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Published on the first day of each month by American Carpenter and Builder Co.; Wm. A. Radford, President; E. L. Hatfield, Vice-President and General Manager; Bernard L. Johnson, Vice-President and Editor; Roland D. Radford, Secretary; S. C. Kellenberger, Dealer Service; Charles G. Peker, Eastern Editor; Delbert W. Smith, E. B. Wertfon, G. W. Eggelbode, I. M. Reden, O. H. Sutter, Cecil W. Heilman, H. H. Sessions, J. R. Dubof, Dan E. Dunn, Advertising Sales.

Publication Office: Radford Building, 1827 Prairie Ave., Chicago
Telephone: Coliseum 4770
Eastern Office, 250 Park Ave., New York City
Telephone: Vanderbilt 3183

MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS

Entered as second-class matter July 1, 1905, at the post office at Chicago, Ill., under the Act of Congress on March 2, 1879.

SUBSCRIPTION RATES—One year, United States, Canada, Mexico, and U. S. Possessions, $2.00; six months, $1.00; single copies, 35 cents. Foreign countries, $4.00.

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ADVERTISING RATES—Pamphlet on application. Advertising forms close on the 10th of the month preceding date of publication.
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MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS
In the canary colored paper section, pages 167 to 182, we present a brand new service for American Builder advertisers and readers—one of the most important and helpful we have ever offered.

“Where can I get it near home?” “Who is the dealer in my section of the country?” are questions asked every day by readers in referring to articles advertised and described in the AMERICAN BUILDER.

This Distributors’ Directory Number will go a long ways to give this information. The names of all advertisers in this issue, their addresses and products, and for many concerns the branch sales offices, warehouse stocks, retail dealers and other data are arranged in handy order for quick reference when you are in the market for supplies or information or when you want quickly to secure samples.

This Distributors' Directory will make sales more certain by lessening sales resistance. If a buyer knows where he can see the advertised products or where he can obtain them within a reasonable distance from home the sale is more than half made.

Preserve this October Directory for future use and reference all through the year. In connection with the April Green Paper Directory of Commodities this October guide makes a complete buyers’ service for builders and contractors.

A Correction

In the August issue of AMERICAN BUILDER, under the caption, “Building Industry Far Greater Than Usually Pictured,” we stated that the Dodge figures of “contracts let” omitted practically all the residential buildings erected by investment builders for resale where no contracts were required. We have since been advised by Mr. Thomas S. Holden, the able statistician for F. W. Dodge Corporation, that their figures of “contracts let” do include a large number of residential projects where there are no architects and no general contracts. The term—“contracts let”—is therefore, a trifle misleading.

Undoubtedly, the Dodge figures are as complete as they can make them; but, even with the correction in mind, the Dodge figures are far from doing justice to residential building—by far the greatest form of building activity from the standpoint of either value or volume. The Dodge figures include highways, paving, sewers, water and gas mains, dams, bridges and other engineering work and show a residential percentage of somewhere in the neighborhood of 40 per cent, whereas building permits show it to be about 64 per cent, including only cities of 25,000 population and over. If it were possible to secure the figures from all cities and rural areas, the residential percentage would be— as shown by AMERICAN BUILDER survey—about 69 per cent.
How the American Face Brick Association
Is Selling You to the Public

The clipping reproduced below contains a message to the public that you will appreciate. It is an excerpt from the current Face Brick advertising campaign which is reaching a large majority of prospective home-owners in all communities. Note especially that this text sets forth arguments which you can readily capitalize and which will tend to maintain a steady demand for houses built of Face Brick. Team work always wins. Let’s pull together. Urge the use of Face Brick and we will urge the public to patronize you.

These Booklets Will Help You

"The Story of Brick," a beautifully illustrated booklet for the home-buyer and home-builder. Sent free.


"A Manual of Face Brick Construction," 116 pages, a text book on three types of Face Brick wall construction, giving the contractor all the information he needs in building Face Brick houses. Sent for $1.00.

"Face Brick Bungalow and Small House Plans"—Four booklets showing designs and floor plans for inexpensive 3 to 4-room, 5-room, 6-room and 7 to 8-room houses. Each 25 cents, the set $1.00.

"The Home of Beauty," fifty 6-room houses selected from a nation-wide architectural competition. Sent for 50 cents.

"Two Apartment and Double House Plans," 14 attractive designs of duplex and double houses, showing 28 plans of 5 and 6 rooms each. Sent for 25 cents.

THE economies possible in building several houses at once are now causing many people to buy their homes from reliable builders. Such people prefer to see their house complete—to know exactly what it will cost them and to have all financing arrangements made for them. There is one unmistakable index to the value of a house that is offered for sale. By it, you are enabled to appraise the entire structure—and the honesty of the man or firm who built it. You may be sure that a builder who uses Face Brick—on all sides of his houses—puts quality above price. Such a builder does not intend to divert your attention from basic building materials by emphasizing less important details. Look for the Face Brick builder and let Face Brick be your measurement of house values.

THE American Face Brick Association
1765 Peoples Life Building, Chicago, Illinois

The Dealer Who Displays This Sign Carries the Best Quality in Face Brick

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE
Building Activity Continues

SEVENTEEN of the principal building centers in the country showed building construction gains in August, while eight leading cities of the twenty-five principal building centers displayed decreases. These cities made a gain of 22 per cent in August over July this year.

Both New York and Chicago were among the eight recording losses, although the total volume was relatively high. The losses in actual amounts, however, on a comparative basis with a year ago, were so large that the aggregate for twenty-five cities was a negligible gain, according to the national monthly building survey of S. W. Straus & Co.

Of the 500 leading towns and cities in the country, the building volume for August was a 10 per cent loss. In August these same cities had permits totaling $340,805,205 as against $376,047,440, making a loss of 9 per cent. These cities represent more than 80 per cent of the urban construction in the country.

The volume for the twenty-five leading cities for August this year was $207,456,016 as against $228,686,491 in August, 1925, and $169,816,823 in July this year.

Freak Building Opposed

DECLARING that the "leading cause for agitation against skyscrapers in general is the promulgation of projects for freak structions," the Height Limitation Committee of the National Association of Building Owners and Managers has advocated that all such plans be discouraged. The committee's report on the subject says: "Buildings 80, 100 and 120 stories high are not likely to prove an economic success. "Buildings of the wedding cake style, the spy glass style, the piled-up-packing-case style cannot be esthetically justified. "Projects for such structures which are given a vast amount of publicity tend to arouse public resentment. They provide the easiest sort of mark to be hit by the criticism of those opposed to all high buildings. The most meritorious of buildings are made to suffer for the errors of the much exploited monstrosities.

"Discouragement of such ill-advised projects seems to be something in which property owners and managers might well concern themselves in their own and, at the same time, in the public interest."

Winter Building Gains in Favor

"BUILDING and allied trades cease to suffer from winter slump as the popular winter building bogey is routed," says George E. Warren, assistant general manager of the Portland Cement Association in commenting on the large volume of projects planned for the 1927-28 winter season. "Wise builders are planning now for construction straight through the cold weather season. Use of 12 months in the year instead of eight or nine months, eliminates the loss from seasonal depression that has been so costly to industry."

"Construction engineers agree that building in winter is not only practical but highly desirable from the owner's point of view as well as that of the worker. Structurally, building operations can go on through cold weather without any risk if ordinary precautions are taken. "Employment during the winter months means that the economic stability of business will be maintained," Mr. Warren points out. "Not only men employed on construction work but those supplying building materials and engaged in the many lines touched by construction are able to retain their standards of living.

"Maintenance of these standards, and with them buying power, is reflected automatically in the marts of trade. Healthy activity in a $5,000,000,000 industry is stimulating to all others.

"Building statistics for the past few years reveal that more and more buildings are being financed and built during the winter months. In 16 cities surveyed payrolls and material purchases have mounted each year. Indications are, according to contractors, that the winter of 1927-28 will eclipse any previous winter period."

Economical Refrigeration

An average saving of $105.36 a year is reported by American housewives who have turned from ice to electric refrigeration, according to a nation-wide survey recently completed by one of the largest manufacturers of domestic electric refrigerators. Three questions were asked of 10,000 owners of this company's refrigerators and the answers from the first comprehensive survey of electric refrigeration cost ever made.

A summary shows that the average cost of operation is $2.66 a month, as compared with an average of $5.39 a month formerly paid for ice figured on an annual basis, electric current averages $31.92 as compared with $67.08 for ice or an annual saving of $35.28 and actual operating costs. Added to this is an astounding saving in food spoilage prevented by electric refrigeration.

With ice, these losses average $5.84 a month or $70.08 a year, a greater amount than the cost of the ice itself. Summarizing the economies in operating costs and the savings by elimination of food spoilage the average total savings per family with electric refrigeration is $105.36 a year.

The survey included users of all size models and was based on three points—previous cost of ice per month, cost of electric current used in refrigeration per month, and saving actually effected each month through elimination of food spoilage. Care was taken to have all sections of the country represented with a fair proportion in the warmer sections. Any replies which failed to cover all three points were discarded.

Here are some good selling points for the house that is equipped with electric refrigeration.
### QUESTION | ANSWER
---|---
1—What is High-Early-Strength Universal Concrete? | Concrete with a 3-day strength equal to the 28-day strength of ordinary concrete.
2—Are special materials and equipment needed? | No. It is made with the usual materials, usual labor, usual equipment and standard Universal cement, all applied according to throroly tested methods.
3—What is its chief advantage? | Saves time! Concrete for foundations, buildings, sidewalks, pavements and improvements of all kinds is made ready for use in 3 days instead of 3 weeks.
4—Is there any additional important advantage? | Yes. Such concrete not only has a higher early strength, but also a greater ultimate strength and therefore is permanently better and stronger than ordinary concrete. (See diagram.)
5—Is its use restricted to certain kinds of jobs? | No. Because it may be made as workable as desired, High-Early-Strength Universal Concrete is used for any and all kinds of concrete work.
6—Has High-Early-Strength Universal Concrete been fully tested? | Yes. Thousands of laboratory tests, years of experiment and hundreds of actual jobs prove the value of High-Early-Strength Universal Concrete.
7—What other advantages does High-Early-Strength Universal Concrete offer? | It is unnecessary to stock extra brand of material as High-Early-Strength concrete is obtained with the usual materials, usual labor, usual equipment and the same quality Universal cement as used for ordinary construction.
8—Where can I get detailed information on High-Early-Strength Universal Concrete? | Full details for use on any concrete work will be sent promptly on receipt of the coupon below.

High-Early-Strength concrete "E" made by using special methods and standard Universal cement is permanently better and stronger than concrete as ordinarily produced as shown in the diagram. More detailed information furnished promptly on request. Just use the coupon.

**Universal Portland Cement Co.**

Chicago Pittsburgh Minneapolis Duluth Cleveland Columbus New York

Concrete for Permanence
The Black Age Passes

The invention of the steam engine ushered in a "black age." All other considerations were quickly subordinated to the utilization of heat and power. Almost everywhere smoking chimneys were looked upon as evidences of progress and enterprise.

Decades passed without there being any material change in the situation. Recently science came to the rescue of a long-suffering humanity. The chemist called attention to the astounding waste of precious values entailed in the burning of raw coal. The doctor came forward with irrefutable figures proving how severe was the damage done human health by the acids pouring forth from the nation's chimneys. The housewife awakened to the drudgery caused by sooty air, and property owners as well as merchants finally became conscious of the enormous losses they were compelled to sustain as a result of barbaric heating practices.

Now we enter a new age in which human aspects are commencing to decide vital issues. The intelligent citizen no longer has any sympathy for the notion that the earth's atmosphere is a proper dumping ground for the refuse cast off by crude furnaces. The government is supporting the proposal that there shall be an end to practices which largely reduce the hours of sunlight and cut off a substantial percentage of the valuable ultra-violet rays contained in unskinned solar radiations.

A new philosophy of sunlight has swept over the world. It has been disclosed that plants live because of the light of the sun and not its heat; that solar radiations are bactericidal; that natural sunlight enriches human blood in calcium, phosphorus, iron and probably iodine; that it is absorbed by the blood increasing the number of white cells and the number of platelets, thereby rendering the individual more or less immune to disease; that the radiations we get from the sun are most potent in the early morning hours, and that their value to the body is due to chemical reactions which take place and not merely to warming the blood. If this were not true it would be equally beneficial for us to warm our blood by taking hot baths or remaining in warm rooms.

People everywhere are turning their homes and offices as far as possible into solariums. They have dismissed the idea that the efficacy of sunlight is principally confined to such ailments as rickets and tuberculosis. The dermatologist uses sunlight extensively in the treatment of cutaneous affections, and no less successful results have been obtained through the use of this same great agency as a remedy for digestive disorders and rheumatic conditions. The annual curves of both the phosphorus and the calcium content of the blood of infants in New York City follow the monthly height of the sun.

Cellar-grown children, like cellar-grown plants, will not continue for long in normal health. There will be a deficiency of chlorophyll in the plant and of haemoglobin in the child. The great Rollier found in his many clinics in Switzerland that when the sunlight failed to appear for days at a time, his patients were injured, and they would not start again on their rapid advance to health until the sun's rays returned.

People who live largely in sunlight do not require so much food as those who spend their time in the shade. When radiant energy passes directly into the body by way of the skin, there is less need to burn up fats or carbohydrates in order to keep the blood warm.

Light is a food substitute that can be made to afford material relief to our digestive mechanisms.

The light of the sun is our benefactor—its heat our enemy. We must try to use the hours of the day that give us the light rather than the heat. Each individual must take his solar radiations in doses, the amount being determined by careful experiments. Some respond to light more easily than others. People who tan quickly are the best subjects. Those who freckle instead of turning brown must move carefully. Red-haired folks are usually refractory to sun treatments, and in such cases time and patience must be exercised. An overdose of sunlight will do damage just as will excessive eating and drinking.

Sunlight and cold appear to be a more ideal combination than sunlight and heat. In other words, a hundred clear days in Canada would benefit the human body more than a hundred clear days in Florida. The trouble is that in our Northern States the winter days are so generally cloudy and the daylight hours so few. One of the best arguments favoring daylight saving is the fact that this permits us to utilize the light of the sun in the early morning hours when the heat is not so great. Our ancestors knew that it was good to get up early but they didn't know why.

All of this represents merely a non-technical scratching of the surface of a few sunlight fundamentals. It is a fascinating subject that anyone can take up as a hobby with much profit. Never before were we so sunshine-conscious. In a few years the average person will refuse to buy an automobile or work in an office that is not equipped with glass that lets through the ultra-violet rays of the sun.

This new attitude toward hygienic living will prove a powerful factor in putting an end to our present dirty civilization. Dirty desks, sooty window sills, blackened...
buildings and soiled tapestries will disappear. Laundry bills will be substantially less and there will be a huge saving to industry as a result of the material decline in absenteeism and in efficiency now caused by sickness.

Everyone dislikes smoke, but many have believed that its evils are exaggerated and the remedies too theoretical. Such may have been the case in the past. But the demand for smoke abatement today is established on a foundation of facts that are wholly tangible.

In one smoky community last year 794 tons of soot and dust were deposited per square mile. In a comparatively clean community the total deposit was 101 tons. Smoke from industrial towns of this kind will often travel 50 miles. The average soot particle settles under the influence of gravity at a very slow rate. Sometimes a particle shot from the top of a chimney 100 feet high will require three weeks to reach the ground in still air. Industrial smoke contains much ash and little nitrogen, so it is of very little use as a fertilizer for crops. The soot from domestic chimneys is richer in nitrogen, but is rendered useless as a fertilizer by the large percentage of tarry matter that goes with it.

Crops for many miles are seriously affected by the drift of sulphur from the chimneys of nearby towns. Even hearty evergreens in some manufacturing districts become so damaged by smoke that they fail to flower in the summer and lose their leaves in the fall. The cost of washing tarry deposits off glasshouses amounts to about $23 per acre, and sometimes this work must be done four or five times a year where the atmosphere is continually smoky. People in such sections pay a smoke tax every time they buy a bunch of flowers.

Smoke acids lower the nutritious value of grass, and cause the farmer to purchase more feed for his stock. Also the soil in smoky regions suffers a serious loss of lime, resulting in a deficiency of lime content in the milk obtained from local cows. In some regions the soil is so acid from smoke that constant dressings of lime are necessary. This encourages the growth of rank weeds and thick grasses.

A recent investigation in an eastern community disclosed that in twelve months the hours of sunlight totaled 1167. A few miles away with climatic conditions precisely the same, except that there were fewer smoking chimneys the hours of sunshine totaled 1402—a 17 per cent increase of sunlight. Any number of measurements throughout the country have indicated as much as a 40 per cent absorption of total daylight by smoke clouds.

Smoke doubles and triples the expense of cleaning. It means more window-washing, more servants, more speedy blackening of curtains and quicker discoloration of pictures and other household articles, especially those made of silver and brass. The sulphuric acid in smoky air damages mortar, masonry and metal-work as well as fabrics and vegetation. Even the steel rails of a railroad have shown a loss of weight of more than a pound per year per rail in a smoky atmosphere as compared with a loss of only 0.18 pound in a district where the air is clean. The examination that brought forth this fact was continued for 17 years.

Coal dust, smoke and soot increase the death rate from acute lung diseases. Two large towns located in the same industrial district are built in precisely the same style, and differ only in the amount of coal smoke in the air. The first town is situated on the eastern edge of the district and receives coal smoke only from the west. The second town lies in the center of the region and has an atmosphere constantly charged with smoke. In the first community the death rate per 10,000 from acute non-tubercular lung diseases, taking people between the ages of 15 and 60, is only 11. In the nearby smoky town the death rate is 35. Another similar survey covering 24 cities, half industrial and the other half non-industrial, showed a death rate of 26.5 in the smoky communities, and a death average of only 17.5 in the towns having a clean atmosphere.

Unfortunately many of us preach one thing and practise another. We praise sunshine and then manufacture smoke to shut it out. It is time we recognized the truth that it is not the cold that kills, but the darkness of our winters. Such a realization, coupled with an already full appreciation of the multitude of evils that result from living and working in a dirty environment is certain to bring us to a clean civilization where our buildings will be something more than huge piles of blackened masonry.

More gratifying than all else is the clear evidence that smoke-abatement campaigns throughout the country have been taken out of the hands of emotional faddists and self-seeking politicians. Present programs to clean up the air and let in the sun are being directed by trained engineers who not only recognize the necessity of suggesting remedial measures that are practical, but who appreciate the need of gaining the interest and co-operation of present smoke offenders by doing all that is possible to work no unnecessary hardship on American business generally.

Students Build Complete House

A S a part of its regular class work, the Department of Building Construction of the Carnegie Institute of Technology built the stucco bungalow shown in the illustration. All the construction, including bricklaying, masonry, carpentry, plumbing, electric wiring and painting was done by students enrolled in the Department of Building Construction. This bungalow was displayed during the annual exhibition of the institution and proved to be one of the most popular attractions of the evening. It was estimated that from 8,000 to 10,000 visitors inspected it.
Old Houses Made New
An Experiment Which Proves There is a Vast Field of Profit for the Builder in Rehabilitating Old Dwellings
By GEORGE E. PIPER

This 28-Year-Old House Was, Before Rehabilitation Started, a Drag on the Prosperity of the Community.

At Moderate Cost the Old House Shown Below Was Made New, Its Value Doubled and What Was Formerly an Eyesore Became an Attractive, Livable Home, an Asset to the Neighborhood.

THERE are in the United States, according to a survey conducted by the Division of Building and Housing of the United States Department of Commerce, more than 20,000,000 dwelling houses. The majority of these dwelling houses were not built last year, or the year before, or the year before that, as great as has been the volume of building in the last few years. The average age of these 20,000,000 dwelling houses doubtless is nearer 15 years than 10. And a huge number are from 20 to 30 years old.

All these homes on any scale of present day living conditions are obsolete, or near-obsolete. Thousands of them are rotting away and are eyesores in their communities. The owners are prohibited from selling and building new homes in new localities because of the low sale price the old homes will bring. The old homes are increasingly fire-hazards as they fall into further decay and disrepair. They lessen the value of the property around them and the tone of streets generally. Certainly they are a drag on the prosperity, health and welfare of the nation.

Now, the people that live in these homes have purchasing power. They work in factories, offices, stores and on farms. They are no more eager to live in unbeautiful, undignified and inconvenient surroundings than are any other group of people. A goodly portion of their income
is being spent on items of living other than the home, largely because these other things are easier to purchase. Home-building and rehabilitating unfortunately appear to be formidable, technical problems that the average home-owner hesitates to undertake without guidance. The owner of the average obsolete home doesn’t know, for example, that his home can be rehabilitated—be made new again.

In considering the problem of improving living conditions and increasing the volume of business in the building industry, “Household Magazine,” with which the writer is associated, hit on the idea of carrying through, first hand, the rehabilitating of an obsolete house. This procedure seemed the only way of determining accurately the feasibility and practicability of home-rehabilitation. The step decided on, the next thing was to find a house situated near enough to Chicago to make it easy of access to all who might be interested in the experiment.

The investigators sent to find a home for the experiment came to Dixon, Illinois, a city of about 10,000 population on the Rock River, and found they had been anticipated. Quite unknown to anyone but itself, Dixon had been carrying on a home-rehabilitating movement for better than three years, in which time more than 76 houses had been rebuilt, remodeled, or both. In one case an enterprising man had taken a decaying old barn, the frame of which was sound, and had made it into an attractive and up-to-date residence. Certainly Dixon seemed an auspicious testing-ground.

Everyone consulted was eager to co-operate. A dilapidated old residence, two stories and eight rooms, on one of the best streets in town, was located. This house had been vacant for several months. Looked at from the outside or looked at from within, it was just one of those discouraging pieces of construction that create an unhealthy feeling of depression in the beholder. To the layman it probably would have seemed beyond redemption, or as a possible last stop on the way to the poor house.

However, Mrs. Florence Plummer White had seen the possibilities of the house, and had purchased it before the investigators arrived in Dixon. Mrs. White’s idea was to remodel the house into a two-family dwelling and to rent it for profit, a procedure she has followed with other houses in Dixon. Now she intends to live in it. Told of the plan to conduct an actual field test in home-rehabilitation, Mrs. White quickly consented to turn the house over to “Household Magazine.” A number of manufacturers with a direct interest in a national home-rehabilitation movement then were asked to contribute such products of theirs as would be required for the experiment.

With these preliminary details out of the way, K. J. T. Ekblaw, construction expert for “Household Magazine,” went to Dixon to learn what could and had to be done. Quotations from Mr. Ekblaw’s notes will serve more effectively than anything else could to present the condition of the house before rehabilitation was started.

“Paint almost weathered away. House only painted twice in 28 years. Steps, porches and exterior window sills rotted. Roof just about all gone. Inside, stairs to second floor steep, inconvenient, ugly and in bad condition. Floors worn, uneven and not worth trying to save. Plastering cracked and fallen away, with lath exposed and rotted or broken in many places. Kitchen dark, dirty, no modern equipment. Electric wiring exposed and strung in haphazard manner. Upstairs, obsolete fixtures in bathroom including iron tub and unsanitary toilet. Plumbing not worth saving. Wood floor in bathroom rotting. Walls and ceilings upstairs broken and dirty. Basement incredibly dirty with rotting wood floor and dank, foul odor over everything. Footings weakened by displacement of dirt around them.”

Add to all this that the house is 28 years old, was wretchedly planned from the standpoint of layout and convenience, that the stairs leading from the kitchen to the cellar were hardly more than a stepladder in a rotting, foul well, that gutters, downspouts, flashing and porch supports were virtually gone, that the front porch was an ugly old-fashioned “stoop,” and you have a fair picture of the condition of the house before rehabilitation was started.

There were, however, on the favor-
An Arched Doorway Joining the Old "Front Parlor" and "Back Parlor," New Oak Flooring and Refinished Walls and Trim Aided in Replacing Dinginess with Beauty.

The Old Interior was in Bad Condition—Floor Rough and Worn, Trim Dilapidated, and Plaster Cracked and Falling.
and will be lined with sheathing board for fire-safety and insulation. It has a cement floor. A concrete drive will be laid from it to the street.

Now for the cost. The contract was let to a Dixon contractor on a cost-plus basis. Materials donated by manufacturers have been figured at their full retail price. All cost data has been carefully and accurately kept that the figures may present the true story.

The total cost of the rehabilitation, including every item of labor and materials that has been listed, will not exceed $3,500, with the probability that the figure will be nearer $3,000 than $3,500.

Let us see what this means. The old house situated as it was on a 50x150 lot, could hardly have been worth more than $6,000, with the value uncertain and purchasers scarce because of the condition of the house, and with the house a weight on the value of the property all around it. When the rehabilitation is completed, the house will be virtually a new seven-room house, equipped with modern comforts and conveniences, good for a new lifetime as a home. It would be a courageous contractor who would attempt to duplicate it for less than $12,000.

Now, it should be borne in mind that not only a new home has been created, or an old one rehabilitated, but that through the application of labor to materials new wealth has been created, and the endless ramifications of this new wealth in the process of creation and its effect on the national prosperity are easily apparent. And that this example of home-rehabilitation being carried on in Dixon can be duplicated over and over again within the United States also is easily apparent.

Owners of obsolete homes want to rehabilitate them. Certainly bankers are eager to loan money for rehabilitation. Civic organizations, women's clubs, national organizations, will support a home-rehabilitation movement, for the social consequences, the social good that will result from the rehabilitation of America's obsolete homes, are of too vast importance to fail to gain the support of every organization with a proper interest in the movement. It is a movement which opens a large and almost untouched field of profitable business for the builder.

The meat of the kernel simply seems to be that people are awaiting being shown how their homes can be rehabilitated. And it seems that any national, sectional or independent movement toward home-rehabilitation should concern itself with that practical and down-to-earth aspect—how the rehabilitation can be done, constructionally, decoratively and financially.

It already has been stated that the principal reason the dollar of the owner of the obsolete home goes into things other than home-rehabilitation is that these other things are made easier of purchase by him. But if his lumber dealer, or his contractor, went to him with the support of his banker and the support of the manufacturers of lumber, building materials and equipment, and showed him precisely how his old home could be made a new home, he'd be more than willing to lend a ready ear.

Surveys among owners of obsolete homes in different parts of the country have revealed just this condition. Consider, solely, the millions of homes in the United States in 1927 that are without bathrooms. Then answer the question: Do these people want bathrooms?
A Leader in Lumber
How J. C. Scofield, Born to the Business, Has Achieved an Outstanding Success in the Lumber Industry

J. C. Scofield, Founder, President and General Manager of the Windsor Lumber Company, Limited, of Windsor, Ontario, Seated at His Desk in the Handsome Office Presented to Him by a Group of Loyal Employes Who Have Aided in and Shared the Success He Has Built.

J. C. SCOFIELD, head of the Windsor Lumber Company, Ltd., Windsor, Ontario, was literally born into the lumber business for his father maintained a lumber mill in the back yard of his home in Woodstock, Ontario. He also had a retail yard in the same town and the son, born and raised under this influence, has stuck to the lumber business throughout his life.

In 1890, J. C. Scofield left Woodstock and went to Toledo, Ohio, where he spent 10 years in the wholesale lumber business. In 1900 he moved to Pittsburgh where three years of retail lumber business were added to his experience. Then in 1904 he joined the Payne Lumber Company and for 10 years sold Payne doors throughout the country. In 1914 Mr. Scofield decided to get into business for himself and started the Windsor Lumber Company.

At the start this new company was an obscure, "one shed" affair with a one horse, delivery wagon. The 13 years which have passed since its founding, however, have seen it develop into the largest wholesale and retail lumber concern in its community. At the start, in addition to William Griesinger who assisted Mr. Scofield in the office and who is still with the firm as secretary and treasurer, five men were on the payroll. Today more than 100 men are employed and the old, one horse wagon has been replaced by a fleet of trucks and light delivery automobiles.

Since starting his business in Windsor, Mr. Scofield was elected President of the Ontario Lumber Dealers Association and is now President of the Rotary Club of Windsor and the Essex Motor Club, and is active in many civic organizations and developments. In fact whenever anything in the way of civic movements or betterments is planned in Windsor or the Border Cities, "Jim" Scofield is in on it and in an active capacity.

Mr. Scofield is a firm believer in good advertising and attributes much of the credit for the growth of his business to it. Besides regular newspaper advertising, the company makes use of an elaborate free plan service. Each month 300 illustrated, home plan books, furnished by the world's greatest organization of specialists in home building, are mailed to architects, contractors and prospective home builders free of charge. While this service entails considerable expense, it has proved profitable for the company, and has shown a great influence on the house design of the community. In Windsor it is possible to see whole streets of houses, built from designs taken from these plan books.

Mr. Scofield's private office has been described as one of the finest in Canada. It stands as proof of the high esteem in which "The Boss" is held by his organization. Last winter, while Mr. Scofield was away on a holiday in Florida, his loyal employes, many of whom had been on the payroll for years, spent several weeks of careful planning and surprised him on his return with a completely new office. This office is equipped not only as an efficient work room but also lacks nothing in comfort and even luxury. It is entirely trimmed in mahogany with panel wainscoting, has an electric fireplace, handy filing cabinets built into the paneling, an aromatic cedar closet, oak floor, panelled ceiling, special attractive lighting fixtures and luxurious, upholstered furniture.

Adjoining the office is an estimating room, panelled and entirely lined with chestnut finished with a walnut stain and white filler. Though this office sets such a high standard it does not in any way overshadow the factory for Mr. Scofield is a believer in good equipment and extensive improvements in manufacturing facilities have recently been carried out which keep his shops up to a point of leadership among woodworking plants.
Billboard Merchandising

When planning his advertising of all kinds it behooves the home builder and real estate developer to pay close attention to all the mediums of publicity he uses so that he may be rewarded adequately for every advertising dollar expended. Newspaper copy needs to be evolved carefully, and so does the copy used on billboards and outdoor bulletins.

When riding along the streets of our cities, taking note of the many outdoor bulletins that plaster vacant lots and cry for attention, one is bound to stop and ask the question: "Can outdoor advertising be made to pay those having homes and building lots for sale?"

It is the purpose of this article to give an affirmative answer to this query because it is the writer's belief that outdoor advertising can be made to pay the real estate developer handsome dividends.

For purposes of exposition outdoor advertising of real estate developments, homes included, may be divided into direction boards and merchandising bulletins. Direction boards do mainly what their name "direction" implies, that is, they direct the reader to a certain real estate development. Such boards may be placed at some distance from the project under sale, and the number of such boards used should be gaged entirely by the size of the project under development and the amount of advertising money that is apportioned for this purpose.

A board, used by the H. C. Thorman Co., general real estate developers in San Antonio, Texas, illustrates the principles of good direction board building. First, this board makes the direction very clear. A large, red arrow, pointing towards the development in question, was painted across the top of the board. In the arrow in big white letters was this wording: "DRIVE ACROSS THE OLMOS DAM INTO Park Hill Estates" was in dark letters just below the arrow. The rest of the copy was worded thus: "Exclusively for fine homes," with the name of the company at the bottom of the board.

Some good points of this board are: It made the direction clear both by arrow and the wording, "Drive Across the Olmos Dam." The message was short, pointed and not crowded on the board. Plenty of white space was left around the edges and between the parts of the copy; contrasting colors were used so that the eyes of motorists would be caught and held long enough for the message to be read.

One of the Best of Merchandising Boards Tells Its Story Largely by Pictures with Only Simple Copy, Which Can Be Read from a Passing Automobile, Without Effort.
message to be taken in. Merchandising boards in a strict sense are also direction boards. There are these two differences, however. First, direction boards may be placed at some distance from the properties under sale; merchandising boards may be also but usually are placed near or on the properties for sale. Second, the direction board's message merely directs the observer; the merchandising message usually directs, too, but it aims, through pictorial means in most cases, to create in the minds of observers desire of ownership.

It can thus be seen that good merchandising boards are nearly always illustrated. The Chinese have an old adage that runs in this way: “One picture is worth 10,000 words.” Certainly, one good house picture on a board is worth a whole board full of word copy. The eye can see and easily take in the picture with the probable result that desire of possession will be initiated in the mind of the observer, a process of thought that can hardly be expected to be started by words alone because people glide by boards in cars too rapidly for the eye to take in much in the way of words. Pictures show how the homes look, too, and “seeing is (often) believing,” and therefore convincing.

One of the best merchandising boards ever seen by the writer was used by the American Building Corporation at the entrance to the company property in San Antonio, Texas. This board showed handpainted reproductions of four of the corporation’s homes. The homes were grouped so that the observer could not help noting that as one was sold a large cross would be drawn across its picture on the board and the word “sold,” painted in. The price of each house was painted under its reproduction.

The Busby Building Corporation, another San Antonio home building firm, also strikes original notes in its outdoor advertising. This company makes a specialty of concrete foundation work reinforced with steel. One of its boards showed such a beam, anchored in concrete footings. A picture of a house was also painted above the beam. Another Busby board showed reproductions of two Busby homes, one at each side of the board. This was also a direction board, the message running: “22 Stucco and Brick Homes of this type now building in Next Block West. See those that are furnished. Open Daily.”

Something remains to be said about the size and the “trimmings” of outdoor boards. The insignificant board or one that has a poor setting cannot be expected to compete successfully for attention with any of the fine boards described in this article. All of these boards were hand painted on galvanized tin, the work being done by expert outdoor advertising company artists. The “talking” qualities of such boards are head and shoulders above boards that are just “thrown together” by an ordinary carpenter and a sign painter.

Thus it would seem expedient for the real estate developer to employ the services of an expert outdoor advertising company. These people have the “goods,” and while, of course, the builder or developer will want to supervise the copy carefully, the advertising people can certainly put on the artistic touches and the “trimmings” in such a way as to give the board a really fine setting. And the setting does count. For instance, all the boards, described here, have lattice work under them. Pilasters are commonly employed at the sides.

A. W. Roe.
The New Washington

Our National Capital is Now on the Way Toward Completion According to the Original Plan and Present Day Requirements

PHOENIX-LIKE, the dreams and plans of a more beautiful, as well as a more efficient and useful Washington, are arising from the rapidly cooling embers of the last Congress appropriation of some $500,000,000 for new public buildings.

The business life of the nation is to secure a new and unified Department of Commerce. Labor is to have a new home and the dignity of law will be upheld in a new Department of Justice while a foreign policy will be promulgated from a new Department of State.

These and their related projects have the approval of the President who advocated stern economy and a cautious Secretary of the Treasury and the Commission of Fine Arts which has inherited the mantle of Major L'Enfant. Better public buildings are to bring more efficient government service, is the belief of all these experts.

Activities of the Federal Government have increased to such an extent during the last 15 years that Government bureaus are billeted in office buildings and temporary structures like soldiers occupying an enemy's country.

A large section of the mile-long open space between the Washington Monument and the Lincoln Memorial has been taken for a seemingly endless series of buildings occupied by the Army, Navy and Shipping Board. They were put up during the war and, despite their arm-chair lunchrooms with white tile construction, are temporary and flimsy. Across the street from them are "Tempos" of even less substantial construction. These are of the same type that corrupt the Mall between the Capitol and the Washington Monument.

In these wooden buildings are stored irreplaceable records. Some of them house the Bureau of the Census. Others contain records of the Bureaus of Internal Reve-
nue and tax papers, the loss of which would greatly embarrass Uncle Sam should fire destroy them. The bureau now has eight offices in eight buildings outside the Treasury Department and its own building. The General Accounting Office is scattered through 20 buildings. The Department of Agriculture is scattered all over Washington in 45 buildings, of which 17 are government owned and 28 are rented.

The Patent Office is months behind in its work because of cramped quarters. This venerable and classic building is crowded from basement to eaves with clerks and records, and Congress has had to authorize additional personnel to clean up the congestion.

A plan for the placing of all government buildings along the Mall between the Capitol and the Washington Monument was developed in 1901 by a committee which, later, was merged into the present Commission of Fine Arts. At the very outset there was an obstacle to such a unified treatment of this mile-long green stretch. The Botanic Garden, a few acres of glass surrounded by a forbidding iron picket fence, cuts off access to the Mall at the Capitol end. The Fine Arts Commission contends that the garden's usefulness in providing members of Congress with cuttings of shrubs and plants for distribution among their constituents, can be just as great elsewhere.

It was in anticipation of this removal that Congress authorized the location of a memorial to General Grant and later a site for a monument to General Meade was fixed, but until Congress provides a new site for the Botanic Garden the development of this section of the Mall is stopped.

The administration buildings of the Department of Agriculture and the National Museum and the Freer Gallery have been erected on the Mall in accordance with the plan of 1901. It is proposed to range new departmental buildings parallel with them and leave in the center an open space 300 yards wide from Capitol Hill to Washington Monument.

The cost of these new buildings will be partly offset by the huge sums now paid out in rent. Today the Treasury Department is spending annually $1,135,000 in rent for privately owned buildings in all sections of Washington for different branches of the Government service. Throughout the country an additional $23,000,000 is spent for the rent of Federal offices. The Post Office Department is now paying more than $12,000,000 for its rented properties.

The new buildings now about to be started will not be Greek Temples. Some of them will be of the modern office building type. Some of them will be monumental, a few of them large enough to cover more than a single block. Among these will be the Archives Building for the storage of old records of priceless historical value that are now housed in odd buildings and are in constant danger of destruction by fire, dampness and rats.

A Concrete Bridge of One-Arch Type

Most graceful and substantial is this newest of Pasadena bridges spanning its beautiful "Arroyo Seco." The canyon is narrow and deep, requiring a bridge-height of 68 feet though only 336 feet in length exclusive of the short approaches. The material used is wholly of reinforced concrete, and its lines extremely artistic because of their simplicity and massive form. The roadway is 20 feet, with six-foot walks on either side, and ornamental lights only at the ends of the bridge.

The Arroyo which it spans is one of California's "dry rivers," the perpetual joke of all tourists as it carries water only during the flood season.

The entire cost of the structure was $68,000, half of it paid by the citizens of Pasadena, the rest by the residents of the San Rafael Hills, whose estates cover the high ground west of the city limits. In addition to its usefulness as transportation across this deep arroyo the bridge carries water mains, gas, sewage and electric conduits.
Suburban Co-Operative Apartments With 28-Car Garage

Herbert B. Beidler, Architect, of the Architectural Firm of Edward B. Krenn

Niles Center, a Newly Developed Chicago Suburb, Is to Have This Fine New Co-operative Apartment Building Containing 43 Five-Room Suites. There will be a men's club room, an indoor golf course and a playroom for children. In the rear will be a 28-car steam heated garage.
A Commodious Apartment Design with Ten Rooms and Two Baths

DUBIN AND EISENBERG, Chicago, Architects

After the compactness of modern large apartment buildings, it is somewhat refreshing to look over the plan of a generously proportioned apartment such as shown on the floor plan on this page. Here, in each suite, we have ten rooms, sun porch and two baths. The living room is 22 feet 6 inches by 15 feet 6 inches, dining room 18 feet by 17 feet, and two of the bed rooms are about 16 feet by 14 feet each. The bay in front constitutes a sun parlor, with glass doors into both living room and dining room, making these rooms exceptionally bright and cheerful.

The two buildings shown in our illustration are both from the same plan, only one is reversed, allowing a private service driveway to serve both buildings.

In place of the rear service entrance so often found in connection with two and three-flat buildings, there is a side entrance and interior stairway connecting with all floors. This obviates the usual rear entrances and outside stairways which occasion a noisy rear traffic and detract greatly from the privacy of the apartments passed. A pleasing feature is provided in place of these rear stairways in the shape of a sun porch, 8 by 13 feet, connecting with both rear bedrooms.

These Two Apartment Buildings, Each Containing Three Large Suites of Apartments, Are Located at 6231 and 6235 Kenmore Avenue, Chicago. The plan shown above was used for each building but reversed in one case. The rooms are large and conveniently arranged. Dubin and Eisenberg, Architects.
Building Note

A colored cook came home after midnight from a revival meeting shouting at the top of her voice. Her employer, letting her in, said:

"Aunt Mandy, this is all foolishness. Religion shouldn't be so noisy. Tell that preacher of yours to give a sermon on the building of King Solomon's temple, which arose without even the sound of a hammer. And remember that real religion is quiet and peaceful."

"Lawd, honey," answered Aunt Mandy, "us niggers ain't a'aimin' to build no temple yit. We is jes' blastin' now!"

Sounds Reasonable

The doctor had just been visiting a patient and as the man's wife was showing him out he said to her: "Your husband's not so well today, Mrs. Maloney. Is he sticking to the simple diet I prescribed?"

"He is not, sir," came the reply. "He says he'll not be after starvin' himself to death just for the sake of livin' a few years longer."

"The dreamers dream and the builders build, And the work of the world goes on, And the work of the dreamer and builder stays When the dreamer and builder are gone; But whether they work in marble or sod, The builders are hand in hand with God."

—WILL REED DUNROY.

Professional Standards

Patient (nervously)—And will the operation be dangerous, Doctor?

Doc—Nonsense! You couldn't buy a dangerous operation for forty dollars.—Cornell Widow.

Eternity

A negro parson was seeking to impress upon his flock the immensity of eternity. He pointed dramatically toward a window, where was visible in the distance a huge mountain.

"Ef er sparrer wuz er flyin' roun' dat mount'n day in an' day out, jest techin' it wid de tip o' his wing oncet ebery thousand years—when dat mount'n wuz wore down ter de groun', den it would be just be bre'kfus time in hell."—Brown Jug.

Add Snappy Comebacks

Angry Motorist—Some of you pedestrians, walk along just as if you owned the streets.

Irate Pedestrian—Yes, and some of you motorists drive around just as if you owned the car!—Judge.

A Natural Mistake

Boss—Say, where in blazes are you two worthless por- ters going? Why don't you get to work?

Jackson—We're working, boss. We're carrying dis here desk up de stairs.

Boss—I don't see any desk!

Jackson—Well, for the Lord's sake, Snops, ef we hain't gone an' clean forgot de desk.

Business "Fust"

Mandy to Sambo, reading the evening newspaper. "Listen heah, yo'! Ah didn't buy yo' dat paper for entertainment! Jes' confine yo'self to dem want ads, niggah!"
THE AUTO is the builder’s best friend. It has not only widened his field of easy operation, making it now a simple matter to handle work over half a county; but it has also brought him hundreds of new home building customers.

Open up an attractive subdivision or put up some good looking homes out on the edge of town where land is cheap and landscapes charming and you will see how easily the home buyers drive out from town, and how easily they get back and forth.

But the greatest thing the auto has done for builders is to teach them the value of modern improvements. We are no longer willing to drive a 1916 model; neither are we willing to buy and live in the out-of-date house equipped with fixtures and in the style of a generation ago. The buyers today want improved quality and up-to-date appointments and the builders who are willing to keep in step with the times are doing well supplying this automobile-driving, home-seeking world.
The LACONIA
Inexpensive Home of Modified Colonial Design, ColorKeeD Floor Plans on Page Opposite

THE popular sun parlor or living porch of the present day has done much to modify the old-time styles of architecture. For instance, the true Colonial ordinarily places the entrance exactly on the center line, arranging all windows in a perfect balance, right and left. If a sun room or porch is wanted at one end there must be a similar extension at the other, which calls for a greater width than the average lot will accommodate.

But architects and home builders have compromised this problem for the smaller home builder by arranging a graceful symmetry of the unbalanced sort. For instance, in the design presented here, the entrance is moved to the extreme left of the house proper, the balance being maintained by building on the large living porch and carrying the heavy cornice around it continuing the lines of the main house design.

The result is a graceful composition of genuine Colonial feeling. The width is only about 37 feet, which leaves ample room for the drive to the garage, all on a 50-foot lot. The house proper measures 27 1/2 by 24 feet and contains a very large living room lighted from three sides, a square corner dining room, convenient kitchen with good pantry space; while upstairs there are three big corner bedrooms with an extra large bath. A folding stairway in the ceiling of the upper hall gives access to the third floor where there is considerable good and usable space.

The basement in this design is laid out in a very interesting way. A partition through the middle divides the laundry and associated activities from the heating plant and its associated equipment. Also the fuel room placed under the living porch extension is separated from the rest of the basement by a solid brick wall and tightly fitting door. There is little excuse in the
ColorKeeD Floor Plans of “The Laconia”

modern home for basement dust and dirt; and this separation of the basement activities will encourage good housekeeping and will keep what dust and dirt there is to a minimum.

The recommended equipment for this home, as well as for all other ColorKeeD designs, is indicated by the small numbered circles. Study the Key to Equipment to determine what each piece of equipment is. The up-to-date planner and builder of homes today is familiar with all of these items and is making provision for them. The basement equipment is probably most important and the items indicated for the basement of “The Laconia” should be planned into every other basement. R. C. Hunter and Bro., Architects.
The LA CROSSE

A HOME of individuality and charm in rough troweled stucco. The cheerful red roof with its unexpected curves makes a fascinating picture. Dimensions are 24 x 42 feet and the arrangement of five rooms and bath is very practical.

Key to Equipment

1. Ventilating Fan
2. Kitchen Cabinet
3. Mechanical Refrigerator
4. Gas or Electric Range
5. Thermostat
6. Moth Proof Wardrobe
7. Medicine Case
8. Tub Shower
9. Fireplace, Throat and Damper
10. Mirror Door
11. Built-in Mail Box
12. Weatherstrips
13. Storm Sash
14. Lighting Fixtures
15. Convenience Outlets
16. Electric Panel
17. Washing Machine
18. Clothes Drier
19. Coal Chute
20. Heating Plant
21. Oil Burner
22. Water Supply System
23. Hot Water Supply
24. Water Softener
25. Radiant Gas Heaters
26. Casement Windows
27. Dishwashing Sink
The strong personality of the Mediterranean style continues to have its appeal. No town and no suburb is complete without its Spanish or Italian design. The strong lines and the vivid coloring make a wonderful contrast relished by those who like to be different. The example illustrated below makes a beautiful home and the arrangement of rooms as indicated to the left leaves nothing to be desired for the modern American home. The color sketch above suggests the effectiveness of open book shelves filled with brightly colored bindings has the dominant decorative motif for the library.
The LAIRDSVILLE

An English cottage of strong personality featuring the high ceilinged, studio-type living room. This design illustrates well the effectiveness of unusual windows and window arrangements. Five delightful rooms are pictured in the Color Kneel Floor Plan below.

Key to Equipment

- Kitchen Cabinets
- Electric Refrigerator
- Built-in Ironing Board
- Gas or Electric Range
- Thermostat
- Fireplace Throat and Damper
- Built-in Book Case
- Built-in Mail Box
- Medicine Case
- Tub Shower
- Weatherstrips
- Storm Sash
- Screens
- Lighting Fixtures
- Convenience Outlets
- Electric Panel
- Washing Machine
- Clothes Drier
- Coal Chute
- Heating Plant
- Oil Burner
- Water Supply System
- Hot Water Supply
- Water Softener
- Radiant Gas Heaters
- Casement Windows
- Dishwashing Sink
HERE is a very satisfactory low-cost home containing five large rooms and bath besides the two comfortable porch additions which mean so much to the livability of the home without adding very much to the cost. The house proper is only 24 x 26 feet. However, with its heavily shingled side walls and prominent roof lines, its window flower boxes and window shutters it makes a stalwart appearance, holding its head up in any neighborhood. Color sketch above suggests furnishings for one of the bedrooms.
Above and to the left we present a narrow lot home 22x36 feet, of five-room efficiency, thanks to the bed closet off the living room.

Below and to the right is an interesting little bungalow of four rooms and bath, size 26x30 feet.
The LANESVILLE
Above and to the right we present a substantial four-room home 26x28 feet.

The LANSFORD
Below and to the right is a double bungalow, three rooms and bath in each half. A money-maker in many localities.
The LATHROP

Here we illustrate a typical Dutch Colonial design embellished with that modern necessity, the big sun porch opening from the living room. In addition to this fine solarium, six rooms and two baths are provided—all of good size and well arranged.

Key to Equipment

1. Ventilating Fan
2. Kitchen Cabinet
3. Refrigerator
4. Range
5. Medicine Case
6. Fireplace Throat and Damper
7. Mirror Door
8. Thermostat
9. Built-in Mail Box
10. Tub Shower
11. Disappearing Stairs
12. Moth Proof Closet
13. Weatherstrips
14. Storm Sash
15. Screens
16. Lighting Fixtures
17. Convenience Outlets
18. Electric Panel
19. Washing Machine
20. Clothes Drier
21. Coal Chute
22. Heating Plant
23. Oil Burner
24. Water Supply System
25. Hot Water Supply
26. Water Softener
27. Radiant Gas Heaters
28. Casement Windows
29. Dishwashing Sink
The floor plan shows a very attractive front arrangement with large living room, sun porch and connecting room. The bedrooms and bath are well separated from the rest of the house for quiet and privacy. The cheerful little breakfast room adjacent to the kitchen will be much used. The size on the ground is 24x48 feet, plus porch extensions. Color sketch to right suggests furnishings for the breakfast room.

**The LAVERNE**

The brick bungalow has been very popular in many cities where its narrow layout has permitted it to be built on 30-foot lots and still leave some space all around for light, air, landscaping and a place for the children to play. Thousands of home lovers have found in this type of structure the key to their problem. The design illustrated here is one of the most attractive. The arrangement of the rooms follows the customary flat-building style. In fact, life in this bungalow is similar to that in a first floor apartment with the disagreeable features left out. An attractive exterior is presented by using face brick all the way around, trimmed with stone and appropriately roofed with green tile.
The music room and the library pictured above contain a wealth of good suggestions for furnishing the modern home.
Two living rooms of unique individuality are illustrated here.
The LAWRENCE

A DOUBLE house popular in the east is illustrated—the first story brick and the second story a shingled gambrel. Each half has its own side entrance and its private front porch. Living room, dining room, kitchen, breakfast nook and stair hall are on the first floor and three big bedrooms, one of them labeled sleeping porch on the second floor.

Key to Equipment

A glimpse of the big living room looking through to the stairs.

The LEAFDALE

THE impressiveness of length is well illustrated in this design—ideal for a wide lot. The street frontage measures 58 feet, the depth 24 feet. The high arched entrance suggests the high ceilinged living room at the right, which together with the reception hall and dining room occupy half of the layout. To the left are two bedrooms and bath and the kitchen. Upstairs are additional sleeping quarters. The entire design has a delightfully informal, home-like appearance, suggestive of the good old times in the country.
The LELAND

THIS is an English, half-timbered design embellished with face brick around the entrance. It makes a charming home of many surprises. The ColorKeeD plan below shows the ingenious way the rooms are arranged, five big rooms and bath.

### Key to Equipment

<table>
<thead>
<tr>
<th>#</th>
<th>Equipment</th>
<th>Room</th>
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<tr>
<td>1</td>
<td>Ventilating Fan</td>
<td>Living Room</td>
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<td>2</td>
<td>Kitchen Cabinet</td>
<td>Dining Room</td>
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<td>3</td>
<td>Electric Refrigerator</td>
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<td>4</td>
<td>Range</td>
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<td>5</td>
<td>Ironing Board</td>
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<td>Thermostat</td>
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<td>7</td>
<td>Medicine Case</td>
<td>Bed Room</td>
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<td>8</td>
<td>Efficiency Wardrobes</td>
<td>Bath and Lav.</td>
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<td>9</td>
<td>Fireplace Throat and Damper</td>
<td>Porch</td>
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<td>10</td>
<td>Built-in Mail Box</td>
<td>Roof</td>
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<td>11</td>
<td>Weatherstrips</td>
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<td>12</td>
<td>Storm Sash</td>
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<td>Casement Windows</td>
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<tr>
<td>27</td>
<td>Dishwashing Sink</td>
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Excellent Design for a Ten-Story Office Building

RALPH E. SCHAMELL, Architect

This ten-story office building for the National Reserve Life Insurance Company, Topeka, Kansas, built at a cost of $500,000, is excellently designed, built and equipped.

The style of the building is gothic and as the building is flood-lighted every night the impressiveness of this design is vividly presented to every passer-by. The exterior of the building is in terra cotta with polychrome colors. The interior lobby is also of terra cotta. Structurally, the building is a reinforced concrete frame with reinforced concrete floor slabs, brick curtain walls and brick backing for the terra cotta. All the corridors are finished with terrazzo floors, and Tennessee marble wainscots, seven feet high. All partitions throughout the building are constructed of 2-inch solid metal lath and plaster. All wood trim is in oak.

The first floor of the building is designed for shops and stores in addition to the offices of the International Mortgage Trust Company. The walls, floors, counters and fixtures of the trust company's rooms are of marble. The trust company vault is equipped with cedar lined storage space so that this company may rent space for the storage of furs.

The entire building is heated by means of a vacuum steam system. Radiation is automatically operated and thermostatically controlled. The two boilers in the basement are fitted with automatic oil burners, the fuel being stored underground outside the building. Other mechanical equipment in the basement includes a circulating refrigerated water system to drinking fountains on each floor. All water throughout the building is mechanically sterilized.
Better and Cheaper Homes
Use of End-Matched Soft Wood Lumber Represents Great Forward Step in Lumber Industry, National Wood Committee States in Special Report

WHAT the welding process has done for the metal industry the end-matching process will do for the lumber industry, says a report entitled "End-Matched Softwood Lumber and Its Use," issued recently by the National Committee on Wood Utilization of the Department of Commerce.

A sub-committee on end-matched softwood lumber headed by Mr. William F. Chew, representing the National Association of Builders' Exchanges, Baltimore, Maryland, and composed of eleven members recruited from leading architects, engineers, builders, contractors and lumbermen, has made a thorough study of the application of the end-matched system to softwood lumber.

For years, the committee reports says, hardwood flooring strips have been provided with a tongue at one end and a groove at the other, thereby enabling the joining of two or more pieces. This principle, now applied to softwood lumber, will attain an even greater importance because of the wider general application of softwood lumber both for building construction and industrial uses.

Heretofore many billions of feet of lumber of lengths shorter than eight feet have found an outlet, not because the material was defective, but due to the fact that the consumers have been in the habit of insisting on long lengths to be cut short on the job.

While for many purposes these short lengths would be difficult to handle, the end-matching of this stock would put them in the preferred class of building material. The committee's report points out that end-matched softwood lumber will be of the greatest importance for such purposes as flooring, ceiling, sheathing, concrete forms, and for similar covering purposes. It may be laid just like a ribbon and the end, sawed off at the extreme of a tier, may be used to start the following tier. In this way the material is practically one hundred per cent usable. End-matched lumber has also a very wide application in industry for such purposes as elevator construction, packing boxes, refrigerator and cooling rooms, bins, conveyors and for a number of other similar uses.

According to Axel H. Oxholm, director of the committee, this end-matching project is the second of a series which has for its object a more complete utilization of our timber resources.

The end-matching of lumber will increase the variety of forest products which is an important factor in the more complete utilization of the tree. It is obvious that the public must take advantage of all short cuts to economy in the use of lumber because commercial reforestation, which is of vital interest to the entire nation, is only possible if the producer can find a market for the various products of the log. A continued liberal use of lumber now employed in housing more than ninety million people in the United States is dependent upon the public's willingness to meet the producers halfway in making the most sensible use of our lumber products.

Knotty lumber is a synonym for defective lumber, to the average lumber consumer, but this is an erroneous impression based on the unfamiliarity of the lumber-consuming public with the character of knots and the application of knotty lumber without impairing good construction.

"It is possible to effect a saving of about 50 per cent of the cost of the lumber entering into the construction of floors, if sound, tight knotted stock is used for that part of the floor which is exposed to view, and sound tight knotted stock be used under rugs, carpets or other floor covering, it is evident that this knotty material may be used to good advantage."

As our virgin timber supplies diminish, the percentage of lumber free from knots is decreasing, and as a consequence prices for such material will go up. If the public could put this tight knotted stock to good use it would eliminate an abnormal demand for high grade material for purposes where such stock is not needed, thereby permitting a continued liberal use of wood for flooring purposes.

While the use of sound tight knotted stock may not find a general application for floors covered with small rugs, it is confidently expected that this class of material will be extensively used in office buildings, hotels, stores, and other types of construction where only part of the wooden floor is exposed to view. Inasmuch as the difference in price of sound tight knotted flooring strips and that of material free from all defects may be as high as 50 per cent, it is evident that a considerable economy in the cost of construction may be effected in this manner.

Besides the usual flooring machinery, the new product requires only the addition of the flooring factory of simple machinery for producing the very accurately cut end joint, a tongue on one end and a groove on the other. In laying, these joints are allowed to come where they will, just as in hardwood flooring, and the strips are nailed only at the floor joists. On the square end product it was necessary, of course, when making a joint in the middle of the floor for the carpenter to cut the piece back to the nearest floor joist, to miter-saw both ends of the joint as accurately as possible with a fine saw and then nail both ends down to the joist. Even when carefully done, one end might be a little high or low and require scraping down. On the new product, the end-matching brings the two ends into such exact alignment of the face that the joint is almost imperceptible to the touch, and is rigidly held. The carpenter does no sawing except at the wall at the end of the run, and this saw cut is not a joinery cut because hidden by the wall base or the shoe moulding, and can be sawned without careful squaring. The new product is, therefore, much faster to lay, by a difference which is often surprising.
End-matched flooring is 100 per cent floor; there need be no cutting waste.

The square-end product is preferred in long lengths to save carpenter labor in cutting the joints; and its lengths vary by 2-foot units on the theory that such length standards are more apt to hit the joints—though just why is not evident, since the usual joist spacing is 16 inches. In the new product long-length becomes less important, because the matched end is as good as any of the rest of the floor; and as a matter of fact, unless a premium is paid to secure selection for uniform grain, the difference or "Strips" between adjoining pieces makes a much better appearance in the end-matched shorter flooring because it is interrupted or broken instead of extending nearly or quite across the room—just as the weavers of the old-fashioned rag carpet (which in the form of rugs is still popular) often relieved the monotony of solid through strips by "hit" or "miss" bands in which the contrasting colors were broken into shorter lengths.

In the new product also differences in length of 2 feet, or any other standard for that matter, become entirely unimportant, and different pieces may vary by one or two inches or even by fractions of inches and still go perfectly into the floor. This makes it possible at the factory to convert a No. 2 or No. 3 flooring into a clear grade of end-matched, merely by cutting out the knots and other defects; and nothing is wasted but the 2 inches or 4 inches of length containing the defect. Where such defects are cut out to raise the grade of the square-end product 2 feet must be thrown away in order to maintain standard 2-foot variations in the product. End-matched product, therefore, saves so much clear lumber from the waste pile that the cost of the end-working is considerably overbalanced, and in the price he pays the user of end-matched softwood flooring is participating in the saving from this closer utilization. It must be remembered that in softwood flooring, and especially southern pine, the dark heartwood is preferred; but this is the part of the log in which knots are to be found. End-matching makes the highest possible use of the clear material between these knots.

Another saving sometimes attempted with square-end material is even more practical with the new product, and that is in the use of a not entirely clear grade for the floors of bedrooms or in other parts of the house more secluded than the main living rooms. Small sound knots and other sound defects make as good a floor mechanically, but are considered less sightly and the effort is usually made to keep them out of the margins of the room, not covered by the rug, as far as possible. With the long square-end product this is somewhat difficult; but with the shorter lengths of the end-matched product it is perfectly practical to have all the margins of perfectly clear flooring with a less expensive floor under the rug.

End-matched softwood flooring and other end-matched products are bundled to the nearest foot, which means that a 5-foot bundle may contain pieces from 4 feet 7 inches to 5 feet 6 inches. The grading rules of the Southern Pine Association provide that on all end-matched product A grade is to have a minimum average length of 9 feet; B and better, 8 feet; B, 7 feet, and all common grades, 5 feet. The different manufacturers offer various assortments, as, for instance, 8-foot and longer with 15 per cent included of 2 to 7-foot; and besides the assortments of long lengths with a limit percentage of short, assortments of short lengths, 2 to 5 feet or 2 to 7 feet, may be purchased at very attractive prices and lay a surprisingly faultless and attractive surface.

Altogether, end-matching of softwoods is an idea the builder can talk to his clients with an assurance of everlasting satisfaction to them and of added profits and reputation for himself.

The Committee Recommends That Tight Knotted Lumber Can Be Well Used Under Carpets or in Room Centers Under Rugs.
West Coast Woods Competition Prizes Are Awarded

In the recent architectural competition, conducted by the West Coast Lumber Bureau and sponsored by the Washington State Chapter of the American Institute of Architects, the first prize, $2,000 in cash, was awarded to Otho McCrackin of Hutchinson, Kansas, for the best design of a residence and garage built principally of wood. The second prize, $500 in cash, was awarded to Angus McSweeney, of 250 Santa Paula Ave., San Francisco, California. Another design by Mr. McSweeney received honorable mention and an additional $100 award.

Nine other designs which received honorable mention and awards of $100 each were submitted by: John J. Landon, Los Angeles, California; H. Roy Kelley, Pasadena, California; Alfred Cookman Cass, New York, N. Y.; Lyle Swiger, Asheville, N. C.; Francis Keally, New York, N. Y.; Frank S. Carson, Ann Arbor, Michigan; Heth Wharton, Los Angeles, California; R. C. Bicknell, Paterson, N. J.; John Floyd K. Yewell and Walter W. Weferring, New York, N. Y.

In all, there were 203 designs submitted by architects.
Prize Winning Designs

and draughtsmen from all parts of the United States, Canada, England, France and Hawaii. According to the jury of architects which made the award the competition was a decided success and "is worthy of emulation as a means to, and as a definite and strong encouragement of, better wood architecture."

Otho McCrackin, of Hutchinson, Kansas, Submitted the Design Reproduced on This Page and Was Awarded the $2,000 First Prize, for the Best Design of a Residence and Garage Built Principally of Wood, in the West Coast Woods Architectural Competition. The lower sheet shows interior wood finish and the vertical siding.
Building Industry Using More Concrete Masonry Products

Post-War Period Has Seen Big Development of Concrete Products Industry Which Today is a Leading Factor in Building Materials Field

By W. B. BRUMMITT

ALTHOUGH masonry units are probably the most important single class of concrete products today, they are by no means the only output of this important and growing industry. Brick, floor tile, art marble, roofing tile, cement-asbestos products, poles, pipes, piles, burial vaults, light posts, ornamental cast stone, silo staves—these and others are all actively produced by the industry. But no matter how the variety of concrete products may multiply, it is probable that the chief production will remain in the field of masonry units.

The solid building block of former days has practically disappeared. In its place there are many forms of hollow masonry units, most of them standardized to an 8 by 16 inch size, having approximately 40 per cent airspace. Smaller units, commonly known as concrete building tile, are also growing in popularity, some of them made of ordinary concrete and others of lighter weight aggregates, but all designed to serve well in fitting around doors, windows and sills. The flexibility of these units makes them adaptable to any style of architecture so that it can be said that architectural freedom is not limited by the unit but is enhanced by it.

The modern concrete masonry producer is not satisfied to sit in his shop and let business come to him. He reaches out for business. He subjects his output to tests which startle a once apathetic public to attention. He builds demonstration houses of concrete masonry and tile, and invites the local fire department to test it by subjecting it to intense heat, the fire-hose high-pressure water test, impact and other severe tests. He interests insurance men, builders, realtors and the public in general. In other words, he is furnishing conclusive and absolute evidence that concrete masonry cannot burn and proving its many other advantages and its adaptability to all types of high class construction.

The alert products man knows that fire costs America half a billion dollars every year. He knows what sort of fires are hardest to handle, and why. And he makes it a point to show fire chiefs and insurance underwriters just exactly how concrete masonry can help to cut down that fire loss.

The concrete masonry business today represents an invested capital of $140,000,000. Adequate capital, real business acumen and modern production methods are replacing

From the Casting Machine, the Green Units of Concrete Masonry Are Carried in Racks by Lift Trucks or Industrial Railways to the Curing Rooms. In some plants, conveyor belts are used.
A Self-Contained Concrete Products Factory. A gravel pit, at the right, supplies much of the raw material needed, which is carried directly into the production system, where it is cleaned and scientifically mixed with portland cement to produce high-strength masonry units, stocks of which are seen in the left and right foreground.

the old regime of small resources, inadequate business skill and haphazard methods. Last year the output of the masonry factories approximately equalled in value the capital invested in them. It is only natural that other building material industries have met this growth with keener competition; but competition, in itself, has supplied an incentive for the production of better merchandise by more efficient methods and with a carefully developed selling plan.

Under these circumstances it is generally conceded that the future of the concrete products industry is in the hands of its merchandisers. Advertising, selling and standardized quality-quantity production are to receive constant emphasis, according to the plans of the Concrete Products Association.

One of the greatest encouragements the industry has received was the recognition given hollow concrete masonry as one of the materials for which regulations are provided in the masonry wall report issued by the Building Code Committee of the U. S. Department of Commerce. The Building Officials' Conference has likewise given concrete masonry official recognition and approval in the proposed regulations, printed in the proceedings of the Twelfth Annual Meeting. This, coupled with the adoption of standard tests by the American Concrete Institute and the Underwriters' Laboratories, has given the business as a whole a tremendous impetus. Building codes of many cities, in defining the physical requirements and uses of concrete masonry, are accomplishing a great deal toward standardizing the industry and gaining the confidence of the building public.

The rapid growth in the popularity of concrete masonry units, during the past four or five years, is a development that ranks as a real achievement in the building materials field. The business has prospered—but continued production of a dependable, standard, high-quality product, coupled with aggressive sales methods, points to far greater prosperity ahead.
Igloo Type Poultry House with Roof Trusses in Place.

Cuts Cost of Poultry Housing

New Type of House Follows the Style of Eskimo “Igloo” and Might Be Called the “Eggloo”

By A. B. DANN

Taking as a model the home of the Eskimo, called the igloo, which is designed so as to provide a maximum of floor space with a minimum amount of cubic space inside to be heated, there has been brought out a new type of poultry house. This house has not been named by the designer, but it might be called the “eggloo,” as it has been demonstrated that this house will accommodate more hens in a given amount of floor space, saves at least 20 per cent in construction cost and is more easily heated than the other types of poultry houses that have been developed in recent years.

The idea of this building was conceived five years ago by the engineers of the James Mfg. Co. and the house shown in the illustration, erected a few weeks ago on the Jefferson County Farm, near Fort Atkinson, Wis., is sixth of its type to be built. The first was put up three years ago on the farm of a New Jersey poultryman. It was so successful that the same man built a second one the following year, and still another one last year. The three houses accommodate 4,500 hens.

The house built on the Jefferson County Farm, which is famous for its show herd of Holsteins, is 20 feet wide and 88 feet long, and is comprised of four units, each 20 by 20, with the extra 8 feet for a feed and heater room. The foundation of the building is a concrete floor, insulated with hollow tile.

The superstructure is of Gothic rafters, four feet on centers. These rafters are covered with matched roof boards on the outside and these are covered with asphalt roofing. The inside of the rafters is covered with galvanized sheet iron of an unusual design, as each sheet has a “fin.” These fins are used so that the insulating material—chopped hay or straw, or sawdust—will not pack. In constructing the house, the top board on the outside is left off, and as the sheet metal is placed inside, the space between the roof boards and metal is filled with the insulating material. When the last sheet of metal has been put on the balance of the space is filled through the roof opening and the roof board put on.

The trusses or rafters are of a peculiar and patented construction. They are built up so that they gradually become wider as they reach the ridge, permitting a greater amount of insulation to be used at the top than at the sides.

Inside the house is slightly more than 7 feet to the ridge, the walls curving from that height to the sills. The distance over the roof from sill to sill is only 27 1/2 feet, as against 35 3/4 feet over a shed-roof type house of the same dimensions. It will readily be seen that this type of construction effects a considerable saving in materials; in fact, 800 board feet less of roof lumber was used in this house, 88 feet long, that would be required in a shed-roof house of 88 feet long.

The Poultry House on the Jefferson County (Wis.) Farm, Designed by the James Mfg. Co. More than two tons of weight on the roof trusses are represented by the men standing.
Cuts Cost of Poultry Housing

The advantages of this house may be summarized as follows:

It represents a saving of about 20 per cent in wall and roof structure. On this house—shown in the illustrations—which is 88 feet long the saving was about 800 board feet of roof lumber and about 800 board feet of whatever material is used for ceiling inside.

It has about 20 per cent less radiation surface, which is valuable in saving of heat loss because of the limited amount of heat available in a hen house.

The trusses or arches correspond to studding and rafters and are placed 4 feet on centers, representing a saving of one-third to one-half in framing materials.

No framing material is necessary for the windows, which are of metal, another marked saving.

The building requires no paint, with the exception of the door casings and the vertical strips at the ends.

There are no plates to buy or frame in. Consequently there are no cracks or crevices to fill in at the ceiling line, which eliminates any possible chance for drafts in the house.

This house is admirably adapted to the use of the litter carrier, and to a feed and egg carrier, thus offering a great labor-saving feature.

Windows are placed in such a position that during the winter months they may be opened to permit the entrance of the sun's rays directly on the birds underneath, thus making the greatest use of sunlight.

No special carpenter labor is required to erect the house, for it can be assembled easily and quickly, without the necessity for framing except to cut five studs for each end.
The fine points in horse-trading are many, with profits and losses settled on such seeming trifles that we smile with David Harum; yet many of us scarcely acknowledge the ordinary points in architecture to our own grief later. That, of course, is not a laughing matter. The characteristics of a great grand-sire in Joe Patchen are so valued and far more easily traced than the characteristics of many modern American homes.

Before the Revolutionary War, when trade was brisk and profits large for the Colonials, and even after the War of 1812, there was a growth in American architecture that has never been equaled. The whole growth is generally termed Colonial. But that term is hardly correct because of the differences along the coast. The more northern was very much English, contemporary with the old country Georgian, but I will venture to say superior for the smaller type of building. There are grounds for that assertion in their greater wealth and vigor. The Pennsylvanians and New Jersey folks had a different Colonial and the Southern Colonies a quite distinct type which will come later.

The Georgian is the combination of classical and domestic. The type may run from simple to elaborate in varying forms but is so separate from the comfortable domestic type that it is easily distinguished. Traces of it appear, however, in the very simplest structures, adding beauty when well done and horrifying when poorly done. In Fig. 9 a Georgian cornice and doorway alone are added to a gabled frame with much credit. That is one way. Up through Wisconsin and Minnesota where the very early western trend came by way of the lakes you can find small farm homes of perfect Georgian type. Fluted columns at the corners, scrolls, cornices, temple roofs, and all in perfect order. These usually date 70 years back and are true New England Georgian. The old quarter pitch roof with the heavy returns and the porch columns are migratory marks.

Fig. 1 shows a building of the Stuart time. Notice the general form of the roof and columns. Compare this to the later Georgian in Fig. 3, a Colonial Georgian, and to Fig. 7. Then there is the decked roof shown in Fig. 5. This home in Cambridge, Mass., is a fine example of the Charles River district. In Fig. 2 the form is very different but just as marked. This type is seldom used now-a-days except in tall buildings, but it is just as logical in many ways as an off-shoot of the attempts at classical. It is rather expensive construction considering cubage.

The tendency to simplify has diminished the use of rails and delicate cornice work. In this there is sound sense. A roof is a roof, and the old New England flat railed roof for two and three storied home is a relic. That a roof is unsightly because it does not entirely fit the classical was considered nonsense a good many years ago.

So in Figs. 4, 6, and 8 there are shown hip roofs that fit as well with Georgian as any with the elaborate rails or dormers. They are indeed closer to the Italian.

Fig. 6 is a place in Oxford, probably 60 or 70 years old. The entrance is wide and formal with stone steps mounting a terrace, a wide door and a deep hall that leads to a winding stair at the rear. The lighting of the hall is increased by a large rear-door and stair windows. The stone walls are fairly plain but the whole is well proportioned and symmetrical. With the garden surrounding it the house is probably more nearly Italian than its builders intended.

In Fig. 4 the heavy hip roof of the American type; the formal entrance and the evenly grouped windows show quite a different picture from Fig. 8. In the latter there is more of the Colonial. The frame house is lighter, the windows are more nearly to type and the porch is much later in form. Of the two the one in Fig. 8 shows more the American side of the Georgian. But one common modern fault for this type is very plain in Fig. 8. That is the chimney outside the house wall. If the house is light in color as it should be, and an outside chimney is necessary, the chimney should be very light in color. The Colonial chimney and the English chimney on the Georgian house are plain enough, but usually balanced in effect (notice Figs. 2 and 7 specially), and within the house walls.

It is noticeable in Figs. 1, 3, 5 and 7 that the columns serve as vertical lines. This construction spaces the windows. The spaces were about right for the large checkered windows with decorated heads. When no columns are used the spacing was about the same. But of late years the grouped windows have sometimes been used. This grouping breaks up the wall and the simplicity is lost. The use of shutters on the checkered double-hung windows is in no way a detraction.

Georgian doorways or entrances, or as some term them, stoops, are of great variety. Those shown in the sketches are only a very few of the almost numberless designs. Portfolios by the dozens would scarcely cover them. The general run in smaller homes was flat decked or gabled and from elaborate pillars to mere board imitations. If possible a semi-circular or elliptical fan light was placed for a transom light. These are surely worth careful study.

The New England Georgian roofs include the gambrel. This is not the Dutch nor is it used as a distinct roof.
Details of Home Building

The Northern, Colonial American Architecture was Very Much English, Contemporary with the Old Country Georgian but Richer and More Vigorous.
A Study of the Hip Rafter

In our last discussion we explained the length per foot run method of finding the length of a hip rafter. At this time the square root method will be taken up. To have a clear picture in our minds as to the position of the hip rafter we have used the example of a box, in Fig. 1. One square is shown flat in the bottom of the box. Another square is shown standing upright with the body of the square diagonally across the bottom of the box. The edge of the square thus gives the length from one corner to the other corner of the box. This distance when compared to the hip rafter would correspond to the run of the hip.

The distance from “B” to “C” on the tongue of the square would correspond to the rise of the hip rafter or to the total rise of the roof. The hip rafter would occupy a position similar to the carpenter’s rule shown. In this case we scale the length of the hip rafter with the rule. If we let 1 inch represent 1 foot then we may obtain the length in this way, however, this method will not be so accurate, to the fractional part of an inch.

A rule that is divided into twelfths instead of sixteenths of an inch is convenient for this work. Then one-twelfth of an inch on the rule counts for 1 inch on the rafter.

When finding the length of the hip rafter by the square root method we make use of the square root method of finding the length of the hypotenuse of a right triangle. This principle is illustrated in Fig. 2. The rule is stated thus: “The length of the hypotenuse of a right triangle is equal to the square root of the sum of the squares of the other two sides.”

Two operations are necessary in order to find the length of the hip rafter. First we must find the length of the run of the hip. This operation is illustrated in Fig. 3.

Having found the run of the hip, this is used as the base of another right triangle in order to find the length of the hip rafter. Fig. 4 illustrates the second step in finding the length of the hip. Here the run is the base of the triangle and the rise is the other side of the triangle. The length of the hip is the hypotenuse of the right triangle. The length, therefore, is the square root of the sum of the squares of the other two sides of the triangle. The length is the square root of the sum of the base squared, plus the rise squared.

Fig. 5 shows another way of finding the length of the hip by square root. Here the length of the common rafter forms one side of a right triangle. By this method it is first necessary to find the length of the common rafter. This may also be done by square root. The run of the common rafter and the rise form two sides of a right triangle, the length of the common rafter forming the hypotenuse.

Problems

1. Find by square root the length of the hypotenuse of a right triangle whose sides are 6 and 9 inches respectively.
2. Describe the three right triangles shown in Fig. 4.
3. A building 34 feet wide has a rise of 9 feet 6 inches for the roof. Find by square root the length of the hip rafter.
4. Find by square root the length of a hip rafter for a roof with a run of 16 feet. For the common rafter and a rise of 8 feet.
5. What is meant by the length per foot run of a hip rafter? (See last lesson.)

Answers

1. The length of the hypotenuse of a right triangle whose sides are 6 and 9 inches is 10.8 inches.
2. One triangle is described by the run of common rafter, length of plate and run of hip.
3. Another triangle is described by the run of common rafter, rise of common rafter and length of common rafter.
4. A third triangle is described by the run of hip, rise and length of hip.
5. The rafters would have a run of 17 feet, for the common rafter. The run of the hip would be the square root of 17 squared plus 17 squared, or square root of 289 plus 289, equals 24.04 feet.

The length of the hip would be the square root of the run of hip squared plus the rise squared, which is the square root of 24.04 squared plus 9.5 squared, equals 25.85 feet.

4. The run of the hip is the square root of 16 squared plus 16 squared, equals 22.627 feet.
5. The length of hip is equal to the square root of 22,627 squared plus 8 squared, equals 24 feet.

Tall Buildings and Traffic

From the twenty-eighth story of the Equitable Building to the tenth floor of the Bankers’ Trust is a quick jump because the travel is mostly vertical,” said Harvey Wiley Corbett, the well-known New York architect, speaking as an advocate of the skyscraper at the civic development session of the annual meeting of the Chamber of Commerce of the United States. Flatten out the financial district to eight or ten stories and those offices might be 10 or 12 blocks apart, and the traffic on the surface would be just that much more congested.

“There is as much vertical traffic as horizontal in New York’s financial district during business hours. Maybe more. In fact it would not be difficult to prove by means of a careful survey that in this section of the city there is less traffic congestion, both pedestrian and vehicular, during the important hours than in sections where the average building height is less than one-third what it is downtown.”

The opposite side of the discussion was taken by Major Henry Curran, counsel of the New York City Club.
This shows how the length of diagonals may be found with steel square and carpenter's rule.

Diagrams Illustrating the Square Root Method of Finding the Length of Hip Rafters.
WINDERS is the term given for a stair built so as to make a quarter, half or full turn in a flight. Stairs of this type are a familiar sight, as they can be found in a large percentage of American homes.

Winders are usually constructed so as to allow three treads within a square as shown in Fig. 1. To build more treads within such a space would tend to make a dangerous stair and is to be avoided whenever possible; however, there may be places where four treads to the quarter turn is permissible.

Where three treads are placed within the quarter turn each would have its edges 30 degrees to the others and it is the ability to lay out this angle and apply it to the construction which is the main requirement of the mechanic when building a winding stair. The best way for the beginner is to lay out the floor plan in full size upon a floor and take exact measurement therefrom.

To do this, simply draw a square as large as the stair is wide as in Fig. 2. Using (a) as a center and A-O as a radius scribe a quarter circle as D-B. With D as a center and using the same radius scribe a quarter circle from C to A. Repeat, using B as a center and scribe from A to C. From point A draw a straight line through the points where the quarter circles meet, continue the line to the opposite sides of the square. The completed layout should be as shown in Fig. 2.

The above method is used very often and has the advantage because all measurements can be taken in full size and enables the mechanic to visualize the construction. All measurements should be taken so as to allow for various materials used in building.

The face of the risers are to be placed even with the lines shown on the layout. The run of the stringer is also shown. This measurement and the rise are the figures to use in laying out the winders.

Fig. 3 is a typical floor plan. The heavy lines represent the position of the stringers and the light lines represent the face of the risers. Note that they extend to the center of the newel, shown by square. By fitting the risers at a point where these lines reach the square a better nailing surface is obtained and hence a stronger job.

In Fig. 4 a floor plan of a winder with the location of the stringers is shown. The stringers A and B, due to their shape, cannot be cut from one plank and therefore must be made up of two pieces and assembled. Stringer A is built up as any stringer for a straight flight. B and C must, however, be laid out using the same figure for rise as for the straight flight and the run of the stringer is found by the layout.

A mathematical formula for finding the run is to multiply the width of the stair by 37 and divide by 64.
Troublesome points in residence heating often are ells, tees, dens, sun parlors-and other rooms remote from the central plant. In this class, too, might be added rooms which must be served by warm air leaders which, because of structural interference, would have sharp and numerous bends in the pipe line. All such rooms may be successfully warmed by hot-water radiators fed by pipe coils or hollow castings placed in the combustion chamber of the heater or partially buried in the fire itself. Such plants are known as combination systems.

In selecting a plant for this service the heater must be large enough to supply warm air to the principal rooms, that is, living, dining rooms and halls, also have sufficient grate area to heat the water within the heating elements to 180 degrees Fahrenheit. Water is supplied to the radiation piping and heating element and partially fills an expansion tank, generally placed in the attic.

Considerable ingenuity has been evidenced in designing the heating elements. A popular design is shown in Fig. 1, and others in Fig. 2. That in Fig. 1, known as the disc type, is installed in the furnace, edge towards the furnace front, and in contact with the fire. From Fig. 3 it will be noted that sometimes a base casting only is used. More often, however, one or two ring sections, one above the other, are added, both above and connected to the base.

In considering the heating values of the different styles of elements there must be taken into consideration, as well as their size, their position in the furnace and their size and position with relation to the particular heater in which they are used. For this reason installers who choose the combination layout will be wise if they take the manufacturers into their confidence and offer a complete set of plans. The data given in Figs. 2 and 3, therefore, cover only average conditions and may be used for making preliminary estimates.

In figuring the size and style of the heating element and the size of plant it will be necessary to know not only the number of square feet of radiation to be included, but the outside area of all uncovered pipes, as a vast amount of heat is radiated from the piping unless carefully covered with asbestos, air-cell or some other kind of approved insulation.

As warm air furnaces are usually rated in number of square inches of leader area to be supplied with heat, the method of determining the total heating requirement is found as follows:

First, total the areas of the warm air leaders in inches.

Second, find the heat loss in rooms served by radiation in B.t.u. by any of the numerous approved rules and divide by 150 (the number of heat units given off by one square foot of radiation). The result is the number of square feet of radiation required.

Third, find the equivalent in radiation of the uncovered pipes from Fig. 4.

Fourth, add second and third.

Fifth, taking one square foot of radiation as equal to 1.25 square inches of heat leader find the number of square inches of leader equal to radiation and uncovered piping.

Sixth, add the total of warm air leader radiation in terms of square inches of leader. The sum represents the capacity of the heater necessary to take care of both warm air and radiation. The size of the heating element may be selected from Figs. 2 and 3.

In locating the plant the prime consideration is to place it so that the warm air leaders to the principal rooms are as short as possible, for it must be constantly borne in mind that the hot water radiation is only supplementary to the warm air part...
Furnace Heating

[October, 1927]

<table>
<thead>
<tr>
<th>Pipe Sizes, Diameter in Inches</th>
<th>Surface Area in Square Feet per Foot Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.375</td>
</tr>
<tr>
<td>1½</td>
<td>0.396</td>
</tr>
<tr>
<td>1¾</td>
<td>0.434</td>
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<tr>
<td>3</td>
<td>0.753</td>
</tr>
<tr>
<td>3½</td>
<td>0.916</td>
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</tbody>
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Fig. 4.—Square Feet of Outside Surface Per Foot Length for Various Sizes of Pipes.

Fig. 3.—Base, Ring Casting and Combined Units of Heating Element as Commonly Used in Combination Heating.

of the complete system and its functions are primarily to make the system more flexible besides heating the rooms of the building likely to be troublesome.

Balancing System Demands Caution

Many installers fight shy of combinations because of unfavorable experience at some time or other. Such sad experiences usually come about from one of two causes: first, attempting to place too much work on the hot water end of the system; second, incorrect proportioning of heating element, pipe sizes or radiators; to which might be added incorrect placing of radiation.

The direct radiation division of a combination system is not intended to take care of more than 20, or at the most 25 per cent, of the building. In an 8-room residence, therefore, this means two rooms may be heated with hot water and in smaller buildings one room. It is rarely that three rooms may be included, although this may be done if care is exercised.

Instances have been noted by the author where a larger number of rooms are warmed with a combined layout, but this is inadvisable unless a separate water heater is installed. Otherwise the furnace would have to be so large that its operation would be uneconomical except when full capacity is needed. If a mechanical, electric fan is incorporated surprising capacities may often be enjoyed at small expense.

In a given size of firepot only a certain amount of coal may be burned economically and only a limited size of heating element warmed to 180 degrees content. If more heat is transferred to the heating element than needed, it often occurs that the system is thrown out of balance. Insufficient warm air is delivered to the rooms handled by this part of the plant, and too much heat goes to the hot water end. Again, the reverse sometimes occurs, that is, while the warm air end is provided with plenty of heat the hot water division is insufficiently cared for.

The common remedy or precautionary measure is to place both a warm air register and hot water radiation in the same room, say, a front hall. If it develops that the radiation is too well supplied at the expense of the warm air register, the radiation may be closed, and vice versa, the register blades may be closed so that more heat will be utilized to supply the radiation. To the scientist this remedial plan may appear inexact, but combination systems might be termed "tricky" as so many elements enter into design and operation. A single instance might serve to illustrate.

An elderly lady in a certain Maine town found she obtained little or no heat in the small north room which she used as a sewing room. This room, although small, had three windows in it and the light was good for her work. She sought the services of a local installer, and eventually there was put in the combustion chamber of the furnace a horseshoe design, hollow casting element and a hot water radiator in the room. Although the old lady was in excellent health, nevertheless she suffered from almost total loss of eyesight in her left eye. As she did her own housework she operated the heater most of the time.

Within two days after the radiator was set up and left working well, the radiation was found to be almost lifeless so far as heat was concerned, and the reason was not evident. The contractor was recalled and it appeared that the coal which the housewife had thrown on the fire was almost all on one side of the firepot. The result was that the right side of the heater worked well but the left side had almost no fire at all. Consequently, the right side of the heating element was warm but the left side only partially so. A thermometer placed in the water line revealed that the water, instead of being 180 degrees when it...
Furnace Heating

reached the radiation, was only about 130 degrees.

Restoring the equilibrium of the fire in the furnace remedied the defective heating and sent the water upward at its proper temperature. It developed that the owner in tending her fire had favored her right eye, which was good, and thrown most of the coal on the right side of the heating element as a result. Yet, not all ineffective systems are so easily corrected.

Two Kinds of Piping Plans

There are, in general, two methods of piping employed in the direct radiation part of the combined system. The more common is that known as the two pipe, up-feed, with direct return. The other is the down-feed plan.

In the former the horizontal supply main, as shown in Fig. 5, is suspended near the ceiling of the basement, connected to the top of the heating element and pitched upward toward the hot water risers at not less than ⅜ inch in 10 feet. Branches extend from the riser to the bottoms of the radiators. The area of the mains must equal the sum of that of all risers, while the riser, when two radiators are served, should equal the sum of the areas of the branches. Likewise the return main must be graduated so that it equals in area the branches attached to it. The return main is usually installed the same size as the supply main.

In the down-feed plan a single riser extends directly to an expansion tank, needed in both up and down-feed methods, and a horizontal main, connected to the riser near the tank, then runs along the floor of the attic with a downward pitch of about ¾ inch in 10 feet. The supply drop feeder pipes are connected to radiators near their tops. Supply mains would best always be ⅜ inches in diameter or greater.

The Expansion Tank

An important part of the combination system is the expansion tank, placed at least 3 feet higher than the highest radiator. The tank prevents building up of pressures when the temperature of the water becomes too high, affords release of all air in the piping and escape of steam. A specimen layout of piping connections may be noted in Fig. 6.

In the two pipe, up-feed plan involves running a riser from the supply main near the heater to the side of the tank near its bottom, while another pipe should be run from the bottom of the tank to the return main. Thus circulation is secured and freezing prevented when the attic is cold.

In a down-feed system, assuming the attic is warm, the horizontal supply main is pitched upward toward the hot water risers at not less than ¼ inch in 10 feet. Branches extend from the riser to the bottoms of the radiators. The main sizes must equal the sum of that of all risers, while the riser, when two radiators are served, should equal the sum of the areas of the branches. Likewise the return main must be graduated so that it equals in area the branches attached to it. The return main is usually installed the same size as the supply main.

In the down-feed plan a single riser extends directly to an expansion tank, needed in both up and down-feed methods, and a horizontal main, connected to the riser near the tank, then runs along the floor of the attic with a downward pitch of about ¾ inch in 10 feet. The supply drop feeder pipes are connected to radiators near their tops. Supply mains would best always be ⅜ inches in diameter or greater.

Greater than ⅜ inch except under unusual conditions.

The capacity and size of the expansion tank depends entirely upon the amount of radiation which the hot water part of the combined system is to handle, and may be selected from the accompanying Fig. 7. To insure proper working of the completed plant it would be well to place the radiators beneath windows or other points of great infiltration the same as in any hot water heating layout. All radiators should be equipped with quick opening, water radiator valves and a union elbow on the opposite end.

All water line pipes also would best be opened on all radiators until the air within has been forced out. When the combination plant has been completed it may chance that certain radiators do not heat as expected. This usually is caused by trapped air and lack of circulation and can be remedied by opening the air valves until the water enters the radiators, when they should again be closed. In filling the system with water for the first time it is suggested that the pipes be filled and emptied several times until all foreign matter is forced out. Leaks and other defects may be attended to between fillings.

It would be well, too, to keep water in the piping at all times even though the plant is not in operation, as rusting takes place almost at once when pipes are emptied. Especial care should be taken to see that no fire is made in the furnace unless there is water in the radiation and element; failure to regard this precaution may result in cracking the heater, loosening and distorting heating elements and their connections.

How to Clean Terra Cotta

The correct method of cleaning terra cotta is something that should be understood to avoid disfiguring of buildings faced with this material. These methods have been set forth in a small circular by the Atlantic Terra Cotta Company, 19 W. 44th St., New York City, and are quoted here.

"Broadly speaking there are three different surface finishes in Atlantic terra cotta, lustrous glazed, matt glazed and unglazed. The glazed surfaces are the easiest to clean. "For both lustrous and matt glazed finishes a good abrasive soap or washing powder is best. Where required there can be added to the latter a slight proportion of sharp sand. A stiff lather should be made and the surface scrubbed hard, lather allowed to remain long enough to soften the dirt and then rinsed off with clean water. Acid is not necessary for cleaning glazed surfaces. "In cleaning unglazed terra cotta the addition of a slight proportion of commercial muriatic acid is recommended. The proportion of acid to water may be varied. One quart of acid to four gallons of water is sufficient in ordinary cases. In no event should it exceed 1¼ pints of acid to one gallon of water and care should be taken to rinse off shortly after applying. "Where acid is employed use only wooden pails and fibre brushes. Metal pails cause a chemical reaction under which the solution becomes a yellow stain instead of a cleaning fluid. Do not permit hydrofluoric acid to be used. Many cleaners, in order to save hand labor, employ strong solutions of this which are highly injurious."
HOW DAN DOES IT

A Department for Passing "Life Savers" along to other Builders

$2 for an Idea

Dan is an ingenious cuss. Nothing ever stumps him. He always knows the way out when he runs into a tough problem out on the job or in the office. Dan is the editor of this Department and will pay $2.00 each for every good idea he can use here to show and tell other builders "how to do it." Send him a rough sketch and a short description of what the tough job was and how you handled it.

Address Dan-Do-It, care of American Builder 1827 Prairie Avenue, Chicago, Ill.

Another Siding Gage

In the July issue Mr. Harold Hay gives his method of putting on siding. In using his method, if there is any variation in the width of the siding, and there usually is, it will show up on the finished job. The method I use gets away from this difficulty. I put the first board on straight, just as he does, then make a little device as shown in the sketch, from a piece of wood. Make the distance from the end to the shoulder the same that I want the siding exposed. Put the shoulder against the bottom of the first (or any other) board and the end locates the lower edge of the next board exactly. In this way the width of the siding makes no difference and the exposure is always the same.

A short time ago I had to remove a partition which supported a ceiling. I could not tie it to the roof, so I put a 4 by 8 across from one plate to the other, and put a ¼-inch by 12-inch lag screw through into every ceiling joint. This pulled a sag of 1¼ inches out of the ceiling.


A Rack Like This Will Prove Convenient in Handling Screen Cloth.

The sketch shows the simple details of this rolling stand. In use to remove a piece from the roll it is only required to grasp the edge and pull. The hinged section permits of readily removing the roll of wire and replacing it with another of different width, simply rolling the material along the bench or counter. The rollers should be made high enough above the bench that a piece of cord can be passed around the roll when it is to be removed from the holder.

G. A. Luers, 130 E. Capitol St., Washington, D. C.

Simple Bench Clamps

The accompanying sketch of a simple bench clamp practically explains itself. This clamp consists of a strip of wood fastened solidly to the bench and, beside it, an eccentric wheel. This clamp works quickly and surely and holds the material on which you are working very firmly. Its capacity for different sizes of material can be varied to suit any need according to the size of placing of the wheel and with a large wheel it will hold any material, from the largest sizes to the smallest, equally well.

Christ W. Walter, Raley, Alta, Canada.

Stands for Rolls of Screening

When unrolling copper screen cloth, for cutting off into suitable lengths, the fixture shown in the attached sketch, will be found speedy and convenient, a means for saving labor. Two vertical rollers serve to support the screen cloth, while a third roller on a hinged frame holds the cloth from rolling forward. For rollers, the wheels from a pair of roller skates are of use, or, if not available, small caster wheels will be of service.

This Simple Clamp Should Prove Very Flexible for Various Sizes of Material.
Leveling Concrete Foundations

Here is the method I use for finding my levels when building small houses. When I get my outside forms in, for the concrete basement walls, I insert a glass tube in each end of a piece of ordinary lawn hose. Pieces of glass boiler tube work very well for this purpose. I fill the hose with water and stretch it along the inside of the form, holding the tubes in a vertical position as shown in the accompanying sketch.

Since water always finds its level the points where the water comes in each glass tube must be on the same level and I mark these points on the form. I continue this around the inside of the whole form, stretch a line around the marks and drive nails every 18 inches. This gives a perfect level to which to work for the top of the concrete wall. It is a quick and simple method of getting accurate results on a small job.

L. P. Kirkpatrick, 3771-20th Ave., Vancouver, B. C.

Remounting a Sliding Door

I was called upon to replace a sliding door upon its track recently and it occurred to me that the method I used might prove useful to others. I removed the head casing on one side of the partition and, by cutting a hole through the plaster and lath, I was able to get at the truck and replace it on the track. The sketch shows just how this was done. The hole should not be larger than necessary as the casing must cover it up when it is nailed back in place.

This whole job required only 30 minutes and the owner was greatly pleased as he informed me he had asked another contractor about it and had been told it would be necessary to tear out part of the partition. This would have made a job requiring several days' work with inconvenience and dirt and the expense of new papering.

J. P. Poos, 25 S. Ellwood Ave., Baltimore, Md.

For Trimming Doors

I am an ardent reader of the How Dan Does It Department and am particularly interested in studying new and better ways of doing various jobs. In reading over the July issue it struck me that in trimming doors in the way suggested by Mr. Maddock the piece along the floor would be apt to wobble unless securely nailed along its entire length. This would make it unhandy to take from place to place. What I consider a better method is shown in the sketch which is simple enough to explain itself. This device is easily and quickly made and holds the work when tack nailed to the floor with a couple of nails at the ends. These nails can be withdrawn quickly and easily whenever you wish to move this device to another place.

Joseph McGrath, 339 Sumner Ave., Brooklyn, N. Y.

Rainproof Ventilator

I have seen some very clever ideas in the How Dan Does It Department and now I have an idea which I believe is clever enough to be useful to other people. It is a device to admit fresh air through an open window without admitting rain at the same time. The device is made of sheet metal or wood and screen, the lower side of the box-like fixture being screen and the ends and sloping top either sheet metal or wood. It will slip under an open window in the same way as the old-fashioned screen and is just as easily removed. When in place air can circulate up through the screened bottom, but neither rain nor flies can enter.

Harold Basset, 216-A N. Tower Ave., Centralia, Wash.
The Lumber Industry Undertakes Cooperative Trade Extension

The lumber interests of this country have now undertaken a general advertising campaign for lumber as a whole and without distinction of species. Although many of the great lumber manufacturing corporations and regional associations of lumber manufacturers devoted to certain species of lumber have done a large amount of research, merchandising promotion and advertising, they have found that such particular undertakings do not meet the situation by which they are confronted. This sort of advertising meets competition within the lumber industry but does not meet that from other industries.

The rivals of lumber compete with it as lumber, not as varieties of lumber, and it has been found that the advocacy of particular kinds of lumber is not an adequate offense or defense against competing materials. So, without in any way curtailing or interfering with their particular trade extension enterprises, the lumbermen have undertaken this general campaign.

$5,000,000 Fund Subscribed

Acting under the auspices of the National Lumber Manufacturers' Association, some 300 of the leading soft wood and hard wood manufacturers and distributors in the United States and British Columbia, have subscribed $1,000,000 a year, for five years, to the treasury of a united drive in the interest of lumber in competition with other building and industrial materials.

In its announcement the Association states that, contrary to the popular opinion arising from conservation propaganda, there is at present an abundance of timber in the United States and the problem of a future supply is one of sufficient present consumption rather than overuse. To preserve ripe trees, for example, is waste. In other words, the conservation movement has been overdone in that there is a tendency now to use too little wood instead of too much. The result is disastrous to forestry and tree growing, which can not flourish unless they are on a sound basis of profit.

A Colossal Industry

As the lumber industry is not greatly evident in cities many people are quite unaware of its extent, as well as that of the other forest industries. The lumber industry, according to the criterion taken, stands second to sixth among the great manufacturing industries of the United States. Taken together with other forest industries, it represents, numerically, the greatest population group in the country after agriculture. It is estimated that about 12,000,000 people are supported by forest industries and about 40,000,000 by agriculture.

In their primary and secondary phases, the forest industries directly employ about 1,200,000 persons, have an invested capital of approximately $10,000,000,000 and an annual output of around $4,000,000,000. Besides being the chiefly used building material employed in the United States and supplying 300,000 out of 400,000 dwellings built each year, wood is the basic material of some 70 industrial groups and is necessary in almost all industries. It has been called the indispensable material of civilization.

A Campaign of Research

The prosperity of such an extensive industry is obviously of importance to the whole business community of the United States. The business world generally, therefore, will be interested in the five-year plan to revitalize the lumber industry in all its branches. The campaign includes scientific research bearing on reforestation, employment of hitherto neglected species of trees, economical utilization, and such problems as the prevention of decay and rendering of wood fireproof or fire resistant. The research work will also extend into the manufacturing and merchandising fields. Three divisional trade extension offices are being established at Chicago, New York and San Francisco, and some 15 field offices will be opened in as many other cities.

General headquarters remain in Washington, D. C.

"The Story of Wood"

The historic interest, the pioneer romance and present status of the lumber industry, as well as the value of its unique material, are set forth in an illustrated booklet, "The Story of Wood," issued in conjunction with the extensive advertising program which is now introducing the trade extension endeavor. The advertising plan includes the daily newspapers, national magazines and various class publications. The advertising of a contest for a distinctive slogan for the lumber industry, which is the publicity curtain-raiser, appears in the magazine and class publications. The newspapers will be invoked with the opening of the regular advertising series, early in 1928. However, hundreds of lumber dealers have promised to take advantage of the chance to capitalize locally the fruits of the national slogan advertising.

Fifteen thousand dollars in 57 prizes is offered in the slogan contest. It is necessary for each contestant to secure and read a copy of "The Story of Wood." It is believed that in this way a large portion of the public will be interested in the industry and its product and the ground prepared for the ensuing, intensive work of the five-year trade extension campaign, including newspaper and further magazine advertising.

The Responsibility for Safety

The politicians have taught us to shout 'safe and sane,' but neither they nor we have done much about it," according to J. C. Sanderson of Sargent & Lundy, Engineers, of Chicago. "We counsel caution, then praise daring men who have won by taking a chance."

"The contractor's responsibility is first and he should be required to employ intensive safety measures. It is not difficult to demonstrate that the jobs which are best organized for safety are also best organized for speed and economy. Here are some good rules:

"1. The master mechanic is to make a careful daily inspection of all equipment on the job and render daily reports on its condition. Equipment that is in any way defective must not be operated.

"2. All derricks must have extension levers so the operator will have unrestricted vision.

"3. All rubbish must be cleaned from the work and piled outside the area of activity as fast as it accumulates.

"4. There should be established definite and comfortable lanes of travel over the job. These travel lanes should not be over range of derricks or other moving equipment. The rubbish crews should have unrestricted vision.

"5. There must be proper stairs, ladders and hand rails where needed. These should be maintained by the master mechanic. Any injury to stair, ladder or hand rail should be repaired at once.

"6. All scaffolds, planked areas, etc., to be passed on by the master mechanic."
Solving Heating Problems

Experience has shown that difficult heating problems can be solved by the use of a fan on warm air heating systems and that heating efficiency can be increased on any such system by the same means. The theory of this heating system is to increase the flow of cold air to the heating unit and, thereby, the flow of heated air to the various rooms of the house or building served.

Furnace fans and boosters have now been developed to a point where they are no longer an experiment. As one manufacturer states, "You can profit by our experience. With this line, your experimenting has been done for you. We furnish the equipment necessary to meet your needs and our engineers will welcome every opportunity to work with you. They will gladly recommend the outfit best fitted to meet the requirements of any job you may figure.

One Type of Furnace Fan Installation for Assuring Ample Warm Air Heat.

One type of installation in this line is illustrated here. It is one of six different types made by this company for use with all types of warm air furnace and to meet the requirements of all the usual warm air heating installations. This particular model is for use with the standard top radiator type of furnace. These fans are furnished with motors adapted to alternating or direct current, 110-220 volts, single phase, 60 cycle, but can be supplied to fit other specifications at a small extra charge.

Economical Patterned Oak Floors

For many years the use of oak flooring in pattern form has been confined to the more pretentious homes, where the higher cost of the material and its installation was not an important consideration. Because of the great beauty and greater opportunity for the expression of individuality with this type of floor, efforts have been made to bring its cost down within the range of the average home owner. This problem has now been solved.

After many tests of floors laid with this new flooring and put to hard service an announcement has been made. This flooring material consists of a block, as illustrated, which is 6¾ inches square and is made up of three pieces of 2½-inch face flooring. These pieces are held together by a patented steel spline, inserted through the back. It is claimed that these blocks can be laid faster than the generally used strip flooring and can be laid by anyone who can lay strip flooring. Only one nail is required to hold the block securely in position.

Oak Flooring Units in Blocks 6¾ Inches Square Make Pattern Oak Floors Available at Low Cost.

Block flooring of this kind can also be laid in mastic directly over cement without the use of nails or wooden studs. This latter fact should appeal particularly to builders of apartments and for these the fact that the 6¾-inch squares have a tendency to make small rooms appear larger is an additional appeal.

A variety of grades, to fit any building budget, are provided in the new flooring: clear quartered white oak; clear quartered red oak; clear plain white or red oak; A select plain white or red oak; B select plain white or red oak; and common, which is made up of mixed white and red oak.

Ornamental Mail Boxes

Ornamental mail boxes in various styles and sizes are designed to add a finishing touch to the exterior of the home and serve in a practical manner the purpose of receiving mail. These boxes can be obtained in four sizes, to suit the need, according to the amount of mail commonly received. The illustration shows the smallest size, 6 by 13 inches.

The largest box, intended for homes, country estates and professional men who receive large quantities of mail, magazines and newspapers, is 10½ by 22 inches. The other two are sizes between these. These boxes are made of certified, malleable iron and are unbreakable. They are finished either dull black, antique black or antique green. They may also be had in brass in a variety of finishes.
Corded Waterproof Window Shades

WITHIN the past few years corded window shades have become justly popular, for material of this sort adds a touch of charm to windows not possible to achieve with plain colored shades. Realizing the popularity of the corded type of shade, one manufacturer of a very distinctive type of shade material has now produced this material in a corded design.

This material, which is now available corded, is a shade cloth made by impregnating a carefully selected, close woven cloth base with pyroxylin, essentially the same material which accounts for the durable beauty of the new Duco finish for automobiles and furniture. The corded material is the same in every way as the plain material, which has already established itself, except for the cording which adds to its attractiveness, without detracting from its durability or washability.

This Well Known Window Shade Material Has Now Been Made Available in Corded Patterns of the Present Popular Type.

Being waterproof, this material is impervious to all rain or moisture and can be washed over and over again without injury. Soap, hot or cold water, and a brush renewed its appearance season after season, year after year. Nor will this material crack or pinhole or sustain any other surface blemishes.

The corded design is woven straight through the base cloth. This assures that the cords will always hang perfectly uniform without ruffling. Being actually a part of the cloth, nothing can mar the beautiful corded design. This cord material is, at present, available in three colors. In order that the full beauty of the corded effect will be apparent when the shades are hanging at the window, light colors have been selected. These are: snow white, designated "Snow"; cream, designated "Dawn"; and ecru, known as "Sunset.”

Gas Range With Smooth Top

ALL of the features which characterize the modern gas range are found in a line, one style of which is illustrated, and in addition these ranges have cooking tops which are smooth like a table. This last feature is appreciated more and more by anyone using these ranges. It affords a broad, smooth surface on which vessels can be slid about without lifting and with plenty of room to push things back and keep them hot without burning or drying out.

The enclosed top is easily kept clean and it affords four cooking heats, quick boiling, gentle boiling, simmering and warming, all from one burner. Each food is cooked at exactly the right temperature. The burners used are of a special type which are said to bring water to a boil at least 25 per cent faster than the ordinary open top burner, using the same amount of gas.

The oven is large enough to accommodate the largest roast and has a perfect heat distribution which assures even baking and roasting on top and bottom racks. The quick compact broiler will take large steaks and cook them perfectly. A small wheel is attached as an oven control and this assures perfect roasting and baking. It is only necessary to refer to the cooking chart, which is attached to the range and can never be misplaced, set the wheel at the right temperature, as indicated on the chart for the pie, cake or whatever one may be cooking, and return to find perfectly cooked food at the end of the proper time.

Two Speed Electric Drill

FOLLOWING along the line of a highly successful, 3/8-inch electric drill which it manufactures, a company well known as a maker of electric tools has recently added to its line a two-speed, portable, electric drill of the same capacity. This tool operates at the normal speed for 3/8-inch portable drills, namely, 380 R. P. M. Inasmuch as this speed, however, is far too slow for the efficient use of smaller size drills, high speed gearing is also provided. Speeds may be changed quickly by the use of a shift lever, even though the motor may be running. For all-purpose use, the manufacturer says that this two speed drill is the last word in speedy drilling.

The new drill is fitted with a No. 2 Morse taper socket in a removable sleeve. It is held in the drill spindle by a large hexagonal nut. Since the tang of the drill bit protrudes slightly beyond the end of the sleeve, the use of a drift in removing the drill is unnecessary.

Other features include the use of vanadium alloy steel gears and deep groove, radial, ball bearings. A ball thrust bearing is provided to take up end thrust and adequate lubrication is secured through grease reservoirs. Heavy felt washers, protected by metal retaining rings, keep the motor windings clean and dry.

The use of square type brush holders allows for adjustment of brush spring tension and brushes are fitted with so-called "pig tails" or shunts. The patented, fully enclosed switch with cable clamp is standard with this tool. It can be furnished wound for 32, 110 or 220 volts, while the universal motor allows for operation on both direct and alternating current of the same voltage.

Two Speeds for This Electric Drill Adapt It to Both Large and Small Drills.
Improved Automobile Storage

The great demand for automobile storage space in congested districts has necessitated the building of multiple story buildings for this purpose and the demand for such buildings continues to increase. The handling of cars within such buildings, by ramps or other means, with the greatest economy of space and handling, has always been a problem only partially solved. Now a new method has been invented which promises a real advance in automobile storage methods.

This method was devised by the head of a firm which, for 40 years, has specialized in the manufacture of traveling cranes and material handling machinery. A full size working installation has been built and placed in operation and has been declared a complete success by practical engineers and architects, it is stated.

The system consists of one or more elevators to carry the cars to the various floors, an electric motor driven transfer car which carries them across the building to the desired stall and an electric dolly which gets under the front axle, raises the front wheels off the ground and propels the car, by electric power, from the elevator to the transfer car and from the transfer car to the stall, and vice versa.

A Handy Jamb Fastener

A JAMB NAIL that holds the jamb in place when the building settles. The picture shows, at the right, when jamb nail is driven into the wood how it spreads so it cannot work loose.

Jamb nails are used in doors, windows, for fastening shelves and on corners of boxes.

It sets the frame squarely and accurately, it drives into the wood without cracking the wood, requires less fitting on doors, saves labor in putting up of nail holes by painters, and a carpenter can do more work—do it faster and easier than by the old way.

This Jamb nail is made in three sizes, $\frac{1}{4}$ inches long, $\frac{2}{4}$ inches long and 3 inches long.

The manufacturer offers to send you a box of these Jamb nails on approval. You can return them if, by actual use, you do not find them better than anything you have ever used in setting jambs.

Mortar Mixing Equipment

Suitable equipment for either hand or power mixing of mortar can be furnished by a certain manufacturer, both types of equipment being illustrated here. The mortar box is constructed of No. 14 steel plate throughout. The sides and ends are flanged by a high power press forming a tubular section all around. This gives the box ample strength to prevent any kinking or bulging and also furnishes a sturdy and convenient handle. The bottom and ends are formed from one piece, giving a smooth working surface and one which is easily kept clean. There are no sharp corners, swinging or projecting handles, no nails to pull or cracking to contend with. It is made in the following dimensions: 3 by 6 feet; 3 by 8 feet; 4 by 8 feet; 4 by 10 feet; all of which are one foot deep.

The power mixer is a time and money-saver as, it is said, it will enable bricklayers to lay between 10 and 20 per cent more brick a day, spreading more easily and eliminating tempering on the board. The mixer is sturdily built of steel throughout. The discharge gate is adjustable and leak-proof and the end drum of the discharge gate is equipped with a removable wear plate. The mixing paddles are of forged steel, absolutely uniform and safe from breakage and are sprung on the shaft, preventing any possibility of loosening.

This mixer balances on two wheels for easy moving from place to place and for transportation as trailer from job to job. Where it is to be trailer instead of loaded on a truck, the manufacturers recommend that it be ordered equipped with rubber tired wheels and roller bearings. Considerable attention has been paid to keeping mortar out of the bearing boxes and even after continuous running, with no repacking, it is impossible for mortar to get into the bearings.

It is often necessary to place a mixer inside of a building and for this reason this machine is designed to pass through a 34-inch opening. It is made in two sizes, 13 cubic foot capacity and 8 cubic foot capacity. These mixers are equipped with two cylinder engines, eight horsepower for the larger and six horsepower for the smaller.

A Sturdy Mortar Box Reinforced Against Bulging and Kinking.

''The Architect in History,'' by Martin S. Briggs, F.R.I.B.A., published by the Oxford University Press, American Branch, New York City, has been written with the object of claiming for the architect the position in history which is his due. Price, $3.75.
A New Electric Refrigerator

A NEW electric refrigerator was recently placed on the market by one of the largest manufacturers of electric goods of all kinds. This new refrigerator is the result of 15 years of experimental work and the co-operation of 64 electrical engineers, it is stated, and is remarkable for its quietness, simplicity, economical operation and freedom from trouble and annoyance.

The icing unit is one of the most compact of its kind. The motor and compressor are directly connected and the whole mechanism operates in a bath of oil within an hermetically sealed housing placed on top of the refrigerator. This unit simply sits on the chest with the joint tightly sealed by means of rubber gaskets.

In case trouble with the icing unit does occur it will not be serviced in the owner's home; in fact, such service would be impossible because of the fact that the unit is hermetically sealed. The unit is guaranteed to work satisfactorily and if it fails to do so it is simply lifted off to be sent back to the factory and is replaced with a new unit. The company will spend the usual allowance for service after installation on additional engineering and inspection to insure mechanical perfection before the product leaves the factory.

The electrical connection is by means of an ordinary wire and wall plug so connection can be made anywhere. This refrigerator is made in nine models.

More Efficient Radiation

The familiar, cast iron radiator has for many years been one of the least sightly features of homes and buildings, but for a long time little was done to improve upon this useful and necessary piece of equipment. Finally the high building costs and tremendous premium on usable space made the problem one of economics as well as of aesthetics and new types of radiators were developed and are now coming to be recognized.

Over six years ago the engineers of one company began experiments to develop a radiator which would occupy less space than cast iron and be more efficient. The result is a welded brass radiator that is 20 per cent the size and 20 per cent the weight of the equivalent cast iron radiator.

The successful solving of the supposedly impossible problem of welding brass was what made this radiator possible and once this process was perfected and patented the development of the radiator was undertaken. The first radiators were similar in shape to the cast iron radiator, but the size and heating efficiency was then increased by attaching a number of thin brass pins on each side of the column, and the sections were made up with their long dimensions parallel to the floor.

These radiators can be placed within the walls, under windows, and hidden by an attractive cabinet. They are also installed in cabinets in the room and these cabinets may be made both ornamental and useful in addition to their heating function. They are often enclosed in sea chests or old brass bound trunks or boxes as well as in cabinets which serve as stands or consoles. The accompanying illustration shows a special bathroom unit and cabinet which extends only three inches from the wall and is 18 inches wide and eight inches high.

Metal Lath Reinforcing

The illustration shows a 3/4-inch ribbed metal lath which has been described as a superior product in its particular field of reinforced concrete construction. Anticipating a heavy demand for this product, the manufacturers developed their production facilities several months before announcing it and so are in a position to make prompt deliveries. This product is carried in stock painted only in 28, 26 and 24 gauge, weighing .46, .56 and .74 pound per square foot, respectively. It is furnished in Armco ingot iron, painted, in two weights only, 26 gauge and 24 gauge, and in galvanized in 28 gauge. It is made to order only in this grade. This lath has a covering width of 24 inches and comes in standard lengths of 4, 5, 6, 7, 8, 9, 10, 11 and 12 feet. Sheets of intermediate lengths are furnished without charge for cutting but at the price of the sheet from which cut.
An Advanced Idea

...and a Profitable idea for builders

Here is a new kitchen unit which adds value out of all proportion to its cost, to homes and apartments. The famous Napanee Dinet [patented]. Domestic science tests have proved that this outstanding achievement in kitchen cabinet design lightens kitchen tasks immeasurably. Women everywhere have acclaimed it for the new note it strikes in kitchen organization.

The Dinet is a vanishing breakfast table. It performs. It slides in and out—cutlery drawers moving with it. It is out of sight, yet in a moment it adds tremendous extra table space so necessary in the preparation of a meal. It is priceless for its extra room at a time of preparation for big parties and dinners—providing, for instance, space for salads and desserts till time for serving.

In the larger model it seats four people comfortably. In other models it will seat three people. Condiments, dishes, silver, etc., are right at hand. When not in use, the Dinet is pushed back in place and does not take up a single inch of storage space, nor does it disarrange the other Napanee conveniences in any way. No other cabinet can give all the service of Napanee equipped with a Dinet.

The Napanee Dinet is only one unit in the extensive Napanee line which embraces sizes and styles of kitchen cabinets, butler cabinets, broom closets, dish cupboards, refrigerators, wall cupboards, bases and the like to fit any space and any arrangement of doors and windows.

Our Architectural Service Department will gladly work with you to help you attain the utmost of kitchen efficiency through the proper combination of Napanee units. Send the coupon for full information on this FREE service.

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Low Priced Electric Refrigerator

SIMPLIFIED construction, compactness and low operating cost are the outstanding features of a new, low priced, electric refrigerator recently announced by one of the largest manufacturers. Refrigeration is furnished by means of a specially designed, copper finned cooling coil and compressor mounted on a special spring suspension in the top of the cabinet. By building the cooling assembly in one unit, doing away with many special parts and connections and utilizing mass production the cost of this unit has been cut to a large extent, it is said, without impairing the reliability under any climatic conditions and with just as economical operating cost as in any of this company's higher priced models. These statements are based on extensive tests under all conditions.

This refrigerator is equipped with two ice trays which will freeze 36° cubes of ice at one time. The cabinet is of metal, finished in duco. It is 56 inches high, 27 inches wide and 24 inches deep. The insulation is a thick layer of corkboard. The food storage compartment is of approximately 5 cubic foot capacity. This compartment measures 23½ inches high, 20¾ inches wide and 16¾ inches deep. The refrigerating mechanism is air cooled. The unit comes equipped with an extension cord and installation is accomplished merely by plugging into any electric socket which is conveniently located.

Controlled Heat Systems

THE accompanying illustration shows a working model of a complete heating system in operation in the Chicago offices of a leading manufacturer of heating systems. This model attracted much attention among heating contractors and engineers because it shows exactly how the "differential loop" of the "controlled heat" system operates.

This differential loop is a device that normally never functions. Its duty is to maintain a constant pressure differential between the steam main and the return line whenever boiler pressure exceeds a pre-determined or unsafe amount. A further advantage is claimed for the loop because it contains no mechanically operated moving parts to clog or stick. Consequently it is ready for action at any time. One side of the loop is connected into the steam side of the boiler while the other is connected into the high points of the return mains.

Heating contractors and engineers who are interested in an automatic safety device for vapor systems find this working model of much interest since it is built of glass so that the action of the steam and water can be seen at all times. The manufacturer offers a plan and specification service to heating contractors which can be obtained through any of its wholesalers or direct from the company.

Etched Brass Switch Plates

THE illustration shows something new in switch plates which should appeal to those who wish to enrich the decoration of their rooms. These switch plates are made of heavy .060 brass with hand etched designs that blend with period designs and fine furnishings. They afford a finishing touch to the room which can hardly be obtained with plain brass switch plates.

These etched plates are offered in three designs, either for tumbler switches or push switches in gangs of one to four and also for convenience outlets, single and duplex, and combination plates. Any of four finishes may be specified. These are bronze, statuary bronze, and antique brass at the regular list price and genuine Butlers silver at a slightly higher price. Experience has shown that it is impractical to apply other finishes to the plates.

Announce 1928 Convention

An announcement states that the twenty-fourth annual convention of the American Concrete Institute will be held at the Benjamin Franklin Hotel, Philadelphia, Pa., Tuesday, Wednesday and Thursday, February 28, 29 and March 1, 1928.
ONCE the starters have been laid along the eaves, the job is practically all laid out. The accurately punched anchor holes guide each successive shingle into place. The nail holes too are already punched. Any carpenter can get the hang of it immediately. He'll be through and ready for the next job in no time.

There is a bunch of re-roofing business in your town. Lay Johns-Manville Asbestos Shingles right over the old roof and you will find the business easy to get and the work easy to do.

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When writing advertisers please mention THE AMERICAN BUILDER
New Line of Grinding Machines

The illustration shows one of eight, new model, combination grinding and buffing machines which have been brought out by a company specializing in portable, electric machine tools, and which are made in one and two horsepower sizes. As illustrated the machine is equipped with an encased type spindle extension which, because of its rigid, double bearing construction, is recommended for heavy duty buffing, polishing and scratch work. Other machines are equipped with open type spindle extensions which are most practical and necessary for close corner work.

Waterproof Glue

The use of glue made from the curds of milk has been known for nearly 3,000 years, since the time of the early Phoenicians and Egyptians, who used it, in an unperfected form, for various kinds of woodwork. Casein glues remained unperfected for commercial use, however, until the World War when the demand for exceedingly strong waterproof glue for aircraft turned the attention of industrial chemists to this field. They have since been manufactured in increasingly great quantities till one plant is now able to produce 30,000,000 pounds of glue per year.

This company's glue is made, in the form of a white powder which, for use, is mixed with cold water, is used cold on cold lumber in a glue room at ordinary working temperatures. No special equipment is required for its use. It may be applied with a brush or with an ordinary type of spreader found in woodworking plants. It forms a joint of greater strength than the wood itself and meets the most rigid requirements. Its cost per unit of manufacture is low because it has a large spread, is used cold, requires less equipment because it requires but one-fourth the time in containers, and its products do not require patching or repairing after shipment. It also makes possible higher efficiency of workers because the glue is kept at a normal temperature, and a greater use of machinery.

Though termed waterproof, this glue should not be thought absolutely waterproof under all conditions. It will soften if submerged for a considerable time, but it will not dissolve and will again harden to its original strength when dry. It is impervious to all atmospheric conditions, including both moisture and heat and conforms with the army and navy specifications.

New Heavy Weight Steel Sash

Here is a new, heavy weight, steel sash which has recently been placed on the market by a manufacturer specializing in steel sash, windows, fire escapes, stairs, coal chute doors and similar products. It is stated that this new sash does not in any way supplant other products but is designed to supplement the popular priced steel sash which is still being made, and affords a choice between the regular weight sash and the new heavy weight to meet the requirements of the installation.

The frame and muntin bars of this new sash are of cruciform construction, increasing the strength and rigidity in four directions. The cruciform bar is of ¾-inch stock, 1 inch by 1¾ inches, the 1-inch bar crossing the 1¾-inch bar. The addition of the fourth rib is said to practically double the lateral strength with a weight increase of 25 per cent.

An extension lip on the outside of the muntin bars, with the glazing rabbet on the inside, permits double glazing at no additional cost except the punching of holes for glazing clips. The entire brick raggle or vertical joint in the window jambs is covered on the inside and outside by the outer frame member of the sash. With the ordinary sash, grouting on the exterior of both jambs is necessary for a neat finish, this involving an expense not required on a sash of the cruciform construction.

On all types of this company's ventilators, flat surface contact is used, the ventilators having ¾-inch flat surface contact around all sides, making a continuous flat weathering, thoroughly rainproof because it permits one-third greater contact than other sash
Buying Right means to the builder the difference between making Real Money and just breaking even.


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Please mail us immediately Wholesale Price List on Johnson’s Interior Finishes. Also give details of your FREE offer to builders on the new Johnson Electric Floor Polisher.

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Low Cost Parquetry Flooring

By a recently patented process parquetry flooring may now be quickly and easily installed at a low cost. The new process does away with the high installation costs and tedious laying of small, individual pieces of flooring. No special requirements are needed for the sub-floor which may be that ordinarily provided for strip flooring.

The principal features of the new flooring are end matching the short lengths of flooring, using a tongue on one end and groove on the other end, and assembling the short lengths in squares and holding them securely in position by gluing them together. The units are furnished in one thickness, 13/16 inch, and in two sizes, 18 inches square and 13½ inches square, outside measurements.


The 18-inch unit is composed of 16 pieces of 2½-inch face by 9-inch length which, when glued together, make four 9-inch squares, containing 2½ surface feet. The 13½-inch unit is composed of 12 pieces of 2½-inch face by 6½-inch length which, when glued together, make four 6½-inch squares containing 1½ surface feet. Both size units are furnished with tongues and grooves on all sides which interlock with each other in laying.

All units are run through special machinery which insures perfect matching and uniformity and on the back of each is pasted a sheet of moisture-proof paper. Shipments are made in corrugated boxes which protect the flooring from absorbing moisture. The flooring is made from selected oak of the finest quality and the new process makes it possible to install parquetry flooring at approximately the same cost, it is said, as that of strip flooring, making its use applicable to moderately priced homes.

Portable Electric Air Heater

A MANUFACTURER of high grade metal radiator covers has recently brought out a portable electric air heater which has the appearance of a covered radiator but can be moved about as desired and plugged into an electric socket anywhere. It is made entirely of interlocking steel parts and is a highly enameled piece of furniture in beautiful period effects which provides extra warmth where it is needed.

The heating element is scientifically constructed with stainless metal ribbon curls, rigidly secured on porcelain racks, through which a constant flow of heated air is thrown out into the room, circulating even to the remote corners without wasting any of the heat. These heaters are equipped with humidifiers to keep the proper moisture in the air and so afford a healthful heat.

Four sizes of heater are carried in stock, all having a width of 12 inches. The sizes are 22 inches long by 20 inches high, 40 by 20 inches, 22 by 32 inches and 40 by 32 inches. The body is of the same quality and finish as this company's standard radiator covers. A heavy duty, three-speed switch is mounted inside the body with a special operating knob on the outside which shows the switch position without stooping.

Portable Bench Mortiser

THE announcement of this mortising machine states that it has been brought out in response to a demand for a light, portable, electric, bench mortiser which is powerful and adapted to various kinds of mortising work.

With this machine the carriage may be swung laterally about the vertical column so as to extend over the edge of the bench in which the base is bolted. Thus contractors may carry the tool to the job and mortise their door locks when the doors are ready to be hung.

The motor is of the universal type, ball bearing, for operation on either direct or alternating current. An adjustable stop regulates the depth of the mortise, while the hole in the table allows for through mortising or boring. The clamps on the angle plate are quickly and easily adjustable by means of wing nuts. Standard equipment includes one 3/4-inch hollow chisel and bit and collars to take hollow chisels from 3/4 to 3/4 inch. The spade and side handles to convert the machine into a portable electric drill and 10 feet of cable with attachment plug are also furnished.
For Clearer Vision
Specify
Libbey-Owens

FLAT-DRAWN SHEET GLASS

There is a decided trend to Libbey-Owens flat-drawn sheet glass for windows.

This growing preference is due to the fact that architects, builders, woodworkers and glazers keenly desire a glass that is truly flat and of uniform thickness.

Libbey-Owens glass assures them these superiorities and many others because of the exclusive process used to produce it.

The glass is drawn in flat continuous sheets from the molten state.

The slow annealing removes internal strain, which greatly increases strength.

The additional strength, the uniform thickness and the absence of bow reduce the possibility of breakage in cutting and save time and labor in glazing.

Furthermore, a Libbey-Owens window is a good-looking window because the glass is beautifully clear and of high lustre.

For the best results always specify Libbey-Owens.

THE LIBBEY-OWENS SHEET GLASS COMPANY
TOLEDO, OHIO

LIBBEY-OWENS FLAT-DRAWN CLEAR SHEET GLASS FOR WINDOWS

Distributed Through Representative Glass Jobbers and Used by Sash and Door Manufacturers Everywhere

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Concrete Chimney Cap Forms

Using this adjustable steel form, it is said that you can turn out a concrete chimney cap in eight minutes. The form is light in weight, simple to operate and practically indestructible. It does away with the usual trouble of cast chimney caps. Two men only are required to operate the form and because of its simplicity it does not require particular skill or experience to turn out a good job. One feature is a drip edge which makes possible a perfect drip edge cap. These forms are low in original cost and because of the time they save in forming concrete chimney caps they are an economical piece of equipment for the contractor.

Convenient Shingle Holder

Here is a device for holding a bundle of shingles on the roof while shingling that is a time and labor saver for contractors and carpenters. This device always stays where it is put, no matter how steep the roof, and can be used below or above the toe holds. When you have run your courses three feet or more above your toe hold and the shingle holder is empty, simply bring it down to the toe hold, lay a new bundle of shingles on it and slide it back to a place above your work. There is no need to crawl up the roof to place your bundle of shingles. It is especially adapted for tight sheathing, and is excellent for holding asphalt shingles. It can also be used for holding boards while sheathing the roof. A spring attachment holds the shingles in windy weather. No shingles flying about; they are there at hand at all times.

This device is light in weight, weighing only six pounds, but of substantial construction. It is made of angle and flat iron securely riveted and should last a lifetime, it is stated. It is finished in black Japan and is sold in sets of six or in smaller lots. A set of six places bundles of shingles at various intervals so that workmen will be required to reach only a short distance and is sufficient for an average roof.

Enamelled Electric Wall Heaters

As shown in the illustration, electric, wall insert heaters, for bathrooms, are obtainable in white vitreous enamel finished to match the other bathroom fixtures. These heaters are of two types, the reflector type and the non-reflector type. The former are made in two sizes, 650 watts and 1,000 watts, and for use with either 110 or 220 volt current. The non-reflector type is made in 1,000 and 2,000 watt sizes and for either 110 or 220 volts. These heaters, finished as they are, will not catch dirt or dust and are easily kept clean and attractive. It is stated that water thrown on the heater while in operation will not injure it. The wall opening into which the heater is fitted varies with style and size, being, for the non-reflector, 3 inches deep, 11% inch wide and 13% or 20% inches high, and for the reflector type 1½ by 12½ by 1½ and 3½ by 16½ by 20 inches. An extra charge is made for haffle plate heaters and heaters furnished in other than standard finishes or voltages.

New and Efficient Radiators

The finest and most-efficient radiator we have ever produced is the way in which the manufacturer of this new design has described it. Its efficiency is based on the principle that air movement is a greater factor in radiator efficiency than temperature difference and that sections have a higher heating value. For this reason the new design combines small tubes and generous air passages.

These Wall Heaters Are Finished in White Enamel to Match the Other Bathroom Fixtures.

A New, Improved Type of Radiator.

In the three-tube radiator extreme narrowness with unusual stability on its feet is the outstanding feature, the four-tube style meets the demand for maximum footage where installation conditions require narrow radiation, the five-tube style features an unusual amount of surface per section while the six-tube offers mass radiation.
DISTRIBUTORS' DIRECTORY

Near-by Points Where Many Nationally Advertised Building Commodities Are Carried In Stock or Where Orders Can Be Conveniently Placed.

Use This Directory for Prompt Service—Consult Nearest Address

Brings Buyers and Sellers Together

The American Builder, recognized as the leading publication of greatest influence with the active men and buyers of the Building Industry, has undertaken this Directory Service for the purpose of bringing together the dealer distributors and the principal buyers of the thousand and one commodities that are needed every day to build, equip, finish and furnish the modern homes, apartments, public and business buildings which the American Builder readers are planning and building.

Their Directory Number will shorten the distance and straighten the line between the interested builder, architect or owner and his nearest source of supply. It will cut out lost motion and much "follow-up" expense. It will bring together quickly the prospective buyer and the dealer who can show the goods and fill the orders.

The map on our Front Cover shows every important distributing center. The building industry is highly motorized and contractors are accustomed to drive many miles to pick up specialties. It is a wonderful service to the entire building industry—to both readers and advertisers—to have the names and addresses of many of the advertisers' local distributors and branch offices thus made known to our readers.

For any addresses not listed here, our readers should write the home office of the manufacturer, or to the American Builder Information Exchange, 1827 Prairie Ave., Chicago.

A.B.C. Boiler Corp. 342 Madison Ave., New York, N. Y.
PRODUCTS Manufacturers of Cast Iron Heating Boilers.
TRADE NAMES ABCO

Acetol Products, Inc. 21 Spruce St., New York
PRODUCT Cello-Glass (a Cellulose Substitute).

Ackerman-Johnson Co. 625 W. Jackson Blvd., Chicago, III.
PRODUCT Expansive Screw Anchors.

Frank Adam Electric Co. St. Louis, Mo.
PRODUCT Panel Boards for Electric Lighting.

Ajax Building Bracket Co. 1551 Rydal Mount Rd., Cleveland Heights, Ohio
PRODUCT Folding Metal Reading Brackets.

PRODUCTS Allen Turbine Ventilators; Allen Window Ventilators.
TRADE NAMES "Allen Turbine Ventilator" "Allen Window Ventilator"

Allmetl Weatherstrip Co. 221 W. Illinois St., Chicago, Ill.
PRODUCT Weatherstrips.

A. S. Aloe Co. St. Louis, Mo.
PRODUCT Convertible Levels, Saw Blades, Misc.

PRODUCT Portland Cement.

PRODUCT Flagstone.

American Blue Print Paper Co. 445 Plymouth Court, Chicago, Ill.
PRODUCTS Surveying Instruments and Building Levels, Drawing Materials, Blue Print Papers, and Drawings Reproduced by Any Process.

IMPORTANT RETAIL DEALERS
Akron, O.—Blue Print Supply Co., 122 S. High St.
Canton, O.—Chas Blue Print Service Co., 116 Main St., W., N. W.
Columbus, O.—Franklin Blue Print Supply Co., 34 E. High St.
Dallas, Tex.—J. J. Johnson, Building Supply, 1421 Main St.
Milwaukee, Wis.—World White Co., 218 Court St.
Toledo, O.—Blue Print Service Co., 344 Main St., Clair St.
Tulsa, Okla.—Tulsa Engineering & Supply Co., 155 W. 54 St.

American Cable Co., Inc. 103 Hudson St., New York
PRODUCT Preferred Wire Reels.

American Cement Machine Co. Keokuk, Iowa
PRODUCT Concrete Mixers.

TELL THE ABOVE COMPANIES YOU SAW IT IN AMERICAN BUILDER
American Chime Clock Co.
1655 Ruffner St., Philadelphia, Pa.
PRODUCT: Plans and Works for Grandfather's Clocks

American Device Mfg. Co.
423 Shaw Ave., St. Louis, Mo.
PRODUCTS: Built-In Radios and Mail Chutes
TRADE NAMES: "Delair-Color"

SALES OFFICES AND AGENCIES
CALIFORNIA
Los Angeles—600 Metropolitan Bldg.
San Francisco—360 Geary St.
Atlanta—203 Spring St. N. W.
CHICAGO
Chicago—215 So. Lincoln St.
Rock Island—1203 3rd Ave.
MIDWEST
St. Louis—4553 Shaw Ave.

MILLS AND FACTORIES
St. Louis, Mo.
DISTRIBUTORS OR JOBBERS
Los Angeles, Orin-Cage Co., 600 Metropolitan Bldg.

American Face Brick Assn.
1763 People's Life Bldg., Chicago, Ill.
PRODUCT: Face Brick

American Floor Surfacing Machine Co.
528 So. St. Clair St., Toledo, Ohio.
PRODUCTS: Eletro Wood Floor Surfacing Machines, Electric Concrete and Gravel Grinding Machines, and Electric Waxing, Polishing and Floor Maintenance Machines.
TRADE NAMES: "Walking Universal", "American Universal"

HOME OFFICE AND FACTORY
Toledo, Ohio.
FACTORY—BRANCH SALES OFFICES AND AGENCIES
CALIFORNIA
Los Angeles—1126 Venice Bldg.
San Francisco—265 Geary St.
Detroit—251 Forest Ave. E.
MINNESOTA
St. Paul—6478 University Ave.
MISSOURI
Kansas City—45 E. 16th St.
St. Louis—264 South 5th Ave.
NEW YORK
Buffalo—1475 Main St.
Syracuse—465 Irving Ave.
OHIO
Cleveland—1409 Race St.
Cincinnati—3931 S. Clair St.
Toledo—638 St. Clair St.
PENNSYLVANIA
Philadelphia—4215 Lancaster Ave.
Pittsburgh—2822 Penn Ave.
TEXAS
Dallas—407 S. Market St.
MINNESOTA
Milwaukee—513 North Ave.

American Gypsum Co.
Port Clinton, Ohio
PRODUCT: Wall Board

American Heating & Lighting Co.
Muncie, Mich.
PRODUCT: Gas Producers

Distributors' Directory

American Radiator Co.
40 W. 40th St., New York
PRODUCT: Heating Systems of All Kinds

American Saw Mill Machinery Co.
60 Main St., Hackettstown, N. J.
PRODUCT: Woodworking Machinery

American Sheet & Tin Plate Co.
Prick Bldg., Pittsburgh, Pa.
PRODUCT: Roofing Tin

American Steel & Wire Co.
266 S. LaSalle St., Chicago, Ill.
PRODUCT: Wire Fabric for Reinforcing

American Stone Co.
Lorain, Ohio
PRODUCT: Oven Registrars

American Technical Society
Drexel Ave. and 58th St., Chicago, Ill.
PRODUCT: Books on Building and Architecture

Anchor Mfg. Co.
2131 Turner Ave., Chicago, Ill.
PRODUCT: All-Steel Mixing Boxes

Andersen Lumber Co.
Bayport, Minn.
PRODUCT: Millwork

Andrews Heating Co.
401 26th Ave., S. E., Minneapolis, Minn.
PRODUCT: Heating Systems, Plumbing Fixtures

Angel Novelty Co.
Fitchburg, Mass.
PRODUCT: Millwork

Angelo Novelty Co.
Baltimore, Md.
PRODUCT: Millwork

Anti-Hydro Waterproofing Co.
265-269 Badger Ave., Newark, N. J.
PRODUCT: Waterproofing

Arch Roof Construction Co.
104 W. 42nd St., New York, N. Y.
PRODUCT: Arch Roof Spans

Arkansas Oak Flooring Co.
Pine Bluff, Ark.
PRODUCT: Oak Flooring

Associated Tile Mfrs.
220 Graybar Bldg., New York
PRODUCT: Floor and Wall Tile

Asbestos Shingle, Slate, and Sheathing Co.
Ambler, Pennsylvania
PRODUCTS: Asbestos Shingles, Asbestos Corrugated Sheathing, Insulated Ambler Asbestos Lumber and All Fireproof Asbestos Products

SALES OFFICES AND AGENCIES
Boston, Mass.—79 Tremont Street
New York, N. Y.—210 Strauss Bldg., 310 W. 42nd St.
Chicago, Ill.—2300 Strauss Bldg., 219 S. Michigan Ave.
Atlanta, Ga.—128 Peachtree St., N. E., Suite F-4

Beaver Products Co.
Military Road, Buffalo, N. Y.
PRODUCT: Plastic Wall Board

TELL THE ABOVE COMPANIES YOU SAW IT IN AMERICAN BUILDER
Beckman-Dawson Roofing Co.  
223 Jackson Blvd., Chicago, Ill.  
PRODUCTS  
Winthrop Tapered Asbestos Shingles.

L. Beckmann Co.  
1004 Jackson St., Toledo, Ohio  
PRODUCT  
Convertible Levels.

Berger Mfg. Co.  
Canton, Ohio  
PRODUCTS  
Diamond Mesh and Ribplex Metal Lath, Metal Lumber Steel Joists and Studs, Floor Corros, Chandeliers, Corner Rod, Cornerite, Steel Basement Windows, Metal Trim, Lockers.

Bertelsen Adjustable Grille Co.  
2119 South Troy St., Chicago, Ill.  
PRODUCTS  
Bertelsen Disappearing Bathroom Cabinets, Radiator Covers

Besser Disappearing Stairway Co.  
Akron, Ohio.  
PRODUCTS  
Besser Disappearing Stairway, BRANCH SALES OFFICE  
New York—287 Murray St.  
RETAIL DEALERS  
All lumber and building supply dealers in the United States.  

Frank S. Betz Co.  
Hammond, Ind.  
PRODUCT  
Bathroom Cabinet, Mediator Covers

Binks Spray Equipment Co.  
3114 Carroll Ave., Chicago, Ill.  
PRODUCTS  
Portable Spray Equipment, SALES OFFICES AND AGENCIES  
CALIFORNIA  
San Francisco—1225 Third St.  
IILLINOIS  
Chicago—1114 Carroll Ave.  
MICHIGAN  
Detroit,—7000 Farmington Ave.  
NEW YORK  
New York—3656 Warren St.

CANADIAN AND FOREIGN DISTRIBUTORS  
Albemarle Hdw., Ltd., Toronto, Can.  
Canfield Pneumatic Pipe Co., Montreal, Can.  
Western Paint Co. Ltd., Winnipeg, Can.  

Birch Mfrs.  
201 F. R. A. Bldg., Oakosh, Wis.  
PRODUCT  
Lumber

Bitu-Mortar Waterproofing Co.  
280 Madison Ave., New York, N. Y.  
PRODUCT  
Waterproofing

The Black & Decker Mfg. Co.  
Towson, Maryland  
PRODUCTS  

TRADE NAMES  
Black & Decker

BRANCH OFFICES  
Atlanta, Ga.:—221 Spring St.  
Baltimore, Md.:—1311 E. N. St.  
Boston, Mass.:—43 Brooks Ave.  
Buffalo, N. Y.:—31 Barker St.  
Chicago, Ill.:—549 W. Washington St.  
Cleveland, 0.:—5000 E. 22nd St.  
Dallas, Texas.:—211 So. Pearl St.  
Detroit, Mich.:—6550 Woodward Ave.  
Kansas City, Kan.:—1397 Grand Ave.  
Los Angeles, Calif.:—397 So. Down Piede St.

TRADE NAMES  
Bostwick

Canandaigua, N. Y.:—1283 Tremont Ave.  
New Haven, Conn.:—280 Madison Ave., New York, N. Y.

Bommer Spring Hinge Co.  
Brooklyn, N. Y.  
PRODUCT  
Hinges and Door Springs

The Bostwick Steel Lath Co.  
Niles, Ohio  
PRODUCTS  
Bostwick Truss-Loop, Metal Lath, Standard Painted; Bostwick Truss-Loop, Metal Lath, Galvanized; Bostwick "Silo" Expanded Lath, "Metal Lath, "Lock" Corrugated, Self-Furring Lath; Bostwick W. Rib Expanded Metal Lath; Bostwick Truss-V-Rib Metal Lath; Bostwick Cold Rolled Steel Channels; Bostwick Metal Wall Flains; Bostwick Cornerite; Bostwick Truss-Wall, Corner Rod; Bostwick Standard Corner Rod; Bostwick Expanded Corner Bead; Bostwick Nail Back Bond with Clips; Bostwick Metal Base Bond; Bostwick Invisible Picture Molding.

Bovee Furnace Works  
50 W. 8th St., Waterloo, Iowa  
PRODUCT  
Warm Air Furnaces

John Boyle & Co., Inc.  
112-114 Duan St., New York, N. Y.  
PRODUCTS  
Boof and Dock Cloths

Bradley, Miller & Co.  
1200 Marquette St., Bay City, Mich.  
PRODUCT  
Door and Window Frames

Brisco Manufacturing Co.  
5025-45 Wabash Ave., Chicago  
PRODUCTS  
Copper Store Fronts, Bronze Store Fronts, Soldered Moldings, Tubing, Angles, Channels, Thrashholes, Kickplates, Railings, and Door Grilles.

TRADE NAMES  
Brisco

EASTERN SALES OFFICE AND WAREHOUSE  
New York  
Long Island City—25-14 Wilbur Ave.

DISTRIBUTORS OR JOBBERS  
Complete stocks throughout Canada and many foreign countries. Write for list.

George C. Brown & Co.  
Memphis, Tenn.  
PRODUCT  
Cedar Lining for Closets

E. L. Bruce Co.  
Memphis, Tenn.  
PRODUCT  
Oak Flooring

Butler Laboratories, Inc.  
4201 Avenue H, Brooklyn, N. Y.  
PRODUCT  
Window Ventilators

Samuel Cabot, Inc.  
141 Milk St., Boston, Mass.  
PRODUCTS  
Roofing and Waterproofing, Paints, Specialties, Shingle Stains, Stained Shingles, Wood Process Products.

TRADE NAMES  
Cabot

SALES OFFICES AND AGENCIES  
CONNECTICUT  
New Haven, MlLLS AND FACTORIES

Burnham Boiler Corp.  
30 E. 42nd St., Irvington, N. Y.  
PRODUCT  
Heating Systems

TRADE NAMES  
"Bilco"

S. D. Collop Bros.  
1004 Jackson St., Toledo, Ohio  
PRODUCTS  
Metal Handrails, Handwalk Doors, Everything in Ornamental and Miscellaneous Iron for the Builder.

TRADE NAMES  
"Bilco"

SALES OFFICES AND AGENCIES  
CONNECTICUT  
New Haven, MlLLS AND FACTORIES

DISTRIBUTORS OR JOBBERS  
Los Angeles—Hills, Hahn, Inc.  
San Francisco—444 Market St.

TRADE NAMES  
Hills, Hahn, Inc.

SALES OFFICES AND AGENCIES  
Washington—Sally-Moehlert Co.  
Jacksonville—Gill & Mutholland.

TRADE NAMES  
Gill & Mutholland.

DISTRIBUTORS OR JOBBERS  
New Orleans—Ahearn Service, Inc.  

TRADE NAMES  
National Bidg. Supply Co.

Cincinnati—Cincinnati Builders Supply Co.

TRADE NAMES  
Cincinnati Builders Supply Co.

DISTRIBUTORS OR JOBBERS  
Cleveland—Standard Bidg. Materials Co.  
Cleveland—W. E. Glass Co.

TRADE NAMES  
W. E. Glass Co.

Tullahoma—Builders Supply Company.

TRADE NAMES  
Tullahoma—Builders Supply Company.

Tulsa—Builders Supply Company.

TRADE NAMES  
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Tampa—Builders Supply Company.

TRADE NAMES  
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### Distributors' Directory

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<td>Chain Belt Co.</td>
<td>Park St, Milwaukee, Wis.</td>
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<td>PRODUCT Concrete Mixers</td>
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<td>Chain Products Co.</td>
<td>Cleveland, Ohio</td>
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<td>PRODUCT Sasch Chain</td>
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<tr>
<td>Wayvell Chappell &amp; Co.</td>
<td>38-40 Jackson St., Waukegan, Ill.</td>
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<td>PRODUCT Floor Surfacing Machines</td>
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<tr>
<td>Chicago Spring Hinge Co.</td>
<td>1500-1502 Carroll Ave., Chicago, Ill.</td>
<td></td>
<td>PRODUCT Hinges and Door Springs</td>
</tr>
<tr>
<td>Chicago Technical College</td>
<td>118 E. 26th St., Chicago, Ill.</td>
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<td>PRODUCT Building Instruction</td>
</tr>
<tr>
<td>Cincinnati Iron Fence Co.</td>
<td>3331 Spring Grove Ave., Cincinnati, O.</td>
<td></td>
<td>PRODUCT Iron Railings, Fence, Window Guards</td>
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<tr>
<td>Clamp Nail Co.</td>
<td>4540 Palmer St., Chicago, Ill.</td>
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<td>PRODUCT Clamp Nails</td>
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<tr>
<td>Clarke Sanding Machine Co.</td>
<td>3815-3825 Cortland St., Chicago, Ill.</td>
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<td>PRODUCT Clarke Vactum Portable Sander, Clarke Universal Portable Bearing, Clarke Vane-All Electric Machine</td>
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<td>Clay Products Assn.</td>
<td>Chamber of Commerce Bidg, Chicago, Ill.</td>
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<td>PRODUCT Mortar Colors</td>
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<td>Colgan Machinery &amp; Supply Co.</td>
<td>Columbus, Ohio</td>
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<td>PRODUCT Patent Inflated Plaster Base</td>
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<tr>
<td>Colonial Hardware Mfrs.</td>
<td>176 N. Clinton St., Chicago, Ill.</td>
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<td>PRODUCT Mail Boxes</td>
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<tr>
<td>Columbus Union Oil Cloth Co.</td>
<td>Columbus, Ohio</td>
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<td>PRODUCT Permanent Wall Coverings</td>
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<tr>
<td>Combination Woodworking Machine Co.</td>
<td>551 W. Randolph St., Chicago, Ill.</td>
<td></td>
<td>PRODUCT Woodworking Machinery</td>
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<tr>
<td>The Common Brick Mfrs.</td>
<td>Assn. of America</td>
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<td>PRODUCT Brick</td>
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<td>SALES OFFICES AND AGENCIES</td>
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<tr>
<td>Casement Hardware Co.</td>
<td>402-A N. Washington Blvd., Chicago, Ill.</td>
<td></td>
<td>PRODUCT Casement Hardware</td>
</tr>
<tr>
<td>Ceco Weatherstrip Co.</td>
<td>Division of Concrete Engr. Co., Chicago, Ill.</td>
<td></td>
<td>PRODUCT Weatherstrip</td>
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<tr>
<td>Century Electric Co.</td>
<td>St. Louis, Mo.</td>
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<td>PRODUCT</td>
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<tr>
<td>Century Motors of the following types:</td>
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<tr>
<td>N. W. Wichita, Kan.</td>
<td>605 N. 8th St.</td>
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<tr>
<td>Concrete Equipment Co.</td>
<td>500 Ottawa Ave., Holland, Mich.</td>
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<td>PRODUCT</td>
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<tr>
<td>Concrete Form Tie Corp.</td>
<td>134 Sixth Ave., Homestead, Pa.</td>
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**TELL THE ABOVE COMPANIES YOU SAW IT IN AMERICAN BUILDER**
Consolidated Concrete Machinery Corp.  
Adrian, Michigan  
**PRODUCT**  
Concrete Products Machinery

Consolidated Expanded Metal Companies  
**PRODUCT**  
Metal Lath, Arch Lath, Diamond Mesh Lath and Stucco Binder

Steelcrete  
**SALES OFFICES AND AGENCIES**  
New York:—131 Park Ave.  
Philadelphia:—1075 Germantown Ave.  
Pittsburgh:—Oliver Bldg.  
Boston:—201 Devereaux St.  
Buffalo:—68 Water Ave.  
Chicago:—2011 Avington St.  
Cleveland:—901 Ely Ave.  
Atlanta:—285-340 Marietta St.  
St. Paul:—1469 Marshall Ave.

Crescent Mills and Factories  
The Crescent Machine Company, Leetonia, Ohio.  
**CANADIAN AND FOREIGN DISTRIBUTORS**  
1351 W. 46th St., New York.

Consolidated Shingle Mills of British Columbia, Ltd.  
907-B Metropolitan Bldg., Vancouver, B. C.

Construction Machinery Co.  
Waterloo, Iowa  
**PRODUCT**  
Concrete Mixers, Pumps, Hoists

Continental Screen Co.  
1323 Book Bldg., Detroit, Mich.  
**PRODUCTS**  
Screen Doors, Window Screens, Combination Screen & Storm Doors, Full Size Window Frames, Ventilators, Wood Frame Ventilators and K. & D. Frames.

TRADE NAMES  
"Continental" "Walden" "Porter" "Philadelphia"

Crittall Casement Window Co., 10951 Hezem, Detroit, Mich.  
**PRODUCT**  
Steel Casement Windows

J. B. Crofoot  
P. O. Box 758, Chicago, Ill.  
**PRODUCT**  
Screen Winding Machines

The Cromar Company  
Williamstown, Pa.  
**PRODUCT**  
Cromar Factory Finished Oak Flooring. (Factory Finished means: Completely roughed, sanded, moisture-proofed and cruised at the factory—ready to use the minute the last nail is driven.)

The Crowe Mfg. Corp.  
225-229 East Third St., Cincinnati, O.  
**PRODUCT**  
Portable Power Head Saws for Air and Electricity.

TRADE NAMES  
"Crom Safety Saw"

SALES OFFICES AND AGENCIES  
Cincinnati:—232-237 East Third St. Representatives in all cities.

MILLS AND FACTORIES  
Covington, Ky., and Cincinnati, Ohio.

Thomas F. Cullinan  
1456 Broad St., Providence, R. I.  
**PRODUCT**  
Stake Irons, Brackets and Truck Bodies.

Curtis Companies, Inc.  
Clinton, Iowa  
**PRODUCTS**  

TRADE NAMES  
Curtis Woodwork

SALES OFFICES AND AGENCIES  
Sales Office:—55 West 46th St., New York City, factory and distributing organizations listed below.

MILLS AND FACTORIES  
ILLINOIS: Chicago.—Curtis Door & Sash Co.

Dahlquist Mfg. Co.  
South Boston, Mass.  
**PRODUCT**  
Copper Range Bellies.

Davis Tool & Eng. Co.  
6523 Lincoln Ave., Detroit, Mich.  
**PRODUCT**  
Garment Ranges.

Delco-Light Co.  
Dayton, Ohio  
**PRODUCT**  
Lighting Systems

Detroit Steel Products Co.  
C-2260 E. Grand Blvd., Detroit, Mich.  
**PRODUCT**  
Steel Windows

The DeVilbiss Co.  
238 Phillips Ave., Toledo, Ohio  
**PRODUCTS**  
Spray-painting Equipment (See Display Advertisement—Pages 364.

TRAICES  
New York, Chicago, Detroit, Philadelphia, Indianapolis, S. Francisco, Pittsburgh, Cleveland, Cincinnati, Milwaukee, St. Louis, Minneapolis, Detroit, Toronto, Ontario.

DeWalt Products Co.  
Leola, Pa.  
**PRODUCTS**  
Woodworking Machinery.

TRADE NAMES  
DeWalt Wonder-Workers.

The Diamond Metal Weather Strip Co.  
408-418 Spruce St., Columbus, Ohio  
**PRODUCTS**  
Metal Weather Strips, Calking Compound and Screen Blades.

TRADE NAMES  
"Diamond" "Caled" "U-But On" "Western Factory Branch" Diamond Metal Weather Strip Co.  
St.odge, Iowa.

Dietzen Co., Eugene  
156 W. Monroe St., Chicago, Ill.  
**PRODUCT**  
Precision Instruments

Disappearing Stairway Co.  
Akron, Ohio  
**PRODUCT**  
Disappearing Stairs.

Henry Diaston & Sons, Inc.  
**PRODUCT**  
Saws of Every Description

Donley Brothers Co.  
13910 Miles Ave., Cleveland, Ohio  
**PRODUCT**  
Fireplaces and Furnishings

TRADE NAMES  
Donley Mfg. Co.

Duro Company  
Dayton, Ohio  
**PRODUCT**  
Water Supply Systems

415 W. 23rd St., Holland, Mich.  
**PRODUCT**  
Concrete Building Tile Machinery

TRADE NAMES  
Duro Company

The Ebling Sanitary Mfg. Co.  
180 Lucas St., Columbus, Ohio  
**PRODUCT**  
Kitchen Sinks

Tell the above companies you saw it in American Builder.
The Edwards Mfg. Co.  
401-417 Eggleston Ave., Cincinnati, O.  
PRODUCTS  
Sheet Metal Building Material, Roofings, Metal Shingles, Metal Spanish Tilt, Ventilators, Skylights and Marquises.

SALES OFFICES AND AGENCIES  
OHIO  
Cleveland:—401-417 Eggleston Ave.  
Texas:—N. E. Cor. Market & Collins,  
NEW YORK  
New York:—81-83 Fulton St.  
MILLS AND FACTORIES  
Cleveland, Ohio.  
Dallas, Texas.  
Camden, N. J.  
Electric Fireplace Mfg. Co.  
400-408 N. Union Ave., Chicago, Ill.  
PRODUCT  
Fireplaces.

Electric Rotary Machine Co.  
3824 W. Lake St., Chicago, Ill.  
PRODUCT  
Floor Brushing Machines.

Erie Fixture Supply Co.  
Erie, Pa.  
PRODUCT  
Lighting Fixtures.

Eskay Company  
622 McCormick Bldg., Chicago, Ill.  
PRODUCTS  
Portables of Brass, Handrail, Mortise, Lifts, Dish & Roll Sounder, Planner, Reuter—One Motor Interchangeable with All Machines.  
TRADE NAMES  
Eskay  
DISTRIBUTORS OR JOBBERS  
Represented in all cities.

Etterit, Inc.  
PRODUCT  
Asbestos Shingles.

Excelso Products Corp.  
65 Clyde Ave., Buffalo, N. Y.  
PRODUCTS  
Excelso Water Heaters.  
TRADE NAMES  
"Excelso"  
DISTRIBUTORS OR JOBBERS  
Sold by better and radiator manufacturers and plumbing and heating supply houses in all leading cities.

Fairbanks-Morse & Co.  
900 S. Wabash Ave., Chicago, Ill.  
PRODUCT  
Water Supply Systems.

Farley & Loetscher Mfg. Co.  
Dubuque, Iowa.  
PRODUCTS  
Sash, Doors, Blinds, Frames and Building Woodwork of All Kinds.  
TRADE NAMES  
"Qualithrive"  
"In-the-Door" and "On-the-Wall" Tin Ironing Boards  
"Pronto" Sliding Disappearing Stairway  
"Heart" Radiant Floor Heaters.

SALES OFFICES AND AGENCIES  
COLORADO  
Denver:—1456 W. Colfax Ave.  
DISTRICT OF COLUMBIA  
Washington:—820 Third Bldg. and 1900 Investment Bldg.  
ILLINOIS  
Chicago:—508 W. Washington Blvd.  
KANSAS CITY:—220 Kansas City Bldg.  
Missouri:—222 Plumosa Bldg.  
Utah:—Salt Lake City:—113 S. 5th West St.

Federal Metal Weatherstrip Co.  
4538-50 Fullerton Ave., Chicago, Ill.  
PRODUCT  
Weatherstrip.

Charles Fischer Spring Co.  
240 Kent Ave., Brooklyn, N. Y.  
PRODUCT  
Toggery Racka.

Flax-li-num Insulating Co.  
St. Paul, Minn.  
PRODUCT  
Insulation.

Flint & Walling Mfg. Co.  
32 Harris St., Kendallville, Indiana  
PRODUCTS  
Domestic Water Service Equipment.  
TRADE NAMES  
"Hoosier Water Service"  
Foley Saw Tool Co.  
9-15 N. E. Main St., Minneapolis, Minn.  
PRODUCTS  
TRADE NAMES  
Foley  
SALES OFFICES AND AGENCIES  
CALIFORNIA  
San Francisco:—Genfire Steel Service Co., 1200 Indiana Avenue.  
Los Angeles:—B. N. Eagle, 12833 Wilshire Avenue, Palma Station.  
NEW ENGLAND STATES  
Barrington, R. I.  
"W. P. Tebe, Jr., Paint Stick Band.  
WASHINGTON  
Seattle:—Harrison Sales Co., 900 Lenora St.

CANADIAN AND FOREIGN DISTRIBUTORS  
E. C. Atkins & Co., Vancouver, B. C.  
Anglo Traders, Ltd., Toronto, Ontario.  
IMPORTANT DEALERS  
INDIANA  
INDIANA:—Genfire Steel Co.  
NEW YORK  
New York City:—E. C. Atkins & Co.  
Memphis:—E. C. Atkins & Co.  
ILLINOIS  
Atlanta:—E. C. Atkins & Co.  
Chicago:—E. C. Atkins & Co.  
Minneapolis:—E. C. Atkins & Co.  
Louisiana:—E. C. Atkins & Co.  
New Orleans:—E. C. Atkins & Co.  
Portland:—E. C. Atkins & Co.  
DENVER  
Denver:—M. L. Foss, 1951 Arapahoe St.  
SALT LAKE CITY:—Almo & Smelter Supply Co.  
WASHINGTON  
Seattle:—E. C. Atkins & Co.  
TENNESSEE  
SAN JACINTO  
San Jacinto:—Genfire Steel Co., 1280 Indiana Avenue.  
LOS ANGELES  
Los Angeles:—E. C. Atkins & Co.  
New Orleans:—E. C. Atkins & Co.  
New York City:—E. C. Atkins & Co.  
Portland:—E. C. Atkins & Co.  
DENVER  
DENVER  
Santa Fe:—M. L. Foss, 1951 Arapahoe St.  
Utah:—Salt Lake City:—Almo & Smelter Supply Co.  
WASHINGTON  
Seattle:—E. C. Atkins & Co.  
SAN FRANCISCO  
San Francisco:—Genfire Steel Co.  
VANCOUVER, B. C.  
Anglo Traders, Ltd., Toronto, Ontario.

Genfire Steel Co.  
(The General Fireproofing Building Products)  
Youngstown, Ohio.  
PRODUCTS  
Herringbone Metal Lath; Rib Lath; Expanded Metal; Steel Joists; Steel Casements, Insulation, Commercial, Industrial and Continuous Windows; Corner Band; Plasterer’s Specialties; Metal Refinishing Materials; Insulation, and Waterproofing.  
TRADE NAMES  
Genfire  
BRANCH OFFICES  
CALIFORNIA  
Los Angeles:—Genfire Steel Co., 1929 Atlantic St.  
San Francisco:—Genfire Steel Co., 461 Market St.  
BEGIN G  
GEORGIA  
Atlanta:—Southern GP Company, 205 De- carter Street.  
ILLINOIS  
Chicago:—Genfire Steel Co., 10 N. Clark St.  
INDIANA  
Indianapolis:—Genfire Steel Co., 205 Merchants Bank Bldg.  
MASSACHUSETTS  
Boston:—Genfire Steel Co., 27 Federal St.  
MISSOURI  
Kansas City:—Genfire Steel Co., 1099 Wal- dorf Bldg.  
St. Louis:—Genfire Steel Co., 513 Al- drin Bldg.  
MINNESOTA  
Minneapolis:—Genfire Steel Co., 400 Sexton Bldg.  
NEBRASKA  
Omaha:—Genfire Steel Co., 1232 Peter- son Trust Bldg.  
NEW YORK  
New York:—Genfire Steel Co., 415 Emperor Bldg.  
NEW YORK CITY  
Genfire Steel Co., 415 Emperor Bldg.  
NEW YORK CITY  
Fireproof Products Co., 504 East 133rd St.  
OHIO  
Cleveland:—Genfire Steel Co., 501 Rose Bldg.  
Cincinnati:—Genfire Steel Co., 605 McKenney Bldg.  
PORTLAND, ORE.  
Portland:—Genfire Steel Co., 104 North 15th Street.  
OREGON  
Pittsburgh:—Genfire Steel Co., 201 North 15th Street.  
POWELL  
Powell:—Genfire Steel Co., 103 North 15th Street.  
WASHINGTON  
Seattle:—Genfire Steel Co., 501 Rose Bldg.  
WISCONSIN  
Milwaukee:—Genfire Steel Co., 135 W. Wis- consin Ave.
Heltzel Steel Form & Iron Co.
Warren, Ohio
PRODUC'T
Screen Cloth
Concrete Bins

Henry Furnace & Foundry Co.
Cleveland, Ohio
PRODUCT
Heating Systems

Herrick Refrigerator Co.
Waterloo, Iowa
PRODUCT
Refrigerators

Hess Warming & Ventilating Co.
1220-2 S. Western Ave., Chicago, Ill.
PRODUCT
Furnaces, Bathroom Cabintes

Heston & Anderson
2077 S. 6th St, Fairfield, Iowa
PRODUCT
Portable Electric, Bench Woodworking Machines.

Heyman Mfg. Co.
16 Valley St., South Orange, N. J.
PRODUCT
Heat Regulators

Charles M. Higgins & Co.
Brooklyn, N. Y.
PRODUCT
Ink for Draftsmen

Hitchings & Co.
101 Park Ave., New York, N. Y.
PRODUCT
Greenhouses and Conservatories

Hoffbauer Co., Inc.
16 E. 12th St., New York, N. Y.
PRODUCT
Walthervitro

Holland Furnace Co.
Holland, Mich.
PRODUCT
Warm Air Furnaces

Hollow Building Tile Assn.
Conway Bldg., Chicago, Ill.
PRODUCT
Hollow Clay Building Tiles

Holt Bid Company
1901 Prairie Ave., Chicago, Ill.
PRODUCT
Estimating and Cost Service.

Hoosier Building Tile & Silo Co.
Albany, Indiana
PRODUCT
Glased Building Tile, for interior or exterior; Glazed Tile and Wood Slices; Broad- ers, Wood; Summer Cottages, portable; Backyard Tile, Cover Pigs, West Coping, Flue Liners, Dennis Tilts, Mortar Colors, Metal Sash, and Builders' Specialties.

Hunt, Helm, Ferris & Co.
Harvard, Ill.
PRODUCT
Farm Building Equipment

Hutchinson Mfg. Co.
Norristown, Pa.
PRODUCT
Woodworking Machinery

Rochester, N. Y.
PRODUCT
Saws, Grinders, Cutters and Knives.

The Insulite Co.
Builders Exchange Bldg., Minneapolis, Minn.
PRODUCT
Insulation

International Casement Co.
Jamestown, N. Y.
PRODUCTS
Casement Windows

International Cement Corp.
New York, N. Y.
PRODUCT
Portland Cement

International Correspondence Schools
Scranton, Pa.
PRODUCT
Instruction

International Harvester Co.
Harvester Bldg., Chicago, Ill.
PRODUCT
Motor Trucks

International Steel & Iron Co.
Dept. 18, Evansville, Ind.
PRODUCT
Public and Private Garages, Store Fronts

Invincible House Lining Co.
Janesville, Wis.
PRODUCT
Insulation

W. C. Hopson Co.
704 Ellsworth Ave., Grand Rapids, Mich.
PRODUCT
Metal Ceilings

TELL THE ABOVE COMPANIES YOU SAW IT IN AMERICAN BUILDER
Kewanee counties

Kewanee, Illinois

Rinses Mfg. Co.
424 S. Franklin St., Kewanee, Il.

Kewanee Private Utilities Co.
242 S. Franklin St., Kewanee, Ill.

Keuffel & Esser Co.
Hoboken, N. J.

Grand Rapids, Mich.

Knickerbocker Co.
Jackson, Mich.

Knickerbocker Slate Corp.
153 E. 38th St., New York, N. Y.

Kolstad Mail Box Co.
402-A 1st St., Duluth, Minn.

Kornau Machine Co.
Gulow and Vandalia, Cincinnati, O.

Kewanee Mfg. Co.
Kewanee, Illinois

L. B. Fred Kuhls
65th St. and 3d Ave., Brooklyn, N. Y.

Leesie Glassing Composition and Elastic Joint Paste.

L. T. C.:

Lightning Rods and Lightning Rod Fittings.

Larsen, J.
San Francisco, Calif.

Lath, Sash, & Door Frame Millwork, Carpenters' Hardware, Interior Work, etc.

Lath, Sash, & Door Frame Millwork, Carpenters' Hardware, Interior Work, etc.

LATIN AMERICA:

Laurelton, J. W.

Laurelton, J. W.

Laury & Co.

Levenworth, J. A.

Lever Brothers Co., The

Levers and Locks.

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Levers and Locks.
Kublum Metal Weatherstrip Co.
St. Louis, Mo.

PRODUCT
Weatherstrips

Lamella Roof Syndicate
45 W. 45th St., New York, N. Y.

PRODUCT
Tinsel Arch Roofs

Lancaster Brothers Co.
Poughkeepsie, N. Y.

PRODUCT
Steel Bridging for Wood Jalousies

Lansing Co.
Lansing, Mich.

PRODUCTS
Concrete Wheelbarrows, Concrete Carts, Contractors' Tool Carts, Brick and Mortar Beds, Concrete and Mortar Mixers, Hand Trucks, Trolley Trucks, Mortar Tubs, Drag Scrapers, Wheel Scrapers, Hoists, and Wheels and Casters.

TRADE NAMES
Lancing

SALES OFFICES AND AGENCIES
Chicago:—1355-37 So. State St.
New York:—525 Vanderbilt Ave.
Kansas City:—1425-15 W. 11th St.
Minneapolis:—801 5th Ave.
Philadelphia:—No American and Willow.
San Francisco:—208-308 Brannan St.
Boston:—507 Cambridge St., Charlestown District.

New Haven:—1044 Railway Exchange Bidg.
Detroit:—319 Woodward Ave.

MILLS AND FACTORIES
Lansing, Mich.
Poughkeepsie, N. Y.

CANADIAN AND FOREIGN DISTRIBUTORS
New York Export Office:—225-227 Vandalia St.

LaPlant-Choate Mfg. Co.
3115 First Ave., Cedar Rapids, Iowa

PRODUCT
House Moving Equipment

Leach Company
Oaklath, Wis.

PRODUCT
Concrete Mixers

Leonard Sheet Metal Works, Inc.
800 Ferry Street Hoboken, N. J.

PRODUCTS

SALES OFFICES AND AGENCIES
NEW YORK
New York:—117 Broadway.
NEW JERSEY
Hoboken:—800 Ferry St.

MILLS AND FACTORIES
800 Ferry St., Hoboken, N. J.
10 to 56 Rauvin Road, Jersey City, N. J.

DISTRIBUTORS OR JOBBERS
CONNECTICUT
New Haven:—St. E. Kirschner.

PENNSYLVANIA
Philadelphia:—James A. Kiefer.

NEW JERSEY
Jersey City:—V. C. Nilsen.

Libbey-Owens Sheet Glass Co.
Toledo, Ohio

PRODUCT
Window Glass

Lincoln-Schlueter Machinery Co.
222 W. Grand Ave., Chicago, Ill.

PRODUCT
Floor Surfacing Machines

Lincrusta-Walton Co.
Hacksack, New Jersey.

PRODUCTS
Travertine and Spanish Found Stipple.

DISTRIBUTORS OR JOBBERS
Chicago, Ill.—American Wall Paper Co., 6641 Madison Ave.
Chicago, Ill.—603-59 So. Halsted Street.
Chicago, Ill.—Imperial Campbell Branch, 2801 South Ashland Ave.
Philadelphia, Pa.—2439 Wood Street.
Cincinnati, Ohio—Cincinnati Wall Paper Co., 310 E. 2nd St.
Kansas City, Mo.—Kansas City Wall Paper & Paint Co., 1521 Main Street.
Louisville, Ky.—Louisville Wall Paper Co., 525 W. Market St.
Cincinnati, Ohio—Ohio Ohio Wall Paper & Paint Co., 1305 Mary Street.
St. Louis, Mo.—Newcomb Bros. Wall Paper Co., 2111 Olive Street.
New Haven, Conn.—New Haven Wall Paper Co., 117 Meadow St.
Minneapolis, Minn.—Tall Wall Paper & Paint Co., 1400 E. Franklin Avenue.
Troy, N. Y.—Troy Wall Paper & Paint Co., River and King Street.

IMPORTANT RETAIL DEALERS
Wall Paper Book Houses and Jobbers Everywhere.

Living Stone Company
1 E. Lee St., Baltimore, Md.

PRODUCT
Concrete Block

Louisiana Red Cypress

PRODUCT
Red Cypress

Lukfin Rule Co.
Saginaw, Mich.

PRODUCTS
Measuring Tapes of All Kinds, Rules

David Lupton's Sons Co.

PRODUCTS
Steel Casement and Basement Windows.

BRANCH OFFICES
CALIFORNIA
San Francisco:—David Lupton's Sons Construction Co., 221 Market St.

ILLINOIS
Atlanta:—David Lupton's Sons Construction Co., 301 Roma Alien Bldg.

MICHIGAN
Chicago:—David Lupton's Sons Co., 1114 Steiger Bldg.

MICHIGAN
Boston:—David Lupton's Sons Co., 58 Chauncy St.

NEW YORK
Buffalo:—David Lupton's Sons Co., 329 Jackson Bldg.

OHIO
New York:—David Lupton's Sons Co., 8 Murray St.

Cleveland:—David Lupton's Sons Co., 402 East 4th Bldg.

PENNSYLVANIA
Philadelphia:—David Lupton's Sons Co., Allegheny Ave. & Tulip St.

TEXAS
Dallas:—David Lupton's Sons Construction Co., 601 Fermanall Bank Bldg.

Lyons Mfg. Co.
New Haven, Conn.

PRODUCT
Cement Window Adjusters

McGill Mfg. Co.
Valparaiso, Ind.

PRODUCT
Lighting Fixtures.

McGraw-Hill Book Co.
370 Seventh Ave., New York, N. Y.

PRODUCT
Books for Builders

McKeown Bros. Co.
112 W. Adams St., Chicago, Ill.

PRODUCT
Roof Trusses of Wood for All Types of Buildings

Mckinney Mfg. Co.
Pittsburgh, Pa.

PRODUCT
Builders' Hardware

Macomber Steel Co.
Canton, Ohio

PRODUCTS
Bar Joists, Steel Beams, Metal Laths, Steel Windows, and Structural Steel.

The Majestic Company
Huntington, Ind.

PRODUCTS
Foundation Coal Windows

Majestic Steel Cabinet Co.
4211 Belle Plaine Ave., Chicago, Ill.

PRODUCT
Bathroom Cabinets

Mallory Mfg. Co.
Flemington, N. J.

PRODUCT
Shutter Workers

Manning Abrasive Co., Inc.
P. O. Drawer 74, Troy, N. Y.

PRODUCTS
Coated abrasives on paper, cloth and combination.

TRADE NAMES
Manning Speed-grits Troy Flint Paper
Manning Speed-grits Mohawk Flint Paper
Manning Speed-grits Emery Paper
Manning Speed-grits Garnet Paper
Manning Speed-grits Garnet Combination
Manning Speed-grits Metalite Cloth
Manning Speed-grits Durandum Paper
Manning Speed-grits Durandum Combi
Manning Speed-grits Durandum Combination
Manning Speed-grits Durandum Cloth
Manning Speed-grits Durandum Combination
Waterproof Speed-grit Paper

MILLS AND FACTORIES
Watertown, N. Y.

SALES OFFICES
CALIFORNIA
San Francisco:—401 Mission St.

ILLINOIS
Chicago:—211-213 N. Dearborn St.

MICHIGAN
Detroit:—186 E. Wisconsin Ave.

MISSOURI
St. Louis:—10th and Locust Sts.

NEW YORK
Buffalo:—400 Pearl St.

NORTH CAROLINA
High Point:—125 W. Commerce St.

OHIO
Cincinnati:—238 W. 5th St.

PENNSYLVANIA
Philadelphia:—152 N. 13th St.

WASHINGTON
Tacoma:—111 So. 5th St.

FOR EXPORT
International Manning Abrasive Co., 109 Warren St., New York

TELL THE ABOVE COMPANIES YOU SAW IT IN AMERICAN BUILDER
Maple Flooring Manufacturers' Assn.  
1777 McCormick Bldg., Chicago, Ill.  
PRODUCTS  
Maple, Beech and Birch Flooring.  
TRADE NAMES  

**Distributors' Directory**

**Geo. L. Measner & Co.**  
Evansville, Ind.  
**PRODUCT**  
Bestering Steel Roof Trusses  

**The Miami Cabinet Co.**  
Middletown, Ohio  
**PRODUCT**  
Bathroom Cabinets  

**Miller & Gleason**  
126 S. 5th St., Olean, N. Y.  
**PRODUCT**  
Drip Edge Roofing  

**Milwaukee Corrugating Co.**  
Milwaukee, Wis.  
**PRODUCTS**  
Metal Lath, Corner Beads, etc., Metal Roofing, Soffits and Fittings, Store Pipe and Elbows, Furnace Pipe and Fittings, Metal Ceilings, Ventilators and Skylights, Architectural Sheet Metal.  
TRADE NAMES  
MILCOR ("Stay Rib") and "Netmesh" Metal Lath  

**SALES OFFICES AND AGENCIES**  
ILLINOIS  
Chicago—W. F. Wilson, care of The Builders Club  

**MASSACHUSETTS**  
Boston—C. W. R. Macdonald, 90 Holston St.  

**MICHIGAN**  
Kalamazoo City—J. M. Smith, care of Cleveland Steel Corrugating Co.  

**PENNSYLVANIA**  
Philadelphia—Tom O'Neill, Chester Court, 4th and Locust Sts.  

**WISCONSIN**  
La Crosse—F. T. Fyfe, care of Milwaukee Corrugating Co.  

**MILLS AND FACTORIES**  
Milwaukee, Wis.  
Chicago, Ill.  
Kalamazoo City, Mich.  
Los Angeles, Calif.  
St. Louis, Mo.  

**MASONITE STRUCTURAL PRODUCTS**  
1420 Conway Bldg., Chicago, Ill.  
**PRODUCTS**  
Masonite Structural—Masonite Insulating Lath—Masonite Quadraboard—Masonite Preparedwood  

**Masco Foos & Co.**  
Box 501, Springfield, Ohio  
**PRODUCT**  
Water Supply Systems  

**Master Metal Strip Service**  
1270 W. Kilbourn Ave., Chicago, Ill.  
**PRODUCTS**  
Metal Weatherstrips of All Types, Zinc, Copper, Birmium, and Brass.  

**MILLS AND FACTORIES**  
1270 W. Kilbourn Ave., Chicago, Ill.  
**DISTRIBUTORS OR JOBBERS**  
Over 200 live agents and dealers—Good territories still open—Write us.  

**Master Rule Mfg. Co., Inc.**  
615 East 130th Street, New York City  
**PRODUCTS**  
High Grade Rule: "Fawilo". Master Slide Rule, Inside Micrometer; "Interlox" P 102 Rule; "Interlox" Standard Rule; Tubular Rule Fielding Rule (Solid spring brass head and body), Master Fielding Rule (Solid spring brass head), and U. S. A. Folding Rule (Brazed steel spring joint).  

**SALES OFFICES AND AGENCIES**  
New York City—41 Murray St., Henricks & Harell  

**Chicago, Ill.—174 N. Wacker Drive, Bul- lington & State**  

**Los Angeles, Calif.—1904 Washington Bldg., Don W. Marvin**  

**Seattle, Wash.—1857 L. C. Smith Bldg., Bul- lington & State**  

**New York City,—14 Warren St., McEey So Co.**  

**IMPORTAINT MAIL DEALERS**  
New York City—Hammacher, Schlemmer  

**New York City—Watson, Brothers**  

**Chicago, Ill.—Robbins Hardware Co.**  

**Chicago, Ill.—United Hardware Co.**  

**Detroit, Mich.—T. B. Bagley Co.**  

**Philadelphia, Pa.—O. A. Supplee & Co.**  

**Pittsburgh, Pa.—Joseph Woodcock Co.**  

**Los Angeles, Calif.—Cud & Reckner Co.**  

**Boston, Mass.—J. B. Emmet & Co.**  

**San Francisco, Calif.—Palmer Hardware Co.**  

**Cleveland, Ohio—Fichardt Hardware Co.**  

**St. Louis, Mo.—Schreiber Brothers**  

**Buffalo, N. Y.—Wou & Co.**  

**Milwaukee, Wis.—Phillip Green Hardware & Supply**  

**Washington, D. C.—Barber & Ross**  

**Minneapolis, Minn.—Warren Hardware Co.**  

**Kansas City—Fitzsimmons Hardware & Machine Co.**  

**Chicago, Ill.—Boehm & Bechler, Inc.**  

**Indianapolis, Ind.—Younger Hardware Co.**  

**Columbus, Ohio—Frank P. Hall Co.**  

**Seattle, Wash.—Spalding & Harbin, Inc.**  

**MASONITE MASTERY PRODUCTS**  
301 W. Superior, Chicago, Ill.  
**PRODUCTS**  
Masonite Structural—Masonite Insulating Lath—Masonite Quadraboard—Masonite Preparedwood  

**Distributor for Home Builders.**  

**Morgan Sash & Door Co.**  
Blue Island Ave. and Wood St., Chicago, Ill.  
**PRODUCT**  
Millwork  

**Morton Manufacturing Co.**  
5161 W. Lake St., Chicago, Ill.  
**PRODUCTS**  
Morton Steel Bathroom Cabinets. Also Self Closing Safety Traps for Pipes and Fitting, Morton Line of Metal Doors, Welded Tubing and Steel Products.  

**SALES OFFICES AND AGENCIES**  
In All Principal Cities.  

**Tell the above Companies You Saw it in American Builder**  

**T. L. Morris & Co.**  
1138 Lake Shore Drive  
**PRODUCTS**  
Built-in Wardrobes  

**SALES OFFICES AND AGENCIES**  
DISTRICT OF COLUMBIA  
Washington—G. O. Connolly, 1319 F St., N. W.  

**FLOIDA**  
Miami—Donaldson-Aukoff Agency, 1435 Lark St.  
Jacksonville—212 Shoreland Arcade, Liberty Mutual  
Kane---City—J. Franklin Brown Rep. Co., 811 Main St., Flemmingsburg, New York  

**NEW YORK**  
New York—Mr. W. B. Chapman, 450 Lexington Ave.  

**PENNSYLVANIA**  
Philadelphia—Alan G. Smith, 564 Broad St.  

**St. Louis, Mo.**  

**Niles K. Larson, 912 E. 1st St., South.**  

**Mueller Co.**  
Decatur, Illinois  
**PRODUCTS**  
Furniture, Water and Brass Gas Goods.  

**Multiplex Concrete Machinery Co.**  
Elmora, Ohio  
**PRODUCT**  
Machinery and Molds for Concrete Products  

**Murphy Door Bed Co.**  
22 W. Monroe St., Chicago, Ill.  
**PRODUCT**  
Disappearing Bed  

**The F. E. Myers & Bro. Co.**  
Ashland, Ohio  
**PRODUCTS**  

**TRADE NAMES**  

**Myers**  

**SALES OFFICES AND AGENCIES**  
Albany, N. Y.—Albany Terminal Warehouse Co., No. 10 Tivoli St.  

Cedar Rapids, Iowa.—Cedar Rapids Transfer Co., Inc., 204 Ave. and 4th St.  

Milwaukee, Wis.—Dan Fisher, 101 West Water St.  

Harrisburg, Pa.—Linn—Concrete Building Units  

South 10th St.  

St. Louis, Mo.—Meek & Co., 1425 St. Louis Ave.  

Kansas City, Mo.—Central Storage Co.  

New York, N. Y.—Augs, Cox & Co., Ltd., Agents (for Export), 1 Broadway  

**National Better Home Builders’ Assn.**  
Chicago, Ill.  
**PRODUCT**  
Service for Home Builders.  

**National Brass Co.**  
1609 Madison Ave., S. E., Grand Rapids, Mich.  
**PRODUCT**  
Cinder-Concrete Building Units  

**National Enameling & Stamping Co.**  
Granite City, Ill.  

**PRODUCT**  
Steel for Every Building Use.  

**Tell the Above Companies You Saw It in American Builder**
National Fireproofing Co.
Fulton Bldg., Pittsburgh, Pa.

PRODUCTS
"Natco" Hollow Building Tile.

TRADE NAMES
"Natco"

SALES OFFICES AND AGENCIES

In Canada—National Fireproofing Co. of Canada, Toronto, Ontario.

National Lead Co.
New York, N. Y.

PRODUCT
"Dutch Boy" White Lead

National Lock Co.
Rockford, Ill.

PRODUCT
Builders' Hardware.

Washington, D. C.

PRODUCT
Lumber

Sterling, Ill.

PRODUCT
Builders' Hardware.

National Radiator Corp.
Johnstown, Pa.

PRODUCT
Heating Systems

National Sanding Machine Co.
543-45 Vedder St., Chicago, Ill.

PRODUCTS
Floor Surfacing Machinery and Flexible Shaft Equipment.

TRADE NAMES
"Specialty Electric"

SALES OFFICES AND AGENCIES
ILLINOIS
Chicago—J. H. Behrendt, 2553 Cottage Grove Ave.

NEW ENGLAND STATES
(Concord Jct.) Boston—W. C. Damon, 89 Whipple Street.

MAIN OFFICE AND FACTORY
543-45 Vedder St., Chicago, Ill.

CANADIAN AND FOREIGN DISTRIBUTORS
B. S. St. John, Toronto, Canada.

SALES OFFICES AND AGENCIES
NEW JERSEY
Jersey City—200 Grand St.

MILLS AND FACTORIES
Jersey City, N. J.

Nicholls Mfg. Co.
Ottumwa, Iowa.

PRODUCT
Steel Squares

No. American Cement Corp.
255 Madison Ave., New York, N. Y.

PRODUCT
Cal Compound, Lime, Cement

National Steel Fabric Co.
902 Union Trust Bldg., Pittsburgh, Pa. (Division Pgh. Steel Co.)

PRODUCTS
Electrically welded, cold drawn wire mesh for reinforcing cement, plaster, stucco and gypsum.

TRADE NAMES
"Steelite" and National Reinforcing

SALES OFFICES AND WAREHOUSES
CALIFORNIA
Los Angeles—1736 Naud St.
San Francisco—1242 Van Ness St.

GEORGIA
Atlanta—404 W. Peachtree St.

ILLINOIS
Chicago—1610 South LaSalle St.

MICHIGAN
Detroit—1001 Illinois Ave.

NEW YORK
New York—276 Lexington Ave.

TENNESSEE
Cincinnati—2434 Dixie Terminal Bldg.

PHILADELPHIA
Philadelphia—Franklin Trust Bldg.

TEXAS
Houston—500 Main, P. O. Box 1942
San Antonio—112 W. Commerce Exchange Bldg.

MILLS AND FACTORIES
Monessen, Pa.

North Brothers Mfg. Co.

PRODUCT
Carpenters' Tools

North Western Expanded Metal Co.
1203 Old Colony Bldg., Chicago.

PRODUCTS
Expanded Metal Lath: Expanded Metal Reinforcing Accessories.

TRADE NAMES
Kee-Burn, Xty Century,
Plasco-Saver, Longspan,
Ecano, Steel-Hilt

Novo Engine Co.
Lansing, Mich.

PRODUCT
Gas, Kerosene and Oil Engines.

Oak Flooring Bureau
828 Heurt Bldg., Chicago, Ill.

PRODUCT
Oak Flooring

The Ohio Foundry & Mfg. Co.
Steubenville, Ohio

PRODUCT
Brilliant Fire Husters, Ohio Fireplace Accessories and Ohio Dome Dampers.

TRADE NAMES
"Brilliant Fire"
"Ohio"

O. K. Clutch & Machinery Co.
Columbus, Ohio

PRODUCT
Portable Elevators and Hoists

S. R. M. Orum, Inc.

PRODUCT
Moulding Cutters

Paine Lumber Co.
Oakmoor, Wis.

PRODUCT
Millwork

Overhead Door Corporation
Hartford City, Indiana

PRODUCT
Overhead Doors.

TRADE NAMES
The Overhead Door

SALES OFFICES
MICHIGAN
Detroit—Overhead Door Co., 150 E. Hamilton Ave.

MILLS AND FACTORIES
Hartford City—Overhead Door Corp.

DISTIBUTORS
Little Rock—T. W. Wainman, 2030 West Market St.

CALIFORNIA
Glendale—W. B. Hunting, 1550 E. Glendale Ave.

CONNECTICUT
New Haven—Bros. Brothers, 19 Center St.

DISTRICT OF COLUMBIA
Washington—Byr. 8. Wilhelms, 1736 "O" St., N. W.

IOWA
Chicago—Overhead Door Co. of Ill., 200 E. Houston St.

LOUISIANA

MICHIGAN
Detroit—Overhead Door Co., 1503 Hamilton Ave.

MINNESOTA
Minneapolis—Overhead Door Co. of Minn., 607 6th Exchange Bldg.

MISSOURI
Kansas City—Overhead Door Co. of M. & K., 2042 Missouri Trust Bldg.

MISSOURI
St. Joseph—N. F. Higgin, Box 1004.

OHIO
St. Louis—Overhead Door Co. of Stl., 351 Whipple St.

NEW JERSEY
Elizabeth—Overhead Door Company, 50 Ramsey Avenue, Hillside Station.

NEW YORK
Canastota—Overhead Door Co. of New York.

NORTH CAROLINA
Asheville—J. E. Forrester, 507 S. 2nd St.

Charleston—Overhead Door Co., 405 Building Bldg.


OKLAHOMA
Oklahoma City—Overhead Door Co. of Okla., 1414 N. Oilie.

Cleveland—Overhead Door Co. of Cleveland, 3414 Carnegie Avenue.

Sandusky—Overhead Door Co. of Sandusky, 1581 Hayes Avenue.

PORTLAND
Bend—Central Door & Lbr. Co. E.

PENNSYLVANIA
Philadelphia—Overhead Door Sales of Phila., 1230 Vine Street.

Pittsburgh—Overhead Door Sales of Wester Penn, 237 Second Avenue.

Philadelphia—Overhead Door Co., 126 Federal Street.

Lowestown—Overhead Door Co. of Penna.

SOUTH CAROLINA
Columbia—Mrs. H. H. Koster, 201 W. Marion St.

Texas—Overhead Door Sales Co., 5112 E. Grand Avenue.

WISCONSIN
Milwaukee—Harry E. Frant, 778 Upper Third St.

CANADIAN DISTRIBUTORS

Paramount Electric Co.

PRODUCT
Lighting Fixtures.

Parks Woodworking Mchy.
Co.
Fergus St. and C. H. & D. R. R., Cincinnati, Ohio

PRODUCT
Woodworking Machinery

Patent Scaffolding Co.
1550 Dayton St., Chicago, Ill.

PRODUCT
Steel Folding Scaffolding Brackets and Ladders

TELL THE ABOVE COMPANIES YOU SAW IT IN AMERICAN BUILDER
The Frederick Post Co.  
P. O. Box 803, Chicago, Ill.  

PRODUCTS  
Drawing Materials, Table, Blue Print Paper and Cards, Blue, Brown Photostats. Prints, Transfers and Labels.  

DISTRIBUTORS OR JOBBERS  
ALABAMA  
Birmingham, A. S. Engineers Supply Co.  
CALIFORNIA  
Los Angeles, A. D. F. Niles Co.  
COLORADO  
Denver, W. H. Kistler Co.  
DELAWARE  
Wilmington, Embury Bros.  
FLORIDA  
Jacksonville, Embury Bros.  
GEORGIA  
Atlanta, Atlanta Blue Print Co.  
INDIANA  
Indianapolis, H. E. Waddell Co.  
MASSACHUSETTS  
Boston, Wright-Alexander Co.  
MINNESOTA  
Minneapolis, W. D. Guiterman Co.  
MICHIGAN  
Detroit, Peerless Blue Print Co.  
MISSOURI  
Kansas City, Western Blue Print Co.  
NEVADA  
Las Vegas, H. E. Waddell Co.  
NEW YORK  
New York City, W. H. Sullivan, Inc.  
OHIO  
Cleveland, The Frederick Post Co.  
OREGON  
Portland, The Frederick Post Co.  
PENNSYLVANIA  
Philadelphia, The Frederick Post Co.  
PORTLAND  
Portland, The Frederick Post Co.  
RICHMOND  
Richmond, The Frederick Post Co.  
SOUTH CAROLINA  
Charleston, The Frederick Post Co.  
ARKANSAS  
Little Rock, The Frederick Post Co.  
WASHINGTON  
Seattle, The Frederick Post Co.  
COLORADO  
Denver, W. H. Kistler Co.  
FLORIDA  
Jacksonville, Embury Bros.  
MARYLAND  
Baltimore, A. S. Engineers Supply Co.  
MICHIGAN  
Detroit, W. H. Kistler Co.  
SOUTH DAKOTA  
Sioux Falls, A. S. Engineers Supply Co.  
TENNESSEE  
Nashville, A. S. Engineers Supply Co.  
TEXAS  
Dallas, A. S. Engineers Supply Co.  
WASHINGTON  
Seattle, A. S. Engineers Supply Co.
SAMSON CORDAGE WORKS
ELEVATORS AND DUMBWAITERS
PRODUCTS
Sash Cord, Other and Braided Cords.

TRADE NAMES

SARGENT & CO.

SARGENT SPOT

SARGENT & CO.

SALES OFFICES AND AGENCIES

ILLINOIS

New York: 510 Lafayette St.

DISTRIBUTORS OR JOBBERS

Agencies in most of the important cities.

E. W. A. ROWLES CO.

2345 S. LaSalle St.

PRODUCTS

Blackboards.

ROS. T. RYEson & SON, Inc.

16th and Rockwell Sts., Chicago, Ill.

PRODUCTS

Steel Joists, Steel Windows, Metal Lath, Wire Mesh, Expanded Metal, Sprinklers, Refractory Bars, Steel Corner Bead, Bar Chairs, Base Screw, Bar Spacers, Stirrups, Wire Rod, Steel Sheets, Steel Shapes, Metal Roof Strips.

PLANTS AND OFFICES

ILLINOIS
Chicago: 1301 Amboy Ave.

WISCONSIN
Milwaukee: 29th and S. Canal St.

OHIO
St. Louis: 3400 East 8th Ave.

CINCINNATI: F. & R. Crocker Co.

COLUMBUS: W. & J. Sloane Linoleum.

ST. LOUIS: N. W. Corner 5th and Logan Sts.

CHICAGO: 230 South Wabash Ave.

DETROIT: 1450 Commerce St.

BOSTON: 120 Bay State Rd.

PHILADELPHIA: 1618 Chestnut St.

SEATTLE: 1100 Union Nat'l Bank Bldg.

MINNEAPOLIS: 428 Nicollet Ave.

OKLAHOMA: 410 Atlantic Life Bldg.

SAN FRANCISCO: 2610 Folsom St.

1023 S. Santa Fe Ave.

S. L. Rogers & CO.

23-27 S. Jefferson St., Chicago

PRODUCTS

Electric Hand Saws, Lock Mortisers.

Electric Drill, Portable Sanders, Timber Clamps.

TRADE NAMES

Wadack Saw

Wadack Mortiser

Rogers Timber Clamps

SASGEN DERRICK CO.

Chicago, Ill.

PRODUCTS

Derricks, Winches, Elevators and Hoists.

DISTRIBUTORS

CALIFORNIA
Los Angeles: 2453 E. 1st Ave., Los Angeles, Calif.

CONNECTICUT
Hartford: E. B. Noble Co.

INDIANA
Indianapolis: W. B. Everts Co.

LOUISIANA

MASSACHUSETTS
Boston: 31-33 F. B. Borden Co.

MICHIGAN
Detroit: Contractors Equipment Co.

MISSOURI
St. Louis: General Sash Co., St. Louis, Mo.

NEW YORK
New York: M. F. Patten Co.

Cleveland: W. E. A. Rowles Co.

PENNSYLVANIA
Philadelphia: F. F. Smith Co.

WASHINGTON
Seattle: W. & J. Sloane Lumber Co.

TEXAS
Houston: 1108 Union Nat'l Bank Bldg.

SAN FRANCISCO
180 New Montgomery St.

SISALKRAFT

The Sisalkraft Company

228 No. LaSalle Street,

9188-80 Builders Building

PRODUCTS

Waterproof Reinforced Binding Paper, Tarpsaulins, Wind Breaks.

TRADE NAMES

Sisalkraft

DISTRIBUTORS AND JOBBERS

Boston, Mass.: Whitney Bros. Inc.

MINNEAPOLIS, Minn.: John Leslie Paper Co.

ATLANTA, Ga.: Industrial Equipment Co.

Fond du Lac, Wis.: General Supply Co.

St. Louis, Mo.: Glencoe Lime & Cement Co.

Chattanooga, Tenn.: Mutual Service Corp.

Baltimore, Md.: W. B. & Sons Paper Co.

DISTRIBUTORS OR JOBBERS

Agencies in most of the important cities.

THE RUBEROID CO.

95 Madison Ave., New York, N.Y.

PRODUCT

Asphalt Shingles and Roofing

The Smith & Egge Mfg. Co.

Bridgeport, Conn.

PRODUCT

Concrete Mixers

THE T. L. SMITH CO.

1025 32nd St., Milwaukee, Wis.

PRODUCT

Concrete Mixers

The Smith & Egge Mfg. Co.

Bridgeport, Conn.

PRODUCT

Concrete Mixers

The Smith & Egge Mfg. Co.

Bridgeport, Conn.

PRODUCT

Concrete Mixers

SMITH TYPEWRITER SALES CORP.

299-300 E. Grand Ave., Chicago, Ill.

PRODUCT

Typewriters

Solvy Sales Corp.

40 Rect St., New York, N.Y.

PRODUCT

Cadmium Chloride

SPARGO WIRE CO.

Rome, N.Y.

PRODUCT

Cadmium Chloride

TELL THE ABOVE COMPANIES YOU SAW IT IN AMERICAN BUILDER
### Superior Rolling Window Screen Co.
**2152 Fulton St., Chicago, Ill.**
**PRODUCTS**
- Window Screen (Rolling).

### TRADENAME
"Superior"

### MILLS AND FACTORIES
**East Sparta, Ohio**
- Truscon Steel Company, Youngstown, N.Y.

### DISTRIBUTORS OR JOBBERS
**NEW YORK CITY**
- 31 Union Square.
- 205 W. Monroe St., Chicago, Ill.

### EXPORT DEPARTMENT
**New York City**
- Room 1900, 50 West St.

### CANADIAN PLANT
- Trussed Concrete Steel Co. of Canada, Ltd., Walkerville, Ontario.

### Turner Brothers
- Bladen, Neb.

### Twentieth Century Sales Agency
**1321 Arch St., Philadelphia, Pa.**
**PRODUCT**
Woodworking Machinery

### Union Metal Mfg. Co.
- Canton, Ohio.

### MILLS AND FACTORIES
- Metal Columns, Garden Fencing, Building Enclosure Lightning Standard and Engineer Wall Units.

### TRADE NAMES

---

### Truscon Steel Company, Youngstown, N.Y.

#### PRODUCTS
- Reinforcing Steel, Flarepipe, etc., including Engineering Girder and O-T Steel Joints; Ry-Sib and Metal Lath, including Accessory Hardware; Steel Windows, Residential, Commercial, Industrial; Reinforcing Steel for Windows; Steel Frames; Steel Doors, Swing, Sliding, Folding and Special; Airplane Hangars; Standard Steel Buildings; Steel Machine and Warehouse; Chilled and Waterproofed; Steel Poles, Hardware and Specialties.

### SALES OFFICES AND WAREHOUSES

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<th>Location</th>
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<td>AKRON</td>
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<td>WISCONSIN</td>
<td>Milwaukee</td>
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### (Continued from previous column)

**WILMINGTON**
- 306 Robinson-Richard Bldg.

**WISCONSIN**
- Madison—4051 Chippewa Ave.
- Milwaukee—1200 Stratus Bldg.

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**Union Metal Mfg. Co.**
- Canton, Ohio.

**PRODUCTS**
- Metal Columns, Garden Fencing, Building Enclosure Lighting Standard and Engineer Wall Units.

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**U. S. Gypsum Co.**
- 206 W. Monroe St., Chicago, Ill.

**PRODUCT**
- Fingerboard, Insulation, Sound Deadening, Gypsum Products.

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**U. S. Mineral Wool Co.**
- 280 Madison Ave., New York City.

**PRODUCTS**
- Mineral Wool.

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**United States Quarry Tile Co.**
- East Sparta, Ohio

**PRODUCT**
- Floor Tile

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**Universal Hoist & Mfg. Co.**
- 206 S. LaSalle St., Chicago, Ill.

**PRODUCT**
- Hoists

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**Universal Portland Cement Co.**
- Portland Cement

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**Tell the above companies you saw it in American Builder.**
Van Guild System Concrete Bldg.
15 E. 40th St., New York, N. Y.

PRODUCT
Forms for Wall Construction

Variable Unit Cabinet Co.
Kokomo, Ind.

PRODUCT
Kitchen Cabinets

Vendor Slate Co.
Easton, Pa.

PRODUCTS
Roofing Slate, Slate Flagging, Flooring Slate.

Ventilouvre Co.
Bridgeport, Conn.

PRODUCT
Ventilators for Hotels, Apartments, etc.

Vitrolite Co.
133 W. Washington, Chicago, Ill.

PRODUCT
Enamelled Tile

Wagner Mfg. Co.
Cedar Falls, Iowa

PRODUCT
Farm Building Equipment

Frank R. Walker Co.
536 E. Lake Shore Drive, Chicago, Ill.

PRODUCTS
Books and Records for Builders

J. D. Wallace & Co.
136 S. California Ave., Chicago, Ill.

PRODUCTS
Portable Woodworking Machinery, Saws, Band Saws, Jointers, Lathe, Mortisers, Sanders; Electric Hand Saws, and Electric Glee Pots.

SALES OFFICES AND AGENCIES
Beachwood, New York, New York, Baltimore, Buffalo, Pittsburg, Cleveland, Detroit, Cincinnati, Louisville, Chicago, St. Louis, Milwaukée, Kansas City, Dallas, Denver, Portland, Los Angeles, San Francisco, New Orleans, Lake- land, Birmingham and Atlanta.

Warren-Knight Co.

PRODUCTS
Precision Transits, Surveyor’s Transits, Contractors’ Transits, Builders’ Transits, Engineer’s Two Levels, Convertible Builders’ Levels and Plain Builders’ Levels.

TRADE NAMES
“Sterling”

MILLS AND FACTORIES

OFFICES AND AGENCIES
Pennsylvania
Philadelphia—125 N. 12th St.

Wasmuth-Endicott Co.
Andrews, Indiana

PRODUCTS

TRADE NAMES
“Kitchen Maid”

CANADIAN AND FOREIGN DISTRIBUTORS
Globe Furn. Co., Waterloo, Canada, Canadian Distributors and Mfrs.

IMPORTANT DEALERS
Local distributors in all principal cities.

Distributors’ Directory

Weatherbest Stained Shingle Co.
North Tonawanda, N. Y.

PRODUCT
Stained Shingles

Weber Insulations, Inc.
East Chicago, Indiana

PRODUCTS
Lavafelt, Lavafest, Insulation for all buildings.

DISTRIBUTORS OR JOBBERS
Representatives wanted all cities.

Welt & Sons Paper Co.
Detroit, Mich.

PRODUCT
Insulating Paper

Western Pine Mfrs. Assn.
Portland, Ore.

PRODUCT
Wholesale Lumber

Wheeler, Osgood Co.
Tampa, Wash.

PRODUCT
Doors

Wheeling Corrugating Co.
Wheeling, W. Va.

PRODUCTS
Metal Lath, Arch Laths, Diamond Mesh Lath, Conductor Pipe, Raves, Troughs, Metal Roofs, Cellulosing and Steel Sheets.

TRADE NAMES
Wheeling

SALES OFFICES AND AGENCIES
Long Island City—Van Dam St. and Nelson Ave.
Chicago—215 Merchandise Mart, Chicago, Illinois;
Philadelphia—223 Hamilton St.
St. Louis—1601 Spruce St.
North Kansas City—7100 and Campbell St.
Chattanooga—Main and Boyce St.
Richmond, Va.—Bib and Tory St.
Minneapolis, Minn.—41 Security Bldg.

CANADIAN AND FOREIGN DISTRIBUTORS
Long Island City—Van Dam St. and Nelson Ave.

Wheeling Metal & Mfg. Co.
Wheeling, W. Va.

PRODUCT
Leadcoated Metal Shingles

Weehawken Sanitary Mfg. Co.
Wheeling, W. Va., Virginia

PRODUCTS
Bathtubs, Sinks, Laundry Tubs, Urinal Flanges, Lavatories, Closet Bowls, Closet Tanks, etc.

TRADE NAMES
“Appo” Semi-Flush Porcelain “Riverside” Porcelain China “Porcelain” Enamelled Iron Sanitary Ware

SALES OFFICES AND AGENCIES
CALIFORNIA
Los Angeles—367 Santa Fe Ave.
ILLINOIS
Chicago—215 Merchandise Mart
 MASSACHUSETTS
Design—125 E. Grove St.
NEW YORK
New York City—1466 and 14th St. for East Coast, Long Island, Florida, Pittsfield, Pittsburgh.

David White Co., Inc.
Milwaukee, Wis.

PRODUCT
Levels and Transit

White Steel Sanitary Furniture Co.
Grand Rapids, Mich.

PRODUCT
Bathroom Cabinets

Vincent Whitney Co.

PRODUCT
Casement Window Hardware

Wickwicke Spencer Steel Co.
41 E. 42nd St., New York, N. Y.

PRODUCT
Wire, Lead, Screen Cloth

C. K. Williams & Co.
Easton, Pa.

PRODUCT
Mortar Colors

Willis Mfg. Co.
Galesburg, 111.

PRODUCT
Sheet Metal Building Products

The Wood-Regan Instrument Company, Inc.
South Orange, New Jersey

PRODUCTS
Lettering Guides and Lettering Pens.

TRADE NAMES
Wrico

SALES OFFICES
New York City—52 Broadway,
DISTRIBUTORS OR JOBBERS
See our ad on page 507 for list of principal dealers and distributors.

Woodville Lime Products
Toledo, Ohio

PRODUCTS
Finishing Hydrated Lime, Masons Hydrated Lime, Rex Cement Products Improver.

TRADE NAMES
Rex

SALES OFFICES AND AGENCIES
ILLINOIS
Chicago—525 S. Dearborn St.
Detroit—4411 Dexter Bldg.
New York City—45 W. 45th St.

MILLS AND FACTORIES
Woodville, Ohio

RETAIL DEALERS
Handled by dealers everywhere.

Wright Rubber Products Co.
Racine, Wis.

PRODUCT
Rubber Floor Tile

Youngstown Pressed Steel Co.
Warren, Ohio

PRODUCTS
Metal Lath, Corner Bean, Cold-formed Channels, Steel Corners, Economy Stoves, Nails, Cornerite, Expanded Metal, Cold Doors, Basement Windows, Electrical Steel Floor Building, Joint Pin Anchors, Wall Tie, Pencil Rods, and Tie Wire.

TRADE NAMES

SALES OFFICES

DISTRIBUTORS OR JOBBERS
Dallas, Texas—2412 Myrtle Street.
Los Angeles, Calif.—155 West 15th St.
St. Louis, Mo.—361 North Fourth St.
San Francisco, Cal.—145 Hooper St.

Zouri Drawn Metals Co.
Chicago Heights, Ill.

PRODUCT
Store Fixtures

TEL THE ABOVE COMPANIES YOU SAW IT IN AMERICAN BUILDER
When the Thermometer Drops

Figure in dollars and cents what it would mean if you could safely use Portland Cement for concrete, mortar and stucco practically all winter.

CAL will help you realize these extra profits. By following our carefully compiled Schedule of Safety, Portland Cement mixtures treated with CAL can be used at temperatures which otherwise would be dangerous.

And right now is the time to anticipate those sudden early drops in temperature. Safeguarded by CAL, your present jobs will be able to proceed to completion—and others begun; not postponed.

CAL cuts curing time to at least a third, effects economies, will not harm any mix and can be used by common labor. The CAL Book gives you every detail you need to know—and the coupon brings the book—promptly.

With these early cold snaps just ahead time is money. Don’t waste it—mail the coupon, today.
New Versatile Electric Hoist

A NEW electric hoist that can be mounted in a fixed position, either overhead or on the ground, or can be placed on skids and used as a portable hoist has recently made its appearance. The uses for this hoist include applications for the work of contractors and, in general, all sorts of lifting and hauling that require a hoist in a fixed position can be done with it.

The standard machine consists of a smooth drum driven by a motor through a train of spur gears, all mounted on a common bedplate. It is furnished in sizes for handling loads from 500 to 4,500 pounds. Motor and gears are completely enclosed. The gears are of drop forged steel, heat treated and run in an oil bath. Hiatt, "high duty," roller bearings are mounted on the ends of all gear shafts. The cover of the gear case is easily removable.

The drum has large flanges which prevent the rope from jumping the ends and give maximum storage capacity. One bearing of the drum shaft is lubricated by splash from the gears and the other by an Alemite fitting. The motor is a fully enclosed, ball bearing type, especially designed for hoist service. Either direct or alternating current motors can be furnished. The controller is of the single speed, reversing drum type. When desired, various modification in this hoist can be made, such as supplying grooved drums, air motors or steam motors, push button and remote control, holding and lowering brakes and extension shafts with additional heads.

Universal Electric Drill

ILLUSTRATED herewith is a new 3/4-inch universal drill which has recently been brought out by a manufacturer of portable electric machine tools. It is equipped with a motor of the company's own design and manufacture, particularly adapted to the service. This motor is mounted in ball bearings, which in turn are fitted in a way to entirely eliminate the slip and creeping action so detrimental to the motor and other mechanical parts.

The gear on the armature shaft is removable. All gears are proportioned to give maximum strength and smooth operation. They are made of high grade steel, electrically heat treated. The compound gear shaft is supported with a bearing at each end. The chuck is fitted to a hardened and ground tapered spindle which is the universal standard in machine tool design to insure true running. Jacob's chuck is standard equipment.

An oversized chuck spindle, which is hardened and ground, is automatically lubricated through the gear case. Brush holders with adjustable spring tension are mounted on a separate unit on a Bakelite yoke. This important feature, as in all large motors, permits brush adjustment when necessary. The end handle cover is a rugged casting carrying all pressure applied and independent of the motor and motor bearings, relieving them of all strain. This construction also affords the most convenient access to the carbon brushes for adjustment or renewal. The switch is mounted in the end grip handle and is of the automatic quick release type. The complete drill weighs 6 1/2 pounds.

Efficient Unit Heaters

STRONG claims are made for the unit heater shown in the illustration. This unit is light in weight, strongly made, low in first cost and installation cost, and highly efficient. It is suitable for steam pressures up to 50 pounds. Units of two types are made. One type is for suspension from the wall or ceiling, like the one illustrated, while the other is constructed with an air circulating box and is recommended for buildings with high ceilings or where men work at benches. The first type is suited to rooms of ordinary height where workmen move about.

Units are made in four sizes—18-inch, 24-inch, 30-inch and 36-inch. The 18-inch unit, which delivers 2,125 cubic feet of air per minute, weighs only 186 pounds. The construction is sturdy. The non-corrosive, brass bound, copper heating coils are enclosed in a heavy galvanized iron casing and the fan is all-steel, rigid and non-breakable. The fan equipment consists of an all-steel wheel, an all-steel tripod and ring for supporting the fan and motor and a fully enclosed motor large enough to operate continuously without ventilation.

The manufacturers claim that these unit heaters have a greater capacity than any other unit heater of the same weight and also that these heaters, installed, cost from 15 per cent to 50 per cent less than direct radiation, giving the same capacity and uniform temperatures.
Why have the extra weight of a wide-blade saw?

When the Disston Lightweight cuts as clean, as fast .... and easier

Every thrust of your saw, every return stroke—takes some of your energy.

The heavier the saw, the more strength required, and the more tiring your sawing will be.

You no longer have much need for a wide-blade saw. Modern building methods have taken much of your heavy cutting away.

So for modern sawing Disston has produced a modern saw.

Disston Lightweights! Less weight; less width to the blade. Easier on your arm for any sawing.

Made of hard, tough Disston Steel from our own steel furnaces. Tempered, tensioned, ground, set and filed by old masters of saw craft.

And balanced with that precision which carries all the force of your thrust direct to the cutting teeth.

Every Disston feature in a modern type of saw. You'll want a Lightweight as soon as you grip it.

Ask your hardware man to show you your favorite Disston in a Lightweight (Ship Pattern) model.

HENRY DISSTON & SONS, Inc.
Makers of "The Saw Most Carpenters Use"
PHILADELPHIA, U.S.A.

DISSTON
New Versatile Electric Hoist

A NEW electric hoist that can be mounted in a fixed position, either overhead or on the ground, or can be placed on skids and used as a portable hoist has recently made its appearance. The uses for this hoist include applications for the work of contractors and, in general, all sorts of lifting and hauling that require a hoist in a fixed position can be done with it.

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This Electric Hoist Is Exceedingly Versatile in Its Application to the Contractor’s Work, Handling All Kinds of Lifting and Hauling.

The drum has large flanges which prevent the rope from jumping the ends and give maximum storage capacity. One bearing of the drum shaft is lubricated by splash from the gears and the other by an Alemite fitting. The motor is a fully enclosed, ball bearing type, especially designed for hoist service. Either direct or alternating current motors can be furnished. The controller is of the single speed, reversing drum type. When desired, various modification in this hoist can be made, such as supplying grooved drums, air motors or steam motors, push button and remote control, holding and lowering brakes and extension shafts with additional heads.

Universal Electric Drill

ILLUSTRATED herewith is a new ½-inch universal drill which has recently been brought out by a manufacturer of portable electric machine tools. It is equipped with a motor of the company’s own design and manufacture, particularly adapted to the service. This motor is mounted in ball bearings, which in turn are fitted in a way to entirely eliminate the slip and creeping action so detrimental to the motor and other mechanical parts.

The gear on the armature shaft is removable. All gears are proportioned to give maximum strength and smooth operation. They are made of high grade steel, electrically heat treated. The compound gear shaft is supported with a bearing at each end. The chuck is fitted to a hardened and ground tapered spindle which is the universal standard in machine tool design to insure true running. Jacob’s chuck is standard equipment.

An oversized chuck spindle, which is hardened and ground, is automatically lubricated through the gear case.

A Motor Mounted in Ball Bearings Fitted to Eliminate All Slip and Creeping Action Features This Drill.

Brush holders with adjustable spring tension are mounted on a separate unit on a Bakelite yoke. This important feature, as in all large motors, permits brush adjustment when necessary. The end handle cover is a rugged casting carrying all pressure applied and independent of the motor and motor bearings, relieving them of all strain. This construction also affords the most convenient access to the carbon brushes for adjustment or renewal. The switch is mounted in the end grip handle and is of the automatic, quick release type. The complete drill weighs 6½ pounds.

Efficient Unit Heaters

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The manufacturers claim that these unit heaters have a greater capacity than any other unit heater of the same weight and also that these heaters, installed, cost from 15 per cent to 50 per cent less than direct radiation, giving the same capacity and uniform temperatures.
A kitchen outlet can help to close a sale

What are the things that sell a woman a house? The little details of comfort and convenience! Things like a convenience outlet in the kitchen with a pilot to show when the iron is turned on.

Women have learned—largely through advertising of the G-E Wiring System—that these conveniences are easily within their reach—and they are demanding them. A house that is merely wired cannot hope to compete in selling appeal with a house that has a complete G-E Wiring System. More and more builders are realizing that this points the way to a small investment that brings a very profitable return.

A G-E Wiring System gives you selling points in every room.

Merchandise Department
General Electric Company
Bridgeport, Connecticut
Welded Steel Power Saw

PORTABLE electric power saws for carpenters, contractors, and builders have occupied the attention of woodworking machinery builders for a long time. The accompanying illustration shows a new machine recently brought out by one well-known manufacturer. This machine is made both for engine and electric drive operation, the former being shown in the illustration.

Here Is a Portable Power Saw Which Is of All Welded Steel Construction and May Be Obtained Equipped for Either Engine or Power Line Drive.

In the manufacture of this machine the stable arc welding process has been used with the resulting advantage of light weight and high resistance to all kinds of abuse. Being made of hot rolled steel welded together, the equipment is said to be practically indestructible. Accidents which crush or bend parts do not put the equipment out of operation for long periods since repairs may be made by merely straightening the deformed parts. It is claimed that the manufacturing economies effected by the welded steel construction in place of castings have brought the price down to a point at which a widely extended field of usefulness for the equipment has been created.

Two New Lifting Jacks

FULL production is now under way on two popular models of jacks, the one for use up to three tons, the other for use up to 10 tons. This type of jack is said to be unusually versatile, the two sizes being applicable to all kinds of light duty and heavy duty lifting work. They embody novel applications of principles long recognized as of importance in the design of lifting devices and overcome difficulties which have prevented successful use of these principles in the past, it is said. There is absolute control of the lifting of the load the instant you stop pumping at any point of the stroke either up or down. The load positively holds its position at the stopping points.

With these jacks, any load within their range can be raised with little effort, steadily, smoothly and quickly. It may also be lowered without any jar or shock and can be instantly stopped at any position. The jack may be operated with short, inch-by-inch motions of the handle if desired. A full stroke is not necessary. This makes it particularly useful in cramped quarters. Also in dangerous positions this jack can be operated at a distance by using a longer handle.

Bradley-Miller Frame of the type illustrated is shipped in two bundles comprising seven units. Give them to your carpenter and he can nail them up in less than 10 minutes into the finest quality frame you ever saw. Made of Michigan White Pine (Pinus Strobus)—no better wood for frames—and of the very best workmanship. Always free from warping, rotting and splitting.

Your dealer can supply you with Bradley-Miller Michigan White Pine Frames K.D. in bundles, in the pattern you like, for any size opening, for any type of construction on the same day you order them. That's frame service.

Ask your dealer or send the coupon below for complete details.

<table>
<thead>
<tr>
<th>BRADLEY-MILLER &amp; CO.</th>
<th>1200 Marquette St., Bay City, Mich.</th>
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<tr>
<td>Name: ____________________________</td>
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<td>Address: _________________________</td>
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<td>Dealer's Name: _________________</td>
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<td>Address: _________________________</td>
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<td>Does your Dealer handle Bradley-Miller Frames?</td>
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</table>
The Common Brick Manufacturers' Association of America
2131 Guarantee Title Building
CLEVELAND, OHIO
BRICK
forever

Saleable Homes

This 72-page book, "Homes of Lasting Charm" will help you sell homes, as well as build them. Shows you the way to keep above mere price competition. It contains 130 photos and floor plans of common brick homes, combining the best tested plans from former plan books, with 13 new designs. It differs from others in that every house presented has actually been built and lived in, making certain that no inconveniences will be encountered after the house is built. Also contains suggestions on the use of common brick for improving gardens and grounds. Complete working drawings and specifications covering any plan shown in the book are available at nominal cost.

A brick-built home is easy to sell

—because common brick gives real brick construction at lowest cost. The house can be attractively, yet profitably priced.
—because the popularity of common brick is nation-wide.
—because brick construction has more talking points than any other kind—permanence, comfort, low maintenance, fire protection, high resale value.

Have you registered with the Common Brick Association as a builder who knows how economically and properly to construct a brick built house? If so, inquiries resulting from advertisements will be turned over to you for follow up.

At Your Service
These District Association Offices and Brick Manufacturers Everywhere
Boston . . . . 11 Beacon Street
Chicago . . . . 605 Builder's Bldg.
Cleveland, Ohio Association . . . . 2131 Guarantee Title Building
Denver . . . . 1730 Stout St.
Detroit . . . . 400 U. S. Mortgage Trust Bldg.
Hartford . . . . 215 Pearl St.
New York City . . . . 1716 Or'd Cem. Term Bldg.
Norfolk . . . . 112 West Fmno Street
Philadelphia . . . . 111 North Broad Street
Pittsburgh . . . . 702 First National Bank Bldg.
Portland, Ore. . . . . 906 Lewis Bldg.
Salt Lake City . . . . 301 Atlas Bldg.
Seattle, Wash. . . . . 913 Arctic Bldg.

Send for "HOMES OF LASTING CHARM" and other literature
Brick Books for Your Use
"Homes of Lasting Charm"—25c
"Skinned Brickwork"—15c
"Multiple Dwellings of Brick"—10c
"Farm Homes of Brick"—5c
"Brick, How to Build and Estimate"—25c
Check above, and send for any or all of these books.
Recognition that the accident problem is largely in the hands of the drivers, one concern in Los Angeles puts the following message over to all drivers in the form of a printed card in the truck cab:

"You are instructed to report any accident or damage to property of any nature. Violation of this rule will not be excused.

"Avoid all arguments with officers, pedestrians and drivers of other vehicles. You gain nothing by them and they may react against you. If an argument of any nature develops, hold your temper; explain in a gentlemanly manner your side of the argument. If your explanation does not satisfy the other party, inform him that you are not authorized to settle these questions, but are instructed to deliver your load and return; give him your name, truck number and truck license number, and ask him to report the accident to your manager. If the occurrence or accident is liable to be of a nature at all serious, obtain names of all possible witnesses, and then be on your way."

The way to make the driver willing and anxious to do better, is to create a spirit of competition which is not as difficult a matter as one might suppose. This consists of posting in a prominent position every month the gasoline mileages obtained on each individual vehicle, and the tire average at longer periods. Putting each man's name on the bulletin board with the figures of performance and perhaps remarks on the trend or comparison with the best results obtained, has a remarkably stimulating effect. There is no need for an unpleasant interview with a delinquent driver.

One operator of over 90 trucks, who instituted the bulletin board system some months ago has in nearly all cases increased his gasoline mileages from 100 to 200 per cent. A gentle "razz" by a man's mates is far more effective than an angry interview with the manager. The operator mentioned also carries this idea into the accident reports. Each month the names of the men involved in accidents are posted in large type on the board and this has been found the best deterrent yet devised. It all resolves itself into an appreciation of that human fact that most men can be led where they cannot be driven, and being shamed into better effort by their mates is a more potent incentive than being criticized into it by someone in authority.
Part of a Fine International Fleet down at Springfield, Mo.

We Have An Unequaled Organization To Serve the Builder's Trucks

[When They Are Internationals]

136 Branches!

We have 136 Company-owned truck service branches in the U. S.—whose job is to protect your truck investment. There's nothing else to compare with this! And there are hundreds of International Truck dealers besides. Choose Internationals for years of low-cost hauling and be secure under the wings of INTERNATIONAL HARVESTER SERVICE.

Sizes: 3½-ton "Special Delivery"; 4 and 6-cylinder Speed Trucks for 1½, 1¾, and 2-ton loads; and Heavy-Duty Trucks to 3-ton. Write for special folders.

Aberdeen, S. D. | Des Moines, Iowa
Alcorn, Ohio | Detroit, Mich.
Albany, N. Y. | Dubuque, Iowa
Alton, Pe. | Duluth, Minn.
Amarrillo, Tex. | East St. Louis, Ill.
Atlantic, N. Y. | East Cairo, W. Va.
Auburn, N. Y. | Elizabeth, N. J.
Aurora, Ill. | Elkins, N. Y.
Billings, Mont. | Erie, Pa.
Binghamton, N. Y. | Evansville, Ind.
Birmingam, Ala. | Fargo, N. D.
Bismarck, N. D. | Fort Dodge, Iowa
Boston, Mass. | Fort Wayne, Ind.
Brady, N. Y. | Fort Worth, Tex.
Brooklyn, N. Y. | Garry, Ind.
Buffalo, N. Y. | Grand Forks, N. D.
Cairo, Ill. | Grand Rapids, Mich.
Canton, N. J. | Green Bay, Wis.
Cedar Falls, Iowa | Harrisburg, Pa.
Cedar Rapids, Iowa | Helena, Mont.
Charlotte, N. C. | Houston, Tex.
Chattanooga, Tenn. | Hutchinson, Kan.
Cheyenne, Wyo. | Indianapolis, Ind.
Cincinnati, Ohio | Jacksonville, Fla.
Cleveland, Ohio | Jersey City, N. J.
Columbia, S. C. | Joliet, Ill.
Columbus, Ohio | Kankakee, Ill.
Council Bluffs, Iowa | Kansas City, Mo.
Dallas, Tex. | Knoxville, Tenn.
Davenport, Iowa | Lexington, Ky.
Dayton, Ohio | Lincoln, Neb.
Denver, Colo. | Little Rock, Ark.
Detroit, Mich. | Long Island City, N. Y.
Dubuque, Iowa | Los Angeles, Calif.
Duluth, Minn. | Louisville, Ky.
East St. Louis, Ill. | Madison, Wis.
El Paso, Tex. | Mason City, Iowa
Elkins, N. Y. | Memphis, Tenn.
Erie, Pa. | Milwaukee, Wis.
Evansville, Ind. | Minneapolis, Minn.
Fargo, N. D. | Minot, N. D.
Fort Dodge, Iowa | Nashville, Tenn.
Fort Wayne, Ind. | Newark, N. J.
Fort Worth, Tex. | New Haven, Conn.
Garry, Ind. | New Orleans, La.
Grand Forks, N. D. | New York, N. Y.
Grand Rapids, Mich. | Ogdenburg, N. Y.
Green Bay, Wis. | Oklahoma City, Okla.
Harrisburg, Pa. | Omaha, Neb.
Helena, Mont. | Parkersburg, W. Va.
Houston, Tex. | Parsons, Kan.
Hutchinson, Kan. | Petersburg, Ill.
Jersey City, N. J. | Portland, Me.
Joliet, Ill. | Portland, Ore.
Kankakee, Ill. | Providence, R. I.
Kansas City, Mo. | Quincy, Ill.
Knoxville, Tenn. | Richmond, Ind.
Lincoln, Neb. | Rochester, N. Y.

INTERNATIONAL HARVESTER COMPANY

When writing advertisers please mention the American Builder
if he has sufficient merits to his record to justify it. Employees must be with the organization continuously for six months to participate in the bonus. There is one exception to this rule. Employees laid off on account of reduction of force, through no fault of their own, are entitled to receive bonus pro rata for the period worked.

The merits are assigned on the following basis:

For meritorious service in avoiding accidents or unusual assistance or good judgment in emergencies, or any commendable act out of the strict line of duty, 10 merits are credited, on authorization of the head of department. A clear record for six months wins 15 merits.

The demerits are given for the following offenses:

<table>
<thead>
<tr>
<th>Offense</th>
<th>1st</th>
<th>2nd</th>
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<tr>
<td>Missing route or reporting late for work</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Discount or alteration with customers</td>
<td>5</td>
<td>10</td>
<td>10</td>
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<tr>
<td>Smoking on duty</td>
<td>1</td>
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<tr>
<td>Reading on duty</td>
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<td>3</td>
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<tr>
<td>Inattention to duty</td>
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<td>Careless driving</td>
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<tr>
<td>Failure to report accident or defects coming to the attention of those whose duty is personally to report such</td>
<td>5</td>
<td>10</td>
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<tr>
<td>Lack of neatness</td>
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<td>10</td>
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<tr>
<td>Signals imperfectly given and respected</td>
<td>3</td>
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<tr>
<td>Violating speed regulations</td>
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<tr>
<td>Rough handling</td>
<td>1</td>
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<tr>
<td>Failure to have proper lights and in working order</td>
<td>3</td>
<td>5</td>
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<tr>
<td>Court fines and accident expenses</td>
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Signals imperfectly given and respected............ 3  5  10
Violating speed regulations.......................... 3  5  10
Criticizing the management or policy of the company except to superiors...........5  10  10
NITE. 5 a5 o canvssviecevane 1 $ 5
Discourtesy or altercation with customers............... 1  4  5
I ence ec cca veeekets 1' 5 10
Missing route or reporting late for work............. 1  4  5

The garage superintendent of this company says: "As an indication of how our merit system works out in one respect, it may be interesting to note that 80 per cent of our drivers last year had no accidents of any variety—not even a scratched fender."

Other Driver Suggestions

Here are a few ideas that different concerns have tried cut successfully to keep personal contact with drivers:

If one of your men is injured see that he gets first aid promptly; if he is home sick, visit him; if he has a grievance, listen to him. Personal contact with your men is a great asset, it prevents friction and makes for a happy, contented personnel. An annual outing is another form of personal contact.

Develop a savings fund that terminates on the pay day before Christmas. This encourages thrift, holds the organization together and comes in handy for Christmas presents. This money can be invested to bring a 6 per cent return for the benefit of the driver.

It is customary with most large fleet owners to pay their drivers and helpers for all public holidays (about 11 per year) whether they work or not. By withholding these 11 holiday pays until a few days before Christmas the men get it all in a lump sum at the time they need it most. It is obvious that the chauffeur will not seek another position at the holiday season when this extra pay falls due.

When a driver has been in your service one year you might give him a group type life insurance policy for $500. At the end of two years a policy for $1,000 would be in order.

How to meet the driver problem in periods of business depression has caused considerable concern. While the usual custom has been to lay off first, the men who were hired last, this policy is not always a good one.

A better method is to lay off the men in rotation for a day at a time and without regard to seniority of service. This method helps to hold the driver organization intact.

Unusual Service for the Contractor

Ryerson combined service on all steel products saves time, money and trouble.

The Special Contractors and Builders Division of Ryerson Steel-Service is without parallel in the building fields. This department has its own warehouses and provides complete service on all reinforcing for concrete, Steel Joist, Metal Lath, Steel Sash, and all the various steel building products are also included.

In addition, structural bars, plates, sheets, rivets, bolts, wire, etc., are furnished from the general steel departments. Trench braces, jacks, electric drills, and hundreds of other tools needed on every job are supplied by the machinery and small tool departments.

Contractors use the Ryerson Warehouses as if they were their own. Reinforcing steel, lath, sash and other miscellaneous materials are kept under cover until they are ready to use each item. Delivery is according to their schedule.

Large fleets of trucks and private switch tracks help provide service unequalled by any other source of supply.

All types of jobs are figured and lump sum or pound price quotations prepared.

Write for Complete Information.

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE
A FRANTIC CALL FOR MEN WHO CAN READ BLUE PRINTS AND RUN JOBS AT $4,000 TO $12,000 A YEAR

See how easy it is now for any man to get ahead in the building game. Nowhere else does such simple training count for so much. Nowhere else are there so many countless thousands of openings as there are with contractors, builders and real estate firms, who are constantly calling for practical men who can read blueprints. Seven billion dollars will be spent this year for building. Trained men are at a premium in this gigantic industry. Untold thousands are needed at steady salaries far above the wage scale.

90 DAYS' EASY TRAINING PUTS YOU ON THE WAY TO A BIG-PAY "BLUE PRINT" JOB

No longer is it necessary for building tradesmen to spend years learning all the "mysteries" of blue print plan reading. For now you can get the blue print training in three months that has taken others years to pick up "on the job." We train you at home in spare time by the fascinating "blue-print-method" with lessons that are as easy to read as your newspaper. You do not need more than a common school education. There is no hard, grinding study—the whole course is just like playing some interesting new game.

SIMPLE AND EASY AS A-B-C

These plans and lessons come to you from the oldest and largest school of building construction in the country. This is the kind of training that puts men quickly into the $5,000 to $15,000 a year jobs, and in contracting businesses of their own. You learn from actual blue print plans—

from practical building experts. You learn how to read all the plans—estimate all the costs—and supervise the entire construction of a building. You learn everything a foreman, superintendent or contractor has to know.

A BIG-PAY JOB—OR YOUR OWN BUSINESS

With this quick, easy training, the building field is wide open to building tradesmen who want to become foremen and superintendents—or who would like to go into business for themselves. Burgert, Ill., stepped into a Foremanship at a 200% increase in salary. Clifford Scholl went from laborer to Ass't Superintendent in 8 months. Marchand, La., writes: "My salary is now increased 196%". After finishing his training, Baker, Ohio, made $3,800 clear profit in 3 months as a Contractor. Depke, R.I., increased his salary 700% in 12 months.

If you really want more money—if you hope to own a business of your own—if you want quick advancement in the building business—decide now to get this training that you must have for a real success.

FREE Book

Simply mail the coupon below for all thrilling new Book, "How To Read Blue Prints," and full information, see what amazing opportunities open up for you in the seven billion dollar building field. Act now, simply mail the coupon below.

Chicago Technical School for Builders, Dept. N-120, 118 E. 26th Street, Chicago, Ill.

Send me without obligation, your free book, "How to Read Blue Prints" and full details of the course and the opportunities in the Building field. It is understood that no salesman will call on me.

Name:__________________________
Address:________________________
City:_________________ State:__________
Company Name Changed

Effective September 1, 1927, the name of the Akron Barrow Company, 3140 E. 65th Street, Cleveland, Ohio, was changed to General Wheelbarrow Company. This change comes after 87 years of successful operation because it is felt that the old name of the Akron Barrow Company has become wholly inadequate and even misleading since the company has moved from Akron to Cleveland and its field of operation has been tremendously broadened.

The company remains under the same management and there has been no refinancing or reorganization; in fact, the change of name is the only change which has been made.

New Trade School Opened

On September 19, the Board of Public Instruction, for the County of Dade, Miami, Florida, opened a new school which is an effort to operate a school of high standing for the teaching of the building trades and related work. Two carefully selected instructors are handling the work and others will be added to the faculty as fast as the number of students demands it. Full time day classes, part time day classes for apprentices and evening classes for journeymen are being held.

New Chicago Headquarters of the Milwaukee Corrugating Company, of Milwaukee, Wis., Which Will Be Ready for Occupancy About October 1, Is located at Western Avenue and Forty-third Street.

Saving Floor Space!

In an average small house, first and second floor space is probably worth about $4.00 a square foot. When radiators occupy this space, it is practically useless for other purposes. Cabot's Quilt built into the walls will reduce the size of radiators approximately 20 per cent. This means that your client will have saved, for his use, as much as $40.00 worth of free floor space.

Add to this the saving in cost of radiators and reduced plastering and the annual saving in coal, and Cabot's Quilt becomes a necessity for any building.

Government tests (copies on application to us) show that Cabot's Quilt gives most insulation for least cost. Send for Quilt Booklet B-10.

FOR EFFECTIVE-ECONOMICAL HOUSE INSULATION, EMPLOY

Cabot's Quilt

IN SUCCESSFUL USE FOR OVER THIRTY YEARS

MANUFACTURING CHEMISTS - BOSTON - MASS. - U. S. A. - NEW YORK - CHICAGO
PHILADELPHIA - KANSAS CITY - LOS ANGELES - MINNEAPOLIS - SAN FRANCISCO - PORTLAND

Cabot's Creosote Stains - Stained Shingles - Old Virginia White - Waterproof Collophakes

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE
The New Note in Kitchen Equipment

The great variety of designs and colors makes selection easy

The almost instant acceptance of Sellers Sectional Kitchen Equipment has been due to its many outstanding features. Scientific construction—each unit is planned in accordance with the best principles of modern building; a rare charm of color and design; the many improved time and labor-saving features created by Sellers, have made Sellers the preferred kitchen cabinet in millions of homes.

To the builder, especially, the Sellers line offers many features which make it desirable. He will find Sellers Equipment adaptable to his every requirement. The line is so extensive, in both design and purpose, over 40 units, that he may readily secure a combination to fit any requirement.

Installation is simple. Just a few bolts to be drawn up, in holes already provided. A quarter round is all that is needed to finish the job at the floor line.

And the cost is no higher than that of "built-in" equipment.

Write for our new complete, illustrated book which shows many Sellers units in color. It has already proved helpful to many.

G. I. SELLERS & SONS CO.
Department 610
ELWOOD, INDIANA

SELLERS
Sectional Kitchen Equipment

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
MORE

—FEET PER HOUR
—PROFIT PER JOB
—JOBS PER YEAR

The American Universal FLOOR SURFACING MACHINE

leads in quantity production and quality of work.
This means maximum profits for its owner—satisfied customers and steadily increasing business.

Floor Surfacing Contractors equipped with “American Universals” are the big men in the game. Their services are demanded. They do the best work and make the most money.

You Can easily become the Big Floor Man of your town. You can purchase an “American Universal” on a payment plan, requiring only $75 down and a year to pay. Liberal allowance on your old machine, regardless of make.

NOW Is the Best Time to get started. Write at once for full details. No obligation whatever.

The American Floor Surfacing Machine Co. 515 So. Clair St. TOLEDO, OHIO

Libbey-Owens Advertises Glass

THE Libbey-Owens Sheet Glass Company, of Toledo, Ohio, has just inaugurated a national advertising campaign in the general magazines, building, architectural, glass and hardware trade magazines. This campaign is of special interest as it is probably the first really comprehensive attempt to awaken the public interest in better glazing, the glass industry having been slow to undertake public educational advertising.

Natco Office Built of Natco

An unusual and highly practical combination of office and sample room has been effected in the new Chicago quarters of the National Fire Proofing Company, of Pittsburgh, Pa. The new office was designed by S. F. Heckert, managing director of the company who is an architect of note. The walls and partitions are constructed, throughout, of various types of Natco glazed hollow building tile, manufactured by the company. The outer wall is tapestry faced Tex-Tile and contains two stained glass windows. Over this wall is a massive, rough hewn beam supporting a sign which reads, “National Fire Proofing Company,” and gives the location of the various offices. The main entrance is a heavy walnut door with hammered iron hinges and latch.

The reception room gives the impression of a porch and is surrounded by tile walls which illustrate the use of special shapes made by the company to frame openings and turn corners. The private offices are built of Natco double shell combed face tile and the dividing wall is Natco glazed plaster-saving tile.

This method of construction not only makes highly attractive office, but also permits visitors to see the effect of the tile in walls, and to clearly understand the various construction methods used.
Analyse the Sale of Any House

—and you will find that the decision to buy has generally been influenced by one of the smaller items of cost that make the home attractive, up-to-date and modern.

The home buyers of this country are sold on the desirability of good Tilework. We have helped to bring this condition about in national advertising, but good Tilework itself has done the most of it. The woman who inspects a home in which Association Tiles have been properly used is dissatisfied with her own house if it lacks this important labor-saving, permanent, attractive feature.

When she goes looking for a house you can depend upon it that she is looking for Tilework. Although representing approximately but one-fiftieth of the cost of the average house, the use of Tiles is leading an increasing number of prospects to say, “I’ll take it.”

Tilework represents the biggest 2 cents in the building dollar—the best investment you can make in putting up houses for quick, profitable sale.

Talk to Tiling contractors about Association Tiles. They are made in this country, and thus contribute to the prosperity which makes it possible for you to do business as a merchant builder.

ASSOCIATED TILE MANUFACTURERS

221 GRAYBAR BUILDING, 420 LEXINGTON AVE., NEW YORK, N. Y.
Massillon Bar Joists
For Fireproof Floor Construction

MASSILLON Bar Joists are used in building fireproof floors in all types of structures. This fireproof floor construction is scientifically designed to secure the maximum benefits from the materials involved. The dead load of each floor slab is materially reduced—the structural savings go right down to the footings—the construction time is cut to the minimum. And yet, when you analyze the layouts, you will be surprised at their simplicity—even to the installation of piping and miscellaneous floor accessories. These can be run in any direction through the web of the joists without raising floor levels or suspending ceilings. Massillon Bar Joists are made in standard sizes to meet all span and load requirements and are shipped from stock. Send for literature giving construction details and safe loading tables.

Other Massillon Products
- Roof Trusses
- Metal Lath
- Steel Windows
- Bank Vault Reinforcing
- Reinforcing Trusses and Steel Forms
- Fabricated Structural Steel
- Concrete Reinforcement

The Macomber Steel Company
Successors to the Massillon Steel Joist Company
909 Belden Ave., N. E.
Canton, Ohio

Canadian Manufacturing and Sales Agents:
Sarnia Bridge Co., Ltd., Sarnia, Ont.

MASSILLON

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"R.I.W." PRODUCTS
for specific uses
A. Waterproofing compounds.
B. Damp proof coatings.
C. Steel preservative paints.
D. Concrete and masonry finishes.
E. Caulking compounds.
F. Miscellaneous products for special uses.
State requirements.

"R.I.W." Toxement lubricates the mix due to its colloidal nature, increasing plasticity and workability. It gives a dense concrete or cement mortar mass that is absolutely waterproof, and results in proper and complete hydration of the cement.

"R. I. W." Toxement is but one of the specific Toch products, embracing technical paints and waterproofing compounds for every specific purpose, perfected by Toch Brothers, the acknowledged leaders in the field. This supremacy of Toch's "R. I. W." products is thoroughly proven by use in monumental building operations throughout the world. Whatever your need, there is either a special "R. I. W." product to meet your requirement or you can command the technical service of the laboratory staff for a specific recommendation where unusual conditions are to be met.

SEND THE COUPON BELOW for full and complete information on your particular waterproofing and damp-proofing requirements. Use the list of special "R. I. W." products at the left for a convenient check.

TOCH BROTHERS, 443 Fourth Ave., N.Y. (or 2600 Federal St., Chicago)
Gentlemen—
I am particularly interested in further information about Toch Brothers' products for checked uses: A B C D E F

Please send me complete literature on these subjects.
Name: ________________________________
Firm: ________________________________
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OVER 80 YEARS EXPERIENCE

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TECHNICAL PAINTS and WATERPROOFING COMPOUNDS

REMEMBER IT'S WATERPROOF

division of STANDARD VARNISH WORKS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER
Before You Have Another

Fireplace Constructed

Know What the HEATILATOR Will Do for You

Fireplaces have been expensive luxuries. They have smoked and actually chilled the rooms by drawing in cold air from windows and doors. Ninety per cent of the heat has gone up the chimney. Now all is changed. Don't have another fireplace constructed in your homes—whether built under contract or for sale—until you learn all about the

HEATILATOR FIREPLACE

It insures an efficient, satisfactory fireplace. The principle is similar to the hot air furnace with its fresh air intake, its heating chamber and its warm air register or grille.

It heats and ventilates the whole room. Smokeless regardless of wind or weather. Saves time, material and labor in fireplace construction. Pays for itself in heat saved. No cold drafts. Plenty of pure heated air.

Write today for your free copy of "Fireplace Perfection." It tells and proves the whole interesting story.

Want to see a Heatilator? No obligation. Just say so and give your supply dealer's name.

HEATILATOR CO.
631 Glen Ave., Calvin Sta. P. O., Syracuse, N.Y.
After an invigorating ride on a clear, frosty fall night, when that warm fireplace beckons, nothing is to be compared to the comforting knowledge that the Overhead Door, now raised conveniently out of the way, has but to be lowered quickly and simply without banging or straining—and the car is safely tucked away.

**Overhead Door Corp.**

*Hartford City, Indiana*

*West Kickapoo St.*

**The Door is in Perfect Balance in all positions.**

**The Door fits tight at Top, Sides and Bottom.**

**OPEN OUT OF THE WAY.**

**The Door Completely OVERHEAD out of the way.**

*When writing advertisers please mention the American Builder*
Chain Belt Makes Appointment

A news announcement states that Luther H. Bosnian has been appointed superintendent of the Park Street Plant of the Chain Belt Company, Milwaukee, Wis., manufacturers of conveyors, traveling water screens, chains and concrete mixers. Mr. Bosnian has been connected with the Chain Belt Company for the past eight years in the production department.

Arc Welding Competition

The American Society of Mechanical Engineers has accepted the custody of $17,500 offered by the Lincoln Electric Company, of Cleveland, Ohio, to be awarded by the society in a world-wide competition for the best three papers disclosing advancement in the art of arc welding presented under the competition rules. Three prizes will be awarded—$10,000, $5,000, and $2,500—provided the papers are of sufficient importance and value to justify, in the opinion of the judges appointed by the society, the awarding of such prizes.

Establishes New Work Office

In order to maintain a closer contact with its customers in the East and handle its growing export trade, the National Lock Company, Rockford, Ill., has established an office at 10 Murray Street, New York City, with D. O. Anderson in charge.

Stanley Holds Picnic

The Stanley Works and the Stanley Rule & Level Plant, of New Britain, Conn., recently held a combined outing of the office force of both companies. About 400 persons were present.

**News of the Field**

[October, 1927]

Here is a group of about 400 persons who recently attended a picnic held by the Stanley Works and the Stanley Rule & Level Plant, of New Britain, Conn., for the Office Forces of the Two Plants.

This New Wall Covering Applied to Plaster or Wall Board Makes a Permanent Wall

**Inexpensive—Easily Applied—Washable—Decorative**

**Built Up in Linseed Oil—No Surface Cracks**

Travertile fabric imitating Italian Travertine Stone, made in any color or design satisfying every taste.

Non-repeating pattern of blocks removes the usual mechanical effect. Duplication of line on both sides of sheet saves labor and worry in application.

Travertine-Wal-Tone-Tone on all walls assures permanency and beauty. Suitable for any room in the home, public halls, apartment houses, stores, corridors, etc. Contractors and Builders investigate Travertile.

**Send us the name of your nearest dealer. Also send at once for sample and literature**

Lincrusta-Walton Co.

Division Tait Paper and Color Industries, Inc.

HACKENSACK

NEW JERSEY

(See list of Branch Houses in Distributor's Directory Section, page 175.)

For Advertisers' Index see next to last page.
LOGICAL REASONS for installing

MORTON BATHROOM CABINETS

1. Made of steel—no warping—no checking—last as long as the building.

2. Many outstanding features of construction—electrically welded—shelf brackets and hinges are die-cast and rust-proof—adjustable friction catch—sanitary rounded corners, etc. Each cabinet shipped complete in individual corrugated carton—no extra parts to buy or assemble.

3. Finished with high gloss white enamel, permanently baked on—perfect harmony with other bathroom fixtures—no painting required at any time.

4. Installed in a few minutes—no time wasted.

Many contractors and builders continue to buy wood cabinets because they believe they are cheaper. But when the cost of the mirror and hardware is added to the millwork, plus the extra cost of assembling and installation and the need of painting periodically, the relative costs of wood and MORTON steel cabinets are surprisingly close. Even were they the same, no honest comparison could be made in the two cabinets without a frank admission that the MORTON was far superior in every way.

Follow the trend for better bathroom cabinets by installing MORTON. Write for Catalog A-4 which gives the facts.

MORTON MANUFACTURING COMPANY
5161 West Lake Street, Chicago, Illinois

Please send copy of Catalog A-4.

(Check business or profession)

☐ Architect
☐ Hotel Manager
☐ Building Contractor
☐ Realist
☐ Building Supply Dealer
☐ Home Owner

Name: __________________________
Address: ________________________
City: ___________________________ State: ___________
Books, Bulletins and Catalogs for You

The literature and publications listed here are available to the readers of American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

"Edwards Sheet Metal Products," is the catalog of The Edwards Manufacturing Company, 401-417 Eggleston Ave., Cincinnati, Ohio.

Samuel Cabot, Inc., 141 Milk St., Boston, Mass., has prepared a new type of color cards to display the effects of its products upon different surfaces, in small sizes for general distribution and in larger sizes for architectural filing.

Sargent & Company, 51 Water St., New Haven, Conn., offers a booklet under the title "Silent Closing Doors," cataloging its line of door closers.

The F. E. Myers & Bro. Co., Ashland, Ohio, has published in book form, its 1927 pump catalog No. P. 59, covering the complete line of Myers pumps and water systems.

The Wisconsin Land & Lumber Company, Hermanville, Wis., has published a booklet which is described as a technical treatise on the modern color treatment of hard maple floors, interior finish and furniture and is most handsomely illustrated in full colors, and a smaller booklet describing the history and production methods of the company.

Chase Companies, Inc., Waterbury, Conn., has issued a pamphlet tabulating the sizes and weights of brass pipe and copper tubing.

The Leonard Sheet Metal Works, Inc., Hoboken, N. J., has published a booklet of detail drawings of its fireproof doors, windows, store fronts, skylights, etc.

Painting the modern, improved DeVilbiss way

Insures BIGGER PROFITS for You

How to provide for a worth-while increase in your profits: the easier, improved DeVilbiss way of painting will most successfully solve that part of your business problem.

Use of the DeVilbiss Spray-painting System enables you (1) to do more work, without increasing labor costs; (2) to give your customers an improved and cleaner class of work, on a greatly speeded-up schedule; (3) to make the work easier for your men, while increasing the production of each; (4) to become recognized as the progressive, outstanding painting contractor in your community.

There is further assurance of bigger profits in using the DeVilbiss Spray-painting System. DeVilbiss equipment is correct and complete in every detail; is built of highest quality materials by skilled workmen; is simple and dependable in every operation; is warranted to give long and satisfactory service. Then there is available to you at all times the unequalled DeVilbiss engineering and service facilities, developed out of over 35 years' manufacturing experience.

Investigate now the increased profits to be made painting the DeVilbiss way. Complete facts will be promptly mailed to you. Address—

THE DEVILBISS COMPANY
238 Phillips Ave. TOLEDO, OHIO
New York—Philadelphia—Chicago—Detroit
Indianapolis—San Francisco—Pittsburgh—Cleveland
Cincinnati—Milwaukee—Minneapolis—St. Louis
Windsor, Ontario

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FrantZ Red Labels are your guide to the best in Builders' Hardware—an assurance of perfect satisfaction both to you and your customers.
Back of every label lies not only a guarantee of expert workmanship and highest quality materials but a reputation, 15 years old, that has been built up by constantly giving the best that human skill can produce.
Each FrantZ product is carefully designed to fit the work for which it is intended, to do the work efficiently and to give long, satisfactory service.
Look for FrantZ Red Labels on your Dealer's shelves—ask him for a demonstration of one or more items. Your own judgment will convince you of their many superior features.
Send for your copy of the handy wall hanger that illustrates the entire FrantZ line of Guaranteed Builders' Hardware. Hang it in a conveniently seen location as you will find it a great help in specifying or estimating the hardware for any home, garage or barn.

Frantz Manufacturing Company
Dept. A-11, Sterling, Illinois

No Hardware is Genuine FRANTZ QUALITY without the Red Label