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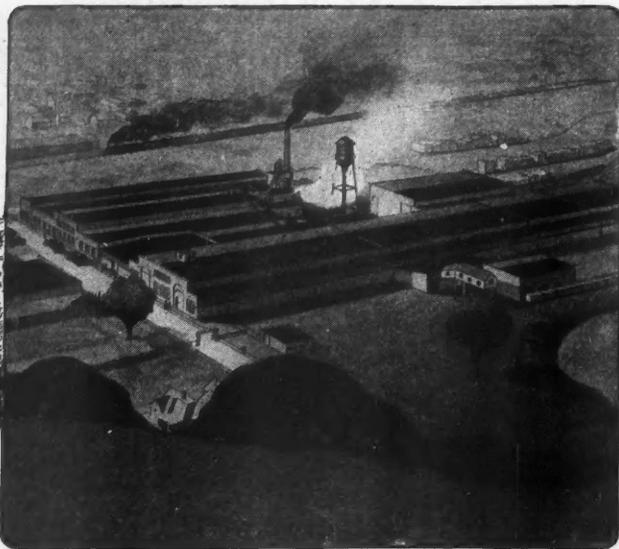
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AN INVITATION TO YOU: The AMERICAN BUILDER cordially invites and urges you to enjoy the privileges and benefits of its Correspondence Department. Any phase of any building question may be profitably and instructively discussed in this department. If your problem is a knotty or technical one submit it to the Correspondence Department and secure the benefits of the opinions of other experienced builders. It's

a "give" as well as a "take" department, and you are asked to relate your achievements and tell how you have conquered difficulties as well as to ask for information and advice. Rough drawings are desired, for they make clear involved points. We will gladly work over the rough drawings to meet publication requirements. The Correspondence Department is your department. Use it freely and frequently.

We have interesting booklets for
Architects, Contractors and Dealers.
Please tell which booklet you want.



Enormous Demand For Andersen Frames

DURING 1923 there were 50% more Andersen Window and Door Frames used than ever before. This shows how enthusiastic architects, contractors and dealers are about a standard frame of White Pine that will give lasting satisfaction to the home owner. The support of all classes of builders has made Andersen Frames the best known, and the Andersen frame factory the largest in the world.

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Andersen Lumber Company

Dept. A-1

Bayport, Minnesota

Andersen FRAMES

FRIENDLY CHATS *with the* EDITOR



Doors Individual—Doors of Character Doors That Have the Talking Points

ARCHITECTS and builders are always on the lookout for something new—something that will add that final touch of distinction and finish to their work.

And now it is *doors*. After a history of more than four thousand years there is today "something new" in doors. Several of the prominent manufacturers have discovered that the door, besides being a very necessary part of the building, is also an opportunity for expressing beauty and refinement.

Doors are very prominent in the home, the office building, the apartment, the hotel or school interior. These manufacturers have set about making this necessary and prominent piece of interior finish something of genuine beauty; and the whole building industry—architects, builders, dealers, and building owners are taking to the idea with such keen relish that a very large production of these better doors is made possible, and the cost is accordingly held down surprisingly.

It is good advice today to study into this proposition of doors. Doors of special merit, doors of character, and of individuality, doors that have real "talking points," are appreciated by both buyers and sellers of real estate. They are quick

moving stock for the lumber dealers, are preferred by the carpenters and builders, and are being specified by the best architects. AMERICAN BUILDER readers are fortunate in the attitude that the door manufacturers have toward them of desiring to give them all information regarding these "new things" in doors.

Still Climbing
AMERICAN BUILDER
Circulation this issue

62,000

This is by far the Biggest List and of Greatest Influence and Buying Power in the Building Industry.~

We Urge Our Big Family of Readers to Study Closely Our Advertising Pages and get the Benefit of this Great Fund of Reliable, Up-to-date Information

Many of our readers will no doubt notice that the above circulation figure, 62,000 copies of January American Builder, is 2,000 more than the statement on our front cover. The printing of our covers in four colors is a long process. When our front cover plates were made and the run started we estimated that 60,000 copies would be enough; but so many new subscriptions have come in since that we had to increase the run to 62,000. This sets a new record for the American Builder and for the building industry.

Such an immense circulation means still greater service to our readers and advertisers. With your continued help we will continue to grow and be able to serve you even better. Why not do more of your friends a good turn by recommending to them the American Builder?

Indoor Golf Outdoor Style

By C. W. VONIER

BRINGING the outside inside has been the aim of modern architecture for many years. Witness the palm rooms of the hotels, the roof gardens and the like. But it has remained for two Seattle men to get the most outdoor of outdoor games within four walls and still retain enough of its cantankerousness to make it recognizable.

A nine-hole golf course in the center of the city's most populous business district has just been opened. It is as outdoors as the moor itself, although constructed in the basement of an office building. It has been built in a room 100 feet long by ninety feet wide, and the greatest seeming obstacles have been turned into use in the decorative and utilitarian scheme of the place.

There have been other indoor golf courses, the two proprietors of the Seattle links admit, but no other, they say, has so closely retained the chief features of the game within the limited space available. For instance, it is said to be the only indoor course in the world with a soil floor. Most of the others, they say, have carpets, and are confined to the putting game, while in this, use of the mashie and niblick are required. The floor is of moistended sand, based on a clay foundation, which in turn rests on the concrete floor. Bunkers have been constructed of clay and sand, and deep sand traps have been provided around some of the holes.

The fairways between the pillars are narrow, and thus require accurate playing, and the holes, though short, are supplied with sufficient hazards to keep the game interesting.

Around each of the pillars has been placed a heavy

casing of bark to resemble trees and stumps. Very creditable murals decorate the walls. Each of the scenes is a reproduction of a famous hole on one of the Seattle golf courses. They are the work of a Seattle artist, F. Tadama, who accomplished his task with the use of calcimines alone. In spite of this, he has achieved a remarkable range of coloring in the scenes. On the pillars, above each of the stumps, the fantasy of the outdoors has been carried out.

The south wall of the room is a reproduction of the Seattle golf club house, and its porch, a concrete platform, about four feet wide, is furnished with wicker chairs, for the gallery which is expected to watch many of the matches on the little course. Tournaments probably will be played—one has already been arranged and a cup has been offered by J. F. Douglas, manager of a group of buildings, including the Cobb building, where the enterprise is located.

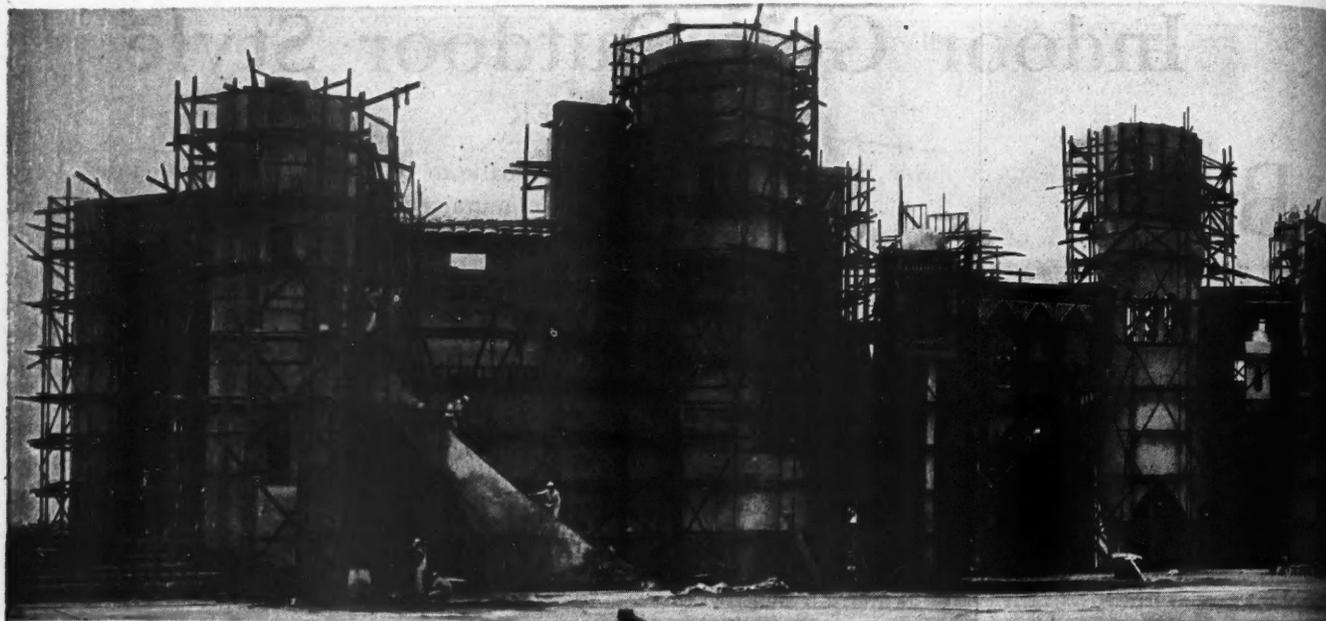
Many of the hundreds of tenants in the six buildings immediately surrounding the one in which the course has been built are expected to find time frequently for a half hour round, when they could not afford two hours or more for any outdoor game.

The enterprise was conceived by Fred Murphy and Dode Struthers and the course was laid out by Bobbie Collins, Seattle golf professional.

There is no reason why an idle basement or building in any community could not be remodeled to take care of the winter needs of golf enthusiasts. Golfers like to keep in form, and no matter how mild the winter may be in their localities, all-year 'round playing, except in regions of perpetual summer, will damage the turf on the greens beyond seasonal restoration.



We First Thought This a Glimpse of the Dismal City of Dis. At that we may not be far wrong. Imagine yourself teeing off, with all these hazards and the cantankerousness of the narrow fairways to contend with. A good idea, men, considering the present great vogue of golf. Have you an idle basement in your town?



All Aboard for Bagdad, the Luxurious, the Magnificent, and Rising Under the Modern Builder's Watchful Eye at a Speed Which Would Make the Ancient Builders Dizzy. The uncompleted structure to be used as a setting for Douglas Fairbanks' "The Thief of Bagdad."

The Unusual Motion Picture Set

Quest for Realism in Motion Picture Making Brings Ages and Nations Within Compass of a Ten-Acre Studio

By FRED SCHAEFER

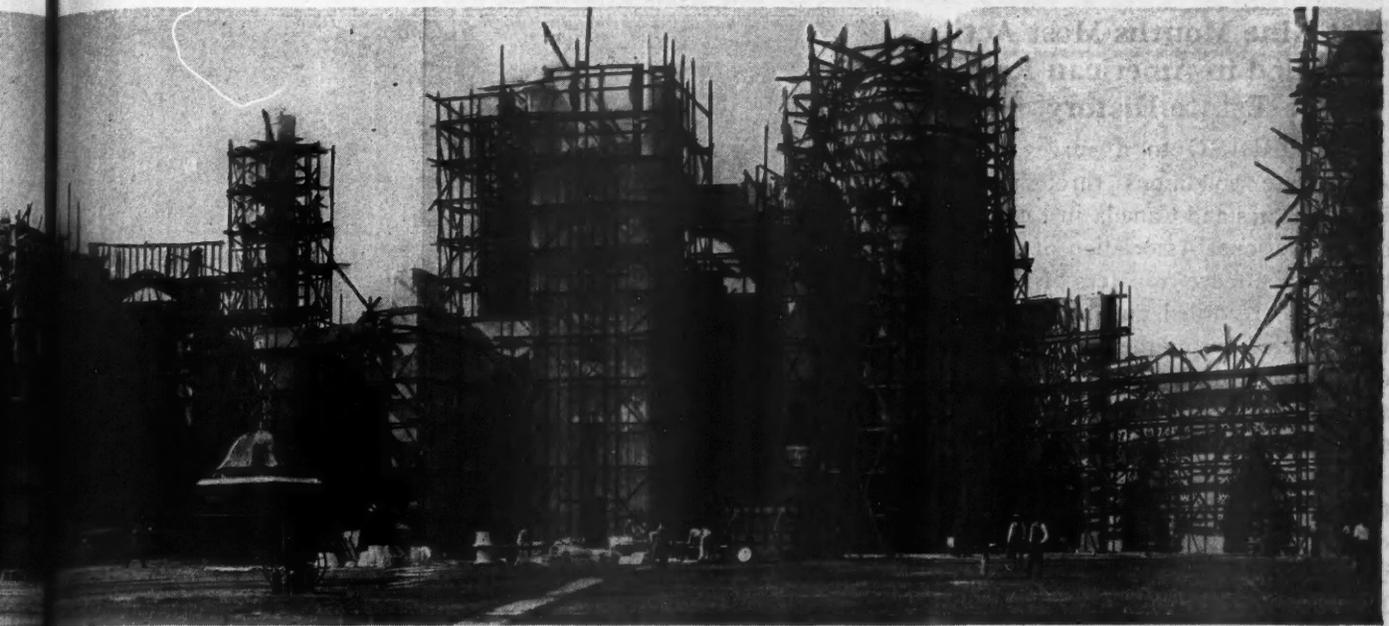
BAGDAD the magnificent! Bagdad the star of the East! Bagdad of Haroun al Raschid, city of dreams and of dreamers, of adventure and romance! That is the atmosphere of a most unusual motion picture set that is being peopled with fantastic beings for the forthcoming Douglas Fairbanks picture in which the star and producer is to visualize the lore of the Arabian Nights. And for this purpose a group of selected motion picture specialists has reared a synthetic Bagdad, built its alleys and minarets and bazaars by the hands of Los Angeles carpenters, plasterers and painters.

For the purposes of "The Thief of Bagdad" the ordinary realism of the motion picture has been improved upon and embellished. Ten acres of bizarre structures sprawl over a studio lot in the shadow of the still brooding and stern Robin Hood castle which only last year was the last word in scenery construction. Now bulk has been subordinated to imaginativeness and brilliance. In their completed form the Bagdad structures gleam in actual hues—green and gray and gold and black—not to entertain the professional eye, but for the sake of photographic feeling in the finished screen work. Furthermore, the details of the construction work as embraced by the camera were calculated for whimsy rather than raw realism. Straight lines are employed only so far as they are required to provide a sense of stability and substance. But the fairy tale idea has been carried out in a twisting stair-

way here, an eccentric tower there, a great sweeping archway, or crooked courtyard, or brocade draped and vaulted throne room elsewhere, and quaint vistas in every direction. The crooked stairways skulk along walls and leap dizzily into midair to bridge a princess' feet to some delicate balcony, perched at a reckless angle on a steep wall. Little barred windows or prison or zenana, veritable peep holes of odd outline, pierce otherwise blank masonry. Intricately wrought metal lamps lean at odd corners on tall swaying standards; crazy streets wander among hovels and palaces.

Nobody knows what Bagdad really looked like of old, but this Bagdad is intended to crystallize the most popular and artistic conception of it. And the whole thing was done out of the same material as a prosaic flock of Hollywood bungalows spring from! Lime and lath and sand. That is the magic of it!

Just how matter-of-fact the reverse side of the picture is, one can gather from the requisitions for the first big spurt of building this picture set. The reports of Building Superintendent W. A. Ownby show: 703,666 feet of lumber; 65 tons of casting plaster; 50 tons of Arden hard wall plaster; 800 sacks of Portland cement; 646 sacks of Keene's cement; 800 cubic yards of sand; 1050 sheets of Plastegon board; 86 bales of binding fibre; 181 barrels of lime putty; 9665 square yards of button lath; 105 kegs of nails; 1700 square yards of metal lath; 85 sacks of modelling clay; 400 gallons of plaster enamel; 639 gallons of floor enamel;



Seven Hundred Three Thousand Feet of Lumber; 115 Tons of Wall and Casting Plaster; 800 Sacks of Portland Cement, and 646 Sacks of Keene's; 9,665 Square Yards of Button Lath and 1,700 of Metal Lath; 105 Kegs of Nails—a Short, Sample Summary of the Construction Requirements of the Modern Movie Set.

650 pounds of Agatex. All told, 60,000 square feet of cement paving four inches thick have been laid, covering in one piece about $1\frac{1}{2}$ acres.

The peculiarity of this latter job is that it is the most unique as well as the most extensive effort at art effect ever attempted for a motion picture. This paved floor—which is equivalent to a cattle feeding floor a thousand times multiplied—has nothing but aesthetic uses—about \$20,000 worth, considered as a separate item. This floor, approximately circular, acts as a patio or court round which are built the bazaars of Bagdad. This floor has been enameled and highly polished—all for the purpose of getting the full presenting the reflected lights and shadows of the players and of the fanciful structures that hem it in. It is like a mirror upon which the play proceeds. Extraordinary pains were taken to keep this floor undamaged through the period of filming. Indeed, it had to be re-enameled and repolished several times. At all times it was fenced off from visitors and straying workmen, and everyone who did so had to enter at one of three gates guarded by officials who saw that those admitted were either barefoot or felt slippers or had specially made soft sandals. And they saw to it also that each person admitted wiped his feet well. Daily a gang of sweepers with push brooms and mops pounced upon each dust eddy as soon as it arrived. Several electricians were in constant attendance with a big electric buffer to furbish up the floor whenever it was being used for scenes. The scenes were mainly made at night under a complicated system of arc, spot, and flood lighting.

Another unusual thing was done in preparing for Fairbanks' unusual motion picture set. The usual preliminaries were somewhat reversed. As a rule, drawings are made from which models are built as a guide

to the life sized structures. But this time William Cameron Menzies and Irvin J. Martin, specially engaged by Fairbanks to create something of an improved nature, made their models first, and from these the necessary plans. This was in order to get freedom of design involving every angle that is possible to a camera, instead of the restricted vistas that a flat drawing would from the beginning suggest.

Persian, Arabic and ancient Chinese art will predominate in the Oriental atmosphere of "The Thief of Bagdad," but none of it will be strictly formal. In spite of the millwork and nailkegs, the spirit of fairyland will run riot.



Hardwood Distillation in Canada

"**H**ARDWOOD distillation may be looked upon as a minor key industry, because a number of the products cannot be produced by other means and are of an essential nature." Of this number, methyl hydrate (wood alcohol) is the most important, being obtainable only through distillation of wood. Acetic acid and acetone, also, are largely produced through this means. The importance of the industry has led the Forestry Branch of the Department of the Interior to issue an illustrated pamphlet treating of this subject. The pamphlet was written by Dr. John S. Bates, formerly Superintendent of the Forest Products Laboratories of Canada, who has made extensive studies in this subject. It is known as Forestry Branch Bulletin No. 74, "Hardwood Distillation in Canada." After a short introduction discussing the history and present position of the industry, the question of the wood supply is taken up, following which the process of distilling the wood is described at length, and a description given of the products, both those produced directly and those obtained by refining these latter.

Last Nine Months Most Active Period in American Real Estate History

ACCORDING to a survey of real estate conditions throughout the United States and Canada just completed by the National Association of Real Estate Boards, more transfers of real property were recorded and more buildings were erected during the first nine months of 1923 than during the same period of any year in the history of the American continent.

Rents have increased largely, the country over, both for business and for residential property, but in general they are becoming stabilized at the present levels. Residential rentals show the stabilizing tendency more strongly than business rentals. Rents are following the course of the cost of building. While according to the most authentic index of living costs rents are now 25 points higher than other commodities, present rents are low compared with the cost of construction. Before rents decrease perceptibly there must be a decrease in the cost of building.

Great inroads are being made in the national building shortage which was so pronounced after the war. Shortage is most acute apparently in the East and Far West. There is prevalent throughout the reports the impression that the supply of housing accommodations and business structures is about to reach a state of equilibrium between supply and demand.

The greatest demand at the present time in the real estate market is for small single-family dwellings. Sixty-eight per cent of the cities reporting indicate a shortage here, whereas only 54% report a shortage in apartment houses. Only 43% report a shortage in business structures.

Amount and value of building construction has been extraordinary, making it safe to assume that the increase of 23% over the record year 1922, maintained, according to the United States Bureau of Labor Statistics, for the first six months of 1923, will be fairly well maintained for the whole year if not made still greater, despite the failure to top last year's June building crest.

Of 236 cities answering, 223 state with all the tremendous construction there is no overbuilding of any kind. The suburban movement in the larger cities, pronounced tendency of present day city growth, is, generally speaking, greater than last year, and is likely

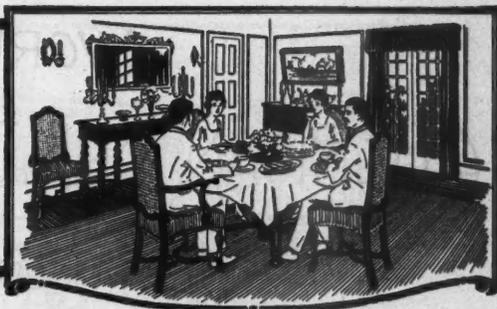


The Chicago Temple Building, Holabird & Roche, Architects. One of the outstanding achievements of 1923 building.

to be continued. Money for investment in real estate is comparatively plentiful. Interest rates are reasonable in nearly every section.

The market for business property and the market for residential property is reported better than last year by about 56% of the boards.

OUR FRONT COVER HOME



Bungalow in the Spanish Style

New Note in Residence Architecture Struck by Adaptations of Spanish Pioneer Models, with High Chapel-Roof Interiors

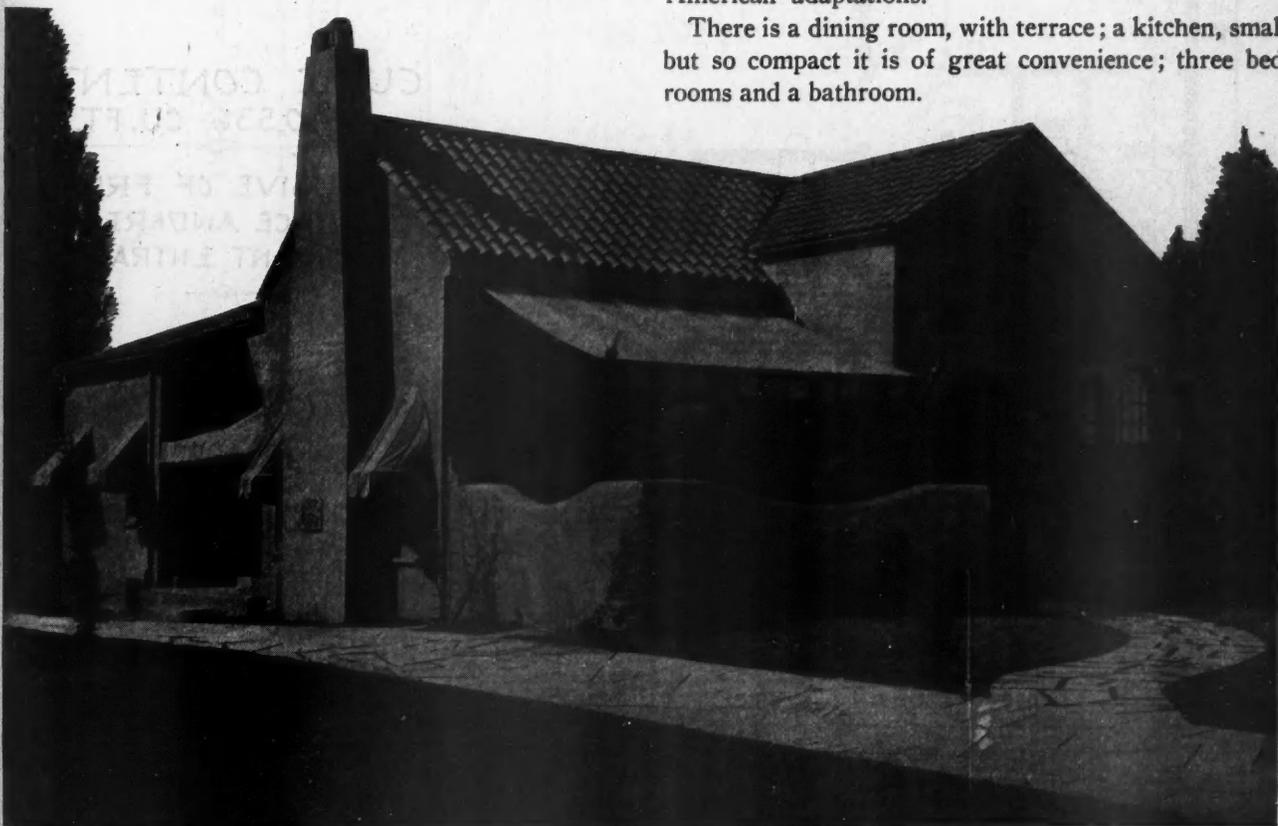
“DON'T you think the modern renaissance of the Spanish type of residence worth featuring?” asks not one reader, but many. We do. Our Front Cover Home for this month, with the following floor plans, is as smart a home as ever graced the pages of AMERICAN BUILDER. It is,—well, rather exotic. It owes its American being to the Spanish pioneers who reproduced in the New World the typical architecture of old Spain. Like Spain, too, we have extremes of temperature which vary from the boasted California climate to the more rigorous New England winter, and the bungalow is of a kind of construction which can be both cool in summer and warm in winter.

The exterior is of a vari-colored stucco, against which the brightly colored awnings stand in bright

contrast. The warm red of the roof tiles and the grass-defined flags of the walk and driveway are two other effective color touches. Reference to the detailed plans following shows a *Chapel Roofed Living Room*—

The living room, entered from the terrace entry has the popular style of chapel ceiling, extending upward to the roof. It is a very well proportioned room, and the presence of colored electric light bulbs inside the wood cornice enables different colors to be thrown against the ceiling. In fact, the whole character of the room may be changed by judicious manipulation of these indirect lights, controlled as they are by a switch near the door. The French doors opening on the front terrace look out upon a semi-patio; the enclosed patio typical of real Spanish homes seems not to be preferred in American adaptations.

There is a dining room, with terrace; a kitchen, small, but so compact it is of great convenience; three bedrooms and a bathroom.



The Gaily Colored Baldachin Awnings on this Front Cover Home Give a Lively Note to the Picture. They are helped by the vari-colored stucco and the warm colored tiles, and the flowers and potted shrubs on the front terrace. Working plans presented on the four pages following.

WORKING PLANS OF AMERICAN BUILDER FRONT COVER HOME

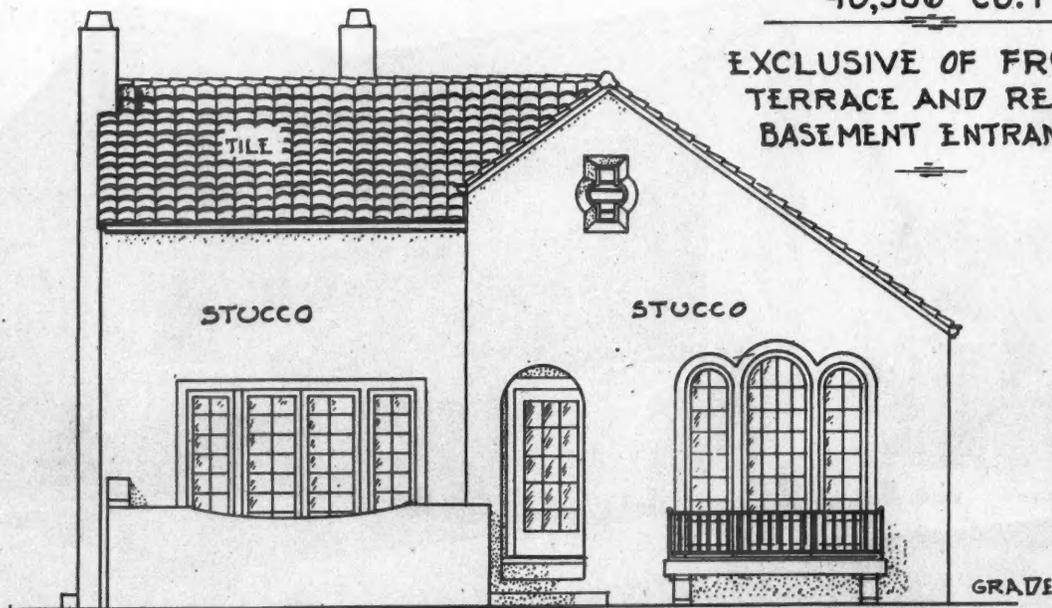
SIX ROOM ONE-STORY STUCCO RESIDENCE



SIDE ELEVATION

CUBIC CONTENTS
40,536 CU. FT.

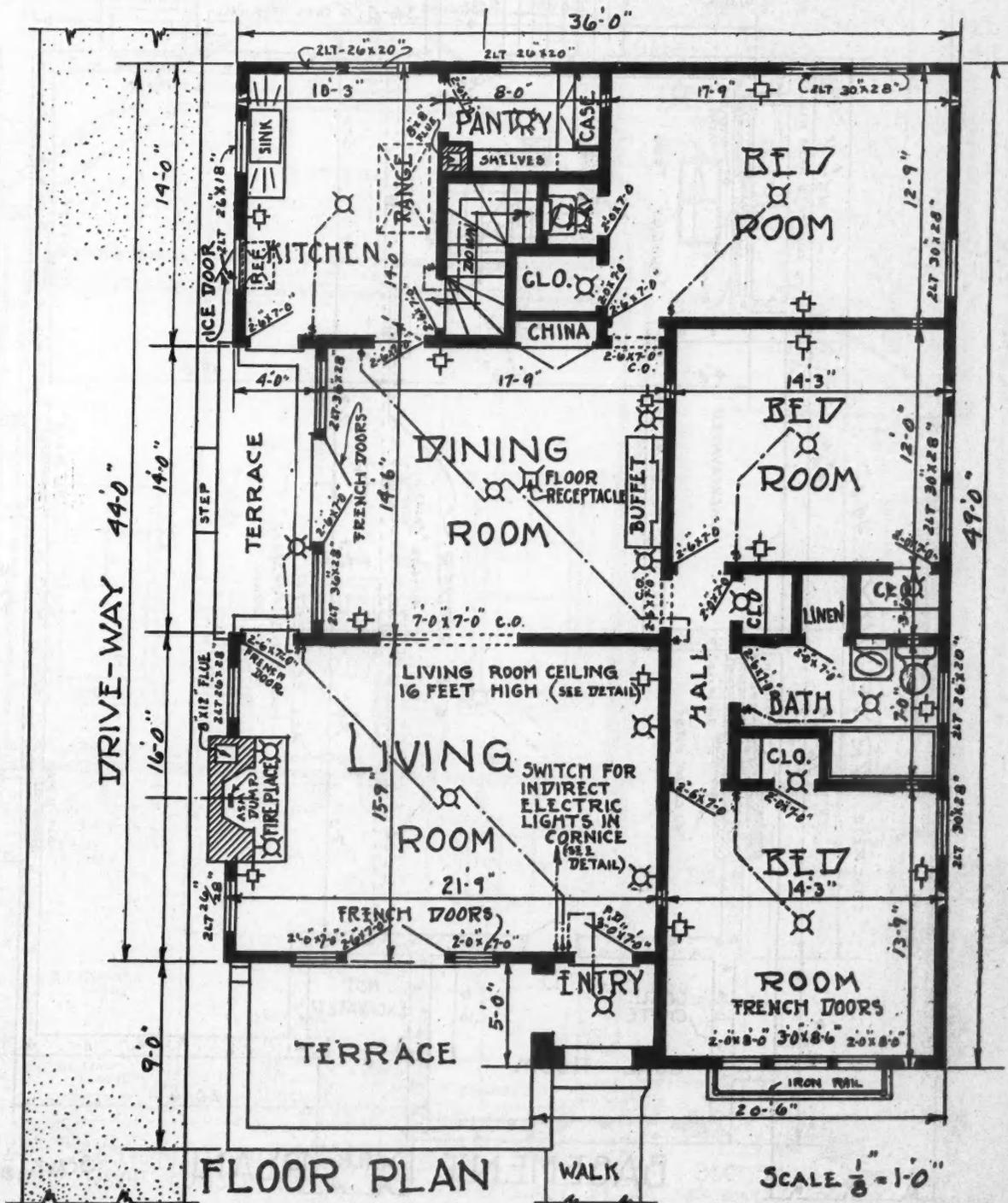
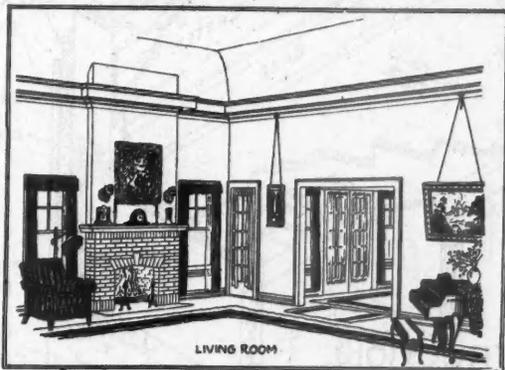
EXCLUSIVE OF FRONT
TERRACE AND REAR
BASEMENT ENTRANCE



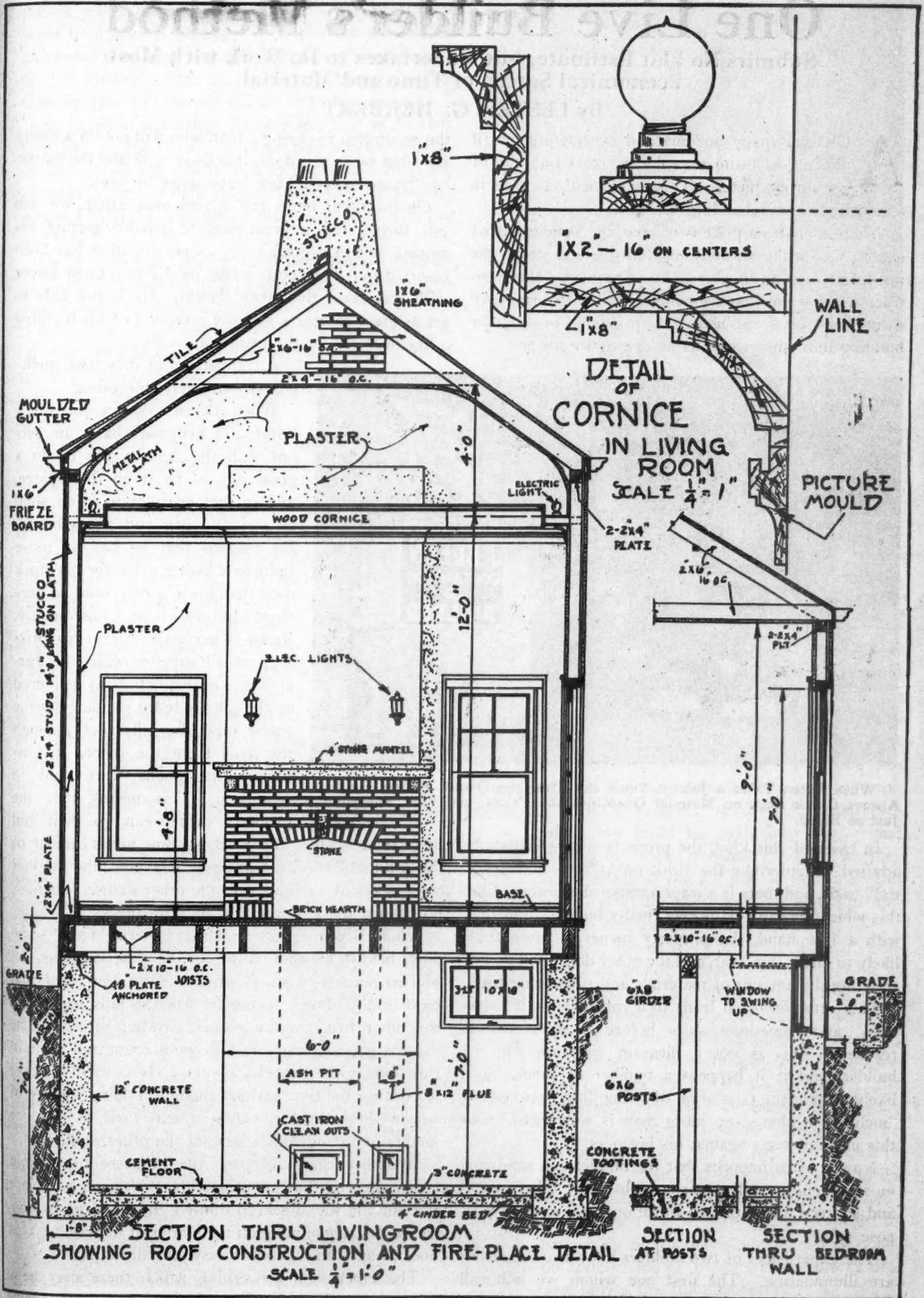
FRONT ELEVATION

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

Front and Side Elevation, Front Cover Home. Observe that, structurally, the design is very simple, and requires merely tiled roof, arched windows, wrought iron railing and colored stucco to give it its picturesque Spanish character.



Six Rooms—Living Room, Dining Room, Kitchen and Three Bedrooms, Are Grouped Conveniently Within the Rectangular Plan of the Front Cover Home, 36 Feet by 53 Feet Over All.



The Cross Section Shows the Living Room with Its Chapel Roof, and the Wood Cornice Moulding Which Conceals the Colored Light Bulbs. Below, foundation structural details, Front Cover Home.

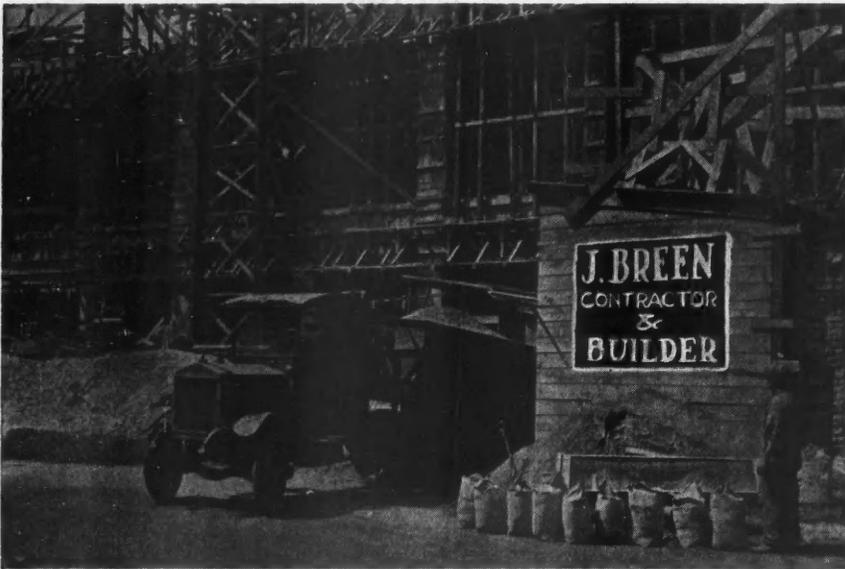
One Live Builder's Method

Submits No Flat Estimate, but Undertakes to Do Work with Most Economical Saving of Time and Material

By LESTER G. HERBERT

A GREAT many builders and contractors find it difficult to estimate accurate costs on jobs of certain character. This is particularly true in remodelling and rebuilding work.

Where a contract price is offered, the builder has of necessity to make an allowance adequate to cover the unexpected, so as to play safe. Frequently this contract price seems unreasonably high to the property owner, and he is inclined to shop around or to defer building until such times as he can figure lower.



When Breen Takes a Job on Stock and Time the Owner Knows He Can Always Check Back on Material Quantities and Prices, and Find Everything Just as Billed.

In cases of this kind, the property owner is usually advised to undertake the work on a "time and material" basis, and there is always a sense of fairness about this which appeals. However, many builders find that with a free hand, the property owner is more than likely to direct this, that, and the other done, not always realizing the amount of materials and time being used.

This situation often leads to a controversy, disputations, and sometimes suits before a settlement is reached. This is not a pleasant situation for the builder, and if it happens a number of times, he is likely to gain the reputation of being "high priced," or "inclined to charge up more than is warranted," and this in time reacts against his business.

Now it often happens that the builder can sandwich in remodelling and repairing jobs with other work, and so keep all of the organization busy to good purpose.

The experiences of two builders known to the writer are illuminating. The first one whom we will call Breen, rarely if ever has a word of question concerning his bills or statements when they are rendered. He has

the reputation for being a man who will not do a cheap job—but when it is done, it is done right and the patron has "value received" for every penny he pays.

On the other hand, the second man whom we will call Boyce, has a great deal of trouble getting his money, and in a good many cases, litigation has been resorted to. The result is that people look upon Boyce with less favor than they should. He is not able to get as good contracts, and the prospects of his building a fine business for the future, are slim.

A comparison of these two methods is extremely interesting.

When Breen takes a job on a "time and material" basis, he sets out with the definite aim to do a good job, to do it on the square, and so that every transaction shall be strictly open and above-board. He reasons that he has no more right to a higher price for his stock used than these goods could be purchased for elsewhere. Consequently, Breen is perfectly fair in his pricings on all supplies which he furnishes. These amounts as delivered on the job are billed regularly to the patron and the bills sent through the mail from the office, just as though the goods were sold to strangers. This means that the property owner can go then and

there if he wishes, and check up how much lumber of this kind and that kind has been delivered, the number of bunches of shingles, and the other items. There is no chance for any question of unfairness.

When Breen orders building material from some other firm to be used on the job, he either follows one of two practices throughout the entire course of that piece of building. Either he has the bills sent from the other firms to the property owner direct, or he has the goods charged to his own account and a duplicate sent to the property owner. He is careful never to confuse the two methods though in doing a piece of work. Sometimes he finds it expedient to use one method, and sometimes he uses the other method.

In either case, however, the property owner can check up what has gone into his work, and can place the bills on file and keep himself informed as to how the costs are mounting on the matter of materials. This does away with all controversy and all doubt.

The other item concerning which there may be a misunderstanding, is that of time, and here again, Breen is business-like and strictly upright. When he

puts a group of men or a man on a job, he tries to leave him there if possible. If this is not possible, he plans that a full day or a full half day will be filled out by his worker. This makes the checking in of the time of the different employes relatively easy.

So he does not lump the whole thing as "Labor, \$989.74," or "\$3,419.27," or what may seem a difficult-to-understand and weird item to the man who is uninitiated. He reasons that he wouldn't be satisfied with a bill of this kind himself, so he handles it in this manner.

He charges each account with workmen of different kind, and at the price paid by the property owner, giving the dates of such charges.

It really costs no more for accurate bookkeeping to do this, than to do as Boyce does and have a lot of trouble afterwards and disputes, and to be obliged to make adjustments which are sometimes unfair as well as fair.

If the patron requests, Breen will render a statement for labor used each Monday for the work of the previous week.

In the matter of machine work which has to be done down in Breen's own shops, every item of labor to be charged on a stock and time job is checked by the foreman and first O. K.'s. This makes a business-like handling of the affair which gives confidence.

When Breen gets through with a job, he renders a complete statement and always accompanies this with a short letter expressing his interest in the work and his hope that everything is satisfactory. The customer is left with a good taste in his mouth, and Breen's bills are settled promptly in nearly every instance, and he seldom has the annoyance of any unpleasant feeling with the people for whom he works.

In the case of Boyce, the business methods employed



When Breen Puts a Group of Men on a Job He Tries to Keep Them There for the Time Necessary for That Work.

are quite different. Boyce is inclined to urge a "time and material" job each time, pointing out that this is fairer to everyone concerned. Then Boyce delivers goods on the job as they are needed, and draws away promptly anything left over. The statement for these items is never rendered until the work is done, and then of course it is entirely impossible for the property owner, if he is so inclined, to check or even estimate how much has gone into this or that part of the work. He does not know whether he is charged for all that is delivered and given credit for what is drawn away, or not, and so suspicion always arises.

Next, Boyce has a peculiar habit of putting men on the job and pulling them off at odd intervals. Sometimes they will be there two or three hours, or part of an afternoon, or part of one day and some of the next. Even if one were inclined, it is all but impossible to check up on Boyce's men, for if the property owner says, "Where has Smith gone—he was working here an hour ago but he isn't around now," Boyce has been known to say, "Oh, I sent him over to the shop to do some machine work for the upstairs hallway"—when the property owner happened to have seen Smith unpacking his kit of tools on another job of Boyce's a few blocks distant, only a few minutes before.

Just why Boyce does this is a question, for

(Continued to page 108.)



Breen Is Perfectly Up to Date in the Way He Gets Material to the Job, Either Using His Own Delivery Truck or Having the Building Material Supply Dealer Deliver on Schedule.

Unique Way to Own Home

Two-Family Houses in Brooklyn Point Way to Solve First Financial Problems of Home-Owning

By E. BETHEA MARLOW

THAT exact phase of owning his own home that presents itself to the man who actually cannot afford to do so, is being very adequately solved in Brooklyn. The Roseart Building Corporation of that city, while serving the aims of good business, are also performing a distinct service to the ambitious class of renters through the erection of their new "two-family" homes.

No doubt other two-family homes have been constructed in the past, but more than the actual construction of these homes does the idea of sale and payment appeal. This idea or plan of sale is tied up at the same time with the building of the home itself, as it consists of homes ingeniously planned so that while being only one home, owned by one family, it is fully equipped to house two families with one family as the owner and the other as the landlord. Thus the ambitious family while enjoying all of the satisfaction of owning their own home, can at the same time rent one of the complete homes contained therein, for enough

to defray such a percentage of expenses that they can be better enabled to clear the expense of the property.

Each of the Roseart buildings contains two of these two-family homes, so that though there are four families in the entire building there is only two owners, one for each side. And at any time that an owner can dispense with the revenue from the family to whom he rents, he can occupy the complete house, upstairs and down. So it is for this reason of only two owner-ships that the houses are called two-family, in spite of the fact that they are built to house four families if desired.

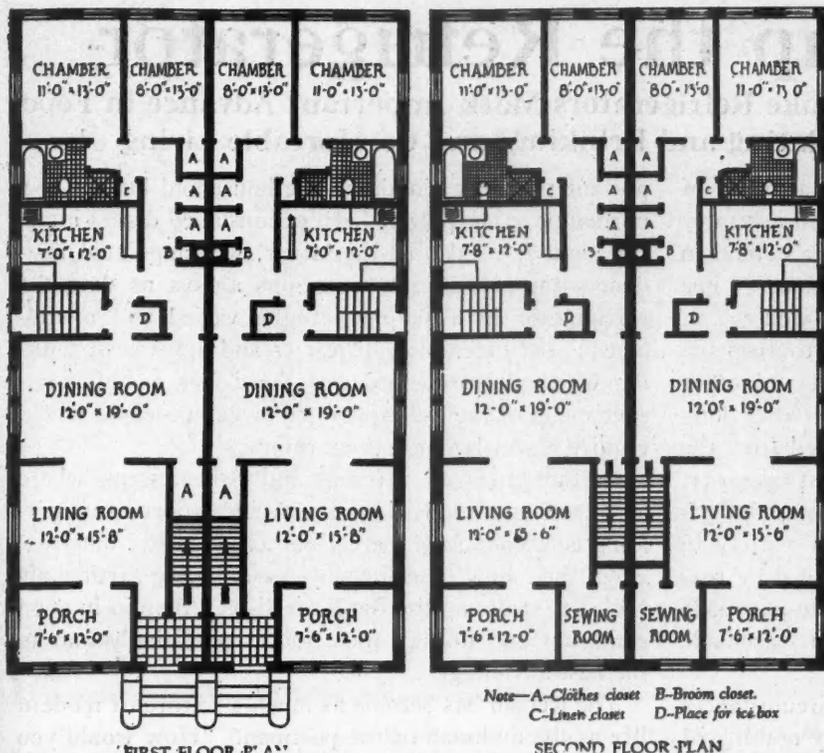
The exterior of the houses looks very much like the usual apartment house, for it is in the interior that any difference consists. Two pairs of steps lead into the house, one for each owner, with an arrangement inside for the upstairs renters. Every apartment has a nice front porch or sun-parlor, which on the interior relieves the rather sheer appearance of the outside, and does a great deal to enhance the value of the



In These Brooklyn, N. Y., Houses Are Four Complete Apartments, But Only Two Owners. Each owner sublets an apartment to a tenant. There are separate heating units, one for each owner, but one heating plant could be possible under favorable conditions by mutual agreement on upkeep.

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THE FIRST FLOOR OF EACH DUPLEX HOME HAS SIX ROOMS; THE SECOND FLOOR HAS SEVEN ROOMS, FOR THE OCCUPANTS. NOTHING TO PREVENT ONE OWNER CHANGING OVER THE UPSTAIRS TO GIVE HIM USE OF TWO FLOORS.

houses as homes. The houses are all brick and are semi-detached, each with a two-car garage for the owners, and a front and side entrance and fourteen-foot party driveway.

The first floor of each home has six large, light, airy rooms—living room, dining room, two bedrooms, sunparlor, a highly modernized kitchen, containing every possible convenience for easy, comfortable house-keeping, enameled sink and drainboard, individual porcelain wash tub, garbage receptacle and tiled floors and wainscoting. The bathrooms are modern and tiled.

The upper floor is arranged in the same way as the lower, but has seven rooms instead of six, the extra room being suitable for a sewing room, "den" or an extra bedroom. Both floors are amply provided with closets, and convenient electric outlets for lamps and other electric appliances necessary to the modern establishment. The sun parlor on each floor is distinctive for being a part of the house rather than merely "tacked" on. It is completely enclosed, and has a large steam radiator which with snug walls makes it livable the year around. It can also be used as a conservatory, sleeping porch or spare bedroom.



Practical Pickups

WHEN wood screws turn and won't come out, take a nail and drive it into the wood in such a manner that the point will strike the threads of the screw. Then turn the screws with a screw-driver and it will come out without any trouble.

Doors that will not close because the latch bolt of

the lock strikes the casing, causing the door to bounce back, can be made to work perfectly by simply rubbing a little beeswax or paraffin on the casing where the latch bolt strikes.

An 8d or 10d finish or casing nail bent to a one-fourth circle makes an excellent mouse for putting sash-cord into window frames.

If a window sash does not work freely, rub the jamb and stops with beeswax or paraffin. If this does not help it, planing off is the only remedy that will.

A drop or two of oil on your saw-file will not only make it do better work, but the file will last longer.

Small knots or other small blemishes about the size of a nail head on finish can be overcome by punching them with a nail-set. The painter fills the holes with putty, leaving the job without defect.

Glazing should never be done over wood that has not been primed, either with paint or linseed oil; otherwise

the putty will not adhere to the wood after it becomes dry.

Hammer marks can be removed, in most cases, by placing a wet rag or wet sponge over the mark in such a way that the wood covered by the hammer mark will become thoroughly water-soaked. The best way, of course, is to never get any hammer marks on the wood.

The approximate center of a piece of moulding or any light piece of lumber can quickly be found by balancing it over your hand. The point of balance will seldom vary over an inch or two from the center.

A rip saw filed and set so that it can be used either for ripping or cross-cutting is the handiest tool that any carpenter can have on a job of form building.

If doors are to be hung in rooms that will have more or less moisture in them all the time, such as basements, the doors should be allowed to remain in such rooms unhung for at least several days. This will give the doors time to swell before they are fit, and will eliminate the labor, otherwise necessary, of refitting the doors.

When doors are hung, the weather conditions should be taken into consideration. In extremely hot and dry weather doors should be fit so that they will have more play on the lock-edge than they have on the hinge-edge, thus making provision for the swelling that takes place when the varnishing or painting is being done; also for wet or rainy weather. In wet or rainy weather, fit the doors as tight as possible on the lock-edge, with the usual amount of play on the hinge-edge. By giving this a little study doors will not need the second going-over.

H. H. SIEGEL.

Don't Skimp the Refrigerator

Architects and Builders Help Make Refrigerators Mark Important Advance in Food Conservation, Healthful Eating and Drinking, and Comfortable Living

IN thousands of modern homes the standards of twentieth century living have been immeasurably advanced by the architect's and builder's stand in favor of more modern refrigerating equipment. Time was when the housewife depended upon the well-cooler, the crock of cold water, or the basement to keep the butter firm, the milk sweet and the meat and other victuals cool and unspoilng. It is not so very long ago that the use of ice-refrigerators advanced from the luxury stage to the position of an important necessity. Correspondingly the individual's and the community's health standard has been raised, a greater variety in diet has been made possible, and money saved by reason of the way cold-storage on a large scale has made possible the conservation and distribution of seasonable foods in unseasonable periods.

Even the family in most moderate circumstances finds the refrigerator a money-saver, to say nothing of its importance in eliminating a great many incidental doctor bills. The average family ice-box plays an im-

portant part in maintaining the household budget at a normal point, helping to keep unconsumed dishes intact for another meal. In the larger, well-appointed residences the refrigerator functions almost as does the refrigerator in a shop, storing a varied and miscellaneous list of edibles, delicacies and appetizers, without which the preparation of the dishes on the meal-time menu of the well-appointed large household would require a still larger service retinue.

In thousands of markets and delicatessens where architects and builders have specified modern refrigerating equipment, not merely one large cooler, but two; even the show and display cases being artificially cooled to maintain the foods on display therein in good condition and display them most appetizingly and to the best advantage.

The iceman has become as much a fixture of modern life as the milkman or the postman. "How would you like to be the iceman?" has lost its first facetious application, for his position has attained the dignity of a



In the Well-Appointed Residence the Refrigerator Functions as the Chief Aid Toward a Well-Balanced, Health-Insuring Diet, Keeping the Butter Firm, the Milk Sweet, and a Variety of Vegetables, Fruit, Meat and Other Victuals Cool and Unspoilng.

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Typical of the Better Grade Residences Equipped with the Most Modern Refrigerating Equipment Is That of Warren E. Brown, Esq., Wichita, Kans. An opal glass lined refrigerator is installed, and connects with an ice machine. Keen & Simpson of Kansas City were the architects.

profession. He knows, for instance, when an ice user is using false economy by ordering 50 pounds of ice for a 100-pound refrigerator stored to the limit of its capacity; or where there is wastage from the improper placing of a refrigerator, where it is exposed to the action of sun rays or stove heat rays. He usually knows the families with whom he deals and takes care, if there are no facilities for outside icing, that the clean floor of the kitchen or pantry is not unnecessarily mussed with the putting in of the ice. And where would the children be without the daily advent of the ice wagon and those free, exhilarating, refreshing, tongue-tingling chunks of ice!

The architect and the builder sees to it that the refrigerator is so constructed and placed as to insulate its cooling chambers most thoroughly against the warmer outer air. Within, it provides a continuous circulation of air, in such wise as to keep every corner thoroughly sweet and dry, and maintains a uniformly low temperature. The ice consumption of a well-made refrigerator is unusually low, making it advisable to choose only the best when buying, since it is cheapest in the long run. This economical refrigeration applies equally well to refrigerators where the cooling is done mechanically, by refrigerating machinery. A poorly constructed refrigerator can make even the best mechanical refrigeration ineffective.

The architect and builder does not confine refrigerating equipment to residences and shops, such as grocery stores, meat markets or delicatessens; he knows that hotels, clubs, hospitals, institutions, florists and many others find it indispensable.

A refrigerator needs to be cleaned often. Once a month is imperative; once a week is not too often for cleaning thoroughly. Hot dishes should be cooled before they are put in the refrigerator and the drain pipe never permitted to connect directly with the sewer.



The Library of the Warren E. Brown Residence, Wichita, Kans. This residence is one of the finest in the city.



The Great Entrance Hall of the Warren E. Brown Residence, Wichita, Kans. The innate good taste shown here is not confined merely to the show parts of the house, but extends to the kitchen, equipped with most modern refrigerating equipment.

One Live Builder's Method

(Continued from page 103.)

it takes time to get a man on the job and to get to work, and it is poor management to keep pulling him off and putting him to work elsewhere. As a result, he doesn't get anything done at any point as well, or as much of it for the time spent, as though he could work away until he finished a certain portion at least, of one undertaking.

Then Boyce has a peculiar way of charging up labor. He never separates the items. He may charge 110 hours at so much, or 50 hours at so much—but there are no dates, and nobody knows what work it was, nor is there any chance of determining its accuracy as far as the customer is concerned.

The many disputes which have arisen with Boyce, as to the honesty of his charges, have brought forth the information that his wife does the bookkeeping, and if inaccuracies are actually located, the explanation is always given that she made the mistake and charged up the labor at the wrong price. She, on the other hand, when interviewed, always says that she charged according to the labor tickets handed in, as this was all she had to go by. These tickets are destroyed as soon as the charges are entered upon the books.

Boyce is constantly coming for money to the people for whom he works. He puts up the argument that he is a little short on account of this or that, and he

pleads that as he has to pay his help regularly and has other bills maturing, that he would greatly appreciate a check on account.

It is true that Boyce is rather hard-pressed for money, for his credit is poor and he is not able to command the best jobs. His following is growing less rather than more, and when his name is mentioned, not a few shrug their shoulders expressively, yet Boyce gets a fair amount of business, but it always pulls hard and he is nearly always tiding over some kind of an emergency.

Breen is prosperous. He always has a smile and a cheery word, and he never seems to have anything to worry about. He is respected and sought after and regarded as a model citizen. Boyce really has a small place in the community in which he was born and raised, and people feel that he is not in the same class in any way, with Breen. Boyce is always worrying and having trouble with someone. He declares that luck is against him; that some people get away with anything but murder—and all that sort of talk.

The truth of the matter is that both Breen and Boyce reap exactly the kind of a harvest for which they have prepared. Boyce has never wakened up to realize that the clever thing is the straight-forward and open course of procedure. He should remember that other people are quick to see through camouflage and the disposition to throw dust in their eyes.

Marketing Building Blocks Profitably

AN indication of the sales possibilities inherent in the concrete building block may be gained by considering what a large Eastern concrete products manufacturer has done.

This company makes cinder concrete block in varying patterns and sizes to meet any structural requirement, their principal use being as a back-up for brick, stone, stucco and facings of other character. The blocks have a uniform surface on all sides, and the hollow part of each block's structure is arranged to insure a wall that is moisture-proof and heat and cold-resistant.

Knowing it had a good block, the company began an active sales campaign to acquaint architects and builders and owners generally with its merits. An engineering company was asked to make compression tests of the new block, and this and other data of interest was laid before its prospects by the company. The advertising matter carrying this data and the illustrations of various structures in which the block had been put to successful use was prepared in a high-grade way. A very much reduced photograph of one of the advertising folders issued—a broadside—is shown below; it stated the case for Straub Patented Building Blocks as made by one of its licensee companies, and reinforced the company's own statements by views of buildings built with its blocks.

Assuming that intelligent advertising of this kind would not fail to pay, the company took the next step. It is good merchandising to be ready to meet a demand with supply; if inquiries are to be created, there must

be a stock on hand to take care of them. The company's plant and storage yard was stored with an ample supply of blocks, in all the standard, half and three-quarter sizes it advertised, and thoroughly seasoned to insure best satisfaction to the purchasers. With modern plant and equipment it was soon working to the limit of its capacity—8,000 to 10,000 blocks a day, and maintaining a reserve of 200,000 concrete blocks in its storage yard to insure a large supply of properly seasoned stock at all times.

From the outset architects and builders favored these new patented cinder concrete blocks. They were attractive, and workmen found them convenient to lay. This fact sped up construction, particularly since the blocks came in small half and three-quarter sizes for jamb filling and corners, or could be cut to any size required without waste. They lessened fire hazard and lowered insurance rates, and had a sound-proof quality in addition to their many other good points which made them preferred for the partition walls of schools, hospitals and party walls in stores and dwellings. They had insulating qualities which made them desirable for use in hotel refrigerators and cold storage plants, since they did not sweat and it was not necessary to use furring strips and lathing in order to guard against damp walls.

Not the least of their advantage lay in the way in which they made a perfect key for outside and inside plaster finish. This meant that on the inside wall the plaster could be applied directly to the block, no lath or other support being necessary. Then, too, since the blocks did not chip or fracture and were penetrable by nails, all the wooden trim, door and window frames nailed to the cinder block wall held with perfect security.

So it is not surprising that, with a good product, the company's advertising literature produced excellent results. As the saying is, "it pulled." Architects on large building operations specified the blocks; such as for buildings erected by the Welsbach Company, the Armstrong Cork Company, the Campbell Preserving Company, the Concrete Steel Company. The New Jersey State Inspector of Schools approved them for use in the school buildings of that state. The City Building Departments of Philadelphia, Camden and Atlantic City approved the blocks, and home builders everywhere found them a welcome material for home construction.

STRAUB PATENTED BUILDING BLOCKS
for Home, School, Club, Garage and Industrial Construction

THE BUILDER'S VIEWPOINT
The most important feature of the Straub Patented Building Block is its uniform surface on all sides, and the hollow part of each block's structure is arranged to insure a wall that is moisture-proof and heat and cold-resistant.

PERFECT KEY FOR PLASTER and STUCCO
The perfect key for plaster and stucco is the Straub Patented Building Block. This block is made of concrete and has a uniform surface on all sides, and the hollow part of each block's structure is arranged to insure a wall that is moisture-proof and heat and cold-resistant.

Held With Security
The Straub Patented Building Block is held together by a perfect key, which makes it impossible to chip or fracture. This means that the block will hold with perfect security all the wooden trim, door and window frames nailed to the cinder block wall.

Can Be Cut
The Straub Patented Building Block can be cut to any size required without waste. This makes it ideal for use in small buildings, such as garages, and for use in large buildings, such as schools and hospitals.

Lay Like an Lath
The Straub Patented Building Block is laid like an lath, which makes it easy to lay and gives it a smooth surface. This means that the plaster can be applied directly to the block, no lath or other support being necessary.

Approved and Standard
The Straub Patented Building Block is approved and standard by the American Institute of Architects, the American Institute of Engineers, and the American Institute of Mechanical Engineers.

Save and Shaper
The Straub Patented Building Block is a saving and shaper. It saves money by being easy to lay and gives a smooth surface, which makes it ideal for use in large buildings, such as schools and hospitals.

Large Stock Carried
The Straub Patented Building Block is carried in large quantities, which makes it easy to get and gives it a smooth surface. This means that the plaster can be applied directly to the block, no lath or other support being necessary.

Licensee Companies:
The Straub Patented Building Block is made by one of its licensee companies, and reinforced the company's own statements by views of buildings built with its blocks.

Photo of One Side of a 24 by 18 Inch Broadside Issued by an Eastern Concrete Products Manufacturer to Illustrate and Describe the Use of Its Straub Cinder Concrete Blocks. A suggestion here for many builders and contractors: Advertise to your prospects.

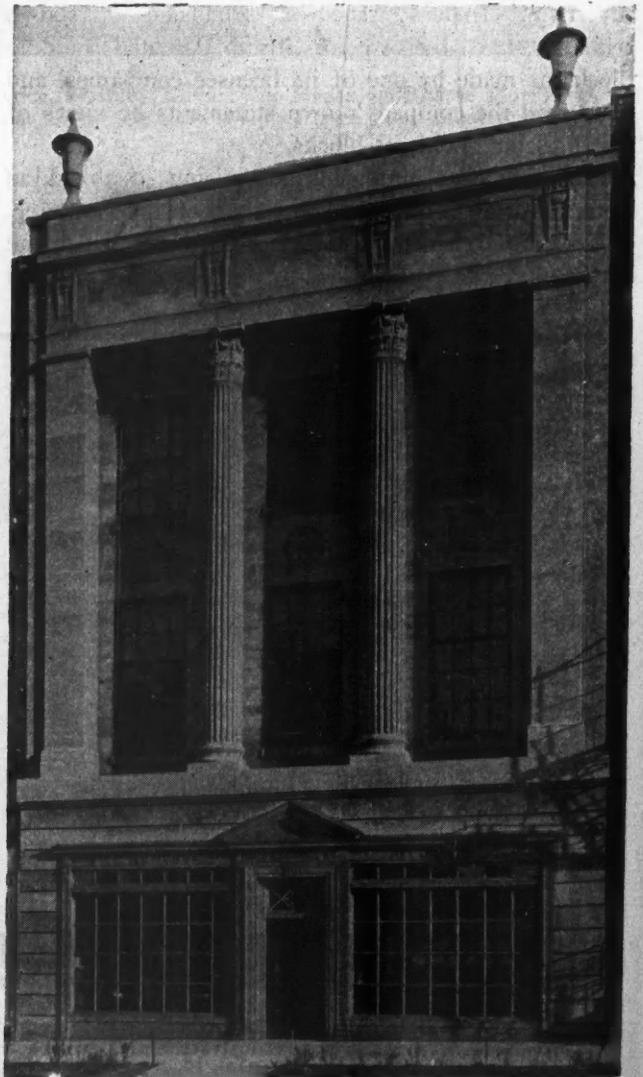
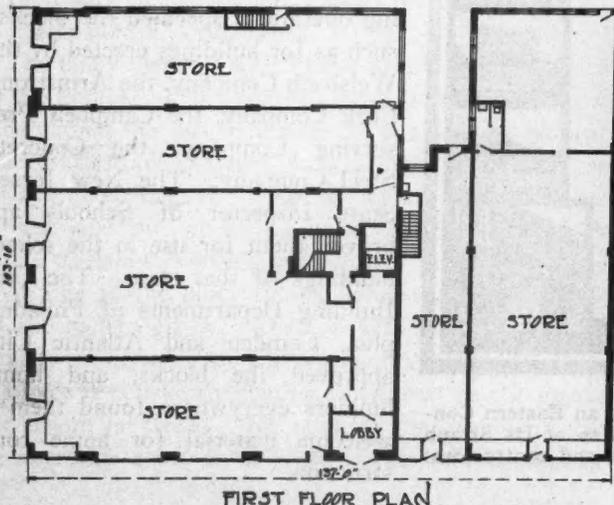


Oak Street Building, Chicago. Holabird & Roche, Architects.

A Distinctive Shop and Office Building

THE new Oak Street Building at Oak Street and Lake Shore Drive, Chicago, is typical of the better class of buildings now in favor for high grade shops and offices. It is across the avenue from the Drake Hotel, and this, perhaps, determined its exterior finish, which is Bedford stone, like that of the hotel. However, its design is individual.

Worth noting is how monotony of the exterior has been avoided by varying the character of the exterior on the Oak Street side. Here we have a columned facade, giving the impression of a separate building. Yet it is integral with the whole. Aside from showing how simple elegance may be attained without structural flourishes, this building conveys another lesson to the designer and builder of business buildings; the store windows utilize the greatest amount of glazing space possible.

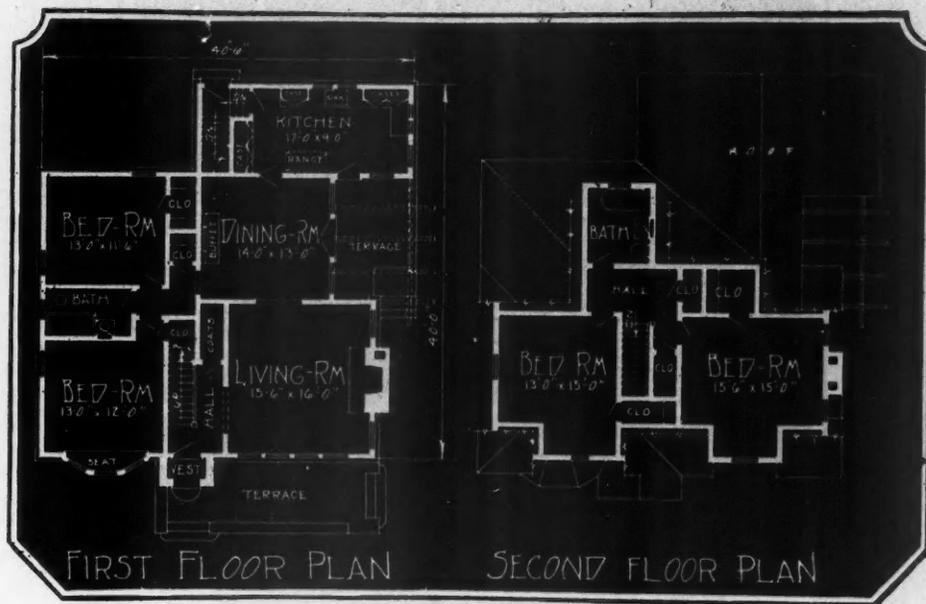


Part of Oak Street Side Elevation.

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Home Designs That Win

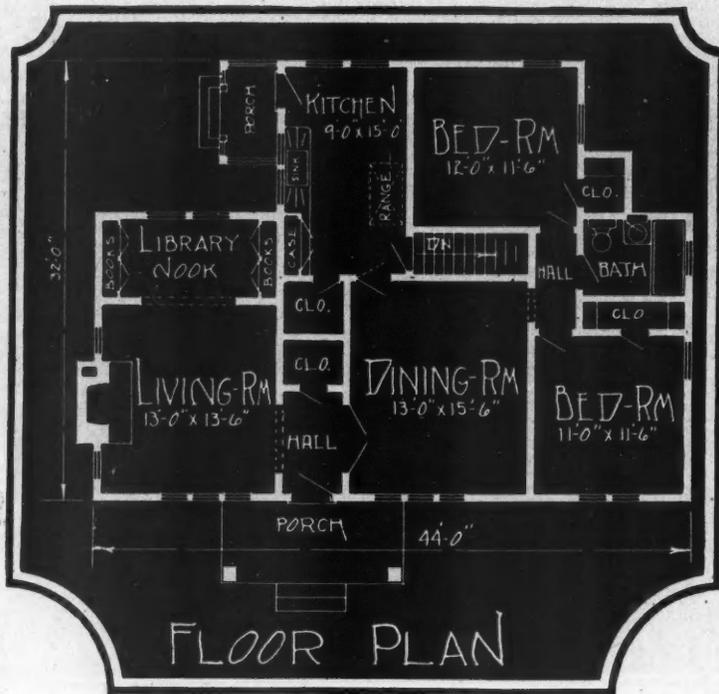
BLUE RIBBON HOMES



THE ENGLISH COTTAGE STYLE OF BUNGALOW. No question about it, this type of structure has come to stay, and it is not hard to account for its popularity. It is of a type which requires very little repair attention from year to year, and the look of it suggests substantial, comfortable living. The use of the brick in combination with stucco timber construction gives a fine result, don't you think? The brick should be brown or maroon, prefer-

ably; the stucco, natural or cream colored; the timbered pattern, brown. This kind of house never calls for a large entrance porch, so a small vestibule leads into the entrance hall, with handsome stained wood staircase and coat closet. To the right is the living room, amply dimensioned, with fireplace. Off it is the dining room, with pergolaed terrace for summer dining.

BLUE RIBBON HOMES

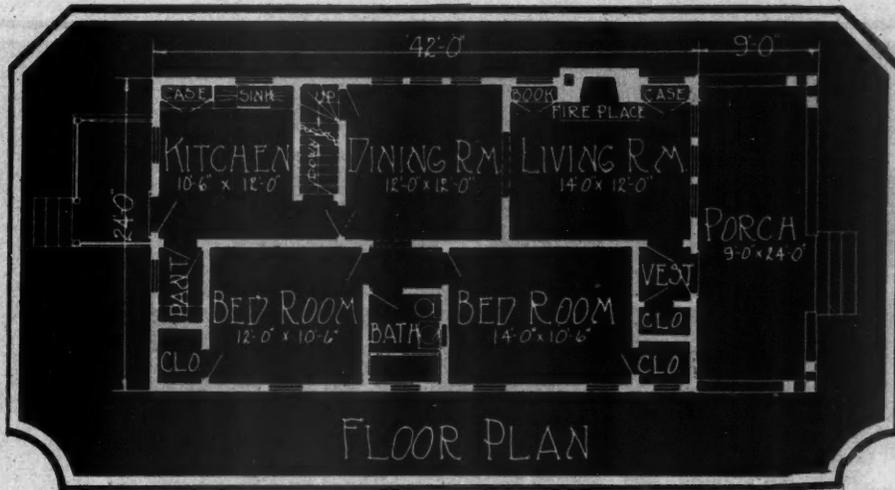


CALIFORNIA STYLE BUNGALOW. Hard to imagine anything more satisfyingly neat and complete than this splendid bungalow, don't you think? Imagine: you have five rooms and a library nook which can be made to serve as an extra bedroom, sewing room, office or den, provided you believe in using space-saving built-in furniture; a wall bed, for instance. The width of this place is 44 feet; the depth, 32 feet. You could use stucco or light colored brick for this exterior, in place of siding, where local condi-

tions make one or the other exterior finish the most suitable. The porch is generously sized, and can be screened or glassed in easily. The extra long glassed door opens into the reception hall, with the living room at the left; truly an inviting place, with its fireplace and the built-in bookcases in the library nook. To the right we have the dining room, connecting with the kitchen in a way to save steps. Off the dining room, too, we have two bedrooms and bathroom, assured of full privacy.

Home Designs That Win

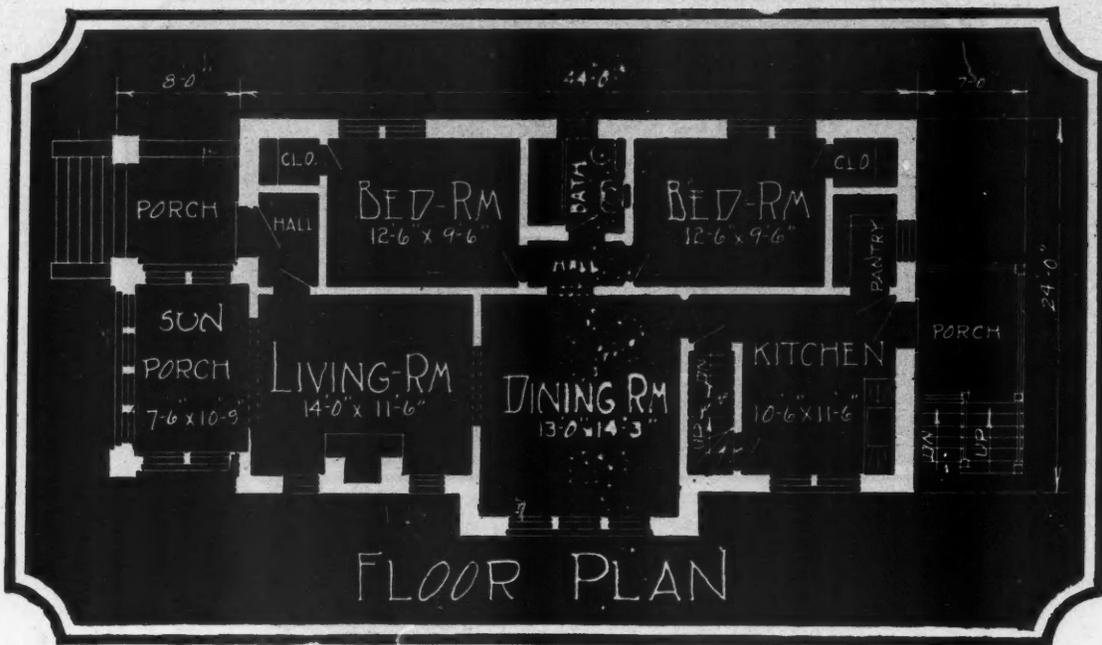
BLUE RIBBON HOMES



A SIMPLE, ECONOMICAL BUNGALOW. This is a home which should interest the intending home owner of limited means, or who may reside where the securing of competent building help is a problem. The rectangular shape permits greatest possible utilization of floor space, and the recessed porch gives a great deal of space on the second floor, which could be left unfinished, and attended to later, if family requirements permitted. Downstairs we have the living room entered from the vestibuled entrance, with

fireplace flanked by bookcases. Off this is the dining room, separated from the kitchen by the width of the staircase serving the second story. The kitchen has good light and a window-lit pantry. There are two bedrooms and a bathroom, with good closet room. Note how character is given the exterior by the judicious use of shingle siding, for the upper story, and shiplap for the lower siding courses up to the height of porch railing.

BLUE RIBBON HOMES

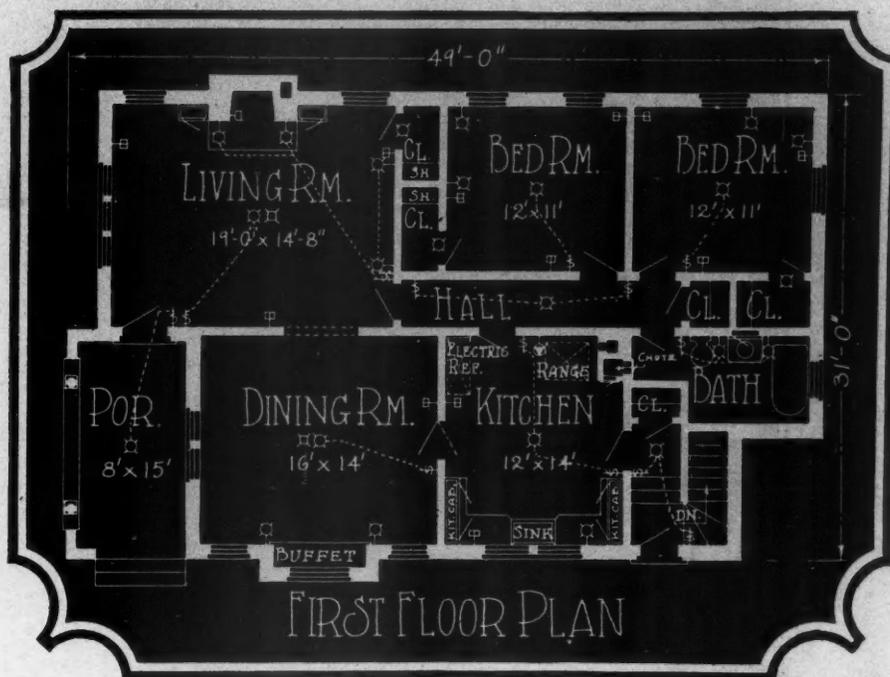


A COMMON-SENSE HOUSE FOR COMMON-SENSE FOLKS. An eye to the future helped determine the owner when he planned this home; some day he will add an upper story. At present there is good attic and bedroom space in the attic, usable if need be. At little extra outlay the owner used the same kind of face brick all around, improving the appearance greatly, as the custom of finishing the front and part of the side walls in one kind of brick and the balance of the walls with another is not one

to be highly commended. The porch leads into an entrance hall, and thence to the living room. With the open doorway to the sun porch this is a fine, airy apartment. Provision is made for a mantel fireplace, with the flue to be added at owner's discretion; or one could use gas, requiring only a pipe flue; or electricity, requiring no flue at all. The dining room is built with bay window effect. The kitchen opens on the rear porch, and there are two bedrooms.

Home Designs That Win

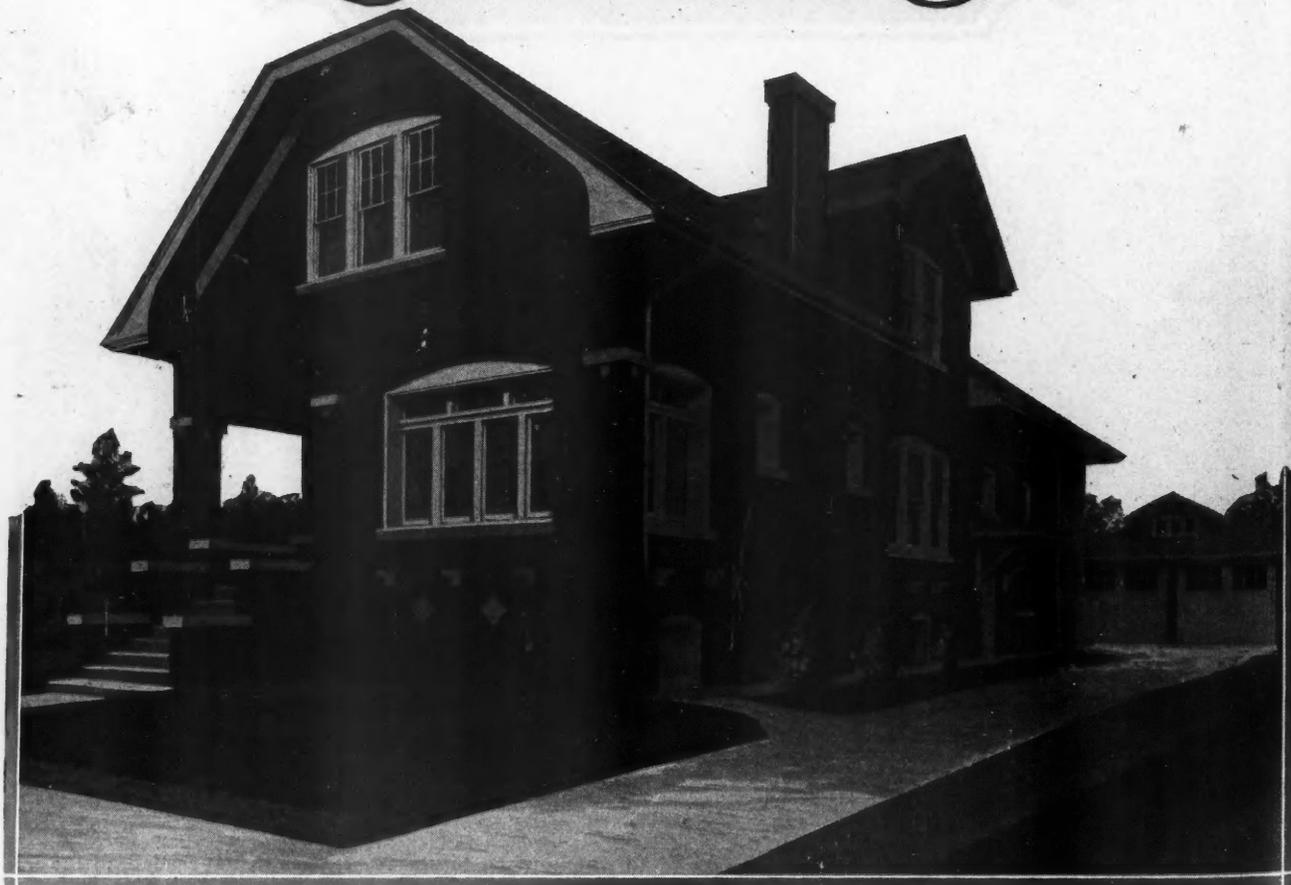
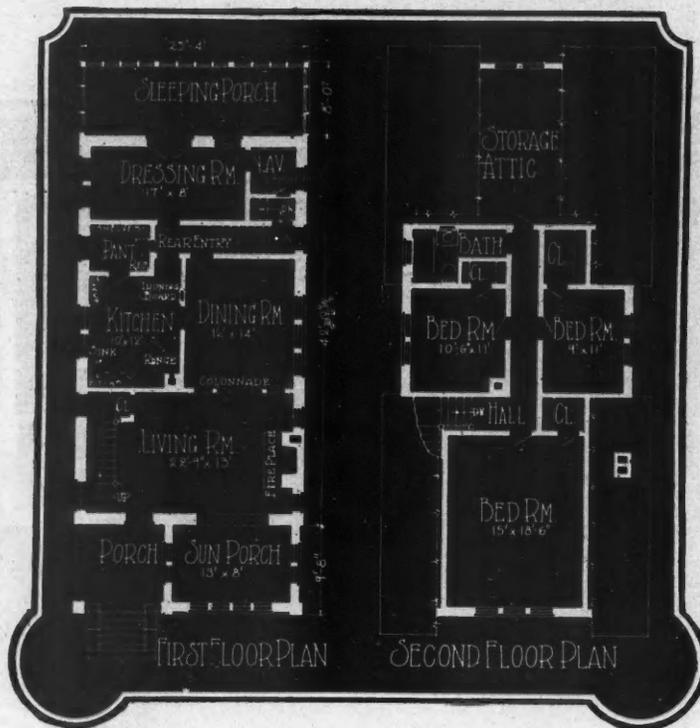
BLUE RIBBON HOMES



A BUNGALOW OF THE FRENCH COTTAGE TYPE. This French peasant cottage influence at present making itself felt in American bungalow and house architecture is resulting in very pleasing homes. Here is a quaint little bungalow that snuggles down on its lot, the snuggling impression being enhanced by the snubbed gable ends and the well-balanced relation of porch openings to windows; likewise by keeping the chimney down to a medium height. Don't those two simple porch columns and arched opening give the front porch an "air"? Withal, it is

a simple porch to screen or glass in. It leads into the living room, a room which connects on one side with the dining room, and through a hall to the kitchen and the two bedrooms. The dimensions over all are 31 feet by 49 feet. This bungalow could be treated with a mottled color stucco to give a semblance of age weathering, and the garage handled the same way, to match the general effect. Observe how those two sentinel cypresses by the porch "dress up" the whole house.

BLUE RIBBON HOMES

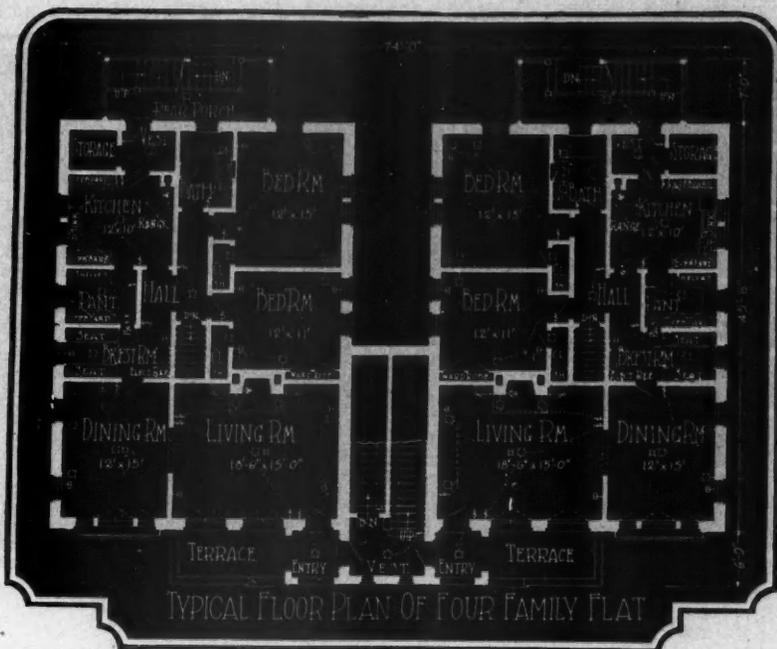


SUBSTANTIAL RESIDENCE WITH UNUSUAL FEATURES. A home which makes no pretensions to other than it is intended to be: a compact, substantially-designed residence, economically built, which utilizes to the full the limited spacing of a narrow lot. There are seven rooms, besides a sun porch and rear sleeping porch on the first floor, and a storage attic on the second floor. The living room is 22 feet 9 inches by 13 feet, and with its fire-

place can be considered as one with the sun porch. Separating the living room from the dining room, 12 feet by 14 feet, is a colonnade. The kitchen, 10 feet by 12 feet, has a windowed pantry and a vestibuled rear entrance. The dressing room, with lavatory, on the first floor, is 17 feet by 8 feet and could serve also as a breakfast or sewing room. The three second floor bedrooms have fine closet space, and the dimensions over all are 25 feet 4 inches by 59 feet 8 inches.

Home Designs That Win

BLUE RIBBON HOMES

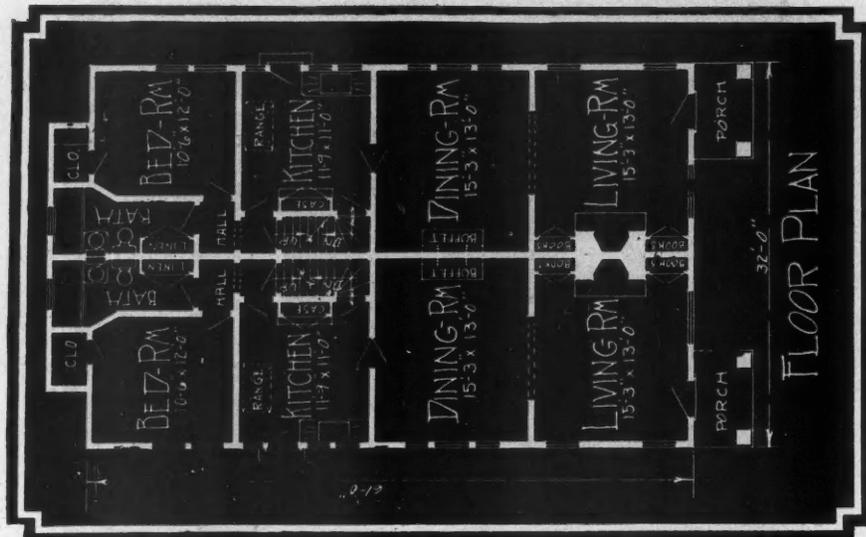


A FOUR-FAMILY FLAT IN THE SPANISH STYLE. Here we see Spanish architecture in a good adaptation. It will be an ornament to any street, and is sure to command high-grade tenants. The exterior is of stucco, over tile, concrete block or lath, with ornamental insets below the cornice line. In our southern and western states the usual white stucco exterior could be colored with the more vivid blues, ecrus and reds favorable to the stronger sunlight. Every flat of the four herein has absolute

privacy. The flats are large, consisting of five major rooms each—living room, dining room, kitchen and two bedrooms. Besides the bathroom, there is also a breakfast room of the modern sort, pantry, storage room and rear vestibule. Naturally, this type of building can be built close to the sidewalk edge, but it would gain by being given good lawn space in front. Note the wrought iron work on the front, and the spears supporting the gayly colored awnings.

Home Designs That Win

BLUE RIBBON HOMES



DUPLEX RESIDENCE OF WIDE APPEAL. There is no doubt that the duplex house, the one arranged for occupation by two separate families, has come to stay. The real question is how it can be adapted or camouflaged so as to fit into residence localities where there would be some objection to the typical style of flat building. Here we have a duplex dwelling which to the casual passerby would appear as one comfortable appearing home with two entrances. But inside, running the depth of the structure,

are two complete apartments of four rooms each, with every possible built-in arrangement to offset lack of greater space. A davenport or folding bed might be used in the living room, using one of the bookcase spaces for that purpose. The rooms are all of good size, and the heating and plumbing arrangements so handled as to save installation costs. One heating unit could be made to serve both apartments, being operated by the owner-occupant, who should find this house a good investment.

A Well Designed Small House

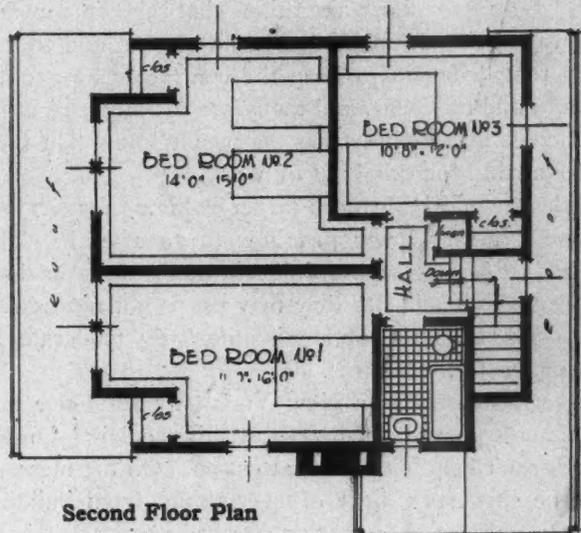
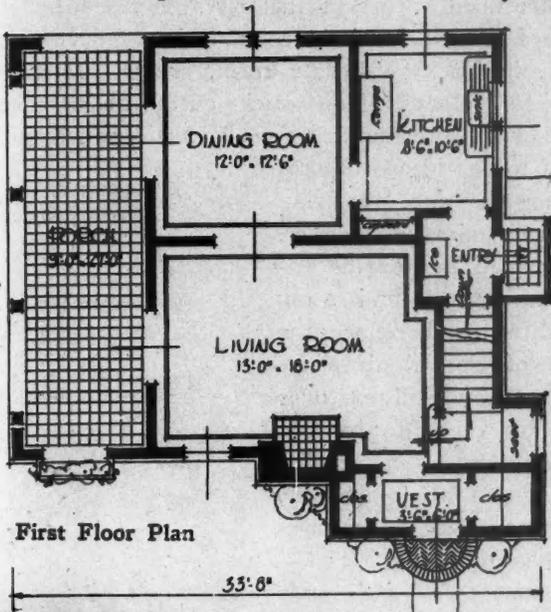
By R. C. HUNTER & BRO., Archts., New York City

THE design of this house is simple, direct and pleasing. It has good character.

The walls are white shingles, giving a good foil for the rough vari-colored stone chimney and a

crisp contrast with the rural character of the setting.

The plan arrangement shows clearly the disposition of the different rooms, a layout that is convenient and economical. A cellar is provided under the full area.



The Entrance Doorway of This House Is a Study in Refinement. It shows how full size details, properly worked out by the architect, and executed with precision give the right character expected. The graceful entrance contrasts well with the rugged chimney, lending variety to the front, without conflict of parts.

Put the "Win" in Winter

Suggesting Jobs That Will Keep the Contractor Busy Until Spring Building and Then Some—How to Land Them

By N. P. EBY

WINTER months, with the usual slowing up of many building operations, afford plenty of time for those alterations that the home owner is always going to make "when he gets around to it." Such remodeling helps keep the contractor busy until spring building opens, and many are earning a nice little income by simply letting the people know that they are available for this kind of work.

Others could build up a larger volume of alteration business if they knew just how to go after it. The methods of some successful contractors are the best answer. The publicity they may use is not necessarily costly—in fact, the outlay is unusually moderate in proportion to the returns.

One contractor in a New York City residence district mails a post card with striking colored border which can't help but attract attention. On the message side he suggests a little of everything, from building private garages to repairing broken furniture—every item will interest some home owner, apartment owner, agent or tenant.

"Printers' Ink" tells of The Webber Co. of Cleve-



Gypsum Wallboard in Standardized Sheets Permits Desired Alterations Without Litter and Without Disturbance to Existing Decorations.

land, which advertises its facilities in half a dozen neighborhood papers of that city. Small space only is used—five-inch single column—but the advertisement, in blackboard slate form, crudely lettered in white, schoolboy fashion—sticks out on the newspaper page like a sore thumb. Each advertisement confines itself to one idea—roof repairing in one, repairing broken stairs in another, concrete drive for the garage in a third—and so on. A uniform style reduces the cost of special drawings and cuts, and still puts over the idea very effectively.

Contractors in smaller cities—and larger ones, too—may utilize the services of manufacturers' advertising men, who will study their field and work out a plan. It may be a letter—a card—a blotter—a post card or folder announcement—cuts for newspaper use—or even complete copy and cuts for a series of advertisements. Whatever the idea, it is a workable plan that will put the contractor in touch with possible jobs.

Many a contractor just starts out in his car and makes the rounds of a neighborhood. Being on the ground, he can suggest a slight change here and there for greater comfort and convenience; then, too, he meets the owner or tenant first hand, which helps greatly, especially if he has an agreeable personality. A rough estimate of cost may be given on the spot, which usually lands the job immediately. For a prospect who makes up his mind slowly, an attractive card or some reminder should be left; it wouldn't hurt to do that with any call.

A conservative survey of housing conditions in certain cities estimates that one building in six needs some form of repairs or alteration. This gives an idea of the large field for the contractor who may use the methods suggested, or who at any rate goes after these remodeling jobs systematically, and keeps in touch with those who have such work to do.

Some alterations particularly convenient to handle in winter months are: Insulating the attic to conserve the heat otherwise wasted by radiation, which, if the right material is used, also makes it a splendid children's play room or laundry drying room; converting the "oversize" room into smaller rooms easier to heat



To "Spot" Nails and Eliminate Joints a Special Joint Filler Is Used.



Adapted to the Finest Type of Interiors, Gypsum Wallboard Harmonizes Thoroughly as a Foundation of the Most Delicate Decorative Schemes.

and care for; adding a breakfast nook to that big dining room or kitchen; lining the sleeping porch, closet or waste space under the stairs; fireproofing the furnace room and basement ceiling, which also deadens sound and lessens dust annoyance; turning the old coal room where oil is installed into a fruit cellar, playroom or billiard room; lining and fireproofing the garage. Many others will suggest themselves.

The home owner ordinarily associates interior changes with much aggravating litter, and so hesitates to arrange for remodeling, however desirable, especially during "indoor" months. Here is the contractor's opportunity in using a building material clean and easily handled, so that these alterations may be made quickly, with little inconvenience. Equally important is a material with the widest possible range of usefulness, which does not confine the contractor to a few types of jobs, but permits him to go after a practically unlimited variety of work.

Contractors successful with alterations have found the fireproof wallboard made of gypsum rock to be admirably adapted to their work. This wallboard not only comes light enough for easy handling, fits snug and goes up quickly, without muss—but it does more than that. It is a real assistant to the contractor in taking on such jobs as lining furnace rooms or other alterations with fire-resisting requirements. Where superior insulation of heat, cold, moisture and dryness is wanted, it is employed with equal success.

The safety of gypsum wallboard appeals to the home owner, as this wallboard has successfully passed severe fireproof tests. Made of rock, it cannot burn. The underwriters' laboratories have tested it for both fire-resistance and strength, listing it as an approved

mechanical appliance. Since 90 per cent of all fires start inside buildings, this wallboard protects life and property, as it confines a fire to one room and resists it until under control.

Another important thing in alterations is permanence. Many a contractor knows all too well a common cause of "grief" in wallboard installation—the tendency to warp and bulge after a year or two, with consequent damage to wallpaper, paint or other decorations, and to the paneling as well. The home owner thinks he has a real "come-back" on the contractor, and one or two such little affairs can reduce the chances for a great deal of prospective business in the neighborhood or the town. This warping tendency is entirely overcome if gypsum wallboard is used. This wallboard is like sheets of rock and it will not warp or bulge. Once erected, it is on to stay, and presents a firm, unyielding surface that will withstand years of wear and tear. Any decoration is as permanent as the wall itself.

In addition to its fireproofing and non-warping qualities, gypsum wallboard is desirable in other ways. It is a non-conductor of heat and cold, making effective insulating material; it deadens sound, adding greatly to home comfort; it resists the destructive effects of leaky roofs, water pipes, etc.; it is totally impenetrable to rats or vermin.

Though made of rock, this fireproof wallboard is easily handled—it is sawed and nailed like lumber. Any mechanic can nail it to the joists or studding or put it on right over old plaster. The wallboard comes in standard widths for 16-inch spacing, and standard ceiling-high lengths for either paneled effects or straight walls. The patented reinforced nailing edge



This Gypsum Wallboard Is Handled as Easily as Lumber. The Board, Ceiling-High Sheets Are Sawed and Nailed Direct to Joists and Studs.

makes square, true, tight-fitting joints. In an actual test nails were driven home a quarter inch apart without splitting or otherwise damaging the wallboard; in practical use the nails are spaced six inches apart on ceilings, nine inches on walls and three inches on sides and ends of boards.

In making alterations the home owner wants his wall decorations to harmonize with the rest of the room, or with the other rooms in the house. The use of gypsum wallboard gives the contractor additional advantages, in that it is adapted to any form of wall treatment. For a flat surface, a special finisher, applied with a broad putty knife, effectually conceals all joints and nailheads and makes a smooth, even wall, ready for decoration.

This kind of wallboard is successfully wallpapered—it contains nothing to stain a delicate pattern or injure paper or fabric. Any paneled effect may be used, as it is unnecessary to cover every joint unless the decorative scheme requires it. This simplifies the spacing, as “awkward” joints and angles are overcome and no special sawing or fitting is needed to work around them. Paint or calcimine spreads evenly, giving a beautiful flat surface when that is wanted. For the garage, basement rooms, etc., the wallboard may be left in its natural color.

The contractor will find a practically unlimited field of usefulness for gypsum wallboard. It is not confined to alterations or remodeling, but it is being con-

stantly employed for permanent walls and ceilings on new construction, including the highest type of residences, public buildings, etc. Other uses not already suggested are in bathrooms, kitchens, farm buildings, display rooms or booths, factory offices, phonograph or telephone booths, show windows, store ceilings and walls, summer homes, summer kitchens, sun parlors, etc.

In going after alteration work the contractor will, of course, never overlook the importance of standing in well with his local lumber or building supply dealer. The dealer receives continual inquiries as to a good man to handle this or that kind of job, and his recommendation goes a long way. It is decidedly worth while for any contractor to be on the dealer’s “preferred list.”

The use of this permanent, fire-resisting, non-warping wallboard for all alterations is very often a good “entering wedge” and paves the way for other miscellaneous work—roof repairing, concrete and cement work, or anything else that the contractor is prepared to handle. And not infrequently satisfactory handling of remodeling jobs gives him the “inside track” on contemplated new construction, for naturally he is the first one the builder thinks about in making his plans.

Alteration work, if gone after systematically with even a moderate amount of publicity, will put the “win” in winter for the contractor, particularly if he clinches his customers with a job which offers no possibilities of a “come-back.”



Saving Plumbing Costs with Brass Pipe

BRASS pipe can not rust, and needs no extra size to take care of clogging by rust.

On this basis it becomes possible initially to install a smaller sized brass pipe than would be required were iron or steel used. Many years’ experience have demonstrated that the following is entirely practical:

For Mains and Risers

For Hot Water Lines

$\frac{1}{2}$ in. brass pipe	will do the work of	$\frac{3}{4}$ in. iron
$\frac{3}{4}$ in. brass pipe	will do the work of	1 in. iron
$\frac{1}{2}$ in. brass pipe	will do the work of	$1\frac{1}{4}$ in. iron
1 in. brass pipe	will do the work of	$1\frac{1}{2}$ in. iron
$1\frac{1}{2}$ in. brass pipe	will do the work of	$2\frac{1}{2}$ in. iron
2 in. brass pipe	will do the work of	3 in. iron

In Cold Water Lines

$\frac{1}{2}$ in. brass pipe	will do the work of	$\frac{3}{4}$ in. iron
$\frac{3}{4}$ in. brass pipe	will do the work of	1 in. iron
1 in. brass pipe	will do the work of	$1\frac{1}{4}$ in. iron
$1\frac{1}{4}$ in. brass pipe	will do the work of	$1\frac{1}{2}$ in. iron
$1\frac{1}{2}$ in. brass pipe	will do the work of	2 in. iron
2 in. brass pipe	will do the work of	$2\frac{1}{2}$ in. iron

In branch lines, both hot and cold, $\frac{3}{8}$ -in. brass pipe will do the work of $\frac{1}{2}$ -in. iron pipe.

This economy of using a smaller size brass pipe is so well established that the Building Code of New York City reads as follows:

“Sec. 153.—The diameter of all riser lines in plumbing system shall be not less than three-quarters ($\frac{3}{4}$) inch; except that when . . . Brass pipe is used, the minimum diameter may be one-half ($\frac{1}{2}$) inch.”

Screen Business Good Now

Live Contractors Keep Shops Going All Winter Making Screens for Spring Installations

By FRED TATE

HERE are a lot of folks who have taken down their screens last fall, and who have found they will need new screens for porches and windows next summer. Many people will have their porches screened this year who may have overlooked that important aid to comfort last summer. These two classes of people offer a very profitable class of prospects just now. A live contractor, carpenter, or builder cannot begin too soon to line up this business and try to have it out of the way by spring at the latest.

And it isn't a question of supplying cheap screen work so as to have a chance at the job very soon again. The more durably you can build a screen the better it is for your new business. Matthews, a carpenter I know, says: "I have found that by using pearl wire cloth the screens last two or three times as long as ordinary wire."

Bright and early each year Matthews is out with a blue-print of a porch plan which he shows to his prospects, and he is shrewd enough to see that his activities along this line are tied up with those of the hardware store in his end of town. The store carries a window display, featuring the well screened house and porch, and also has some of the very same blue prints Matthews has. The store backs him up in showing the screen as a quality product that will wear well and Matthews on his part gains by the way the blue print shows the simple installation required. The man who pays the bill knows his ground and feels he is getting a good job for the money. He *knows* he has a good job when he sits on the porch of a summer's evening, minus the aggravated vexation of mosquitoes and flies. He is better pleased when he takes the screens down in winter and stores them away, to find that except for a painting of the frames, the rust-proof grayish looking wire doesn't have to be painted at all. Successive painting of ordinary wire has the effect of making the small apertures get smaller year by year, provided the cheaper wire lasts over a year or so.

Of course, porch screening gets harder wear as a rule than window screening. That is why it is well to get a heavy grade, say a 14 mesh, for porch screening. The children will naturally make a summer playroom out of the screen porch, and baby likes to pat-a-cake against the wire and see how far she can push it without falling out. The more strongly the wire is made in these circumstances, the more likely it is to give satisfaction.

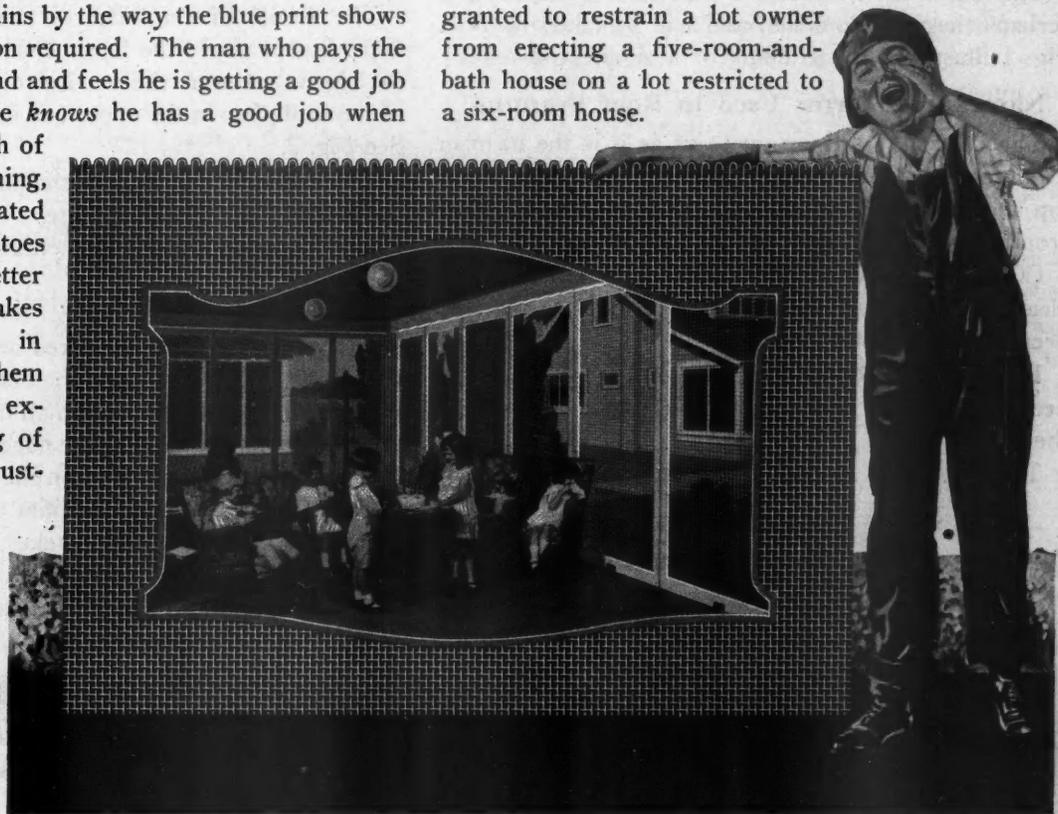
A telephone call or letter or postal to people in your locality right now, aided with the right kind of display window co-operation from your hardware dealer, will get a lot of people into action on their screen requirements. Put it to them that the winter season is a good time to have their screen wants taken care of, because the chances are spring itself will find you busy on a lot of things which are equally important, but which couldn't be taken care of earlier, as screen business can.



Judge Rules Bathroom Not a Room

A BATHROOM is not a room. Not in Ohio. So a Youngstown judge has recently ruled. The decision will interest builders and architects who are concerned with building restrictions.

A permanent injunction based on the ruling was granted to restrain a lot owner from erecting a five-room-and-bath house on a lot restricted to a six-room house.



Typical Dealer Window Display. Certainly an attractive eye-catcher for the window is this colored set-piece illustrating the screened porch as attractive and a treat to the kiddies.

INSTRUCTIONS IN ROOF FRAMING

By JOHN T. NEUFELD

Editor's Note: The question of correct roof framing seems to be one of perennial interest among our readers, if we are to judge by the number of questions and answers on that subject which are sent in monthly for the Correspondence Department. AMERICAN BUILDER therefore inaugurates this new department for the benefit of its readers who may have roof framing problems. Write in your problem and Mr. Neufeld will answer it, and some questions and answers will appear in this department of AMERICAN BUILDER for the benefit of others who may be interested. We want to make this department the place where YOU can solve all your roofing problems.

Forms of Roofs

THERE are numerous forms of roofs and an endless variety of shapes. A study of the framing of these different roofs will, however, show us that we can use the same principles in figuring the dimensions and the relations of the different parts to each other.

The Gable roof, sometimes called the Pitch roof, is perhaps the most common, and will be taken up first. Fig. 1 illustrates the framing of a simple Gable roof.

Names and Terms Used in Roof Framing

The PLATE is important to us as it is the member to which the rafters frame at their lower end. The top and the outside edge of the plate give us the lines from which the different rafters are measured.

COMMON RAFTERS are the rafters that extend clear up from the plate to the ridge and are not connected with any other rafter.

RIDGE BOARD. Used on some roofs for connecting the upper ends of the rafters to the rafters on the opposite side.

The SPAN of a roof is the distance over the wall

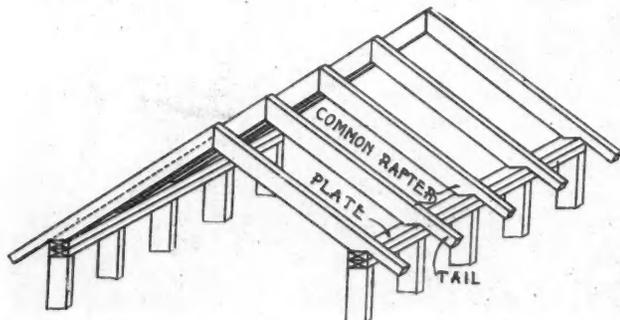


Fig. 1. Names of Framing Parts for a Simple Gable Roof, the Most Common Type of Roof.

plates. In general, the distance across the building measured from the outside edge of the plate on one side of the building to the outside edge of the plate on the other side of the building.

The RUN of the rafter, in general, is the distance measured on the horizontal from its lower end to a point directly under its upper end; or, the horizontal distance from the outside edge of the plate to the point directly under the ridge.

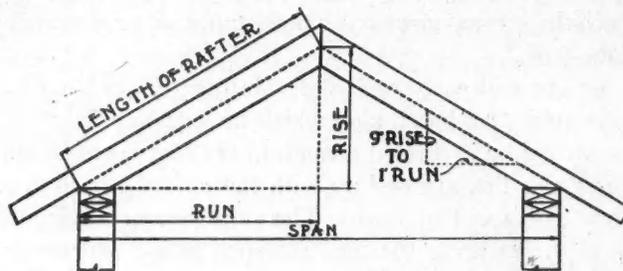


Fig. 2. Illustrating the Terms, Run, Rise, Span and Length of Rafter as Used in Roof Framing.

The RISE of the rafter is the distance that the upper end is above the lower end. In figuring rafters the rise is taken as the vertical distance from the top of the wall plate to the upper end of the measuring line. See Fig. 2.

The TAIL of the rafter is the part extending beyond the outside edge of the plate. This part is usually figured separate and is not included when speaking of the "length of rafter."

The MEASURING LINE. The line on which the length of the rafter is measured or laid out. This line passes through the point on the outer edge of the plate, which is the point from which all dimensions are determined. It runs parallel to the edge of the rafter. This line should always be drawn on the rafter by a beginner in roof framing, as this simplifies the laying out of the rafter and helps to avoid mistakes. Its location on the rafter depends on the size and style of the rafter. In Fig. 3 several different kinds of rafters are shown and the correct and incorrect methods of measuring.

The Pitch of a Roof

The pitch of a roof is the slant of the roof from the ridge to the plate and is expressed in several ways. First, it is expressed as a ratio of the rise to the span. Take, for example, a building having a span of 24 feet and a rise of 8 feet. The pitch would be $8 \div 24 = \frac{1}{3}$.

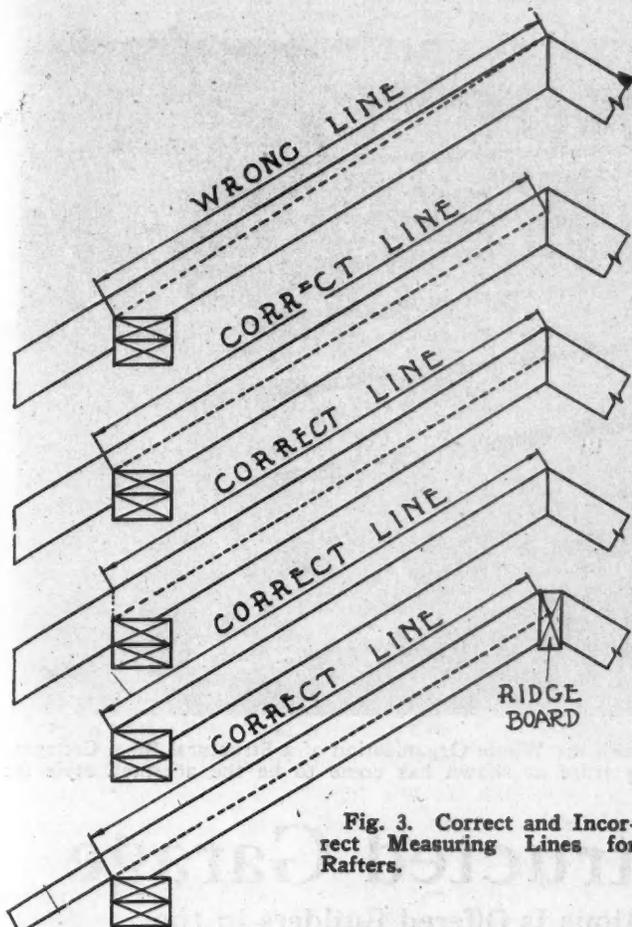


Fig. 3. Correct and Incorrect Measuring Lines for Rafters.

The rise for a rafter on a building with a $\frac{1}{6}$ pitch and a span of 24 feet is $\frac{1}{6}$ of 24 = 4 feet.

For a building of $\frac{5}{8}$ pitch with a span of 24 feet: Rise $\frac{5}{8}$ of 24 feet = 15 feet.

The pitch of a building is also expressed as so many inches of rise per foot of run. A rafter with a rise of 6 feet and a run of 12 feet would have a rise per foot of 6 divided by 12 or $\frac{1}{2}$ foot.

Rise per foot run = $6/12 = \frac{1}{2}$ foot = 6 inches.

This is illustrated in Fig. 2, where the rise per foot run is 9 inches.

A roof with a $\frac{3}{8}$ pitch has a 3 foot rise for every 8 foot of span; and as the run is only half as much as the span, the rise would be 3 feet for every 4 feet of run, or $\frac{3}{4}$ of a foot = 9 inches rise for every foot of run.

$\frac{2}{3}$ pitch = 2 foot rise for every 3 foot of span, or $2 \div 3 = 8$ inch rise for 1 foot span.

Or 8 inch rise for $\frac{1}{2}$ foot of run = 16 inch rise per foot run.

Problems for the Student

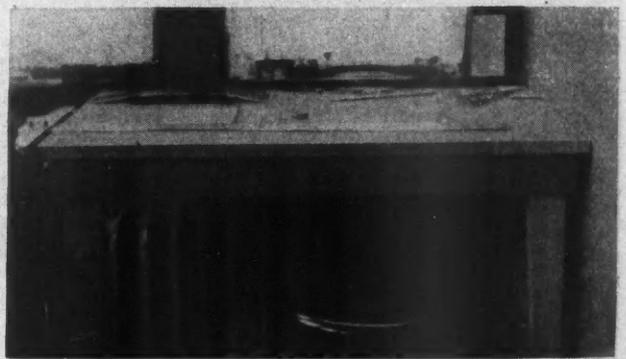
- (1) What is the total rise of a $\frac{2}{3}$ pitch roof with a span of 28 feet?
- (2) Express in two different ways the pitch of a roof with a rise of 6 feet and a span of 28 feet.
- (3) What is the rise per foot run of a rafter for a $\frac{5}{8}$ pitch roof?

Answers will be found on page 144.

Drawing Table Utilizes Space Over Radiator

By DALE R. VAN HORN

THE writer, having occasion to do much drafting at home, fitted up the sun room for the purpose. The room was only seven feet six inches wide and twelve feet long. To provide room for desk, storage cabinet, filing cabinet and book case took all the available space. Yet a drafting table was necessary.

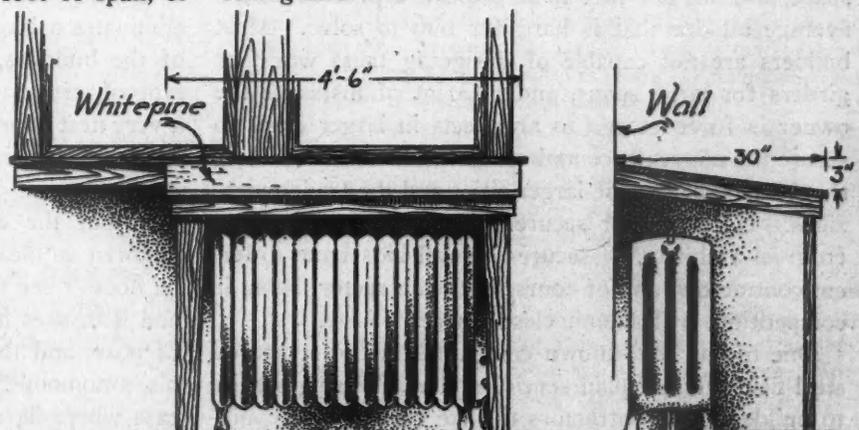


No Chance to Get Cold Feet Over Any Building Problem at This Work-Drawing Table, Utilizing Space Over Radiator.

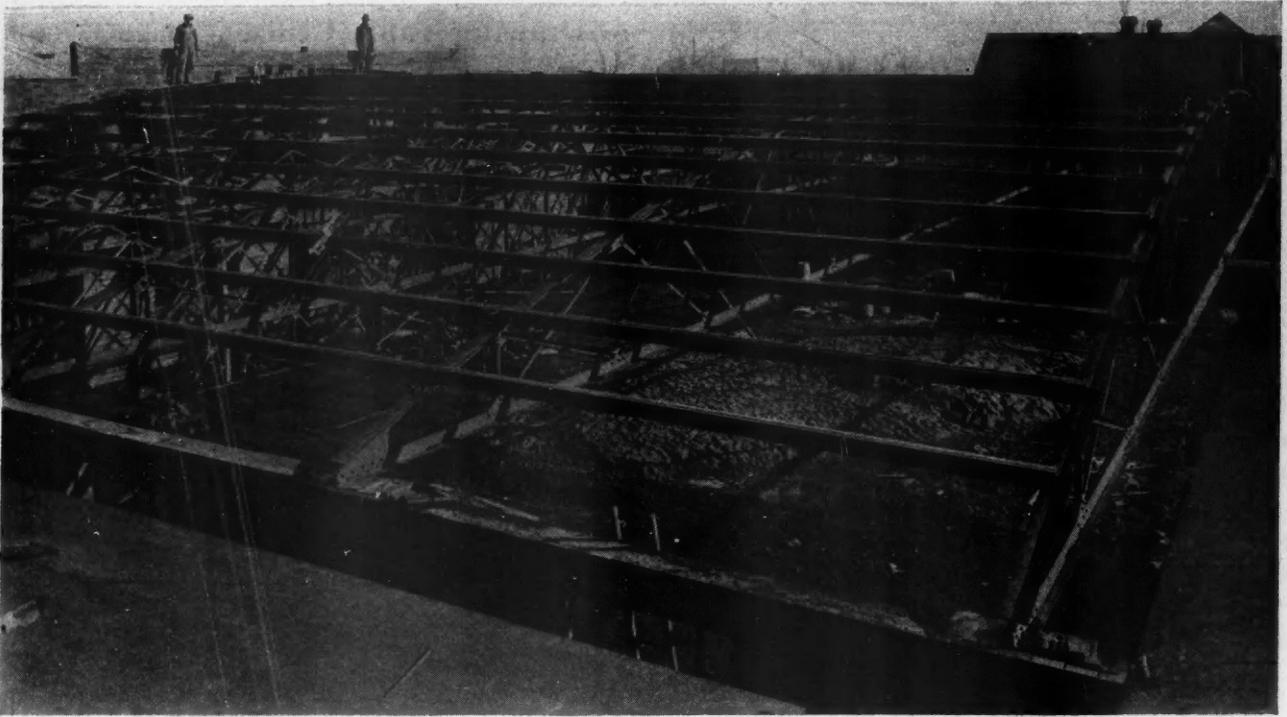
This was built over the hot water radiator at one end of the room. The table top is four feet long and thirty inches wide. One and one-quarter inch white pine was used, the edges of the boards being jointed and glued together while clamped. Then it was placed near constant heat for ten days to bring about a maximum shrinkage before it was dressed down. Two screws hold the rear side to the window stool (apron).

The drawings and accompanying photo show the construction details. With the table of this width there is no inconvenience caused by the radiator and the heat doesn't seem to affect its plumb or surface. To prevent possible warping and further shrinkage, two inch hardwood cleats were mortised to the under side and held with screws.

It is true that the table somewhat checks the circulation of warm air throughout the room, but a one-half inch space between the right-hand end and the wall permits a free movement here where it rises to the ceiling and then down.



Structural Details of Over-Radiator Drawing Table.



Do You Know That You Can Build Garages Like This, with the Whole Organization of a Structural Steel Company Behind You as Though It Were Your Own? The bowstring truss as shown has come to be the accepted style for public garage roofs.

The Steel Constructed Garage

A Profitable Local Field of Operations Is Offered Builders in the Town or Neighborhood Garage

By R. C. CARNES

PRACTICALLY every town under 10,000 population has, or should have, two or three modern garages. Buildings of this type are new in towns of this size, and the builder is confronted with the problem of erecting a new and modern building rather than remodeling an old building into a garage, which is usually the case in the larger cities.

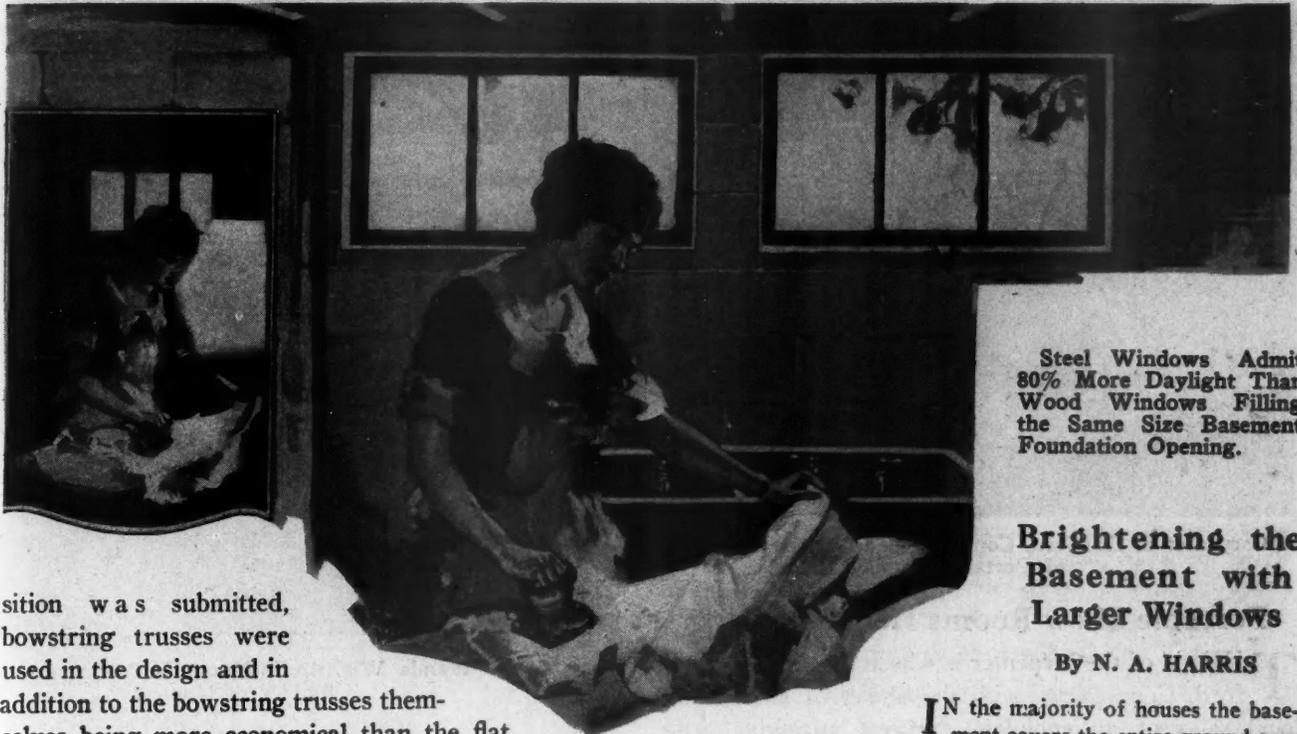
The average garage in a small town must house a fairly good display room, a very large storage space, to take care of tourists, and a small shop in the rear to take care of the repairs needed in a town of this size. Since storage is a large part of the business in a small town garage, it is necessary to have clear floor space, and this one fact alone presents a problem to the average builder that is hard for him to solve. Most builders are not capable of designing truss work, or girders for large spans, and in a lot of instances the owner is forced to go to architects in larger cities to secure the convenience and construction in his building that he has seen in the larger cities and the trade magazines. If the owner secures plans and specifications from an architect, he secures several bids from different contractors, and of course each contractor, being in competition, will submit close figures.

One of the well-known companies in the structural steel field offers a plan service and engineering service to builders and contractors to take care of this condition. Since garages are rather plain, there is very

little detail to be taken care of, and the designs, which feature economy and practicability, fill the need of the contractor in the small town. They submit their plans to him and quote him upon the structural steel, steel windows, store fronts, skylights, ventilators, garage doors and frames, which covers practically everything except brick work, concrete, rough lumber and hardware.

Most builders do not know the various sources of supply, and this proposition appeals to them because they are relieved of making a lot of inquiries for the different materials which enter into a garage.

One main feature of the service is the fact that, where possible, bowstring trusses are used, which eliminates a large quantity of brick work on each side of the building. They are also the most economical type of steel truss that can be designed, and they give a very neat appearance to the building and cut down the space on the interior of the building to be heated. Another point in favor of the bowstring truss is the fact that the external appearance gives the passing motorist an idea that the building is a garage, although he doesn't see the inside or the front of the building, and it insures him that the interior floor space is clear of posts and that it is an ideal place for him to store his automobile. The writer recalls particularly one case where flat steel trusses were figured for a garage and the water drained to the rear. When a new propo-



Steel Windows Admit 80% More Daylight Than Wood Windows Filling the Same Size Basement Foundation Opening.

Brightening the Basement with Larger Windows

By N. A. HARRIS

sition was submitted, bowstring trusses were used in the design and in addition to the bowstring trusses themselves being more economical than the flat trusses, the contractor saved several thousand brick on each side of the building, which enabled him to give the same floor space and design at considerable saving over competitive bids. Since contractors can secure this service free, it fills a need long felt in the average small town.

Another great thing in favor of the contractor is that by submitting his own design he can eliminate competition. He can sell the prospect on design and not on price.

Steel trusses can be used economically in spans from 30 feet to 130 feet.

Single Entrance Desirable

Garages differ from office buildings, theaters, hotels, apartment houses, etc., in that they should have only one point of ingress and egress, and that point should be on the side of the building nearest the heart of automobile parking activity.

There are many reasons why but one entrance to the building is desirable. It simplifies the checking in and checking out of cars and reduces to a minimum the chance of a car being stolen. It increases sales in the accessory department, which may be located so that all those entering or leaving the building will pass through or near it. This is also true of gas and oil. It makes it possible to centralize the waiting rooms, toilets, information desk, etc. The greatest loss of heat in a garage building in winter occurs when the large doors are opened. This is due to the inrush of cold air, which with a single entrance is reduced to a minimum. The cost of installing and the expense of operating the garage doors are reduced.

Therefore, the efficient garage of today will have a single point for entrance and exit.

IN the majority of houses the basement covers the entire ground area under the house and makes up from one-third to one-half the total floor space. But it does not contribute its share of usefulness proportionately, due to the fact that too often it is dark and gloomy, entirely unsuitable for anything except a furnace or store room. As a result the home owner is deprived of part of the livableness he is justly entitled to.

If it could be changed from a dark gloomy place into a bright cheerful room—an actually livable and useful part of the house—how much more satisfied the owner would be. And how much more quickly and easily a house with a cheerful, modern basement could be sold.

That is what steel windows do. They admit 80 per cent more daylight than wood windows filling the same size masonry opening. The narrow frames and members permit the use of larger glass lights. Since these windows are made of steel they cannot warp nor stick and are easily opened and closed.

Compare the conditions under which the two women shown in the illustration are working. The large steel windows, which fill an opening the same size as that in which the wood window sits, admit a flood of daylight and help speed up her work by enabling her to see to iron out the little tucks and pleats. Less eye strain and better work done in less time is the result.

The extra light also enables her to tell when the clothes are clean. The large ventilators, when open, quickly draw off the disagreeable choking fumes and steam from washtubs and admit fresh air. By doing the laundry work in the basement the inevitable disorder in the upstairs rooms is eliminated. That makes it easier to keep the house in order.

These advantages may seem of little importance to a man, but they are strong selling arguments that will help close the sale as many builders have learned from experience. Call the attention of the next lady prospect to your bright and cheerful basement. It is a safe bet she will help you close the deal.

✦
THE yellow birch (*Betula lutea*) is the most important hardwood of Canada. It is found from the Maritime Provinces to the east end of Lake Superior and reappears along the International Boundary from the west end of Lake Superior to the Lake of the Woods. It is found on good sites thruout the Lower Laurentian type of forest. It is used extensively for flooring and cabinet work.



A Carpenter of Hartford, Conn., Helped Suggest This Attractive Kind of Portable Display Room.

Portable Show Rooms Help Sell Cars

THE aid of the carpenter has been invoked in Hartford, Connecticut, with the object of stimulating local sales of automobiles. Several attractive little houses have been built as display rooms. The front is of glass and affords an unobstructed view of the entire car that is on display. These portable show rooms are proving especially effective in small towns. There they answer all the purposes that an established show room would. The company is having very favorable results and comments on them.—GEORGE F. PAUL.



Nurse Turns Builder

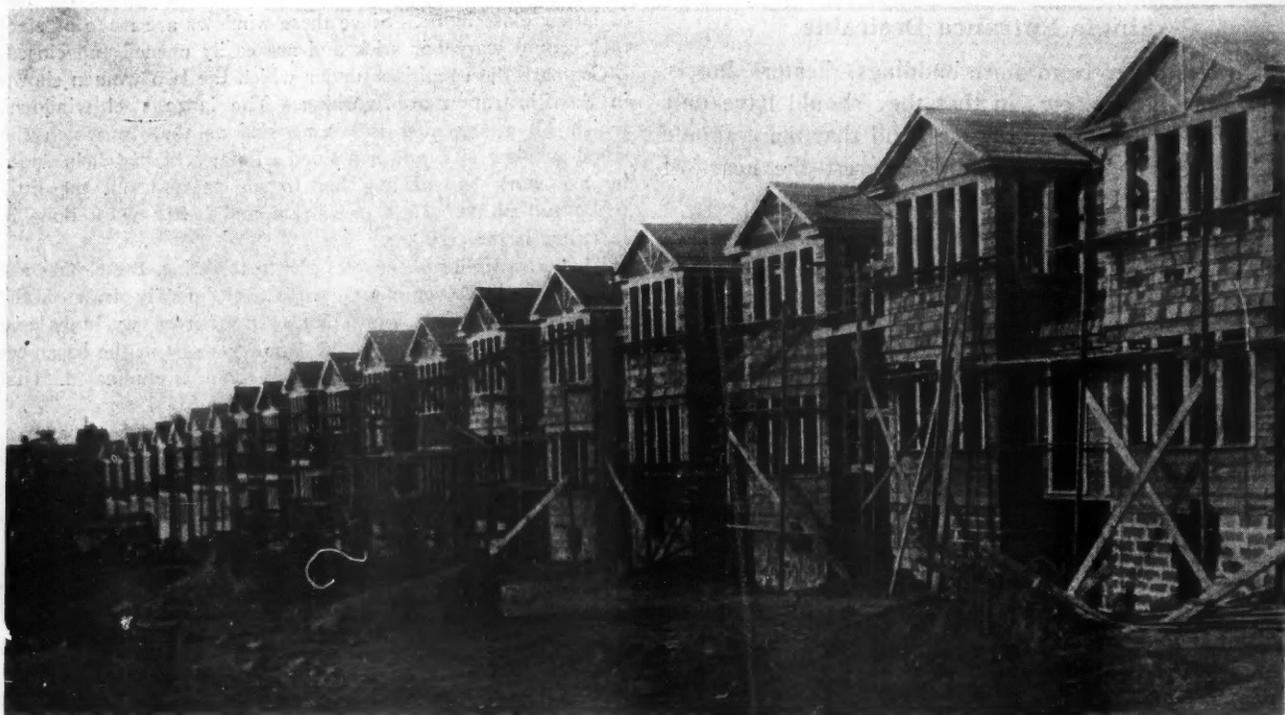
WANDA WINKEL, formerly a nurse of Maspeth, Long Island, N. Y., has gone into the construc-



Wanda Winkel, Ex-Nurse, Now Successful Builder of Homes.

tion business, and as head of the Maspeth Realty Co., bosses construction gangs of over 100 men. Everyone on the job respects her coolheadedness, and they generally call on her for "first aid" when anything goes wrong. The illustration shows the resourceful face of Miss Winkel and the 20 houses being constructed under her supervision.

Nurses build up health, so there is no reason to expect that Builder Winkel will not do equally building up houses. We hope she will be able to nurse her business along to the point where she will enjoy a comfortable fortune out of her efforts.



A Group of Houses Being Built Under the Direction of Miss Winkel, Who, as Head of the Maspeth Realty Company, Bosses Construction Gangs of Over 100 Men.

CORRESPONDENCE

Questions Answered—Ideas Exchanged

German Miniature Modelling Firm Reproduces Blue Ribbon Home

Volksdorferstr 24, Hamburg, Germany.

To the Editor:

It afforded us great pleasure to examine the many interesting contents of the specimen copy of *AMERICAN BUILDER* you sent us, especially its efforts along the line of encouraging people to own their homes.

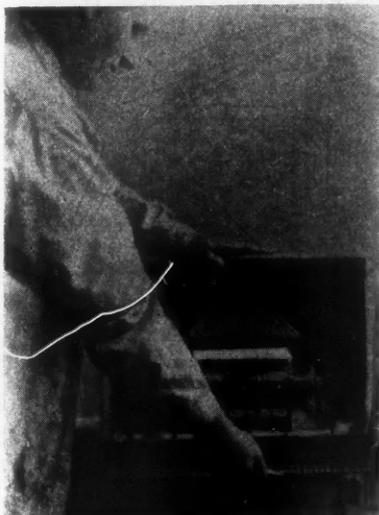


A Miniature Model of an American Builder Blue Ribbon Home Made by a German Company, the Bobau Aktiengesellschaft, Hamburg, Germany.

In the present condition of the German building market we use our building experience mainly in the construction of miniature scale models of completed buildings, to enable architects, builders and owners to visualize a building perfectly before proceeding with the construction of the actual building itself. We have, for your information and observation, constructed one of your Blue Ribbon Homes, the one

appearing on page 115 of the April, 1923, issue of *AMERICAN BUILDER*, and are forwarding it to you. One of the chief advantages of this and the other small models we construct is their stability, making it possible to ship them in a suitably designed box to any part of the world safely, without breakage.

The interior of the house is so constructed that the rooms shine outward toward the observer in vari-colored lighting and color schemes,



The Small House as It Came Packed.

through the simple device of placing an electric light inside it.

We build models of the smallest as well as of the largest types of buildings, homes, stores, churches, public buildings, factories, reproducing all the required structural materials exactly, and at fairly reasonable prices. We feel that we have a service which appeals to architects, builders and owners. All we require are the blue prints and detailed information as to the structural material, with possibly samples of it, and information as to the color finish required, and the final cost of the structure. None but thoroughly complete and artistically perfect models leave our workshops.

MOBAU AKTIENGESELLSCHAFT.

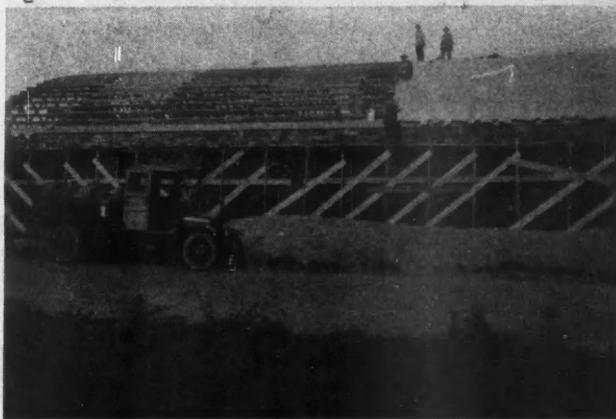


A Good Type of Round Roof Glazed Hollow Tile Garage

To the Editor:

Gilman, Ill.

Building is going pretty strong in our town. We enclose photograph of a glazed hollow tile garage built by us, 70 feet by 130 feet, with round roof. There are 70-foot lattice trusses



A Glazed Hollow Tile Garage, 70 Feet by 130 Feet, with Lattice Trusses, Built by Geo. McCann & Son, Gilman, Ill.

every 12 feet, leaving the floor space all clear. We did all the carpenter work. Landsmann & Bulk own the garage, which is on the Cornbelt and Egyptian Trail.

GEO. McCANN & SON,
Per John McCann.



How Mr. Ellis Got Around Being Delayed in Building a Tile House

To the Editor:

Atwood, Kan.

I am a new reader of *AMERICAN BUILDER*, and already I turn to the Correspondence pages first for any new wrinkles in my line, which is general contracting—mostly in tile, stucco, brick or block bridge work, and quite a good deal of curb, gutter and foundation work.

Here is a problem I got by with pretty slick. How many of you have tried it?

In building a tile house the angle irons had not arrived by the time we were ready for them. Rather than lay off I procured some ½-inch reinforcing steel, and cut it to the right lengths for doors and windows. Then, selecting good

straight tile, I laid two up endways with mortar joints all around. Then the rods were placed in the openings, as many as safety demanded, and a 1-4 mix poured until the required length was obtained. The longest one made was 1 foot 8 inches, which four of us set in place. This did very well, and structurally is practically as strong as if the angles were used.

HOWARD ELLIS.



Says Day of Better and More Substantial Building Is Here

To the Editor: Salem, Ore.
I have read AMERICAN BUILDER for years, and am a crank on cement block for houses. I have lately finished a residence and shop, and enclose picture. These buildings are of my own designing.



Above, Residence; and Below, Shop Built by B. E. Webb, Salem, Ore.

I think the day of better and more substantial residence building is here, and wish to say that I follow the "Revising Building Codes" articles with interest.

B. E. WEBB.



Building an Irregular Hip Roof

To the Editor: Pierce, Fla.
In reply to Mr. Bates' query in the November AMERICAN BUILDER I will submit the following rule, which I have tested out on several buildings here, as my different foremen have run up against this particular type of roof in remodeling old buildings.

Always bear in mind the fact that in building an irregular hip roof there are two entirely different pitches of roof involved, both ending against the same hip, consequently there must be a radical departure from the old established rules for cutting regular hips.

It is possible to get the length and cuts of the hip by calculation provided the old building is square and plumb,

which they rarely are. So the most economical way to get these lengths and cuts is to scale it out on a board, after obtaining the length and cuts of the hip rafter. The rest is easy, simply proceed as in finding the side cuts and difference in length of jacks for regular hips of both pitches. Then for the jacks on the wide side of the roof use the side cut and difference in length of jack of narrow side, together with the heel and plumb cut of the wide side. Then reverse this formula for the other side of the roof and you will not have any trouble with these irregular hips.

B. B. BRADLEY,
General Carpenter Foreman,
The American Agricultural Chemical Co.



Tells Why Rafter Cuts Do Not Fit

To the Editor: Cadillac, Mich.
In reply to the request of V. A. Spurling (and also in reply to the request of Linn Elvins why cut does not fit) am submitting the following:

The lengths of all rafters are

$$\sqrt{2^2 + 8^2} = \sqrt{84} = 8 \text{ feet } 11\frac{1}{2} \text{ inches.}$$

The length of line FOB (half pitch common rafter for such a run and size) is $\sqrt{12^2 + 12^2} = \sqrt{288} = 16 \text{ feet } 11\frac{1}{4} \text{ inches}$ and line FO being half of FOB = $\frac{16 \text{ feet } 11\frac{1}{4} \text{ inches}}{2} = 8 \text{ feet } 5\frac{13}{16} \text{ inches, or } 8\frac{1}{2} \text{ feet.}$

The line OG is

$$\sqrt{(4^2 + 8^2) - \left(\frac{\sqrt{12^2 + 12^2}}{2}\right)^2} = \sqrt{84 - 72} = \sqrt{12}$$

which extracted equals 3.4672, equivalent to 3 feet 5 $\frac{5}{8}$ inches.

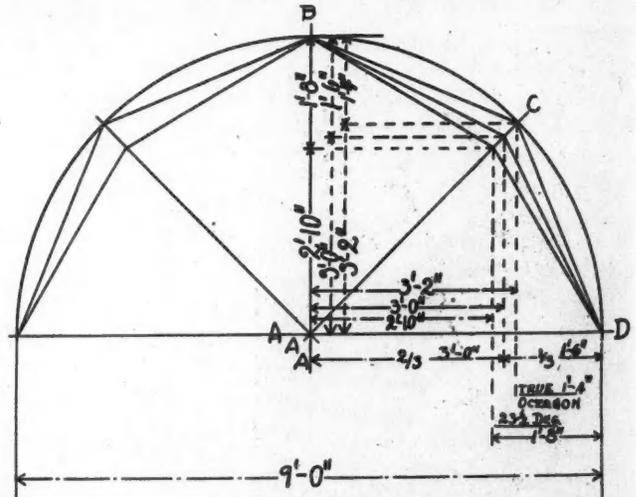
Hence the proper figures to use on the square are 8 $\frac{1}{2}$ and 3 $\frac{1}{2}$ or their projections 12 and 4 $\frac{7}{8}$. These will give correct cut where rafters meet on such a roof.

H. H. CLARK,
Carpenter Foreman.



Laying Out Barn Roof

To the Editor: Minonk, Ill.
In your Correspondence Department Linn Elvins would like to know if there is anything wrong with this gambrel roof solution. I would like to ask him, who set this standard for a gambrel roof? His theory to a certain degree is correct, but there are other gambrels. A true gambrel is a true octagon, where his lines A-B, A-C and A-D should be of equal length; then the lengths of the rafters



In Laying Out a Barn Gambrel Roof Mr. Livsey Says It Is Best to Lay the Hay Mow Floor, Then Strike Chalk Lines A-B, A-C and A-D Full Size.

are equal and all of the cuts are the same, 7 and 17 on the square, and the rise is 5" per foot of run for the upper rafters and reversed for the lower.

Elvins' theory is 6" rise per foot and reverse.

The 23½ degree gambrel is 7" rise per foot and reverse and is the best of the three where wood shingles are to be used.

The best method of use for barns is to lay the hay mow floor, then strike chalk lines A—B, A—C and A—D full size. Mark the point of intersection on line A—C to suit yourself. Lay your rafter to the points and cut on the lines, and you can't go wrong.

To get the line A—C, draw a line from B to D, half the length of this line will give you the angle for the line A—C.

THOMAS S. LIVSEY.

Says Improved Square Ends Roof Rafter Troubles

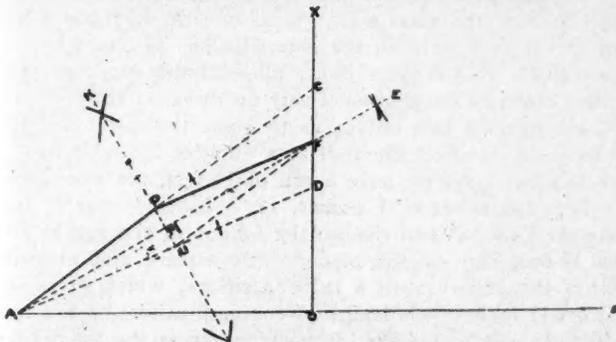
To the Editor: McKinnon, Tenn.
I notice in the November AMERICAN BUILDER an article by Mr. J. W. Engberg which was fine. I have known and used this rule for many years.

But why not get one of the improved squares with all this information stamped on the blade in plain figures right to your hand? I have one I have been using for seven years. It has all side cuts for hips, jacks, lengths of jacks, lengths of common rafters—all in feet, inches and twelfths of inches. There is nothing to bother—just pick up your square and cut what you want in any one of seven pitches.

Anyone interested, who will send me a stamped and addressed envelope, will be told where they can secure this square.
P. B. McWHIRTER.

Mr. Hoegerman Tells How to Find Rafter Intersection Point on Gambrel Roof

To the Editor: Lodi, Cal.
In a recent issue a brother furnished a drawing illustrating a problem to which he wished a solution. The problem pertained to a gambrel roof composed of two pitches, the same being unequal. If I remember rightly, he desired to find the point of intersection where the two rafters would meet, making both rafters equal in length. I am enclosing a solution.



Finding the Point of Intersection Where the Rafters of a Gambrel Roof Meet in Unequal Pitches.

Solution: Draw line AB equal to run of roof. From AB, at O, midway from A to B, erect the perpendicular OX. From A draw AD equal to one pitch (in this case 5 and 12) intersecting OX at D. From A draw AC equal to the other pitch (in this case 9 and 12) intersecting OX at C. Bisect the angle CAD with line AC intersecting OX at F. Bisect AF with line KL intersecting AC at P and AD at U. Draw PF and UF, completing the parallelogram APFU. It will be seen that

line AE forms two triangles, APF and AUF. And since AM equals MF and PM equals MU, thus angles APM and FPM are equal because two of their corresponding sides and angles are equal. Therefore AP equals PF and P is point of intersection.

I have not written out the reasons why each line or angle are so, for I believe it is self-evident. It is not necessary to draw lines FU or KL. Simply bisect angle CAD, locate point F, and draw FP parallel to AD, which gives you the point of intersection, as well as your rafter length, which are equal. Hoping my solution is clear, I remain,

W. C. HOEGERMAN.

A Block House—But These Blocks Are Wood!

To the Editor: West McHenry, Ill.
I am enclosing photograph of a building which may be of interest. The walls are made of wood blocks, and are 4 inches thick. The blocks are cut from 4x6 fir lumber



The Walls of This House Are of Wooden Blocks, 4 Inches Thick.

in a way to simulate siding, and are grooved and bolted together. The house was erected last May, and much to the surprise of the natives, is still standing. A patent has been applied for.

FRED A. COOLEY.

Says Mr. Elvins Bases His Roof Calculations on Wrong Premise

To the Editor: Buffalo, N. Y.
Replying to Mr. Elvins in his solution of Mr. Carey's roof problem, would say that he bases his calculations on a wrong premise in his drawing, and for this reason he finds it difficult to make his cuts come right, as he said in his article in the November number of AMERICAN BUILDER. The figures that I use are 5 and 12, cutting on the 5 side, both ends to be cut at same angle; all rafters to be cut the same. This is on the theory of the octagon, differing from Mr. Nichols in that he apparently bases his roof on the plan of the decagon.

On the roof described by Mr. Elvins, 24 feet wide, I make the length of the rafters 9 feet 2¼ inches. This result I secure by finding the length of the chord of the arc of the circle (that could be circumscribed around an octagon of the size of the one of which the roof forms half) that is intercepted by the angles formed by the rafters.

If some other reader can better this hazy explanation I should be glad to hear from him.
C. GEO. SMITH.

Likes Mr. Engberg's Letter on Roofing

To the Editor: Pattonsburg, Mo.
The writer has just been reading the article on roof framing by J. W. Engberg in the November AMERICAN BUILDER and wishes to say that is the best explanation on framing I have ever seen published, and it is a rule used by the writer.

J. H. SUTTON CONSTRUCTION Co.,

Per J. H. Sutton.

Another Good Word for Brother Engberg

To the Editor:

Mt. Pleasant, Mich.

I note with very much interest Mr. J. W. Engberg's method for roof framing; first, because it is the very simplest on earth, and, second, because it is the method I studied out for myself about twenty-five years ago when I faced my first roof problem alone. I would like to suggest for the brothers that the cut for the cheek on jack rafters can be obtained by laying the steel square on the plan (referring to Mr. Engberg's plan), doing away with remembering any figures. This cheek cut bothers many carpenters.

I am a charter member reader of the AMERICAN BUILDER and would not like to be without it.

J. H. FERRIS.

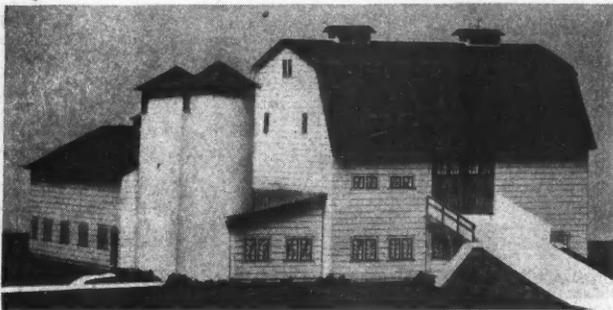


Makes Miniature Barn Model

To the Editor:

Philadelphia, Pa.

I am enclosing a photograph of a cardboard model of a dairy barn which I recently made. In addition to the barn



Dairy Barn in Miniature, Made of Cardboard to Give Prospective Owner Idea of Completed Buildings.

we made up a hog house, poultry house, corn crib, house and garage, the whole being supposed to represent a southern dairy farm.

W. F. SILLIMAN.



Ended His Roofing Troubles

To the Editor:

Elgin, Ia.

In the Correspondence Column, in Louis Brandenburg's article, he says, get the book the "Steel Square as a Calculating Machine," by John Phin. I think he got his authors mixed up; that book is written by Albert Fair. I agree with him that whosoever has roof framing troubles should buy books on these subjects and study them and the AMERICAN BUILDER these long winter nights. I have taken the AMERICAN BUILDER for fourteen years and have a good supply of Radford Books and Encyclopedia. Through them my roof framing troubles have disappeared.

I am proud if the AMERICAN BUILDER and the Radford Books. They contain a vast fund of information on all building problems.

ALEX PAGAN.

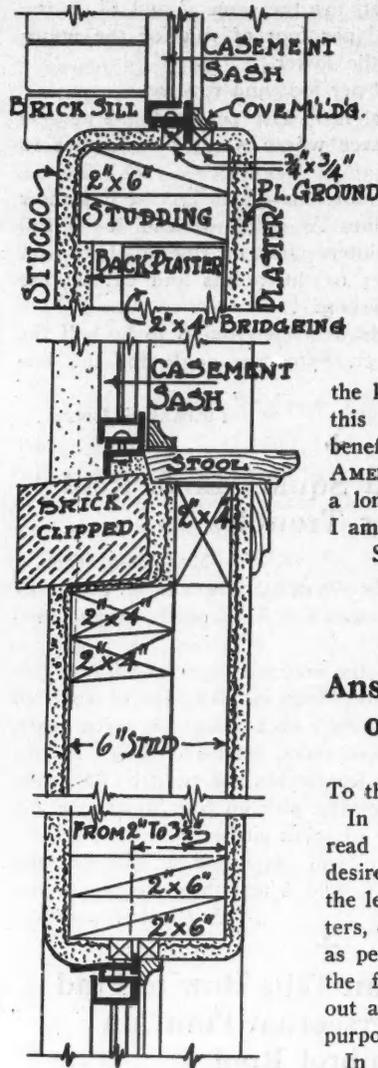


A Method of Installing Steel Casements in Stuccoed Frame Construction

To the Editor:

New York, N. Y.

Being a subscriber to and having received much valuable information from AMERICAN BUILDER, the best journal in its field, am hoping to return the obligation. Am enclosing sketch of method devised by us and used in installing steel casement windows in stuccoed frame construction. Six-inch studding is used in exterior walls to give depth to openings when viewed from inside or out. The wise builder will have the frames on the job and assembled; then frame the openings to suit as the studding must be plumb and the head level, or serious difficulties, costly to overcome, will arise when installing the frames. Stool, apron and cone moulding are the only trim



Cross Section View of Steel Casement Installation in Stucco Frame Construction.

I would call this a skew hip rafter.

Mr. Bates said that he had to make the roof connect the main building at a pitch of $6\frac{1}{2}$ on 12, but did not say which side had that pitch. It would be impossible for both sides to have the same pitch unless one would make a flat top deck 6 feet wide on the side which is 14 feet wide, as illustrated. If this was done, all common hip and jack rafters could be cut the usual way on the ground.

I am figuring this out so as to make the rafters on the 14-foot side connect the roof at a pitch of $6\frac{1}{2}$ -inch rise to the foot run. As we have a run of 14 feet, the rise would be $14 \times 6\frac{1}{2}$ inches = 91 inches, or 7 feet. I would then take the 7-foot 7-inch rise on the tongue of the square and the 14-foot run on the blade of the square and measure across the square with a rule or square, which gives me 15 feet 11 inches—the length of common rafters on the end. The cuts will be $6\frac{1}{2}$ on 12, marking across the tongue for the plumb cut and the blade for the heel cut. As we have 4 spaces on the 14-foot span, I would take $\frac{1}{4}$ of 15 feet 11 inches, which equals about 4 feet, and the longest jack would be 4 feet shorter than the common rafter (5 feet 11 inches), and so on until all 4 jack rafters are cut by cutting each 4 feet shorter as described. The plumb cut of jack rafters on this side will be the same as the plumb cut on the common rafters. The heel cut of jack rafters will be the same as the heel cut on the common rafter. In order to get the cheek cut take the run, which is 14 feet on the tongue of the square, and the length of the common rafter,

used, but inside casings might be used by placing a lining of correct width where we have plaster ground and this would also act as a plaster ground as in ordinary wood frames. Burned brick sills make a pleasing contrast with the grayish white stucco in this English cottage type of house.

Hoping that through the kind offices of your paper this contribution may prove beneficial to some one and that AMERICAN BUILDER may enjoy a long and prosperous career, I am,

STONE & DORLAND,
Carpenters and Builders,
Per W. H. Dorland.



Answering Mr. Bates on Hip Rafters

Langston, Okla.

To the Editor:

In your November issue I read Mr. Edward C. Bates' desire of the method of finding the length and cuts of hip rafters, common and jack rafters, as per sketch. I am enclosing the following method worked out and hope it may serve his purpose.

In answer to the question which was asked, I wish to say that the rafter which joins the two sides together is really a hip rafter, but not a square hip.

JOHNSON'S UNDERCOAT & ENAMEL



If you are the contractor on a job, the responsibility for that job belongs to you. Even though you sub-let the painting contract, still the owner holds you responsible—consequently it is to your interest to see that high class materials and workmanship are employed.

Build up a reputation as the best contractor in your locality—then you can always get the price and will never experience a poor season. Your customers will get the finest kind of a job if both walls and trim are finished with Johnson's Perfectone Undercoat and Johnson's Perfectone Enamel. These products will give equally good satisfaction on wood, plaster and metal. With them any brush hand can turn out perfect work—satisfy your trade and complete more jobs each season.

FREE TRIAL OFFER

We want you to test Johnson's Perfectone Undercoat and Enamel at our expense. We will gladly send you generous samples for experimental purposes. All we ask you to do is use them in comparison with other brands.

S. C. JOHNSON & SON,
Dept. A. B. 1, RACINE, WIS.

"The Wood Finishing Authorities"

Please send me, postpaid, working samples of Johnson's Perfectone Enamel and Undercoat for testing.

My Paint Dealer Is.....

My Name.....

My Address.....

City and State.....

which is 15 feet 11 inches on the blade of the square, and cut along the blade mark.

On the side we have a run of 8 feet, but the rise will be the same as the rise on the 14-foot span, which is 7 feet 7 inches. I would take 8 inches on blade and 7 feet 7 inches on the tongue and measure across, which would give 11 feet, the length of common rafters on this side. The cuts will be 7 feet 7 inches on 8, marking across the blade of square for heel cut and the tongue for the plumb cut. As there are seven spaces between jack rafters, I would take $1/7$ of the length of common rafters, which is $18\frac{6}{7}$ inches, and cut the first jack $18\frac{6}{7}$ inches shorter than the common rafter, and so on until all six of the jack rafters are cut by cutting each $18\frac{6}{7}$ inches shorter than the one just cut. The plumb and heel cuts on the jack rafter would be the same as the plumb and heel cuts on the common rafters of this side. In order to get the cheek cut, take the run, which is 8 feet on the tongue of the square, and the length of the common rafter, which is 11 feet on the blade of the square, and cut along the blade mark.

In order to get the length of hip, find the hypotenuse of a triangle with a base of 14 feet and an altitude of 8 feet, which would be 16 feet $1\frac{1}{2}$ inches; 16 feet $1\frac{1}{2}$ inches would be the run of the hip, and the rise would be the same as the rise of the common rafters, which is 7 feet 7 inches. Then take $16\frac{1}{8}$ feet on the blade and 7 feet 7 inches on the tongue and measure across, which gives the length of the hip rafter, 17 feet 10 inches.

L. G. HIBLER.



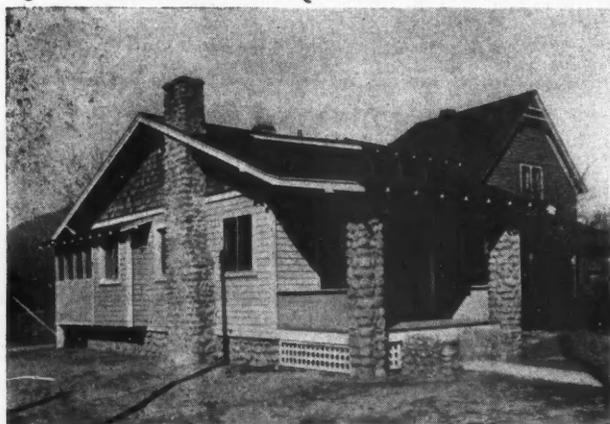
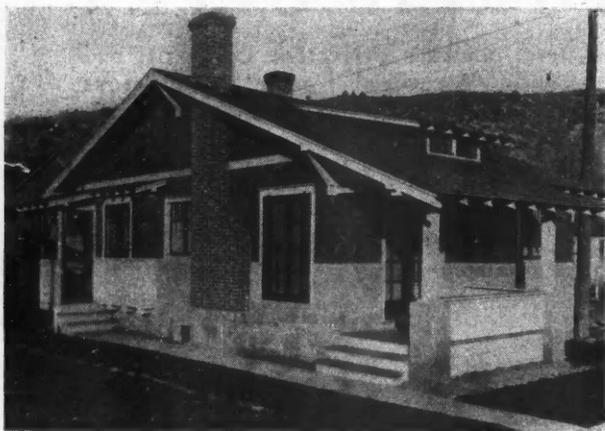
Mr. Pittman Builds Nice Bungalows

To the Editor:

Durango, Colo.

I am enclosing pictures of two four-room bungalows which I have just finished building. I thought they might be suitable for publication in the AMERICAN BUILDER magazine.

P. W. PITTMAN, Home Builder.



Bungalows Built by P. W. Pittman, Home Builder, Who Advocates "Own Your Home" at Durango, Col.

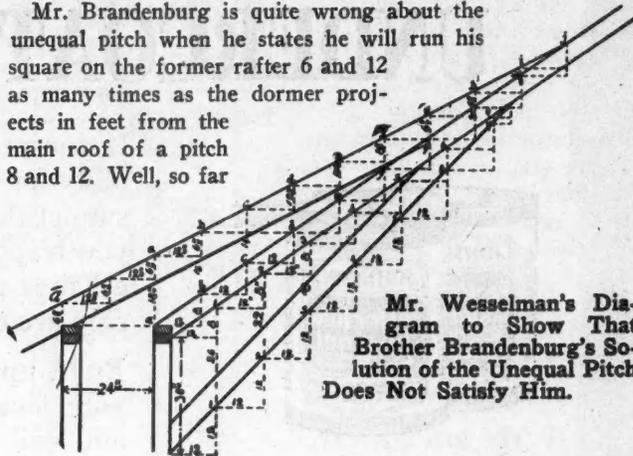
Takes Issue with Brother Brandenburg's Roofing Explanation

To the Editor:

Dolgeville, N. Y.

Having neglected to read my AMERICAN BUILDER for some time, I took a look into it tonight. The first thing I turned to was the Correspondence Department. When I read the first problem from Mr. L. Brandenburg, I could not help but participate in this problem's solution.

Mr. Brandenburg is quite wrong about the unequal pitch when he states he will run his square on the former rafter 6 and 12 as many times as the dormer projects in feet from the main roof of a pitch 8 and 12. Well, so far



Mr. Wesselmann's Diagram to Show That Brother Brandenburg's Solution of the Unequal Pitch Does Not Satisfy Him.

it is correct, but now he says go twice more, because the difference in the pitch is 2 inches. The difference in the pitch is no indication at all, as to how many times more you have to go. The same wrong statement is made about the brace to which I will refer in my drawing.

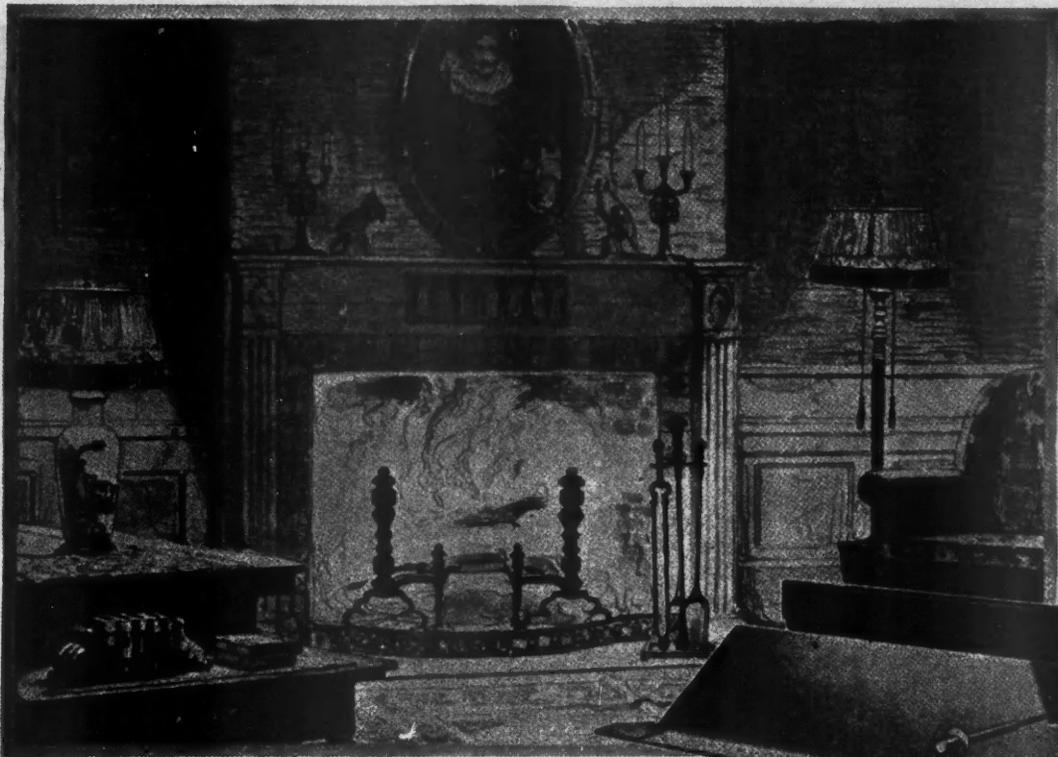
Now, we will say the outside edge of dormer plate is 24 inches from the outside of the main plate, and the point (A) being 6 inches higher than the point (a) on the main roof. We proceed with our square along the dormer rafter first with 6 and 12 and go twice to get to point (a) on dormer rafter. Since we have started 6 inches higher and twice added 6 inches as pitch we find that point (a) on dormer rafter is 18 inches higher than the starting point of main rafter (a). Now we proceed on the dormer rafter with 6 and 12 and at the same time on the main rafter with 8 and 12. Since the main rafter rises 2 inches more than the former rafter, we find that the two points (b. a. b.) are now only 16 inches apart, two inches less than from (a) to (a). If we proceed now we will find that by every additional 12-inch run the corresponding points will come 2 inches narrower together. If we divide 18 inches by 2 inches we will get 9, which will give us the number of times to proceed for the dormer rafter.

As far as the brace goes, it is really the same thing. In my case, I have started 30 inches below bottom edge of rafter. We will take 12 and 12 for the brace and get to the point 1 on brace and 12 and 8 on rafter to get here to point 1. We will find that these two points are 26 inches apart since the brace rises 4 inches faster than the rafter. If we now divide 30 by 4 we will get $7\frac{1}{2}$, which is the number of times to proceed in order to get the original distance of 30 inches to be equal to zero; or, in other words, to have brace and rafter intersecting. As for the intersecting level between rafter and brace, Mr. Brandenburg's explanation is correct.

This will conclude this problem, as I don't want to take up all the space on these valuable columns, but wish to say one word yet about Mr. J. W. Engberg's problem about hip roof framing. This method is about as easy a one, at least for the beginner, as I know of and I warmly advise brother carpenters to read it over again and try to understand it, as Brother Engberg has tried to make it as understandable as he could. The rest is up to the reader.

Thanking you for this space, I will close with best compliments to AMERICAN BUILDER, especially the Correspondence Department.

N. WESSELMANN.



Fireplace with tile facing. Peerless Dome Damper No. 17 operated from face of fireplace

Unforeseen trouble in fireplace performance prevented

Freakishness in draft conditions easily remedied by Peerless Dome Dampers

FIREPLACES that theoretically should have drawn perfectly have, in many instances, failed in practice. Queer twists of the wind occasioned by neighboring trees, roof tops or unusual topography, have resulted in entirely unexpected draft conditions.

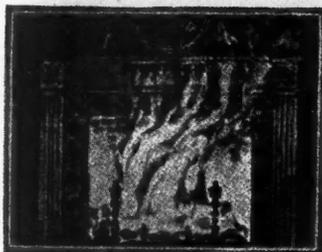
In most cases these troubles could have been prevented by the simple inexpensive precautionary measure of installing a Peerless Dome Damper

This equipment will enable the fireplace to properly perform all its required functions—to heat the room, to ventilate the room, to adapt itself to varying requirements of the fire itself and changing conditions of draft, to allow the smoke and not the heat to escape up the chimney, to permit of closing when not in use.

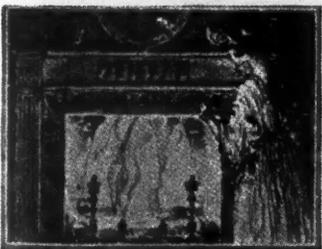
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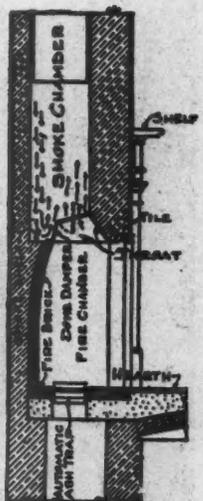
Largest manufacturers of fireplace equipment in the world



The flue, throat and fireplace opening are apparently well proportioned. But at times the fireplace smokes



A slight contraction of the throat by turning the handle of the Peerless Dome Damper corrects this fault



Vertical section of fireplace, showing installation of Peerless Dome Damper. See position on smoke shelf. Flange on front acts as lintel

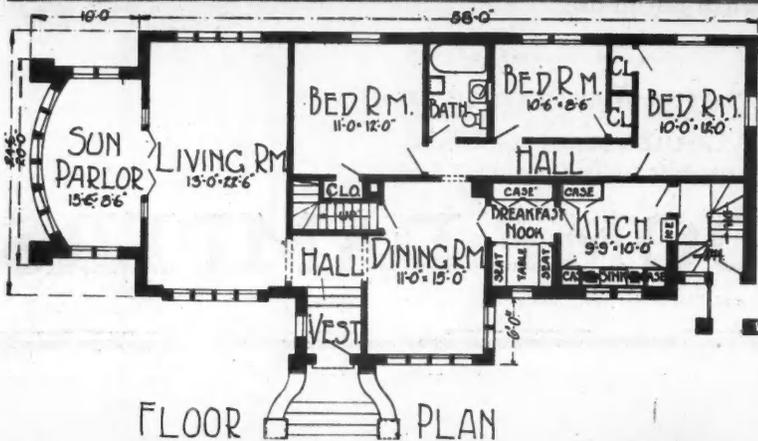
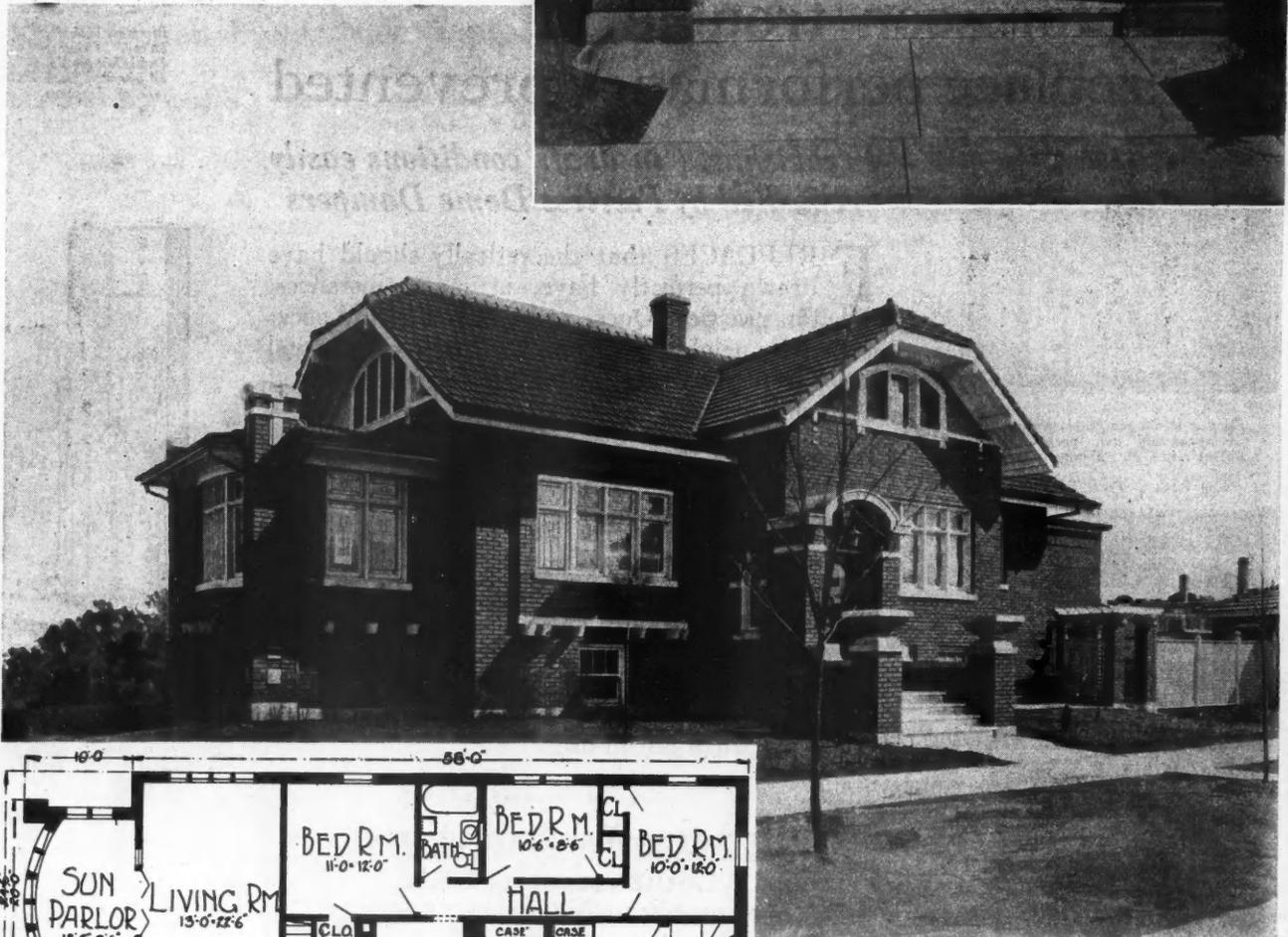
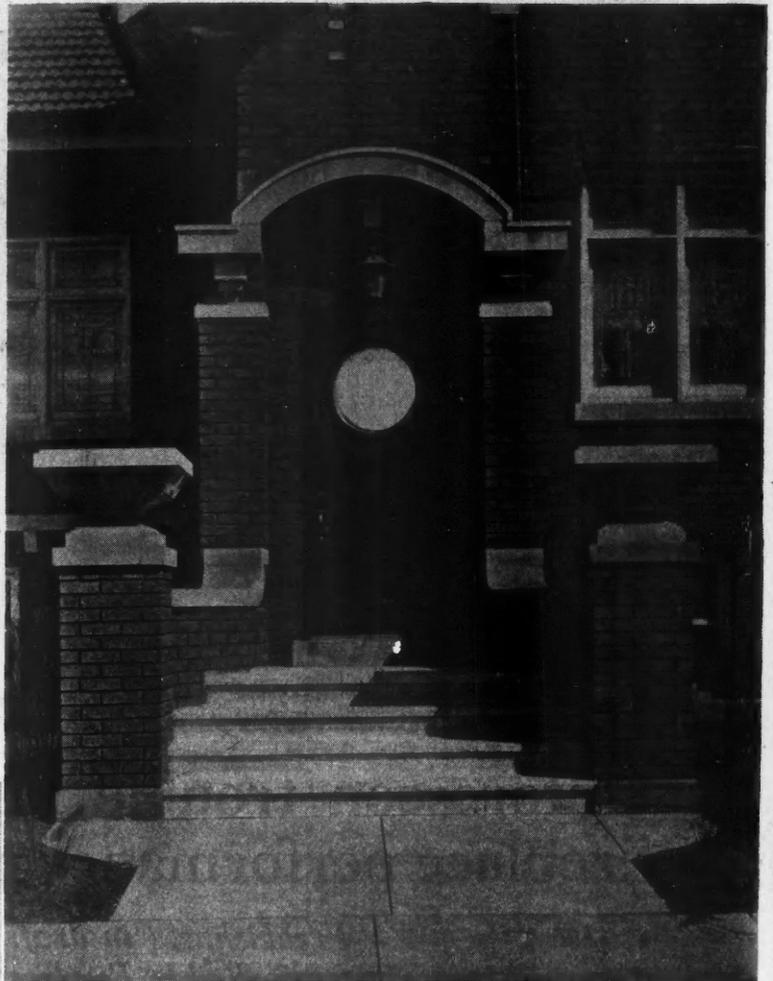


PEERLESS DOME DAMPERS

Write for Catalog and Blue Print Installation Specifications

A Modern Brick Residence

THIS type of brick house shows how the judicious use of cut or cast stone and white painted cornice and window trim enlivens and gives character to the exterior. It is a house which contains a large amount of well-proportioned room space, three bedrooms, living room, dining room, kitchen and breakfast nook and sun parlor being on the lower floor, and room for three extra rooms on the second floor. Its arrangement of side vestibuled entrance makes it desirable for a corner lot, and properly landscaped and with flowers in window boxes and in the flower bowls flanking the entrance steps it could easily become a "show place" in any particular residence locality. The pergola and lattice fencing, visible at the lower right of the main picture, show a very good treatment of the walk leading from the house toward the garage. Overall dimensions of this house are 30 feet 6 inches by 68 feet.



Note How the Judicious Use of Cut or Cast Stone and White Painted Cornice and Window Trim Enlivens the Exterior of This Brick House. The well-arranged floor plan permits of three bedrooms on the lower floor, besides sun parlor, living room, dining room and kitchen. There is room for three more bedrooms upstairs.

Ideal Brick Wall Saves 7 cents per square foot



THE contractor doing the apartment job pictured declares he can save real money by building Ideal Brick Walls. And the walls will be just as strong, dry and satisfactory as those costing nearly twice as much.

Comparison of material costs shows that:

12 in. Brick Ideal Backup	Using nine brick per square foot at the composite price of \$16.71 per M given in recent issue of American Contractor.	Costs 15c per sq. ft.
12 in. Hollow Unit Backup	Using two 8x5x12 in. tile per sq. ft. at the price of \$110 per M given in recent issue of American Contractor.	Costs 22c per sq. ft.

This saving of 7 cents per sq. ft. is in building material alone. The cost of facing is the same in either case. There is a substantial saving in every square foot of wall laid when Ideal Wall is used, even when labor and other mason materials are included.

There is always economy in using brick due to masons' preference for handling small unit. Any experienced mason can lay Ideal Wall at less cost than any other type. They rack their brick just as easily as on a solid brick wall.

Then, too, with the Ideal Brick Wall you can lay plaster directly on the wall surface, saving furring and lathing.

For apartments, schools and commercial buildings, as well as homes, the Ideal Brick Hollow Wall is lowest in cost and most satisfactory.

New reports of tests, giving strength of 8 and 12-in. Ideal Brick Hollow Walls are now included as a supplement to "Brick — How to Build and Estimate." Send for a copy now.

Send for reports of tests on strength of Ideal Wall.

The Book of Modern Methods

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Valuable tables of material and labor costs. Illustrations and data on modern, money-saving uses of common brick—including the Ideal Hollow Wall. Thousands of these books are in use by architects and builders. Send 25c for it today.

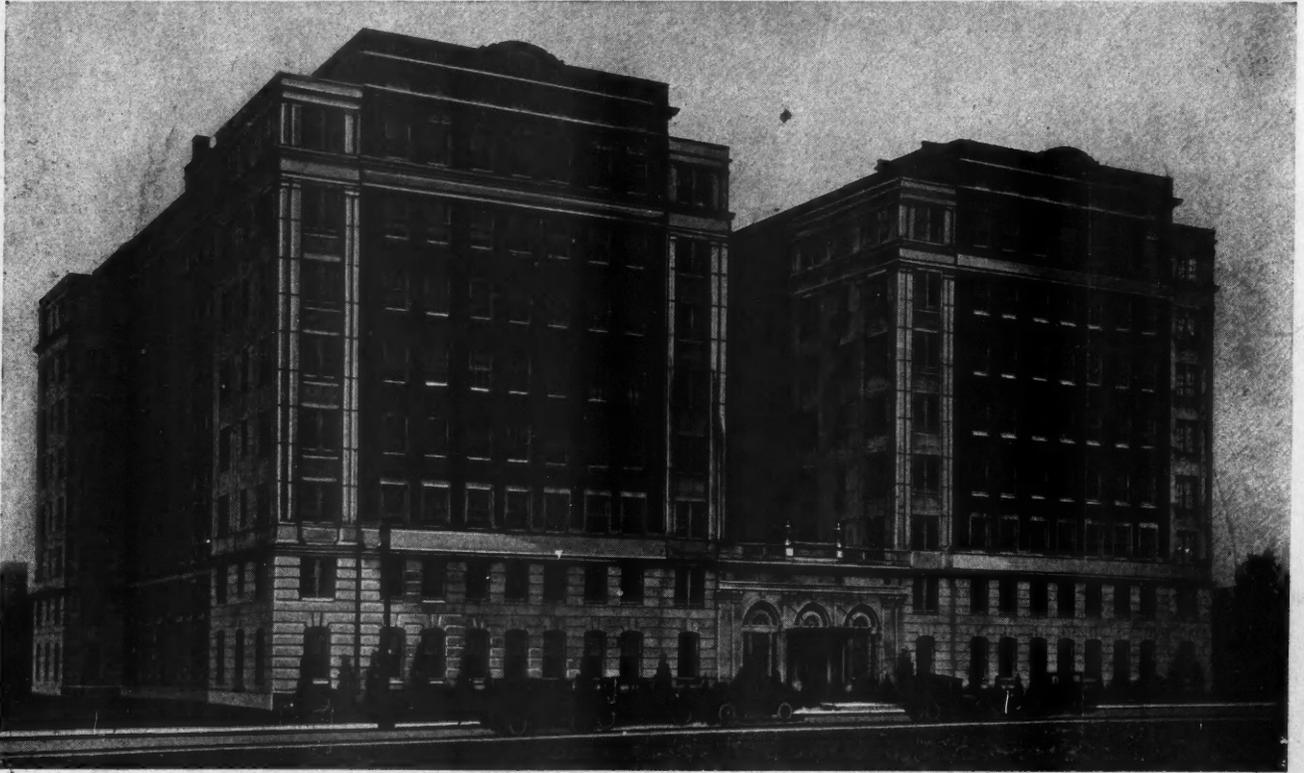
Sixty Fine Brick Homes

YOUR NEXT HOME 10¢

Photographs and floor plans of 60 unusual brick homes—selected from thousands for beauty and interior arrangement. Every one has been actually built and lived in. A house for every taste and purse. Complete working drawings at nominal costs.

Send 35c— Get Both Books

The Common Brick Manufacturers' Association of America
 2131 CLEVELAND DISCOUNT BUILDING
 Cleveland, Ohio
 The Ideal Brick Hollow Wall
 Made of standard brick—cuts the cost one-third



The Whittier Apartments, Detroit, Mich., Chas. N. Agree, Architect. The new form of I-beam concrete construction was used in this splendid building, effecting a considerable economy in construction cost.

I-Beam Concrete Construction

New Method Combines All Advantages of Reinforced Concrete and of Structural Steel, and Eliminates the Forest of Timber Required for the Ordinary Concrete Job

By T. O'DONNELL

A NEW construction which combines the self-sustaining feature of structural steel with the steel-economy of reinforced concrete gives promise of having far-reaching influence on building methods. Although the idea is basically new there is no untried principle about it; it is merely a new combination of old materials which have been long established and found true.

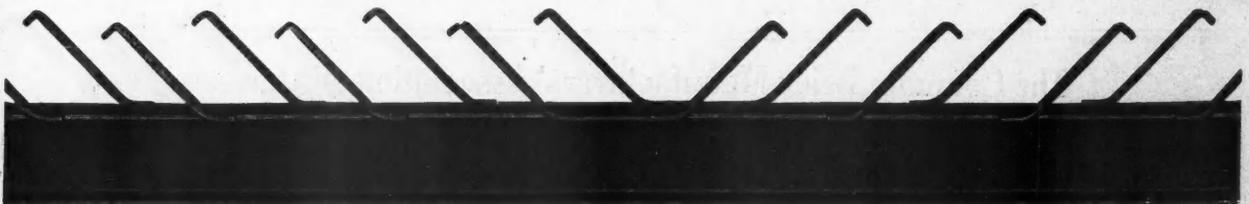
With it goes an added factor of safety, because a greater stress is developed than in a structural steel beam, and because correct installation is practically a foregone conclusion. Although accepted methods of calculation are used in designing this construction, tests have invariably shown a greater carrying capacity.

This construction consists of a series of I-beams with the top flange sheared to form rigidly connected diagonals extending into the concrete above. The I-

beams are thus integral with the concrete, making a unit of reinforced concrete beam and slab. A complete system of removable steel forms is provided for suspension from the specially prepared I-beams, and the latter thus serve the double purpose of providing supports for the forms until the concrete is set, and of rigid reinforcement for the completed reinforced concrete structure. The only centering is usually one upright support at the center of the span.

In localities where it is not practical to use removable steel forms specially designed steel floor tile may be used. These latter may be removed at least three times and left permanently in place the last time used.

This method of construction eliminates the forest of timber required for the ordinary reinforced concrete job. The I-beams support the removable steel forms and ordinarily require only one row of upright



The Construction Consists of a Series of I-Beams with the Top Flange Sheared to Form Rigidly Connected Diagonals Extending Into, and Becoming Integral With, the Concrete Above.

Keep the Money Rolling in During the Winter Months

Make \$25.00 to \$40.00 a Day Re-Surfacing Floors "The American Universal" Way

The progressive contractor and builder has found a way to increase his yearly income by keeping busy all the year 'round. When building is at a standstill and there are no profits coming in, he makes \$25.00 to \$50.00 a day re-surfacing old floors with the "American Universal" electrically driven floor surfacing machine. It does the work of six men.

Big Demand for This Class of Work

The demand for re-surfacing floors is the greatest during the coldest months of the year—during the time when you are not busy building. Think of the great number of public buildings where the floors require re-surfacing. Your prospects consist of residences, schools, colleges, clubs, hospitals, churches, apartment buildings, office buildings, stores, dance halls, auditoriums, roller rinks, bowling alleys, factory buildings—in fact every old floor represents a job for you.

Work Easy to Get

The beautiful, smooth, uniform work which the "American Universal" floor surfacing machine turns out puts the most expert hand scraper's best efforts to shame. There's absolutely no comparison. You'll find it easy to land big jobs at fancy prices—and it requires absolutely no experience to turn out first class work with the "American Universal."

Who Stands a Better Chance Than You?

You know the owners of the buildings and homes where the floors require re-surfacing. You are acquainted in your community, and this will make it still more easy for you to land the contracts for re-surfacing the great number of old floors in your locality which are in need of it (and badly so) right now.

An Investment Worth \$5,000 a Year to You

An "American Universal" floor surfacing machine is always a good investment. It will replace six men on your payroll during the building season—and turn loss into big profits during the dull season.

*One fair sized
job pays for
the machine*

\$134.35 in 74 Hours!

"Since I have been using my 'American Universal' floor surfacing machine, I have found that it is exactly as you represent it to be. It will do the work of five or six men—and do it well.

"I have not had a dissatisfied customer and my 'American Universal' floor surfacing machine keeps me busy. I have several big jobs ahead such as dance halls and lodge rooms.

"Have actually used the 'American Universal' seventy-four hours, and it has paid me \$134.35 in that time.

"Have three big jobs to do in the next two weeks that will alone pay for the machine. I could not do without my 'American Universal' floor surfacing machine."

F. N. CRAWFORD, Colorado.

Makes \$400 on One Job!

"I have tested out the 'American Universal' and am very well pleased with it. I am working the machine on the St. Mary's Home for Girls at Cresson, Pa., which has about 42,000 square feet of floor space. The machine will make me on this one job at least four hundred dollars.

"The owners are well pleased with the smooth, uniform work which my 'American Universal' machine turns out."

J. C. IVORY, Pennsylvania.

\$75.00 in 12 Hours!

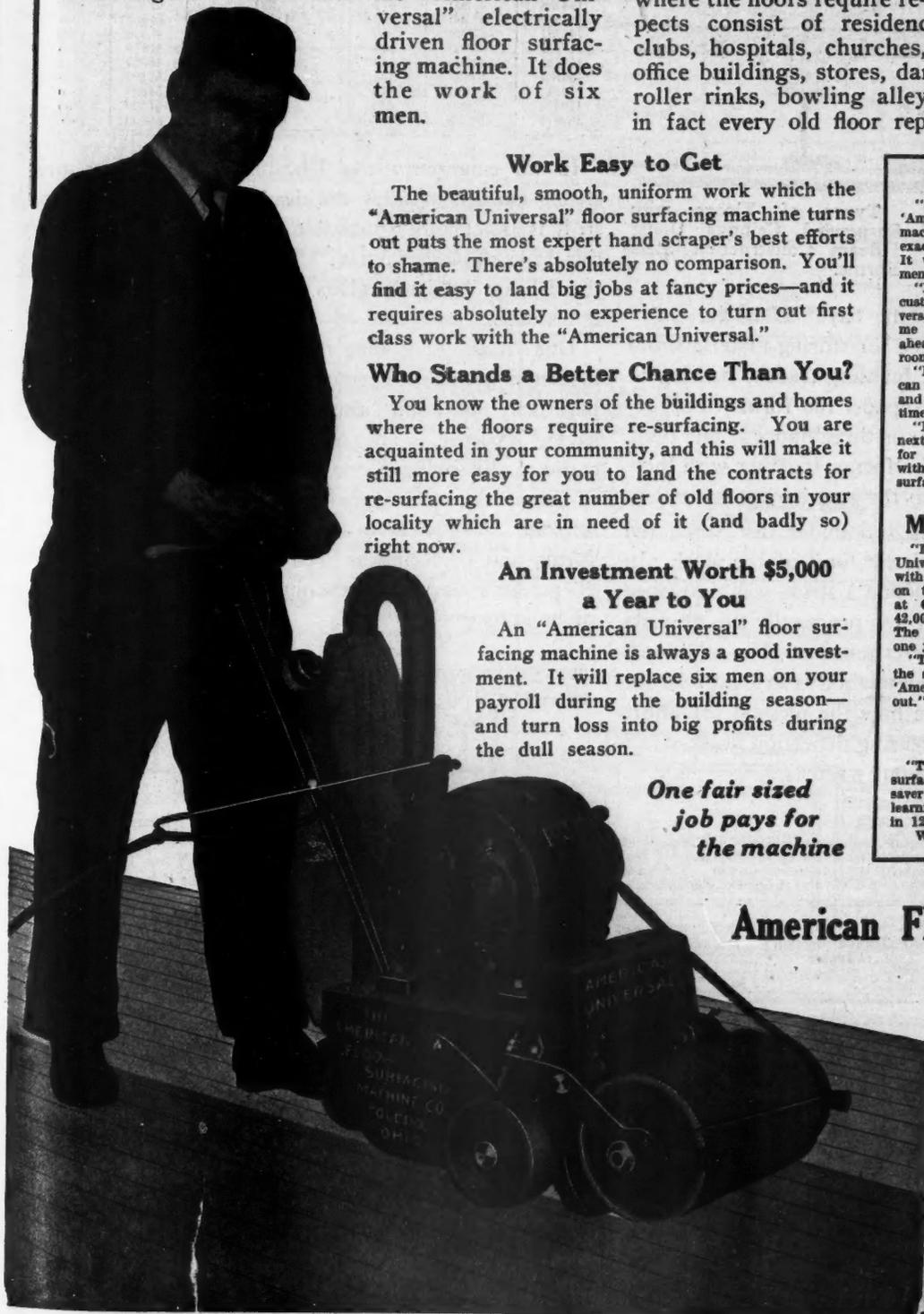
"The 'American Universal' floor surfacing machine is a great labor saver and does excellent work. In learning to operate it I made \$75.00 in 12 hours."

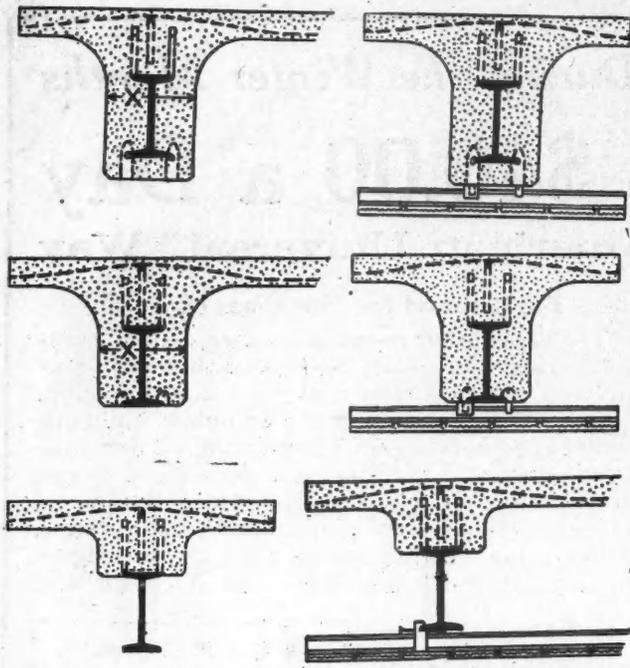
W. H. NORWOOD, Arkansas.

American Floor Surfacing Machine Company

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Types of Floors, Using I-Beam Construction Steel Forms. Types of Floors with Suspended Ceilings Using I-Beam Construction Steel Forms.

supports in the middle of the bay. Thus the entire floor space is practically free for storing materials and carrying on work of other building trades. Owing to the fact that the I-beams support the forms construction can be installed on two or three floors at one time. The simplicity in placing the forms, together with their early removal, also adds to the speed of construction.

Structural steel I-beams fail under test when the stress is at or near the *elastic limit* of the steel. In testing this type of construction a stress was developed in the steel I-beams which was practically the ultimate strength of the steel in *direct tension*. The additional factor of safety in this new method is evident. In the test data given below note how the method of failure is gradual, marked by increasing deflection in the structure—not sudden and without warning:

TEST DATA

On panel consisting of two composite beams, each beam having 6" 12.5 lb. sheared I beam with 5 1/4" of concrete on top supported by two composite girders, each girder having 8" 18.4 lb. sheared I beam with 1 1/2" of concrete on top. Thickness of slab at center 2 1/4". Beam span 16'0" c. to c. Girders supported continuously.

Total Live and Dead Load on Panel lbs.	Total Live and Dead Load on Each Beam lbs.	Live Load per sq. ft. lbs.	Av. Total Deflection in Inches	Calculated Stresses lbs. per sq. in.	
				Steel	Concrete
25930	12956	131	.031	12350	550
30760	15380	164	.094	14650	653
35630	17815	198	.140	17000	757
41540	20770	240	.187	19850	881
47280	23640	280	.281	22600	1005
52210	26105	314	.375	24900	1110
61080	30540	376	.594	29150	1298
66680	33340	415	.720	31800	1416
71740	35870	450	.940	34200	1525
78090	39045	494	1.031	37250	1660
84560	42280	540	1.140	40300	1800
89730	44865	574	1.297	42800	1906
92120	46060	591	1.391	44000	1960
98190	49095	633	1.625	46800	2085
103110	51555	667	1.875	49200	2192
107340	53670	698	2.031	51200	2280
112410	56205	733	2.470	53600	2387
116660	58330	761	3.125	55600	2480
120810	60405	790		57550	2565
126280	63140	827		60250	2682
132600	66300	873		63250	2820
135650	67825	894	Failed	64700	2885

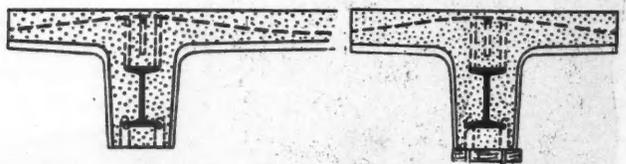
TEST DATA

On panel consisting of three composite beams, each beam having 6" 12.5 lb. sheared I beam with 5 1/4" of concrete on top, supported by two composite girders, each girder having 8" 18.4 lb. sheared I beam with 1 1/2" of concrete on top. Thickness of slab at center 2 1/4". Span of beams 16' 0" c. to c. Span of girders 14' 6" c. to c.

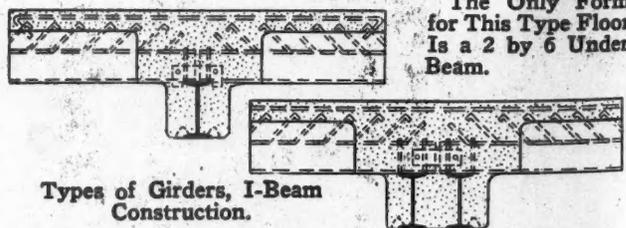
Total Live and Dead Load on Panel lbs.	Total Live and Dead Load on Each Beam lbs.	Live Load per sq. ft. lbs.	Av. Total Deflection in Inches	Calculated Stress lbs. per sq. in.	
				Steel	Concrete
21325	7100	21	.036	6770	302
31240	10400	62	.099	9930	443
42650	14250	108	.188	13600	607
52230	17400	145	.219	16600	741
62400	20800	186	.255	19850	886
71820	23950	223	.339	22820	1020
79471	26500	252	.401	25300	1129
89346	29800	293	.475	28400	1296
96996	32300	323	.510	30800	1375
105466	35200	357	.578	33600	1500
114191	38100	392	.636	36400	1623
119141	39700	411	.714	37900	1690
128136	42700	446	.811	40700	1820
134486	44800	472	.891	42750	1910
137591	45900	485	1.020	43800	1953
142381	47500	503	1.125	45300	2020
147711	49200	524	1.208	46950	2085
153809	51200	548	1.390	48900	2180
163764	54600	588	1.818	52100	2325
171384	57200	619		54600	2425
179894	60000	652		57200	2555
183374	61200	667	Failed	58400	2605

In an emergency the I-beams in themselves are strong enough to carry the dead load without failure, so it is practically impossible to have a collapse with this type of construction. The carrying capacity of the I-beam by itself gives an added strength which is ordinarily computed in the calculations.

Due to the fact that the I-beams carry the dead load it is possible to remove the slab forms in a comparatively short time, thus hastening construction and saving expense. The construction cost is low, because of the saving of materials and labor. Compared to structural steel it saves a large percentage of the tonnage. Compared to reinforced concrete it saves in forms and centering as well as labor of installation. Its possibilities are far-reaching and cover a wide range of buildings.

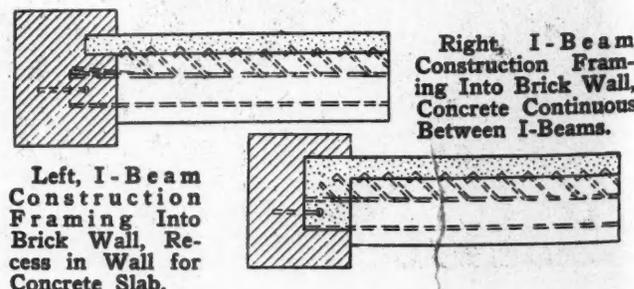


Type of Floor Using Steel Floor Tile.



Types of Girders, I-Beam Construction.

The Only Form for This Type Floor Is a 2 by 6 Under Beam.



Right, I-Beam Construction Framing Into Brick Wall, Concrete Continuous Between I-Beams.

Left, I-Beam Construction Framing Into Brick Wall, Recess in Wall for Concrete Slab.

ARCHITECTS' GUIDE

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BRICK WALLS (ext).....	S-W Concrete Wall Finish	Old Dutch Enamel, Gloss		
CONCRETE WALLS....	S-W Concrete Wall Finish	Old Dutch Enamel, Gloss		
CEMENT FLOORS.....	S-W Concrete Floor Paints	S-W Concrete Floor Paint		
EXTERIOR WOOD SURFACES.....	SWP (Sherwin-Williams Prepared Paint)	Old Dutch Enamel, Gloss	S-W Preservative Shingle Stain S-W Acid or Oil Stain	Rubber Varnish
EXTERIOR METAL SURFACES.....	Kromik Structural Steel Primer Metalastic (for finishing coats)	Old Dutch Enamel, Gloss		
FACTORY WALLS (Interior).....	S-W Egg-Shel Mill White S-W Flame Resisting White	Old Dutch Enamel or Enameloid		
FLOORS (Interior Wood)...	S-W Inside Floor Paint (the enamel-like finish)	S-W Inside Floor Paint (the enamel-like finish)	Oil Stain or Floorlac Varnish Stain	Mar-Nat Floor Varnish
GALVANIZED IRON SURFACES.....	S-W Galvanized Iron Primer (Finish with any Paint)	S-W Galvanized Iron Primer and Old Dutch Enamel		
INTERIOR WALLS AND CEILINGS.....	Flat-Tone Wall Finish S-W Semi-Gloss Wall Finish	Old Dutch Enamel or Enameloid		
INTERIOR WOOD TRIM.....	SWP (Sherwin-Williams Prepared Paint)	Old Dutch Enamel or Enameloid	S-W Acid Stain S-W Handcraft Stain S-W Oil Stain	Scap-Nat Varnish Velvet Finish Varnish (for imitation rubber effect)
PORCH FLOORS AND DECKS.....	S-W Porch and Deck Paint			
RADIATORS AND PIPES.....	Flat-Tone Wall Finish or S-W Gold Paint S-W Aluminum Paint	For White—S-W Snow White Enamel For colors—Enameloid		
ROOFS—Metal.....	SWP or Metalastic (if Galvanized, prime with S-W Galvanized Iron Primer)			
ROOFS—Wood Shingle...	SWP		S-W Preservative Shingle Stain	
STACKS AND HOT SURFACES.....	Salamander Smoke-Stack Black			
STRUCTURAL STEEL..	Kromik Structural Steel Primer Metalastic (for finishing coats)			
TO DAMP-PROOF FOUNDATIONS....	S-W Antydamp			
TO DAMP-PROOF INTERIOR WALLS ABOVE GRADE....	S-W Plaster Bond			
WOOD PRESERVATIVE			S-W Carbolic-ac	

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It is the architect's due that the manufacturer of paint, stain, varnish and enamel solve for him his finishing problems. It is also his due that correct selection of material involve neither risk nor waste of time. Hence the Sherwin-Williams Architects Guide.

For details of specifications see: *The Sherwin-Williams book of painting and varnishing specifications or Sweet's architectural catalogue.*

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409 CANAL ROAD, CLEVELAND

The specially designed I-beams for this class of construction are shipped with the shear members only slightly raised. These shear members are easily lifted on the job to the 45 degree angle with a special tool which permits raising the shear member to 45 degrees and no farther. A complete system of adjustable heavy gauge steel forms for slabs, beams and girders, devised to be suspended from the I-beams, have been so perfected that the forms are quickly erected and easily removed.

It is comparatively simple to design this form of construction, following accepted methods of calculation. As the test data above indicates, accepted calculating methods give smaller loads than those actually carried, so the builder knows he is gaining an added factor of safety in the construction. The selection of the design best suited for any particular installation is dependent upon the loads, span, cost of materials and the particular requirements of the building. Each problem should have individual study, and AMERICAN BUILDER invites its readers to write in to it for the name of the manufacturer of the specially designed I-beams, forms and floor tiles mentioned herein. Experienced designers will co-operate with every architect and builder fully both in preliminary work and the completed design, giving dependable and unbiased advice and service.



Washington D. C., to Have New Hotel

DESTINED to be one of America's finest hotels, Hotel Walker is now under construction at Connecticut Avenue and De Sales Street, Washington, D. C., at a cost of over \$8,000,000.

The site is midway between the White House and Dupont Circle, in a center of fashionable clubs, embassies and legations, and adjacent to most of the government departments.

The Walker Hotel Corporation, of which Allan E. Walker is president and William L. Browning, secretary and treasurer, owns and will operate the enterprise.

Robert F. Beresford of Washington and Warren and Wetmore of New York are the associate architects.



One of America's Finest Hotels, the Walker, at Washington, D. C., Cost Over \$8,000,000.



November Construction 19% Over Last Year

THE country's building activities continued their lead over last year through November, according to F. W. Dodge Corporation. Total contracts awarded during the month in the thirty-six Eastern states covered by this corporation amounted to \$318,828,000. Although this was a 12 per cent drop from the October figure, in twenty-seven of these states (for which records were kept last year), there was an increase of 19 per cent over last November. As in October, the heaviest increase in construction activity was in New York state and Northern New Jersey, which was the only district showing an increase over October. The recorded figures on building volume in October and November indicate an unusually busy winter for the construction industry.

Included in last month's record were the following important items: \$158,953,000 or 50 per cent, for residential buildings; \$44,457,000 or 14 per cent, for industrial buildings; \$36,237,000 or 11 per cent, for public works and utilities; \$32,594,000 or 10 per cent, for business buildings, and \$24,273,000 or 8 per cent, for educational buildings.

Total construction started in the thirty-six Eastern states during the first eleven months of this year has amounted to \$3,237,068,000. In twenty-seven of these states the lead over the corresponding period of last year is a little more than 3 per cent.

Contemplated new work reported during the month amounted to \$623,704,000, an increase of 10 per cent, over the amount reported in October.



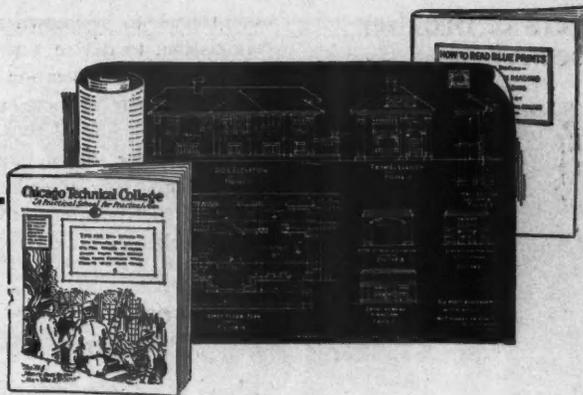
Associated General Contractors to Meet in Chicago

THE fifth anniversary of the Associated General Contractors is to be celebrated at the organization's birthplace, the La Salle Hotel, Chicago, January 21, 22, 23 and 24. More than two thousand men interested in all branches of contracting and related activities are expected to meet.



Chain Belt Company, Milwaukee, Establishes New Western Branch Warehouses

CHAIN BELT COMPANY, Milwaukee, Wis., manufacturers of Rex chain, transmission machinery and conveying equipment, formerly represented on the Pacific Coast by Meese & Gottfried Company, San Francisco, has established direct factory branches and warehouses in Portland and Seattle. Arrangements have also been made with the Washington Machinery Depot, Tacoma, Wash., to carry a large stock of Rex chain and transmission machinery. Other stocks will be placed in important centers throughout the Pacific Northwest for the prompt handling of local requirements.

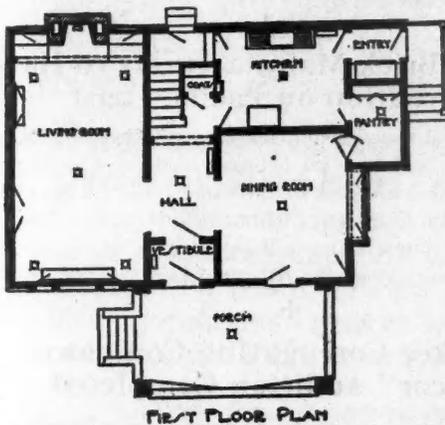


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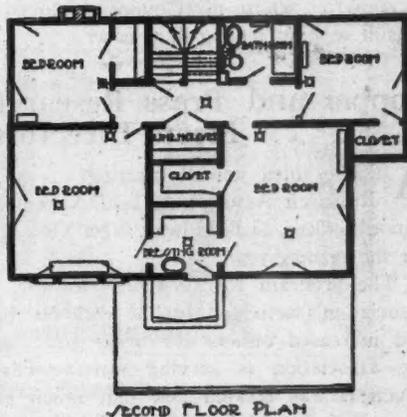
Every man in the building trades—journeymen or apprentice—ought to have these books and blue prints which include a complete lesson in Plan Reading. They are free. Send for them and let them show you how easily you can master the higher branches of your trade in your

spare time at home by the Chicago Tech. method of training by mail. Everywhere are men who once were drawing small pay—now in big jobs or in business for themselves as a result of this training. Find out what it can do for you. Not a penny to send—only the coupon, or a postcard or letter.

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Chicago "Tech" Courses are planned for practical men who want to become better informed on subjects which apply to their daily work. No time is given to "fancy" studies or useless theories.

Plan Reading. How to read a building plan. How to read dimensions. How to read detail drawings. How to lay out work from plans. How to stake out buildings. Practice in reading complete blue print plans from basement to roof, etc., etc. Many complete sets of blue print plans and specifications are furnished to the student.

Estimating. Figuring amount and cost of material. Estimating time and labor. How to figure carpenter work such as stairs, roofing, rafters, etc. Millwork, window and door frames, mouldings, cornices, etc. All about the steel square. Lathing and plastering. Excavating; brick stone, and concrete work. Fireproofing, Glazing, Plumbing, Heating, Wiring, etc., etc.

Superintending. Methods of work on all classes of buildings. Uses and preparation of all kinds of material. Hiring and handling men.

Also Special Courses in Architectural Drafting for Builders taught by practical men. These courses fully explained in Special Catalog "D" sent on request.

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Chicago Technical College,
136 Chicago Tech. Bldg.,
118 E. 26th St., CHICAGO, ILL.

Please send me your Free Books and Blue Prints for men in the Building Trades. Send postpaid to my address below.

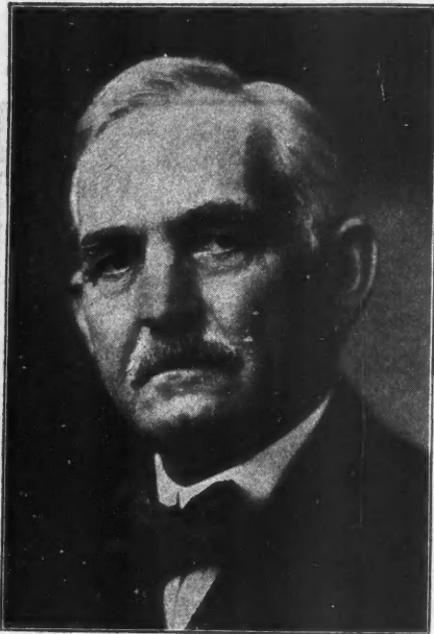
Name

Address

Post Office State.....

Occupation

Founder of F. E. Myers & Brother Company Passes Away



Francis E. Myers, 1849-1923

believed in his home city, and returned to it more than good measure in the shape of endowments for public spirited enterprises. He was an executive who typified the really "big" kind of man, being charitable, kindly and easily approached; an employer whose most minor employee could approach and consult without feeling ill at ease.



Copper and Brass Research Association Elects Directors

AT the third annual meeting of the Copper and Brass Research Association, held November 15th at the association's offices, 25 Broadway, New York, directors were elected for the ensuing year.

"The program for 1924 provides for an extension of the association's activities, in line with our plans to develop new and increased outlets for brass and copper. We feel that the association is serving satisfactorily the purposes for which it was created and that much progress has already been made."



Vocational Education Association Holds Annual Convention in St. Louis

THE tenth annual convention of the Vocational Education Association will be held at the Hotel Chase, St. Louis, January 16th to 19th, inclusive. A very interesting program is being developed by Mr. Wm. J. Bogan, Principal, Lane Technical High School, Chicago, who is chairman of the program committee. Topics on vocational education will be discussed by speakers of national reputation.



Results of Forestry, Reclamation and Home-Making Conference

NOTABLE results marking constructive development of the South in particular, and adding material benefits to the nation as a whole, were achieved by the Forestry, Reclamation and Home-Making Conference held in New Orleans November 19 to 22, inclusive, under auspices of the Southern Pine Association; Mississippi and Florida Development Boards and New Orleans Association of Commerce.

The conference authorized the formation of a permanent

FRANCIS E. MYERS, head of F. E. Myers & Brother Company, Ashland, O., passed away peacefully at his home in that city on Sunday evening, December 2.

He lived to see the little implement shop he started in 1875 grow into one of the greatest pump manufacturing concerns in the world with an old fashioned quality of business forthrightness which has made it an enviable reputation. He

organization to be known as the Southern States Reclamation Association, to devise a program and the means for securing the reclamation, utilization and settlement of the idle, cut-over and "wet" lands in the South, and adopted a series of resolutions which embodied the attitude and sentiment of the delegates regarding the methods and activities and the state and federal legislation considered necessary for successful prosecution of the movement for idle land development. The next annual reclamation conference is to be held in November, 1924.



Twenty-First Annual Meeting of Portland Cement Association

THE twenty-first annual meeting of the Portland Cement Association was held at The Biltmore, New York, November 19th to 21st, inclusive.

The annual election of officers was held on November 21st, with the following results:

F. W. Kelly, Albany, N. Y., was elected president.

Blaine S. Smith, Chicago, first vice-president.

L. R. Burch, New York, second vice-president.

All of these constituted re-elected officers.

John W. Boardman, Detroit, was elected treasurer.

The Portland Cement Association has been carrying on for the past two years or more an educational advertising campaign giving the public a better understanding of some of the problems of cement manufacture.



Lighting Men Meet in Chicago

THE Lighting Equipment Market and Dealers' Convention will open its doors to the industry at Hotel Sherman in Chicago from January 21st to 26th.



Common Brick Manufacturers to Have Convention on Pacific Coast

THREE special trains, two made up at Chicago, and one at Kansas City, will leave on February 2nd for Los Angeles, where the annual convention of the Common Brick Manufacturers' Association of America will be held the week beginning February 11th. These trains will be made up of special cars coming from points along the Atlantic Coast and intermediate stations.



Milwaukee Corrugating Company's "Milcor" Addition Completed

THE Milwaukee Corrugating Company, manufacturers of Milcor Metallic Building Products, has just completed a new addition to their main plant at Milwaukee, Wis. The new addition covers 50,000 square feet.



Leach Company, New Name of Oshkosh Manufacturing Company

THE name of the Oshkosh Manufacturing Company, Oshkosh, Wis., was changed December 1, 1923, to Leach Company, manufacturers of concrete mixers, pavers and builders' saw rigs. It is a change in name only; there is no change in personnel, policies or ownership.



Answers to Roof Framing Problems on Page 125

1. The total rise of a roof with a span of 28 feet and a two-thirds pitch is 18 feet 8 inches.

2. A roof with a rise of 6 feet and a span of 18 feet has a one-third pitch or an 8-inch rise per foot of run.

3. The rise per foot of run of a rafter for a five-eighths pitch roof is 15 inches.

ATLAS FIBRE SIZED BOARD DIP PRIMED



Quality Wall Board at an Attractive Price

YOU can save on initial cost by using **ATLAS BOARD**—the all-purpose wall board. Thousands of home owners are using this efficient material for finishing and remodeling. Dealers everywhere are recommending **ATLAS BOARD** because it fills the bill completely at a money-saving price.

Guaranteed Not to Warp, Crack, Chip or Buckle: **ATLAS BOARD** is made in one of the most modern mills in all America. Unusual care is exercised in maintaining the high quality of this wall board. Every foot is covered with our binding guarantee against warping, cracking, chipping or buckling. Fibre sized and dip primed.

*Write for Literature on ATLAS BOARD,
Prices, etc., Addressing Department 101.*

EMERSON CAREY FIBRE PRODUCTS CO.
Hutchinson, Kansas



Builders: Samples and Folders will be sent postpaid on request. Attractive effects can be obtained with **ATLAS BOARD** at worthwhile savings. Write for particulars and name of nearest dealer handling.

Dealers: You can build a better and more profitable wall board business by pushing **ATLAS BOARD**. Distributors now being appointed make it easy for you to fill your requirements as needed. Write for full particulars and name of Distributor near you.



Distributors: We have an exceptional offer for concerns that can handle **ATLAS BOARD** in car lots. Our co-operative Sales and Advertising Plan is most practical and is helping a large

number of distributors get more than their quota of the wall board business in their territories.

Write at once and let us tell you how we help you get the business. Extensive advertising plans for 1924 will enable a select number of Distributors to cash in on intensive sales effort. Write or wire.

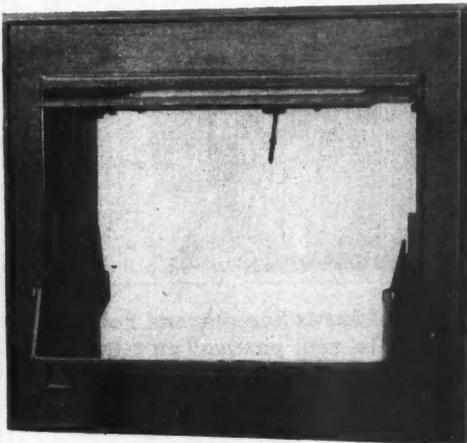
WHAT'S NEW?



EDITOR'S NOTE: *The AMERICAN BUILDER does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address AMERICAN BUILDER Information Exchange, 1827 Prairie Ave., Chicago.*

Why Not This Coal Chute for a Basement Window?

WITHOUT a coal chute the owner who takes pride in his property dreads to have the coal man come. He realizes that every time the coal is put in there is apt to result a splintered, discolored, unsightly basement window frame or broken sash. The architect and builder can plan to have their client's premises clean and free from damage by specifying a coal chute like the one illustrated. It is automatic in operation, and its wire glass panel serves as a window. The glass is very heavy and will not shatter even under a hard blow. It sits in an extra wide frame, giving protection from flying lumps of coal.



A Coal Window, Automatic in Operation, with Wire Glass Panel.

Perhaps an even greater reason for using it is that it is practically burglar-proof. It has a smooth exterior; there are no hinges which can be broken off intentionally or accidentally. Nothing short of the complete destruction of the window coal chute—a hard and noisy job—would enable this automatic coal chute window to be opened from the outside. A strong self-acting catch holds it closed tight, from the inside. An easy pull of the lock chain by anyone inside the basement releases the lock, and raises the chute door to a horizontal position. For greater convenience this lock chain is usually carried through the floor and made operatable from the floor above, eliminating the necessity of going down in the basement. To close the chute one simply releases the lock chain.

The hopper portion of the chute is pushed forward into place with the pull of the lock chain, and the coal can be shoveled and trimmed into place. The device does not cost much, and ought to be put in every home when it is being built.

A Handy, Time-Saving, Gravity Level

EVERY mechanic realizes the value of time. If a certain part of his work can be simplified, and the time required to complete it shortened, he adopts the new method. If he sees an instrument which aids him in doing this, and which has likewise the additional advantage of low cost, he is doubly pleased.

Here is a new and reliable time-saving tool, a level that operates at any angle, which, by the use of a dial and weight-balanced gravity controlled compass, offers welcome help to the user. It gives him instantly calculated, minutely perfect adjustment of all verticals, horizontals and angles.

Absolute accuracy is obtained in every detail. With its hardened brass explanatory dial the user plumbs, levels and finds any angle; it is not affected by heat or climatic conditions, and has no bubble separation or broken glass possibilities. Its double-faced dial makes it easy to read, it is non-breakable, non-bending and non-warping, registers 1 degree to 90 degrees from any given position, and has an aluminum frame which



A Dial and Weight-Balanced Gravity Control Compass Commends This Any-Angle Level to the User.

makes it light and easy to handle.

It can be used by architects, bridge builders, carpenters, contractors, engineers, farmers, millwrights, masons, plumbers, surveyors and any mechanic who finds use for a level. It comes in 12-inch, 24-inch, 28-inch and 42-inch sizes, and the price is reasonable.



Bench Solder Pot with Automatic Electric Heat Control



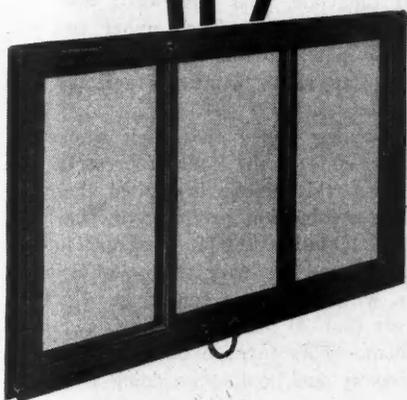
This Bench Solder Pot Melts Solder Quickly and Keeps It at a Uniform Temperature.

THIS solder pot ought to meet with favor among builders and contractors generally, as it melts solder quickly and keeps it at a uniform temperature without requiring attention from workmen.

Babbitt, white metal and wax are poor conductors of heat—in fact, they do not circulate it at all. In order to



All Ten Fenestra Equipped Because—



- They are delivered when I need them
- They can be installed quickly
- They cost little more than wood
- They help sell the houses I build.

(Signed) F. L. St. Amour

These are a few of the outstanding reasons why F. L. St. Amour, Investment Builder, of Detroit, Michigan, used Fenestra Basement Windows on the ten new houses shown above.

In Detroit, the first cost of Fenestra Basement Windows is a trifle more than wood windows, but in many cities, wood actually costs MORE than Fenestra. And this in spite of the fact that Fenestra Windows always come with sash fitted to the frame, hardware attached, and a priming coat of paint already applied. They are quickly obtainable from your local dealer and the special Fenestra fin at the jambs makes them easy to install, a time and money saver for your masons.

Realtors and Investment Builders have found that Fenestra Basement Windows appeal to home owners and that houses with "brighter basements" are easier to sell. Let us send you builder literature.

Fenestra Basement windows made from solid rolled steel bars are manufactured in four sizes:

Number of Lights	Size	To Fit Opening
2	14"x20"	2' 7½"x1' 11¼"
2	16"x24"	2' 11¼"x2' 3¼"
3	10"x12"	2' 9⅝"x1' 3¼"
3	14"x20"	3' 3⅝"x1' 9¼"

DETROIT STEEL PRODUCTS COMPANY, B-2260 E. Grand Boulevard, DETROIT, MICH.

Fenestra

BASEMENT WINDOWS



heat metal uniformly the element must be in direct contact with it at all times, and in this solder pot the heating element is built around the container so that there is even distribution of heat around the side as well as the bottom. Because of this direct heating the temperature can be raised very quickly. Fifteen pounds of babbitt, for instance, can be heated to 600° in 20 minutes through its use. As soon as this temperature is reached the positive working automatic heat control maintains it, and prevents overheating and underheating. The men on the job can stay at productive work instead of heating solder. The pots are made for direct and alternating current circuits, and weigh about 13 lbs. net.



No Great Amount of Technical Knowledge Needed for This Transit-Level

A NEW and improved convertible level and transit combined of unique construction is now being marketed to contractors and builders by a well-known St. Louis supply house.

Its easy convertibility from level to transit, and vice versa, accomplished with lightning-like procedure, is the appealing feature, not to speak of its great precision and accuracy of results.

The accompanying illustrations show how rapidly and easy it is to convert this instrument from a level to a transit and back again.

Simply lift the telescope from the wyes and insert it in the trunnions. When you want to use it again as a level place it back after turning top-side up. This is the only convertible level that can be changed from a level to a transit without unscrewing any parts or removing them from the instrument—thus saving time and avoiding loss of the parts.

You use it for scores of diversified purposes which emphasize its great utility: for leveling foundations, walls, piers, walks, curbing—for running straight lines for fences, trees, streets, drainage ditches—for surveying lots and fields—for plumbing walls, piers, trestles, posts, pillars, etc. No great amount of technical knowledge is needed to accomplish perfect results. With the clear, simple instructions that accompany each instrument and a little practice its use becomes a matter of simple routine.

It comes complete in a handy, handsome, substantial carrying case, made to protect it from injury and add to your convenience in carrying it out on the job. This complete outfit may be purchased on the deferred payment plan if so desired.



Improved Water Softener for Household Use

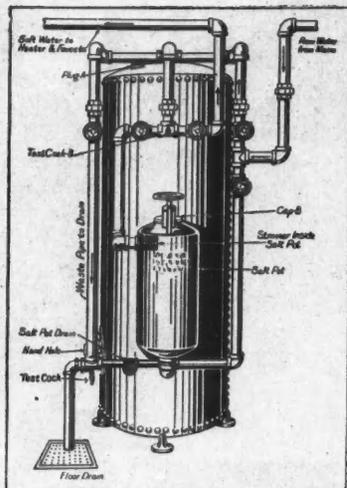
IN every locality where the water is of 10 grains or more hardness, a water softener becomes advisable. In the kitchen soft water is best for drinking and for other purposes. It requires less time to bake and cook fruits and vegetables, and helps retain the natural flavor. It is a pleasure to wash dishes when the water is soft; it cuts the grease, keeps the hands soft, and saves soap.

Soft water adds brilliancy to the hair after a shampoo, beautifies the complexion, and is restful and soothing to tender skin.

In the laundry strong cleaning soaps, washing powders and other injurious chemicals are not needed. The clothes

wash easier and quicker and come from the laundry soft, white and fluffy.

A mechanical softener, which consists of a riveted tank made from boiler flanged steel, suitable valves and fittings, cast-iron salt pot, a strainer system, and the necessary natural mineral for softening hard water, now comes in sizes suitable for household installation. It connects to the water supply line in such a way that the water from the water main passes through the softening mineral bed under pressure, thence direct to the faucets.



A Mechanical Water Softener Which Connects the Water Main and Delivers Soft Water Direct to Faucets.



This Furnace Burns the Gases Otherwise Lost in Smoke

THE fuel gases which escape with smoke are virtually the same as those which gas companies sell at \$1.25 to \$2.00 per thousand cubic feet, and there are from 10,000 to 15,000 cubic feet in every ton of soft coal.

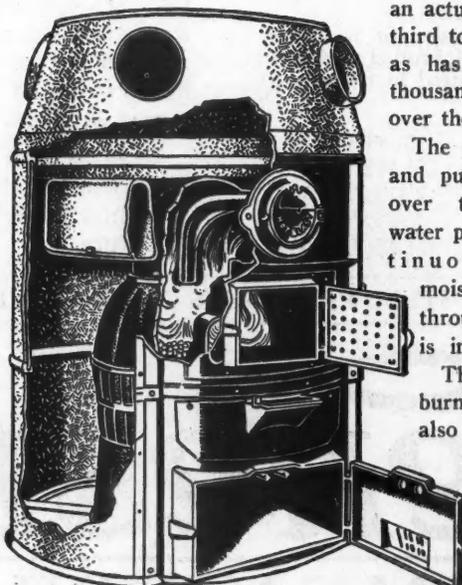
Roll a sheet of stiff paper into a long cone or funnel and stick a piece of wire through the middle for a handle. Set fire to the large end of the cone, held downward, and the black smoke will pour out of the small or upper end of the cone. Now touch your match to this smoke, and it will ignite and burn with a clear white flame. Practically no smoke remains.

The first method of burning, when the black smoke is pouring out of the upper end of the cone, represents incomplete combustion. When this smoke is ignited there is demonstrated the complete combustion produced by the hot blast furnace illustrated. It burns the fuel gases, smoke and soot by mixing superheated air with them and driving them back upon the fire, where they are consumed.

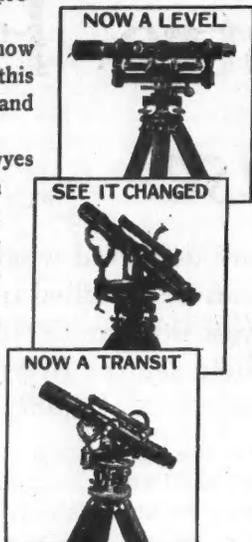
It is a well known fact that 20 pounds of air is required to burn one pound of coal. This furnace burns more air—which is free—and less costly fuel, and by so doing it effects an actual saving of one-third to one-half in fuel, as has been proved in thousands of homes all over the United States.

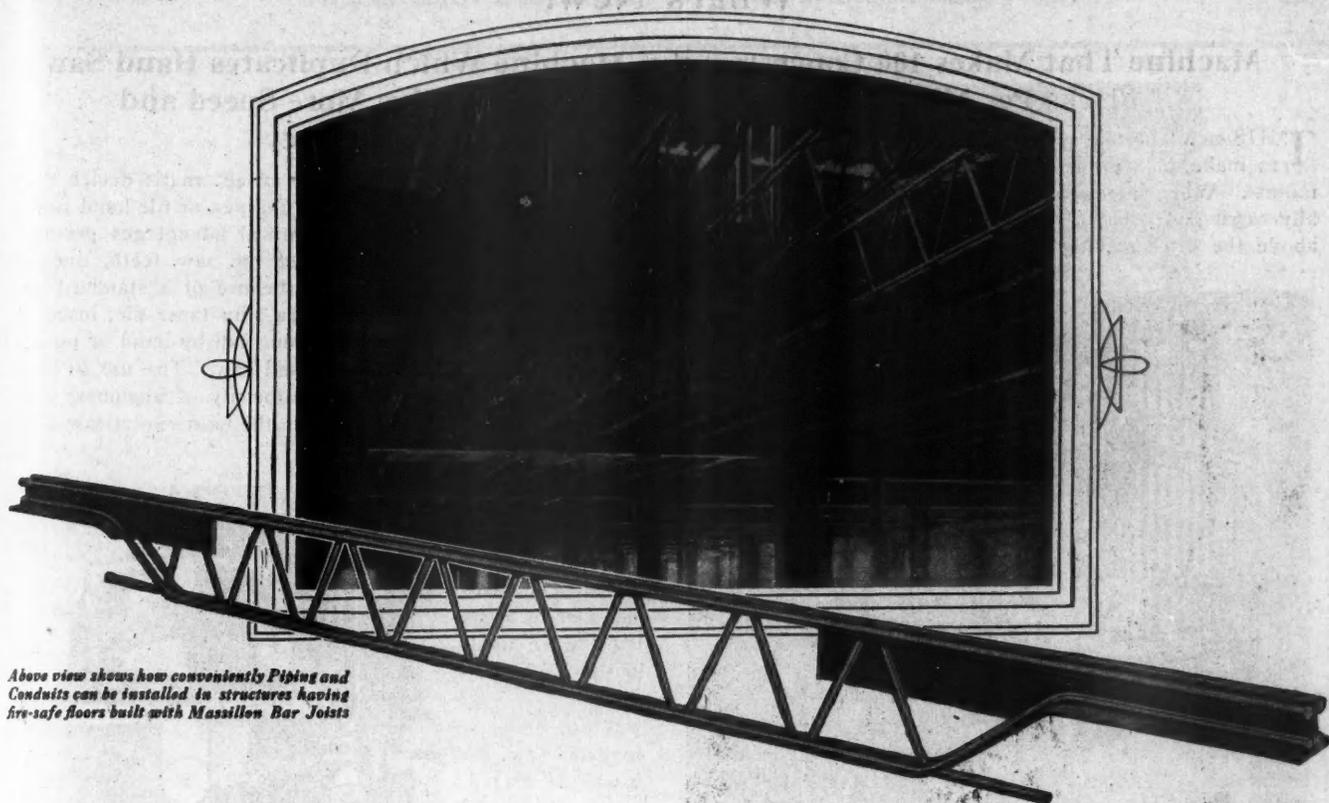
The air is moistened and purified by passing over the extra large water pan, so that a continuous circulation of moist pure warm air through all the rooms is insured.

This heating system burns any fuel. It is also made in single register system, warming the whole house from one register, without any pipes or flues.



Furnace Which Burns the Fuel Gases, Smoke and Soot, After Mixing Them with Superheated Air.





Above view shows how conveniently Piping and Conduits can be installed in structures having fire-safe floors built with Massillon Bar Joists

Bar Joists Facilitate Installation of Piping

Think of a floor construction which provides ample space for running pipes in any direction. Even space over supporting beams. This without suspending the ceiling or raising the floor level.

Massillon Bar Joist Floor Construction provides opportunity for installing piping and conduits in any direction. $2\frac{1}{2}$ " space is also provided above "I" beams and there is ample room along walls and beams for soil pipes to be installed at right angles to the joists.

This means better piping layouts, economy in the amount of material used, and in the labor of installing. In case of trouble all piping and conduits can be reached through

the ceiling without tearing up floors.

Other advantages of Massillon Bar Joists include the elimination of cross bridging and shelf angles on supporting beams. The sections are standard and meet every possible requirement. No cutting is required except where joists extend into outside walls far enough to interfere with face brick. The joists are light in weight, very rugged and easily handled.

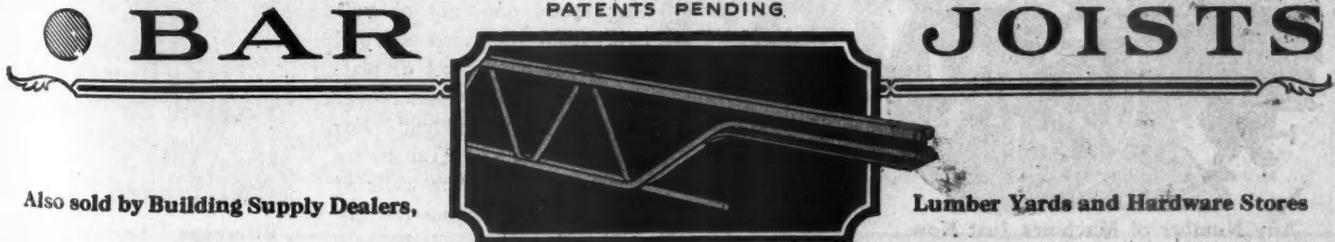
Massillon Bar Joists are sold by thoroughly reliable concerns located in all principal centers. Write us for complete information and safe loading tables.

The Massillon Steel Joist Company
Massillon, Ohio

M A S S I L L O N

PATENTS PENDING

BAR JOISTS

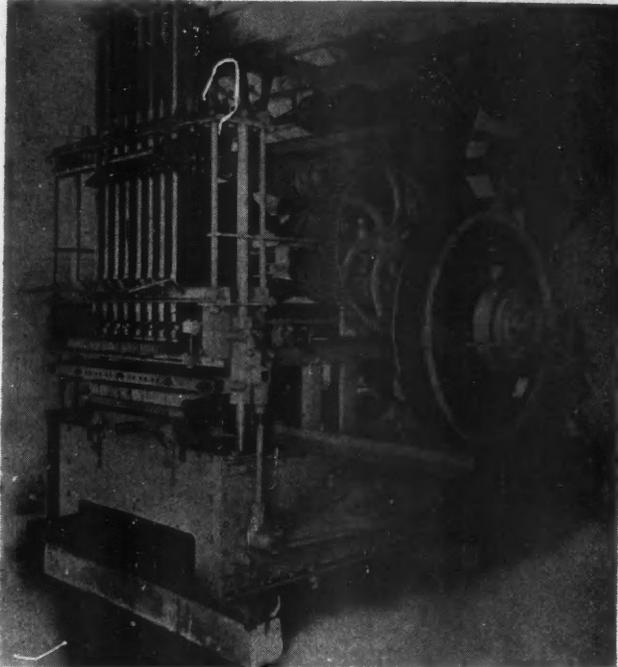


Also sold by Building Supply Dealers,

Lumber Yards and Hardware Stores

Machine That Makes 100 Concrete Bricks Per Minute

THIS new automatic concrete brick machine is designed to make an average of 100 common cement bricks per minute. When in operation, the aggregates are automatically carried to a batch mixer which rests upon a platform above the brick-making machine. The batches are being



A Machine That Turns Out Good Concrete Brick at the Rate of 50,000 Every 24 Hours.

continuously delivered to the brick-making machine which moulds and presses 8 cement bricks simultaneously at each operation. The freshly moulded bricks are placed on self-racking pallets, each pallet holding 8 bricks. The pallets are then stacked up on steel cars of special construction and are taken to the steam curing rooms. The bricks remain in the curing rooms, for hydration, for two days. A machine of this type will produce 50,000 common cement bricks in 24 hours.

New Small Size Gasoline Engine

HERE is a new 2 H. P. size gasoline engine recently added to a standard line to meet specific demand in the industrial field. While the company's ½ H. P. size engine had repeatedly proved that it would exceed its rated horse power by at least 10%, there was still a gap between it and the next size—a 3 H. P. There are a number of machines being marketed at the present time to which a 2 H. P. engine is well adapted—hence this new size.

In common with all the rest of its family, as made by this particular company, this 2 H. P. has high pressure bearings of 80% tin—throughout, malleable iron cam gears, malleable iron governor spindle and weights, grease cup on cam gear pin, clip for supporting oil pipe, extra heavy fly wheels, and Wico high tension magneto.



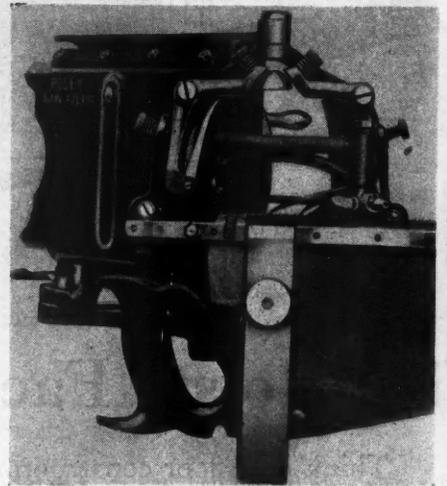
Any Number of Machines Just Now to Which This 2 H.P. Engine Is Well Adapted.

Machine Which Duplicates Hand Saw Filing, Plus More Speed and Accuracy

THE need has long existed for an automatic device that would speedily and accurately sharpen or file hand saws. The device illustrated has mechanical advantages peculiar to itself which automatically feed the saw teeth, one or more at a time as desired. By the use of a standard six or seven inch slim or double extra slim taper file, inserted in the file holder in the machine, one can by hand or power propulsion sharpen the average hand saw. The use of this machine gives the saw teeth a uniformity of alignment and evenness in size and shape that even the most expert saw filer could not duplicate. An additional advantage is that the life and wearing qualities of a file are increased at least 100% when used in the filing machine.

It can be used for band saws as well as hand saws. Since a carpenter and wood worker's time is valuable, the fact that this machines gives him perfectly filed

saws in from 3 to 5 minutes commends it to his purse. It is not high priced, and



This Machine Saves Saw Filing Time and Gives a Finished Job an Expert Would Envy.

is durably made of the best materials.

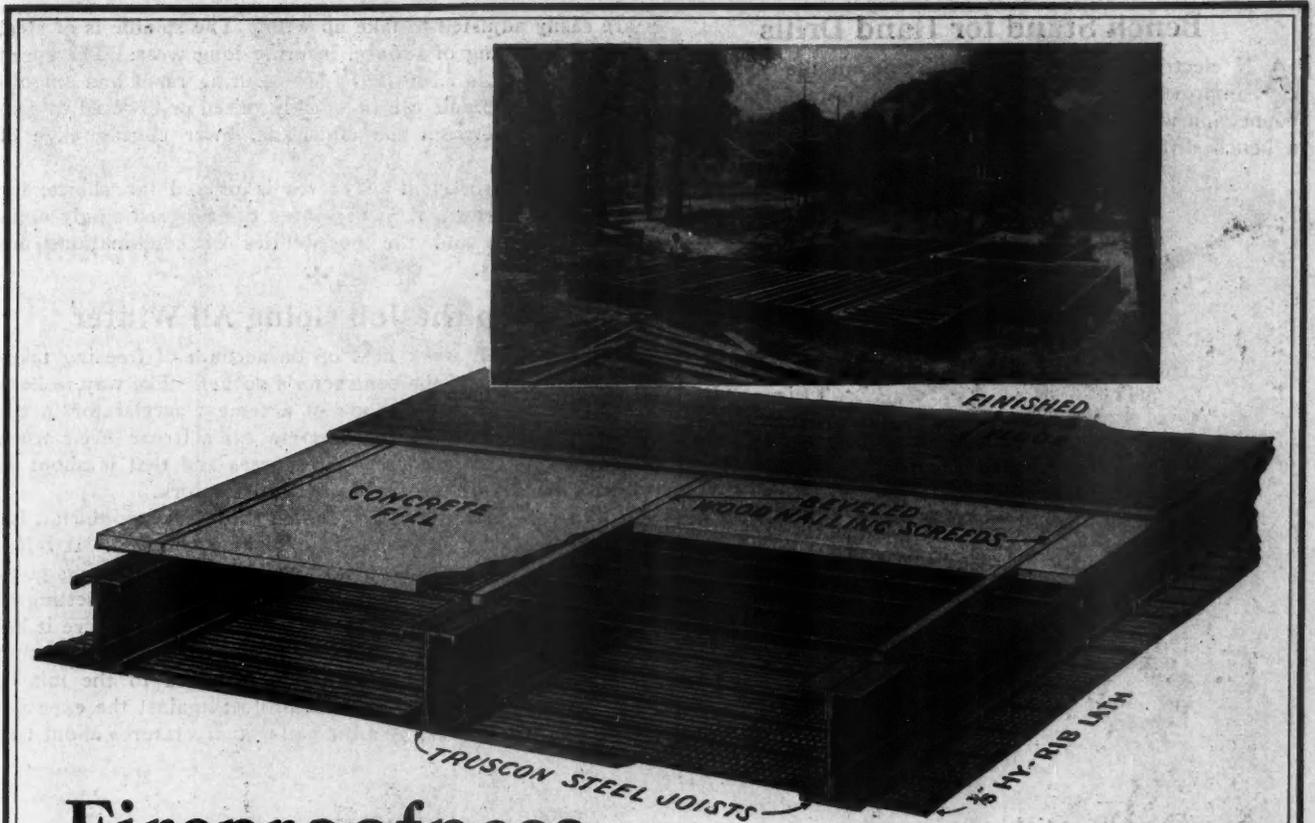
Sliding Down to Safety

MANY architects and builders who have specified this spiral type of fire escape shown below recommend its use with entirely satisfactory results. It consists of a smooth, galvanized spiral slide, enclosed in a cylinder five feet in diameter equipped with automatic entrance and exit doors. The escape is constructed entirely of steel.

For outside installation, it rests on its own foundation, and does not depend on the building for support. It requires a minimum amount of floor space, does not obscure light from the windows, and avoids the ugly effect of platforms and stairs spread over the side of a building. For inside installation it can be incorporated within the walls of the building, avoiding the un-gainly appearance of the step fire escape on the outside wall.



Firescape, Inside of Which Occupants of Building Slide to Safety.



Fireproofness In Its Simplest Form



Truscon Copper Steel Basement Windows are used in modern homes everywhere. They are weathertight, never stick or warp, always open and close easily and are fully equipped with automatic lock and heavy steel hinges. They cost as little as wood and are easier to install.

Truscon Copper Steel Casement is the new popular window that adds charm to the home. They provide enduring beauty and 100 percent ventilation. Fully equipped with heavy hinges, malleable cam locking handle of pleasing design and bronze friction stay. They are priced to fit the most modest pocketbook.



Truscon Steel Joists weigh little more than wood joists and possess many times the strength. Their use with Truscon Hy Rib Metal Lath in buildings of light occupancy provides firesafe floor construction at about half the dead weight of any other recognized types of fireproof floor.

This greatly reduced weight means tremendous economies in the amount of materials to buy, handle, erect, and on which transportation charges must be paid. Such flooring constitutes a saving not only in first cost but in maintenance expense, for it is crackproof, vermin-proof and in every way suited to meet the ideals of modern building.

Truscon Steel Joists mean fireproofness in its simplest form. Truscon Steel Joists are being used throughout the country for office buildings, stores, hotels, apartments, schools and residences. Readily adapted to buildings already planned in wood. Write for Truscon Steel Joist Data Book.

TRUSCON STEEL CO., Youngstown, Ohio

*Warehouses and Offices from Atlantic to Pacific.
For address see 'Phone Book of Principal Cities
Canada: Walkerville, Ont. Export Div.: New York*

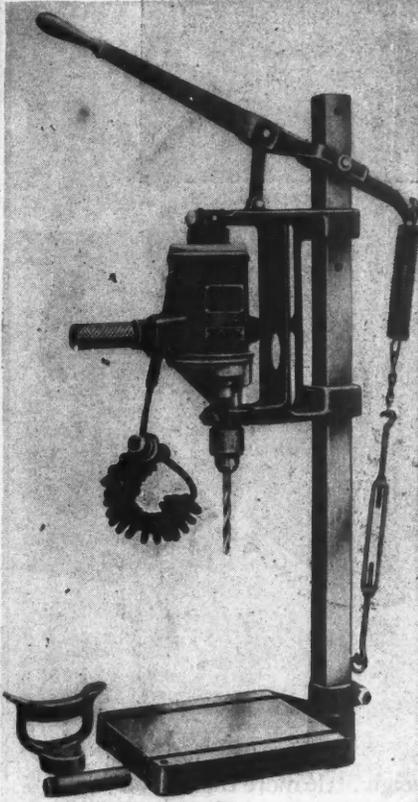
TRUSCON

TRUSCON STEEL CO.

FIREPROOF BUILDING PRODUCTS

Bench Stand for Hand Drills

AN electric tool company is placing on the market an improved, inexpensive type of bench stand for use in connection with portable hand drills. It converts them into a bench drill very easily and is extremely rigid, durable and efficient.



The vertical column is solid steel, $1\frac{3}{4}$ " square. The base is provided with T slots for fastening work on same.

This outfit is made for $\frac{3}{8}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{3}{4}$ and $\frac{7}{8}$ " drills, and they are easily detached by means of brackets, shown in illustration. Brackets can be easily raised or lowered by means of bolt holding lever. The quick return tension can be adjusted to any point desired. The vertical lever is extra long and it gives an extremely high pressure which enables operator to do work very quickly.

Height, bottom of base to top of vertical column, 36".

An Improved Bench Stand Which Makes a Bench Drill Out of a Portable Hand Drill.

- Vertical adjustment of drill, 9".
- Distance of column to center of drill bit, 6".
- Horizontal adjustment, one complete circle, 360°.
- Vertical travel of drill when operated by lever, $4\frac{1}{2}$ ".
- Net weight, 85 lbs.
- Shipping weight, 150 lbs.

This stand is extremely accurate and will be found useful in any shop, whether large or small.



An Electric Bench Former

THIS motor driven former is used for moulding edges on bracket, scroll work, panel work; in fact for various styles of mouldings up to $\frac{7}{8}$ inch. Articles that would otherwise look very plain can be made to possess an appearance of simple elegance by the rapid and perfect work of this machine. It is designed for practical service in the workshops of carpenters, contractors, cabinet makers, manual training schools, and for all woodworkers.

It is well made of good material and workmanship; the mechanical construction is such that bearings and parts



This Bench Former Puts a Nifty Finish on Otherwise Plain Woodwork.

are easily adjusted to take up wear. The spindle is of steel and the bearing of bronze, insuring long wear. The speed of the knives is 3,500 R. P. M., insuring rapid and smooth work. The spindle can be quickly raised or lowered to give $1\frac{3}{4}$ inches between the table and lower cutting edge of the knife.

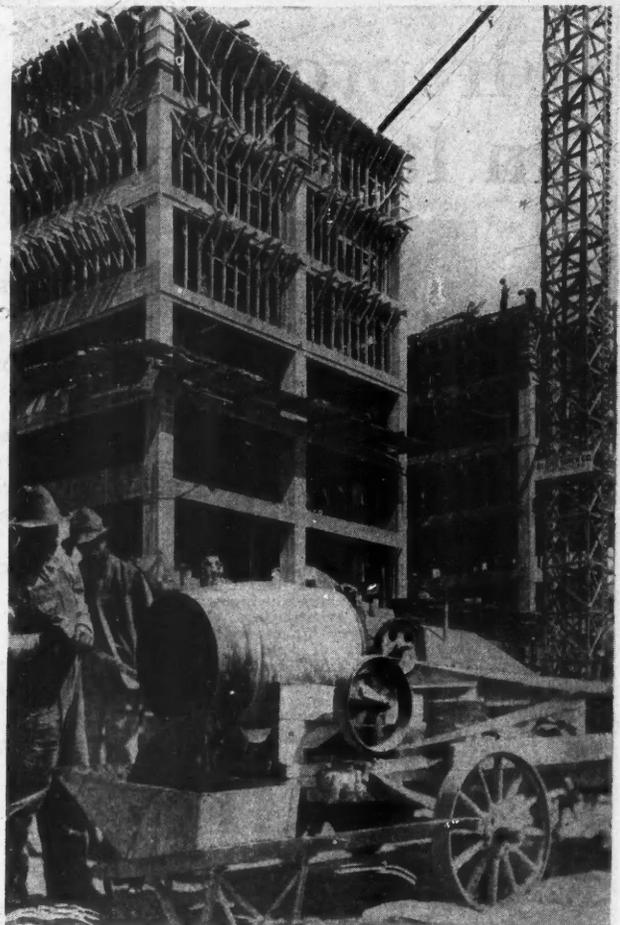
A large assortment of knives is offered for choice, for use with this former. The knives can be used singly or in combinations, and the possibilities of combinations are almost endless.



Keep the Job Going All Winter

CONCRETE work held up on account of freezing takes money out of the contractor's pocket. The way to keep the job going is by the use of a cement accelerator in the mix; its use means the concrete can't freeze even when the thermometer drops to 17 degrees and that is about as low a temperature as it is practical to work.

The cement accelerator is added to the mixing mortar, for brick and stone setting, and for making concrete. It raises the temperature of the mass and lowers the freezing point of the water. At the same time it speeds up the setting of the concrete so there is no danger of freezing before it becomes properly set, even though the temperature should take a big drop over night. It is added to the mixing water in the proper amount to protect against the expected temperature. Thus, by anticipating temperatures about two



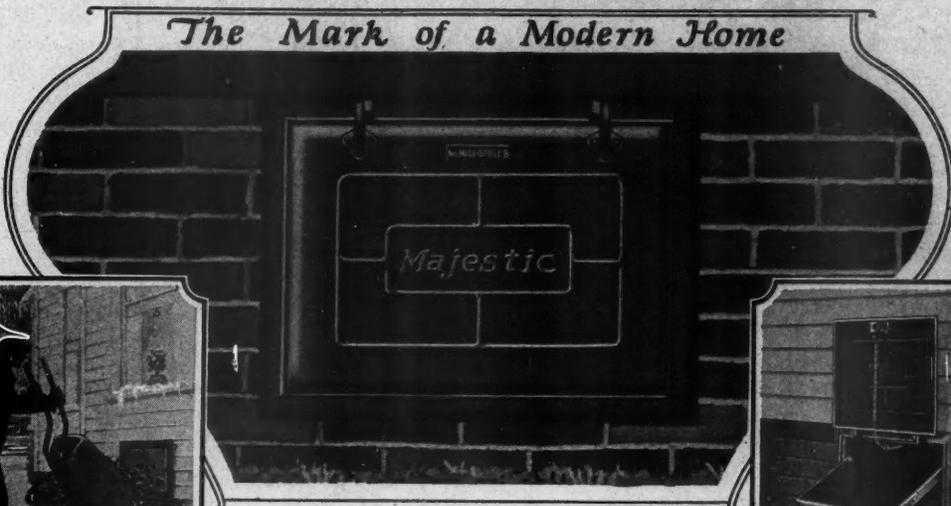
Keep the Big Concrete Job as Well as the Small One Going All Winter by Using Anti-Freezing Compounds in the Mixture.

hours in advance one can always add the right amount of the accelerator to protect the work.

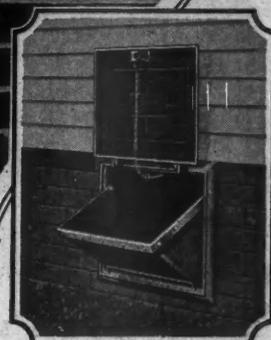
Besides its anti-freeze properties this particular cement accelerator hastens the set, and therefore is usable through the whole year. It sets cement work as hard in two days as ordinary work sets in thirty days. Floors can be laid

Majestic Coal Window

The Mark of a Modern Home



Protects Entire Opening and Side Wall When Coal is Delivered—Affords Greatest Protection ABOVE the Window, Where it is Most Needed—Increases Property Value—Lessens Depreciation—saves Money.



Majestic leads the world in Coal Windows and sets the standard of quality. Majestic Coal Windows are made of Certified Malleable Iron and Keystone Copper Steel—Guaranteed break-proof. They are Superior in quality, design and workmanship at no additional cost.

There are eight different styles of Majestic Coal Windows and Coal Chutes—styles and sizes to meet every requirement in residences, stores, business buildings, apartments, etc. All styles are break-proof—self-locking and burglar-proof. Majestic quality pays you well and costs no more. Write for catalog and prices.



You don't want this!

The ordinary basement window soon looks like the one at the left when used as a coal window. Wall, sash and frame battered, broken and disfigured. The Majestic Coal Window eliminates this.

The door, frame or hinges of the cast iron coal window frequently break under the heavy impact of coal as it is delivered—see illustration at the right. The Majestic Coal Window is break-proof.



Nor this one, either!

THE MAJESTIC COMPANY, HUNTINGTON, INDIANA

Branches and Warehouses, 406 Scarritt Arcade Bldg., Kansas City, Mo.—6024 Grove Ave., Chicago, Ill.
816 Security Bldg., Minneapolis—Westlake Ave. and John St., Seattle—327 Larimer St., Denver
Canadian Factory THE GALT STOVE & FURNACE COMPANY, Ltd., Galt, Ont.

Building Specialties

Underground Garbage Receivers—Package Receivers—Metal Basement Windows—Fire-place Dampers—Ash Dumps—Flue Clean out Doors.

Sold by 5,000

Hardware, Building Supply, & Lumber Dealers Everywhere!

Costs You No More to Have the Best

at the time of pouring arches, forms removed, and floors walked upon. Floor topping can be troweled and finished two hours after pulling up, which means work can be monolithic. The cement topping can require but two hours overtime for the finishes, with the rest of the gang getting a full day.

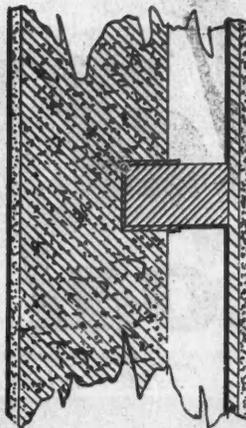


Something New in Concrete Forms

A CHICAGO builder has invented and patented a new type of form for monolithic wall construction, and has also



House Built by New Method of Monolithic Concrete Wall Construction, Using Specially Designed Forms. Above, cross section showing how studding imbeds in concrete.



secured a patent covering the type of monolithic wall results from the use of his specially designed forms.

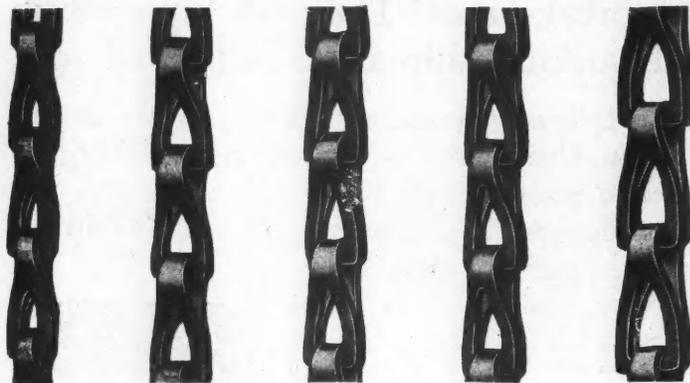
The form structure consists of sheet metal plates, straight corner U-shaped, and the wall studs. The sheet metal plates are nailed to the studs, the studs have their surfaces partly surrounded by the concrete when it is poured, and an outer wall results which has great strength and rigidity, and is of sufficient strength to support any ordinary superstructure which it may be forced to bear.

The sheet metal forms come already equipped with nail holes, and after the concrete has set are removable, and can be used over and over on other jobs.

Any approved method of steel wire or rod reinforcement may be used in connection with the concrete, and waterproofing accomplished by having it integral with the concrete or by having waterproofing material about the imbedded portions of the studs. This helps prevent rotting or deterioration of the wooden posts.

A cross section of the wall is shown herewith, likewise a complete residence in which this method of wall construction was used. The house was stuccoed on the exterior, not because this type of wall makes a stucco finish necessary, but merely to improve it.

American Sash Chain



No. 60 No. 80 No. 100 No. 130 No. 250

No. 60,	for 60	pound	double-hung	Sash
" 80,	" 80	"	"	"
" 100,	" 100	"	"	"
" 130,	" 130	"	"	"
" 250,	" 250	"	"	"

AMERICAN Sash Chain represents the maximum in strength and wearing qualities. It will outwear any other type of sash suspension material and always sustains its load.

We have standardized the sizes of chain to correspond with the weights of sash for which they are intended. This important feature is not the result of haphazard estimates, but of painstaking laboratory investigation.

American Chain Company

INCORPORATED

BRIDGEPORT, CONNECTICUT

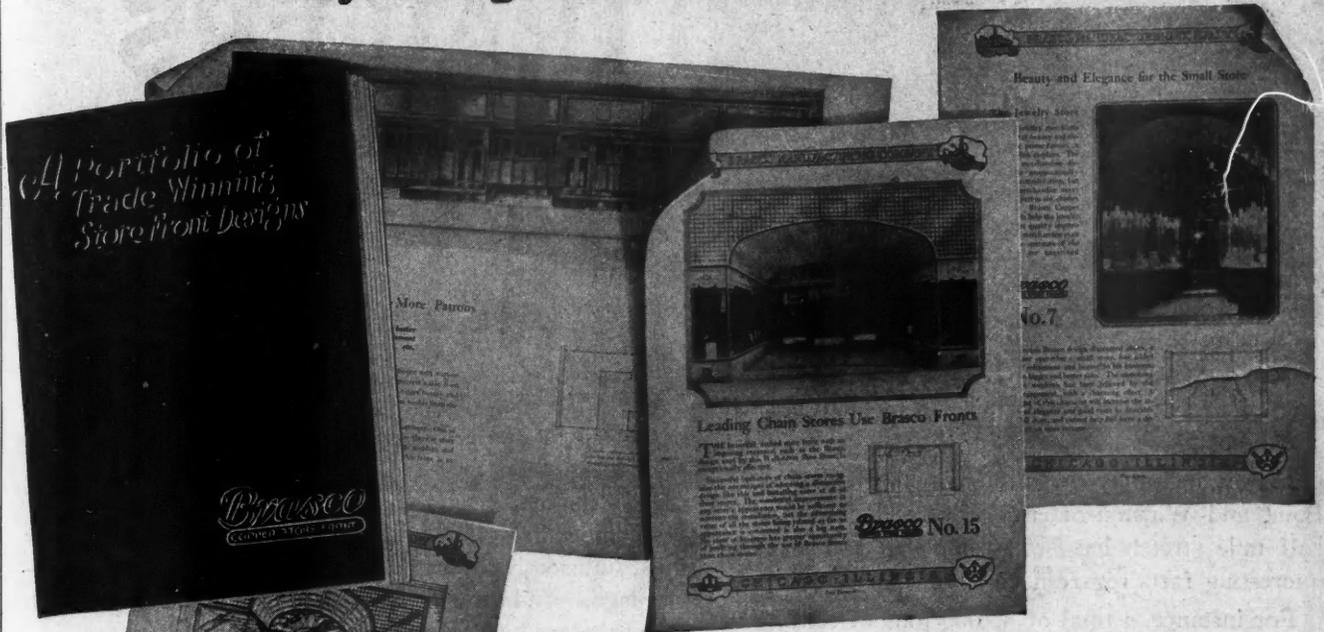
In Canada: Dominion Chain Company, Ltd., Niagara Falls, Ontario

District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco

Largest Manufacturers of Welded and Weldless Chains and Makers of the Famous WEED Automobile Accessories



HOW ONE CONTRACTOR IS PROFITING By Using This Brasco Portfolio



A MIDDLE-WESTERN contractor who sent for this portfolio a month ago, says the unusual store fronts illustrated and the many suggested designs were presented so attractively that he went around one day showing the portfolio to a number of local store-keepers.

The result was two merchants selected a design that struck them as being just the thing, and told him to go ahead installing it at once. Two others obtained prices and promised to order next month.

This Brasco Portfolio of store front ideas will help you bring in some profitable jobs, just as it is helping the contractor mentioned and hundreds of others who have received it. Write at once for this collection of proven creative ideas that will help you on local jobs. Attach the coupon to your letterhead.

BRASCO MANUFACTURING COMPANY
5029 S. Wabash Avenue CHICAGO, ILL.

----- MAIL THIS COUPON -----

Brasco Manufacturing Company
5029 S. Wabash Avenue, Chicago, Ill.

Send me a copy of the Brasco Portfolio of store front ideas to help me secure more new, profitable business.

Brasco
COPPER STORE FRONTS

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

MOTOR TRUCKS and TRAILERS



Hauling Building Material

A ROAD-BUILDING job of far greater than ordinary proportions has recently been completed by the Royer-Ferguson Company between High Point and Winston-Salem, N. C. The ten and one-half mile stretch has been completed and some very interesting facts regarding it have come out.

For instance, a total of 45,000 tons of sand, cement and stone was hauled an average distance of six and one-half miles, at an average repair cost per truck of considerably less than \$3 each, or a total of \$15 for the six trucks. In other words, six trucks hauled road building material 292,500 ton miles at an upkeep cost of \$15 for the entire fleet, an average of 48,750 ton miles per truck at practically no repair cost.

The entire stretch of road was ten and one-half miles long, 18 feet wide, eight inches deep in the center of the bed, and six at the sides.



A Stitch in Time Saves Truck Cost

For want of a nail a horse shoe was lost.
For want of a shoe the horse was lost.
For want of a horse the rider was lost.
For want of a rider the battle was lost.
And all for the want of a horse shoe nail.

THE above was written many years ago. Before motor trucks were dreamed of, in fact, but it illustrates in a rather graphic way what serious damage may result not to look after the little things—to take the stitch in time which saves nine.

Through failure to see that the general's horse had his shoes properly nailed on, the horse was crippled, the rider thrown, and the battle lost because the general was unable to reach his division in time to give the proper directions to his army.

Failure to tighten a nut that be-

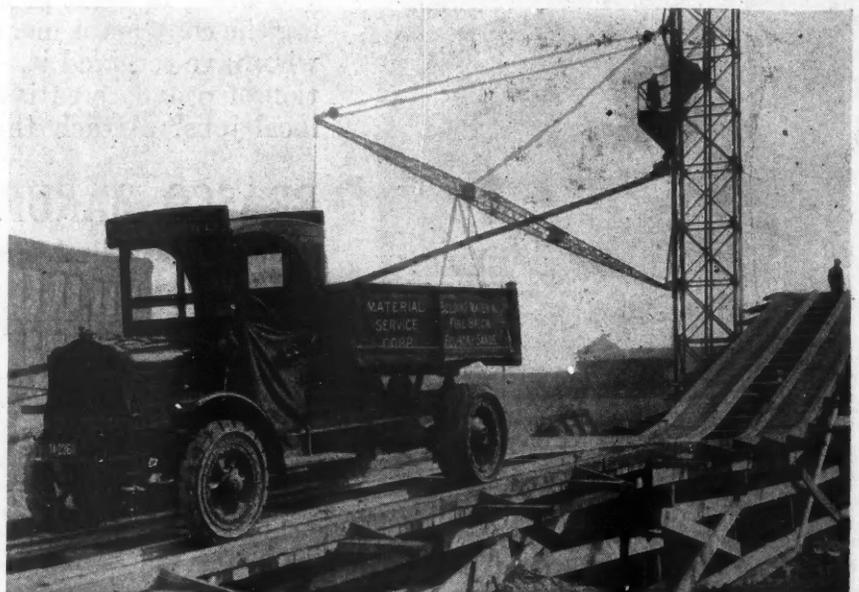
comes loose or to lubricate a dry bearing—just the work of a moment and no expense—may cause a truck to be laid up for several days and cause the loss of hundreds of dollars to the owner.

In the majority of cases the truck will tell the driver of impending trouble—providing, of course, the driver is sufficiently educated to understand the truck language. And he will understand it if he has a desire to get the greatest efficiency out of his truck.

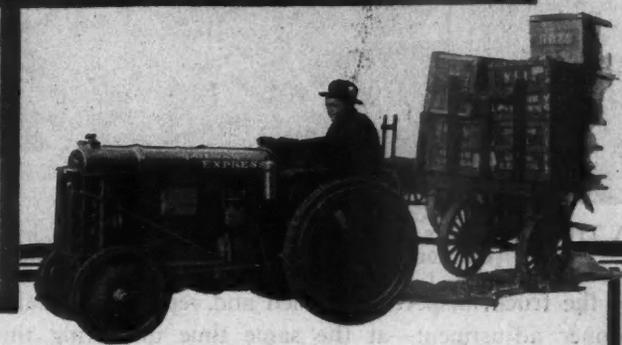
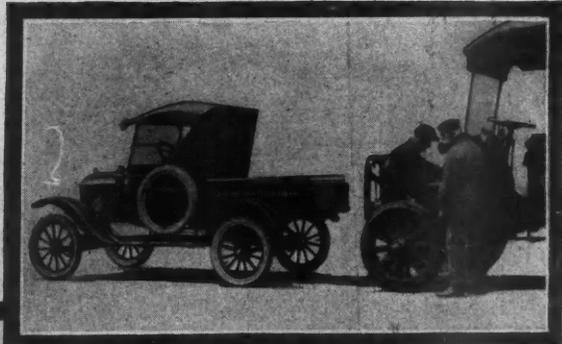
If, for instance, a loose connecting rod is neglected it will wreck the engine sooner or later. But when it gets loose the knocking that always accompanies this condition informs the driver at once that it should receive immediate attention.

The same is true of connecting rod wrist pins and crank shaft bearings. The rear axle should receive occasional attention in regard to the adjustment of the worm shaft differential bearing, and adjusted in accordance with instructions.

The wheel bearings are parts that may cause trouble through lack of attention. The wheels should be removed at certain times, depending upon the capacity



Truck Flexibility Means Getting Around in a Way Which Lessens Construction Motions on the Job. What horses could back up to this hopper?



FORDIZING

the American Railway Express

The experience of Edward E. La-Schum, General Superintendent Motor Vehicle Equipment, American Railway Express Company, in the use of Ford Cars and Trucks and Fordson Tractors is an outstanding example of how a business can be "Fordized".

In hundreds of cities, millions of pounds of express are delivered every day by a fleet of 1200 Ford One-ton Trucks, many of which save their cost every six months over previous haulage equipment.

In large transfer centers Fordson Tractors shunt cars and haul heavily loaded trailers. In the

Polk Street station, Chicago, one Fordson saves in time and labor at the rate of \$4370 a year.

The use of Ford Coupes and Sedans by officials, and of Ford Touring Cars, Roadsters and Coupes by inspectors and repairmen instead of street cars has doubled the efficiency of these men.

Even the payroll is Fordized. A light delivery car traveling through buildings, replaces two pay cages and saves much time.

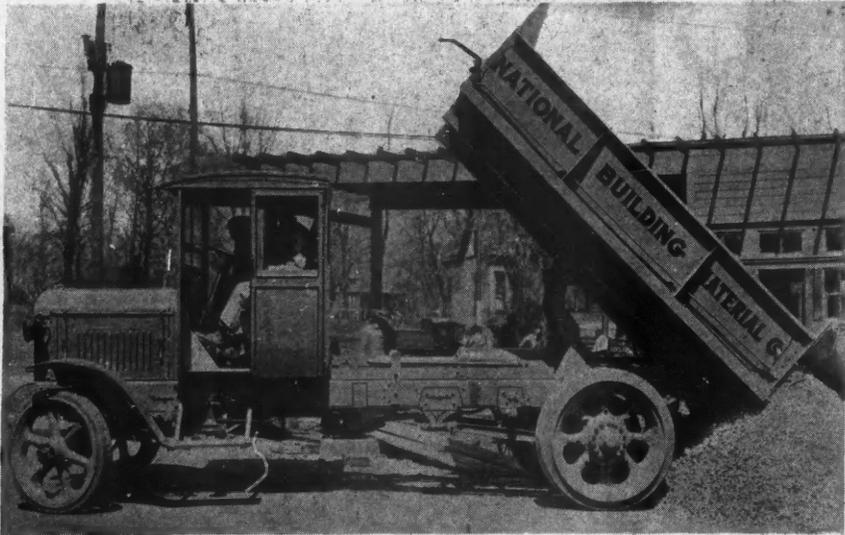
Private and public business alike can be very profitably Fordized. To Fordize is to economize.

Edward E. La-Schum is the author of a new book, "The Motor Truck—Applied Mechanics, for Owners and Drivers"

Ford

Ask any Ford dealer for audited Gould Reports proving these facts.

CARS · TRUCKS · TRACTORS



A Truck Like This Justifies Itself, Not Alone for Quick Transport of Material, but for Speedy Dumping and Turn-Around as Well.

Making a Power Plant Out of a Tractor Unit

WHEN a truck gets mired in muddy excavations the wise builder and contractor doesn't cuss. He simply hitches it on to his portable tractor power unit below or atop the embankment—and the truck comes lifting out of the mire. Like as not the portable tractor power unit is switched back again to its regular stationary work of operating fixed machinery such as hoists and mixers, or is put to work hauling lumber, coal, brick, sand, cement, tools and other equipment to or from the job. In colder localities contractors and builders take

of the truck, inspected, cleaned and replaced with the proper adjustment—at the same time inspecting the brake and axle part.

In fact, a motor truck, like any other expensive machinery, should receive constant attention. A few moments of intelligent inspection daily will add years to the life of a good truck in addition to making it safer and more economical to operate during its entire life.

advantage of its flexibility to sled big timbers to the job, just as in logging districts it is used to sled logs over the snow.

Lumber yards and building material dealers were quick to sense the tractor power and transport unit's suitability for use either as a stationary power plant for permanent or emergency work, and lumber yards especially find it a good, flexible, power unit, which, hitched to the usual saw rig saws 3 to 5,000 feet a day.



Using a Tractor as a Power Unit to Operate a Saw in Lumber Yard. Besides Cutting 3 to 5,000 Feet a Day, Think of the Saving in Lumber Handling This Means. The view is in the yard of the Sterling Lumber and Supply Company, West Pullman, Ill.



How Practical Considerations of Lumber Haulage Are Met by Garford

In supplying a truck to the San Leandro Mill and Lumber Co., of San Leandro, Calif., Garford based its recommendations on a careful consideration of the actual haulage conditions to be met.

The bulkiness of the loads—long lengths of lumber, the balancing and equalizing of weight to obtain the most effective and economical use of power, the simplifying of loading and unloading all were provided for.

A three-roller lumber body, 14 feet long with head board and four binders

is mounted on the chassis with unusually long wheelbase. The load carried consists of about 2,200 feet of lumber.

The satisfaction of the purchasers of this Garford is testimony to the ability of Garford Engineers to "engineer the truck to the job."

Such expert study of your own haulage needs is assured you if you call on Garford. Counsel and recommendations will be made without cost or obligation. Write for further information about Garford activities in lowering costs of building materials.

The Garford Motor Truck Company, Lima, Ohio

Manufacturers of Motor Trucks 1 to 7½ Tons

GARFORD

DEPENDABLE TRANSPORTATION

Prominent Lumber Retailing Organization Holds Annual Convention

THE eighth annual convention of the Peter Kuntz Co. Associate Lumbermen was held at the Miami Hotel, Dayton, Ohio, on Tuesday and Wednesday, Dec. 4 and 5. The meeting, which was attended by about one hundred representatives of the organization, was one of the best in its history. Various matters were brought to the attention of the members and discussed in a most interesting way. The regular program included, apart from the address of welcome by Peter Kuntz, a discussion of the following subjects: "Operating Costs," Horace Ballinger; "Taxes and Fire Adjustments," Martin Kuntz; "Accounting," R. F. Carmel; "Changes in Retail Lumber Business," Peter Kuntz; "Collective Buying," C. K. Sanders; "Insurance," H. M. Gardiner.

"The conditions at the producing end of the lumber industry show the cost of lumber to the consumer very little above the cost of production," said Mr. Kuntz in his address. "This

memorable occasion, and will be highly prized by the recipients.

The newest venture of the Kuntz organization is the incorporation of the Queen City Lumber Co., at Spring Grove Avenue and Winton Place, Cincinnati. This yard will be second in size only to that of the Dayton establishment. The new plant is now under construction, and will be ready for operation in the spring.



"Own Your Home" Campaigns to Be Licensed for Best Results

HEREAFTER all expositions and shows staged to encourage home ownership, throughout the country, when approved by local real estate boards, may then be licensed by the National Association of Real Estate Boards, thereby obtaining stronger co-operation from national manufacturers and increased confidence from the public, states Bartholomew O'Toole, member of the special "Own Your Home" Expositions Committee of the Chicago Real Estate Board.



Peter Kuntz Lumbermen at Bogalusa, La., on Their Southern Inspection Trip of Last Winter

necessarily means a price which is satisfactory to the consumer, provided he takes advantage of the market as it is at present." Touching specifically on the subject of home building, Mr. Kuntz said: "The proper procedure for the home builder to follow is to build within his capacity to pay. If he follows this plan, his home, instead of being a burden, will be a real investment, while furnishing all the pride and comfort of home ownership. I especially urge upon young couples to build within their means."

A luncheon was served at noon each day, and Wednesday evening was devoted to recreation, with theater parties at two of the local playhouses.

A very interesting feature of the meeting, and one which was greatly appreciated by all, was the distribution of a beautifully printed and profusely illustrated booklet, "Chips From the Log of the Peter Kuntz Special," telling in well-written narrative and excellent photographs the story of the southern sawmill trip taken by the organization last winter. This booklet provides a complete record and souvenir of that

Canadian Building Permits

THERE was a slight decline in the value of the building permits issued during October as compared with the preceding month, and the value of anticipated building was also less than in October of last year. Reports were tabulated by the Dominion Bureau of Statistics from fifty-six municipalities which had issued permits to the value of \$9,701,080 in October, 1923, as compared with a total of \$10,485,613 in September, 1923, and of \$10,344,770 in October, 1922. There was, therefore, a decline of \$784,533 or 7.5 per cent in the former comparison and of \$64,000 or 6.2 per cent in the latter.

Forty-seven cities furnished detailed statements showing that they had issued approximately 1,400 permits for dwellings, estimated to cost nearly \$6,200,000, and for over 3,000 other buildings at a proposed cost of approximately \$3,400,000. Since the construction of several buildings is frequently authorized by one permit, the number of buildings to be erected is somewhat larger than the number of permits issued.

Koehring Company Issues Artistic Engrossment, "I Am a Concrete Road"

THE Koehring Company, manufacturers of concrete mixers and other road construction equipment, has caused to be prepared a colored engrossment in praise of good roads. "I Am a Concrete Road," is its title, and its artistic value and the large breadth of vision it breathes should make it prized by highway engineers, and all the other builders and friends of good roads.



Paint and Varnish Production First Half 1923, 32% Increase Over 1922 and 76% Over 1921

STATISTICS issued by the Save the Surface Campaign based on the information collected by the Census Bureau, Department of Commerce, Washington, show that the production of paint and varnish products during the first half of 1923 reduced to pounds was 32% greater than the same period in 1922. There was an increase in volume of 37% in 1922 over 1921.



Production of Portland Cement Again Breaks Record

ACCORDING to figures of the U. S. Geological Survey just released, production of portland cement in September eclipsed all previous records for any single month. For the first time the 13,000,000 mark was reached, the exact quantity produced being 13,109,000 barrels. Production for the nine months ending Sept. 30 was slightly over 101,000,000 barrels, or more than was produced in any full year prior to 1922. Last year's nine months' record output was exceeded by about 24 per cent.

F. L. PAGE,
Statistician.

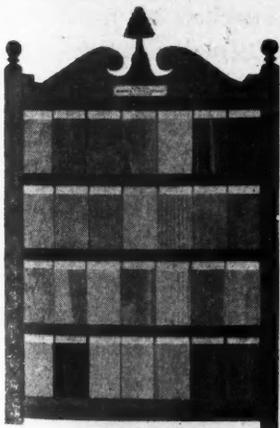


For shipping cement last year, the manufacturers required three-quarters as many cars as were used in moving the country's wheat crop.



Sample Wood Rack Issued by National Lumber Manufacturers Association

THE National Lumber Manufacturers Association, 2017 Conway Building, Chicago, Ill., has made a new collection of thirty-two samples of well-known, commercial American woods. The samples are 2½" wide by 5" long, polished and shellacked, each labeled with the common and botanical name of the wood.



Wood Display Board for Dealers

A rack has been provided which may be obtained in oak and birch. The rack is approximately 19"x32" in size and is in design similar to those colonial mirror frames now so popular. The sides of the frame terminate in turned knobs, while the center is surmounted by a conventionalized pine tree.

The price of the set barely covers the cost of manufacture and has been placed at \$10.00.

Floor Surfacing Contractors Make \$25.00 to \$40.00 a Day



Roy Blasiar, Port Jervis, N. Y.

HERE'S a suggestion to the contractor and builder on how to make big money during the winter months when the contracts are few and far between. Mr. Blasiar is making lots of money surfacing new floors and re-surfacing old ones. During the winter he is busy all the time re-surfacing old floors at fancy prices. He uses the "American Universal" electrically driven floor surfacing machine, which replaces six hand scrapers and does much better work than any hand scraper could possibly do.

Read what he has to say. It's interesting:

"I have had my 'American Universal' floor surfacing machine only a short time now, and my business has been a success right from the very start. Have already surfaced 12,000 square feet of new and old flooring. I'm busy all the time.
"I don't have to do any advertising. The work which the machine does is all the advertising I need.
"To give you an idea of my present income, during last month I made \$300.00 over and above expenses."

Mr. Smith is another fellow who is finding floor surfacing profitable. He makes "\$35.00 to \$45.00 a day—and sometimes even more."



E. A. Smith, West Frankfort, Ill.

According to Mr. Smith, he's kept so darned busy that he'll soon have to get another "American Universal" on the job.

"My 'American Universal' which I bought about a year ago has paid for itself twenty-five to thirty times, and I am well pleased with it.
"It has advanced my wages about four times over what I used to make as a carpenter.
"I now make \$35.00 to \$45.00 per day, and I'm busy every day. During the winter months I have more than I can do re-surfacing old floors.
"I will soon be ready for another machine. I do perfect work with my 'American Universal' machine. The machine advertises itself."

The "American Universal" floor surfacing machine is made in Toledo, Ohio, by the American Floor Surfacing Machine Company, 515 South St. Clair St., Toledo, Ohio. You will find their advertisement on page 139 of this issue.

ELECTRIFY ALL BUILDINGS

A Department of Up-to-date Information
for all who Plan and Build

Our Home Electrical No. 10

Mission Style, the "Last Word" in Home Design, Lends Itself Well, of Course, to Complete Electrification

EDITOR'S NOTE: *The Electrical Section of the AMERICAN BUILDER is written and edited by the experts of the Joint Committee for Business Development, an institution which comprises representatives of contractors, dealers, jobbers, manufacturers and central station organizations. It functions through an Executive Committee and a Headquarters Staff, office 29 West Thirty-ninth street, New York, H. A. Lane, Director.*

OUR Home Electrical No. 10 is a one-story dwelling of the Mission type so popular in California. It is a five-room-and-bathroom dwelling with rooms of goodly size, and when totally equipped electrically will prove to be an ideal abode for a small family.

As one approaches the bungalow he is greeted by a light on the wall to the left of the front door, which is controlled, together with the vestibule light, by a

three-way switch located both on the front wall and in the living room just inside the door. This is a convenience which will be very much appreciated, for it enables one coming home at night to turn on the light in the porch and in the vestibule before entering and to put it out after he has gone inside. Before extinguishing the light he can illuminate the living room and thus is saved from walking about in total darkness.

The living room in this house is of goodly size, 22 feet 6 inches long by 14 feet wide. This calls for illumination of a superior quality which will provide ample light for all purposes. There has been specified a central ceiling fixture controlled by a three-way switch located at points adjacent to the main door and to the entrance to the dining room. In addition there are four side-wall brackets located at intervals around the room. Four duplex convenience outlets provide ample accommodation for a variety of portable lamps and electrical appliances designed for use in such a room. The tea wagon, samovar, waffle iron, or any other household conveniences can be quickly attached by means of these outlets. Duplex outlets have been specified in practically every case rather than the single variety. This is because their original cost is but so little more than that of the single one that it is really worth the difference to put them in. In addition, the householder never knows when he will want to use an appliance of some kind at about the same location where he is now using a portable lamp, and with this arrangement it is an easy matter to use both. A few inches above the mantel, however, there have been



The Living Room of the Home Electrical Has a Central Ceiling Fixture Controlled by a Three-Way Switch; Four Side-Wall Brackets; and Four Duplex Convenience Outlets.

Straus Building, Chicago. Sherarduct Conduit was used. Graham, Anderson, Probst & White, Architects. L. K. Comstock & Co., Electrical Contractors.



—yet the surface won't crack or peel

OF course, *Sherarduct* is a rigid conduit, but the *Sherardizing process anneals it to a degree that makes *Sherarduct* the conduit that may be "cold bent" right on the job—with little effort.

And the heavy, pure zinc coating which is made a part of the pipe will not crack or peel off at the bends, no matter how small the radius.

Over the Sherardized surface is a baked-on coat of acid proof enamel—added protection against corrosion.

Besides its easy bending qualities *Sherarduct* has a smooth, glass-like interior that makes fishing of wires easy.

A small Sherardized copper disc, ground down in center to show alloying of the zinc with the copper will be sent free to Architects and electrical engineers on request.

National Metal Molding Company



WORLD'S LARGEST PRODUCERS OF ELECTRICAL CONDUITS AND FITTINGS



1173 Fulton Building, Pittsburgh, Pa.

Represented in all principal cities

**Alloying of the pure zinc with the steel pipe under intense heat.*

Sherarduct

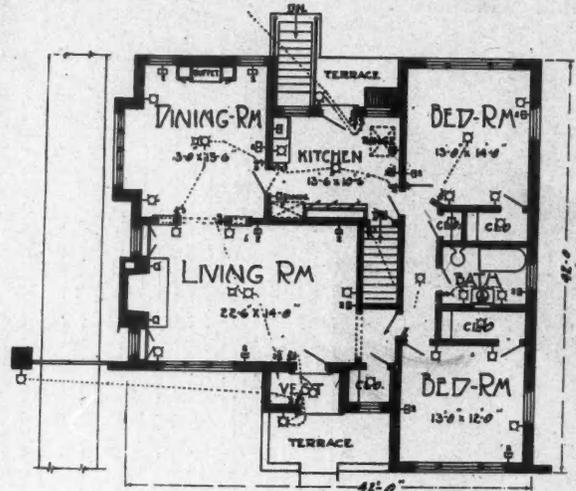
The Rigid Conduit That Bends

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

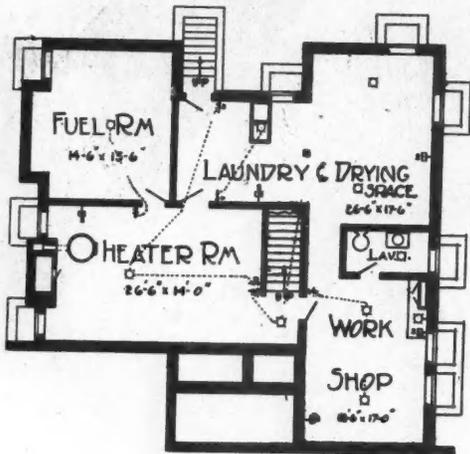
Our Home Electrical *The Tenth*

SYMBOLS

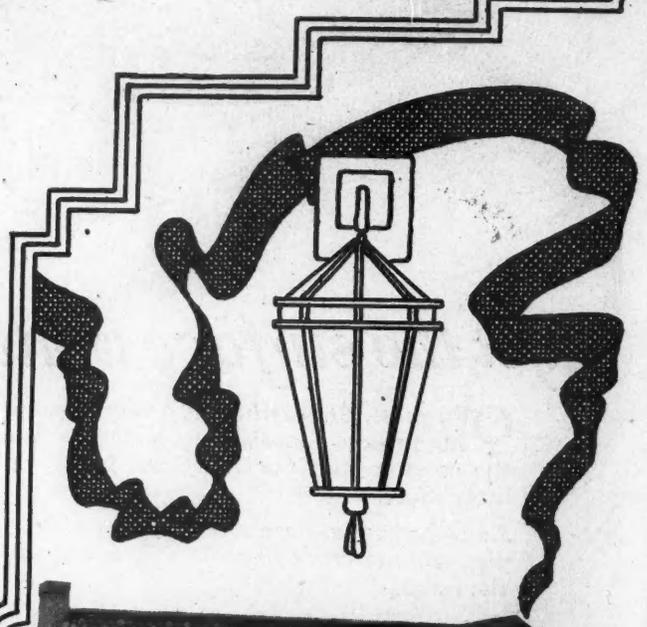
- CEILING OUTLET
- ⊠ BRACKET OUTLET
- ⊞ CONVENIENCE OUTLET
- ⊞ FLOOR RECEPTACLE
- SPECIAL OUTLET
- S- SWITCH



FLOOR PLAN

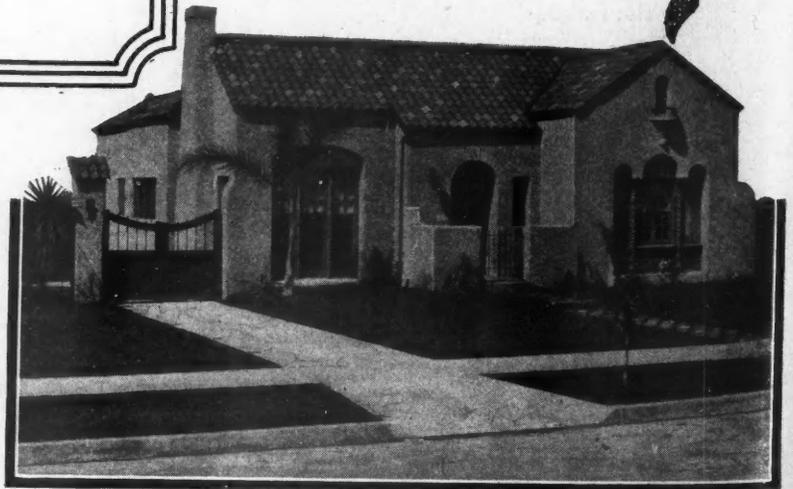


BASEMENT PLAN



indicated two outlets of the single variety. These are designed for use with electric candlesticks, torcheres, or some other attractive form of secondary decorative illumination.

The dining room is lighted from the central ceiling fixture over the table, and two side-wall brackets are indicated on either side of the bay-window. In the dining room there is always a chance to use some of the electric cooking devices which go such a long way toward reliev-



Complete Electrical Installation Makes This Spanish Style Residence a Perfect Home.

Electrify All Buildings

HUBBELL

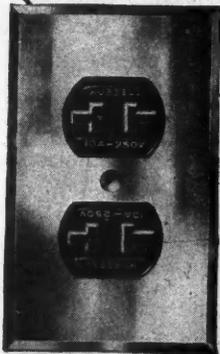


For Offices—
a Duplex Outlet

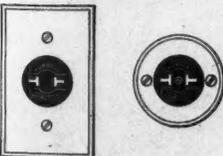
Waist-high—within easy reach—is the place a business-man likes to have a Hubbell Duplex Convenience Outlet, accommodating both desk lamp and dictating machine. He appreciates a a builder's forethought in equipping the office with this double and constantly used convenience.

Hubbell Duplex Outlets provide two-fold service without additional wiring, and are made with shallow bodies for thin partitions. Their double Te-Slots take any standard cap, whether the blades be parallel or tandem.

Our fullest cooperation in advantageously locating outlets in any class of building is gladly extended.



Duplex Convenience Outlet.
 Composition body No. 5890;
 Porcelain body No. 6257.
 Stamped brass finish plate for
 either of above, No. 6258.



Hubbell Convenience Outlets
 are also made in the single
 types shown above, with round
 or rectangular plates.

HARVEY HUBBELL INC
 ELECTRICAL WIRING DEVICES

BRIDGEPORT  CONN. U.S.A.



Remember it's the Te Slots, that make outlets "Convenient"



An Outlet Under the Dining Room Table Provides the Most Efficient Means of Using Cooking Appliances.

ing the drudgery of housework, and the liberal installation of convenience outlets makes this possible. The duplex outlets have been specified at locations where it is most likely that furniture will be placed on which to use these conveniences.

In addition, an outlet has been specified to be placed under the table to provide the most efficient means of using cooking appliances when it is desired to use them on the table. The dining room light is controlled by a three-way switch located in such a way that it can be turned on or off from either the entrance to the living room or to the kitchen.

To the right of the living room is the kitchen, and its main lighting unit of the ceiling variety is operated by a three-way switch. Over the sink has been specified a lighting unit which will be greatly appreciated by the housewife. It enables her to carry on her operations there without the necessity of working in a shadow, which would be the case if the main lighting unit were the only source of illumination. Just above the drainboard or the sink there is located a duplex convenience outlet designed to be operated in conjunction with the various household appliances intended for use in the kitchen. Its position just above the drainboard eliminates the necessity of the housewife doing any stooping or reaching to attach or detach appliances. A single outlet has been specified for use with the electrical refrigerator which is located in a corner near the dining room door. On the other wall of the room a baseboard outlet has been installed to which may be attached a dish-washing machine, ice-cream freezer, or any other appliance which is usually used on the floor. A power outlet has been put in for use with the electric range. Just outside the rear door is located a three-way switch designed to operate the light in the porch, which can be extinguished from that end also.

On the front terrace has been indicated a switch to control a light situated on the post by the garage gates. This is a novelty which should be appealing to the average motorist since sometimes it is difficult to locate the driveway when coming home in the dark.

In the front bedroom the illumination will be provided by three side-wall brackets, there being no ceiling fixture unit. Two duplex convenience outlets furnish means for using portable lamps of various kinds and electrical appliances designed for use in the bedroom.

The bathroom is provided with lights on either side of the mirror over the basin, which are controlled by a wall switch. It is also furnished with two duplex convenience outlets, one located just above the basin and the other in the baseboard on the outer wall. The latter will be found of great convenience when used with a radiant heater to take the chill off the room on cold mornings.

At the top of the cellar stairs is a switch which controls the lights in the heater room in the cellar. Switch-controlled lights are also furnished in the fuel room, laundry and workshop. In addition there are two individually operated fixtures in the drying space, one in the workshop and one in the lavatory. A duplex convenience outlet is located in the heater room and will be found of considerable convenience at odd times. Two are placed in the laundry for use with washing machine and ironing machine, and two in the workshop to operate motors, etc.

Lighting Installation

The light on the front of the house, as can be seen from the photograph, is a lantern type unit designed for just such a purpose. They come in variety of styles and finishes and lend a decidedly pleasing touch to the exterior of the dwelling. The vestibule light may be an enclosing globe-type unit attached close to the ceiling.

In the living room the main unit is a five-light candle-type fixture finished in silver or sand color, with shades of harmonious colors. The four side-wall brackets are the one-candle type, the shade and finish corresponding to the main ceiling unit. The provisions for the use of the table or floor lamps make possible their use for added decorative effect and provide means for localizing of the illumination where it is desired.



In the Front Bedroom the Illumination Is Provided by Three Side-Wall Brackets, There Being No Ceiling Fixture Unit. There are two duplex-convenience outlets.

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For Churches, Hotels, Theatres, Hospitals, Apartment Houses, Residences, Garages, Barns, Ice Houses, Dry Kilns, Factories, Warehouses, Office Buildings, etc. Ideal for Bearing, Foundation and Partition Walls.

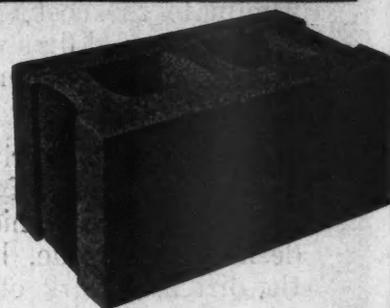
FOR exterior work, which is to receive stucco and for interior walls and partitions, to which the plaster may safely be attached direct without furring and lath, and because of its nail-ability, there is no material on the market which can equal it.

The blocks are uniformly made, are light weight and lay quickly. One standard block displaces twelve bricks and requires less than one-half the mortar. They are *absolutely damp-proof*, fire-proof and soundproof; qualities thoroughly attested in more than five thousand buildings of every description.

On account of their numerous unique properties, resulting in superior walls at reduced costs, Architects, Contractors and Builders say *Straub Cinder Blocks* have revolutionized the building material industry.

Tested and passed with high official rating by National Board of Fire Underwriters' Laboratories.

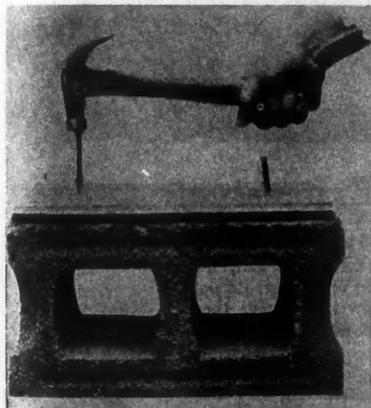
We have 40 plants in successful operation. We invite Architects, Contractors and Builders to visit and inspect our plants. Write for address of plant nearest you. Ask for our complete circular matter, test reports, etc. Your inquiry will be given prompt attention.



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- 9—Does not sweat—therefore requires no furring or lathing. No mold.
- 10—Great Saving in Cost.

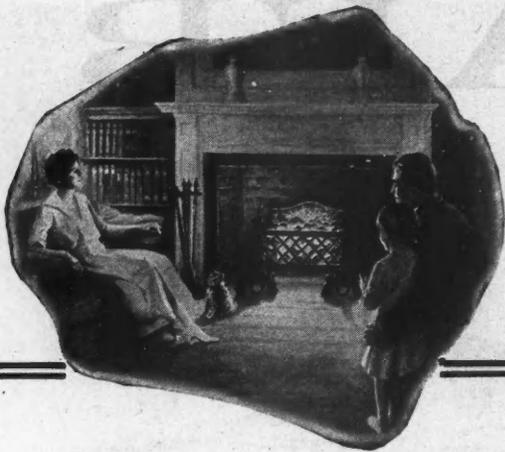


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When You Build Save This Expense

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Do this without depriving yourself or anyone else of that "fire-light happiness" which is the desire of everyone, but which the dirt and work of real fires outweighs.

Magicoal Electric Fire—so like a brightly burning coal fire you can scarcely tell the difference—gives all the pleasure of an open fire at the turn of a switch. For the beautiful lighting effect it operates on the ordinary lighting circuit through an outlet placed in the fireplace. If heat is desired, a heavier wire must be provided.

Send for complete data, regarding installation, heating capacity and styles of grates to harmonize with mantels of any design or period.

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ELECTRIC FIRE

"Firelight Happiness" at the turn of a switch

The dome-type fixture has been selected for use in the dining room. Care should be taken to see that it is correctly hung, that is, in such a manner as to give most of its illumination to the table, some light on the faces of the diners, and a lesser degree of illumination throughout the room. This will result in a diffused light on the faces of those sitting around the table and the intensity will not be too strong. It is now possible to purchase domes made of glass in a wide variety of colors, so it is an easy task to get one that will harmonize with the decorative effect surrounding it, the wall covering, draperies, etc. Two wall brackets are indicated for this room and they are of the two-candle type with finish to match that of the central ceiling fixture, and shades to match the central dome.

Kitchen lighting today has reached a high degree of efficiency. The electrical industry has brought out kitchen lighting units which are satisfactory from every standpoint. They come in several different sizes and shapes, and are so designed as to diffuse the light in a most satisfactory manner. It is interesting at this point to bring out the fact that the housewife of America is rapidly becoming convinced that the workshop of the home should not be neglected in the matter of illumination. There have been held and there are being carried on campaigns in various parts of the country to sell kitchen lighting units, and thousands

Not Expensive!

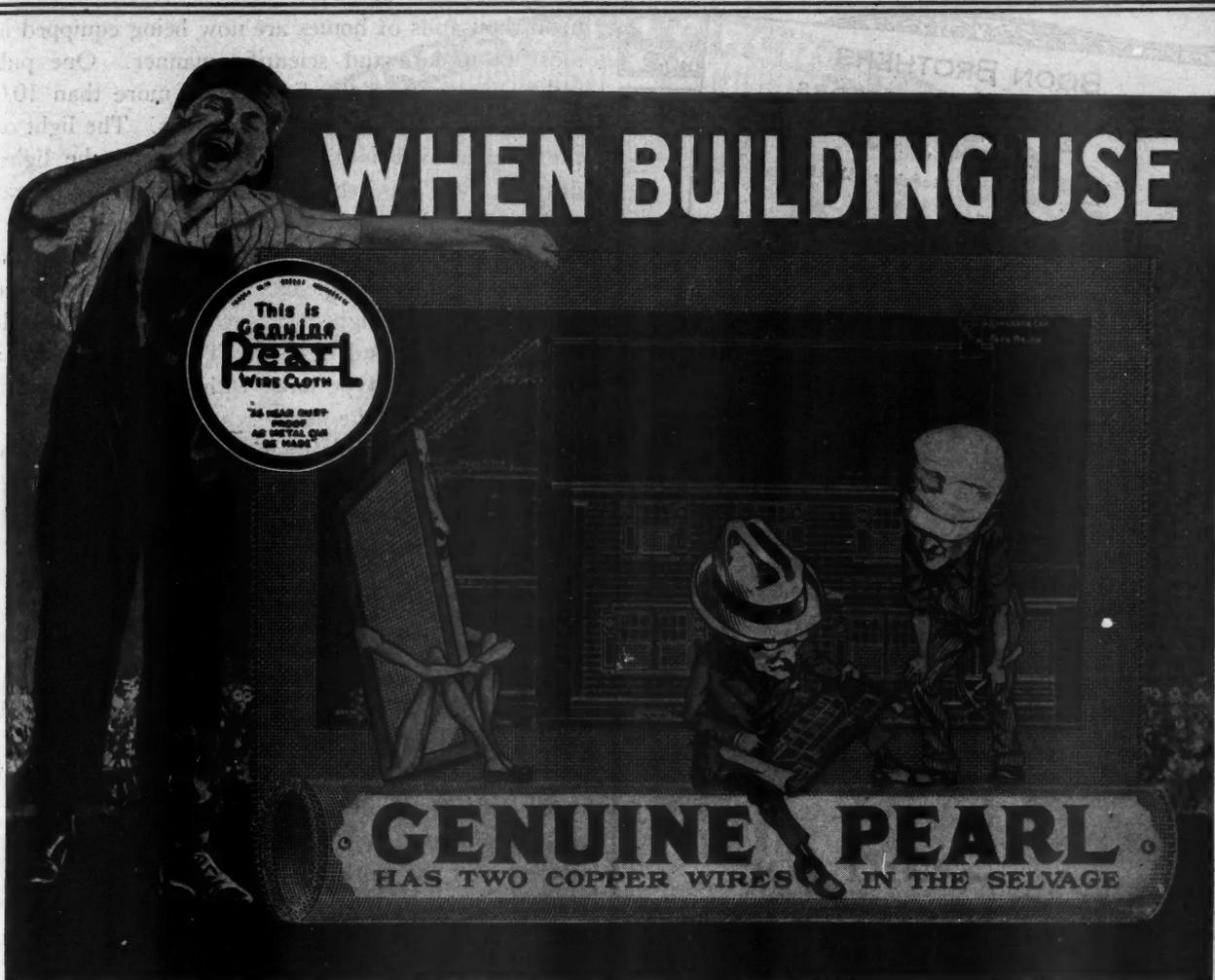
Builders and contractors who aren't installing Emerson Residence Ventilators do not realize how inexpensive they are and how greatly they are appreciated by the owner.

Our engineering department will gladly supply you with all the information you need. Write us today.

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RIGHT now is the best time to make Porch Screens. Screened Porches are money makers for you. Start early and eliminate the loss due to your inability to take work during the busy season. Many right in your neighborhood are in need of them.

The advantages of out-of-door living rooms and sleeping porches protected against germ-carrying insects are recognized by all, and the demand is now universal. No real home is without them.

To assist you in pointing out to your prospect the simplicity of construction and installation of screened porches, we have prepared a Blue Print of a Porch Plan which we will send free.

Recommend PEARL Wire Cloth which lasts longer, does not bag or sag, requires no painting and insures against repairs.

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Our
Porch Plan
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PEARL Comprises these Features:

DURABILITY **ECONOMY** **CLEANLINESS**
BEAUTY and CLEAR VISION

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

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PEARL is made in **REGULAR GRADE** (12 x 13 mesh) and 14, 16, 18, 20, 24 and 30 Mesh also **EXTRA HEAVY GRADE** (14 Mesh only)

The best hardware dealer in your city sells "PEARL"

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BUILDING CONTRACTORS
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December 8th 1923.

Kilmoth Products Corp.,
 50 Union Square,
 New York City.

Gentlemen:

Having used your KILMOTH product for the past year we feel that we should inform you as to its merits and values in the construction of homes.

We have used about 20,000 square feet of KILMOTH red cedar and find that the public place a considerable value on a cedar lined closet when buying a house. After questioning our purchasers who have lived in their homes nearly a year, we find they claim that a KILMOTH lined closet is absolutely worth proof

We honestly believe that KILMOTH has helped us in disposing of 48 houses this year.

Very truly yours,
Jacob Boon



—and for All Construction

Kilmoth has gained favorable comment by the entire home building industry. This one feature in modern construction plays a vital influence in the rental and sale value of the modern home, apartment or apartment hotel.

And never before has Kilmoth aromatic red cedar been available and so practical for all modern construction as it is to-day.

Kilmoth is the genuine aromatic red cedar closet lining. Costs but little more than lath, plaster and baseboard, which may be eliminated. Its pungent aromatic qualities are everlasting. Insist on it.

Kilmoth is adopted in institutions for its sanitary qualities.

KILMOTH
 GENUINE AROMATIC RED CEDAR

Kilmoth Products Corp., 50-A Union Sq., New York
 WE ARE INTERESTED—Please send complete information

I am
 Architect
 Mill & Supply



I am
 Bldg. & Supply
 Lumber Supply

upon thousands of homes are now being equipped in a most up-to-date and scientific manner. One public utility company in the South sold more than 10,000 kitchen units in a period of six weeks. The light over the kitchen sink is a wall bracket, and the light is diffused by a glass shade. It is individually operated and needs to be turned on only when desired.

For the main bedroom as a central ceiling unit there has been selected a single chain pendant fixture of ivory or silver with an eight-inch enclosing globe with delicate color tones and designs. The wall brackets are one-light pendant-type units with their metal parts of the same finish as the main fixture.

The three side-wall brackets in the front bedroom will be a pastel tone enameled or silver with glass shades delicately tinted or decorated.

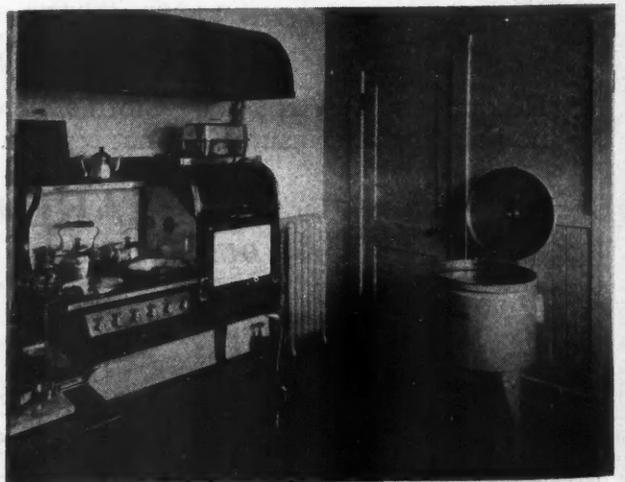
The bathroom lights on either side of the mirror are fixtures which are designed for this particular use and may be of white enamel or nickel plated.

For all closets and the hall lights single chain, brushed-brass pendant-type units with glass shades would be found effective. These are to be operated with pull sockets.

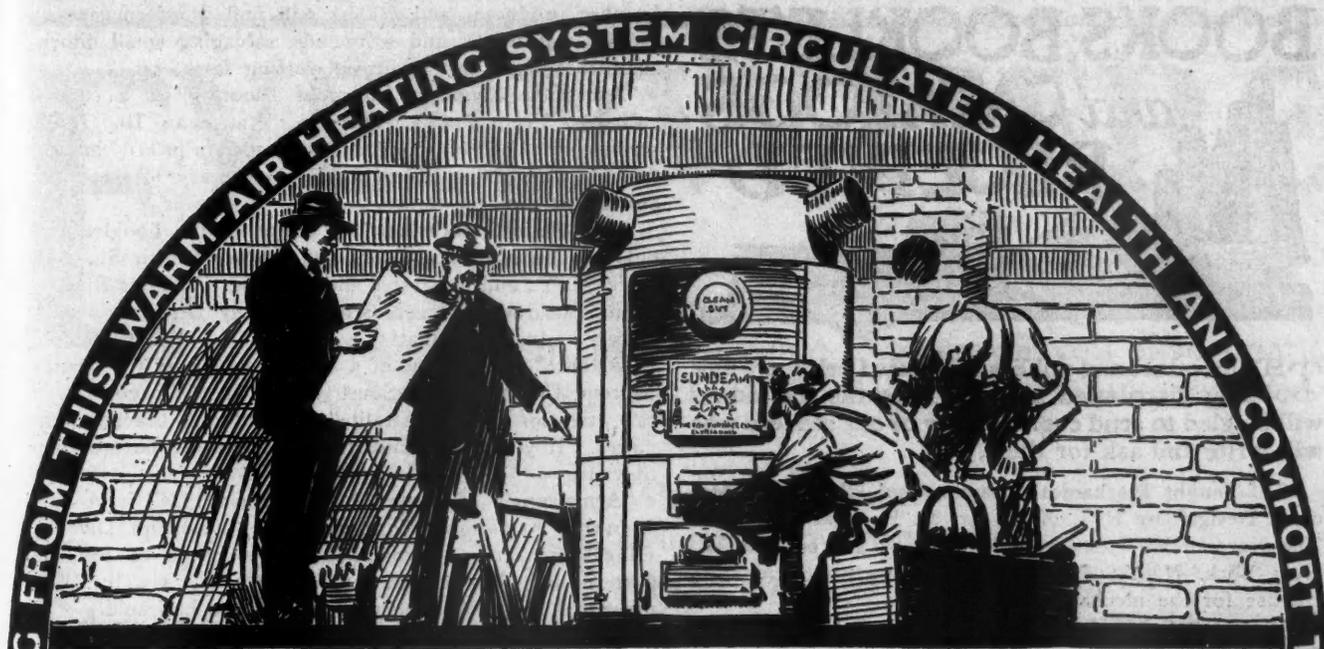
For all the lights in the cellar porcelain enameled steel reflectors will be found most satisfactory for general lighting and can be used in every instance except over the work bench where the reflector should be a deep bowl porcelain enameled steel, equipped with a pull-chain socket. For all units not controlled by a switch pull-chain sockets would be found satisfactory in every respect.

Washing Dishes by Electricity

THE dishwashing bane of the housewife's existence has been eliminated through the introduction of an electric machine which will wash the dishes and dry them at the cost of a few cents a week. All that is necessary now is to scrape the dishes, put them in the rack designed for the purpose, fill the machine with water and turn on the "juice." When the job is completed the dishes will be found perfectly clean and dried, ready to go back on the shelves.



No Dishwashing Drudgery Here. They are placed on rack, sudsy water put in and electric current turned on, to wash and dry.



They'll Help You Sell The Houses You Build

The more comfort and satisfaction you can assure the prospective owner, the more easily you can sell the houses you build. And no item of equipment so thoroughly guarantees comfort and satisfaction as does Sunbeam Warm-Air Heating. First, it assures abundant warmth in the coldest weather; second, thorough ventilation and humidity in the house; third, unusual fuel economy; fourth, minimum repairs and replacements. Every one of these Sunbeam advantages is something any home buyer is vitally interested in and you can make every one of them a strong selling argument.

The high quality of Sunbeam Furnaces will appeal to you and to your prospects. Castings are made of "Sunbeametal"—the perfected furnace iron specially developed to successfully resist year after year the severe conditions to which furnace castings must be subjected. Simple design makes firing easy; over-size air chambers assure abundant warmth and fuel economy.

Sunbeam Furnaces are low in first cost and low in installation cost. They can be obtained easily and set up quickly. Let us send you complete descriptions and the name of a near-by dealer where you can see these modern heating plants.

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BOOKS, BOOKLETS and CATALOGS RECEIVED



THE literature and publications listed below are now being distributed and the concerns mentioned will be glad to send copies to any of our readers who will write and ask for them.

"Self-Taught Mechanical Drawing and Elementary Machine Design" by F. L. Sylvester, M. E., is at hand from The Norman W. Henley Publishing Co., 2 West 45th St., New York, N. Y. Price \$2.50. A practical elementary treatise for the mechanic and draftsman.

"Waterproofing Information Service Bulletins Nos. 1, 2, 3 and 4" are at hand from Gardiner & Lewis, Inc., manufacturers of Waterproofing and Roofing, Tacoma Building, Chicago, Ill. Worth a reading, too, if you are faced with any unusual waterproofing or roofing job.

"Hoffman Gas-Fired Water Heaters" as made by the Hoffman Heater Co., Lorain, O., are fully described and illustrated in this catalog. If you are figuring on any instantaneous automatic water heating installations one of their branch offices and this catalog will help.

"Progress in Factory Lumber Grading Studies" is at hand from the Forest Products Laboratory, Madison, Wis.

Lumber producers and dealers will find it informative on grading hardwoods and softwoods, salvaging small dimension stock, face inspection and cutting facts.

"Asbestone Hygienic Fireproof Flooring" is a catalog issued by Franklyn R. Muller Co., Waukegan, Ill. It describes this highly standardized, medium-priced interior flooring as hygienic, fireproof, resilient, easy to the tread, and of artistic appearance.

"The Perfect Bathroom" is an attractive booklet sent out by The Fairfacts Company, 234 West 14th St., New York, N. Y., and illustrates and describes Fairfacts Built-In China Bathroom Accessories. Certainly a suggestion-full piece of advertising matter.

"Attalite" is the name of a booklet issued by the Central Electric Company, 316 South Wells St., Chicago, Ill., to call attention to its "Attalite" pendant and bracket luminaires. If you are looking for good lighting fixtures here they are.

"Armstrong's Linoleum Pattern Book, 1924" is at hand from the Armstrong Cork Company, Linoleum Division, Lancaster, Penna. Shows as fine a range of linoleum patterns in colors as you can find in a year's walk. Well presented like this, linoleum is more than half sold.

"Flanged Obround Condulets" are made by the Crouse-Hinds Co., Syracuse, N. Y., and a pamphlet describing and illustrating them will help you plan protected electric wiring for exposed and difficult installations.

"Peerless Dome Dampers and Coal Chutes" as made by the Peerless Manufacturing Co., Louisville, Ky., are described with illustrations and blue print sections in a letter-fold obtainable from the manufacturers. Timely, just at this season of the year.

"Thirty-three Years of Progress." It marks the passing of a third of a century in the history of the McCray Refrigerator Co., Kendallville, Ind., does this fine book. If

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**Increased Painting Profits
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The many available "cold weather" painting jobs can be DeVilbiss spray-painted to the same advantage as are the jobs of other seasons.

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"Fulton-Diesel Engines" are described in Catalog No. 805, at hand from the Fulton Iron Works Co., St. Louis, Mo. The Diesel Engine is a prime factor in modern power plant engineering, and this firm's organization is at the service of architects and builders.

"The Inner Wall" is a book issued by The Best Bros. Keene's Cement Co., Medicine Lodge, Kans., and is the story of Best Bros. Keene's Cement, with an outline of its many valuable qualities, range of usefulness and advantages to builders.

"Anchor Concrete Machinery" is described in folder at hand from the Anchor Concrete Machinery Co., 530 Dublin Ave., Columbus, O. Good suggestions herein for the maker and intending manufacturer of concrete products.

"Some Tests of Hollow Tile Walls" is a book published by the Bureau of Standards, Department of Commerce, and obtainable from the Supt. of Documents, Government Printing Office, Washington, D. C., for 5 cents. Gives results of 32 tests on walls of hollow tile.

"The New and Perfected Gravity Level" is a folder, issued by the Union Gravity Level Co., Sioux City, Ia., and tells how the ordinary spirit level has been improved upon, making this gravity level greatly liked by masons, cement workers and carpenters.

"Design of Concrete Structures" by L. C. Urquhart and C. E. O'Rourke, published by McGraw-Hill Book Co., 370 Seventh Ave., New York, N. Y. Price \$4.00. A textbook on the fundamentals of concrete and reinforced concrete, with designs of important structures.

"American Society for Testing Materials, Tentative Standards, 1923." Price \$7.00 in paper binding; \$8 in cloth. Obtainable from the American Society for Testing Mate-

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Cleveland, Ohio, Nov. 9

ALLMETAL Weatherstrip Co.,
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Gentlemen:

So far this season I have not done any advertising but I have been kept busy all the time. I am writing contracts way ahead and have a great many satisfied customers. It is impossible for me to handle any more business at present until I can get hold of some men. I just wish you could see the list I have made out for this Sunday to call on people that have called me on the telephone this week. Most of these people live in Cleveland's finest homes on the Heights.

I want to take this occasion to thank you for the interest you have taken in me and your wonderful service. I certainly am making more money now than I ever did before in my life. It is a grand feeling to be your own boss, and not to be working for some one else.

Yours respectfully,
ED. WINTERING.

Mr. Wintering is only one of a vast number of energetic builders who are making big profits installing



Allmetal Weatherstrip

The field is large and we want more men to join in this profitable business. Allmetal Weatherstrip is easy to sell and easy to install. You make one profit on the sale and another on the installation. Write us for complete information on this money making proposition.

SEND THIS COUPON

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Gentlemen:

Please send to me, without obligation, complete literature and selling plan of your proposition.

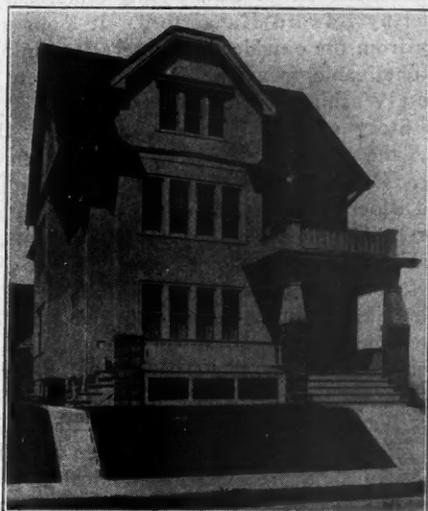
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You have the double assurance of an unexcelled record for

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If you seek the reasons for the acknowledged quality of ASBESTONE, you will find them in the care used in selection of each ingredient and the daily laboratory control of every lot shipped out of our plant. You will find reasons in the service we have maintained during our 17 years of manufacturing; and in the long record of successes; in the satisfaction that thousands of contractors have found in the use of ASBESTONE.

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Hardware
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A fireless cooker keeps hot because it holds the heat. It cooks foods with only a fraction of the heat required in a stove, because that heat cannot escape.

Cabot's Insulating "QUILT"

keeps your whole house warm in the same way. It holds the heat of your heater by insulation. It saves coal enough to pay for itself in two hard winters, besides keeping the house warm and comfortable for all time and reducing doctor's bills. "Build warm houses; it is cheaper than heating cold ones."

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rials, 1315 Spruce St., Philadelphia, Pa. Invaluable for the man interested in engineering materials.

"The C. P. M. Gravity Level" is described and illustrated in a folder at hand from the Union Gravity Level Company, Sioux City, Ia. An aluminum tool, positive and accurate, which the carpenter and builder will want to read about and get into his kit or tool chest.

"The Wright Rubber Tile" is the two-way title of a very interesting folder describing the new Wright rubber tile for floors and stair treads. The tile patterns simulate grained marbles and flat colors, and the maker is the Wright Rubber Products Co., Racine, Wis.

"Observations on an Outstanding American Industry" is a booklet by Edward Hungerford. It looks at the cement industry from the outside in an interesting informative way, and is obtainable from the Portland Cement Association, 111 West Washington St., Chicago, Ill.

"The Story of Oak Floors" shows forth the character, dignity, and charm inherent in oak as correct modern flooring. Obtainable from the Oak Flooring Bureau, 1014 Ashland Block, Chicago, Ill.

"Stair Builder's Guide," by Morris Williams, is published by the U. P. C. Book Company, 239 West 39th St., New York, N. Y. The price is \$2.50. This book embraces all required information necessary to enable the carpenter to master the science of stair-building.

"Jobbing Work for the Carpenter, Builder and Handy Man" came in from the U. P. C. Book Company, 239 West 39th St., New York, N. Y. It is priced at \$2.50, and the author, Edward H. Crussell, has written and illustrated this so well it will be appreciated by practical men.

"New Model Crescent Universal Woodworker" is described and illustrated in a bulletin at hand from the Crescent Machine Company, Leetonia, Ohio. This is standard equipment in many of the better woodworking shops throughout the world.

"Myers Self-Oiling Bulldozer Power Pumps and Working Heads" are described and illustrated in a very attractive catalog at hand from the F. E. Myers & Bro. Co., Ashland, Ohio. Worth having wherever water is used in sufficient volume to justify a power pump.

"The Master Woodworker" as made by the Master Woodworker Manufacturing Company, Detroit, Mich., is described and illustrated in a catalog from the company. It rips lumber, bores, miters, dados, rabbets, planes, makes jack rafters, fire cuts, stair strings, etc.

"Long-Bell Building News" is the name of a newsy house organ published by The Long-Bell Lumber Company, R. A. Long Building, Kansas City, Mo. Carpenters and builders would like to get this monthly, we feel sure. It contains good stuff, interestingly told.

"Vacuum Cleaning Data for Architects and Engineers" is a splendid book for one's work desk. It is published by the United Electric Company, Canton, O., and meets the long-felt need for a ready reference work on this important phase of structural installation and upkeep.

"Hall's Handbook of Business Correspondence" will give you that kind of business letter information which the busy man needs. Tells how to make your letters bring in business and the money therefor. Published by McGraw-Hill Book Co., 370 Seventh Ave., New York. Price \$5.00.

"Duro Household Water Softener" is the title of the bulletin the Duro Pump & Mfg. Co., Dayton, O., have issued to describe this new household convenience just added to their well known line. Softens hard water mechanically.

"The Stage Coach Road from Hartford to Litchfield," with introductory text by Augustus Pindar, is Vol. IX, No. 5, of the White Pine Series of Architectural Monographs, and is obtainable from the White Pine Bureau, St. Paul, Minn.