U. S. Lifts Bars on All Building
No More Permits Needed to Resume Work Held Up by the War

A NEWS dispatch from the Washington correspondent of the Chicago Tribune gave the welcome news on Nov. 21 that building restrictions had been officially removed by action of the War Industries Board. The U. S. Official Bulletin of the next day verified this dispatch.

All remaining restrictions on nonwar construction throughout the United States are removed. Building operations of any character, which were suspended by the war, now may be resumed without further permits.

Chairman Baruch of the war industries board announced that D. R. McLennan, chief of the nonwar construction section of the board, had telegraphed the order to chairmen of State Councils of Defense.

"The action taken permits all building operations of whatever character, held up in the interest of the war program, to proceed," the official announcement says. "No further permits will be required from the war industries board or the state councils, through whom control over the situation in each state was maintained.

"Immediately following the signing of the armistice on Nov. 11, the nonwar construction section took steps to loosen the restraints on the industry, and in a formal order issued that day removed a great many of the barriers. Since then, and with a view to assisting the industry back to a complete peace basis as quickly as possible, a careful canvass has been made of the conditions in each state with respect to building materials, transportation, and the supply of fuel and labor.

"In this investigation the nonwar construction section sought the views of the industry itself and of the State Councils of Defense. The replies received, coming from practically all the states, showed an unanimous opinion in favor of such action."
Building Boom Predicted

COMMENTING on post-war conditions in the real estate market, S. W. Straus, of New York, says:

Evidences multiply that, concurrent with the end of the war, there will begin an extended period of unprecedented activity in all branches of the building and construction industry. Housing conditions in nearly every principal American city today are far below normal. Building permits in the twenty leading cities of the country in August totaled only $22,000,000, including all government contracts. In New York City and the district surrounding it for 100 miles, exclusive of Philadelphia, construction work of all kinds during the past seven months has fallen off 37 per cent. It will take a long period of years of most active building to bring urban housing conditions again to a normal state.

While there will be a tremendous increase of all lines of construction work, including an expenditure of several billions of dollars in railroads and highways improvements and the deepening of rivers and harbors, the speeding up of building operations on a large scale will take precedence over all phases of stimulated business.

This will be due to the fact that the home is the first and most vital essential of every day existence, and the man-power which is rapidly becoming available will first be needed in the building of homes, farm buildings, apartment houses, hotels, office buildings and other similar structures.

These activities are likely to be reflected in a greatly stimulated real estate market in all of our principal American cities, and we shall find capital seeking these channels with increased enthusiasm. There will be a consistent increase in values where conditions are permitted to develop under the natural sway of supply and demand.

Under these circumstances it is not likely that, contrary to the expectations of many, we shall soon see an easing off in home and business rentals. Rents, like all other commodities, will remain high for some time.

Start Something—Be the Bell Wether

In these days there should be a special prize and a Distinguished Service medal hung up in every community for the builder who hustles out and gets the first job of putting up a dwelling house, store building, church, school or farm building.

For he will start something.

We realize now how tightly down the war lid was clamped on all private building. There is a 40 per cent shortage in the general run of buildings, and now that all government restrictions have been entirely removed, there is a general sentiment in the air of a great revival of private building.

Just how long it will take this expected building boom to develop depends a good deal on the attitude of the local building material dealers and the energy which both they and the builders show in getting out after the business.

The public naturally hangs back a little to see if prices will ease off, and to make sure that the labor supply has become sufficient to assure the handling of a job within reasonable limits of time and labor cost.

As far as the price of building materials is concerned, we cannot see any signs of a decline. The law of supply and demand, operating over the entire world, will certainly keep up the war-time scale of prices for several years to come, or until the vast armies are demobilized and get back again to productive work.

Building improvements are urgently needed, and the present scale of prices of building materials will not hold them back for long. Dealers should carry stocks fully sufficient to meet promptly the demands that will be made on them. If the dealers will be aggressive and enterprising in letting the consuming public know that now is the time to build, and that stocks are on hand for immediate delivery, they won't have to worry about prices. For about two years now consumers have been met with stories of car shortages and embargoes, and of uncertain war-time prices. They have been discouraged when they proposed to undertake anything. All of this is now changed, and it is up to the dealers to let their prospective customers know that the war is over and that the time for rebuilding has come.

Don't be discouraging when the farmer comes into your office and mentions that he is thinking of putting up a new barn or rebuilding his farmhouse. Be a little optimistic and encourage him in the idea. Forget about the high price of lumber. Rather fix your mind on the high price of wheat, corn, hogs and steers. Everything that the farmer has to sell commands such a high price that your price on building materials seems modest indeed.

Dealers can now get supplies from any of the manufacturers, jobbers or wholesalers. The war work is over, and factories are getting back again to their regular production. Undoubtedly there are buyers who have been more or less disgruntled on account of the poor service they have been able to get from the manufacturers these past few months. It is probable that quite a number feel that the manufacturers are at fault and that they have taken war business to the utter disregard of their old customers because of the possibility of making more profit.

We know, however, that in the great majority of cases such a charge would be entirely unjust. Many manufacturers have given their entire facilities to war work, because it has been necessary and practically required by the government. Most manufacturers dislike very much to be unable to serve and thus hold in line their old customers, and it has been a sacrifice on their part to place their entire output with the government. These conditions are now at an end, and it should help immensely toward the restocking by local dealers which will permit building improvements to go forward energetically and without delay.
HEY sat across the car from me. I could hear the conversation quite plainly. Mrs. Gale was speaking—she lived on my street, half a dozen blocks away, as did also her companion, Minnie Borden. In fact, they lived in the two prettiest bungalows in all our stretch of street—rented bungalows at that, tho you would never believe it; bungalows built by a queer old gentleman who had a hobby for architecture, and claimed it paid to cater to the fastidious. Anyway, they were ideal little six-room bungalows, painted brown with a canary trim, and adorned with those carefully “tailored” touches which only an artist-craftsman can give—from the flaring base of the sturdy porch posts to the quaint hand-carved gargoyles peering down at one from the gable ends of the roof.

The two bungalows were not alike, tho they followed the same type, and had it been given me to choose between the two, I should have shut my eyes and drawn lots. But Mrs. Gale was saying:

"There is something inferior about my bungalow. I'm sure it isn't built as well as yours. It doesn't look as finished. I'm awfully disappointed over it—I'm almost ready to give it up."

Walking down the street, I critically observed both bungalows, knowing, as I did, that in matter of expense one equaled the other. Yet, Mrs. Gale was right. The house she lived in did look inferior. And yet, when I considered the building alone, it did not. The same careful hand had finished both, but the abode of Mrs. Borden showed the homey touch of a woman's hand. She had taken a beautiful bungalow and given it the finishing touch—a beautiful setting, flowers and a velvet strip of lawn. It was like a picture set in an appropriate frame.

No wonder Mrs. Gale was disappointed; she had the picture, but she had forgotten to supply the frame. All too many women live as in a cage, inside the house, and forget what the outside is like till they return from some shopping trip and behold the place where they live as it is. And lo, like Mrs. Gale, they are disappointed.

It was still early in June, that day I strolled down past the two brown bungalows—the one framed and the one not. Yet at Minnie Borden's bungalow geraniums and sweet alyssum and some blue-flowered ivy vine were already blooming in a pretty porch box (well made and painted to match the house trim—an item worth remembering), getting ready to tumble downward in long, loose sprays to meet the upreachings of pink petunias from the bed below. In August, with the help of some dusty miller, they accomplished their desire. But even in June they bloomed, along with the pink roses in the borders—for no flowers or shrubs or plants of any kind were allowed to mar the open stretch of green that ran out like a velvet carpet to meet the street, and seemed to set the little bungalow back in a very oasis of cool, restful shade. One felt sure that the sea breeze must be just a bit more gratefully cool there than anywhere else down the long, hot stretch of street.

I knew, finishing my stroll down the street, why Mrs. Gale was disappointed in her bungalow. She had failed to give it the finishing touch—flowers. And I knew why Minnie Borden's bungalow belonged to that type of a home which makes a "city beautiful." For, no matter how good the architect, no matter how careful the workmen, yet there is still something left for the occupant to do.

The finishing touch must be applied to bring out the full homelike charm of any dwelling; and that finishing touch is applied with flowers, shrubs and vines.
A DELIGHTFUL DUTCH COLONIAL DWELLING. An extra charm has been given this little home by using special irregular wood shingles laid in wavy lines with a wide exposure. It is suggestive of the hand-wrought architecture of the early Dutch of New Amsterdam. This distinctive house contains four fine rooms on the first floor and three bedrooms and bath above.
A PRACTICAL BUNGALOW OF SEVEN ROOMS. This design has the true western sweep with wide cornice, brackets and exposed rafters. Size, 28 by 28 feet. This plan shows four well arranged rooms on the main floor and three bedrooms and a large bathroom upstairs. The story-and-a-half style is well liked both for good looks and economy.
Industrial Housing Will Keep Up

NOW that the war is over the Government's housing enterprises at the shipbuilding and munitions centers will no doubt come to a quick finish.

But this will not be the end of industrial housing—not by any means. The big corporations, with their interest in peace time production just as great as in war work, will continue their programs for better housing for their employees. New enterprises of this kind will be launched, for the war has demonstrated the expensiveness of "labor turnover" and has shown proper housing or home conditions for the workmen and their families to be the only real solution for this problem.

Within the past week the AMERICAN BUILDER has been authorized to select a builder and recommend designs and materials for a group of twenty-five houses for a small Minnesota manufacturing town not at all interested in war work. It's an example of necessary home building by the wholesale before worker efficiency could be secured. Other similar home-building enterprises will be started, we predict.

SIX-ROOM BUNGALOW COTTAGE. This design combines maximum economy of construction and maintenance with attractive looks and a convenient arrangement.
FIVE-ROOM BUNGALOW. Here is a balanced arrangement with living room and dining room each side of the central reception hall and recessed porch. At the back are kitchen, two bedrooms and bath. Size on the ground is 26 by 37 feet.

SHIPPED ROOF COTTAGE. The rooms enclose an exact square, 24 feet on the side; but by letting the main roof include the front porch the hipped roof terminates in a 6-foot ridge which looks much better than coming to a point. Four rooms are provided.
HERE is a home of solid comfort that will go on any city lot. It is designed to take most of its light from front and rear and one side, so there is little danger that adjoining property, even tho built up close, will ever seriously interfere with the lighting of the rooms in this house.

It is a compact design, 24 feet in width by 38 feet in length. In addition, the sun parlor projects 10 feet at the front.

Notice the modern arrangement of simple, unpretentious entrance in connection with the private enclosed porch or sun parlor. How much better this is than the former style of big open front porch, which served only to darken the front rooms, and was useful only in warm weather. The modern sun parlor is Chicago’s contribution to American domestic architecture, and as an improvement it ranks second to none.

A glance at the floor plans will show the many modern conveniences embodied in this house. Note particularly the sleeping porch on the second floor, with its disappearing bed, which folds back into the dressing closet. Three other good bedrooms are provided, one of them being extra large. There is a great supply of well placed clothes closets.

On the first floor the arrangement of kitchen, pantry, dining room and breakfast porch is exceptionally well handled.

An interesting feature of the blue prints is that they show two alternate methods of construction and two exterior designs for this house. In addition to the all-wood design on which the plans and the rendered perspective are based, there are also a hipped roof brick construction design, and one using hollow structural tile stucco finished. The floor plans work equally well with all three of these exteriors; so these blue prints contain within themselves quite a variety of changes for the subdivision builder.
American Builder Building Plans.

Narrow Lot Residence Sheet No. 1
AMERICAN BUILDER BUILDING PLANS.


Scale 1/4" = 1'-0"  Scale 1/4" = 1'-0"  Scale 1/4" = 1'-0"

BASEMENT PLAN.  Scale 1/8" = 1'-0"

NARROW LOT RESIDENCE SHEET NO. 3.
To keep the money coming in during the winter months

Keeping the Shop Running in the Winter

By R. Newbecker

The slack winter months are fast approaching, and many a builder or carpenter finds on surveying his stock of odds and ends that he could realize some money from the same if he knew what to make out of it during the coming idle months. Many carpenters will, as usual, follow the beaten paths of finding odd jobs to do, while others no doubt will patriotically offer their services on the completion of war work.

The man, however, who has odd jobs coming in off and on does not feel entirely justified in closing up his shop. At the same time he may realize that the profit derived from the same does not entirely prove a paying proposition to him.

If he could only find something into which he could turn his stock of odds and ends during the winter months, something which is out of the beaten path, the operating of his shop on a regular schedule would be much easier and more profitable for him.

There is almost an unlimited possibility of making little things out of the ordinary run which can be produced from leftovers such as a builder generally has which will go a long way toward keeping the shop busy in the winter time, and one of these is an article easy of construction and at a profit which is a fruit display tray, as shown in illustration.

Take a walk around the grocery or fruit stores of your neighborhood and you will note that grocers display fancy apples, oranges and other fruit, as well as eggs and other articles, in their show windows in all kinds of ugly containers ranging from dirty crates to soap boxes, bushel baskets and so forth.

And why does he do this? Simply because no one apparently has pointed out to him the attractive display these same products would make if displayed in nice trays in his show windows—in trays as shown in illustration No. 1. Any thickness of material will do for this, from any odds or ends or packing cases. Why not make up a sample, take it to your grocer, then let him furnish you with enough boxes to make the required number desired? You simply charge for your time. These should be finished up nicely and painted a nice green or other color to harmonize with the store color, or antique brown. The size of a tray of this kind usually ranges from 12 to 14 inches in width and 18 to 20 in length; the sides can be 2 or 3 inches in height and slats for bottom can be of any width of convenient material at hand.

There may be some grocers, while not having convenient space for separate display trays as the foregoing, may easily be persuaded in obtaining a fruit display stacking tray rack, as shown in illustration No. 2. This rack should be about 4 feet 5 inches or 5 feet high, the uprights to be about 2 by 2 inches, the length and width to be of any desired size, and as many trays as desired, according to height of the same, which ranges from 4 to 6 inches, can be accommodated. These display trays have a cleat

(Continued to page 124.)
Winter No Obstacle to Rapid Factory Construction

A SPEEDY COLD-WEATHER CONCRETE JOB ON OVERLAND SERVICE STATION AT SPRINGFIELD, MASS.—
METHODS USED TO WARM MATERIALS AND TO PROTECT Poured CONCRETE

By Peter F. O'Shea

The Fred T. Ley Company of Springfield, Mass., general contractors who do work in all parts of the East and South, put up a building in their home city winter before last during cold spells and blizzards, which made a record for concrete construction in severe weather. Zero temperatures are no longer regarded as an insuperable obstacle to good concrete work. The Ley Company, by taking proper precautions, carried out the large job without any serious hitch, made the work perfectly sound, and, moreover, finished the job in what would have been fast time even in summer.

The building, 70 by 225 feet, four stories, and a basement under part of the floor area, with face brick limestone trimmed, and steel sash, is a service station for the Willys-Overland Automobile Company. Due to sudden developments in the automobile industry, the company decided that they ought to have a service
station built immediately and make it ready for occupancy and service with the beginning of spring. That was in December last, and the building was to be turned over complete on March 1. As a matter of fact, the first automobiles were stored on the upper floors March 6.

The photographs show the progress of the work.

The Ley Company did the excavating during the first half of December, and met with only one of the customary obstacles, a water hole which was soon overcome. As soon as the forms were started it began to snow and turn cold. But the foundations were poured, and kept warm while setting by a layer of stable-straw strewn along the top and covered with canvas sheets. This precaution was enough, as the weather had not yet become severe according to the standards of New England. The foundations set well.

The builders were hopeful of getting a good start on the weather, when a set back occurred, due to a change from the original plans of the basement so as to make the basement larger than at first laid out. Therefore, the contractors had to cut out part of the foundations just put in, and build new ones. In this way they lost two weeks of fairly warm weather. They were now two weeks behind their schedule, but it really amounted to more than that when the coming temperature and the times allotted for subsequent operations were taken into consideration.

But the next week was one of good weather, and the organization took full advantage of it. The temperatures for the successive days from January 1 to 7 were 27, 24, 32, 15, 33, 21, 15 degrees Fahrenheit; that is, a range of from one degree above freezing to 17 degrees below freezing. The mixing of concrete went on without difficulty, because of the treatment which had been given the raw material.

Since the beginning of the job, when sand and stone was first brought to the site, it had been dumped upon big coils of pipe laid on the ground. Each coil had eight series of inch and a quarter pipes formed into a square about 18 feet in outside measurement and with the members of the coil 24 inches apart. The pipes were bored with small holes every few inches, the holes facing toward the ground. Steam was fed to the coils by a heater according to the judgment of the supervising foreman and the weather. The steam circulating upward thru the sandpile kept out the frost and left the material warm enough for use in the mixer at any time and in shape to handle efficiently.

The material thus stored was dumped into the mixer in the usual way, but when the churning started, a jet of live steam was turned on, which had been piped into the mixing cylinder. Altho this was somewhat expensive, it allowed the mixing to go on just as under ordinary temperatures. Little trouble was experienced, especially after the men had become used to the condi-
tions, as is shown by the fact that the pouring of the roof took only three days.

January 6 the first floor was poured, the temperature being 21 degrees. No precautions were thought necessary, other than covering the tops of the columns with straw and canvas. Then the temperature began to drop, but the work went on steadily, and the second floor was poured in almost zero weather.

As fast as the pouring was done, the work was piped and covered for heating. Along the tops of the horses used for cement runs during the day lines of pipe were laid, brought alongside the work, and steam sent thru holes pierced every few inches. For this work scrap
Cold Weather Concreting

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pipe was used, especially for the short ends about the columns; it was not generally thought necessary to use fittings on the dead ends of these scrap pieces, and the ends were closed only by hammering the pipe together.

Big sheets of canvas were then fastened into place about the work, so as to confine the vapor closely to the concrete, and give an even temperature all about it. These cloths were permitted to adorn the structure like exotic bloomers as long as practicable, until they were needed on the next floor—from three days to a week. The heat was furnished by a steam heater set up in the basement excavation.

Meanwhile the inside of the building, as soon as there was any skeleton of wall to make an inside, was kept as warm as possible by a battery of open salamanders, or coke burners with gable tops from the ends of which the heated gases and air escaped. This helped to keep the foundations protected from extreme cold after they had started to set, as well as increasing the temperature of the whole structure and making it easier to maintain a good temperature within the canvas.

It must not be thought that this building was a fortunate exception to the rule of accidents and delays which is the bane of the contractor's life. There was no wait, however, on account of the pouring itself, even during zero weather. The work set well, and the pouring gang was rounding into fine shape. It was increased in strength, with the other departments, and enough men added so that the hours of working were extended sometimes to 11 o'clock at night in the effort to catch up.

The building had been promised by the contract for March 1. When the needed shipment of steel arrived on January 12, the third floor was ready to pour, and everybody got busy. During the pouring the temperature went down almost to zero—it was 3 degrees on January 15. New England weather has a trick of going up and down in sharp jumps. On the day after the three-degree temperature, for instance, the thermometer shot up to 31, only a degree below melting temperature. Next day it fell again. These changes were, of course, measured only from the same hour every day—12 noon; and between times there were just as abrupt changes within a few hours, especially at sunset and early in the morning. These repeated sharp thrusts of severe cold are not only inconvenient, but positively dangerous for any cement structure in the making.

However, by paying careful attention to the heating arrangements, and reinforcing them at critical points with the sudden drops of the thermometer, everything went along well. It was expensive, but the building had to go up in order to save money and business opportunity for the owners, so it paid in the end.

(Continued to page 136.)
Open Front Sawtooth Roof Poultry House

This poultry arrangement is in effect a house with roofed and enclosed runyard or scratching room. The hen house proper, containing roosts, nests, feed room, and incubator room, is the high part of the structure and is lighted by the nine windows in the monitor. The low part at the front is the scratching room. The front is 50 per cent open, being covered only with wire netting. It is suggested that the row of studs separating this open space from the roosting room can easily be fitted with canvas curtains on rollers to pull down in stormy weather. Another good method that would work out well and is in line with good poultry experience would be to tack up muslin over the wire netting to give more protection for the winter season, and at the same time permit a circulation of fresh air.

The arrangement of the nest alley in this house is one that will commend itself to the poultry keeper. There is also convenient and safe storage for quite a supply of feed.

A substantial concrete foundation is specified, and is to be recommended, because it helps to make a rat-proof, weasel-proof building. Clean gravel or well drained earth can be employed for the floor.

The exterior of this poultry house is neatly finished in drop siding, which makes a snug warm job. Such a building would grace any back yard and with eggs at their present price many such winter egg factories ought to be put up.
Farm Buildings to Aid Food Production

Cross Section of Poultry House

Floor Plan of Poultry House

Working Drawings of Open Front Poultry House Pictured Opposite.
Double Pig Pen With Shelters

It is quite as necessary to provide pigs with shelter from the hot summer sun as to give them warm, dry quarters in the winter weather. Swine have very little hair and easily sunburn.

This double hog house illustrated has an open shelter 6 by 10 feet, extending out from the pen on each side. The corner posts are driven into the ground and cut off at the right length to support the shelter roof. No great amount of head room needed under these awnings.

An interesting feature of the building is the roof windows, which furnish all the light there is. Each of the pens is 10 by 16 feet in size, a generous size.

The drawings show the simple method of construction used for a building of this kind. Concrete floor and foundations are specified for the sake of cleanliness and permanence. The sills, door posts, and corner posts are 4 by 4's. The other pieces, including the rafters, are 2 by 4's.

This hog house is a compromise between the large community type and the small portable. It isn't portable, being fixed solidly, yet it's a pasture shelter pen and is modest in size.

Large Dairy Barn for Institution

A New American Builder subscriber, William D. Bubeck, carpenter and builder, Somerton, Pa., sends us these photographs of a barn he has recently completed, and of which he has the right to be proud. We don't remember of seeing a bigger barn than this, and certainly never one any better planned.

A notable feature of the outside of this barn is its slate roof, and, of course, snow guards are used. The side walls and framing generally is timber; foundation walls brick down to concrete footings and floor. The interior is unusually broad and spacious. Sanitary steel stanchions, individual drinking fountains, and overhead carriers are provided.

Floor Plan Diagram of Friends' Hospital Farm Dairy Barn Viewed from the Opposite Side from That Shown in the Photograph. Main Section of the Barn Is 41 by 200 Feet, Silo Wing 18 by 50 Feet, and Other Wing 28 by 50 Feet.
Fixing up the Farm

Plumbing in the Country Residence

By Harold L. Alt, Engineer

HERE the cost of a septic tank and sewage disposal field is absolutely prohibitive, the problem is not unsolvable by any means, as there is still left the chemical closet.

At first thought the idea of a chemical closet does not strike one as being particularly desirable, yet careful investigation seems to set at naught the various objections which suggest themselves. In the first place, what is the general idea of a chemical closet?

In answer to this it may be said that the chemical closet consists of a retainer in which is placed a chemical that is a most powerful germicide. The use of chloride of lime and carbolic acid is well known for disinfecting purposes, and the chemical closet is only carrying this a step farther.

Objectionable odor is entirely prevented by a ventilation pipe, carried preferably thru the roof, but in some cases connected to a chimney flue to avoid expense. A typical example of an installation of one type of the chemical closet is shown in Fig. 1.

Here the three closets are simply set on the floor, and the 3-inch ventilation pipes are carried thru the roof. The fixture itself is portable, and is finished in three coats of gray enamel, baked on, and is prettily striped in gold, the vent pipe having the same finish. The top of the fixture is made of sheet steel which fits air-tight against the aluminum seat.

Inside of the closet is a galvanized iron container with a handle to allow easy removal. This container is filled with about two gallons of water and a pint of chemical, which is sufficient to last an average family about a month without further attention.

Another type of chemical closet which is a little more elaborate and looks considerably like the regular bona-fide water closet is shown in Fig. 2. In this case a vitreous china hopper closet with a 12-inch diameter outlet in the bottom is installed on top of a galvanized iron tube, which is 13 inches in diameter, this extending down and connecting to the tank, T, in the basement below. Each closet is ventilated by a 4-inch white enameled pipe, which is carried thru the roof as shown; inside the tank, which is of ½-inch steel with welded joints and covered with anti-rust paint, is an agitator, which is operated once a day to assist mixing the chemical with the contents.

In this type of chemical closet the excreta, paper, etc., are reduced to a liquid form by the action of a very powerful secret chemical which is claimed to be eighteen times as strong as carbolic acid. This not only liquefies but sterilizes at the same time so that the liquid can be drained off to an under drain or dry well twice a year by opening the drain valve, DV, from twenty minutes to half an hour.

The chemical itself comes in powdered form, and in charging the tank it is dissolved in three or four pails of water. No further attention beyond a daily turning of the agitator is then required until the time.

(Continued to page 136.)
“Up Against It,” or a Barn Builder’s Tragedy

He discovers when it’s too late that the ventilating system must be planned when the stable is planned, or he will come out wrong at the finish.

Here is a situation that is both puzzling and amusing. A Dakota builder sends us a set of photographs of the big T-shaped, Gothic roof barn they built last year. The photographs show six beautiful big sheet metal ventilators of the approved type sitting on the ridge pole; yet here is what he says in his letter:

“We would be pleased to have suggestions as to the best way to ventilate this barn.”

We can remember of writing an editorial some time ago urging that it is not enough to put a fine looking ventilator on the top of a barn and then fail to connect it up with proper flues thru the hay mow to the stable below. This present job seems to bear out our contention.

Here is the builder’s letter:

“Note that you have given special attention to Gothic roof barns in the past two issues of the American..."
The Completed Barn Is a Masterpiece for Looks and Style, 140 Feet Long with 54-Foot Wing. The Ventilators Look Good on the Roof, But They Will Never Pull the Foul Air Out of the Stable Until They Are Properly Connected Up with Ventilating Fines. It Takes More Than a Cupola to Make a Ventilating System.

The size of this barn is 34 by 140 feet for the main section, containing stalls for fifty horses, facing out. The wing extending from the center of the main barn is 34 by 54 feet; has stalls for fifteen cows along one side, cows facing out; along the other side are two pens and a calf tie. Posts are 14 feet high. Has six "——" cupolas.

"We would be pleased to have suggestions as to the best way to ventilate this barn.

"Mr. M. has had figures on it, but they want to run the vent pipes straight up thru the middle of the floor—that is, about 12 feet apart.

"Now, there is not a brace or support of any kind in the hay floor, except those that run from the plate to about 4 feet in on the floor, and we should not like to see ventilation flues put in that way after building the barn purposely to keep from having any braces, etc., in the way.

"Can it be ventilated by following the roof bents down to the plate?

"Would be pleased to hear from anyone who can suggest some good system."

It seems to the Editor that they would either have to rearrange this stable so that the animals face in in-
Instead of out; or else be satisfied to have the foul air flues run up thru the middle of the hay mow. It is a big expensive barn, costing in the neighborhood of $15,000. It deserves a good ventilating system and should have one even at the expense of an obstructed hay mow.

This barn is certainly a strong argument for our contention that a farm building should be designed consistently from start to finish, taking into account where the ventilating flues are to be placed at the same time the stable is arranged.

There is too much of leaving the ventilation to take care of itself and come in the best way it can after everything else is planned and very likely the barn all built.

The accompanying drawings show very clearly the essentials of the construction of a satisfactory barn ventilating system, both for this barn as built with the animals all facing out, and as rearranged to face in. Note the difference in arrangement of stables and also of vent flues. Fresh air is always admitted at the ceiling in front of the animals, and the foul air is exhausted from the floor back of the animals.

It is best to have flues as nearly straight as possible with an ample cross-section area. In case of a slight angle in a flue, the cross-section area should be increased. Better air circulation will be secured by making one or more larger flues instead of many small ones, and it is usually best to have as few as possible that will carry off all impure air from the stable.

The out-take flue should extend to within 1 foot of the stable floor so that air may come up the flue from the floor. This is very important, as the coldest air at the floor should be removed during the winter instead of the warm air at the ceiling. There should be an opening in the ceiling for warm air to escape when the stable becomes overheated. Both these openings should be provided with regulating doors so that they may be partly or completely closed.
VENTILATION PREVENTS SPONTANEOUS COMBUSTION

By Chas. L. Atwood

Of the Milwaukee Corrugating Co.

ONE of the most important benefits to be derived by a dairy farmer from proper ventilation is safety from fire by spontaneous combustion. The direct cause of spontaneous combustion is the self-ignition of certain gases. The cause of the formation of these gases in barns is generally attributed to the curing of the hay, which is mowed away when green. This is no doubt the cause of many cases of so-called spontaneous combustion, and when the subject is analyzed we find that the moisture inherent in the hay—or cornstalks, perhaps—ferments, and the gases arising from this chemical action, if confined, become overheated and ignite spontaneously.

When hay has been thoroughly cured before storage the average farmer no doubt imagines he is perfectly safe from fire from this source, but is he? Can hay be so thoroughly cured that a certain degree of moisture will not cause this fermentation which results in spontaneous combustion? I think it stands to reason that, so long as there is substance and nutrition in fodder, so long will there be the elements which lend themselves to fermentation and combustion whenever the necessary moisture is added. In green hay or other fodder the moisture is already there to start the processes of fermentation. In thoroughly cured hay, a sufficiently moist condition must be brought about in some way to convert the dry fodder into a fermenting mass that can cause a conflagration.

This very condition is the most natural thing I know of in a good dairy barn, if it is not properly ventilated. It is pretty generally known that a cow gives off about ten pounds of body vapors daily. Multiply the units of a herd by ten and you have the amount of moisture expelled daily, to be carried off or absorbed in various ways. These vapors furnish the necessary moisture to start the processes of fermentation. The better the barn the greater the danger unless adequate means are provided to carry off this excess moisture. This is one of the many reasons why modern barns should be thoroughly ventilated. Ventilation is effective in the prevention of spontaneous combustion in two different ways. In the first place, ventilators which have a scientifically siphonic action draw the combustible gases out of the hay loft if they are being generated there. In the second place, the foul air flues, scientifically placed and properly constructed, will take off the excessive moisture and eliminate the conditions which promote fermentation and generate these inflammable gases.

It seems very conservative and reasonable, then, to say that no barn is thoroughly and scientifically ventilated unless it takes care of the excessive moisture which is thrown off daily by cattle in the ordinary functions of healthful life. On the other hand, it would be unreasonable to state that a good ventilator on a roof of a barn would do no good at all. If properly constructed so as to have a siphonic action, without down draft, a ventilator on the roof would at least carry off some of these inflammable gases, if
Blue Prints of Stock Barn and Feed Racks

THE cattle feeding barn illustrated on the next page, and detailed on Blue Print Sheets 1, 2 and 3, is a very practical design which farmers will like. The main barn is 30 feet wide by 96 feet long. Has a driveway along one side for convenience in feeding, and the rest of the space is divided into a series of pens, each opening out into the covered stock yard. The space above the stable is very large, giving great hay storage capacity.

With a building of this kind any farmer can raise good live stock and take care of them easily. The feed is close at hand, and the animals are well protected, so that they make steady gains right thru the rough weather.

Recommend this barn to stock feeders.

RACKS AND SELF-FEEDERS FOR WINTER WORK. The photographs on page 55, with blue print sheet opposite, show the most serviceable and salable line of feed racks ever devised for the farmer trade. We are glad to offer these at this time of year, and we recommend them to carpenters and builders who want to busy themselves during the winter season, to lumber dealers who have an accumulation of short stuff and odds and ends around the yard which they would like to work up into salable shape, and also to farmers and stock raisers who want a workmanlike, well-designed and well-built feed rack for use this winter. Here are six different racks for cattle, sheep and hogs. They are worth all the way from $5.00 up to $30.00 for the sizes illustrated.
Stock Barn With Covered Yard

For Working Drawings See Blue Print
Sheets Nos. 1, 2 and 3

Illustrating "Repeater 7th" World Famous Hereford Bull

"It costs no more to raise Good Stock than Scrub Stock"
AMERICAN BUILDER BUILDING PLANS.

COVERED STOCK YARD:

FLOOR PLAN:
Scale 1/10

NOTE:
ALL SASH 4 FT 6" X 12".
TRANSOMS 3 FT 0" X 12".

END ELEVATION:
Scale 1/10

TRUSS SPACED 12' 0" O.C.

STOCK BARN WITH COVERED YARD. SHEET NO. 1.
WILDER BUILDING PLANS.

WIND FRAME
Scale 1/10

ELEVATION OF HAY-MOW DOORS

PLAN OF DOORS
Scale 1/10

SIDE ELEVATION
Scale 1/10

STOCK BARN WITH COVERED YARD. SHEET NO. 2
American Builder Building Plans.

Self Feeders for Live Stock.
Labor-Saving Feed Racks

For Working Drawings See Blue Print Sheet Opposite

These Self-Feeders are Inexpensive and Easily Made
Remodeling Country Schools for Better Lighting

THE "WISCONSIN" IDEA OF WINDOW PLACING AND HOW IT WORKS

By Chesla C. Sherlock

FOR some years past a great deal of attention has been devoted to the question of adequately lighting city schools so that the maximum efficiency in this respect could be obtained. Our city schools are far ahead of country schools in this respect, due, no doubt, to city parents becoming alarmed at the large percentage of school children who were suffering from defective eyesight.

The result has been to so arrange windows in the school room as to shut off all blinding cross-glares of daylight, to prevent the child having to look toward strong light as he studies or recites and, in short, to treat the matter as if it was entitled to the consideration which it really deserves.

Parents do not hesitate to demand the necessary equipment in city schools once they have had the matter presented to them in the proper light. No father or mother wants a child to wear glasses or to go thru life handicapped because of strained eyes during his school days.

The effect of this change in city school plans is finding its way into rural communities. There is no argument which can be advanced in favor of eliminating eye strain for city children which does not apply equally well for country children.

And while new school houses are being built over the country to take the place of the “little red school house,” this question of proper lighting facilities should not be slighted.

To fill this need there has been developed a type of school building known as the “Wisconsin idea” school house. This type of school house derives its name from the fact that its lighting facilities depend almost entirely upon daylight, and that it was first put into use in the state from which its name is taken.

In the Wisconsin school light is admitted from only two sides of the room. The north and west sides of the room are built solid, being given over to blackboard and picture space. The school room generally has its opening on the south side. There may also be windows on this side, while practically the entire east side of the building is given over to windows, to admit light and air to the interior.

The advantages of such a school house can be apparent at once to everybody. Admitting light from one side of the room only absolutely eliminates all chance of cross-glares in the room. The fact that the children face the north wall of the room removes all possibility of their having to study against the outside light, and what light comes from the south side of the room comes over their shoulders.

It is not always possible, of course, to construct school houses with the entrance to the south, but the same general idea can be carried out. There is an advantage in having the open side of the room to the east, as there is practically little trouble from the sun shining in the room during the day, while if the opening is to the west, the sun causes considerable trouble during the last two hours of the afternoon session.

Wherever the Wisconsin school house has been used it has met with widespread favor because it embodies the essential ideas found worked out in the city schools which have been so successful. The Wis-

(Continued to page 132.)
Problems of Roof Framing Solved
SECOND OF A SERIES OF ARTICLES ON THE PRACTICAL USE OF THE STEEL SQUARE FOR ROOF FRAMING—THE RELATION OF THE HIP RAFTER TO COMMON RAFTERS
By A. W. Woods

We will now continue using the same example in connection with the corresponding hip, and in doing so we will again show the layout of the common rafter as in the previous article, but this time with the layout as it would appear with the corresponding hip.

The first thing to know is the size of the building and the pitch of the desired roof. Knowing this, the dimension of the plan is at once fixed and forms the base from which to work. The experienced framer does this work mentally and applies his square to the timbers intelligently without having to resort to a diagram to first find the figures to use to obtain the desired results. But not so with the novice; he has to be shown and for that reason we are going to try to make this work plain.

The critic, we trust, will therefore pardon us for elaborating on simple things, because it isn’t meant for him; he doesn’t need it; it’s for the other fellow who has not been in the harness so long. So, going back to the illustration, we first call attention to the plan. It is the shaded part in the form of a right angled triangle, because the subject is a square cornered building. A B represents the run of the common rafter, A C the tangent, or the distance that the common rafter rests from the corner of the plate. B C represents the run of the hip and rests at an angle of 45 degrees from the run of the common rafter, because the pitch on either side of the hip is of the same slope. BD represents the rise given the roof. Now, as the run of the common rafter in this example is 6 feet 8 inches and the rise 7 inches to the foot, the square is placed seven times at 12 and 7. At the last placing of the square, and after marking along the tongue, the square is moved back along this line till the 8-inch mark rests at the edge of the rafter and the blade will give the proper plumb cut. This is plain enough and we trust everybody understands the work up to this point.

If there is to be a tail to the rafter to form the cornice, then square down on a plumbline directly under the starting point, to the depth desired for the tail as at A. This line should be at right angles to the tongue as shown in the illustration. Then slide the square down the edge of the rafter without change of figures till the tongue touches the desired depth on the plumbline, and mark along the tongue. This line will represent the seat cut of the common rafter, as shown at A. Proceed in the same manner for the hip as shown at C, placing the square on the edge of the rafter as many times as for the common rafter, but at 17 and 7 instead of 12 and 7. The reason of this is clearly illustrated by the dotted lines from one rafter to the other. The run of the hip has a gain of 5/12 over the run of the common rafter. This added to one foot, as shown on the tongue of the square for the common rafter, brings it to 17 for the hip rafter. In other words, 17 is the diagonal for one foot square and is therefore a fixed number for the hip, the same as 12 is for the common rafter, and remains 17 for any pitch given the roof. The square is placed the same number of times on the hip as for the common rafter, but at the last placing it is slipped back till 11 3/4 inches rests at the edge of the rafter, because that is practically equal to the diagonal of

(Continued to page 128.)
Working Instructions for a "Different" Cedar Chest

By Frank O. Koch

I DESIGNED this cedar chest with two points in mind, namely, utmost convenience and a true regard for the graceful, simple and rich proportions of colonial design.

This chest is not just a "storage box," like the average cedar chest, but in reality a convenient chest of drawers designed in the form of a cedar chest. Access to drawers is obtained by opening door on front, the top being stationary. A cedar chest of this kind, in my mind, leaves nothing to be desired.

This chest, if well made, is a fitting heirloom to be handed down thru the generations. It makes an ideal present for Christmas, birthday, bridal or many other occasions.

For the construction of this chest use "Tennessee red cedar." You will obtain best results and save yourself a lot of hard work by ordering the material at the planing mill, dressed four sides, and sanded where specified in following material bill. An outline of top, giving general dimensions of same and pattern of feet and brackets, should be furnished the mill and included with the bill of material. If the maker desires to cut out the material by hand, allowance must be made for planing and squaring pieces to sizes given below.

**Material Bill**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 top 3/4 inch thick, size as per drawn, sanded one side.</td>
<td></td>
</tr>
<tr>
<td>1 piece 3/4 by 11/4 by 52 inches.</td>
<td>Border Strips</td>
</tr>
<tr>
<td>1 piece 3/4 by 11/4 by 60 inches.</td>
<td></td>
</tr>
<tr>
<td>2 pieces 3/4 by 11/4 by 26 inches.</td>
<td></td>
</tr>
<tr>
<td>1 bottom 3/4 by 19 by 461/2 inches.</td>
<td></td>
</tr>
<tr>
<td>1 back piece 3/4 by 201/2 by 48 inches, sanded 1 side.</td>
<td></td>
</tr>
<tr>
<td>2 ends 3/4 by 201/2 by 21 inches, sanded 1 side.</td>
<td></td>
</tr>
<tr>
<td>1 door 3/4 by 191/2 by 41 inches, sanded 2 sides.</td>
<td></td>
</tr>
<tr>
<td>Pilasters</td>
<td></td>
</tr>
<tr>
<td>2 front pieces 3/4 by 4 by 203/4 inches.</td>
<td></td>
</tr>
<tr>
<td>2 side pieces 3/4 by 2 by 203/4 inches.</td>
<td></td>
</tr>
<tr>
<td>2 back pieces 3/4 by 31/2 by 20 inches.</td>
<td></td>
</tr>
<tr>
<td>2 brackets (as per pattern) made up of 3/4-inch stuff, as shown on (Section F). Sanded 3 sides.</td>
<td></td>
</tr>
<tr>
<td>2 feet (as per pattern) made up of 3/4-inch stuffs, as shown on (Section F). Sanded 3 sides.</td>
<td></td>
</tr>
<tr>
<td>2 lifts 3/4 by 2 by 6 inches.</td>
<td></td>
</tr>
</tbody>
</table>

Drawers

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 front piece 3/4 by 7 by 40 inches, sanded 1 side.</td>
<td></td>
</tr>
<tr>
<td>1 front piece 3/4 by 6 by 40 inches, sanded 1 side.</td>
<td></td>
</tr>
<tr>
<td>1 front piece 3/4 by 5 by 40 inches, sanded 1 side.</td>
<td></td>
</tr>
<tr>
<td>2 side pieces 1/2 by 7 by 181/4 inches.</td>
<td></td>
</tr>
<tr>
<td>2 side pieces 1/2 by 6 by 181/4 inches.</td>
<td></td>
</tr>
<tr>
<td>2 side pieces 1/2 by 5 by 181/4 inches.</td>
<td></td>
</tr>
<tr>
<td>1 end piece 3/4 by 61/4 by 40 inches.</td>
<td></td>
</tr>
<tr>
<td>1 end piece 3/4 by 51/4 by 40 inches.</td>
<td></td>
</tr>
<tr>
<td>1 end piece 3/4 by 41/4 by 40 inches.</td>
<td></td>
</tr>
<tr>
<td>3 bottoms 3/4 by 181/2 by 40 inches.</td>
<td></td>
</tr>
<tr>
<td>6 runners 3/4 by 2 by 20 inches.</td>
<td></td>
</tr>
</tbody>
</table>

Begin the work by laying out and cutting mortises 1/4 inch deep on back piece, as dimensioned on Section CC, to receive ends of drawer runners; also rabbet back to receive end piece, as shown on Section E.

Secure bottom to ends and back piece by gluing and nailing same in such position as indicated on Section BB and Section CC.

Cut mortises 1/4 inch deep in back pieces of pilasters to receive front ends of drawer runners. (See Section F.) Glue and nail pieces for pilasters together and secure same to ends and bottom after drawer runners have been fitted and placed in position. (See Section F.)

Apply brackets and feet as shown on front view, and (Section BB) gluing and nailing same in position. After glue has "set up" insert 6 screws thru bottom into each foot piece to obtain good, substantial job.

Shape up pieces for lifts and apply to ends with screws, as shown on "Detail of Lifts."

Cut 3/4-inch mortises 1/2 inch deep on inside face of pilasters to receive ends of door strip, which should (Continued to page 134.)
Cedar Chest Details

Working Details of the "Different" Cedar Chest as Designed by the Author.
Crippled Children Build House Model

Widener Memorial Industrial Training School

To the Editor: for Crippled Children, Philadelphia, Pa.

We have been taking your magazine for several years, keeping them all on file. A short time ago the boys of my class, seeing a picture and floor plans of a bungalow in the

June, 1914, AMERICAN BUILDER (Page 48), worked out the plans in mechanical drawing, and then built the house and finished it throughout, including doors, sash and trim, and fitted same with electricity. The house measures 10 feet long, 7 feet wide and 42 inches high.

Enclosed you will find snapshots taken by us of one of the school entrances from Broad Street, and the other of the house model which was built by the boys.

CLAUDE WILLEY, Instructor.

Asks New Equipment for Trades School

To the Editor: Tuskegee Institute, Ala.

Tuskegee Institute has suffered a very serious loss in the destruction by fire of the Trades Building. With the prevailing prices of building material, it will cost not less than $250,000 to replace the building and equip it. The insurance did not represent half of that amount.

We are therefore appealing to the generous friends, who have stood so loyally behind Dr. Washington, the founder, as well as the present principal, to help us in our present emergency, so that we may go forward with this very important phase of our work.

During the past five months we have trained nearly a thousand soldiers in trades, and many of them are already at the front, serving as technicians. Hundreds of other soldiers are being sent to us for this trade work, which is being carried on at present in temporary quarters. We are most anxious to continue our work with the government.

We are therefore appealing for donations of tools, machinery and equipment for the following trades: tinsmithing, carpentry, wood turning, printing, tailoring, blacksmithing, wheelwrighting, harnessmaking, carriage trimming, plumbing, steamfitting, electric lighting, architectural and mechanical drawing, painting and shoemaking.

Contributions in any amount will be appreciated and duly acknowledged.

The confidence and warm support which Tuskegee Institute enjoys are sources of continual inspiration to us to render that high degree of service for which the institution was founded.

ROBERT R. MONTGOMERY,
Principal.
Power Rig Makes Up For Labor Shortage

To the Editor:
Rosemount, Minn.

Find enclosed snapshots of a few of my jobs here, also of saw rig I built myself two years ago and find it a great help, especially now when labor is scarce. I see the rest of the boys send in photos, so thought I would do likewise. Wishing you and the rest of our builders success, I am,
HERMAN ERLER, Contractor and Builder.

Wants Furniture Designs

To the Editor:
Fairfax, Mo.

I couldn't very well get along without the "Builder," as I have only been carpentering for a few years. Would like to see some furniture plans this winter.

Answer: You will be interested in the cedar chest drawings presented this month. Other good designs will be presented if we can get them.

HERMAN ERLER, Contractor and Builder.

Large Barn Built by Herman Erler for H. F. Jorsting, Near Rosemount, Minn. Size 30 by 130 Feet, 16-Foot Posts. It Is Arranged for Thirty Cows and Sixteen Horses, Also Contains Three Calf Pens, Bull Pen, Milk Room and Feed Room.

Power Saw Rig Built by Contractor Herman Erler, Rosemount, Minn., and a Great Labor-Saver on His Barn Building Work.
House Building in New Zealand
To the Editor: Upper Hutt, New Zealand.

I am enclosing a photograph of a dwelling house we are just completing. It is built of concrete, hollow wall construction, and lined throughout (after furring) with "Amiweed."

I have been using concrete for the last five years as a ma-
terial for comfortable, everlasting homes and cannot keep pace with the demand for houses built in this system, especially now that labor is almost unobtainable in our Dominion.

Wishing you every success, which I am sure you merit, I am,

RALPH SCHOLE,
Builder, Contractor, Decorator.

What the Lines Mean
To the Editor: LaFargeville, N. Y.

I wonder how many of us can look over the blue prints in the November issue and tell what all the lines and figures mean?

Look at the basement plan and notice first that it is marked one-eighth inch to one foot. Now, if you have a scale or even a common rule, you will see that this scale applies to the plan as given, and not to the original drawing from which it was reproduced, as is sometimes the case.

For the line marked 5'—0', meaning five feet and no inches, is five-eighths inches long, and the longer one, marked 34'—0', is thirty-four-eighths, or four and one-half inches.

These dot and dash lines are called dimension lines and may be drawn directly between two points, as the two marked 14'—0' across the right hand side; or there may be short lines called extension lines to indicate from which point the measurements are taken as those at the bottom and those at the top of the plan to show location and size of the chimney foundation.

In some plans there would be figures to show the distance the windows were from the corners and the distance between the windows either to the sides or centers, but this can be gotten by scaling or measuring with the rule. Too many figures and lines are apt to be confusing.

Notice that the wall and piers are all of concrete, indicated by the small specks in the plan and the larger ones in the section at the bottom of the sheet.

The dash lines in the squares in the middle of the basement are marked as concrete footings, and there is also one under the chimney.

The two rows of dashes across the cellar are marked 6 by 8 inch girder, and those lines from the front of the house out to the piers are for girders under the porch joists.

Notice that the chimney itself is marked by cross hatched lines, which indicate brick, and that these appear on the other plans also.

On the section drawing in the lower left corner of the sheet the grade line is given and the height of the joist just above the cellar floor, but if you scale or measure this, you will see that it does not measure this, but look at the wall and notice that there is a part of it left out or broken out, which is a method often used to save space on a drawing.

The height of the first and second story are shown, and also the height of the window openings above the floor.

On the front elevation you see that the first door is marked GLZD, which means glazed.

The size of the window glass is sometimes marked on the elevation, but here we get it on the plans; also the size of the doors.

This way of marking windows is all right here, but sometimes there are two sizes of glass in the same window, and

(Continued to page 64.)
lines and planes marked be short point the those at chimney figures were balance between the side opened by rule. Too attempt to be

hatch one in the sheet figures in the marked as also one across the order, and the house

hatched on the

of the moist just this, you taken out, no

down, and floor.

marked on the

size of

something down, and

Stanley No. 241

THIS butt besides being absolutely reliable and satisfactory in service is so attractive that it adds to the beauty of the door on which it is placed. It is truly representative of the entire STANLEY line.

THE STANLEY WORKS
NEW BRITAIN, CONN., U. S. A.
100 Lafayette St., New York 73 East Lake St., Chicago
Manufacturers of Wrought Bronze and Wrought Steel Hinges and Deadbolts of all kinds, including Stanley Ball Bearing Butts, Lock Pulls, Brackets, Chest Handles, Peerless Horn Doorknobs and Fasteners; Sash Window and Blind Trim; Furniture Hardware, Twin-rolled Box Strapping, and Cold Rolled Strip Steel.

STANLEY GARAGE HARDWARE IS ADAPTABLE FOR FACTORY AND MILL USE

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Varnishing Costs More Than Varnish

Labor is rapidly becoming the contractor's chief problem. Now, more than ever, it pays him to use the varnish that cuts down labor costs—

Murphy Varnish
"the varnish that lasts longest"

It is free-flowing and easily applied. It requires fewer strokes. It enables finishers to increase their output.

The beautiful finish it imparts preserves woods—makes them last and last—impervious to wear and weather.

Reduce your biggest item of expense—labor—by using these easily-applied, long-lasting finishes:

Murphy Transparent Interior
Murphy Transparent Spar
Murphy Transparent Floor
Murphy Nogloss Interior
Murphy Semi-Gloss Interior
Murphy Univernish
Murphy White Enamel
Murphy Enamel Undercoating

Murphy Varnish Company
Franklin Murphy, Jr., President
Newark
Chicago
Dougall Varnish Company, Ltd., Montreal, Canada, Associate

Correspondence Department
(Continued from page 62.)
then it may be simpler to mark them on the elevation.
The chimney cap is marked "stone," but in some cases it could well be made of concrete.
Turning to the first floor plan, the chimney or fireplace is here indicated as brick.
Notice the two columns at the corner of the front porch. This shows wood on end and the elevation shows the same also on the new porch and on the posts in the cellar.
The lines for the walls and partitions also show wood. Notice that the figures for length and width, thirty-four and twenty-eight, are the same as the foundation; that is, the rough frame comes to the face of the wall and the sheathing and water table project. Notice the projection and width of the bay or triple window in the dining room; also the size of the glass as marked.
On the second floor plan the lines of the porch roof are shown and the plates are shown by dash lines.
Lines showing the size of rooms start at the outside of the outer walls and run to the centers of the partition. On the upper plan the dimensions given lengthwise add up to thirty-four feet and those crossways to twenty-eight feet.
The circles with an X in the center of each are for electric lights. Those in the dining room, living room and porch can be turned on or off from the switch button on the walls as shown by the dash lines. Notice these lines running up and down the stairs, which indicate three-way switches so that one can turn on or off both lights from either upper or lower hall and the cellar light from the first floor.
The chimney from the living room has another flue added for the second floor and this floor seems to be well planned for convenience.
In the two bedrooms the doors might conflict some but not badly, as these rooms are quite good size. It may be all right to have the light in the center, but in a small bedroom it should not be so placed, as it will come directly over the bed.
I don't like the way the doors conflict in the lower hall, but there does not seem to be any help for it unless the kitchen door is changed to swing the other way. You will see that the one from the kitchen to the dining room swings both ways.
The roof of the front porch is marked "shingles," but it looks quite flat for these, and if one could not get metal it might be well to get a good grade of prepared roofing.

KANSAS FARM BUNGALOW

To the Editor: Timken, Kans.
I have been a reader of your American Builder for some time, and I like your paper fine and could not do without it

(Continued to page 66.)
Learn to Read Blueprints

Mail coupon today for this FREE LESSON. It will positively convince you that Plan Reading from Blueprints is not at all difficult—that by our new, easy method you can master it in a short time. You don’t pay a cent for this lesson—now or at any other time—and your request for it places you under no obligation at all.

You are looking ahead to something better than working with the tools of your trade. Some day you hope to become foreman or superintendent in charge of building work—perhaps go into business for yourself. In any such case a knowledge of plan reading is absolutely necessary—and we want to show you how to get it.

Thousands of bright, energetic, capable men are being held back because they lack this knowledge. They are expert workmen but too seldom, if ever, get a chance to study the blueprints or have them explained. They must follow the lead of the man who does understand plan reading and directs their work.

We give you practical instruction in blueprint reading that you can apply to your everyday work. We place in your hands blueprints used in actual building work in Chicago and other cities, and send full instruction on every point. Every detail is carefully explained by practical contractors and builders—men in charge of construction work right here in Chicago.

You get the benefit of their long years of practical experience. They give you the kind of knowledge that brings advancement and a fatter pay envelope.

Learn by Mail Builders’ Course

Just a few hours of your spare time at home each week devoted to study will enable you to master this Course in a surprisingly short time. Our lessons come to you by mail in convenient form for spare-time study—during evenings at home or at any other convenient time.

Note the wide range of subjects covered in this thorough, comprehensive and practical Builders’ Course.

Complete Course Includes:

- Estimating, Estimating how to read a building plan. Floor plans and elevations. Use and understanding of different lines on the plan. From sections. How to lay out work from the plan. Tracings and blue prints—how they are made. Practice in reading complete plans from basement to roof, etc., etc., etc.


- Construction of brick, concrete and stone. Brick laying, pointing, brick pointing, etc. Brick and stone arches. Use of different kinds of stone. Carpentry: Kinds and uses of wood, corners, interior details, framing, roof construction, bridging, miter joints, etc. How plans are made. Complete instructions illustrated by working blueprints of all kinds of buildings, private, public and business.

- Arithmetic: A complete but condensed course in arithmetic expressly arranged for contractors and builders. Teaches all a man in the business needs to know.

A Better Job—More Money

Begin at once to prepare yourself for more responsible work and better pay. Mail the coupon and by return mail get the Free Lesson in Plan Reading together with full information regarding our Builders’ Course which will prepare you to make more money. Remember, this places you under no obligation whatever. But get the Free Lesson, judge from it and the full descriptive literature we will send you, how easy it really is to master this course—and then decide about enrolling with us.

CHICAGO TECHNICAL COLLEGE,
1236 Chicago “Tech” Bldg., Chicago

Without obligation on my part, send me the Free Lesson in plan reading, also information on your Builders’ Course in Plan Reading, Building Construction, Estimating, etc.

Name.

Address.

City or Town.

State.

Present Occupation.

CHICAGO TECHNICAL COLLEGE,
1236 Chicago “Tech” Bldg., Chicago

When writing advertisers please mention the American Builder
Correspondence Department

(Continued from page 64.)

now. I sure like the pictures of different homes you have in it.

I am sending you a picture of my home that I build and planned myself on our farm out here in western Kansas. I have not seen any from Kansas yet, so I thought some of the readers would be interested to know what kind of homes we build out here. The size of my home is 58 by 34 feet.

J. J. Chlumskey, San Creek Farm.

Hip Rafters for Gothic Roofs

To the American Builder: LaFargeville, N. Y.

In reply to a reader who asked about the hip rafter for a Gothic roof, I would submit these ways:

The first one is done by drafting and might not be as practical to use for laying out the actual curve from a full size common rafter as the other one, which is done by measuring.

In the first way a draft is made of the curve of the common rafter, and any number of perpendicular lines are drawn from this down to meet a line drawn at forty-five degrees. This is sup-

posing the hip runs at forty-five per cent, as it does on a square corner; if not, make the angle to suit the case.

Notice that the last line from the foot of the common rafter runs to foot of the hip and the forty-five per cent line gives the run of the hip. The rise, of course, is the same on both rafters. Lines are then drawn from these meeting points at right angles to the forty-five foot line and the length of each upright line is transferred to the corresponding line here. Then a free hand curve is drawn thru the points so marked.

By the other method a number of lines are drawn across. For the full size rafter, the cracks in a board floor might be used. Each of these lines is then extended five inches for each twelve inches in its length and the points marked for drawing a free hand curve.

Notice that it could have a little cut off from the bottom or from the side, and it would still be all right. The first one could have some cut off from the upper end of the rafters and be all right. This is what is done on a Gothic roof when radius used is more than half the span.

John Upton.

This Kawneer Store Front Brought 25% Increase in Sales

By installing a modern Kawneer All-Metal Store Front this merchant was able to boost his sales without increasing his advertising.

60,000 other merchants vouch for the value of the Kawneer way of modernizing store buildings.
FIRE breaks out in a community. An efficient fire department, hard work or luck confines it to a limited area.

But fear has swept through the neighborhood. The black hole is a constant reminder of what might have been—how fire spreads from building to building.

New buildings rise from the gutted hole topped with Asbestos Roofing. And for a radius of a mile or two—within the scare circle—homes and factories put on asbestos roofs.

So, the lesson of a fire—the scare circle—sells more Johns-Manville Asbestos Roofing than any other agency or factor.

To the roofer in the community it is a strong object lesson of how people, once awakened to a threatened danger, take steps to guard against it.

In almost every city and town there are essential factories and buildings where loss by fire would result in serious handicap to civic programs. Some of these plants are having additions built; perhaps close by workmen's houses are being erected.

Probably a dozen or more roofers will be after each of these jobs. It is some roofer's opportunity to make himself stand out “head and shoulders” above the others by talking roofing that not only keeps water out but also resists fire and gives maximum long-time service.

This roofer can prove that a roofing made from coal tar or asphalt compound is far inferior to one made of mineral asbestos with just enough Trinidad Lake and other natural asphalts to act as a binder. He can demonstrate that while “rubber type” roofings may look like and smell like Johns-Manville Asbestos Roofing, they do not and will not give the same protection and service.

It is a real business-getting opportunity and wise building for the future, because the satisfaction given and reputation made by each Johns-Manville Asbestos Roof reacts to the credit and prestige of the roofer who sold it.

Let us send you full information about Johns-Manville Roofing and the Company behind it—now!

H. W. JOHNS-MANVILLE CO.
New York City
10 Factories—Branches in 63 Large Cities
Some Office Furniture Ideas

To the Editor: LaFargeville, N. Y.

In reply to C. R. Gibbons, who says in the September issue that he would like to see some drawings of office furniture, I would say that this might mean anything from a table to a filing cabinet, and what would suit one man might not suit another in the same line of business.

But as our homes are, since the war, becoming almost an office, and when one is secretary of two or three societies and treasurer of as many more, there is need of some furniture or device for keeping the necessary records.

Perhaps I may be of some help to him and to others. Some will find a regular filing cabinet with drawers ten inches deep, twelve inches wide and some eighteen to twenty inches long to be the right thing, while others will need a card index system and still others will want a number of drawers, some three to six inches deep and large enough to take in a letter or drawing, say, 10x12 or larger, in some cases. I have

(Continued to page 70.)

Open Book Shelves Are Handiest in the Office.

Combination Desk, Bookcase and Filing Cabinet Recommended by the Author.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
In the Front Line
Trenches of Industry

Here, as well as in the trenches "over there", there is danger—danger from fire. In all the large industrial centers where men are working day and night there is the constant menace of fire due to increased activity.

Thousands of buildings and manufacturing establishments are protected from this menace by Ambler Asbestos Corrugated Roofing and Siding.

But there are many new structures that will be exposed to the danger of fire unless they are so protected. Contractors and builders who protect the buildings they have in their charge by specifying Ambler Asbestos Corrugated Roofing and Siding are doing a patriotic service. Loss by fire now not only means the loss of the building burned but also thousands and often millions of dollars worth of muni-
tions and other supplies that would be saved if the building were properly protected.

Ambler Asbestos Corrugated Roofing cannot burn because it is made of non-burnable materials—Asbestos and Portland cement. It never needs repairs. Never requires paint and is not affected by weather conditions.

The Ideal Skylight

We have manufactured exclusively for us a Corrugated Wire Glass to be used for skylights in conjunction with Ambler Asbestos Corrugated Roofing. It makes a non-leakable, fireproof skylight. Easily put into place and is much more economical than other types of skylights.

Write today for more information.

KEASBEY & MATTISON COMPANY
Dept. B-1 Ambler, Pa., U.S.A.

Manufacturers of Ambler Asbestos Shingles, Ambler Corrugated Roofing and Siding, 95% Magnesia Pipe and Boiler Covering, and Ambler Building Lumber.
Correspondence

(Continued from page 68)

one set of such draws which go on top of a book case, and am making another to set on the floor. This is to be larger, some forty-eight inches long, twenty inches deep and thirty-two inches high, with eight draws about 16 by 22 inches inside and six inches deep. The original idea was to use this for the base of a desk and make the desk part some 14 inches deep with a drop leaf to let down for a drawing board and writing table, and a cupboard at the sides with glass in the doors. There is to be a book case above this.

John Upton.

Purple Wood from Panama

Large growths of bright purple nazarene wood are lying idle in Panama, only awaiting development, according to Dr. Henry Pittier, who recently led a botanical expedition to the Darien section of the isthmus. Before the war this beautiful wood commanded $125 to $200 per thousand feet. It is estimated that there are 40,000,000 feet of the timber.

The timber has most unusual qualities. The trees reach a large size, sometimes a diameter of three feet, and have very little sap wood. The interior is a rich purple color and the wood is hard, heavy, strong and extremely resistant to water and weather; it contains an essential oil and it takes an excellent polish. When the wood ages, and is at the same time exposed to the sunlight, it turns much darker in color.

Helped in Plan Drawing

To the Editor: Lynn, Ind.

I am sending you a few pictures of dwellings and the M. E. Church at Spartanburg, Ind. By the help of your paper and Radford books I have made the blueprints for these buildings, and built them with my crew. Oliver M. Hawkins.

Shipworker Keeps Tab on Building Field

To the Editor: Benicia, Cal.

On account of my age, fifty-eight years old, Uncle Sam wouldn't have me as a fighting man, so I enlisted as a shipwright at Benicia for the duration of the war.

As you well know, the only way to keep abreast of the building business is to study the best up-to-date methods of performing that work, as well as keeping posted on all the modern improvements in material, etc., that are necessary to complete the finished structure. And the only way to get this information a first hand is to read and study the American Builder, as it is all the name implies and covers the ground completely. This is my reason for having the

Install WEATHER STRIPPING That Satisfies

Here is the Strip that "outstrips them all," on account of its original Cushion feature practically allowing for variation in any sash. You cannot afford to put in any other, because the

Hi-Bac METAL CUSHION Weather Strip

positively controls severest draughts and provides for swelling of sash under any atmosphere; thereby permits no binding or friction.

Perfected in several styles to meet the most odd and difficult conditions, the FLI-BAC is made of a t'irey of metal, non-corrosive, hard especially rolled zinc and brass cut across grain to secure stability and durability, rendering it indestructible. Casement, French windows and doors, both high and low, outswinging windows, pivot and bowed sashes, doors of every description, sliding sashes and doors inclusive, when exposed to elements are made air, dust and water tight by the FLI-BAC METAL CUSHION WEATHER STRIP. Never before have you been able to install satisfactory weather stripping in this class of work. So be sure and write us now, today, for valuable territorial rights we have open and wish to close with responsible parties instanter. Use coupon quick.

Hibac Screen Corporation
ROCHESTER, N.Y.
CARPENTERS and builders all over the country are praising Art Craft in just these words.

"Art Craft fits perfectly into the country's wartime needs. Laying Art Craft right over old shingles is the new successful thrift roofing method. Its low first cost pleases the owner's purse and lands the order. Its attractive tile design in permanent red or green slate color pleases the owner's eye. It gives extra years of satisfaction and fire-safe protection because it has an extra heavy felt base. Quality worked into every square inch of Art Craft builds prestige and wins profit."

To the carpenters and builders of America we extend thanks for their splendid co-operation during past years and the year just closing.


Established 1795

Chicago New York Washington, D.C.

Canadian Office and Plant, Hamilton, Ont.
Correspondence Department

(Continued from page 70.)

American Builder mailed to this point, as I am always anxious to find out what new ideas it has in store for us.

Your blueprints are an excellent addition to the many good things you have given us in the past few years, and like others of your family, I am in favor of perforating the margin so they may be easily removed and filed away.

Wishing you every success, I am, D. KENNEDY.

* * *

Likes Industrial Housing Articles

To the Editor: Concord, N. H.

In the last year I have found the American Builder very interesting and helpful. I enjoy it all the way from the "ads" to John Upton.

Have just returned from a long motor trip which included an inspection of the industrial housing proposition of the Cheney Brothers at South Manchester, Conn., which was well described in the September number. Let us have more of these articles. HAROLD M. RENDER.

* * *

Question for Scraper Sharpeners

To the Editor: Passaic, N. J.

Will you please state thru your American Builder how to sharpen a scraper to remove old varnishing from floor, and the way to turn the edge over.

JOHN DeVRIES.

* * *

Hold Your Liberty Bonds

Don’t surrender your Liberty Bond conditionally or unconditionally. Hold fast to that which is good. Keep your Liberty Bonds.

Fire Hazards of the Fuel Shortage

Many new fire hazards are being introduced by the fuel shortage. The most serious of these arises from the large amount of soft coal which is being stored in the basements of dwellings, apartment houses and mercantile buildings and on the premises of factories. Spontaneous combustion in this is likely to start fires, and great care should be shown in the selection of coal and in its storage and use.

A great many householders are forced to use soft coal in hard coal stoves and furnaces, requiring careful treatment. The large amount of soot deposited by soft coal is apt to clog the smoke pipes and chimneys, and cause forcing of the furnaces, while the fumes and gases from soft coal will have a deteriorating effect upon the mortar in chimneys and thus lead to defective flue fires.

A number of householders are investigating the possibility of using fuel oil and kerosene burners in their furnaces, because of the difficulty in securing hard coal and their unwillingness to use soft coal because of the dirt of soot. This also will introduce serious fire hazards, because of the storage of oil on the premises, and the danger of feed pipes bursting and starting fires. No such appliance should be considered without ascertaining whether it complies with the underwriters’ requirements.

Fire hazards which endanger the homes should be watched with special care, as the mothers and children run the greatest risk. All heating appliances should be installed and operated with constant attention to the unusual risks due to the changes in fuel, as well as to their ordinary dangers. President Wilson says, “Preventable fires are a public direiction,” but a preventable fire in a man’s home, endangering the lives of his family, should be regarded as a crime under wartime conditions.

UNIVERSAL INSULITE

A clean, odorless, indestructible, vermin-proof Insulating Board, furnished in sheets four feet wide up to ten foot lengths, 1/4 and 1/2 thick. Made from selected wood fibre, felted into strong even sheets. Fibres waterproofed. You can use it inside and outside. Paint, plaster or paper over it. Use it as a base for Magnesite Stucco.

The United States Government used ten million square feet during the last year in construction, both for inside and outside use.

One million square feet has been used, inside and outside, in the erection of small houses for the forest fire sufferers in the overburned districts in Northern Minnesota.

The Only Insulating Board That Will Stand Outside Exposure

The United States Bureau of Standard Tests shows that the insulating value of Universal Insulite is higher than any other form of rigid insulation.

Samples and full information on request.

Manufacturers

INTERNATIONAL INSULATION COMPANY

Mills:
International Falls, Minnesota

General Sales Offices:
2362 University Ave., St. Paul, Minn.
Industrial America

The world's great war has taught Industrial America the necessity and value of providing her workmen with permanent, comfortable homes.

In building for permanency and wartime thrift, the United States Government made the most rigid investigations of this nation's building materials and when the housing project of Hilton Village, Va., was planned, final judgment was in favor of

KELLASTONE IMPERISHABLE STUCCO

Kellastone is unquestionably the most economical, attractive and permanent building material of today, minimizing fuel bills, upkeep and general expense, affording unlimited artistic possibilities.

Kellastone can be successfully applied in zero weather. It is immune to frost and frigid temperatures, and doesn't expand or contract like ordinary stucco. Send for our new booklet—an analytical story about Kellastone which conclusively proves its qualifications as a superior stucco for Industrial America.

National Kellastone Company
1315 Malleux Building
CHICAGO

National Kellastone Company
1315 Malleux Building
CHICAGO
NEWS OF THE FIELD

New Plan for Industrial Co-operation

The recent deaths of Charles C. Barrett, president, and George A. Meyer, treasurer, of the Devoe and Raynolds Co., Inc., brought forcibly before those who were devoting themselves exclusively to the interest of the company the fact that the common stock of the company was largely held by persons not actively engaged in the business.

This being a most undesirable position from the viewpoint of efficiency in organization and prosperity for the stockholders, Mr. William H. Phillips of New York and John J. Alsfasser of Chicago determined to remedy this condition. They organized a company known as the D. & R. Syndicate Corporation, incorporated under the laws of the state of New York, and succeeded in purchasing from the inactive stockholders a considerable portion of the common stock held by these interests in the company. The officers of the D. & R. Syndicate Corporation are: William H. Phillips of New York, president; S. R. Harrington of Chicago, vice-president; John J. Alsfasser of Chicago, Treasurer; S. Stanwood Menken of New York, secretary. And the control of the affairs of the company remain in the hands of those who have made it their life work and are still interested in the development and the progress of the institution. These gentlemen also appreciated that business of today is transacted successfully along broad lines and realized they, individually, could not be successful without the earnest co-operation of the heads of the departments and the employees who had also devoted their lives to the interest of the company, and therefore resolved to inaugurate a co-operative plan among their valued employees which would enable them to participate in any dividend made by the company and thereby secure their

(Continued on page 82.)

W. H. Phillips, President.
E. H. Raynolds, Chairman of Board.
Dr. I. W. Drummond, 1st Vice-President.
S. R. Harrington, 2nd Vice-President.
J. M. B. Drummond, Secretary.
J. J. Alsfasser, Treasurer.

Fire Resistive
Construction

is assured in light-concrete work, such as walls, partitions, ceilings, light roofs, floors, column and beam protection, Porch Floors, etc., by using

BOSTWICK "TRUSS-V-RIB"

"The Ideal Reinforcement"

"VERY HEAVY—THE BEST" BUT NOT THE CHEAPEST

Our complete line includes, in addition, Bostwick "Truss-Loop" Metal Lath, Expanded Metal, Metal Corner Bead, Metal Ground Bead, Metal Wall Plug and Wall Ties, etc.

SAMPLES AND PARTICULARS WILL BE SENT PROMPTLY ON REQUEST

BOSTWICK STEEL LATH CO., No. 17 Hall Ave., NILES, O.
The Goodness of Beaver Board
Built These Big Plants

What builds a big plant after all? What makes a business successful?

"A really worth-while product which when first introduced sells itself repeatedly."

Isn’t this a good answer to the question, and doesn’t it cover Beaver Board, the knotless, crackless, manufactured lumber?

We believe so, and we believe that the illustrations shown at the top and bottom of this page prove the value of Beaver Board as a staple building material.

Of course these big plants are significant, but when you consider that there are over 9,000 dealers throughout the world selling this product regularly, you will realize that thousands of carpenter contractors are profiting by its use.

It isn’t possible for us to show all the plants of the Beaver Board Companies on this page. In the first place, there are thousands of acres of timber lands with two big mills in the Canadian North where the big spruce trees are felled, cut and shipped by Beaver Workmen. Then there is a large plant located at Ottawa, Canada, and a Varnish Plant for the manufacture of "Sealtite" Sizing at Buffalo. The main plants at Buffalo and Thorold, Ont., are shown here.

THE BEAVER BOARD COMPANIES
42 Beaver Road
Buffalo, N. Y.

Branches in Boston, New York, Baltimore, Cleveland, Detroit, Chicago, Minneapolis, Kansas City and San Francisco.

Manufacturers also of Beaver Greenboard and Beaver Blackboard.

Distributors in Principal Cities. Dealers everywhere.

BEAVER BOARD
FOR BETTER WALLS & CEILINGS
Permanent Houses for Industrial Workers

In planning homes for factory employes, permanence, speedy erection and low initial cost are obtained by the use of Hy-Rib Metal Lath products, which assure fire resistance, sanitation and low upkeep cost. These products are standardized and carried in stock in all parts of the country; labor and material to apply them are readily obtainable, so that erection proceeds with utmost speed.

FOR EXTERIOR
Stucco on Hy-Rib Metal Lath

Hy-Rib makes a thin monolithic reinforced concrete wall which is fire-resistant and permanent. Metal Lath is then applied to the inner face of the studs and plaster. Houses so built are easy to heat, require no painting and are generally preferred for their attractive appearance. They cost less than any other permanent construction.

FOR INTERIOR
Plaster on Hy-Rib Metal Lath

For all walls, partitions and ceilings Hy-Rib Metal Lath reinforces the plaster, preventing plaster cracking and falling off. The extreme stiffness of Hy-Rib Laths permits wide spacing of studs, saving in material and labor. Metal Lath stops fire, vermin and depreciation.

If interested in any industrial housing operation, give us an outline of what is proposed so that we can send our detailed suggestions.

TRUSCON STEEL COMPANY
(formerly Trussed Concrete Steel Co.)
YOUNGSTOWN, OHIO.
WAREHOUSES AND REPRESENTATIVES IN PRINCIPAL CITIES

News of the Field
(Continued from page 80.)

best efforts for the advancement of the business and the welfare of the stockholders.

The D. & R. Syndicate Corporation have offered to the employees of the Devoe & Raynolds Co. an opportunity to purchase such stock as they can successfully assume at the same price which the syndicate paid the inactive stockholders, and the employees need not pay cash for this stock unless they desire to do so. The stock is to be sold to them with six years' time in which to pay for it, with the understanding that all dividends on the stock be applied to the payment of interest and principal, and as soon as an employe had accumulated sufficient to take up any of the stock set aside for him it will be transferred to him individually.

The D. & R. Syndicate Corporation will also act as a savings institution for the employes for the payment of this stock. If an employe finds he can save a certain portion of his salary each year he can deposit this with the D. & R. Syndicate Corporation, and it will apply to the payment of the stock he has agreed to purchase. If at the end of the six years the employe has been unable to pay for his stock and other arrangements cannot be made, it will be retained by the D. & R. Syndicate Corporation.

Not only will those employes who have been tried and found true be given this opportunity, but the D. & R. Syndicate Corporation will stand ready to extend a similar proposition to any employe in the future whose conduct and interest in the business will, in the opinion of the D. & R. Syndicate Corporation, merit this consideration.


Standardization of Dixon's Lumber Crayons

For the convenience of their patrons, the Joseph Dixon Crucible Co., Jersey City, N. J., announce the following standardization of styles and colors in the Dixon line of lumber crayons:

Black (Graphite)
- Dixon's No. 361 Medium soft, japanned finish
- Dixon's No. 362 Soft, paper covered
- Dixon's No. 363½ Very soft, japanned finish

Colored
- Dixon's No. 401 Carbon black
- Dixon's No. 402 Yellow
- Dixon's No. 404 Terra cotta
- Dixon's No. 405 Red
- Dixon's No. 501 Blue
- Dixon's No. 501½ Soft blue
- Dixon's No. 502 Green
- Dixon's No. 503 White

While Dixon's lumber crayons were originally designed for marking lumber, it is interesting to observe the broad scope of their use at this date, because of their distinctive qualities. They mark freely, the colors are vivid and remain so for a maximum period, and the crayons are exceptionally strong and long wearing. Today Dixon's lumber crayons are fully as necessary to the essential industries for marking on metal, the yellow color being especially popular for this purpose as for marking on lumber.
These cottages are housing essential employees of the Indiana Steel Co., Gary, Indiana. The exterior stucco walls and the interior plaster walls are over Herrington Rigid Metal Lath.

Workmen Will Stay In These Homes

The need for adequate industrial housing has long existed. Now it will be seen even more clearly than heretofore that one of the best ways to weld valuable workers permanently to an industrial plant is to house them comfortably, attractively and economically. Then metal lath and stucco homes will be more popular than ever.

Such structures can be put up rapidly and built to last at the same time. They are a permanently valuable investment to the owner; a source of lasting satisfaction to the tenants.

They are cool in summer, warm in winter. The perfect "key" of plaster and lath stubbornly resists fire, mice, rats, vermin, weather and decay. Falling plaster is unheard of.

Specify and use Herrington Rigid Metal Lath because it is standard, full-weight lath, and because of its exceptional strength and rigidity due to the heavy longitudinal strands, set at an angle of 45 degrees to the plane of the lath.

Our well-organized system of branch offices in all principal centers assures prompt shipment of Herrington Lath for essential use in connection with war industries. Having set the highest standards of swift, economical and permanent building materials for many years, we are now fully equipped to give valuable service in the vital problem of housing industrial workmen right.

Engineers or architects interested in this most important building opportunity should get in touch with us.

The GF Industrial Housing Book we will present free to any interested architect, engineer, contractor or builder on request. To others upon remittance of $1.00.

The name of a GF dealer nearest you can be obtained by phoning Buyers' Aid, Inc., in cities of 70,000 or over. Ask them to send you the GF catalog, or we will send it to you direct from the factory.

THE GENERAL FIREPROOFING CO., Youngstown, Ohio
Manufacturers of All Types of Metal Lath, Concrete Reinforcements, Waterproofings and Technical Paints

Members of Associated Metal Lath Manufacturers

Branches: New York Philadelphia Chicago San Francisco Kansas City
Atlanta Cincinnati Buffalo Utica

Trade Mark Reg. U. S. Pat. Of,

Herrington Rigid Metal Lath
Paint Your Buildings With Tree or Paint Spraying Outfit

Rural builders will be interested to learn that they can do a first-class job of painting houses, barns and silos by using a tree spraying apparatus to apply the special paint which is adapted to this purpose.

This plan is particularly desirable now because of the shortage of experienced painters, as no experience is required to spray the paint on the building. Little more paint is used than when brushed on and the work can be done in about one-fourth the time required to paint a building by hand.

Ordinary linseed oil and lead paint cannot be applied in this manner. This special paint, however, is a liquid wax paint, and sinks into the wood as soon as it touches the surface, and it can be applied rapidly and evenly with either a spraying machine or paint brush. It makes a smooth, even finish, and if not brushed, spreads on the wood. One coat is enough for most buildings. Can be applied in cold weather.

This liquid wax paint is made in four fine colors—red, maroon, dark brown and natural brown. It is sold thru lumber and paint dealers everywhere.

A Portable Motor Operated Bench Planer for Light Woodwork Operation

An improved type of portable motor-operated bench planer or jointer for woodwork has been developed, in which the planer and motor are a single unit with direct drive thru a flexible coupling. This delivers approximately 100 per cent of power to the cutterhead, thus rating the sturdy little machine as having more power per inch of knife than the 2 to 5 horsepower big jointers.

The saving effected is very great. It eliminates practically all of hand planing and saves many time-consuming trips to the big stationary jointer, for the bench planer is portable and can be taken to the work anywhere in the shop or on work outside.

An interesting mechanical feature of this machine is that three knives are operated in an alternating-current equip-
Lightning Can't Strike
If
SHINN Gets There FIRST

Dealers Find This Business Good All the Time

Why Lightning Strikes

Lightning is the result of attraction between negative energy in the cloud and electrical energy in the earth, finally overcoming the resistance of the dry air between.

If there is a house just below the cloud, the attraction of the electricity in the cloud, having upward on the electricity in the earth, tends to literally "charge" the house with electricity. Therefore, if the electricity should at that moment break through the air, the building, being directly in line of heavily charged with electricity, would probably be destroyed.

Shinn-Flat Conductor permit the electricity in the earth to gradually pass into the atmosphere above the building as it is attracted by the electricity of the cloud. There is no bunching up of electricity in the building.

The lightning stroke always occurs where the electricity has been impeded or obstructed—when it breaks through, that is, when the obstruction is removed, or when the electricity from becoming impeded is obstructed, you need never fear Lightning.

Prevents Lightning Losses

You can build a big business in your community selling this wonderful protection against Lightning.

36% More Conducting Surface

Shinn-Flat Lightning Conductors are distinctive and more efficient. They are woven flat, and have 36% more conducting surface than the same amount of material woven in a round cable.

Shinn-Flat is recognized all over North America as the most scientific system of Lightning Protection ever devised.

It is the system that has been recommended by such authorities as Sir Oliver Lodge of England, the U. S. Weather Bureau, Dr. Steinmetz of the General Electric Company, etc.

Start Right Now

This business is an all-year-round one. The dealer who keeps working at it every month in the year is the one who rolls up the annual business of 10,000 to 20,000 feet, carrying a very satisfactory margin. Contractors and builders are logical men to handle it, as they get out among property owners, and understand the value of property and the importance of its protection.

Write for full information and book-let on Lightning Cause and Control.

W. C. Shinn Manufacturing Co.
1659 Monadnock Bldg. Chicago, Illinois

When writing advertisers please mention the American Builder
What's New
(Continued from page 84.)

while two knives are used on a direct-current equipment. This is due to the fact that 4,000 revolutions per minute are required to do planing satisfactorily, while only 3,600 revolutions per minute can be had in an alternating-current motor.

Fractional horsepower motors are used which are standard equipment and can be furnished for operation on any commercial circuit.

New Lock is Thief Proof

In the course of fifty years of lock building, a manufacturer naturally has developed new examples of the art that enables a man to keep what he has accumulated out of reach of the man who unlawfully tries to obtain it.

A particularly notable example of this development is the lock illustrated, designed to resist at every point the efforts of burglars and sneak thieves, thus making it particularly valuable for entrance doors of all kinds.

The "three point" protection afforded, while seemingly complicated because of its various functions, is really extremely simple. Solid bronze parts and the sturdiest construction make this lock exceptionally capable of resisting attack.

It has every bit of the smoothness and ease of closing that a bolt of one-half-inch throw would have, for the purpose of security, a dead bolt with three-quarter-inch throw. This is obtained as follows:

When the door is open the latch bolt is regular—extending one-half inch from the face of the lock. When the door is closed a dead locking slide that does not enter the strip trips a heavy bar of bronze of extraordinary sturdiness, throwing it into position directly back of the latch bolt, preventing any possibility of forcing the bolt. At the same time the bolt automatically shoots out to a three-quarter-inch throw, thus providing a dead bolt 1-inch by 13-16 inch of solid bronze. Forcing the stop in and releasing the outside knob is impossible with this lock, because when the door is closed and the outside knob rendered inoperative the night lock is automatically deadlocked so that a tool inserted between the stop bead and jamb cannot, by any torsional twist, force the stop in and release the outside knob.

Finally, the famous cylinder, most durable and secure made, provides a 100 per cent protection against picking, as not a single instance of unlawful picking has been known to occur since the first Yale cylinder was developed, over fifty years ago.

New Use for Wood-Board

Contractors and carpenters will be interested in a new use for wood-board as applied to the exterior of buildings. In finishing the outside of a home or other structure, it has been customary first to box it with sheathing or ship-lap and then finish it with the siding. It is now suggested to (Continued to page 88.)
The Fuel Administration
without knowledge or intent, has boosted the
HESS WELDED STEEL FURNACE

by switching house owners from the use of hard coal and imposing upon them the necessary use of soft coal and other fuels, to which many fuel consumers are not accustomed. Few furnaces have stood the test of this change as well as the Hess.

The welded seams throughout, making the construction absolutely gas and air tight; the absence of inner flues and smoke passages; the construction of the fire box (heavy fire brick slabs) and the very large grate surface, all combine for perfect combustion and complete transformation into heat of all of the various kinds of fuel which must be used in furnaces.

Our customers are burning hard or soft coal, coke, wood, ignite, without reference to size or quality, and are getting all the heat these fuels are capable of producing.

Our booklet will interest you and we will be glad to send you a copy.

Attention—Contractors:

We have addressed a circular letter to a number of contractors who have repeatedly bought Hess Welded Steel Furnaces for their own use and for buildings they are erecting. We are asking them what particular advantages have induced them to place their repeated orders with us.

Their replies will be made up in a small booklet which we will gladly send, with our furnace catalogue, to anyone interested, and the experience of these contractors will be a better guide to intending purchasers of furnaces than anything we can say for ourselves.

Send us your name on a postal card and let us mail one of these booklets to you. We are catering particularly to contractors with our Welded Steel Furnaces.

Special Rates to Contractors

Hess Warming & Ventilating Company
1220 Tacoma Building
Chicago, Illinois

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
AMERICAN BUILDER

What’s New
(Continued from page 86.)

use wallboard in place of this sheathing. Those who have tried it report good results.

There is a considerable financial saving, since good wallboard costs only about $35 per thousand square feet, and this point will enable the contractor to gain new business by reason of his ability to quote lower contract prices. Because it comes in standard sizes and is easily put up, much labor and time are saved.

For small and medium-sized homes, garages, poultry and dairy houses, and the many industrial housing projects sure to develop with the coming period of renewed building activity, wallboard will doubtless be freely used for boxing the exteriors of buildings prior to finishing with sidings.

Contractors and Lumber Dealers Approve New Haulage Method

The Tractor-Semi-Trailer method is the latest development of motor hauling. It is 100 per cent efficient—better than the motor truck alone, because the capacity of truck is trebled without additional strain on the driving mechanism, and because several trailers may be used with one motor vehicle—one trailer being loaded, another unloaded and another being drawn.

It is better than the two-wheeled cart in which the load is balanced over the axle, because it gives speed with safety and does not “whip” from side to side; also because it uses part of the trailer load for traction. If there is not enough weight on the driving wheels they will slip on muddy roads, icy hills, or wet asphalt. With the tractor-semi-trailer enough weight is concentrated on the driving wheels to make traction certain and draw the entire load without slipping.

Why is a fifth wheel? Webster defines a fifth wheel as “a horizontal wheel or segment of two parts rotating on each other above the fore-axle of a carriage, forming a support to prevent careening.”

The fifth wheel was necessary to make the wagon thoroly practical. It is in universal service as a combination stabilizer and turning bearing, for its broad circle prevents the wagon (Continued to page 90.)

Built by Truck Specialists

Republic builds nothing but trucks, in factories scientifically planned and fully equipped for the most efficient manufacture of trucks. Republic engineers specialize on trucks and truck problems. They have studied the requirements of every industry and have developed a standard line of trucks to meet them.

The entire resources of the largest manufacturers of motor trucks in the world are concentrated on the production of trucks that will meet every modern hauling need.

It is this concentration and specialization that has enabled Republic Trucks to give a service value, so remarkable that it has created the greatest demand in the history of the motor truck industry.

Starting with a production of but 54 trucks in 1913, Republic, within five years was producing and selling more than twice as many trucks as the next largest manufacturer.

More than 1300 Republic Service Stations, distributed all over the United States, make dependable service available to every owner of a Republic.

Seven Models—3/4 ton to 5 ton.

See the Republic dealer and write us for booklet.

REPUBLIC MOTOR TRUCK CO., INC.
Alma, Michigan

The Torrensen Internal Gear Drive, used in all Republic Trucks, delivers 92% of the motor power to the wheels. We know of no other type of drive that delivers as much

REPUBLIC

Internal Gear Drive

MOTOR TRUCKS

Built by the Largest Manufacturers of Motor Trucks in the World

When writing advertisers please mention The American Builder.
The War is Over---
Construction Days are at Hand---
Make No Mistakes Through Haste---

"Look Before You Build"

At the Permanent Building Material Exhibit you will find 150 remarkably interesting displays showing you all the latest and most important developments in the building line. Whether you plan a skyscraper or a three-room bungalow, you cannot afford to proceed until you have visited the

Building Material Exhibit
Entire Second Floor
Insurance Exchange Building
175 W. Jackson Boulevard
CHICAGO

If you can't come in person write. We will cheerfully furnish free information and estimates.

Send for Our Free Magazine
Inside Corner Bead Prevents Cracks

The function of the inside corner bead is two-fold: to better the mechanical side of plastering, and to do away with the unsightly radial cracks that commonly develop where wall meets wall or ceiling.

This bead, in position, provides the grounds to which the mechanic must work and prevents slurring of the work, forming of the angles with a brush, skinning the mortar coat, etc. In the completed work the nose of the bead forms the angle of the wall. The nose is purposely made small so that in the plastered wall any difference in texture between it and the plastering is not noticeable.

As is plain from the formation of the bead, its prominent quality is the provision for expansion under stress. Especially where wood is joined to brick or tile there is always a tendency for the partition to pull away from the wall, whether from shrinking of timber or other cause; tho this tendency is frequent even where the partitions are of tile.

Where the inside bead is used, any strain is met by a yielding of the bead at the back, which opens gradually under the stress and allows the plastered walls to part without the unsightly radiating cracks that are so common and so difficult to repair. Where the bead is used the plastering does not meet in the angles, and the division, even if prominent, shows only an opening in line with the bead, which openings are easily pointed and do not damage the work.

Heavy Type Rear End Construction in Place; It Requires But Little Time to Substitute This Assembly for the Worn-Out Wheels, Axles and Springs on a Horse-Drawn Truck.

What’s New
(Continued from page 88.)

from tipping to either side while the front axle easily turns to right or left.

Since the ordinary wagon is a four-wheeled vehicle, it conforms readily to all road unevenness. If we use a tractor, however, and a two-wheeled trailer resting upon the rear of the tractor we have a new condition to meet in this six-wheeled tractor-semi-trailer unit.

If the connection between tractor and trailer-wagon were rigid one pair of wheels would be lifted off the ground by every road depression. No combination could stand this strain long.

The rocking fifth wheel solves the problem. It has a crosswise hinge, allowing a rocking motion. This permits the combination to follow the road unevenness with speed and safety.

The rocking fifth wheel is indorsed by building contractors and lumber dealers all over the country as being the most satisfactory device for coupling tractor, pleasure car or truck with the semi-trailer. It is fully covered by basic and detail improvement patents.
With Victorious Peace Now Accomplished

We again offer you the Mitchell Vance Co., Inc., Lighting Fixtures Service of sixty years' exceptional record transferred to Uncle Sam for National War Industry Demands.

This Lighting Fixture Service to you begins with an entire new line of beautiful and inexpensive Colonial Designs of Vance Bronze, which will meet every requirement of the private home or public building.

WE SERVED THE GOVERNMENT IN RECORD TIME.
WE WILL AGAIN SERVE YOU IN LIKE MANNER.

Let us have your specifications to figure on. Quantity prices quoted on application.

MITCHELL VANCE CO., INC.
Sole Producers of VANCO BRONZE, the New Metal
503-511 WEST 24th STREET
NEW YORK CITY
Where the Factory Can Help the Contractor

By T. F. Ryan
General Contractor, Laurel, Nebr.

In contracting, the most difficult problem is that of labor. So many conditions affect the labor costs on a building that it can never be much more than approximately estimated.

The material difficulty is largely one of quantity as the price and quality are factors beyond the control of the contractor; the labor is subject to every variation of the material to which is also added the unreliability of the individuals who are to furnish it.

The small contractor employing less than ten men is perhaps personally acquainted with them and can estimate very accurately the amount of work that they can do; but he is not sure that they will remain with him to finish up the job he may be estimating, he may have to fill some of their places with strangers, if he has plenty of work to do he cannot wait to pick out his men, he must take those that he happens to find.

Every contractor has had to keep men at times, who were not satisfactory and who were not earning their wages, while his best men were only doing an amount equal to their pay, nor could they be reasonably expected to do more. On such a job it is easy to see how a contractor might lose money if he figured the work at all close.

It sometimes happens that a working force may be materially changed in a short time; and this frequently occurs when there are a lot of good jobs in sight—some of your best men seeing them may want to start out for themselves. It is always this class that is the hardest to keep. Your incompetents will stay with you.

I have known working forces to change in a few weeks so that the contractor with a lot of possible business in sight would not have one good capable mechanic among his whole number of men. It is bad enough to lose business in this way, but it is still worse if you have several contracts already secured and no competent men to do the work. Here you are in a fair way to lose out financially as well as in reputation as a contractor.

If you should find yourself in such a predicament, for it is nothing less, the best thing to do is to let the future prospects go, since if you do not take care of what you have on hand you may be sure that it will affect your future. Take personal charge of your inexperienced men and turn all your outside finish over to your nearest millwork supply house, and in the

(Continued to page 94.)

This Heater Means Business

When you specify or install a Williamson Newfeed Underfeed furnace or boiler you can guarantee to cut the customer’s coal bill 50% to 75% and we back you.

Every Underfeed you install is a permanent advertisement for you and your business.

35,000 Underfeed users everywhere recommend this heater because of the savings in fuel bills and reduction to the minimum of smoke, soot, dust and clinkers which its use insures.

Proposition for Contractors

With the resumption of building there will be a big demand for Underfeeds in every community.

We have an interesting proposition for contractors, and it will pay you to write for full particulars.

In addition to the Underfeeds we make a complete line of Topfeed furnaces and boilers, also an excellent line of Pipeless furnaces which has a large sale.

Get ready for the building season beforehand! Write today.

The Williamson Heater Co.
127 West 5th Street
Cincinnati, Ohio

50% Less Fuel Producing 100% More Heat
Guaranteed by Bond
The Only Furnace that Insures Clean Air

Big Money for You

Meets Abnormal Costs of Material and Labor
Simple to Install Easy to Operate

We Want Good, Active Men to Represent Us.

Write today for our special agency proposition.

MAIL TODAY

Standard Heater Co.
438 W. Ontario St., Chicago
Send me your Special Agency Proposition to Contractors.

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

STANDARD HEATER CO.
438 West Ontario Street
CHICAGO, ILL.
The War is Over
Restrictions on Building Have Been Removed

ARE YOU PREPARED?
The Modern Way Furnace Company has been going right along, getting ready for the big event, and is now in position to give you up-to-the-minute improvements in Hot Air Heating Systems.

The Modern Way burns hard or soft coal, coke or wood. Heats, ventilates, and gives added comfort to the home.

CONTRACTORS, ATTENTION!
BIG PROFITS FOR YOU
Get our proposition at once, for your vicinity, before someone beats you to it.

We Protect Our Dealers
The Modern Way Furnace Co.
FORT Wayne, Indiana

BOVEE'S PIPELESS FURNACES
Central Heating and Regular Pipe Furnaces
Bovée's Central Heating System Furnaces
Six sizes. One large warm air register. Other registers can be added if found necessary. Separate cold air ducts. Alids in circulation of heat and removes cold air from warm air registers. Ordinary rugs can be used.
Regular Pipe Furnaces furnished where registers are desired in each room. Send pencil sketch of building for estimate.
Horizontal Furnaces for 4-ft. wood or coal with double doors 16x16-in. or 17x21-in. furnished with Central Heating or Regular Piping
Buy from Manufacturers and Save All Commission, one-third the cost of your Heating Plant.

BOVEE FURNACE WORKS, 50 W. 8th St., Waterloo, Iowa

Saves Coal
Use Arnold Automatic Damper
This simple device, placed in your Stove Pipe or Furnace Pipe immediately gives your house 25% to 35% more heat from the same quantity of fuel—no matter what type of stove or furnace you use. A Proved Success! You can easily attach it yourself—simple directions on box.

NO WASTED FUEL
Automatic in operation—requires no attention after fire is started. Keeps your house at even temperature. No overheating with waste of fuel. No under-heating with dangers to health.

Saves Its Cost on First Ton of Fuel
Thousands already in use. Every owner a booster. Price $2.50 by parcel post prepaid. Order today, stating whether for Stove or Furnace and size of pipe. Agents wanted.

ROBINSON MFG. COMPANY
92 Factories Bldg.
Toledo, Ohio

HERO FURNACE CO.
59 W. Lake St.
Chicago

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Where the Factory Can Help the Contractor
(Continued from page 94.)

meantime look out for better help.

On rough work a contractor can keep several carpenters busy, even if they are not very experienced workmen, provided that he is with them all the time to direct them and keep them from making mistakes; but if he should have a couple of inexperienced men trying to get out cornice and frames and be dividing his time between the two sets of men, the chances are that neither job will be done right.

The factory will take all this outside finish and get it out cheaper and better than the average carpenter, let alone inexperienced workmen. After the order is given, you need not worry about it; the mill will take care of it— if the work is not done right you need not pay for it.

The writer is speaking from the practical experience of having had frames shipped from the factory, set up; of having them come knocked down and afterwards put together on the job, and of having made the frames entirely by hand, and also of having all the work done with power machinery right on the job; and believes that no ordinary contractor with or without power machinery can compete with the factory in the making and setting up of frames.

Three years ago the writer worked with two good carpenters who were employed in the various items of building houses; sometimes they set up window frames sent in knocked down. Their wages were $4.00 per day. Afterwards they went to Sioux City and began to work in a sash and door factory. When the factory had an order for set-up frames, they worked at setting the frames up, for which they received $2.75 per day. Here was the same item of labor that cost the contractor $4.00, furnished to the mill men for $2.75.

This factory set up window frames, 24 by 28, two-light and under, for 25 cents each; the same work done by the same men, cost 50 to 60 cents per frame. Here, in other words, the factory set them up for about one-half of what it cost to have the same work done outside the factory.

In actual work on a job, it took me five days to put 35 frames together. These frames were in the knock-down, bundled, and were as nearly finished as is the average knock-down frame. The casings were jointed, jambs sized, when I put them together— a first-class job in every respect; but my work cost 65 cents per frame, without counting the cost of nails and supervision, which items would vary, but on this job, cost about 15 cents per frame, making the frames cost 80 cents each for setting up.

By paying 10 cents extra at the factory, the casings could all be jointed and beveled for the siding, as some carpenters want a slight bevel for siding. The jambs could be re-sized; in fact, just as good a job as was
It is the Direct Top Vent that makes the PURITY JR. an odorless toilet. Unlike a toilet depending upon an elbow side opening, the PURITY JR. seat may be raised a hundred times without impure air entering the room.

An Outdoor Toilet causes more distress in winter than the thoughtful father and husband is willing to permit his family to endure. Because the PURITY JR. can be bought for little money, it is being installed in many homes that formerly were denied such convenience thru excessive cost.

Fall is the Best Time to sell indoor toilets, instinctively seeking Right now each home is to secure the thing that will add most to its comfort during the coming winter. The builder who has given them their other conveniences is the man to whom they turn for a better toilet.

Prepare to Meet this Demand by establishing yourself now as one of our agents. PURITY toilets create business.

Night Commander Lighting Company
Jackson, Michigan

This is the Best Time

Carpenters and builders are making big profits selling chemical toilets to home owners where sewage systems are not available. As a side line or full time, the opportunities are unlimited; the profit possibilities depend entirely upon your own efforts. This is the best time to sell indoor toilets, as the inconvenience of the outdoor privy is emphasized by the cold weather.

The Wolverine Chemical Toilet sells cheaper than the old-fashioned outdoor privy. It is an important essential to health, comfort and convenience and can be placed anywhere in the home. Over 10,000 in use in factories, business houses, schools, homes and elsewhere.

Sanitary WOLVERINE No Plumbing Odorless Chemical Toilet No Waterworks

Endorsed by physicians, health authorities, schools, and home owners. Every town and country building needs one.

Easy to install; no experience needed. Germs killed by chemical.

30-DAY FREE TRIAL -- GUARANTEE

In handling such a line you certainly want the best. The Wolverine line of chemical toilets has a wider range than any other and is manufactured by pioneers in this field; our knowledge of this business is backed by years of successful experience. Our cooperation and suggestions should prove invaluable to you.

We Want Agents Preferably carpenters and builders to act for us in their locality. This is a home necessity right in your line — you can make a profit on the sale, and another on the installation. The profits are big and the work light. Our cooperation makes the sale easy.

Write at once for details of this real business opportunity. The big selling season is here and you can get your share of this business if you act now. Write for details of this exclusive agency offer. Send postal now before somebody else gets your territory.

Comfort Chemical Closet Co.
352 Easton Rd., Toledo, Ohio

Set It Up In 30 Minutes

Carpenters and contractors can make big money during the winter months by selling and installing Magic sanitary chemical inside toilets. They need no water or sewer connections. They are operated by chemicals only, keeping the toilet sterilized at all times. The Magic can be placed in a bedroom, closet or bathroom. Enjoy all the comforts of city homes. Keep out of the cold, rain, snow and wind. Avoid exposure to the weather.

Write to the address below for their liberal money-making proposition to carpenters and builders. You run no risk. We guarantee absolute satisfaction and refund your money after thirty days' trial if you are not pleased and contented.

Chemical Closet Supply Co.
Jackson, Michigan

Comfort Indoor Closet Odorless Sanitary Germ-Proof
No Sewer — No Waterworks — No Plumbing Needed

This modern home necessity is fast taking the place of the unsightly, unhealthy, inconvenient outhouse in the back yard. Thousands now in use and all giving complete satisfaction. Can be put wherever convenient in the house. No odor whatever. Gives city convenience in the country or town.

Abolish Outdoor Closet

Anybody can afford one. Saves those cold night trips out-of-doors. Impossible to get same amount of comfort for the money another way. Sold on 30 days' trial and under sworn guarantee to refund all money if not entirely satisfactory. Send for description and prices today. Be fair to your family.

Agents Make Big Money Easily

Comfort Indoor Closets sell themselves as fast as people understand about them. Contractors and carpenters are making big money by merely suggesting this closet. Write for details of this exclusive agency offer. Send postal now before somebody else gets your territory.
Where the Factory Can Help the Contractor

(Continued from page 94.)
done on the above frames, and all delivered on the ground for 45 cents per frame, set up ready to be placed. Thirty cents was allowed for the setting up, as some of the frames were larger than 24 by 28, 10 cents for extra work and 5 cents per frame for freight. A frame in the knock-down takes third class freight, and set up, first class, making a difference of about 5 cents for each 150 miles hauled.

On the setting up of this bill of frames the factory could make a saving of $12.25. Quite an item, besides the help it gives when one is crowded with work or short of competent workmen.

Wherever material has to be ripped, sized and jointed, as for corner boards, outside base and belt courses, the mill can do it cheaper than you can, and if you have to do all this work by hand, can deliver it right on the job cheaper than you can and will do the work better than the average carpenter can by hand. Where a power jointer joints a casing or corner board, it will more generally be true and square or beveled, as the case may be, its entire length, than when such work is done by hand.

You're in a position to make more money

Simply suggest the advantages and convenience of running water to your home or barn customer and take the order yourself for your plumber to fill. No. 2085 Deming Hydro-Pneumatic SYSTEMS are self-operating and automatic; require little attention; initial cost is moderate and operating expense trivial. Don't miss the next opportunity. Send for catalog and information now. THE DEMING CO., 99 Depot St., Salem, O. (Continued to page 98.)

The item of freight does not make as much difference as one would think. You will have to pay freight in carload lots to your station in any event, this being figured in the cost of your material. The difference between this and the local fourth class freight will average about 5 cents for each 100 pounds hauled 150 miles. On 1000 feet of outside finishing lumber it would be somewheres near $1.05 more on a haul of 150 miles than the carload rates would be for that distance.

Where you have good capable and conscientious workmen, I do not advocate the turning of this work over to the mills, tho I think the mill can deliver it right on the job considerably cheaper than you can do it by hand; but where you have careless, lazy, incompetent fellows who only work because they want some money to spend, caring nothing for your interests and, in truth very little more for their own.

Furnishing the inside finish is another place where the factory may save you considerable money. If all your interior finish is made out in one bill and ordered directly from the mill, it will come to you clean and in good shape. It will save you the cost of cleaning up dirty finish—a big expense, on some jobs amounting...
Specify Wolff Plumbing

For installations of any size or character. It is the best today as it has been for over 60 years.

L. Wolff Manufacturing Co.
General Office and Showroom
111 N. Dearborn Street
Chicago

THE AUTOMATIC COAL CHUTE
Will Answer Every Requirement

Opens Automatically
Closes Automatically
Locks Automatically
Fool Proof
Order one from your dealer or direct from

Agents Wanted
THE WESTERN IRON & FOUNDRY CO.
Wichita, Kansas

Make Your Own Brick
and
$20 to $50 Extra Daily Profit

Be independent of the clay brickmaker and dealer. Put yourself in a position to make more money on your contracts, to take bigger jobs—more profitable jobs without worry of delays or lost time eating into your profits. With a Helm Press you can make 10,000 Brick or 1,000 Blocks a day—$20 to $50 daily profit. Operates under 80,000 pound pressure. No tamping—no burning—every brick or block perfectly true. A big demand in your own community for this superior kind of building material. Equip yourself to supply it.

Helm "Dry Wall" Building System
Appeals to builders, contractors and architects. It overcomes the opposition to concrete because it offers absolutely Dry Wall construction. It saves money for builders, as no furring and lathing are required, and it makes rigid walls and fireproof walls. This is the system which is bound to get you business and give you the advantage over all other products.

Send for Our Valuable Book FREE
Let this FREE book tell you all about this great opportunity which is open to you today. It will tell you all the details of this system, how the Helm Press and the Dry Wall building system. It will show you how easy it is to start a profitable business. It tells how each product is made, how it is cured and sold. Write today. Use a post card or coupon.

Helm Brick Machine Co.
570 Mitchell St.
Cadillac, Mich.

Gentlemen—Please send FREE your book on Concrete and Helm Presses.

Name:
Address:

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Where the Factory Can Help the Contractor

(Continued from page 96.)

to as much as 20 per cent of the cost of the material. Base mould, heavily moulded base, picture mould, O. G. stops, and quarter-round are difficult to clean if very dirty. It is about as cheap to throw very dirty small mouldings away and buy new clean ones as it is to pay for the work of having them perfectly cleaned.

If the finish has to be sanded before it is shipped from the factory. It can be done there for 20 per cent of what it will cost you to do it by hand on the job. The flat surfaces of the following bill of material for the writer was sanded at the mill for $3.50:

19 doors.
12 door jambs.
Stools and aprons for 23 windows.
800 lineal feet 8-inch base.
800 lineal feet 41/2-inch casing.
500 lineal feet band mould.
300 lineal feet window and door stop.
20 feet 3-member plate rail.

The material came on the job perfectly clean and bright, save a small amount of dirt caused by handling. This was cleaned and the moulded edges and quarter-round and picture mould sandpapered by hand. The cost of this, including the $3.50 paid for flat sanding was a little less than $10.00.

I have worked on similar jobs where as high as $60.00 was paid for cleaning a like amount of finish, and then the softer parts of some of the moulded work showed dinginess—parts where a plane or scraper could not be used.

Few retail lumber yards have dust and light-proof moulding racks. The dirt settles and in time works into the finish. The light discolors the exposed parts, causing the wood to lose its freshness. To remove these defects takes time and money. Quite often neither can be conveniently spared. It is well then for the contractor to know that the mill can furnish this material perfectly clean, and when specified, the greater part of it sanded, ready to put on, saving the item of recleaning finish which was once in condition, but because of improper handling has to go thru another expensive process.

Timely Advice to Young Builders
Just Starting Out
By Jack Plane

I BELIEVE an article written for the benefit of the young carpenters who contemplate going into the contracting business this spring would be in order at this time.

Having been one of the young fellows myself and having learned as I went along, I speak from actual experience.

(Continued to page 120.)
**Directory of Tools, Machinery, and Supplies Used by Builders.**

**Buyers' Guide**

The Publishers of the AMERICAN BUILDER present this Directory with the hope that it will prove really useful to builders. While it is as complete as our limited space has permitted, no doubt some first-rate concerns and some important products have been overlooked; nevertheless, it does cover the principal offerings of the most substantial and enterprising of the manufacturing concerns catering to the building field. We can vouch for the responsibility of every one of the concerns whose goods are listed in this Directory, and we recommend them to our readers. Builders, dealers in building materials, architects, contractors and carpenters in writing to any of these concerns can feel that they will receive most prompt and courteous attention, and that their business will be appreciated.

**Valuable Information—Keep it Handy for Reference**

This directory contains valuable information boiled down into a few words, and will save time and effort for busy builders and dealers. The various tools, machines, or building materials are arranged alphabetically; the trade name given whenever possible, and the name and address of the manufacturer or general sales agent.

This Directory makes it easy to compare the range of offerings in any particular line you are interested in. Do not hesitate to write for catalogs and circular matter pertaining to any goods new to you, or in which you are especially interested.

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AMERICAN BUILDER

Reef Putty

Philip Carpenter, Lockland, Ohio.

Geo. B. Carpenter & Co., Chicago, Ill.


Chicago Machinery Exchange, Chicago, Ill.


Rehm Hardware Co., Chicago, Ill.

Wagner Bros., Buffalo, N. Y.

Philip Carew Co., Lockland, Ohio.

Edwards Mfg. Co., Cincinnati, O.


Wagner Bros., Buffalo, N. Y.

Rehm-Asbestos Shingles

Edwards Mfg. Co., Cincinnati, O.

Geo. B. Carpenter & Co., Chicago, Ill.

Wagner Bros., Buffalo, N. Y.

Rehm Hardware Co., Chicago, Ill.

American Sheet & Tin Plate Co., Pittsburgh, Pa.


Buckeye Mfg. & Foundry Co., Cleveland, O.

Chicago Machinery Exchange, Chicago, Ill.

Rehm Hardware Co., Chicago, Ill.

Northern Hemlock & Hardwood Mfrs. Assoc., Oshkosh, Wis.

Western Lumbermen's Assoc., Seattle, Wash.

(Reverse of Color Plate)

Roby Roofing—Slate

Asl & Conder Co., Cleveland, O.

Buckeye Mfg. & Foundry Co., Cleveland, O.

Randall Structural Co., Penn Argy, Pa.

Vendor Slate Co., Bangor, Pa.

J. A. Fay & Egan Co., Cincinnati, O.

Standard Rule & Level Co., Cleveland, O.

Chicago Machinery Exchange, Chicago, Ill.

Rehm Hardware Co., Chicago, Ill.

Sargent & Co., New Haven, Conn.

J. S. Sturtevant, Atchabula, N. Y.

American Rules—Lumbermen

Geo. B. Carpenter & Co., Chicago, Ill.


Eugene Dietzgen Co., Chicago, Ill.

Peerless Print Co., New York, N. Y.

Rehm Hardware Co., Chicago, Ill.

J. S. Sturtevant, Atchabula, N. Y.

Sargent & Co., New Haven, Conn.

Machinery, "Sargent"

Stanley Rule & Level Co., New Britain, Conn.

American Saw Mill Machinery Co., New York, N. Y.

E. C. Atkins & Co., Indianapolis, Ind.

Geo. B. Carpenter & Co., Chicago, Ill.

J. A. Fay & Egan Co., Cincinnati, O.


Parkes Mill Boring Machinery Co., Cincinnati, O.

Sargent & Co., New Haven, Conn.

H. B. Ives Co., New York, N. Y.

American Saw Mill Machinery Co., New York, N. Y.

E. C. Atkins & Co., Indianapolis, Ind.

V. H. Johns-Manville Co., New York, N. Y.

J. A. Fay & Egan Co., Cincinnati, O.


Sargent & Co., New Haven, Conn.

H. B. Ives Co., New York, N. Y.

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Saw Sets

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Sargent & Co., New Haven, Conn.

H. B. Ives Co., New York, N. Y.

American Saw Mill Machinery Co., New York, N. Y.
AMERICAN BUILDER
[December, 1918]

Screen Door Sets

Screws—Band and Gravel

Screws—Door and Window

Screws—Hand

Screws—Grooving

Screws—Jig

Screws—Swing

Screws—Tie Plate

Sieves

Silos

Shutters

Shorts—Fireproof

Sitges—Steel

Silos

Silos—Band
Badger Corrugating Co., La Crosse, Wis.

Sinks—Factory Wash

Sinks—Kitchens

Sinks—Lumber

Sinks—Patents

Slate—Structural

Squares—Steel

Squares—Try and Miter
Buckeye Mfg. & Foundry Co., Cleveland, O. Crease Interior Mfg. Co., Racine, Wis. (Self-adjusting)

Squares—T-Sq.
Simonds Mfg. Co., Fitchburg, Mass. ("Swan") Kohler Co., Kohler, Wis. ("Willis")

Squares—T-Sq.

Squares—T-Sq.

Squares—T-Sq.

Squares—T-Sq.

Squares—T-Sq.

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Squares—T-Sq.

Squares—T-Sq.

Squares—T-Sq.
Learn to Be a Draftsman and Draw Your Own Plans

By means of these two books the contractor, builder or carpenter can advance by easy steps from the first principles of drafting room practice to the complete work of an architect's office, including drawing to scale, tracing, detailing, lettering, rendering, etc. He can combine the work of the architect and builder. He will learn not only how to plan the structure, but how to lay out the work, specify the materials and finish, make the contracts, and take complete charge. A complete set of plans with every dimension, all sizes of windows, doors, etc., is shown in these books. This serves as a guide as it shows the process from the preliminary sketch to the finished plan.

Radford's "Mechanical Drawing" is a book of 272 pages, with 165 illustrations, and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences. It teaches all stages of the work from the preliminary sketch to the finished plan.

Radford's "Architectural Drawing" is a book of 304 pages, with 147 illustrations and a supplement showing perspective views and floor plans of 41 brick, cement and frame residences. Each book is printed on high-grade paper, bound in cloth, is 6x9 inches and has a beautiful illuminated cover.

American Builder — 1827 Prairie Ave.

Don't Depend on Another Man's Brains

Develop your own ideas. Be in a position where you can work a customer's hazy suggestions into a tastefully arranged, complete plan, showing all dimensions.

Price $2.00 per set

Index to Advertisers Follows on the Next Five Pages

Learn to Be a Draftsman and Draw Your Own Plans

By means of these two books the contractor, builder or carpenter can advance by easy steps from the first principles of drafting room practice to the complete work of an architect's office, including drawing to scale, tracing, detailing, lettering, rendering, etc. He can combine the work of the architect and builder. He will learn not only how to plan the structure, but how to lay out the work, specify the materials and finish, make the contracts, and take complete charge. A complete set of plans with every dimension, all sizes of windows, doors, etc., is shown in these books. This serves as a guide as it shows the process from the preliminary sketch to the finished plan.

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Don't Depend on Another Man's Brains

Develop your own ideas. Be in a position where you can work a customer's hazy suggestions into a tastefully arranged, complete plan, showing all dimensions.

Price $2.00 per set

Index to Advertisers Follows on the Next Five Pages
Cure Chimney Troubles with "Best" Revolving Chimney Tops

The only all cast iron ball-bearing revolving top. Protects chimney and keeps it clean. Produces better draft, easy to install, will last a lifetime. Legs have slotted holes and radical adjustment so that each size top will fit any size chimney up to the largest for which it is designed. Write for folder.
Sterling Foundry Co.
8 Ave. A.
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RO-SAN Indoor Closet

The original chemical closet. More comfortable, healthful, convenient. Takes the place of all outdoor toilets, where germs breed. No power for the long, cold winter. Have a warm, sanitary, comfortable, odorless toilet right in the house. Usage is unlimited and cost is negligible. A boon to invalids.

GUARANTEED ODORLESS

This ad running all over the country. Cash in on it.

Build Lightning-Proof and make $20.00 Extra Profit!

When you build a house or a barn why should you have the easiest profit on the whole job for the lightning rod agent? There's a handsome profit in selling Lightning Rod and someone is going to come right behind you and put rods on every building you erect—unless you do it yourself.

You're the logical man to do the job

You have the builder's confidence, and in most cases the builder only mentions rods to get the contract. He'd rather have you rod his building than a stranger, because he knows it's a particular job. Your profit will come from $20.00 to $50.00 per year on the same rod you install. Let us tell you more about our money-making, profit-sharing proposition.

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THE easiest and quickest way of repairing leaks in radiators, pumps, water jackets, motor head gaskets, hose connections, etc., is to use Johnson's Radiator Cement. This will stop the leaks in just a few minutes without laying up the car. No mechanical experience is required—all you have to do is remove the cap and pour the cement into the radiator.

JOHNSON'S RADIATOR CEMENT
Quick—Efficient—Harmless

Johnson's Radiator Cement contains no powders, cement or anything which can coat or clog the cooling system, and is absolutely harmless in every respect. It will ordinarily seal a leak in from two to ten minutes.

Johnson's Radiator Cement blends perfectly with the water until it reaches the leaks—just as soon as it comes in contact with the air it forms a hard, tough, pressure-resisting substance which is insoluble in water making a permanent seal.

Quarts...$1.75
Pints...$1.00
Half-Pints...$0.65

Write for our folder on "Keeping Your Car Young"—it's free.

If your dealer cannot supply you, use attached coupon.

S. C. JOHNSON & SON, Dept. AGB 12
Racine, Wis.

We Have Some Excellent Territory Still Open

and a good agency proposition for the largest and most complete line of Order-Made Window and Door SCREENS on the market. We supply you with a complete agent's outfit consisting of models, contract blanks, advertising matter, etc. We give exclusive agencies to once who make good. No regular agencies established in towns less than 10,000 population. This is a splendid opportunity for carpenters, contractors, builders and material dealers. Write now—address:

STANDARD SCREEN COMPANY
1848-58 Hastings Street, Chicago, Illinois
Milk is an "essential" of life. More milk is the imperative need and demand. More and better dairy barns are absolutely necessary—for better dairy barns result in more and better milk. That's why there should be a great increase in better dairy barn building.

Why not get your share of the contracts for these barns?

We are in position to help you do this very thing.

Write Us For A Free Copy Of That Famous Book "The Jamesway"

When writing send us the names of farmers who are thinking of building or remodeling barns and give us the size of their herds. We will send advertising literature to those farmers which will bring their building contracts into your hands. Co-operate with us and you will make more money.

JAMES MANUFACTURING CO.,
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DENISON
Hollow Clay Tile

DENISON TILE is being used by the United States Government for military construction work at Little Rock, Ark., Tishomingo, Okla., and Iowa City, Iowa, and has been accepted for use in buildings to be erected at other points. It has met the Government requirements and it will meet yours.

There is a great demand for permanent construction on the farm. The advantages of DENISON HOLLOW TILE are its low first cost, handsome appearance, durability, fire resistance and economical upkeep.

Contractors and Builders: You will make a nice profit on this type of construction and be assured of a satisfied, well pleased owner.

Write us for prices at your nearest shipping point.

Mason City Brick & Tile Co.
900 West Eighth Street
Mason City, Iowa

BADGER SHEET METAL PRODUCTS

We manufacture Cornices, Skylights, Ventilators, Tanks, Hog Troughs, Roofings and Sidings, etc.

Write for free catalog

BADGER CORRUGATING CO., La Crosse, Wisconsin

RESULTS THAT COUNT

Profits Sure

TIP TOP (roof) Ventilators and More Sun (hog house) Windows directly increase food production and insulate greater profits for sellers and users.

It is impossible to get these results without proper ventilation and sunlight.

Dealers and contractors should write today for our plan of cooperation.

Anderson Mfg. Co., Des Moines, Iowa

The Test
(U.S. Government Requirements)

The 24 inch "Globe" Ventilator with 6 inch outlet shows a velocity of more than 460 linear feet of air per minute with an outside wind velocity of 5 miles per hour, when the exterior and interior temperature shows a difference of 40 degrees F., the Government requirements for ventilators. Test made on actual installation.

Department F
GLOBE VENTILATOR CO.
TROY, N. Y.

ChieF All-Steel Cupola

New-improved, scientifically designed ventilating cupola for all buildings. Up-to-date in design, material and construction. Designed and built on hundred of farm. Made of heavy galvanized steel. Can't rust, rot, or blow off. Absolutely storm-proof and bird-proof property.

Easy to Install—Sure to Please Your Customers
Chief Cupolas saves time and labor installing—base bolts directly to roof and cupola bolts to the base. Only six bolts needed. Meets all requirements—insures adequate ventilation—satisfaction all users. Write for descriptive, prices, etc.

Shrager & Johnson Co.
430 Walnut Street, Atlantic, Iowa

There's More Profit for You in O K Cupolas

Equip the barns you build with this modern ventilating device and thus build your reputation and good will for the future. Also you make more profit on the present jobs. Owners realize the importance of good ventilation, and every O K Cupola owner boosts for you.

O K Cupolas solve the barn ventilation. They sell themselves. Are made of heavy galvanized steel; bird, storm, rot and rust proof. Never to be apprehended. Are easy to erect—shipped ready to install. Farmers want them. You cash in big by supplying this necessity.

Write for full particulars and our special discount to builders and contractors where we are not represented.

Philip Bernard Co.
2402 Floyd Ave., Sioux City, la.
Timely Advice to Young Builders
Just Starting Out
(Continued from page 120.)

he does. On the other hand, if he proves to be a good prospect he should approach him and ask him in a business-like way for an opportunity to figure with him, and if he seems interested offer to sketch up some floor plans. If he succeeds in this he should then take his estimating sheet and make up an approximate estimate of the cost and get any other information which his prospective client may want to know. If he succeeds in making a good impression on his client in this respect he should then refer him to some good architect; if the work is of some consequence, and state particularly the necessity of complete plans and specifications. Unless he is fairly able to do this work himself and the prospective client does not care to secure an architect’s services, he is likely to lay up trouble for himself later. If he is able to draw up a fair set of plans and specifications and they are satisfactory he should have a distinct understanding with his client that he is to do the work, otherwise he will most likely be very much chagrined to learn that he has spent much valuable time for nothing and perhaps be laughed at for being such an easy mark.

If the client does get an architect the young contractor should get in touch with the architect either by letter, or better still, make a short visit to his office and introduce himself.

The next thing is submitting the bid. He should not be in too much of a hurry to put in his bid first. It would be only fair to ask who his competitors will be, and this information is generally given. He should go over his estimate at least three times before submitting it and write it out in a business-like way and, if possible, have a set time arranged for the bids to be in with the privilege of being present when they are opened. If he prefers to open them at his own will it would be well to reserve his bid until it is called for and insist on it being opened at once and ask for a statement as to the chances of securing the job. The contractor can generally tell by the answer he gets as to whether he is to be favored with the job, and if his client uses the words, “I’ll let you know,” he might as well shake hands with him and thank him for the privilege of figuring with him and take his leave and look for another prospect.

I will now give a general description of the prospective clients he will likely meet sooner or later. I would divide them in three classes. First, are those who act perfectly honorable in every way and usually let their work at a price asked and who appreciate the good intentions of the “square deal” contractor and try to make their business relations with him as pleasant as possible. I am sorry to say that this class is only met with about once in twenty times. Second,
Go Carefully Into, the Comparative Cost of Sheldon's Slates and Artificial Roofings

You will find that you can have an attractive roof of SHELDON'S SLATES at the cost of a flimsy artificial roof. And the first cost will be the only cost—there will be no renewing, repairing or repainting.

Ask for Interesting Booklet "The Roof of Eternal Youth" Fully Describing Sheldon's Slates.

Roofers: You can make more money laying Sheldon's Slates. Write, F. C. Sheldon Slate Company, Granville, N. Y.

MANUFACTURERS OF ROOFING SLATES OF QUALITY

MOTTLED GREEN—PURPLE—WEATHERING GREEN UNFADING GREEN—MAMMOTH YEIN POULTNEY SEA GREEN GENUINE BANGOR—OUR CELEBRATED BANGOR UNION QUARRY BLACKBOARDS—STRUCTURAL SLATE SLATER'S TOOLS—MACHINES & SUPPLIES

We furnish SLATES OF QUALITY in random widths, graduated thicknesses and in one or varied colors. SEE SWEET'S CATALOGUE.

THE AULD & CONGER CO.

DON'T BE SHORT ON HEAD WORK

Try out the “Vendor” service. You will find it prompt and efficient in every way. We carry immense stocks on our quarry banks at all times and make promptness a cardinal virtue. Over forty of the leading quarries in the Pennsylvania slate regions make this service possible. And you get exactly what you order, too.

We have some open territory. Write for our proposition.

Uncle Sam knows "Vendor" service. That's why the Government uses such quantities of our Roofing Slate.

THE PHILIP CAREY CO.

136 Wayne Ave., Lockland, Cincinnati, O.
The good builder makes a real gain by insisting that his wallboard shall have this trade-mark on the back of every panel. Then he has a wallboard that can be relied upon, the wallboard that stands up even under unusual conditions—the only wallboard with the moisture-repellent Black Centre—the wallboard whose quality helps good workmanship in every step of the job.

If you don't know the Black Rock Dealer nearest you, write us.

BLACK ROCK WALLBOARD CO.
1505 Ontario Place
BLACK ROCK, N. Y.

The material from which it is made, the fact that the pulp is chemically cleansed and that the fibre lengths give the finished product that natural reinforcement that is lacking in ground wood boards, is in itself a guarantee of the superiority of Fiberlic from strong, permanent, economical and sanitary construction.

McAndrews & Forbes Company
200 Fifth Avenue, New York City
Factory: Camden, N. J.

Keeping the Shop Running in the Winter
(Continued from page 35.)
nailed on each side, which in turn slides on the cleat attached to uprights, as illustration plainly shows, and if finished up nicely in antique brown will show off fruit better than having the same around all over the store.

A proposition placed in the right way to the grocer will, nine times out of ten, land an order from one to a dozen of either the one kind or the other for fruit display purposes.

These foregoing few illustrations only go to show that an endless variety of novel necessities for which a demand really exists can easily be made at a good profit by the carpenter during an otherwise dull season, when often there is hard picking in keeping the small shop a-going, and thus turn an apparently dull part of the season into a profitable one for the wide-awake carpenter-contractor who caters to things of necessity which are not overdone.

Storage of Soft Coal
Fire Hazards Which Should Be Carefully Watched By Property Owners

Large quantities of soft coal are being stored by mercantile establishments and industries because of the fear of a fuel shortage during the winter. The danger of spontaneous combustion in this causes a serious fire hazard, and unusual care should be exercised by the owners of such properties. The hazard can be reduced by proper selection of the grades and sizes of soft coal, and the exercise of proper precautions in its handling and storage.

Where large quantities of soft coal are stored in the open it should be in separate piles, so that a fire starting will not spread thru the entire supply, and the affected pile can be extinguished or moved. Where the coal is stored in basements the Fuel Administration suggests the following precautions:

1. Coal the size of a walnut or larger is well adapted for storing. Mine run, slack or screenings, on account of fine coal and dust, are not suited for storage in a basement.
2. Never place coal near a hot pipe, against a hot furnace or any other hot surface.
3. Do not mix ashes with the coal, as there may be live coals in the ashes.
4. If coal must be wet down, wet only the portion that is to be used immediately.
5. It is very important that pieces of waste, oily rags, sticks, paper and other rubbish should not be mixed, or allowed to come in contact with the coal.
6. Special attention should be paid to the proper cleaning of flues and chimneys regularly.

Death of Ford C. Bowman

The Philip Carey Co. has suffered a great loss in the death of Ford C. Bowman, manager of their waterproofing department on Saturday, Oct. 26, 1918, of influenza-pneumonia. Every attention medical science could afford was given without avail.

Mr. Bowman came to this company from Purdue University nearly eight years ago, and by intelligent, devoted work established himself as a most valuable member of the institution. Mrs. Bowman and a little son survive. The interment took place at Madison, Ind., Mr. Bowman's boyhood home.
You're the man
who can make offices and factories
more comfortable, warm for this
winter.
For you are the man who can put in

**Plastergon Wall-Board**

The hard, stiff, water-proof Plastergon Wall-Board, by shutting out the cold far more than sieve-like plaster, also does the patriotic work of saving coal. Different from any other wall-board. Don’t forget that! Chemically saturated.

*Why don't you do now what the Government did before using Plastergon Wall-Board in ninety per cent of the new Washington buildings. Find out the difference.*

Write for Free sample of Plastergon Wall-Board and Builders' Book

Plastergon Wall-Board Company
201-207 Philadelphia Avenue
Buffalo, N. Y.

Hidden Strength

That smooth outside fibre covers a wood core that puts

**Compo-Board**

in a class by itself for **strength, rigidity and toughness**. Compo-Board walls won’t warp, shrink, chip, crack or mar with the knocks of furniture. They keep out heat, cold and moisture.

It’s a “right hand” material for any carpenter.

There are 1001 jobs that can be done with Compo-Board more satisfactorily, quicker and with less muss, fuss and worry.

Compo-Board is the only wall board with the wood core. Sold in strips 4 feet wide by 1 to 18 feet long by dealers everywhere.

Send For Sample and Interesting Booklet

The Compo-Board Co.
5777 Lyndale Ave. N.,
MINNEAPOLIS - MINNESOTA

Carpenters get what’s coming to you!

You can do the wall finishing that plasterer’s once did and make money out of

**Carey Wall Board**

EVERY job is a bigger job for you if you put on the wall finishing. Carey Wallboard is better for the owner, doesn’t warp, never cracks, easy to decorate artistically. There are many attics you might finish in odd times if you’ll just speak to the owners. Write

THE PHILIP CAREY COMPANY
1021 Wayne Ave., Lockland, Cincinnati, Ohio
Good Roads a National Necessity After the War

By G. A. Kissel
President, Kissel Motor Car Co.

Without a doubt, every city or town has had brought home to it the value of good roads, and improved highways. Since the United States entered the war, the railroads have been gradually devoting more and more of their equipment to government requirements, thus leaving millions of tons of goods and supplies for home consumption to be transported and delivered as best it can. Thus cities whose highway commissioners had the foresight to put thru good-roads measures and see that they were carried thru, had little or no difficulty in coping with these unexpected transportation problems. In such localities the motor truck took up the transportation problems, with no loss of time and with a delivery and haulage expense that was not any greater than the rates paid the railroads, if not lower.

But it is those cities and towns who have let the good-roads problems go by, who have paid no attention to them, that are facing acute haulage problems. These are the municipalities whose merchants have great difficulties in keeping their shelves full; of being able to supply the ordinary wants and necessities of their trade. These are the municipalities which all of a sudden were shut off from the source of supply, and as a result have to pay higher prices for goods on account of the increased cost of transporting them to the points of distribution.

The United States has been in the war for over a year, and it would seem that every municipality would have by this time realized the necessity of building good roads to meet the future transportation demands of their respective localities. It was thought at one time that the railroads, after getting from under the first onslaught of government requirements, would be able to resume handling of local freight shipments destined for home consumption, but time has proven that such is not the case. With every increase in railroad equipment which factories have been able to build, a corresponding increase in goods to be shipped has been found to be the case in every part of the country.

Hence the bad roads municipality has had to struggle along, its merchants and business men paying increased expenses, which in the end is generally borne by the consumer and taxpayer.

With the possibility of this uncertainty on the part of the railroads extending well into the future, it is my opinion that every state should follow the example of that of Illinois in making plans for good roads to be constructed immediately. Illinois intends to build sixty millions of dollars' worth of good roads. It is estimated that the principal and interest of this sixty-million-dollar bond issue will be paid in twenty-five years by the constantly accumulating automobile license fees in the state treasurer's hands. Already there is more than $2,500,000 available.

Such a plan insures the kind of highways and byways that permit economical transportation of goods by motor trucks after the war, and at a time when undoubtedly the entire reconstructive efforts of the United States will be concentrated on devastated Europe.

Other good points about such a plan are that it will throw open jobs for thousands of returned soldiers, engineers, (Continued to page 128.)
AYONNE is specified by leading architects because it has proved to be the ideal covering for low-pitch or flat roofs, verandas, sleeping porches, sun parlors, conservatories and all floors exposed to the weather or to constant wear.

The Chas. DeJong Building Company, of Paterson, N.J., writes: "We have been using Bayonne for the last four years, and recommend it most highly, as it has proved satisfactory in every instance."

Bayonne outwears other materials of its kind, is laid on dry boards (an easy and inexpensive job), and is painted afterwards—any color desired. It is absolutely waterproof, cannot crack or buckle, and is perfectly fire-proof and square. It is kept clean by sluicing with water. A Bayonne Roof or Deck never leaks.

Our Free Sample Book "N" shows texture and gloss prices and directions for laying. Write for it today.

JOHN BOYLE & Co., Inc.
112-114 Duane Street, 70-72 Reade Street, New York City
St. Louis Branch—202-204 Market Street

Remodel with Stucco

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CONSTRUCTION MATERIALS CO.
133 W. Washington St., Chicago

Concrete Wood-Board

For war-time repair and alteration work, show your customers that Cornell-Wood-Board is unequalled. Will not warp, crack, chip or buckle and nails directly to the framework or over the old walls. Easiest fast, cold and moisture and is ideally adapted for the walls and ceilings of Homes, Garages, St-re, Offices, Farm Buildings, Industrial Housing, Cantonments, etc. Increase business and make friends by recommending Cornell-Wood-Board.

Write for Free Samples, sent on request
Cornell Wood Products Co. 172-175 W. Jackson Blvd., Dept. 1010 CHICAGO

Nearly Twice as Strong as Other Wall Boards!

AMERICA'S ALL-PURPOSE Other Wall Boards!

There are a set of "beautiful birch" panels (all in different finishes) and a Birch book ready for you. Write today for them. Our advertisements are telling millions to use "beautiful birch" for trim, doors, floors and furniture. And many are doing so.

Be prepared to talk birch when they come to you.

NORTHERNHEMLOCK & HARDWOOD Mfrs. ASSN.
501 F. R. A. Bldg. Oshkosh, Wis.
HELP WIN THE WAR—by steady work—full time—six days a week.  
Secretary of Labor.

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CARPENTRY  
AND  
CONTRACTING

5 volumes, each 5½ x 8¼ inches; bound in American Morocco; flexible, handy style; 2132 pages and more than 400 illustrations, plans, blue prints and diagrams.

This 5-volume Cyclopaedia of Carpentry and Contracting is the very latest—most complete—most practical work of its kind ever published. It covers everything you need to know about carpentry and the contracting business—it explains every problem, great or small—every modern approved method gathered from hundreds of different sources.

The combined work of 25 well known men, each an expert in his own particular field, is what this cyclopaedia gives you. Every detail of construction is discussed thoroughly from the beginning of the plans to the finished building—from humble cottages to the large, modern, fire-proof structures.

No man engaged as a carpenter or interested in the building and contracting business can afford to do without these books. They will create a new earning power in you and in every man from the carpenter's helper to the head of the business. Every chapter will give you a world of valuable information that you could not get only with years of experience before. Besides this, a year's consulting service in the American Technical Society is yours FREE.

What the Books Contain

and every one of these subjects is divided into all of its possible classifications and treated separately in detail. There are 74 pages on STEAIR BUILDING alone, covering 24 different propositions. There are 30 pages on BLUE PRINT READING giving the latest up-to-the-minute information and instruction for reading all the different kinds and an expert analysis of 25 different kinds of plans. 400 pages devoted to BUILDING SUPERINTENDENCE, divided into 16 different sections.

Carpentry including everything from the raw timber and tools to the trimming and turning over to the owner. Dominates the square—Finger Nails and Nailing, Wood Frame Construction, Wood Molding and Mouldings, Wood Coat and Turnings, Wood Furniture, Wood Work.


Free Consulting Service

With these books goes free all charge $12.00 Consulting Membership. If any question puzzles you—write us. Our corps of experts and engineers will solve any problem. Ask all the questions you want for a whole year. This service is absolutely FREE.

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AMERICAN TECHNICAL SOCIETY  
Dept. CC-1829  
Chicago, Ill. S. A.

AMERICAN TECHNICAL SOCIETY, Dept. CC-1829, Chicago, Ill. S. A.

Please send me the 5-volume Cyclopaedia of Carpentry and Contracting, shipping charges included. I will send you $2.00 in 7 days and $2.00 each month until the special price of $17.50 is paid, and you will send me a receipt showing the books are mine. If I decide not to buy I will return the books in 7 days.

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Address________________________
Reference________________________

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Good Roads a National Necessity  
After the War  
(Continued from page 126.)

office men, mechanics, expert road men, and workmen of every caliber. These men will have returned from "over there," where they have had the best experience in this kind of work, and without a doubt these men will represent the highest developed specialists in work of this character, and as a result their work should be of the highest character and rebound to the credit of the cities employing them.

I understand that recently the Minnesota goodroads leaders have started a plan or program along this line for their cities, and undoubtedly the Central West states will soon be a network of improved highways, permitting uninterrupted and economical travel and traffic by motor car and motor trucks.

One of the great lessons at home which the great war will teach us is that of good roads. Ask any of the soldiers from "over there" when they return how they found the roads and highways of Europe, and ask especially those engineers and members of the motor corps what, in their estimation, was one of the greatest advantages the Allies had in the transportation of food and supplies, and they will state that outside of a never-ceasing flow of motor trucks and equipment, the excellent highways and roads permitted the uninterrupted use of this equipment. I believe it is up to us to take this lesson to heart and apply it while we have time.

Liberty Bonds to Rebuild Wounded Soldiers and Sailors  
(Continued from Page 57.)

The United States Government is resolved to do its best to restore every wounded American soldier and sailor to health, strength and self-supporting activity.

Every Liberty Bond holder who holds his bond is keeping up a part of this great work of restoring to health, strength and usefulness the men who have suffered for their country.

Until his discharge from the hospital, all the medical and surgical treatment necessary to restore him to health is under the jurisdiction of the military or naval authorities, according to the branch of the service he is in. The vocational training, re-education and rehabilitation necessary to restore him to self-supporting activity is under the jurisdiction of the Federal Board for Vocational Education.

If he needs an artificial limb or mechanical appliance, the Government will supply it free, will keep it in repair, and renew it when necessary. If after his discharge he again needs medical treatment on account of his disability, the Government will supply it free. While he is in the hospital and while in training afterwards the soldier or sailor will receive compensation as if in service and his family or dependents will receive their allotment.

A wounded soldier or sailor, altho his disability does not prevent him from returning to employment without training, can take a course of vocational training free of cost and the compensation provided by the war risk insurance act will be paid to him and the training will be free, but no allotment will be paid to his family.

Relation of Hip to Common Rafter  
(Continued from Page 57.)

8 inches square. The 3½ inches difference represents the 5/12 gain that the run of the hip has over that for the common rafter. The deduction for the ridge piece is obtained in the same manner as before mentioned for the common rafter; but in this, one-half of the diagonal thickness of the ridge piece should be allowed for instead of one-half of its thickness.
STEEL cannot absorb dampness, gases or odors. It cannot crumble, crack or flake off. Its dense surface does not soil easily—is easily cleaned.

"Classiks" offer no harbor for disease, germs or contamination.

Painted in the popular flat tones, they are beautiful as well as sanitary, safe and permanent.

They are ideal for hospitals, schools, churches, homes, in fact for any room in which people live and work.

See Sweet's and send for Design Catalog D-3

The Berger Mfg. Company, Canton, Ohio
Branches: Boston, New York, Philadelphia, Chicago, St. Louis, Minneapolis, San Francisco. Export Dept.: Berger Bldg., New York City

Put Huther Tools on your saw rig!

THEY are guaranteed to do your work satisfactorily and will more than double the output of your saw rig. In order that you may prove to yourself the value of Huther tools, we will ship them to you, on ten days' free trial at our expense.

The Huther Dado Head can be used on any ordinary saw arbor and cuts any width groove from \( \frac{3}{8} \) to 2 inches or over.

The outside cutters can be used singly, together or in connection with as many inside cutters as the cut requires.

The Huther Cutter Head is a valuable tool for jointing or sticking moldings for sash, stops, etc.

It is made of steel and can be used on any ordinary arbor. Knives adjusted to gauge by headless screws and securely fastened by hexagon bolt head.

If you are interested in making your saw rig more valuable, write for prices and catalog 38

1101 University Ave.
Rochester, N. Y.

Cuts perfect grooves of any width either with or across the grain.

Grooves cut with Huther Dado Head.

SEND TODAY FOR CATALOG NO. 38

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Housing Big Problem in Britain, France
By S. J. Duncan-Clark,
In the Chicago Evening Post

Both in Great Britain and in France the housing problem is one of the most serious questions to be faced in the reconstruction period. In the four years of war there has been practically no new buildings and very little repairs. The cities and towns of France and England give evidence of the necessary neglect of property. Labor and material have been diverted to the one supreme task. Even the single shell hole in the roof of Amiens cathedral had not been touched, altho weeks had elapsed since the Germans withdrew their guns many miles to the east.

Before the war the number of persons in England and Wales living more than two to a room was 3,139,472. This conclusion, paralleled in Scotland, was then regarded as serious and reflection upon the social standards of the nation.

It is estimated that four years of war have resulted in an actual deficit in the normal increase of dwellings amounting to nearly 500,000.

These figures represent a very definite phase of the problem confronting the ministry of reconstruction. In order to maintain the unsatisfactory standards that existed prior to the war a systematic effort must be made to wipe out the deficit in as short a time as possible.

The problem is further complicated by the fact that wartime legislation forbade any increase in rents for the duration of the war and six months thereafter. Obviously when this restriction expires there will be an immediate increase in rents, to the serious hardship of thousands of tenants, unless further legislative action is taken to restrain landlords. On the other hand, if the restraint is continued private enterprise in the construction of buildings will be discouraged.

Hence it has been recommended by experts of the ministry of reconstruction that the government should co-operate directly with county and municipal authorities in the erection of dwellings suitable for wage-earners and people of small means. Encouragement will be given local public utility societies—better known in America as improvement societies—or associations—and to private enterprise, but the main reliance will be put on public work under the supervision of the central government and carried out by local authorities.

Ventilation Prevents Spontaneous Combustion
(Continued from page 78.)

it did not do away with the conditions which caused them. And unquestionably they would lessen in some degree the danger of fire from spontaneous combustion.

Fire from lightning stroke is another fairly serious menace which is practically eliminated by proper ventilation.

Lightning is known to be attracted by dead air space, where air pressure is lower than elsewhere. Circulating air means uniform air pressure. Stagnant air means lowered air pressure. That's the reason it's usually the barn and not the house that suffers from lightning stroke. Give your barn the same relatively efficient ventilation for its large number of cows that you give your house for its small number of humans and the chances of lightning striking your barn will be no greater than the chances of its striking your house.
Paint

DEVOE Paint

Guarantee formula on every can

DEVOE & RAYNOLDS CO., Inc.
New York—Chicago

Half the paint—Half the labor
when you use

Weatherwax

You can apply Weatherwax in winter. Snow or rain won't cause fresh coats to pit or run. Dries quicker, spreads twice as fast and twice as far as best linseed oil paints. Slaps on like whitewash—or sprays on. Fewer costs needed. Leaves a flat, waxy surface without brush marks.

A BIG SAMPLE CAN for 50c. Red, Maroon, Dark Brown, Natural Brown and Black

THE REILLY COMPANY, Indianapolis, Ind.
Plants: Indianapolis Minneapolis Seattle Mobile Norfolk

CALCIMINES

AND WATER PAINTS

These materials are so much cheaper than wall paper and oil paints, and are so much better than lime wash that every wide-awake builder and owner should investigate them fully, learn which are the most practical, and find out how much they will help to reduce costs.

Calcimines are glutinous compositions intended for decorating ceilings and walls of residences, offices, schools, churches, theatres. The best are called MURALITE and CALCITINE.

Water Paints are caseinous compositions intended for whitening ceilings and walls of factories, mills, sheds, garages. The best are called PERMANITE.

Our products are more practical than any similar ones on the market, and are sure to please you.

Send for descriptive cards and prices

M. EWING FOX COMPANY
Manufacturers
240 East 136th St. 1501 So. Pecora St.
NEW YORK CHICAGO, ILL.
The Logical SILO Proposition for the Lumber Dealer

The lumber dealer never had a better opportunity to sell finished lumber than is offered with Tecktonius Silo Fixtures. They enable you to sell thousands of silo staves, make a substantial profit and build a wonderful reputation as the leading silo dealer in your community.

We sell the fixtures only. You buy your staves direct from the mill, thus saving freight. With the superior construction features of Tecktonius Silo Fixtures you give the farmer a better silo for less money.

Tecktonius Silo Fixtures possess exclusive features which the farmer has been looking for and which make easy sales for the dealer.

Equipped with the famous Tecktonius perfect fitting hinged doors, the renowned Tecktonius Self Adjusting, Straight Pull Lug which automatically cares for all contraction and expansion, the incomparable Tecktonius Anchorage System which constantly grips silo in a vice of rigidity at three vital points—top, base and middle.

Five Year Guarantee

What others claim for their silo fixtures, Tecktonius backs with an iron bound guarantee. All experiments are thus eliminated and risks avoided.

Send for our comprehensive book “Cashing In On Silos” and get the greatest silo proposition ever offered.


RACINE, WISCONSIN

Forehanded Income Tax Financing

Federal income and profits taxes for 1919 under the new Revenue Act will amount to $6,000,000,000. The first third of these taxes will be due and payable March 15, 1919. These taxes must be paid in cash. If no advance preparations were made to provide means of payment, the strain on the banking and business credits of the country, might lead to embarrassing results.

To avoid this the U. S. Treasury has provided a method whereby all tax payers may supply themselves in advance with a medium of meeting the March 15 installment of the Federal Revenue payment, without resort to credit at that time.

This is done by offering 4½ per cent Tax Anticipation Certificates, a direct obligation of the United States Treasury, dated Nov 7, and maturing March 15.

The banks and all private investors having funds in hand at the present moment may employ them with absolute freedom from risk or commercial uncertainty by buying these Government Tax Anticipation Series “T.” By doing so cash which might otherwise be idle, “waiting for conditions to settle down,” may be put to work for the government. Current funds are needed to carry on the demobilization operations following the armistice. There is no way to obtain this money except by “borrowing against the taxes” to be collected in 1919. This is done by the issue of these Tax Anticipations.

When March 15 rolls around the holder of Series “T” need not borrow money at his bank to pay his Federal taxes. He has on hand maturing certificates which the government will accept at their face. Best of all the tax payer has been receiving Treasury checks for interest during the interim between purchase and maturity.

The Treasury reserves the right to allot all subscriptions for Series “T” or to reduce subscriptions. No fixed amount is prescribed for the issue.

To avoid high interest rates next March when taxes fall due, all corporations and individuals liable for Federal tax payments should purchase these Tax Anticipation certificates. It is a patriotic duty and it is good business.

Remodeling Country Schools for Better Lighting

(Continued from page 56.)

Wisconsin school is the most efficient where it is necessary to cling to the one-room school house, and where the small school house is giving way to the consolidated school you will find the city schools being used as a model, carrying out essentially the same idea as originally constructed as Wisconsin schools.

It is not necessary to demolish the old school house in order to carry out the Wisconsin idea of lighting. The writer has seen several of the old-fashioned school houses which have lately been remodeled to conform to this idea of construction which were as good and as successful as those schools which were originally constructed as Wisconsin schools. All that is necessary is to cut out windows on one side of the room and to stop up all other openings. The plan is a success because it achieves that which it was intended to achieve, namely, to properly light the one-room school house.
“No-Sag”

Stamped on Each Door

Dealers: If our salesman has not called on you ask for catalog of our line of “No-Sag” Screen Doors. Stock up now for spring delivery. No better screen doors are made than those bearing the “No-Sag” trademark. Its metal brace secures great strength and rigidity.

The Better Screen Door

Why Not?

Contractors: Your clients will appreciate “No-Sag” Screen Doors. Get in touch with your dealer and let him show you their superior merit. If he does not carry “No-Sag” Screen Doors, write us for catalog and prices. We have several desirable styles.

Sole Manufacturers

Cadillac Lumber Co.

CADILLAC, MICH.

Buckeye Barn Equipment

Now is the time to make every effort for increased production—increase the food supply—eliminate all extra labor! You can help accomplish all these things if you install Buckeye Barn Equipment.

Oak Floors “America’s Best Flooring”

Always attracts a better class of buyers or tenants and invariably increases the selling and renting values. This is a proven fact. Oak Floors are made in 1½ inch and ¾ inch thicknesses and in four grades. ½ inch is used very extensively and economically over old pine floors in remodeling old houses. Carpenters and builders during dull periods find ½ inch Oak Flooring as a very profitable venture and business getter to lay over old pine floors in old houses. ¾ inch Oak Flooring is very beautiful, durable and economical. The modern woman wants Oak Floors because they simplify house cleaning and housekeeping by being the ideal floor for the home.

Chief Metal Building Corners

Warp-Proof—Rust-Proof—Fit Anywhere

They make a corner with the smoothness and neat appearance of a “mitred corner” and save the time and labor of beveling down the siding. Made of heavy galvanized steel. Fit any corner—inside or outside and make a smooth corner that does not hold dust or moisture. Cannot warp or crack, split, and prevents warping of the siding.

Chief Corners protect buildings from injury and are practically indestructible. Furnished ready perforated for nailing to the siding. Put up easily and quickly. Can be painted any color or let unpainted as desired.

Write for free sample and full information

SHRAUGER & JOHNSON 430 Walnut St. ATLANTIC, IOWA

When Writing Advertisers Please Mention the American Builder
Working Instructions for a "Different" Cedar Chest

(Continued from page 58.)

be tensioned accordingly. Locate mortises so that inside face of door strip will "line up vertically" with outside front edge of bottom board. Glue door strip in position.

Cut off ends and dress off edges of drawer fronts to fit their respective places. Rabbet ends of front pieces to receive side pieces, as shown on (Section G), and groove inside face of same to receive bottoms. (See Section J.)

Groove inside face of side pieces to receive bottoms and end pieces, as shown on (Section L) and (Section D), respectively. Groove outside faces of side pieces, as shown on (Section L), to comply in position with position of their respective runners, allowing about 1/16 inch space between side pieces.

After cutting end pieces to proper length and dressing edges of drawer bottoms to fit readily into grooves provided for them, the fronts, side pieces and ends may be glued and nailed together and bottoms secured by nailing same to end pieces, as indicated on (Section K).

Round the edges of border strips and glue and nail same to top piece, as shown on (Section I), mitering the strips at the corners, as shown on (Section AA).

Nail and glue top to ends and back piece, also securing door strip to top, as shown on (Section I) and (Section H), allowing the required projection on all sides.

Nail the door strips in place, as shown on (Section I) and (Section F).

Fit the door in place and hinge same at bottom to swing out, as indicated in dotted lines on Section BB. Provide door with lock such as supplied by the trade for this purpose.

Clean up surfaces where necessary with No. 00 sandpaper, set all exposed nail heads and remove all glue from surfaces to finished, as well as other remaining surplus glue.

Before finishing, putty up all nail holes and other chemicals. Drawer fronts and inside of door should be finished the same as the outside of the chest.

For the finish, apply one thin coat of shellac, sand lightly with worn sandpaper of No. 00 grade and apply two coats of flat varnish, for a flat finish or two coats of gloss varnish for a polished finish, as desired. Sandpaper surfaces lightly between coats of varnish with worn sandpaper of No. 00 grade.

After finish is perfectly dry, apply the 3-inch copper straps, with round-headed brass tacks, returning ends of straps under bottom edges of border strips, as shown on (Sections I and H). Fine brads may be used to stay the strap ends if necessary. The strap on center of door is supplied with keyhole. Same is cut out roughly with a fine chisel and finished up with a rat-tail file.

ORDER NOW and be SURE of HAVING YOUR HAULING EQUIPMENT READY for THE SPRING RUSH

A Complete Outfit to Haul 1 Ton

for $500.00

Think of it ! ! !— Only $500.00 ! ! !

This new Martin semi-trailer costs $250.00

This slightly-used Ford Car costs $250.00

$500.00

A Martin Semi-Trailer and a Ford Make the Lowest Priced and Most Efficient One-Ton Truck in the Entire Commercial Car Field

With a Martin Semi-Trailer, a Ford Car Can Easily PULL a Ton Without the Least Strain on the Driving Mechanism. Can be backed, turned and handled in the narrowest quarters.

(The reason why this is possible is fully explained in a catalog which will be sent on request)

We Have Trailer Equipment to Haul Loads from One to Ten Tons

Write for Full Information

MARTIN ROCKING FIFTH WHEEL CO., Springfield, Mass'
NILES ADJUSTABLE HARNESS HANGER

The Latest and Most Meritorious Invention Ever Added to Barn Equipment

CARPENTERS • BUILDERS

Can make big profits installing the "NILES ADJUSTABLE" in the barns you have built and the ones you are going to build. Thousands already in use. Not one dissatisfied user. Indestructible. Modern. The hanger that's been wanted for years. Eliminates reaching. Keeps harness up high, out of filth and danger of breakage. Pays for itself in one year. No ropes, pulleys, ratchets, bolts or pins. No. 25 Why repair the roofs and siding on buildings and then allow the doors to remain drafty and poorly hung?

Just close the locks like a pair of pliers, move it up or down, let go, it stays where you put it. Automatic and positive locking device in any position. Heavy compression spring inside tube handles weight. Oscilates in brackets. 24-inch drop. Every sale is a recommendation for others. The hanger that's building a successful future. Write at once for high class testimonials, full description and terms to agents.

NILES ADJUSTABLE HANGER CO., Fargo, N.D.

BIG MONEY MADE BY CONTRACTORS DURING THE WINTER MONTHS

Farmers can easily be sold—You can get them to use Red Rib Barn Door Hangers

They are especially adapted to the use of heavy barn doors. They are designed by experts to withstand the strain and wear brought upon barn door hangers. Consider lasting qualities, and you will find none better than the "Red Rib" Hangers. Solid, double-grooved wheel; very strong trolley; sheds water; birdproof; tandem wheel; hinge hanger; noiseless; roller bearing wheel. They are absolutely guaranteed. There is money in this proposition for you. Investigate it at your local dealers. Or, if by chance he does not carry them in stock, write for our money-making proposition to contractors and builders, and descriptive literature.

SAFETY DOOR HANGER COMPANY, Ashland, O.

Unbreakable Steel Folding Saw Vises

<table>
<thead>
<tr>
<th>Type</th>
<th>Jaw Width</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>24 in.</td>
<td>4 lbs.</td>
</tr>
<tr>
<td>Open</td>
<td>14 in.</td>
<td>2 lbs.</td>
</tr>
<tr>
<td>Folded</td>
<td>24 in.</td>
<td>$2.25 Prepaid</td>
</tr>
<tr>
<td>Folded</td>
<td>14 in.</td>
<td>$1.25 Prepaid</td>
</tr>
</tbody>
</table>

The 24 in. vise takes the full length of the saw. The 14 in. vise is required only on shift of saw.

Buckeye Manufacturing & Foundry Co.
Successors to Buckeye Saw Vise Co.
9491 Lake Avenue, Cleveland, Ohio

No Putty

Less Trouble

THE PUTTYLESS WINDOW

Left side shows lead inserted in sash and glass in position. Right side shows lead sealed down over edge of glass and glazing completed. Note its classic neatness.

FEDERAL WINDOW COMPANY
Sale Licensors for the United States
SECURITY BUILDING, MILWAUKEE, WIS.
A Money-Maker for Builders and Lumber Dealers

We furnish the fixtures only. You purchase your staves direct—save handling, freight—build up business under your own name—make all the profit—give the farmer a better silo for less money.

Selling silos built with Security Silo Fixtures is permanent, profitable business, a staple necessity that sells readily year after year. Some Security dealers have sold 20 to 50 silos yearly for last five years.

We help you with lowest silo fixture prices in the field and new selling plans that get the farmer's interest.

Security Silo Fixtures

supply the selling features that farmers want. Make silo easier to erect—simpler to handle. Superior axleless hinge door and collapse-proof anchorage. Safety ladder. Make a silo that produces best silage.

Dealers testify that they can beat all competition and prices and make good profits.

A million silos are still needed on American farms. Hundreds—thousands of dollars in profits can be made yearly with our plan and Security Fixtures.

COMPLETE DETAILS FREE
WRITE TODAY

Chicago Warehouse & Silo Fixture Co.
329 So. LaSalle St.

Chemical Closet Sewage Disposal
(Continued from page 44.)

of emptying and recharging, some months later. The cost of the chemical will average close to $1 per year per person.

While chemical closets may differ in detail, the fundamental idea is the same, viz., the disinfecting of the matter deposited therein by the action of the chemical and the prevention of all odor by the circulation of air up the vent pipe. There is no doubt that a great field exists for these fixtures in suburban communities where lack of sewers or proper city water supply renders the regular water closet impractical.

Winter No Obstacle to Rapid Factory Construction
(Continued from page 39.)

On Jan. 18 the fourth floor was ready to pour. The canvas for the third floor, as may be seen in the photograph, was still in place. But now the severe cold weather was for the time being past. New England Januarys generally have a warm spell, sometimes even a thaw, toward the later end. It then takes some time to settle down to the renewed cold spell of February and the chill winds of March. The worst was past.

Everybody had worked hard to get back to the old schedule which they had fallen three weeks behind. Form builders, steel men, and cement gang aimed at reducing the handicap against them, and caught up fast even in the coldest week. The organization had now worked itself into trim so that it formed a good team, with the gangs able to co-operate for effective work and speed. Even in the two weeks which included the coldest weather, the whole organization caught up its three weeks of behind time. On Jan. 25 they were again on schedule time, ready to pour the roof.

Probably the greatest speeding up during this time was in the pouring itself, even under the adverse conditions. Toward the end of the job the cement gang was in such good shape that though the roof had been planned to take a week in pouring, it was actually done in three days.

It was very fortunate that they had now regained

Continued to page 138.)

PAINT WITH AIR
Better Work—Cheaper

ASK

SURTY GUARD COMPANY
62 East Lake Street, CHICAGO

AIR SPRAYS AND A COMPLETE LINE OF EQUIPMENT, MACHINERY, GUARDS, ETC.
Simonds Saws on Every Job

On Every Industrial Housing Job YOU will find Simonds Saws doing their "bit." The World's Record Simonds $3.00 Saw leads them all.

Every true mechanic can judge a good saw in a minute. Simonds has passed all tests successfully. Have YOU tried one? It is an exceptional saw in all respects, proper balance, weight, temper and everything else a workman requires. Straight or sway back. 24 or 26 inches.

$3.00 buys this excellent hand saw. From your dealer or direct from us. Simonds Saws never fail. Write for our free book "Carpenter's Guide Book."

Simonds Mfg. Co. "The Saw Makers"
Fitchburg, Massachusetts
17th St. and Western Ave., CHICAGO 5 Factories and 11 Branches

Steel Brackets

Meet all your bracket needs with Reliable Folding Steel Scaffold Brackets. Used on either Stucco, Brick, or Frame. They save Time, Labor, and Trouble.

They save enough on the first job to pay for themselves. Every contractor should use them. A ten days' FREE TRIAL will convince you of their worth—it not your money will be refunded.

* Write for Catalog

Elite Manufacturing Co.
Ashland, Ohio

A.C. Chesley Co., Inc.
275 Rider Ave.
New York City, N.Y.
Winter No Obstacle To Rapid Factory Construction

(Continued from page 136.)

schedule time, for a number of heavy snow storms and blizzards now set in, and there were more delays in receipt of material. When the latter occurred the traffic man looked thru his shipment plots, found where freight should be or might be at the moment, discovered it in some side track or yard, and then did his utmost with the telephone and telegraph. Each day's progress in each kind of work on the job was plotted parallel to the original schedule on the schedule sheet. Then parts which were slightly slack were speeded up, and preparations made so far as possible by the traffic department or the various gangs to take advantage of any opportunity for getting a little ahead of schedule so as to provide for contingencies. Each morning the foremen and heads of departments looked over the schedule and knew just where everybody was today and where they might be tomorrow if they had the proper help.

By the middle of February the scaffolding and forms had been removed from part of the building, and it was ready for the facing, tho the work had been retarded by a four-day blizzard, or heavy snow storm and cyclone combined, from Feb. 12 to 16. There was another blizzard from the 26th to the 28th, but before it came the exterior of the building was all faced and complete with the windows in except in the ground floor.

It was found that no harm had resulted to the concrete by putting it in in such cold, and there has since been no reason to regret either the time of erection or the methods used in precaution. The company is ready at any time to repeat the performance in the same way if necessity calls for it.

The original contract date for completing the building, before changes had been proposed by the owners, was March 1. On March 3 the owners put the first automobile on the second floor.

The building had been completed, from foundations to occupation, in less than three winter months.

AXTELL "All Metal" WEATHER STRIPS
For bottom of doors and swinging windows. Applied in 20 minutes at 200% profit. Saves all wear on sill. Full size sample by mail for $1.00 bill.
Over a MILLION in Daily Use.
E. I. CHURCH & COMPANY
Sole Manufacturers
West Hanover, Mass

It is now so easy
for any Carpenter or Farmer to quickly construct a strong and substantial wagon bed or hay rack by using our new

Hay Rack and Wagon Bed Hardware

SEND FOR DETAILS Today Without Fail

SOLD BY LEADING DEALERS

ALLITH-PROUTY CO., Danville, Ill., U. S. A.
Chicago New York Boston Philadelphia San Francisco Los Angeles
And Representatives in All Principal Foreign Cities

PRODUCTS: Door Hangers and Tracks Fire Door Hardware
Rolling Ladders Overhead Carriers Garage Door Hardware
Spring Hinges Light Hardware

Catalogs, blue prints and special information promptly furnished
OUR ENGINEERING SERVICE IS AT YOUR DISPOSAL WHENEVER DESIRED

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Metal Weather Strip

We have in stock a complete supply of all lengths in zinc strips for sliding and casement windows, in 1", 1 3/8", 1 3/4" widths. Spring bronze in four widths.

Brass thresholds, both wide and narrow, in any length up to 12 feet.

Automatic Door Bottoms in lengths up to 54".

Copper covered felt Door Bottoms in lengths up to 60".

Nails, screws and other supplies.

Write us for samples and prices.

We can ship most sizes the same day we receive the order.

George Angell Company
400 Penobscot Building
Detroit, Mich.

Carpenters Wanted

The Henry Airtight Weather Strip for bottom of doors and side hinged windows. A perfect protection against rain, cold, snow and dust. Approved by architects, carpenters and builders wherever known. Carpenters and others are making big money selling them.

Write today for our proposition

The H. Henry Airtight Weatherstrip Co.
Crawfordsville, Indiana

The use of Airtight Weather Strips Advocated by the U.S. Fuel Administration

MAKE Hanging Storm Sash Easy, Quick Work

Done in a jiffy when your storm sash are equipped with KEEES (Gossett) Hinges. Put on in no time. No tools or ladder needed. Simple, inexpensive, satisfactory. Millions in use.

KEES (Gossett) Hinges for Storm Sash

Made of either wrought steel japanned, solid brass, solid bronze or galvanized steel—screws to frame. Our storms can be raised or lowered to suit. A great combination. Write for FREE Samples for Trial NOW! Address.


First In War—First In Peace

Just as Kissel Trucks were first in meeting the wartime demands made upon industrial America, so they are first in solving the extraordinary problems of peace times.

IT is in meeting carpenters' and builders' increased haulage demands, due to the lifting of the building ban, that Kissel Trucks give evidence of their real superiority.

The sound Kissel construction principles that proved fully equal to wartime service emergencies, and which were developed by eleven years' experience in motor truck designing and construction, will enable you to set a transportation pace now.

If you have been disappointed in being unable to buy Kissel Trucks for sometime past, see your nearest Kissel dealer today for earliest delivery.

Kissel Motor Car Company
Hartford, Wisconsin, U. S. A.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
High or Low—Up or Down

SAND'S

Plumbs and Levels Are Easily Read

No matter how they are picked up they are always in correct position for use

The reversible plumbs and levels are of double construction. The duplicate plumb glasses, one at each end, make this double reading possible, one glass proving the other for accuracy.

It is impossible to go wrong with a SANDS

They are easy to read even in dim places. All glasses are protected, also dust and waterproof. These and many other features not found in any other levels are what good carpenters, builders and contractors seek in a level. Every Sands Level embodies the experience of twenty-five years. Made of either wood or aluminum—plain or brass bound, four or six glasses, six to seventy-two inch lengths.

If you desire accurate, durable levels insist on your dealer to furnish you with a SANDS

Originators of Aluminum Levels

J. Sand & Sons

DETOIT, MICH.

Timely Advice to Young Builders Just Starting Out

(Continued from page 122.)

are those who have some knowledge of building themselves and do not hesitate to make it known and are apt to find a little fault here and there and are more or less critical of things in general, but as a whole are not a bad class to get along with. These constitute the large majority.

The third class I almost hesitate to describe. These are the fellows who will peddle the bids from one contractor to another and seem to be bent on only one thing: to catch a poor sucker who most likely will turn out to be an over-ambitious young contractor who is extremely anxious to get the job. These fellows will not hesitate to lie about the other contractors' bids, being lower than they really are and have a tricky way of getting one fellow to stake off the job or furnish the plans under the impression that he is to get the job, without, however, committing themselves definitely and then give the job to the other fellow without so much as even a “thank you.”

These fellows are the ones who will let the poor sucker get the job pretty well started and then start in to make life miserable for him by picking fault with every little thing and generally wind up the deal by forcing the contractor to collect the final payments thru a lawsuit. Sometimes the poor sucker is of such a generous nature that he submits to such treatment and does the best he can and pockets the loss and tries to forget it; but usually he gets so disgusted with the contracting business that he prefers to go back to work by the day. The fellows in this last class are not confined to any one town or locality; they are met with sooner or later by most contractors.
Importance of Farm Tenant Houses Seen

I
n many cases where calls were made in cities and towns the past year for farm labor, they were answered by married men. Their services were often rejected because the farmer was not prepared to care for a family," says a bulletin on "Tenant Houses for Farm Labor," just off the press of the Purdue University extension department.

"A large per cent of these men were born and reared on farms and would make first-class tenants. They succumbed to the lure of the city and seemingly large salaries, but found that life there is not always sunshine and roses. The lack of tenant houses forms a stumbling block in returning these men to where they may better themselves, their employers and all mankind."

"The records also show that many of the farmer-boy soldiers married just before enlisting or sailing for Europe. The farmers of this country will be called upon to provide employment for a large per cent of these men in uniform upon their return, since they will not be in a position to start farming for themselves."

Better Houses Erected

These statements show the need for tenant houses on Indiana farms (and the same is equally true of all the rest of our agricultural states), if farmers are to solve effectively the labor problem, which they face in peace time as well as during the war. Many are seeking to meet the help problem by employing married men, and to get good help and keep it the farmers throughout the state are erecting better houses for them.

The bulletin on tenant houses contains several plans which may be used for almost any condition, besides pictures, which offer many valuable suggestions to the prospective builder. Readers of THE AMERICAN BUILDER can obtain copies of a pamphlet thru county agricultural agents or by writing to Purdue University, Lafayette, Ind., for extension bulletin No. 73.

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