balance of this floor is devoted to play rooms, laundry rooms, storage rooms, offices and janitors' quarters. One play room is 54 feet long by 30 feet in width. The others—one to each wing—are smaller. The storage and laundry rooms are of liberal dimensions and these rooms are all fully daylighted.

The alley which traverses the space at the rear of the building is 18 feet wide and paved. One hundred and thirty-five feet from the entrance to this alley, a ramp leads down to a garage under the building, having storage space for about 18 cars. This underground space is ventilated by means of fans operating in a fan room above, so that all noxious fumes from car motors are exhausted into the open air. The boiler room, heating boiler and coal storage are also on this lower level.



Floor Plan of Underground Automobile Storage Space at the Pleasant-Maple Apartment Building. A ramp leads to the paved alley in the rear of the building, where there are 22 additional garages.

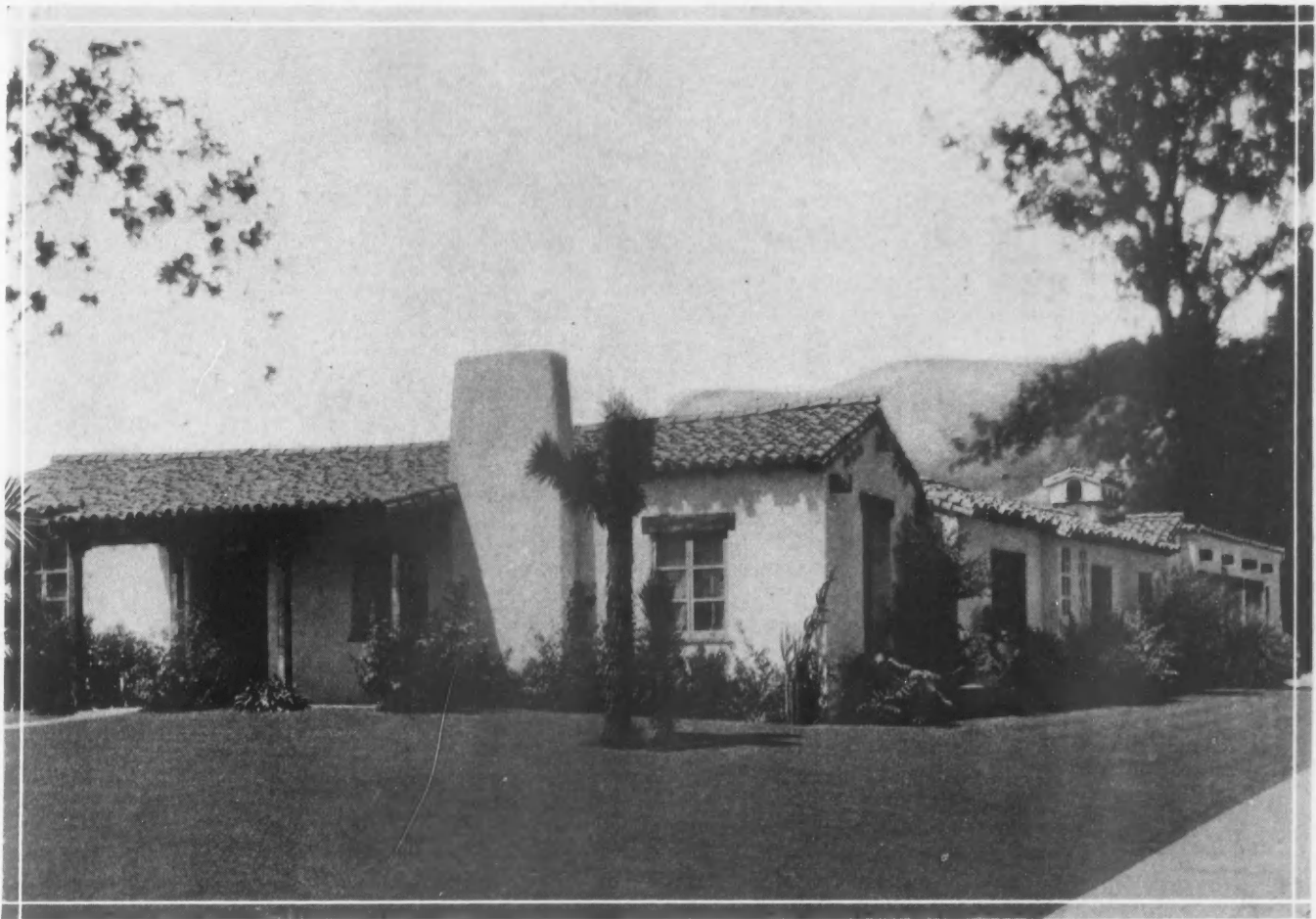
AUTOMOBILE-STORAGE-PLAN.



• TYPICAL FLOOR PLAN •

Typical Floor Plan Showing the Convenient Arrangement and Liberal Size of the Rooms in These Five, Six and Seven Room Apartments in the Pleasant-Maple Apartment Building, Oak Park. Leichenko & Esser, architects, and C. A. Klooster, builder.

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GABLE AND WYANT, Architects, Los Angeles, Cal

LIKE AN OLD SPANISH RANCHO

The Early Spanish Settlers Developed a Style of Home Particularly Appropriate to the Climate of Sunny California

SERVICE TO HOME BUILDERS

Throughout this magazine we present many building designs. A variety of home plans are included, selected from many parts of the United States and designed by various architects of standing.

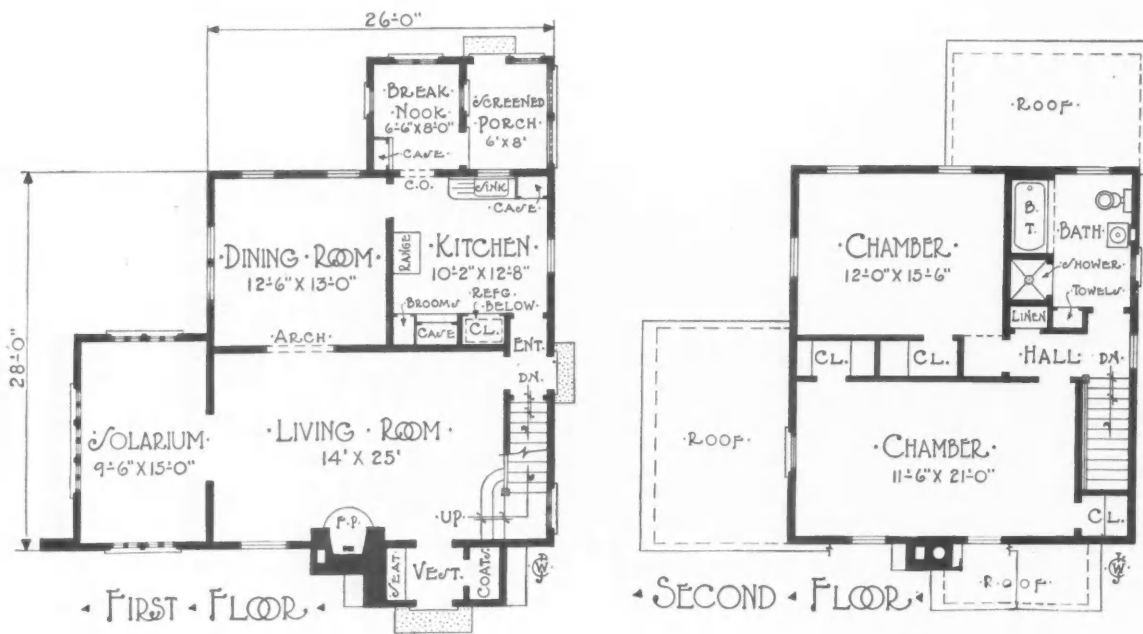
The "American Builder" will gladly serve its readers by bringing them together with these architects if any further information or plans are desired for any of these designs. Address the American Builder Home Planning Service, 105 West Adams Street, Chicago, or 30 Church Street, New York City.





AN APPEAL TO POPULAR TASTE

Here Is a Style That Is in the Highest Favor for Small Suburban Homes and One Which Always Makes an Appealing Picture

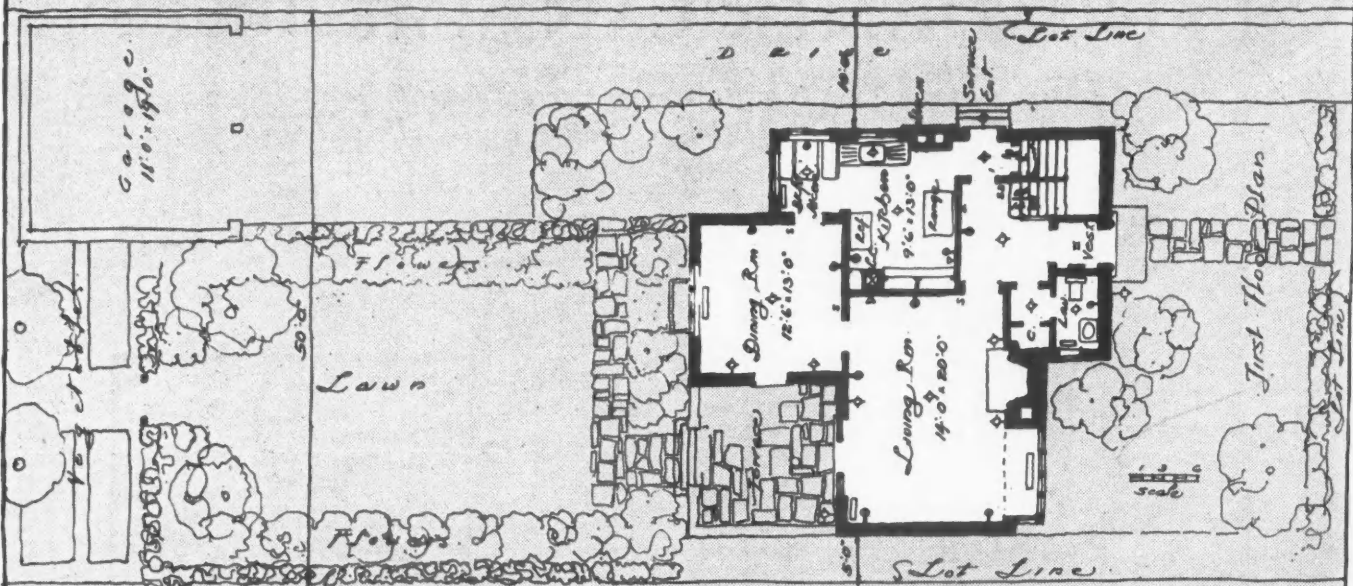




TYPICAL AMERICAN SIMPLICITY

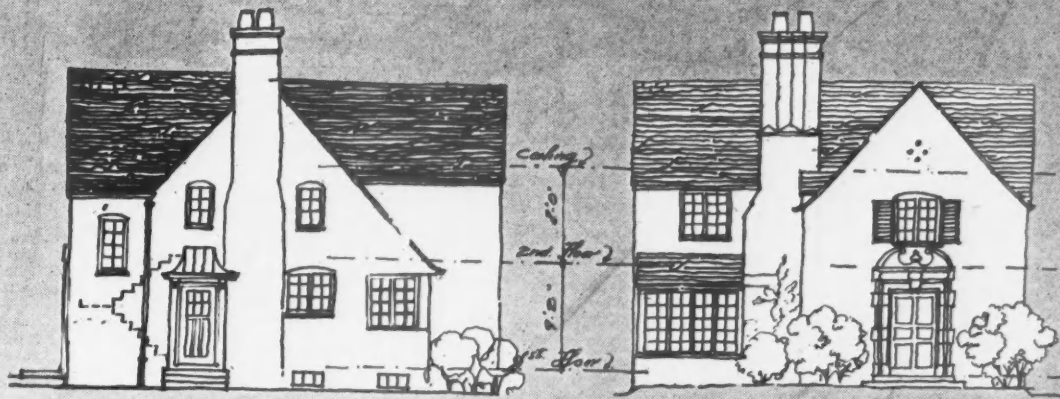
The Sort of House That Is to Be Seen in Every American Town and City, for Its Colonial Simplicity Is Almost Universally Admired





1929 NATIONAL BETTER HOMES ARCHITECTURAL COMPETITION.

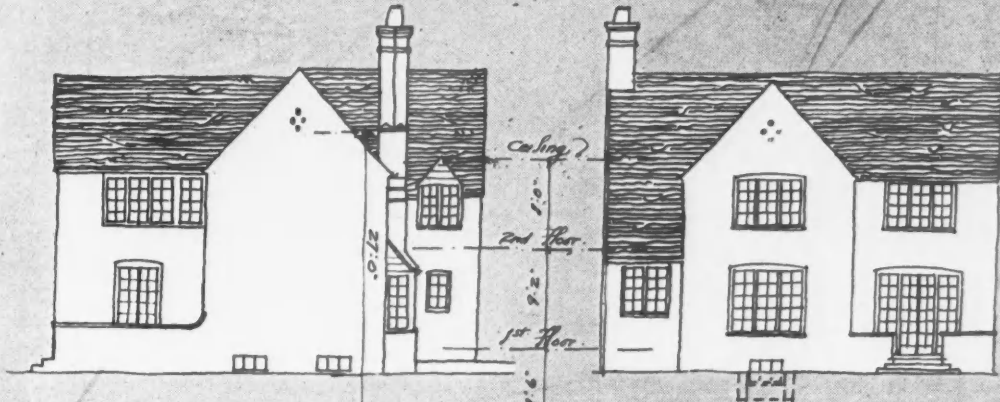
American Adaptation of English Design Awarded Third National Prize of \$1,500.
 Amedeo Leone of Detroit, Mich., Architect



Side Elevation

One Eighth Inch Scale

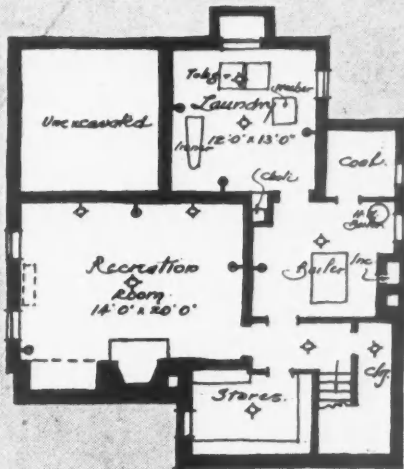
Front Elevation



Side Elevation

Basement

Garden Elevation

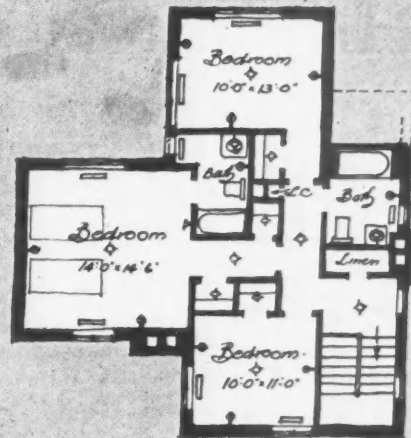


Basement Plan

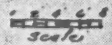
Cubage



	sq. ft.
A. 20'0" x 24'6" x 27'0"	13230
B. 15'0" x 16'6" x 27'0"	6696
C. 13'0" x 15'0" x 27'0"	5265
D. 6'0" x 7'0" x 20'0"	840
E. 12'0" x 13'0" x 7'0" x 2"	592
F. 8'0" x 2'6" x 16'0"	340
Total	26963
	sq. ft.



Second floor Plan



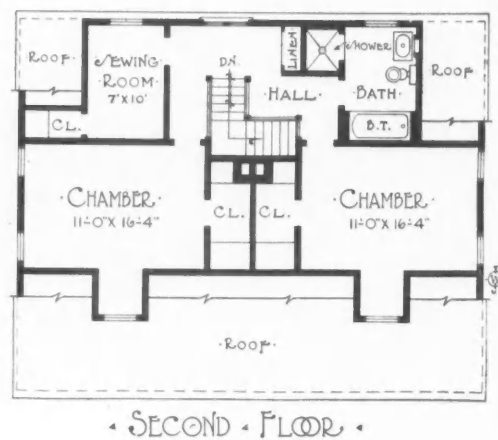
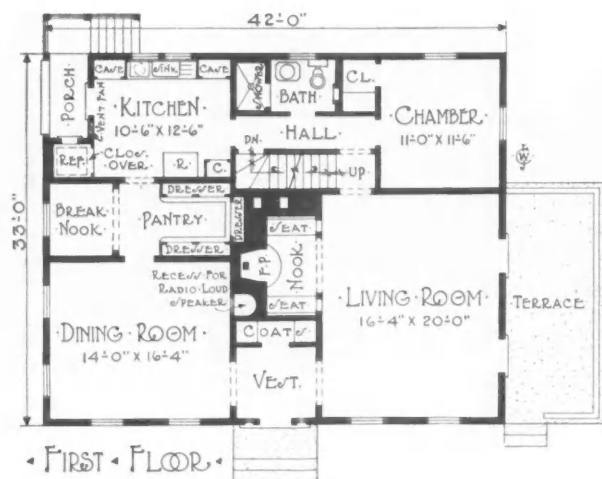
1929 NATIONAL BETTER HOMES ARCHITECTURAL COMPETITION

The Four Elevations and the Two Floor Plans to Supplement Those on the Page Opposite.



CHARMING COLONIAL COTTAGE

The Delightful Homelike Appearance of the Exterior Is Carried Out Most Completely in an Unusually Cozy Sort of Interior Arrangement

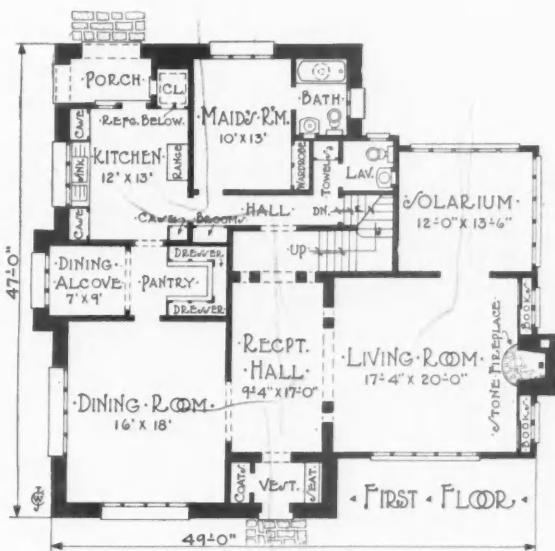




HAROLD BRAUN, Architect, New York City

GRACING A WINDSWEPT HILLTOP

It Blends So Perfectly with Its Setting That One Might Almost Imagine It Had Sprung from the Very Soil on Which It Stands

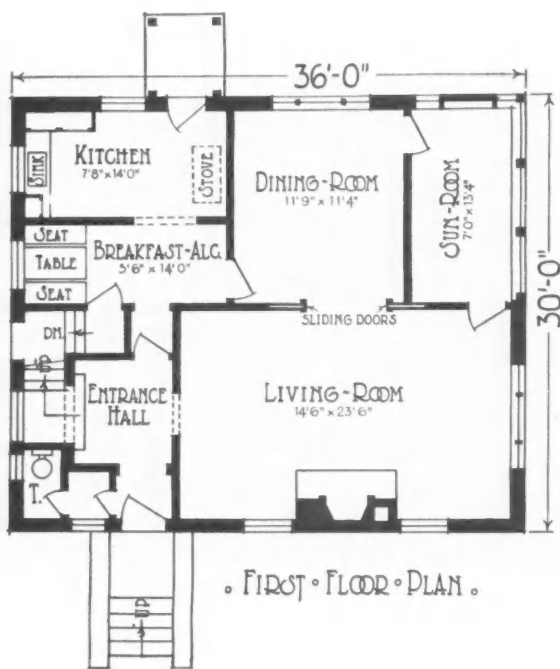


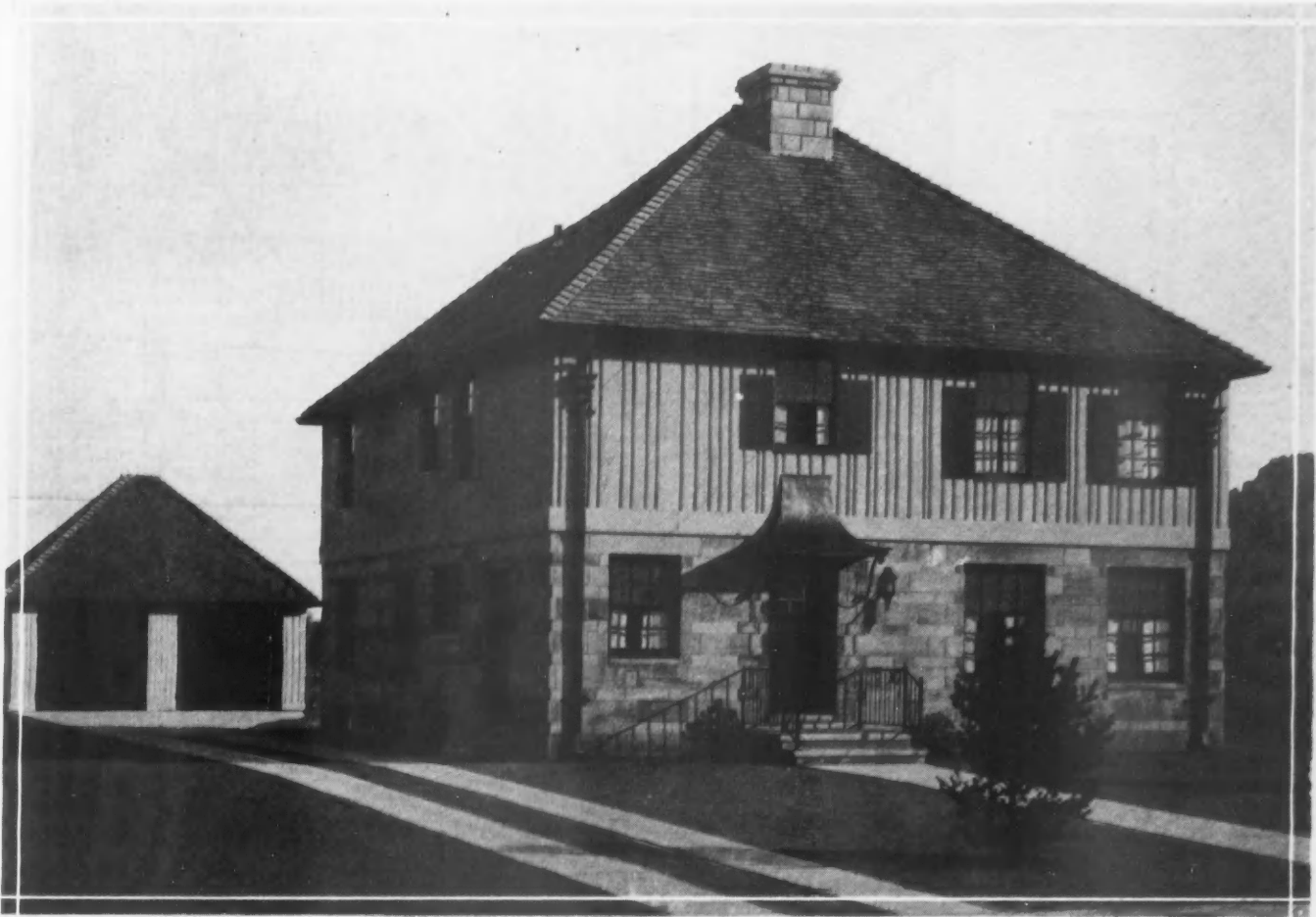


CARREY AND ESSELSTYN, Architects, Detroit, Mich.

SEVERITY COMMANDS RESPECT

Solid Dignity That Endures Long After the Fads in Home Design Have Had Their Day and Passed on Is Built into Every Line of This Residence

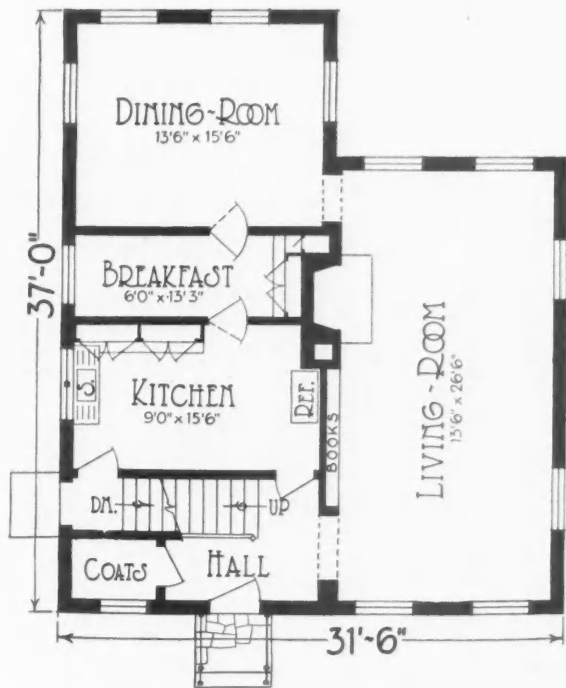




E. E. BUCKNER, Architect and Builder, Birmingham, Mich.

LIME STONE AND VERTICAL PLANKS

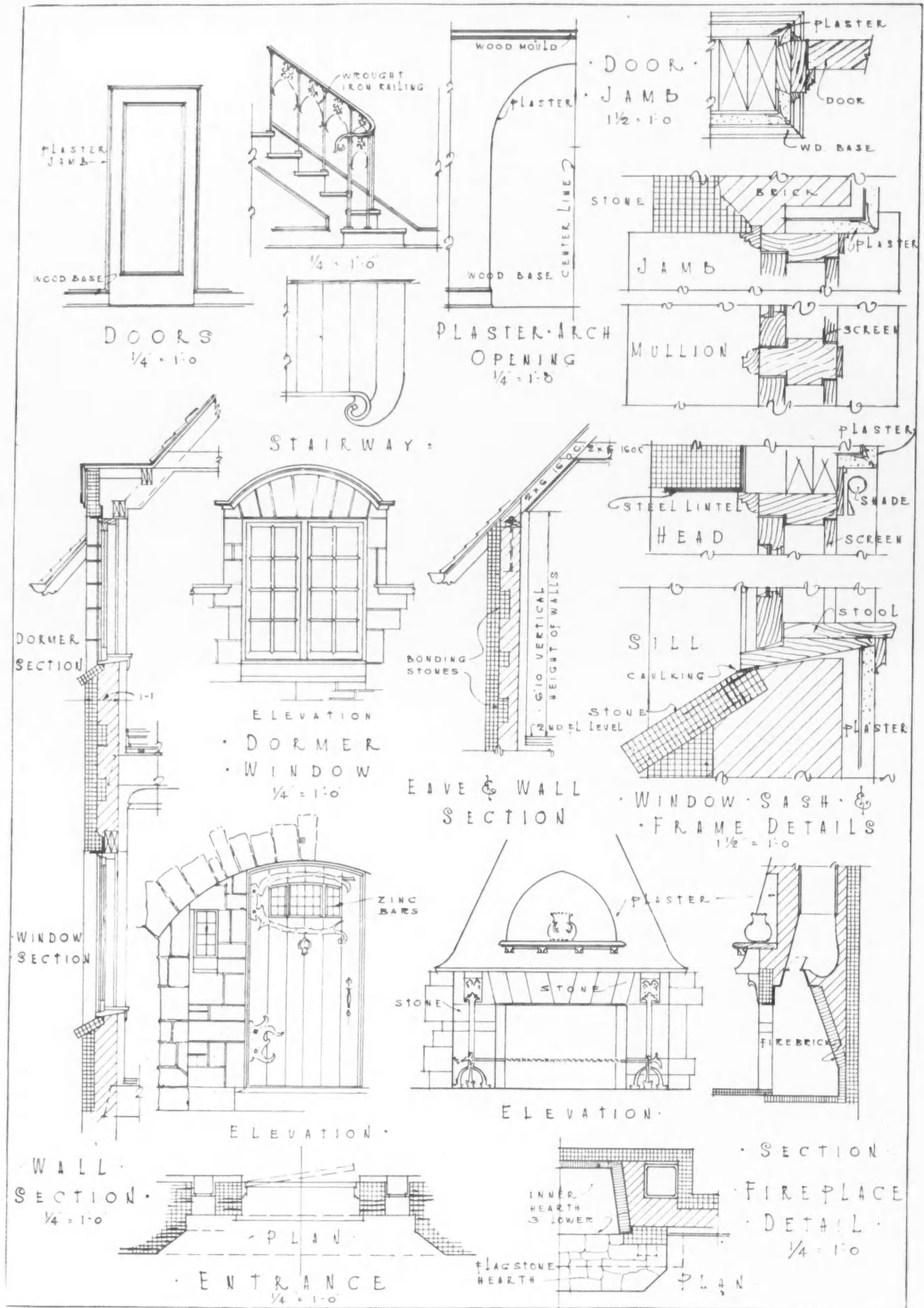
A Rather Unusual Combination But One with Which the Architect Has Produced a Charming Effect Suggestive of the Swiss



• FIRST FLOOR PLAN •



• SECOND FLOOR PLAN •

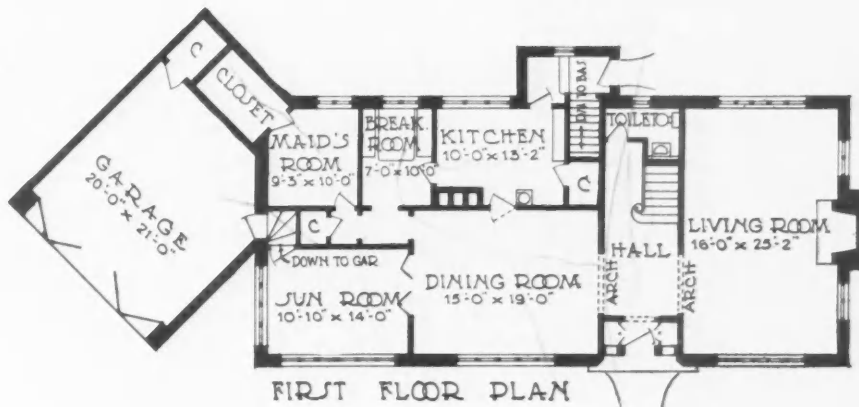
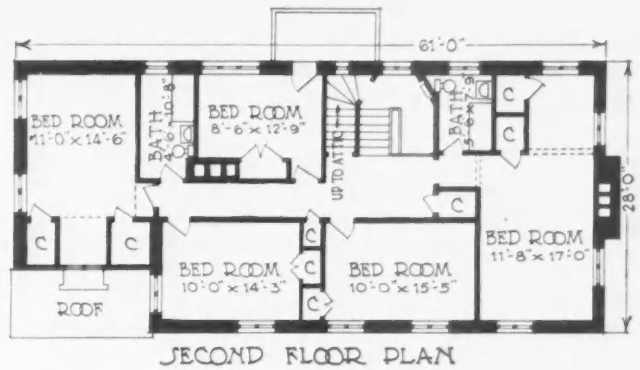


Some Details of the Beverley Hills Residence Illustrated on Opposite Page.



BUILT OF ENDURING STONE

This Beautiful Residence Was Built in Beverley Hills, One of the Fine Residential Sections of Chicago



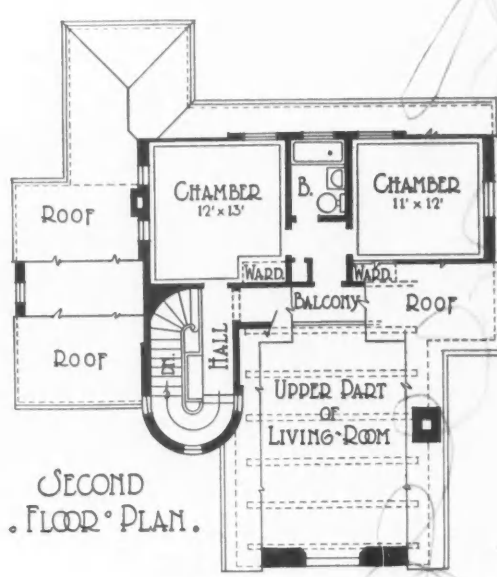
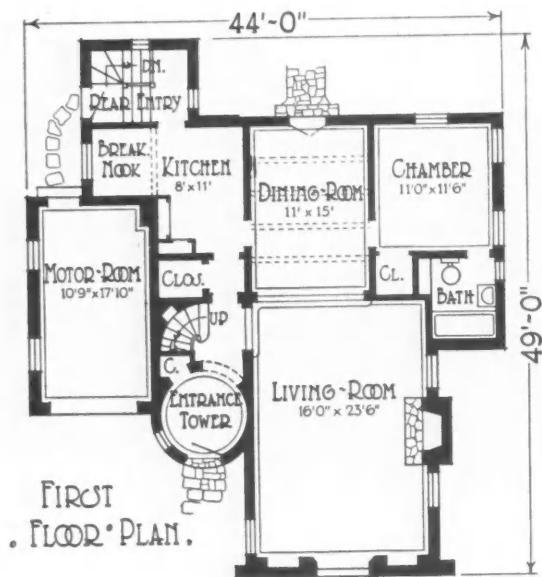
JOHN T. AND
MURRAY D. HETHERINGTON,
Architects,
Chicago



ALLEN E. ERICKSON, Architect, Chicago

A MINIATURE NORMAN CASTLE

Delightfully Quaint, Its Individuality Would Make It Stand Out in Any Community, a Welcome Change from the All Too Familiar Sameness of So Many Houses

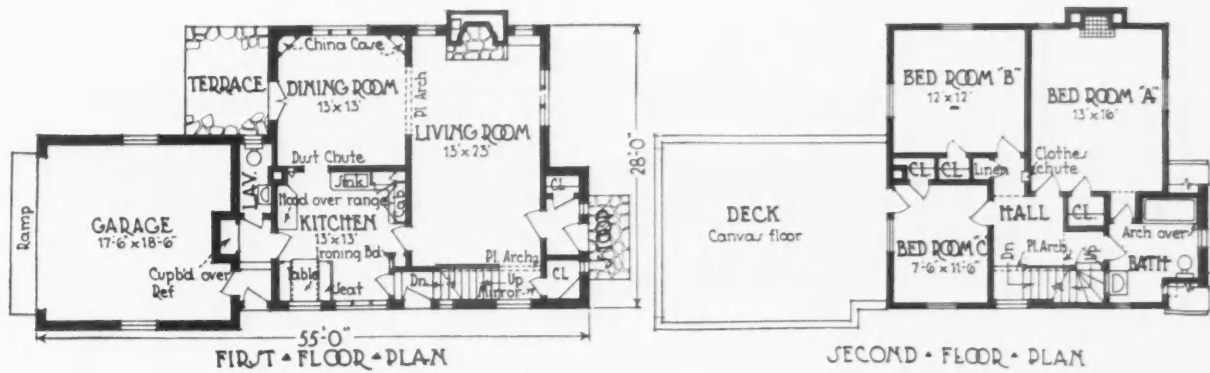




CHESTER N. LOWE, *Architect*, Cleveland, Ohio

WITH THE GARAGE ATTACHED

*The Garage, an Essential Part of the Modern American Home,
Is Rapidly Becoming an Integral Part of the House*

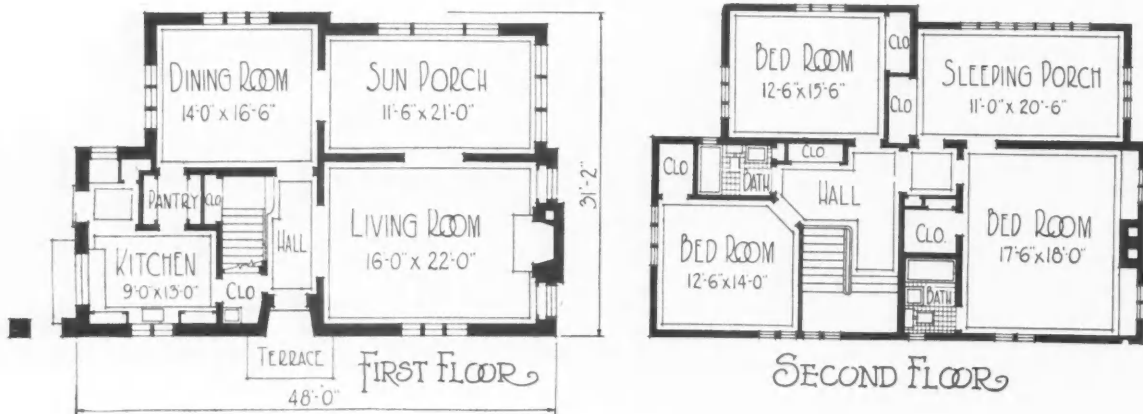




ZOOK AND McCAUGHEY, Architects, Chicago

ENGLISH MANOR UP-TO-DATE

A Design Which Was Inspired by Some of the Old English Houses and Adapted to the Requirements of Modern American Life



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Omit Basement and Save \$1800

By CHARLES P. RAWSON
Architect



FEW people realize the expense involved in putting a basement under a house; and yet this expense may and often does run up to one-fourth of the entire cost of the building. Notwithstanding this great outlay of money, very few cellars are ever used for anything except to house the heating plant and perhaps a laundry and for storage. With perfected oil burning and gas burning heating apparatus available and therefore with no need for coal storing space, it is entirely unnecessary to provide cellar rooms for house heating purposes. With the growing custom of sending most of the laundry work out of the home, a much smaller space for this use is required and it is more convenient to have the small laundry that is necessary on the main floor. Therefore, why the basement at all?

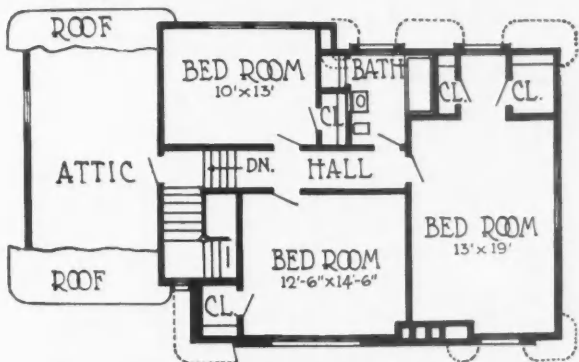
The cellarless house is proving very popular in many parts of the country where basements have always been the rule. In New Jersey, for instance, one architect has built several charming English

cottages on this plan which have been given wide publicity and on which he estimates that he has cut from \$1,500 to \$2,000 off the building costs. The house without a basement often proves more healthful and easier to keep clean and in order; and a dangerous fire risk is removed when an easy place for useless storage and rubbish is removed.

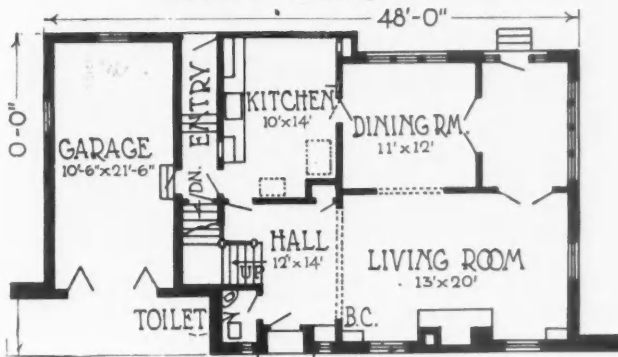
There is shown herewith a photograph and floor plans of a house in Park Ridge, Illinois, built from my plans at a cost of about \$12,000. This house has a full basement. I have made a revised plan showing how few changes would be necessary in order to omit the basement entirely.

The second story has no changes in the original plan and the first floor has not been enlarged at all, and has been changed but slightly, yet the space for the heating plant and laundry has been included in the plan of this story. The sunroom has been omitted, it is true, in order to do this; but the saving would have been so great that this sunroom might be added to the rear of the dining room at a cost of from \$500 to \$600.

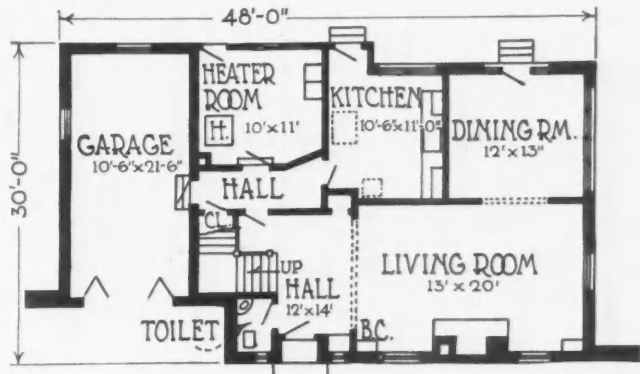
The estimated saving in this house by omitting the cellar has been placed at \$1,800. Isn't this worth saving? Even if the sunroom was added so that there was no reduction in the size or number of rooms shown in the original house, the saving would be from \$1,200 to \$1,300.



~ SECOND FLOOR PLAN ~



~ FIRST FLOOR PLAN ~



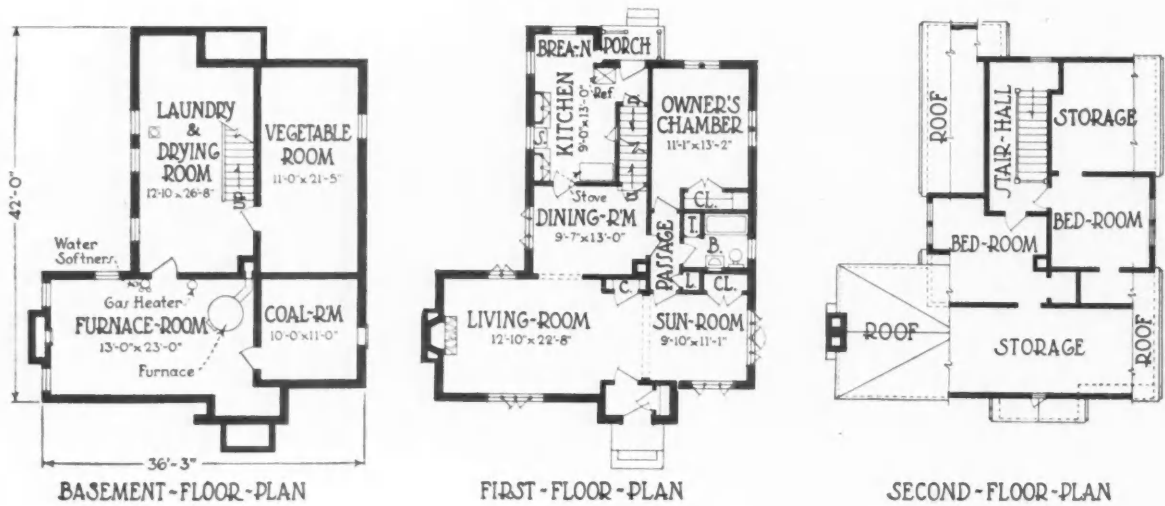
~ FIRST FLOOR PLAN ~
Revised To Omit Basement

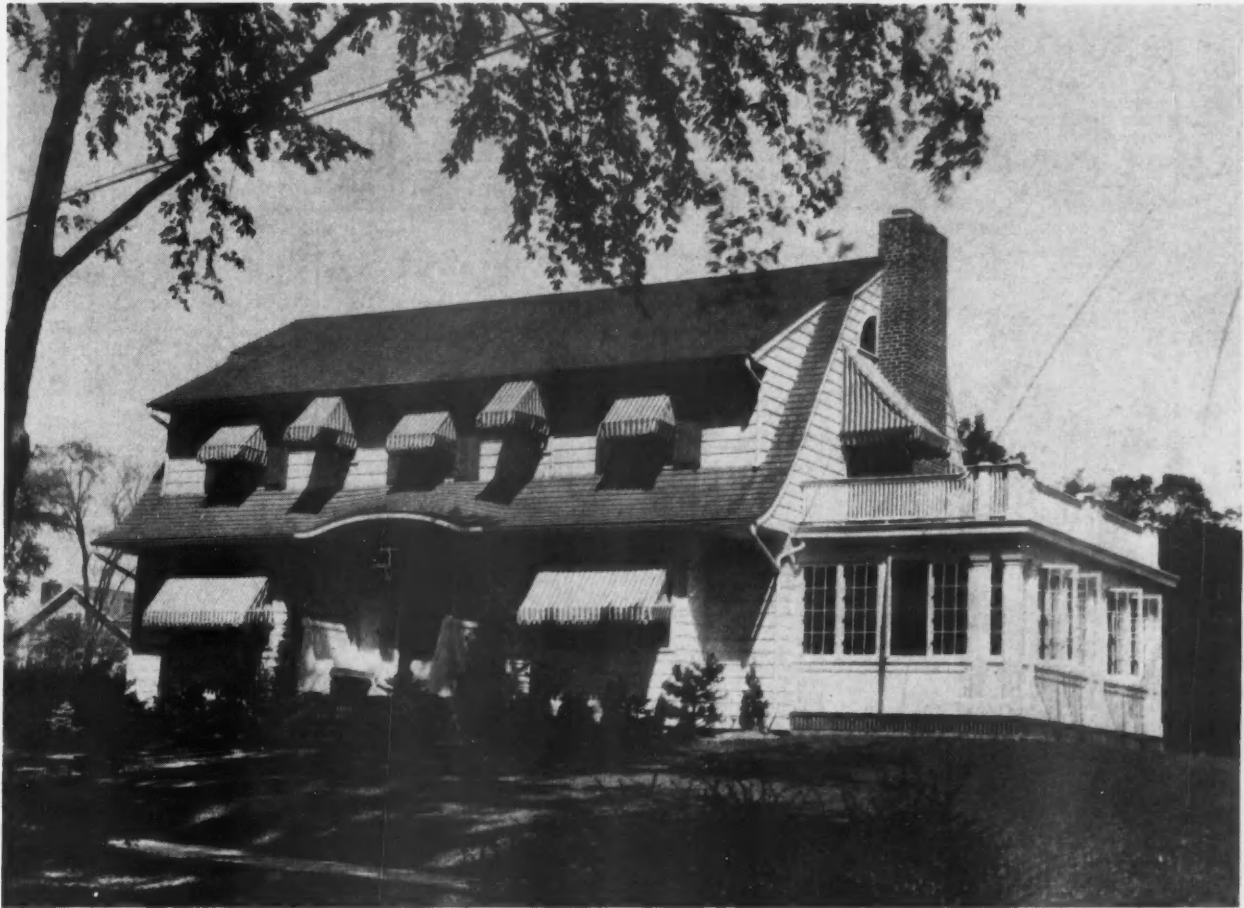


HANSEN and WAGGONER, Architects, Mason City, Iowa

IN THE STYLE OF OLD ENGLAND

*A Solid Sort of Dignity, Yet Not Lacking in Warmth,
Is Characteristic of the Typical English House*





THE AMERICAN BUILDER ALL-FEATURE HOME

Complete Working Plans

*An Eight-Room Dutch Colonial Presented in
One-Eighth-Inch Scale Drawings*

THERE are probably more Dutch Colonial and New England Colonial houses in this country than any other recognized style. The reasons for this popularity are not hard to find. These styles are based on simple artistic principles which make them universally attractive in appearance. They are well adapted to the climate found in most parts of the country. They are easily adapted to individual requirements as to size and cost. They are economical to build.

The eight-room Dutch Colonial selected for this All-Feature Home is one which is an ornament to its community and a satisfaction to its owners. Because of this and because it is most completely equipped with all the modern devices for living comfort, it will sell quite readily should the need arise. It can be reproduced by any good builder from the complete floor plans, elevations and details as shown on the four pages which follow.

Turning to these plans we find a basement fully partitioned in the

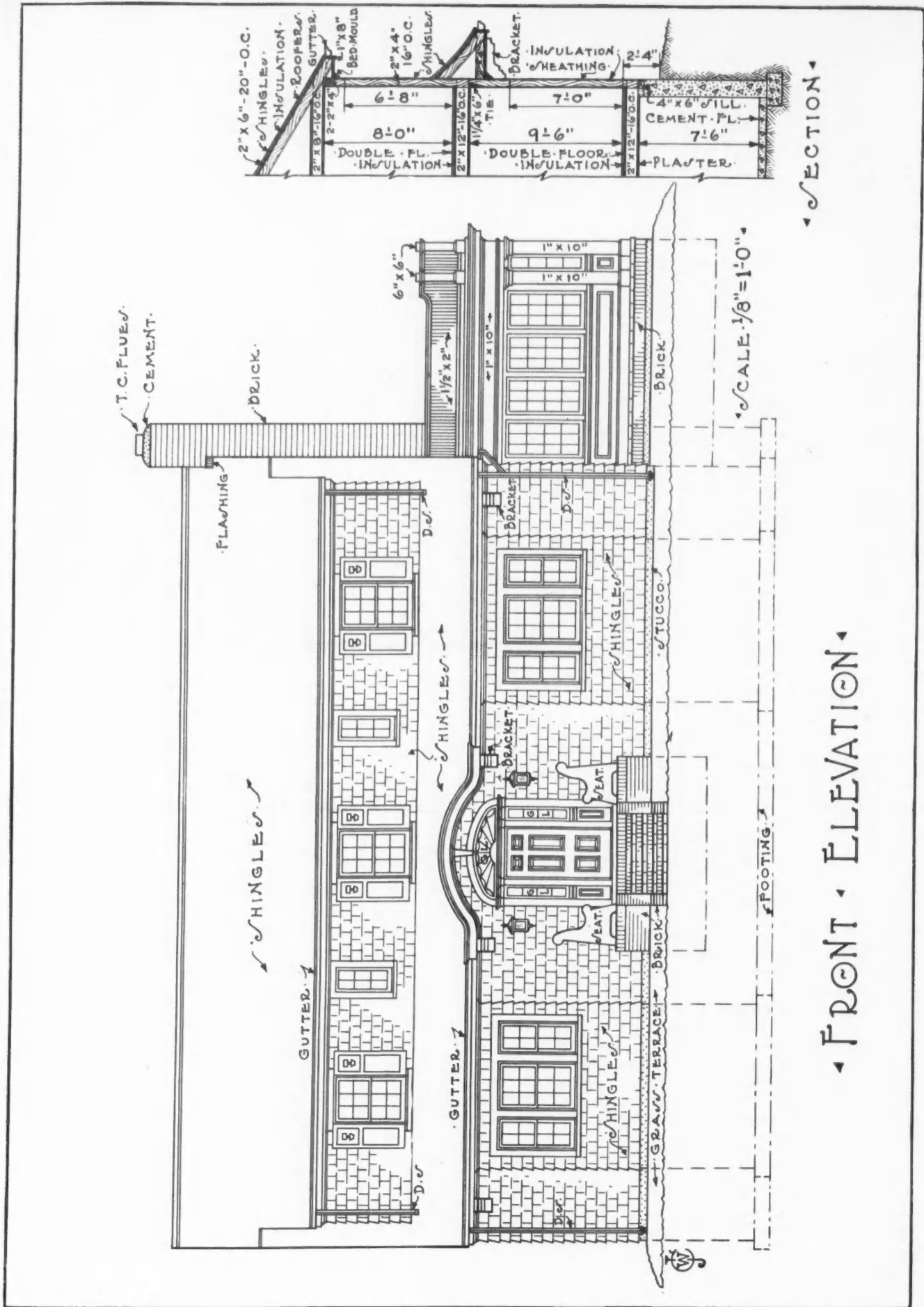
accepted modern manner and a portion finished for use as a game room. Another portion is devoted to the laundry in which stationary tubs, washing machine, clothes drier, mangle and built-in ironing board are provided to make the laundry work easy. The heater room and fuel bin are entirely separated.

On the first floor modern equipment is again in evidence. In the kitchen are numerous built-in cases, a refrigerator compartment, ventilating fan, hood for the oven and thermostat for regulating the house temperature. Then there is the pantry with its built-in cabinets, a complete breakfast nook, a handy first floor lavatory, a built-in mail box in the vestibule and an abundance of lighting fixtures and convenience outlets throughout.

On the second floor the same attention to details has been observed and the two bathrooms provide that item of luxury which is being demanded by an ever increasing number of families and should always be provided in the homes of today.

NEXT MONTH

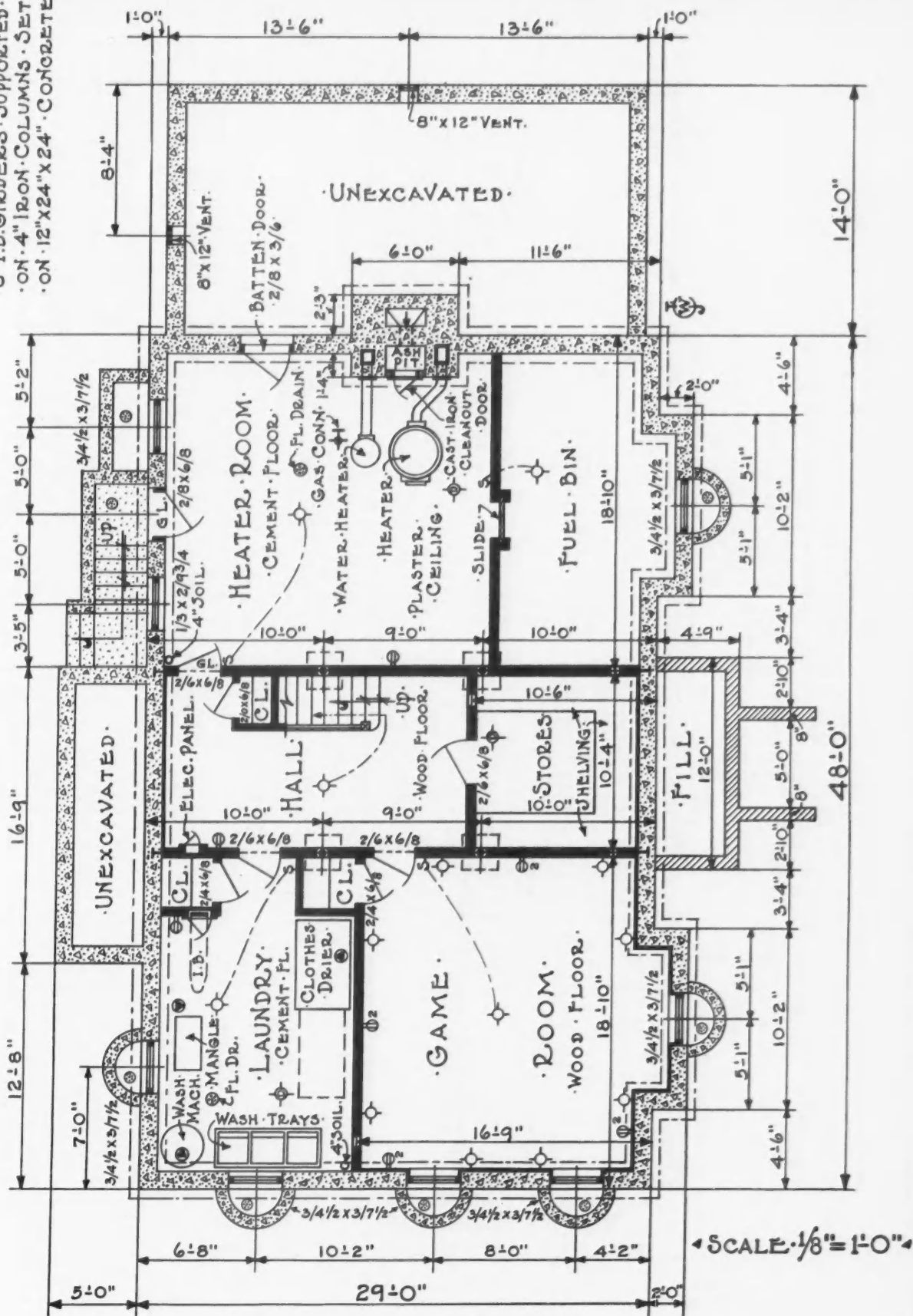
Complete Plans of a Perfect
Gem of an English Cottage
in Brick.



A Front Elevation and Section Which Give the Builder Needed Information to Use in Reproducing This All-Feature Home.

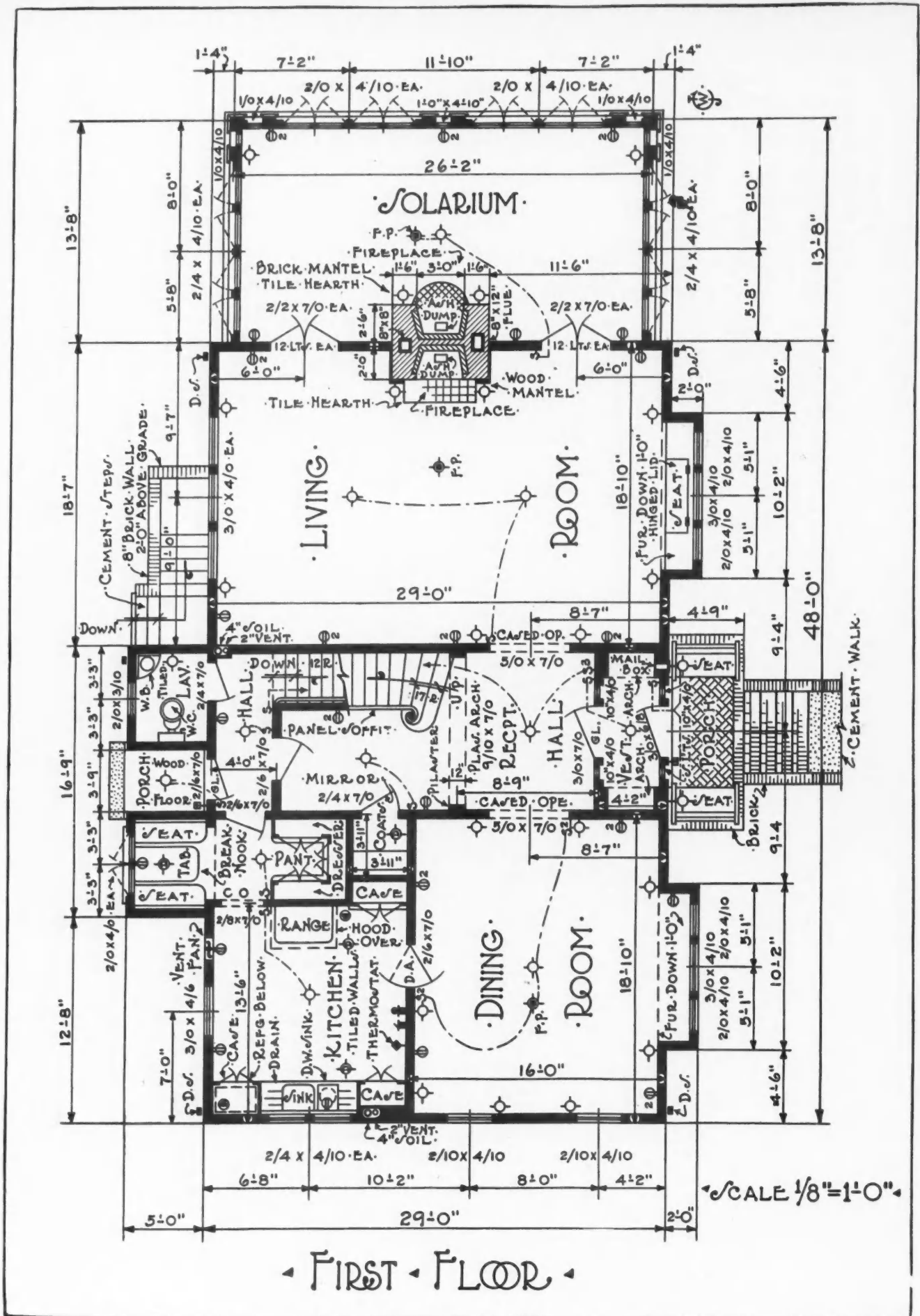
NOTE.

- 8" I.B. GIRDERS SUPPORTED.
- ON 4" IRON COLUMNS SET.
- ON 12" X 24" X 24" CONCRETE.

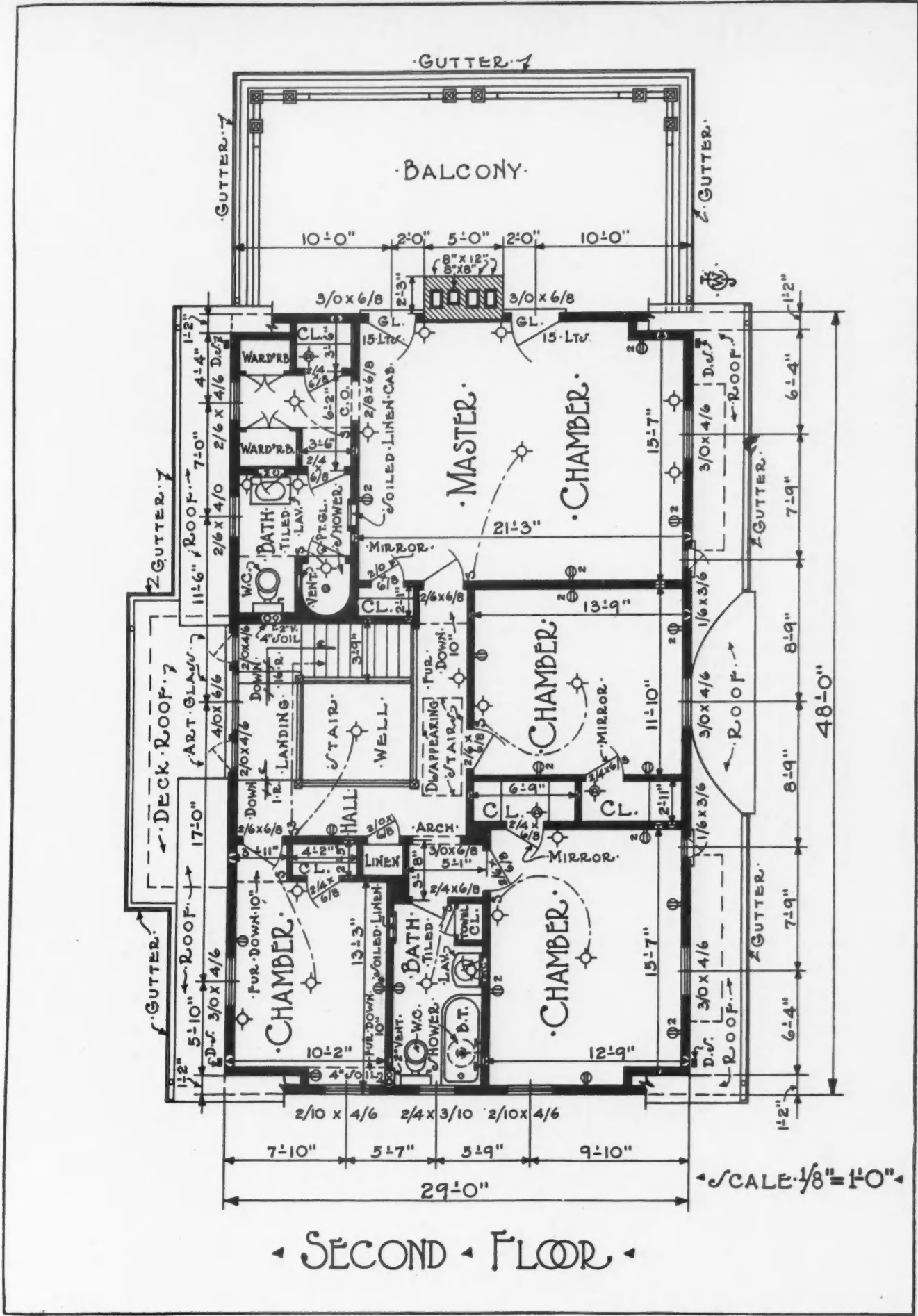


◀ BASEMENT PLAN ▶

The Modern Basement Illustrating Complete Utilization of Space and the Application of Many Labor Saving Devices.



A Large Living Room and Adjoining Solarium Can Be Thrown Together Almost Like One Room in This All-Feature Home.



◀ SECOND FLOOR ▶

Two Bathrooms Are Now Considered Almost a Necessity in Even the More Moderate Priced Homes of America.

Insulation and Fuel Costs

By PAUL D. CLOSE

Technical Secretary, American Society of Heating & Ventilating Engineers.

IT is a fact well known to heating engineers that if the heat losses of a building are reduced sufficiently by the use of insulation and weatherstripping, it costs no more to heat with gas than with other fuels with which no insulation or weatherstripping are used. It seems apparent, therefore, that insulation is destined to play an important part in the development of the house heating market for gas.

What is an insulation? In the sense implied in this discussion, a heat insulation is a material or substance which will retard, and to a degree (but not entirely) stop the passage of heat from the warmer to the cooler level, that is, it is a material which has a high resistance to the passage of heat.

When installed in a wall, an insulation retards the passage of heat through the wall. In other words, a smaller amount of heat will pass through the wall in a given period of time, than if it were not insulated, and consequently less heat and less radiation is required to maintain the desired temperature in the building. Furthermore, the building will be cooler in the summer.

The insulation idea is a comparatively new one from the commercial standpoint. The principle of insulation, however, has been in use since the beginning of creation, and is a fundamental of nature. For example, fur is one of the best insulations known and hence it can be said that fur-covered animals are insulated.

Even the use of insulation for dwellings is really not new. The thatched hut of northern Europe was insulated because it was built with walls of clay and stone several feet thick and a roof of straw two feet thick woven together. The Spanish Mission houses of the southwest desert, where the temperature often rises to 140 deg. in the daytime, were always marvelously cool because the walls were built with three feet of clay and straw. They were well insulated, although little or nothing was known of the princi-

ples of insulation. These buildings were well insulated, primarily because of the thickness of materials used rather than the kind.

Thickness of Insulation Required for Gas Heated Houses

In order to place gas on a competitive basis with other fuels for house heating purposes, the questions arise as to how much and what type of insulation should be used and how and where it should be applied. From a theoretical point of view, the answer is comparatively simple, for it is only necessary to reduce the heat losses of the building sufficiently so that the heating costs with gas are no more than with coal or oil for the uninsulated building. Practically, however, the problem is not always quite as simple as this, but this idea can usually be approached if not attained, even where manufactured gas is used.

Suppose, for example, the cost of coal having a heat content of 12,000 B.t.u. per lb. in a certain locality is \$10 per ton and that it is burned with an efficiency of 50 per cent. If the average gas rate is \$1* per M for 535 B.t.u. gas and the over-all efficiency of combustion is 75 per cent, the cost of gas is three times that of coal, and hence the heat losses of the gas heated building must be one-third that of the coal heated building in order to be on the same basis. By the average gas rate is meant the total cost of gas per heating season for an average insulated residence, divided by the quantity of gas used. This, of course, takes into consideration the demand charges.

The heat losses of a building take place in three ways: (1) by transmission through the walls and roof, (2) by transmission through the glass, and (3) by exfiltration through cracks, crevices, etc. While the proportion of the heat losses varies with every building, the average is approximately 50 per cent through walls and roof, 25 per cent through glass and 25 per cent by exfiltration.

In the example just cited, it would, of course, be necessary to reduce all of the three sources of heat loss to the same degree, that is, to one-third the original heat loss, in order to heat with gas at the same cost as with coal. If one of the sources of heat loss cannot be reduced to that extent, the balance must be made up by reducing one or both of the other sources of heat loss to a greater extent than two-thirds. Herein lies one of the difficulties of attaining the ideal condition desired for gas heating.

Since the cost of coal as well as the gas rate varies in each city, a chart for estimating the ratio of the cost of gas as a fuel to the cost of coal for various gas rates and coal costs would be useful in some cases. Such a chart (Fig. 1) is presented herewith and is based on efficiencies of 75 per cent and 50 per

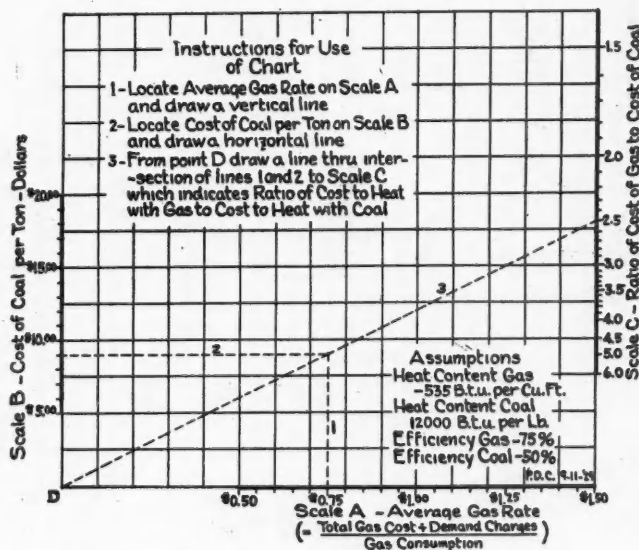


Fig. 1. Chart for Estimating Ratio of Cost of Gas to Cost of Coal.

* I have been advised by the Gas Association that a more typical rate for gas used for house heating is approximately 75c per thousand, as this is the average revenue per thousand received by the gas companies throughout the country who are actively promoting the use of gas for house heating. This would require a corresponding change in the comparisons made in this paper.—The Author.

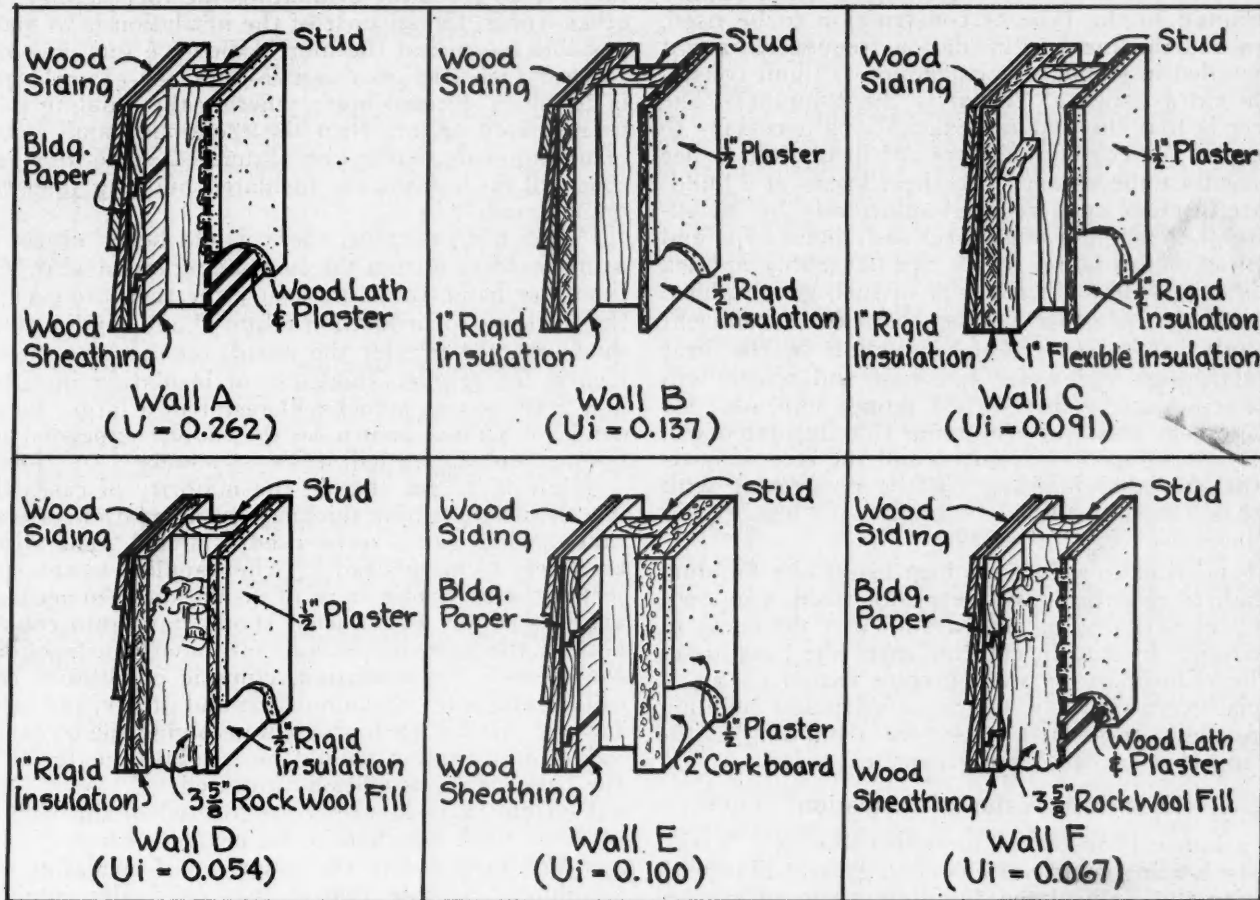


Fig. 2 Various Types of Wood Siding or Clapboard Frame Walls
A.G.A. Fig. 2

TABLE 1—TABLE SHOWING ESTIMATED RETURN ON INVESTMENT FOR INSULATED WALLS SHOWN IN FIG. 2, WHEN COMPARED WITH UNINSULATED WALL A, FOR AVERAGE CONDITIONS IN VICINITY OF NEW YORK

No.		Wall B	Wall C	Wall D	Wall E	Wall F
1.	Saving in cubic feet of gas per 1,000 square feet of wall area due to insulation based on uninsulated Wall A	39,800	54,300	66,100	51,500	62,00
2.	Dollar value of fuel saving based on average gas rate of \$1.00 per M. C. F.	\$39.80	\$54.30	\$66.10	\$51.50	\$62.00
3.	Average additional cost of insulation per 1,000 square feet of wall area	\$70.00	\$180.00	\$230.00	\$150.00	\$160.00
4.	Annual return investment, considering fuel saving only $(100 \times \frac{\text{item 2}}{\text{item 3}})$	57%	30% +	29%	34% +	39%
5.	Radiation saving per 1,000 square feet of wall area for steam heat—square feet	36.5	49.8	60.6	47.2	56.8
6.	Dollar value of radiation saving at \$1.00 per square foot	\$36.50	\$49.80	\$60.60	\$47.20	\$56.80
7.	Net cost of insulation per 1,000 square feet of wall area after deducting radiation saving	\$33.50	\$130.20	\$169.40	\$102.80	\$103.20
8.	Annual return on investment, considering fuel saving and radiation saving $(100 \times \frac{\text{item 2}}{\text{item 7}})$	*	42% +	39% +	50%	60%

* Insulation paid for in less than one heating season.

cent, respectively, for gas and coal.

If each building were carefully analyzed to determine the extent to which the heat losses should be reduced in order to heat it with gas at no greater cost than with coal or oil, various thicknesses of insulation would, of course, be required. For example, in one case 5 in. of a certain type of insulation might be necessary, in another case 3 in., and in still another

only 1 in. But these thicknesses would not necessarily be the economic thicknesses for gas fuel at the prevailing local commodity and demand rates, and hence, to be theoretically correct, the calculations should be carried a step further to make sure that the proper economic thickness is selected.

These calculations, however, would become somewhat complicated and involved. Furthermore, in

many cases the thickness required could not readily be adapted to the type of construction to be used, for an odd thickness of insulation frequently cannot be installed in standard construction without considerable extra expense. What is the solution? The answer is that the detailed calculations necessary to determine the correct thickness of insulation to use are usually unnecessary. The heat losses of a building are in most cases reduced sufficiently by installing weatherstripping and storm sash and a type and thickness of insulation which can be readily applied and is consistent with the cost of fuel, geographical location, etc., in other words, a thickness sufficient to result in an appreciable reduction in the heat losses through the walls and roof and which will pay a reasonable return on the money expended for it. The heat losses of a building thus insulated will usually be reduced sufficiently, and the cost of heating the insulated building will be no greater with gas than the uninsulated building with less expensive fuels.

It is possible to reduce the heat losses of a building one-half to two-thirds by the use of storm windows, good weatherstripping and a sufficient thickness of insulation. In fact, in extreme cases the heat losses can be reduced to an even greater extent. This is especially true with a poorly constructed building where the average heat losses for a building of the size and type involved are greatly exceeded.

Economic Value of Insulation

If a house is insulated to reduce the heat losses, and the heating cost with gas is no greater than with coal for the uninsulated building, then, of course, the heating costs in the two cases are the same and

there is no basis for evaluating the fuel saving. In other words, the purpose of the insulation is to make possible the use of the more expensive fuel, and not to save fuel. But if a certain fuel, for example gas, is definitely decided upon, whether the building is to be insulated or not, then the economic value of the insulation can readily be estimated since the fuel cost will be less for the insulated building than the uninsulated.

If fuel had no value, there would be no object in using insulation from the fuel saving standpoint. On the other hand, the more costly the fuel, the greater the thickness of insulation required and for the same thickness, the greater the return on the investment. Hence, for a given thickness of insulation installed in a wall, gas as a fuel will result in a larger "dividend" or annual return on the money expended for the insulation than will less costly fuels.

While it is true that in the majority of cases the use of a substantial thickness of insulation is warranted when gas is to be used as a fuel, generalities are likely to be misleading when applied to the subject of the economic value of insulation. An accurate analysis of any installation should take into consideration the uninsulated and insulated constructions, the cost of the insulation, climatic conditions, cost of fuel, efficiency of combustion and utility, and other factors. Hence, each problem involving the economic value of insulation should be carefully analyzed on the basis of the conditions involved.

Consider a residence to be located in the vicinity of New York which is to be heated with gas. The question arises as to the propriety of insulating this building. Assume that it was originally intended to use frame walls without insulation consisting of wood siding, building paper, wood sheathing, studing, wood lath and plaster, similar to Wall A, Fig. 2. The gas company recommends that the walls be insulated in order to reduce the gas consumption to a desirable minimum, and the owner decides upon a construction for the walls similar to Wall D, which consists of a rock wool fill between the studing, 1 in. board insulation for sheathing and 1/2 in. board insulation for plaster base. In this particular case, the additional cost of the insulation is approximately \$230 per 1,000 sq. ft. of net wall area. The saving in cubic feet of manufactured gas having a heat content of 535 B.t.u. per cu. ft. can be determined from the following formula, which is based on an overall efficiency of 75 per cent:

$$F_g = 0.06 (U - U_1) DA$$

where
 U = Coefficient of transmission of uninsulated wall (or roof).
 U₁ = Coefficient of transmission of insulated wall (or roof).
 D = Degree-days.
 A = Net wall (or roof) area — sq. ft.

The average number of degree-days for New York is 5,300 and for 1,000 sq. ft. of wall area, the annual fuel saving F_g will be

$$0.06 \times (0.262 - 0.054) \times 5300 \times 1000 = 66,100 \text{ cu. ft.}$$

If the average gas rate is \$1 per MCF, this fuel saving will have a monetary value of \$66.10, and the return on the investment will be

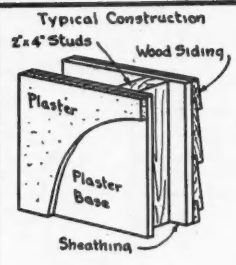
$$\frac{\$66.10}{\$230} \times 100 = 29\%$$

For these conditions, the use of insulation is therefore well justified, notwithstanding the fact that no consideration has been given to the reduction in the required amount of radiation and the corresponding reduction in the size of the gas boiler. The saving

Table 2 - Coefficients of Transmission U of Wood Siding or Clapboard Frame Walls

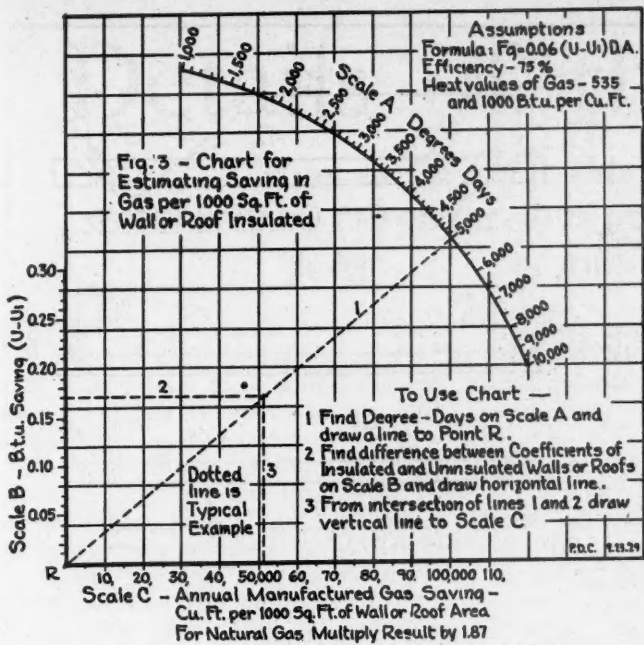
Number	Type of Sheathing	Insulation between Studing	Plaster Base						
			Wood Lath	Metal Lath	Plaster-board	Rigid Insulation	Rigid Insulation	1 1/2" Cork-board	2" Cork-board
			A	B	C	D	E	F	G
1	1" Wood ^b	None	0.262	0.275	0.263	0.198	0.153	0.117	0.098
2		Flaked Gypsum Fill (24") ^a	0.096	0.098	0.096	0.086	0.076	0.067	0.060
3		Rock Wool Fill (21") ^a	0.067	0.068	0.067	0.062	0.056	0.051	0.047
4		1" Flexible against Sheathing	0.133	0.136	0.133	0.114	0.097	0.082	0.072
5	1/2" Rigid (insulation Board form)	None	0.220	0.229	0.221	0.173	0.137	0.108	0.092
6		Flaked Gypsum Fill (24") ^a	0.090	0.091	0.090	0.081	0.072	0.063	0.058
7		Rock Wool Fill (21") ^a	0.064	0.064	0.064	0.059	0.054	0.049	0.045
8		1" Flexible against Sheathing	0.121	0.124	0.121	0.105	0.091	0.077	0.068
9	1/2" Plaster-board	None	0.295	0.312	0.297	0.216	0.163	0.123	0.102
10		Flaked Gypsum Fill (24") ^a	0.099	0.102	0.100	0.089	0.079	0.068	0.062
11		Rock Wool Fill (21") ^a	0.069	0.070	0.069	0.064	0.058	0.052	0.048
12		1" Flexible against Sheathing	0.141	0.145	0.141	0.120	0.102	0.085	0.074

^a Thickness of Fill assumed 3/8", based on 2"x4" Studing.
^b Based on 3/8", the actual thickness of 1" or 1/2" Sheathing. Building Paper neglected



The values of U in this Table are based on the following Internal Conductivities or Conductances which are expressed in B.t.u. per Hr. per Sq. Ft. per 1" F.

- Wood (Yellow Pine or Fir) 1.00 per 1"
- Plaster (Gypsum) 2.32 per 1"
- Plaster board 3.73 per 3/8"
- Cork board 0.30 per 1"
- Wood Lath & Plaster 2.00 as applied
- Rigid Insulation (Board form) 0.33 per 1"
- Flexible Insulation 0.27 per 1"
- Rock Wool (21") 0.30 per 1"
- Flaked Gypsum (24") 0.48 per 1"



in steam radiation R_s can be estimated from the following formula:

$$R_s = \frac{(U - U_1) \times H_m \times A}{240}$$

where

H_m = the maximum heat or temperature difference.

The design temperature difference H_m used in this case is assumed to be 70 deg. and the radiation saving for 1,000 sq. ft. of net wall area will therefore be

$$\frac{(0.262 - 0.054) \times 70 \times 1000}{240} = 60.6 \text{ sq. ft.}$$

If the allowance for the reduction in radiation is \$1 per sq. ft., a saving of \$60.60 per 1,000 sq. ft. of wall area insulated is obtained, and if this sum is deducted from the cost of the insulation, the net cost of the insulation will be \$146.90. The return on the investment resulting from the fuel saving will then be

$$100 \times \frac{\$66.10}{\$169.40} = 39\%$$

In many cases the saving in radiation will permit the use of a smaller size boiler, and this saving should of course be credited to the insulation. If a hot water system is installed, the saving in radiation will be even greater than in the foregoing analysis. Under certain conditions the saving in radiation and the use of a smaller capacity boiler will pay for the insulation. In fact, in some cases the saving in radiation may alone be sufficient to pay for the insulation.

Where warm air systems are used the reduction in the size of the physical equipment is not usually an appreciable item, especially where conversion burners are used. The value of the insulation is reflected primarily in the fuel saving.

In the problem just cited certain minor factors were neglected. These include the possible change in the demand or commodity rates resulting from the decreased fuel consumption and radiation installed, interest and depreciation, exposure factors, etc. However, the figures are sufficiently accurate to prove conclusively that the use of the insulated construction contemplated is well warranted.

Insulations are commonly classified as follows:

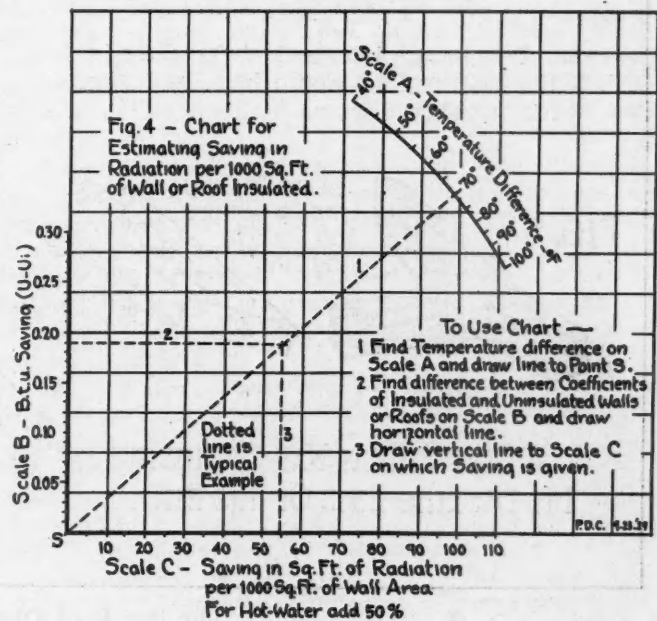
1. Rigid or board insulations.
2. Flexible insulations.
3. Fills.
4. Corkboard.

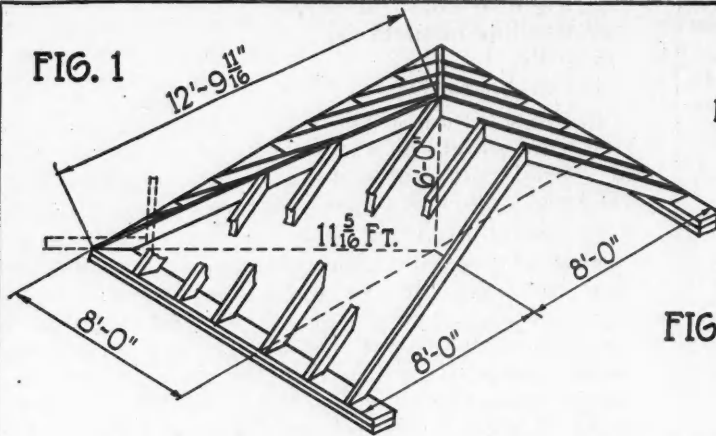
In the selection of any type or thickness of insulation, care should be exercised to avoid the necessity of special trim and window frames, as these items might be sufficient to make the cost of the insulated construction prohibitive.

Several types of standard insulated frame construction, involving the use of all four classes of insulation, are shown in Fig. 2. Data pertaining to the economic value of the insulation, based on the same assumptions as were used in the problem previously discussed, are given in Table 1. If Wall B is used in place of Wall A, the estimated return on the investment based on the fuel saving is 57 per cent, whereas if the radiation saving is also taken into consideration, the insulation will be paid for in less than one heating season. For Wall C, the estimated returns are 30 per cent and 42 per cent, for Wall D, 29 per cent and 39 per cent, for Wall E, 34 per cent and 50 per cent, and for Wall F, 39 per cent and 60 per cent. While Wall B shows the largest return for the money expended for insulation, it does not necessarily follow that this type of wall is superior to the others considered, for the assumptions used. In fact, although the heat loss, factor is reduced from 0.262 to 0.137 or 48 per cent by substituting Wall B for Wall A, an even greater reduction in the heat loss is usually advisable where gas fuel is to be used, provided the cost of the insulation is not excessive.

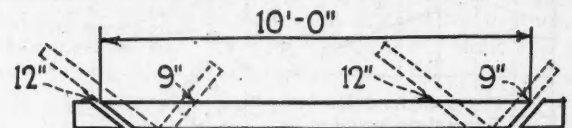
The application of insulation to a wall follows the law of diminishing return. In other words, if a material is susceptible of application in successive thicknesses, each thickness will reduce the heat loss to a lesser degree than the preceding one, and if the cost of each be the same, the value of each thickness added will be less and less until a point is reached where no further additions of insulation are warranted because of the small return. This, in a measure, explains why Wall B pays a greater return than the other types of wall shown when used in place of Wall A—that is, because a lesser thickness of insulation is involved and therefore a greater return on the money expended is obtained.

(Continued to page 129)





ONE END OF A HIP ROOF. THE RISE PER FOOT RUN IS 9"
 THE RUN OF ROOF IS 8'-0". TOTAL RISE IS 8" x 9" = 72"
 LENGTH PER FOOT RUN OF COMMON RAFTER IS $\sqrt{12^2 + 9^2} = 15.00"$
 LENGTH OF HIP PER FOOT RUN OF ROOF IS $\sqrt{17^2 + 9^2} = 19.21"$



LAYING OUT COMMON RAFTER

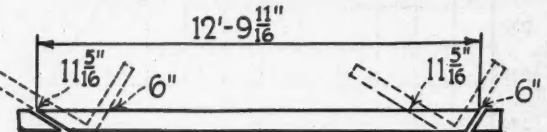
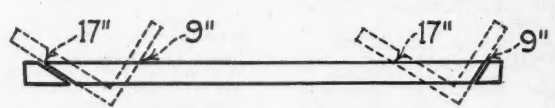


FIG. 2



LAYING OUT HIP RAFTER

• METHOD OF OBTAINING THE SIDE CUT SHOWN BELOW.

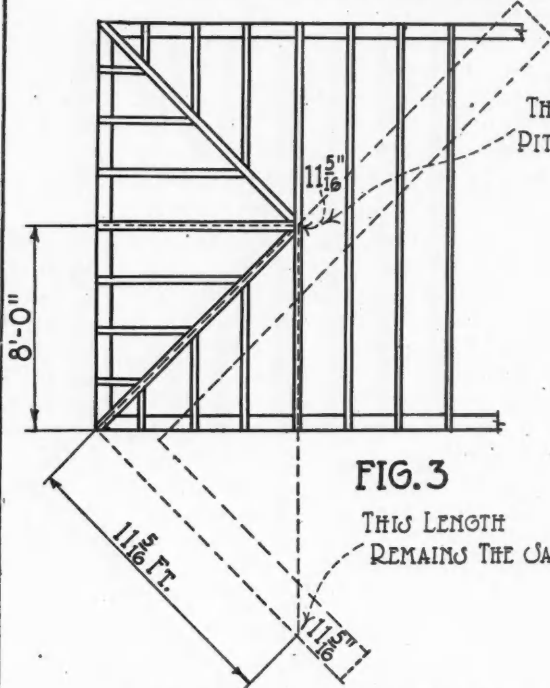


FIG. 3

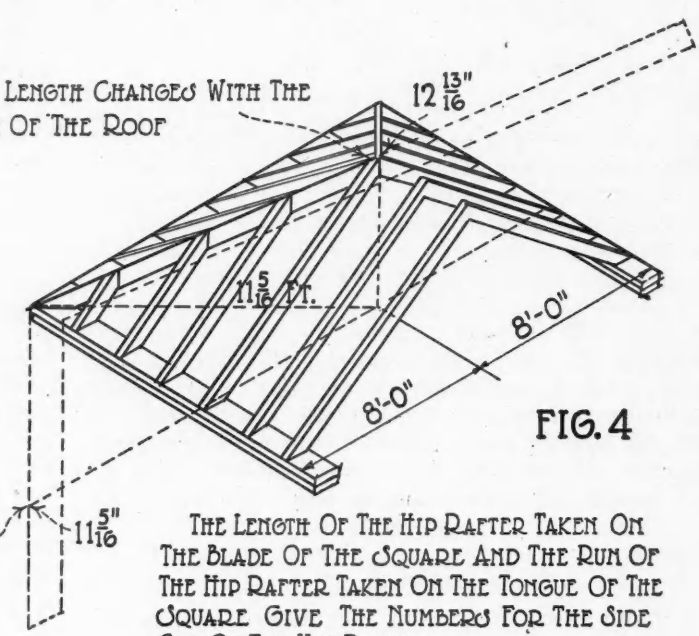
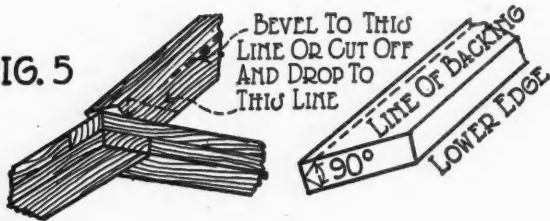


FIG. 4

THE LENGTH OF THE HIP RAFTER TAKEN ON THE BLADE OF THE SQUARE AND THE RUN OF THE HIP RAFTER TAKEN ON THE TONGUE OF THE SQUARE GIVE THE NUMBERS FOR THE SIDE CUT OF THE HIP RAFTER.

THE SQUARE APPLIED ON A FLAT ROOF IN THE POSITION THAT WOULD GIVE THE NUMBERS FOR THE SIDE CUT.

FIG. 5



A CONVENIENT WAY OF FINDING THE BACKING LINE OF THE HIP.

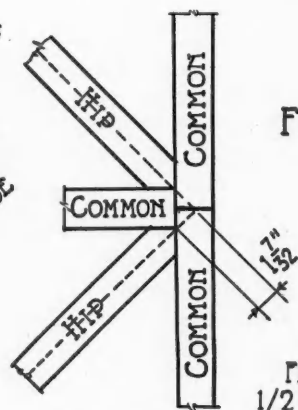
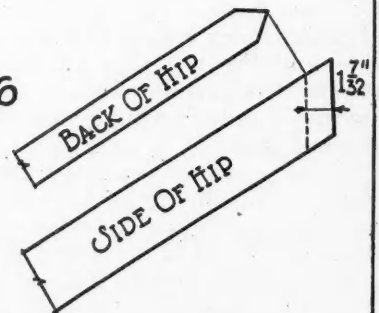


FIG. 6



FROM THE LENGTH OF THE HIP RAFTER 1/2 THE THICKNESS OF THE COMMON RAFTER MUST BE DEDUCTED.

THE PROPER WAY TO MEASURE THIS IS SHOWN ABOVE.

The Hip Roof Dissected and Analyzed.

Details of the Hip Rafter

How to Lay Out this Popular Type of Roof—
Diagrams on Page Opposite

By JOHN T. NEUFELD

THERE are a few bothersome technicalities connected with the cutting of the hip rafter. These points have to be considered very carefully, otherwise the rafter is apt to be too long, or too short or the cut may not fit exactly.

The roof illustrated has a pitch of 9" rise per foot run. In Figure 1 the length per foot run is figured out by square root. This however is not necessary to do every time, as there are plenty of tables that give the length per foot run for all pitches. Knowing the length per foot run the length is found by multiplying by the total run. Thus the length of common rafter is $15'' \times 8 = 120''$ or $10'-0''$.

The length per foot run of hip is $19.21''$ and the length is $19.21'' \times 8 = 153.68''$ or $12'-9 \frac{11}{16}''$.

Laying Out the Rafters

There are two ways of marking for the plumb and seat cut of the common rafter. We may take the total run and the total rise of the rafter which in this case would be 8 and 6 on the square. We may also take the rise per foot run and 12 which represents one foot run on the square, which would give the numbers 12 and 9. The application of the square to the rafter is shown in the illustration.

For the laying out of the hip rafter we also have two sets of numbers to use. The total run of the rafter and the total rise will give the cut, which in this case is $11 \frac{5}{16}$ and 6. The application of this is shown in the second illustration. The rise per foot run is 9" and the number representing the run of the hip per foot run of common rafter is $16.97''$ or say $17''$; therefore the numbers 17 and 9 will give the plumb and seat cuts.

The Side Cut of the Hip

If we assume a flat roof as shown in Figure 3 the side cut for the hip is a 45 degree cut. It always remains a 45 degree cut with the side of the rafter; however, as the pitch of the roof changes the line on the back of the rafter which describes the side cut changes. A square is shown applied to the roof so that the blade coincides with the run of the hip and the tongue along a line at right angles to the hip. The length of this line from the corner of the roof up to where it coincides with a line extended from the line of the common rafter is the same as the run of the hip rafter. The length on the blade of the square is the same as the length of the hip rafter, therefore we have the rule as follows:

"Take the total length of the hip on the blade of the square and the total run on the tongue of the square and apply this to the back of the hip for the side cut, marking along the blade. The side cut for this hip rafter is marked by taking $12 \frac{13}{16}$ on the blade of the square and $11 \frac{5}{16}$ on the tongue marking along the blade."

The length per foot run taken on the blade and 17 inches on the tongue give the same bevel. Other ways of marking for the side cut will be explained in further articles.

Problems

A roof is 20 feet wide and the rise is 5 feet; solve for the following:

- What is the pitch of the roof?
- What is the length per foot run of the hip rafter?
- What is the length of the hip rafter?
- What numbers on the square give the seat and plumb cuts?
- What numbers give the side cut of the hip rafter?

Answers

- The rise is $\frac{1}{4}$ of the span therefore $\frac{1}{4}$ pitch or 6" rise per foot run.
- The run of hip per foot run of common rafter is $17''$ ($16.97''$)
The rise per foot run is 6".
The length of hip per foot run of common rafter is $\sqrt{16.92^2 + 6^2} = 18''$.
- The length of the hip is $18'' \times 10 = 180''$ or $15'-0''$.
- The seat and plumb cut may be laid out by using the numbers 17 and 6. The 17 represents the run of hip per foot run of common rafter and the 6 represents the rise per foot run.
- The length per foot run is $18''$; therefore the number 18 taken on the blade of the square and 17 on the tongue give the side cut.



Insulation and Fuel Costs

(Continued from page 127)

Fundamentally, the utility companies are interested in selling more gas and more gas appliances.

Facilities for quickly estimating the savings resulting from the use of a given type and thickness of insulation should be helpful in many cases. With this thought in mind, charts are presented herewith for quickly estimating the saving in gas and the reduction in the required amount of radiation for any given job.

The chart, Fig. 3, is for estimating the saving in gas, and necessitates the use of a standard set of tables of heat transmission coefficients, such as Table 2, which is similar to those prepared for the Guide 1930 of The American Society of Heating and Ventilating Engineers. By drawing three lines on Fig. 3 practically any fuel saving problem involving gas can be quickly solved.

Fig. 4 is for estimating the saving in radiation for a steam or hot water system. By evaluating this saving and deducting it from the cost of the insulation, the net cost of the insulation can be quickly estimated. This radiation saving chart also makes it possible to readily determine whether or not a smaller size boiler can be used, which of course can also be credited to the cost of the insulation, and which will reduce the difference in first cost of the gas fired installation.

Better Management Cuts Costs

By J. J. BERLINER

THE attitude of construction engineers and contractors during the past decade has been undergoing a marked change. They are realizing generally that something quite radical must be undertaken in the introduction of economies in operation in order to balance the increase in wages of skilled and unskilled labor and the rising prices of materials.

Such improvements in construction methods involve:

- (1) *Introduction of improved machinery where machinery is economical.*
- (2) *Introduction of improved methods of handling labor and machinery and standardizing their methods.*
- (3) *Reduction in waste of material.*
- (4) *Elimination of unnecessary operations of the workmen.*
- (5) *Relieving the skilled worker of duties which the unskilled men can do.*
- (6) *Increasing the productive capacity of each man.*

Following along the lines of development in factory operations, it is now being realized that the same principles, which we may term Scientific Methods of Management, are applicable to construction work. These have been put to the test in a number of cases and the results have proved conclusively the applicability of scientific methods of construction operations. In making so sweeping a statement as this it is recognized that no cut-and-dried scheme can be applied to every piece of construction work. Just as in factory work, the methods of attack and the processes to be followed vary with the character of the work. But the general principles of planning the work, standardization of operations, and training of the men are adapted to any kind of work provided either the job is of long duration or the construction company (as is almost always the case) is handling similar work

right along, so that an organization once developed can be transferred from job to job.

The most convincing proof of the value of any plan is the fact that it has been carried out successfully. As a result of actual experience in construction work, it has been proved that scientific methods of construction give:

- (a) *Low unit costs.*
- (b) *High wages to the workmen.*
- (c) *Completion of work in a minimum time.*
- (d) *Uniformly high quality of work.*

When the work is planned out and handled systematically, we may say scientifically, greater skill and effort are required on the part of the management, and the question naturally arises whether the results produced are simply smoother working of the labor mechanism, or whether, on the other hand, it actually pays in dollars and cents. As an illustration of actual results, two or three cases may be cited before taking up the details of the methods.

In concrete construction work it is frequently stated and is a known fact that the cost of the form work is the determining factor whether a profit or a loss is incurred by the contractor. Taking actual unit costs under ordinary methods in comparison with similar unit costs under scientific methods of constructing reinforced concrete buildings of typical design of beam and girder construction, we find as follows:

Operations	Cost of Labor under Ordinary Methods	Cost of Labor under Scientific Methods
"Making form work. 1 3/4 c per sq. ft.	1 3/4 c per sq. ft.	1 c to 1 1/2 c per sq. ft.
"Erect and strip" form work.....	6 c per sq. ft.	4 c per sq. ft.
Bend, assemble and place reinforcing steel	\$7.50 per ton	\$4.90 per ton

The figures in both cases include job expenses but not general overhead.

On one job under scientific methods the "making" of the form work for a 6-story concrete building, 200 feet by 600 feet was done at practically one-half the cost of exactly the same work by the same company under the old methods; and this notwithstanding that they had made a detail study of their costs for several years to reduce them as low as possible. This saving was due directly to the application of



How to Get the Most Out of Contractors' Equipment Through Skillful Handling On the Job

scientific management methods.

In the work of common laborers, such as trenching and backfilling for sewers and water pipe, large reductions in cost have also been effected. For example, in a case where the digging was of an exceptionally hard and varied character, being a very stiff tenacious clay, the following results were obtained:

Operation	Unit Cost— No Task Work	Unit Cost— Partial Task Work
Excavation	48.0c per cu. yd.	34.8c per cu. yd.
Pipelaying	11.1c per lin. ft.	4.5c per lin. ft.
Backfilling	34.6c per cu. yd.	10.6c per cu. yd.

These results have not been due, as might be thought at first sight, to requiring the workman to do two or three times the amount of work he formerly accomplished, but in a large degree to thorough planning of the work in advance, studying the actual details of the work, and teaching men how to perform their tasks in the easiest possible manner.

The savings, then, were obtained not by merely hustling the work, nor in any degree by slighting it, but to the much more essential feature of:

- (a) Economical design and layout of construction operations.
- (b) Laying out in advance the method of handling the work to reduce to a minimum the quantity of construction material.
- (c) Selection of the best tools and materials.
- (d) Arranging the processes to simplify the work, and teaching the men how to do it in the best way.
- (e) Designating in advance the amount of work to be done by each man.
- (f) Giving the men a definite money incentive to encourage them to do a large day's work.
- (g) Eliminating the time ordinarily lost by workmen, such as waiting for orders, waiting for foreman to lay out the work, waiting for materials, looking up tools, using improper tools.

Cost keeping has been developed recently by contractors to a marked degree and the advantages of knowing what each part of the work is costing from day to day is apparent in providing an opportunity to follow up the

heads of the various branches where costs are running high. This, however, is really the limit of its effectiveness since a mere record of costs does not in any way show how to handle the work in a less expensive manner.

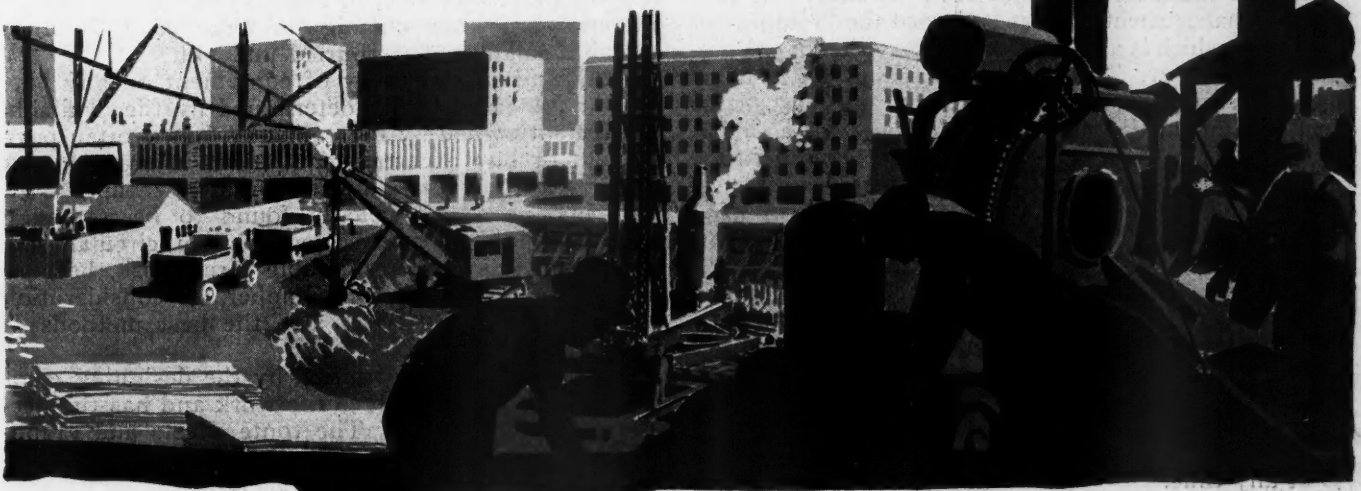
The aim of scientific management is to find the best and cheapest way to accomplish a piece of work and provide means for doing it in this fashion.

Formerly much construction and even shop work were carried on with no detail structural drawings and many of the directions were given by word of mouth. Nowadays a question as to whether or not the making of designs or construction drawings reduces the cost of work would be considered absurd since the economical advantages of the drafting room are obvious. Yet we frequently handle construction work in a most haphazard way with no definite plan and no definite arrangement of men and materials except as the occasion requires from day to day or from hour to hour.

To handle work systematically it is necessary to:

- (1) Plan the work in advance.
- (2) Determine the best methods to employ in construction.
- (3) Lay out individual or gang work for the various men.
- (4) Train the men to accomplish their duties in the best and shortest way.
- (5) Provide an incentive so that each man will be glad to do a full day's work without being driven to it.

Many construction com-



panies are carrying out a part of these principles, but few are developing all of them with anything like the effectiveness possible.

In any construction company the duties of the engineer, aside from his relation to the financial interests, may be two-fold:

(a) Duties involving the structural design and engineering features of the construction.

(b) Engineering which relates specifically to the construction plant and the methods of handling the details of the construction work.

Instead of both of these functions devolving on one man, the chief engineer, the duties in a large construction company can best be separated, the chief engineer handling what may be termed civil engineering while the treatment of the construction organization and methods in full detail requires the services of a new man termed the "production engineer." It must be understood that his services do not entail an extra cost to the job because his duties actually replace the work usually done by men less competent to perform the high class of work required and result in improvements in methods and cutting down the number of employes so as to save a far greater amount than the salary of this officer. In a company handling a small amount of work one man may serve both functions. In another case a member of the construction company may act as chief engineer.

Design

Under scientific methods of management the work of the designing engineer is increased because in order to properly lay out the work he must prepare detail drawings or sketches for the different types of work.

The making up of all material lists follows the making of these detail sketches, the lists being worked up in such a manner that they can be used not only for ordering materials but for checking their receipt upon the job. In addition to this work the designing engineer must, with the advice of the job superintendent, actually design on paper the plant which is to be built for handling the construction.

These various features of design, that is, all of these that relate to the method of work, handling of materials, and listing the materials, are under the supervision of the new production engineer.

Planning and Routing

One of the most important features under the new type of management is what is termed the "routing" of the work, which is also under the supervision of the production engineer. This involves planning out in detail and in writing all work connected with the construction just as we plan the structural design and for a similar purpose, usually to save time of the workman and insure a higher quality of work. This means planning just how each part of the work is to be done, in what sequence the various parts of the work will follow each other, the size of gangs of different trades required from day to day to get the work done in schedule time, and the schedules for ordering materials, so as to have them on hand when required. After the work has all been planned, graph charts are made for the home office and for the job, designed so that the home office and the superintendent can see at a glance just how far ahead or behind a job is at any time.

It takes time to plan out the work in detail and may even slightly delay starting the actual construction, but it pays in the long run, for when the work does start it will go along more quickly and at a much less cost than if it had been done by ordinary methods.

As the name indicates, the route man directs the movements of all materials of which the structure is to be made, in minute detail, so that they shall be delivered at the right place with a single handling and the minimum of expense. In order to do this he must be a practical construction man of experience, who possesses the ability to visualize the job from beginning to end and to record this in such a manner that the superintendent and field force can carry out the details as planned. The location of the jobs with reference to the home office and their size determines whether all the routing can be done by one route man at the home office or whether only the main details shall be handled there and the other details consigned to a job route man. In the case discussed the job is assumed to be handled direct by the route man at the home office.

The route man first visits the job with the job superintendent, assuming that the production engineer and designing engineer are already familiar with the project, and by a careful study of the surrounding decides on the location of the job office, mill saws, stock piles, tool sheds, track sidings for railroad cars, location of concrete mixers, and any other necessary things which will need ground space. He then works up a ground plan on a fairly large size scale showing the location of all features of the plant. This preliminary planning saves considerable money over the old plan of waiting for materials to arrive on the job before considering the placing of it.

Lumber Piles Organized

Take, for example, the locating of lumber piles. The route man receives from the designing engineer the schedule of the lumber to be used in the work. From this list he lays out the piles of lumber, separating each thickness, width, and length, and designates on the ground plan where each pile is to be placed so that when the lumber arrives on the job every stock of lumber is carried direct from the car or the wagon to its proper place and located as conveniently to the saw-mill as practicable. When a stick $1\frac{1}{2}$ by 8 inches by 12 feet long is wanted it will be found in a certain pile. This saves much re-handling of lumber and a lot of lost time hunting for a piece of certain size, to say nothing of the loss of material and time cutting up large stock because suitable small stock is buried under it.

The kind and quantity of equipment on any particular job is generally determined by the available equipment owned by the company, but it often pays to rent or buy a certain equipment in order to get the work done more quickly or at a cheaper cost. For instance, it is usually found to be a paying proposition to install a power-driven circular saw on any job using considerable form work, because of the saving in time and lumber. A consideration of such matters involves also the best methods of operating.

From the details furnished by the designing engineer, the route man plans the work and has the necessary material used. The route sheets and graphical charts next made up are the key to the success-

(Continued to page 154)

How Dan Does It

A Department for Passing "Life Savers"
Along to Other Builders

\$2 for an Idea

Dan is an ingenious cuss. Nothing ever stumps him. He always knows the way out when he runs into a tough problem out on the job or in the office. Dan is editor of this Department and will pay \$2.00 each for every good idea he can use here to show and tell other builders "how to do it." Send him a rough sketch and a short description of what the tough job was and how you handled it.

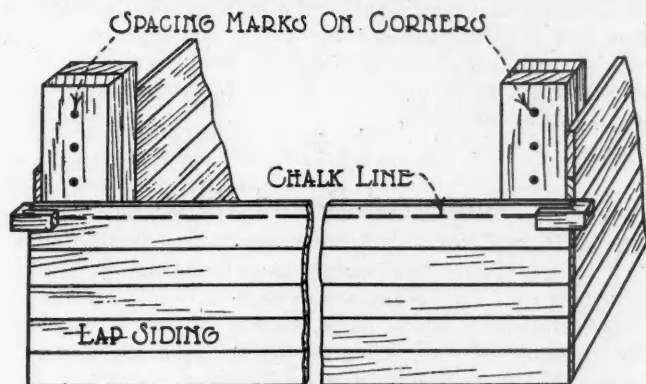
Address Dan-Do-It, care of American Builder, 105 W. Adams St., Chicago, Ill.

To Lay Siding Straight

THE sketch shows the method I use in applying lap siding, a method which makes this a one-man job. I take a piece of one by one and make two of the cleat-like pieces shown in the sketch. I make a knot in each end of the chalk line after running it through these pieces, making it just a trifle less than the length of the building side.

When the two cleats are hooked over the corners of the building as shown, the line will be pulled tight and they will stay in place. It is a simple matter to slide the cleats up and down the corner boards as required and no nailing is necessary.

BERT PARKER, Box 838, Weyburn, Sask., Canada.



Two Wooden Blocks and a Chalk Make It Possible for One Man to Get the Siding on Straight.

To Sharpen Dull Files

TO sharpen a dull file all that is required is a little sulphuric acid solution and some ammonia. Dip the file into the acid for a few minutes then remove it and wash it off with ammonia. The acid eats the steel filings which lodge between the teeth of the file and cause the dullness. The ammonia neutralizes the acid, too, and prevents any eating of the file itself after the filings have been eaten away.

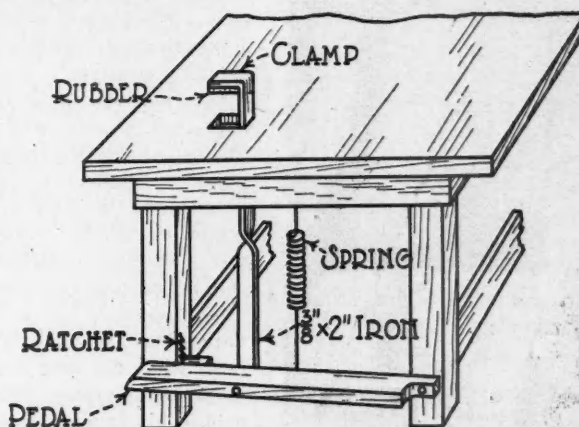
RALPH KRASKY, 1335 5th St. N. E., Minneapolis, Minn.

A Useful Bench Clamp

THE sketch shows very plainly the most convenient and useful device I have ever had attached to my work bench. The object of this device is to clamp material firmly to the bench while working on it. A piece of $\frac{3}{8}$ by 2-inch iron is twisted at the middle and bent to a right angle at the top. A piece of rubber is glued to the under side of the right angle, as shown, to keep it from marring the wood.

The iron is passed through the bench which is mortised deeply enough to permit the right angle portion to sink below the surface when not in use. The lower end of the iron is attached to a pedal that swings up and down on a bolt at

the rear end. A spring is attached to the pedal and the bench to raise the clamp up when ratchet is released by stepping on the pedal.



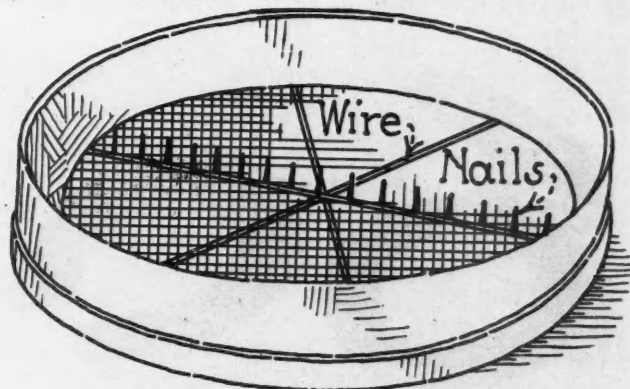
The Usefulness of a Work Bench Is Greatly Increased by a Clamp Like This.

When material is placed under the clamp, the pedal is pressed down with the foot and the ratchet is thrown in gear, holding it firmly in place. The ratchet may be made from a piece of iron with notches filed in it or from an old rip saw.

STITES LILES, Forest, Miss.

For Screening Wet Sand

IN mixing mortar I find that the difficulty in getting the wet sand to pass through the screen makes considerable delay when trying to get the mortar mixed in a hurry.



Nails Placed Like This Help to Keep Wet Sand from Sticking in the Screen.

I take $1\frac{1}{4}$ -inch roofing nails and put them under one of the cross wires as shown in the sketch. I find this helps.

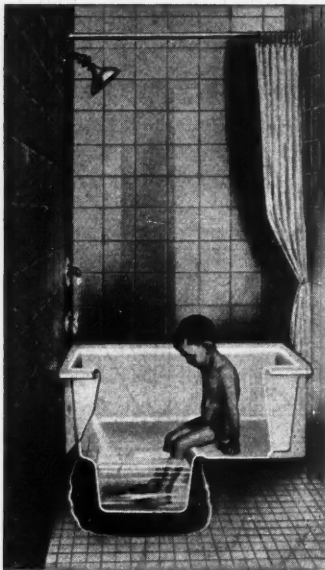
LEE ROE, 563 Hamilton Blvd., Wood River, Ill.

What's New in Equipment for Buildings

For further information in regard to any item described in the "What's New" Departments address, American Builder Information Exchange, 105 W. Adams St., Chicago

Combination Bath Tubs

THE illustration shows a comparatively new departure from the conventional types of bath tubs and shower receptors. The manufacturers claim many advantages for these tubs in the way of safety and comfort. To assume a standing position, the user arises about as he would from an ordinary chair, which eliminates one of the greatest dangers attending getting in and out of bath tubs. He always assumes a comfortable sitting or standing position.



Used Either as a Bath Tub or Shower Receptor It Offers Comfort and Safety.

merges with the sides and end of the tub is less than one and one-half inches. As a shower receptor, the combination bath tub answers every requirement.



Resinoid Toilet Seats

CRYSTAL showers, sunken pools and stained glass windows have come to be the setting of the modern



Toilet Seats of Resinoid Material Are Easily Cleaned and Permanent in Color as Well as Durable.

bathroom since the trend in practical decorative interiors reached it several years ago. The number of bathrooms in the household has been multiplied, and its fittings have been transformed by the addition of color to the original primness of white tiles and paint. In the prevalent trend to modernity and beauty, or we might say, to comfort and efficiency, resinoid materials have accompanied the other familiar items of construction—stone, wood, rubber, porcelain and other glass materials.

These materials, when used in switch plates and lighting fixture insulation, are not attacked by water, are persistently non-conductors of electricity, and retain their gloss and lustre. But it is not merely in the electrical fittings of the bathroom that resinoid materials are being used.

Toilet seats of the resinoid materials possess several advantages. They are the result of a unit molding operation. That is, color, texture, chemical and physical properties persist uniformly throughout the material, and are not merely a surface or layer effect. Even when a resinoid molded item is cored, the resinoid structure is still sufficiently thick, so that you get the characteristics of a non-hygroscopic and durable material. Such a material is readily cleansed, is not impaired by repeated cleansing, and is thus an adjunct to sanitation in the home.

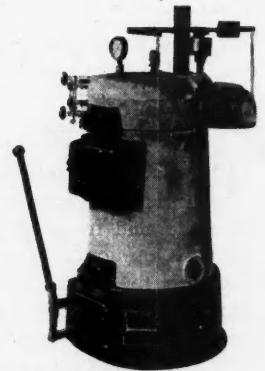


Improved Round Boilers

A NEW type round jacketed boiler with a flaming orange jacket backed by four-ply air cell insulation, is illustrated. It uses the advanced idea of three-piece construction, which eliminates heavy, bulky castings. The ashpit has a flat rocking and dumping grate and is controlled from one shaker handle. The draft door is on the side of the ashpit which places the regulator chain away from the charging door and facilitates firing.

This boiler has a deep fire pot which allows for an ample charge of coal and extends firing periods. The fire pot and crown sheet are cast in one piece and the extended areas give this boiler a generous amount of prime heating surface which responds readily to the action of the fire. The steam dome is large and deep with ample steam separating space which insures dry steam at the outlet.

The two-way smoke hood in the rear is a decided advantage in low cellars where head room is at a premium. The insulation is permanently attached to the jacket which makes a most complete and serviceable installation. The flaming orange jacket adds the touch of color necessary to complete the eye appeal to an already efficient steam or hot water boiler. It is made in the following sizes: steam up to 750 square feet, hot water up to 1,250 square feet, all fully equipped and ready for installation.



Boilers with Colored Jackets Appropriate for the Modern Basement.

Automatic Coal Heat for Houses

NO matter what the make, size, type or operating principle of the furnace you have or are planning to install, you can have all the advantages of modern automatic coal heat at a surprisingly low cost, say the manufacturers of the equipment shown in the illustration. This automatic furnace stoker can be installed in either a hot water, steam, vapor or warm air heating plant with equally good results.



The Home Can Be Heated with Coal with This Thermostatically Controlled Automatic Stoker to Do the Work.

This stoker makes possible the use of the cheaper grades and sizes of soft coal, hard coal and coke, whichever is most convenient and available for use. It is thermostatically controlled and insures perfect combustion, saving coal and insuring more heat per ton of coal consumed than is possible with hand feeding.

The hopper requires filling only once or twice a week, and a signal above the thermostat tells when refilling is needed. With the thermostatic control the motor runs only when heat is required. A gas flame automatically starts the fire. A screw feed conveys the fuel to the fire box and the ashes to the ash can which needs be emptied only two or three times a week.



Adjustable Closet Bar

THE adjustable closet bar, illustrated here, has recently been placed on the market. It is designed for installation in closets for hanging clothing by means of clothes hangers. It consists of two pieces of steel tubing, one of which telescopes within the other. Rosettes are securely fastened to one end of each tube.



This Telescoping Steel Tube Bar, for Hanging Clothes, Is Adjustable to the Closet Size.

Besides its improved appearance, this closet bar offers a stronger and more rigid support than the improvised broom handle or curtain rod so often used in closets. To install it, it is only necessary to drive six screws. As the bar is adjustable, it can not be too long or too short to fit the closet.



Gas Fired Incinerator

THE old methods of disposal of garbage and other waste have never been entirely satisfactory and in this day of modern, labor-saving, household appliances women are eager

to make their garbage and rubbish disposal arrangements as modern as the other details of their homes.

The solution of the problem is found in the modern garbage incinerator. It does away with the fire hazard in the accumulation of rubbish, with disagreeable odors, with carrying garbage outdoors and with the garbage can. It aids in the elimination of rats and mice, flies and other vermin and fits perfectly into the scheme of sanitary living arrangements.

The incinerator illustrated is a gas fired unit, made of materials that are practically impervious to the deteriorating effects of time, heat, rust and dampness, and with no complicated mechanism or parts to get out of order. It will give continuous service over a long period of years. Operating at maximum burning capacity it consumes approximately 75 cubic feet of gas per hour at two-ounce gas pressure.

This incinerator requires no personal attention during the burning of the garbage and, if equipped with a timing device and combined regulator, the gas is automatically shut off at the completion of the burning of the garbage. Installation of the incinerator is a simple and inexpensive operation.

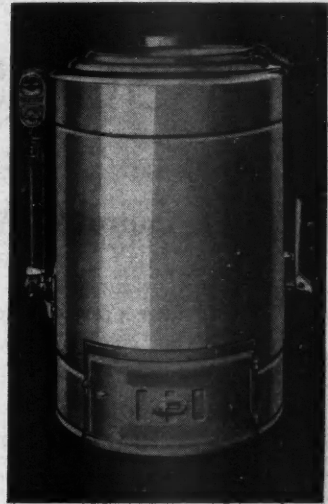


Leakproof Shower Compartments

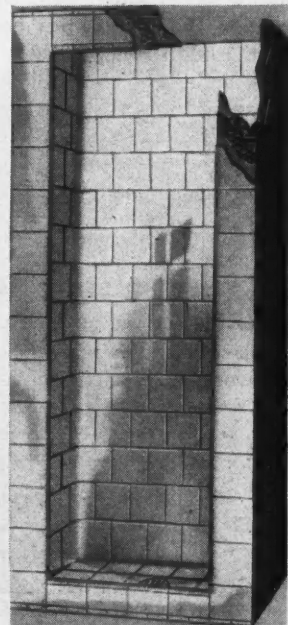
SHOWER bath compartments which are both beautiful and water-tight are made possible by the use of the metal enclosure shown here. They are ready furred, water-tight casings which serve as rigid forms for shower bath compartments of tile, terrazzo or cement. Their cost is only slightly higher than that of lead pans and it is more than balanced by the assurance against leakage, preventing damaged plastering and expensive repairs.

These enclosures consist of floor pan, side and back walls, front pilasters, threshold curbing and head rail. Furring for metal lath is provided on the inside walls and on both sides of the pilasters, curbing and head rail. They can be furnished with outside exposed walls furred for corner or free standing installation. The installation is made by the plumbing contractor and the casings do not change the specifications for any trade.

The casing is installed on the rough floor but is not fastened to the floor nor to the surrounding walls. It simply rides the building and so is not subjected to strains and is not affected by vibration or settlement of the building or shrinkage of joists and studs.



No Personal Attention Is Required by This Gas Fired Incinerator During Burning.



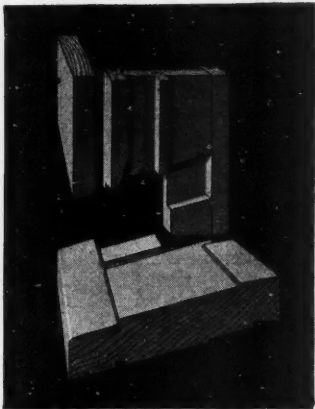
With This Metal Casing the Shower Compartment Is Made Absolutely Leak-proof.

What's New in Construction Materials

For further information in regard to any item described in the "What's New" Departments address, American Builder Information Exchange, 105 W. Adams St., Chicago

New Improved Window Frames

ANNOUNCEMENT was made, recently, of a new line of window frames which incorporate several distinct improvements over previous stock window frame construction. The most outstanding of these improvements is a patented construction which makes a permanently tight joint between the sill and the side jambs.



This Illustration Shows the Locked Sill-Joint with Solid Sill. Also made for sub-sill construction.

It is stated, by the manufacturers, that this construction has the advantages of both former styles of joint—the jamb-dado and the sill-dado—with none of the drawbacks of either. The lock joint remains tight and insures proper sill drainage without danger of leakage through the joint in case of shrinkage of jambs or in case of stress upon the sill.

With the old jamb-dado construction to make a permanently tight joint, it was necessary to block between sill and studding. With the old sill-dado construction, there is a tendency for the joint to open if the jambs shrink or weight is placed upon the sill.

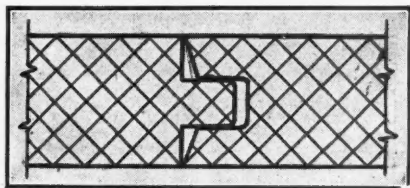
As will be noted from the illustration, in the new construction the sill extends beyond the back of the jambs so that the high front shoulder backs up the joint between side casing and sill. The jamb lugs extend below the sill giving permanent support. No trimming or blocking is necessary.

The sill slope is steep. It is, in fact, three inches to the foot, 50 per cent more slope than previously used. This is the slope many architects consider ideal for perfect drainage.



Insulating Board Improved

THE latest feature of a new insulating board recently placed on the market is a tongue and groove joint for lath work. This joint gives what appears to be an almost



A New Insulating Wall Board Is Now Being Made with a Tongue and Groove Joint.

seamless surface which may be covered with plaster or other interior finishes. Plaster adheres strongly to it. This type of the insulating board is being made in half-inch thickness.

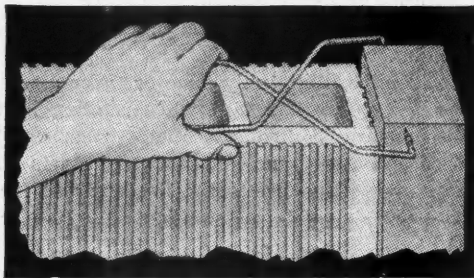
The use of the board, according to the manufacturer, results in the saving of plaster because it does not necessitate forcing it through laths. The board is so designed that when the wet plaster is troweled over it and the slight normal expansion takes place, the bevel relief on the interior joint permits it to expand and take place in squeezing together of the fibre at the joint.

When the plaster dries, the board surface resumes its original position and does not contract to a condition smaller than the original one. There are no joint openings along the horizontal edge. The plaster is spread so evenly that the weight is well-distributed.



Door and Window Buck Anchors

A SOLUTION of the problem of rigidly anchoring door and window bucks in a masonry wall is offered in the buck anchor shown here. It eliminates the use of nails, screws, bolts, tie wires, strips of metal lath and iron and all pounding against the back sides of the buck which tends to loosen anchors placed in the mortar joints below. It works equally well where the back of the buck is plowed out to receive the tile as it does where the buck is the width of the unplastered wall.



This Buck Anchor Is Designed to Solve the Problems of Anchoring Door and Window Bucks.

This anchor forms a rigid truss in the mortar joint that prevents the movement of the buck in any direction. It is made of No. 10 galvanized steel wire in three widths, three, four and six inches. It will fit around almost any pipe or series of pipes coming up along the back side of the buck.



Cedar Paint for Closets

FOR those who would like to have the protection that is afforded to clothing by a cedar closet but who can not afford such an installation, there is now available a product which converts the ordinary plastered closet into a cedar close at a very low cost. This is a cedar paint powder. It is mixed with cold water and applied like paint or calcimine to a thickness of 1/16 to 1/8 inch. If a smooth surface is wanted it can be obtained by stroking with a celluloid triangle after application.

This paint possesses an enduring cedar fragrance which is highly moth repellent and a protection against these destructive insects. About 10 pounds of powder are required for finishing a closet of ordinary size and the work can be done by anyone as no special skill is required.

... BRIXMENT mortar is strong

MMORTAR made of 1 part BRIXMENT, 3 parts sand (no lime, no portland) has greater strength than that required by the building code of any city for the heaviest load-bearing walls.

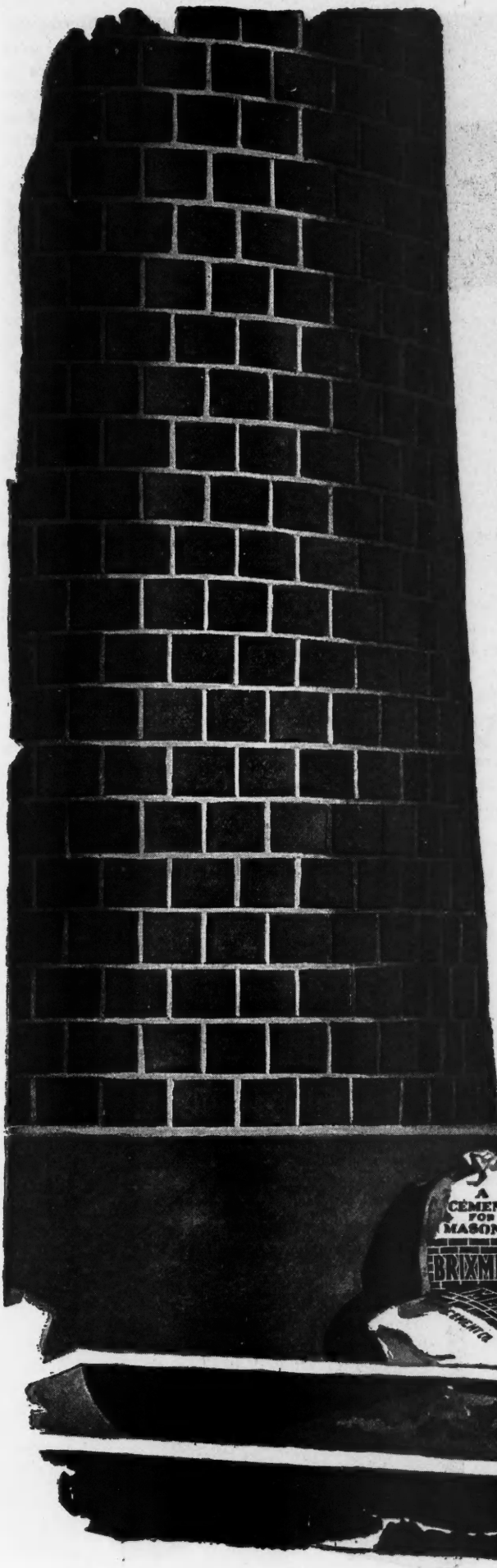
Its strength increases with age, becoming greater than that of the brick itself. When tested in piers, it approaches that of straight 3-to-1, portland-cement mortar: This makes it suitable for foundation, load-bearing or parapet walls and even for tall, free-standing stacks.

BRIXMENT makes a stronger, tighter bond between the brick and the mortar; it is ground finer and hardens more slowly than portland, thus permitting deeper penetration and a more thorough keying into the pores of the brick. Louisville Cement Company, Incorporated, Louisville, Kentucky.

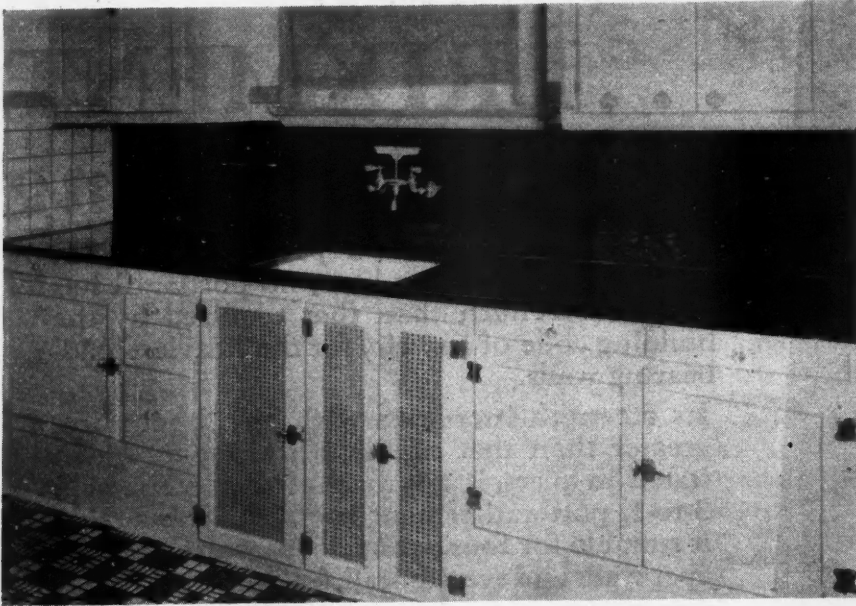
District Sales Offices: 1610 Builders Bldg., Chicago; 301 Rose Bldg., Cleveland; 602 Murphy Bldg., Detroit; 101 Park Ave., New York

BRIXMENT for Mortar and Stucco

Among the many BRIXMENT stacks is the 250-foot radial-tile smoke stack at the power plant of Purdue University.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Illustrating One of the Many Uses for This New Non-Marring Material.

New Lustrous Veneer for Finish in Buildings

AMERICA'S advance in the industrial arts its constantly bringing out new materials with special advantages in the building field. One of these which has been on the market for a comparatively short time opens up new possibilities in artistic, durable finish for buildings. It is veneered either on wood, galvanized sheet steel or a cement-asbestos composition in a wide range of convenient sizes and is used principally for paneling walls, finish of elevator cabs, window sills, radiator enclosures, counters, kitchen cabinet or drainboard tops, baseboard finish, kickplates, push-plates, store front bulkheads and a number of other uses.

Some of its many advantages are its great strength and elasticity, its immunity to acid, fire, water, chemicals or fumes, its marproof surface and the great variety and charm of decorative effects obtainable with it. It faithfully reproduces the effect of wood paneling in burlled walnut, straight grain walnut, red mahogany, light walnut or oak. So naturally are the colors and markings of these woods reproduced that only an expert can detect the difference. No refinishing is necessary to maintain this appearance, nor will sunlight, heat, fumes or smoke cause it to deteriorate. Its special fitness for table tops, window sills, kitchen cabinet tops or bath room finish may be gauged from the fact that it is unaffected by heat, steam, acids or smoke. Burning cigars or cigarettes laid on it will not injure or deface it. It may be used around a fireplace and any smoke or fumes deposited on it may be wiped off with a damp cloth, restoring it to its original freshness. In fact, this is all the refinishing it needs in any location.

This versatile material is a product of the chemical laboratory. Its principal ingredients are phenol and formaldehyde and their reaction under a special manufacturing process produces this material in an almost unlimited range of decorative effects. It may be made to resemble Belgian black and gold marble, verdi-antique or black marble, and, in addition, has a great number of special patterns and color effects of its own. Some of these might be termed modernistic, in their bright colors and bizarre designs. Solid colors, tints and shades are obtainable, besides black and white, and the surface may be polished or dull, as desired. When used for table tops, the high gloss finish is rubbed with pumice, producing a handsome satin finish which will not show scratching or abrasion.

The laminated wood window sills veneered with this fin-

ish have a special appeal for discriminating builders, creating an effective sales appeal in connection with the homes in which they are installed because they are so far superior to the ordinary window sill finish. They will not warp, shrink or depreciate in appearance, no matter how exposed to sunlight or moisture. Window sills with ordinary finish look old in a few years and are quite apt to show defacement in a number of different ways. Besides being immune to ordinary exposure, this new material will even resist a 30% solution of sulphuric acid and its use is becoming popular for finish in hospitals and nurses' homes. It is an ideal finish for soda fountain and restaurant counters and tables, providing a new charm of decorative effect.

For bank interiors, lobbies or public buildings and elevator cab finish, this material offers a wide range of attractive effects—from dignified marbles to more brilliant colors and patterns, as well as the rich, warm harmonies of fine wood paneling. This paneling is veneered on

asbestos-cement sheets of three different thicknesses—1/16, 3/32 and 1/8 of an inch thick—and furnished in sheets 36 inches by 42 inches or 36 inches by 60 inches; also, narrower strips with beveled edges for mouldings, base and mop boards.

The material can readily be sawed with any metal cutting saw and firmly fastened in place on either wood or masonry backing. Ingenious fasteners are provided which are readily adjusted, providing tight joints without nail heads or fastenings showing.

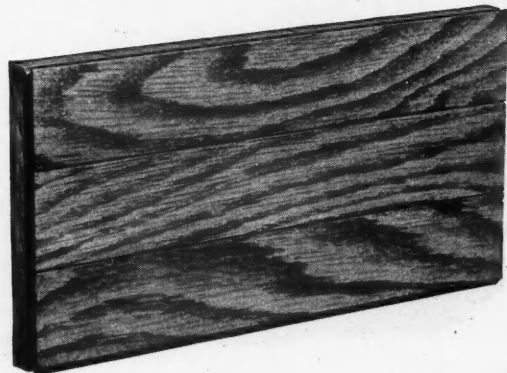


Finished Oak Flooring Improved

IN an oak flooring which is completely finished at the factory, that is, milled, filled and double varnished, so that the flooring need only be nailed down and is then immediately ready for use by the home owner, further improvements have recently been made.

This type of varnished oak flooring has the more or less standard color of oak flooring in general. To this line has been added a new type of all wax-finished oak, rich tobacco brown in color, the wax being softened by heat sufficiently to be forced into the pores of the wood. This is an improvement over the old method of first filling the pores with filler and applying wax to the surface. Furthermore it makes a much more durable finish.

The effect is very beautiful. It shows up the grain of the wood to the best advantage, greatly extends the life of the finish and appeals to the growing number of architects and home-owners who prefer dark floors.



Factory Finished Oak Flooring Now Finished in Dark Brown and Waxed.



"For many years I have used Goodyear Tires exclusively," writes E. Neuner, Excavating and Heavy Hauling, Kansas City, Mo.

It's a "large contract" for any tire

Hauling materials to a building under construction, hauling dirt and debris away—are jobs which call for exactly what Goodyear Tires can give to your trucks.

Goodyear Pneumatic Tires have the stout resistance and vitality of Supertwist in the tire body. They cushion the load over boards, curbs and boulders, absorbing shocks that would rend an ordinary tire.

The grip and bite of the All-Weather Tread, famous for its traction, give Goodyear Tires a footing under heavy loads—on ground torn up by building operations.

For traction even greater than the standard All-Weather Tread can give you, there are Goodyear Dump Truck Pneumatics.

They pull out where any other tire would go under. Extra broad of tread—with traction bars far up on the sidewalls—they combine unsurpassed gripping power with equally valuable protection from sidewall damage.

Goodyear Super Heavy Duty Cushion and Goodyear Super Cushion (hollow center) Tires also meet the special needs of contracting and construction work with greater traction, extra cushion, and mileage that is completely trouble-free.

Let the Goodyear Truck Tire Service Station Dealer help you reduce your hauling costs, by expert specifications, showing the right tire for every hauling duty.

More Tons are Hauled on Goodyears Than on Any Other Tires

GOODYEAR

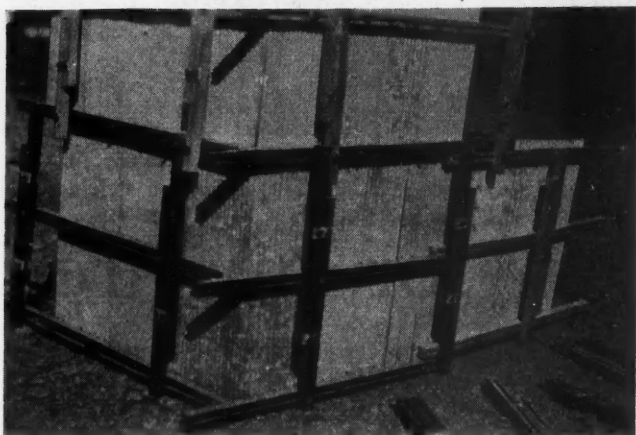
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

What's New in Contractors' Equipment

For further information in regard to any item described in the "What's New" Departments address American Builder Information Exchange, 105 W. Adams St., Chicago

Adjustable Steel Concrete Forms

APPPLICATION of a new system of adjustable steel forms for concrete work is shown in the accompanying illustration. This system is designed to eliminate complicated wood form work and the high cost of labor and lumber which it involves. It can be applied to any type of building construction including columns, beams and lintels, partitions, floors, roofs, steps and to industrial work of all kinds, including bridges, piers and dams. It is adaptable to arch construction as well as to flat work.



Steel Forms Adjustable to All Types of Concrete Work Save on the Cost of Labor and Form Material.

These forms are made up from corrugated metal sheets of sufficient thickness to provide ample strength and stiffness. The sheets are corrugated with small right angle corrugations which afford great stiffness and provide for telescoping the sheets both lengthwise and sidewise. These sheets are used with adjustable walling strips only and no lumber or skilled labor is required for placing them.

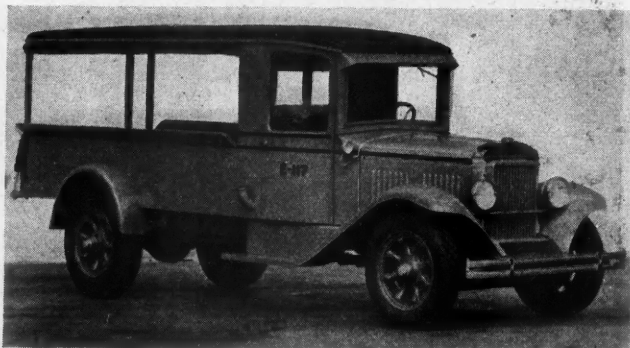
The forms are quickly assembled and disassembled and are adjustable to every conceivable shape and form known in concrete form construction, it is stated. They are available to contractors on both rental and purchase basis.



New Fast Delivery Truck

THE latest addition to a well known line of trucks is a six-cylinder 1½-ton truck for fast delivery service. Adapted to a wide variety of bodies, this chassis is available in three standard wheelbase lengths of 138, 158 and 168 inches. The manufacturer also announces four standard body types, designed especially for the new model. These are: a covered express body with side curtains, an open express body, a platform body with removable rack sides and a panel or closed body. In addition, the company is prepared to design and furnish bodies to meet any special requirements.

In keeping with the modern trend, the new truck has abundant power and a choice of gear ratios to cover a wide range of performance including the ability to maintain a high speed schedule, but always with the element of safety



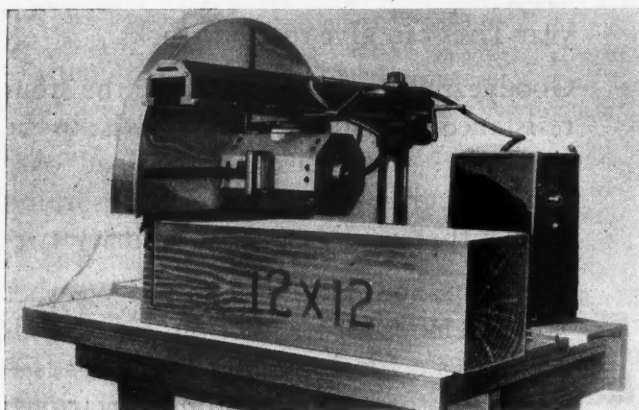
New, Fast, 1½-Ton Truck with Ample Power to Meet the Builder's Needs.

assured through the use of four-wheel brakes which are vacuum booster actuated.



Extra Heavy-Duty Saw

PORTABLE sawing equipment is available now for cross-cutting and dadoing 12 by 12' to 12 by 20 timber right on the job. One of the leading manufacturers announces the development of extra heavy-duty cutting equipment, incorporating the same principle of direct-driven, balanced, guided power, and ease in operation that is found in its other saws.



A New Portable Saw Made in Two Sizes for Extra Heavy Duty Cutting.

Instead of the back breaking labor of a two-man saw in cutting heavy timbers, this job is now handled with ease by one man feeding the saw through the material on the heavy-duty saw with a hand ratchet gear feed or by chain feed on the arm of the machine. This arm may be raised or lowered to depth of cut and saw blades up to 36 inches are provided to handle 12 by 20-inch material or a 16-inch dado head may be used to dado up to 3 inches.

Two models are supplied in this heavy cutting equipment, the capacity of one being 12 by 12-inch material while the capacity of the other is 12 by 20 inches. The larger is mounted on an all metal table, equipped with all steel conveyor rollers for easy handling of heavy material. The elevating device is operated by wheel in front of the table.

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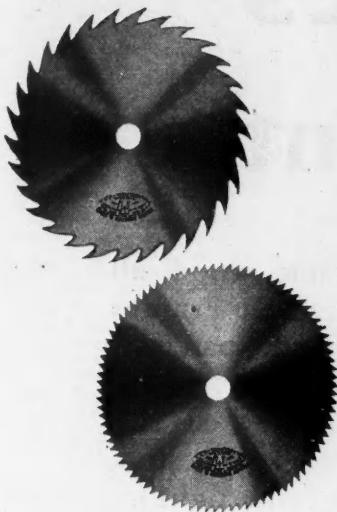
Accept This Offer from Disston

The Greatest of All Saw Files and the New Disston Stronghold Saw File Handle both for

25c



Put a **DISSTON** Saw on your portable power outfit



DISSTON, the world's foremost saw makers, makes the most efficient circular saws and band saws for portable machines: every size, type, and style.

Your electric saw cannot do its best work if the saw blade is not right, so it pays to specify **Disston** blades when you buy your machine, and to get only **Disston** blades for replacement. Any good hardware dealer or supply house either has **Disston** Saws in stock or can get them for you promptly.

Disston Saws are the only saws made of **Disston** Steel, the world's great cutting steel, from the **Disston** Steel Works. They require less sharpening, and they do more work. Just as the **Disston** Hand Saw is "The Saw Most Carpenters Use," so **Disston** Circular Saws and **Disston** Band Saws are the saws most carpenters will prefer on their power outfits, because of better steel, better temper, better workmanship.



TO introduce quickly the new **Disston Stronghold** Saw File Handle, illustrated in its actual size and shape at the right, we will send you, postpaid, this new file handle and a **Disston Special Extra-Slim Blunt 6-inch Saw File** for the price of the file alone—25 cents. The file handle, regularly sold for 15 cents, is our gift to you.

This handle is a special shape and size, made for saw filing. It is the same as those used by the saw filers in the **Disston** Saw Works. It lessens wrist-strain, is comfortable in the hand, gives you better control of the file and insures more accurate work. Its shape and size alone would make it your favorite.

But this handle also has a new and patented feature that means a lot to you. A coiled spring-steel ferrule holds the tang of the file always tight, preventing slipping. You can remove and replace the file easily without injury to the handle, which may be used repeatedly.

And you already know that the **Disston Special Extra-Slim Blunt** Saw file is the finest file that money can buy. Special cut, plenty of bite, cuts fast and true. Extra-slim, so you can see where and how you are cutting. Parallel sides, no taper, for a level, uniform stroke. Made of **Disston** Steel.

Be one of the first to use the new **Disston Stronghold** Saw File Handle. Get your first one from us on this special offer and afterward buy them from your dealer. Mail the coupon with 25 cents, stamps or coin.

This offer good only until May 15, 1930

DISSTON

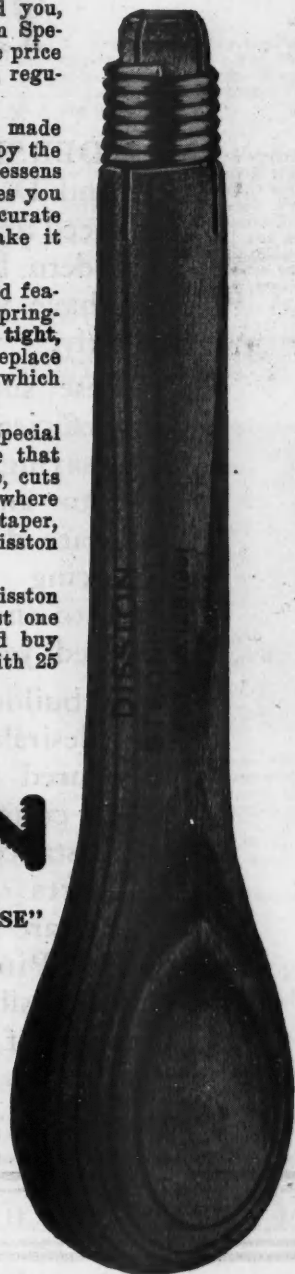
Makers of "THE SAW MOST CARPENTERS USE"

Henry Disston & Sons, Inc.,
Desk 2, Philadelphia, U. S. A.
(In Canada, Henry Disston & Sons, Ltd., Toronto, Ont.)

I'd like one of those new **Disston Stronghold** Saw File Handles and a **Disston Special Extra-Slim Blunt 6-Inch Saw File**, both for 25 cents (in Canada 35 cents), which I enclose (coin or stamps). Send them to:

Name and Address.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



ANNOUNCING

Andersen MASTER FRAMES with the *Locked Sill-Joint*

ANDERSEN Master Window and Door Frames are new—produced to meet the requirements of modern builders and architects who have vision and who build honestly.

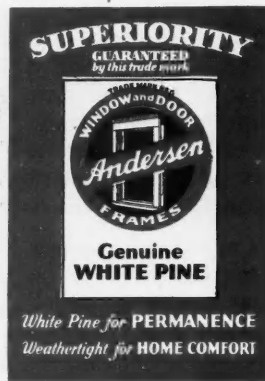
These super-frames are amazingly efficient—they are time-and-labor-saving, and they are adaptable to any wall construction. They are designed for a rapidly advancing civilization, and are made to endure the weather of a hundred years!

To builders, these new frames offer desirable features which can be secured in no other frames—either custom made or “stock.” For instance, consider *materials*: all parts of Andersen Master Frames are made of clear *genuine White Pine*—a quality feature made possible only by an annual purchase of twenty-six million feet

of this supreme frame wood; all double-hung Andersen Frames are equipped with the patented Andersen noiseless pulley. And consider *design*: the locked sill-joint, the chamfered blind stop, the provisions for weathertight installation—all *patented* features.

In no other frame can you get such excellence of material and design—yet these super-frames are conveniently available to you, with *quality guaranteed*, at stock frame prices!

On the page opposite, the features of the new Andersen Master Frame for frame construction are illustrated and described in detail.



WEATHERTIGHT INSTALLATION MADE EASY AND ECONOMICAL

A Revolutionary Development

7 NEW and EXCLUSIVE FEATURES

of the Andersen Master Frames for Frame Buildings

The seven extraordinary new improvements incorporated in Andersen Master Frames (as illustrated on this page) are in addition to the following features which have distinguished Andersen Frames heretofore:

Genuine White Pine. (All parts now made of this beautiful and enduring wood.)

Patented groove for economical wide blind stop construction.

Patented insulated mullion.

Patented noiseless wear-proof pulleys. (Guaranteed to give noiseless, perfect service indefinitely.)

4. *Chamfered blind-stop*—Allows perfect sill drainage and prevents dirt lodging behind the blind stop. (Patent No. 1,733,559.)

1. *Tongue between head and side casing*—Makes a tight, flush joint and prevents any chance of leakage at this point. (Patent pending.)

2. *Locked sill-joint construction*—Holds sill and jamb rigid so they cannot pull apart when weight is applied to sill. Prevents leakage at this point. This construction has all the advantages of both sill-dadoed and jamb-dadoed frames with none of their disadvantages. (Patent No. RE 17552, April 9, 1929.)

Jamb lugs below sill give permanent support. No trimming or blocking necessary.

3. *Three-inch slope to sill*—50% more slope than on any other stock frame sill. It is the sill slope which many architects have adopted as ideal to give perfect drainage. This sill is so constructed as to receive stock stool.

High shoulder backs up joint between casing and sill.

7. *Cast iron pulley with turned wheel*—This is the first time a sash pulley with a machine-turned wheel has ever been furnished in a stock frame.

6. *Casings 3 3/4" wide*—Add to the artistic appearance of the house and are recommended by architects.

5. *Inside liner*—Makes stronger jamb and provides greater nailing surface for inside trim. Also permits adjustment of jamb width without ripping. (See detail.)

(Above) Detail shows inside liner removed and plasterbase nailed to the edge of the pulley stile.

The features illustrated above have been adapted to the entire line of Master Frames—standard double-hung frames with sub-sill, frames for brick veneer and masonry, casement and cellar frames.

Call any Andersen Dealer for a demonstration of the

Andersen Master Frames or write to us for descriptive literature and details of the types of frames in which you are interested.

ANDERSEN FRAME CORPORATION, BAYPORT, MINN.

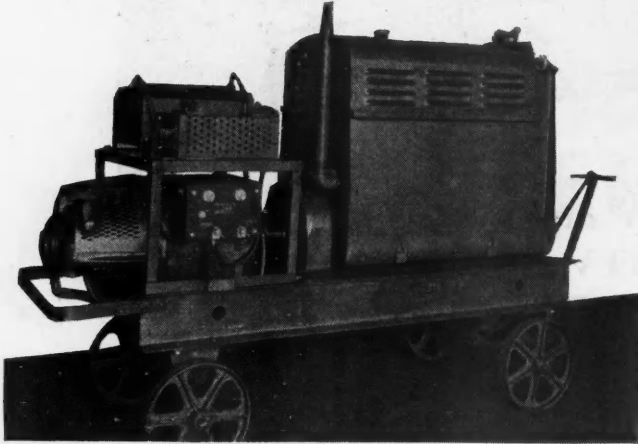
BY THE PATENTED FEATURES OF ANDERSEN MASTER FRAMES

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Gas Engine Drives New Arc Welder

THE new portable electric arc welding machine illustrated here is driven by a 6 cylinder gas engine, and replaces the 4 cylinder engine driven unit previously included in this line. Advantages of the 6-cylinder engine are ease of starting, steadiness of operation and greater capacity.

The new engine is a model built especially for industrial service. The S.A.E. horsepower rating is 27.3 and the actual brake horsepower is 39 at 1,440 r.p.m. The engine is totally enclosed in a sheet-metal housing. Gasoline consumption averages 2.4 gallons an hour for average welding duty at full normal-rated load.



New Electric Welder on Which a Six-Cylinder Engine Is Used for Ease of Starting and Increased Capacity and Steadiness.

The welding generator is a ball-bearing, self-excited, single-operator machine rated 300 amperes, 1 hour, 50 deg. C. with a current range of 90 to 375 amperes in accordance with N.E.M.A. standards. Included with the set is a current-reducing resistor by means of which welding currents down to 25 amperes may be obtained. The current can be adjusted simply by turning the brush shafting handle. When operating so that the potential at the generator panel, including reactor drop, is 25 volts, any value of current can be obtained between 25 and 400 amperes. A self-adjusting stabilizing reactor automatically steadies the arc. The automatic regulation is obtained by specially designed magnetic circuit without any moving parts.

The complete outfit is mounted on a welded structural steel base and may be made portable by the addition of running gear. Where used for outside work, a canopy can be provided to protect the generator from the weather.

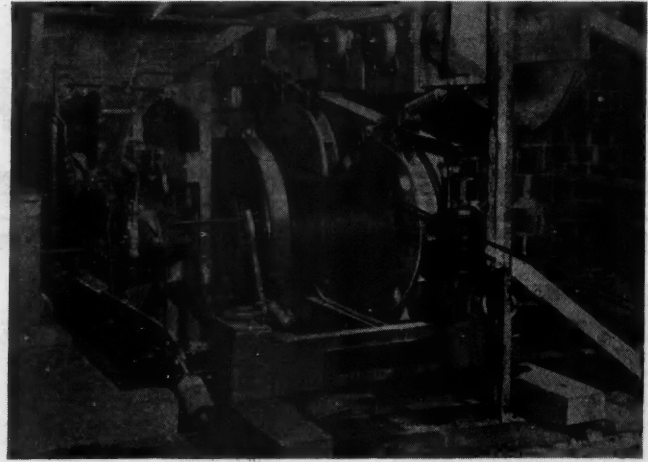


This Hoist Features Safety

TO minimize the number of accidents resulting from the dropping of loads, especially in congested districts, a new type of high speed, steel erectors' hoist has been announced. It is equipped with emergency brakes which are automatically set in case of either power failure or neglect of the leverman to keep his feet on the service brake levers.

As in the older hoists, the new type is equipped with band service brakes controlled by foot levers. These are used to govern the rope speed while lowering or to hold the drums while the frictions are disengaged. In addition, however, emergency "V" type post brakes are fitted to each drum over the frictions. These are spring set and released by means of motor-operated hydraulic rams.

When power is cut off of the hydraulic operator motor, the piston descends, but it is necessary for the oil under the piston to pass out into the upper chamber of the cylinder. This gives a dash-pot action much superior to the sudden



Absolute Safety in Hoisting Is Assured by the Brake System on These New Hoists.

clamping action of the ordinary solenoid brake. If a load is running away and the emergency brake goes on, the more gradual application of the brake as obtained with the hydraulic operator is highly desirable as there is less chance of causing the hoist cable to break.



Kerosene Preheating Torch

WHEN welding heavy pieces of iron and steel with the oxy-acetylene torch it is usually necessary to preheat the section before welding. The preheating operation eliminates any warping or cracking which might otherwise occur if a cold weld were attempted. It also gives a weld that is soft and easily machined, and saves oxygen and acety-



For Preheating Before Welding, This Torch Produces Excellent Welding Results.

lene. Good oxy-acetylene welding must, therefore, depend to a considerable extent on a kerosene preheating torch.

The preheating torch shown here has been used as a portable, hand pump outfit for a number of years by the company which has placed it on the market. It throws a flame about two feet long. The tank, of 10 gallons capacity, is equipped with a double acting pump allowing for suction of either air or kerosene. Thus the tank can be refilled while the torch continues to operate. The outfit being portable allows for use either inside or outside the shop and in any kind of weather.



Cunningham Floor Company's Fleet of 10 American High Production Floor Sanders

More completed jobs with low operating costs result in increased profits for the Cunningham Floor Company of Detroit . . . ANY flooring contractor will increase his profits with these fast-cutting sanders.

You should insist upon speed, power, dependability, operating ease and one-man portability in your floor sander. Only AMERICAN offers all these in one sander, PLUS the service advantages of direct factory branches.

Other "American" Sanders

NEW American Handy Sander . . .

. . . a combination floor and bench sander which can be easily carried anywhere with one hand. Operates directly from any light socket—compact enough for use in small cramped quarters without removing the handle, yet ruggedly constructed to stand up under many hours of hard continuous service on large areas.

American Universal . . .

. . . the world's best known and most widely used floor sander. Hundreds of Contractors, Builders, Carpenters and Floormen everywhere have sanded millions of square feet of flooring with these dependable long-lived machines.

WHY be content with just an average floor sander when AMERICAN gives you so many outstanding qualities and features? AMERICAN sanders have stood the test for many years. They are your guarantee of quality and dependability with minimum up-keep cost. Mail the coupon NOW for detailed information.

The American Floor Surfacing Machine Co.

515 South St. Clair St., Toledo, Ohio

Factory branches and representatives in principal cities

United States - Canada - Overseas

The American Floor Surfacing Machine Co.,
515 South St. Clair St., Dept. C., Toledo, Ohio.

Gentlemen: Without obligation, please send me complete information covering American High Production Floor Sander, American Handy Sander, American Universal.

Name.....

Street.....

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

BUILDERS OF DEPENDABLE FLOOR SURFACING MACHINES FOR OVER A QUARTER OF A CENTURY

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Questions and Answers

This Department Conducted by
V. L. SHERMAN

Have You a Question You Would Like to Have Someone Answer?

Have You An Answer to Any of the Questions Listed Below?

QUESTIONS TO BE ANSWERED IN THE MAY ISSUE

Give Us Your Answer—Those Published Will Be Paid For.

1. Are moderately long drain-runs to soil stacks of any disadvantage?
2. In building a hearth is the best level below the floor, at the floor level, or above the floor?
3. I have a wide, battened, veneered door with an oval bevel-glass. The door has warped badly. Is there any remedy, and how could I have prevented the present condition?
4. How can I lay out an elliptical arched opening with string? (This question is surely an old one that is seemingly ever new.—Ed.)
5. How are coved ceilings framed?
6. Can I mitre spring-mouldings so that the horizontal sections and the raking sections at the gable will conform? (The term mitre may not be the proper one in this instance; in any event this problem is dedicated to the students in descriptive geometry.—Ed.)
7. Is tile appropriate now-a-days for fire-places, and how can I be sure of a good job? I have not seen many tiled chimney-pieces of late, but I want to place a few.
8. I want a table-top and possibly a sink-board that is nearly proof against acids. Can some chemist, or other with experience, give me a little help?

SEE APRIL FOR ANSWERS TO FEBRUARY QUESTIONS

Following are the questions asked in the January issue, and their answers

Question: What is the reason for the pitting of plaster?

ANSWER: From Mr. James Dobinson, of Brooklyn. "The plaster is pitting because the lime was not carefully washed. The lime should be washed by stirring into a creamy liquid, and then poured through a screen of one-eighth mesh. Any lime left on the screen should be thrown back into the liquid. Lime that will not pass the screen in purely liquid form should be thrown away."

Question: Will you show and explain the use of the "psychrometric chart" used in heating and ventilating?

ANSWER: The chart shown in Figure 1 is a fair copy of the one shown in the guide of the American Society of Heating & Ventilating Engineers but without all the details. It is the graphical form of the data collected by that Society and the United States Bureau of Mines in regard to dry-bulb temperatures, wet-bulb temperatures, amounts of moisture in the air comparable to percentages of relative humidity, and the lines of effective temperatures. The shaded area covers the range known as the "comfort zone". Dry-bulb temperature is the common variety. Wet-bulb temperature is read from a thermometer having the bulb wrapped in water-soaked gauze. This thermometer is swung through the air to accelerate evaporation from the gauze. The evaporation naturally draws heat from the surrounding air and from the bulb of the thermometer, lowering the temperature according to the amount of evaporation procured. A dry surrounding air will increase evaporation. A damp atmosphere will check the evaporation from around the bulb. By taking readings from wet-bulb and dry-bulb thermom-

eters in a room the percentage of relative humidity is found by noting the intersection of the two lines on the chart. On finding that point of intersection the amount of moisture in the air can be determined by reading the scale at the left-hand, grains of moisture per pound of dry air. (Roughly, a pound of dry air is $12\frac{1}{2}$ cubic feet. There are 7,000 grains in a pound.) The effective temperature lines are

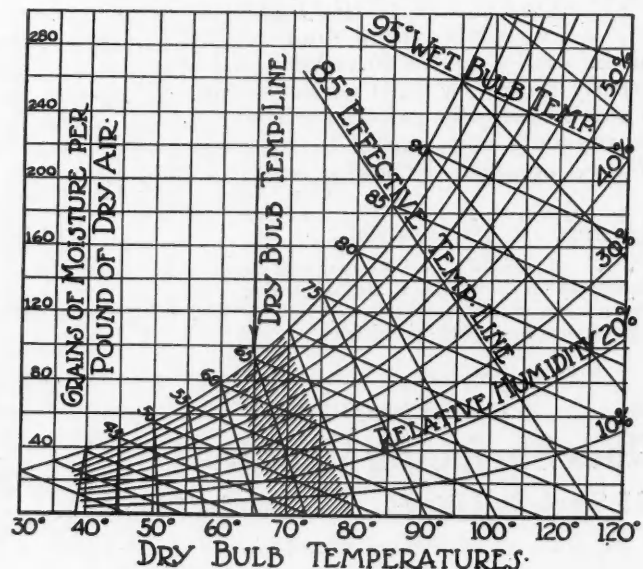
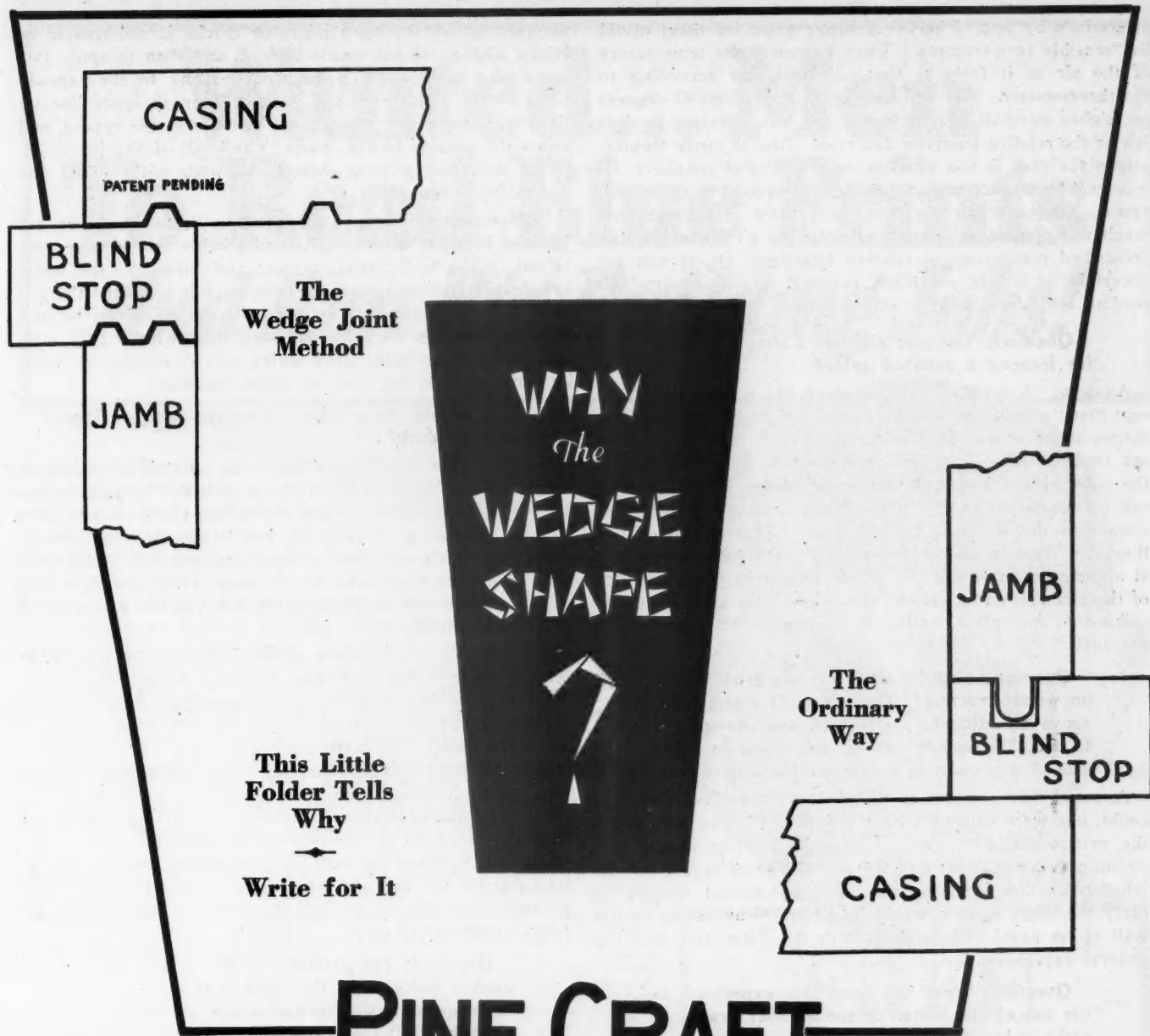


Fig. 1. An Approximation of the Larger Psychrometric Chart of the A. S. H. V. E. Research Laboratory and the U. S. Bureau of Mines.



PINE CRAFT

WEATHER PROOF

"The Frames With the Wedge Joints"

It was not mere chance that led Pine Craft to adopt Wedge-joint construction. Months of painstaking tests and experiments, many methods tried and discarded until at last the wedge shaped tongues and grooves were perfected, uniting the various parts so that they resist weather like the solid wood itself.

Builders who take pride in their work need make no apologies for Pine Craft frames. Made of Ponderosa Pine or Idaho White Pine they offer you the utmost in value, and at prices no higher than you pay for ordinary frames. Ask your dealer or write to us.

WHITE PINE SASH COMPANY
SPOKANE, WASHINGTON

determined by test. I believe a better name for them would be "sensible temperatures." They represent the temperature of the air as it feels to the individual, not according to the thermometer. You will note that, from about 47 degrees up higher dry-bulb temperatures are less effective or less felt as the relative humidity decreases. And at lower temperatures the chill is less effective as the relative humidity decreases. This chart with a few determinations in room volumes, changes of air per hour, will show just about how much water must be evaporated into the air to secure any prescribed percentage of relative humidity. Or, if you are uncertain as to the condition existing, a wet-and-dry-bulb reading will show what condition exists.

Question: Can you give me a simple method for framing a snubbed gable?

ANSWER: "A snubbed gable is about like a hipped roof except that the roof area is not generally so great that the plate carries much of any load under the 'snub'. The end rafters can be doubled and cut under a plate so many feet below the gable ridge. Two hip rafters, cut as any other hips, are run up to the ridge, the tops of any common rafters that come into the snub are cut like jacks. That is really what they are. It is a good thing to bring the ridge to an end at a common rafter end and to put two jacks down the face of the snub on either side of the ridge. This allows for less spiking in one place, and sort of braces the hip edge of the snub."

Question: Could I safely carry a brick veneer on wood structure? The veneer is 9 feet high, above an adjoining room roof, and the span is 12 feet. The veneer wall extends down on either side of this room to a concrete foundation wall.

ANSWER: The answers to this were to the effect that you could, but were colored with the feeling that as individuals the writers would not care to try it. All veneer should rest on its own foundation; and the probability of saving on the job by framing in timber or steel, substantial enough to carry the upper veneer, would be slight. Why not carry the wall up as usual and be done with it? That, too, was the general expression.

Question: What has been your experience in the use of the better or the cheaper grades of glass in building small homes?

ANSWER: Apparently no one is guilty of using cheap glass in small houses, or should I say that no one has had the poor taste to tell of his experiences with it if he has ever used it. So the conductor of this department will say as little as the law requires and let it go at that. Cheap glass is hard to handle without breakage, easily broken after placement, not a wholesome company for those within the house and a manifest that the home is likely to be just as cheap.

Question: What causes discoloration in outside brickwork, especially in damp weather? Is there any way to avoid it?

ANSWER: The following letter is from Mr. J. Travers of the Genfire Steel Company at Youngstown:

"Discoloration of weather exposed brick walls is caused by the surfaces becoming saturated with rain or snow water, either running down the face or being driven in by the wind. This water carries dirt, dust, acids, etc., into the surfaces which all remain after the water evaporates. This also accounts for the black streaks showing below window sills and other projections. In damp weather, even if it may not be raining, the penetration of moisture from the air causes such discolored spots to become more apparent. This process progresses with every rain-storm until the whole surface is black and the pores clogged with dirt.

"The one sure method of preventing such discoloration is

to point up all the open joints or cracks in the mortar or bricks with a colored elastic cement, and then to apply two coats of a transparent water-proof coating to the exposed faces of the wall, brick and mortar, from the roof line up the roof faces within the parapet walls, over the coping, and down the outside to the grade. Caulk all of the joints between door and window frames and walls with oakum and a caulking compound.

"Efflorescence is caused by water in the walls drawn out by heat bringing with it salts and alkalis which were contained in the brick, sand, cement and lime. As the water evaporates from the surface the salts are left deposited thereon as a white efflorescence. In old buildings this must be first removed by wire-brushing and scrubbing with a 10% solution of muriatic acid. Dirt stains and discolorations must be removed first by sand or steam blasting."

Question: How does a gas-fired refrigerating system work?

ANSWER: The gas-fired refrigerating plant is an ingenious device for using that reaction of partial vapor pressures known as Dalton's Law. The space here allotted is too short to give a deserved description, but it may be described as a system which combines ammonia in gas and liquid form with water in vapor and liquid form, using the principles of absorption and evaporation of the volatile ammonia at rather low pressures.

A generator or container which is heated by gas drives off the super-heated ammonia, gas, and steam from a solution of ammonia and water. The vapors pass into a rectifier which is kept at a temperature low enough to condense nearly all of the water. This water reabsorbs a part of the ammonia and is returned to the generator. The remaining ammonia gas, practically dry, is run into a condenser where it is liquefied. From the condenser it passes to a receiving tank. From this tank it passes through an expansion valve into evaporating coils utilizing the very rapid expansion in lowering the temperature of the surrounding element. (In the large ammonia and the carbon-dioxide units this surrounding element would be brine.)

Question: The chimney shown in the sketch chokes badly when the wind is from the west, causing the heater to back-draw. At any other time the draft seems to be satisfactory. What is the reason?

ANSWER: As there were so many suggestions in answer to this query, and all of them good, I hesitate to print any individual letters. If they can all be embodied in brief we will distribute the honors tacitly.

Notice Figure 2. The upper flue, too unprotected in a west wind, is too small in cross-section to withstand the chilling effect of the west wind. Its small size does not allow for a sufficient insulation of air within the flue to protect the heat of the escaping gases. If the gases chill they will not rise. Suggestions were made to increase the diameter of the pipe, to raise its top enough to avoid air eddies, to complete the chimney with brick, and to remove the cap. The chimney was said to be badly located.

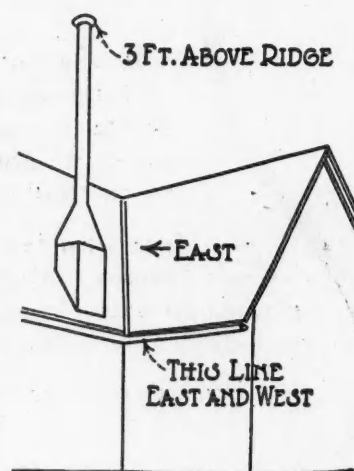


Fig. 2. Unsatisfactory Chimney.

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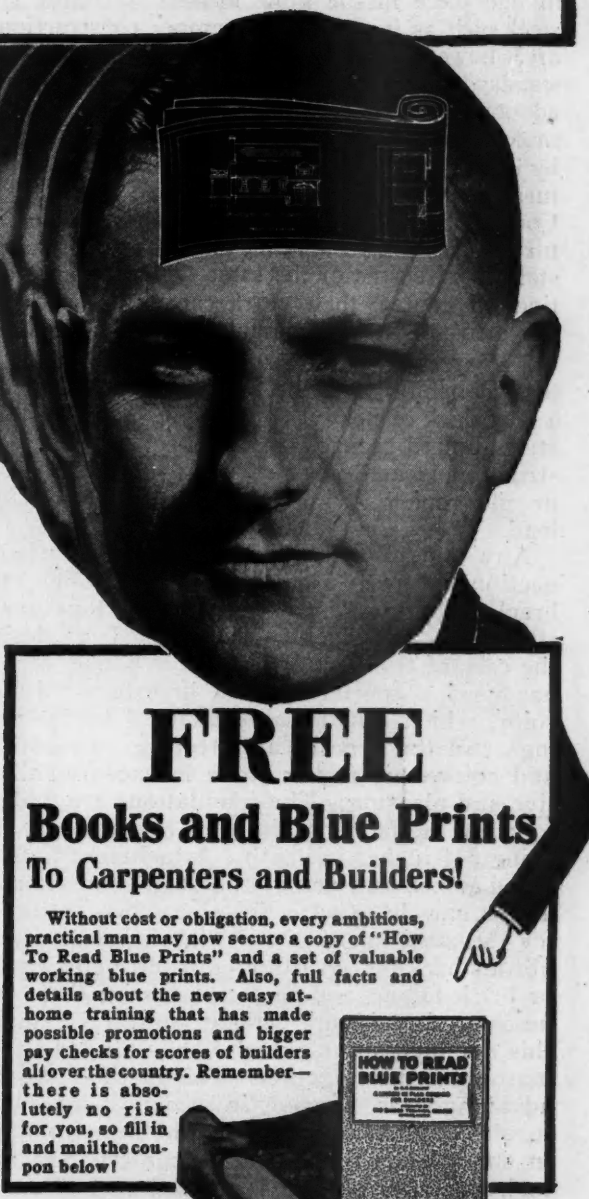
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Built in 100 Days

(Continued from page 81)

place to hold the angles together. Additional tie plates are bolted on at intervals of 36 inches. Sills, girts and plates are one-piece channels set back to back and the roof rafters are special one-piece channels of large dimension. As already stated, the floor joists are steel I beams and the section required for the various spans and loads is figured with a factor of safety far in excess of actual requirements.

Steel Floor Construction

These floor beams closely resemble the standard structural I-beam in shape and in size and are hot rolled in one piece in the same manner as heavy structural steel such as is used in skyscraper construction. They are, however, only about one-third the weight of standard I-beams of the same depth, and are especially adapted for economical use to give the residence the same assurance of fire safety and permanence enjoyed by larger steel structures. They have been given structural steel rating by the American Institute of Steel Construction, which means that the same formulae may be used in computing stresses and strains as for standard I-beams of the same depth, and are especially adapted, of course, their extra capacity is such that employment of detailed computation is not often necessary.

The steel rafters are spaced 32 to 36 inches on centers, depending on the span and load. Over these, a roof deck of heavy wood planks is nailed to nailing strips bolted securely to the steel rafters. This construction is made extra strong, to carry heavy slate or tile roofing, with an ample allowance for snow load.

Any type of building material can be used in connection with this steel framing. Clips, ties and brackets join these materials firmly together. Brick, stone or stucco facing can be used, as desired. In the case of this first Indianapolis house, Mr. Wallick has used a special Indiana limestone, blue-gray in color, which is admirably adapted to the surroundings and the type of architecture. In both texture and color, this facing stone is exceptionally attractive and pleasing. The foundations are wide enough to carry the facing in front of the framing, the studs being $3\frac{3}{4}$ inches in depth. Attachment bars are provided which run across the steel studs horizontally. These bars have wire ties every two or three inches for the attachment of steel fabric mesh which has a fibrous backing. A full inch is left between the stone or brick facing and the steel fabric; then, when the masonry is laid up, cement mortar is slushed into this one-inch space, which bonds the steel fabric and masonry firmly together. This method has the added advantage—as proven in practice—of helping to insulate and protect from cold in winter and heat in summer. Houses of this construction are, I am told, easy to heat and I can believe it from the ease with which the oil burner kept up the temperature of the house on the rather mild day I was in Indianapolis.

Coming to the inner walls of the house, steel fabric, with waterproof paper backing, is attached to the inner sides of the studs, for plaster base and suspended for the ceilings. If preferred, however, wall board or any type of plaster base could have been used except wood lath. Similarly, it is possible to use an insulating sheathing board on the exterior, in place of the steel fabric and backing, if preferred. There is also a choice of steel or wood stairs, steel or wood doors and windows. It seems appropriate that,

in this steel frame house, steel casement sash have been used throughout, although all doors and frames are of wood. The casements are outer-opening and have locking devices operating through attached screens.

Public Interest in Steel Frame Method

There is undoubtedly a strong sales appeal in connection with the steel frame house. The public immediately becomes interested when given an opportunity to examine this new method of construction. In front of this Indianapolis home stands a prominent sign, neatly lettered in gold and floodlighted at night, which announces the first all-steel frame house in Indianapolis and adds a list of the most important features and equipment.

The evening before the opening, a full-page advertisement was run in the Indianapolis newspapers announcing the opening, and the house was fully and richly furnished for the occasion. On the day of the opening and for several weeks following, a large number of interested observers inspected the house and expressed their admiration in no uncertain terms.

The house stands upon a well-situated corner lot in this new section of Indianapolis, to the north, where so many better class houses have been and are being built. The lot measures 85 by 135 feet and the house is set well back, with only room for a two-car garage at the rear, which is of fireproof masonry construction. The doors are hung on conveniently arranged door hardware of a type which allows the two leaves of each door to slide and open outward and also provides an individual entrance. In front, there is a wide expanse of lawn, attractively landscaped with evergreens and shadetrees.

The architecture of the house takes its inspiration from an early English period and presents an exceptionally fine appearance with its handsome stone facing and ornamental iron balustrades under some of the second-floor windows. The house faces south and particular care has been taken in its orientation. In fact, as will be noticed from the floor plans, the house is built almost in the form of a cross, so that the more important rooms have light, air and sunshine on two or three sides. In fact, the daylight illumination in this house, with its numerous French doors of glass and full length casement windows, is exceptionally generous, bright and cheerful.

The structure is agreeably capped by roofing tile of variegated colors and having staggered exposed ends. The colors in this roof are mainly of burgundys, reds and browns in harmonizing blends. The eaves, conductor pipe and trough are of copper with decorative heads; the flashing is also of copper.

Attractive as is the completed house, the attention of visitors is immediately drawn to a skeleton steel frame on the lot adjoining to the north, where a new house of different plan but the same method of construction has been partly completed. Here, the steel framing stands purposely exposed, so that visitors may inspect for themselves, in detail, the underlying reasons for the strength, rigidity, permanence and fire-safe features of the completed home. Incidentally, the new owner will find additional satisfaction in the proximity of a fire-safe house protecting him to the north.

Interior Tastefully Finished

The interior of the completed house has been beautifully finished and decorated and its equipment

Your customers want

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Roofs of Genasco Shingles

Everywhere throughout the country, Genasco Sealbac Shingles are being accepted by home owners because of their attractive colors. And, there's a wide enough range of colors to permit an ample choice to complement or contrast with any color scheme for outdoor home decoration.

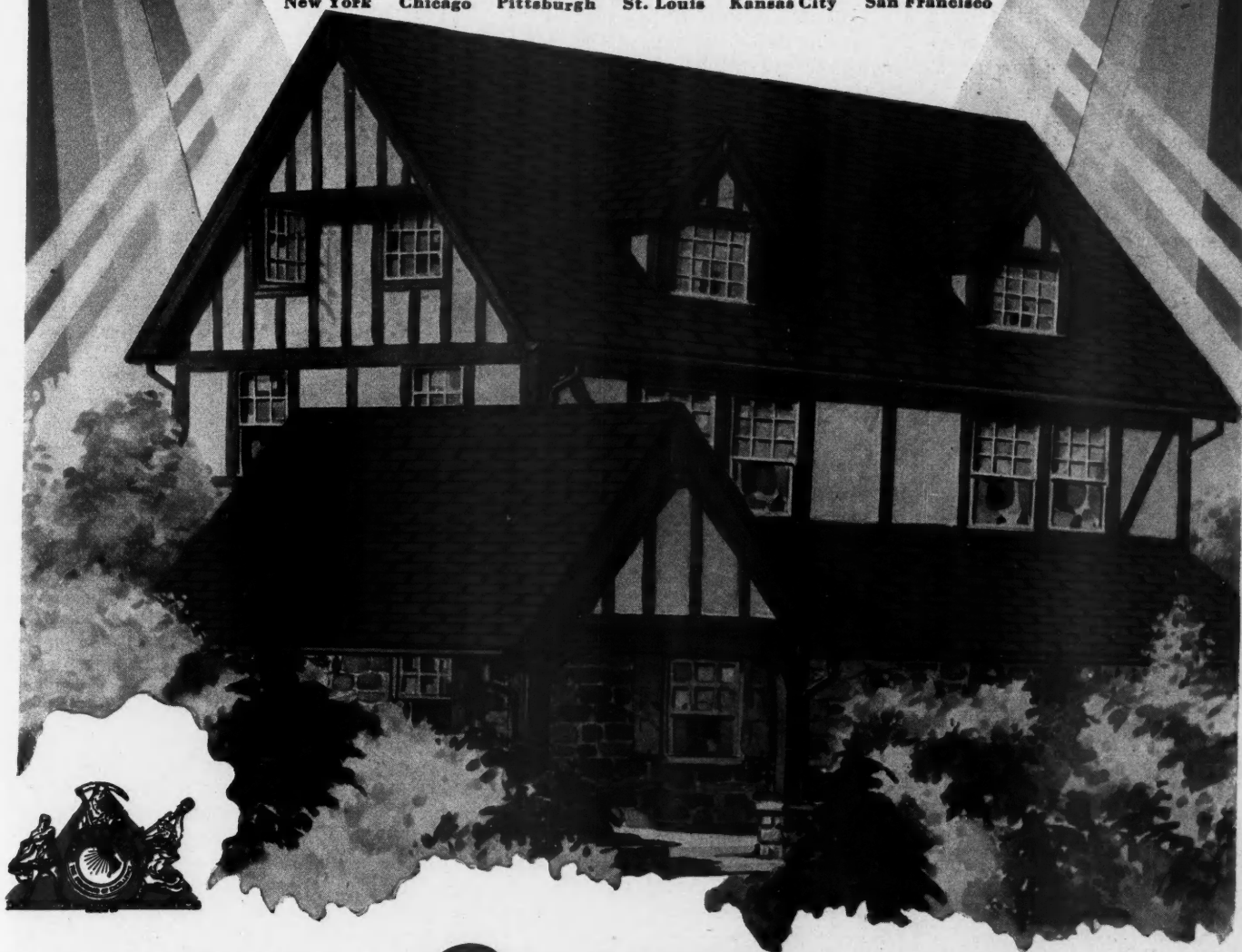
Color today is predominantly in the minds of home owners and builders. It is as vital a factor in the selection of shingles for roofing as is durability and protection. The Genasco line of shingles offers you an attractive, wide-range of colors. Eleven colors in all—Red, Green, Blue-Black, Mix-Tone, Chinese Red, Sea-Green, Nut Brown, Blended Buff, Heather Purple—Warm Blend and Cool Blend.

Genasco Sealbac Shingles are made with tough, long-fibred asphalt saturated felt which is coated on both sides with Trinidad Lake Asphalt Cement, made from nature's own waterproofer—Trinidad Lake Asphalt. This waterproofing material used only in Genasco Shingles seals the saturant in the shingles—prevents them from deteriorating. The undercoating of Trinidad Lake Asphalt Cement is an exclusive patent feature of all Genasco Shingles. It protects shingles from condensed moisture and has a tendency to cause the shingles to adhere to each other on the roof.

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is such as to insure a high degree of comfort and modern household efficiency. The entrance vestibule is a step or two below the main floor level and is paved with cheerful red floor tile, the face and risers of all steps being of the same material.

The living room is spacious and cheerful, with its full French doors and windows on three sides, a bay with windows to the south and a decorative fireplace just to the left of the entrance arch.

The kitchen of this all-steel frame house will have a strong appeal for every woman visitor because of its convenient equipment. A high class electric range, with convenient temperature controls, and an electric refrigerator of generous proportions are leading features, as is the porcelain sink and drainboards made of acid-resisting porcelain. Other equipment includes an electric ventilating fan, percolator and vacuum cleaner. Convenient storage cases and cabinets line the walls. There is an innovation in the location of the laundry, which is on the ground floor close by the kitchen and close to the rear service door. This laundry is completely equipped with washing machine, cleanerette, ironer and board and a large gas-heated clothes dryer. A doorway beyond leads to the maid's room and bath.

The house is heated by an oil burner, boiler and vapor heating system of well-known makes, controlled automatically from a central thermostat. The basement extends under a portion of the house only but is large enough to contain the heating boiler, oil burner, domestic hot water supply and automatic water softener, without crowding.

A stairway just off the entrance vestibule leads up to the bedroom floor. The hand rail of this stairway is supported by ironwork in graceful design, finished in steel and dull gold. On the upper floor there are four bedrooms, two connecting baths and a hallway and sewing alcove, the latter equipped with an electric sewing machine. The bedrooms are of good size, decorated with wall paper which gives a home-like, intimate feeling to the rooms. The bath room fixtures are in colors, with floors and walls tiled in harmonizing tints.

One leaves this house with regret, feeling that it contains for some lucky owner an unusually long period of future happiness.



Allied Construction Industries' Organization, Cincinnati

(Continued from page 87)

as completely representative as ours has been organized for the completion of a program so profound as the one we have in view."

Naturally, the enlarged scope of the organization called for much larger quarters. Enlarged and remodeled headquarters were opened on July 2, 1929, consisting of the entire seventh floor of the Building Industries Building, 622 Broadway, with a floor area of 8,820 square feet. On top of this building, blazoned against the sky, stands a huge neon-electric sign reading, "Building Industries," which is visible from many sections of the city. Here are private offices for the president and each member of the staff, a club room, two meeting rooms, a telephone switchboard and information desk, a completely equipped mailing room and a large plan room.

This plan room is quite the most complete and best managed I have seen and is for the exclusive use of members. It contains ten tables, each five feet wide

and 20 feet long—all numbered. An index on the bulletin board gives a list of the plans exhibited, showing the numbers of the tables where they can be found. All prints in a set are laid out flat and fastened down with thumbtacks, making them very convenient for reference. Specifications are arranged on each table corresponding with the plans. On these tables will be found those plans on which bids will be considered from all members who wish to bid. Private plans are kept under lock and key in small private rooms individually partitioned from the rest of the space. These are for plans on which bids are to be received from lists of bidders specified by owners or architects, and these only.

Perhaps the most interesting part of the organization plan of the Allied Construction Industries is the great variety of interests—general contractors, sub-contractors, distributors, dealers, and others—brought in as separate divisions.

Homer C. Smith manager of the Credit Department, is said to be one of the most capable credit men in the United States. Under his direction the department has been self-supporting, almost from the first. Thirty days has been established as the credit period and 10% is charged for collection of overdue accounts up to \$500 and 5% on collection of overdue accounts in excess of this figure. During ten months of 1929, the department collected over \$50,000 in past due accounts. But by far the greatest result from the operation of this department is the weeding out of irresponsible contractors who do not pay their bills. For the membership of the association includes building material firms which sell 90% of the building material sold in Cincinnati. In addition, the architects are more and more restricting their invitations for bids to members of the Allied Construction Industries in good standing. And no member can remain in good standing unless he pays his bills promptly.

The other departments of Allied Construction Industries, each doing excellent work, are as follows:

Publicity—Norman P. Auburn, Manager.

Membership—Kimball C. Smith, Manager.

Engineering—E. T. Flinn, Asst. Engineer.

The engineering department, under the supervision of the general manager, himself a qualified engineer, engages in the following activities: accident prevention work, tabulations of bids, construction statistics, use of standard documents, plan room, A. I. A. filing system, equipment exchange, specification work, standard book-keeping and cost accounting system.

One of the most interesting and useful departments of Allied Construction Industries is the Wage Board, on which both employers and employees are represented. The board, as previously constituted, had nineteen different contractors' associations and fourteen labor union organizations, each electing one member to the wage board and each signing the wage scale agreement. As now arranged, each division of Allied Construction Industries and each local union of the building trades elects a member to the wage board. The executive committee elected by these members gives equal representation to employers and employees but its decisions must be approved by the wage board as a whole.

About 350 cases a year—an average of one a day—come before the committee of the wage board for hearing. The findings are fair, impartial and quickly rendered and the wage board's decision is final and respected by both employers and employees.

Among other contemplated activities of Allied Construction Industries, to be taken up shortly, is the formation of a bureau for quantity survey and one for traffic management.

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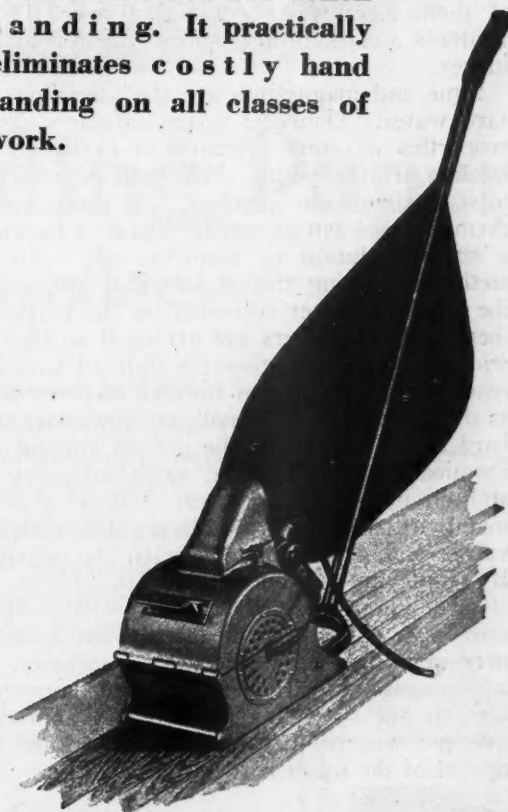
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Better Equipment in Modern Basements

(Continued from page 90)

an installation, builders are able to provide high class modern homes in these new residential districts without waiting an uncertain length of time for the water lines to be extended.

There are many sections throughout the United States where the water is hard—full of lime, magnesium and other minerals. Soap will not dissolve in very hard water but forms curds in a scum over the top of the water and adhering to the sides of porcelain and other tubs. This scum gets into fabrics and sometimes discolors or mars them with streaks of yellow or red. Hard water is a household nuisance. But perhaps the greatest injury it does is to plumbing and to boiler tubes. It will form a scale or deposit in hot water lines, sometimes closing them completely at elbows or u's.

The water in many cities and villages of the United States is hard—nearly always quite hard when the water is artesian. So far as I have been able to ascertain, no complete list of cities with hard water has ever been compiled, but I know of one incomplete list which shows the degree of hardness in the water supplies of about 300 cities in the United States. A surprising number of them have water containing over 100 degrees of hardness and there are many more not included in the survey.

Lime and magnesium are the offending chemicals in hard water. Domestic water softeners depend on the properties of some silicates to exchange sodium for calcium or magnesium. When the capacity of the water softener has been reached, the power of the active chemical used can be regenerated by a backwashing with a strong solution of common salt. An easy, quick method of doing this is provided with practically all the domestic water softeners on the market. Some of these water softeners are arranged so that they regenerate automatically when the limit of capacity has been reached. Small, cheap installations are not advisable, as their capacity is so small that the water soon becomes hard again because of the limited amount of softening chemical. Most domestic water softeners are compact and do not occupy a great deal of space, consisting mainly of two tanks of moderate size, with the necessary valves and a hopper to receive the regenerating salt. By supplying softened water to boilers, the heating efficiency is maintained, with a resultant satisfaction and economy which is well worth the small investment necessary in a domestic water softener. The other advantages of softened water in laundry, bath and kitchen are so well known to and appreciated by the average woman that builders will profit by the sales appeal of the water softener.

HARDLY a modern apartment house is planned today without including a centralized incineration plant in the basement—what is known as a chimney-fed incinerator, with convenient wall hoppers and doors in each kitchen. Paper, garbage and refuse of all kinds, even including bottles and cans, can be disposed of through the neat metal doors of the receiving hoppers. These are sometimes of aluminum; sometimes of cast iron.

Some incinerators of this type are built on the blast furnace principle, with furnace in the basement having ample air spaces surrounding the firebox as well as the grates. The ash, bottle and can residue is easily removed through special fire doors in the basement. Builders in the larger cities state that incineratorless apartments would be as hard to rent as apartments without automatic refrigeration or any of the

other refinements which are built into the modern apartment. I was told of an actual case in the city of Buffalo where a renter changed apartments and willingly paid \$15.00 a month increased rent for the sole purpose of getting into a building where incineration for kitchen refuse was furnished.

In the construction of single dwellings, the use of this type of incinerator has been somewhat slower but just as definite and just as consistent, nevertheless. A good percentage of the better class homes—by which I mean those costing upwards of \$15,000, are now equipped with incinerators of this type. In one of the larger cities, 54 per cent of the new single dwellings have been so equipped, which shows that builders are commencing to appreciate the resale value of installing this type of equipment.



Better Management Cuts Costs

(Continued from page 132)

ful carrying on of the work in accordance with the route man's plans.

The route man sends to the job superintendent the field plan showing the location of the job office, mill saw, stock piles, etc., so that he can do all preliminary work while the route man is arranging the routing. The superintendent gets together his organization of foremen, job-order-of-work men, office and engineering force. The plans, route sheets, graphs, charts, etc., are sent to the job as soon as finished. These must be studied carefully by the job superintendent and he must enforce the work in every detail according to schedule. This does not, as might appear at first thought, take the individuality away from the superintendent, but simply relieves him of much detail which can better be handled by the route man in the office. The route man, of course, must keep in close touch with the superintendent and avail himself of his experience in all matters while the plans are maturing. Having planned the work, it is absolutely necessary for the job superintendent to follow instructions explicitly, otherwise confusion will arise.

It is evident that the duties of the job superintendent under the new methods are somewhat changed; in fact the title "superintendent" might well be changed. He is not given free hand as when he was allowed to run the job pretty much according to his own notions.

The job superintendent is responsible for the correctness of the work. He is the construction company's representative who deals with the owner and architect and settles all small differences which arise on every job.

These principles are applicable to nearly every kind of construction work. Sometimes, although this must be avoided if possible, the work must be distributed to gangs instead of individuals or pairs.

Whatever the class of construction, it must be recognized at the start that results cannot be obtained in a minute, nor can they be obtained without a considerable initial expense. An organization must be developed, men must be trained to handle the work properly and the management, that is, the members of the company, the superintendent and the foremen, must be brought to realize that a proportionally large number of office men, "nonsweaters" as they have been called, means a great diminution in unit cost, provided these office men are engaged in work which is really productive by eliminating labor on the part of the skilled and unskilled workmen.



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- Winter “

7-PLY IS MODERATE IN COST. . . so moderate in fact . . . that builders cannot afford to use cheap single-sheet papers which give practically no protection . . . or more expensive papers which do not give as much protection as 7-PLY.

Just study the superb construction of 7-PLY (illustrated above) and Note . . . the 3 separate sheets of strong kraft paper . . . 2 separate, thick layers of waterproofing Asphalt . . . 2 separate plies of reinforcing cords (parallel and diagonal).

Then . . . compare this super-sheet with any other building paper . . . not for strength of reinforcing . . . but for actual insulating and waterproofing value.

Today—thousands of Builders and Contractors use 7-PLY exclusively on every job . . . it handles so easily without tearing . . . costs so little more than the cheapest papers . . . gives so much protection for its cost . . . eliminates all questions or worry about insulation.

Your Building Supply Dealer sells 7-PLY or can obtain it for you. Mail the Coupon TODAY to the nearest factory branch or office for further information and samples.

CONTINENTAL ROOFING MILLS RUBEROID MILLS SAFEPACK MILLS H. F. WATSON MILLS

Divisions of

The RUBEROID Co.

95 Madison Avenue -:- New York, N. Y.

Offices:

Chicago, Ill., Boston (Millis, Mass.) Erie, Pa.
 Baltimore, Md. Mobile, Ala.



Gentlemen: Please send Samples and Complete Information on Your Remarkable 7-PLY Building Paper.
 Name
 Street
 City
 A.R.M.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Dealer-Contractor Teamwork

(Continued from page 97)

large, salary and had an excellent reputation. I went out to see him full of enthusiasm for it looked like a sure sale. After I had seen his home and talked with him for a while my hopes completely melted.

"His home was beautifully furnished. The furnishings were of a quality suitable for a home costing \$25,000 or more. He had a fine radio and an automobile. Every bit of it was being bought on the installment plan and he was obligated for payments which took practically his entire income. He did not have enough left over to justify a payment of even \$10 a month on a home. When we had gone over it and I had showed him where he stood, it was the first time he had realized the situation himself."

There are two kinds of contractors with which a dealer must do business, according to Mr. Burrus. First there is the "real contractor," an established business man, with capital and an organization. He is fully capable of handling any job of the sort which he normally undertakes. He can estimate accurately and can arrange his own financing for the most part. He is a permanent and important part of the building picture.

Then there is the small contractor. Really he is a building mechanic who has the ability to build a good house and an ambition to work for himself. He lacks capital and connections to handle financing for himself. He has little or no organization and from lack of business experience he usually needs help in estimating and selling.

Some of the men in the second class will develop into real contractors as they gain greater experience, accumulate capital and establish financing connections. Others will go on along the same line indefinitely. The ones who will develop into real contractors are well worth extending co-operation to because in the years to come they will be big customers.

Even the men who will always continue to build in a small way are worth helping, in the opinion of the Indiana Lumber & Mfg. Co., for the business which they do handle is also profitable and they are worthy allies in the general business scheme.

All the materials and equipment sold by the Indiana Lumber & Mfg. Co. are of standard quality, nationally advertised products which have the confidence of the building public. They are attractively and conveniently displayed in the company's new building.

This new building was completed and occupied a year ago. It is located just seven blocks from the business center of South Bend, on the principal business street of the city. It is easily accessible by street car and is just far enough out to permit customers to park their cars freely. The building itself is a handsome, two-story, brick, business building. A portion of the second floor is rented to companies in allied fields but will be available to the Indiana Lumber & Mfg. Co. when expansion requires it.

The rear portion of the first floor has a central aisle with offices on both sides. At the front is the display room with an information desk just inside the entrance. There is always a girl at the information desk to give prompt attention to visitors.

The display room contains exhibits of various building materials, from bricks to shingles and of the many specialties that go into the modern home. Most of these are displayed in panels which are simply wall sections mounted on bases and equipped with castors so that they can be moved about freely. Most of

the panels are open at the rear to show the wall construction, insulation, etc.

This display room has attracted a great deal of interest. When the building was first opened invitations were sent to contractors and architects for a pre-showing. Over 200 attended. When the actual opening was announced for the public, large numbers took advantage of the opportunity to see a modern building material store.

After the opening no special effort, beyond the ordinary company advertising, was made to attract visitors until last fall. At that time special advertising was prepared. The idea behind this special advertising was to get the women of South Bend interested. This special advertising copy was run on the women's pages of the local papers. It was carefully scheduled to run on days when the advertising of the women's stores was light. The result, as shown by the number of women visiting the display room, was very gratifying and proved the importance of reaching the women on question of home buying.

The company has recently added paint to its otherwise complete line of materials, and is just now starting a series of advertisements on reroofing and repainting. As in its other advertisements the company features in these ads the fact that it will put the customer in touch with a reliable contractor to handle the work. Thus it carries through on its proven policy of co-operation with contractors.



NEWS OF THE FIELD

Personnel Announcements

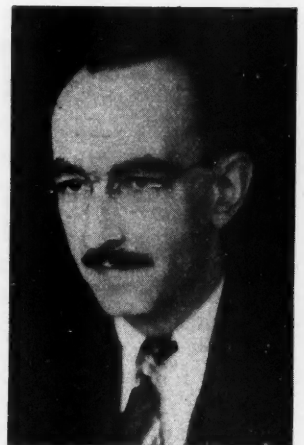
THE Alexander Milburn Company, 1416-1428 W. Baltimore St., Baltimore, Md., announces that it has appointed Mr. Charles P. Clampitt to take charge of its Chicago office, located at 220 South State Street.

THE American Floor Surfacing Machine Company, Toledo, Ohio, has recently announced the appointment of E. J. Hayne as manager of its Chicago factory branch office, located at 21 South Lincoln Street. Mr. Hayne has been connected with the company for seven years, having served at one time as manager of its branch office in Jacksonville, Fla.

E. C. ATKINS and Company, Indianapolis, Indiana has announced the appointment of Mr. Marvel W. Dallas as advertising manager to succeed the late Mr. T. A. Carrol, whose death occurred on November 18, 1929. Mr. Dallas has been connected with the Atkins Company five and one-half years in the capacity of assistant advertising manager.

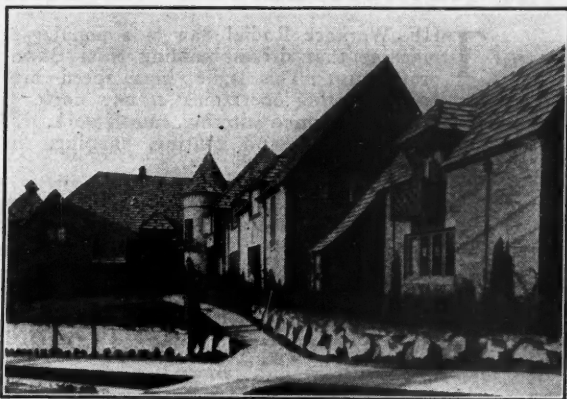
CHARLES M. NUCKOLLS has accepted a position with H. D. Conkey & Company, Mendota, Ill. Mr. Nuckolls will take charge of design and development work in the crane department of the company.

E. B. BUSHNELL, well-known authority on concrete form construction, is now associated with the Masonite Corporation in Chicago.



Marvel W. Dallas, Recently Appointed Adv. Manager of E. C. Atkins & Co.

Beauty In Modern Apartments



Anhalt Apartment, Seattle, Washington.
Fred Anhalt, designer and builder.

In this beautiful building, as individual and distinctive as a private home, more than a carload of Cabot's Stained Fitite Sovereign Shakes were laid on the roof over Cabot's 1/2"x24" Royal Shingles.

The harmonious blend of soft glowing colors was produced by Cabot's Creosote Shingle and Wood Stains. These unique stains, standard for forty years, not only dye the wood with their exclusive colloidal colors, but preserve it too.

When you build, beautify and preserve your roofs with

Cabot's Creosote Shingle and Wood Stains

Send in the coupon below for full information

SOLE MANUFACTURERS
AND DISTRIBUTORS OF
CABOT'S COLLOPAKES
AND STAINS IN CANADA

BRANDRAM-HENDERSON
LTD.

COUPON

Samuel Cabot
Inc.

141 Milk Street
Boston

Please send me full information on

CABOT'S STAINS

Name

Address



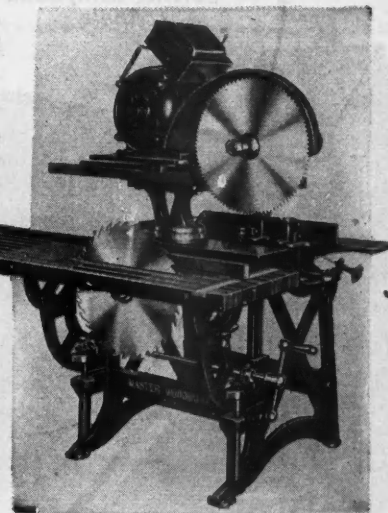
AB-3-30

Let These Master Products
Make You Greater Profits

MASTER WOODWORKER

Superior Performance,
Unfailing Dependability,
Longer Life—

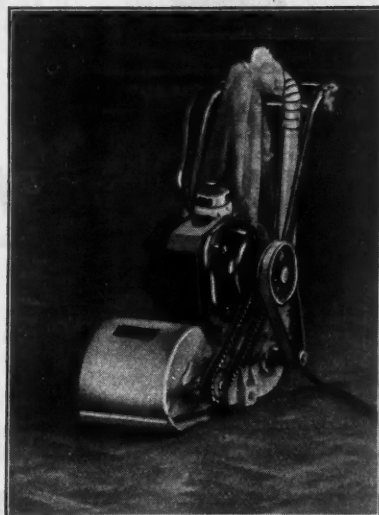
These are advantages that give the "Master" outstanding preference among builders. The "old reliable" machine, constantly improved, never equalled. Saves labor cost wherever wood is cut. Adapted for both rough work and interior trim. 12 machines in one, Speedy. Electric or gasoline drive. Six models. Overhead crosscut, underslung rip.



MASTER FLOOR SANDER

Greater Speed
Better Work
Durability.

Thirty per cent faster than other machines. Weighs only 190 pounds complete, 150 pounds of which is on drum. Simple, few moving parts. Cuts close to walls, closets, sinks, etc. Machine-balanced drum, no chatter or vibration, insures fine finish. Vacuum is so designed that the Master is as



nearly dust-proof as any machine can possibly be.

Pay a Small Amount Down
Balance On Convenient Terms

MAIL COUPON TODAY

Master Woodworker Manufacturing Co.
Congress & Brush Sts., Detroit, Mich.

Please send further information and prices on:

- Master Floor Sander
- Master Woodworker

Name

Address

ALL CUTS *At Any Angle*

AT WHIRLWIND SPEED A New WALLACE MACHINE



Cutting Compound Angle

THE Workace Radial Saw is a popular priced machine that drives building costs down and profits up. This agile high speed machine handles all cutting operations *at any angle*. It is adapted for compound mitering, cut-off work, ripping, dadoing, tenoning and routing, shaping, fluting, boring, sanding—practically every cutting operation done in building. The stock lies flat on the table and the saw travels rapidly through the work. Easy to operate. No need to handle stock after it is placed on table. *Saves time, saves material, saves power.* Send coupon for complete description of this quickly adjusted, portable, accurate, time saving machine.

\$ 140⁰⁰

F. O. B. CHICAGO

Cast iron table and legs \$25 extra or Wood table and adjustable legs \$30 extra.



RADIAL SAW With Wood or Iron Table

The Workace Radial Saw is direct driven from any convenient electric light or power line. The machine is compact and easily portable. Use it in the shop, take it out on the job or move it from floor to floor in the building. Your choice of tables, either cast iron 19½" x 17" x 32" high or the hard wooden table 56" x 11½" x 32" high with adjustable legs. *The coupon will bring complete details.*



ELECTRIC SHAPER



\$ 95⁰⁰

F. O. B. CHICAGO

The Workace Shaper is a powerful, direct driven time and money saver for making moulding. Adjustable table. Easily portable. Operates from any convenient power or light socket. Diameter of table 16", height to table 13". Motor ¼ h.p. Universal type.



Why SILVER LAKE SASH CORD Lasts Longer

Made of 100% long staple cotton. It is tightly braided and pre-stretched. Has no false core to disintegrate or rot away. Diameters are uniform and a special finish makes for better flexing over window pulleys. And, with all the advantages, it costs but a few cents more per window. *Write for details.*

SILVER LAKE COMPANY
Newtonville, Massachusetts

LOOK FOR THE NAME
STAMPED ON EVERY
FOOT OF CORD

Silver Lake

Lower YOUR BIDS

Get More Contracts

Without Reducing Your Profit

YOU don't have to dig down in your own pocket to cut building estimates to get the business, *if you are properly tooled up.* Put high speed motors to work—instead of tiring muscles. Use machine speed—machine accuracy—machine efficiency. Use Wallace Portables in your shop—take them out on the job. Save time. Save labor. Save material. Base your estimates on the economy of Wallace Machines. You will be amazed at the way you can cut estimates, close more jobs and increase profits.

The money you make with Wallace Machines is evident not only in the actual time saved in cutting operations. Wallace Machines permit you to plan your work to *save all possible time.* The more you can do with machines the more profit you can make. When you buy ready-cut you are sharing your profits with someone else.

Wallace Machines operate from the electric light or power circuit. They are compact and portable. Take them to the job, move them into and about the building to suit the working convenience of the men. Set them up quickly for one job and change set-up for another in a jiffy. Use them for heavy cutting or for small precision operations. There's a reason why builders are enthusiastic about Wallace money making machines.

Send the coupon for our interesting fact-giving bulletin No. 23 describing the whole line of high speed Wallace Machines.

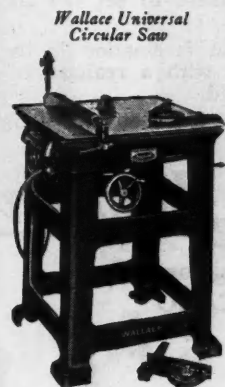
J. D. WALLACE & CO.
136 S. California Ave., Chicago, Ill.
Offices in Principal Cities

J. D. Wallace & Co.
136 S. California Ave.,
Chicago, Ill.

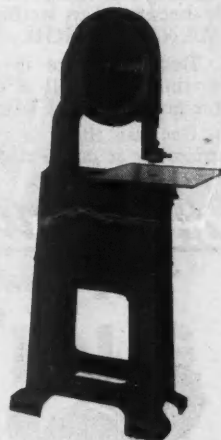
Please send complete catalog describing:

- Wallace Bandsaw, Wallace Mortiser,
- Wallace Universal Circular Saw,
- Wallace Jointer, Workace Radial Saw,
- Workace Electric Shaper.

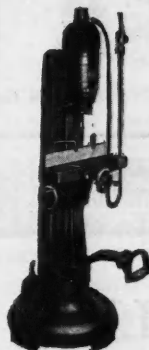
Name.....
Address.....
City..... State.....



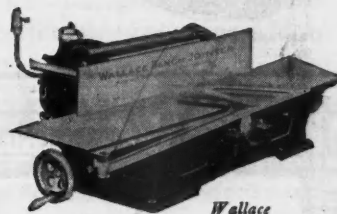
Wallace Universal Circular Saw



Wallace Band Saw



Wallace Mortiser

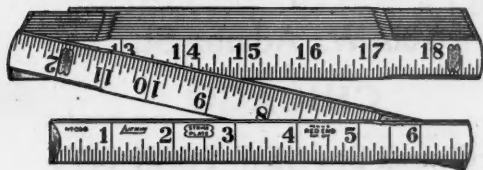


Wallace

Wallace
PORTABLE MACHINES

LUFKIN "RED END" RULES

YOU CAN'T BUY A BETTER FOLDING WOOD RULE



Hard Enamel Finish, Brass Strike Plates, and Rust-Proof Spring Joints make these rules most serviceable. Bright Red Ends give them a very smart appearance.

Send for Catalog of
TAPES—RULES

THE LUFKIN RULE CO.

Windsor, Ont. SAGINAW, MICHIGAN New York



Expansive Screw Anchors



Expansion Bolts

Ackerman-Johnson

What are the compelling reasons why ACKERMAN-JOHNSON Expansive Screw Anchors have become the most popular type with Electricians and the various Trades Mechanics everywhere?

Because in comparison with the work and uncertainty in setting the older type Expansion Bolts for making fastenings to concrete and masonry generally, it becomes an actual pleasure to set the ACKERMAN-JOHNSON.

Because there is distinct fascination in so easily setting so small a device with a realization of the tremendous load it can hold.

Because there is great satisfaction in leaving a job knowing it could not have been better done.

Ackerman-Johnson Co.

625 W. Jackson Blvd.
CHICAGO



One-hole Pipe Straps

53 Park Place,
New York City



Concrete Inserts

All the Products

Advertised in these pages
can be recommended to

**American Builder
Readers**

Dealings with these
advertisers will prove
to be highly profitable
to you.

Be progressive and
investigate what these
important houses have
to offer you.

If you are interested in
any product that is not
mentioned here, please
write us. We will
gladly put you in touch
with the manufacturers
best fitted to supply
your needs.

American Builder

105 W. Adams St.

CHICAGO

30 Church St., NEW YORK CITY

Nature's Permanent Mineral Colors

SALES VALUES
enhanced by COLOR.

The sales value of a home is greatly enhanced by the attractiveness of its exterior appearance. Pleasing color combinations may be secured with Clinton Mortar and Cement Colors at a small fraction of the total cost of the house. They will pay for their cost many times over. Brickwork may be softened by colored mortar and stucco made brilliant with blending shades.

Write today for complete information on Clinton Mortar Colors and Clinton Cement Colors

CLINTON METALLIC PAINT CO.
539 Clinton Road, Clinton, N. Y.

Clinton Mortar Colors

**BALCONIES
RAILS
GRILLES
DECORATIVE
WROUGHT
IRON**

**GET OUR
LOW PRICES
ON HIGHEST
QUALITY
GUARANTEED*
WROUGHT IRON**

IT WILL PAY YOU to get our attractive low prices on wrought iron balconies, step rails, grilles and plain and ornamental wrought iron work of guaranteed quality.

***Unconditional Warranty**

The Cincinnati Iron Fence Company guarantees unconditionally, all labor and material and will replace or repair free of charge any defective material or workmanship. This guarantee is backed by 25 years experience in the fabrication of quality wrought iron, with hundreds of satisfied architects and builders throughout the country.

Free Consultation Service—Send for Literature

Descriptive catalog of "Cincinnati" fence, gates, ornamental railings, will be forwarded on request. Indicate your needs. Blue prints and estimates will be cheerfully furnished, and orders executed promptly.

CINCINNATI IRON FENCE CO., Inc.
2000 Spring Grove Ave., CINCINNATI, U. S. A.

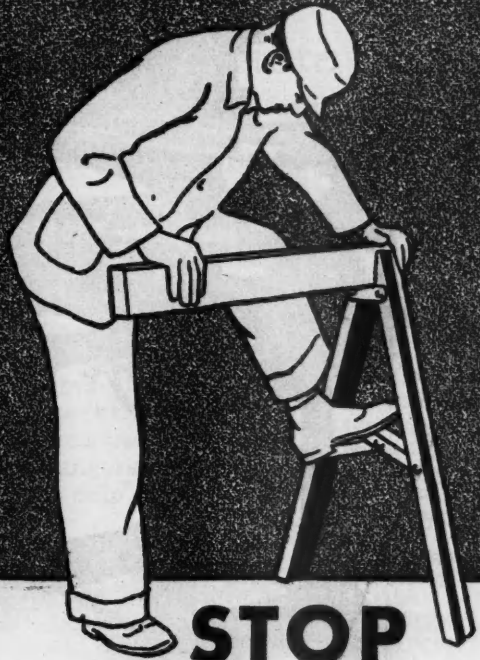
CINCINNATI IRON FENCE COMPANY,
2000 Spring Grove Ave., Cincinnati, U. S. A.

Send me without obligation your literature. I am interested in

Name

Address

I am Architect Builder Homeowner
(Please check)



**STOP
WASTING
Time—Labor—Lumber**

Eliminate broken horses, save storage space, save handling costs by using permanent, folding steel horses.

Toledo Horses

The sturdy ribbed steel frame is quickly opened, the jaw fits and grips standard sized lumber used as cross bar, the toggle brace clicks into position and the horse is ready—rigid, strong, indestructible, never needs repairs. Available in 8 heights—18 to 60 ins. Their moderate cost is quickly absorbed by the frequent saving of time and material.

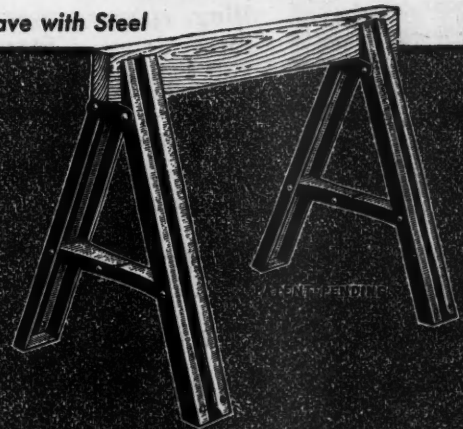
Ask your dealer for the genuine TOLEDO
Folding Steel Horse

THE TOLEDO PRESSED STEEL CO.

TOLEDO : OHIO

Manufacturers of the Toledo Torch—the best
highway safety light

Save with Steel

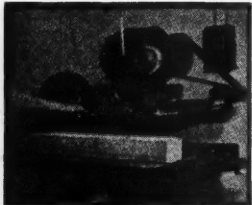




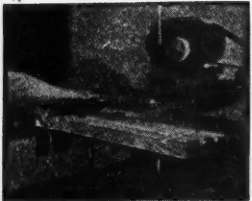
20th CENTURY WOODWORKER

... 5 machines in one
AT THE COST OF ONE!

Does five machines' work . . . cross-cut saw, rip saw, jointer, shaper, router . . . and does it better than any of them! An immediate money-saver and money-maker in any shop. Smooth and swift in operation . . . easily and expertly run even without special experience . . . accurate and dependable always.



Crosscutting



Tenoning

No one who does woodworking can afford to be without it. It's an exceptional machine . . . saves time, handling, space, power. Eliminates delays. Stops waste. And above all, **MAKES MONEY!** Write for our illustrated booklet today. We'll send it cheerfully . . . and without obligation.

AMERICAN

SAW MILL MACHINERY COMPANY

Makers of Woodworking and Saw Mill Machinery

197 Main Street, Hackettstown, N. J.

Check these advantages then specify "WILLIS" Skylights

Twenty Styles

A complete line—every style the result of careful planning; every design the product of over thirty years of fine craftsmanship.

Maximum Light

Willis skylights give maximum light with perfect ventilation—largest amount of glass consistent with safety. Water-tight, of course, even without the use of putty unless a little dust is objectionable. No rain or snow gets through.

Rigid Construction

No more sagging, buckling or bending. Every skylight made up in sections, assembled, and tested at the factory, then shipped knocked down.

Special Designs

Willis builds them to your own specifications. And who is better equipped? Workmen? Ours are skilled, accurate, dependable. Materials? We have the best. Designing? We maintain a staff of draftsmen and engineers to serve you at no extra cost.

Moderate Prices

Outstandingly fine quality at the price you pay for the ordinary kind. A combination that has caused Willis Skylights to be specified by good architects. *Send for catalog, now.*



WILLIS MFG. CO.
Dept. 128 GALESBURG, ILL.

Contractors Everywhere:

Meet Mesker Trusses and Mesker Store Fronts

— two handy friends, with new ideas for the practical builder. They tell you of Mesker service and how it will help you land the best jobs at a good profit.



FREE DESIGN SERVICE is maintained for the benefit of our contractor customers. We furnish free plans for garages, store buildings, community buildings, dance halls, factories, warehouses and airplane hangars. Our blue-prints help sell the job.

A rough sketch with measurements is all that is necessary. And there is no obligation on your part.

GEO. L. MESKER & CO.

EVANSVILLE, INDIANA

Makers of Quality Building Products Since 1863

WE SHIP EVERYWHERE

.....1930

Mesker, Evansville, Ind.

Send me

- Mesker Truss Catalog.
- Mesker Store Front Catalog.

I am interested in:

- Steel Trusses
- Store Fronts
- Steel Buildings
- Hangars
- Steel Windows
- Fire Doors
- Steel Stairs
- Metal Ceilings
- Metal Skylights
- Marquise

Name

Address

Metal Lath
Iron Railings

Send sketch if you want free plan service.

The Modern Profit Makers for all Sanders



ENDFLEX

REG. U.S. PAT. OFF.



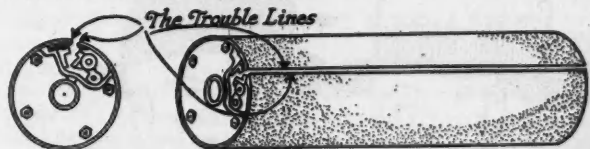
FLOOR SURFACING SHEETS

ENDFLEX... ABRASIVE SHEETS MADE flexible at both ends... at exactly the right points to allow the ends to slip into the drum throat without creasing or hand flexing... a patented feature that eliminates chipping and peeling the usual causes of trouble.

Endflex Sheets come ready to use... fit all makes of sanders... eliminate cutting and fitting from rolls... give longer service with fewer changes.

Surfaced with LUMNITE, a hard, sharp, abrasive product of the Electric Furnace, Endflex Sheets give you an eversharp working tool until the sheets are actually worn out. Also made with Garnet, Surface for old or soft-wood floors.

Every Builder, Carpenter and Floor Surfer will recognize the practical value of Endflex Sheets and the difficulties they solve.



These handy, ready to use sheets offer you more in a surfacing paper than you ever before have received, and they are most economical in cost. One trial will convince you. Just try them on the next job. Your Dealer can supply you. If not, write us direct and include his name and address.

Why not fill in the Coupon for a trial order and eliminate Sander troubles for good.

Mail the Coupon NOW.

AMERICAN GLUE CO., Boston

Please send, on approval, one box of 20 Endflex Sheets as specified. If satisfied, after fair trial, with quality and saving in cost I agree to remit as billed, otherwise return unused balance.

Make of Sander.....
 Square Throat Diagonal
 Lumnite Mineral Grade No.....
 Garnet Mineral Grade No.....
 Size of sheet including tuck-in...x...inches

Name.....
 Street.....
 City.....
 Dealer's Name.....
 Street.....
 City.....

AMERICAN GLUE COMPANY

123 Beverly Street, Boston, Mass.

NEW YORK

PHILADELPHIA

CHICAGO

DETROIT

ST LOUIS

SAN FRANCISCO

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

THE SYMBOL OF SANDPAPER EXCELLENCE



Faster floor sanding and finer finishes.

In BEHR-MANNING DURUNDUM PAPER, floor surfacers all over the country have found the faster cutting, finer finishing paper that they have always looked for. The BEHR-MANNING coating process places the grains on the paper backing so as to take full advantage of the natural sharpness of the abrasive. The result is a floor sanding paper that cuts faster, saving much valuable time, with a grain fine enough to leave a perfect surface.

BEHR-MANNING CORPORATION
TROY, NEW YORK

For old softwood floors, BEHR-MANNING PAPER is the ideal drum cover. Made especially to prevent destructive loading, it is a more economical sheet to use on this work because of its low first cost.

“GOOD WORKMEN KNOW THE DIFFERENCE”

This Hospital Never Has Sickly, Leaky Walls —It's Waterproofed With "ANTI-HYDRO"

The brick mortar in this building was mixed with "ANTI-HYDRO." As a result the masonry is *permanently* dampproof, and the walls are not stained with efflorescence from the mortar joints.

The concrete foundation walls and basement floor are waterproofed with "ANTI-HYDRO." Springs were struck in the foundation excavation, but "ANTI-HYDRO" waterproofed the concrete so thoroughly and permanently that the basement is always dry.

Although the "ANTI-HYDRO" for this job was supplied through a local supply dealer, the manufacturer's own engineers and field men co-operated in pouring the concrete. This service is available wherever necessary for extreme conditions.

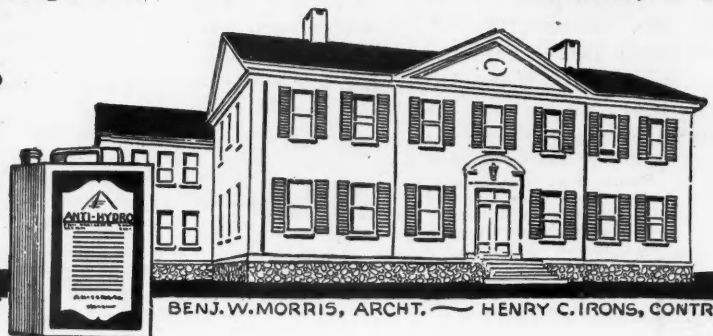
"ANTI-HYDRO" is very easy to use. It is a liquid integral compound. Mixes easily with water used to wet down concrete and cement mixtures. Both hardens and waterproofs *in one operation*. Results guaranteed *permanent*. Twenty-six years of continuous use take all the guess out of "ANTI-HYDRO" results. Use it on your next job and save time, worry and money.



ANTI-HYDRO WATERPROOFING Co.

295 Badger Ave.

Newark, N. J.



NORTH WESTCHESTER HOSPITAL, MT. KISCO, N.Y.

BENJ. W. MORRIS, ARCHT. — HENRY C. IRONS, CONTR.

The New Speedmatic SAW

Cutting Days off Contracts

NOW this new SPEEDMATIC Saw cuts days off contract time by its rapid sawing. It has hand labor beaten a mile in cutting forms, flooring, joists and other pieces up to 2 1/4 inches thickness. The fastest saw on the market.

It's a one hand saw, too—weighs only 12 pounds and so well balanced that a child could operate it. Yet it's sturdy enough to stand the gaff. Direct drive—no gears. Fully guarded. Absolutely guaranteed.

Simple Thumbscrew adjustments give quick, accurate settings for depth and any angle up to 45 degrees. Plan your work for maximum speed. Investigate the Guaranteed SPEEDMATIC Saw NOW! Fill in the coupon.



Saves time!

PORTER-CABLE
SAW

⊕ 3651

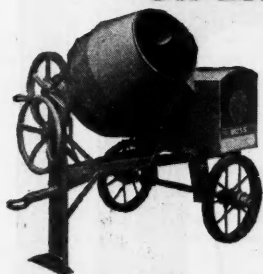
Porter-Cable Machine Co.,
1721 No. Salina St., Syracuse, N. Y.
Send complete data on new Speedmatic Saw. No obligation.

Name.....
Address.....
City and State.....

BUY DIRECT FROM FACTORY

**SAVE \$25 to over \$576
ON EACH MACHINE**

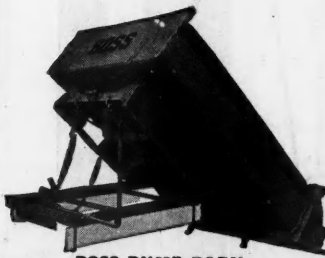
You save dealers' and salesmen's commissions



BOSS 3 1/2 Tilter

HIGHEST QUALITY POSSIBLE

Regardless of this drastic price cut, the quality of BOSS Mixers, Pavers, Hoists, Dump Bodies and Concrete Carts remains the same. They have always been noted for their heavy duty construction and materials. Under no consideration will we ever sacrifice this reputation. Get the catalogue. Note the specifications and compare the prices. You get the same patented Re-Mixing Action and other exclusive features that have made BOSSES preferred wherever used. Hundreds of BOSS machines have ten, twelve and fifteen years of continuous service behind them and still going strong. For quality of design, materials and construction we defy anyone to find a better built machine than a BOSS. You can now get all this for less.



BOSS DUMP BODY

5 DAYS' TRIAL

So confident are we that BOSS equipment will give complete satisfaction, that we offer you five days' trial. Order a BOSS. Use it in the field. If within five days you do not find it exactly as represented in every way, send for return instructions and refund of purchase price. This protects you; you can't go wrong on a BOSS. As long as we have sold on this basis, we have never had a customer demand his money. This proves BOSS quality. Every BOSS machine is backed up with an iron clad guarantee. Read it.

1 YEAR GUARANTEE

All BOSS equipment is guaranteed for one year against defective materials and inferior workmanship. Any parts proving defective will be replaced free of charge (electrical or engine equipment excepted, as this equipment is guaranteed by the respective engine manufacturers) upon return to us of defective parts, carrier charges prepaid for our inspection.

BOSS

MIXERS
PAVERS
HOISTS
DUMP BODIES

A COMPLETE LINE

We make over 79 various sizes, combinations and types of BOSS Mixers, Pavers, Hoists, Dump Bodies, and Concrete Carts. There is a type for every conceivable use. Get the new catalog first, then decide. Often our customers find that they can use a much lower priced machine after studying this catalogue. There is no need of going elsewhere for a certain machine when it is in the BOSS line. Write for catalogue and direct from factory prices; also give us information on kind of work you want this machine for. We can probably be of help to you.

GET OUR PRICES

**CLIP AND
MAIL THIS
COUPON
NOW!**

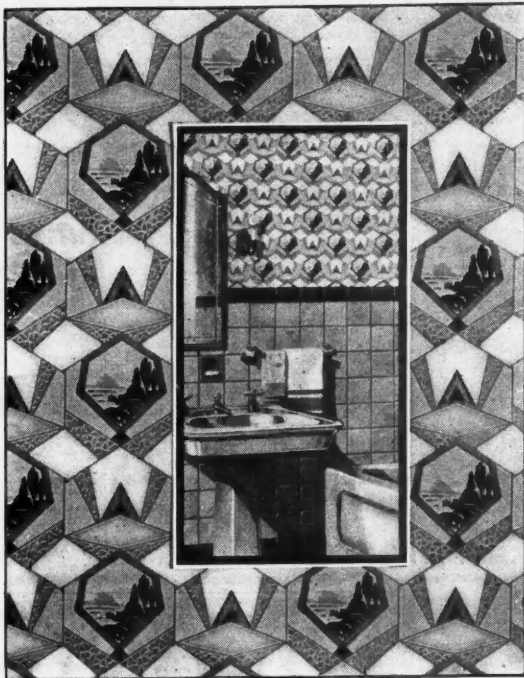
CLIP AND MAIL THIS COUPON

AMERICAN CEMENT MACHINE CO.,
305 Bank St., Keokuk, Iowa.
Send me your new catalogue showing complete line of BOSS Mixers, Pavers, Hoists, Dump Bodies, and Concrete Carts, with direct from factory prices.

Name.....
Address.....
Town..... State.....



Your answer to seekers of beauty for the home



How many of your clients perplex you with demands such as "give me something more unusual and more beautiful"! How often are you unable to comply with their wishes because their means are not sufficient?

Decorators and architects are fast learning that Wall-Tex—durable, efficient and economical—gives their clientele the beauty they want and appreciate, and gives it to them at a price within their incomes.

Wall-Tex is a coated fabric that will not scale, peel or discolor. It is cleansable. It covers cracks in plaster and prevents new ones from occurring. Ten years find it as beautiful as the day it was placed on the walls. It may be redecorated with plaster, paint and lacquer treatments. . . . Yet it is priced but little more than ordinary wall coverings.

An easy way for architects, builders and decorators to obtain the name of nearest distributor, and also booklet, "The Modern Trend in Wall Coverings," is to write name on the margin of this page and mail it to this address:

COLUMBUS COATED FABRICS CORPORATION

Formerly The Columbus-Union Oil Cloth Company
Dept. D-3-30 COLUMBUS, OHIO



FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

Kimball

LIGHT ELECTRIC ELEVATORS

A group of all purpose Kimball elevators with capacity ranging from one thousand pounds and up. Each machine is built complete, sawed, drilled and fitted at the factory and can be easily assembled by a good mechanic at point of installation.

We especially recommend these inexpensive machines for mortuaries, creameries, bakeries, factories, small stores, warehouses and apartment houses. They are safe and economical to operate.

Guaranteed twelve months against structural defects. Automatic safety controls and brakes, heavy steel traction cables.

Write for particulars on the Kimball Light Electric Elevators.

KIMBALL BROS. CO.

Builders of Elevators for 46 Years
989-97 South Ninth Street
Council Bluffs, Ia.

1-29



QUESTION:

WHAT'S NEW for the Bathroom?



Approved by National Board of Fire Underwriters

ANSWER:

The "ELECTRO-KABINET"

SEE this better medicine cabinet—with two chromium plated light fixtures, "convenience" plug, and switch—all wired and serviced from one electrical outlet box. The Electro-Kabinet incorporates a definite saving; it is a truly modern service lending an impressive setting to the bathroom.

A FEW TYPICAL INSTALLATIONS

- Will Rogers Hotel, Claremore, Okla.
- Pine Crest Lakes Lodge, Avon Park, Fla.
- Wooten Hotel, Abilene, Texas
- Catholic Guild Dormitory, St. Paul, Minn.
- The Riviera Apartments, Kansas City, Mo.
- Porter Sanitarium & Hospital, Denver, Colo.

ATTRACTIVE LINE FOR DEALERS—WRITE TODAY

WELDED PRODUCTS CORPORATION

Successors to Economy Electrical Mfg. Co.

16th-17th CLEVELAND KANSAS CITY, MO.

-----MAIL THIS COUPON-----

Welded Products Corporation
Kansas City, Missouri

Gentlemen: Please send Electro-Kabinet File A. I. A.—28 a 4 with prices.

NAME.....

ADDRESS.....

CITY.....

DEALER CONTRACTOR ARCHITECT

...FOR PLASTERERS



Hook Drug Co. Store, South Bend, Ind. E. F. Cramer, Plastering Contractor.

Put some of your men on Trouble-Saver Adjustable Steel Trestles and you will understand why hundreds of plastering contractors are adding more of these trestles to their equipment this season.

Absolute rigidity at any height, but instantly adjustable to changing working conditions, Trouble-Savers are easy to set up and adjust, easy to take down and fold compactly for cartage and storage.

Plastering Contractors tell us that no other equipment you can buy will give you a bigger return for your money than Trouble-Saver Adjustable Steel Trestles. Let us send you pictures of Trouble-Savers in action and prices on this modern equipment.



The
STEEL SCAFFOLDING CO., Inc.

TRouble-Savers

The Steel Scaffolding Co., Inc., 1101 Governor St., Evansville, Ind.

Send me pictures of Trouble-Saver Adjustable Trestles in action, together with complete descriptions and prices.

Name

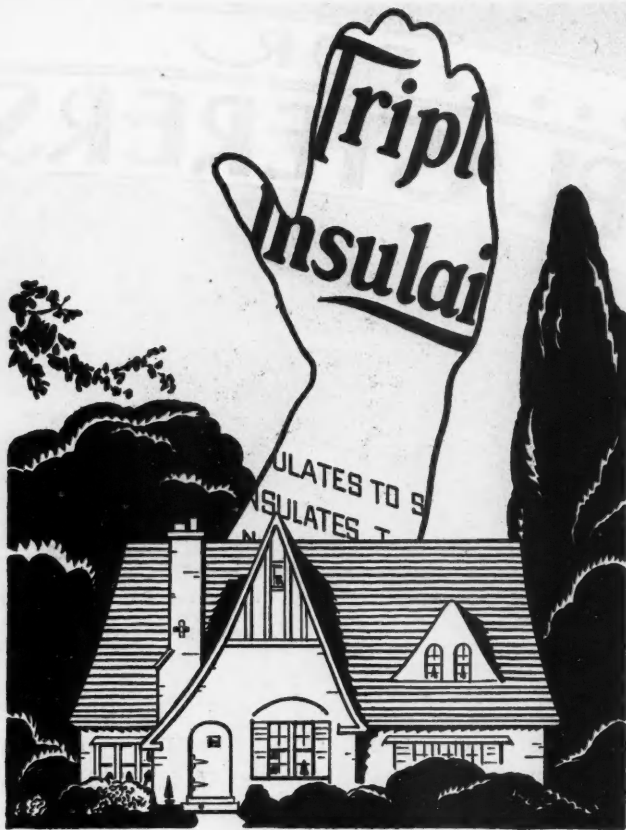
Address

City and State.....

I am a _____ Contractor.
(State Kind)

Dealers: There is a type of Steel Scaffolding for every type of contractor. Write for details.

See our advertisement on Page 169 this issue.



PROTECTION *that Welcomes Comparison*

Both science and practise have proved that Triple Insulaire offers greater value in insulating efficiency than any other similar product in the same price class. Prevents vertical heat loss in walls; costs less to handle and install; fire resistant and vermin-proof. Provides positive protection for every insulation purpose.

It Fits In Tight *Easy to Install*

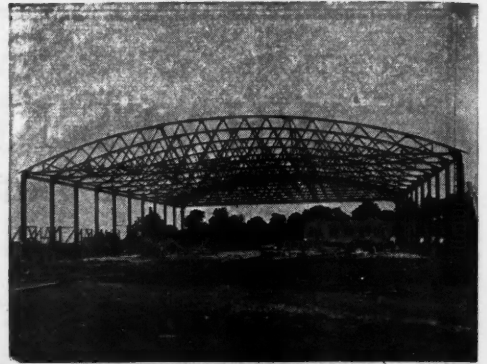


Triple Insulaire slides easily and snugly between studs. Cuts with knife or saw; requires no nailing or stripping. Can be installed by carpenter's apprentice. Accommodates itself to any insulation job.

The Triple Insulaire Co.

6144-6148 Plankinton Bldg.
123 Wisconsin Avenue
MILWAUKEE, WISCONSIN

Triple Insulaire
*Send for samples and
doubt-proof facts—free!*



WHEN YOU BUY BOWSTRING TRUSSES . . . YOU ARE ENTITLED TO THIS FREE SERVICE

First you'll want to know the trusses you buy are RIGHT . . . but you must not overlook the fact that the service that goes along with the steel is almost as important. That is why we stress the service features of International . . . why we keep telling you we will help you plan, help you estimate and show you short cuts with standardized designs that mean a bigger profit for you and a better satisfied customer.

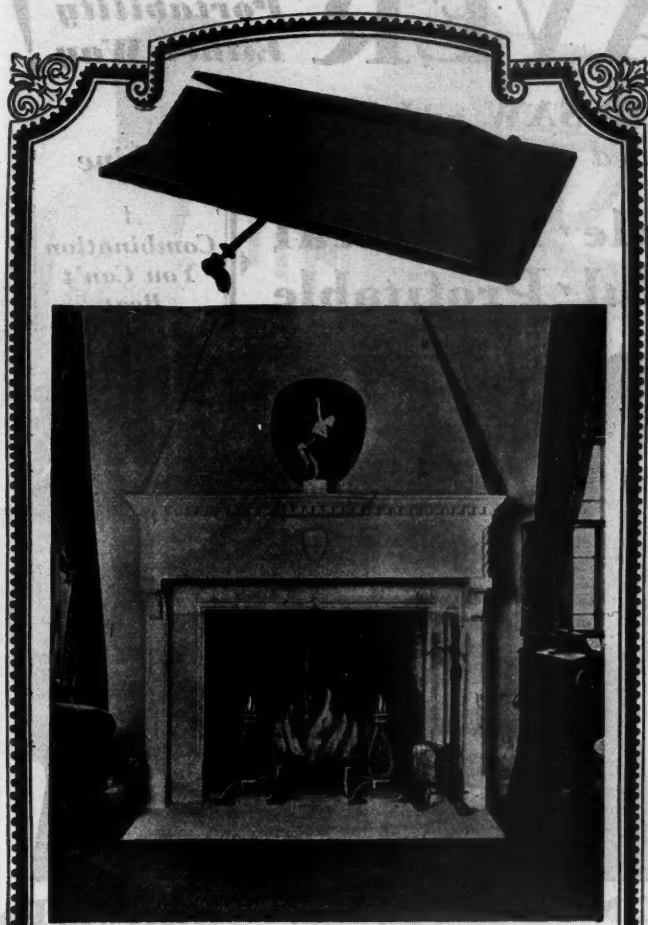
Send today for the new aviation hangar catalog and for other catalogs covering jobs you have in mind. Let our architect help you with plans you are working on. No charge.

Products of International

Store Fronts	Public Garages	Steel Trusses
Steel Columns	Steel Girders	Steel Windows
Steel Ceilings	Elevators	Skylights
Sidewalk Lights	Roof Ventilators	Coal Chutes
	Airplane Hangars	

INTERNATIONAL STEEL & IRON CO.
1323 Edgar Street, EVANSVILLE, IND.

INTERNATIONAL STEEL & IRON COMPANY



A Properly Built Fireplace Gives Plenty of Heat

WE ALL KNOW that there are few if any modern homes that depend upon open fireplaces for their main source of heat. Your 1930 fireplace is used only for heat in late spring and early autumn and as a supplement to the heating system on cold days.

The well built fireplace with correct equipment will give out an abundance of heat for the above purpose. No special expensive heating devices in the fireplace itself are necessary. Build your fireplaces economically according to the Donley construction plans in the Donley Book of Successful Fireplaces and your customers will never complain about lack of heat. Furthermore, your fireplaces will never smoke. This book contains 100 fireplace designs. Send 25c for your copy.

The Donley Brothers Co.
13916 Miles Avenue • • • Cleveland, Ohio



QUICK-SAFE... MONEY-SAVING



Drive Four Nails, Hang a Bracket. When finished, remove bracket, hammer nails in.

"TROUBLE SAVER" Nail Attached Brackets are an indispensable item in modern building equipment. They **SAVE THEIR COST ON EVERY JOB.** Made of rail carbon steel for **GREATER STRENGTH.** Braced by two legs and tested for a ton to the bracket for **GREATER SAFETY.** Ideal for carpenter or stucco work. Four nails driven into studding hold them. Erected in a jiffy. May be taken down and folded compactly for cartage or storage—in an instant.



"Trouble-Saver" Studding Brackets hook around the studding. Can't bend, can't break, can't slip.



"Trouble-Saver" Bolt Brackets bolt through a two by four across studding. Stand solidly on two legs. Approved by all states.

The Steel Scaffolding Co., Inc.

TROUBLE-SAVERS

The Steel Scaffolding Co., Inc.
1101 Governor St., Evansville, Ind.

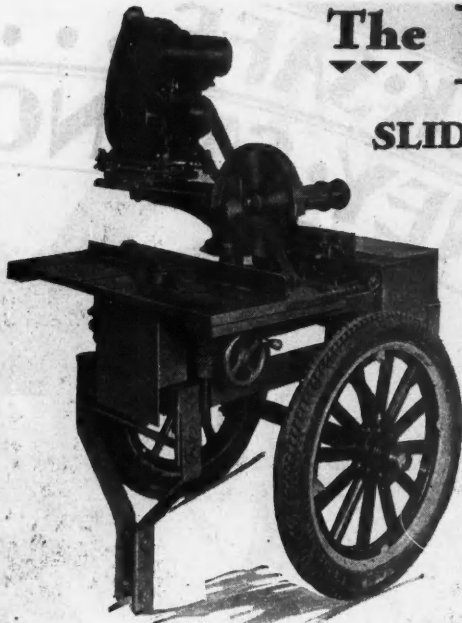
Send me information and prices on the brackets checked below.

- Nail Attached Brackets. Bolt Brackets.
 Studding Brackets.

Name
Address
City and State

I am a _____ Contractor.

(State Kind)
DEALERS: There is a type of Steel Scaffolding for every type of Contractor. Write for details.
See our advertisement on Page 167 this issue.



The BEAVER *Portability Either Way!*

SLIDE SAW, RIP SAW and JOINTER
All Mounted Together In This One Machine

Portable · Practical
Powerful · Profitable

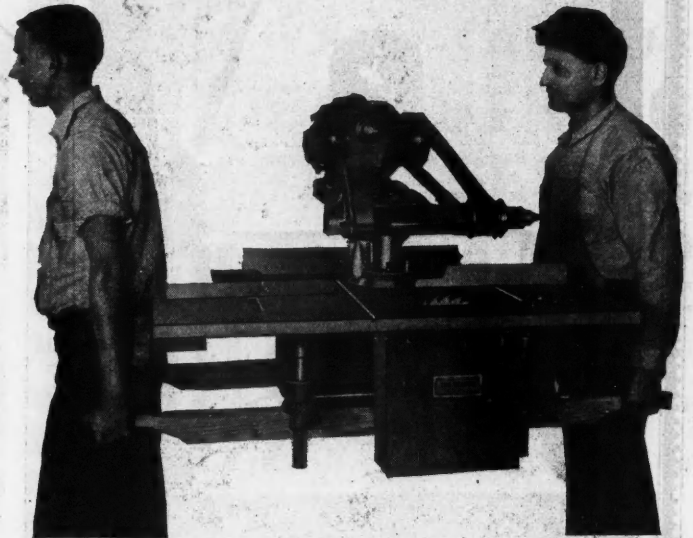
*A
 Combination
 You Can't
 Beat*

*Powered with Electric Motor
 or Gasoline Engine*

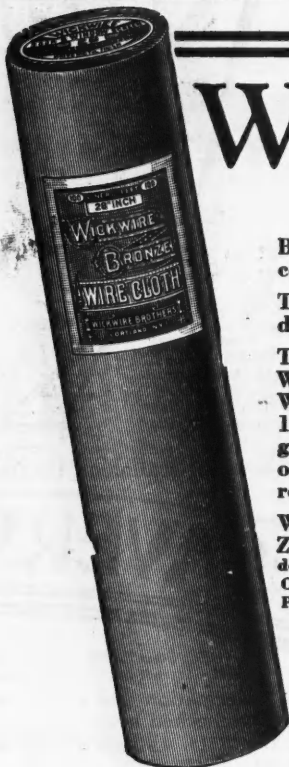
The price of The BEAVER is no higher than ordinary slide saws, yet it is equipped with a 4 or 6-inch jointer. *Sold on terms to suit you.*

Write for our FREE Catalog today.

Just off the press. It shows our complete line of Combination Machines, Jointers, Band Saws, Shapers, etc.



Ask for FREE CATALOG No. 30. **HUTCHINSON MFG. CO., Inc., Norristown, Pa.**



WICKWIRE BROTHERS

ESTABLISHED 1873

Buyers of homes today demand a completed job and no job is complete without screens.

This added selling value is often overlooked by many builders, dealers and realtors.

Two leading grades of Wickwire Wire Cloth are recommended. Wickwire Bronze Wire Cloth and Wickwire Gray-Wick Wire Cloth. Wickwire Bronze is made from a special alloy of 90% Copper and 10% zinc, producing the elasticity of hard steel wire cloth with greater strength and durability than copper cloth. The zinc not only provides the necessary tensile strength, but acts as a corrosion resister as well.

Wickwire Gray-Wick Dull Finish Galvanized is 8% to 10% Electro Zinc Coated and enameled with white transparent varnish—a double protection against corrosion. Like all Wickwire Brothers Steel Screen Cloth, it is made from open Hearth Copper Bearing Steel and full gauge wire. Place your order now through your hardware dealer or screen manufacturer.

A trial will convince you of Wickwire value.

Free catalog describing our line sent on request.

WICKWIRE BROTHERS
 CORTLAND NEW YORK

We manufacture a complete line of wire cloth, wire nails, staples, barbed wire, hardware grade wire cloth, special cloth and netting.





Earn \$10 to \$35 A Week EXTRA

Have Your Own Saw Filing Business

Hundreds of carpenters and contractors are making extra money in their spare time and have built up a fine paying, cash business of their own filing saws on the Foley Automatic Saw Filer. Fred M. Bell, a carpenter, writes:

"On an average I make from \$8 to \$10 a day. . . . Any man who works at the carpenter trade should not be without a Foley-Filer. . . ."

Keep Your Saws In Perfect Shape

You can have better cutting saws that will stay sharp longer if you file them on the Foley. Besides that, you can get plenty of saws to file from other carpenters, contractors and others. Our *Free Plan* tells you how to start. Average cost to file a saw is about 8c—you get 50c or more for every job—94c PROFIT OUT OF EVERY DOLLAR.

The Foley Model F-5 "3-Way" Auto-matic Saw Filer

This ONE MACHINE files all kinds of hand saws, band saws and circular saws better and more evenly than the most expert hand filer. Makes saws cut faster and easier. Evens all teeth to uniform height, size and spacing. Uses standard 3-cornered taper files.

\$10 Brings It to You

Get Started Now!

Begin making this easy money at once. Start your own business in spare time. *Be Independent!* Very little capital needed for equipment and no stock to carry. Don't Delay.

\$56 In 3 Days

"Filing in spare time from \$10 to \$15 a week. Last spring cleaned up \$56 in 3 days. . . ."

Frank Bradek

\$26 a Week Extra

"During last 6 months I have taken in \$735.00, an average of \$26 a week, in spare time."

W. S. Thompson

Send Coupon for Information

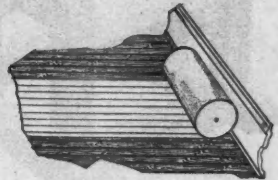
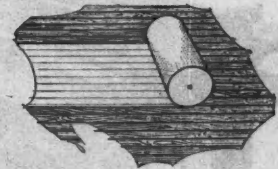
FOLEY MANUFACTURING CO.,
340 Foley Bldg, 11 Main St N. E., Minneapolis, Minn.

Please send me *Free Plan* telling me how I can make extra money in spare time and keep my saws sharp with the Foley.

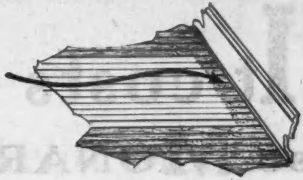
Name.....
Address.....
City and State.....

A DRUM SANDS O. K. IN THE OPEN

BUT AT BUTT ENDS WITH THE GRAIN



MISSES MUCH



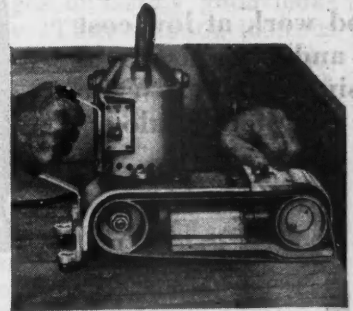
Use the TAKE-ABOUT Sander

EQUIPPED WITH THIS EDGING ATTACHMENT



and

YOU CAN EASILY FINISH IT ALL



For the floor surfacer, the TAKE-ABOUT'S Edging Attachment makes it possible to sand flooring with the grain, square to the baseboard. You'll get a perfect match with the rest of the floor. Without the Edging Attachment the TAKE-ABOUT is ideal for finishing closets, stairs and other hard-to-get-at places. Just plug in at the nearest socket and let the belt do the work quickly. Write for complete details.

One of a hundred jobs TAKE-ABOUT does without its edging attachment.

The Porter-Cable Machine Co.
1721 No. Salina St. SYRACUSE, N. Y.

PORTER-CABLE SANDERS

3651



Fig. 690

* Four men can use this Variety Woodworker at once. Cut-off and Rip Saw with Boring Attachment, Mortiser and Jointer all in one. Send today for free booklet No. 82.

It costs *LESS* to use **MONARCHS!**

Of course you know that you can't do good work without good tools . . . and **MONARCHS** are the finest woodworking machines made today. Every machine is guaranteed. And every piece of work done by a **MONARCH** is done right! Smooth and swift in operation. Economical in cost and maintenance. Only with **MONARCH** Machines can you do good work at low cost . . . and you *must* do business today! Write for complete catalog.



Ball Bearing Drum and Disc Sander— Requires minimum power and attention. Completely adjustable drum shaft, outside of main frame. Write for prices.

20" Bench Band Saw— Lower your costs with this saw, guaranteed for long, hard service. Handles most delicate work with ease. Built-in motor for light-socket operation.



AMERICAN SAW MILL MACHINERY COMPANY

Makers of Woodworking and Saw Mill Machinery

60 Main Street, Hackettstown, N. J.



If all apartments were planned like Park Manor—there would be fewer leasing problems



It is almost remarkable that Kansas City's first co-operative-owned apartment should immediately be an outstanding success. But you would see that it couldn't be anything else, if you studied the very thorough way in which Mr. C. O. Jones attacked the job.

Mr. Jones set out to make his apartment an attraction to people used to private dwellings. Step by step he worked out his plans to accomplish this result. He devised an ingenious method of leasing and selling—he eliminated the bothersome brick-wall views so general in apartments—he made Park Manor attractive to parents—he planned the floor-space for convenience and comfort—and in every apartment laid down oak floors.

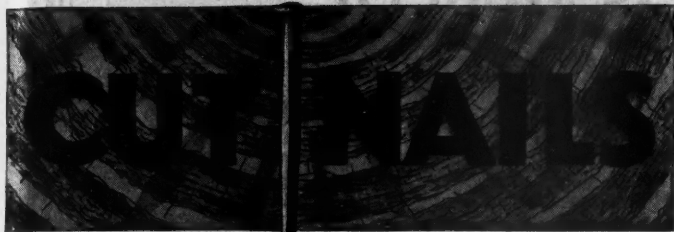
The part oak floors played in the success of Park Manor is emphasized by an experience in another middle-western city. Four years ago an apartment was built that proved difficult to lease. At last the owner installed oak floors. Within two months 90 per cent of the building was occupied! And it has averaged an occupancy of 85 per cent ever since! *But never more than one-third had been rented before oak floors were laid!*

Oak floors appeal to housewives. They are sanitary and easily cleaned. They have a natural beauty that never wearies the eye. Nor are they a passing fancy that changes with the trend of the times. The popularity of oak is as lasting as the wood is durable. And yet with these advantages, oak floors often cost less than manufactured flooring substitutes and only slightly more than softer woods. If you have any flooring problems, our technical staff stands ready to assist you. Oak Flooring Manufacturers Association of the U. S., 1238 Builders' Building, Chicago.

THIS MASTER TRADE-MARK is stamped on the under side of all Oak Flooring produced by members of the Oak Flooring Manufacturers Association of the United States. It is complete protection for you. Every piece is air-seasoned and kiln-dried, then thoroughly inspected and accurately graded, insuring uniformly high quality.



READING



- cut from solid plate

Learn From America's Oldest Houses What Reading Cut Nails Mean in Staunchness!

In America's oldest houses — houses that have weathered the storms of generations — you will find nails similar in form to Reading Cut Nails. Our forefathers discovered the secret of greater gripping power in nails — the four-sided, wedge shape that Reading Cut Nails have today.

For roofing, flooring, casing, sheathing—for practically every building need—there are the right sizes and types of Reading Cut Nails. You'll find profit and satisfaction in using them — send for our free catalog.

READING IRON COMPANY READING, PENNSYLVANIA

Atlanta
Baltimore
Boston
Buffalo
Chicago
Cincinnati
Detroit
Houston

Los Angeles
New York
Pittsburgh

Cleveland
St. Louis
Tulsa
San Francisco
Seattle
Philadelphia
New Orleans
Kansas City



Bakelite Molded floor plates
made by Modern Utilities Co., Harrisburg, Pa.

Rustless Bakelite Molded floor plates in colors to match fine floors

SINCE the earliest days of steam heating, old style floor plates have been an unsightly necessity. Easily dented, quick to acquire a coating of rust, they mar the appearance of many well kept floors.

The new Bakelite Molded floor plates combine the advantages of lasting good looks and greater utility. Their smooth, lustrous surface cannot corrode and lasts indefinitely. They cannot be dented nor deformed. A choice of several colors makes it possible to match various floor finishes, whether wood or tile.

Made in two interchangeable parts, Bakelite Molded floor plates are snapped around the pipe in an instant. Strong copper plated springs hold them firmly in place, and they do not slip on the pipe. This makes them available for ceiling plates, too, where steam risers are exposed.

Write to us for a list of the manufacturers of various items of improved building equipment and fittings, made of Bakelite Materials.

BAKELITE CORPORATION
247 Park Avenue . . . New York, N. Y.
Chicago Office . . . 635 W. 22nd St.
BAKELITE CORP. OF CANADA, LIMITED
163 Dufferin Street . . . Toronto, Ontario

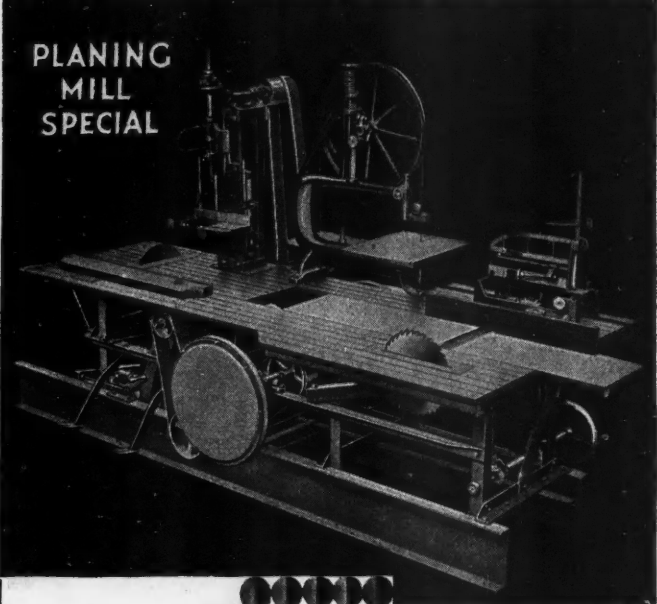
BAKELITE

THE MATERIAL OF A THOUSAND USES

The registered Trade Mark and Symbol shown above may be used only on products made from materials manufactured by Bakelite Corporation. Under the capital "B" is the registered sign for Bakelite, an unabbreviated acronym. It symbolizes the infinite number of goods and better uses of Bakelite Corporation's products.

PARKS

PLANING
MILL
SPECIAL



A Man-Sized Machine
... for a man-sized job!

PARKS
PLANING MILL SPECIAL
\$590

It's a man-sized job to beat down competition these days and still make a profit unless you're equipped to turn out quick, accurate work. The carpenter with old-fashioned methods and out-of-date machinery is out of luck.

You'll never make money if your labor costs are always two jumps ahead of you. Get a 1930 Parks Planing Mill Special and you can do the work of half a dozen men without moving away from your machine. That means more business and bigger profits.

The 1930 Parks Planing Mill Special is 8 machines in one—12-inch jointer, 22-inch band saw, 12-inch swing cut-off saw, reversible spindle shaper, upright hollow chisel mortiser and borer, tenoner with two 9-inch grooving saws and 18-inch sand disc—all mounted on a heavy 2-inch angle steel electrically welded frame.

Send this coupon for complete Parks catalog

THE PARKS WOODWORKING MACHINE COMPANY
Manufacturers of good woodworking machines since 1887.
Dept. A-3, 1524 Knowlton Street, Cincinnati, Ohio.
Canadian Factory: 338 Notre Dame East, Montreal.

Name _____ City _____
Address _____ State _____
Business _____



EVERY PARKS GUARANTEED 10 YEARS

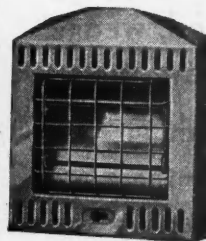
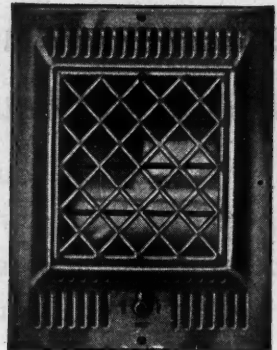
Electric Heat Is Modern ...

Just the thing to make a house a "modern home"

PROSPECTIVE home owners demand the most modern appointments and equipment—they look on electric heat as a necessity for auxiliary heating service! And when RADIA Electric Heaters are installed you have an extra talking point—a distinct selling asset—as RADIA Electric Heaters are not only practical and efficient, but attractive and inconspicuous in appearance!

Wall Insert Type 3-Heat

An advanced RADIA design, a really beautiful heater, in which the current consumption can be regulated to produce any particular temperature desired—a new feature in this type of heater. Low, 660 watts; Med., 1320 watts; high, 1980 watts.

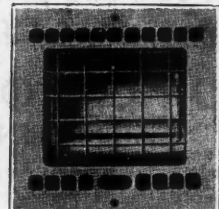


Portable Wall Type

At left is a new type designed for use in marine field, elevators, offices, old homes where it is not desirable to cut into wall. Can be attached to wall or suspended on hook or hung anywhere, making it portable.

Wall Insert Type

Compact in size—more than answers the normal demands of the building trade for a low-priced heater for use in competitive developments or where wall space is at a premium. A really efficient and popular RADIA model—hundreds of installations throughout the country.

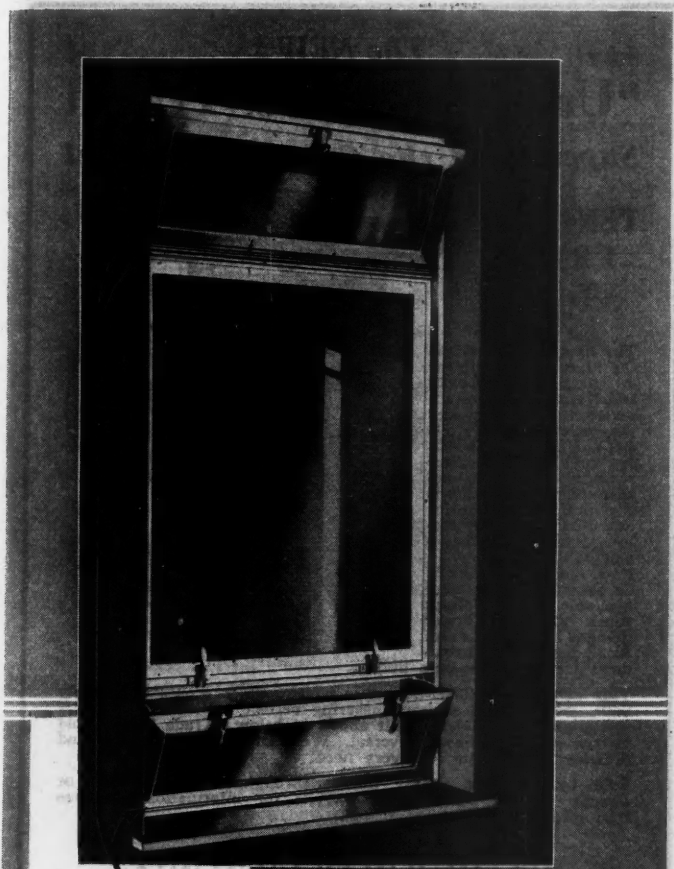


GET A SALES DISPLAY

A unique selling help, actually displays the heater in place and in operation—sells RADIA Heaters on sight, gives them a chance to FEEL a demonstration—order now or write for further particulars! Be sure to ask about our complete line—get our new catalog which illustrates and describes each model.

F. W. SHEPLER STOVE CO.
1312 Sheffield St., N. S., PITTSBURGH, PA.





Water-proof hinge
Patents applied for

SEALAIR WEATHER-PROOF IN ANY WEATHER

When closed, the asbestos-insulated union between sash and frame excludes wind, rain and snow. Even when opened, Sealair affords protection from drafts. The tilt of the sashes diverts the inflow of air, causing it to circulate freely to all parts of the room... All sashes can be washed from the inside...
Furnished in bronze, aluminum alloy or steel.

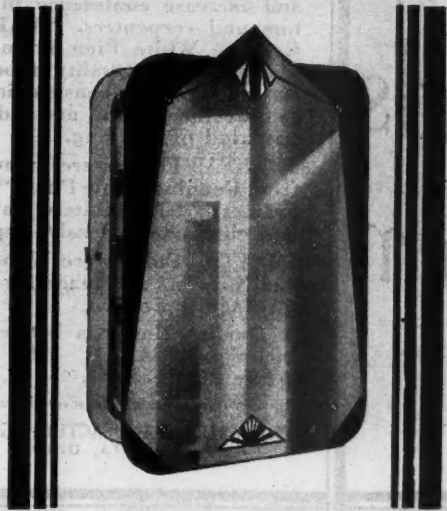
Send for complete description, specifications and F. S. details.

THE
Kawneer
COMPANY

Niles, Mich.
Subsidiary, Berkeley, Calif.

ALSO WEIGHT-HUNG WINDOWS (Light and Heavy) AND CASEMENTS

This year it'll be Corcoran Cabinets...



... that will stand out above all the rest—surpassing architects' expectations and creating profits for those who tie up with Corcoran.

Distribution almost the world over during their first year is conclusive evidence of their superiority. Corcoran Cabinets have met with instant acceptance wherever introduced because they are the original and only one-piece steel bathroom cabinets. No cracks—No seams—No welded joints—No raw edges. A few more desirable territories are still open—mail the coupon today.

Sold only through Jobbers

The Corcoran Mfg. Co. Cincinnati, Ohio

Complete stocks are now being carried in Chicago, New York, Philadelphia, Boston and Los Angeles; communicate with Corcoran offices at 1820 McCormick Bldg., Chicago; 1228 Locust Street, Philadelphia; 11 West 42nd St., New York; Beaudette & Graham Co., 915 Boylston St., Boston; and Hamilton-Gardner Co., 509 West Pice Boulevard, Los Angeles.



MAIL THIS COUPON

CORCORAN MFG. COMPANY, DEPT. AB-3-30.

Gentlemen:
We are interested in Corcoran One-Piece Steel Bathroom Cabinets. Kindly send catalog and full details.

Name

Address

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

Dealer. Architect. Contractor.

MALTA

Always
Leads
Them
All

"MALTA" K. D. Window Frames of Genuine White Pine meet specifications of architects and carpenters.

Quality features of material and machine work and necessary conveniences are so prominent, they at sight, command respectful interest and increase confidence in contractors and carpenters. "MALTA" All Genuine White Pine Frames represent a superior Quality in both material and general construction. They are weather proof and adapted to any kind of building.

"MALTA" Frames are manufactured from Genuine White Pine. "MALTA" Frames last indefinitely, paint better and eliminate expensive repair bills.

"MALTA" Pulleys are Wood Bushed and Noiseless and made for long and satisfactory Service.

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Write for full information or consult your Dealer.

THE MALTA MANUFACTURING COMPANY
MALTA, OHIO

The NEW "Universal" Level-Transit Superseding the Convertible Level

TEN Days
FREE
Trial



The new "Universal" is the highest development in combination Levels and Transits. It is superior to and displaces the convertible level FOR ANY USE OR NEED. No previous experience required for perfect success in operation—this is the ideal instrument for any builder or contractor. Instantly changeable to level or transit, it is the most scientific development of its kind available. Only a slight touch of the finger changes it to either need. An indispensable instrument for the up-to-date builder.

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Sold by first-class supply houses throughout the country, or directly by the manufacturer. Write for information and free trial offer.

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Milwaukee, Wis.

Branch Office, 2101 West Van Buren St., Chicago, Ill.

ALUMINUM GENERAL PURPOSE (90 lb.) FLOOR SANDER



Latest Model—

Built for
GREAT SPEED and
HIGHEST QUALITY
of work

No vibrations—no dust
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Roller sands even with
wall on either side
of machine, 9" long
roller 1-3/4 HP AC &
DC motor.

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... On the stove, floor, window sill, shelf or where? She wants a place where the heat will not start a fire and where the hot iron will not be reached by children's fingers.

That's why the Cunningham Electric Iron Receptacle helps sell homes and rent apartments; it provides a safe definite place for the iron hot or cold, ironing or not.



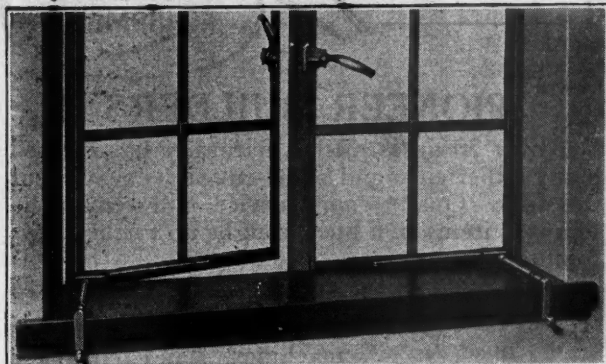
It's made of steel, lined with Asbestos. Furnished in Bright Nickel finish or in Green and White, Blue and White or Plain White. It is easily installed in a wall opening 10 1/2" by 9 1/2"—and the cost to the builder is negligible.

If Your Dealer Cannot Supply You—Write Direct

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First National Bank Bldg., Rockville Centre,
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NARROWER OPERATOR



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Designed for Steel Casement Residence Windows (Close-up or Offset Hinges)

Any standard outswing casement residence window can now be operated with the swift smoothness for which the Rixson No. 94 Operator won wide recognition. Any workman can install it on steel casement sash.

The sash plate, for attachment to the lower rail of the sash has screw hole locations which conform to the standard perforations adopted by the majority of steel sash makers at the suggestion of the Bureau of Standards.

Steel casements, operated by the Rixson No. 194 will completely open or close in 3½ turns of the handle, or stand firmly locked, free from rattle wherever halted. A simple patented mechanism of steel stampings and a hard bronze driving screw accomplishes this within a case less than an inch and a half wide.



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Builders' Hardware

Overhead Door Checks
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H E S S
(AUTOMATIC)
HEATING SYSTEM

Home heating is entering upon a new era of development. The average home owner today is sold on the possibilities of receiving volumes of properly humidified air forced under pressure throughout his home. The new automatic Hess is designed to meet this need. It includes:

1. Automatic humidifier—float-valve type. Assures ample humidity.
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3. Electric booster blower on stand, including cord and socket. About doubles the usual gravity-air circulation.

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Hess Welded steel furnaces are tight—no cemented joints to leak; adapted for oil or any fuel and are highly efficient. Write today for descriptive literature.

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—Here's 28 Ways of Making Money

*Simplicity
Woodworker*



*Write for
folder showing
the 28 ways
this machine
cuts your costs*

The ONLY Combination Machine which does Thickness Planing

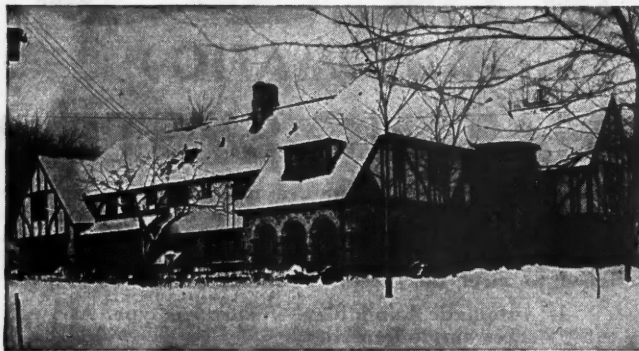
Operations include ripping, cross cutting, band sawing, coping, grooving, paneling, jointing, tenoning, mortising, sanding, tool grinding, thickness planing, boring, rabbeting, moulding, etc.
Tilting saw table and tilting fence for jointer makes all kinds of bevel cuts easy. Portable. Saws eight times as fast as by hand and saves its cost in a few weeks.

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Highly endorsed by customers. Can be furnished with new machine or attached to machine already in service. Write for further information.

"Buy One Machine Instead of Eight!"

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THAT is the amazing quality of Ligni-Salvor—the wood-preserving stain—it is vastly cheaper to buy than paint or varnish and the original application preserves the wood indefinitely . . . yet, the beautiful antique or semi-glossy finish will last for years! *It will not peel, blister, crack, scratch or wash off.*



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The Road to Profit

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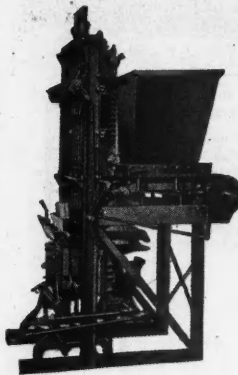
For over 30 years, Miles, naturally has erected many experience and short-cut signs that point the way. Quality and service still remain as featured items in a line brought up to the latest minute.

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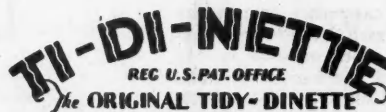
It includes face down machines, hand strippers, power strippers, power tampers, elevators and feeders. See a Miles plant in operation before you buy.

Write for catalogue. It contains much you should know and it is free.

The Miles Manufacturing Co.,
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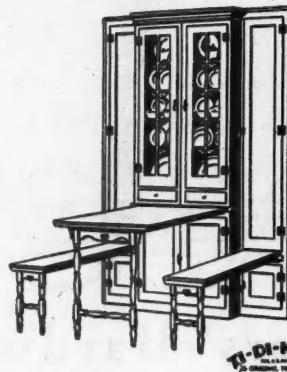
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Wodack Model D at work. This is the Brute of Hand Saws. G. E. Motor develops 2 1/2 h.p. under load. Cross cuts or rips a 4 x 12. Just press the trigger. No skill required. Model B, not illustrated, is next smaller in size. Very widely used by builders. Cuts up to 4 1/2". Bevel cuts up to 60°.

Every Wodack Saw that you put on your jobs, will save up to \$25.00 a day for you!

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Cutting sills in one cut without turning them over is another 50% time saver!

And why not cut your "jacks" by instantly changing angle from 90° for straight cutting to 45° or 30° by simply loosening wing nut? (socket wrench not necessary).

The angles are graduated on scale in plain view.

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Saves 50 cents on every door. Cuts 60 doors in one hour. Face Plate and Barrel of Door Lock are cut in ONE OPERATION. Router sold separately if desired. 1/2 h.p. G.E. Universal Motor.

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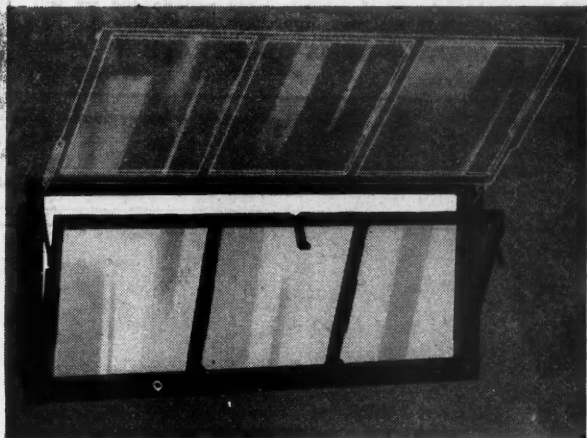
Puttyless Steel Basement Windows and Vento Puttyless Steel Utility Windows in the Garage

Modern windows—attract interest and please the Housewife—as much as modern Bath and Kitchen Fixtures.

VENTO PUTTYLESS STEEL WINDOWS make the old time cellar a real living or play room.

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Thousands of contractors and builders are installing 5 to 11 VENTO WINDOWS in the BASEMENT—50% to 80% more daylight than wood—in the same masonry opening.

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Handles up to 4" stock.

Runs from any light socket.



7
**Machines
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- 8" Circular Saw
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Space, 3x4 feet
Weight, 520 lbs.
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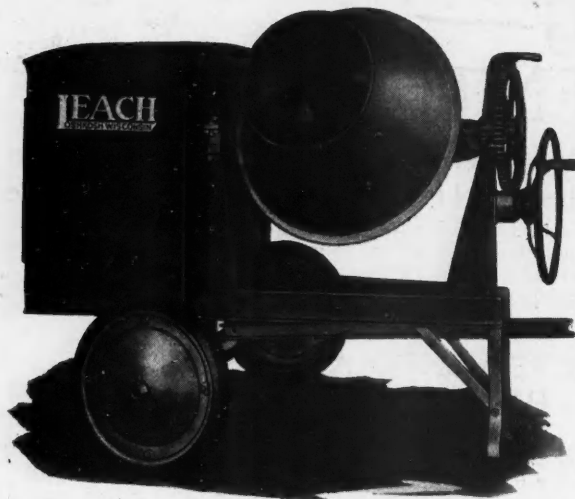
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A brand you can depend upon.

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**The Best Investment A Contractor
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The Metaform system of shifting molds ahead, allows continuous pouring of concrete with a surprisingly small amount of equipment. A Metaform outfit will more than save its cost in one season. The savings after that are sheer net profit for year after year.

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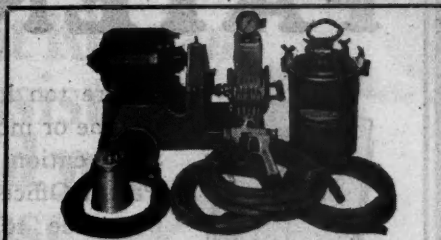
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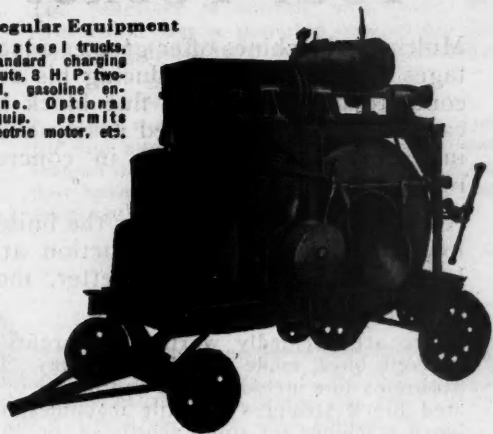
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Capacity 7 cu. ft. mixed concrete per batch. Large over-size drum with 20" openings, which permit fast charging and discharging. Extra large discharge buckets and oversize mixing blades. The 7-S has easy, within-reach control—a big factor for fast work. Get further interesting information about this amazing mixer. Write TODAY.

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Capacity: 7 cu. ft.

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600 N. CEDAR ST.

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A Shop Full of Machines in 1

Does the Work of Many Men

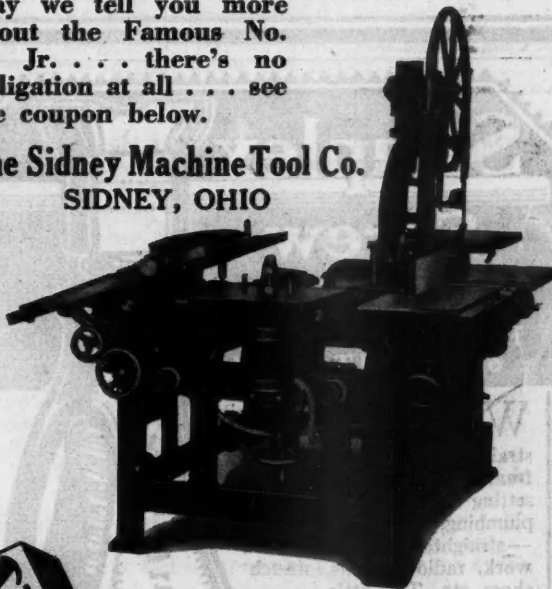
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. . . Five individually operated units allow one man to complete a job in less than half the usual time and with a power saving, too!

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The Famous No. 30 Jr., Woodworker has no clutches. There is no waste motion and no loss of power. Your men will like its speedy action and so will your profit sheet.



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Sidney, Ohio

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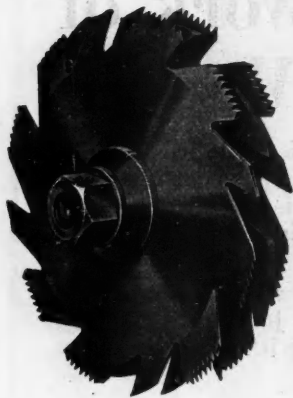
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Screw
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For the Home Workshop,
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WITH this 500 lb. capacity Simplex Jack, you can straighten window or door frames and avoid planing or re-setting locks—level radiators, plumbing, drain pipes, ice box, —straighten or clamp glued work, radio cabinets, stretch shoes, etc. This little

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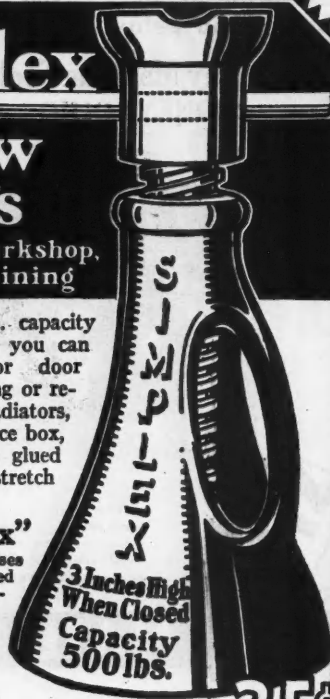
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3 Inches High
When Closed
Capacity
500 lbs.

35¢

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Multiplex Concrete Block Machines Combine Advantages that Put Money in Your Pocket

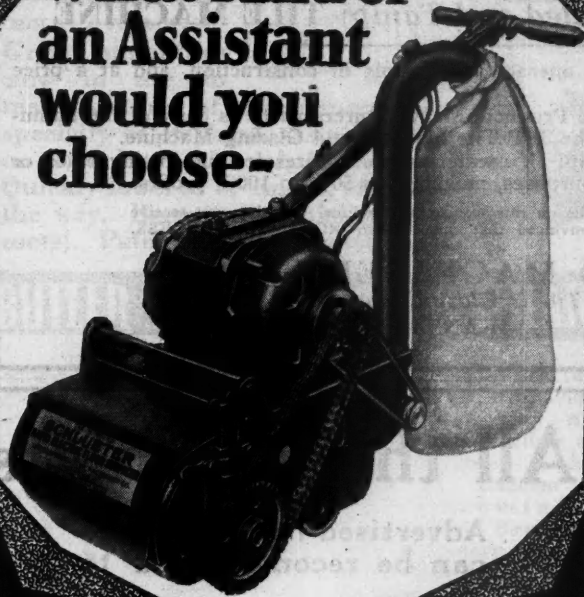
Multiplex Machines offer greater advantages to the builder producing his own concrete block, tile and flue block because Multiplex pioneered nearly every important improvement in concrete block manufacturing.

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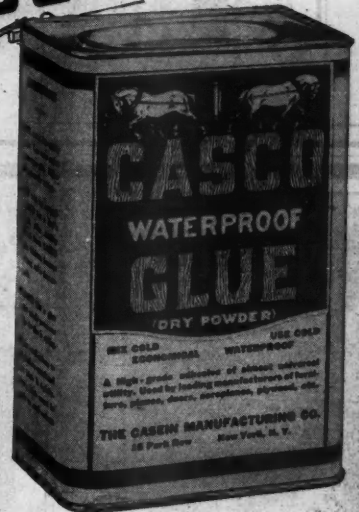
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Send for this
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Casco will glue practically everything—wood to wood, metal, glass, cardboard, leather, cloth or paper—and glue it permanently.

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No Waste -- No Heating -- No Odor

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Enclosed find 25c (stamps only) to cover postage and handling cost for which send me your trial package of Casco Waterproof Glue.

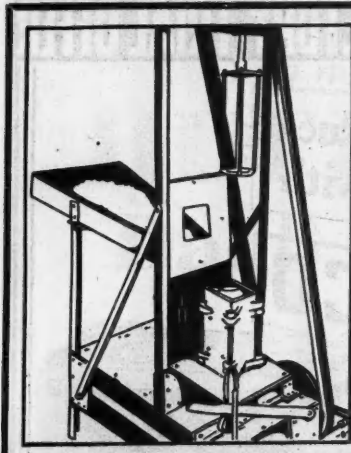
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B-330



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Builders, Contractors and Concrete Products Manufacturers write us daily of the unlimited profits they are making with the T-T Tile Machine and Glazing Machine.

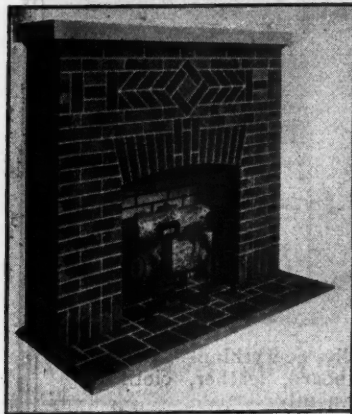
Think of turning out 1,000 beautiful . . . waterproof . . . firesafe Tile in any color or any size for all kinds of building purposes, making you 50% to 100% profits.

Write us today for full details on this wonderful Machine. The day you receive our circular, you will be convinced that this is your ROAD TO SUCCESS.

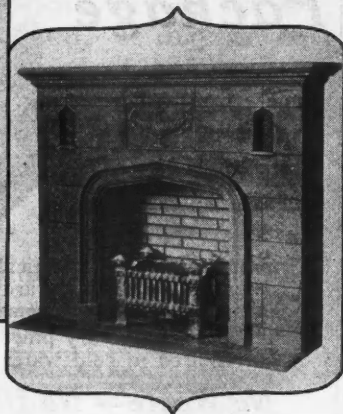
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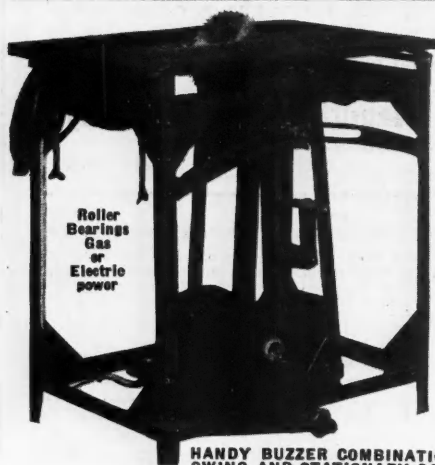
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Two Saws in One

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Its light weight and sturdy construction make it most desirable for the average contractor. Operates from any light socket, special ½ H. P. Single Phase Motor.

Write us today for complete descriptive literature and our special offer.

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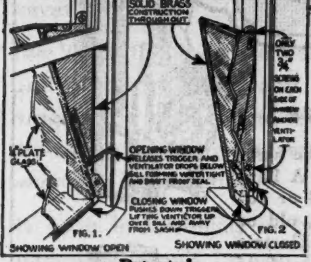
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Great quantities now in use in many sections of the country. Greatest specialty of its kind. Low priced. Fits on any kitchen or bathroom ceiling. Quickly lowered or raised, always out of the way. Beautifully finished, made of metal. Patented clothes pins.



BUTLER SELF-ADJUSTING VENTILATOR



Opens and closes with the window. Drops down over sill making tight seal against weather and draft. (Read every word of diagram on left.) Chromium or Rustless-Steel Brackets. Also stationary model of same high quality manufacture.

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Equally fine for home or highest skyscraper!

WRITE FOR PRICES on these
LOW PRICED proven specialties
BUTLER MFG. CORPORATION
4205 Ave. H, Brooklyn, N. Y.,
WELL RATED DISTRIBUTORS WANTED

"Does Work of 5 MEN" HB PAINT SPRAY



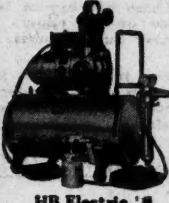
EASY TERMS
30 DAY TRIAL

More Profits for Contractors

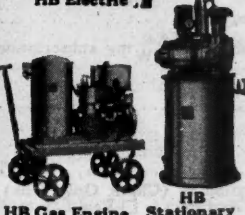
The extra profits it brings you on a single building job will more than justify the investment in an HB Portable Paint Spray Outfit. Think how you can speed up the entire job when you can handle any paint work with a single man doing the work of 5 Brush Painters. And there are so many other uses for an HB Portable Outfit. For instance, it saves an enormous amount of time in oiling forms for cement or concrete construction. It can also be used for spraying stains, shellacs, fillers, varnishes and lacquers as well as all kinds of oil and water paints.

Easy Monthly Payments 30 Days Trial at Our Risk

So confident are we that you wouldn't be without an HB Portable Paint Spray Outfit after you've once tried it that we offer you 30 days trial in your own work—at our risk—under our absolute moneyback guarantee. No other manufacturer will give you that privilege. And you can get it on easy monthly payments, too—let it pay for itself as it goes—out of the extra profits it brings.



Hobart Bros. Co.
Box V30 Troy, Ohio



Mail coupon below for full information. No obligation to you.

To: **HOBART BROTHERS CO.,** Box V30 Troy, Ohio.
Without obligating me in any way tell me how I can make higher profits with an HB Portable Paint Spray, and give full details of easy terms and 30 day Trial Plan.

COSTS ONLY \$16. MONTHLY

ELECTRIC OR GAS ENGINE DRIVE

EASILY PAYS FOR ITSELF

CUT COSTS WITHOUT CUTTING QUALITY



ONLY \$75 "WATERBOY" IN THE HOMES YOU BUILD

NOW you can get a Δ Water System for only \$75 f.o.b. Dayton. It's called the Waterboy—this remarkable development of Delco-Light and General Motors engineers.

Don't class the Waterboy with "cheap" pumps just because the price is so low. Here's a pump that's really complete. It has a five-gallon pressure tank. It delivers 225 gallons of water per hour if you need it. It's fully automatic . . . starts itself, stops itself, runs itself. It's built to last as long as the house you put it into.

No wonder this famous water system is already first choice with thousands of contractors and builders. And the Waterboy is only one of a complete line of Δ Water Systems for deep and shallow wells. So no matter what kind of a pump you need, you'll find it in the Δ line.

If you're looking for a new way to cut construction costs without cutting quality, mail coupon now for all the facts about the Δ Waterboy and other Δ Water Systems.

DELCO-LIGHT WATER SYSTEMS

PRODUCTS OF GENERAL MOTORS

Also Manufacturers of Delco-Light Electric Plants and Delcogas for Household and Commercial Use

DELCO-LIGHT COMPANY, Subsidiary of General Motors Corporation, Dept. C-11, Dayton, Ohio.

Show me how I can cut construction costs and increase my profits with Δ Water Systems. Sending for the facts does not obligate me in any way.

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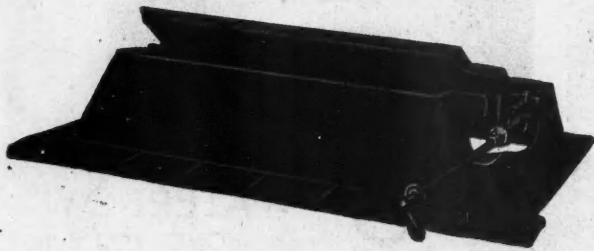
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A Fireplace Necessity

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 Leichenko & Esser, Architects, Chicago
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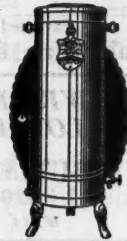
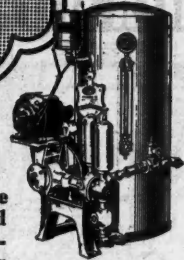
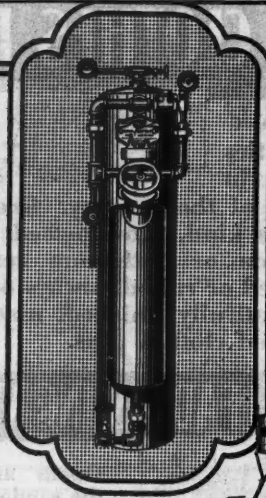
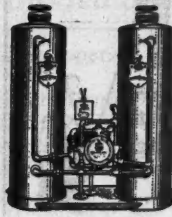
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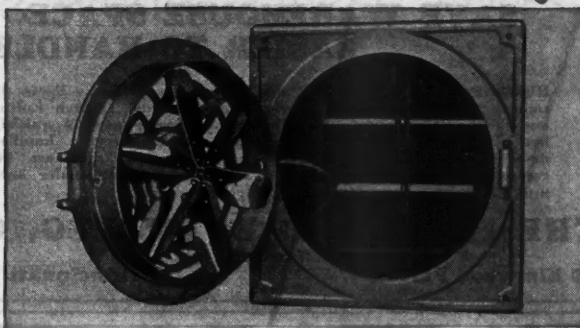
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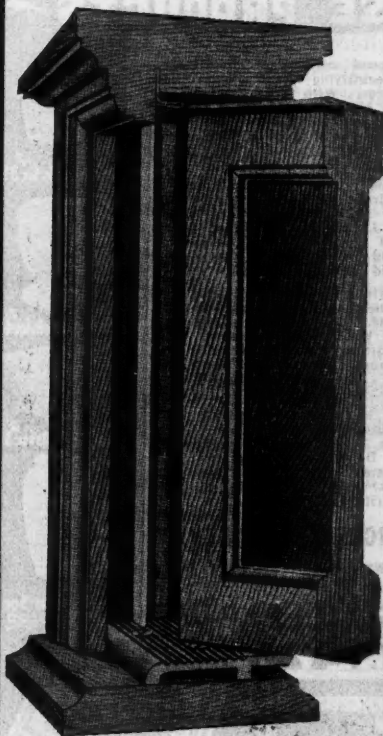
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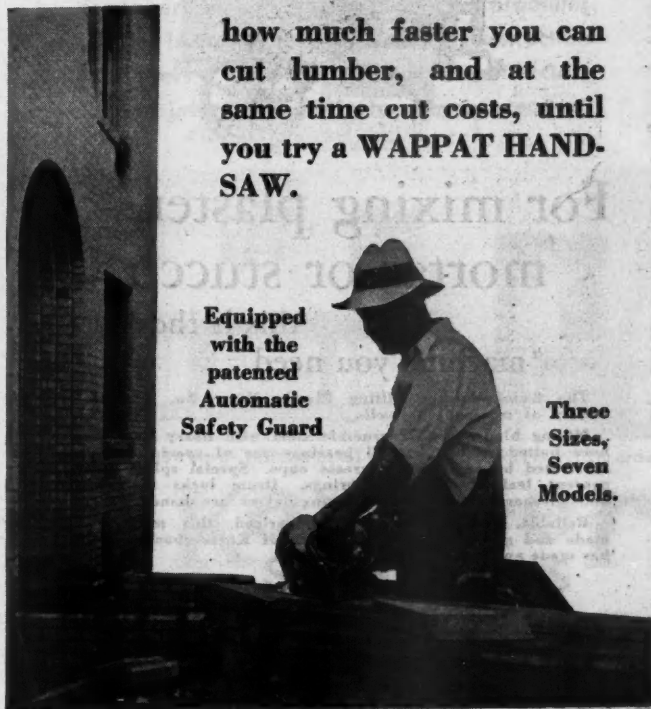
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how much faster you can cut lumber, and at the same time cut costs, until you try a WAPPAT HAND-SAW.



Equipped with the patented Automatic Safety Guard

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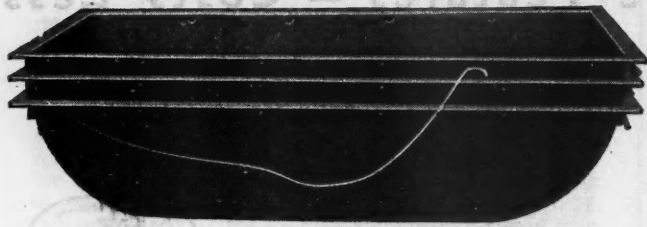
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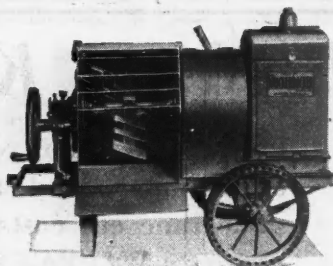


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this is the
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The Knickerbocker Tilting Plaster Mixer No. 8 does a variety of mixing jobs well.

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Roof and Deck Cloth



The ideal covering for Porch Floors, Decks or Piazzas, Sun Parlors, etc.

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Sells for \$21.00

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Nearly all profit. Refer to costs and selling prices. Practically sell at sight. Browning of Texas sold 245 pieces for \$965 as a side line. Ocean City, N. J., people paid Young \$3,750 for 1,000 flower boxes. Nelson of Miss., sold 550 for \$1,650. Mueller of Ohio, sold 2,700 for \$8,700.

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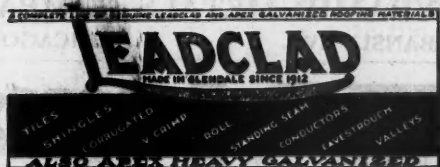


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*means extra protection --
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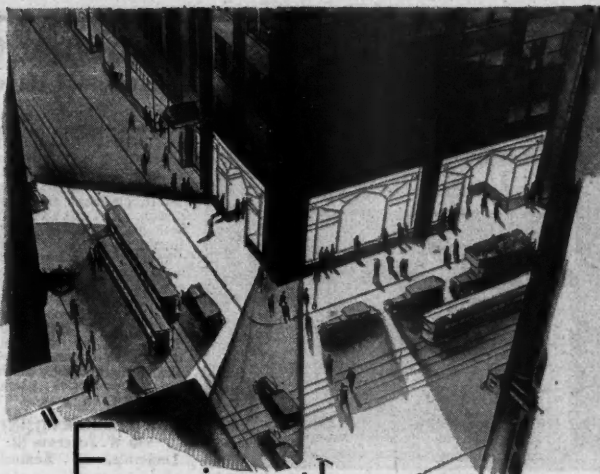
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Send me promptly your book "Leadclad," about tile and shingles. Also complete price list. I understand there is no obligation.

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- Free copy of Book, "Modern Store Fronts for Better Display."
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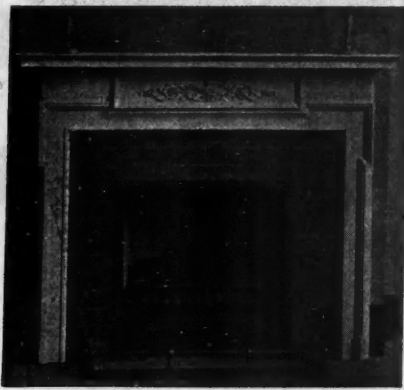
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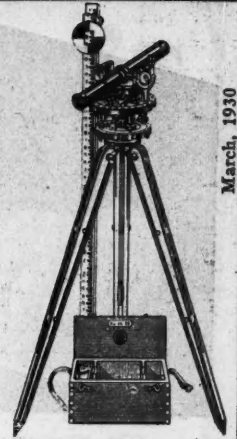
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March, 1930

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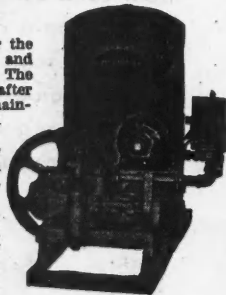
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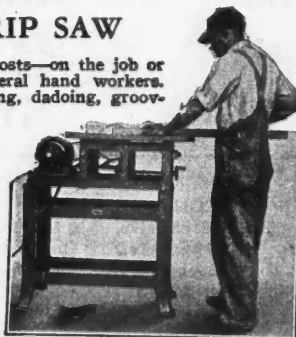
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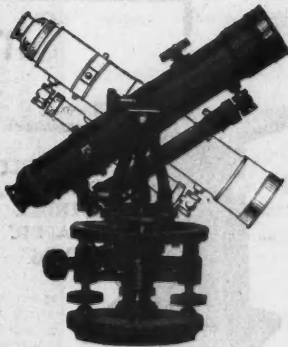
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Many features make time-saving short-cuts possible. The telescope is not lifted from its bearings when changing from setting "Line" to "Grade," but is leveled by the simple turn of a slow motion screw.

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All moving parts are mounted on ball bearings

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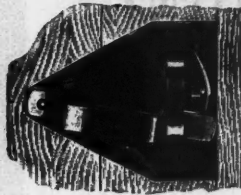
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Send for descriptive literature.

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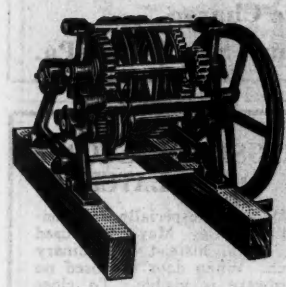
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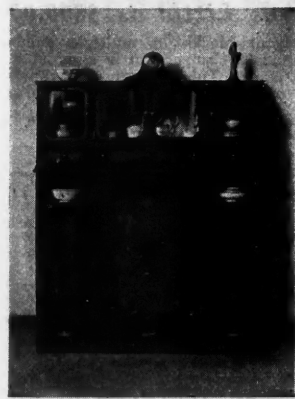
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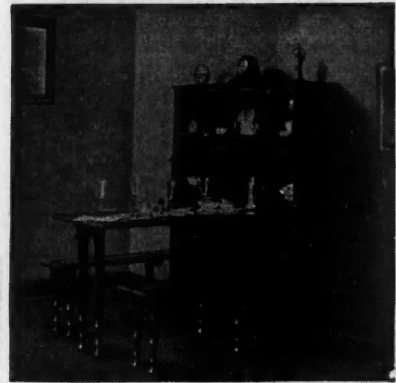


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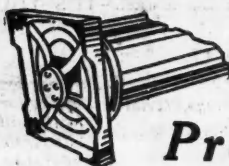
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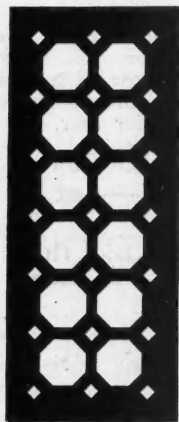
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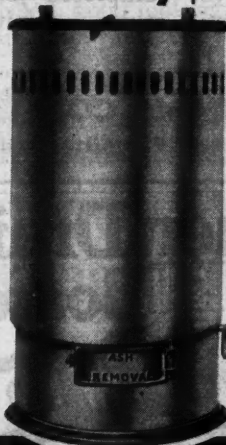
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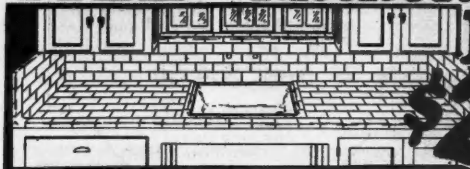
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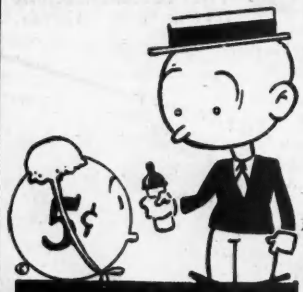


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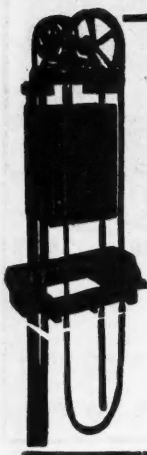
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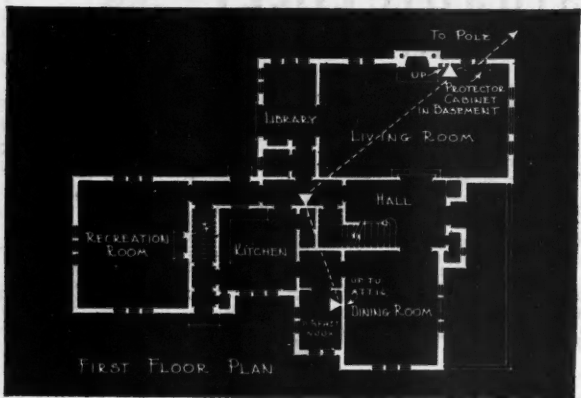
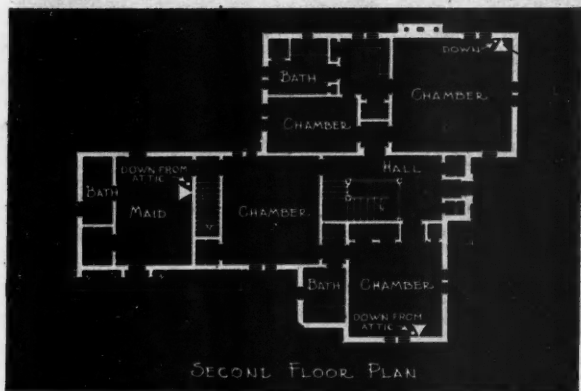
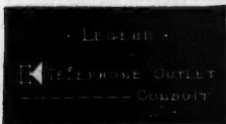
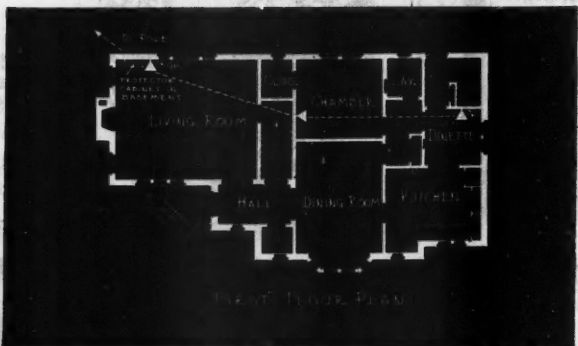
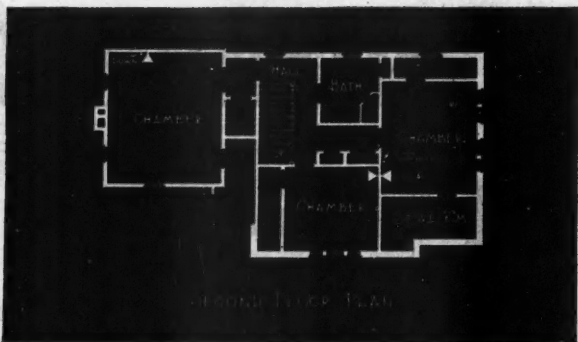
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In this house, located at 310 West Highland Drive, Seattle, complete telephone convenience is provided for by six outlets: living-room, hall and breakfast nook on the first floor and in three upstairs bedrooms. FRANK M. DEVER, Builder. Plans furnished by Universal Plan Service, Inc.



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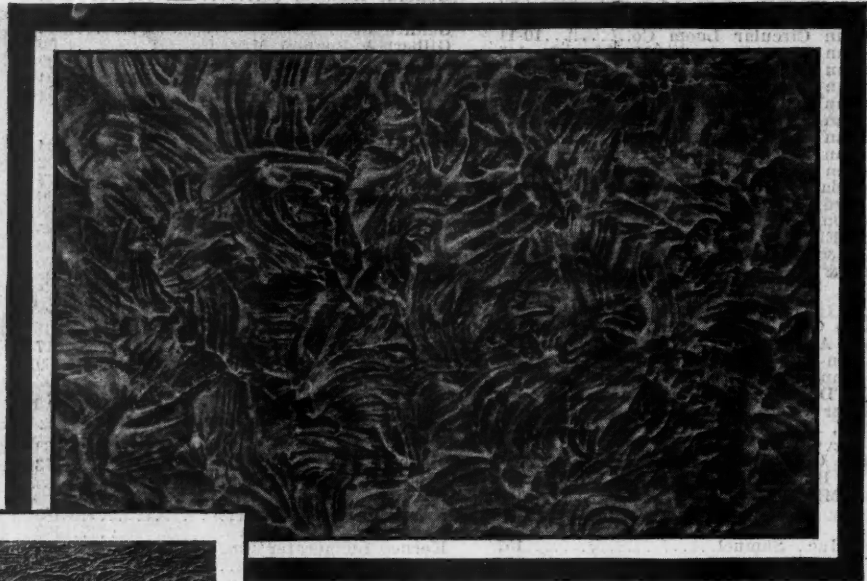
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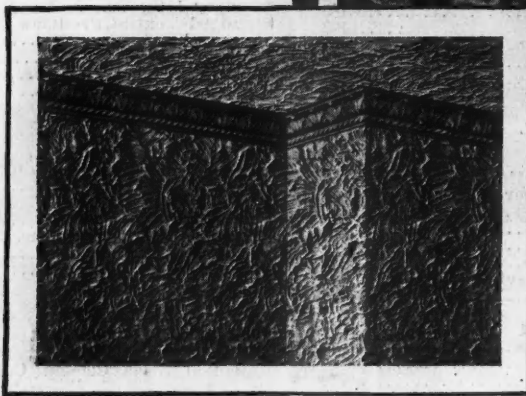


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