

AMERICAN BUILDER and BUILDING AGE

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**AMERICAN BUILDER
and
BUILDING AGE**

**IS THE BUSINESS
JOURNAL OF THE
ACTIVE MEN OF THE
BUILDING INDUSTRY**

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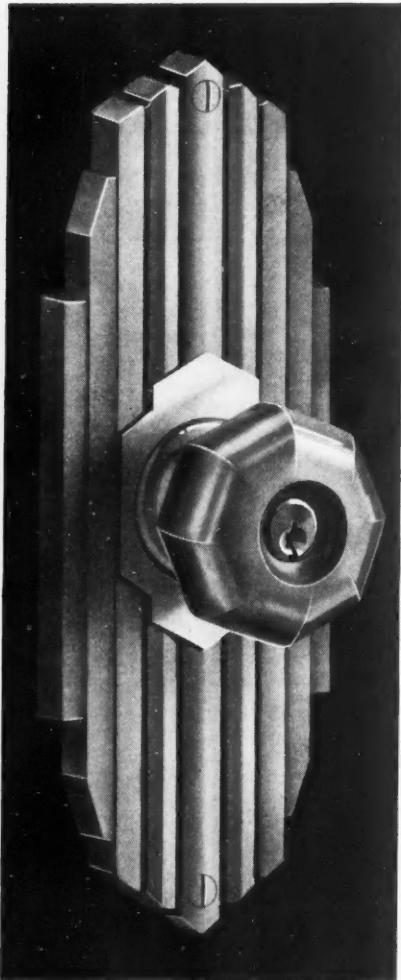
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LOOKING AHEAD
WITH THE EDITORS

May, 1931

Three Big Problems Ahead

AS the spring building season progresses, our crystal gazing globe reveals some interesting vistas . . . constructive work to be done by the business men of the building industry, not only in planning and building homes and other structures for the American public, but also in overhauling their own business structure to put it more in line with the needs of today.

Here are just a few of the big jobs ahead:

(1) In the field of public relations—To re-establish confidence in real estate as a secure and attractive investment, honestly financed and **fairly** taxed.

(2) In the field of management—To stabilize the building industry on an all-year-round basis so that steady employment can be assured; and

to utilize more labor-saving tools and equipment so that building costs can be reduced, and the price of homes brought down within the reach of the average wage earner.

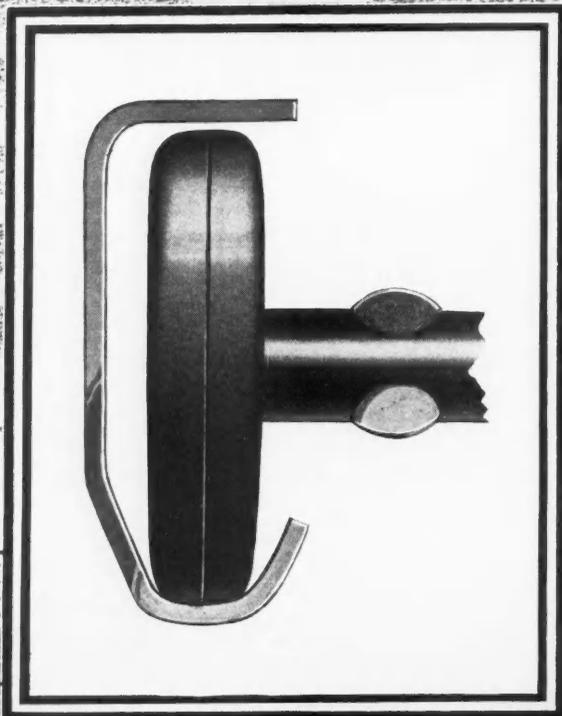
And (3) In the field of merchandising—To secure effective distribution and aggressive selling without disrupting the harmonious relations that have long existed between building material dealers and contractor-builders.

All of these problems loom up big as we look into the future and much of our editorial effort will be directed toward helping to solve them. For the May issue we have scheduled a virile contribution to each of these questions . . . together with a wonderful selection of home, apartment and business building designs for your benefit and enjoyment. —The EDITORS

ROLLS

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Rollers and all other moving parts being ball-bearing, is just one of the very many reasons for the near effortless operating ease of The "OVERHEAD DOOR."



Left—Here is a cross section view of The "OVERHEAD DOOR" track, roller in position. Bed of track, on both sides, slopes to a proper degree, eliminating friction.



Investigate The Nation Wide

SUBJECT SIGN-POST

A Quick Guide to the Business Articles and Designs
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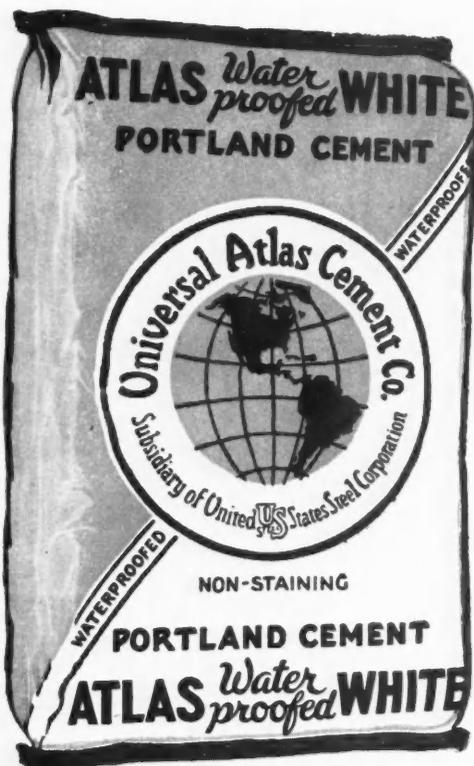
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Pure White ♦ Non-Staining
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You can now secure from your dealer Atlas White portland cement already *waterproofed*. The qualities which have made Atlas White outstanding for beautiful, decorative concrete are present in the new product. Atlas *Waterproofed* White portland cement not only is pure white and non-staining; it also is water-repellent.

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Further information and specifications will be furnished on request.

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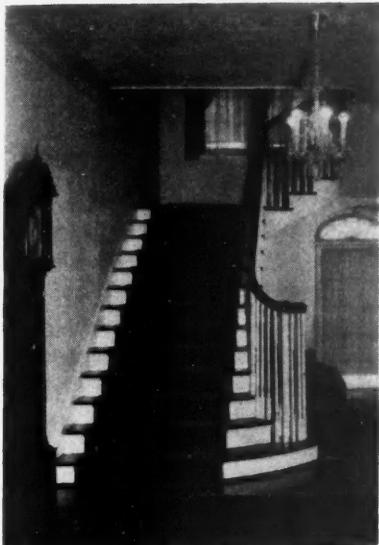
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LESSONS FROM THE DEPRESSION

DURING the past twelve months the building industry has passed through a period of depression, of stark stagnation, of almost negligible earnings. Could the annual reports of the tens of thousands of builders scattered over the country be assembled into one gigantic statement, the result would be a figure far blacker than any turned in recently by automobile manufacturers, the railroads, or the steel corporations. It is one of the unfortunate features of the building industry that its losses are not brought forcibly to the attention of the public through published statements as in the case of these other industries.

Builders have passed through a crisis this past year. The industry as a whole is coming through successfully—just as it has in previous depressions. This one was not the first, and in all probability will not be the last. The important thing right now is for every builder to take stock of conditions, to see what lessons may be learned from the period just passed to apply to the business of the future.

We feel that this spring of 1931 will mark the beginning of a new era of prosperity and opportunity. It is, therefore, a most opportune time to recount a few of the lessons learned in the late depression, so that, as far as is humanly possible, they may be avoided in the next building boom.

One of the things learned is the danger of spreading financing "too thin." The large number of bankruptcies and foreclosures gives ample testimony to the fact that too much building work was financed on a boom time basis that crumpled under the stress of hard times.

AMERICAN BUILDER AND BUILDING AGE

Too many builders put all their eggs in one basket; they tied up all available funds and all that they could possibly borrow in a few enterprises which were hit especially hard by the depression.

The danger of overbuilding is another lesson that has been learned. The forced sales at tremendous losses this last year testify to the fact that much construction was started without a sound survey of economic conditions controlling demand for the property. Events of the past year should not be allowed to kill enthusiasm or optimism, but at the same time they should call attention to the need for more thorough investigation of rental or housing demand before new projects are undertaken.

The building slump has demonstrated clearly facts that wise men already knew; namely, that shoddy construction, flashy architecture, hastily planned and poorly executed work, do not pay. Projects of this type were the first to fall. And let us hope that they will never rise again to plague the business of the conscientious builder.

More Selling Needed

Some glaring needs were uncovered by the building slump. Most important is the need for better selling and merchandising methods. When times are flush and people have plenty of money, they can be sold almost anything, but in periods of depression, intelligent selling backed by a good product is required. The past two years have demonstrated beyond all doubt that builders, like other business men, must adopt modern selling methods. In the competition for the American public's dollar, builders were left far behind because they did not use effective selling methods. Although they had a product of undeniably fundamental value—the American home—they were outsold by dispensers of luxuries and non-essential fads. The lesson of the

depression is crystal-clear; *the building industry must learn to sell.*

Another glaring defect that the depression uncovered was the almost total lack of co-operative enterprise or spirit in the industry. From all sides criticism has been launched that this great, vital division of the nation's business was unable to help itself, or even to defend itself against the unenlightened and often stupid criticisms of persons not acquainted with it. Here we have the spectacle of the nation's second largest industry—employing some five million persons and having one sole purpose, to provide housing for the nation's people and businesses—hopelessly disorganized, its many elements working at cross purposes, surrounding the process of building a home with such a welter of confusion and red tape that the prospective home builder has to fight to spend his money!

Unless this lesson in co-operation is taken to heart this time, it will be learned at even greater cost at some time in the future. The logical place to start co-operative endeavor is in the individual communities and the time is *NOW*. In every town, as *AMERICAN BUILDER AND BUILDING AGE* has on numerous occasions pointed out, contractors, supply men, architects, realtors, subs, and financing institutions must get together to form a strong organization representative of the *entire construction industry in that community*. With such an organization functioning effectively, the process of planning, financing, buying and building would be supplied. The local industry would have a representative head; the various groups would work together to advance their own ends and the welfare of the whole local industry. It is an advance that must be made sooner or later, and the *sooner the better* if the industry is to progress as we have the utmost confidence it ultimately will.

THE FIRST CONSTRUCTION CENSUS

FOR more than a year the government has been working on a census of construction. This census covers building activity for the year 1929 only. The work of gathering and compiling the data secured in the census is now drawing to a close; and during the year 1931 the results of the census will be published in a series of bulletins, one for each state, containing the census figures for that state. Toward the end of the year, a final bulletin will be published, presenting summarized data for the United States as a whole.

In making use of data provided by this first construction census we must keep constantly in mind that the census figures cover construction in 1929 only. Furthermore, we must realize that, after all, this was the *first* construction census and that no survey made for the first time is ever faultless. In such a complex and variable business as the building industry, where the activities of builders vary widely from year to year,

it would be manifestly impossible for any agency, even the government, to achieve a perfect survey of construction, all over the country, for any one year.

Many Builders Not Covered

There is no question that many builders throughout the country have not given a detailed report of their business to this census. Classifying builders on the basis of whether they did more, or less than, \$25,000 worth of business in 1929, resulted in the elimination of many builders from proper classification.

In the utilization of all census figures, therefore, it should be distinctly remembered that the analyses which are given are based solely on data received from a limited category of builders, namely, only those who reported to the government a volume of business of more than \$25,000 for the year 1929. That there are many builders who ordinarily do more than \$25,000, that are not included in this census classification at all, is a fact admitted by the census authorities themselves.

A Permanent Construction Service

In order to continue the work of gathering, compiling and publishing statistical information on the building industry which has been started by this construction census, it has been proposed to establish a permanent construction service, as a part of the Department of Commerce and of the Census Bureau. That this will be a splendid thing for the whole construction industry is a fact that cannot be doubted. Every element in the industry—builder, dealer, architect, manufacturer—will benefit from the use of accurate information that has hitherto been unavailable.

The fact that Congress, in its last session, failed to make provision for the establishment of a permanent construction service is unfortunate. The continuity of the work of the census service should not be broken; when the work of publishing the data obtained from a survey of 1929 construction is completed, the department should be kept intact and should begin to assemble other and additional information on various phases of construction.

Some provision should therefore be made immediately for the continuation of this service, either through the Bureau of the Census or some other division of the Department of Commerce. By all means let us have a permanent construction service.

SELLING ARCHITECTURE TO THE SMALL HOUSE BUYER

A PROMINENT architectural journal in its March issue chides its readers editorially for their failure to sell their services to small house buyers, and recommends that some new way be devised to make it possible for the average American family to obtain the benefit of architectural talent.

We heartily commend this purpose and will suggest

how, in the opinion of this publication, it can successfully be accomplished. The architects can reach this market for their wares by taking the same route that many manufacturers of building materials and supplies have already used so profitably, namely, through the contractors and builders.

The contractors and builders are recognized as the dominant factor in the house building situation, controlling as they do more than 78 per cent of the projects in this field. These men of the *home building business* are the real market for improved designs; and, if the architects will approach these builders in a sincere and helpful spirit, real progress will be made toward the goal of better home building and more home architecture.

The architects will find that the contractors and builders are conscious today as never before of the appeal and the money-value to them of style and design in even the smaller homes. They will find them receptive to tenders of architectural service; and much effective team work can be organized by which the architect will take advantage of the builder's close contact with home seekers and the builder will gain the advantage of improved design for the buildings he erects—both those he is handling for individual clients, and those he is building for sale.

The AMERICAN BUILDER AND BUILDING AGE will actively join with members of the architectural press in any campaign to sell more architectural service to builders for the benefit of the home seeking public. Such service is worth all that it costs and more. The builder today needs the stylist and the expert designer if his houses are not to be out-moded before they are finished. He needs an architect on his consulting staff; and if the architects who are looking toward the home field will make sure that their local builders are well acquainted with them and with their work, a long step will have been taken toward the goal of getting more architectural merit into American homes.

INCOME TAX FAVORS HOME OWNER

DID you ever figure out the advantage the home owner has over the renter on the fifteenth of each March when they file their income tax statements?

Take two men of identical income and family status, one paying \$50 per month rent and the other \$50 per month as purchase payments on a home. The first man can make no deductions on account of rent paid but is taxed in full on the income needed to make these rent payments. The home owner, however, finds himself more favorably treated. He deducts from this taxable income all payments of interest and all taxes on his home, and finds his total tax to Uncle Sam very much reduced, as compared with that assessed against his renting neighbor.

Here we find a real ray of sunshine for builders and home owners in the general tax gloom.

A SEASON OF OPPORTUNITIES

THE building season of 1931 is full of opportunities for contractors and builders who will turn their backs on the sad events of the past year and face the coming ones with enthusiasm and energy.

While construction has been at a standstill, much technical progress has been made. Manufacturers have been busy producing new materials and new equipment that will make the builder's job more efficient and more profitable. In this connection, perfection of power machinery is a most important item.

Another reason for optimism concerning the future is that the American public has learned a lesson. People have found that playing the stock market has its bad side, and many of them wish that they had put their money into homes. Builders therefore have a better talking point than ever before in urging investment in homebuilding. They are also backed by a vast accumulation of goodwill built up by the urgings of federal, state, and civic organizations to "build now and help restore prosperity."

Situation Found Promising

A big backlog of demand for houses, apartments, and business structures has been accumulating in the past two years, which cannot help but burst forth into a flame of building activity soon. Take, for example, the statement of Harry Sirkin, veteran developer of Long Island, who says:

"The home selling market at present is more satisfactory than at any period of my 18 years of building experience on Long Island. The collapse of the speculative madness of 1929 has turned the public to home buying. . . . Those who fail to sell homes in 1931 will be those who will not adapt themselves to progressive building and selling methods, or who do not maintain the confidence of the buyer."

Although the depression was an unhappy time for most of the building industry, now that it is over we can see certain advantages that perhaps could not have been achieved in any other way.

For example, it has weeded out a great many undesirable operators that were bringing only discredit on those contractors and builders who are reliable, conscientious, and stable business men. In a sense the industry has been "purged" of its weaker elements, leaving the strong, well-organized, efficient concerns in control of the field. The "purging" was costly and, for many, tragic, but nevertheless it leaves the industry as a whole in a sound position, ready to advance as the demand for new structures increases.

Having learned, thanks to the depression, the undeniable advantages of sound construction, sound financing, conservative architecture, and conservative expansion, builders today are in a position to understand and take care of the needs of the American people better than ever before.

"First You Then You

A

BOOSTER FILE

NAME *Anderson, John C.* DATE *10/20/30*

ADDRESS *19 N. Eighth St.* TEL. *Harr. 4411*

BUSINESS *Architect*

Testimonial: *Note in letter of Jan. 22, '30 (see file); my long and satisfactory relations with your organization makes me anxious to see that you get the new school job I am recommending this to the committee today.*

Name as Ref. Yes No

1.

H

GOOD WILL FILE

NAME *Harrison, Tom D.* DATE *5/7/30*

ADDRESS *328 E. 56th St.* TEL. *Pand. 3940*

OCCUPATION *Postman*

No. in Family *5*

Remarks: *His route out through Univ Park development - says he has sent several prospects to us. Also expects to build house next year. Look up them.*

2.

M

PROSPECT FILE

NAME *Mantell, James S.* DATE *9/15/30*

ADDRESS *21 Claremont* TEL. *Univ. 1492*

OCCUPATION *Machinist* Size of Family *4*

Recommended by _____ Address _____

SALES RECORD:

Letters: *9/11 - 10/1 - 11/1*

Telephone: *11/10 - 11/15*

Calls: *11/20 - 12/1*

REMARKS: *Coupon returned from letter 11/1. Interested in 6-room stucco house (O.D. Holmes called 12/0 - took plan book 12/1 - would like to build spring 1931. Finance may hold (O.D.)*

3.

THE BUILDER'S CARD FILE should have three divisions, Mr. Mason recommends, as follows: 1—A **BOOSTER** list of selected prominent people including public officials, architects, realtors, heads of organizations, etc., who can be influential in directing business your way. 2—A larger **GOODWILL** list of persons whom you want to be friendly toward your business, including merchants, business executives, policemen, postmen, etc. 3—A **PROSPECT** file of persons in the market for new homes or other structures; to these your actual selling is done. Cards, 3x5", alphabetically arranged, are recommended.

ONCE asked a very successful automobile salesman, who, in spite of keen competition was selling twice as many cars as any other man in town, to tell me *how he did it*.

He looked at me a minute, and said, "Well, first you build a prospect file—then you go out and *sell like hell!*"

That was all the secret of success he would divulge, and after thinking it over I concluded that it was enough.

Spring 1931 will be a significant period in the history of the building industry. It will demonstrate whether builders have learned a lesson in the costliness of poor salesmanship, or whether or not they are going to profit by the experiences of the past two years. It will show whether they are going to take pot-luck on what business may come their way, or whether they are going to step out with aggressive selling methods to bring in trade.

I confidently expect to see a great increase in up-to-date selling methods by builders. I expect to see intelligent newspaper advertising, well-directed selling by mail, clever merchandizing stunts that will get building businesses before the public. I think that they will even take advantage of such recent sales media as the radio.

The amount of building business that will undoubtedly be uncovered by such selling can only be estimated, but it will be enormous. Well-directed selling has accomplished such surprising results in other fields that there is no doubt but that it will perform a valuable service here. In the words *well-directed*, however, lies the secret of much of the success of selling. The automobile salesman I talked to did not spend his vigorous efforts blindly; when he was out selling he was working on A-Number-One prospects. That is a fact that builders should take note of, for a common error among men who are starting new merchandising and selling campaigns is to fail to select their prospects carefully enough.

I shall make it the chief purpose of this article, therefore, to give some pointers on building and maintaining a prospect list that fits the building business. In the first place, what are the usual sources for prospective building customers

Nearly every family in town that rents its home is your prospect. Nearly every business man who may be considering building or remodeling can be included. Nearly every political and official representative who may have a word to say about public construction is important. You may not want all of these; in fact, it would be foolhardy to expect to maintain a complete file of all. But from them

Build A Prospect File— You Go Out And SELL!"

By JOSEPH B. MASON

you will get the live prospects that will bring you business.

Names on your mailing and prospective selling lists may well be divided into three classes—the "booster" file, the "goodwill" file, and prospective customer file.

The first of these would be individuals who should be boosters for your business—men in important positions who can send work your way. They are men whose first name you should know, to whom you should send your best sales literature, not because you expect them to be your customers, but because you want them to know what you are doing in the hope that they will pass on business to you.

Included in this "booster" file should be the names of architects, realtors, building supply men, financial institutions, the secretary and officials of the Chamber of Commerce, officials of clubs, civic organizations, fraternal societies, women's organizations. These people and many others in important public positions should be your friends, and you should have an accurate file of their names, interests, and if possible testimonials they have made in your behalf.

A small town builder once told me that ninety per cent of his business came from friends,—people he knew by their first names, and who would go out of their way to refer possible customers to him. In a larger town, it would be practically impossible to keep track of important individuals without the aid of such a "booster" file. Recommended for this purpose is a 3 by 5" card, providing in addition to name, address, telephone, business, etc., adequate space for a testimonial. A notation should also be made as to whether this individual is willing to have his name used as a reference.

The "goodwill" file mentioned above is one of a more general nature, including such people as merchants, manufacturers, executives of businesses; public employees such as postmen, firemen, policemen, etc. Again, names on this list are not necessarily prospective customers, although they well may be. They are, rather, persons whose goodwill is valuable to your business, who are somewhat in the public eye, and who, when asked, "Can you tell me the name of a good builder?" should immediately mention your name.

Active Selling List

The third and most directly practical file is the one of "prospective customers." This should have the names of individuals who are likely to do business with you in the near future. Probably the most important group in this file is renters of apartments and homes. Names of renters may be obtained from real estate men, apartment house owners, etc.

Your prospective customer file should be constantly in use, and on it should be recorded your progress in selling the individuals listed. For that reason the card should provide space to record the dates of letters sent, phone calls made, personal visits, or other selling efforts. Any results should be recorded, as well as inter-

SELLING GEARED TO THE NEW BUILDING ERA

NEW CONDITIONS call for new business methods—and that, to builders, means better selling. This spring as never before they are embarking on merchandising programs to stimulate business.

THE FIRST STEP in any such program is a good prospect file. In this article Mr. Mason tell HOW to organize such a file, WHERE to get names, and WHAT to do with them.

DIRECTED SELLING, as this author points out, means simply picking out the right people, then going to work on them with a vigorous, persistent selling program.

est shown, reasons for not buying, prospect of future business. This file is one that will aid in the constant building up of a business. A convenient number should be selected each week, and bombarded with letters, followed up by telephone calls. If these get any response, arrangements should be made for a personal visit that may result in a sale.

Having in mind the three general files that may be maintained, let us consider sources of names for them.

Where to Get Names

There are, of course, the directories,—city, and telephone, club and fraternal, "Who's Who," etc. There are also lists that may be obtained from merchants, laundries, newspapers, dairies and other business organizations which are constantly using the mails or doing business with large groups of people.

City, County, and State records, such as tax lists, automobile registrations, marriage records, licenses of various kinds, birth records, and registration lists of voters, may be used in building up your prospect file.

From civic, business, and general organizations many likely prospects may be obtained. For example, the Chamber of Commerce, fraternal, labor, and social organizations, church rosters, Rotary and Kiwanis Clubs, women's clubs, and similar sources will aid you. The secretaries or officials of many of these groups will often supply membership lists if none are published, and will give you information that will help decide whether they are likely prospects or not.

Factory payrolls may prove very valuable in making a list, as they give a definite indication as to the financial status of the individuals.

Following the local newspapers will provide names

(Continued to page 130)

ANSWERING THE QUESTION— What Type of Architecture Will Sell This Year?

By RAYMOND M. HOOD, A.I.A.

ONE of the greatest contributions of our machine age to the small house development, is rapid transportation—the railroad and the automobile. No longer does a man have to live within walking distance of his work. All of God's green out-of-doors is accessible to him. Within a radius of twenty or thirty miles of his business there is, somewhere, the sort of place he would like to live in. It may be on the edge of a city, in a quiet suburb, or a pleasant spot by stream or meadow in the country. Certainly within the distance that he can go in forty-five minutes or an hour, by train or auto, he can find a place to his liking where fresh air and sunshine are not sold by the cubic foot, where his own garden gives him elbow and leg room, and where he can forget the congestion of the city. And the land that he finds there is reasonable in cost, based on a home value and not on a value established by adjacent industry or municipal development.

Now, the home that I am talking about is not the home of the wealthy man. It is the home of that fortunate man, the fellow who is able to spend ten, fifteen, or twenty thousand dollars on his house. How shall his new house be begun? The first considerations that enter into the planning of a new home I would name as follows: the sun, the garden, and the automobile. A house may be just four walls, but a home is more than that. A home is indoors and outdoors together. It is a combination of the house and the plot on which the house is built. The garden today comes into the house and the house runs out to meet the garden. So, the first consideration is to place the house so that the garden will be flooded with sunshine and will let the sunshine into the house. Make the garden another room—an outdoor room—even if it is only a twenty by twenty foot terrace at the rear of a narrow city lot. It will be the most delightful room of the house—and it will not be in the house at all. There one can stretch his legs, fill his lungs with fresh air; and if there is a terrace that the sun, reflecting from the wall of the house will warm, the home owner will be surprised to find himself living out-of-doors far into the late fall and in the early spring.

Adding Sales Appeal

If the garden has been thus carefully planned, the house is apt to be placed near the street, where it shields and gives the garden privacy. There will be an entrance facing the street, but the home owner will always come home in the family car. The front door will be the garage door, and the family will drive in, shut the door behind them, and step directly into the hall or living room. Shoveling a path to the barn after a blizzard is one of grandfather's joys that will be avoided by making the path a part of the home.

Before getting too far into planning to shut out the precious sunlight with four walls and a roof, think of the days that he will spend inside the house. It is in



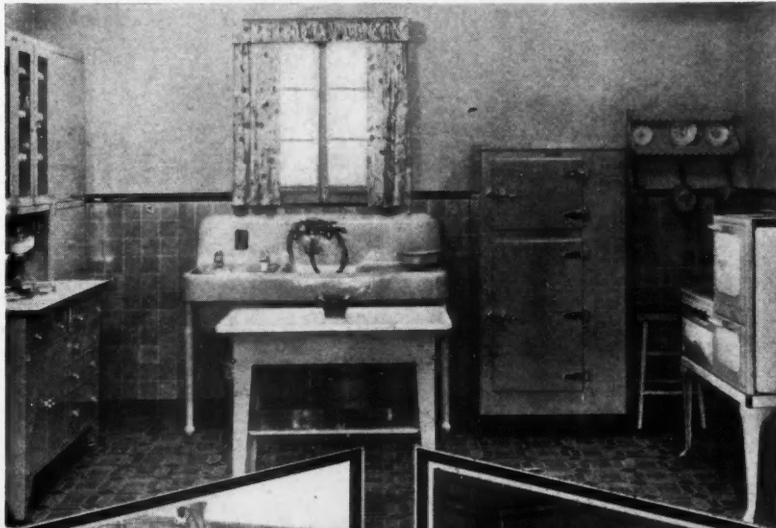
the living room that most time will be spent; so turn this room to the sun. But if it is the kitchen, by all means turn it to the sun too, and incidentally, a cross-draft is a very good thing in a kitchen. It is surprising how often people forget, when they plan a house, that there may frequently be a smell of cooking there. The dining room, or alcove, should face toward the east, for there is nothing more pleasant than the morning sunshine across the breakfast table. I am stressing the importance of sunlight because, just as in the case of a cross-draft in the kitchen, it is so frequently overlooked.

A very common mistake is to take the plan of a house that is successful on one plot and copy it exactly on another plot, but with different orientation. Real estate developers frequently take a stock design and build it indiscriminately, facing it north, south, east, or west, regardless of its layout. The result is inevitable,—wrongly faced, an otherwise good layout will give a cold, cheerless interior. Similarly, the American tradition that a house should always face the street and that the kitchen should be at the rear of the plot, usually brings the same unfortunate result. If the street is to the north, occupants will certainly not want to sacrifice the warmth and cheerfulness of living rooms, merely in order to look at the street and have the street look at them. Then again, these rooms should face on the garden and the seclusion of a garden from the street can only be had by putting it either at the back or side of the house. So, as a rule, the whole plan will usually be better if the kitchen and other services face the street.

In the plan of the living and dining rooms, the garden should be kept in mind. If great broad windows and glass doors join the interior and out-of-doors, it is surprising to find how the habit of living out-of-doors grows. Europeans have long known the pleasure of eating in the open air,—*al fresco*, the Italians call it—and it has only been a lack of foresight and imagination in

(Continued to page 130)

Your Product, the Modern Home, Has Plenty of Sales Appeal.



1. SPEED



2. ECONOMY



3. SALES

FOR A SUCCESSFUL BUILDING SEASON:

1. SPEED through use of Power Tools,
2. ECONOMY by using High Grade Materials,
3. SALES by Featuring New Equipment
AND using Aggressive Selling Methods.



The Big Four Who Control Building

Presenting a Few Pertinent Facts Regarding Something Which a Number of People Believe to Be a More or Less Common Outbreak of Technical "Ring Around the Rosy"

By E. L. GILBERT

Research Director, American Builder and Building Age

IF Adam was the first builder, having built a cairn of stone in order to reach the apple, how severe a critic was Eve? At least Adam had one advantage over modern Builders—his arguments were all addressed to a single Authority. Today there are dozens—perhaps hundreds—of different kinds of specialized workers in the building field and because much efficiency is developed through *timing* there are a lot of people to raise the cry of "buck passing."

Within the last few years particularly, have loud cries of technical "Ring Around the Rosy" been aimed at the building industry. Many strange and curious beliefs based on misinformation have been brought to the attention of sales managers, manufacturing executives, advertising men, economists, and others. The active men in the field have been too busy, with but few exceptions, to do more than shrug their shoulders and laugh; Builders especially have ignored the matter and continued to keep their attention on their work, exercising their undisputed power on the jobs. It is about time for somebody to paint the *real* picture, and show *all* the highlights.

Advertising and sales managers have sometimes become so confused by contradictory claims that they came to look upon the entire building field as the world's greatest cross word puzzle; with juicy prizes, however, for those who could figure out the winning combinations. For example: "As nearly as I can find out," remarked one perplexed advertising man, "in order to sell our wall material we have to have the undisputed good

will of the electrician, the painter, the architect, the plumber, the carpenter, the owner, the draftsman and, last but not least, the contractor." Needless to say, this man had never been in the building business; whenever he made personal investigations his experiences served only to confuse him the more. What's the truth?

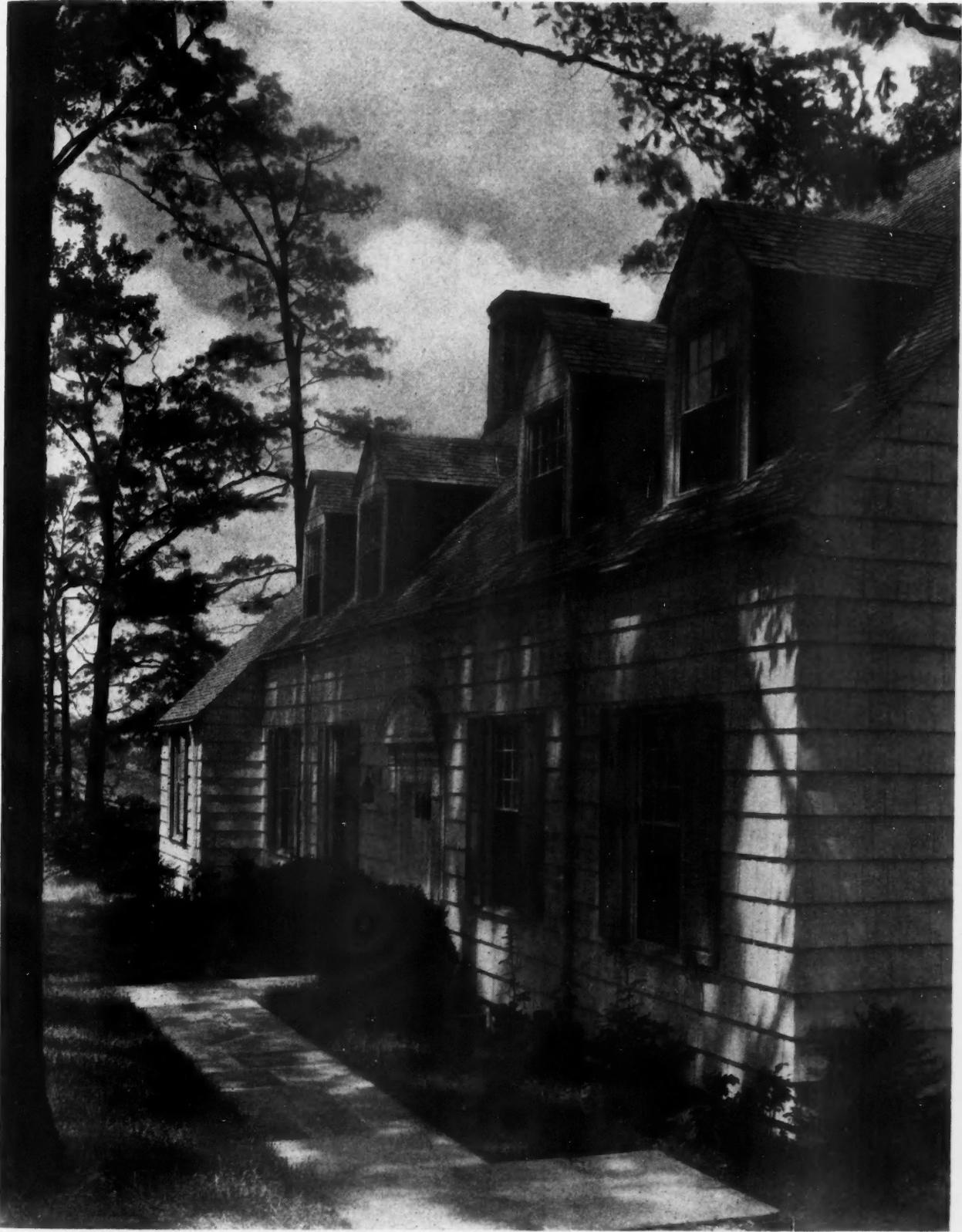
Actually, the building industry is not nearly so disorganized as the self-styled critics would have everybody believe. Any successful Builder will credit a large part of his success to careful planning, organization and management. Architects plan work months in advance of the actual building date. The success of a building material or supply dealer depends largely upon his ability to provide organized, dependable service. It is because the building business is so technical and forms such a complicated pattern that the innocent amateur investigator is so liable to saw off the very plank that supports him.

And yet to obtain a true picture is not such a difficult problem—it seems that the facts merely need describing from the proper perspective, instead of biased presentations that serve only to confuse.

The Big Four

The four major personnel factors in building field purchases are the Owner, the Architect, the Builder, the Dealer. This is the Big Four of the building field. Their final "Yes" or "No" decides exactly what materials, equipment and specialties shall be bought and used:

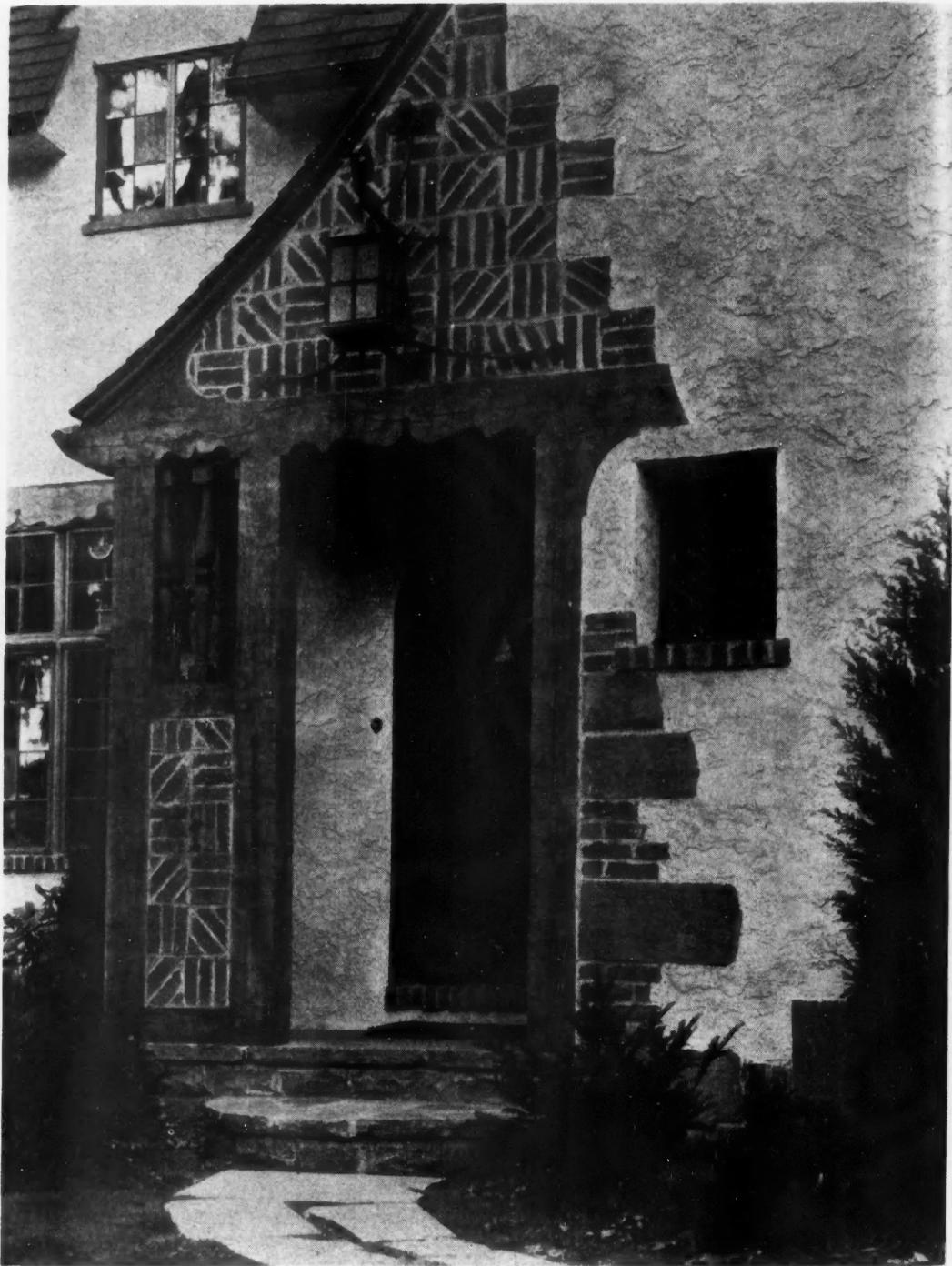
(Continued to page 132)



TEBBS & KNELL Photo

BARBER & McMURRAY, Architects

**Homes of Opportunity
for 1931**



Entrance Detail
Herbert J. Stroh
Residence.



The variety of detail in the English type home is one of its characteristics—a bit of timber work—an unexpected patch of brick—a stone pavement—a leaded window—an iron lantern—an oaken door—a dovecote high in a gable—a plaid chimney—a "tricky" shutter—and so on. There are always surprises that seem constantly to renew and refresh the mind. Every time we look, we notice differences in the details which we had not seen before. We find that no two bricks are exactly the same size, that the joints vary, that they are laid in no regular precision and that the stonework and the stucco are intermingled with them—we note that each window pane has an interest all its own as does each of the varied roof shingles—and so on without end.

Reveling in the Unexpected

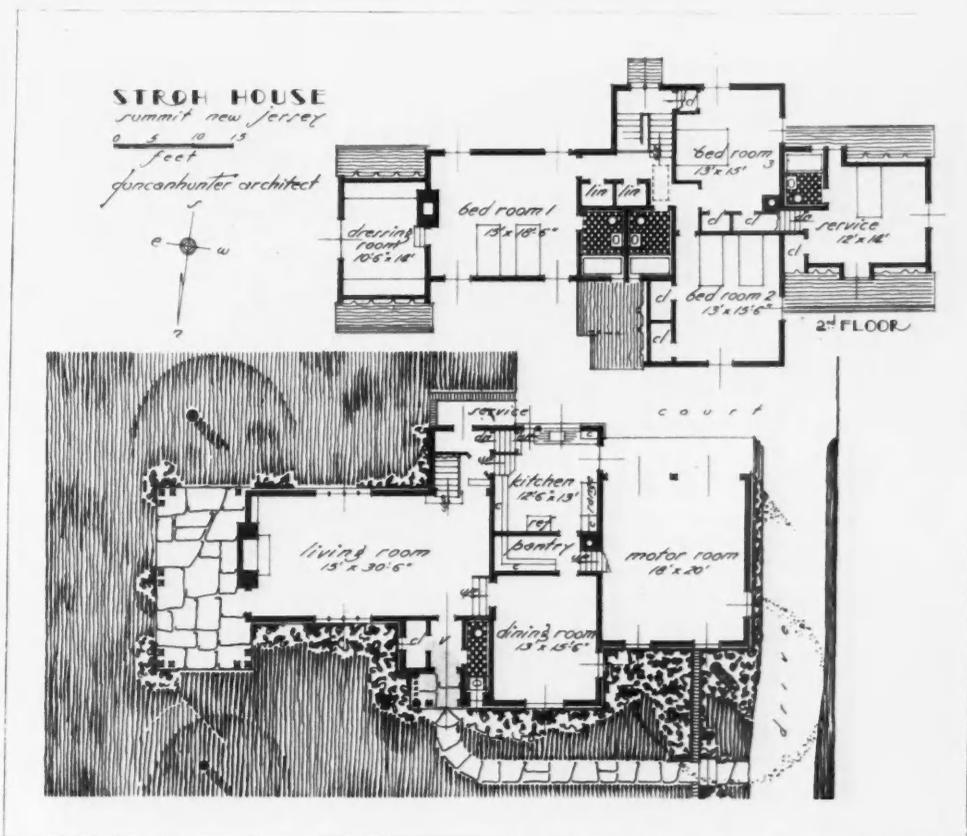


PAUL BRADLEY, Builder

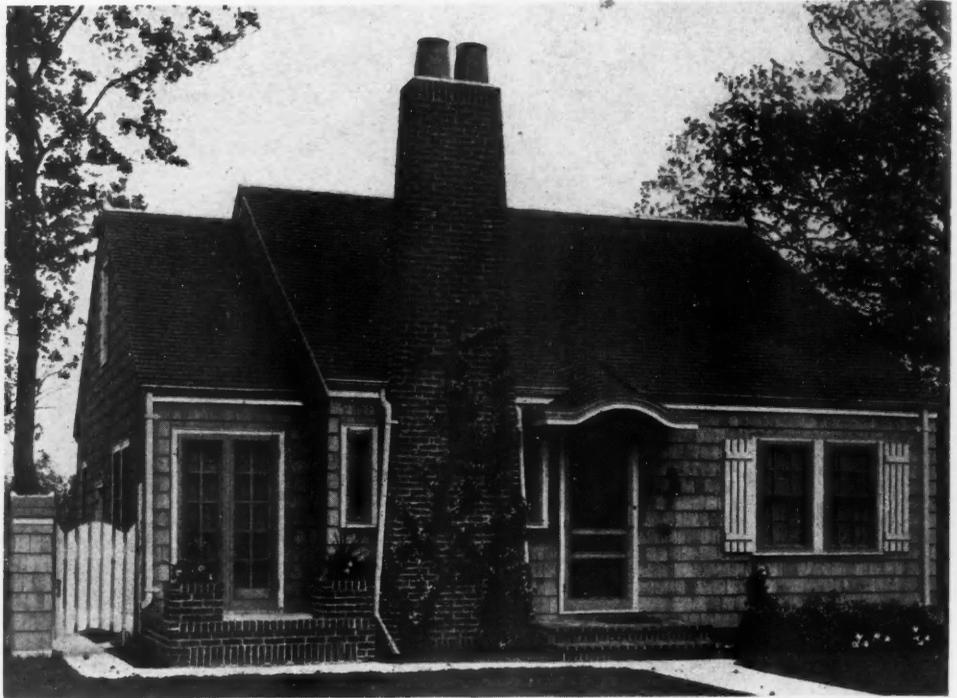
DUNCAN HUNTER, Architect

English Quaintness

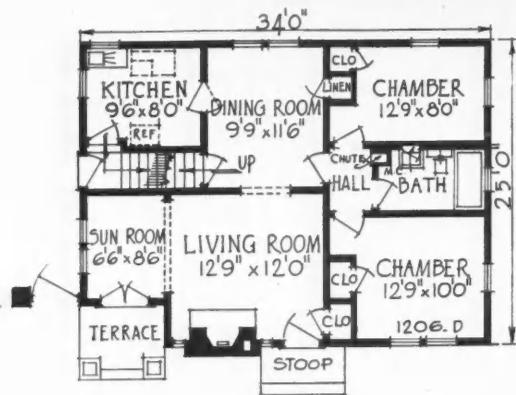
Residence of
Herbert J. Stroth,
Summit, N. J.



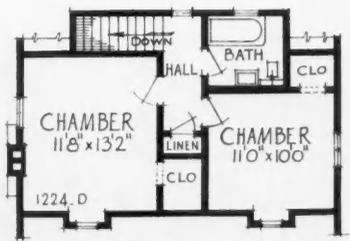
**Architecturally
Correct**



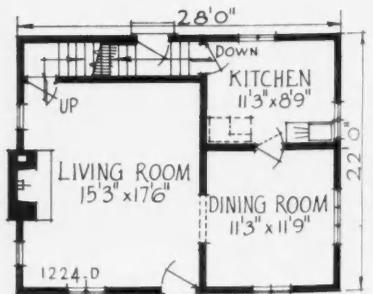
NATIONAL PLAN SERVICE Designs



Two Little Homes Either of Which Would Be a Wonderful Expression of Those Famous "Three Little Words". Many loving couples will be home-building this year.



SECOND FLOOR



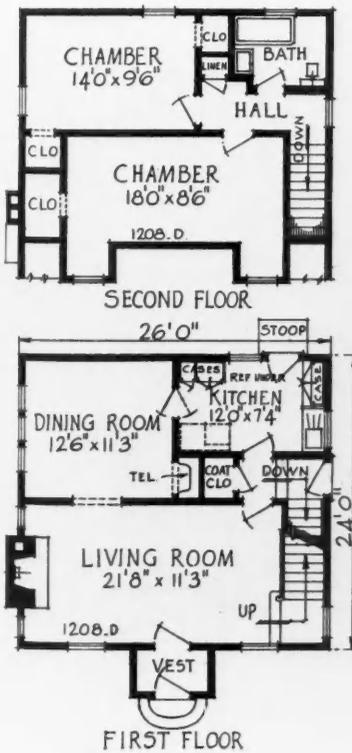
FIRST FLOOR



**Economical
to Build**

NATIONAL PLAN SERVICE Designs

It's Love That Makes the World Go'round
and Keeps the Industry Building Sweet
Little Homes Like These for June Brides.





R. C. HUNTER, Architect

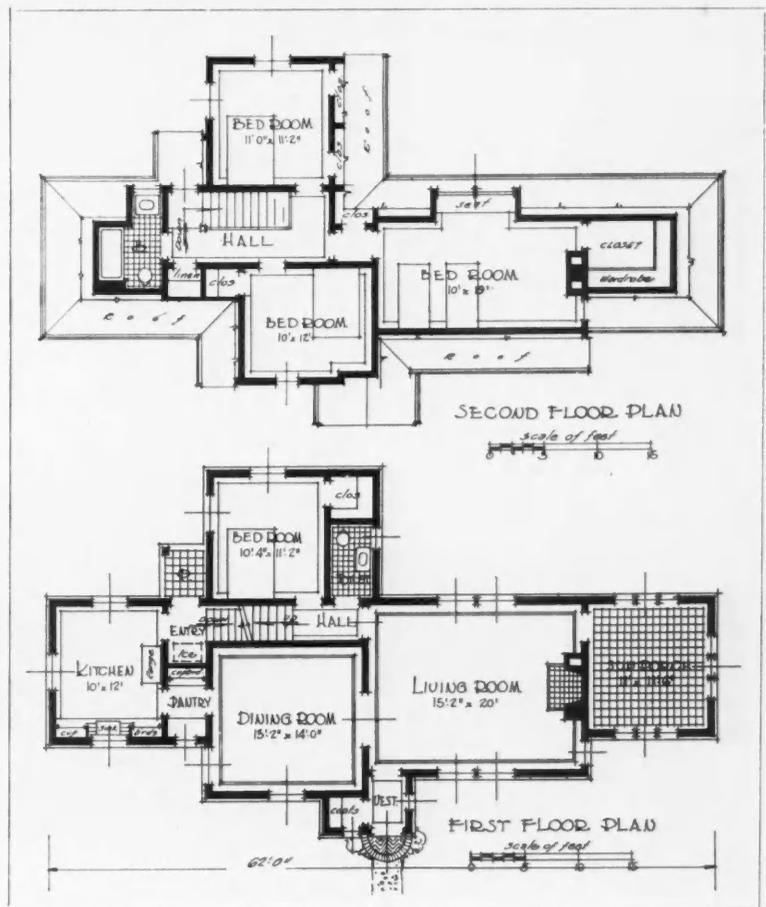
Home at Great Neck, Long Island.

For the lover of the English Cottage type of home (and what other type is so rich in artistic possibilities for the small houses), here is a house that appeals.

Nor does the appeal of this house lie in the charming exterior alone, the plan arrangement also offers its charm. It is an economical, practical layout, with decorating possibilities for homey livable interiors.

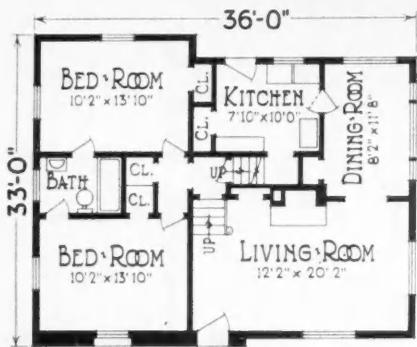
All of these factors are important ones, without them, no matter how pleasing may be the exterior, it cannot be a home in the real sense of the word.

With the Appeal of the English Cottage



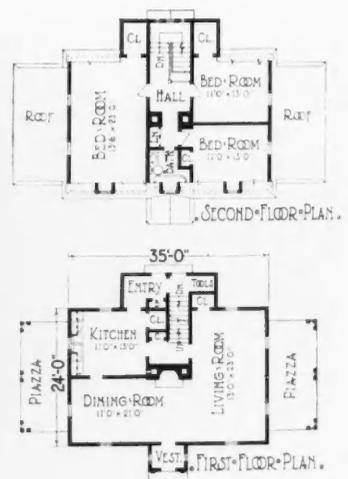
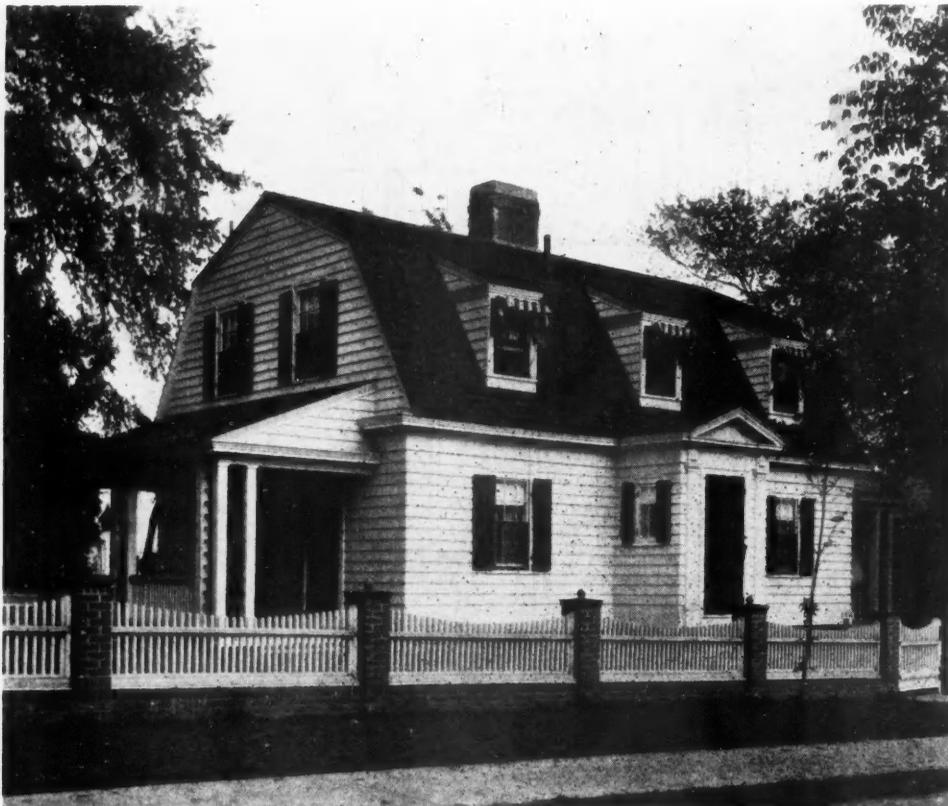


C. C. MERRITT, Architect and Builder

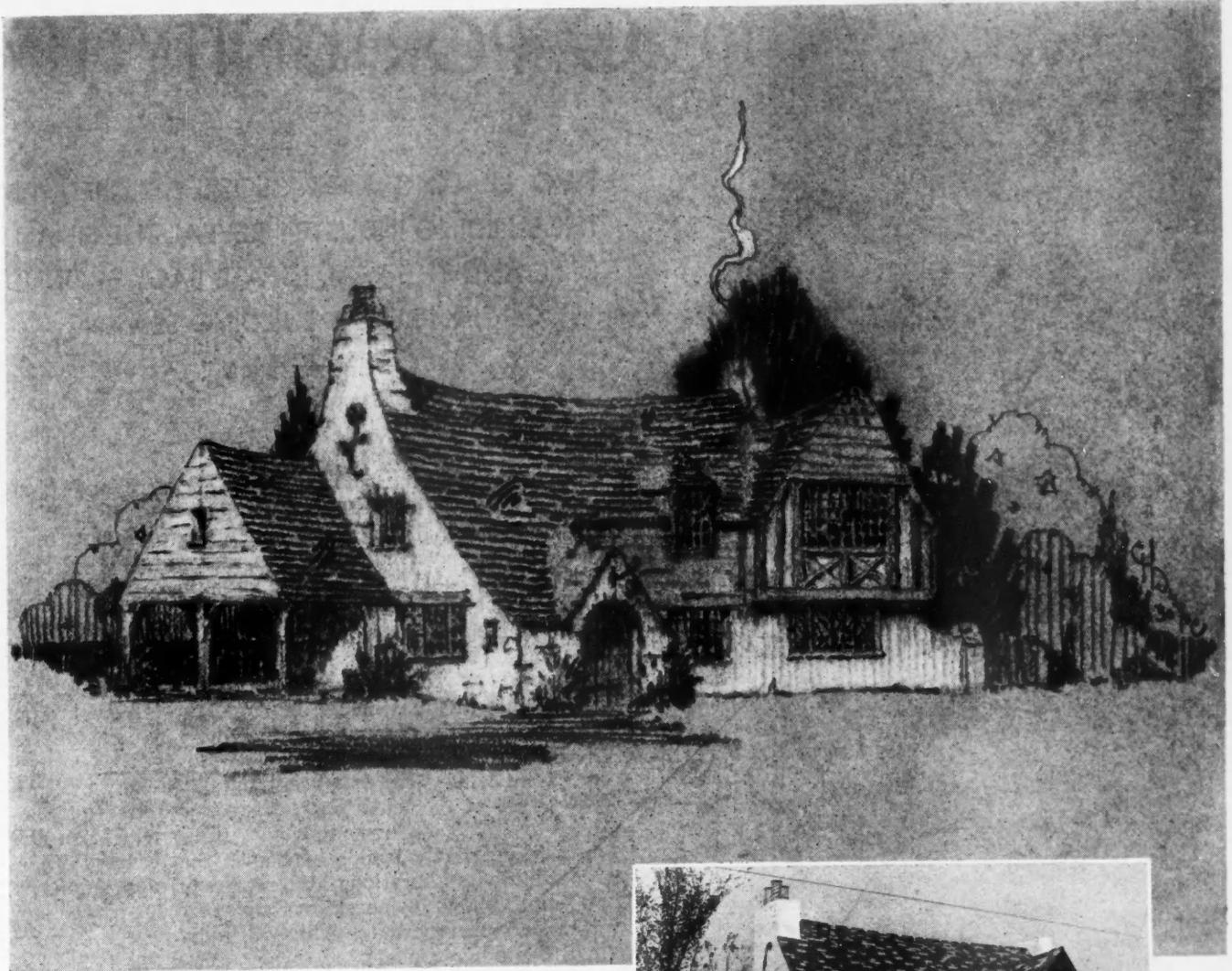


Above and to the Left We Show a Type of Excellently Designed Small House Which Illustrates Conservation of Space. It is a two-level plan for a sloping lot. Below is a six-room home built in Shawshen village.

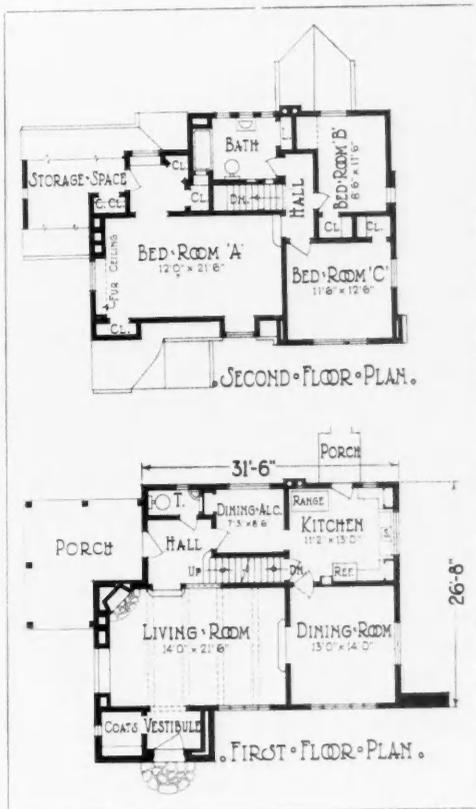
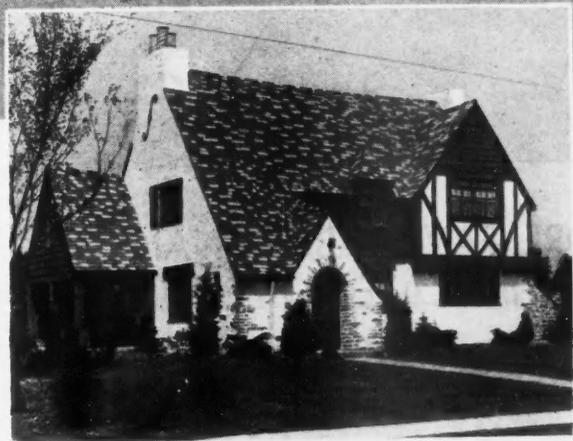
Two Little Beauties



JAMES ALLEN, Architect



CHESTER H. DISQUE, Architect



How does the finished house compare with the architect's sketch? Sometimes "not so good"—but in this instance very favorably. The sketch shows it lower and broader and the builder refused to "sway-back" the roof. Changes for the better, no doubt; and time will further improve by blending and softening the contrasty shingles and paneling.

Promise and Realization

OPPORTUNITY TIME

TWO LEADING MEN CLOSELY ALLIED TO THE BUILDING INDUSTRY REVEAL THE FINANCIAL AND THE REAL ESTATE BACKGROUND OF THE PRESENT BUILDING SEASON



H. MORTON BODFISH
Executive Manager, United States
Building and Loan League

MORE FAVORABLE FINANCING TO STIMULATE HOME BUILDING

Conditions Improving for Active Building Season

By H. MORTON BODFISH

THE Spring of 1931 will proceed under changing business skies, and a steady creep toward prosperity will be visible before summer, according to the signs and symptoms discernable from this office. Conditions pointing to recovery in the coming months, as I see them, are eight.

1. The basic industries will have to operate at a higher rate than that of the present in order to take care of today's demands and consumption. The pick up had already begun in the steel industry, cotton and wool textiles, men's clothing, leather, agricultural implements and residential construction in February.

2. Stocks in the hands of retailers and wholesalers are not large. In many cases retail stocks are exhausted. Things are wearing out. Replacement buying has commenced. According to Federal Reserve Board statistics, department store sales did not show as high a percentage

of drop from December to January as was expected from experiences of past years.

3. The bond market indicates cheaper long time money which is absolutely essential to revival of business. Certain high-grade bond issues approximated their best post-war levels in January of this year.

4. No big bank failures are imminent. The whole situation seems to be clearing up.

5. Cheaper credit will help and is beginning to help business. There is plenty of money. It is idle. It hates to be unemployed.

6. Employment is on the increase, the final February computations show. A demand for modernization of houses, always present, has been stimulated by the President's Emergency Committee for Employment which urges renovation and remodeling of thousands of homes this year. Permits for additions, alterations and repairs in approximately 300 cities show an increase of five per cent in January over December permits. This will increase employment in the building trades.

7. Building and loan association receipts from both saving members and borrowers are increasing, indicating that more and more people are returning to normal living programs which foster systematic saving.

8. Confidence is being restored. Sentiment is better. The four-phase business cycle is following its usual course—prosperity, crisis, depression and recovery. This year's spring months will be definitely in the *recovery phase*. Prosperity will come back slowly, steadily, naturally. We cannot expect boom times in a couple of months, as some perpetually predict.

More money will seek investment in the coming months, and people will place the now mounting sums of idle money in institutions and types of securities whose safety is time-proven.

Building and loan associations are preparing to receive larger percentages of the people's savings in the period we are entering. The prestige of one hundred years success is giving them an appeal to the investing public today. This business has just passed its one hundredth anniversary in America. This spring will see many millions of dollars being invested in this antique security which is as modern in efficiency as it is ancient in prestige. The people with money to put to work are remembering that these associations which finance the nation's homes weathered the depression now past without loss to shareholders anywhere.

It is a significant fact that the savings invested in building and loan shares are put right back into the community—into the homes of citizens. Such savings bringing dividends to the investors are therefore, also really plowed back into the same communities.

HAS NOW ARRIVED

Present Situation Challenges Builders to Fight

"Reduce the Costs, Increase the Quality and Sell Aggressively" Urged as Winning Program

By HARRY S. KISELL

FOR the last year or more, the men of the home building industry have faced a situation over which they have had little or no control. Their business probably has been hit harder than any other as a result of the financial depression and the consequent cessation of numerous business activities.

But every cloud has a silver lining somewhere and every major business depression, such as we recently have been passing through, can be made a blessing in disguise for the wise and thinking builder.

When times are good and business is plentiful, with contracts easy to get at substantial profits, and when this situation continues over a period of years, it is only natural that the average builder should be lulled into a belief that this condition will continue indefinitely.

However, it is in times such as we have been experiencing during the last year that the wise builder stops to take stock of himself and of his capabilities generally.

He will study his salesmanship, both his methods for securing new business and his facilities for selling that which he has built. He will study his organization to see if it can be improved to reduce costs. In fact, he will study the whole technique of his profession, both inside and outside of his own office, in an effort to determine where improvements can be made.

Having done these things, he is of course a much better builder, and a more valuable citizen of the community in which he lives and operates his business.

It may be that, for the last decade, the home builders of the country have had things too easy. Contracts have been plentiful and prospective owners were not stopped by high construction costs in their determination to have a home, because money was plentiful and easy to secure.

However, I believe this situation has passed definitely. The home builder of the future will have to be a much better salesman than he ever has been in the past and he will have to be more familiar with costs and how to keep them at a minimum. The competition for the buyer's dollar will be altogether too keen for any slipshod methods of doing business; and the builder content to practice such methods will be doomed to failure.

The home builders of the country need not, however, be unduly alarmed at the temporary cessation of home building. The average American is instinctively a home lover and he will not long be satisfied with other things at the expense of home ownership.

Let the home builders of the country solve the problems of building costs, financing, taxes, obsolescence and the other problems now facing them. Let them find out how to build better homes for less money, perhaps using adaptations of the methods so successfully used by the automobile and radio manufacturers.

HARRY S. KISELL
President, National
Ass'n. Real Estate Boards



OVER-BUILT CONDITIONS REPORTED LAST YEAR IN MANY COMMUNITIES HAVE CHANGED INTO MODERN HOME SHORT- AGES ACCORDING TO CURRENT SURVEY REPORTS FROM REALTOR BOARDS

In brief, let them learn the obvious lessons of their business as it must be carried on under present-day competition, and they will again assume their rightful place at the forefront of American business.

Recent months have taught the American public that they should save safely and spend wisely. Our institutions are already feeling marked trends away from the speculative attitude and people are bringing their funds to builders, for wise use in home building enterprises. The reviving interest in home ownership due to re-adjusted and stabilized real estate values augers well for building this year. The real estate men are guiding thousands of people to satisfactory home purchase today and will have to exert themselves to satisfy the home seeking demands of the entire year. From an investor's point of view, returns from home building and buying will be as great or greater in 1931 as in previous years.



**Garages Designed
to Harmonize**

Whether Attached or Detached the Home Garage Must Be in the Same Style and of the Same Materials as the House Itself. When handled so, it becomes a valuable adjunct to the appearance of the place, as well as a protection for valuable property.



Both of these Garage Designs Are Illustrated by Courtesy of the Kinnear Mfg. Co., and Show Installations of Rol-top Doors.

How To Plan And Equip A STEP—SAVING KITCHEN

You Can Use This Data In SELLING

"THE KITCHEN is the strongest selling feature" is a remark so frequently made by builders that it must be true. But a well-planned, well-equipped kitchen is called for!

INFORMATION ON kitchen planning in this article is based on surveys by noted housing engineers. The space-saving, step-saving features, whether adapted to house, apartment, or residential hotel, are the latest.

WHEN YOU SELL, make free use of this data, and impress your prospective customers with the fact that your kitchens are scientifically planned.

NO part of the modern residence has had as much scientific investigation as the kitchen. Housing engineers throughout the country have studied size, arrangement, and equipment so thoroughly that there is no excuse in these days for a poorly arranged "workshop" for the housewife.

What is more, so much attention has been called to this important room that housewives are on the lookout for good design, and ask a lot. With another spring building season ahead of him, this is more than ever important and it is our opinion that the builder can profitably devote considerable time to studying recent developments in kitchen planning this year. It is the purpose of this article to take up the more important features.

One thing to be remembered is this. After you have got the latest kitchen data, build one that is right up-to-the-minute in design, and don't neglect it in your selling talk. Housewives will absorb with gusto such data as you will find in this article; do not hesitate to explain to them why the drainboard is at the left of the sink and the cupboard doors open from the center. This kind of information is the best selling ammunition you have.

The modern kitchen, whether it is in a small house, a big house, an apartment, or a residential hotel, should be compact, well-arranged, well-lighted, and cheerful. Much of the data in this article is applicable to all four types; in the house, kitchens tend to be slightly larger than in the apartment; but even so, space should not be wasted, and the present tendency is toward the small, compact, well-arranged kitchen, especially in households where the wife does her own work. A small

All space in this kitchenette-alcove is used; the arrangement is excellent and worthy of study. This is the minimum area recommended, and yet there is ample working space, storage for cooking utensils, supplies, and a fully adequate sink and stove.

kitchen means not only a saving in space, but a saving in steps.

Experiments in laboratory kitchens have established the value of scientifically grouping the important kitchen equipment. The sink, stove, kitchen cabinet (or its equivalent in cupboards and work table) and refrigerator should be grouped so that the housewife can work from one to the other with a minimum number of steps and a maximum of ease. Figure 3 illustrates this point very well. By rearranging a poorly-planned kitchen so that the equipment is conveniently centralized, it was possible to reduce the number of steps necessary to carry out a typical operation from 281 to 45. Imagine what this means to the housewife, and what a selling point it is for you!

An approved arrangement is to have the sink under a window, and the range to the right of it (as shown in Figure 1), with refrigerator, cupboards, and work counter along the opposite wall.

Where space permits, a minimum distance of 30 inches should be left between fixtures. Sinks should have drainboards on both sides where possible, and if not, at the left of the sink. Be sure that cupboard doors can be opened by the housewife without moving from her position at the work-table; that is, the doors should swing open from the center, and in such manner as to expose the interior easily from the working area.

If the house is "built to order," the heights of counters, sinks, and stoves should be adapted to the size of the housewife, and will range from 33 to 36 inches, depending on whether she is tall or short. For the average person, a counter height of 34½ inches from the floor is best.

The tendency in the modern kitchen is to use all available space for storage of food stuffs, dishes, pots, and

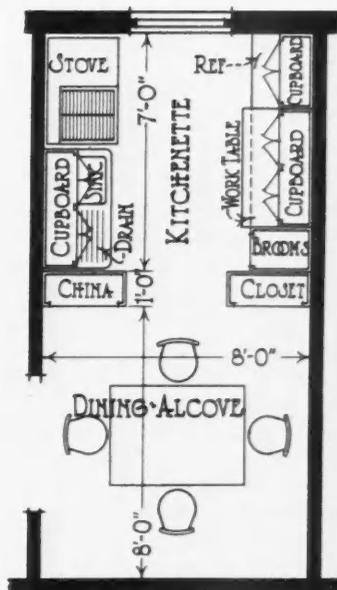
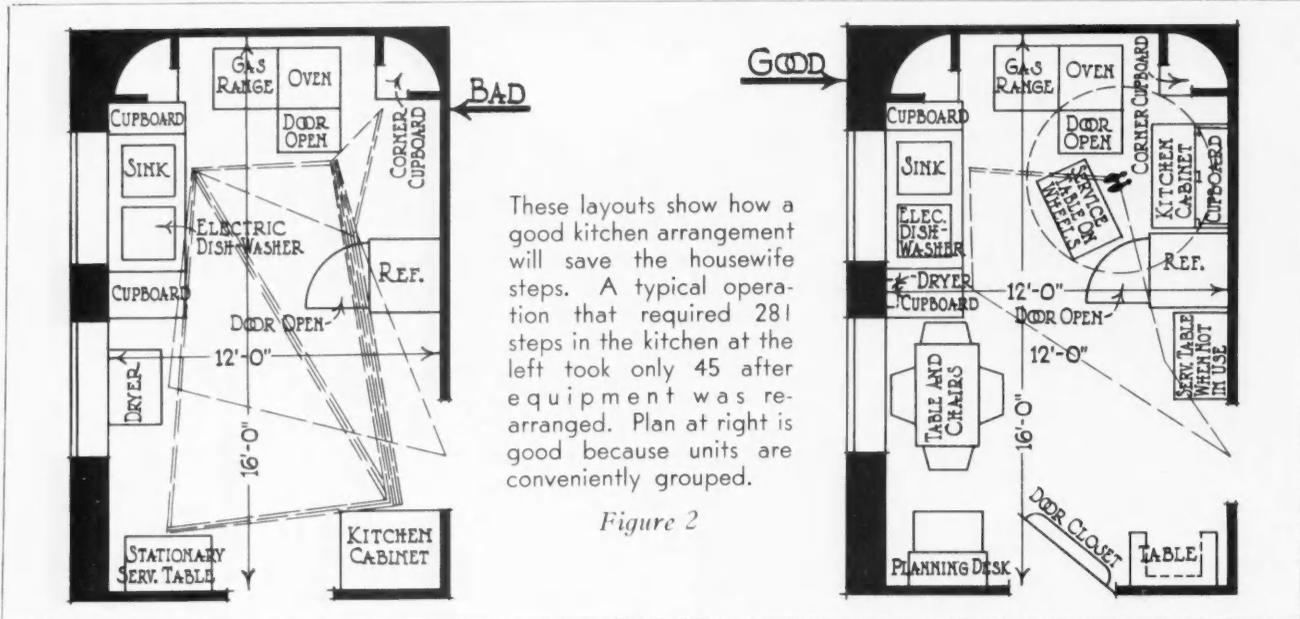


Figure 1

Saves Space — Saves Steps



These layouts show how a good kitchen arrangement will save the housewife steps. A typical operation that required 281 steps in the kitchen at the left took only 45 after equipment was rearranged. Plan at right is good because units are conveniently grouped.

Figure 2

pan, etc. For example, cupboards may be built above the sink, or over the refrigerator, or even over the gas stove, if it is low. They may also be built under the sink or work-table, or under the gas stove. Cabinets above a height of seven feet are of little value. Avoid confusion in the opening of cupboard doors, and provide catches that are positive, but easy to operate.

Good light is an essential in a kitchen. In addition to plenty of windows, fixtures should be placed above the sink, work-table, and in the center of the room. These should be placed to eliminate glare, or casting of shadows on the working area. Electrical outlets should be at table height, and at least four are required in this electrical age.

The dishwasher is an important and attention-getting feature that is being used by many builders to sell houses this year. An electric ventilating fan is another excellent selling feature. Do not neglect to provide a gas stove vent pipe, broom-closet, and built-in ironing board. Also good are the incinerator and package receiver. The mixing faucet is an important sink addition these days.

Floors should be resilient, quiet, and durable. Popular types are linoleum, cork, rubber, and composition materials in large units or laid in tiles or squares. A resilient mat or padding placed under the surface material adds to the comfort of the housewife and promotes longer wear.

Drainboards and working surfaces may be any one of many sanitary materials, such as ash or maple wood (properly bolted and treated with oil), non-corrosive metal, enameled iron, slate, vitreous tile or a composition material impervious to moisture. Sinks should be integral with the drainboard and splashback. Of course mechanical units and plumbing fixtures should be easily accessible, but not conspicuous or unprotected. Floors should be coved to bases, and awkward corners or small waste spaces difficult to clean should be avoided.

The walls of the modern kitchen are being popularly done in smooth, washable surfaces, such as smooth plaster, tile, composition material, or oilcloth. While color lends cheerfulness, it should not be overdone; if colored fixtures are installed, it is best to avoid flashy or brilliant colors which may offend some people's taste. The walls, ceilings, and equipment should harmonize and be of the same general tone. Color treatment to aid light reflection is recommended, and pleasant grays, creams, or pastel tints are good for this purpose.

Enough contrasting trim should be used to give interest, but too much of this should be avoided. Paint cabinet bases and other parts receiving hard wear, and susceptible to stains and mars, in dark, neutral tones. Stencil designs, when well done, are attractive.

In the accompanying diagrams we are showing some of the typical kitchen arrangements recommended by housing engineers after thorough study. For the small apartment or residential hotel, the "butlery kitchen" or serving pantry, as illustrated in Figure 4, is popular. The space required is very small, the minimum being 5 feet wide by 22 inches deep. A recommended width is 6 feet by 2 feet. No stove is provided, but when laid

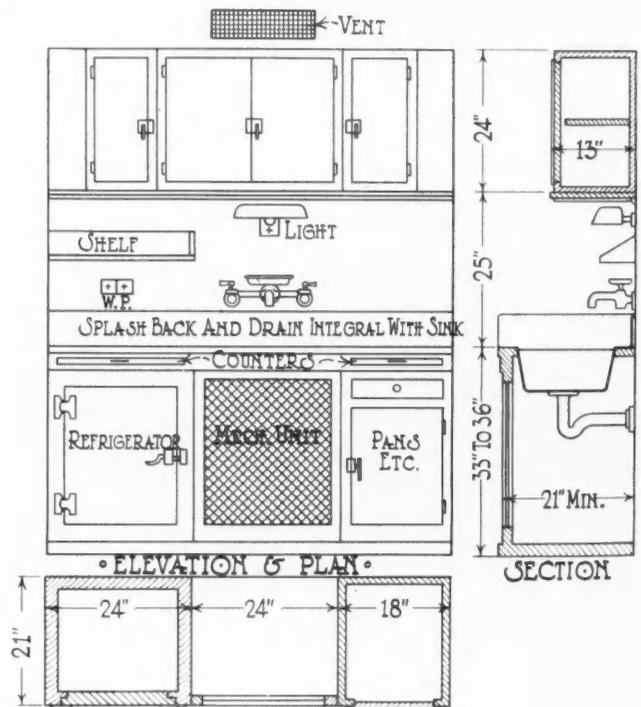


Figure 3

Although completely enclosed in a space 6 feet by 2 feet, this kitchen unit is complete except for stove. It is an efficient and compact setup. The light, wall plugs, shelf, pull-out counters, mixing faucet are very desirable and are well placed.



Special Kitchen Millwork Adds to the Charm of the Modern Kitchen.

out as indicated in Figure 4, a surprising amount of storage and work space is available. Through use of an electric grill, the tenant can do light housekeeping. A flue or vent should be provided to carry away objectionable odors.

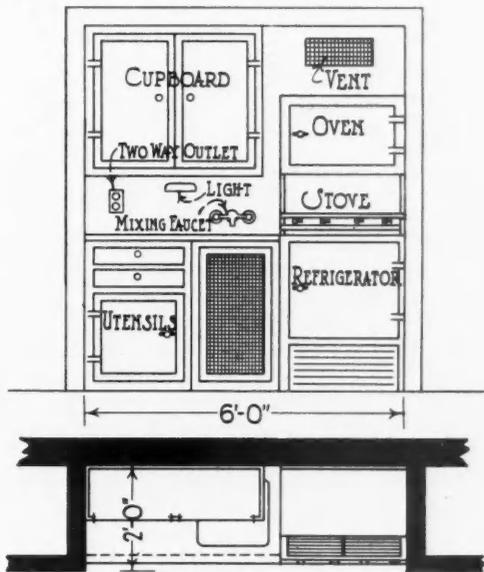


Figure 4

An efficiency kitchen arrangement that is easy to use because units are adequate and conveniently placed. Range and refrigerator are one unit, storage cupboard is within reach, integral sink and drainboards are easy to keep clean, drawers for cutlery and compartment for utensils are handy.

Note wall plug and vent, both important.

An efficiency kitchenette is produced by addition of a stove to the above, and provides a complete kitchen in a shallow, enclosed area. Equipment usually includes a refrigerator of 3½ to 4 cubic foot capacity; base cupboard for pans and bread-box; drawers for cutlery and silver; and ample space for dishes. The sink, 16 by 24 inches, or 18 by 24 inches, has drainboards on either side, integral with sink.

The kitchenette and dining alcove has long proved popular in apartment buildings, and is also now popular in small homes. The arrangement shown in Figure 1 is excellent; and, although of the minimum recommended size, it is plenty big enough for the average family. It provides a compact working area, including the work-table, storage for cooking utensils and supplies, broom closet, etc. Note the sink and tray combination 46 inches wide with tray at left and cupboards above. The four-burner range with oven and broiler is conveniently placed. Good light is provided by the end window; in some cases, arrangement may make it necessary to utilize this space as a service door, which can be easily done.

There is no reason why the efficiency and space-saving, step-saving features of apartment kitchens cannot be successfully carried out in residences. There is no room in the modern home for waste kitchen area. A small kitchen, well-planned, is far better than a big one. A good kitchen, backed up by a readiness to describe the facts behind its modern arrangement, will do more than any other single thing to rent or sell residential property.

Just one closing reminder. All that has been said in this article about new kitchens will apply just as well to the modernizing of old ones. This is a big field that offers unusual opportunities and is one that you should not neglect if you are anxious for business.



On concrete form work the power saw has reduced carpentry cost 50%. It is used to rip, cross-cut or bevel all columns, end beams, battens, stair-risers, wedges, shoring, spreaders, etc., and speeds up the entire job.

Yes, We ARE Cutting Costs!

These Contractors Describe Power Saw Methods Which Increase Building Efficiency—More Equipment Needed This Season

FACTS FROM THE FIELD

In the February American Builder & Building Age, we asked for actual cost records of jobs where power saws were used. Here they are.

These contractors are not theorizing or guessing—they are giving FACTS.

This season more than ever before every effort must be made to apply scientific methods to building. The cutting methods described here will help you achieve this end.



Electric hand saws are from 7 to 10 times as fast as "muscle" hand saws. They will rip a 2-inch pine plank 6 feet long in 30 seconds.

MORE headwork and less handwork seems to be the trend of the times in construction work this year. The reports of numerous contractors and builders from Maine to Florida, from Massachusetts to California show that there is a decided tendency toward improved building practice through use of the new types of power saws—table, hand and rig.

"Using your head" is good practice in any business, but it now seems to be producing especially good results in conjunction with power equipment.

Widely accepted figures show that power saws, when intelligently used, make possible a saving of \$100 in the building of a typical frame house that would ordinarily sell for \$5,000. This is figured on the basis that the carpenter labor on any given frame house will run approximately 10 per cent of the selling price (this is low; U. S. Government figures show 14.2 per cent. Other estimates range between 10 and 20 per cent). On a \$5,000 house the carpenter labor would be \$500. A power saw will save 20 per cent of the carpenter labor, or \$100, conservatively figured.

The key to successful use of power equipment is *planning*. Mr. J. A. Quackenbush, of Buttonwood, N. J., states that, by carefully planning the work of his saw, he is able to put up the entire framing, including gable studs, for a seven-room frame house in 6½ hours.

Small but powerful, the electric hand saw ploughs through. One contractor reports trimming a heavy plank platform $\frac{1}{2}$ mile long, both sides, by one man in two 8-hour days — a job that would have taken ten men a week with hand saws.



He first laid out all the cuts on his plan and numbered them before proceeding with the cutting. While this required two days' planning, it enabled him to save several days' carpenter labor, and he was able to figure his lumber so closely that he had only a few baskets of chips as waste.

The "new competition" of mail order house builders bases much of its claim for lower costs on the efficiency of scientifically cut lumber. In their advertising they make such statements as: "The system in many instances has saved our customers as much as \$1,000 on carpenter labor alone because it dispenses with 40% of the labor cost." There is no doubt but that the machine methods they employ *do* reduce costs. It is therefore all the more necessary in view of this new competition for builders to adopt scientific planning and machine methods in their constructive practice.

Before taking up these approved planning methods, let us see what a few responsible builders who have tried out machine methods have to say. For example, there is W. S. Warmington, of Beverly Hills, California, who reports:

"We are now in the finishing of a 7,300 sq. ft. house. In estimating this job my foreman sent in his rough and finish labor at \$5,800, and the architect's office sent in a figure of \$6,000. I bought a power saw and put a good man to work with a Mexican assorting and bring-

ing lumber to the saw, and another Mexican delivering the cut pieces to the carpenters and returning with measurements. In so doing, I kept ten mechanics at their line of work and completed the job for \$3,842. Did the saw pay for itself?

"We have built three of our own houses off the same plans, the first of which was built before we had a power saw. On the second house we cut the labor cost with the power saw \$210, and on the last house we made an additional cut of \$53. This latter cut came about by insisting that the crew use the saw at every possible instance."



The power saw does electrically for 3 cents an hour what 4 carpenters at 80 cents an hour can do.

Electric Stone Saw Speed

Material	Thickness	Length	Speed	How Cut
Sandstone	2 $\frac{3}{8}$ "	3 $\frac{5}{8}$ "	7 $\frac{1}{8}$ min.	Wet
Vitrified Tile	8 $\frac{3}{4}$ "	8 $\frac{3}{4}$ "	3 $\frac{1}{2}$ min.	Wet
Slate	1 $\frac{1}{4}$ "	12"	1 $\frac{1}{4}$ min.	Wet
Marble	1"	12"	1 $\frac{1}{4}$ min.	Wet
Limestone	2"	30"	1 $\frac{1}{2}$ min.	Dry
Limestone	1"	30"	1 $\frac{1}{2}$ min.	Dry

Operating Costs of Two Power Hand Saws in Two Months of Rough Carpentry on 4-Story Apt. Bldg.*

OWNER—N. C. ANDERSON CO.	
INVESTMENT—2 saws @ \$175.00 each.....	\$ 350.00
ANNUAL FIXED CHARGES ON TWO ELECTRIC SAWS	
Depreciation— $\$350.00 \times 6/5 \times .06/2$	\$ 70.00
Average interest @ 6%.....	12.60
Maintenance and repairs—estimated.....	60.00
Total.....	<u>\$ 142.60</u>
DAILY OPERATING COSTS OF TWO ELECTRIC SAWS	
Fixed charge— $\$142.60 \div 100$ days.....	\$ 1.43
Power—.7 kw.-hr. $\times 2$ saws $\times 8$ hr. $\times .10$ /kw.-hr.....	1.12
Sharpening labor 20 min./day $\times 2$ saws @ \$1.50/hr....	1.00
Operating labor—2 men $\times 8$ hr. $\times \$1.50$ /hr.....	24.00
Total.....	<u>\$ 27.55</u>
DAILY COST OF OLD STYLE HAND- SAWING FOR SAME AMOUNT OF WORK	
8 men $\times 8$ hr. $\times \$1.50$ /hr.....	<u>\$ 96.00</u>
SAVINGS EFFECTED BY TWO ELECTRIC SAWS	
Per day— $\$96.00 - \27.55	\$ 68.45
For job— $\$68.45 \times 50$ day.....	3,422.50

*Certified by NIELSEN SURVEY.

Another California builder, S. M. Sarder, of Manhattan Beach, states:

"I never used power saws because I felt that a small contractor could not afford to pay the price. I have changed my mind completely. I don't care how small the construction is. I wish to say to all fellow contractors that the purchase of a power saw has proven to me conclusively that it is the best investment I have ever made, and I would not consider taking a contract without having one to help me out on it."

Many other testimonials could be given, as for example the N. C. Anderson Company, which used two electric hand saws in the cutting of risers, sills, and formwork in the erection of a four-story apartment building. They testify that these saws did the work of eight men with hand saws, and effected a daily saving of \$68.45 in labor costs, or savings for a two-months period of \$3,422.50.

Two Methods of Operating

Two general methods are used in cutting material with a power saw in frame construction.

The first method is to work out approximately, as most builders will generally do, the number of joists in the floor, the number of studs, the number of rafters, headers for windows, etc., cutting all this material that can be figured without much effort and leaving the irregular lengths to be cut by hand saws.

The second method is the piece billing method. This method will call for a complete framing detail and a piece bill of all the material required. This would be similar to the shop drawings made for steel work.

Referring to the first method, let us assume that we wish to figure the material for a small house in advance so that the larger portion of it may be cut with a power saw.

We would figure, in the same manner as the carpenter does, the length of the joists and the number required, figuring three joists for every four feet when the joists

Power Saws Me For Lower Co Costs, These Fig

are spaced 16" O.C., but allowing for openings in the floor, because where openings occur, full length joists are not needed.

When figuring studs, we find that many of the studs are not full length, therefore we must decide approximately how many are full length. This will vary with the construction of the house, but the following will help us to decide. For windows of ordinary size, two studs, sometimes three, are not full length. Where double windows are required, four or five studs are not full length.

We may also figure approximately the number of short studs above and below the windows.

For example: A house having eight ordinary sized windows and three outside doors has eleven times two—approximately twenty-two short studs (that is, studs that are not full length). The length of these studs can easily be determined if we figure the size of openings. The man who is accustomed to this can do it accurately.



Cutting tile, brick, or stone with an electric saw is the only practical way. In addition to being many times as fast, the electric saw saves material and insures an accurate fit.

Meet Demand Construction Figures Show

The headers at the top and the bottom may also be cut beforehand. These can be cut to fit either between three or four studs as the case may be. Having studding spaced sixteen inches O.C. and the window requiring an opening of three feet or more, we know that headers will have to be cut the same length as three studding spaces less the thickness of one stud. Headers cut in this way will fit for nearly all cases, especially if a few calculations are made as to what position the window will have in regard to the studs. A better job, of course, can be done by drawing a job detail. This will be explained later.

The side pieces can easily be cut to the required length as they are the exact length of the opening. The height of the top of the window is generally fixed by the drawings.

A good plan is to cut the studs above the windows to the required length for the entire building, also the headers and the side pieces for the window openings, leaving the short studs below the windows to be cut when the frame is nailed together. This method is satisfactory even where no framing plans were drawn up.

The second method, which is recommended for all jobs of any importance, is to draw up complete framing details of the floors, walls, roofs, etc., and to make out a piece bill for the men operating the saw. This method is similar to the method used by steel shops and also by millwork men in cutting out inside finishing material for the house.

The framing detail shows the lengths of the studs, the height and width of openings and the spacing of studs accurately, so that this detail will not only help in cutting the material but also help in framing the building.

The argument might be given that making such a detail will require considerable amount of work. True, but the carpenter in laying out openings on a job where no framing details are given will waste a lot of time doing this work and very often the openings are not very accurate after they are laid out on the job. A framing detail of this kind may require a little more extra time in the office, but it will certainly save a lot of time and avoid errors on the job, providing, of course, that the detailer knows his business.

After such a framing detail is made, then a bill of

Cost of Operating Two Hand Electric Saws and Savings Over Old Style Hand Sawing on Concrete Form Construction*

GENERAL DATA

Used on form work on 37-story concrete and steel structure, by W. F. Trimble & Sons Co.

Operated for average of 3 hours each daily.

Work speeded up three times over hand sawing.

First cost—No. 1.....\$ 115.00
No. 2..... 190.00 \$ 305.00

FIXED CHARGES

Depreciation—\$305.00 ÷ 3-year expected life.....\$ 101.67
Average interest @ 6%— $\frac{4}{3} \times \$305.00 \times .06/2$ 12.20
Repair allowance, including cable and blades..... 120.00
Total—2 saws.....\$ 233.87

DAILY OPERATING COST

Based on 3-hour daily use of each.

Pro-rate of fixed charge—\$233.87 ÷ 200 days.....\$ 1.17
Power—@ \$.051 per kw-hr..... .07
Wiring outlets—labor—12 hr./wk. @ \$1.25 ÷ 5.5 days..... 2.73
—Material—\$4.00/wk. ÷ 5.5 days..... .73
Maintenance of saws— $\frac{1}{2}$ hr./day @ \$1.50..... .75
Lubrication—estimated05

Total direct cost—2 saws.....\$ 5.50
Carpenter labor to operate—6 hr. @ \$1.50..... 9.00

Total sawing cost—2 saws used 3 hr. each....\$ 14.50

ALTERNATE COST WITH HAND SAWS

Carpenter labor cost for same work—3 × 6 carpenter hours—18 hr. @ \$1.50.....\$ 27.00

SAVING

Per day—2 saws used 3 hr. each—\$27.00—\$14.50..\$ 12.50

Per year of 200 days.....\$2,500.00

First cost returned in 25 days.

Investment returned 8 times in year.

*Certified by NIELSEN SURVEY.

material, or what might be termed a "piece bill," is made out. This "piece bill" is for the man operating the saw. Here the different pieces are illustrated by a sketch and the dimension lines indicate the length. The sketches do not have to be to any scale as dimensions and sizes should be indicated by figures.

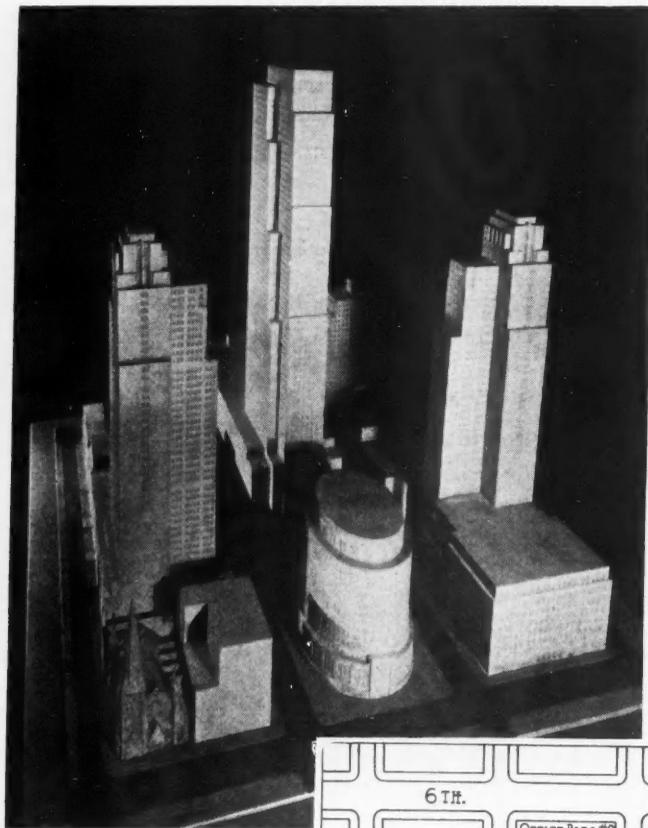
The extra cuttings, such as for the ribbon board for the studs, should be described by notes.

Where a number of pieces of the same nature but of different lengths are required, one sketch only is necessary, but different dimension lines are given to show the different lengths. The longest piece should be dimensioned first so that the extension table may be set for a long piece and drawn in for the shorter pieces.

The pieces for the sills and plates should also be indicated on this bill, as, for example, 19 ft. 10 in. long; of course, this does not mean that such lengths must be used—the sawyer must use two pieces that will make the total dimensions indicated.

The bracing is also detailed; this may be detailed by giving the true length of the piece or by giving the horizontal distance that the piece extends, together with the

(Continued to page 130)

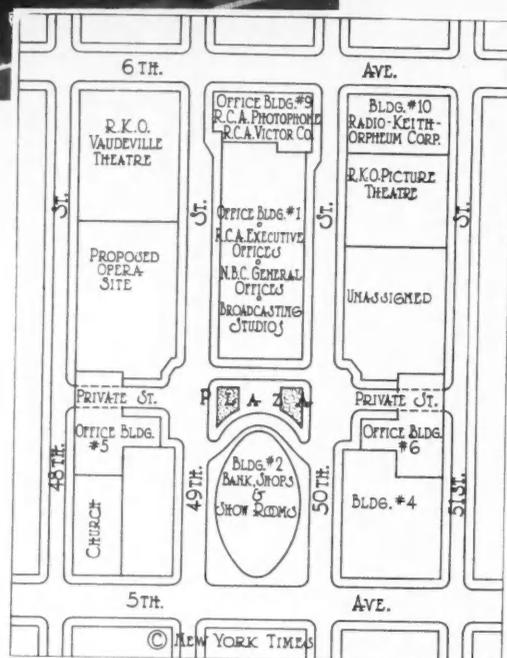


RADIO CITY

Metropolitan Square
New York

"The most ambitious private development ever undertaken in the United States"

Fifty years ago, city buildings were put on 25-foot lots. Now, three blocks are required to provide "open, controlled environment" which future construction cannot disturb.



CONSTRUCTION will begin in June on four buildings in the total group of nine structures comprising this \$250,000,000 New York City building development sponsored by John D. Rockefeller, Jr.

The entire project is scheduled to be completed by the end of 1932 and will then occupy three city blocks at 48th, 49th, 50th, and 51st Streets between Fifth and Sixth Avenues.

Besides an oval bank building and several office buildings, this "City" will contain an opera house, a vaudeville theatre, a picture theatre, and a gigantic building 68 stories in height, for the National Broadcasting Company, which will contain some 30 studios for broadcasting and television.

The radio group participating in the operation of the city's facilities is composed of the Radio Corporation of America, The National Broadcasting Company and Radio-Keith-Orpheum.

SALIENT FEATURES OF ROCKEFELLER RADIO CITY

Nine buildings in the total group.

Cost to be approximately \$250,000,000.

Tallest building (for the National Broadcasting Company) to be 68 stories high and contain two million feet of floor space.

Height of National Broadcasting Company's building, 675 feet.

Shell of buildings to be limestone veneer or brick.

Project scheduled to be finished at the end of 1932.

Four buildings to be started in June, 1931.

23,000 men to be employed at height of construction activity.

160 elevators in the entire city.

Sound theatre will contain 6,000 seats.

The community will house opera, broadcasting for radio and television, vaudeville, and picture theatres.

Managers: Todd, Robertson, Todd Engineering Corporation; Todd and Brown, Inc.

Architects: Reinhard & Hofmeister; Corbett, Harrison & MacMurray; Raymond Hood, Godley & Fouilhoux.

Radio Group: Radio Corporation of America; National Broadcasting Company; Radio-Keith-Orpheum; R.C.A. Victor; R.C.A. Photophone.

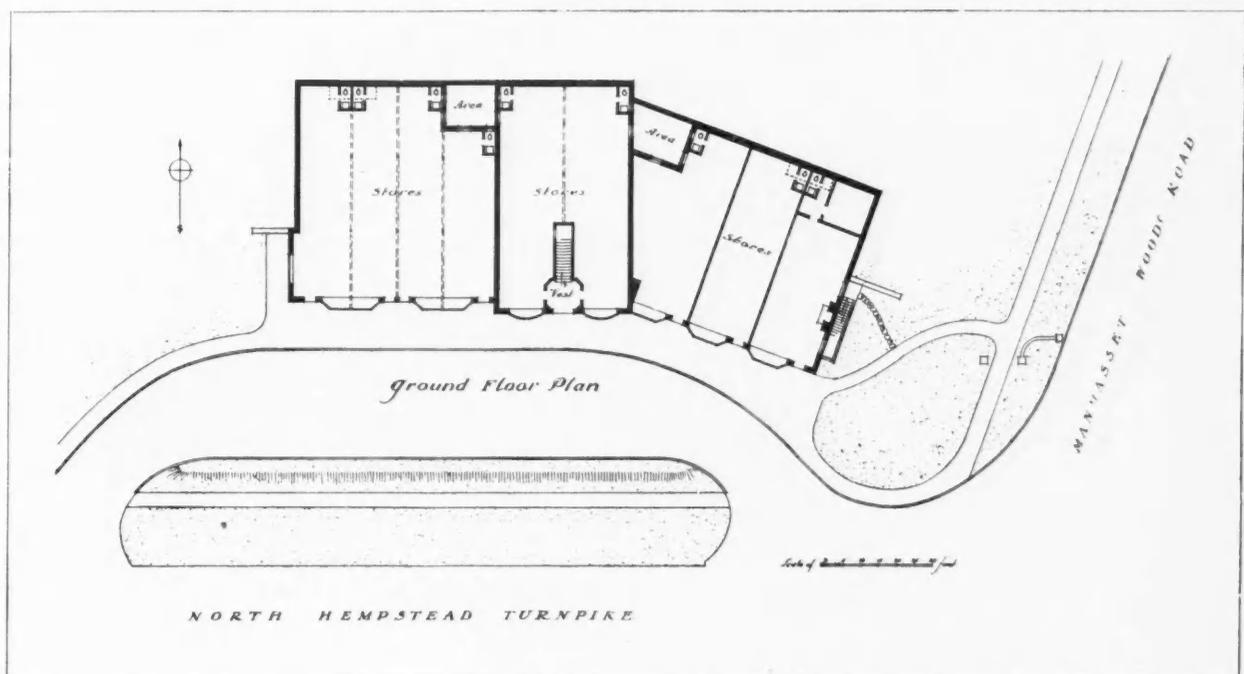


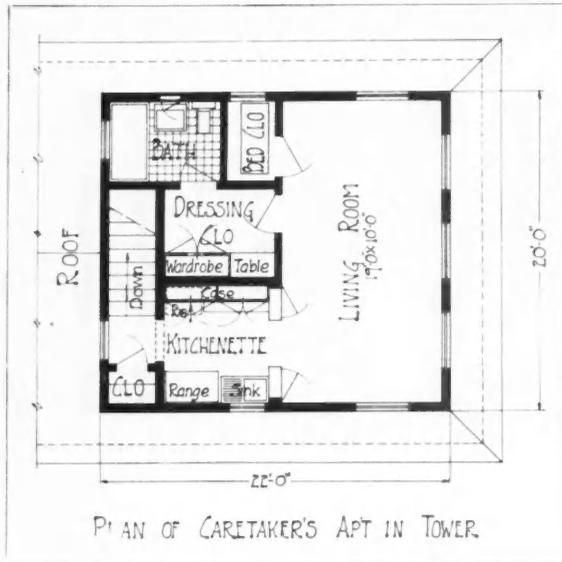
A Smart Shopping Center Is a Real Asset To the Developer of a New Home Section of the Better Class. Stores planned and erected as a group are impressive, attract the better type of merchants and become a paying investment. In the Munsey Park business development nine stores on the street level and professional offices above make a convincing appeal.

Early American Store and Office Building . . .

Munsey Park,
Manhasset, Long Island

FREDERICK L. ACKERMAN
Architect





HAVE designed this camp with the idea of centralizing all of the necessities ordinarily used by tourists and their families while vacationing or touring the country.

Upon arrival, the tourist secures a cabin from the caretaker at the office. These cabins are numbered with a corresponding number designating his car parking space located next to his cabin. Owing to the simple construction involved, and the investment not being large, accommodations can be had at a reasonable rate.

Each cabin consists of a room about 7 feet, 6 inches by 12 feet. They are attractively furnished, each with double-decker beds, one over the other, similar to the berth arrangement in Pullman cars. Also a combination dressing table, clothes closet and such other furniture is provided to add to the tourists' comfort. Clean linen is furnished daily.

In this camp can be procured gasoline and oil, also repair parts for cars. Refreshments and groceries are sold and a community kitchen and dining room are provided for the use of the tourists; dishes and silverware, also being furnished. Shower and washroom facilities are provided separately for men and women, and if the tourist wants to wash his car a wash rack is there for his use.

The design illustrated is

Sketch Showing View from Highway with Service Group in the Middle and Rest Cabins on Each Side



GOOD PROFITS

The Touring Season Has Opened and Thousands of New Rest Cabin Camps Are Being Planned; Many Old Ones Will Be Enlarged and Improved

HERE IS A 12-DOUBLE-CABIN GROUP WITH CENTRAL COMMUNITY SERVICE

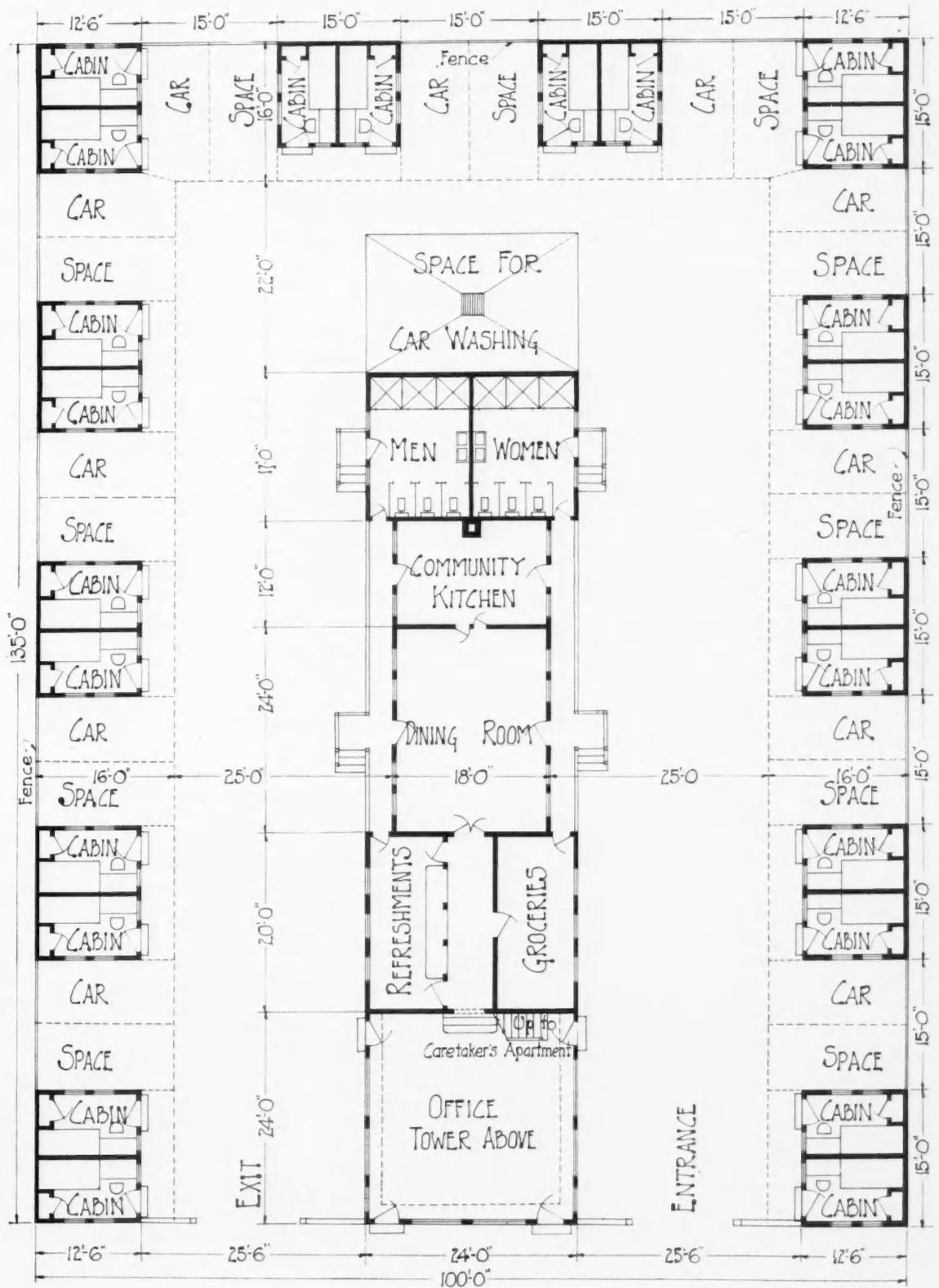
By JOHN HOCKE, Architect

only a suggestion; but this idea can be carried out in any style or design.

The camp pictured is 100 feet wide by 135 feet deep, but can be erected on any size or shaped property by merely laying out the units to suit conditions. It is advisable to set back from the highway 15 or 20 feet to permit the installation of gasoline service. There are 24 cabins, each with place for one car adjacent to the cabin.

These camps should be located outside of large cities, or near points of historical or natural interest which attract the tourist. This makes it possible to erect these camps of simple, inexpensive frame construction. It is advisable to have cabin floors raised above ground about one foot with concrete foundation walls and cement sub-floors; finished floors should be of wood on sleepers secured to the concrete sub-floors. Side walls are of ordinary wood studs, 2 by 4's—16-inch on centers with sheathing on outside covered with insulating paper and finished off with wood siding. Inside walls and ceilings can be finished with any wall-board of plaster board. The roof can be flat type roof, using prepared roll roofing except at front, where by reason of design, shingle roof should be used. The cabins and car space should be roofed over. A fence encloses the entire space.

BUILDING TOURIST CAMPS



Layout of 12-Double Cabin Tourist Camp with Community Service Features.

PLAN OF TOURISTS CAMP

THE FIRST CENSUS OF THE C

Governmental Survey of 1929 Construction Yields Valuable Data But Many Builders Were Not Covered in Countrywide Canvass

DURING the past year, many readers of AMERICAN BUILDER AND BUILDING AGE have been approached by field enumerators of the construction census, or have received, through the mail, census reports containing detailed questions about their 1929 building operations.

That a number of builders throughout the country have not fully understood the purpose of this first construction census is apparent from the reports that have come in to Washington by mail or from the hands of field enumerators.

What Is the Census For?

The first construction census was really undertaken to gather facts about labor costs and turnover, overhead costs, equipment and material costs, together with many other items of interest in connection with construction operations.

Many builders seemed to feel that the detailed information which the government requested was of an intimate business nature and should not be divulged; but the survey was based on the principle that all data would be confidential and its expressed purpose was

solely to gather and publish accurate information that would be helpful to contractors, engineers, architects, manufacturers, distributors, building material dealers and other individuals, directly or indirectly connected with the building industry. It was believed that the entire building industry would benefit from accurate information about phases of the construction industry that hitherto had never been thoroughly investigated nor reported on.

In order to ascertain the desired facts, census authorities drew up a report blank containing concise questions to be answered by the contractor. Beginning on January 2, 1930, these were mailed out to contractors and subcontractors in different parts of the country. An original list of more than 200,000 names had been compiled. That many builders were missed in making up the original lists of names is admitted by the construction census service. Census authorities tried to compile as complete a list as possible by securing names from many different sources; but, nevertheless, large numbers of builders, particularly of the speculative or operative type, were not included in the mailing list of the census and it is probable that field enumerators failed to contact many builders both of the contract and operative type.

PERMANENT CONSTRUCTION SERVICE MAY BE ESTABLISHED

THE first construction census, now in the process of compilation, covered building operations for the year 1929 only. A bill was introduced in Congress at the last session to provide for the establishment of a permanent construction service in the Bureau of the Census of the Department of Commerce. This bill would authorize the Secretary of Commerce, through the Bureau of the Census, to "continue the collection, compilation, tabulation, interpretation, publication and dissemination of statistical data, and any other information pertaining to the construction industry, including an annual census."

This bill passed the Senate but was delayed in the House until too late for passage before adjournment. The purpose of the bill was to provide for the unbroken continuation of the work already started by the first construction census. In order that the construction industry may not be deprived of an essential service and in order that the continuity of the work of the Construction Section of the Bureau of Census may be maintained, provision may yet be made for a permanent construction service that will supplement the statistics of private agencies and, in addition, make new facts available on various phases of construction.

Builders Classified According to Volume of Business in 1929

Unfortunately, the construction census authorities decided, in the beginning, that only those builders reporting a volume of business of more than \$25,000 would be required to fill out a detailed report covering the various phases of their construction work. Although field enumerators were asked to get the names and addresses, together with a few items of general information, on builders doing *less* than \$25,000 worth of business, and although thousands of blank reports were sent out by mail to such builders, the result of drawing the \$25,000 line has been to eliminate many builders from the upper classification and to reduce materially the scope of the first construction census.

Many Builders Not Covered

About the first of June, 1930, the first reports began to come in from the census. At first, only the method of mail solicitation was used, but later on, the field force of census enumerators took over the task of reporting on builders living in towns of 10,000 or over.

The fact that field enumerators did not seem to be getting all the builders and that many reports were marked "under \$25,000" without giving further details, made it imperative to follow up as many cases as possible by additional mail solicitation. To date, approximately 160,000 responses from contractors of all kinds have been received, of which only 25% report themselves as having done more than \$25,000 worth of business in 1929.

THE CONSTRUCTION INDUSTRY



DR. ALANSON D. MOREHOUSE
Who Heads the Construction Census

"For many years, statistics relating to agriculture and the manufacturing industries of the United States have been collected and compiled by the Federal Bureau of the Census, but it was not until 1930 that a consistent effort was made by the National Government to obtain basic statistics of our second largest industry." The task of securing these basic statistics of the construction industry fell to Dr. Alanson D. Morehouse. His long, varied and intimate contact with the building field, in connection with his engineering, manufacturing and publishing experience, and his splendid record of public service with the government, made him a logical choice for the position of Chief of the Construction Section, Bureau of the Census. Dr. Morehouse now visualizes a permanent construction service for the promulgation of accurate facts about the building industry.

How many builders reported less than \$25,000 for 1929 who ordinarily do more than this amount? The probability is that a great many contractors, now classified among the 100,000 or more reporting less than \$25,000, ought actually to be listed in the other classification.

"Many who in former years did a gross business in excess of this amount (\$25,000), and who will again do likewise, are reported in the lower class and consequently a detailed report of their business was not received", Dr. Morehouse, Chief of the Construction Section, Bureau of the Census, stated recently to an editorial representative of this publication.

The fact that detailed analyses were obtained only from those builders who reported more than a \$25,000 volume of business for the year 1929, means that all detailed statistical data that the census will present in bulletin form will be based on information received from this limited group of contractors.

That the census will yield a great deal of valuable data, useful to all members of the building industry, is already apparent from preliminary releases that have been sent out.

One of the chief contributions of the census will be the light which it will throw on the distribution of the construction dollar. How much goes for wages and how much for materials? How much for other items on the expense sheet?

Here are some of the other facts which the government census will make available:

Value of construction work during 1929, given by contractors reporting more than a \$25,000 volume of business.

Analysis of cost of labor and materials entering into the total value of reported construction work.

Geographic distribution of construction work by reporting firms.

Distribution into principal types of structure (Commercial, Educational, Manufacturing, Residential, Other Buildings) of reported work done under general contract or directly for owner during 1929.

Distribution of construction work done under sub-contract during 1929 by individual classes of work.

Employment situation indicated by reporting contractors.

Distribution of the cost of materials used during 1929 in reported construction.

Number of reporting firms which started business or were incorporated during specified periods of time.

Since every census report that has been properly filled out, virtually gives a complete summary of the contractor's business, it is possible to assemble these facts and to establish average costs for the component parts of a contractor's business. Every contractor will thus be able to compare his own figures with those averages established for the country as a whole.

All information compiled in the census of construction will be first published in the form of bulletins issued for each state by alphabetical progression, one by one. Finally, there will be a bulletin summarizing the facts for the United States as a whole. State bulletins will be issued throughout the summer and fall. It is improbable that the final census summary will come out until the end of this year.

All bulletins published in connection with the construction census will be obtainable from the Superintendent of Documents, Washington, D. C., priced at five cents each. *AMERICAN BUILDER AND BUILDING AGE* will keep its readers informed as to when the bulletins for each state are available.



SPRAY-PAINTING

By
B. A. HOUCK

Save the Surface
Campaign

THE discussion that has raged for many years around the spray painting machine has finally subsided. It is accepted by industrialists, builders and to some extent by home owners, especially those on farms, as the economical means of painting large, difficult surfaces and, to a less extent, decorating backgrounds. And the builder who keeps up-to-date on every phase of building should be especially interested in the finishing possibilities of the spray painting machine, along with its new uses and new developments.

These last are not as startling as they were a few years back, because the manufacturers of spray painting machines have pretty well stabilized their product. However, there have been some changes within the past few years that are rather significant. Owing to the decreased manufacturing activity of the last year, spray equipment for structural painting has exceeded the 1929 level. That is because a larger percentage of general maintenance and new construction painting is being done with the machine.

When Is Investment Justified?

Architects, general contractors, building superintendents, hotels, chain stores and similar large consumers of paint have accepted the fact that under certain conditions, the spray painting machine is a satisfactory means for frequent painting. In fact, for large scale work, the spray painting machine is the established means of accomplishment. The recent advent of a variety of light-powered spraying devices for small jobs makes it a feasible acquisition for the individual builder and painter. For that matter, a group of congenial builders or painters can follow the example set by the farmers in certain sections of the country who form spray paint rings or groups and purchase suitable spray painting equipment, using it for the various jobs that come up within the group.

Just where and under what circumstances the spray painting machine is most effective is information which every builder should have. When to spray paint—and

when not to spray paint—that is the question. Even the most assiduous spray paint enthusiast realizes that there are surfaces which can more suitably be covered by means of the spray gun than others. The "atomized" paint, varnish, enamel or lacquer from the spray gun penetrates every crevice of the surface and this is an especially important consideration when rough surfaces are being coated. Old surfaces, too, ones which absorb the paint rapidly and which have a tendency to splinter or powder or are cracked and worn, can be very effectively covered with the spray gun.

Spraying for Inside Work

Inside the house or building, the use of the spray gun is more restricted than it is outside. However, unbroken or rough surfaces, of which there are obviously fewer inside, are here as advantageously covered with the spray gun as they are on the exterior of a building.

But inside, there is another use to which the spray gun may be put effectively. That is for special wall finishes. Very unusual and attractive effects may be obtained by the manipulation of the spray gun and the use of a variety of different finishing materials. Many of the methods for obtaining these various special finishes have been worked out by painters and builders, themselves. Others are the ingenious results of experiments which paint manufacturers make with the spray gun, using their own products. Still others are worked out by the makers of spray painting equipment. Many new kinds of special finishes for the spray gun are devised every year and pamphlets containing the method of procedure in achieving these are to be obtained from the paint companies or the spray gun manufacturers. Wide-awake builders and painters will keep up on them by this means, because their popularity increases and wanes according to public taste.

One of the recent developments which is important from the standpoint of interior decoration with the

PAINTING BROUGHT UP-TO-DATE

spray gun is the new machine which will spray sand, powdered shells or other finely ground substances onto a wet surface which, when dry, produces unusual and very attractive finishes. This machine has a larger tube reaching into the container to accommodate these materials than the one for liquids and the spray gun is like a tube flattened out.

Any liquid substance may be atomized by means of a spray painting machine. However, heavy materials like plastic paint cannot be atomized with suction, as can light materials like lacquer, varnish, shellac, etc. There must be pressure in the cup of the spray painting machine to atomize heavy, liquid substances. And for many exotic types of finishes, like veiling, special nozzles are necessary.

Yet with the ordinary spray gun, the proper adjustment of the nozzle will produce a variety of decorative wall finishes. Blending, of both plain or graduated types, mottling and spattering may be done successfully with the ordinary spray gun and ordinary flat wall paint. With plastic paint, even more varied effects may be obtained. The paint is sprayed on the surface in heavy blots and then some instrument is used to manipulate it, such as a graining comb, a board or a piece of burlap. The improved nozzle—that is, improved over the old style one of several years ago—makes feasible the application of glaze coats on rough-textured wall finishes. Too, the possibility of adjusting the nozzle to a fine spray has widened the scope of the spray gun so that it can coat successfully a narrow space or allow the painter to decorate panels and woodwork with lining and striping.

Application Tricks

And speaking of decoration, the spray gun, especially in the commercial field, can be turned to good account. Stenciling is one of the outstanding achievements which the spray gun has made feasible because it can be done so perfectly and easily. Most of the stenciling which we see in the stores on lamps, vanity boxes, mirrors, vases, furniture and other objects of a similar nature is done with the spray gun. Since stenciling plays so prominent a part in the decoration of the modern home, the builder finds the spray gun a great advantage here. The vari-colors may be put on so neatly and so rapidly, without any of the disadvantages of smearing the design, if ordinary care is exercised.

Accessory developments in materials and aids have done much to advance the use of the spray gun in its own field as much as have developments in the apparatus, itself. Take for example, the tape of cloth or paper which is used as a protection against over-spray. It is this innovation which permits the painter to accomplish successful lining and striping. A protective liquid, which easily washes off with soap, was invented some years ago to protect mirrors, mouldings, baseboards and other spaces from the undesirable onslaught of over-spray.

Another use for the spray gun was developed with the introduction of a flame-proof liquid which may be sprayed on walls or fabrics or added to paint that is to coat surfaces where it is important to guard against fire. It can be sprayed on as a pigmented undercoating or as a clear liquid on fabrics, with the nozzle adjusted to so fine a spray that it cannot be seen or felt when dry.

However, so far, this is practical only for inside use. The province of the spray paint machine will be considerably widened when this or a similar material has been developed to protect the exterior as well as the interior.

The many improvements in the paint-spray equipment itself have culminated in a portable machine for structural painting and decorating which consists essentially of the following parts; (There are many variations of this standard type for industrial uses.) An air compressing equipment, operated usually by a gasoline engine or an electric motor; a pressure tank or container to hold the liquid to be applied (this includes a fluid-regulating device by means of which the pressure in the container is effectively and easily controlled by the operator); an air regulating device by means of which the air supplied to the nozzle is controlled; the device by means of which the spray is formed and applied (ordinarily known as a spray gun because of its shape which somewhat resembles an automatic pistol); and hose of practical length for supplying air to the material tank and air and fluid to the spray gun.

Improvements in Spray Gun Design

As the spray gun is the most important unit of the machine, it has been subject to the greatest number of changes as engineers have sought to refine it. Since the main object is to shoot forth a readily controllable spray at uniform rates of speed, variable at the will of the operator, changes in the spray gun have been made with this end in view. Now the builder may purchase, at nominal expense, attachments for the spray gun with which to do some of the types of special decoration previously mentioned. For example, spattering, veiling and misting may be done by the ordinary spray gun if certain special attachments are put in place.

Of course, easy and effective cleaning of the spray painting equipment, especially of the gun is a necessity. After the job is finished, the paint container should be filled half full of solvent and the solvent allowed to spray out the nozzle, cleaning the hose and the gun. There are special hose cleaners manufactured to keep the material hose clean. They operate by forcing a spray of solvent through the hose, thereby removing all finishing material from within and lengthening the life of the hose, as well as insuring good results in spraying.

Skill is Easily Acquired

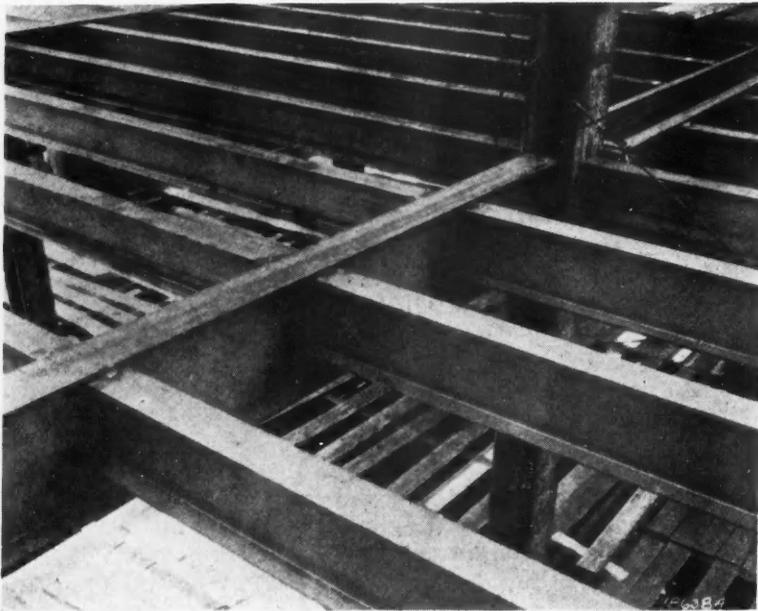
Many builders and painters are deterred from the use of the spray painting machine by a lack of knowledge of how to operate the gun. This is unnecessary because the knack of operation is easily acquired. A short period of practice on some out-of-the-way surface is advisable so that the individual adjustments of the gun may become familiar. If it is used slowly at first, the operator will learn to use it properly and speed will follow.

In a way, each decorating problem is an individual problem as different materials require different adjustments. Entirely different results may be obtained by changing the fluid adjustment at the rear of the spray gun, the pressure in the pressure feed tank, the atomizing air pressure at the air transformer and the spreader

(Continued to page 134)

Simplified Details

CUT ARC WELDING COSTS



Practical Procedure for Electric Arc Welding of Structural Frames Demonstrated on New Westinghouse Laboratory Building

By A. H. WESSEL,

Associated with Bernard H. Prack,
Architect and Industrial Engineer,
Pittsburgh, Pa.

View Showing Beams Framing Into Girder Where Steel Wedges Were Used to Hold Them in Position During Process of Erection.

THE unique simplicity and practicability of the design of details used on the new Westinghouse Laboratory building, as compared with those used on the earlier designs, demonstrate that electric arc welding has a wide range of application, and, when perfected, will bring about many beneficial changes in the design and construction of buildings.

This recently completed Central Engineering Laboratory Building at East Pittsburgh is, as far as we know, the largest undertaking of 100 per cent electric arc welding in building construction up to the present time.

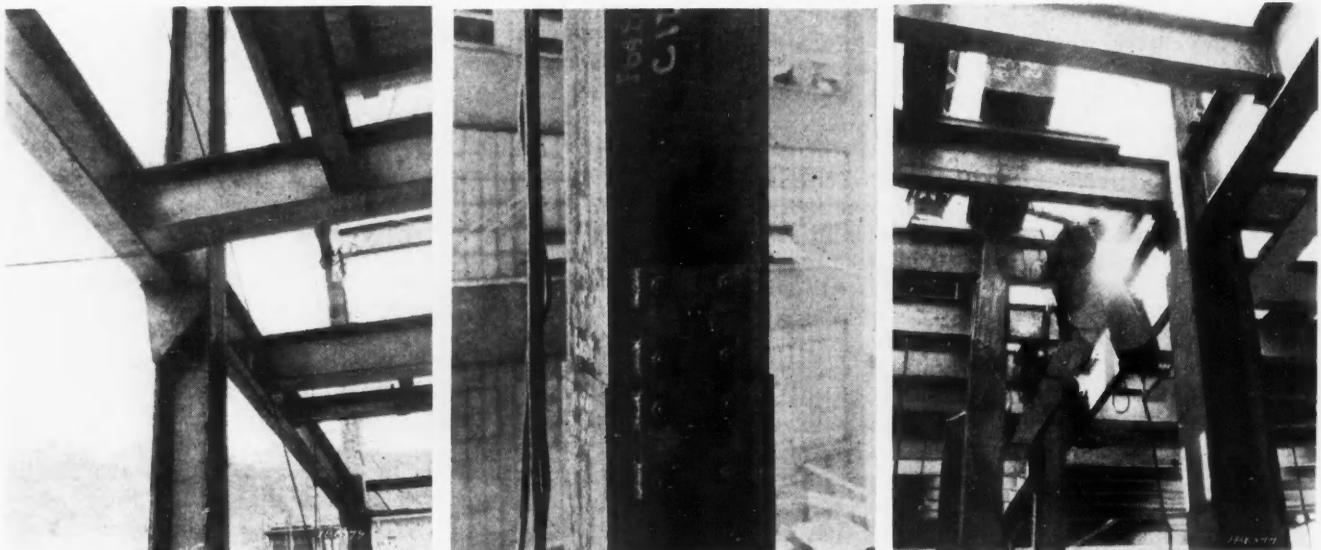
The building has a ground floor area of 120 ft. by 220 ft. and is 11 stories high. The various floors are

designed for live loads of 500, 400, 200, 150, 100 and 75 lbs. per sq. ft.

The building has a structural steel frame with all connections electric arc welded. The construction idea carried out was to do all welding possible in the shop and reduce the field welding to a minimum.

Pointing out a few of the recently developed details of construction used in this work, the column splices proved to be of particular advantage, as well as economical in that no punching or drilling of holes was required in the column section itself, and also eliminated the usual fill plates required to compensate for the variations in column sections. The column lengths are three stories, except in the lower stories, where

Simplified Details Which Cut Costs; Left: View Showing Spandrel Beam Connection to Column; Center: Column Splice After Completing Field Welding of Splice Plate to Column Plates; Right: Girder Details.



they are two story length. The column splices were made by means of plates placed parallel to the webs of the column sections and welded to the inside faces of the flanges. Two such plates were placed on each lower and upper section. These plates were punched for bolts to be useful in erection only. As the upper section of the column was being put in place, these plates were fastened together in pairs by single splice plates, punched with holes to match and bolted to the plates welded to the flanges of the column section.

The bolts were placed in two rows parallel to the longitudinal axis of the column.

After the steel work had been plumbed and lined up, the splice plates were welded to the column plates, thus completing the column splice.

The connections of the main floor girders to the columns were made by means of angles placed parallel with but spaced from the webs of the column sections and welded to the inside faces of the flanges. These serve as a seat upon which the girder rests. In the bottom flange of the girders two holes were punched and two corresponding holes were punched in the horizontal leg of the angle welded to the column flanges. These holes served for erection bolts and after the steel work had been lined up the bottom flange of the girders was welded to the seat angle; and to give stiffness to the frame an angle was welded to the top flange of the girder and the column web.

Where floor beams run at right angles to the girders and frame to the columns, a detail of a top and bottom angles welded to the flanges of the columns and the beams with double shear plates on the web of the beams was used.

For the floor beams framing into the floor girders, a very simple and economical detail was developed, eliminating all framing or shop work on the beams, making it possible to ship them direct from the mill to the job.

The floor beams were set at an elevation, so that the top of the upper flange would clear the bottom side of the top girder flange by $\frac{1}{8}$ to $\frac{1}{4}$ inch.

Shelf angles were welded to the web of the girder upon which the floor beams rest. As each floor beam was set in position a small steel wedge was driven in tight between the top flange of the floor beam and the bottom side of the girder's top flange to prevent the floor beam from tipping over or moving off of its seat. After the steel work had been lined up, the bottom flange of the floor beam was welded to the seat angles, thus connecting the floor beam and the girder. On the spandrel beams two of the floor beams were connected at the top to the spandrel beams by means of angles, so as to support the top flange of the spandrel beam at third points and stiffen same against horizontal deflection.

In cases where the beam reaction was such that it could not be taken care of

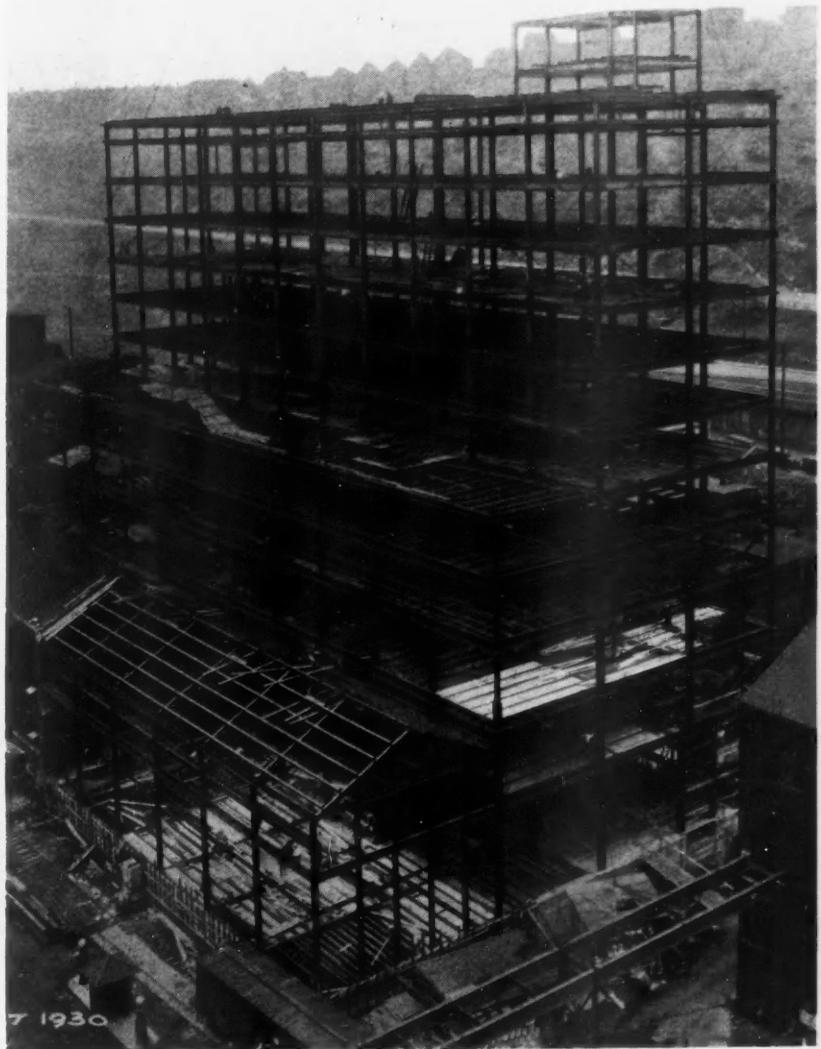
economically on shelf angles welded to the web of the girder and also where the reaction exceeded the end bearing or shear capacity of the beam, double shear plates were welded to the webs of the beam and girders.

All welded connections were designed so as to eliminate overhead field welding and permit all welding to be done either on vertical or top horizontal surfaces.

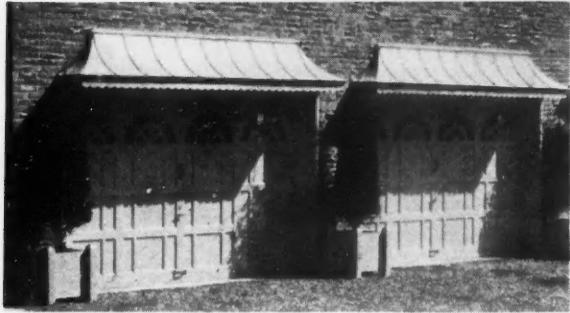
All welders, before being employed on this work, were required to weld several samples in accordance with prescribed specifications. These specimens were tested and broken and the requirements were that the weld metal must show complete fusion, as well as a neat smooth uniform weld in appliance. No applicant who could not fulfill the required test was permitted to work on the job.

In addition, all welders working on the structure were required to make such samples for tests once a week, during their employment, as a safeguard that they were at least maintaining their previous standard. Each welder was required to stamp or mark each weld with an identification mark upon its completion for a final check and inspection by a specially appointed inspector, thereby maintaining the standard of welding up to the highest efficiency possible.

The total amount of shop welding was 12,527 lineal feet of $\frac{3}{8}$ inch fillet and the field welding amounted to 12,305 lineal feet of $\frac{3}{8}$ inch fillet.



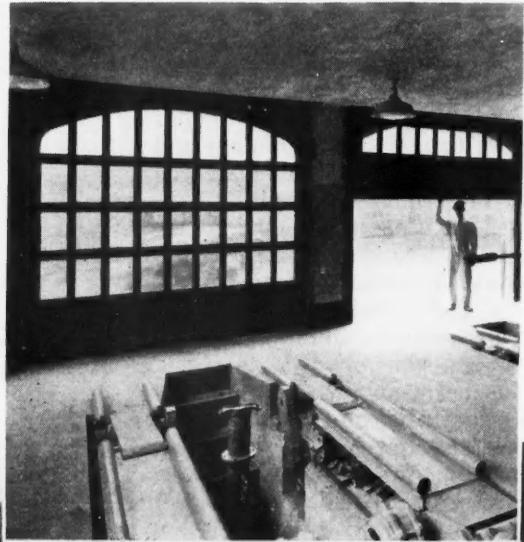
Welded Structural Steel Skeleton, Westinghouse Laboratory Building.

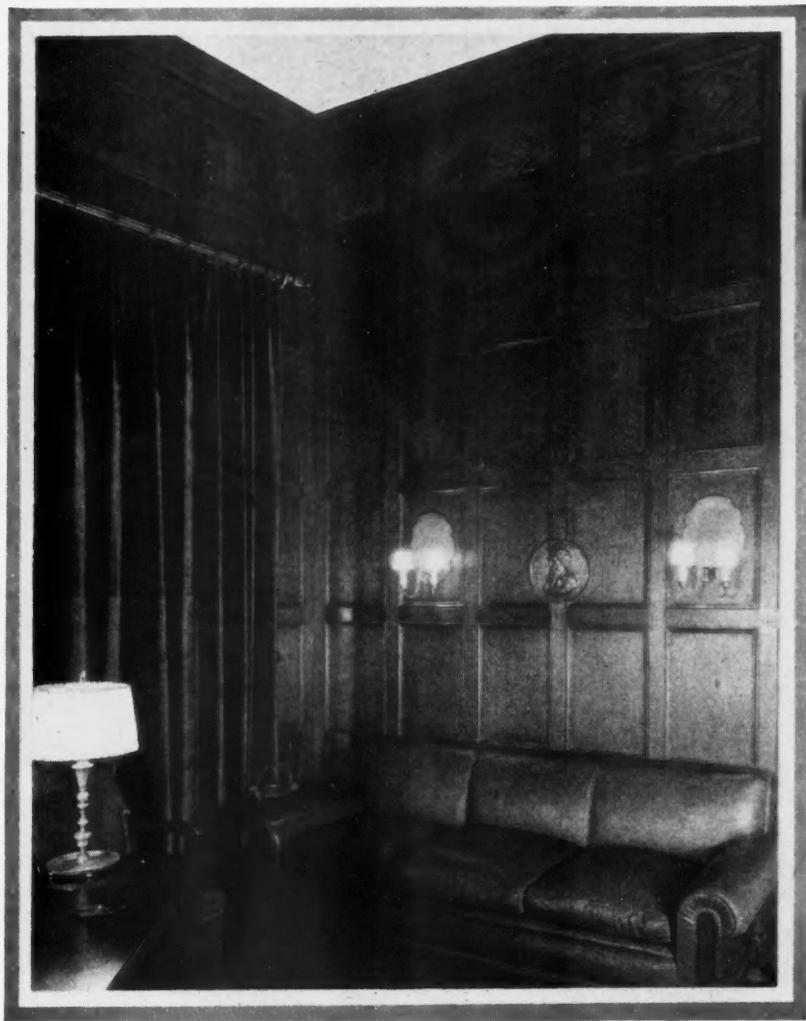


Overhead Door Corp. Installation in W. W. Pitts Home, Chester Hill, Mass. To left, specially designed garage doors in a Washington apartment.

**Popular for Business
as for Private Garages**

Richmond, Va., Service Station of Firestone Tire & Rubber Co., with Overhead All-Glass Doors 10 by 13 feet. To right, inside view of a Chicago installation.





Private Office,
Los Angeles Soap
Company,

MORGAN, WALL
& CLEMENTS
Architects

Business Interiors of Wood

Decorative Finish in the Style of 1931

By CHARLES R. FRENCH

PROSPEROUS American business seems to be taking its building hints these days from the banker, the hotel owner, and the theater builder, those past masters at the art of making architecture assist business.

Top-speed competition has turned everything associated with progressive business, including all phases of housing, into a part of the sales or advertising program. It has given business housing a new interpretation as a part of the *business getting* equipment of an organization instead of a mere means of shelter.

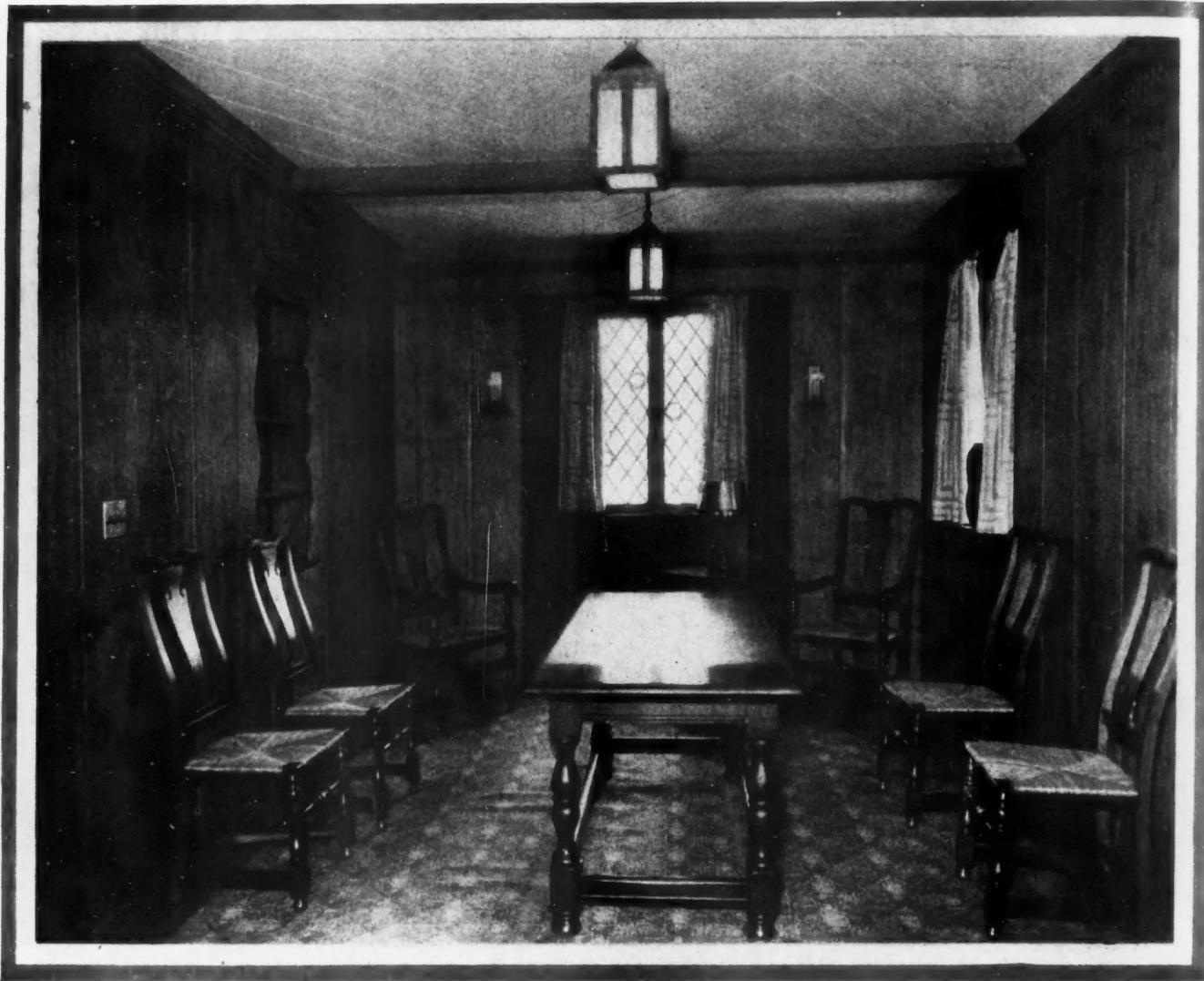
This new view of the business building as something more than a means of keeping out the rain holds many possibilities for the builder who can sense the drift in sentiment toward the more pretentious business home as a competitive necessity, and merchandise the idea. There lies ahead a fertile field for new building and remodeling, especially in offices, or in any part of a building where the public is met, for the builder who

will use the lever of better architecture for better business.

The carefully planned "institutional" advertising policies of the larger corporations extend to every point on which the prospect or customer may have a chance to form an opinion of the business firm. This policy often begins with the physical environment in which the public is met and the effort to make the first impression a good one is changing the character of our office housing and eliminating many of the previous radical differences between office interiors and home interiors.

Big business has broken the ground, set the example, and reduced the sales resistance for the builder who would sell smaller organizations better, more artistic, business housing.

If decorative materials and architectural worth will produce a sense of solidity in a bank, bring guests to a hotel, and patrons to a theater they will help the sales of other business institutions. The elements of a struc-



A Business Conference Room in the Union Trust Building, Detroit, Reminiscent of Tavern Days. The walls of this room are panelled in Michigan White Pine

ture which foster an impression of business eminence and broad success for the banker and the hotel man will not work backwards for the insurance man, the lawyer, or the automobile dealer.

Builders and architects are facing a changing taste in business structures as they have faced and met a changing taste in dwelling structures during the past few years. Those who capitalized on the changing dwelling taste have profited handsomely. The same thing can be true with commercial buildings. This is one reason for the present majestic proportions and mass of business buildings which lend a sort of glory to their functions.

Until a few years ago, when certain business groups discovered that Americans were very willing to be attracted in their buying by pleasant surroundings, the order of the day in interiors was utility and economy, heedless of beauty. The road ahead in this direction is long, but bookkeepers no longer sit on high stools with quill pens behind their ears; and the offices have moved from the loft district. The moving in of a few miscellaneous desks in space that was taken as found, the addition of a filing case, and the hanging of a calendar is no longer the formula for the establishment of an office.

Especially prepared, or at least remodeled, quarters can be made the order of the present day all down the

business line if alert builders press the advantage given them by the examples of business leaders.

A leading American advertising agency, an organization, which has proved its ability at sales psychology, has recently established an entire floor of de luxe offices in a New York office building with the purpose of impressing prospective clients and also of impressing *themselves*. This latter rather singular reason is explained by an official who says that if pleasant surroundings are good for the public they have a value for executive and employees too. If good quarters inspire outsiders to buy, they may inspire insiders to work.

New Opportunities for Panelling

It begins to look as if interior decoration, an art and a trade with reference to dwellings, clubs, and monumental buildings for the last decade, is going to do a little mixing with business. The demise of the Victorian period office technique is going to produce a lot of good sales arguments for alert builders.

What is this new taste in business homes going to be like? What sort of surroundings and equipment will help sell an office to the progressive business man

of the future? What will the alert lessee look for and what sort of changes should be effected to give an office an atmosphere in keeping with the work done there and its sales importance to the trade?

In the first place, offices will look more like homes—they will be more comfortable and more inviting, but not necessarily more expensive. One feature, presumably borrowed from the good taste of many residences and the modern club seems to be generally adopted by the designers of pleasing new offices is the use of panelled walls. Panels have the advantage of providing a mural surface that is sufficient unto itself. They are admirably suited to the tone of the business establishment and give a dignified contrast to the papered surfaces of the dwelling.

Examples of Panelled Interiors

The State Street Trust Company's interesting new home in Boston, featuring Early American panelling throughout, inspired by the Colonial architecture of the city itself, is an interesting example of distinctive business construction.

The owners of a new building in Pittsburgh who equipped their offices with decorative fireplaces and panelled the walls in common pine in the Colonial fashion, experienced an immediate acceptance of their quarters from all kinds of professional men. The building was 100 per cent rented before the finishing touches had been given the panelling. It is interesting to note that in this instance the omission of plaster and decoration in favor of the application of common pine boards costs very little more than the conventional type of wall covering.

The new office building of a prominent St. Louis manufacturer, a structure to which many retailers will come to make annual merchandise purchases, has "pecky" cypress in panelling throughout—an inexpensive material, yet adequate for a distinct impression on the visiting buyer.

However near the office may approach the home in interior appointments in the future, we shall of course, never arrive at the place where lace curtains and rag rugs are a part of the business environment. Business has a definite tone all its own. While it is borrowing from the home, from the club, and from the monumental type of building for its improved housing, it warrants the development of an individual technique.

Wood panelling seems to be most popular for bridging the gap between the home, the club, and the monumental building in the formation of new office plans.

Recent advances in the manufacture of special woodwork by large millwork factories, hitherto, limited to the production of doors, sash and trim, has made possible low-cost panels for complete rooms which formerly were considered even too expensive for many residences.

Panelling Costs Shown

Competent architectural designers have been employed by certain large millwork factories in preparing original patterns for machine-made panels to be produced on a large scale. The cost of this designing service, when spread over a big production schedule, is reduced to a negligible amount for the individual purchaser. Hours of costly hand cabinet work have been replaced with the simple carpenter labor of installation.

Panels in business institutions eliminate the annual refinishing of walls, with attendant interruptions to business. When properly varnished or waxed in the beginning, wood panelled walls will not deteriorate in many years of service.

Panels for Modernizing

Another valuable attribute which has been influencing the selection of panels by builders is the fact that they need not be installed at the time a building is built. They are just as effective, just as easily installed, and no more costly on the walls of an old office as in a brand new building.

Like some of the earlier types, a great many modern panelled walls employ oak, walnut, gumwood and mahogany in thin veneers.

A truly American wood wall, lately become very popular in offices is one of common knotty pine, boards—and the knottier the better—placed vertically. The precedents for the use of this native material are found in the Colonial-period homes, taverns, and business places along the eastern seaboard. It is less expensive in both material and application costs than most formal panels although the latter are preferred when the decorative theme is magnificence and sumptuousness.



Secretarial Corridor Demonstrating Use of Simple Wood Panels



General Staff Room, Trust Dept., Union Trust Building, Detroit



The House of the Month

Seven Rooms and Built-in Garage Housed Most Charmingly in This Brick and Shingle Cottage

THE motor room is an essential part of the modern home, for in a great many of the outlying subdivisions the family car is about the only means of transportation there is. Accordingly, the wise home-builder today plans the garage right along with the house; and in most instances it is more satisfactory and less expensive to have the auto housed right under the home roof, rather than in a separate detached building.

Where the contour of the land is at all rolling the garage very nicely becomes a part of the basement, as in this April design. The doors are selected to present a substantial, impressive appearance and the elliptical head and the fan treatment above the doors are in perfect harmony with the French Cottage spirit of the whole.

Notice that the house proper is of brick construction. The garage entrance, projecting 3 feet, 7 inches to the front is in the lighter shingle construction, which serves to retain for the house entrance the major emphasis and importance.

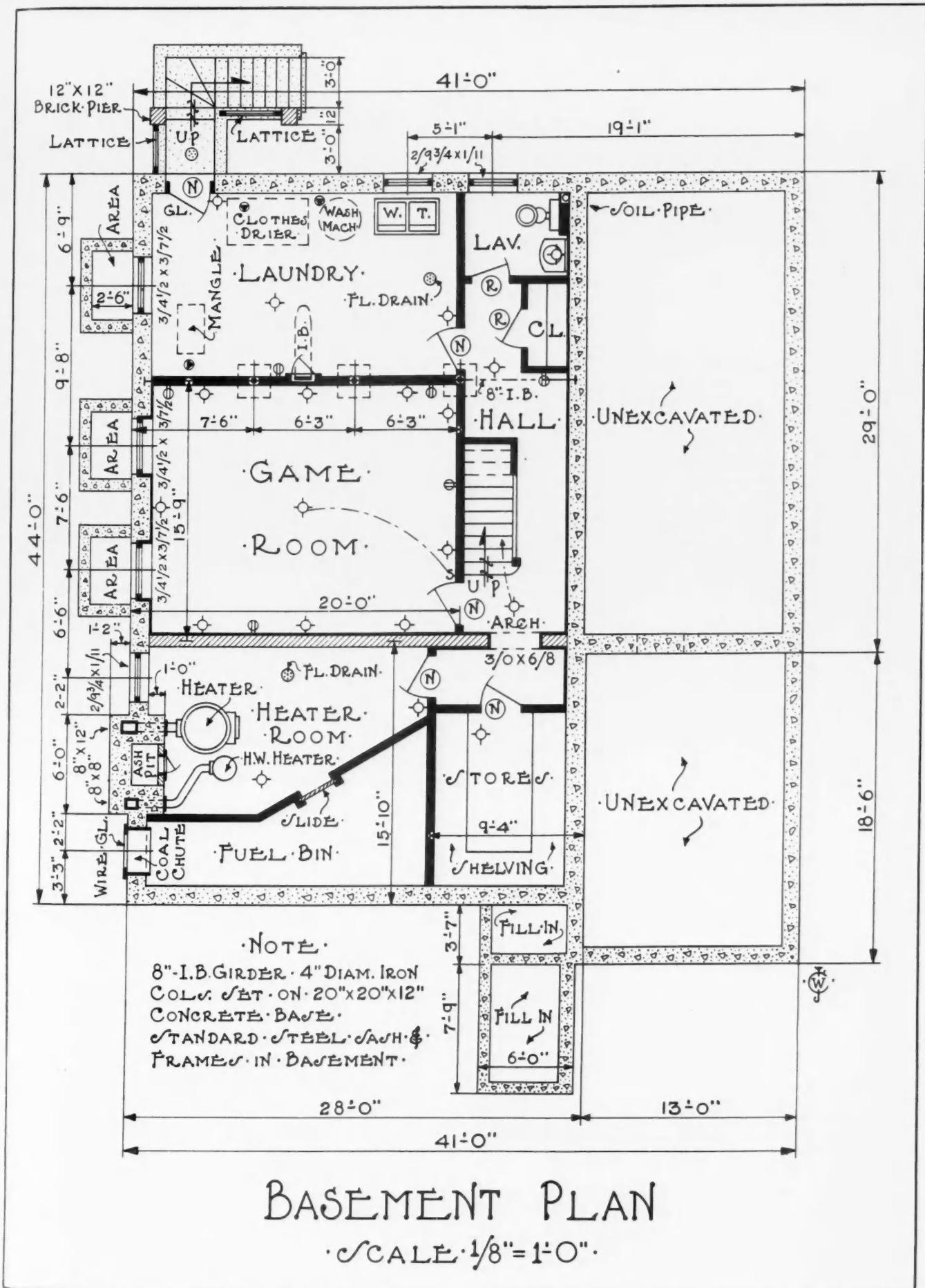
Inside, this April home is laid out in a very interesting way. Study the plans on the four pages following and you will discover many worth-while details. Suggestions may be drawn from these plans to work with many other designs; or, if this exact plan should happen exactly to fit your needs, these drawings as published can be followed with confidence, since they are the work of a licensed architect of long experience.

As a good example of draftsmanship these plans are also interesting and valuable. Many who are students of architecture and of plan reading will get great value from a careful analysis of this set.

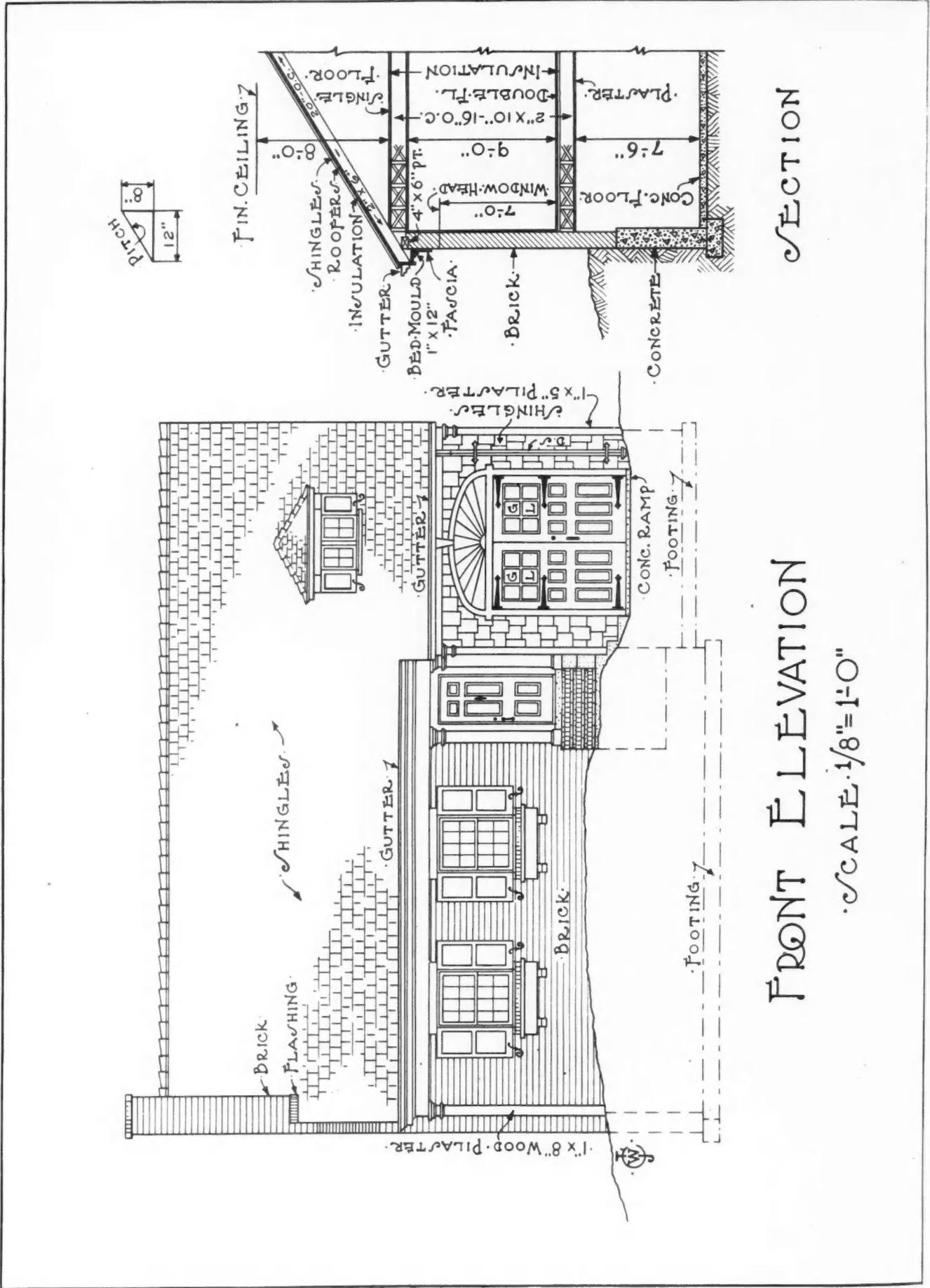
Every year many of these fully detailed designs are utilized by subscribers for actual building. If cost records could be secured from such jobs and brought together for comparative purposes, it would be a most interesting and valuable body of cost data. The editors will be glad to hear from any who have built or are planning to build from one of these published plans. Send a detailed cost statement, if possible.



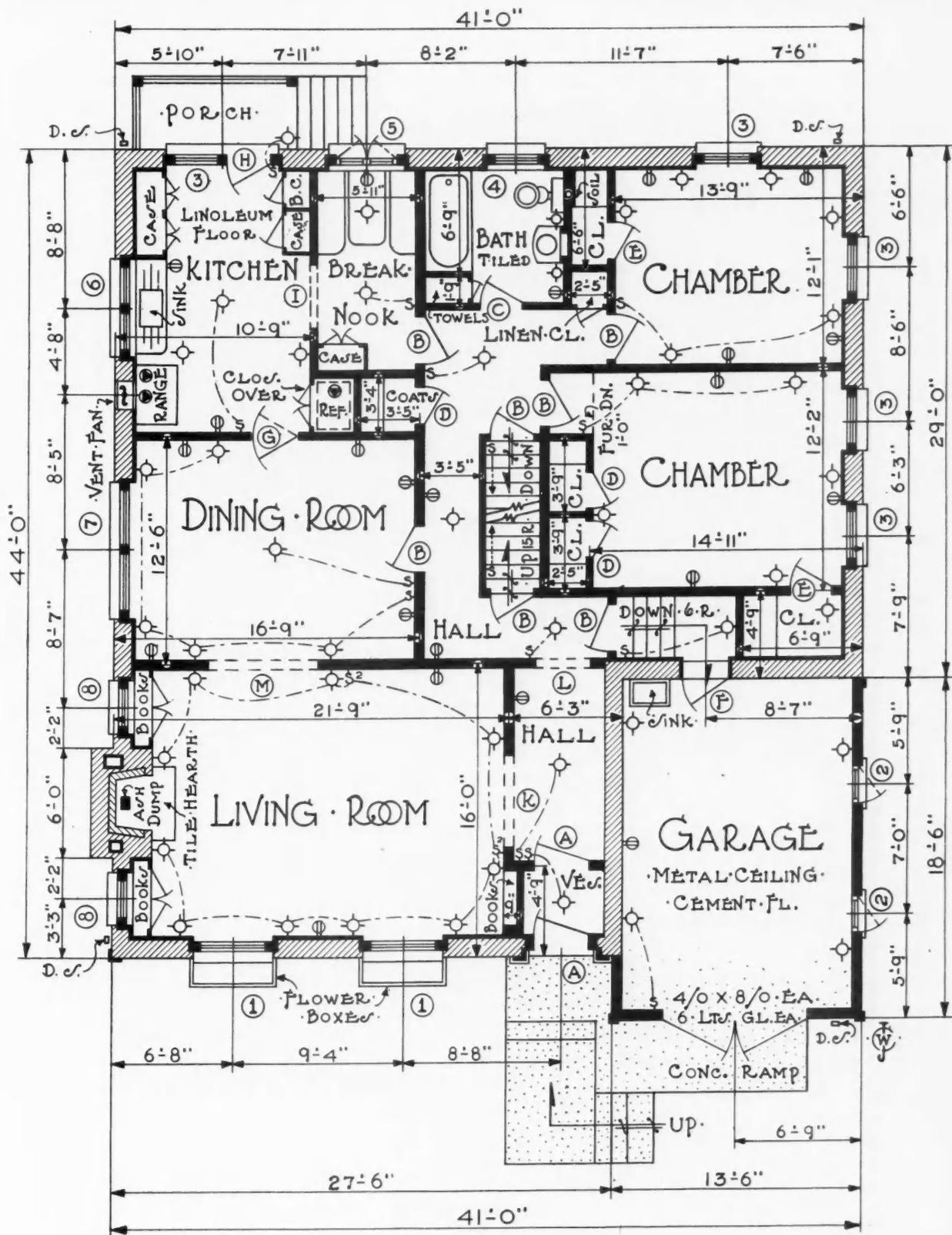
Detail of Entrance



The Outside Basement Door and Stairs from the Laundry Wins the Housewives' Approval.



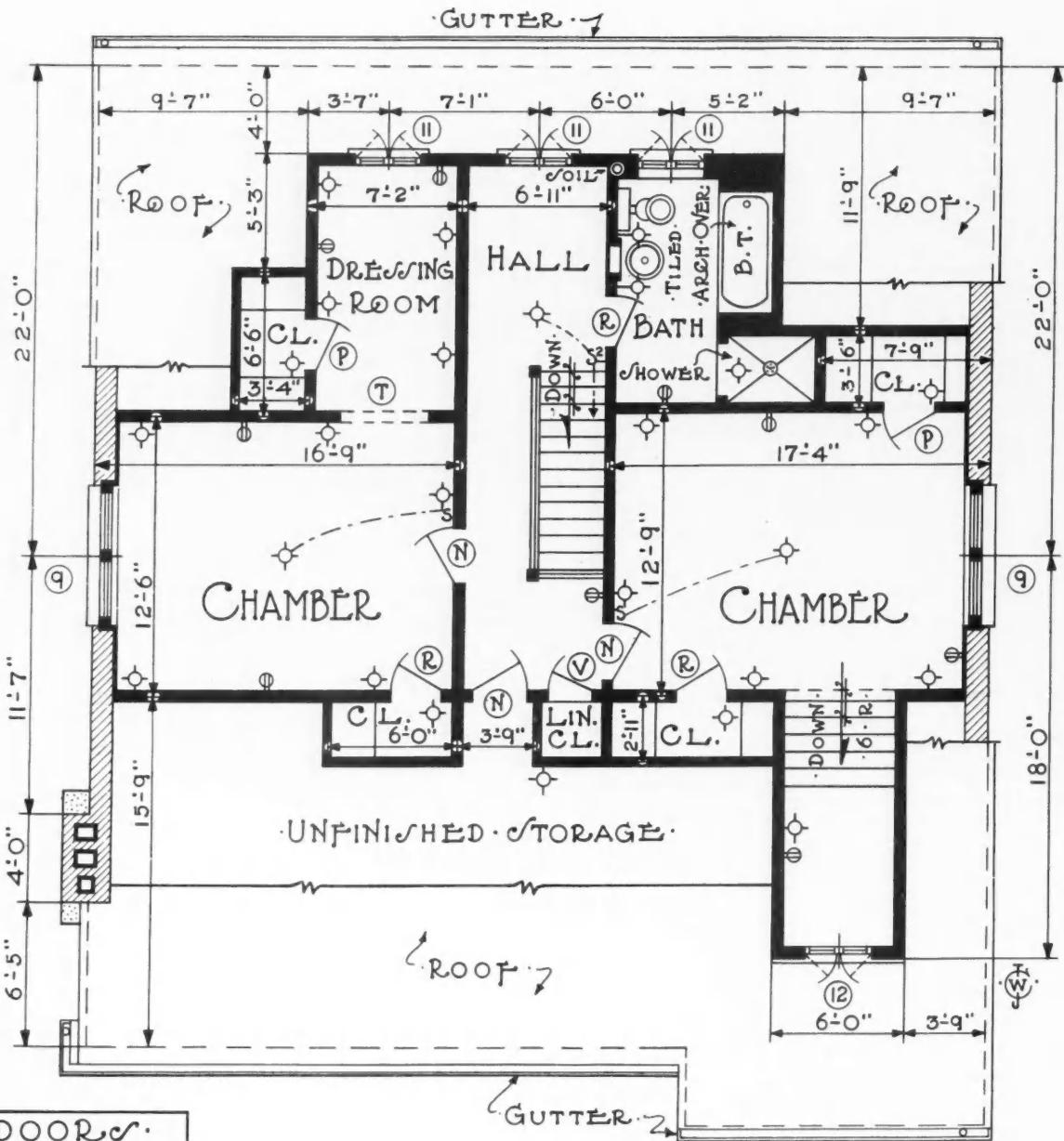
The April House of the Month Is a Clever Little French Design in Brick and Shingles.



FIRST FLOOR PLAN

SCALE $\cdot \frac{1}{8}'' = 1'-0''$

Two Light and Airy Bedrooms are Provided on the First Floor Besides Two More Up Stairs.



• DOORS •

A	3/0 X 7/0 GL.
B	2/6 X 7/0
C	2/4 X 7/0
D	2/0 X 7/0
E	2/0 X 7/0-MIRROR
F	2/6 X 7/0-P.P.C.
G	2/6 X 7/0-D.A.
H	2/6 X 7/0-6 LTS.GL
I	3/6 X 7/0-PL.ARCH
K	5/0 X 7/0 " "
L	3/0 X 7/0 " "
M	6/0 X 7/0 " "
N	2/6 X 6/8
P	2/4 X 6/8-MIRROR
R	2/4 X 6/8
T	4/0 X 6/8-PL.ARCH
V	2/0 X 6/8

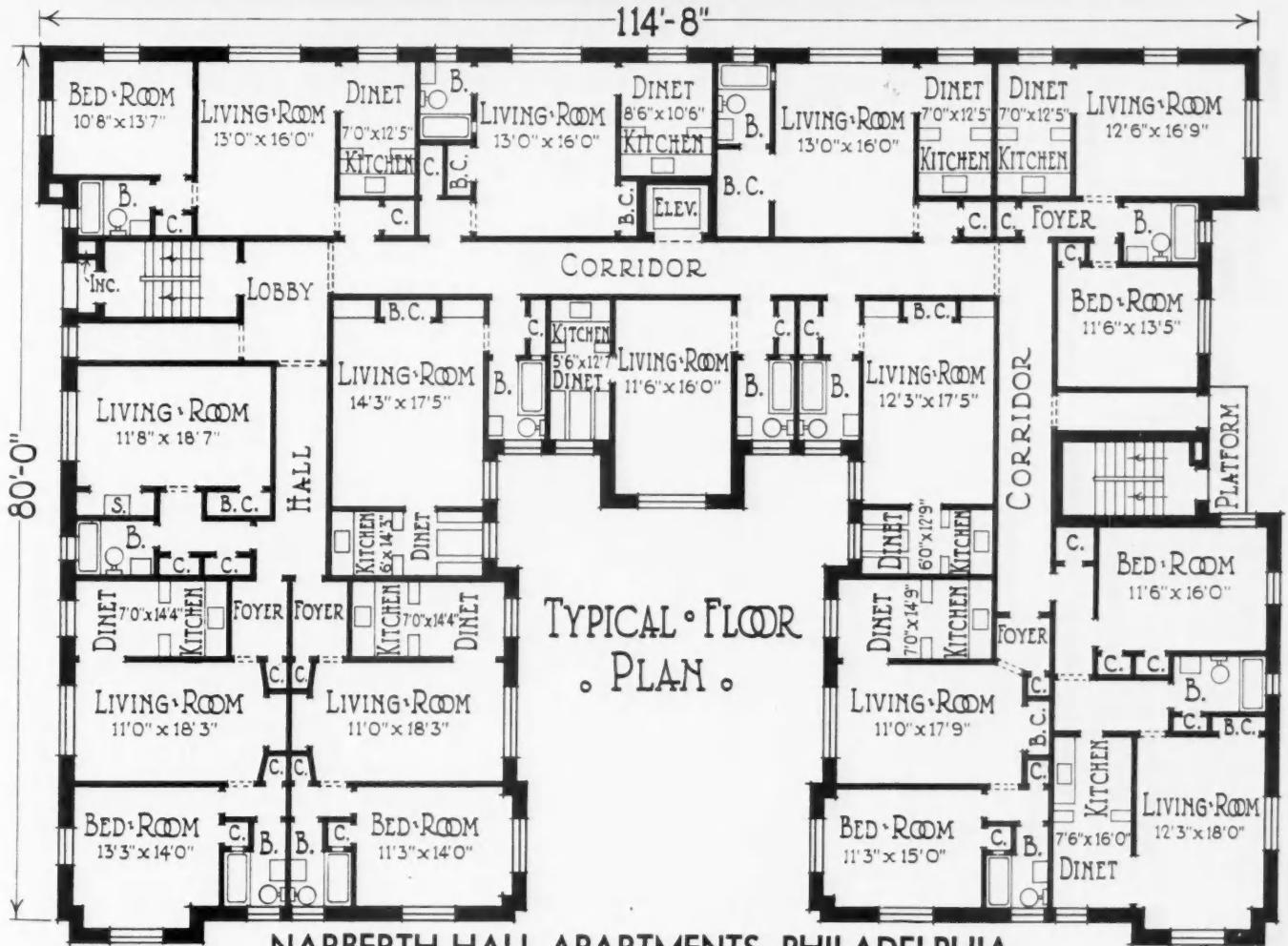
• SASH •

1	3/6 X 4/6-D.H.
2	2/0 X 3/0-CAS.
3	2/6 X 4/6-D.H.
4	2/4 X 3/6-D.H.
5	1/8 X 3/10-EA.CAS.
6	2/0 X 3/6-EA.D.H.
7	3/0 X 4/6-EA.D.H.
8	2/0 X 3/6-D.H.
9	2/6 X 4/0-D.H.
11	1/6 X 4/0-EA.CAS.
12	1/6 X 2/2-EA.CAS.

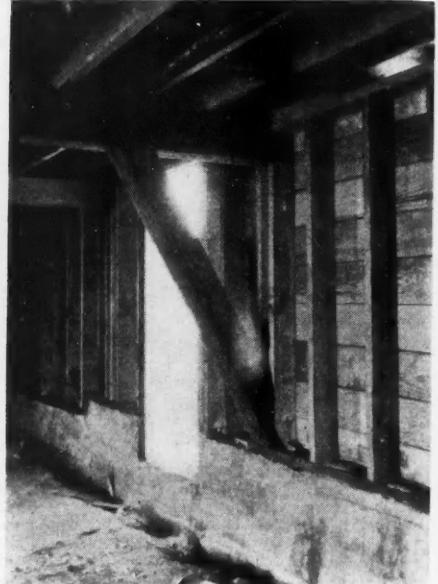
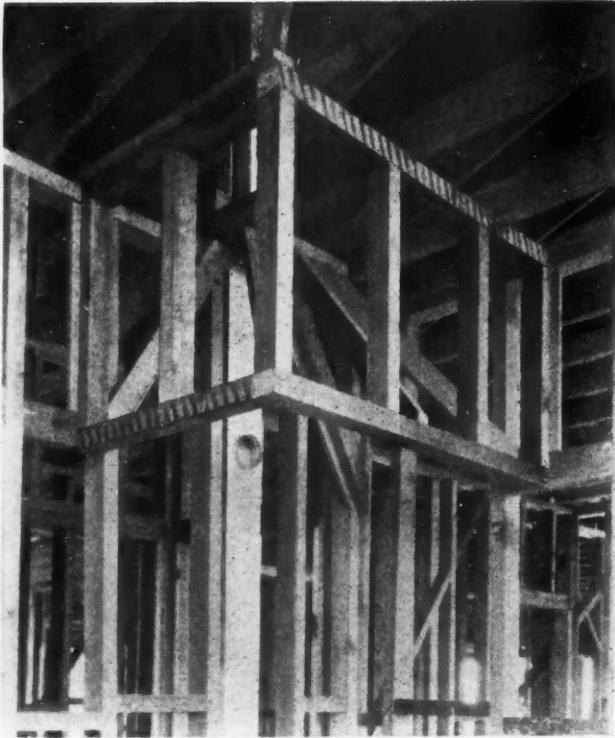
SECOND FLOOR PLAN

• SCALE 1/8" = 1'-0" •

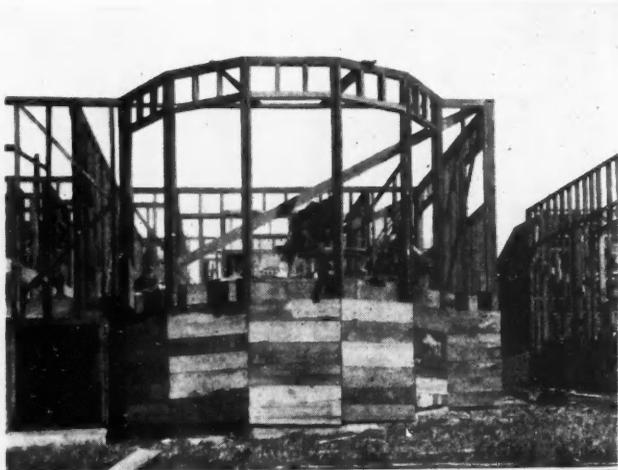
A Surprising Amount of Usable Space Is Discovered Up Under the Roof of this April House.



NARBERTH HALL APARTMENTS, PHILADELPHIA
 J. ETHAN FIELDSTEIN, Architect; MAURICE HEILVEIL, Builder

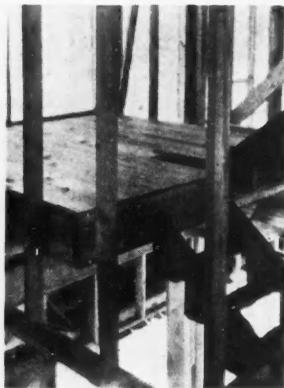


BRACING for end girder, as done by G. W. Morris, San Francisco. To left, framing for range hood, Sey Brothers, of Hollywood.

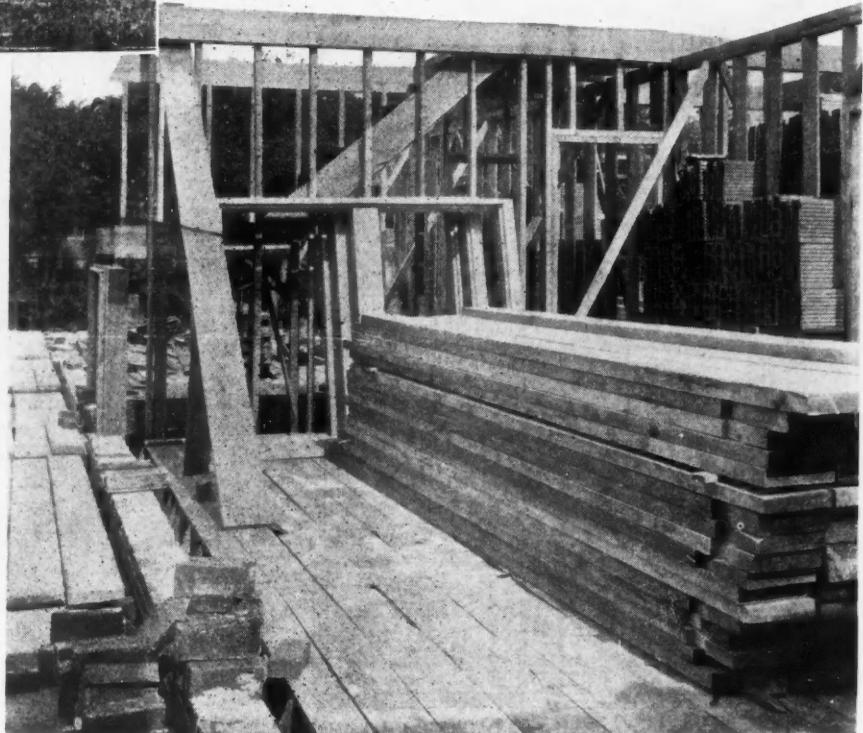


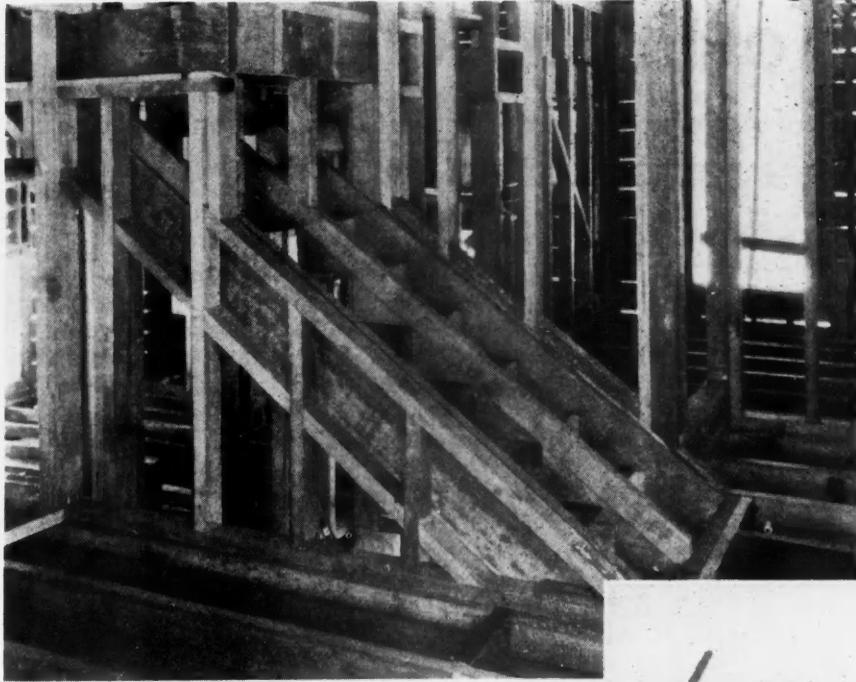
OCTAGONAL BAY as framed by builder C. S. Allred, San Francisco.

How the other fellow does it is shown by the camera man. Have you a better way? If you have, send it in; the editors will pay \$3 for every published photograph.



SMALL STRINGER framing by J. S. Smith, Shreveport, La. At right, partitions and stairs built before walls by Enterprise Bldg. Co., Providence, R.I.

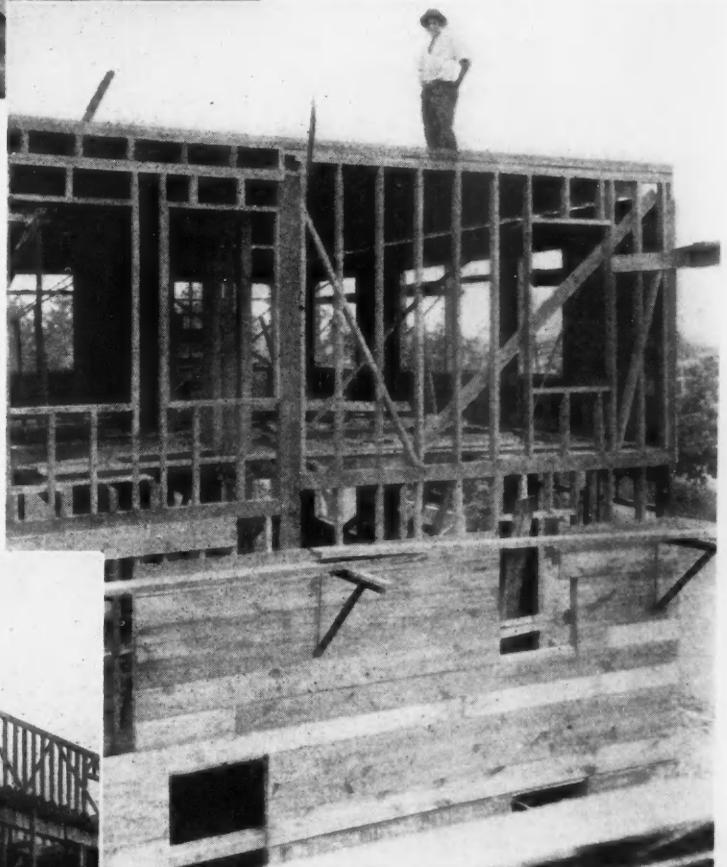




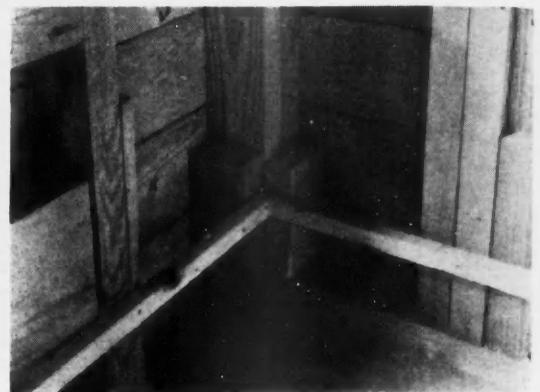
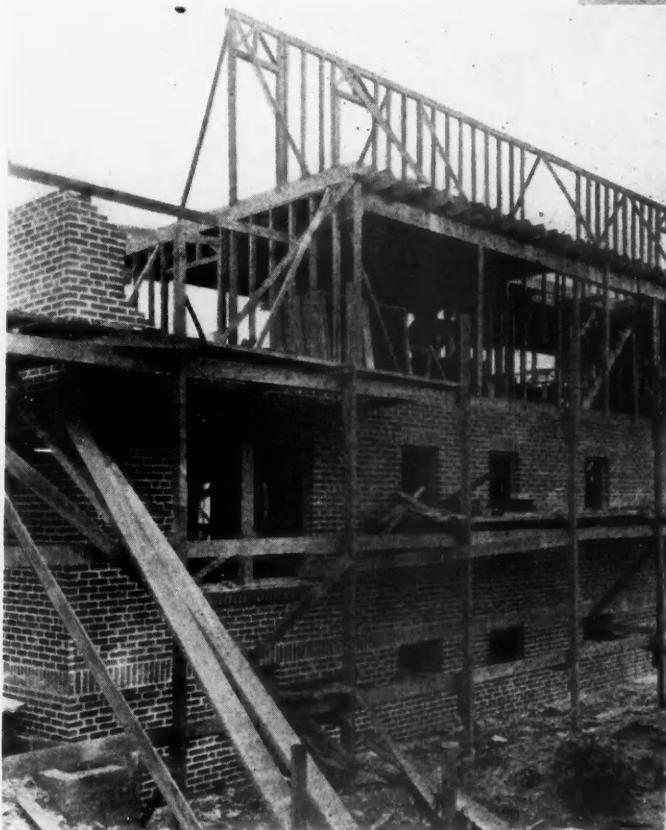
STAIR FRAMING under way in house at Oakland, California, built by Charles Barkis.

On the Job WITH BUILDERS

MORTISED GIRDERS and columns (below) employed in building by George Jacobson, Watertown, Mass.



F r a m i n g M e t h o d s



PARTITIONS and stairs built before walls (at left) by Enterprise Bldg. Co. Above, John Haerber's Milwaukee method of fixing grounds at corner.

How To Build Better

The Second of a Series of Articles on Frame House Construction*

By ROBERT W. HAMBROOK AND N. S. PERKINS

Foundation Sills

The foundation sill is a plank or timber resting upon the foundation wall. It forms the support or bearing surface for the outside walls of the building. As a rule the first floor joists rest upon it.

Type Job No. 1.

To frame and install a foundation sill.

Technical Information.

General—Occasionally the sill is omitted entirely, and floor joists are permitted to rest directly upon the foundation. It is difficult by this method to obtain a perfectly smooth, level surface on which to rest the joists; and it is correspondingly difficult to align them satisfactorily. It, therefore, becomes necessary to shim up under some joists. If used for this purpose such materials as bits of shingles, lath, and the like tend to squeeze down and in time work out of place or otherwise cause difficulty. If slate or similar material is used for shims, it is difficult to secure it in place. Consequently, vibrations in the building are likely to work it loose and cause subsequent unevenness in the floor. Therefore, a sill, properly bedded in mortar, is to be preferred. Figures 7 to 10 illustrate different types of sills.

Size—For small buildings of light frame construction, a 2 by 6 inch sill is large enough under most conditions. For 2-story structures, and particularly in localities subject to earthquakes or high winds, a sill 4 inches deep is desirable. It affords more nailing surface for diagonal sheathing brought down over the sill, and ties the wall framing firmly to the foundation. Moreover, a 4-inch sill permits a much more satisfactory lap splice, and is stiffer for bridging over slight depressions in the foundation wall.

When a basement or cellar window is so placed that

*Being Chapter 2 of the new book, "Light Frame House Construction," issued by the Federal Board for Vocational Education, J. C. Wright, Director, in co-operation with the National Committee on Wood Utilization, Axel H. Oxholm, Director, U. S. Department of Commerce, Washington, D. C.; reprinted by permission.

the foundation sill is immediately over the frame, additional strength should be provided; Figures 11 and 12 illustrate methods by which this may be done.

Wherever the building is supported on posts or piers, it is necessary to increase the sill size, because a sill supported by posts acts as a girder. The sill size should be determined according to the principles outlined for girders.

Species—Material for sills may be of practically any wood locally available. No. 1 common grade should be used for standard permanent construction. No. 2 common is suitable for more economical construction or for temporary buildings.

Inasmuch as the sill usually has, or should have, uni-

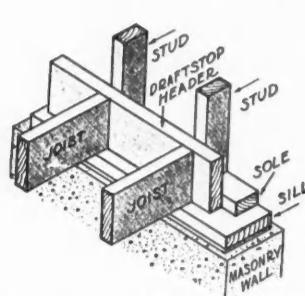


Figure 7.—T sill construction.

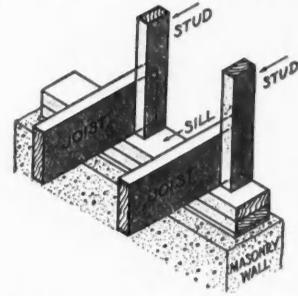


Figure 8.—Sill construction for balloon framing.

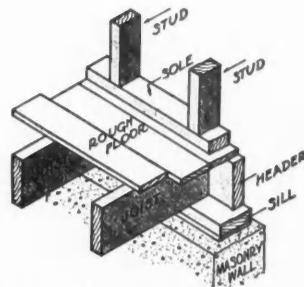


Figure 9.—Box-sill construction for western framing.

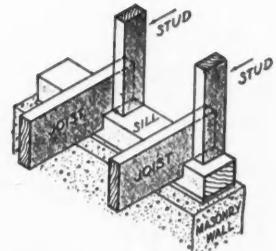
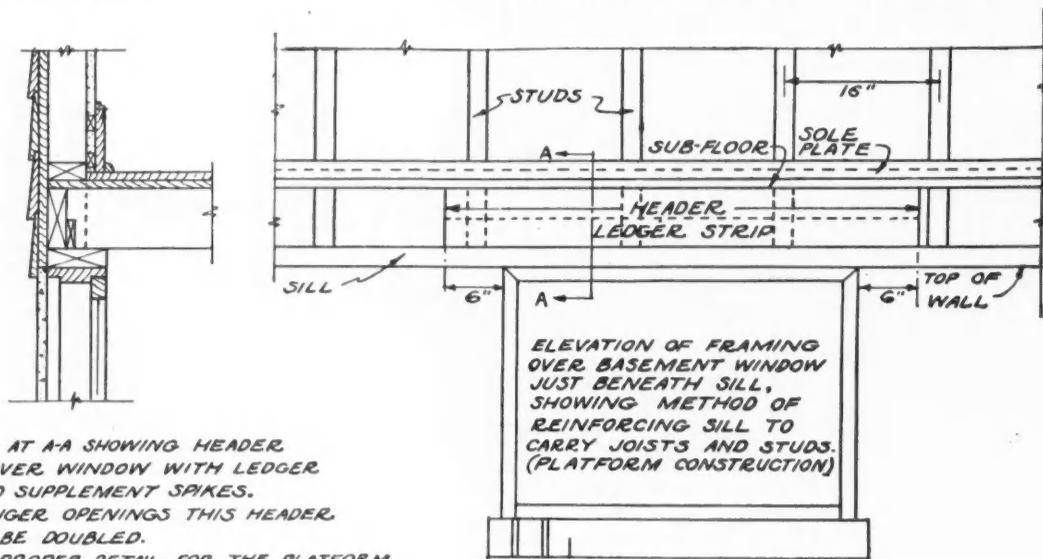


Figure 10.—Sill construction for braced framing.



SECTION AT A-A SHOWING HEADER CUT IN OVER WINDOW WITH LEDGER STRIP TO SUPPLEMENT SPIKES. FOR LONGER OPENINGS THIS HEADER SHOULD BE DOUBLED. THIS IS PROPER DETAIL FOR THE PLATFORM FRAME, AND IS NOT SUITABLE FOR OTHER TYPES.

Figure 11.—Method of framing over a basement window.

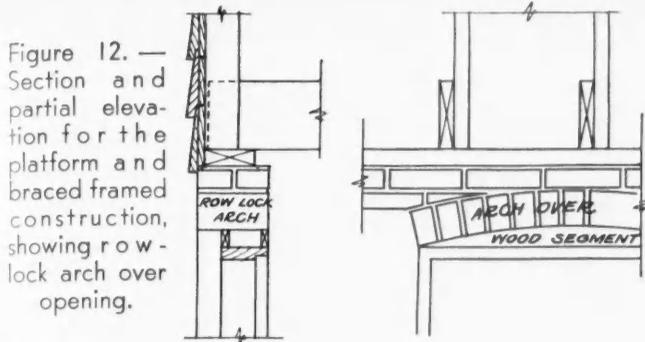


Figure 12.—Section and partial elevation for the platform and braced framed construction, showing row-lock arch over opening.



Figure 14.—The subterranean termite or white ant is found between the lines A and B.

form, solid bearing throughout its length, great strength is not ordinarily required. Resistance to crushing across the grain and ability to withstand decay and insect attack are the principal requirements.

Termites.—If wood-devouring termites or white "ants" are at all prevalent in the locality (Fig. 14), the sill should be protected against their attack by elevation not less than 18 inches above the ground, on a foundation wall, or piers of concrete or brick laid in mortar, rich in cement, as termites can burrow through poor mortar or lean or porous concrete. A course of slate just under the sill is effective if bedded in strong cement mortar. Certain termites will make tunnels of earth up the outside of a masonry wall through which they cannot burrow. As they will not pass obstructions of the types shown in Figure 15, such shield should be provided where termites of this variety exist. The shield should project on both sides of the wall to prevent access from either side. In the absence of a shield or other impervious course, the sill should be treated with creosote, zinc chloride, or other adequate chemical which poi-

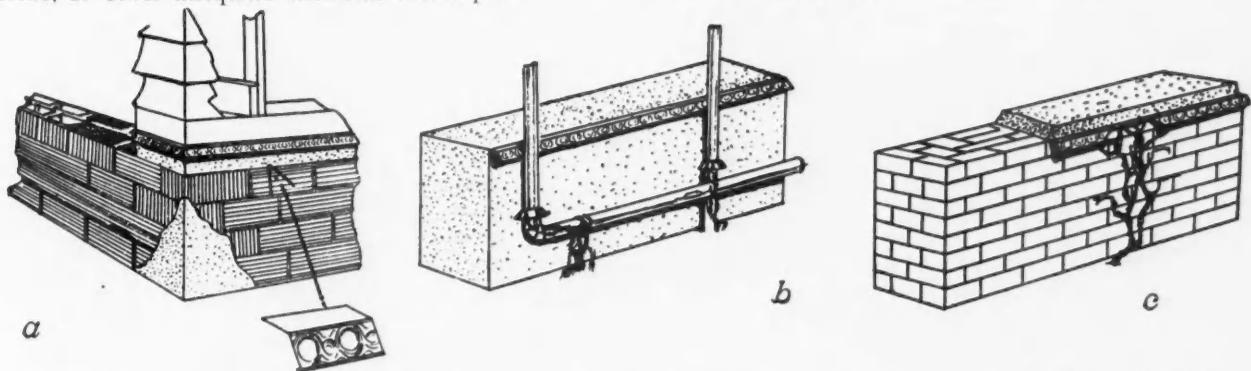


Figure 15.—Methods of preventing damage by termites or white ants; "a" shows a foundation wall of hollow tile surfaced with stucco; note the metal termite shield; the top of the wall is capped with slate and concrete; "b" shows a concrete wall with termite shields on the wall and around the pipes; "c" shows brick wall with termite shield capped with concrete. (Courtesy of the Bureau of Entomology.)

sons the fibres of the wood, so that termites will not touch it.

Framing.—The length of the sill is determined by the size of the building and, therefore, the foundation should be laid out accordingly. Dimension lines for the outside of a building are generally figured from the outside face of the sub-siding or sheathing which is about the same as the outside finish of unsheathed buildings. If the basement wall is to be stuccoed, it is better that the sheathing be carried down over the foundation wall an inch or so below the bottom of the sill, as indicated in Figure 16. If not, the outer face of the sheathing should be flush with the outside of the foundation wall. This means that the outside face of the sill will be approximately $\frac{3}{4}$ inch in from the outside face of the foundation wall, as shown in Figure 18.

Anchoring.—Where high winds are at all probable, it is important that the building be thoroughly anchored to the foundation. (Fig. 18.) In fact, anchoring is desirable and good practice in all localities. It is best accomplished by setting, at intervals of from 6 to 8 feet, $\frac{3}{4}$ -inch bolts that extend at least 18 inches into the foundation. They should project sufficiently through the sill to receive a good sized O. G. cast-iron washer and nut. With brick walls, care should be taken to thoroughly flush up the bolts with mortar rich in cement. With hollow tile, concrete blocks, and materials of cellular structure, much care must be taken to fill the cells, in which the bolts are placed, solidly with mortar or concrete.

That the full advantages of anchoring may be obtained, especially where wind storms may occur, it is essential to put sheathing on diagonally and to nail it securely to the sill and wall plates. This provides an excellent tie between the sill and the structure above. For unusual conditions in which anchoring is of great importance, a method similar to that shown in Figure 19 is suggested, as still further tying the building down.

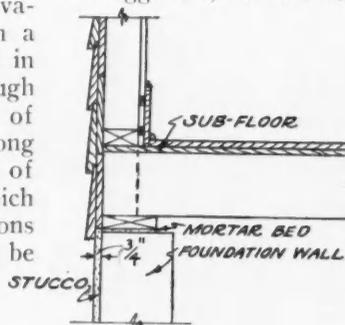


Figure 16.—Showing the position of the sill on wall when the wall is to be stuccoed.

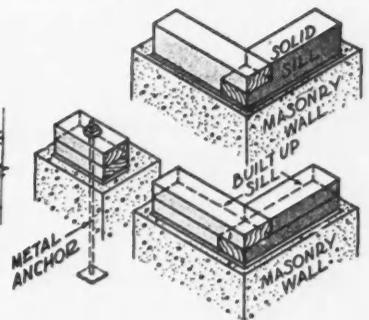


Figure 17.—Framing of sills at the corners.

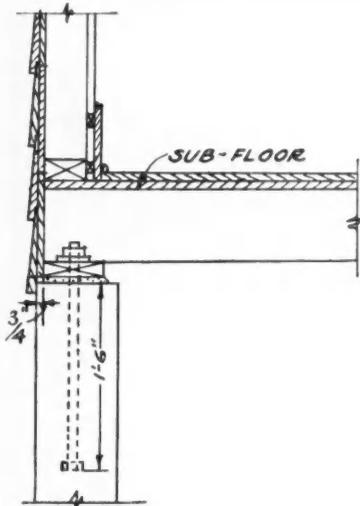


FIGURE 18.—Showing position of sill on foundation wall, showing method of anchoring to the foundation. The bolts should be $\frac{5}{8}$ to $\frac{3}{4}$ inch in diameter.

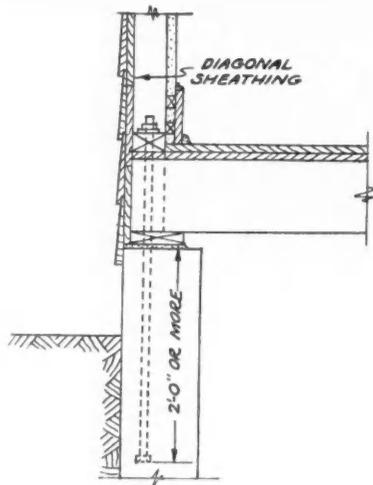


FIGURE 19.—Showing method suggested for anchoring where conditions are extreme. Bolt may be replaced by hooked rod threaded at one end.

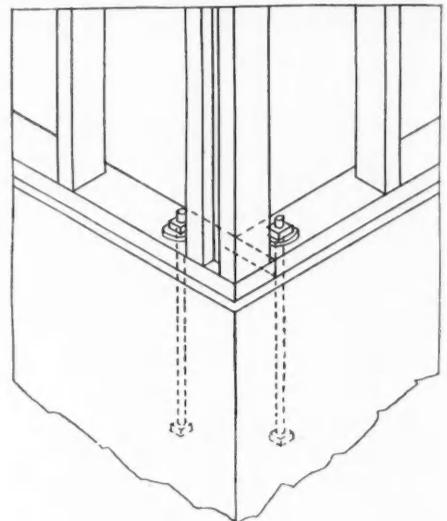
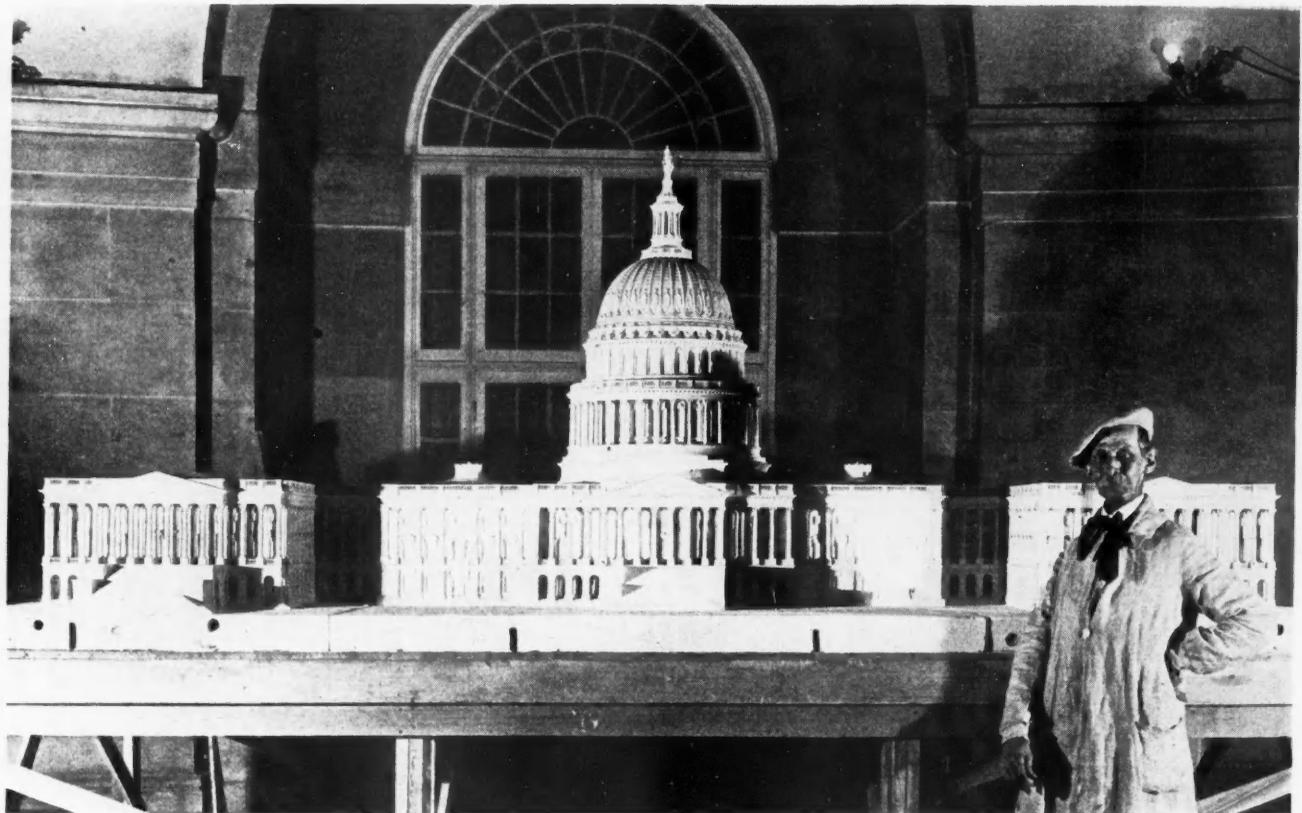


FIGURE 20.—Method of butting sills at the corners. Note the bolts near the corners.

This should be supplemented with well-nailed diagonal sheathing.

Splicing.—It has been stated that a 2 by 6 inch sill is large enough for small buildings under normal conditions, if properly bedded on the foundation. Accuracy and care are essential in splicing such a thin sill, whether the splice is on the side of the building, or at a corner. (Fig. 17.) A poorly fitted, halved joint weakens, rather than strengthens, the sill frame. Butting the two members, as shown in Figure 20, is not only simpler, but is entirely satisfactory, if the sill is well anchored. Where a sill is built up of two 2 by 6 inch planks the joints in the two courses should be broken.

Placing.—The first consideration in placing the sill is that it should be level. This will be accomplished only with difficulty and trouble if the foundation itself is not level; hence the necessity of supervising carefully all foundation work. It is good practice to spread a bed of mortar on the foundation and to lay the sill upon it at once, tapping gently to secure even bearing throughout its length. Then the nuts can be put in place over the washers, and tightened gently with the fingers. They may be drawn up securely in a day or two when the mortar has set. This not only provides good bearing for the sill, but prevents air leakage between the sill and the foundation wall.



Emil Garet, Sculptor and His Plaster of Paris Model of the National Capitol, Prepared for Exhibition in Europe.

New Products That Sell the Job

The Builder Who Keeps Informed on the Latest and Best in Materials and Equipment
Has the Jump on Competition

YOU can't sell out-of-date products whether they happen to be houses, hats, or talking machines. No, even Henry Ford had to redesign his famous automobile and bring it up-to-date to stay in the running. A 1920 model house won't sell today no matter how well built it may be, and there were plenty of well built houses back in 1920, even judged by present day standards. But they lacked the refinements that are demanded by the buying public in 1931.

It is all a matter of changing standards of convenience and style. A house has to be well built, of course. That is fundamental. But to sell, it has to be something more. It must include the latest and best in materials, equipment and finish. Those are the talking points that beat competition.

New products are being announced every month, they are regularly described in *AMERICAN BUILDER AND BUILDING AGE*, and it is up to the contractor or builder who wants his share of the business to keep himself informed. With the spring building season just opening up, and with every prophet claiming that residential building is due for a return to normal, now is the time to find out about the specialties that are going to help sell the job. For example take bathroom fixtures.

Fixtures Designed to Match

The introduction of matched sets of plumbing fixtures, that harmonize perfectly because they have been so designed,



Matched Fixtures Make a Strong Appeal to the Woman Prospect.

marks another endeavor on the part of the manufacturer to design into homes a feeling of architectural unity and beauty which is constantly more in demand. In times gone by such harmony has been costly and obtainable only by special, made-to-order designs. It is now offered at a price which makes it available for equipping any home, placing at the disposal of the builder one more strong selling appeal.

These matched sets display a faithful continuance of motif in all the fixtures for the bathroom, lavatory

and bath hardware, hooks, racks, rail holders, and every item. The designs are smartly modern, with beveled corners, flat surfaces, square edges, panels, straight lines and angles

FOR FURTHER INFORMATION ON ANY OF THESE PRODUCTS SEE PAGE 114

conforming to the 1931 conception of beauty. All of the new fixtures are offered at popular prices and in colors as well as in black and white. They may be procured in flint-gloss, acid-resisting enamel or in regular enamel.

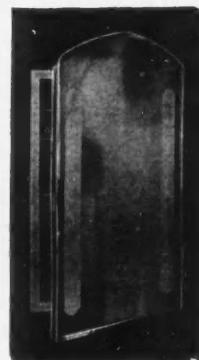
Lighting Built into the Cabinet

Most of the bathroom features have been designed to appeal to feminine taste for beauty and luxury, but when it comes to the bathroom cabinet and lighting you can talk right to the man of the house. That is you can if you are up-to-date on bathroom mirrors and their proper lighting. The cabinet and lighting are inseparably associated in the mind of a man, as anyone knows who has tried to shave using insufficient or poorly placed lights.

Manufacturers have finally realized this natural association and are producing cabinets with the lighting equipment built right into them. Once a man has used one of these he will never be satisfied with a house that does not have this modern convenience. It will appeal to the women too.

The bathroom cabinet illustrated is one of the modern type. The lighting device is incorporated right in the door and is so ingeniously built that it does not interfere with opening and shutting the door and does not appear bulky or awkward. With this cabinet there are no shadows anywhere on the person using the mirror.

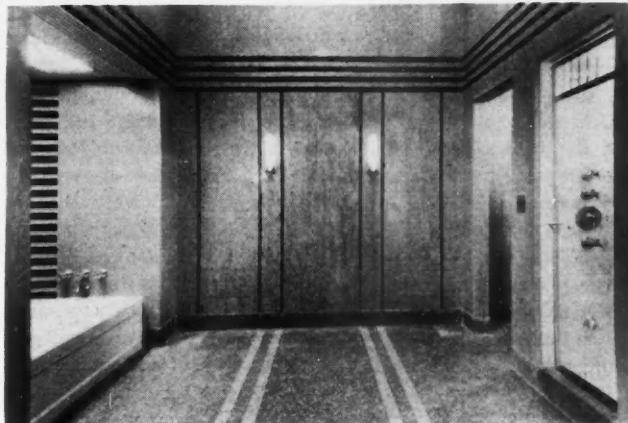
The whole unit is of the finest, with chromium plated frame, or lacquered in color as preferred, bulbed edge, plate glass, shelves that are adjustable, and frosted glass through which the light comes to avoid glare.



A Mirror That Casts No Shadows.

Rubber Floor and Wall Decoration

Rubber flooring, one of the rather modern developments, has been well known for some time, but more recently a new rubber product, suitable for both floor and wall covering has been brought out. This material, which has been described as architectural rubber, is not like some of the older products,



New Individual Colors and Textures Have Been Developed in Rubber Floor and Wall Coverings.

MODERN EQUIPMENT HELPS OPERATIVE BUILDERS TO SELL

an imitation of wood, marble, or other material in appearance. Its colors and textures are new and individual, developed specially in the laboratories of the manufacturer.

This material meets a well established demand for a material to be used on both floors and walls with unlimited range of design and color and with the possibility of eliminating the base line between floor and wall. This brings the floor to and up the wall, in effect, and increases the apparent size of the room.

In addition to the fact that there is no limit to the possible color effects obtainable and in addition to the soft resiliency of this material, and its resistance to abrasion, it possesses another outstanding advantage. That is its flexibility, making it adaptable to any installation requirement.

Coated Fabrics for Beautiful Walls

Speaking of wall coverings, the new coated fabrics are an item that the sales minded builder can hardly afford to overlook. They appeal to the feminine eye for beauty, and also to the feminine sense of economy and desire to simplify and reduce the labor of house work. When fitting up that model

house, the use of coated fabrics on at least some of the walls will provide an excellent talking point.

The term coated fabrics is applied to 1931 model oil cloth designed to be used in the place of wall paper. But it is a far cry from the material one naturally thinks of when oil cloth is mentioned, to these new coated fabrics. As much so as from the horseless carriage of a quarter of a century ago to the luxurious motor car of today.



One of the New 1931 Patterns in Coated Fabric Wall Covering.

The idea of oil cloth, with its glazed surface suggests a material suitable, perhaps, for the bathroom or kitchen wall, but hardly the thing for other rooms. Coated fabrics, however, are highly appropriate for any room. In addition to glazed surfaces for kitchens and bath rooms, there are also dull finishes for other uses. And there is a variety of textures and colors, almost without limit, and patterns that would delight the most artistic taste.

Like the old fashioned oil cloth, the modern coated fabric consists of a cloth, coated on one surface, and colored and patterned with fast colors. The new surfaces are highly resistant to scratching and are built to last indefinitely. They are easily cleaned with a damp cloth or mild soap solution which means that walls can always be kept clean and bright and the redecorating is reduced to the individual desire for something different, instead of the life of an easily soiled and faded paper.

When this material is applied to walls it hides all of the old plaster cracks. Over new plaster it helps to prevent cracks and hides them if they do occur. The material itself is not subject to cracking. It can be hung on any flat surface which is dry and smooth and is applied in practically the same manner as wallpaper. Though the first cost is greater than the cost of paper, its long life makes the final cost less and it is an economical decoration in the long run.

The new 1931 patterns in coated fabrics, which have recently been announced, are truly a revelation as to the decorative possibilities of this interesting material.

Convenient Chutes Are Selling Points

Built-in, metal chutes, used either as laundry chutes or dust receivers are among the many new conveniences available to help the builder appeal to the housewife. The chute itself is, in either case, a galvanized metal tube built into the wall. The inside is perfectly smooth so that, when used as a laundry chute, there is nothing on which clothing can catch.

The top of the chute is covered by a metal door, furnished

A Chute Cover, Raised by a Trip Pedal, and a Dust Bag or Laundry Hamper in the Basement Spell Convenience to the Housewife in Sweeping or Laundry Work



in nickel, chrome, oxidized copper and other finishes. It is placed at a convenient point in the floor and is opened to receive the laundry, or the sweepings, as the case may be, by merely stepping on a trip pedal. For the laundry chute, the door may also be obtained in a hanging type, for wall installation, which opens by merely pushing in.

The laundry chute is provided with a metal hamper, at the lower end, in the basement. This hamper is perforated for ventilation so that there is no danger of damp clothing or towels mildewing. The hamper is placed at such a height that the sliding door for removing the clothing is within easy reach.

The dust chute is provided with slots at its lower end. A cloth bag is attached to it by slipping buttons along its upper edge into the slots. The dust drops into the bag which can be detached in a moment for emptying. This will have to be done only three or four times a year.

Sinks Made More Convenient

It is said that with most women interest in centered in the kitchen, and kitchen convenience is a strong sales point. A new idea in kitchen convenience is found in one of the kitchen sinks which has recently made its appearance. It especially appeals to the housewife, the important factor in home buy-

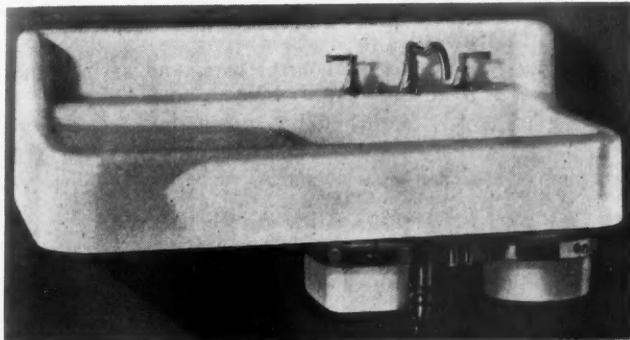
TURN TO THE BOTTOM OF PAGE 114 IF YOU WISH FURTHER INFORMATION ON ANY OF THESE PRODUCTS

ELL MODERN HOMES TO THOSE HARD-TO-SUIT MODERN BUYERS

ing. This sink has a three-inch wide, integral ledge at the back, providing a handy shelf for the drinking glass, soap or washing powder, or anything that should be kept handy.

The ledge extends across the entire length of the fixture and produces a sink with thoroughly modern lines. It also serves as a support for the chromium-plated, all-metal fittings.

Another innovation is a disappearing spray hose for rins-



Another Step in the Perfection of the Sink Which Will Please the Woman of the Family.

ing, conveniently at hand, yet out of sight beneath the sink when not in use. A curved spout of new design swings over the sink and back out of the way. The curve gives height so that tall dishes may be filled readily.

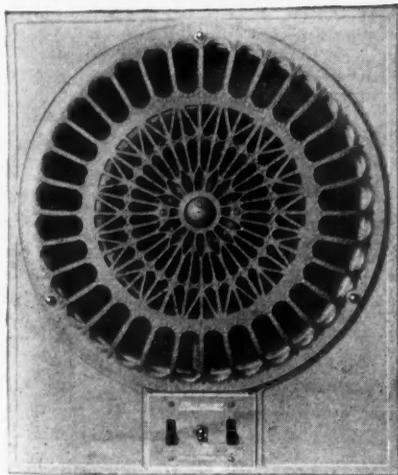
Long faucet handles make it easy to operate the valves and to fix the temperature of the water as desired. This sink is equipped with a double strainer drain control and with vitreous china swing arm garbage and utensil containers. It is available in a variety of colors as well as in black and white.

Forced Circulation of Electric Heat

The idea of house heating by electricity, with the simplicity of switch control, has long intrigued the imagination of home owners and of inventors and manufacturers. Because of the

relatively high cost of electrical heat, however, its use has been limited to auxiliary heaters, for bathrooms, special emergencies and so forth. Recently, however, another step has been taken in the development of heating by electricity.

A company manufacturing various heating specialties has developed an electrical heating unit, for installation in the wall, which has sufficient capacity to heat an entire room. It is the equivalent of 56 feet of direct steam radiation.



An Electric Element and Fan Inconspicuously Built into the Wall for Heating the Room.

This unit is built almost flush with the wall. The covering grid is ornamental in design and can be furnished in a variety of colors to fit the decorative scheme of the room.

In addition to the heating element the unit includes a specially designed, silent fan which affords forced circulation and directs the heat into the lower, or living portion, of the

room, instead of depending on gravity circulation. Because of this the unit is more quickly effective than a gravity circulation unit. It can be equipped with thermostatic control to maintain an even temperature at all times.

These units are also efficient as auxiliary heaters in bathrooms, basement rooms, filling stations, offices in unheated warehouses, summer homes, theater ticket booths, unheated attic rooms, and other places where extra heat is required.

Modern Radiators Are Concealed

Heating equipment has undergone rapid changes in recent years and the public is educated to demand better and more attractive installations.

Radiators have been the subject of much development work and better and more attractive radiator equipment has been a feature of many manufacturers' announcements. The trend has been toward smaller and more efficient units of the enclosed or concealed type.

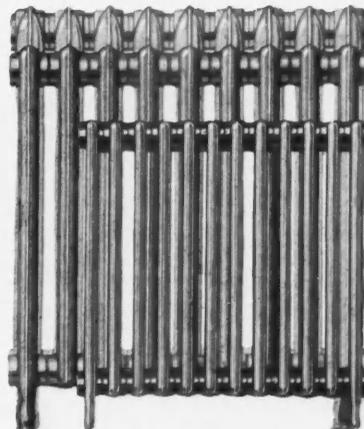
The prospective home owner of only a few years ago was perfectly satisfied with big, cast iron radiators standing out in the rooms, and decorated with bronze or aluminum paint. Not so the prospect of today. Show him a house so equipped and you are likely to lose a customer. But it is not necessary to show him such radiators if you have kept up with developments in radiation.

Radiator units of smaller size but equal efficiency are now available. One of the illustrations shows three radiators made by one company, all of the same heating efficiency. The smallest one is the modern type. The other illustration shows one of the ways in which this radiator may be installed. It is known as a semi-concealed installation.

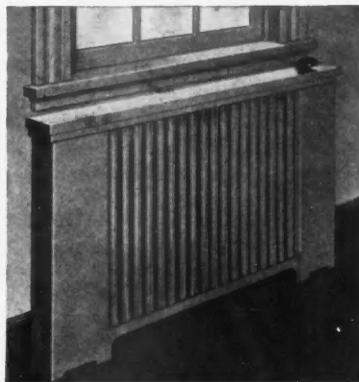
The same radiator may be wholly concealed within the wall, with only an air vent visible, or it may be enclosed with a highly ornamental enclosure which ranks as a piece of attractive furniture. All these forms of enclosure are decorated to match the room. The paints used in decorating them are not metallic paints for it has now been demonstrated that metallic paints reduce the efficiency of the radiator.

Stokers Eliminate Work and Bother

Many people prefer a coal or coke burning furnace but also desire the carefree operation associated with oil and gas burners. This demand is met by the installation of a stoker. Following two years of development and testing a new, automatic, domestic furnace stoker has been brought out, which



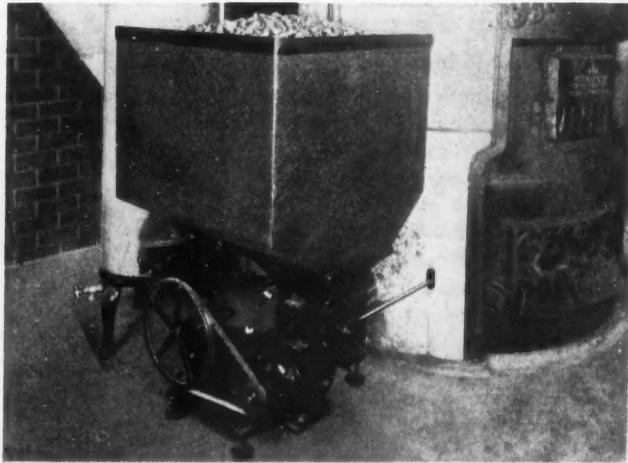
A Contrast in Size and Efficiency of Old and Modern Radiation.



A Modern Radiator of the Semi-Concealed Type Does Not Detract from the Room.

is designed for exclusive use in warm air furnaces. The most radical difference between this stoker and previous equipment is the fact that it is designed to burn pea-coke, which can be obtained at a lower cost than regular size coke or furnace coal.

This stoker offers unusual advantages from the standpoint of cleanliness and efficiency. It is automatic in operation and is controlled by simple adjustments which offer no complica-



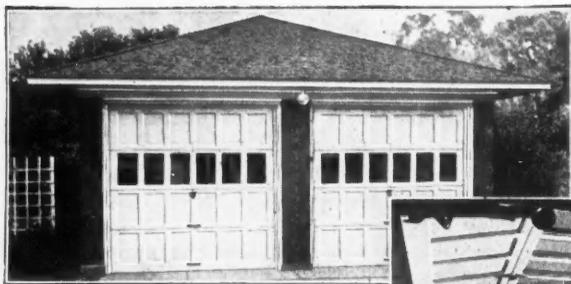
It Handles Cheap Pea-Coke or Coal and Does All the Work of Stoking the Furnace.

tions to even the most inexperienced home owner. The hopper containing the fuel supply holds 300 pounds of coke, which is sufficient to supply the average winter fuel demand for three or four days. Special equipment is available whereby gravity feed, direct from the fuel bin, can be arranged to eliminate even the necessity for filling the hopper.

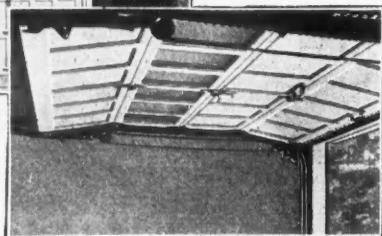
Three separate controls, each independent of the others, are used to operate this stoker. A thermostat, installed in any room can be set to maintain any desired temperature. A time switch and counter-weight are the other two controls. The former regulates the length of time of operation and the latter acts as a check to assure an adequate supply of fuel at all times. All moving parts are enclosed and the entire mechanism is sturdily built for long trouble-free service.

The Garage Door Is Modernized

A great deal of attention is now being paid to the improvement of private garage construction with particular reference



Easy Operation Up and Back and Out of the Way.



to garage doors. Because of the inconvenience of the old fashioned, swinging door, most of the new doors which have been placed on the market recently are of the upward acting type. One of the latest developments in this line is illustrated.

A number of distinct advantages are claimed for this door. In the first place it requires a minimum of head room, only 2½ inches directly above the door and only 7½ inches maximum, at a distance of 16 inches or more inside door.

The door is equipped with self sealing shackle hinges which hold the entire door tight against the jambs when closed making it weathertight. The door rolls easily due to the use of ball bearings and also to a large counterbalance spring which is installed under the track where it is out of the way.

Adjustable shackle arms, control bars, and springs make the door easy to install. Only three to four hours are required for a complete installation. A garage so equipped offers an additional selling point for the house in this motor age when every family owns one or more automobiles.

Lawn Furniture Adds the Final Touch

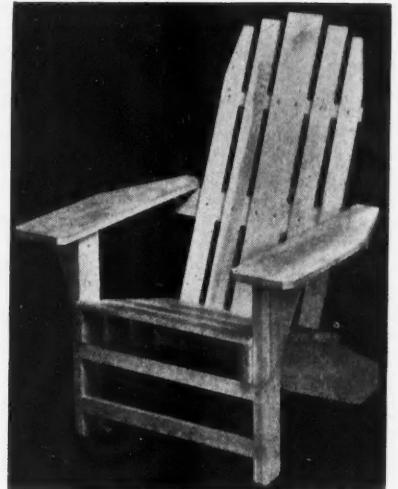
Spring is the open season for model houses. Now the model, to be successful, should be complete and attractive even to the furnishing of the grounds, with lawn furniture and garden ornaments.

One accessory which has recently made its appearance to aid the builder in adding this finishing touch, is a chair, offered by one of the big lumber companies. There is nothing pretentious, or even unusual about this chair except that it fits its purpose perfectly.

This is an easy-back, arm chair, roomy, comfortable, and substantially built. Being made throughout of Douglas fir, a wood well known for its weather-resisting qualities, it should, with occasional painting last many seasons, in spite of the exposure of outdoor use. In all kinds of bad weather which it will get.

Of particular interest to dealers is the fact that the chair is shipped to them knock-down and carton-packed. This enables them to store a large stock in comparatively small space, and to offer the chair to their customers either carton-packed, assembled, or completely finished. Assembly requires only a few minutes. There are just a few nails to drive and a few screws to place. Every piece is cut to fit perfectly and directions are enclosed in each carton.

This chair meets a rapidly developing demand for lawn furniture and selling at a moderate price, serves as an excellent opening contact with the buying public through which to develop sales of new building, remodeling, or equipment installation.



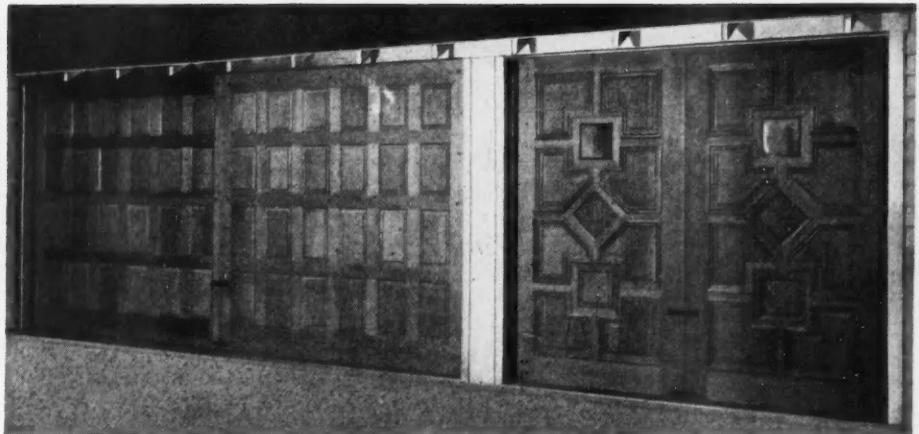
Lawn Furniture for the Model House Can Be Obtained from the Lumber Dealer.

ANYONE DESIRING FURTHER INFORMATION ON ANY PRODUCT MENTIONED ON THESE PAGES CAN SECURE IT BY WRITING TO THE AMERICAN BUILDER AND BUILDING AGE, INFORMATION EXCHANGE, 105 W. ADAMS ST., CHICAGO.

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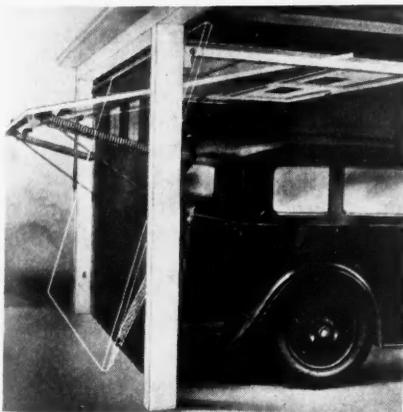
IN GARAGE CONSTRUCTION

with the
**Wider
 Crawford
 Overhead
 Door**



For one-, two- and three-car garages alike, Crawford Overhead Doors offer beauty, economy and popular modern operation.

Here's an important new building economy! With the latest *wide* Crawford Overhead Door, you can completely equip a 2- or 3-car garage by use of a *single* door!



Only 3 inches of head-room required.

Construction Simplified

All center door posts are eliminated... overall garage width can be reduced... and modern overhead operation

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Crawford Overhead Doors are available in any width up to 16 feet, which amply accommodates 3-car garages.

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Distributed through Lumber Dealers East of the Rockies by:

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Please send me complete information on the new Crawford Overhead Doors.

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Address.....

Architect Lumber Dealer Builder Prospective Owner.

Questions of Law Clearly Answered

Legal Rulings of Interest to All Builders

By LESLIE CHILDS

The Double Lot and Lien

THE owner owned two adjoining lots, and made a contract with a certain contractor to erect similar buildings on these lots.

The contractor completed the buildings, could not collect the balance due according to the contract, and filed a mechanics' lien against the buildings.

"Your lien is not worth the paper it's written on. You built two buildings and should have filed two separate liens. The single lien on both buildings is no lien at all," the owner protested.

"It was a single contract, and I'll take my chances on a single lien," the contractor maintained, and the weight of authority in the American courts is that work done under a single contract for a single owner on adjoining lots may be put in a single lien.

"Where a row of houses is to be built pursuant to one contract, upon contiguous lots, and of the same materials, and the work upon all is to be carried forward and completed within the same time, it might be impracticable for the contractor to keep a separate account of the materials and labor for each house, and file a separate lien for each. This statute was intended to relieve him from the necessity of doing so. To limit the operation of the statute by construction, and substitute therein the words, 'one entire contract,' for 'one general contract,' would defeat the very object of the statute. The purpose of the contract in question was to secure the building of a row of three houses of uniform material, style, and price, all to be erected and completed within the same time, upon one contiguous tract of land. The contract was general; that is, it related to and included all of the houses. The contractors constructed the three houses pursuant to the purposes of this one general contract, and they were not bound to apportion the amount of their lien between the several houses, and file a separate lien upon each," says the Minnesota Supreme Court, and the same rule holds in Arkansas, Colorado, Connecticut, Indiana, Iowa, Kansas, Maryland, Massachusetts, Missouri, Nebraska, New Jersey, New York, Pennsylvania, Texas and Washington.

Now what if the facts had been the same except that the lots had been on opposite sides of the street and the contractor had filed a single lien. Could he enforce the lien?

In the majority of the American courts the law is against the contractor on this point.

"We find nothing in the statute as it now exists, authorizing a contractor to file a single lien for the whole amount due him for labor and material furnished in the erection of houses located on lots which are not adjoining or adjacent to one another. An appellant has failed to substantially comply with the terms and provisions of the statute in filing his claim for a lien against the lots in question, the same cannot be enforced. He could, no doubt, easily have apportioned the amount claimed to be due to him for the buildings erected upon the several lots, placing, if he so desired, the amount of the lots in one amount; but having failed to do so, he cannot now justly complain," said the Illinois Courts, a

rule that has been approved by Connecticut, Indiana, Kansas, Massachusetts, Minnesota, Missouri, New Jersey, Oregon, Pennsylvania, Rhode Island and Texas Courts.

On the other hand, however, the Arkansas, Iowa, Maryland, Nebraska, North Carolina, Oklahoma and Virginia Courts have upheld a single lien even where the lots do not adjoin.

"There was no separate contract between the owner and the general contractor for each house, nor was there any provision in the contract that a separate account for each house should be kept. But the contract was for an entire work, and the contract between the general contractors and the owner was of the same nature; that is, for materials, not for each house separately, but for the entire work for which they had contracted with the owner. It is clear, therefore, that, as between the general contractors and the owner, the two buildings must be considered as, in effect, one piece of work, and that the right of the former to a joint lien on both for any balance due them, upon complying with the terms of the statute, could not have been successfully controverted. Indeed in such a case the lien must be joint or not at all; for although a lien is a creature of the statute, it must have its foundation in a contract," is the reasoning of the Virginia courts.

A Question of Demand

"AND the said tenant agrees to quit and deliver up possession of the leased premises at the end of said term in as good condition as when leased, reasonable wear and tear and damage by the elements excepted," the builder's lease provided.

"And it is further agreed that any permanent improvements made to said premises by said tenant shall be paid for by the landlord, at the actual amount thereof plus 6%," another clause of the same lease stipulated.

The lease in question expired on a certain Saturday, the landlord called on Monday morning, and found the builder doing business as usual.

"What does this mean? You were supposed to be out of here on Saturday," the landlord demanded.

"I don't have to move out, until you've made a demand for possession," the builder stated.

"I don't have to make a demand. The lease says to deliver up possession at the end of the term, and the term ended Saturday night at 12 o'clock."

"I admit that is the rule in ordinary cases," the builder argued, "but it does not apply to a case like this where you're bound to pay for my improvements. Under our lease you have to tender the price of the improvements and demand possession before you can terminate the lease."

This is a leasehold situation that could arise any day, on which the Missouri and New York courts have ruled in favor of the landlord. See the case of Tolman vs. Coffin, 4 N.Y. 134.



LOOK AT THE DIFFERENCE

Recognizing that an integral water-proofing material in the mortar helps prevent leaky walls, efflorescence and fading of colors, a compound of the highest water-resisting quality is mixed with Brixment during manufacture—thoroughly, intimately and in the most effective proportion. So when Brixment is used for mortar, it saves the expense of buying a water-proofing compound and eliminates the necessity of constant supervision at the mortar box to see that it is added in correct proportion. The above picture shows the unusual water-repellent quality of Brixment in comparison with other cements.

LOUISVILLE CEMENT COMPANY, *Incorporated*, LOUISVILLE, KY.
 District Sales Offices: 1610 Builders Bldg., Chicago; 600 Murphy Bldg., Detroit; 101 Park Ave., New York
 Mills: Brixment, N. Y. and Speed, Ind.

BRIXMENT



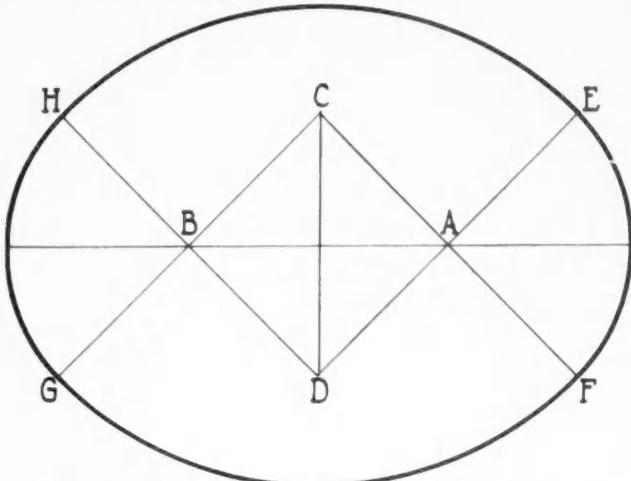
A Cement for Masonry and Stucco

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE

Practical Job Pointers

To Lay Out an Ellipse

THE sketch shows an easy way to lay out an ellipse with satisfactory curves. First draw a square, with horizontal and vertical diagonals, A-B and C-D. Extend the sides of this square to the points E, F, G, and H. Make the lines A-E, A-F, B-H and



Here Is a Simple Method of Laying Out an Ellipse of Excellent Proportions.

B-G, equal in length to the sides of the square.

With A for a center, draw the arc E-F, and with B for a center draw the arc G-H. With D as a center and D-E as a radius, draw the arc E-H. With C as a center and C-G as a radius, draw the arc F-G. This completes the ellipse.

This method can be used for drawing arcs for door and window arches and similar work.

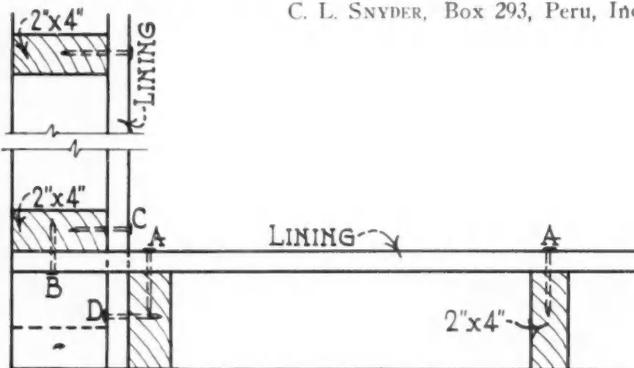
KNUT A. WESTHOLM, Seattle, Washington.

Framing Internal Angles

TO do a good job of framing an internal angle, arrange the studs as shown in the sketch. Place the first board of the lining and nail it to the studs at A and B. The second board on the other side butts against the first board and is nailed in place. The third board is placed over the second, extending through, along side the stud, and nailed at C and D. The fourth is butted against the third and nailed at the point A.

Continue in the same way all the way up. This makes an excellent corner for a tank, grain bin, or coal bin. When used on a house the interior can be arranged for lathing after the ends of the sheathing are all nailed.

C. L. SNYDER, Box 293, Peru, Ind.



On an Internal Angle This Method Produces a Good Job of Framing.

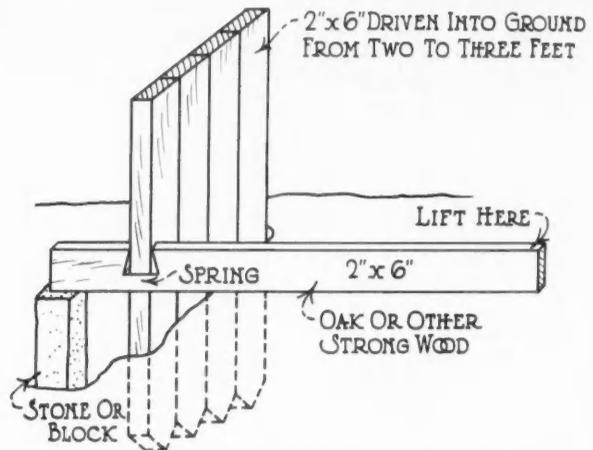
A Readers' Exchange of Tested Ideas and Methods, Taken from Their Own Building Experience. Two Dollars Will Be Paid for Each Contribution Published in This Department.

Pulling Planks Driven in Ground

WHEN planks that have been driven into the ground have to be pulled, it can be done quite easily by the method shown in the sketch.

I worked this out on a job where two rows of planks had been driven to keep water from a shallow creek from interfering with work. After the job was finished the planks were needed whole for other use.

I simply cut a notch, in a piece of 2 by 6 hardwood, large enough to fit around the plank. Placing the end of the hardwood piece on a block or stone, and lifting on the long end, springs the hardwood piece so that it clamps the plank.



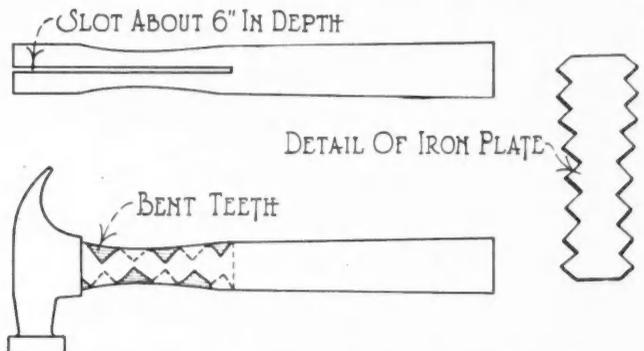
The Spring in the Pulling Lever Clamps the Plank Firmly.

If the hardwood piece is eight to ten feet long there is sufficient leverage to raise the planks easily.

J. A. CICHORACKI, 18305 St. Louis Ave., Detroit, Mich.

A Strong Hammer Handle

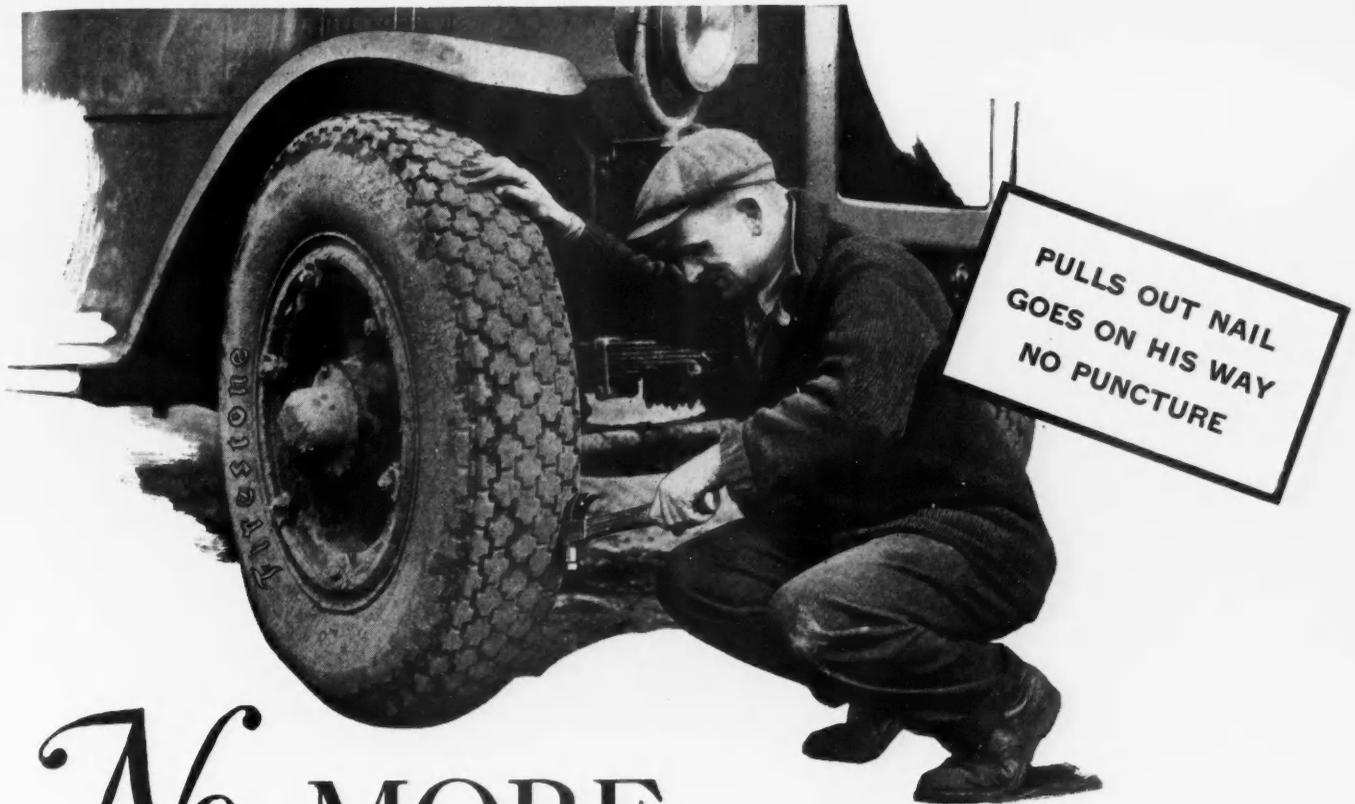
THE strength of a hammer handle can be greatly increased by treating it as shown in the sketch. I saw into the handle about six inches from the head end. I then take a thin piece of iron plate, shaped as shown, and of a size to fit



A Hammer Handle Reinforced Like This Is Much Stronger.

into the saw cut with the teeth only protruding. The teeth in the plate can be sawed out. I then insert the plate in the slot and bend the teeth around the handle, as shown. The teeth are bent alternately, first to one side, then to the other. This makes the handle about four times as strong and will save the inconvenience of a broken handle.

CHRIST WALTER, Raley, Alberta, Canada.



No MORE time out for *PUNCTURES!*

This new tube prevents 95% of all flats and adds miles of life to your tires.

SUPPOSE this were one of your trucks. A ten-penny nail has just gone clear through both tire and tube. Change Tires? Delay? Expense? No indeed. The driver will simply pull out the nail and go on his way.

There's no flat tire, no leakage of air because the truck is equipped with Firestone Puncture-Proof Tubes.

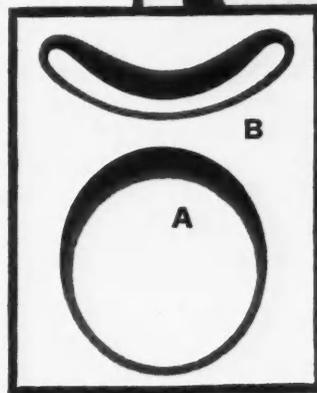
Firestone Puncture-Proof Tubes are not an experiment. They are making expensive delays a thing of the past for hundreds of truck owners. Just two instances:

On more than 1500 vehicles, operating in 12 different cities, Firestone Puncture-Proof Tubes

reduced the number of flats from one in each two thousand miles, to one in each twenty thousand miles.

Tests made on 34 urban coaches showed a total of only 45 flats in three and a half million tire miles, or an average of only one flat in each eighty thousand tire miles.

It will pay you to phone your Firestone dealer today. Ask him to show you a Firestone Puncture-Proof Tube. Specify Firestone Gum-Dipped Tires, Firestone Puncture-Proof Tubes and Firestone Rims when you purchase new equipment.



HOW IT WORKS:
(A) Added to the tube is a half moon of springy gum rubber (B) which is turned inside out (C) and forced up into the tire, when inflated. This gum rubber quickly springs together preventing even a nail-hole from causing leakage of air.

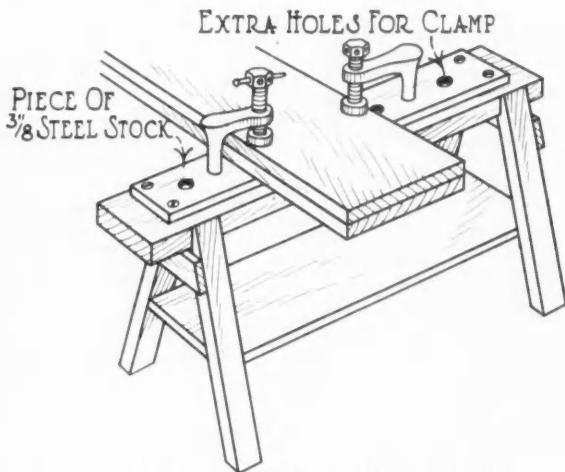
Firestone

PUNCTURE PROOF TUBES

TIRES · TUBES · BATTERIES · RIMS · BRAKE LINING · ACCESSORIES

Useful Horse Clamps

SOMETIMES the simplest device will prove to be a great aid in getting out more work with less effort and without the assistance of a helper. The device shown in the sketch is a saw horse clamp which does just that. For work that requires holding pieces of lumber together securely while boring or sawing this clamp serves perfectly.



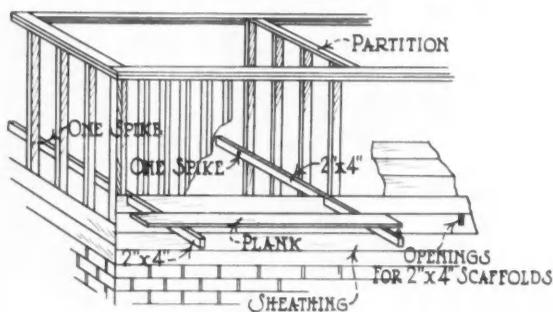
Material Is Held Firmly, Without the Aid of a Helper, with These Clamps.

A steel plate is fitted to the top of the saw horse and is drilled to take a couple of tapered shank L clamps, such as are shown in the illustration. The holes can be spaced at intervals to take work of any size and several pairs of clamps of different lengths can be carried. A blow of the hammer sets the clamp tight in the hole and the action of the screw against the material serves to bind it still tighter.

CHAS. H. WILEY, Box 73, Concord, N. H.

A Simple Small Scaffold

WHERE a small scaffold is needed it can be built as shown in the sketch, quite easily and quickly, at any height on the building. It needs no braces and can be built from the inside. Use fairly long 12 or 14-inch pieces, free from



Easily Put Up at Any Height and Requires no Bracing.

knots, for safety. I find this better than brackets because it does not wobble from side to side and you need no ladder to set it up at any height.

J. A. CICHORACKI, 18305 St. Louis Ave., Detroit, Mich.

For Drilling Brad Holes

ONE of the woodworker's problems is to find a suitable drill for making fine brad holes in hardwood. An ordinary machine drill, or push drill, breaks too easily and is difficult to withdraw from the wood. The practical workman usually falls back on using a nail, sharpened and beheaded, and perhaps filed flat on one side so that it will not turn in the chuck. This is a poor makeshift. Recently, I hit on a substitute which seems both practical and economical.

Take an ordinary sewing machine needle and cut it off just above the eye, as shown in figure A. Grind it as you would an ordinary twist drill, or perhaps with a slightly longer

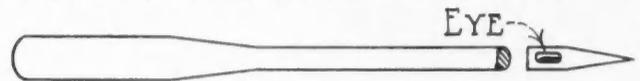


FIG. A



FIG. B

A Sewing Machine Needle Filed Like a Drill Is Excellent in Hard Wood.

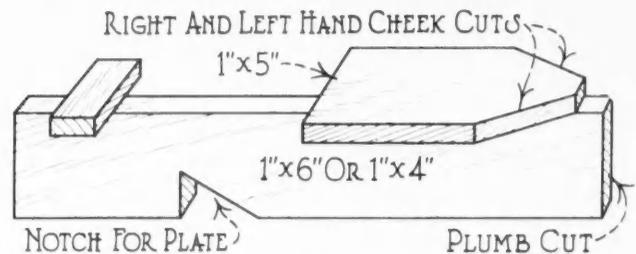
point, so that it will not "stutter" or dance about when you place it against the hardwood. (See sketch B.) This makes a very stiff and durable drill; one that bores rapidly and comes out of the material easily.

There is probably a high grade of steel used in these needles and they are highly polished because of the result that they last longer and give better service.

WALTER KATELEY, 661 E. 126th St., Cleveland, Ohio.

A Rafter Cutting Template

IN the November issue, Mr. Fagerstrom showed a template he uses for cutting rafters. It is quite good but has one fault. The ends are so much alike that if one was in a hurry he might make a mistake without noticing it. The template shown in the sketch is one I use and like better.



Here Is a Template That Is Used for All Plumb and Cheek Cuts.

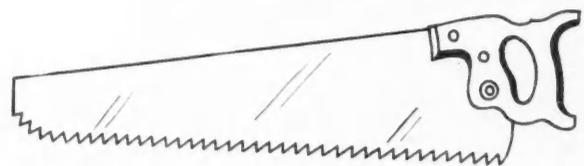
This template is very easy to make. The sketch shows just how it is put together. Use a one by four, or one by six, for the main piece, cutting the plumb cut on each end, and notch in the middle to fit the plate. I cut both right and left hand cheek cuts by the short piece of one by five which is centered on top and nailed to the one by six. In using this template I place on edge the number of pieces of each length needed and mark the lengths on the top edge, all at one time, with the framing square.

I. OLIVER PFEIFFER, 324 Dewey St., Bremen, Ind.

To Cut Through Flooring

TO simplify sawing through a floor, or board wall, file your saw as shown in the sketch. By rounding off point and filing teeth in the curved part it is possible to saw through a board without boring a hole and using a compass saw. This not only saves time but also makes a neater job.

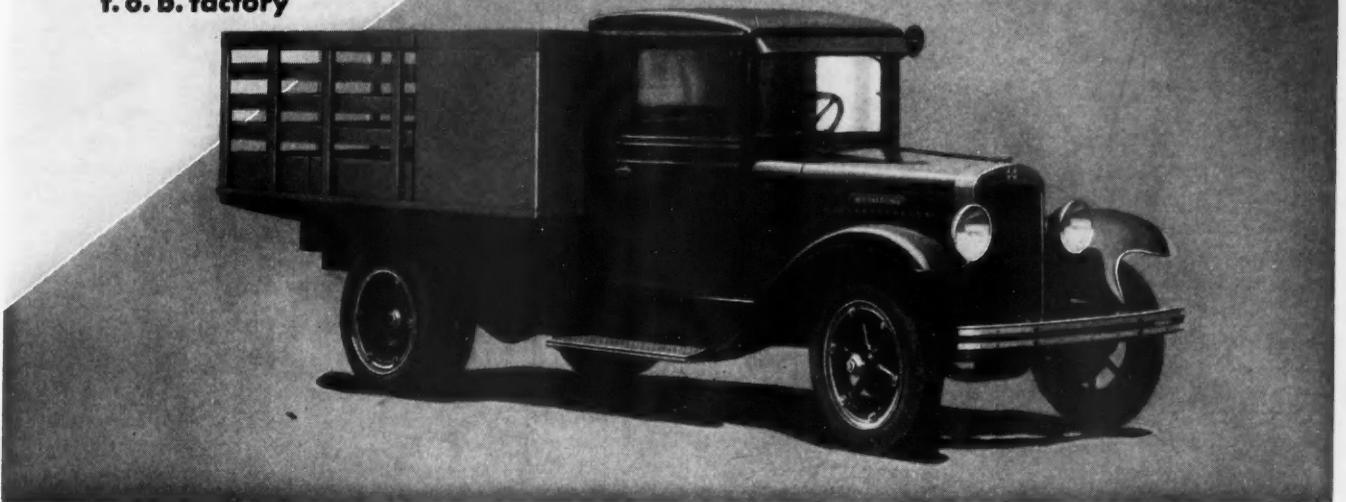
A. E. EVELAND, Balsam Lake, Wis.



This Saw, with the Point Rounded Will Cut Through a Floor Neatly and Quickly.

\$675 NOW

**Chassis with Standard
Equipment,
f. o. b. factory**



Reduced \$145

*A still better truck at
a much lower price*

• **BRIEF FACTS** •

Wheelbase: 136 inches.
Rated Capacity: 1½ tons.
Engine: Powerful and unusually economical.
Clutch: Single dry-plate.
Final Drive: Spiral bevel gear of the 2-speed type, providing, with the transmission speeds, 6 speeds forward and 2 reverse.
Springs: Semi-elliptic front and rear. Auxiliary rear springs quarter elliptic.
Brakes: 4-wheel mechanical. 27 ball and roller bearings, including 11 in rear-axle assembly alone.

HERE is the International 1½-ton "Six-Speed Special" — a popular quality truck of outstanding value and performance now offered at a substantial reduction of \$145 in price. This cut is made with absolutely no change in quality.

Standard bodies and equipment for all classes of work, giving the careful buyer a modern, handsome, high-quality International at a very low figure.

Other models in the full line of International Trucks ranging from ¾-ton to 5-ton capacities also offer real purchasing opportunities. Attractive prices apply.

See the complete International line at the nearest of 164 Company-owned branches in the United States. Make any comparisons you like. You will see for yourself that International Trucks provide a real transportation investment.

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INTERNATIONAL TRUCKS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE

Building Activities

The Month's News of the Industry

Increased Home Building Predicted

THE Producers Council Club, of Chicago, together with the Chicago Chapter of the American Institute of Architects, the Illinois Society of Architects, the Chicago Architects Club, and the Evanston-North Shore Association of Architects, held its annual dinner on March 11. Holman D. Pettibone, vice-president of the Chicago Title and Trust Company, was the principal speaker.

Although Mr. Pettibone painted a picture of the present building situation which was not particularly rosy, he hinted that better conditions might arrive rather unexpectedly in the residential field. He predicted an increasing demand for detached houses and suggested that at some stage an organized pointing out of the advantage of building homes now would produce satisfactory results.

Hoover Dam Work Started

ACTUAL work is now under way on the Hoover Dam construction, in Boulder Canyon of the Colorado River, the project commonly known as Boulder Dam. A bid of \$48,890,999, by the Six Companies, Inc., for the construction of the dam was found to be the low figure when the bids were opened on March 4.

Although the work has been started, after 40 years of engineering study, and 10 years of controversy, the fight is still on at Washington. The State of Arizona, dissatisfied with the provisions of the Swing-Johnson bill providing for the construction of the dam, filed suit in the United States Supreme Court to prevent its consummation on the ground of discrimination against that state.

Waiving the Arizona opposition, the six remaining states of the Colorado River basin entered a compact under which the development proceeds while the Supreme Court case is still pending.

Wage Rate Established

ON February 28, Congress passed the Bacon-Davis Bill, providing that all contracts for buildings for the federal government shall contain a provision that the local prevailing rate of wages for all types of labor shall be paid the building workmen employed. This act will go into effect 30 days after its passage.

Opposition to the bill, as it stands, has been expressed by the Associated

Coming Events

Apr. 10, 1931—New Hampshire Lumbermen's Association, Annual, Hotel Carpenter, Manchester.

Apr. 11-18, 1931—Indianapolis Real Estate Board, Home Complete Exposition, Annual, Indianapolis, Ind.

Apr. 13-18, 1931—American Oil Burner Association, Annual, Benjamin Franklin Hotel, Philadelphia.

Apr. 14-16, 1931—Lumbermen's Association of Texas, Annual, Plaza Hotel, San Antonio.

Apr. 14-16, 1931—American Institute of Architects, Annual, San Antonio, Texas.

April 18-25, 1931—Fourth Biennial Exposition of Architecture and Allied Arts, Grand Central Palace, New York City.

Apr. 22-24, 1931—National Lumber Manufacturers Association, Annual, Congress Hotel, Chicago.

May 14-15, 1931—Florida Lumber & Millwork Association, Annual, Orlando.

May 26-30, 1931—National Association of Real Estate Boards, Annual, Lord Baltimore Hotel, Baltimore Md.

Aug. 11-15, 1931—United States Building & Loan League, Annual, Philadelphia, Pa.

General Contractors of America, which argues that the bill should be amended to read that the prevailing rate of wages should be determined by the head of the government department concerned and be stated in the contract rather than have the matter settled afterwards in case of dispute.

Bill to Aid Real Estate Signed

ON March 3, President Hoover signed a bill which now makes it possible for real estate owners to have cleared of liens any properties so encumbered by the United States for unpaid Federal bills, including unpaid or disputed income tax bills.

Heretofore the property owner who owed the United States money for income tax or other bills was in the position of having his property tied up by the lien the government inevitably placed upon it. If the mortgagor wished to foreclose, if the owner wished to sell or to get a new mortgage, he had a property with title clouded by the government lien and there was nothing he could do about it but pay it. Because the govern-

ment could not be brought into the courts and it was impossible in a suit to foreclose a mortgage, which was a prior lien, to free the property of the government lien, an advantageous sale was often prevented.

The new law, asked for over a period of years by the National Association of Real Estate Boards, and the American Title Association, provides that the United States can be made a party to a suit for foreclosure of a mortgage or other lien, so that the details of any lien of the government may be determined and disposed of in the foreclosure suit. This means that mortgages can be foreclosed, title can be cleared, new mortgages secured with less difficulty, and the entire market made easier for properties on which the government has placed liens and secured judgment for delinquent taxes.

Survey Office Building Vacancy

ACCORDING to the National Association of Building Owners and Managers, which recently completed a survey of office space in 41 of the principal cities of the United States and Canada, there will be adequate office space to provide for the needs of increasing business for some time. This survey reveals that the present vacancy is 14.69 per cent, which is sufficient to provide for the normal expansion of business for three years, according to the association. Though this indicates that office building construction will not be a fertile field for the building industry for some two years, it is true that in some cities there is a low percentage of vacancy and a need for additional office space.

Start Large Developments

GROUND was broken last month for the erection of ten high class homes in the development of Bayside Gables, Queens, Long Island, N. Y., on which Shore Park, Inc., expects to spend more than \$1,000,000 before the operation is completed.

In Douglaston, Long Island, a total of 250 homes are proposed by the Douglas Manor South Corporation on a tract of 32½ acres.

Within the past month, six large tracts of land have been acquired in the borough of Queens, Long Island, for the erection of 1,936 new homes.

William J. Sloane Dies

ON February 27, William J. Sloane, of Sloane & Moller, Inc., New York City, one of the pioneers in planning and engineering the carpentry work on large buildings, passed away.



Fitting Your Business— Fitting Your Pocketbook

Reo fits your haulage requirements by constantly introducing new ideas in bodies.

Reo fits your pocketbook with economies resulting from its quick acceleration and deceleration in traffic—with further economies resulting from its

all-day, all-year, long-life stamina.

Carefully engineered, with friction and vibration reduced—made of finer metals, and the chassis balanced and free of excess dead weight, Reo is needed in your business for the most profitable haulage.

REO MOTOR CAR COMPANY, LANSING, MICHIGAN

SPEED WAGONS **REO** **AND TRUCKS**

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE

CURRENT CONSTRUCTION FIGURES

Up-Turn in Home Building

WHILE total building contracts for February showed an increase of only three per cent over January and a loss of 25 per cent from February, 1930, residential building exhibited the most promising condition seen in many months. Residential building showed an increase of 43 per cent over January and an increase of four per cent over February of last year, bringing to an end the downward trend which has existed over a period of about two years.

Though this upward swing can not be taken as conclusive proof that the recovery is permanent, the gradual character of the upward bend would seem to indicate that genuine recovery in this class of construction may be expected this spring.

Conspicuous in the upward movement was apartment house building and this element holds great promise of improving conditions because, at this stage of the business cycle, this type of residential construction has large barometric significance. Apartment house building is now definitely on an investment basis, rather than the largely speculative basis which marked the activity of the period immediately preceding the depression.

Total construction activities for February amounted to \$324,294,065, according to estimates by AMERICAN BUILDER AND BUILDING AGE. This total is divided between the different classes of work as follows:

Residential Buildings	\$147,908,289
Commercial Buildings	30,814,896
Factories	8,185,744
Educational Buildings	18,687,424
Hospitals and Institutions...	8,633,184
Public Buildings	11,989,376
Religious and Memorial....	4,396,672
Social and Recreational....	5,598,544
Public Works and Utilities..	88,079,936

Total Construction

\$324,294,065

This estimate by AMERICAN BUILDER AND BUILDING AGE was arrived at by taking the figures for contracts awarded, as compiled and released by the F. W. Dodge Corporation, for 37 states east of the Rocky Mountains, and adding to them factors to provide for building activity in the 11 western states and for the smaller and the unreported projects not covered by the Dodge contract figures.

Contracts for the 11 western states commonly amount to 10 per cent or more of the total for the rest of the country. Building permits for these states as compiled by S. W. Straus & Co., for February indicate projects amounting to 14 per cent of the total in the 37 eastern states. To obtain a

conservative estimate we have used a factor of 12 per cent.

The Dodge Corporation states that their reports do not include any building, modernizing or repair contracts of less than \$5,000 each. Such contracts, while individually small, make up a large portion of the total building of the country, usually estimated at 25 per cent. Since much of this work is in rural communities, and since rural building at this season is not yet fully under way, a factor of 23 per cent has been used in arriving at the above figures. Practically all of this unreported work is home building and is accordingly classified under Residential Buildings in the above tabulation.

Compo-Board Company to Sell Sealofelt Blanket Insulation

VERNON A SMITH, president of the Compo-Board Company, Minneapolis, Minnesota, has announced that the sale of Sealofelt blanket insulation is now being handled through the Compo-Board Company. Sealofelt was introduced approximately a year ago in Michigan and Wisconsin, and now will enter the national market. Sealofelt is constructed of vegetable fibres with a percentage of genuine animal hair to keep the filler permanently fluffy. A black, waterproof paper covering is stitched to the filler.

Giles Made Sales Manager

ERNEST T. GILES, for the past five years vice-president of Ketchum, MacLeod & Grove, Inc., Pittsburgh



Ernest T. Giles

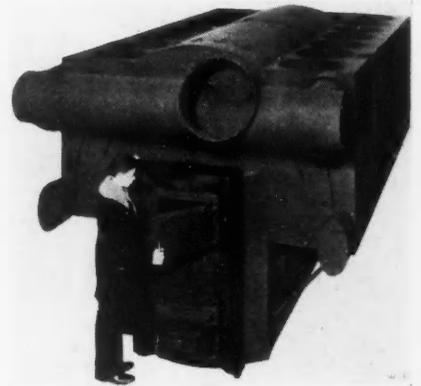
advertising agency, will join the National Fireproofing Corporation on March first, as general manager of sales. His headquarters will be in the Pittsburgh office of the company.

Along with the announcement of Mr. Giles' appointment, comes another, that the National Fireproofing Cor-

poration has just completed the purchase of the Vulcan Brick & Tile Co., of Birmingham, Ala., with new sales offices opened in that city and in Washington, D. C.

Largest Warm Air Furnace

THE large furnace, shown in the illustration, said to be the largest warm air furnace in the world, was built by



This Is Said to Be the World's Largest Warm Air Furnace.

the Campbell Heating Company, of Des Moines, Iowa, for a church in Rochester, Minn. It weighs 10,000 pounds, has a capacity of 100,000 B.T.U.'s and contains over 482 feet of electric welding. The shielded arc, utilizing the Fleetwood process of the Lincoln Electric Company, Cleveland, Ohio, was used in the fabrication of this huge furnace.

A. I. A. Annual Convention

PUBLIC work, involving a discussion of "bureaucratic architecture," will be a principal theme of the sixty-fourth convention of the American Institute of Architects, which will be held in San Antonio, Texas, April 14 to 16. An effort will be made to secure the Institute's policy toward the question of the employment of architects in private practice for public buildings.

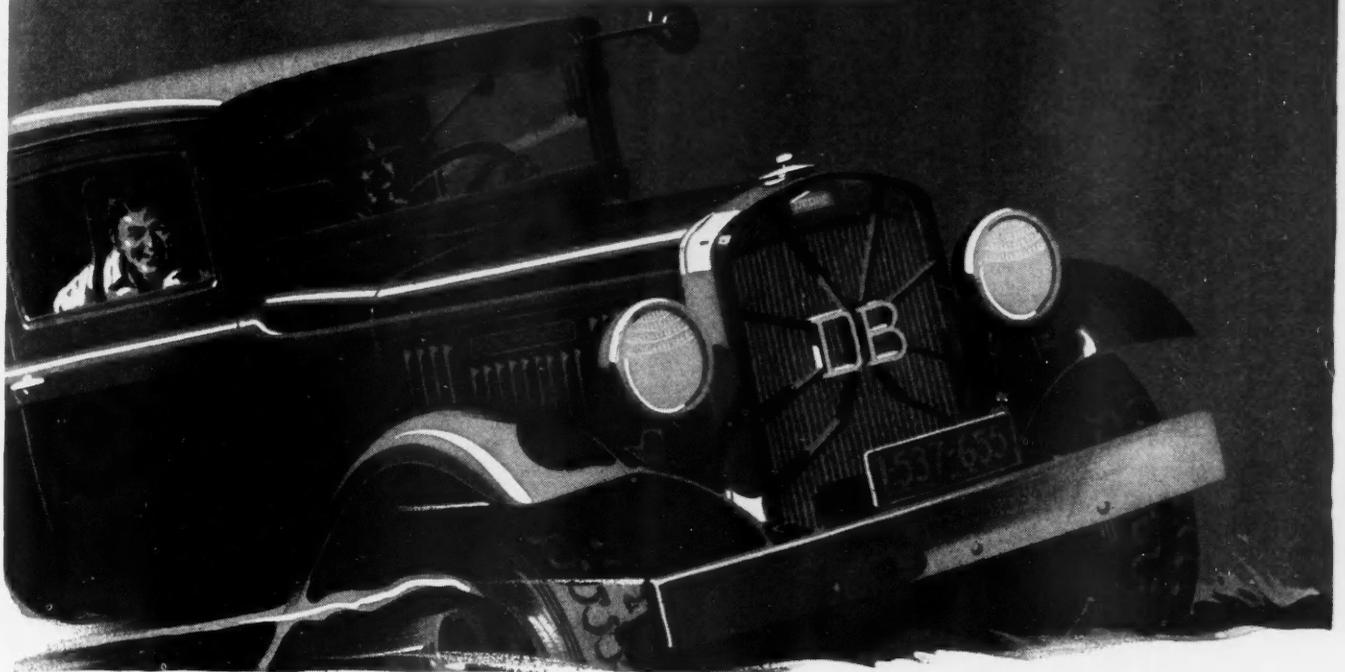
New Merger Announced

ANNOUNCEMENT is made of the affiliation of the American Radiator & Standard Sanitary Corporation with the Cochran-Sargent Company, St. Paul, Minn. The Cochran-Sargent Company will be operated under its present name as a division of American Radiator & Standard Sanitary Corporation and without change in either official personnel or policy.

To Talk Trade Extension

THE twenty-ninth Annual Meeting of the National Lumber Manufacturers Association will be held at the Congress Hotel Chicago, April 22 to 24.

**HUNDREDS IN YOUR INDUSTRY
HAVE PROVED THE VALUE OF
THESE HEAVY-DUTY TRUCKS**



There is no guess, no experiment on the part of contractors who select Dodge Heavy-Duty Trucks. Business men in your industry and many others have proved conclusively the sound value of these sturdy, modern workers. » » Dodge Heavy-Duty Trucks are available in an unusually wide variety—with payload capacities as great as 11,175 pounds. Inspection—part by part—proves that they are *all truck*—that they are ruggedly built of precision parts. And that all parts are correctly

proportioned, one to the other, to insure long, dependable service at low cost. » » No matter how heavy your loads may be, there is a Dodge Heavy-Duty Truck that will fit your needs. So see your Dodge Brothers dealer. See, inspect and test these exceptional trucks. You can buy one complete with standard or special body—at a price you will say is low.

THE COMPLETE LINE OF DODGE TRUCKS RANGES IN PAYLOAD CAPACITIES FROM 1,200 TO 11,175 POUNDS—PRICED, CHASSIS F. O. B. DETROIT, FROM \$435 TO \$2695, INCLUDING THE 1½-TON CHASSIS AT . . . **\$595**

**DEPENDABLE
DODGE HEAVY DUTY TRUCKS**

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE

Introduce Guide-Line Framing

A NEW structural lumber, known as "4-Square Guide-Line Framing" was placed on the market by the Weyerhaeuser Forest Products, shortly after the first of the year. This product is now being produced in all standard sizes from two by four, to two by twelve.

The new product is dressed on four sides, and both ends are re-butteted, square and smooth, which eliminates the necessity of squaring the ends before using, and assures full bearing surfaces, for instance, at the back of all studding. Eased edges provide greater convenience and safety, eliminating the danger of splinters. Each piece is cut to exact length, so that a 12-foot piece is exactly 12 feet long.

This new lumber is marked on one face, every inch of its length, with guide-lines which extend the entire width of each piece. This is the reason for the name guide-line. These accurate markings are lightly pressed into the wood without rupturing the surface. They serve as a reliable measurement from either end and are a distinct aid in cutting short lengths and cutting out rough openings. They are also valuable in placing, fitting and leveling framing members.

Another innovation is that each piece is stamped with the company's guarantee as to grade, species and seasoning. On the ends, in blue, weather-proof ink, are printed the words, "4-Square Guide-line Framing." One edge at both ends has the printed words "Weyerhaeuser Guaranteed Made from Douglas Fir No. 1 Common." Above these words is printed the National Lumber Manufacturers tree symbol, and below them, the West Coast Lumbermen's Association mill mark. Spaced at intervals along the sides, pinked in without color, are the words, "Seasoned Stock Weyerhaeuser Guaranteed."

Merger Announced

ANNOUNCEMENT has been made of the merger of two of the leading manufacturers of fine tools, the Millers Falls Company, of Millers Falls, Mass., and the Goodell-Pratt Company, of Greenfield, Mass. The Millers Falls Company will be the operating company and the officials are to be the present officials of this company, Philip Rogers, president; George U. Hatch, vice president; John W. Smead, vice president; and Earl D. Holtby, treasurer.



Philip Rogers

William M. Pratt, president of the Goodell-Pratt Company, has been elected a member of the board of directors. The two lines of tools will continue to be manufactured under their present trade marks.

1930 Sales Exceed 1929

WALTER F. Tant, president of the Silent Automatic Corporation, recently announced that, in spite of the depression and unemployment situation of the past year, his organization increased its advertising expenditures 10 per cent during the first nine months of 1930 and, in the first ten months of the year, sold and installed more domestic oil burners than in the entire year of 1929.

"I have been asked many times," said Mr. Tant, "How did you do it?" The answer is simple and may be applied to any industry. It is merely an application of common sense and hard work."

Will Promote Plywood Sales

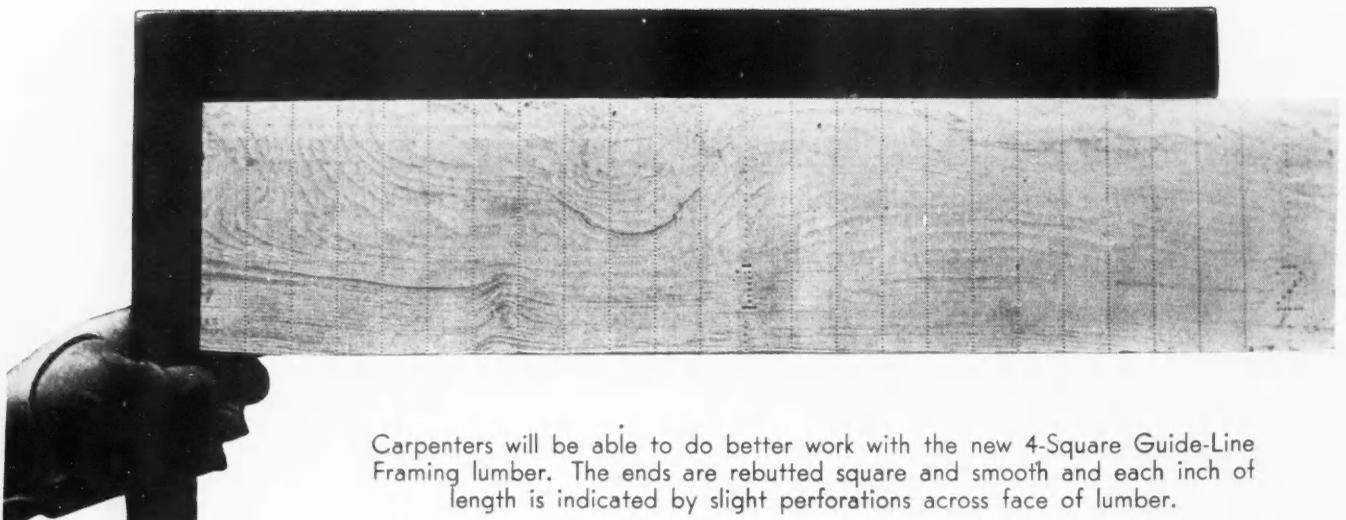
SEVENTEEN mills, representing the entire production of Douglas fir plywood, are launching a nation-wide, three-year program of advertising, sales promotion, and engineering research, according to an announcement by the Douglas Fir Plywood Institute, 649 Skinner Bldg., Seattle, Wash. This program will acquaint the public and the wood using industries with the hundreds of uses of this material.

This product consists of an odd number of thin sheets of Douglas fir, usually three or five, glued together into boards, under great pressure. The grain of each sheet is at right angles to the grain of adjacent sheets. The resulting boards are natural lumber but are stronger, wider and non-shrinking.

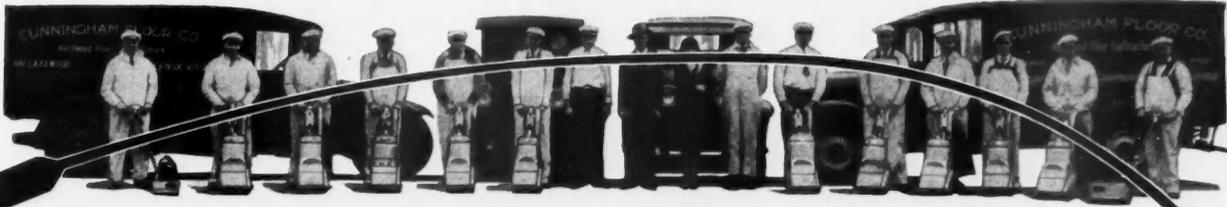
Douglas fir plywood is used in all types of building construction for doors, paneling, built-ins, wallboard, concrete forms, sheathing, flooring, partitions, shelving, store fixtures, and many other important but less-known uses.

Launch New Window Plant

THE Marshall C. Wood Manufacturing Company has launched a new industry in Cortland, N. Y., and Truxton, N. Y., for the manufacture and sale of Universal windows for the lifetime of the patent. Marshall C. Wood, president of the company, states that this company will manufacture and sell the windows within a reasonable shipping radius and will license other manufacturers throughout the country. Licensing will include furnishing all hardware which will be made in and shipped from the Truxton plant.

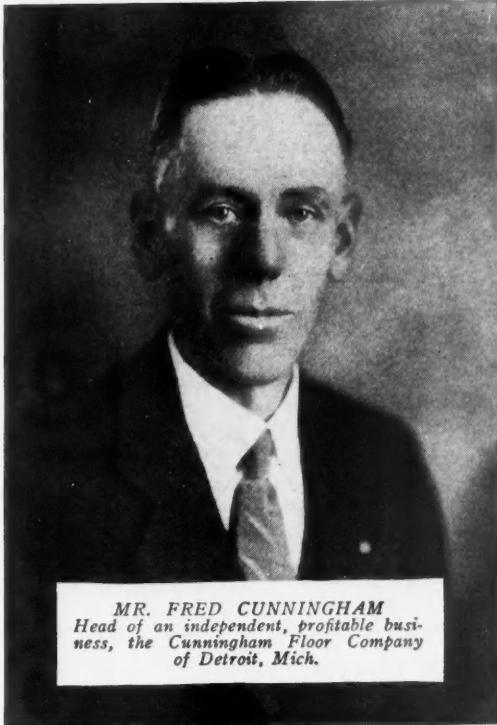


Carpenters will be able to do better work with the new 4-Square Guide-Line Framing lumber. The ends are rebutteted square and smooth and each inch of length is indicated by slight perforations across face of lumber.



This Is The Coupon

Which Started Fred Cunningham In Business



MR. FRED CUNNINGHAM
Head of an independent, profitable business, the Cunningham Floor Company of Detroit, Mich.

This Is The Man

whose success story you read in the March issue of the American Builder. Read what he says about AMERICAN machines:

The American Floor Surfacing Machine Co., Toledo, Ohio
Gentlemen: Inasmuch as we had the opportunity of getting the first American High Production Machine put out in Detroit, we want to inform you of the wonderful success with such success over all of our After meeting with such success over all of our machine, we immediately changed over to light in equipment to American Machines. We expect to add several more, as they certainly are light in weight and easy to handle, as one man can carry them upstairs.
One test we gave your machine was a 60 hour run only stopping long enough to change operators and the machines were still "raring to go." We can cut more floors per day leaving them in a better condition than with any other machines that we know of. A man in the floor business is making a big mistake if he does not own American Machines.
Yours truly,
Fred Cunningham,
Cunningham Floor Company.

What This Man Did YOU Can Do! Let the AMERICAN METHOD teach you how. This coupon brings full information. No obligation.
WRITE TODAY!

Five years ago Fred Cunningham was a cabinet maker working for someone else. "Like millions of other employed men in this country" (says the article in the March issue of The American Builder and Building Age) "he was anxious to own his own business but unable to get a start."

Then He Answered Our Ad

and learned the AMERICAN METHOD of Floor Finishing. His employer helped him buy his first equipment. Today he is the head of a prosperous Floor Contracting business in Detroit, and is the owner of more than a dozen AMERICAN Floor Machines and four motor trucks. The photo at the top of this page shows part of Mr. Cunningham's organization.

YOU TOO Can Make Real Money

The AMERICAN METHOD shows you how. Carpenters, cabinet makers, painters, decorators, handymen, woodworkers of all kinds, repairmen, builders, contractors—all make big profits with the easily mastered AMERICAN METHOD. The return to better times will mean the surfacing of thousands of new floors in your vicinity, apartment houses, hotels, office buildings, fine homes. Old floors must be resurfaced too—and waxed and polished. AMERICAN Machines will equip you to do all this work and earn a substantial income.

This Is The Machine

with which Fred Cunningham started . . . The AMERICAN High Production Floor Surfacing Machine, the speediest, most efficient machine ever designed for floor surfacing. Some prefer to start with the AMERICAN Handy Sander, a smaller machine but fully as efficient. The AMERICAN Waxing and Polishing Machine, if added later, will completely equip you for maintenance work and added profits.

Experience Unnecessary

The AMERICAN METHOD is simple. The machines are easy to operate. You can start with one machine like Fred Cunningham did. Many begin in spare time. The main thing is to get started. Advertising material, post cards, folders, advice and information are furnished to help you get business. The demand for high class work is steady. All you need is the equipment and a little courage.



This Coupon Means \$\$\$\$ to You.—It Costs You Nothing to Mail It!

American Floor Surfacing Machine Co., 511 So. St. Clair St., Toledo, Ohio

Send me the facts about the AMERICAN METHOD. I'm from Missouri.

Name

Address

Occupation or Business

If you are acquainted with the American Method and want information on machines only, check here

High Production Handy Sander Waxing and Polishing Machine

THE AMERICAN FLOOR SURFACING MACHINE COMPANY

511 South St. Clair Street

Toledo, Ohio

The Builder's Library

Offered by Book Publishers

"Steel Construction"

This text and reference book on the design of steel framework for buildings, by Henry Jackson Burt, revised by Herman Ritow, is intended to give students the facts and formulas needed in designing the structural steel framework for buildings. Published by the American Technical Society, Chicago. Price \$2.50.

"Coloring, Finishing and Painting Wood"

This book is designed to give interesting and valuable information about the new and widely-used wood finishes and painting materials which have recently appeared on the market and to furnish related scientific information which should accompany training in the purely manipulative processes of wood finishing and painting in schools and industry. It was written by Adnah Clifton Newell, and published by the Manual Arts Press, Peoria, Ill. Price \$3.50.

"Wood, Lumber and Timbers"

Volume I of the Chandler Cyclopedia has recently been published by the Chandler Cyclopedia, 55 W. 42nd St., New York City, compiled for the aid of scientific selection, purchase and use of commodities, treats the subject of wood, lumber and timber. It was written by Phillips A. Hayward, technical consultant of the Wood Utilization Committee of the U. S. Department of Commerce. It is a most complete directory on the subject of "what to buy" in wood. Price \$10.00.

"Selected Furniture Drawings"

This book, by William W. Klenke, contains selected and tested drawings especially suited to use in school shops, especially where there is wood-working equipment. The designs are the result of extended study of early American furniture. Published by The Manual Arts Press, Peoria, Ill. Price \$3.00.

Miscellaneous Publications

Inspection of Materials

The National Engineering Inspection Association, P. O. Box 1115, Pittsburgh, Pa., has recently published a booklet of "Tentative Methods of Procedure for Inspection of Materials."

Advertising Methods

The Johns-Manville Corp., 292 Madison Ave., New York City, has published a valuable booklet under the title "Your Advertising—How to Make It Pay," which presents definite, tested ideas for advertising and sales promotion.

Check These Items Every Month and Write for Those You Need to Keep Your Files Up to Date. Any Item Listed Will Be Sent Free on Request Except Where a Price Is Noted. The American Builder & Building Age Should Be Mentioned When Writing for These Publications.

House Designs

"My House and Car" is the title of another design booklet by the Model Plan Service, 3725 Valentine Road, Kansas City, Mo., showing designs for small homes with integral garages. Price 20 cents.

Tourist Cabin Designs

The Long-Bell Lumber Sales Corp., R. A. Long Bldg., Kansas City, Mo., has published a booklet "Tourist Cabin Camps—How to Build Them," and an accompanying booklet of "Isometric Drawings and Material Lists, Long-Bell, Tourist Cabins." Price to dealers, cabin booklet 12 copies for \$1.00; drawing booklet, 35 cents each.

Construction Materials

"Struco Slate Review"

This booklet by the Structural Slate Company, Pen Argyl, Pa., contains an interesting and informative presentation of the use of this company's product in various types of buildings. It is handsomely illustrated in colors.

Woodwork

A folder of "Spanish and Italian Woodwork Details" has been published by the Morgan Woodwork Organization, 2287 Blue Island Ave., Chicago. It contains both illustrations and drawings.

Paints

Two new booklets are offered by The Sherwin-Williams Co., Cleveland, Ohio, under the titles "Metal Protective Finishes" and "The Story of Paint Standardization in the Plants of the Kendall Company."

Sound Insulation

"U S G Sound Insulative Machine Bases" is the title of a recent circular from the United States Gypsum Company, 300 W. Adams St., Chicago.

Cedar Closet Lining

"Aromatic Red Cedar Closet Lining" is the title of Commercial Standard Circular CS26-30, of the U. S. Bureau of Standards. Sold by the Superintendent of Documents, Washington, D. C. Price 5 cents.

"Lumber on the Farm"

A fourth edition of "Lumber on the Farm" has just been published by the National Lumber Manufacturers' Association, 702 Transportation Bldg.,

Washington, D. C. This booklet contains more than 50 farm building designs and is sold, in quantities of 25 or more, at 5 cents each.

Wrought Iron Pipe

"Pipe Bending" which is Bulletin 50, of the A. M. Byers Company, Clark Bldg., Pittsburgh, Pa., covers the principles and practice of bending Byers genuine, wrought iron pipe.

Wood-Block Flooring

A new booklet on wood mosaic, mastic-block flooring has been issued by the Wood-Mosaic Co., Inc., Louisville, Ky. It is a handsomely illustrated presentation of the type of work possible with this product.

Equipment for Buildings

Wrought Iron

An illustrated booklet of new, wrought iron lamps, recently brought out by Todhunter, Inc., 119 E. 57th St., New York City, is offered by this company.

"Colonial and Early English Hardware"

This is the title of a handsome new catalog, bound in hard covers, fully illustrating a wide range of hardware designs of this type in colonium metal and wrought iron, manufactured by P. & F. Corbin, New Britain, Conn.

Door Checks

Complete information on the Condor concealed door check is available in a new booklet issued by The Condor Company, 58 Sutter St., San Francisco, Cal.

Welded Products

A catalog of welded products made by the Welded Products Corporation, 16th, 17th and Cleveland Ave., Kansas City, Mo., and including radiator enclosures, incinerators, bathroom cabinets and toilet and shower enclosures, is available.

Contractors' Equipment

Arc Welding Supplies

A catalog of arc welding supplies manufactured by The Lincoln Electric Company, Cleveland, Ohio, has been issued by this company as section 3304 of its general catalog.

Miscellaneous Equipment

The Link-Belt Company, 910 S. Michigan Ave., Chicago, has issued a complete list of its new products and services announced during the year 1930.

Manual on Tools

The "Disston Saw, Tool, and File Manual," containing much useful information for tool users, to make their work easier, has been published by Henry Disston & Sons, Inc., Philadelphia, Pa.

PORTER-CABLE-HUTCHINSON PORTER-CABLE-HUTCHINSON PORTER-CABLE-HUTCHINSON

Save 90 Cents Out of Every Sawing Dollar

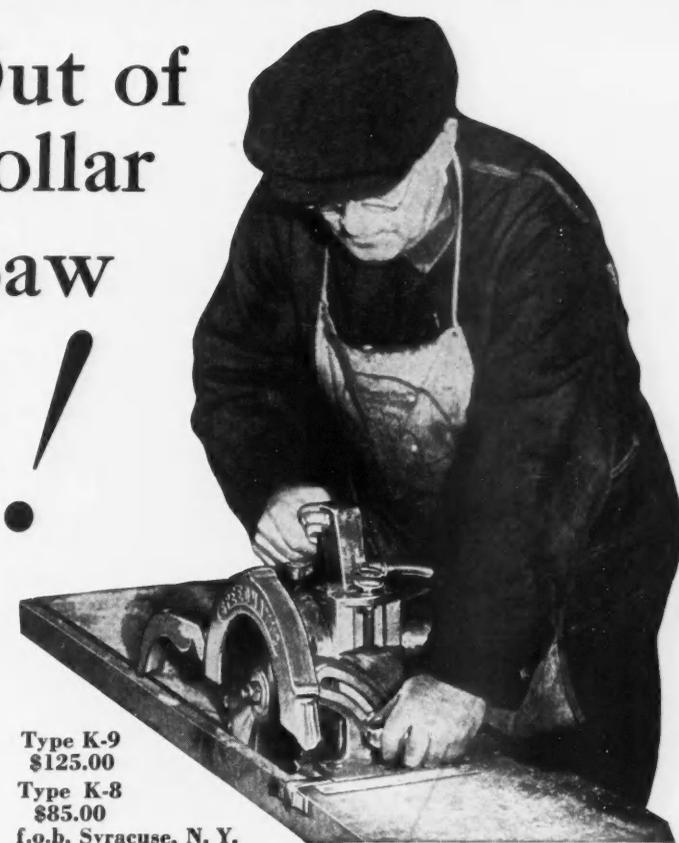
WITH THE NEW *Speedmatic* Saw TYPE K-9

Rips 3" stock at 14 ft. per minute
Cross-cuts 2" x 12" in 2 seconds

GUARANTEED PERFORMANCE

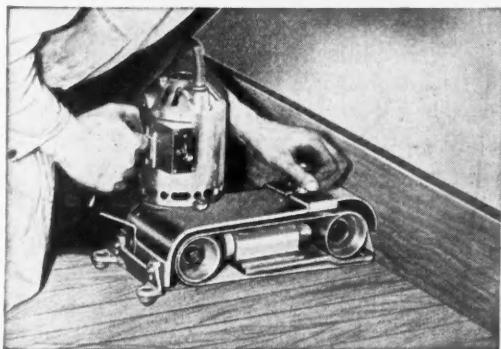
NO IFS, ANDS, NOR BUTS to this performance guarantee. Check it yourself, then pull your watch on your fastest man using a hand saw of any kind. Such a test will quickly show you the time-saving possibilities of the Speedmatic Saw.

You will find Type K-9 has the power and stamina to stand the "gaff" and abuse a saw usually gets on construction work. Universal motor develops 1 1/4-h.p. and the saw blade travels at the unusually high speed of 5,000 R.P.M. Finger tip adjustment for depth and angle cutting. Well balanced and easily handled. Safely guarded at any angle. Other features will interest you, so write for full details today.



Type K-9 \$125.00
Type K-8 \$85.00
f.o.b. Syracuse, N. Y.

PORTER-CABLE-HUTCHINSON PORTER-CABLE-HUTCHINSON PORTER-CABLE-HUTCHINSON



There's Profit 'round the edges when the New B-44 EDGER is used

You can't expect to get your share of floor work by continuing the expensive, laborious and slow hand scraping methods of yesterday. The B-44 Edger has upset tradition by making it possible to go right up to the baseboard WITH THE GRAIN, using horsepower instead of manpower. It saves time, too, on stairs, in closets, and on all small areas. There must be many reasons why "PORTER-CABLE Sanders are the most widely used in the world." We'll be glad to tell you about this new Edger, so write today and ask us.

PORTER-CABLE-HUTCHINSON PORTER-CABLE-HUTCHINSON PORTER-CABLE-HUTCHINSON



Parallel Cross Cut Saw, Underslung Rip Saw, Jointer and Boring Machine—all in one.

The BEAVER has "It"

The "It" is what you should look for in every piece of equipment you buy. "It" is utility. In the Beaver you get a full measure of "It"—and then some. The parallel slide saw for cross-cutting, mitering, dadoing, tenoning; the underslung rip saw; the handy, smooth-running jointer, all operating from the same motor, without countershafts. Lumber always lies in the same direction, making the Beaver practical for use in narrow shops or rooms. Ball-bearing throughout—low in first and operating cost—ten times faster than hand work. Let us tell you all about this time and money saving machine.

We also build Floor Sanders, Bench Saws, Band Saws, Saw Tables, Jointers, Mortisers, Shapers, Lathes, Spindle, Belt and Disc Sanders.

"Portability Plus"
The BEAVER mounted on trailer and equipped with gas engine.



Porter-Cable-Hutchinson Corp. 1721 N. Salina St., SYRACUSE, N. Y.

PORTER-CABLE-HUTCHINSON PORTER-CABLE-HUTCHINSON PORTER-CABLE-HUTCHINSON

First You Build a Prospect File

(Continued from page 63)

and will assist you in checking and correcting your lists. Notices of real estate transfers, removals, new arrivals, engagements, weddings, and births should be noted.

Once a good prospect list has been built up, it should be kept right up to date, and that means constant attention, for American people are notoriously on the move. An intelligent girl, or a young man "learning the business" might well spend most of his time on it and in sending letters and making telephone calls. Careful check should be made to see that names are not duplicated, as, for example, giving both home and business address, or including the old address after a new one has been given. After the names have been sifted down and the unlikely purchasers weeded out, it would be well to have your local postmaster assign one of his staff to check addresses before any extensive mailing is done. Although conditions may vary, it should be possible to arrange to have your list checked, and names of individuals who have moved or died, eliminated by the post office, which makes a charge of sixty-five cents an hour for the work.

Building and maintaining a prospect list is not easy work, but it is, as I have already pointed out, absolutely necessary in order to carry on intelligent, well-directed selling.

"We are advertised by our loving friends," used to be the slogan of a baby food manufacturer. It applies equally well to builders, and the selling effort made possible by a good "Booster," "Good Will," or "Prospective Customer" list even when it does not bring direct sales will make friends for you that will keep bringing business long after you yourself have forgotten that particular bit of sales effort.

Yes, We ARE Cutting Costs

(Continued from page 85)

angle. The angle may be given in degrees or by stating the rise per foot run, as for the rafters. Usually braces are set at 45 degrees; and as the spacing of studs is standard, most of the bridging can be cut to standard length.

The suggestions given here, of course, cannot be applied to every job directly, but should be used only as examples of how such problems may be worked out.

The power saw has had such wide development and such broad application to problems of the building field that we can only touch upon them here. Both the saw rig and the hand saw can be used on most jobs, but on some, conditions will dictate which is the more practical, with due consideration of investment involved. New attachments now make it possible to mount the hand saw in such a way that it will do practically any type of cutting; for large jobs, however, the heavy work would require a bigger outfit.

Use of power saws for cutting brick, sandstone, vitrified tile, slate, marble, limestone, and many other materials, has opened up an ever greater field for this equipment. With the opening of a big building season this spring before them, builders now have at their disposal better equipment than ever before in the history of building. This new equipment, coupled with a new appreciation of scientific planning, will no doubt do much to speed up work and give the public what it is clamoring for—lower costs.

What Type of Architecture Will Sell This Year?

(Continued from page 64)

making plans of our houses, that has deprived us of the same pleasure.

Then there is the covered porch to consider. Usually this difficult element is glued on the house anywhere, in desperation, with the result that it blankets the light in the living or dining room. With careful study, this can be avoided. Frequently a room has three exposures, and one can be sacrificed to the porch. There are always possibilities of arranging it against the garage or kitchen wall where it will not detract from the liveableness of the interior.

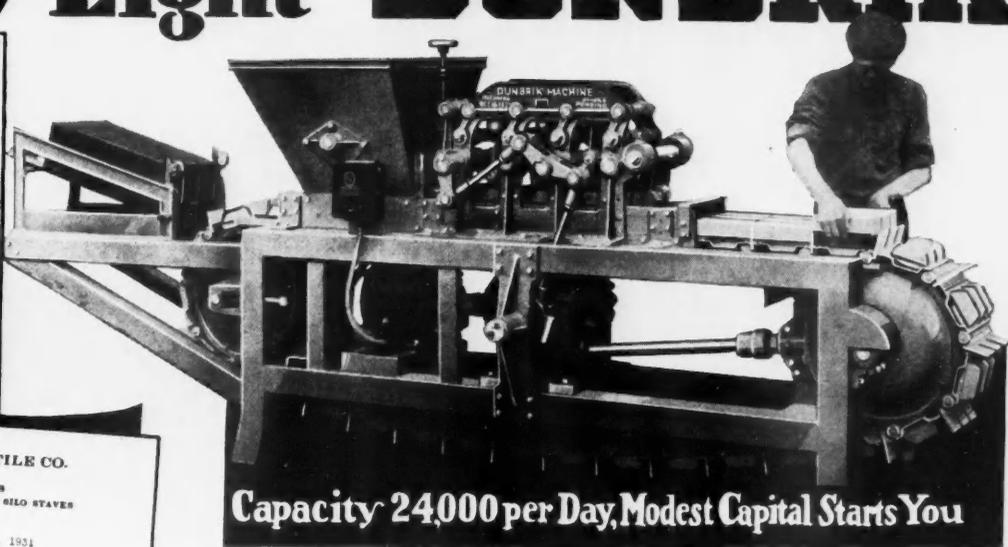
Two reasons dictate, as a rule, the placing of bedrooms on the second floor; first, economy in the extent of foundations and roof, and second, the aversion of most people to sleeping in a bed on the ground level. Sun, and a good cross draft, are as essential to a good bedroom as they are to the rooms on the first floor. Ten years ago one would probably have planned for a single bath and thought himself well off. Today he will plan for at least two, and soon no house will be complete without its private bath for each bedroom.

It may have seemed strange that up to the present I have said nothing about the appearance of the exterior. This was intentional, for in planning a house the looks of the exterior should not be considered until every requirement of the interior that will make for comfort and happiness has been solved. A good interior cannot be fitted into the set mold of a Colonial, an English, or an Italian house of a hundred years ago. The insides must be arranged first and the exterior adapted to it. After all, a house is built to live in, rather than for neighbors and friends to look at. This does not mean that the house will not be beautiful. To the contrary, a house, designed and built as I have outlined, will acquire a new beauty, a beauty of its own, just as the automobile acquired its beauty once it threw away the precedent of the coach and wagon. Why should a modern house look like the old Colonial house of grandfather's day? He could not have had the kind of house that the twentieth century carpenter, brick layer, and mechanic can so easily produce. Windows alone alter the whole appearance. In the comfortably heated house they can be wide and high, to give a view and let in the sun. Our methods of construction make it a simple matter to place the windows exactly where we get the exposure and view we want. We are not bound by symmetry of construction or form to put them in a particular place, regardless as to whether they satisfy us or not.

I know that what I am saying is more or less heresy. A false philosophy has taught us that the pursuit of beauty is the hall mark of culture, and that the way to capture beauty in architecture, is to take some well-authenticated antique precedent, and with as slight a rearrangement as possible, adapt it to our present needs, or rather, to our needs modified to suit the occasion. The precedents, however, whose beauty we so admire, were not produced that way, nor will we achieve beauty by such a road. The path of beauty has always been and always will be the same. The home should be planned honestly to suit the needs first, and then an exterior developed that fits, without compromising in any essential way, the plan. In other words, the house should be built before the wrapper is designed.

In KALAMAZOO

Established Manufacturer Enlarges His Market Through the New Light **DUNBRIK**



KALAMAZOO HAYDITE TILE CO.
 MANUFACTURERS OF
 HAYDITE BUILDING UNITS
 LITH I BAR JOISTS, COMMON BRICK AND SILO STAVES
 1908 REED STREET
 KALAMAZOO, MICHIGAN
 February 19, 1931

Mr. E. Dunn Mfg. Co.,
 Holland, Michigan.

Gentlemen: Att'ns. Mr. B. Van Realte

Replying to your favor of the 7th, we will be very glad to have you bring the representative of the Beaver Lumber Company over to see our plant when he comes.

In fact, these people wrote us sometime ago and in our reply we suggested that the best way for them to get real information was for them to make a visit to our plant and see for themselves just what we were doing.

We are glad to advise you too that we could conscientiously tell them that actual experience in the manufacture of Dunbrik has confirmed in every way the result of our own very thorough previous investigation. Our manufacturing costs are about \$6.00 per M, and yet we are able to give the builders in our territory a stronger, better brick with lower absorption and greater uniformity than they have ever had before.

We went into this business for the purpose of expanding our market which evidently is the same object that the Beaver Lumber Company now have in mind and you need not hesitate to say to them that we are well pleased with the efficiency of our machine and the greater volume and profit that Dunbrik makes possible in our business.

Yours very truly,
 KALAMAZOO HAYDITE TILE CO.
 By C. V. Berry
 Secretary



EIGHT SUPER ADVANTAGES

1. The most revolutionary development in brick-making
2. Super-production Speed—51 brick per minute
3. Recessed for lighter weight, stronger bond, greater permanency
4. 25% more brick to a barrel of cement and yard of aggregate
5. Supplies complete market,—common, tinted, faced
6. Accuracy unparalleled,—true, sharp corners
7. Superior quality—proven by tests
8. A trade-marked unit, backed by a national organization.

ANOTHER organization steps in line with the march of progress in the manufacture of DUNBRIK—The Kalamazoo Haydite Tile Co. Like the foresighted men mentioned in our previous advertisements—in Toronto, Canada; Grand Rapids, Mich.; Rapid City, S. D.; etc.—they took the initiative, made their thorough investigation of this new light-weight brick unit, the marvelous line-production process, and—their decision was quickly reached. Read Mr. Berry's letter, reproduced herewith. It is self-explanatory. It, again, demonstrates that if you will investigate this proposition, you will then comprehend the outstanding opportunity offered you.

AN EXCLUSIVE PROTECTED BUSINESS

VISUALIZE a 300-million dollar market for brick—a potential market of over \$300,000 for each DUNBRIK Plant, making the most stable building unit of all time. Think of DUNBRIK Plants turning out this new recessed brick at less than \$7.00 per thousand—your ability to supply common, tinted, and face brick below any competitive bids—dominating the market. Then weigh the advantage of operating under an exclusive franchise, without cost—a protected market—a territory all to yourself. Could any proposition be more inviting.

PAY-AS-YOU-PRODUCE

WITH such a plan a modest investment starts you,—so small, in fact, that the TOTAL, actually, represents only a fraction of what would be required to start any other business of equal volume and profit.

INVESTIGATE NOW

YOUR territory may still be open. Make your investigation today by sending in coupon below. Without obligation you will receive complete information on the product, costs, tests, and the process of this marvelous line-production. Send today for our latest book, "The Dunbrik Manufacturing Digest," with complete data, the kind of information you will want. It tells the complete story. Fill in coupon now. Putting it off may mean disappointment to you.

The reservation coupon brings you complete data and gives you first consideration. Act today.

RESERVATION COUPON

W. E. DUNN MFG. CO.
 450 W. 23rd St., Holland, Mich. 4-31

Please send full information on DUNBRIK low-production-cost plant for this territory, and how I can become established under exclusive franchise, on your pay-as-you-produce plan.

Name.....
 Address.....



The Big Four Who Control Building

(Continued from page 66)

what kind of workmanship shall go into all construction; what time records shall be broken. Their unanimous agreement absolutely determines success or failure in the sale of any product for any specific construction job.

Granted that all four of these personnel factors do not enter the picture of every job. Sometimes, as in speculative building where the Builder alone controls, this one man wields a power that is close to one hundred per cent effective. In other instances, the Builder and Dealer, possibly because of interlocking financial interests, or for some other reason, together control all purchases for the job. In that portion of the market where the Architect fully represents the Owner, this man exercises a veto which can have far reaching effects. Where Owner, Architect, Builder and Dealer are all actively in the picture, the balance of power may remain with one of a combination of two or more of them. But what that puzzled advertising or sales executive wants to know, is this: Exactly what purchasing influence is really wielded by each of these four factors?

To clarify the entire question, suppose we examine into the primary functions of each of these four controlling personalities and see just where and when they appear in the construction picture.

The Owner

The primary function of the Owner is to authorize and guarantee the expenditure of the money necessary for the construction.

Every job has an Owner; although the Owner oftener than not delegates the major share of authority to one or more of the other three personnel factors.

In large construction of a non-residential type, corporations are usually the Owners. To the Architects, Engineers and Contractors accrues the responsibility for the work; the corporate interests hold the building professionals responsible. (There are exceptions, of course.)

In the residential field Owners are in the picture for about two out of every three jobs, the third job usually being of a speculative nature where the Builder also functions as Owner.

In the higher price residential construction the Owner often employs an Architect; sometimes the Owner selects his Contractor, sometimes the Architect and Owner together decide, but in either case it is apparent that the ability and integrity of the Builder is thoroughly established before the building contract is signed. In the judgment of the two building professionals—the Architect and the Builder—the Owner justly places his confidence.

In the construction of residences costing less than \$15,000 (which probably accounts for fifty per cent of the home building market) all costs are subject to the closest scrutiny. Consequently, although plans and specifications prepared by Architects are often used on moderate cost residential construction, architectural supervision is not generally the rule for this type of building. In these conditions the Builder often has major responsibility for design, construction, and advice regarding financing. The Owner who knows nothing about building is perfectly willing to accept the advice of a specialist in building; the Owner's confidence in the Builder's ability and integrity is evidenced by the existence of the building contract.

Of course the Average Owner, or prospective Owner, of a new home cannot be expected to know very much about more than a dozen or fifteen of the products used in residential construction. And from several hundred to several thousand different brand names can be listed as integral parts of one construction project! It is not to be wondered at that Mr. Owner—unless he is skilled in building field practices—much prefers to be guided by the experienced men who constantly study this highly technical business.

The Architect

The primary functions of the Architect are to design the structure and establish the standards of quality for both workmanship and materials; when the Architect supervises construction he seeks to maintain the standards of quality he has established for the work.

The professional Architect is usually active on projects which are of sufficiently high value to justify his fee.

In the olden days the Architect was known as the Master Builder; it is only during comparatively recent years that architecture and contracting have become so clearly separated that it is common to hear: "There are 160,000 Contractors, and 9,000 Architects."

The Architect has become a specialist, truly; the Oxford dictionary gives the following definition in its 1929 edition:

"Architect, n. Professor of building, who prepares plans and superintends work; designer of complex structures, esp. the Creator; (fig.) achieves, as a. of his own fortunes. f. GK. *arkhitekton* (*arkhi-ARCH & tekton BUILDER*)".

The building business is greatly indebted to the Architect in the matter of design and good-quality-of-construction practices. Hundreds of Builders throughout the U. S. employ Architects in their own offices, or pay a suitable fee for the privilege of using architectural designs. The entire architectural profession has contributed greatly to the greater beauty and convenience of our homes, and especially to the development of design in non-residential construction. In that portion of the building market where the Architect actively supervises construction, there is no question but that his influence is strong. It is unfortunate that we have only 9,000 registered Architects (approximately), when each year on the average there are about 1,200,000 construction projects.

The Architect is a prominent member of the building professional group. He is an important factor often; but regarding the Architect also there have come to light many curious ideas. The average Architect does not want to be placed on a pedestal; a great many Architects, in fact, are very fussy about drafts.

The Builder

The primary function of the Builder is to act as the managing executive in charge of production, purchases, personnel. He is expected to provide a material interpretation of the ideas and ideals of both Owner and Architect, organize the many different elements of each job to conform to a time schedule, and (usually) assume major responsibility for the entire operation.

There are a number of different kinds of Builders who specialize on different kinds of construction; in general, it may be said that practically every building job is managed by a Builder.

The larger building organizations, many of which



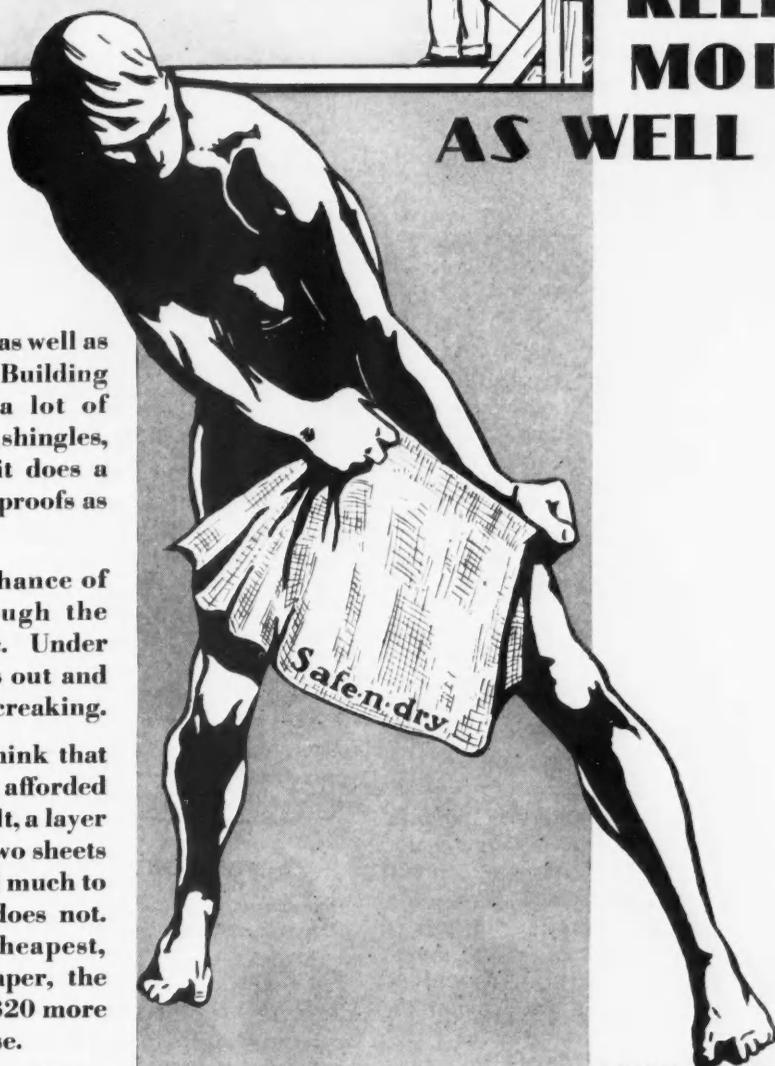
Safe-n-dry KEEPS OUT MOISTURE AS WELL AS AIR

MOISTURE-PROOF, as well as air-tight, Safe-n-dry Building Paper saves builders a lot of grief. Behind clapboards, shingles, stucco or brick veneer it does a double duty job. It waterproofs as it insulates.

This eliminates all chance of moisture coming through the walls, window frames, etc. Under floors it keeps dampness out and prevents warping and creaking.

You would naturally think that the multiple protection afforded by a heavy layer of asphalt, a layer of jute reenforcing and two sheets of kraft paper would add much to the cost of a home. It does not. Compared with the cheapest, unsaturated building paper, the extra cost is only \$15 or \$20 more for the average size house.

The use of Safe-n-dry pays for itself over and over again both to you and your client. Use it on your next job. You will find it clean to handle, tough, strong, flexible, air-tight and water-proof. It comes in 36, 48, 60, 72 and 84 inch widths. Send for samples. Once you use Safe-n-dry Building Paper it will constantly be on your payroll.



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handle millions of dollars worth of work each year, are very well equipped to solve the most intricate construction problems. Hundreds of Architects, Engineers, expert Estimators, experienced financial advisors and negotiators, etc., are in the employ of important construction companies. They are equipped and ready to design, construct, and aid in the financing of, building jobs ranging in dollar value from a skyscraper to a small bungalow. This type of Builder, however, is usually interested mainly in large projects.

In residential building the range is from the small Builder who erects one or two low cost cottages per year, to the building organization which constructs from 1,000 to 3,000 homes—or a series of apartment buildings—annually.

In all kinds of construction the Builder is a most important factor in regard to the selection, purchase and actual use of all the materials, equipment and specialties required for the work. Whereas the Architect is primarily concerned with the maintenance of the *standards of quality* the Builder is the man who must always be very conscious of *brand names*. A reason why the Architect mentions brand names in his specifications is because this is one of the best known methods for indicating a certain quality. Consequently, all that the Builder is required to do, often, when he wishes to substitute or change specifications, is to convince the Architect that the product with another brand name is just as good as the product originally specified by the Architect.

Builder's Practical Knowledge and Experience Make Him Invaluable

In non-residential construction the Builder is often one of the first persons summoned to the office of the architectural organization, where he confers before specifications are written. Many builders have so much practical information at their command, and their organizations are so well equipped to advise, that many decisions are possible prior to the completion of the drawings.

In the case of home building, thousands of Builders help the Owner to work out his financing arrangements, then design the home, construct the building, and present the Owner with a blanket guarantee which allows the Owner to come back to the Builder later if the job is in any way unsatisfactory. The number of second mortgages in existence and in the hands of Builders gives some indication of how well protected the Owner is, when he has the Builder's guarantee.

In his speculative building (which normally represents about one-third of all residential construction) the Builder controls all purchases. In residential building where both the Owner and the Architect enter the picture, the Builder's practical knowledge often helps these other two personnel factors to find satisfactory solutions all through the course of the work. Where the Builder and the Owner work together, and there is no architectural supervision, the Builder's influence is very strong; he knows so much more about the problems of construction and the worth of many products which he has already used or experimented with, that the Owner finds it good business to follow the Builder's advice.

The majority of the Builders in this country are responsible business men. Many a Builder is a member in good standing of the local Chamber of Commerce, Board of Education, Rotary Club, City Council, or similar representative bodies. Unless the Builder's credit is good the local material and supply dealers will not open an account with him; in fact, many very good Builders who are much better than solvent are today

buying for cash because during the past few years the "jerry builders" who came into sudden prominence during the supra-normal building era aroused the suspicion of dealers who prior to that time had seldom been forced to investigate the credit of Builders at all.

Before the building contract is even signed the worth and integrity of the Builder are established. The Builder is perhaps the one who exercises more influence on purchases in the building field as a whole, than any other single personnel factor.

The Dealer

The primary function of the Dealer is to provide the desired products at the point of construction at the exact time required.

One or more Dealers provide the products required for every construction job; without Dealer distribution in one form or another no product can enjoy maximum sales in the building industry.

The Dealer is the source of the greater part of the Builder's knowledge of current material prices and the availability of building products. The Builder is always in close touch with the Dealers in his town; these two personnel factors work together well and their constant co-operation is a byword throughout the industry.

During the recent depression some Dealers in various parts of the country have undertaken to go direct to the Owner, offering their services to assist the Owner in building his home. In a great many cases, even when the Dealer secures the job, he ultimately turns over the work to a Builder. It has been found that when Dealers compete with their own best customers, the Builders, they lose a considerable share of business; there are a few outstanding exceptions to this, but the majority of the 30,000 material and supply Dealers do not wish to be in the contracting business.

The principal control exercised by a Dealer, whether he sells lumber only, hardware only, mason materials only, etc., or a combination of products, is through his limitation of the number of brands carried in stock, from which selection may be made.

Spray-Painting Brought Up-to-Date

(Continued from page 93)

adjustment valve on the adjustable spray head.

In order to get a uniform job, the first consideration is the adjustment of the air pressure. Too much air pressure will thin out the center of the spray; too little will cause a spattered effect. The exact procedure for applying the paint is as follows:

"Begin the stroke or arm motion as far to the left as is comfortably possible, keeping the gun body perpendicular to the surface and the nozzle the same distance from the surface at all times; pull trigger, after arm is in motion; just before the completion of each stroke, gradually release the trigger. Lower gun and begin another stroke in the opposite direction, overlapping on the previous stroke just enough to give the proper coverage. Proceed slowly, when learning the trigger manipulation, as ability and speed will be acquired with a little experience.

"If the surface to be sprayed is irregular in shape, study it so that it may be covered with the least number of strokes and amount of material. Remember that the size and shape of the spray may be quickly changed."

By following directions and getting a little practice, the painter can easily learn the mechanics of the spray painting machine, to the end that both he and the builder as well as the home owner will benefit by this fine product of modern industrialism.

A Complete « « « « « « PLANING MILL

For Only
\$1.17
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7

**Machines
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- 9" Circular Saw
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Save Money—Make Money with the

ELECTRIC CARPENTER

WORK that would cost you fifty dollars at the planing mill can be turned out in a single day with the Electric Carpenter. And for this speed and capacity you pay only a trifle more than a dollar a day. Easy terms help you to make the machine pay for itself. Rugged cast-iron frame. No warping, twisting or vibration. Direct drive. Frictionless. Not a toy.

Enables the Carpenter to become independent and build up a business of his own. Increases production for the Shop Owner. Saves time and money on Maintenance and Repair work in buildings, hospitals, etc. Speedily saves its cost as a "pinch hitter" in woodworking plants, furniture factories, etc. Ideal for craftsmen who want something more than a toy.

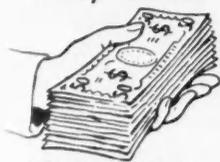
Guaranteed for 10 years by

**Does 35
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The Fireplace That Always Works

With the Peerless Fireplace Dome Damper to form the correct throat construction and to assure perfect draft control there never need be any worry about the fireplace working properly.

Their high grade cast iron construction, simplicity of operation and reasonable cost make the installation of Peerless Dome Dampers a necessity wherever fireplaces are installed. Made in every necessary size and three styles of control.



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Please send Peerless Fireplace Damper Information. Other products.

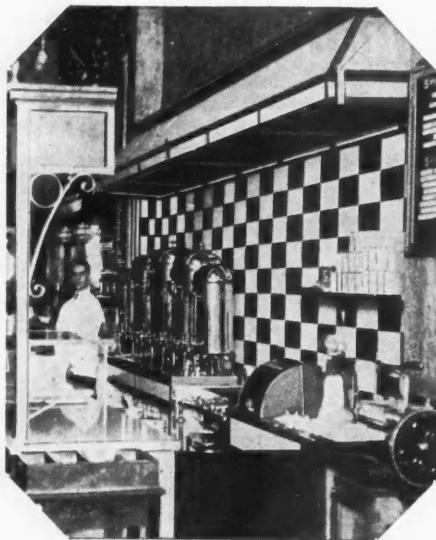
Name.....

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New Metal Wall Tile

IN modernizing work as well as in new construction, walls and ceilings of bathrooms and kitchens, in homes, and of restaurants and similar commercial buildings, may be beautifully and economically finished with a new metal tile, which



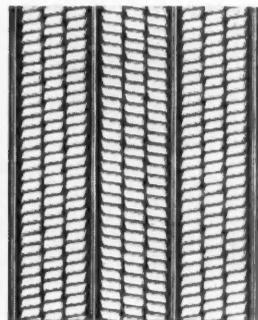
Metal Tile Applied to the Walls of a Restaurant, at Moderate Cost.

has recently been placed on the market. In modernizing work, this tile saves tearing out of old walls, as the tile blocks can be fastened to existing surfaces with an oil cement.

The tile is quickly and easily installed and, it is claimed, gives the same appearance and service as ceramic tile. These new metal tiles come in individual blocks six inches square. A choice of seven harmonious colors offers the builder a variety of attractive designs and patterns.

New Expanded Metal Lath

A NEW, small mesh, ribbed, expanded metal lath has been brought out by one of the well known manufacturers. It was designed for securing an adequate plaster key through a small mesh and, at the same time, provide sufficient metal surface not only for proper reinforcing, but also for reduction in the amount of plaster used. There are 20,520 strands in a sheet of this lath which measures 24 inches wide and 96 inches long. Tests show that this size mesh gives the most positive plaster grip, it is stated.



An Improved Type of Small Mesh Metal Lath.

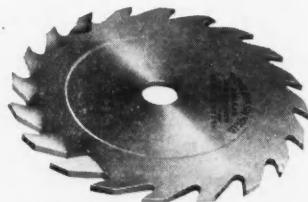
protective paint to cover thoroughly every bit of the metal surface.

The ribs, which are corrugated to make them doubly rigid, assure positive rigidity and the extra width of the strands adds to the strength of the complete sheet. Quality, toughness and strength are improved by heat-treating and re-annealing. The heat-treating removes oil, dirt and other impurities, leaving a clean surface for special, elastic, black asphaltum,

The meshes are so formed that in plastering the slightest pressure of the trowel completely embeds them and there is no plaster waste. The lath is easy to apply and there are no sharp edges to cut the lather's hands.

New Groover

A WELL known manufacturer has recently brought out a new groover which can be used on any saw mandrel without extra collars or fixtures. The saw is said to be ideal for cutting with the grain or on the end of grain. This groover is described as being so free and easy in its operation that the operator is hardly aware that the wood is going through. Its free cutting qualities and the fact that it runs without set make it an economical saw for grooving work.



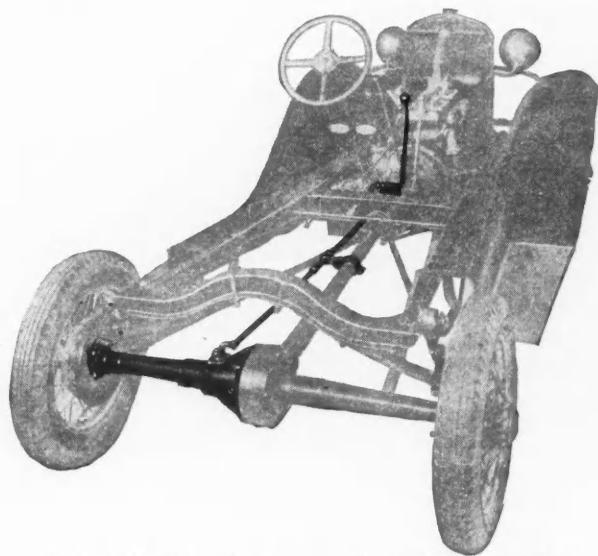
This Groover Can Be Used on Any Saw Mandrel.

Two-Speed Axle for Fords

A NEW two-speed axle for model A Ford cars and trucks which, it is claimed, accomplishes all the advantages of four speed transmission, has just been announced by a manufacturer of special motor equipment. The characteristics of four speed transmission, which provides for a high road speed with reduced engine revolutions, and also a wide range of flexibility, is found in this equipment.

The new axle gives the car two high speeds, "highway" speed, geared 2.84 to 1; and "traffic" speed, geared 3.93 to 1. The latter is a semi-direct gearing, said to be as quiet as the direct drive. The variable axle ratio gives the car six forward speeds. For hard pulls ordinary low and second can be used, through either axle gearing, providing great power for emergencies.

Most driving is done in direct, "highway" speed, which cuts down the motor revolutions 25 per cent. Wear and tear on moving parts is reduced, it is stated, and there is an economy in gas and oil consumption. Installation of this unit on any car is simple.



This Axle Unit Gives Any Ford Car the Advantages of a Four-Speed Transmission.

For Further Information in Regard to Any Product Described in This Department, Write to the American Builder and Building Age, Information Exchange, 105 W. Adams St., Chicago.