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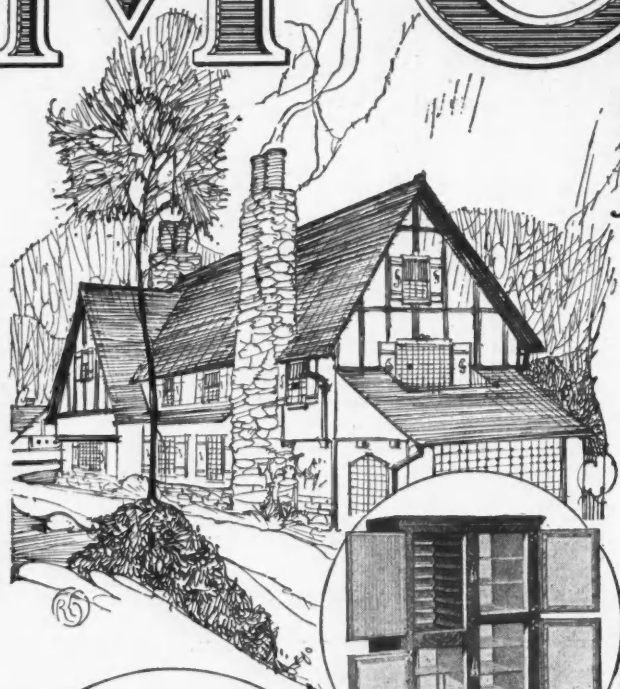
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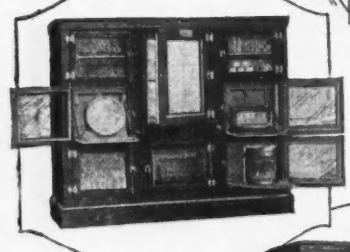
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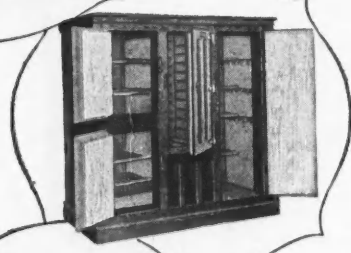
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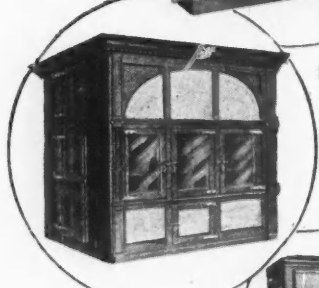
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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Short Talks by the Editor



New Features in Art Insert

WELL, we are coming back at you this month with Home No. 2 on the Street of Beautiful Homes. We hope you liked the first one and that this one will appeal to you. We want to hear your opinions on this big undertaking. Don't be bashful—write us frankly and let us know how you stand. You are the men who are out in the front line trenches putting the big "Own Your Own Home" idea across and you know what the best ammunition is. There are plenty of duds in every business but we are trying to furnish something that has the convincing results of a Big Bertha.

Furthermore, we are offering something this month, something entirely new in the way of information that should prove of great assistance to you. We have engaged experts to write articles on interior decorating and furnishing. With this data at your finger tips you can talk with convincing effect to the woman of the family—who has become the important factor in home planning.

Don't overlook the housewife! You know the old saying about the "hand that rocks the cradle rules the world." Well, each day the truth of it becomes more apparent. The housewife has gotten away from the idea that all she had to do in the planning of a home was the work after it was completed. No, sir! Now she is one of the guiding spirits and sits in at all discussions. She will be interested in these articles on interior arrangement—coupled up with the picture of the house itself—they make a powerful selling appeal. Try it out and let us know how it works.

"I HOPE the street you have selected is a long one so that it requires many such beautiful Art Inserts to complete it," writes Mr. C. H. Lindberg, carpenter and builder at Warren, Minn. He likes the idea and, better yet, he took the time to write and tell us about it.

Continuing, Mr. Lindberg writes:

"You can be sure that in my case they will be well preserved, and I hope the expense of producing them will not be bigger than what you anticipated and prevent you from continuing them."

Don't worry over the expense, Mr. Lindberg. That is the last thought in our mind. If the idea

is worth while, we shall gladly spend the money. That is what we have always done. Disregarded expense to get the idea across so that our readers will directly benefit from it.

We appreciate letters like the one from Mr. Lindberg because it shows real interest and genuine cooperation, and you know we are only human.

We want the people in this country to have enough homes to house every one comfortably. We want to remove the feeling of insecurity and dread that hovers over thousands of rent-payers today. And thru you builders we hope to see these ambitions realized. We believe these Art Inserts in colors and these enlightening articles on how the home should be furnished will provide the stimulus that is needed to fan the smoldering spark in thousands of breasts into a real flame of determination to go ahead now and build that home that is uppermost in so many minds.



Effective Remedial Legislation Aids Building

THE average American views with a feeling akin to alarm any legislation which deviates from conservative principles, but in some instances laws which appear rather drastic have proved effective in face of a crisis. Such is the case of the "new building exempt" law recently passed by the boroughs of Greater New York. This ordinance provides for the exemption of taxes on value up to \$5,000 for a period of ten years on all new buildings erected during the year of 1921. Within two weeks after this measure became law, the effect was most pronounced.

There was an increase of more than 61 per cent in building permits as compared to the same period a year ago. These figures indicate that a real building boom is under way. The significant feature of this renewed activity is the fact that over two-thirds of the permits call for individual homes. Under this law the saving in cost practically amounts to 30 per cent, when it is considered that the tax exemption extends over a period of ten years with the tax rate at 3 cents on the dollar. This saving insures the builder against a possible decline in building prices later on.



Western Bungalow Shown in Colors

HOME NO. 2 IN ART INSERT SERIES—COZY LITTLE HOME OF FIVE ROOMS

VERY appropriately the bungalow has been called the "enfant terrible" of American architecture. Its history is so recent that it can be included in the wonders of the twentieth century. An offspring of the sunny Pacific coast, it grew so rapidly among the orange groves and grape-vined slopes of Southern California that it soon reached out and obtained a stronghold on other sections of the country. Its popularity spread rapidly to the East and today it is found

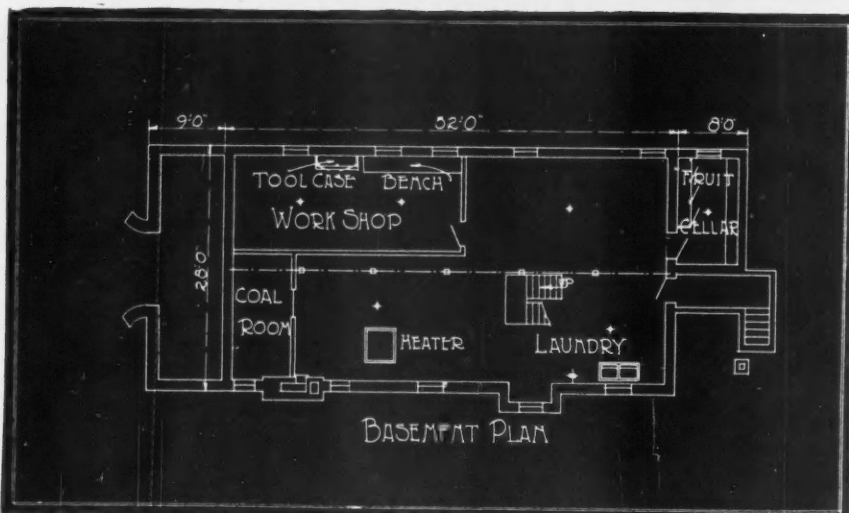
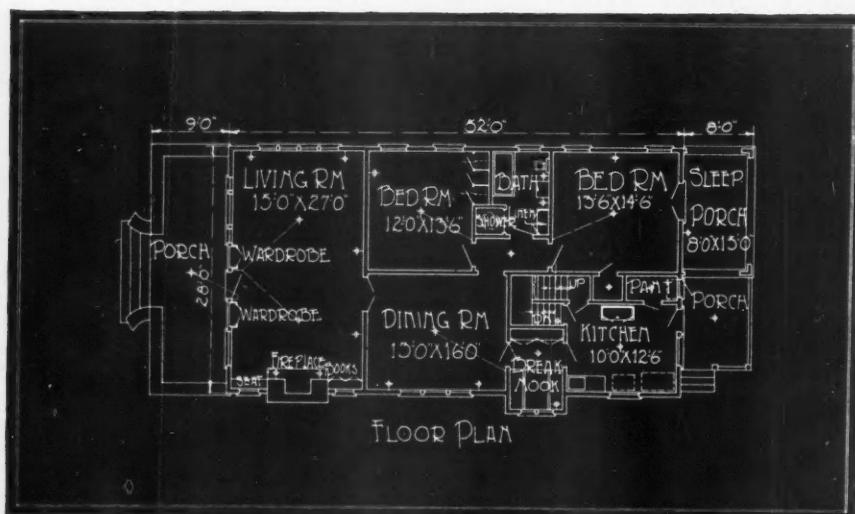
everywhere. There are many features that recommend the Western bungalow to the average home-builder, among the most striking being its distinctiveness and variety in design, economy in construction and coziness.

Because of the insistent demand for homes of this type a Western bungalow has been selected as Home No. 2 on the Street of Beautiful Homes. It is fitting neighbor of the dignified Colonial design which appeared last month. This charming

little home has a most attractive exterior of frame clapboard with stout brick porch columns and balustrades. A big nine-foot front porch extends across the front of the house and is covered by a continuation of the main low sloping roof with front roof dormer. The rafter effect along the eaves is particularly effective and pleasing. A broad brick chimney at one side provides ventilation for the open brick fireplace in the living room.

The interior arrangement is a happy one. There are five rooms in all, a large living room, 15 by 27 feet, two fine bedrooms with bath between, dining room, breakfast alcove, sleeping porch and kitchen.

The living room is especially inviting with its fireplace at one end, window seat and bookcase. There are also wall wardrobes for clothes in front hall, on either side of the front door which opens directly into the living room. The furnishing and interior decorating of these rooms are fully explained in articles which follow. In addition to the main room there is comfortable sleeping porch, 8 by 15 feet, in the rear of the house, and a delightful little breakfast nook.



First Floor and Basement Plans of April Art Insert Western Bungalow. It has Five Large Rooms, Sleeping Porch and Modern Laundry. Size of Bungalow, 28 by 52 Feet. Exclusive of Porches.

Furnishings for the April Art Insert Bungalow

INTERIOR ARRANGEMENT OF FURNITURE, APPROPRIATE STYLES AND COLOR SCHEMES ARE EXPLAINED IN DETAIL BY HOUSEHOLD DESIGNER

By Shirley Ware

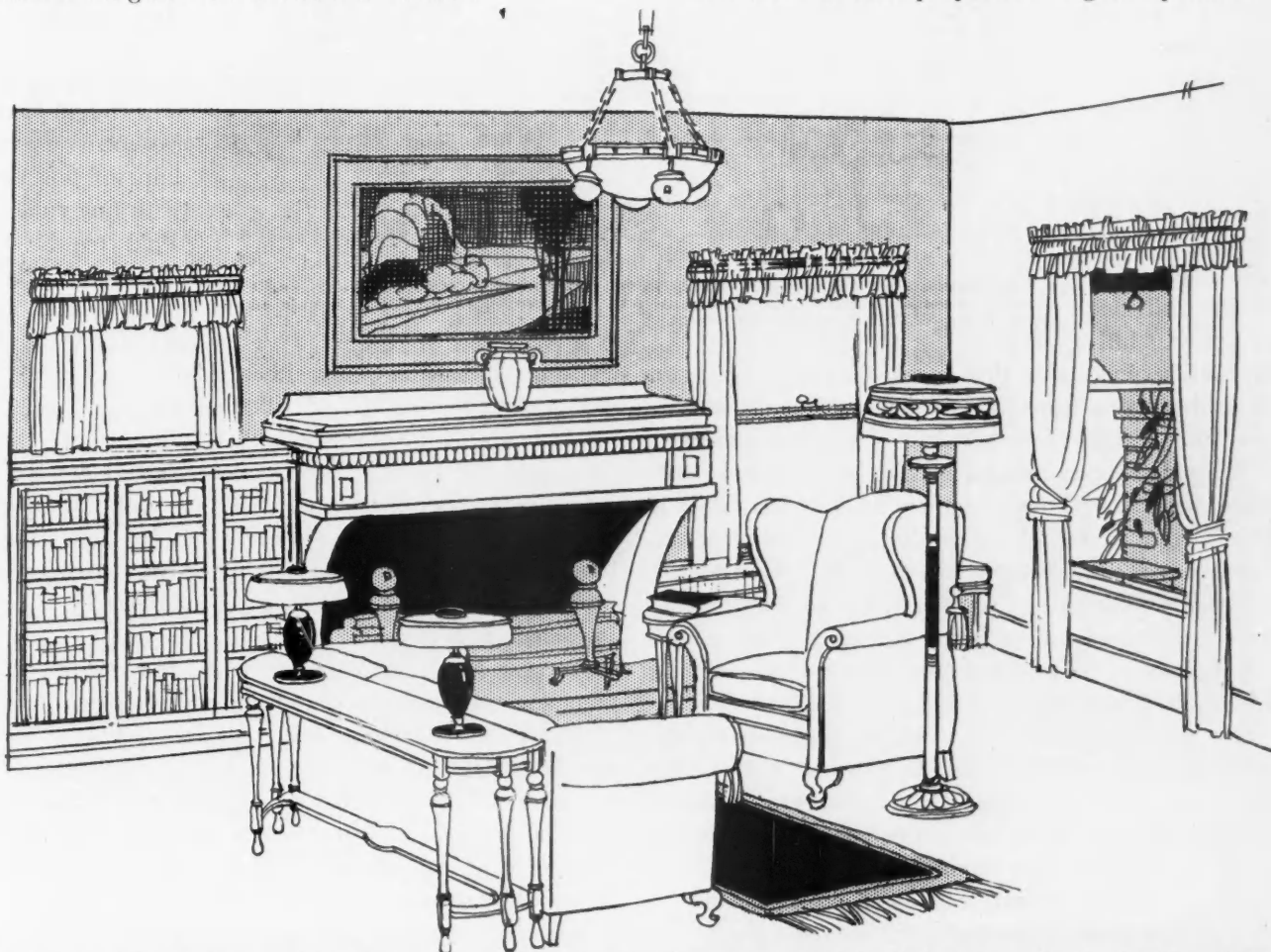
AS a bungalow is without reception hall or sun parlor the living room must, necessarily, be informal. The wise decorator will, therefore, take advantage of the length of the room and its many windows at the far end to combine both sun parlor and living room by using part reed and part over-stuffed furniture.

Because the room is large it immediately suggests the use of furniture whose trend is more toward the massive than the delicate and the fact that an abundance of light is admitted thru the many windows allows of dark wood and upholstering materials which have the obvious advantage of being pleasantly practical in a living room that will be as generally used as this.

A reed chaise-lounge in one corner, a writing table, two chairs, a rocker and a tea table will probably be best in black enameled wicker. But should they appear too dull a line of gold applied to the braided edges is surprisingly brightening. Black sateen corded in gold is both attractive and inexpensive for upholstering seat and lounge pads and by the use of gold embroidered dragon-head pillow tops an air of lazy comfort is given to the whole sun-corner.

At the end of the room opposite the sun-corner, the fireplace and book cases occupy the entire wall. At right angles to the fireplace might well be placed a large davenport upholstered in black and gold damask with a fireside chair to match facing it on the opposite side, a reading lamp on its left arm and an end table against the right. A long davenport table may be used successfully at the back of the davenport, itself, and twin vase lamps, one on either end, furnish sufficient light for reading. A low bench upholstered in deep coral colored velour will give needed color if it is placed parallel to the fireplace. This bench, like the other pieces, will be harmonious if it is of black lacquer, the turnings touched here and there with dull gold, but other woods may be used if desired. The wall space on the right may be pleasantly broken by a console table above which hangs a black and gold mirror, suspended from the moulding by means of gold cords. Tall brass candle sticks hold equally tall candles which repeat the coral of the bench and the sun-corner tea table. A tea service in pale jade green or primrose yellow is very charming if used with the coral table.

In a room of such proportions a grand piano is in



Suggested Furnishing for Living Room of April Art Insert Bungalow. In a Large, Well Lighted Room Massive Furniture of Dark Wood and Upholstering Materials Has the Advantage. Particularly Important is the Selection and Grouping of Furniture About the Fireplace. The Color Scheme Suggested Here is Black and Gold.

Some Suggestions on Furniture for the Art Insert Home

better taste and is more suited to the type of decoration than is an upright. If this is placed diagonally across the front left center of the room it serves to balance what might otherwise be a too concentrated heaviness at one end.

The window and door hangings are practical and attractive if of dull gold gauze that is transparent during the day, admitting light, and opaque at night. If this material is stretched tightly between the top and bottom rods, the lower rod hanging loose and serving as a weight, summer winds will find it impossible to blow the curtains in and out over a dirty sill.

A floor covering of black chenille may be relieved on either end by linen fringe. The center color scheme of black and gold serves as a most suitable background for the many touches of Oriental color that find their way into vases, lamps and odd tables. Without these the chosen background may be too sombre.

The Dining Room

An oblong dining room lends itself readily to the now popular long dining table. Chippendale is an obligingly neutral period from which to choose the table and its companion pieces and dull brown mahogany a most satisfactory finish. The chair seats covered with blue mohair may allow their monotony to be relieved by the introduction of an all-over pattern of sand color. Five side chairs and one arm chair, a buffet and serving table that break the wall spaces on two sides and a china cabinet that crosses the corner near the windows are possible companion pieces.

An odd tea cart painted in Chinese blue and decorated with tiny Oriental figures will divide its time most advantageously between dining room and breakfast nook, with an occasion visit to the living room.

Casement curtains of transparent silver cloth appear to very good advantage when the table is set with a silver service. The floor may be covered with a Chinese Oriental rug in two shades of blue and ivory.

The sunny breakfast room at once becomes the most desirable spot in which to eat—not only breakfast, but light luncheons which seem too frivolous in spirit for the larger and more conventional dining place. Adjoining the dining room, its furnishings must be carefully considered as to color scheme.

There is something about yellow that suggests a cheery good morning and for this reason an attractive

built-in table and benches, enameled in canary yellow, seem wise. Narrow strips of black can be used to accentuate the graceful lines.

Windows hung with pale yellow voile make the morning's sun seem even more radiant and, in contrast, a border of Japanese blue silk that is the more desirable because it is washable may outline each curtain and continue its mission in the narrow valance which appears all the way across the tip-top of the windows. This contrast of blue and yellow may be repeated in checkers on the floor covering of linoleum. In some instances the floors are covered with flat paint and borders of contrasting colors form a desirable finish.

The Sleeping Rooms

The fact that the sleeping rooms are closed from the remainder of the house permits the decorator to use whatever color scheme he desires, irrespective of all other rooms and while brighter colorings and furnishings are being used thruout the house today the boudoir clings to pastel shades to affect greater beauty.

The guest room may prefer a bed, dresser, dressing table and comfortable reed chair in old ivory with cane insets in bed ends, rocker chair and bench seats.

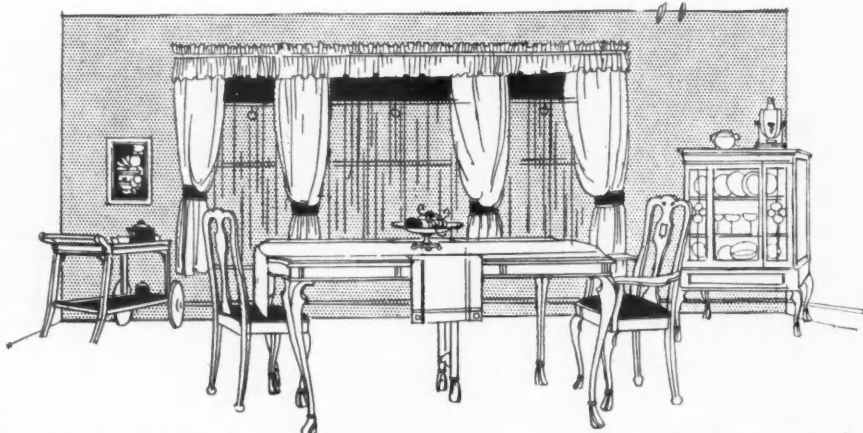
The two windows might have casement curtains of fine net with tiny ruffles, and overhangings of ruffled silk taffetas in orchid are

charming if held back on either side by a rosette of pale pink, blue and orchid silk flowers. Flat, round pillows of orchid taffeta may be scattered here and there and the boudoir lamp, whose slender standard is of ivory, should be topped with a puff shade of orchid taffetas, encircles with silk flowers, and placed beside an overstuffed chaise lounge that matches the hangings in color but show its good judgment by selecting sateen as a desirable covering.

A room-sized rug of chenille in deep purple will complete a most cheerful and unusual room.

The second bedroom, being the larger of the two, and in constant use will be wisely furnished in more practical finish of American walnut, and the pieces of furniture should also be chosen for their convenient drawer space rather than for their decorative effect, altho the chosen suite becomes both if the decorating is wisely completed.

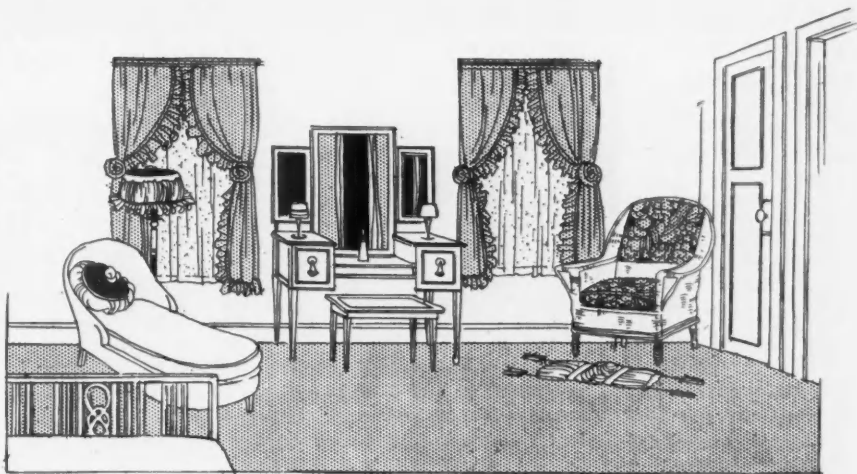
A double bed with bow end may occupy the center



Arrangement of Furniture in Dining Room. The Long Chippendale Table and Companion Pieces of Dark Brown Mahogany Are Very Appropriate. Blue Mohair in the Chair Seats Will Relieve the Monotony.

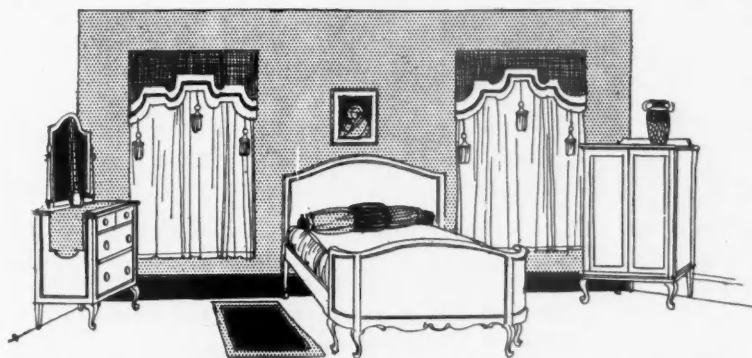
of the longest wall space, and between the windows which offer light from both sides, a vanity dresser will provide the advantages not found in a dressing table—a full length mirror and plenty of drawer space. One corner is just large enough to accommodate the chifforobe, while the remaining one permits a large dresser to cross diagonally and the rest of the space is reasonably occupied by a chair, bench and rocker.

The gold cloth used in the living room will be found most suited to these two windows with side drapes and valance of rose silk poplin. The rose poplin may be used as a bed cover and for the tops of dressers, chifforobe and seats of chairs and a rose taupe rug is charming for the floor, making in all a more conservative, more practically furnished room than the guest room needs to be.



Guest Room in Art Insert Bungalow. The Decorator Can Use Whatever Color Scheme He Likes in the Bedrooms Because They Are Closed from the Remainder of the House. In the Guest Room, a Bed, Dresser, Dressing Table and Reed Chair and Rocker Are Essential.

Little need be said to the experienced housewife about her kitchen. She soon learns what is most convenient and practical in the way of kitchen furnishings. It has been found that white is, after all, the most practical of all colors for woodwork and that enameled iron is best for table tops and cabinets. The choice of these things must rest with the housewife who has her own convenience to consider first. A judicious use of blue paint, of blue and white linoleum, or blue enamel ware for pans and pots and of dimity curtains at the window gives cheerfulness and light that all kitchen workers need. And it has always seemed that the best chicken and dumplings come from a kitchen where there is at least one red geranium plant to flaunt its lovely blossoms against that cross-barred dimity at the window.



Large Bedroom Furnished in American Walnut and More Conservative than the Guest Room. In Both Bedrooms the Selection of Draperies for the Windows Is Important and the Proper Arrangement of the Various Pieces Determines the Efficiency of the Room.

Interior Decoration of Color Bungalow

COLOR AND DECORATIVE SUGGESTIONS FOR THIS COZY, PRACTICAL HOME; TWO MAIN CHOICES SUGGESTED

By C. M. Lemperly

THE popularity of the March insert in full color has suggested the further possibility of making these inserts still more helpful by suggesting decorative treatments and choices.

This charming Western bungalow on the "Street of Beautiful Homes" can be enhanced, like any other property, by the correct use of decorative effects, including the proper use of the paint brush.

Scheme No. 1

Woodwork—Oak, stained a rich dark brown.
Floors—Stained and waxed.

Living Room—

Walls—Paint, tan color, with a durable flat oil paint that can be washed or cleaned. Relieve by touch of orange and blue in the stencil.

Lighting Fixtures—Show orange effect.

Furniture—Both reed and oak.

Drapes—Blue.

Rugs—Figured, repeating colors shown in stencil.

Dining Room—

Walls—Paint old blue, with durable flat oil paint.

Fixtures—Old gold and touch of orange.

Furniture—Fumed oak of simple design, not too severe.

Drapes—Casement cloth, edged with silk fringe.

Rugs—Ivory and Blue.

Kitchen—

Walls—Blue, painted with a gloss enamel to make cleaning easier. If flat effect preferred, as many do, use durable flat oil paint. If enamel is used, get a wall enamel, so it will work easier than some of the heavier bodied woodwork enamels.

Woodwork—White, paint or enamel, flat or gloss, as preferred.

Bedroom—

Wall—Yellow, flat wall paint.

Furniture—Oak.

Drapes—Yellow and white.

Rugs—Soft brown.

Bedroom—

Wall—Soft pale green, flat wall paint, with stencil of darker green and rose.

Furniture—Oak, simple design.
 Drapes—Cretonne in which green predominates with touch of rose.
 Rugs—Braided rag rugs of soft gray and green, with rose.

Bathroom—

Walls—White, flat wall paint, blue stencil.
 Woodwork—White enamel.

Sleeping Porch—

Soft gray to subdue the light.

Basement—

If workroom is used for tools, the walls should be painted a light warm buff and the floors given a coat of concrete paint. The workshop could be made into an attractive den and in that case rich warm browns may be selected and mission furniture employed.

Scheme No. 2

Woodwork—Ivory enamel with brown mahogany trim.
 Floors—Natural, waxed.

Living Room—

Walls—Warm gray, flat wall paint, showing rose, green and yellow in the stencil.

Fixtures—Rose.

Furniture—Brown mahogany.

Drapes—Rose silk.

Rugs—Warm dark gray.

Dining Room—

Walls—Warm gray, flat wall paint, showing rose and blue in stencil—blue predominating.

Fixtures—Rose and blue.

Furniture—Brown mahogany.

Drapes—Bright colored cretonne.

Rugs—Blue with some rose and gray.

A bowl of fruit or flowers in bright colors will add a great deal.

Kitchen—

Wall—Cream, enamel or flat wall paint, or cream-gray preferred, with green stencil.

Woodwork—Gray enamel.

Bedroom—

Walls—Cream, flat wall paint.

Drapes—Blue, violet and salmon, relieved with touches of light yellow and black.

Furniture—Ivory enamel, supplemented with wicker.

Rugs—Rag, showing colors in drapes.

Bedroom—

Walls—Yellow or ivory, flat wall paint.

Furniture—Brown mahogany or walnut.

Drapes—Cretonne, cream background design in neutral green and violet, edged with black fringe showing cream and violet.

Rugs—Neutral green.

Bathroom—

Walls—Ivory, flat wall paint, stencil in green.

Woodwork—White enamel.

The above combinations ought to prove effective whether in paints or wall papers. The main thing in selecting the color scheme is of course the colors,

yet the painted effects many times are more unusual than the wall papers. Many womenfolk prefer papers in the bedrooms, and a combination of paint in some rooms and papers in others, works out very well indeed. There is a sanitary value in paints not to be overlooked. Good plaster work is important to a good paint job, but the same applies to paper, and after all, the plaster should be right regardless of the finish employed over it, as a fundamental building principle.

The exterior combinations as shown in the color insert could not be improved upon for this type architecture, with brown stain siding, white paint trim and green shingle roof. This treatment will blend into any surroundings and set off the home most attractively. In fact, as you look at the insert, you are immediately carried to Pasadena, or many other Western spots where bungalow construction has proved worth while.



The Spirit of 1921

Somebody said that it couldn't be done,

But he with a chuckle replied,

That "maybe it couldn't, but he would be one

Who wouldn't say so till he tried."

So he buckled right in with a trace of a grin

On his face. If he worried, he hid it—

He started to sing as he tackled the thing

That couldn't be done—and he did it.

There are thousands to tell you it cannot be done,

There are thousands to prophesy failure;

There are thousands to point out to you, one by one,

The dangers that wait to assail you.

But just buckle in with a bit of a grin,

Then take off your coat and go to it;

Just start in to sing as you tackle the thing

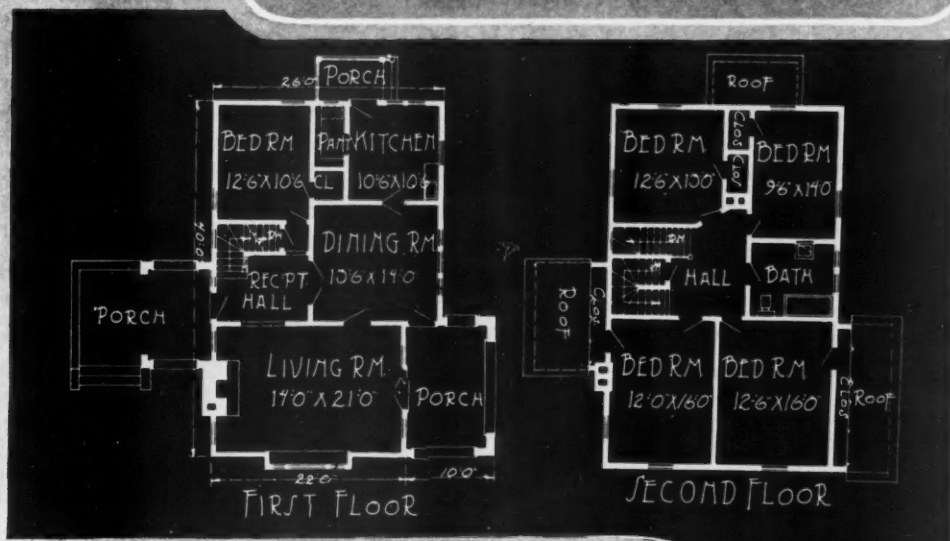
That "cannot be done"—and you'll do it.

—Red Cross Bulletin



Beautiful Homes Always Reflect the Initiative and Enterprise of a Community. This Street of Attractive Homes Is a Striking Example of What Some Cities Have Accomplished. What We Need Are Many More. The Street of Beautiful Homes Now Appearing in Colors in the American Builder Will Give You and Your Town Some Real Ideas on Home-Building.

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DISTINCTIVE TYPE HALF TIMBER HOUSE. This type of home representing the popular English type of stucco home with timber effect is growing in popularity in this country. Because of its odd shape, it has a certain appearance of distinctiveness and individuality that appeals to the critical homebuilder. This home has eight very comfortable rooms of which four are located on the first floor, viz., living room, dining room, kitchen and bedroom, and four on the upper floor, all bedrooms. There is a large, roomy attic that can be used if needed. The main porch, recessed under the main roof, is accessible from the living room and dining room, and is easily adaptable to lattice ornaments. The front entrance is on the left side. This house, while giving an impression of bigness, is only 22 by 40 feet.

Buildings in China

LARGE CITIES FEEL INFLUENCE OF AMERICA, BUT NATIVES HAVE CRUDE BUILDINGS OF POOR CONSTRUCTION

By Wm. A. Radford, Jr.

(On a Trip Around the World in the Interests of the American Builder)

SHANGHAI, CHINA, March 3, 1921.—China has been characterized as a nation that has been asleep for a few thousand years. But there are signs that it is opening its eyes, stretching itself and getting ready for a new day commercially and agriculturally and from the standpoint of education. China is richly endowed with resources, which it has not really started to develop. But when it finds itself it will take its place as one of the strong and rich nations of the world.

In the "treaty cities," where the other nations of the world are doing business, there are sections that show the effect the foreigners have had on the Chinese. This is especially noteworthy in the buildings. Here you find modern structures of brick, steel and concrete that resemble, architecturally, the buildings in the cities of any of the western countries. In the native sections, and especially in the agricultural districts, the buildings are very much the same as they have been for centuries.

Residences, if they may be called that, business buildings, and what few manufacturing plants there are, all are on the same order—a heavy thatched roof, supported by wood posts set on stones. They resemble the framework that boys put up in the back yard at home for tents. Where they are different is in the roofs. These are heavy affairs, made so, I presume, to

hold the supporting posts upright. Some have walls, and some are merely open shed-like structures.

White ants, or termites, are the bane of the Chinese buildings. It requires only a few years for them to practically destroy the framework of the houses. Then along comes a storm, and the house is wrecked.

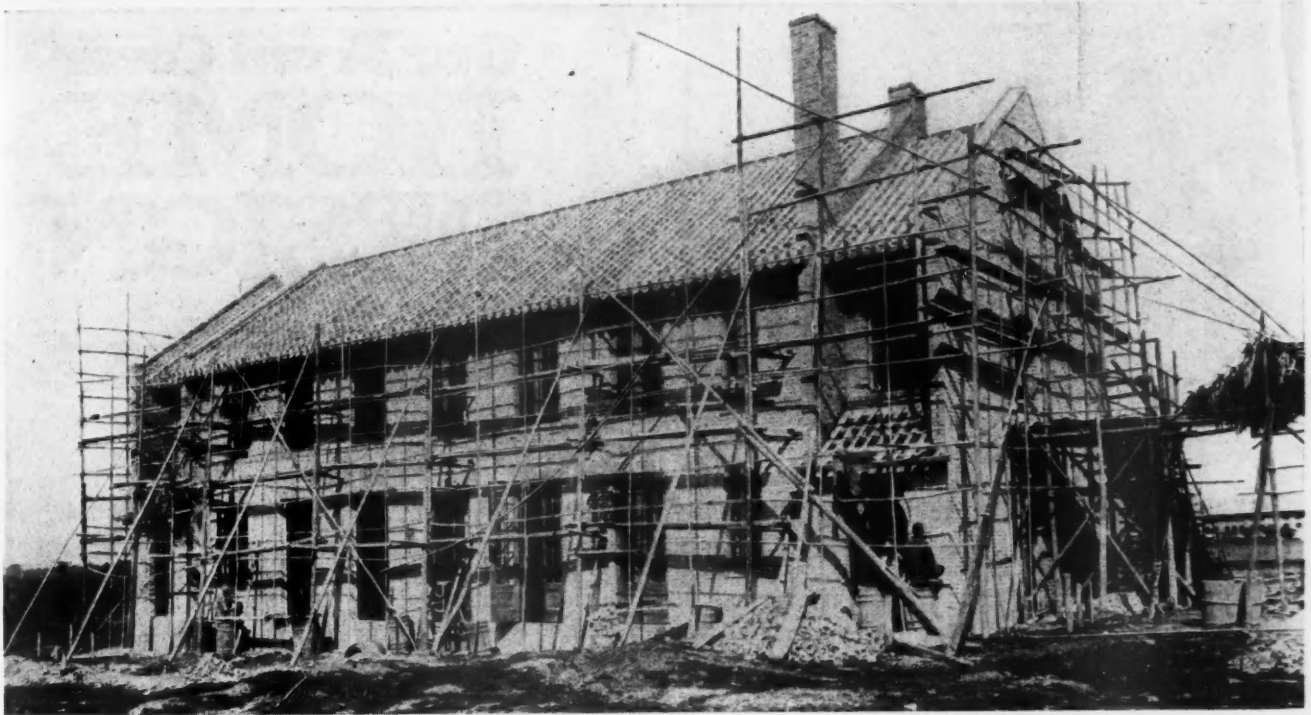
The more substantial buildings of China are of brick. Chinese bricks, however, are not American bricks. They are roughly molded and poorly burned. When laid up the walls are flimsy and far from the substantial bearing walls that we know in America. Roof tiles are heavy and of many colors. The Chinese builder when it comes to the roof lets his fancy for color run riot, and some startling effects are secured.

Americans and Europeans, however, are teaching by example the value of well-constructed buildings. The more progressive of the merchants and manufacturers in the Chinese port cities are following the plan of the foreigners and during the last few years some buildings that would compare favorably with ours have been erected.

This has created a small market in the cities for building contractor's equipment. Concrete mixers and woodworkers are in service here and needless to say most of these machines are from America. While the numbers of mixers and woodworkers are small they are doing unconscious missionary work, and are creat-



Professor's Home, One of the Buildings of the Canton Christian College, Canton, China. Only the Roof Lines and the Heavy Tile Roofs Show the Chinese Building Style, the Balance Being Typically American Brick Construction.



The Building for Summer School of Agriculture at the Canton Christian College. This Building Will House About 50 Men and Their Silk Worms.

ing a market here that is bound to develop into a most profitable one in the near future.

The latter statement also is true of Japan. There steel and concrete buildings are being erected, and some of them are pretentious structures. So far they have not made much use of the hoist; neither do they spout the concrete into the forms as American builders do. But the mixture is made in machines, and it will not be long before these people, the world's greatest imitators, are performing their building operations with the same speed and efficiency that characterizes the American building contractor's methods.

Organizations of Americans, many of them under the direction of religious denominations, are leading the way in matters of education in China. The new Chinese Republic is giving its support to these schools and colleges, which take the children from the public

schools and give them a higher education. The schools do not teach much more than reading and writing, and a little arithmetic. Whatever education a Chinese youth gets he or she secures from the mission schools, which are scattered thruout the country.

Thus we, in the United States, in co-operation with other nations, are helping in the awakening of China. The most encouraging sign is the whole-hearted way in which the government is co-operating with the foreigners in this effort to alleviate the abject ignorance of the Chinese. ❖

THE average wooden wheelbarrow load of broken stone is about 2.4 cubic feet.

The average wooden wheelbarrow load of sand is about 2½ cubic feet.

The average iron wheelbarrow load of stone or gravel is about 3 cubic feet.



Houses for the Chinese Teachers of Agriculture at the Canton Christian College.



Our Front Cover HOME DESIGN

“That is the Home I Want”

CHARMING STORY-AND-A-HALF HOUSE SHOWN ON FRONT COVER WILL ATTRACT FAVORABLE ATTENTION OF BUILDER'S CLIENTS BECAUSE OF ITS MANY FEATURES

“A house, a house, my kingdom for a house”—*Apologies to Shakespeare*

THIS is a *Home* year! Seldom if ever has that subject been so prominent in the minds of thousands of people. To thousands of families the question of a League of Nations, prohibition, income tax, Russian trade, are mere side issues—they are primarily interested in where they are going to live when their present lease runs out. That they will or can pay the new rental is out of the question. Shall they become nomads, wandering aimlessly or tent-dwellers? Many have been putting off the building a home of their own because of high costs and other obstacles. Now they are face to face with the issue and must decide.

What does this mean to the builders of the country? It means that they are coming into their share of the nation's business if they only go about it in the right way. Are they prepared for a big home demand? Suppose a man comes into your office and wants a design of a modest home with a certain number of bedrooms, suppose he wants a bungalow, a two-story

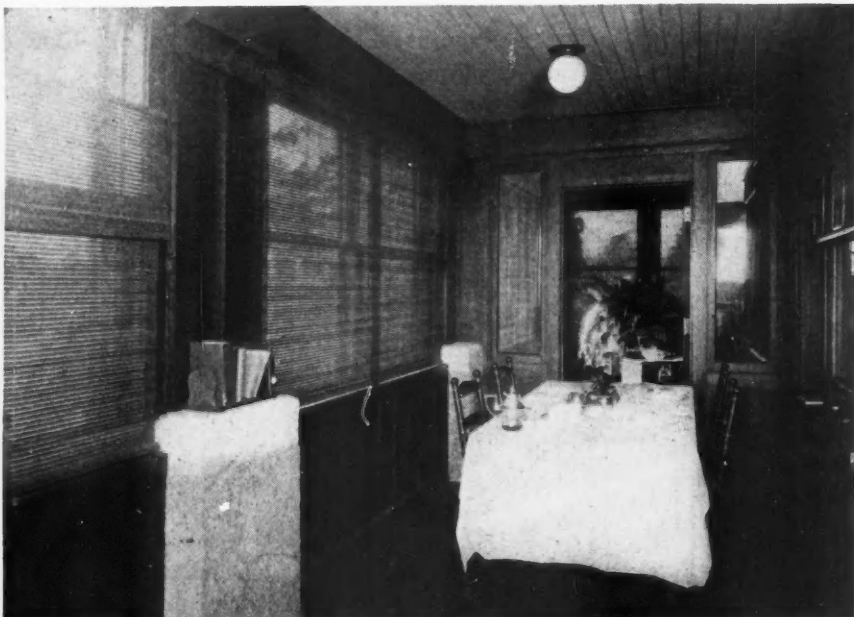
house—what have you to show him? “Oh, I never thought of that,” many will say.

The AMERICAN BUILDER has. For that reason for many months we have been showing attractive homes of a great variety in design and size on the front cover. This month it is a charming story-and-a-half house of seven rooms, of rather unique and distinctive design. It is built of frame clapboard with gable shingled roof and has a broad pergola roofed porch extending across the front of the building. This porch is further embellished by an artistically designed porch rail and columns supporting the pergola roof.

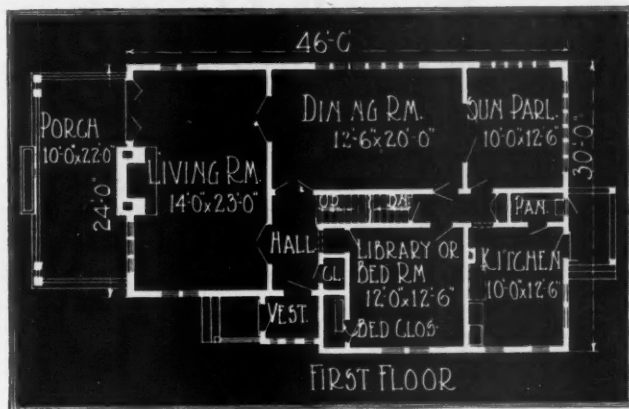
The front entrance is located to the side and rear of the porch which is not accessible from the street. The door opens into a small vestibule housed in a small wing with flat roof adjoining the double-gabled English wing at the rear. The small landing in front of the door, about three steps above the sidewalk level, is covered by an artistic pergola supported from the wall above by a heavy ornamental chain.

The vestibule opens at the left into a hall which ends in a double doorway opening into the dining room. On one side of the hall is another double door opening into the living room and on the opposite side a single open doorway leading to the library which can be converted very easily and quickly into a bedroom by using the wall bed installed for that purpose.

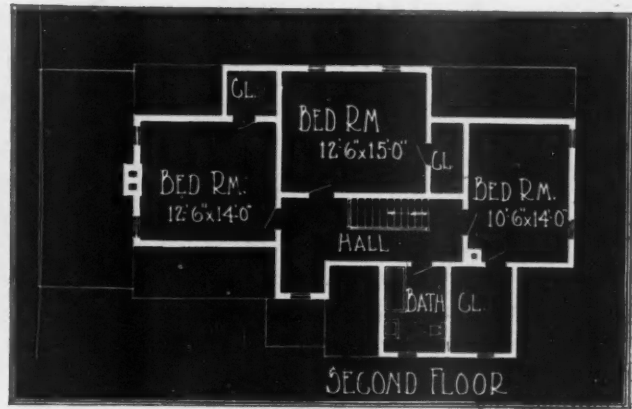
French doors and casement windows have been used thruout. The living room is one of those large spacious rooms that has come to mean so much in the modern home, a real recreation and lounging room for the family. Located in the front wall facing the porch is a large open brick fireplace with its picturesque broad brick chimney. The



How Sun Parlor in Front Cover Home Can Be Used for Light Meals. It Takes the Place of a Breakfast Room. This Feature Is Included in Modern Homes Because of Its General Utility.



First Floor Plan of Front Cover Home Showing Arrangement of Living Rooms and Sun Parlor.



Second Floor Plan Showing Arrangement of Sleeping Rooms and Bath. Note the Large Clothes Closet.

living room is 14 by 23 feet and at one side of the fireplace has a pair of French doors opening out on the front porch. On the other side of the fireplace is a triple casement window.

Another set of French doors open into the dining room, a rectangular-shaped room in the left central part of the house, size 12 feet 6 inches by 20 feet, and excellently lighted by a row of six casement windows. It opens into a hall at the front leading to the vestibule and also into a smaller one at the rear leading to the library, kitchen and sun parlor. A pair of French doors also connects the dining room direct with the sun parlor.

The kitchen is located diagonally across this small rear hall from the dining room and is a small compact room, amply large enough for the needs of the family without entailing a great deal of work for the housewife. Breakfast and other light meals can be served very conveniently in the sun parlor just across from the kitchen. It serves the purpose of a breakfast room as well as that of a sun parlor. It has been made light and cheerful by plenty of windows on both sides.

While intending the other room on the first floor for use as a library, the architect provides against any future contingencies by specifying a wall bed with dressing closet. Thus when extra bedroom space is needed to take care of guests this bed can be lowered without trouble and the room quickly changed into a sleeping room. It is 12 by 12 feet 6 inches.

On the upper floor, or half story as it is called, are three cheerful, well-lighted and well-ventilated bedrooms, 12 feet 6 inches by 14 feet (front), 12 feet 6 inches by 15 feet (side) and 10 feet 6 inches by 14 feet (rear). The bathroom is located in the wing on the side. Each bedroom has an unusually

large closet for clothes and storage.

There is much in the charming little home that should recommend it to the prospective home-builder who has three or four children and is not able to pay a large amount of money for a home. Its construction is economical, its arrangement efficient and its exterior appearance very attractive. Homes of this type will be in large demand this spring and summer because many people want to get away from high-priced apartments. ❖

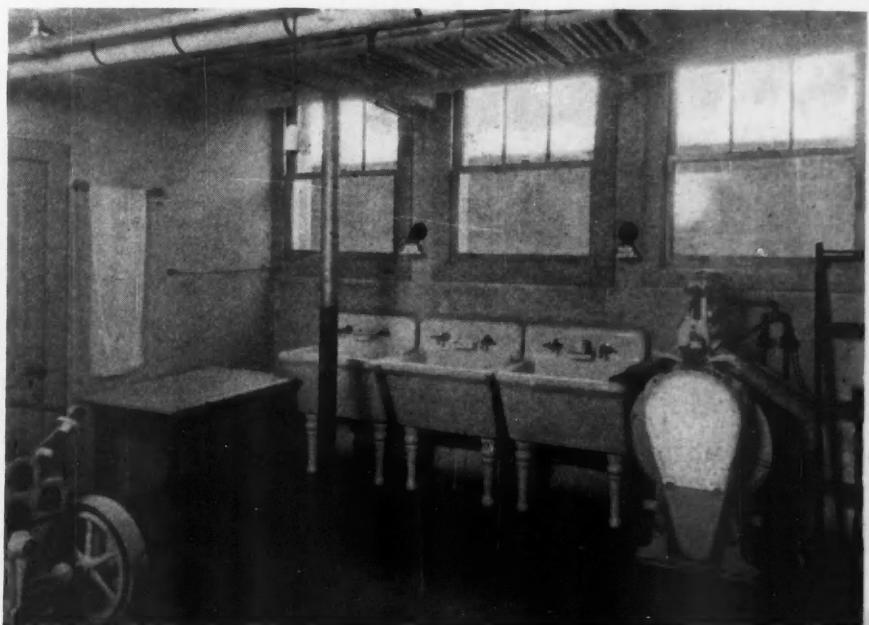
A STANDARD barrel of portland cement weighs 376 pounds net, and contains 3.8 cubic feet.

A sack of portland cement weighs 94 pounds and contains about 1 cubic foot. It is usually considered as 100 pounds.

Cement paste weighs about 137 pounds per cubic foot.

One cubic foot of portland cement will yield about .8 cubic foot of paste.

The average iron wheelbarrow load of sand is about 3½ cubic feet.



Type of Laundry Now Found in Modern Homes. This Is Striking Because of Its Cheerful Atmosphere, General Sanitary Appearance and Excellent Equipment, Including the Latest Labor-Saving Machinery.

Selling "Own Your Own Home" Idea

HOW ENTERPRISING IOWA REAL ESTATE MAN IS GETTING BIG IDEAS ACROSS IN EFFECTIVE FASHION

By Beth Stewart

"I WISH I had a pretty house, the littlest ever seen—" sang Wendy to Peter Pan and the lost boys, and immediately the little house was rattled up in less time than it takes to sing a song, completely furnished and equipped, "with roses peeping in, you know, and babies peeping out."

If you should travel thru an Iowa city called Cedar Rapids, you would see on a corner in the bustling downtown district a little house, low and gray, with just such a look of hominess about it as Wendy's little house in the wood of the Neverland had. Like Wendy's house the little gray house on the busy corner is home spirit made tangible and material. It was built by Mr. Henry S. Ely, a man whose hobby is making people want to own their own homes. When the "Own Your Own Home" campaign was started, Mr. Ely conceived the idea that by putting before people the most attractive sort of home, he might instill in their hearts the desire for similar homes and thereby do his bit towards furthering the campaign.

Thus it was that when the holiday spirit was in the air and the streets in the busy downtown section were crowded with weary shoppers, the little gray house on the corner made its debut. It was a quaint and shy debutante, and the parties held in its honor were easy informal affairs. A general invitation to enter was posted outside. During the three weeks when the little house "was receiving," over ten thousand people came, saw, and were conquered by the charm of the home spirit made tangible and material.

There was no escaping the little house. It was so

obviously out of place among its business-like neighbors. Even visitors in the city called to pay their respects, and judging from the number of requests which were made for copies of the plans, counterparts of the little gray house will spring up from New York



"The Sun Sends Shafts of Light Thru the Twin Bay Windows of the Living and Dining Rooms." One of the Rooms in the "Little Gray House" that Attracted Home-Lovers.

to California, as well as in Cedar Rapids. For Mr. Ely has succeeded in selling the "own your own home" idea, and he is convinced that many little houses, not all cut from the same pattern, will make their debut when the building months arrive.

To enter the little house you turn off the broad prosaic cement sidewalk of the city street and up a quaint narrow brick pathway. With a thump of the knocker you are admitted to that quiet securable only by the four homelike walls, while the flurry of business continues in the trading district outside. "Much too small a place for our family," you may have thought as you viewed the low lines of the exterior, but the little house takes whimsical pleasure in showing you that a vast amount of comfort and hominess can be spread over eighteen by thirty feet of floor space and tucked into a story and a half of elevation. For Mr. Ely wants to sell even another idea, that of owning the right kind of a home, one planned to fit the needs of the particular family, one not necessarily large but arranged to secure an appearance of spaciousness, and above all one which is full of gay



Mr. Henry Ely, Cedar Rapids, Has a Hobby of Making People Want to Own their Own Homes. That is Why He Built and Furnished this "Comfy" Gray House to Show the Comforts of a Real Home and Spur Them On to Get One of their Own.

windows and airy spaces and loveliness.

During the white bright days of the holiday season when the little house was decked in its best for the reception of callers, the sun sent shafts of light thru the twin bay windows of the dining and living rooms. These two rooms were softly brown and blue with the blended harmony of tapestry upholstery and walnut woodwork. The pictures on the walls must have inspired many a visitor to take down the calendar pinned up in the room at home and to carry the "yard of roses" into the attic. Mr. Ely believes in the power of suggestion, and the furnishings were harmonious in every detail. The kitchen is a suggestion that exercise should be taken out of doors, but

tho it is only a wee pocket of a thing, not even the most exacting housewife could declare any of the necessary equipment lacking. The other two rooms of the "five and bath" are bedrooms, real places of rest, one decorated in misty shades of rose, the other in creamy yellow.

The little gray house still stands on the busy corner tho its furnishings must be spoken of in the past tense. After three weeks of social activity, it took off its festive garments and became Mr. Ely's office building. A week of demonstration was planned originally but the interest shown was so great that an extension of time was necessary. The dining room is to be transformed into a library with books on architecture, landscape gardening, interior decorating and all of the illustrated building and gardening maga-



One Bedroom in this "Own Your Own Home" House. It is Decorated in Creamy Yellow and Has Been Visited by Thousands of Home-Seekers Who Have Hopes of Building a Similar Place for Themselves.

zines. The sunny bay windows are to become show windows wherein these magazines opened at attractive pages will be displayed as they come in each month. Mr. Ely cannot and will not build little gray houses himself but he is still selling the "own your own home" idea, and the invitation to enter is still posted outside for all who desire advice on the subject of home building. In the spring gay tulips will bloom along the narrow brick pathway and in the summer roses will peep in quite according to the specifications for Wendy's house. There is no escaping the little gray house on the corner. It is a perpetual "Own Your Own Home" campaign all in itself.



UNLESS properly stored, cement will soon absorb enough moisture from the atmosphere to affect its quality. It must be kept dry at all times prior to use; therefore, it should be stored in a damp-proof, weather-tight building. No matter what the condition of weather or season, the atmosphere always contains some moisture. The more nearly air-tight the storage building can be made and kept, so as to prevent influence of changing outdoor atmospheric conditions, the less effect will there be on the quality of the cement while in storage.

For storage in the immediate vicinity or on the site of construction work, so-called temporary structures are usually provided. These may be of light, simple construction, yet must be built to maintain a dry, weather-proof interior.



Comfortable Living Room Arranged by Mr. Ely. This House Has Proved to Be a Perpetual "Own Your Own Home" Campaign in Itself. There Is No Escaping this Charming Little Home and Crowds Visit Daily.



WOMAN AND THE HOME



Building Conveniences that Appeal to Housewife

BUILDERS' PROBLEM IS TO MAKE WOMEN HAPPY IN HOME—CAN GET BUSINESS BY MAKING IT ATTRACTIVE TO HER

By H. P. Boynton

THE builder's world is waking up to the fact which the mercantile world has long known—namely, that the ultimate purchasing power of the country is feminine rather than masculine. Homes, in particular, are bought (if not by the woman of the family) with the distinct idea of making some woman happy. No man pictures the pleasure of home owning without having the image of a wife, or prospective wife, or perhaps a sister or mother, as the center of his vision of domestic bliss.

Hence the builder's problem of winning business in an acute buyer's market has roused interest in every device that makes the home more attractive, convenient or safe to the housewife. Then, too, owners and purchasers want more for their money. Cheaper material and labor is not the only way of meeting this demand. Owners as a rule know little about the value of staple materials. Where a contractor appraises a new property in terms of yardage, board

feet and productive hours, the man and woman who are to occupy the house think of it in terms of *live-ability*.

If they can see \$15,000 worth of comfort and happiness in the premises, they will pay \$15,000; but they won't pay that much for a home that costs \$20,000 to build unless they can conjure in the mind's eye the image of happy days and years spent under that particular roof.

It costs really very little to make any home considerably more inviting than most homes are. Fifty to seventy-five dollars will do little towards improving the staple materials, but it will do wonders in installing minor conveniences which make the day's work seem shorter and smoother.

A few such devices are enumerated and described:

Suitable Fireplace Damper

Home owners have come, quite generally, to demand an open fireplace for its cheer and inspiration, quite aside from the question of heating efficiency. Not all of them have learned to demand the kind of fireplace that will give satisfaction. The throat structure that affords proper draft is not understood by every mason; or, if the general design of the throat is right, roughness in the masonry often produces smoke eddies that fill the room and coat the mantel. Where smoking is avoided, the draft is sometimes so strong that most of the heat, as well as the smoke, goes up the chimney.

A sure and economical way to avoid fireplace troubles is to install a combined metal throat and damper. This gives an absolutely smooth draft because the flange of the damper provides a lintel for the support of the masonry of the mantel front.

Draft control is just as important in a fireplace as in a furnace. The chimney opening must be proportioned to the pull of the draft and to the kind of fuel used, if the maximum heat is to be saved. Some types of draft regulation call for a lever arm thru the brick work. Another simpler and equally satisfactory type is provided with a ring that is just visible under the arch. By hooking a poker into the ring and



Building Conveniences Like Fireplace Dampers and Ash Dumps Are Particularly Appealing to the Housewife Because of Their Labor-Saving Features.

pushing or pulling, the valve plate is closed or opened and held in the desired position by a ratchet and dog.

Among other advantages of the fireplace damper is the fact that it can be closed when the fireplace is not in use so as to prevent the blowing of soot down the chimney. If a removable gas grate burner is used in mild weather and solid fuel in colder weather, the easy adjustment of the draft is especially convenient, because a modern type of gas burner requires little or no chimney opening.

An Ash-Dump in the Hearth

To keep the dust and odor of the ash-pit out of the house, it is best to have the ash-pit closed with a small double trap door, known to the trade as an ash-dump. It is especially desirable for a wood fire, because it holds the embers on the hearth level as long as they burn, and opens to dispose of the dead ashes. A touch of the poker opens the ash-dump. One type is weighted to close automatically. An older staple type must be opened and closed with the poker.

Instead of a Coal Window

The advantages of a coal chute over a coal window are becoming universally recognized. Flying chunks of coal mar the frame of a coal window and often discolor the siding as well. The window glass continually becoming broken, chilling the basement until such time as the glazier can make repairs.

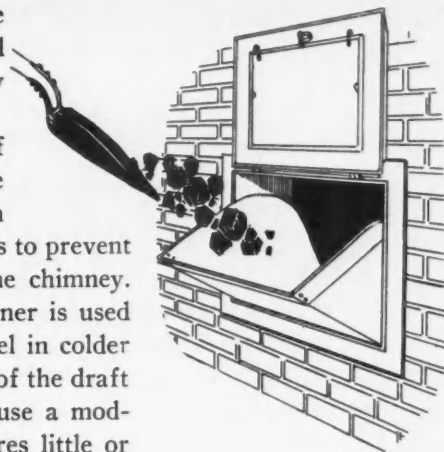
The coal chute has an iron frame, and its iron door is hinged to open upward and outward against the side of the building so as to protect it. Where light is required in the coal bin, a heavy mesh glass is used in the door. Burglar proof locking devices, easily opened from the inside without entering the actual coal bin, are supplied with most types of chute. The hopper is swung in such a manner as to stow itself easily inside the door when the chute is closed. For low set buildings or terraced lawns, the grade line chute is provided with a door that closes in a horizontal position at the grade line.

Package Receiver

If a coal chute has been accepted as a part of the modern home, the claim of the package receiver certainly cannot be ignored. For, while the coal is delivered possibly five or six times in a year, the delivery of meat, groceries and milk, as well as other merchandise, is a more than daily occurrence.

Back step deliveries are severely condemned, both on account of the danger of theft and the risk of contamination by stray cats and dogs. Exposure to heat or cold ruins some articles of food in a few hours.

Must the housewife be a prisoner in her home and



Much of the Dirt Connected with the Laying in of the Winter's Supply of Coal Has Been Eliminated by the Coal Chute. Builders Are Now Catering to the Wishes of the Housewife.

wait for every expected call of the delivery man, regardless of the proper outside call of duty or pleasure? The package receiver says "No." It frees the housewife to come or go as she pleases, sure that the expected delivery will be well and safely cared for.

It is a steel and iron box installed in the wall of the kitchen or entry. When empty, the outer iron door is left unlocked, but when it is opened, the package placed inside and the door closed, it locks automatically until opened from within. As a provision for more than one delivery, during the housewife's absence, there is a two-compartment receiver.

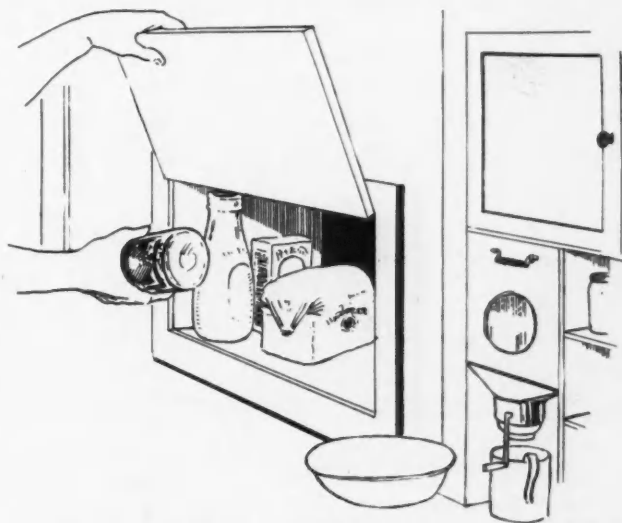
For receiving safely the early morning delivery of milk, the package receiver justifies itself, if for no other purpose. It also keeps delivery men out of doors, saving the kitchen from drafts and muddy feet. The fake delivery man who seeks admission for no good purpose is also robbed of his pretext, and the housewife is secure from intrusion.

Keeping Meter Man Out

The same advantages ascribed to the package receiver apply to the electric meter box installed in the basement.

The meter is read from the outside thru a glass door, where the service wire enters the building. It preserves the privacy of the basement, and is an effectual check against crooks who sometimes pose as meter men.

Central power stations favor the meter box strongly, because it enables a meter man to read four times as many meters in a day, also because it checks the possible theft of current, intentional or otherwise, that occurs when house wires are connected above the



The Housewife No Longer Has to Stay at Home to Wait for the Delivery Man. He Leaves the Packages in the Built-In Package Receiver. She Removes Them from the Kitchen Side When She Returns.



Reading the Meter from the Outside Eliminates the Danger from Pseudo Meter Men. It Removes a Petty Annoyance for the Wife.

meter. It is not improbable that power stations will, within a few years, make the meter box an absolute requirement on every service.

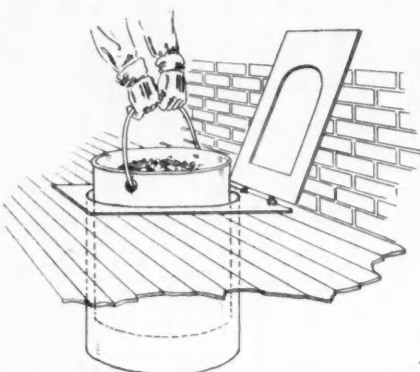
Displacing the Garbage Can

Premises are incomplete that do not have a modern equipment for caring for garbage. The ordinary garbage can is open to several objections. At the best it is unsightly and suggestive. In its usual position at the top of the back steps, it is likely to be displaced and rolled down steps, distributing its burden. Covers are lost or destroyed sometimes, and flies have a chance to breed in the open receptacle. In winter, covers will freeze to the can. In carrying garbage to the can, one hand must be kept free to lift the lid.

These difficulties are not in the garbage receiver, which is installed in the back porch of houses and apartments with its top flush with the floor. Sometimes concreted into the ground near the rear steps. It is out of sight and cannot be accidentally tipped or opened.

Such receivers are of double construction. There is an outer shell of heavy gauge iron with a cast iron ring-cover hinged to the top. The service cover, operated by a foot lever is hinged to the ring cover. The inner receptacle has an iron bail and fits snugly inside the outer shell. The ring cover protects its

edges and bail from contamination and is turned up only when the receptacle is taken out for emptying. While the covers fit snugly enough to confine odors, and exclude flies, they are safe against freezing



Unsightly Garbage Cans Are Always a Source of Annoyance to the Conscientious Housewife. That is Why Builders Are Specifying Garbage Receivers and Incinerators.

shut in winter, and the foot lever enables the housekeeper to open it when both hands are occupied.



Advice on Painting

EDITOR'S NOTE: Have you any problems in painting and interior decorating? Send them to us. Mr. Lemperly is glad to furnish expert information on these subjects free of charge for readers of the AMERICAN BUILDER. Herewith are printed some questions from readers with Mr. Lemperly's answers:

Question—We have golden oak bedroom suite and wish to finish it in ivory enamel—F. M. G.

Answer—Oak does not furnish the best surface over which to apply an enamel, but satisfactory results can be obtained if care is used in the preparation of the surface. Remove the present varnish finish with a good varnish remover. Brush the remover over the entire surface and allow to stand until the varnish has softened up so that it can be scraped with putty knife. Wash thoroly with gasoline or benzine to clean off all traces of varnish remover.

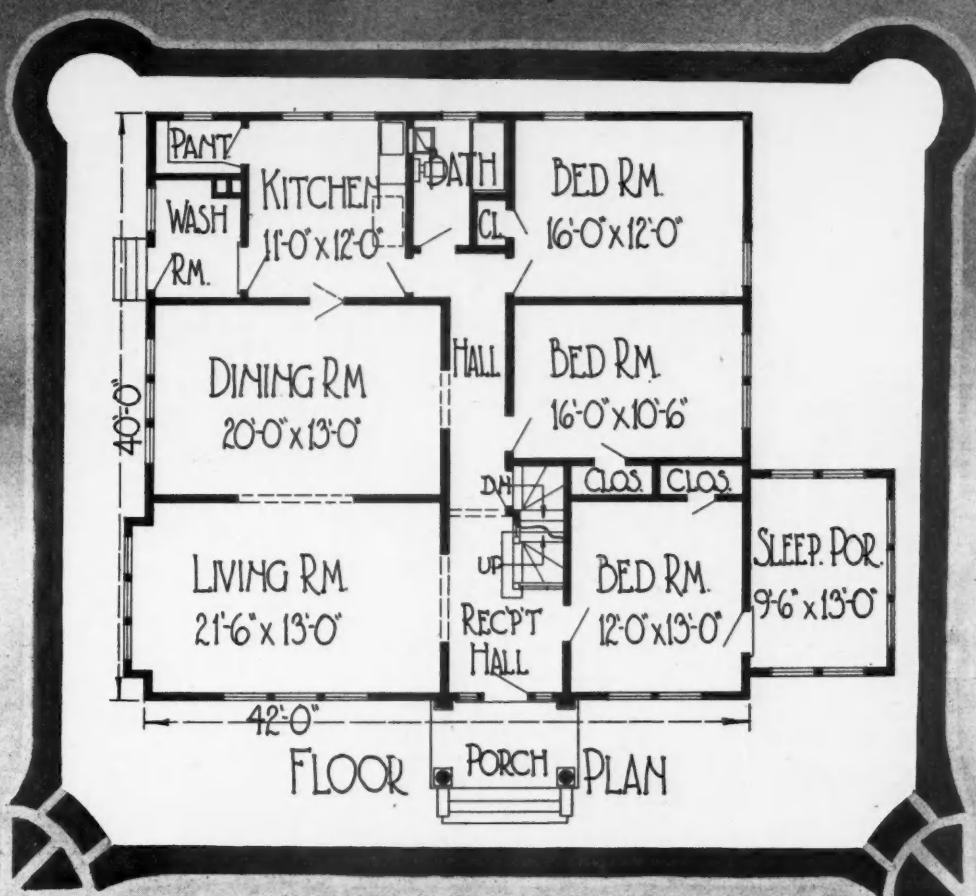
Oak is an open grained wood and requires a filler. Use transparent paste filler, wiping off all surplus filler, and allow to dry over night. For the foundation coats which are so essential to the obtaining of a good enamel job, use the best enamel under-coater you can buy. Two or three coats of the under-coater will be required and should be applied with a soft fitch brush. Sandpaper each coat lightly with 00 sandpaper to remove brush marks. With this surface carefully prepared, two coats of enamel will give splendid results. An ivory shade may be produced with white enamel, by tinting with oil color raw sienna.

Question—What kind of brushes are best to have on hand for general decorative work about the home?—E. L. H.

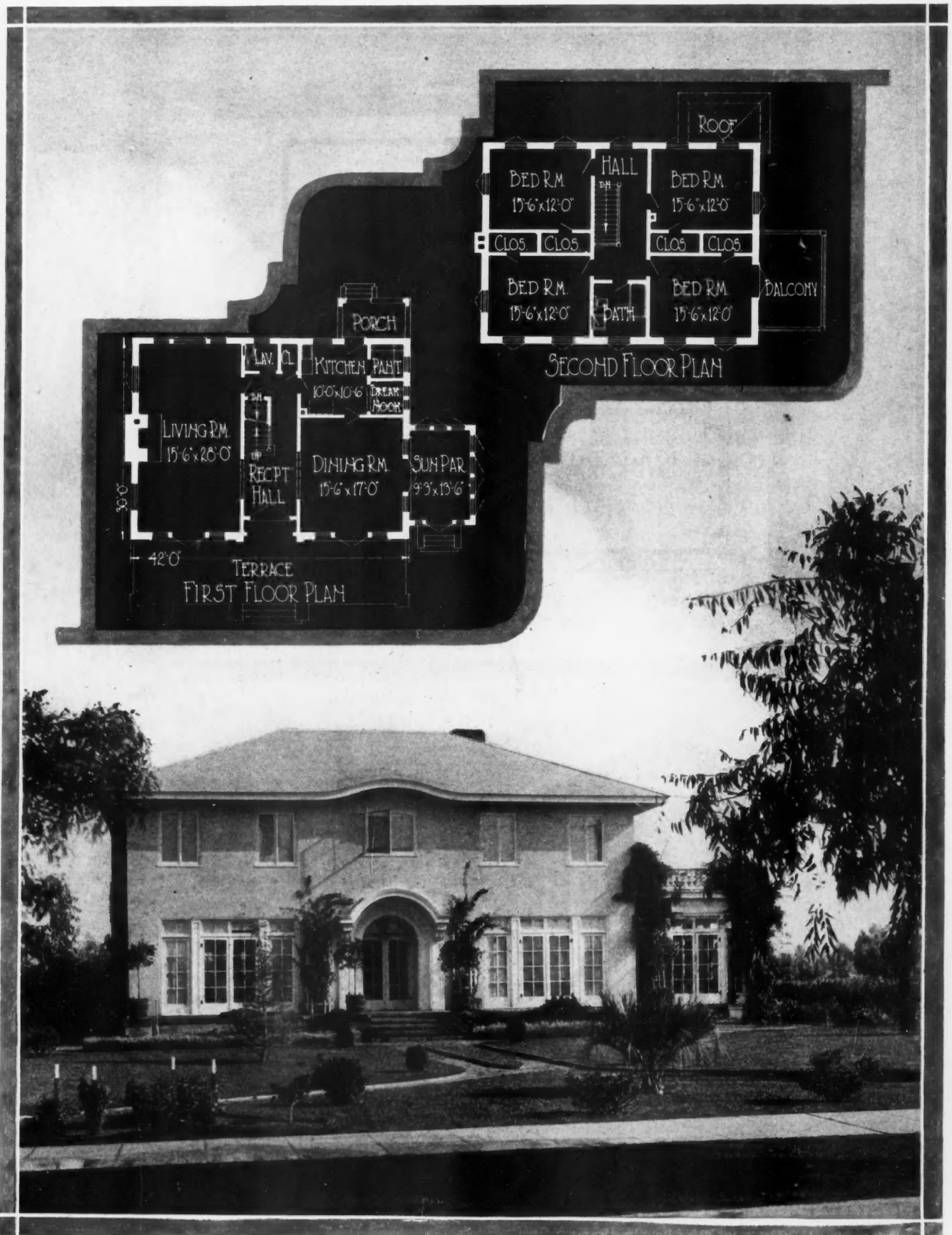
Answer—When one expects to do considerable work of this kind, he should provide himself with a good varnish brush with full stock for use on the floors. The brush which is intended for the wood-work and such odd jobs as refinishing of furniture, should be about two and a half inches wide, with soft even bristles such as fitch or Russian ox hair. This type of a brush is also good for enamel, because a soft brush will not produce the rough ridges or brush marks which are so common in painted work.

For painting the walls, a four inch wall brush is best and one which has a good full stock will hold more paint and will not let the paint run down the handle so badly when working on the ceiling. A regular stencil brush is required for applying the stencil design. This is a short, round brush with rather stubby bristles however, should not be too stiff for best results. For filling in outline stencils and doing hand work in mural decoration, regular artist's or sable brushes are best.

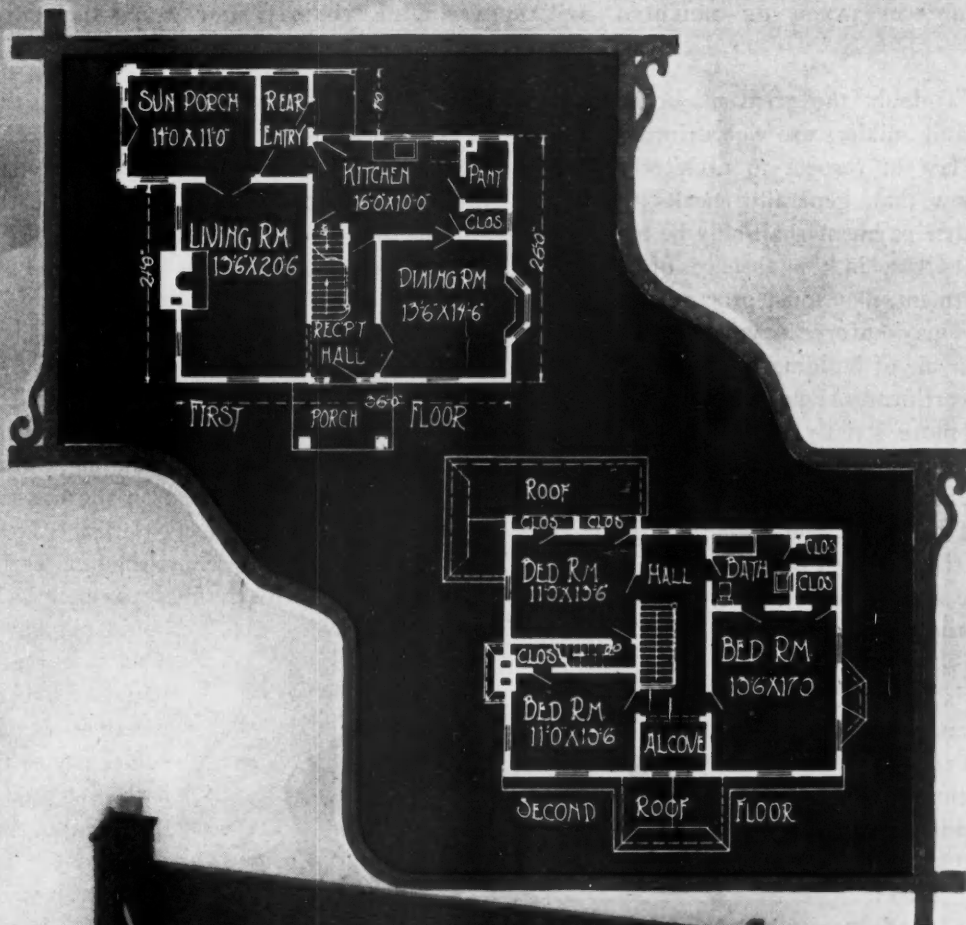
It is most important that these brushes be kept in good condition, which can only be done by cleaning them out thoroly just as soon as one is thru using them. Clean varnish brushes first with turpentine and then with benzine or gasoline. Paint brushes may be cleaned with benzine or gasoline.



A ATTRACTIVELY DESIGNED FARM HOME OF BUNGALOW TYPE. The bungalow has four favor in the rural districts as well as in the cities. This house shown here is conclusive evidence of the fact that they will serve in this capacity. This frame dwelling with its odd-shaped roof and striking windows contains six large rooms and a sleeping porch in addition to the washroom for the hired help. The front entrance is Colonial in style with white pillars, small roof and quaint door. The pergola effect over the sleeping porch adds to the picturesqueness and "hominess" of the picture. On one side of the house are the living room, dining room and kitchen; on the other three bedrooms and extra porch. The living rooms are large and comfortable, filling the requirements of a farm home. The kitchen is modern and small. The construction is frame with a concrete foundation, and asbestos shingles, laid French pattern. Size, 42 by 40 feet.



ATTRACTIVE SEVEN-ROOM HOME WITH SUN PARLOR. This is a very pleasing design, made so by the immaculate stucco finish, broad expanse of French doors in living and dining rooms, and artistically designed sun parlor. The house is built of hollow tile with stucco coating, insuring a warm home in the winter and cool in the summer. The front entrance is quite inviting with its semi-circular arch and double glass door. The windows on the upper floor are all casement, opening out. On the first floor, the living room is easily the feature, being 15 feet 6 inches by 28 feet, a great cheerful lounging place for the family. The dining room and kitchen are also located on the first floor. Four bedrooms are provided for in the second floor plan, each having three windows and all of the same size. The house is built rectangular in shape with a modified hip roof and is 42 feet by 30 feet.



SPACIOUS COLONIAL HOUSE OF SEVEN ROOMS. Expressing as it so eloquently does hospitality and substantial comfort, this house will continue to hold its appeal in the years to come just as it has done for the last century. There is something irresistible about the white clapboard siding, green shutters, small pane windows and delightful entrance. In this case the front door has been shielded by the addition of a small roof supported by large white columns and embellished still further by lattice sides. On the first floor are the three main rooms, living room, dining room and kitchen and a sun porch in the rear. The rooms are all designed with comfort as the main object. Upstairs are three bedrooms, the side bedroom being larger than the other two and connected directly with the bathroom. A small alcove is built at the end of the hall. Size of house, 36 by 26 feet.

Law for the Builder

CONDITIONAL ACCEPTANCE OF BUILDING BY ARCHITECT AS CONSTITUTING A FINAL CERTIFICATE

By Leslie Childs

WITHOUT doubt the great majority of contractors and builders are well informed on the general law in respect to architects' certificates. They know that, generally speaking, when a contract recites that payment shall only be made upon such a certificate that, in the absence of fraud, or other unfair treatment, they must procure such certificate before they may enforce payment.

And while this rule of building law applies in a general way to all certificates, whether monthly or final, it is, as a rule, more strictly enforced in respect to the last named. The reason for this is apparent, for when a final certificate is delivered it usually signifies an acceptance of the work and a release of the contractor which entitles him to final payment. In other words, constitute a final and conclusive settlement of all items under the particular contract upon which it is predicated.

It is not surprising, then, that the sufficiency of a given document or letter has been frequently questioned relative to its constituting a final certificate. In particular has this been true where the letter or document sought to be maintained as a final certificate was in the form of a conditional or qualified acceptance. And, in construing letters of this kind, the courts have as a general rule held that a qualified or conditional acceptance by the architect would not, in itself, constitute a final certificate. This point is illustrated in an interesting manner in *Hennebique Construction Company vs. Boston Cold Storage & Terminal Company*, 230 Mass., 456, the facts involved being in the main as follows:

The Hennebique Construction Company entered into a contract whereby it was to erect a certain building for the Boston Cold Storage & Terminal Company. Payments were to be made as the work progressed only upon the certificate of the architect; and it was stipulated that only the final certificate should be conclusive evidence of performance. When the building had been completed, or nearly so, the architect representing the Boston Cold Storage & Terminal Company wrote the construction company substantially as follows:

"We beg to advise you that the building * * * is accepted, subject, however, to the provision that the various items mentioned * * * are satisfactorily attended to at once. These items are in general as follows: cleaning the tile work, fixing sliding doors

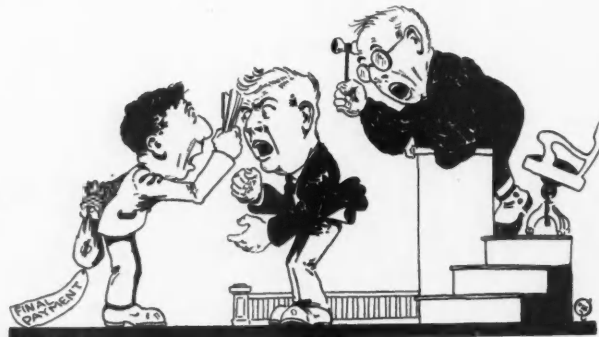
in rear of building on first floor, fixing the ventilators in windows and repairing putty where it has run, cleaning windows and exterior walls, repairing casings around fire escape doors, suitable weather strips at bottom of fire escape doors."

Contractors File Suit to Enforce Payment

Thereafter it appears the contractors attended to the items mentioned in the foregoing letter, but the building owners still contended that the contract had not been fully performed in some details. A dispute followed which culminated in the contractors filing the above suit against the building owners. In this suit the main issues turned on the construction to be placed upon the architect's letter. The contractors contending that it constituted a final certificate which would entitle them to final payment. The building owner contending that it should not have that effect.

The case reached the Supreme Judicial Court, where in passing upon the sufficiency of the architect's letter as a final certificate, in the light of the provisions between the parties in the contract, it was in part said:

"While it is obvious that neither party understood that the letter had ended their difficulties leaving nothing more to be done, and that the final payment



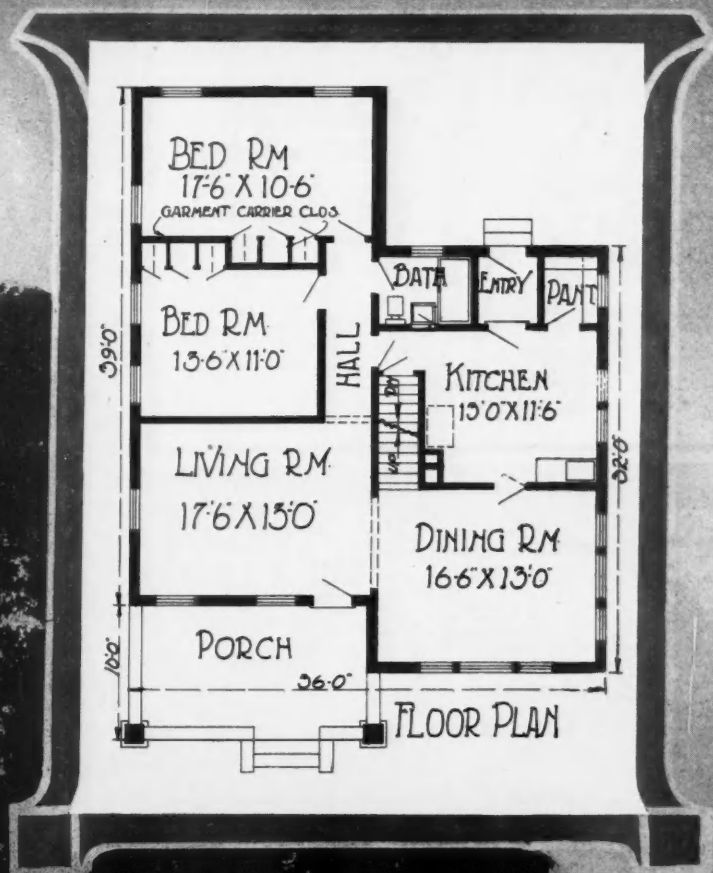
The Building Owners Refused to Make Final Payment. The Contractors Filed Suit Based on the Architect's Letter.

had become due, the letter which, at most, is only a qualified or conditional acceptance of the building, does not specify the amount of the payment, or furnish any data from which it could be computed. * * *

"A certificate under article X [the article in the contract which specified that only the final certificate should be conclusive evidence of the performance of the contract] means and was intended by the parties to mean a statement in writing authenticated by the signature of the architects that the final payment, naming the amount, is payable to the plaintiff [contractors] under the terms of the contract. * * *

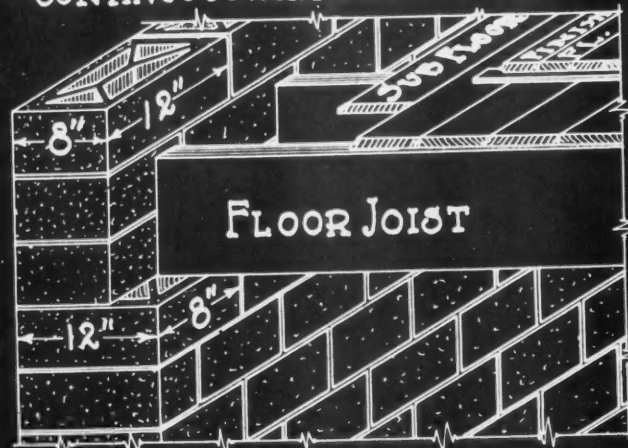
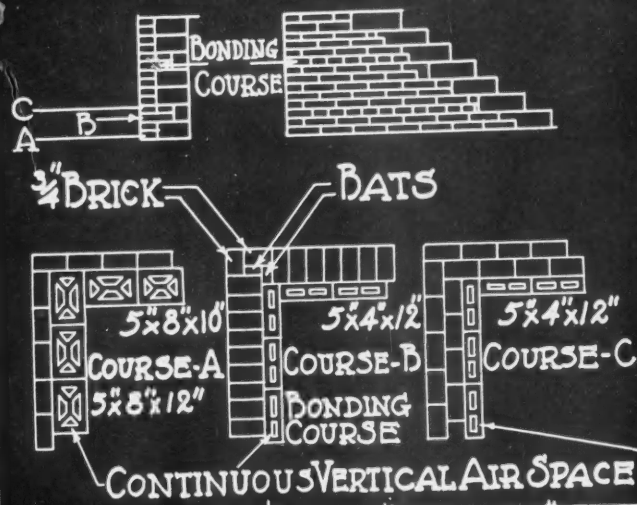
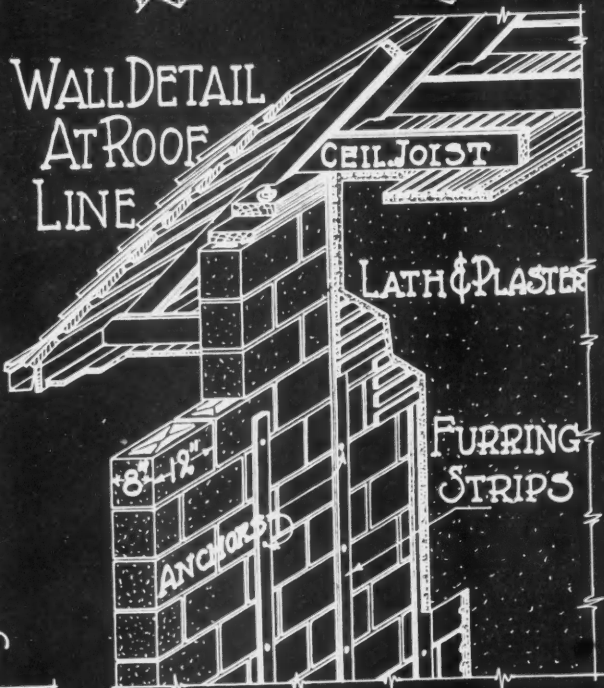
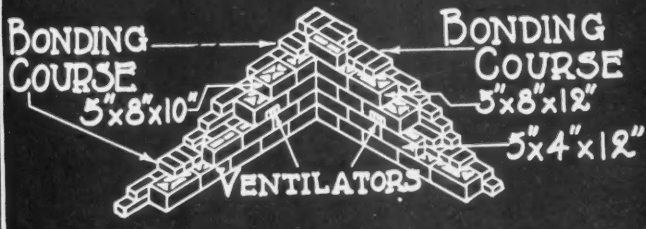
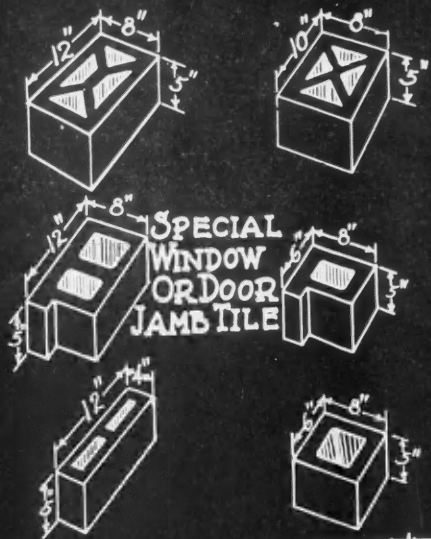
"The plaintiff [contractors] has offered as a final certificate only the letter, which as previously said is not in form or substance the final certificate called for under the contract. * * *

The court concluded by holding that under the terms of the contract the architect's letter of conditional acceptance of the building did not constitute a final certificate. Holding that it neither complied with the form or substance of the final certificate as required by the contract; pointing out that it even failed to state the amount due, or give data for computing it.



COZY LITTLE BUNGALOW OF APPEALING DESIGN. As it appears, low, rambling, and comfortable it seems to cover a lot of ground but the dimensions show it to be of moderate size, 36 by 39 feet. One of the most attractive features of this charming little home is the clean, white stucco exterior which adds considerable brightness to the dwelling. The front porch is recessed invitingly under an extension of the main roof and has broad stucco balustrades and an overhanging arch which helps to give it a seclusive appearance. There are five rooms in the house, large living room, 17 feet 6 inches by 13 feet, dining room of good size, small compact kitchen, two well-lighted, cheerful bedrooms with space-saving garment carriers installed instead of the usual closets and a small bathroom. An inexpensive yet attractive home that has a strong appeal.

RECOMMENDED CONSTRUCTION



WALL SECTION AT FLOOR LINE DETAIL THRU WINDOW

CONCRETE TILE DETAILS

Bank Building of Concrete Tile with Brick Veneer

THIRTY-ONE THOUSAND TILE USED IN CONSTRUCTION OF CLEVELAND BUILDING CONTAINING BANK AND STORES. DETAILS OF BONDING WITH BRICK SHOWN ON OPPOSITE PAGE

WHEN E. R. Russell, architect and contractor in Cleveland, Ohio, got a contract to build a one-story bank and office building, he decided to use concrete tile with a face brick veneer. This tile is manufactured on special machines and has hollow air spaces which form an effective insulating barrier against rapid changes in temperature. Altho comparatively new, it is gaining in popularity rapidly. Tile was also used in the interior non-bearing partitions.

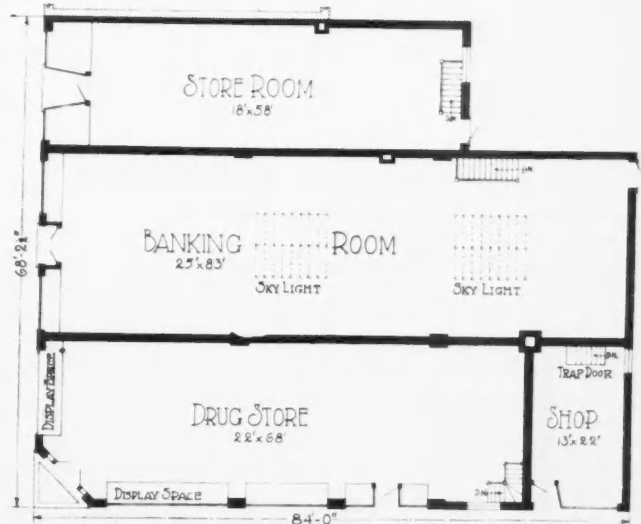
The bank building is one story in height and has an attractive facade of brick with stone trim. Special attention has been paid to the design of the bank front, so that it stands out apart from the rest of the building.

The building is 84 by 68 feet 2½ inches and contains a bank located in the center section, 25 by 83 feet; a drug store on the corner, 22 by 68 feet; a small shop, 13 by 22 feet, in the rear of the drug store, and a store room, 18 by 56 feet, at the other side of the building. The inside wall is shorter than the wall facing on the street and is drawn in to give light to the store room from windows in the rear.

In the drug store modern store fronts were installed on front and side, with two entrances, one on the corner and one at the rear on the side. The bank is long and narrow and gets excellent light from two skylights above. The partition between the three sections is concrete tile with plaster covering. On the outside face brick was bonded with the tile, according the principles shown in detail on the opposite page. In constructing a building of this type it is important to lay the veneer in the proper way to get good bonding strength. Over 31,000 tile were used in the construction.

There is an unusual opportunity for contractors who are interested in concrete products to get into the business of making this tile. With the development of tile-making machinery the output can be made large enough for a small plant to make business profitable. When the building boom starts there will be a large demand for all kinds of construction material, and it is evident that in communities where concrete can be obtained economically that much of it will be used and there will be a genuine demand

for all kinds of concrete building materials. Because of its insulating and fire-safe qualities and the ease with which it can be manufactured the tile will be in demand.



Floor Plan of Bank Building.



New Store and Bank Building in Cleveland, Ohio, Constructed of Concrete Tile with Brick Veneer. This Building Is 84 by 68 Feet 2½ Inches. Architect, E. R. Russell.

Small City Shows Way in Apartment Construction

BLOOMINGTON, ILL., SHOWS INITIATIVE BY BUILDING LARGE STRUCTURE AT COST OF \$500,000

By E. E. Pierson

LARGE apartment buildings are by no means confined to large cities. The Lafayette apartments, just completed at Bloomington, Ill., are regarded as the most pretentious of the kind in the state, outside of Chicago, and are more nearly on the metropolitan order than usually attempted in cities of 30,000 inhabitants. Commenced two years ago, progress was delayed by scarcity of materials and supplies, but the structure is now ready and about one-half of the apartments are already occupied, while it is hoped to fill the remainder during the summer. The total cost was \$500,000.

The structure is of reinforced concrete thruout with an exterior of handsome brick of yellow tint.



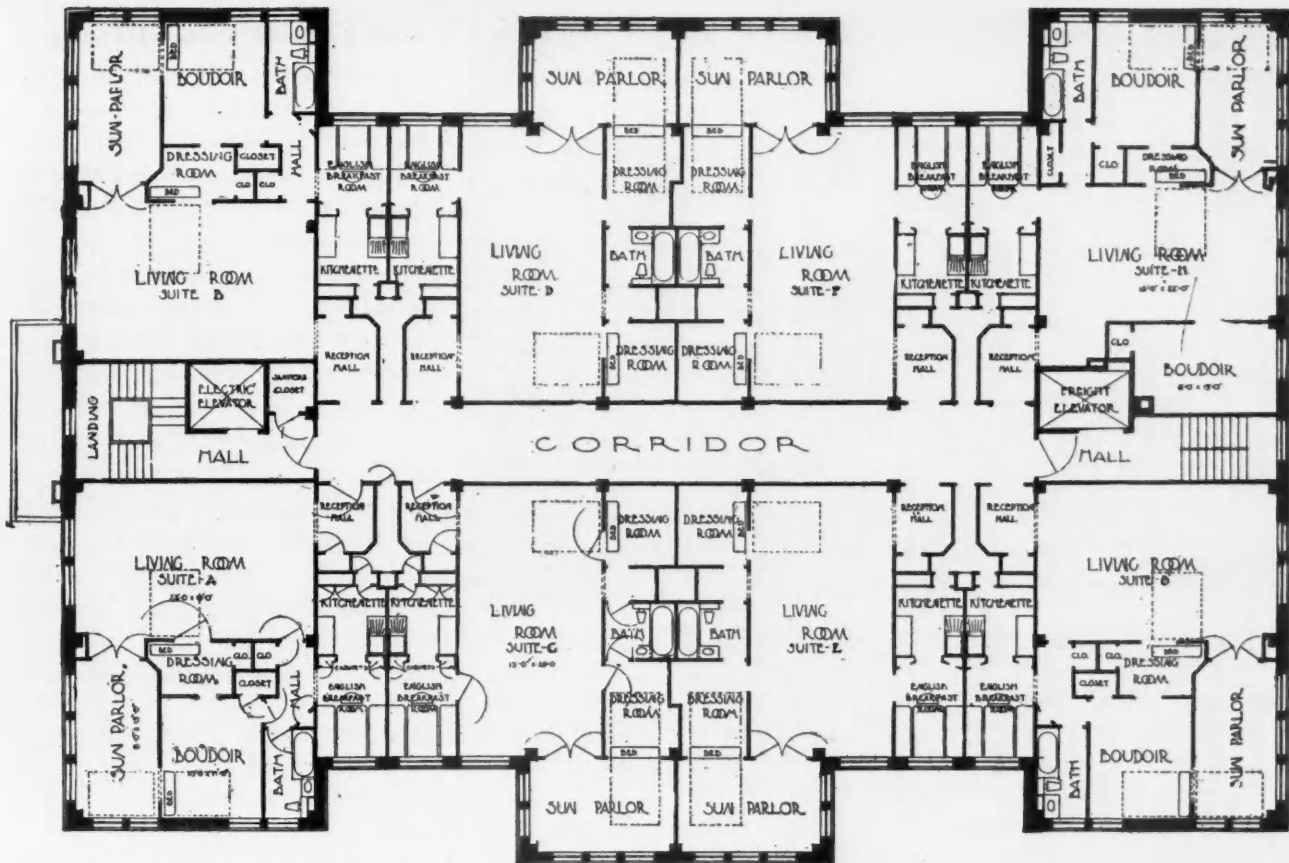
Typical Living Room in Lafayette Apartments. Each Apartment Has a Large Living Room with Two Wall Beds and Dressing Closets. Beyond the French Door is the Sun Parlor.



Lafayette Apartments, Bloomington, Ill. This Pretentious Building Was Erected at a Cost of \$500,000 and Demonstrates the Feasibility of Large Apartments in Smaller Cities. It Contains Fifty-Six Apartments of Three and Four Rooms. T. Simmons was the Architect.

There are eight stories and fifty-six apartments, eight upon seven floors, while the eighth is devoted to the solarium, or roof garden, where social events are permitted under the direction of the tenants. The building is heated with steam from the public plant. There are two electric elevators, landing at all eight floors. The floors of the rotunda, halls and every room in each apartment and also the floor of the cafe and roof garden, are all concrete slabs, reinforced and finished in Italian terrazzo. The partitions thruout the building are special board and steel studding, plastered on both sides. The doors and trim are hardwood, mahogany, oak and birch. The interior doors of the apartments are of the French type and equipped with the highest quality of glass, either plain or mirrored, as the case may be. The windows are of plate glass.

Each apartment contains a sun parlor. All rooms are light, airy and cheerful, with awnings and screens upon all windows. The first floor, or English basement, has a parlor west of the entrance, while



Typical Floor Plan of Lafayette Apartment Building Showing Arrangement of Seven Apartments on Floor. There Are Eight Stories Arranged in Identical Fashion. The High English Basement Has a Rest Room, Coffee Shop and Cafe.

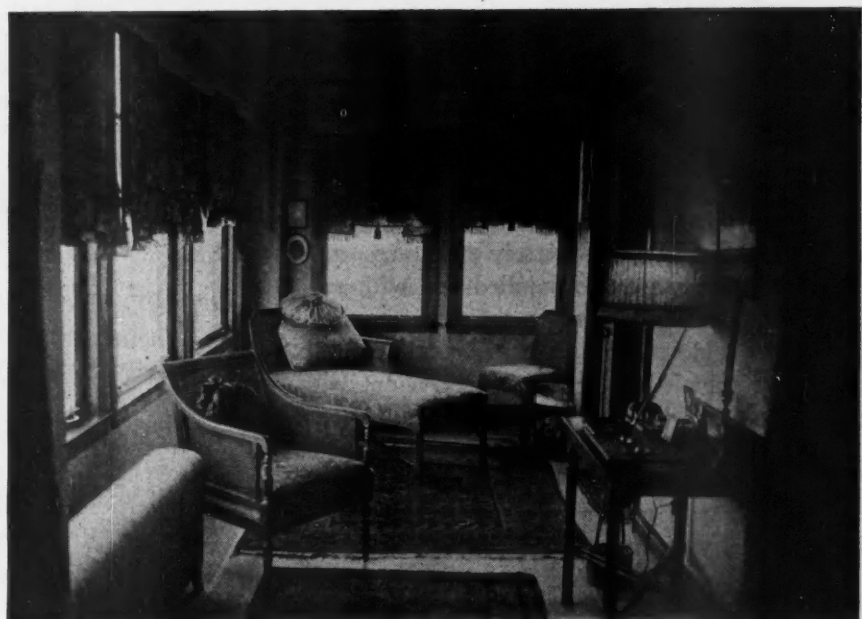
there is a coffee room and cafe east of the entrance. In the rear on the basement floor are located lockers, laundry, water softener, incinerator for garbage, electric equipment and refrigerating plant, which will supply cold air for each refrigerator in the fifty-six apartments. All apartments, except eight, contain three rooms. There are eight with four rooms.

Each apartment contains two wall beds, white enamel steel kitchen cabinet, gas stove, refrigerator, kitchen table, etc. The breakfast room is equipped with a glass cabinet, a china cabinet, an English breakfast table and seats. The bathroom contains the most modern type of plumbing, including a tub and shower bath, medicine cabinet, etc. The living room is 18 by 24, the sun parlor, 9 by 15, and the bedrooms, 12 by 12. The sun parlor on the roof is 30 by 72, windows on all sides, approached by front and rear stairs in addition to the elevators.

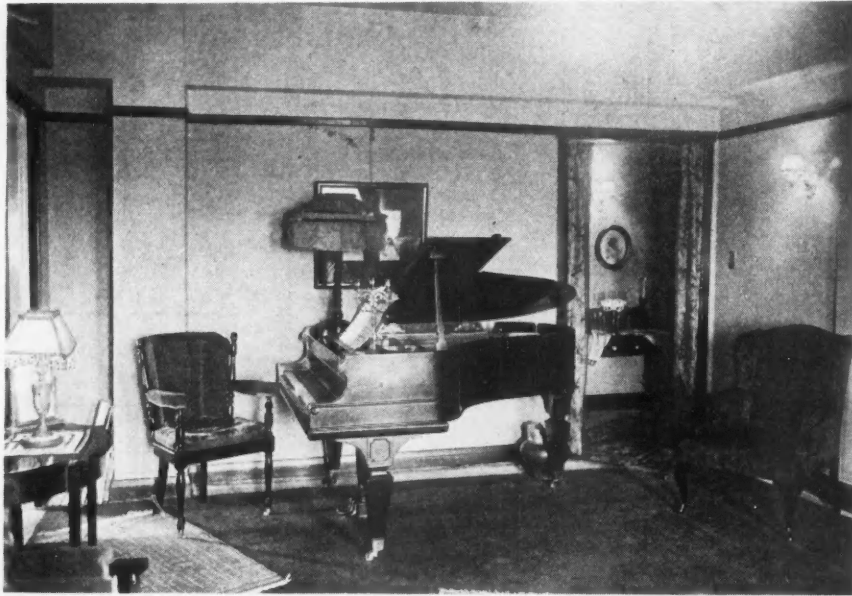
The new apartment building, furnishes a very welcome relief to a housing scarcity which has been extremely acute in Bloomington. On account of the war and high prices of labor and building materials, construction of homes has practi-

cally ceased for several years, while the demand for accommodations of apartments or cottages has been tremendous. The promoters sought to relieve this condition. A building of this type seems to best fit modern living conditions. The servant or maid problem has been such as to greatly stimulate the demand for a semi-hotel building of this kind.

The financing has been handled by a group of men who organized the Lafayette Apartment Building



Sun Parlor in Large Building. Each Apartment Has One of these Cheerful Rooms. This Building Has Furnished a Welcome Relief for the Housing Shortage in Bloomington.



Specimen of Furnished Living Room. Some Apartments Are Furnished, Others Unfurnished. The Latter Rent from \$80 to \$125 Per Month. On the Roof Is a Large Solarium, 30 by 72 Feet, for Social Events.

Corporation. Bonds have been issued from time to time to cover the cost of construction. These bonds bear 6 per cent interest. A large number have been taken by the tenants. The capital stock is \$100,000. Bonds to the extent of \$250,000 have been issued. The latter are a direct first closed mortgage upon the plant, but also a first lien upon the income. It is believed that the financing is sound and that the building will show a handsome income for the investors. The rents are reasonable in comparison with those in metropolitan cities. The range is \$80 to \$125 per month, unfurnished. A number of the apartments are to be furnished and rented for perhaps twice these figures. Architecturally, the building is very attractive. It is located corner of Washington and McLean streets, only four blocks from the public square and business district. No pains or money have been spared in making this the highest type apartment building possible and it is one of which the city of Bloomington is very proud.

Perhaps the most unique feature about the Lafayette apartment building is the fact that the owners purchased every bit of material themselves and completed the construction without the services of a general contractor. It is extremely rare that projects of such extent have been so handled and with such success. Proposed during the war, contractors were so uncertain about material and labor conditions that they would not submit bids unless hedged about with such restrictions that the promoters dared not accept.

As a result, the architect, Arthur T. Simmons of Bloomington, who drew the plans, was also appointed superintendent of construction and engaged assistants for each department.

The owners believe that the plan adopted reduced the total cost at least \$100,000 and also expedited construction. Originally, the plans called for six stories, without the solarium or roof garden.

The Tale of Two Citizens

ONCE upon a time two citizens who were great chums in their youth, took each unto himself a wife and assumed the duties of a spouse. One citizen immediately made a small investment upon a modest home in the suburbs and signed a contract to make a regular payment each month for a certain period until the home was paid for. But his fellow comrade thought differently upon the subject of homes. He sought more pretentious surroundings in the city and paid a large amount each month as rent.

Well, things went along serenely until the Great War. Each raised a family and prospered. Citizen No. 1 had paid for his home and was rent free. Citizen No. 2 still continued to pay rent at a slightly increased figure. Everything was serene. Then came the war and the restriction on home-building. Homes became scarce as more people were married and no buildings were constructed. Rents began to soar. Citizen No. 1, secure in his home, sat aloof and viewed the approaching crisis with equanimity and a satisfying peace of mind. Citizen No. 2 began to develop wrinkles in his smooth face worrying over the situation. Each lease brought an increase until he was paying a rent wholly beyond his means.

Finally the landlord added another boost that staggered him and it was a case of pay or leave. Pay he could not—leave? Well, he had no place to go. In panic he poured out his troubles to his old friend. "Ten years ago," reminded the latter, "you laughed at me when I started paying on a home, but I guess it's a case of 'he who laughs last.' What I advise you to do now is start where you should have then. Buy your own home! Then let the rest of the world pay the piper."

It's never too late to do something worth while. Charge off vain regrets; buy some new hopes and start life's business on a sound basis.



PROPERTY owners can improve the appearance of homes and other buildings by demanding the use of from 30 to 50 per cent of zinc oxide in the paint pigment. This material increases the life of both exterior and interior coatings, insures lasting luster and prevents fading. Paint which includes the proper proportion of zinc in the pigment mixture better finds its way into the pores of the surface, and thus affords excellent protection against deterioration.



AIR castles are easy to build, but you can't live on the rents!

Paris' Freak Apartment House

EACH APARTMENT HAS VERANDA, FRONT LAWN AND GARDEN—FRONT OF BUILDING RECEDES EACH STORY

AN apartment house where every apartment has its own wide veranda, little front lawn and garden, if so desired, has been evolved by an architect in Paris. Space in a city where housing is scarce and where space means so much has been sacrificed for the odd and picturesque structure containing twenty-one apartments, which rears itself seven stories high just a few blocks from the European Headquarters of the American Red Cross.

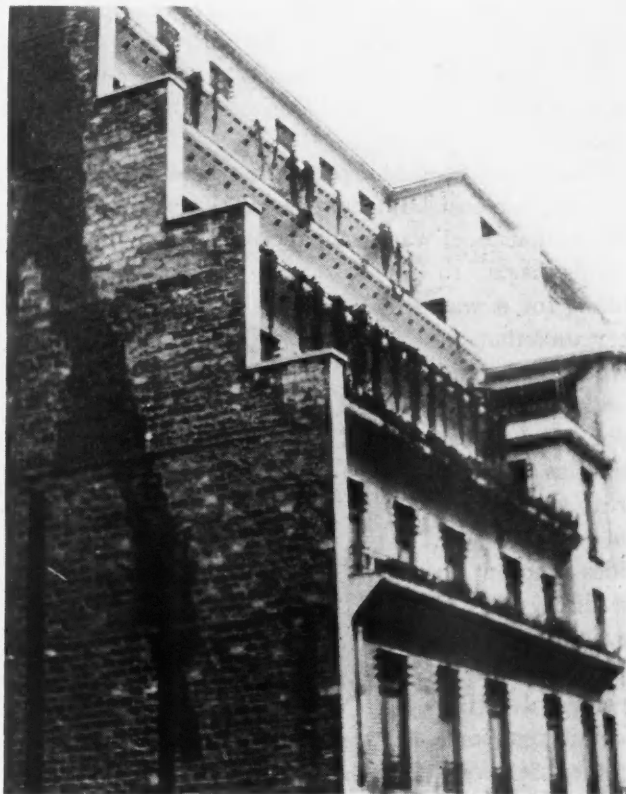
Rising step-like a floor at a time, the face of the building gradually recedes until if a line were dropped from the top to the ground, the upper front of the building would be sitting back some fifty feet from the sidewalk base. There is no over-hang in the rear of the building, consequently the rooms in each apartment grow less as one ascends. The first floor apartment has ten rooms and the top one has four.

With its blue and white tiles, its vines drooping from the balconies, this last word in apartment houses presents a pretty front to the passers-by and at the same time gives its tenants plenty of fresh air and sunshine. With such wide verandas to use in the summer months there is no necessity to seek cooling breezes in the country.

The very irregularity of this "architectural freak," as it has been called, has not proved advantageous when it comes to heating, the central heating system failing to agree with the peculiarities of the building. The same applies to the plumbing, which wanders about

at various angles to meet the requirements of the differently placed apartments.

So in spite of its good points the new apartment house is considered an impractical "freak" by architects, while Parisians think it a real crime to waste so much valuable space in the most beautiful city in the world.



Latest Style in Apartment Buildings in Paris. Each Apartment Has a Wide Veranda and Front Lawn and Garden If One Chooses.

AN amendment to the Los Angeles, Calif., building regulations permits construction, outside of certain fire districts, of unit concrete walls and hollow walls of concrete. The outstanding features of the new ordinance are:

Walls of hollow concrete units must be at least $1\frac{1}{4}$ inches thick; connecting webs, which shall occur at least every 8 inches in length of unit, shall be not less than $1\frac{3}{8}$ inches thick. Concrete unit walls shall be of same thickness as required for brick walls, and the units shall be laid up in mortar consisting of 3 parts lime mortar to 1 part portland cement.

PLAIN walls are universally figured at 15 bricks to the square foot of an 8-inch wall, $22\frac{1}{2}$ bricks to a 12-inch wall, 30 bricks per square foot in a 16-inch wall and $7\frac{1}{2}$ bricks for each additional 4 or $4\frac{1}{2}$ inches thickness in the wall.

IN certain cities in New York state the shortage of homes is so great that parents, who have searched in vain for new quarters, are seeking to place their children in institutions or boarding houses.



Front of Apartment Building Showing How Each Floor Recedes Giving the First Floor Apartment Ten Rooms and the Top One Four.

The Three K's in Our House

KOMFORT, KWIENT AND KONVENIENCE ESSENTIAL FEATURES OF HAPPY HOME—SOME IMPORTANT FACTORS WHICH BRING SUCCESSFUL RESULTS

By Clan McGrale

EVERYBODY looks forward to building a house that will suit their tastes exactly, with all the objectionable things in other houses left out.

Many people form their ideas hastily and build houses that can suit no one but themselves; should there come an unexpected financial mishap or change in business they are unable to sell at a good price. So they pay too high a price for their individualistic ideas. We have gone thru that phase of home planning and have recovered from it. We will not build an unsaleable freak.

There will be a sharp contrast between our home and the one just built next door. Everyone was glad when that one was wallpapered before the wintry winds began to blow, for it was certain that it would not stand without that paper. But it was built by a typical real estate promoter, whose idea is to put up a flimsy shell with a wide porch, paint it some pleasing color, put some gimcracks and gewgaws on the inside to catch a woman's eye, and sell it quick.

We will just reverse his procedure.

The interior of a house ought to come first, we think, for it is on the inside that people live.

Then, it is not to be any more expensive than a house that any architect would design for us. The cost will be about the same but it will be distributed differently among the several parts of the estimate.

In our house the three K's will come first, Komfort, that is what a house is for anyway; Kwiet, for we have found that quiet is altogether essential to comfort in the best sense; and Konvenience, that everything may be done quickly, quietly, and in comfort. Our house must last for generations; it will be a workshop to some, a place of entertainment for others, a trysting place, a house of refuge, a place to rest. It must be convenient if it is to be quiet, and it must be both of these if it is to be comfortable for us—individually and collectively.

The outside doesn't make so much difference as long as it is in good taste. We will insist upon more than the usual amount of light for each room, with

big, frankly-open sashes.

On ventilation we are particularly sensitive for we believe in working and playing hard, with plenty of fresh air to feed the fires. At night there must be an abundance of fresh air flowing thru, no matter what the temperature, but that can be had by opening the windows. What we are most concerned about is a steady supply of fresh air properly warmed before it gets into the rooms during the day. Nothing kills inspiration and ambition as quickly as stale air, and in most houses it is shut out with all the skill of the architect and builder combined. We think it is just as important as heating and lighting, so up near the top of our list of accessories we have specified the

metal ventilator boxes that are set into the walls of office buildings and operated with simple little levers from the inside. There will be at least one under each window.

The thought of all that fresh air coming in on a day like this when the mercury is shrinking at 25 degrees below zero makes us hurry down the list to "Heating Plant." Today we are very positive about plenty of

heat. That is one of our corner stones. It must be as natural as possible, with plenty of moisture in it. We would like thermostats in the rooms if we could afford them, but they can wait until our final estimate is made up.

An effective and well-behaved heating plant is one of the blessings of heaven.

Next in importance is the lighting system. What adds more to Konvenience and Komfort than lights that respond instantly to the turn of a knob? We think enough of that to want electricity. Our plans for wiring may seem extravagant to anyone who has not used electricity generously. The principal lighting system might be indirect, with lights concealed in heavy moulding near the ceiling, but that will probably be too expensive. Plain fixtures on the ceiling will do very well and we will thus save enough to provide outlets in the walls of all the rooms for desk lights and reading lamps, lights for dressers and dressing tables, for heating hair curlers and many other things. Also there will be outlets on the baseboards for the electric



Komfort, Kwiet and Konvenience Are the Three K's that Make an Ideal Home.

sweeper, or to be used for lights when more convenient. All the extra wiring will not cost a great deal when done in the beginning.

Then, we are going to be a little "uppish" about the arrangements for turning some of these lights on and off. There will be three-way switches at the top and bottom of the stairs to light the upper and lower halls before going up or down. In addition there will be a switch at the top of the stairs to turn on every light on the first floor at once. It is the best burglar protection in the world for light is one thing a burglar does not approve of, and when the women are alone at night that one thing will give them more comfort than all the others. The porch lights will be operated from the inside as usual, but we'd like to have one front hall light to be turned on by a key switch on the porch before we step inside.

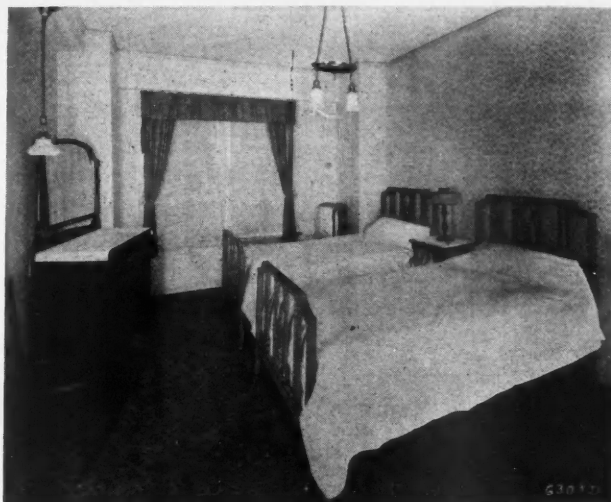
The buttons for the bedroom lights will be located just inside the doors from the hall, to light the rooms before we enter, with other buttons or cords at the heads of the beds. The closets will be lighted automatically when the doors are opened.

The bathroom will be large and light, in the center of the upstairs, with well insulated walls. A real clothes chute will lead from the bathroom down past the kitchen to a closed box in the laundry, and a basket will be kept in this box to catch the clothes as they come down. The bathroom will be aided and abetted by a washroom on the first floor where children can be cared for without taking them upstairs.

There are only a few other things that we will contend for in general. The doors upstairs must be solid. Thin panels would defeat our plans for they are only sounding boards. All the doors will be swung $\frac{1}{2}$ inch above the floors, with a sill underneath, to swing freely over rugs. The hardware will be simple but of good quality. This applies especially to the door knobs, for we want none that rattle like a chain gang's shackles when they are touched. If we decide upon a fireplace in the living room it will have a wide concrete hearth in front of it with a raised border to keep the ashes in.

We have not neglected the basement in our plans. Any home planner who has not discovered the basement is at a grievous disadvantage. Our house will be set high enough to admit cellar windows 27 inches high. They will be square, and there will be twice as many as there are in most cellars. If there is any partitioning it will be only for the furnace room. Under the back porch we will have a fine fruit and vegetable cellar off the main basement. But from the front wall of the front porch, which will go down full depth, there will be a fair, open, and brightly lighted sweep to the very rear wall of the house. Any posts for supporting the house will be square, concrete with 2-inch by 4-inch nailing strips set in them vertically from the ceiling to the floor for hooks and racks and other things.

The next essential is a smooth, hard concrete floor sloping to one or more drains, for the nicest thing



Electric Lighting Arrangements in Bedrooms Are Very Important. In This Ideal Home Buttons Will Be Located Just Inside the Door and Other Buttons or Cords Near the Bed. These Are Little Conveniences That Help to Make a Real Home.

about a basement is the ease with which it can be flushed down with a hose. There will be plenty of drop lights and at least one will be operated from the head of the stairs. If any partitions are needed they will be low or else made of lattice work so they will not shut off the light or stop the circulation of air, which is very desirable not only for the cellar but for the remainder of the house as well.

Now that the inside of the house has been planned we must consider a proper shell for it. The first requirement is that it must be tight, to keep out the wind and prevent drafts. Good portland cement or magnesite stucco is very satisfactory. It is a uniform, permanent material at a reasonable cost, requires a minimum of maintenance, and is adaptable to any architectural plan or color scheme. It must be applied in two or three coats on metal lath, over a layer of good felt paper, with an air space behind it. This air space is for insulation, which is as essential as tightness for it keeps the house cool in summer and warm in winter, and prevents sweating of the walls. All the doors and windows will be weather-stripped when they are fitted into place.

Of course we will have large porches but they would be included, in these days, in any design, for everyone appreciates porches more than they did years ago. They will be screened against flies. All the screens for porches, windows and doors, together with any storm doors and windows, will be made at the time the house is built, and when they have been carefully fitted into place they will be numbered and stored away.

We want a house that will be a home, to all of us. With everyone comfortable, with quiet obtainable in any room, and without too many restrictions upon boisterous fun. So we're just going to forget some of the make-believe, the architectural imitations of castles an' sich, and make it Konvenient, especially for those to whom it is a workshop, and after that Kwiet and Komfortable for all of us together.



Design for Community Hall and Social Center

ATTRACTIVE BUILDING OF BRICK WITH TERRA COTTA TRIM HAS LARGE BANQUET HALL, AUDITORIUM AND BOWLING ALLEYS—CONSTRUCTION DETAILS ON OPPOSITE PAGE

ONE of the wholesome effects of the recent war has been the development and growth of community spirit. The leaguing together during the great struggle to sell bonds, raise money for the

boys, and other get-together affairs to force the war to a successful conclusion, brought people in a community closer together. Perhaps for years they had

(Continued to page 119.)

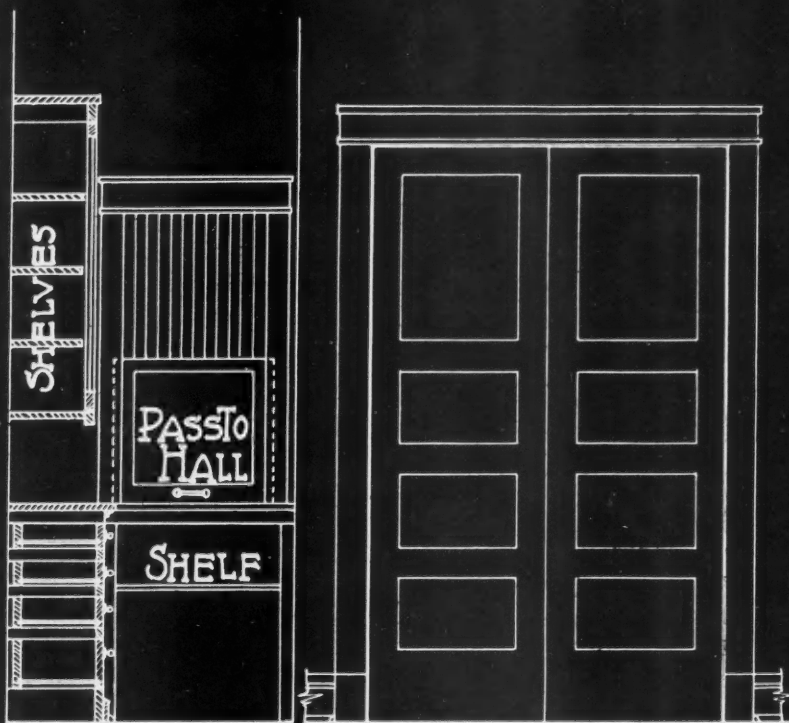


Basement Plan of Proposed Community Hall, Showing Recreation Rooms, Bowling Alleys and Maintenance Section.

First Floor Plan. Two Stores, Ticket Office, Locker Rooms and a Large Banquet Hall Are Located on This Floor.

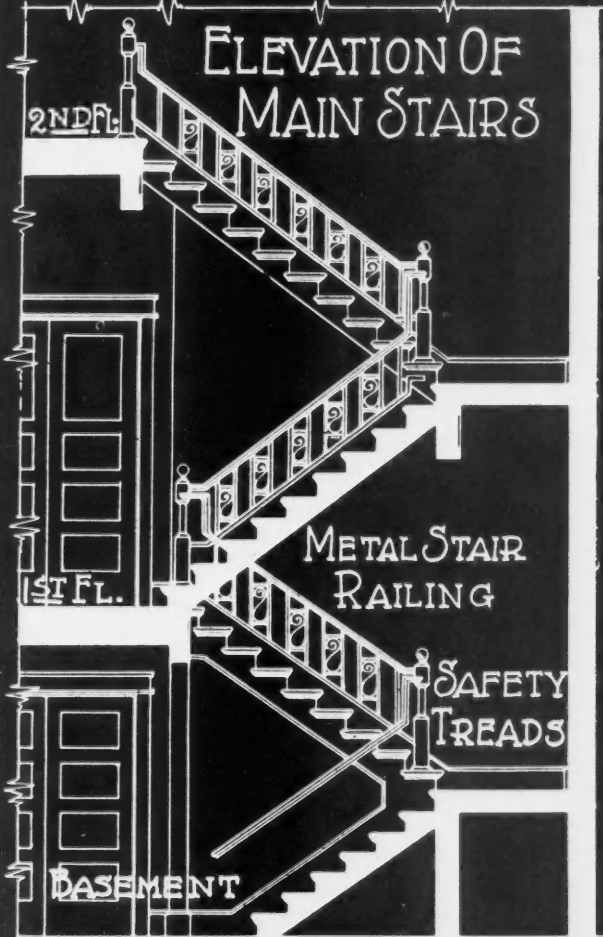
Second Floor Plan, Showing Large Auditorium and Professional Offices in Front of Building. This Building Is 50 by 85 Feet.

RECOMMENDED CONSTRUCTION



SECOND FLOOR
KITCHEN CASE

ELEV. OF DOUBLE ENTRANCE
DOORS TO HALLS

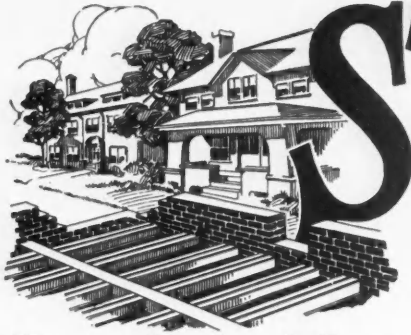


ELEVATION OF
MAIN STAIRS



MAIN ENTRANCE

COMMUNITY BUILDING DETAILS



STEEL LUMBER Construction

Fire-Safe Floor Construction in Colonial House

DETAILS OF STEEL LUMBER APPLICATION TO SIX-ROOM BRICK HOUSE ARE EXPLAINED AND ILLUSTRATED

By Gilbert Canterbury

EDITOR'S NOTE—This is the fourth article of a series on the use of steel lumber in modern construction. Readers are invited to ask questions pertaining to this subject. Answers to all inquiries of general interest will appear each month in this department. Write in your problems now.

TO GIVE a complete idea of every detail connected with the construction of a fire-safe first floor with steel lumber, a small Dutch Colonial dwelling designed by Architect John Barnard, of Boston, Mass., is used in this article as a model. This house is one of the designs appearing in "The Home of Beauty," published by the American Face Brick Association.

The accompanying drawings include an exact layout of the basement plan, showing the steel joists laid for the various spans and supported on brick bearing walls with occasional use of rolled structural steel beams. Also an isometric sketch

showing fire-safe first floor construction with wood surface.

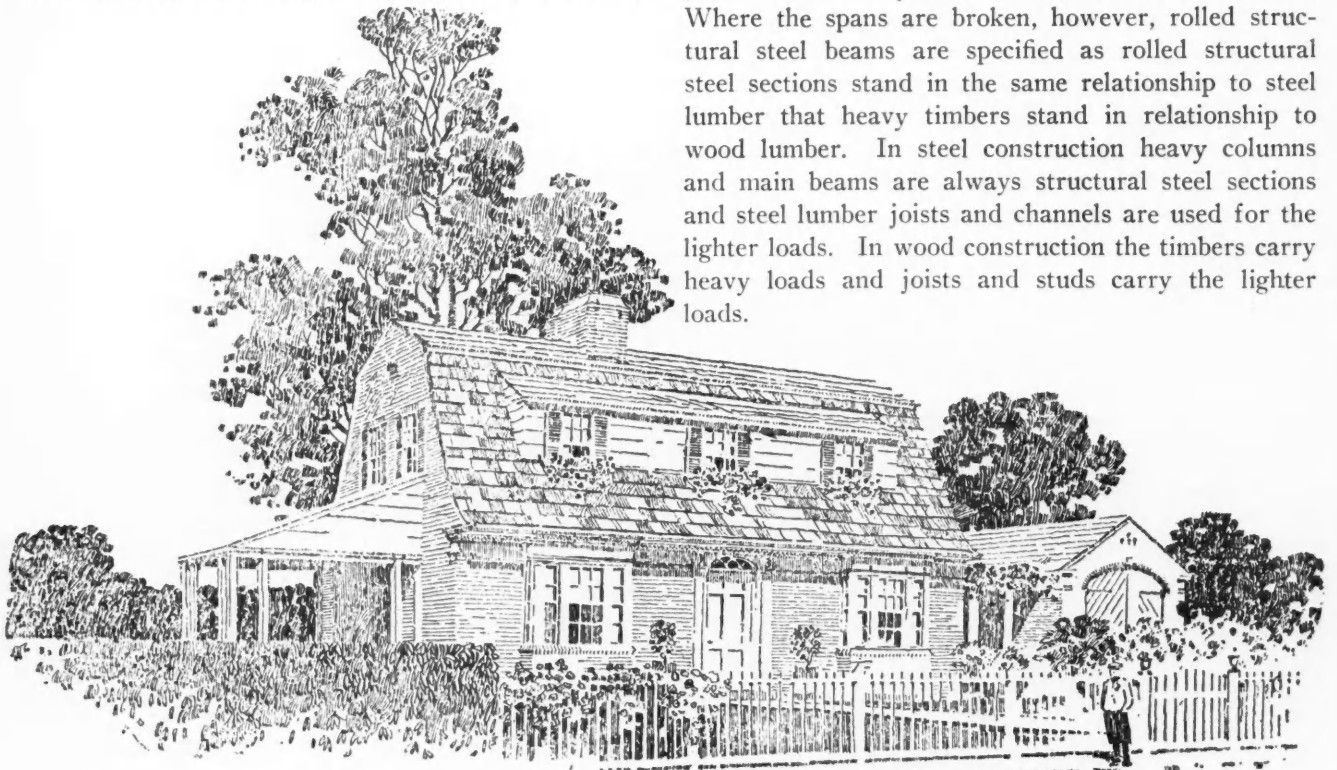
Here then is a charming little six-room home that can be built at a moderate cost. The walls to be of face brick and the first floor made fireproof and dust-proof with steel lumber joists and metal lath.

The isometric drawing indicates that in the first



First and Second Floor Plans of Brick Colonial House in which Steel Lumber Joists Were Used.

floor construction the steel lumber joists are set in just the same way that wood joists would be used. Where the spans are broken, however, rolled structural steel beams are specified as rolled structural steel sections stand in the same relationship to steel lumber that heavy timbers stand in relationship to wood lumber. In steel construction heavy columns and main beams are always structural steel sections and steel lumber joists and channels are used for the lighter loads. In wood construction the timbers carry heavy loads and joists and studs carry the lighter loads.

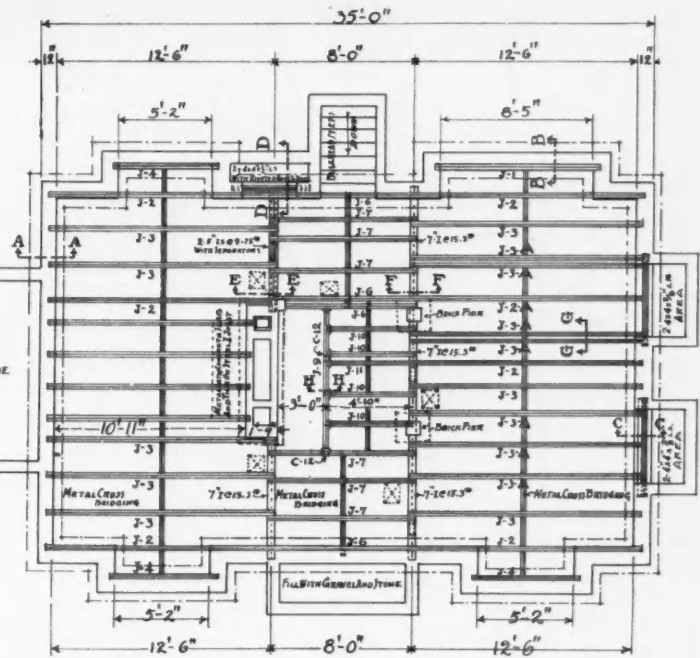


Perspective of Brick Colonial House Built Along Fire-Safe Lines with Steel Lumber Floor Joists. The Bill of Materials Used in the Construction of the Floor of This Home Are Listed in the Article.

Metal lath is laid across the steel lumber joists and fastened by driving nails right down into the web of the joist. Nailing screeds are nailed to the joists over the top of the lath and then a concrete fill placed between the screeds and leveled off even with the tops of the screeds. This completes a floor of absolutely unburnable materials, which cannot warp or sag and which is dust-proof and vermin-proof. Pine, maple, oak or any sort of surface can be nailed to the nailing screeds without impairing the fire safety of the floor.

A fire-safe first floor of this construction will make a house cost from one per cent to two per cent more than if the floors were built entirely with wood.

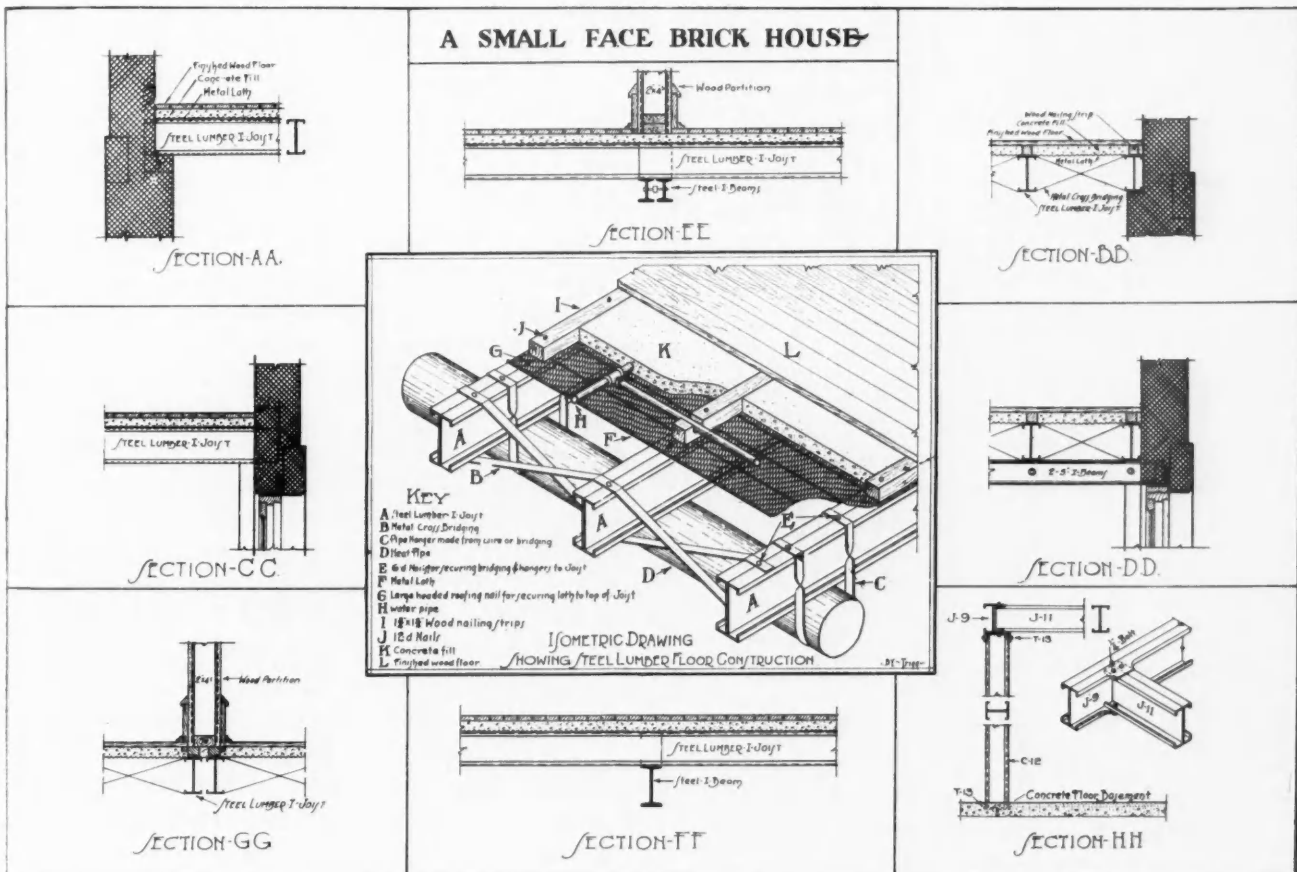
But every cent of cost in a home, of course, must be carefully considered. Of just what actual value is a fire-safe first floor? Probably the housewife will be better able to fix the true value of dust-proof quality in a floor and of vermin-proof quality. The floor that leaks coal dust and the other dust that seems always to accumulate in cellars furnishes a problem more for the mistress of a home



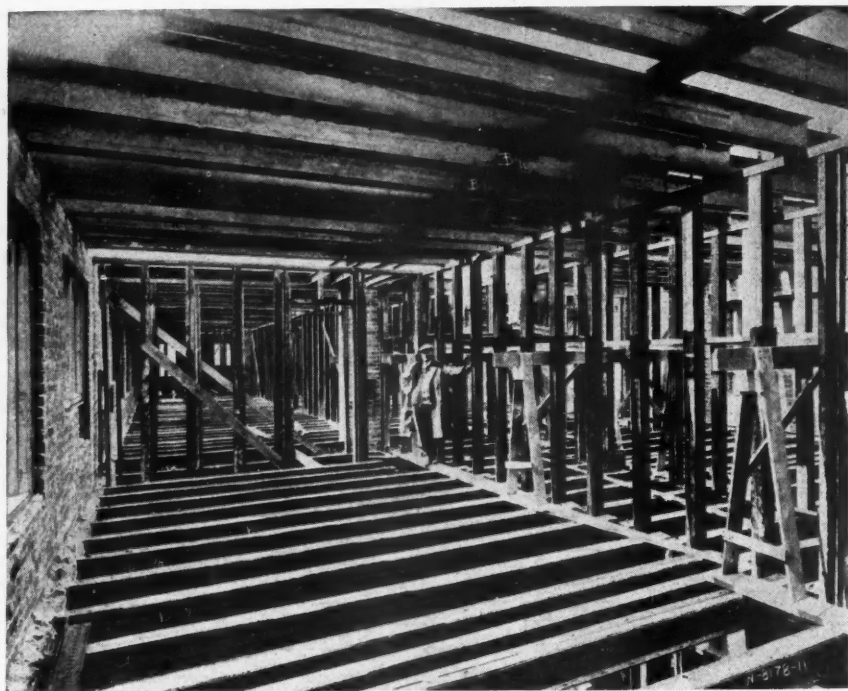
Steel Lumber Joist Layout for Floor of Colonial House. This Drawing Shows Where Joists Are Laid and Other Details of Construction. (See bill of material on next page).

than anyone else. The red ants, mice and other vermin that easily crawl up thru most floors make work and inconvenience for the housewife rather than the head of a home. But on the subject of structural permanence, solidity and fire-safety the value can easily be determined in dollars and cents.

Every newspaper carries stories of homes destroyed



Details of Steel Lumber Construction for Floor in Brick House Shown on Page Opposite. These Sections Refer to the First Floor Plan Above Showing Joist Layout. The Isometric Drawing in Center Shows How Various Materials Are Applied.



Full Bearing Partitions Built with Steel Lumber Studs and Metal Lath. The Steel Lumber Joists Rest on a Central I-Beam.

by fire. Unquestioned statistical records show that the great majority of these dwelling fires originate under the first floor or in the first floor section itself. T. Alfred Fleming, supervisor of the conservation department of the National Board of Fire Underwriters, recently declared that during 1920 a total of 889 residences for every working day in the year caught fire. That means that over a quarter of a million homes catch fire every year. Mr. Fleming further declared that the records of the insurance companies show that more than half of all the fires

in the United States are in homes; in fact, he quoted the exact figure of sixty-five per cent. The loss in money for dwelling fires every working day averages \$280,000.

In speaking to a meeting of fire marshals, Mr. Fleming said: "The average business man with \$20,000 will not be satisfied until he has it safely within the vaults of the strongest bank, while the same man will house his wife and family in a tinder-box of a home."

It ought to be an easy matter to determine on a dollars and cents basis, whether or not a fire-safe first floor is really worth the one per cent or two per cent extra it will cost.

Framing Partitions

The steel lumber partition in association with brick walls and steel lumber floors completes the absolutely permanent and incombustible home. The accompanying photograph shows a splendid example of full bearing partitions built with steel lumber studs.

Metal lath is attached to the steel lumber studs to form a base for plaster and walls built in this manner never crack. The cause of wall cracks is the warpage and shrinkage of wood joists and studs. The greatest shrinkage usually takes place the first six to twelve months after a house is built. Contractors often refer to this period as the "settling" period of the house. Steel lumber joists and studs can not shrink or warp.



GOOD concrete can be made by hand mixing, but unless laborers are carefully watched and instructed as to the best way of turning materials, imperfectly mixed concrete is likely to result. Machine mixing is more dependable, especially in the batch type of mixer. These come in almost any desired capacity and are relatively low in cost. Many cement and building material dealers rent such mixers to their cement customers, and often farmers join in groups and buy power mixers that all of them can use.



CRACKS in concrete come frequently from the neglect to provide for expansion and contraction. Concrete that is exposed to heat and cold is subject to a certain amount of contraction and expansion. The expansion joint should not be a mere ornamental line on the surface but should extend down thru the slab. Some contractors provide for this by first laying only every other slab. When the first slabs are hard, the empty spaces are filled.

Pieces	Size	Article	Length	Mark
1	6"	SL Joists	9' 3 "	J- 1
6	6"	SL Joists	12' 11 "	J- 2
8	6"	SL Joists	13' 2 "	J- 3
3	6"	SL Joists	6' 0 "	J- 4
4	6"	SL Joists	11' 7 "	J- 5
3	6"	SL Joists	8' 0 "	J- 6
6	6"	SL Joists	8' 6 "	J- 7
1	6"	SL Joists	8' 2 "	J- 8
1	6"	SL Joists	8' 3 3/4"	J- 9
4	6"	SL Joists	5' 0 "	J-10
1	6"	SL Joists	4' 9 1/2"	J-11
7	6"	SL Joists	13' 3 "	J-3A
1	6"	SL Joists	13' 1 "	J-2A
2	4"	SL Studs	7' 10 "	C-12
4	4"	SL Channels	0' 4 "	T-13

230 ft. metal strap bridging.
 85 sq. yds. metal lath (ribbed).
 65 1/4 x 3/4 stove bolts to connect joists at stair opening.
 500 lin. ft. 1 3/4 x 1 3/4 nailing screeds.
 4 cu. yds. concrete.
 3 structural steel I-beams 7-in.
 2 structural steel I-beams 4-in.

Material List of Metal Lumber for Job. Note the Sizes and Number of Steel Joists and Channels Needed, Also Metal Lath and Concrete.

DESIGN OF SAFE CONSTRUCTION

By Charles W. Leigh

Associate Professor of Mechanics, Armour Institute of Technology

Cast Iron Columns

ARTICLE 16 OF AN EXTENSIVE SERIES ON STRENGTH OF MATERIALS

THE use of cast iron columns in buildings present advantages and disadvantages when compared with wooden and steel columns.

Some of the advantages of cast iron columns are low cost, ease with which they may be obtained for a given load, adaptability to do any given shape or design, and ease of making connections to other parts of the structure. If the metal is at least three-quarters of an inch in thickness, it is practically uninjured by rust when not provided with a protective coating.

The disadvantages of cast iron columns are lack of uniformity in the metal, the danger arising from internal stresses due to shrinkage, and the difficulty in making light or riveted connections with other members. Sometimes it is found that the metal in columns is thicker on one side than on the other, or porous sections may exist in some part, due to honey-combing of the metal, or the formation of blow holes during the casting of the member.

Columns with heavy projections or thick parts which join thinner ones are likely to be weakened at the junction joints, due to the setting up of internal stresses during the cooling of the cast columns. Thin parts cool quicker than heavy sections, and the contraction of the larger part during its cooling will put considerable stress on the thin and already cooled part.

Plain molded caps and bases may be cast solid on the columns, but if caps which are largely ornamental, or if heavy projecting bases are desired, they should be cast separately, and attached to the straight column by screws.

Figs. 1, 2 and 3 show the shapes of cross-section of cast iron columns in common use. For interior columns, the hollow cylindrical shape, Fig. 1, meets the requirements better, and is more commonly used than any other shape. For exterior columns, as in store fronts, the shape shown in Fig. 2 is commonly used, since it gives a good bearing for the beams which support the walls above. In fireproof construction the H-shaped section, Fig. 3, is used to a great extent. This shape of column is readily protected by concrete and masonry, so that no open space is left which exposes the metal. The material of the column may be seen at all parts and is easily measured for uniform thickness.

While the safe load that a cast iron column will carry is given in hand books, I will show how two or three are figured, as well as the use of the hand book in selecting a column to carry a given load.

We will consider first the hollow cylindrical columns.

Since the dimension of the round cast iron column is the same in every direction, we only need to calculate the radius of gyration about any axis, say 1-1 of Fig. 1.

Now the moment of inertia of a hollow circle is

$$I = \frac{\pi}{4}b^4 - \frac{\pi}{4}a^4$$

where b is the radius of the outer circle and a that of the inner one. Also

$$A = \pi b^2 - \pi a^2$$

$$r = \sqrt{\frac{\pi/4 b^4 - \pi/4 a^4}{\pi b^2 - \pi a^2}} = \sqrt{\frac{b^4 - a^4}{4(b^2 - a^2)}} = \sqrt{\frac{b^2 + a^2}{2}}$$

That is to find r, simply square each radius, add the results, extract the square root of the sum, and divide the square root by 2.

Thus, if b = 6 inches and a = 4 inches:

$$I = \sqrt{\frac{(6)^2 + (4)^2}{2}} = \sqrt{\frac{52}{2}} = \frac{7.21}{2} = 3.6$$

The New York Building Law formula for cast iron column is:

$$\frac{P}{A} = 9,000 - 40 \frac{l}{r} \dots \dots \dots (2)$$

where all the letters have the same meaning as in Formula 1 of the March number.

Suppose we wish to find the safe load that a 14-foot round column will carry, if the outer radius is 4 inches and the metal 1 inch thick.

In Fig. 1, B = 4 and a = 3, then

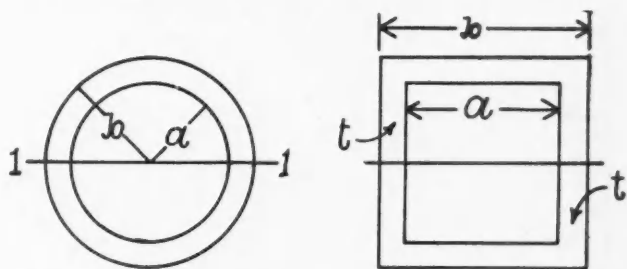


Fig. 1. Cross Section of Hollow Cylindrical Columns Used in Interior Work.

Fig. 2. Cross Section of Square Shaped Column Used Mainly in Exterior Work.

$$r = \sqrt{\frac{(4)^2 + (3)^2}{2}} = \frac{5}{2} = 2.5$$

$A = \pi(4)^2 - \pi(3)^2 = 7\pi = 7 \times 3.1416 = 21.99$ or 22, approximately.

$l = 14 \times 12 = 168$ inches. Substituting in (2),

$$\frac{P}{22} = 9,000 - 40 \times \frac{168}{2.5} = 9,000 - 2,690 = 6,310$$

$$\therefore P = 22 \times 6,310 = 139,000 \text{ pounds}$$

This result may be verified by consulting a Carnegie handbook, page 321, where the load is given in thousands of pounds.

This formula is limited for safe construction to a slenderness ratio of 70. If we put this value of $\frac{l}{r}$ in Formula 2.

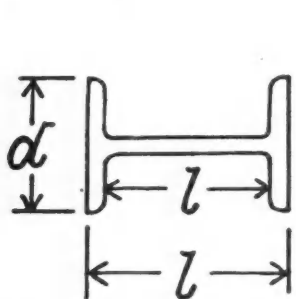


Fig. 3. H-Shaped Section Cast Iron Column Used in Fireproof Construction.

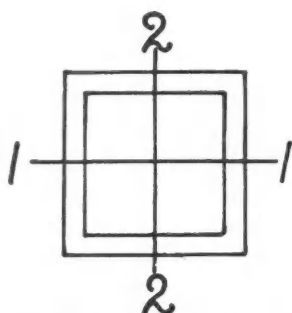


Fig. 4. Showing Radius of Gyration About Hollow Square Column.

$$\frac{P}{A} = 9,000 - 40 \times 70 = 9,000 - 2,800 = 6,200$$

That is when a cast iron column is carried to its greatest safe length the fibre stress is then 6,200 pounds per square inch.

If, then, we wish to find the minimum size for a cast iron column of given length to carry the given load, we proceed as follows:

Since $\frac{l}{r}$ cannot exceed 70, r is found by dividing l in inches by 70, or

$$r = \frac{l}{70}$$

Since the allowable fibre stress is 6,200 pounds at greatest length, the required area of cross-section is found by dividing the total load by 6,200 pounds, or

$$A = \frac{P}{6,200}$$

Find the minimum size for an 18-foot column to carry 200,000 pounds. $l = 18 \times 12 = 216$.

$$r = \frac{216}{70} = 3.1$$

$$A = \frac{200,000}{62,000} = 32.26 \text{ square inches}$$

On page 198 of Carnegie is found a table of Hollow Round Sections, giving the areas and corresponding radii of gyration for different thicknesses of metal. The nearest values of r and A are

$$r = 3.13, A = 34.36$$

corresponding to an outer diameter of 10 inches and a metal thickness of $1\frac{1}{4}$ inches. Notice that r and A from the table must be greater than the computed values, if equal values cannot be found.

The advantage in using hollow square sections shown in Fig. 4 is that the radius of gyration about axis 1-1 or 2-2 are the same. The column is of equal strength with reference to either axis.

For hollow square sections:

$$r = \sqrt{\frac{b^2 + a^2}{12}}$$

whereas in Fig. 2, b is the side of the large square, and a the side of the inner side. Notice that a is equal to b minus twice the thickness t of the metal or

$$a = b - 2t$$

Take a square section with side $b = 10$ inches and a thickness of metal equal to $1\frac{1}{4}$ inches. Then

$$a = 10 - 2 \times 1\frac{1}{4} = 7\frac{1}{2} \text{ inches}$$

$$\therefore r = \sqrt{\frac{(10)^2 + (7.5)^2}{12}} = \sqrt{\frac{156.25}{12}} = \sqrt{13.02} = 3.61$$

Now the slenderness ratio must not exceed 70.

Then $\frac{l}{r} = 70$, or $l = 70 \times 3.61 = 252.7$ or 21 feet, approximately.

Then 21 feet is the longest cast iron column to use for safety with this cross-section.

To find the load that this column will carry we substitute in Formula 2:

$$A = 10 \times 10 - 7.5 \times 7.5 = 43.75, l = 252.7, r = 3.61$$

$$\text{Then } \frac{P}{43.75} = 9,000 - 40 \times \frac{252.7}{3.61} = 6,200$$

$$\therefore P = 271,250 \text{ pounds}$$

Suppose the problem is to find the minimum size for a 15-foot hollow square column to carry 175,000 pounds.

As in the previous problems, the greatest length of a column is 70 times the least radius of gyration.

But $l = 15 \times 12 = 180$ inches. Then

$$180 = 70 \times r$$

$$r = 2.57$$

Also for greatest length of columns the maximum fibre stress is 6,200 pounds. The required area is found by dividing the load by 6,200, or

$$A = \frac{175,000}{6,200} = 28.2 \text{ square inches}$$

On page 199 of Carnegie we find the nearest value of A greater than 28.2 is 30.94, having $r = 2.84$ for square section 8 inches on the side, and a metal thickness of $t = 1\frac{1}{8}$. While this column is larger than necessary, it is the nearest commercial size to choose.

Unless the reader is more or less familiar with mechanics, the figuring of the moment of inertia of an H section is not an easy problem. If one has access to a handbook, the least radius of gyration is easily obtained. However, if the handbook is not

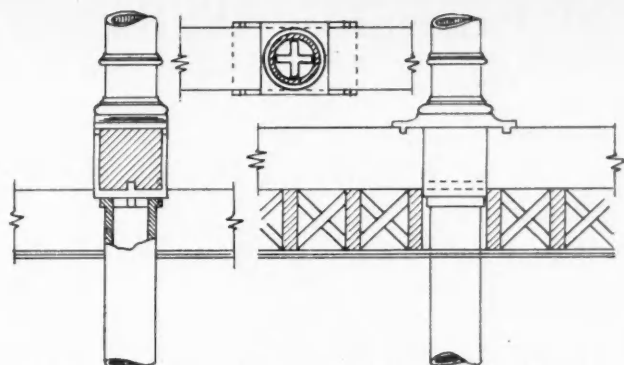


Fig. 5. Cast Iron Columns and Timber Girders, Showing Continuous and Bolted Columns.

available, the following rule will be found to lead to values of r near enough for practical purposes. The least radius of gyration is equal to the quotient obtained by dividing the longest dimension or depth of the beam section, such as e of Fig. 3, by 4.2.

For example, if the depth is 8 inches, then

$$r = \frac{8}{4.2} = 1.9$$

Carnegie gives $r = 1.87$, page 179.

As an example, find the safe load that an H-shaped cast iron column 20 feet long, 8 inches deep and weighing 34 pounds per foot will carry. Now, $l = 10 \times 12 = 120$ inches, $r = 1.87$ and $A = 10$ (see Carnegie, page 179). Substituting in

$$\frac{P}{A} 9,000 - 40 l/r$$

we have

$$\frac{P}{10} = 9,000 - 40 \times \frac{120}{1.87} = 9,000 - 256 = 6,440$$

$$\therefore P = 10 \times 6,440 = 64,400 \text{ pounds}$$

In H sections, as in all other cast iron beams, the greatest slenderness ratio should be 70. Then the longest 8-inch H column to be used is found as follows:

$$\text{Since } l/r = 70, l = 1.87 \times 70 = 131 \text{ inches,} \\ \text{or } l = 11 \text{ feet}$$

H sections are also made of steel. A complete table of safe loads, figured from the American Railway formula:

$$\frac{P}{A} = 16,000 - 70 l/r$$

may be found on page 296 of Carnegie. It is understood in the use of this formula that the fibre stress is never taken greater than 13,000 pounds per square inch. Also, if the slenderness ratio is over 100, the reader must refer to table of safe stresses on page 159 of Carnegie.

Suppose we wish the safe load that a 6-inch H column will carry when the length is 22 feet. Now

$$r = \frac{6}{4.2} = 1.43$$

by the preceding rule. Also, $l = 22 \times 12 = 264$ inches.

$$\therefore \text{Slenderness ratio } l/r = \frac{264}{1.43} = 185, \text{ nearly.}$$

From the table, page 159, for a ratio 185 the allow-

able fibre stress is 3,750 pounds. From page 179, the area $A = 7$ square inches.

$$\therefore P = A \times 3,500 = 7 \times 3,500 = 24,500 \text{ pounds.}$$

If P were figured directly from the formula

$$\frac{P}{7} = 16,000 - 70 \times \frac{264}{143} = 16,000 - 12,950 = 3,050$$

$$P = 7 \times 3,050 = 21,350 \text{ pounds}$$

This value is 3,000 pounds smaller. While the result is on the side of safety it shows that the column could carry a larger load as determined from the experience of the Carnegie Steel Company.

The next article will deal with eccentric loads on columns.



Community Hall Design

(Continued from page 112.)

been neighbors but that was as far as it went. There were no common interests—the war furnished that interest, and now that it is over, the veterans are keeping it alive thru their Legion Posts and other organizations. To keep this spirit alive many towns and small communities are planning on building memorials in the form of community halls which will not only serve a social purpose but also house the town hall and officials.

There is an extensive field for operation in this direction for builders and contractors if they only get out and go after it. Every day reports come in about some new community building being planned. For that reason the AMERICAN BUILDER believes it is the logical time to show practical plans for this type of building.

The community hall shown on page 112 with floor plans is a practical and efficient building and certainly an attractive addition to any locality. Two stories in height, 50 by 85 feet, it is built of brick with artistically designed terra cotta trim and facade. To offset the cost of such a proposition and help pay the expense, stores and offices have been provided to furnish a substantial monthly income. The remainder of the building is devoted to the needs of the post, lodges, community center, or whatever other organization may want to use it.

On the first floor are two very attractive stores with ample show window space. The entrance to the hall is located in the center between the stores and leads thru a hall into a large banquet hall in the rear. On either side of the corridor are the various rest rooms, ticket office and also a small kitchen where the banquet can be prepared.

The banquet hall is 44 feet 6 inches by 39 feet 6 inches, with platform at the right side for speakers, etc. It will hold a substantial crowd for dancing and other entertainments.

For shows, dramatics and other amusements of that kind the auditorium upstairs is available. It has a stage and is larger than the hall below.

How to Cut the Cost of Bungalow Walls

SUGGESTED THAT AIR-SPACE CONCECRETE BLOCK BE DIVIDED INTO TWO HALF-THICKNESS UNITS AND LAID IN WALL THAT WAY, SAVING 20 TO 25 PER CENT IN COST.

By A. J. R. Curtis

THE present urgent demand for housing is particularly pressing with respect to small single family dwellings. The cost per room and the rental per room have increased not only because material and labor costs are greater, but very largely because higher standards are demanded by home owners and renters. This demand has produced a modern type of house with less space and more conveniences.

Expressed in a different way, present owners prefer to spend a greater proportion of their money for conveniences and less for the structure proper. The modern version of how to get most for the money, based on a slender pocketbook and a well-developed appetite for expensive modern appliances, leads thousands of wage-earners and average salaried people to a preference for four or five-room bungalows with all of the room space on one floor. Every dollar by which the cost of bungalows can be reduced makes comfortable little homes available to additional thousands.

Among the possibilities for structural cost reduction in one-story dwellings, there are several worth-while opportunities to reduce costs without interfering with a reasonable margin of safety, by the employment of some adaptable types of concrete block construction. In describing some of the more available of these, the writer is well aware that the suggestions made may not fall within the provisions of existing building codes in all cases. Many of these codes obviously are too exacting in their application to low residential structures, containing practically the same scale of requirements as for heavy duty buildings. City building codes should, under reasonable conditions, permit the type of construction described in the following para-

graphs for use in single-story and story-and-a-half dwellings.

At the recent housing conference of the Chamber of Commerce of the United States a resolution was adopted urging the careful study of city building codes with the idea of reducing structural requirements for dwellings as far as safety might allow. In this way considerable material and labor could be saved, which in the case of small houses, we have been accustomed and usually legally required to squander. It has often

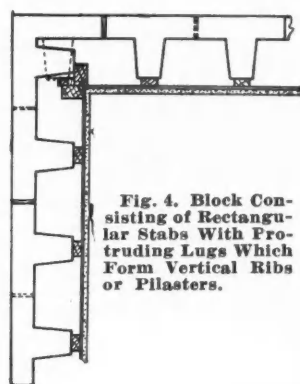


Fig. 4. Block consisting of Rectangular Stubs With Protruding Lugs Which Form Vertical Ribs or Pilasters.

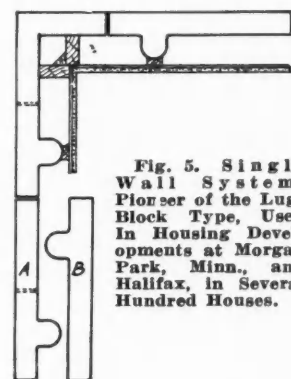


Fig. 5. Single Wall System, Pioneer of the Lug-Block Type, Used in Housing Developments at Morgan Park, Minn., and Halifax, in Several Hundred Houses.

occurred in low buildings with walls of concrete or masonry that the actual loads imposed on these walls were only one-twentieth or one-fifteenth the compressive strength of the wall material. Engineers commonly figure larger structures on a basis of loading equal to from one-sixth to one-tenth the compressive strength of the wall material.

Recommended Block Systems Described

Present concrete block systems of the air-space type are composed of units shaped like a combination of block A and B, in Figures 1 and 2. Similar systems of the two-piece type consist of pairs of block like A and B in Figures 3 and 4. Under most conditions it is necessary to furr and lath on the inside of air-space type block and advisable in the case of the two-

piece type of block. The suggestion in this article is to considerably reduce material and labor by dividing the air-space block in the mold, making two half-thickness units at the same operation in some types of block machines and molds. The half-thickness block are laid in the wall as individual units, as shown in Figures 1 and 2.

The block shown in Figure 1 is of the elliptical air-space type. A and B together would constitute

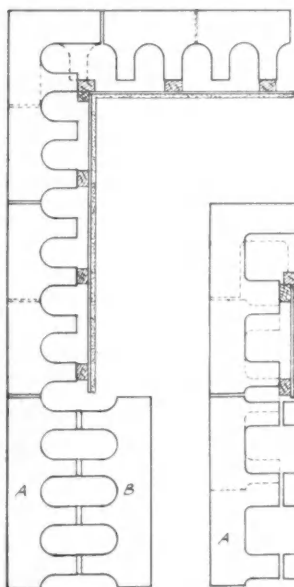


Fig. 1. Method of Dividing Elliptical Air Space Block to Produce Lug-Block Walls. The Units Are 16 Inches Long and 8 Inches High in the Wall and Weigh 40 Pounds. The Lugs Form a Series of Pilasters.

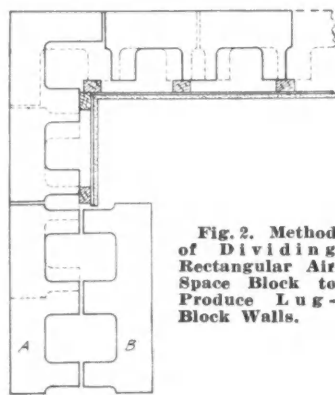


Fig. 2. Method of Dividing Rectangular Air Space Block to Produce Lug-Block Walls.

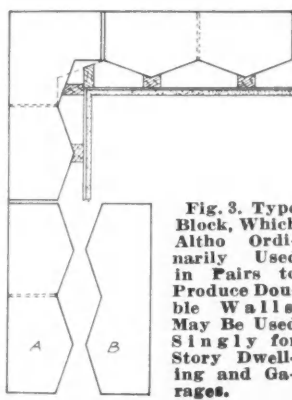


Fig. 3. Type Block, Which Altho Ordinarily Used in Pairs to Produce Double Walls, May Be Used Singly for Story Dwelling and Garages.

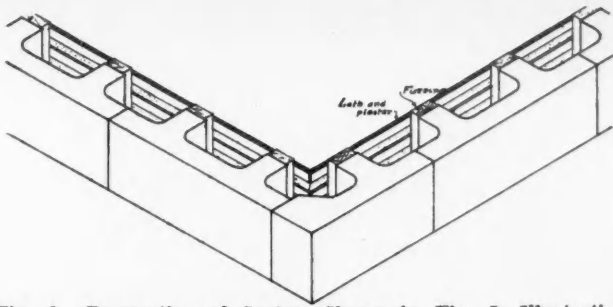


Fig. 6. Perspective of System Shown in Fig. 5, Illustrating Application of Furring, Lath and Plaster.

one block 12 inches wide and $15\frac{3}{4}$ inches long. Each section individually is $5\frac{7}{8}$ inches in width from face to back of webs with a face thickness of $2\frac{3}{4}$ inches. As explained later on, the extreme width of $5\frac{7}{8}$ inches may be increased several inches if desired. With furring, lath and plaster this gives a wall thickness of 9 inches, with efficient air-space, yet economical in quantity of material used and in space occupied. A single unit as shown in Figure 1 weighs 40 pounds, as against 53 pounds for a block 8 inches wide of the usual elliptical air space type, and the former should support 94,500 pounds on its gross cross section of $94\frac{1}{2}$ square inches, equal to a load of 70,875 pounds per foot length of wall.

Various systems using the rectangular air-space block are represented in Figure 2. The length is $15\frac{3}{4}$ inches, width from face to back of webs $5\frac{7}{8}$ inches and width of face averages about 2 inches. Weight and load bearing ability are practically identical with those given above for elliptical air-space block. The type block shown in Figure 3 and that in Figure 4 are ordinarily made in pairs of corresponding blocks (A and B) joined with rigid metal ties inserted in the molds. In Figure 3, the combined unit made by blocks A and B, with metal ties, has an overall width of 12 inches. Each single block has a maximum width of $5\frac{1}{2}$ inches and a minimum width of 4 inches. The projections on the block are symmetrical so that succeeding courses line up perfectly. The type in Figure 4 is made only in units $23\frac{5}{8}$ inches in length. They are ordinarily made in pairs in the molds, being

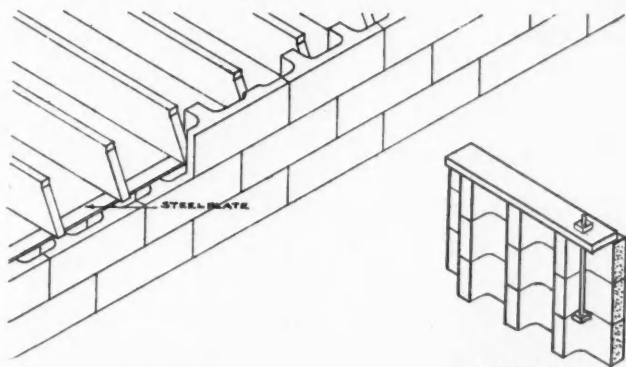


Fig. 9. Method of Supporting Joists on Single Wall Lug Block Walls. In Lieu of the Steel Plate, a Course of Solid Block (with spaces between lugs filled in) May Be Used to Support the Joists.

Fig. 10. Method of Anchoring Roof Plates With Lug Block Construction. Anchor Bolts Placed at Intervals of 4 Feet Are Secured to Steel Straps Inserted in the Second Mortar Joint Below the Top.

separated sufficiently to produce a 10-inch wall. Single blocks A and B are each 3 inches in width with protruding lug 3 inches wide extending out 3 inches from the back of the block. The position of these lugs is such that succeeding courses overlap, the lugs forming continuous pilasters.

Lug Blocks Have Already Had Extensive Use

The system of lug block shown in Figure 5 has already been used extensively in several important housing projects of large size. Both the Morgan Park project (Duluth) and the Halifax project have several hundred houses with walls built by this method, and altho these two projects are notoriously subject to most severe weather conditions, the success has been

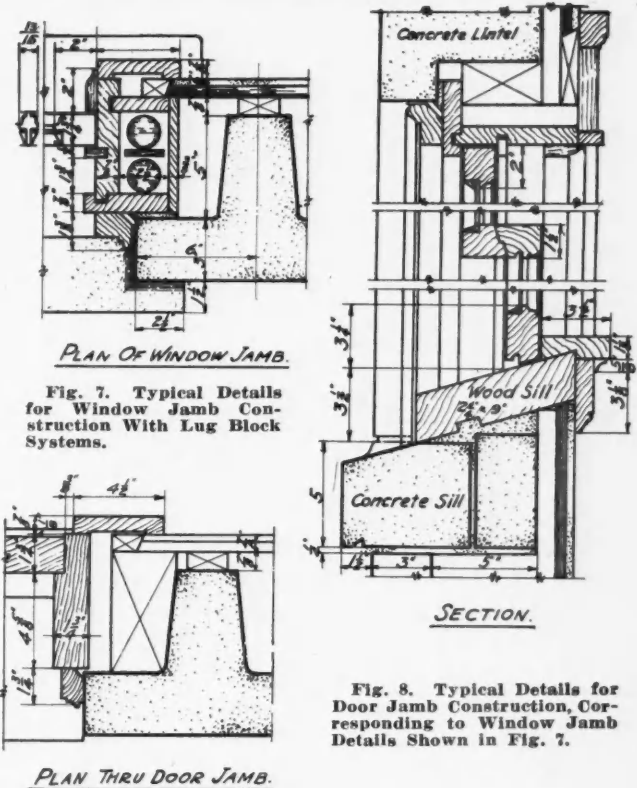


Fig. 7. Typical Details for Window Jamb Construction With Lug Block Systems.

Fig. 8. Typical Details for Door Jamb Construction, Corresponding to Window Jamb Details Shown in Fig. 7.

such as to entirely remove doubts as to the practicality of this type. The block face is $3\frac{1}{2}$ inches in thickness. The webs, symmetrically placed at quarter points on the block, are approximately 4 inches thick where they join the face and 3 inches thick at the tip. The overall width of the block is 8 inches, giving a wall about .11 inches thick, with furring, lath and plaster. Figure 6 shows a similar system in perspective, with different type of return.

Typical arrangements of door and window jambs, suitable for use with several of these single wall types, are shown in Figures 7 and 8. Figure 9 shows an approved method of supporting floor or ceiling joists on a steel plate resting on the lugs. As an optional method the course of block on which the joists are to rest may be made with spaces between lugs filled in solidly with concrete. Figure 10 illustrates the method of attaching the roof plate to the lug-block type of wall, using anchor bolts secured to



Fig. 11. Attractive Bungalow at Morgan Park, Minn., One of Several Hundred Houses Constructed of Single Wall Concrete Block as Described in the Accompanying Article.

steel straps laid in the second horizontal mortar joint below the top of the wall.

Economical to Produce by Many Systems

"Stripper" and all side-face block machines, in which the cores move vertically, can easily be fitted with divider plates making it possible to produce two lug block at one operation. Face down machines make lug block, one at a time, but at a faster rate than when air-space types are made. The wet mold system may be used in a similar manner filling the molds only partly. With either the face down machines or wet molds the lugs may be lengthened by several inches as required to secure desired thickness of completed wall.

It is estimated that a saving of 20 per cent in materials and 25 per cent in labor of manufacturing and laying can be made by substituting the systems herein described for the 8-inch air-space block of the usual type. If the lug blocks are substituted for 10-inch air-space or two-piece blocks the saving is considerably greater.

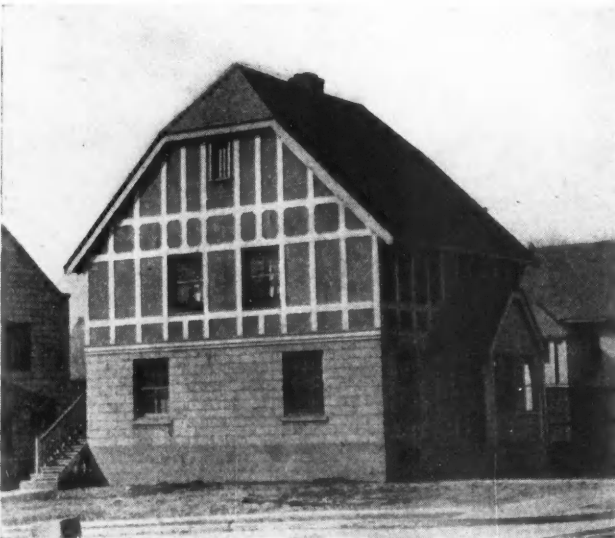


Fig. 12. Two-Story Cottage at Halifax, N. S. One of Over Three Hundred Houses in the Reconstructed Area of That City, Built of Block Illustrated in Figs. 5 and 6.

CONCRETE posts may be used when thirty days old, but not sooner. Concrete gains strength during the first year.

SAND that can be pulverized, that soils the hands, or that smells, will not make good concrete. To test sand, stir it in a glass of water. If it settles, leaving the water clear with very little sediment, it is good. A heavy sediment is an indication that the sand is of doubtful quality. The best engineering practice is to reject sand if it contains more than 5 per cent of loam.

IN BUILDING for permanency, the use of zinc leaders, gutters, flashing, and shingles is likely to become equally as important in America as abroad. Zinc has been the universal roofing material in Europe for more than a century with a record of serviceability which extends over many years. Owing to its durability, zinc for leaders and gutters is extremely economical.

MORE than one-fourth of all its lumber exports is sent by the United States to Latin American markets. Statistics for the first nine months indicate that the year 1920 will show the largest lumber shipments since 1913 and the highest values on record.

ON A CERTAIN building in Philadelphia a zinc condustor pipe installed in 1900 is still in almost perfect condition and gives promises of many additional years of service.

USE of bank-run gravel.—Natural deposits of combined sand and pebbles almost invariably contain a large excess of sand and it is true economy, as well as the best practice, to screen bank-run material and reportion the sand and pebbles correctly.

THE first "Own Your Home Exposition" to be held in St. Louis will open its doors at the Coliseum April 25 and remain in session thru May 1.

The exposition is given under the auspices of the Building Industries Association of St. Louis. It will show the latest developments in building homes, and the progress also in the construction of stores, office buildings, schools, garages, etc. There will be plaster models, photographs, pictures and plans of model homes, interior and exterior, and the exhibits will embrace all manner of building material—in fact, everything that goes to make the home beautiful, attractive, inviting and comfortable.

HE who would leave his footprints in the sands of time, must have the sand to begin with!



Situated in the Heart of Los Angeles' Finest Residence District this Business Bungalow is One of the Unique Offices Used by the Frank Meline Co., Building and Real Estate, Doing a Business of \$3,000,000 Annually.

The Bungalow in Business

HAS TWO-FOLD ADVERTISING VALUE—HELPS "CITY BEAUTIFUL" PLAN AND LENDS DISTINCTION TO BUSINESS

By M. B. Brownfield

THE advertising value of the bungalow in business has been demonstrated very successfully in Los Angeles. At least a dozen first-class firms, all in different lines of business, today are both artistically housed in bungalows as various in architecture as those pictured here.

In Magnolia, Mass., as well as a number of other places a series of bungalows, joined together arcade style, make a row of specialty shops, but in Los Angeles and Pasadena completely detached bungalows, designed exclusively for business purposes, are used for upholstery shops, grocery stores, jewelry and offices for such professional people as doctors and dentists. In Hollywood, Cal., alone, there are half a dozen

attractive bungalows built for real estate offices.

The advertising value of a pleasing bungalow is two-fold: First, it manifests a public-spirited co-operation of the business toward a "City Beautiful," and, second, by virtue of its unique and good-looking architecture it sets the business of the bungalow apart in public memory, from hundreds of other similar places merely housed in typically ordinary stores and office buildings. It even suggests some such catchy advertising slogan as "At the Little White Bungalow." Its very individuality suggests personal service.

As for comparative cost of construction it can compare very favorably with brick and frame buildings that have to be passed by city building inspectors as "Class A Construction"—that is, the first class of fireproof construction. If built in the strictly downtown business district, where fireproof construction is required, brick, reinforced concrete, hollow tile or adobe brick is both practical and up-to-date.

In those lines of business that cater to the more artistic and luxurious needs of people, the bungalow with its infinite possibilities of design has splendid advertising value. The candy shop, the tea room, the studio of interior decoration, the shop for millinery, women's or children's wear, the antique or even modern furniture shop or the picture store all gain a much more



This Seven-Room Bungalow is the Studio of a Successful Photographer Who Believes that Homelike Background Is More Personal Service.

suitable and home-like background in a bungalow setting. Without doubt this insures a high class, prosperous patronage.

The bungalow, also, by standing apart, not only attracts special attention, but minimizes competition.

The photograph studio of G. Edwin Williams, on page 123, was built some three or four years ago in Los Angeles, sixteen blocks west of Broadway, on a semi-business street leading thru an apartment neighborhood to the best residence section of the city. It was originated with just this idea of getting away from the commercial atmosphere and giving the public a cosy home-like background so essential to good pictures, which means good business returns. This bungalow has seven rooms devoted to camera work and is heated with both gas and electricity. Within, attractive furnishings are also part of the more personal service idea. It hardly needs to be said that Mr. Williams is one of the leading photographers of Los Angeles.

Selling the highest class of residence real estate in Los Angeles the Frank Meline Company, who also have an architectural and building service, carry on their business in three handsome bungalows located in Beverly Hills, Hollywood and the city. This little building of the Italian Renaissance type of architecture shown on page 123 is wholly in keeping with the tone of the ultra-smart Wilshire district of Los Angeles where it is situated. The fountain and the attractive planting scheme are all details that are good advertising for the business they solicit. At night a green-shaded electric light, semi-concealed in the shrubbery at the right, focuses the attention of every passerby, for the location of this office is at the intersection of two heavily traveled "cross town" motor boulevards. It might be mentioned that the Frank Meline Company do \$3,000,000 worth of business annually.

Glancing at the picture of the Garden City Com-

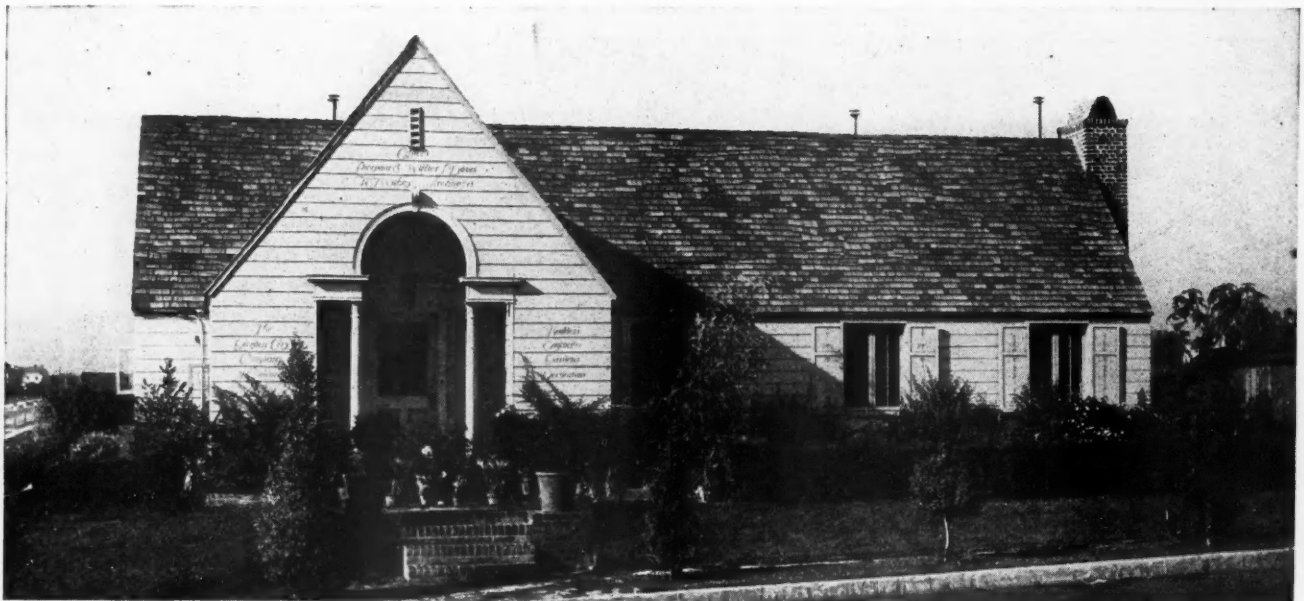
pany's bungalow the headquarters of Pierpont and Walter Davis and associates, building and landscape architects and engineers, one would scarcely realize that quite a metropolitan drug store is being erected on the right-hand side. Here, old English cottage type of architecture, with a vari-colored shingled roof, constantly makes the stranger pause to exclaim at the charm of the bungalow. As an example of the firm's work in architecture, planting treatment and all that makes a practical up-to-date home, this bungalow advertises itself by emphasizing the real value of the picturesque in modern business.

Moreover, this way of coming into a high-class residence district is decidedly an addition to property values, rather than an offense. This substantially concrete way of contributing to civic improvement actually suggests and creates a demand that makes the business bungalow an investment of increasing returns.

To the man or woman established in an isolated one-story building, the bungalow idea should offer a suggestion for building alterations for building better business. For distinction of architecture, combined with effective painting and such accessories as awnings, plants, "different" windows, window boxes, unique doors and entrances, and quaint signs can make all the difference in commanding good prices. Certain it is that the public is more discriminating every day. And there is no better drawing card for business—where one expects to draw high-class patronage—than attractive housing, for as a reflection of both prosperity and good taste it inspires confidence and good will.



NO pebbles, broken stone or other similar aggregate should exceed in greater dimension half the thickness of the section of concrete in which they are used.



Rather Cozy Little Bungalow, Isn't It? It Is the Offices of a Progressive Architectural Firm in Los Angeles Who Believe in Surrounding Themselves with Beautiful Things in Harmony with Their Work.

An easier way to cover old roofs

WHEN you have to renew an old wood shingle roof, it's a lot easier for you to leave the old shingles on and simply nail Johns-Manville Asbestos Shingles over them.

You don't need shims or furring strips—all you need is a hammer, a line and a few boards for a scaffold.

You'll find that Johns-Manville Asbestos Shingles make a splendid looking and a long lasting job, when laid over old wood shingle roofs that are not too far gone to hold a nail.

And, of course, you know there isn't a better looking or more fireproof roof than an Asbestos Shingle roof. Johns-Manville Asbestos Shingles cannot burn and will last as long as the building they protect.

Ask your dealer or the nearest Johns-Manville branch for complete details about Johns-Manville Asbestos Shingles and the best way to lay them.

JOHNS-MANVILLE

Incorporated

Madison Avenue, at 41st Street, New York City

Branches in 65 Large Cities

For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



Through—

Asbestos

and its allied products

JOHNS-MANVILLE
Serves in Conservation

Heat Insulations, High
Temperature Cements,
Asbestos Roofings,
Packings, Brake
Linings, Fire
Prevention
Products

JOHNS-MANVILLE ASBESTOS SHINGLES

Six-Room Brick Bungalow

COZY LITTLE DWELLING SUBSTANTIALLY BUILT AND CONTAINS PLENTY OF ROOM FOR FAIR-SIZED FAMILY

MANY builders are called upon frequently to build brick homes, especially in localities where the material is readily available and where the ordinances favor its use. It is a wise plan to have a variety of designs of this type of house ready if called upon.

The brick bungalow shown here is attractive and will fulfill the requirements of a good-sized family who prefer a home of their own to a crowded and cramped apartment. Moreover, where there are several children the difficulty of getting suitable living quarters in big buildings becomes painfully greater. To the man of family, the individual home is the most logical solution as well as the most appealing.

This home is built of brick of two colors, dark below the first floor line, and buff to the eaves where stucco adds to the charm of the exterior treatment. The walls are very substantial, sturdiness of construction being emphasized thruout, as can be seen very plainly in the size of the porch pillars supporting the roof. The front steps and porch are of concrete.

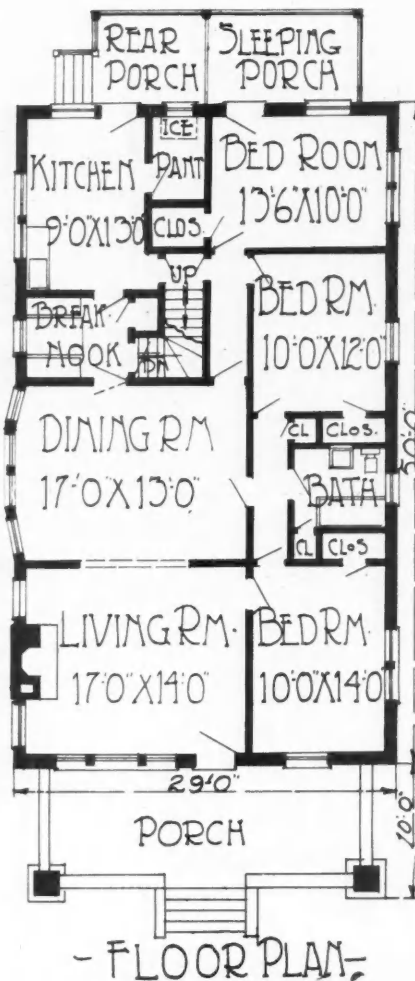
Facing the porch, with a triple window is the living room, 17 by 14

feet, with open fireplace in the outer wall and two small side windows. This room opens into a front bedroom which also faces the porch and is connected with the dining room by a wide open doorway. The dining room is practically the same size as the living room and receives excellent light from an expansive side bay window. Off the dining room is a small hall which leads to the bathroom and a second bedroom, not quite as large as the front. Leading directly from one corner of the dining room is another hall which connects it with the third bedroom in the rear. A sleeping porch is reached thru this room.

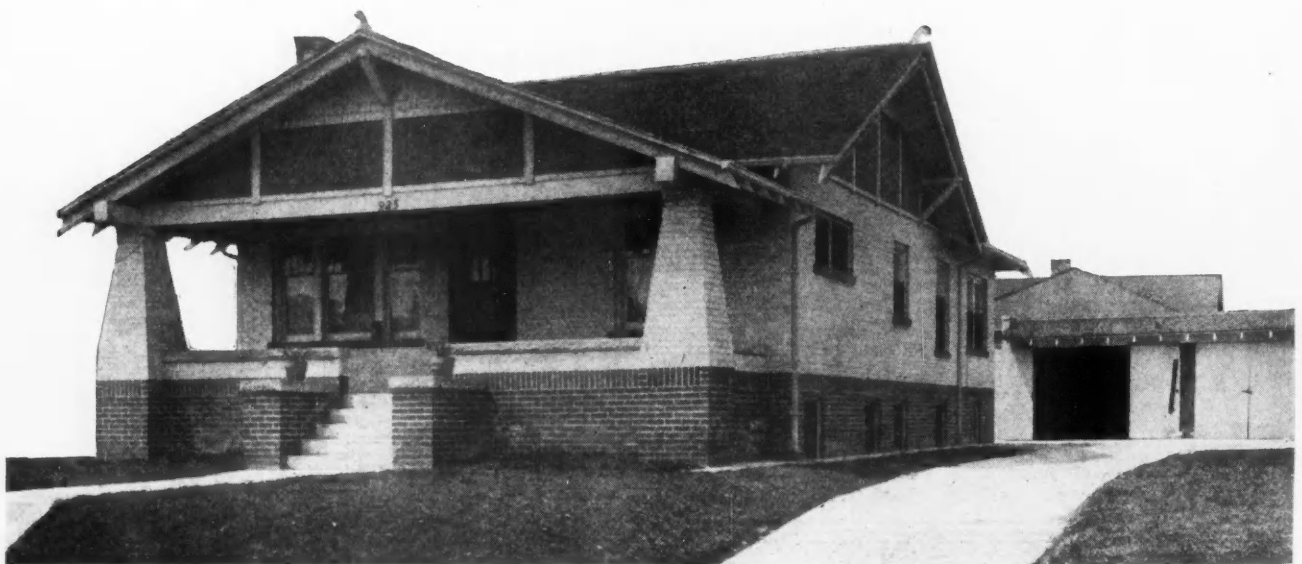
The door from the dining room leads to the kitchen by way of a small breakfast room. The kitchen is 9 by 13 feet, a small, compact, but efficient workshop for the housewife. In the pantry is an ice box with icing door opening out on the rear porch.

The builder should find this design very appealing to his clients who have a home in mind and wish to build one that will insure comfort and safety at a very reasonable cost.

BREAKFAST nooks with built-in table and settees are popular and practical.



Floor Plan of Substantial Six-Room Solid Brick Bungalow.



Brick Bungalow of Pleasing Design. It Contains Six Rooms, of Which Three Are Bedrooms and Is 29 Feet Wide and 50 Feet Long. Brick Has Been Used in the Wall Construction Thruout, Two Different Hues Being Used with Stucco in the Gables



One
of
35

The home above is just one of the 35 attractive designs contained and completely described in this book of Builders. All of the most modern type and expressing the most modern ideas in fire-resistance Brick construction.

You are sure to find from one to a half-dozen designs which will fit in with your plans and appeal to your prospects.

\$1 postpaid. Money returned if you are not satisfied.



Men, Are You Ready?

Ready for a good year?

1921 is going to be one just as surely as you're a builder. The demand is there—the money will be—every single month will be better than the one preceding.

Liven up your operations with some new plans and designs! Put new distinction into your homes.

This Valuable Book Contains:

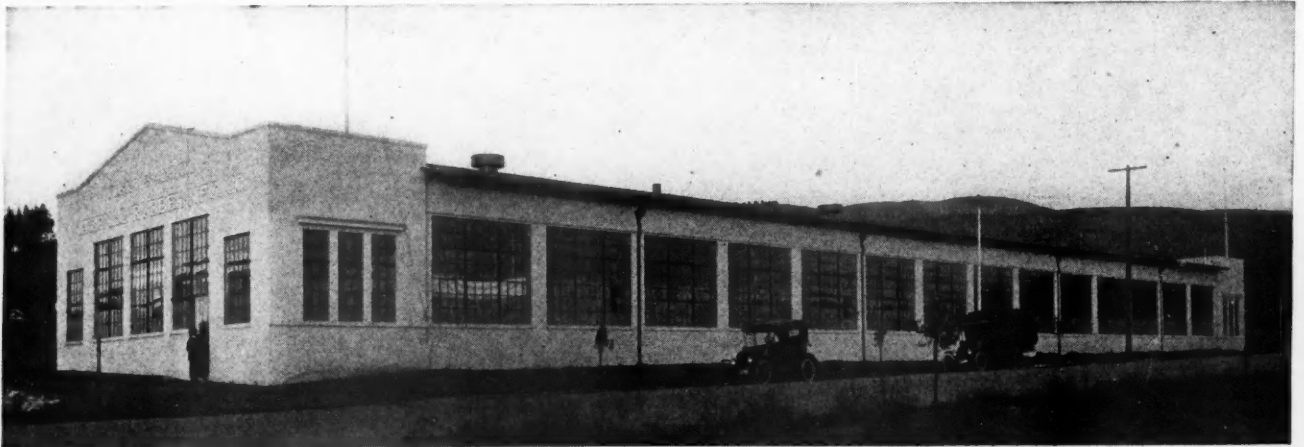
Thirty-five Brick Home designs drawn by five competent architects—southern homes, California houses, northern homes; eleven bungalows—four 2-family; seventeen 1½ and 2 story; garages; three country cottages; four private garages.

Complete working drawings and original full size blue prints are available for each of them at nominal cost. Each shows 4 elevations, floor plans, basement plan and section; detail of fireplace and built-in cabinets and cases and a complete bill of masonry, materials and labor, and specifications.

Send \$1 and make your selection while the year is young. In 9 months Builders have procured more than 2,000 sets of plans from us.

The Common Brick Industry of America

1306 Schofield Building
CLEVELAND, OHIO



Modern Factory Building Recently Erected by the V. G. Sturges Co., Oakland, Calif., Subsidiary of the National Rubber Co. This Building Contains 1866 Sq. Ft. of Window Space.

Modern Factory Affords Light and Air

NATIONAL RUBBER CO. PLANT BUILDS DAYLIGHT FACTORY TO INCREASE EFFICIENCY OF WORKMEN AND PRESERVE THEIR HEALTH

OUT in California the sunshine is too glorious to be ignored. That is why an annual pilgrimage from all parts of the country wends its way in that direction. For a long time that country was considered only in the light of a pleasure resort but industry will not be denied. Modern factories are springing up on the coast over night and most of them are excellent examples of how a factory should be built.

Take the plant of the V. G. Sturges Co., subsidiary of the National Rubber Co., at Oakland, Calif. An attractive stucco structure, it has twelve hundred and sixty-six square feet of window space to light and ventilate it. The building is 250 by 35 feet, long and narrow, so that light is furnished in abundance from both sides. In fact daylight construction has proved so advantageous that the company has built

an addition, also a large garage with the same proportion of window space. This plant being narrow and with a large expanse of windows on each side has a thoroughly lighted interior for its workmen, who are called upon to do very skilled and detail tasks. The windows are made up of two units of sash, five panes in each and two panes in height, joined by horizontal mullions. The building was designed by M. C. Couchot, engineer, San Francisco, Calif.



Wages Paid in London Building Trades During Seven Hundred Years

WAGES have never decreased in a period of more than 700 years in the history of the building trade in London, except for very short periods, according to a London authority quoted in the New York Times.

Such a slight decrease occurred between 1292 and 1324, following the completion of Westminster Abbey, Westminster Palace and extensive alterations on the Tower of London.

The following table is given by this authority, of wages paid per day in building trades in London, the penny being calculated at 2 cents:

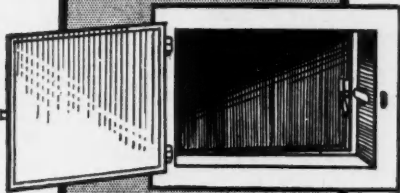
Year	Wages Per Day	Year	Wages Per Day
1250.....	\$.03½	1650.....	\$.28
1300.....	.05	1700.....	.40
1350.....	.06	1750.....	.40
1400.....	.06	1800.....	.58
1450.....	.08	1850.....	.72
1500.....	.08	1914.....	1.60
1550.....	.10	1920.....	5.00
1600.....	.16		



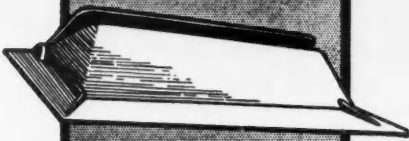
There is Little Need of Artificial Lighting in This Workshop. The Sunshine Pours in from Both Sides and Provides a Soothing Efficient Light for the Workmen.

DONLEY DEVICES

Modernize the Home



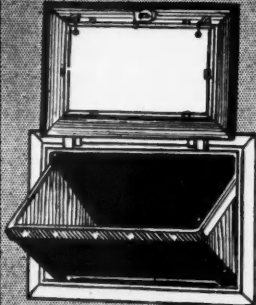
Package Receiver



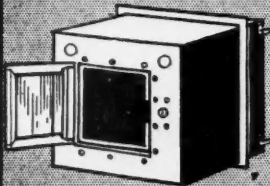
Fireplace Damper



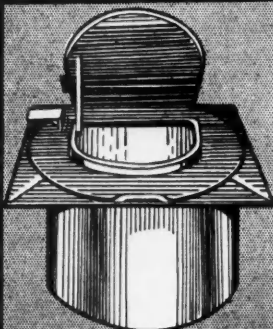
Ash Dump



Coal Chute



Meter Box



Garbage Receiver



Home Means a Fireside

NOT just an ornamental mantelpiece with imitation log, but a genuine source of warmth and cheer, a spiritual magnet that holds true hearts together. A clean, warm, economical fire calls for two things in a fireplace, a smooth well formed throat and proper draft control.

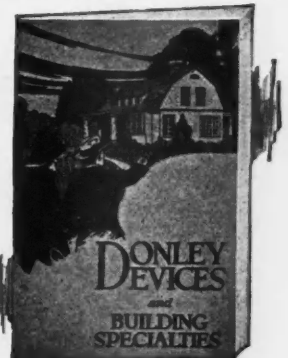
Both of these objects are insured when the builder makes a practice of installing

DONLEY DAMPERS

For Better Fireplaces

in every new home that he erects. They simplify chimney construction, prevent smoke eddies, and keep the draft under easy control without having to mar the chimney front with an unsightly lever.

Make friends with the home owner by installing Donley Devices—every one of them—in every new home that you build this year. They offer the long sought solution to building up business in a year when home owners and buyers are most exacting. Send for this catalog today.



WRITE FOR THIS

The **DONLEY BROTHERS Co.**
BUILDING SPECIALTIES  **7400 AETNA RD CLEVELAND**



Builds Unique and Efficient Work Desk

To the Editor:

Cranston, R. I.

Enclosed you will find photograph taken by myself of what we consider the most important machine used in our company. We choose to call it a machine because of its arrangement and the results obtained by its use. By careful study of the photographs you will find that the operator, be he architect, engineer, or contractor, has at his finger tips practically everything he desires in the solving of his daily problems.

The top of the desk, as you can see, holds such of the plan books and samples of roofing and other accessories as are used as occasional references. The shelf directly beneath contains the current issues of such magazines as are used in our business along with a few of the more important catalogs, text books, law books, etc. On the short shelf directly



Unique Work Desk Built by A. M. Cole, Cranston, R. I. The American Builder Plays an Important Role in this Office Which Contains Everything Needed by an Enterprising Builder.

underneath are the hand books and other books of reference that are in practically constant use. At the right and left will be seen spaces for the filing of larger books such as ledgers, check books, etc. The inclined portion is the drafting board. This is hinged, and the space directly underneath is used for drafting equipment. The topmost of the set of three drawers contains stationery and data used in the preparing of estimates. The next drawer contains extra stationery and costs data accumulated on past jobs. The bottom drawer contains samples, catalogs, etc. Underneath the desk and between the drawers and pigeon holes is a convenient place for the waste paper basket. On the right can be seen the compartment containing the pigeon holes for systematic filing of the drawings on which the operator is actively working.

In this photo one copy of the AMERICAN BUILDER shows up prominently, and on the shelf containing the magazines, the second group from the left showing dark backs, are several issues of the AMERICAN BUILDER. The AMERICAN BUILDER plays an important part in our office. It is of very great assistance in keeping us abreast of the building field. We wish to heartily commend your magazine not only to the building trades but to all persons interested in the building or maintenance of property, and especially to the home builder.

A. M. COLE.



How Can He Improve Chimney Draft?

To the Editor:

Edwardsville, Ill.

Recently in my work as bricklaying contractor, I have had trouble with several chimneys that will not draw properly. One 9x13 chimney in the center of the house, with flue lining, comes out in center of roof and extends 2½ ft. above roof. No trees are in the way to cause down draft. There are two stoves connected to this chimney. Can you tell me what to do to improve draught of this chimney?

E. J. HLAD.



Question on Rafter Cuts

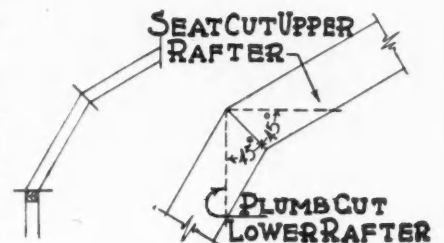
To the Editor:

Minneapolis, Minn.

In framing a gambrel roof, is there any way of finding the cut between the lower and upper rafter at the break besides adding a 45-degree angle to the plumb and seat cuts respectively?

It seems as tho there might be some way of combining the two rises and runs and getting the cut direct from the square. I have heard this question asked many times, so maybe it would interest the readers of your magazine.

HAROLD G. DASKAM.



Sketch Illustrating Harold G. Daskam's Rafter Cut Problem.



*TIME, the Merciless and Implacable
Tester of All Things, Stamps Bost-
wick Metal Lath OKEH.*

On May 26, 1894, Architect W. R. Watterson, Guardian Building, Cleveland, finished his plans and specifications for the Ellington Apartments on East 9th St. in that city.

For lath he specified "Bostwick Metal Lath, Standard, Painted." He wanted **permanence**—and he really specified better than he knew, because—

Twenty-six years later (1920) a piece of this same Bostwick Metal Lath was taken from the walls of these apartments and **was found to be absolutely as good as the day it was put in!**

Untouched by blight of rust or time, its strong steel arches were still gripping the plaster as firmly as the day 26 years ago when the plasterer troweled them over. They were still "young" walls—26 years **young**.

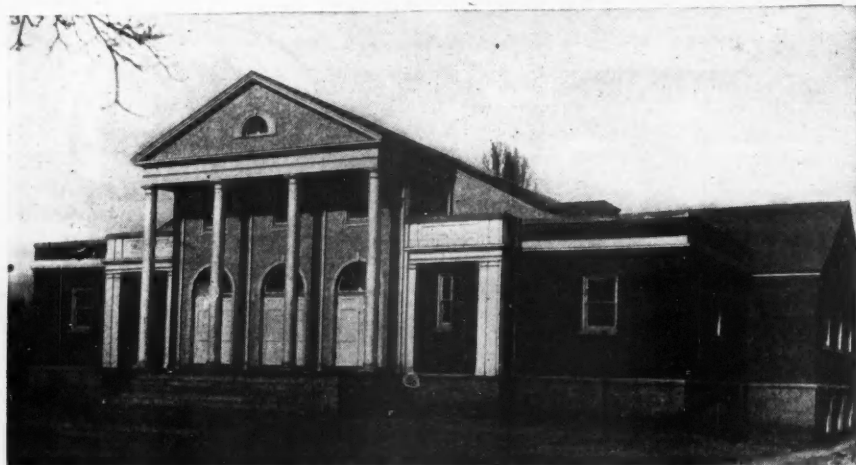
Today that sample of Bostwick Metal Lath is filed with and accepted by the U. S. Bureau of Standards, Washington, D. C. It proved of great interest to the members of the plastering conference assembled at the Bureau in Washington last December.

This is but one instance of Bostwick permanence and virility. If space permitted we could cite the splendid Bostwick records of the Golden Rule Bldg. at Danville, Ill. (1895), the Dana Institute, Warren, Ohio (1892), and the First National Bank Bldg., Niles, Ohio (1893).

This quality of **Permanence** is the basis of our nationally-known "Truss-Loop" slogan—"Makes Plaster Permanent." Write for sample and catalog.

The Bostwick Steel Lath Company
Niles, Ohio

Bostwick
TRUSS-LOOP
METAL LATH



Soldiers' Memorial, Fremont, Mich., Built by Thos. Mullins, Contractor. It is Used for Social Affairs and Also as a Town Hall. The Plans Were Drawn up By Mann & MacNeille, Architects, Detroit, Mich., and the Structure Complete Cost \$57,000.

Enterprising Town Builds Community Hall

To the Editor:

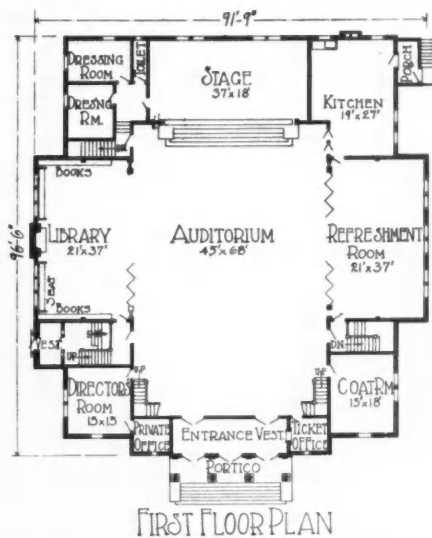
Fremont, Mich.

I am sending some views and floor plans of the new Soldiers' Memorial I recently built in this city. It will be used as a community building for various socials and as a city hall. The building cost \$57,000 and was dedicated on Jan. 15 to the soldiers who fought in the great war. I believe it is a remarkable building project for a town of 2,000 population. It is built of concrete, brick and stucco and is 96 feet 6 inches long and 91 feet 9 inches wide. In the basement provision has been made for a modern gymnasium, two bowling alleys, locker rooms, offices for the city officials and rooms for boilers, etc.

The main floor contains a large auditorium for dances, shows and other socials, 45 by 68 feet, a large refreshment room 21 by 27 feet, library, a large stage with modern equipment, dressing rooms, kitchen for preparing banquets, and other miscellaneous rooms needed in this type of building.

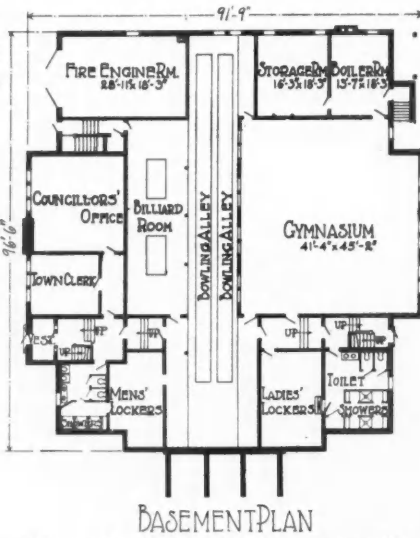
The front facade is of Colonial architecture with four high white pillars supporting the roof. A broad stairway leads up to the three main doors. The plans were prepared by Mann & MacNeille, architects, Detroit, Mich. The town issued bonds for \$60,000 to cover the cost of this building, but consider it a good investment and something that will help to build up civic pride and interest in the community.

THOMAS MULLINS, Contractor and Builder.



FIRST FLOOR PLAN

First Floor Plan of Community Building Showing Large Auditorium, Library and Other Features of Arrangement.



BASEMENT PLAN

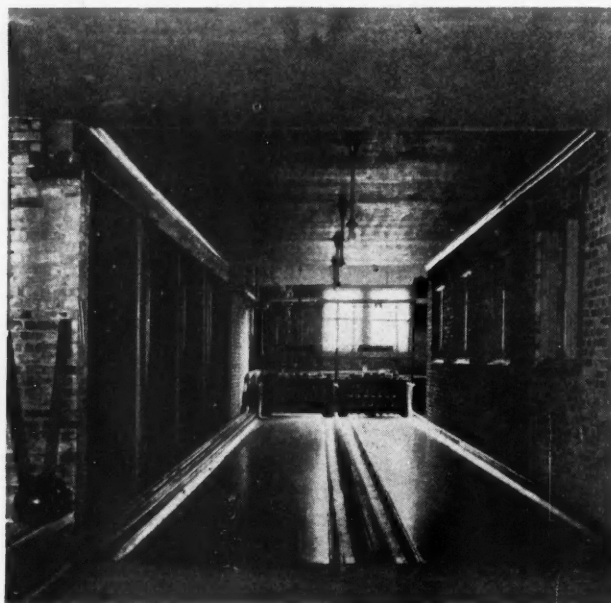
Basement Plan Showing Recreation Rooms, Gymnasium, Bowling Alleys and Town Officials' Offices. The Town Raised \$60,000 in Bonds to Put Up This Memorial.

Needs a Time Card

To the Editor: Dodgeville, Wis.

I am in need of some kind of a weekly time card or time sheet. I do a great deal of work by the hour and in order to avoid trouble in collecting, I would like to have time cards so that the time could be checked up every Saturday night, and signed by the foreman. Then there could be no dispute about the time. If you have any such time cards please send me a sample and price. I would like to have cards for about 15 men with one index book, so that I could turn to the letter I wanted and find the man's time. I think it would be a great saving of time.

CHRIS O. RUDE.



View of Bowling Alleys in Basement of New Community Building at Fremont. There is a Big Field for this Kind of Work Thruout the Country Since the War Ended.

Some Suggestions Needed on Rebuilt Desk

To the Editor: Oakland, Md.

A friend of mine has an old organ of walnut wood, which he wants me to make into a writing desk for his house, for wife and self; the organ is 4 feet 3 inches in length, 27 inches in width, 3 feet 2 inches in height. Can you give me some plan to work out?

S. O. WILEY.

Page Brothers from Rutherfordton!

Rutherfordton, N. C.

To the Editor:

If it is possible, send me the names of the subscribers coming thru the Rutherfordton postoffice as I would like to get in touch with them to form a club or in some way get the magazine ideas recognized more in this vicinity, and I believe in forming a club we will help to solve some of the problems that are present here.

W. M. COOPER.

Concerning

Monel Metal Screening



The only screening material that does not eventually corrode

IN addition to furnishing protection from insect pests, Monel metal screening is good looking, easy to see through and long lasting.

Monel Metal Never Rusts

Monel metal screening put up nine years ago still stands—as good as new. It has lasted through the weathering of nine successive winters and summers on a seaside cottage at Chadwick, N. J. Rain, hail, sea fogs, salt spray—even heavy coats of ice have not injured or rusted this Monel screening.

Monel Metal Screening is Economical

Labor costs, the biggest item in screen building, are incurred only at long intervals while with other screening metals the screen builder is almost on your payroll. Monel metal screening needs no paint protection and also stands the rough usage that children give to door, porch and window screens.

The International Nickel Co.

43 Exchange Place, New York

The International Nickel Company of Canada, Ltd., Toronto, Ontario

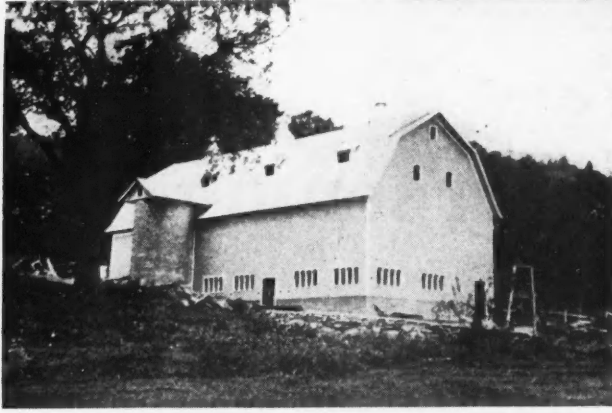
The name Monel identifies the natural nickel alloy—67% nickel, 28% copper and 5% other metals—produced by The International Nickel Company. Monel products include Monel blocks, Monel rods, Monel castings, Monel sheet, Monel wire, Monel strip stock, etc.

INCo

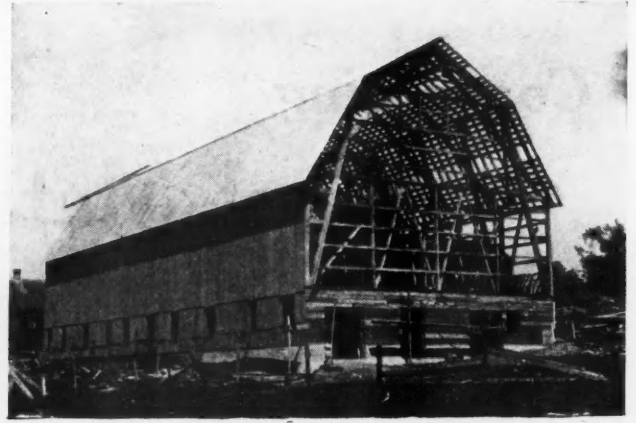
Monel metal

MONEL METAL NICKEL

THE INTERNATIONAL NICKEL COMPANY



Barn of J. G. Gould, Windsor, Vt., Built by D. W. Ames, Enosburg Falls, Who Is a Busy Barn Builder in that Region. He Says There Is No Dull Season There.



Another Barn Under Way Being Built by Mr. Ames for L. L. Marsh, Franklin, Vt. He Builds About Four of These a Year and Keeps a Crew of Eight Men Busy.

Wants Information on Larger Cisterns

To the Editor:

Rolfe, Ia.

Referring to chart on page 134 of your February issue for giving capacity of cisterns, tanks, etc., I would like to know how to construct one on a larger scale for display on office wall, if you can give me the information. J. T. GRANT.

they know the barn business pretty thoroly. These barns are all equipped with modern equipment and ventilated with the King system, which works to perfection. D. W. AMES.



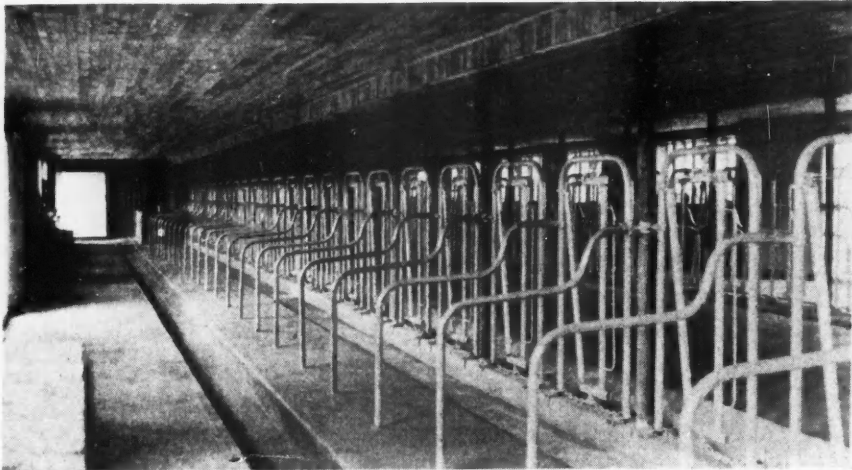
Water Seeps Thru Floor in' Rainy Season

Stephenville, Texas.

To the Editor:

I am writing for a little information on the best method to stop water coming thru the floor of a basement. The place is soft sandstone formation and very damp in dry weather and during a rainy spell the water rises out of the ground. The basement floor is 6-inch concrete with a good amount of waterproofing in the mixture, but the water comes thru during a rainy spell. If you can give me some advice on this problem I shall appreciate it very much. How large a septic tank would be needed for a residence with three bathrooms and a family of ten people?

G. W. TAYLOR.



Interior of Kurn Hatten Dairy Barn, Westminster, Vt. This Was Built By Mr. Ames. Contracts Have Been Signed for Twelve Buildings This Year.

Busy Barn Builders in Vermont

To the Editor:

Enosburg Falls, Vt.,

I am taking advantage of your generous offer and am sending you a bunch of barn pictures such as we are building here in little old Vermont. We are building about four of these a year and this year we have had calls for twelve so that business looks very good. I have eight men and

Canadian Builder Sends Photo of Work

To the Editor:

Hamiota, Manitoba, Canada

Enclosed you will find a photograph of an attractive group of buildings which I built here. The house is 30x34, modern in every respect, the barn is 56x96, equipped with Beattie Brothers modern barn equipments, an electric lighting plant, and King ventilating system.

A. E. ALLSHIRE.



Attractive Farm Building Group Recently Erected by A. F. Allshire, Canadian Builder, Manitoba, Canada. The House Is 30 by 34 Feet, With Modern Conveniences, and the Barn Is 56 by 96 Feet.



The IRWIN Bit

REG. U.S. PAT. OFF.

Bit Quality is in this Name

You know the unusual working qualities of Irwin Bits. You know that Irwin heads give you the best possible balance of cutting qualities—permitting the greatest speed that can be combined with well-finished work and ease of operation. It's a joy to work with them.

But if you want the splendid Irwin working qualities you must get the genuine Irwin Bits which you have known for 30 years. Other bits may look like them—but there's a great difference.

You can tell every real Irwin Bit by the name and trade-mark on the shank. Don't let any one talk you into buying something else when you ask for an Irwin.

The greatest business in the world devoted exclusively to wood boring tools has been built on the service given by Irwin Bits and Augers.

The Irwin line is complete, providing bits and augers of the size, speed and length, in a range of cutting heads, for any wood boring problem. Sold separately or in sets with canvas roll or hardwood box. *Write for booklet.*

THE IRWIN AUGER BIT COMPANY

244 Grant Street

Wilmington, Ohio

*Originators and sole manufacturers for 30 years
of the Genuine Irwin Bits and Augers.*



New Plant of Milltown Concrete Co., Milltown, Ind. This Was Built of Blocks Made by the Company and the Entire Building Was Erected by Three Men.

Succeeds in Spite of Obstacles

To the Editor:

Milltown, Ind.

We are sending you photographs of our concrete products plant, and L. O. Dunn, manager, also a short history of the Milltown Concrete Co., which has enjoyed unusual success and has always considered the *AMERICAN BUILDER* a great help because of its many valuable suggestions.



L. O. Dunn, Manager of the Concrete Block Concern, and One of the Early Organizers. He Attributes Their Success to Quality Products.

Six years ago the Milltown Concrete Co. was organized with L. O. Dunn, J. F. Lincoln and Sherman Key as partners. It started business in Milltown, a town of only 750 people, in a small building 20 by 20 feet. Two years later the concern moved to an old building of larger size and operated for four years at that location. During all this time the business was increasing and expanding rapidly. Finally larger quarters were needed and work was started on an entire new plant on Oct. 15, 1920.

The company manufactured the materials, such as concrete blocks and tile, which were used in the construction of the new factory. The site of the Louisville Cement Co. was purchased. The work of pouring concrete for the foundation was finished on Dec. 8, and on Feb. 12, 1912, the new building was complete and ready for occupancy. It is 40 by 70 feet and 12 feet high.

Three men, L. O. Dunn, manager, J. F. Lincoln and a hired helper did all of the work, 3,100 block being laid by Mr. Dunn in that time. The roof is covered with red concrete tile made on our own machines.

MILLTOWN CONCRETE COMPANY.



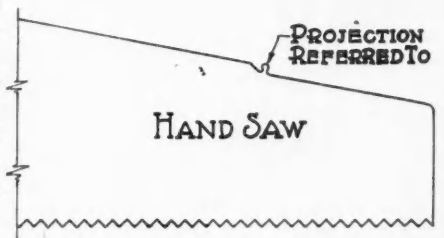
Why Is Projection on Hand Saw?

To the Editor:

Winsted, Conn.

Please enlighten me why the projection is placed as shown in the sketch on the end of a hand saw. I have asked hundreds of expert mechanics, but to no avail.

E. A. WOOSTER.



Why Is a Handsaw Made With the Projection on the Upper Side?



Some Helpful Solutions

To the Editor:

Pingree, Idaho.

I feel that I can help my brother, Mr. J. Mahoney, in regard to his saw mill. To begin with, the flesh side or rough side of a leather belt should be turned out, the smooth or porous side next to the pulley. This arrangement will gain about 34 per cent more power. As to lengths, add together, in inches, the diameters of the two pulleys. Take one-half of the result multiplied by $22/7$ or 3.1416, then add twice the distance between the center of the two pulleys and the length of the belt.

For dressing the belt, boil tallow to remove water and salt, then let it cool. Remelt the tallow and add one gallon cod-oil to two pounds of tallow. Mix well and let cool.

A shaft has the twisting or transverse strength for straining power of three times its diameter.

Divide the diameter of driving pulley by revolutions wanted, size of receiving pulley. Multiply diameter of pulley by the number of revolutions = speed.

HENRY SPANI.



Who Has Pictures of Gothic Hog Houses?

To the Editor: Poole, Neb.

Here is a picture of the type of barn that is very popular out here. There are five like this in this neighborhood. When I was building this the boys said they would rather shingle this kind of roof than any other building they ever worked on. I would like to see some pictures of gothic roof hog houses in the *AMERICAN BUILDER*. I believe they would appeal strongly to farmers out in this country. W. M. EGGLESTON.



Out in Poole, Neb., W. M. Eggleston, Contractor and Builder, Writes They Are Strong for Gothic Roofs, Even on Hog Houses. He Wants Some Brother Builders to Send Some Pictures if they Have Any.

Down Come Wonder Prices!

Prompt Delivery Guaranteed

THE whole line is affected. By careful buying, close attention to even the smallest details of shop and foundry practice, and radical increases in volume of production, we have been able to effect a number of important economies. These are now passed on to you. Marked reductions have been made in the prices of Wonder CONCRETE BLOCK and BRICK MACHINES, Wonder MIXERS, Wonder HOISTS, Wonder BACKFILLERS, Wonder PUMPS and Wonder PAVERS. And in many cases you will find that these reductions have brought Wonder prices to a point which closely approximate pre-war level.

And note, too, the convenience feature of Wonder Complete Stocks Nationally distributed. Wonder warehouses or Wonder distributors with complete stocks of machines and repair parts, are located in upwards of twenty-five leading cities in every section of the country and there are Wonder representatives in fifty more. Your Order Is Shipped Promptly. You are always within a few hours of competent, ready and willing Wonder Service. No long hauls with high freight charges and annoying delays attend Wonder Shipments.

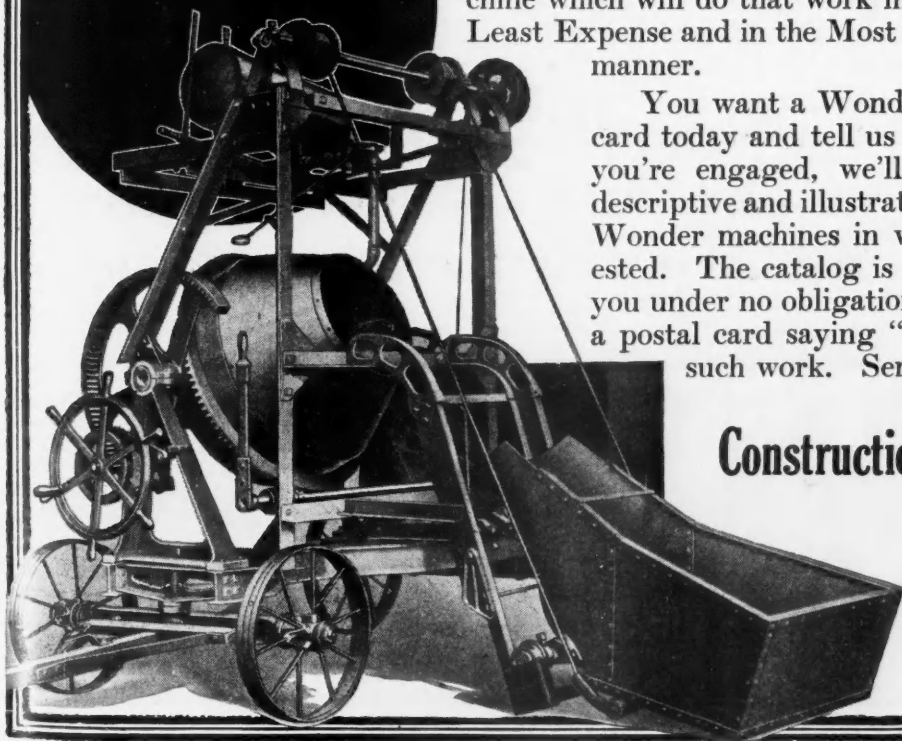
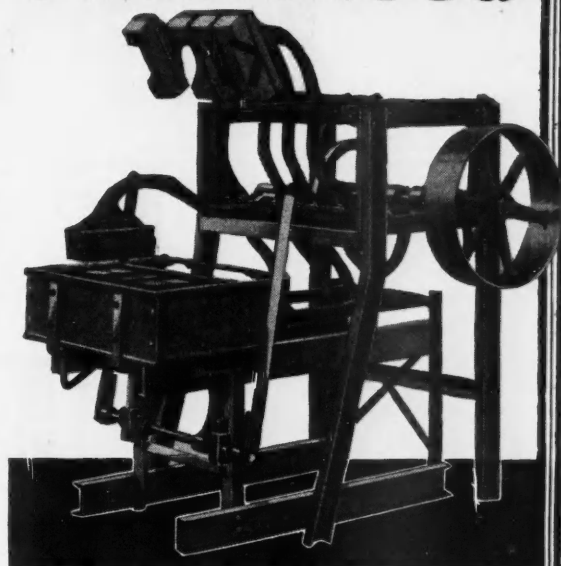
And note the Completeness of the line. A machine for practically every class of concrete work—and the machine which will do that work in the Shortest Time at the Least Expense and in the Most Efficient and Satisfactory manner.

You want a Wonder and if you'll drop us a card today and tell us the line of work in which you're engaged, we'll send you a completely descriptive and illustrated catalog featuring those Wonder machines in which you are most interested. The catalog is free. Asking for it puts you under no obligation whatever. Just drop us a postal card saying "I'm engaged in such and such work. Send me your catalog."

Construction Machinery Co.

(Formerly Waterloo Cement Machinery Corporation)

103 Vinton Street
Waterloo, Iowa



AMERICAN

F i r s t I n

F i r s t I n

F i r s t I n

F i r s t I n

F i r s t I n

THE story of "WHY" *American MagneStone* is *FIRST* will be published in this magazine. This is No. 1 of a series of advertisements. Watch for No. 2 next month.

American MagneStone Corporation
Executive Offices: SPRINGFIELD, ILL.
We Are the Largest Manufac-

MAGNESTONE
... STUCCO.

AMERICAN

Price

Beauty

Quality

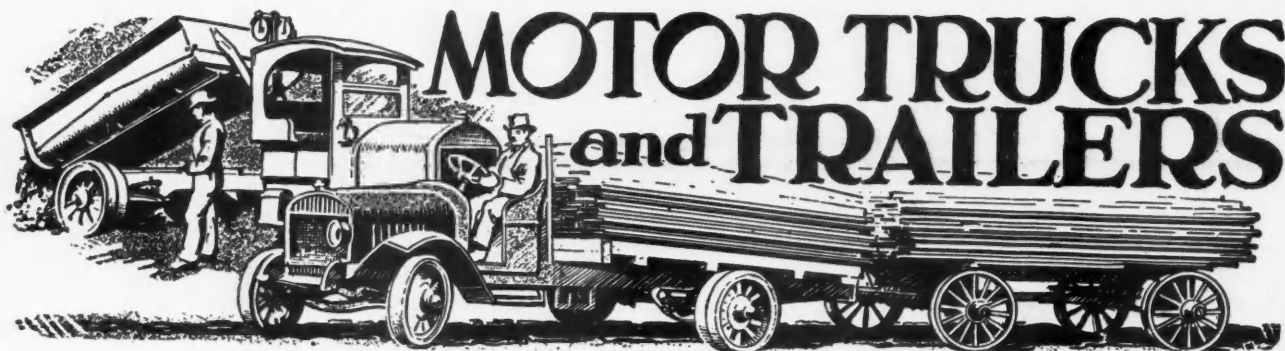
Service

Waterproofness

LET us prove these statements. American Magne-stone is *superior to and different* from any other *stucco*. Write for full information, prices and literature. Address Dept. S-101.

Factories Operating at—
Ottawa, Ill., Springfield, Ill., Kansas City, Mo.
Manufacturers of Magnesite Products

MAGNESTONE ... STUCCO.



MOTOR TRUCKS and TRAILERS

Motor Truck Speeds Up Erecting Gang

HAULS STRUCTURAL STEEL THRU CROWDED STREETS ON REGULAR SCHEDULE FOR HOLMES, PYOTT & CO., IRON WORKS, CHICAGO

“WHEN you step out of the express elevator onto the twentieth floor of a modern office building, you probably never give a thought to the many steel girders buried in the floors and walls of the sky-scraper,” says Mr. Jacobs of Holmes Pyott & Company, Iron Work, Chicago. “Neither do you ordinarily think of the motor truck that hauled those girders thru the crowded city streets to the building site. But both the steel and the truck had an important part in the construction of that building.

“As everybody knows, structural steel forms the skeleton of the modern skyscraper. This means that the steel erectors work ahead of all the other crafts and that any holdup in their work results in delaying the other trades. So the structural steel must be on the job as fast as it can be handled by the erecting gang. As there is only limited storage space on the average city construction job, the steel is usually delivered daily as needed. This makes a regular and dependable

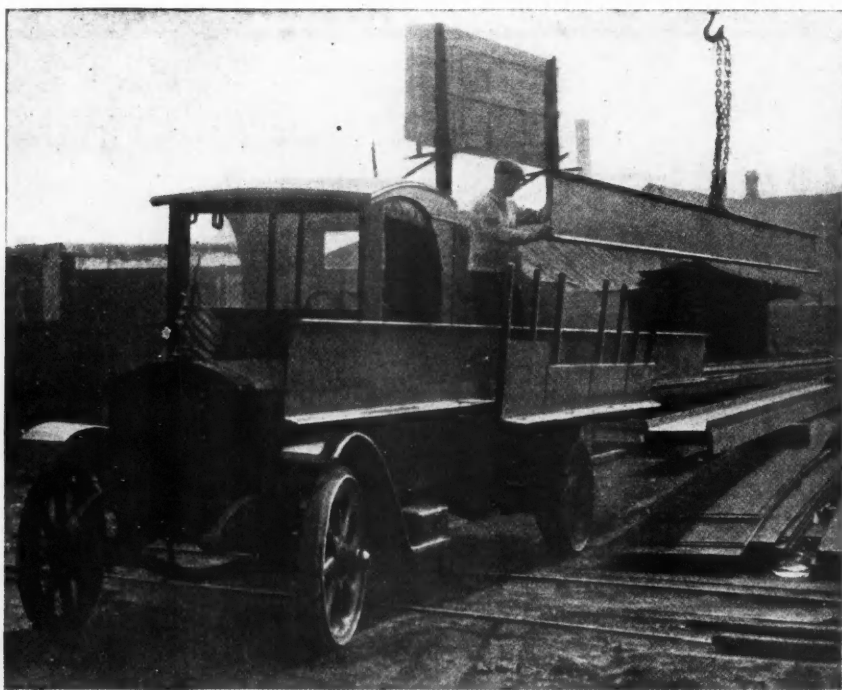
delivery system essential in getting and filling contracts for structural steel.

“To insure making our deliveries as needed, we purchased a 2-ton truck September 1, 1919. We had it equipped with an extension body in order to accommodate the I-beams that it must haul. Besides I-beams and girders, the truck carries castings and foundry work of all kinds. It delivers to and from the railway depots in and out of our foundry, and to new buildings under construction. These loads are always heavy and clumsy, putting constant strain upon the truck.

“While we have no hills in Chicago, and the streets are well paved, this is a stiff load for a 2-ton truck. It is especially hard in the congested districts where the truck usually has to come to a full stop at every corner. But it has been operating six days a week since purchased averaging three round trips or thirty miles daily. This comparatively low mileage is due both to traffic conditions and to the time required to load and unload. The fact that the truck has made its deliveries on time is the important point.

“During the eight months it has been operating, we have had no real trouble with the truck. One worm wheel bearing burnt out, but was replaced by the company at their expense under their service guarantee. The truck is always ready to go, and has never been laid up except that one day. It has worked 202 days in eight months, traveling a total of 6,060 miles. It is giving us $7\frac{1}{2}$ miles to the gallon, and 240 miles to the gallon of oil. To date we have had only \$10 for repairs—really for replacing bolts and other small parts. Our estimate of \$300 per year for repairs and overhaul is evidently ample.

“Our operating cost has been



Sturdy Two-Ton GMC Truck that Has Been Performing Faithfully for Holmes, Pyott & Co., Chicago, for Eight Months. It has Traveled Over 6,000 Miles and Hauls Heavy Iron Girders Six Days a Week.

KELLASTONE

IMPERISHABLE STUCCO

Build Homes as Sturdy

as the

Rock-Ribbed Hills

A contractor is known by the character of the buildings he erects. If they shortly become ugly, run-down and shoddy, they're poor testimonials to his ability; if they stand unchanged through generations, defiant of time and the elements, they become as monuments to his superior judgment and craftsmanship.

KELLASTONE

IMPERISHABLE STUCCO

produces the beauty and durability that stands as a permanent tribute to your ability as a builder. It is the original all-mineral magnesite stucco. Bonds to the surface with a giant grip—does not expand, contract, chip, peel or crack like ordinary stuccos.

Kellastone is scientifically balanced—does not contain a particle of lime, gypsum or portland cement—is immune to fire, cold, heat, wear and weather. Easily applied—binds the outer walls into one seamless, rock-like mass, as lasting as nature's eternal hills.

Old, out-of-date buildings can be effectively transformed into structures of modern architectural beauty by overcoating them with Kellastone. Ask us to send you our booklet—"The Story of Kellastone."

NATIONAL KELLASTONE CO.

Room 515, 155 East Superior Street
CHICAGO, ILLINOIS



very satisfactory, running \$12.83 per day figured on the National Standard System. This keeps our delivery cost at a reasonable figure, and still enables us to give our customers the prompt and dependable service they expect. Altogether, we consider the truck an essential and very efficient factor in our working equipment.

"See Summary of Costs below:

AVERAGE COST	
Cost per day (including driver).....\$	12.8297

Cost per mile.....	42.76
Total cost for period.....	2,591.78
OPERATION	
Days operated	202
Miles traveled	6,060
Miles per day.....	30
Miles per gallon of gas.....	7.5
Miles per gallon of oil.....	240
ITEMIZED COST	
Driver cost per day (included above).....\$	5.9207
Depreciation per mile.....	.0800
Maintenance and repair, actual, total.....	10.00
Maintenance and repair, actual, per mile.....	.0015
Maintenance and repair, estimated, per mile.....	.0495
Tire cost, estimated, per mile.....	.0262

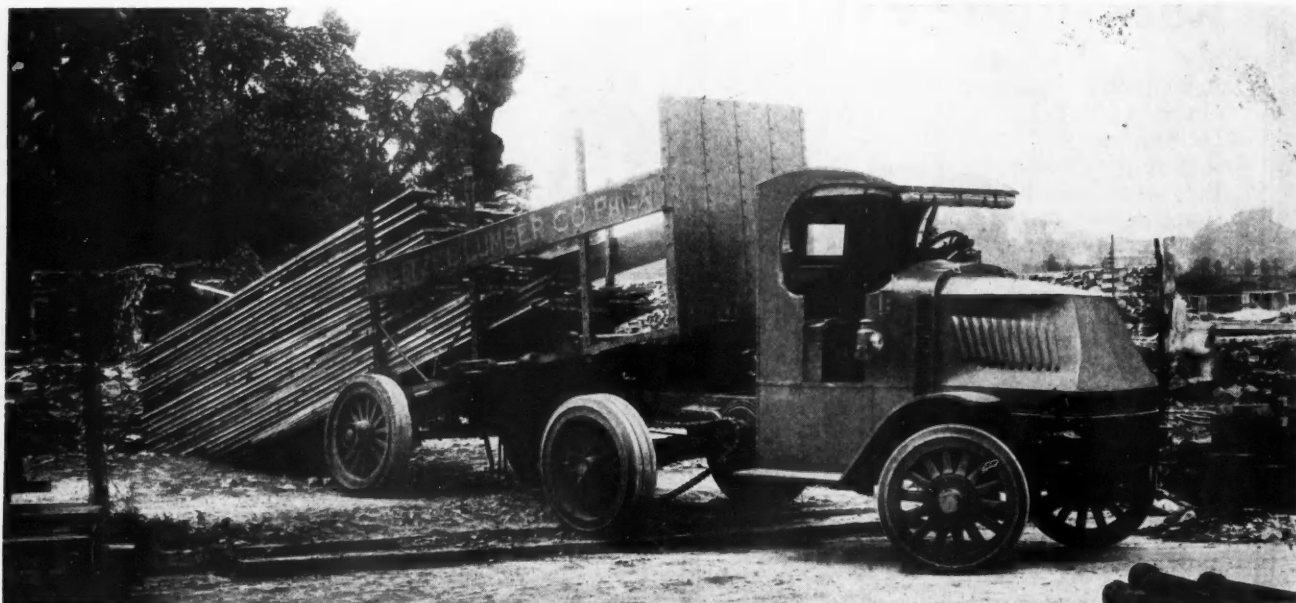
Use of Semi-Trailer in Lumber Yard

PHILADELPHIA CONCERN INCREASES HAULING CAPACITY BY USING TRACTOR AND TRAILER.

By P. L. Sniffin

HOW the Derr Lumber Company, of Philadelphia has increased the productivity of its delivery system by utilizing the semi-trailer forms a story of especial interest to those engaged in handling lumber and building supplies on a comparatively small scale.

tractor and 7½-ton trailer shown in the accompanying illustrations and the results obtained have more than fulfilled his expectations. Not only is he hauling 50 per cent more material with this outfit than would be possible with a 5-ton truck which would have cost him considerably more, but he has the added advantage of



This 3½-Ton "Mack" Tractor and 7½-Ton Trailer Increased the Hauling Capacity of the Derr Lumber Co., Philadelphia, Pa., About 50 Per Cent, and a Decrease in Cost Over a Truck. The Load Can Be Removed as a Unit Instead of Piece by Piece; and Considerable Time Saved.

It was several years ago that Mr. John H. Derr, president of the concern, became firmly convinced that the substitution of motor equipment for his horse-drawn units would be profitable. But like most dealers of his kind, he was confronted with the extreme expense involved in purchasing a motor truck long enough and large enough to carry the eighteen and twenty foot lengths of lumber. Another difficult factor that had to be considered was that a truck of this size would be a very unwieldy unit to handle in the narrow lanes of his lumber yards.

After considering the possibilities of various types of equipment, Mr. Derr decided that the answer to the problem was to be found in a tractor and semi-trailer unit. Accordingly he purchased the 3½-ton

flexibility in handling and an unusually efficient means for unloading.

As shown in the illustration, the load of lumber may be dumped as a unit, instead of removing it piece by piece, which is a very slow operation. In unloading by this method, it is very seldom that more than three or four boards are dropped off the pile.

Mr. Derr is of the firm opinion that this type of equipment is far better adapted to this kind of work than single motor truck units. He has found that its utility is by no means limited to handling lumber—in fact, he is especially enthusiastic about its ability to perform better service on the road than any other type of equipment, no matter what the load. As an

(Continued to page 154.)

GUARANTEED COVERING CAPACITY *and* GRADES



RITE-GRADE *RED CEDAR* INSPECTED SHINGLES

EVERY bunch of Red Cedar Shingles bearing the "Rite-Grade Inspected" grade-mark is guaranteed by an indemnity bond to be up to the grade under which sold, and when properly laid, to cover the number of square feet stamped on the bundle.

These shingles are manufactured under Association inspection, and carry the Association guarantee as well as the reputation of the manufacturer.

Shingle Branch, West Coast Lumbermen's Assn.
Henry Building Seattle, Washington

Shingle Agency of British Columbia
911 Metropolitan Building Vancouver, B. C.

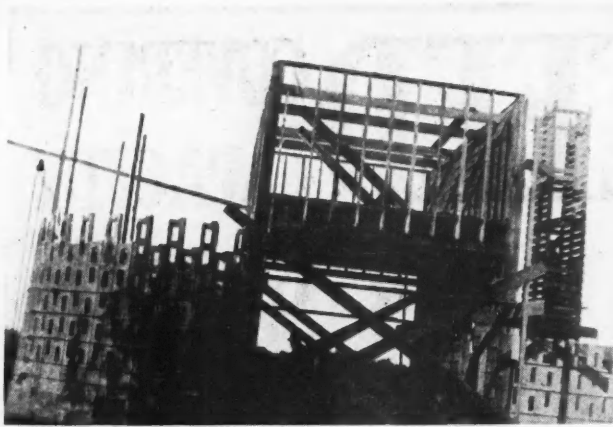


Fig. 1. Corn Crib in Early Stages of Construction. The Frame Superstructure for the Elevator Has Been Started and the Surrounding Stave Walls Are Assuming Shape.

New Concrete Crib and Granary

New Farm Store House with Elevator Is Gaining in Popularity Because of Attractive Features.

By J. A. REDINS

THE last decade has done much to awaken the farmer to his opportunities. Especially in the purchasing of new and modern farm machinery and the erecting of better buildings.

In consequence the farmer is ready to lend a willing ear to any argument that will make his business a better paying one, altho reserving to himself the privilege of passing

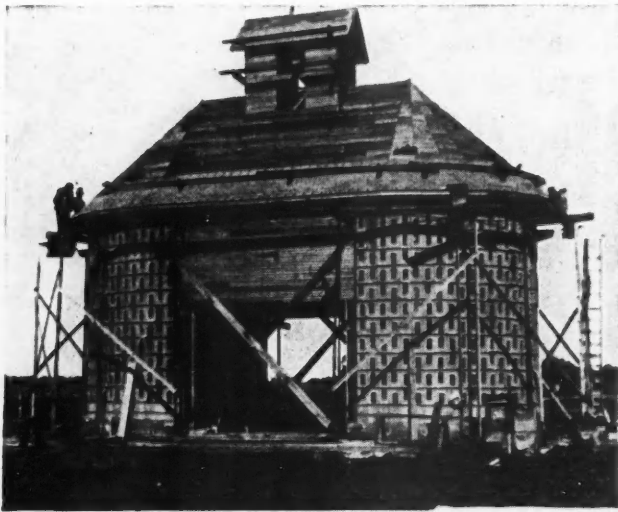


Fig. 3. Roof Sheathing on Ready for the Final Touches. The Cupola Is Built to Accommodate the Upper Part of the Inside Cup Elevator Which Carries the Grain from the Drive Below to the Spout Which Leads to the Various Bins.

upon the merits of the means to the end.

One big improvement in farm buildings is now particularly attracting the farmer's attention. That is the concrete stave crib with inside cup elevator. This is one of the most notable applications of cement to the farmer's problems.

The concrete stave corn crib and granary has proved to be an effectual protection against rain and snow, rot, mold, birds, squirrels, mice and rats. Wind, fire and lightning will not harm it, and it is permanent.

The unique but practical construction of the stave corn crib makes building easy. The staves have a "tongue and groove" construction, 30 inches long,

10 inches wide and 2½ inches thick, with a central ventilating opening in each stave 9 by 14 inches. Each opening is reinforced with 4-inch steel rods of ¼ inch diameter, which run lengthwise and furnish a protective grating against pests.

The construction of a cement stave crib and granary is very simple.

The crib stands on a concrete foundation surmounting hollow clay tile for ventilation as an assurance against dampness. Over this is poured a 2-inch cement floor, pitched so that it will drain properly. To obtain the greatest possible strength and rigidity the completed crib is banded with

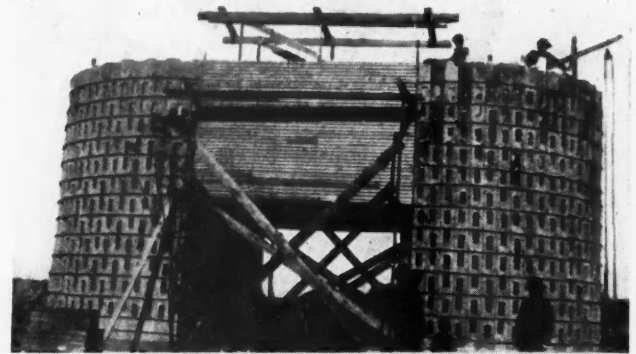


Fig. 2. Concrete Stave Corn Crib and Granary Ready for the Roof. These Staves Have a "Tongue and Groove" Device Which Makes Construction Simple. They Are 30 Inches Long, 10 Inches Wide and 2½ Inches Thick.

9/16-inch steel rods, each stave being held firmly by three rods.

With these staves it is possible to put up a corn crib of any size, from the smaller, round type, holding about 750 bushels, to the large multiplex crib with a grain bin, built above.

An extensive sales program has been planned and lumber dealers have been invited to co-operate in rounding up prospects and making sales. Many lumber dealers are interested, listing prospects and selling cribs with profit to themselves in return for very little actual work.

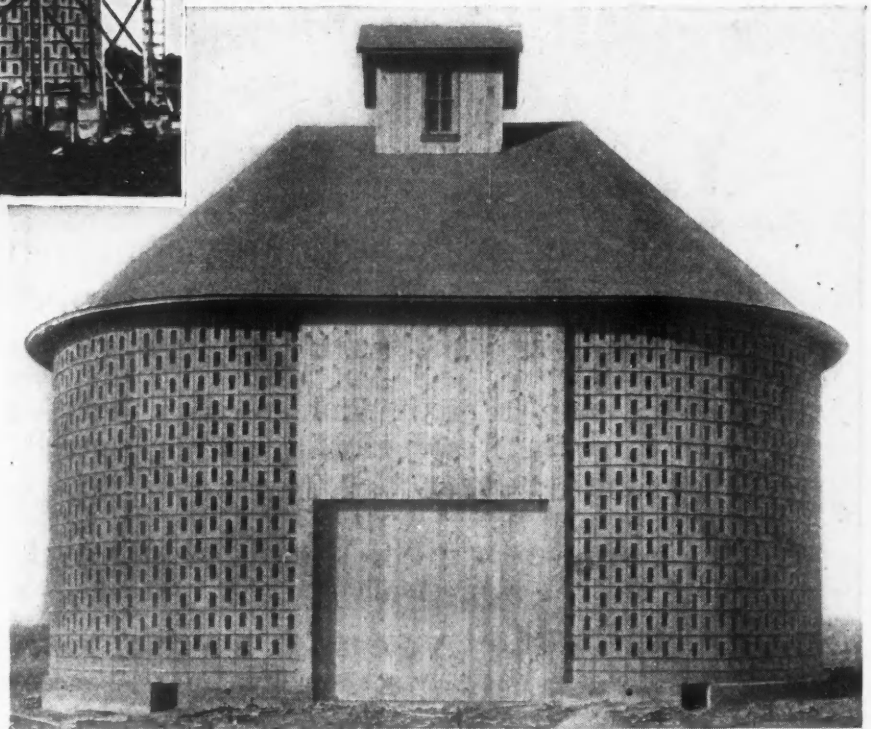
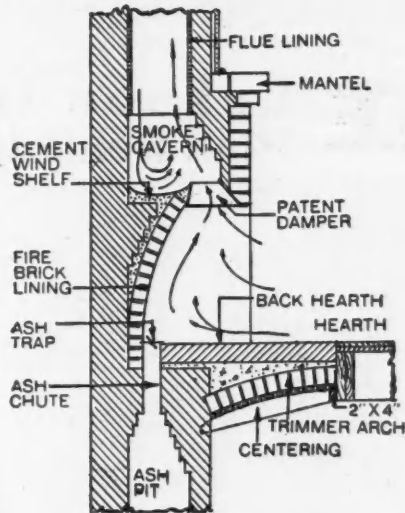
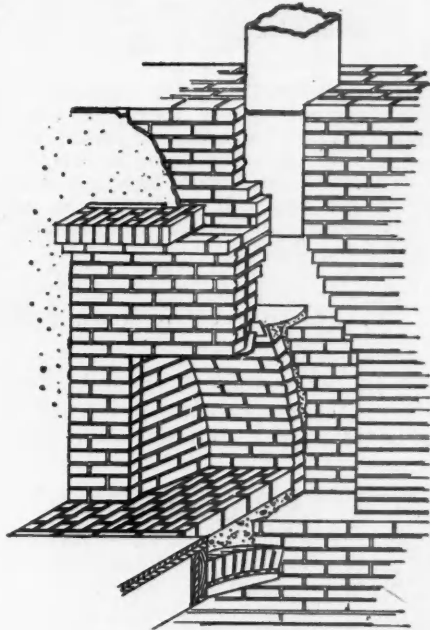


Fig. 4. Cement Stave Corn Crib and Granary on Farm of Jacob Martens, Near Anchor, Ill. Mr. Martens is President of the Anchor State Bank and Supervisor of Anchor Township, McLean County, Ill. This Crib, Built in October, 1920, Has a Capacity of 8,000 Bu. of Ear Corn and 4,500 Bu. of Small Grain.

How to Build Fireplaces



Told in the Face Brick Manual

—Along with all other data on Construction Methods

FIREPLACE construction, with its problems of opening dimensions, damper arrangement, wall thickness, flue linings, wind shelf, etc., is an important phase of building. Occupying the center of interest in a room, design and proportions must also be good.

Correct methods of building fireplaces are thoroughly explained and illustrated in this *Manual of Face Brick Construction*. The instructions are practical. They were written for the practical man.

All other phases of face brick construction are treated in the same thorough, authentic manner as are fireplaces. Types

of walls, foundations, special uses of brick, brick bonds, mortar joints, fire protection facts, and estimating tables are some of the subjects included.

Supplementing this practical data are thirty-one colored reproductions of charming home designs with the floor plans. Full sets of plans, including blue prints, specifications, and bills of materials, for each of these homes can be secured at nominal prices.

As a practical text book and book of designs, this *Manual* is essential to every person interested in building.

One dollar brings you a *Manual of Face Brick Construction*. This is less than its actual cost. If you are not satisfied with the book, return it and we will refund your money. Address Dept. A4

THE AMERICAN FACE BRICK ASSOCIATION

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Plan Reading. How to read a building plan. Use and meaning of different lines. How to read dimensions. Detail drawings. How to lay out work from plans. Tracings and blue prints—how they are made. Practice in reading complete plans from basement to roof, etc., etc.

Construction Brickwork. Footings and foundation walls of brick concrete and stone. Brick laying complete. Brick and stone arches. Use of different kinds of stone. **Carpentry.** Kinds and uses of woods, cornices, interior details, framing, roof construction, bridging, miter joints, butt joints, etc. Plans and specifications for all kinds of buildings.

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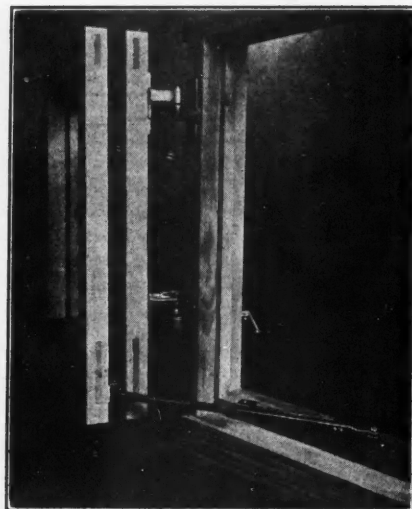
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Attachment for Two-Fold Blinds

THE illustration herewith shows a new attachment for shutter workers for two-fold blinds. This opens and closes the shutters from the inside and automatically locks them in any position. Two-fold shutters, with shutter workers, can thus be satisfactorily used where windows are placed close to an adjoining wall or where two windows are placed close together. The attachments are made in various sizes to fit all thicknesses of walls. ❖



New Attachment to Open and Close Shutters from Inside and Automatically Locks Them.

New Truck Body for Hauling Brick in Bulk

ONE of the important features of a motor truck is the body. This is especially so in the case of the contractor who has to do so much hauling of bulky and heavy materials. The dump body has solved the difficulty of transporting sand and gravel, now comes a special body that speeds up the unloading of brick without resulting breakage.

The sight is not uncommon to see a force of men at a car or brick yard passing brick to a man in a truck while one or two trucks with drivers idle are waiting their turn, or else men in the car loafing while the truck is away. A similar scene is enacted at the job with a consequent waste of valuable time and increase in expense.

This new truck outfit is really composed of two detachable bodies—one to be loaded at kiln or car while the other is being hauled to the job. At the end of each trip the empty body is exchanged for one which has been loaded, thereby keeping the truck hauling all the time and keeping the men working.

In this body, the brick are delivered in a neat hack at the building site ready for the hod-carrier, and they are also automatically counted. One man can handle this dump body

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THIS complete house-selling plan is a sure way for you to secure more building work.

People want to build, but they are hesitant. To show these charming designs for homes which meet their every requirement is the strongest influence in swinging these people into a decision to build.

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The large units give rapid, low-cost construction. The imperishable, fire-resistive character of Hollow Tile minimizes depreciation and upkeep expenses. Little painting and no replacements are ever required.

The insulating air cells give exceptional comfort and healthful conditions. They maintain coolness in summer and warmth in winter. The solid, impenetrable walls reduce heating costs.

Your local lumber or material dealer will supply you with complete plans, including blue prints, specifications, and bill of materials, for the houses and garages offered in this Plan Service.

We will gladly supply samples of the illustrative folders. Order plans by the Design numbers. Address Dept. 164.

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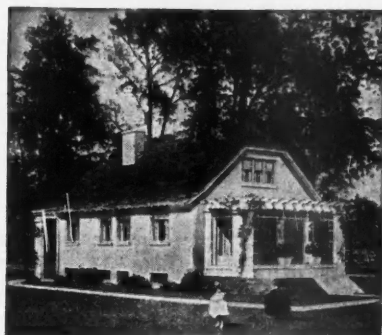
Conway Building, Chicago

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Colonial Home No. 1178

A dignified small home of true Colonial charm. Every requirement for comfort and convenience offered by six rooms, a sleeping porch, and an open terraced porch.



Bungalow No. 1179

A very pretty home in a quaint style that appeals to every home builder. Built for comfort, with five rooms, sleeping porch, and terraced front porch.



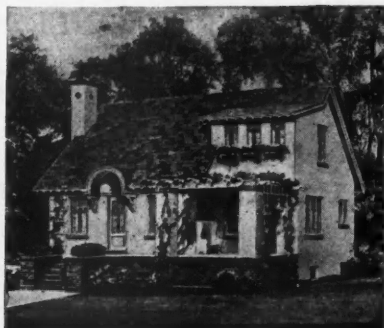
Two-Story Residence No. 1176

A low-cost but well-constructed home of beauty and comfort. Six rooms, with a large porch, make it ideal for the family with moderate income.



English House No. 1174

A home of rare individuality for suburban or residential section. Five spacious rooms and sun porch, with opportunity for additional bedrooms upstairs.



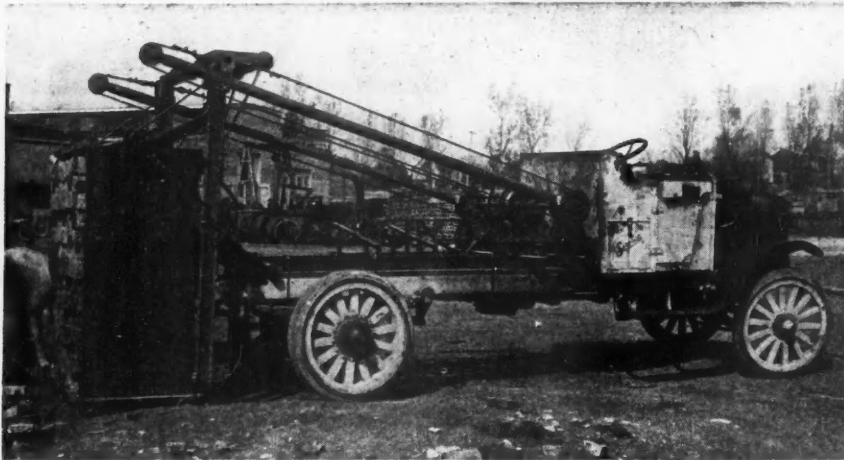
Bungalow No. 1175

Six large rooms, a sleeping porch, and a terraced porch make this an especially desirable home. Attractive in appearance, substantially constructed, and very economical.



Two-Story Residence No. 1184

A well-designed home with four light, airy rooms, a convenient dining alcove, and a comfortable porch. This house pleasantly suggests the cottage type.



Unique Hauling Body for Motor Truck Carries Load of Brick and Deposits It in Neatly Piled Hack Without Breakage. One Body Is Loaded at Car While Other Is Hauled to Job.

which is operated by power from the power take-off of the truck. Bodies are made in four sizes—1,000 brick for a 2½-ton truck, 1,500 brick for 3½-ton, 2,100 for 5 and 6-ton trucks, 500 for Ford trucks. Each outfit consists of a frame, cradle, two bodies, two wooden pallets, and power hoists.

THE contractor or plasterer who makes a specialty of quick repair jobs would do well to slake and age as much lime as he can store without danger to freezing at this time. The longer the paste is stored the smoother it becomes, and it is the ideal material for making repairs. It can be handled easily and used under practically any conditions.

Preparing Mortar in Advance

LIME MORTAR can be prepared in large quantities at a central location and batches taken to the point where needed. The mortar may be prepared in advance of the time required, which is a distinct advantage, for it may be mixed during time that would otherwise be wasted, and then allowed to cure until needed. In fact, it is recommended that the plaster be allowed to age for at least 7 to 10 days prior to use so that it may become thoroughly slaked and smooth working. It was due to the long ageing that our forefathers gave lime that such remarkable results were obtained in their work.

TO determine the capacity of a cylinder or round tank in gallons: Multiply the diameter in inches by itself, this by the height in inches and the result by twenty-four.

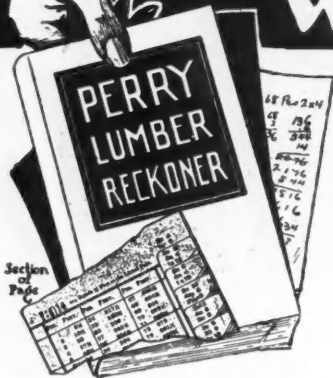
Another rule is to multiply the square of the diameter in feet by .7854 and this by the depth in feet. The result multiplied by 7.476 will give the capacity in gallons.

A STANDARD sack of hydrated lime contains 50 pounds, or 1¼ cubic feet.

A large sack of hydrated lime contains 100 pounds, or 2½ cubic feet.

Hydrated lime requires about an equal weight of water to produce a paste. A 100-pound sack of hydrate gives about 2.3 square feet of paste.

Why Take a Chance?



You are taking a big chance every time you figure lumber by hand. With a copy of the PERRY LUMBER RECKONER handy on your desk or in your pocket you can get results quick and they will be right—no guesswork. This book is 3½ in. x 6¼ in. in size, and contains 106 pages—every page a time saver.

HERE'S AN EXAMPLE

How many board feet in 68 pieces, 2x4—14 ft. long? You have to take considerable time to figure this by hand. A PERRY LUMBER RECKONER gives you the answer instantly and it is right—634⅔ board feet.

Shows instantly and correctly the number of feet in any number of pieces of lumber of standard size.

Read what Mr. Himes, of Riverside, N. J., says:

"Inclosed find check for one PERRY LUMBER RECKONER which I would like to have as soon as possible. Having lost the one I purchased several months ago, I cannot afford to be without one; it is a wonderful book and IS WORTH TEN TIMES ITS PRICE to any builder."

Send \$2.00 today for this short-cut to quick, sure results and profits. If this book does not prove worth twice what you pay for it, you may return it after examination and the amount will be refunded to you.

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and your money refunded if you are not satisfied.

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Benjamin L. Jenks, Publisher

1210 Marshall Building

Cleveland, Ohio



M. C. Couchot, Engineer

San Francisco, California

Windo Walls—the Window for Economy

This illustration shows the Sturges Tire & Rubber Company, Oakland, Calif. So satisfactory has Fenestra been in this tire plant, that repeat orders were given for an addition, and an adjoining garage. This building, 250 feet in length and 35 feet wide, is well daylighted and ventilated by 1,266 sq. feet of Windo Walls.

Throughout the country, contractors use Windo Walls in every size and type of building, because of their economy. And especially satisfactory are they in small buildings, buildings in which just a few sash are needed, but, usually, in a hurry.

1. Cost figures show that Fenestra Windows cost less than wooden windows
2. Then, too, they are permanent and fire resistant.
3. Twenty-four warehouses, conveniently located throughout the country, are well stocked with standard types and sizes, assuring immediate shipment to builders.
4. They are easily and quickly erected.
5. Besides giving larger area of light, superfluous brick and stone are eliminated in the wall construction.
6. They provide more daylight and abundant ventilation, giving more usable floor space and working conditions that improve both quality and quantity of production.

It is because of these advantages of product and service that Fenestra predominates today in the specification for all types of industrial buildings.

The Fenestra organization comprises 63 Sales and Engineering offices and 24 Warehouses. The Warehouses are designated by heavy type.

Atlanta, Ga. **Kansas City, Mo.**
 Baltimore, Md. **Knoxville, Tenn.**
 Birmingham, A. **Lake Charles, L.**
 Boston, Mass. **Little Rock, Ark.**
 Buffalo, N. Y. **Louisville, Ky.**
 Charleston, W. Va. **Los Angeles, C.**
 Charlotte, N. C. **Memphis, Tenn.**
 Chattanooga, Ten. **Milwaukee, W.**
 Chicago, Ill. **Minneapolis, M.**
 Cincinnati, Ohio **Montgomery, A.**
 Cleveland, Ohio **Nashville, Tenn.**
 Columbus, Ohio **Newark, N. J.**
 Dallas, Tex. **New Orleans, La.**
 Dayton, Ohio **New York, N. Y.**
 Denver, Colo. **Omaha, Nebr.**
 Des Moines, Iowa **Oklahoma City, O.**
 Detroit, Mich. **Philadelphia, Pa.**
 Duluth, Minn. **Pittsburgh, Pa.**
 El Paso, Tex. **Portland, Oregon**
 Erie, Pa. **Richmond, Va.**
 Evansville, Ind. **St. Louis, Mo.**
 Fargo, N. D. **Salt Lake City, Utah**
 Ft. Wayne, Ind. **San Francisco, C.**
 Greenville, S. C. **Savannah, Ga.**
 Harrisburg, Pa. **Seranton, Pa.**
 Hartford, Conn. **Seattle, Wash.**
 Helena, Montana **Shreveport, La.**
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Sidewall Sash

Continuous Sash

Counterbalanced Sash

Underwriter's Labeled Sash

Mechanical Operators



NEWS OF THE FIELD

National Fireproofing Has Unique Exhibit

SOMETHING unique in the way of building material exhibits has been installed by the National Fireproofing Co., in their general offices in Pittsburgh. The purpose of the exhibit is to bring before the architect, building supply



Interesting Building Material Exhibit Installed by National Fireproofing Co., in their General Offices at Pittsburgh, Pa.

dealer and contractor the possibilities of the new glazed tile which is used without any stucco or other covering for residences, commercial buildings, farm buildings and similar structures. The general layout of this exhibit is shown in the accompanying illustration.

In the foreground are the front wall and part of the roof of a typical bungalow, complete in every way. This is built

of Natco glazed Tex tile. The back wall is plastered the same as in a regular home. The windows are curtained at this time. The effect is very pleasing, and has caused a great deal of favorable comment. The center part of the exhibit is built of regular tile, with stucco finish. It contrasts very effectively with the natural finish of the tile used in the rest of the exhibit.

The gate towards the rear of the picture leads into the reception room. The wall at the left of this gate is built of Natco glazed double shell tile with scratch-face, the type generally used for farm buildings. At the right of the gate the wall is built of Natco double shell tile, unglazed, with two scratch-faces, which is generally used for residence construction. The top of both of these walls is constructed of Natco hollow tile covered with stucco. The columns and frame work are of wood, painted white.



Stained with Cabot's Creosote Stain
C. M. Hart, Architect, Bay Shore, N. Y.

Stained Shingles

The Warmest, Most Artistic and Most Economical of all House Finishes

Wood shingles are two or three times warmer than the gummed paper substitutes, and they are cheaper, last longer and are incomparably more artistic and attractive. When stained with the soft, moss-greens, bungalow-browns, tile-reds and silver-grays of

Cabot's Creosote Stains

they have a richness and beauty of tone that no other finish can equal and the creosote thoroughly preserves the wood. Use them also on siding, boards, sheds and fences. Anyone can apply them with best results at least expense.

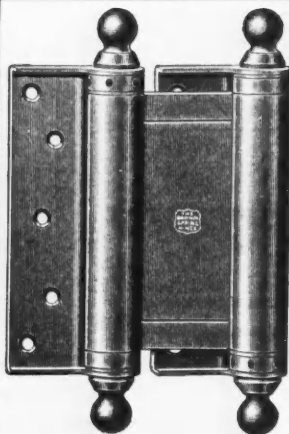
Cabot's "Quilt"

makes floors and partitions sound-proof by breaking up the sound-waves and absorbing them. It makes walls and roof cold- and heat-proof by a cushion of minute dead air spaces that prevents the conduction of heat. From 28 to 50 times as efficient as cheap building paper.

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Cabot's Brick Stains, Stucco Stains, Conserve Wood Preservatives, Damp-proofing, etc.



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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Southern Pine Manual in Big Demand

MUCH time and money has been expended by the Southern Pine Association in compiling a new Manual of Standard Wood Construction, made necessary by the excessive demand on the part of architects and engineers from all over the country for the publication. More than twelve hundred copies are being mailed in response to requests received since the supply of the old edition became depleted some months ago.

The additional technical information and tables, included in the new book, for use in designing composite and all-wood structures, make it of that much more value to the many engineers and others engaged in heavy construction work, who have heretofore found it of so much worth.

The new data contained in the Manual is as follows: Weights and dimensions of bolts and nuts, properties of structural steel shapes, minimum live floor loads for structures of various purposes, safe column loads, trigonometric formulas and solutions of triangles, mensuration (Surfaces and Volume of Solids), functions of numbers 1 to 500 (squares, cubes, square roots, cube roots, and logarithms, natural sines and cosines, tangents and cotangents, logarithmic functions (sines, cosines, tangents and cotangents), sheet-piling, lattice trusses, design of Howe roof trusses.



Pittsburgh Firm to Handle "Wonder" Line

ANNOUNCEMENT was recently made that the John H. Carlin Machine Company of Pittsburgh, Pa., has taken the Pittsburgh territory for the "Wonder" line of concrete mixers, hoists, pumps, back-fillers, etc., manufactured by the Construction Machinery Company, Waterloo, Iowa.



Austin Company Extend Sales Service

The Austin Machinery Corporation of Louisiana, Inc., with a capitalization of \$100,000 preferred stock and \$200,000 common stock, was recently incorporated under the laws of the State of Louisiana, as sole distributors for Louisiana, Arkansas, Mississippi, Tennessee, of the products of the Austin Machinery Corporation. This new corporation will carry a full stock of machinery and spare parts for this territory, serving the requirements for municipalities and contractors of excavation, construction, irrigation and drainage projects.



Kimball Bros. Build Addition to Plant

Kimball Bros. Co., Council Bluffs, Iowa, commenced the breaking of ground for a new addition to their factory recently.

The new fireproof structure of concrete and steel will be "daylight" construction. The blank wall space will be reduced to a minimum and all sides practically windows with the steel frames. The estimated cost of the construction has been placed between \$15,000 and \$20,000.

The building will occupy a ground space of 50 by 94 feet, will be three stories high, with a total floor space of 14,100 square feet, approximately doubling the present floor space and practically tripling the present production.

The office quarters of the company are to be completely remodeled and redesigned, moving the mechanical department upstairs and the clerical departments taking the whole first floor.

The company expects to be completely established in their new building by July 30.

STEEL for Quick Construction

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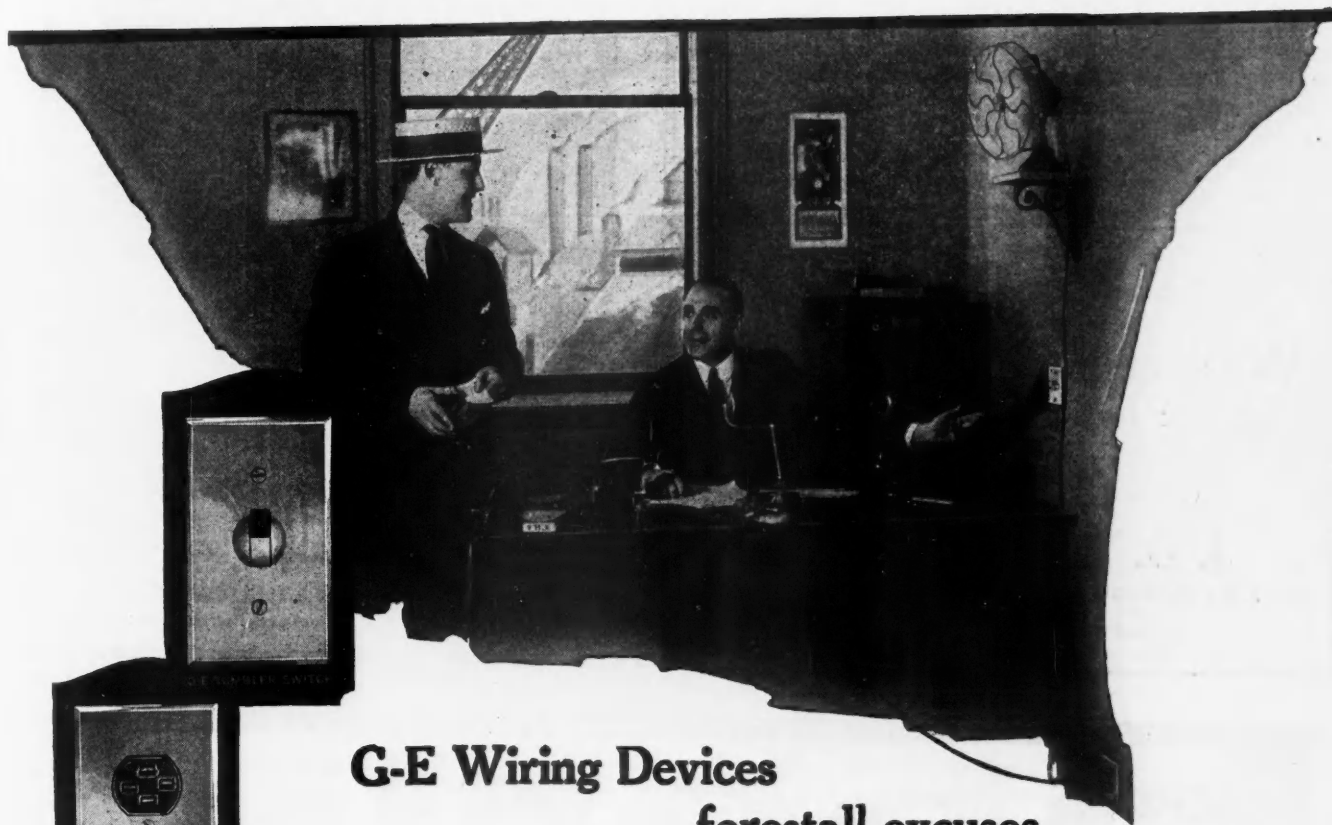
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41-160

Goodell-Pratt 1,500 Good Tools are illustrated and described in a new No. 14 Tool book just issued by the Goodell-Pratt Co., Greenfield, Mass. There are included in this book over 2,000 sizes and kinds of tools for tool-makers, machinists, motorists, carpenters, and householders. It will be supplied gratis upon request.

"Automatic Hydro-Electric Generating Stations" is the title of Bulletin 40604 issued by the General Electric Co., Schenectady, N. Y. The bulletin describes the various methods of control and the stations which have been built along these lines.

The Essentials of Building Construction for Homes and for other buildings is the subject of a new booklet being distributed by the Associated Metal Lath Manufacturers, Chicago, Ill. It contains many beautiful views of exteriors and interiors of homes in which metal lath has been used, also complete specifications as to its application.

Send for Catalog

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Planers : Jointers : Circular Saws**

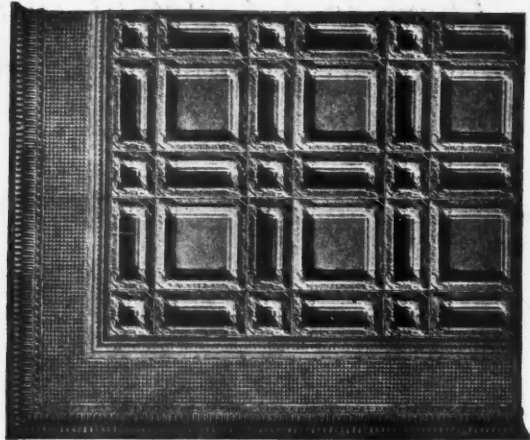
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