Building Age
National Builder
With Which is Incorporated
The Permanent Builder
and
The Builders' Journal

35 Cents
February 1925
Look at the load supported on three R-W Builders' Brackets! This is a much greater load than ordinary working conditions would ever demand—affording a tremendous margin of safety.

R-W Builders' Brackets are not only the strongest, but the most practical. They fold into convenient form for handling and take up little room when stored. No more expensive than wood brackets, yet last a lifetime. When a job calls for two dozen or more brackets, R-W Steel Folding Builders' Brackets actually—

Save Their Cost!

R-W Brackets are very easy to attach—the hook or tail screw for fastening to sheathing and stud­ding insures complete safety, while sway braces prevent swinging. Made entirely of high-grade steel and reinforced to provide strength and durability.

Illustration shows the No. 231 with sway brace on upright. The No. 261 is the same, but has sway braces riveted to side of top bar.

R-W Builders' Brackets are packed one dozen to a crate. If your hardware or lumber dealer can't supply you, ask him to order them for you from our nearest branch.
Make Instead of Losing Money
Build in Winter

With Bishopric

Don't risk losing your good men through the winter. Keep them busy covering the buildings with Bishopric Base. It is easily and quickly applied. Scratch in Bishopric Stucco—freezing weather will not effect its set—and you can then go ahead with the inside—your men can work in comfort.

Think of the Tremendous Saving

Mr. Contractor, keep your good men busy. Make instead of losing money during the winter season. It means an all-year business for you. Have your houses ready for sale with the first day of spring.

Write for Bishopric booklet, "For All Time and Clime"—beautifully illustrated—working details—specifications. Let us help you with your Building Problems.

Bishopric is Sold by Dealers Everywhere

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ESTE, AVE., CINCINNATI, OHIO
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GRAND, CANADA

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1109 ANGELES
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These home builders naturally seek the contractor who has developed as a builder of Face Brick homes. This Association issues numerous technical and plan books which will help you get this business. Write for a list of these publications.

The American Face Brick Association
1764 Peoples Life Building • Chicago, Illinois
Here’s a Wonderful New Shingle!

Have you seen the new improved Barrett Giant Shingles?

They’re extra large (12 x 14 inches). Far thicker than the ordinary asphalt shingle, they’re handsomer, more rugged in appearance—give a good shadow line.

Giant Shingles can be laid quickly. With their 12-inch width—the maximum width that can be satisfactorily fastened with two nails—fewer shingles are needed per square.

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Because of their extra weight and rigidity they can be nailed down right over the old worn-out roof. This saves time, trouble and money.

Giants give a permanent roof. They never rot or rust—never need painting or staining. Moreover, they’re fire-safe—proof against flying sparks and embers.

They come in soft red, moss green and blue-black. Any man who takes pride in his work—who wants to give his customers a handsome permanent maintenance-free roof—should see Barrett Giant Shingles.

Particularly adapted for laying over old roofs—the new Barrett Giant Shingle, 12" x 14" in size, is laid with 5" exposure.

A Valuable Free Book

“Better Homes from Old Houses” gives ideas for remodeling old-fashioned houses into handsome modern homes. Thousands of carpenter-contractors are putting this practical book into the hands of owners of old houses—and supplying the labor needed when the alterations start. Send for your sample copy of this business-building book.

MAIL THIS COUPON TODAY

THE BARRETT COMPANY
40 Rector St., New York

Please send me free sample copy of your business-building book—“Better Homes from Old Houses.” The address of my building supply dealer is given below.

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Street Address: ................................
Town: ........................................ State: ...................................
Your Dealer’s Name: ........................................
Dealer’s Address: ........................................
Lupton Windows of steel help to make the house a home—
use them from cellar to attic

Cheer, comfort and convenience come with Lupton Steel Windows. They open and close readily, are easy to wash, and offer the least possible obstruction to light and air.

The graceful lines and proportions of Lupton Windows please the eye, too, while their durable copper-steel construction satisfies the economical instincts of home builders. Let us tell you more of these desirable windows that help make the house a home.

Lupton Steel Basement Windows brighten up the basement. They open easily, lock securely, and never rattle or rot. Quantity production in standard sizes makes them very reasonably priced. Write for the address of your nearest distributor.

DAVID LUPTON'S SONS CO.
Founded 1871
PHILADELPHIA
GREATER
Sales Possibilities
with the improved

NEW MODEL "R"
Automatic Cellar Drainer

Improved in every way—more efficient, more economical, more reliable—more durable—the new Model "R" Penberthy Automatic Cellar Drainer opens up a new field of profitable business for enterprising plumbing contractors—because it can be installed under conditions where other cellar drainers would be utterly useless.

The famous Model "L" Penberthy Automatic Cellar Drainer has long been recognized as the best device of its kind, but the new improved model far surpasses it in every way.

Consider this: Even the smallest size, No. 1, with only 25 pounds water pressure will elevate 340 gallons of water per hour three feet, or 240 gallons 6 feet. You cannot obtain results anywhere near these figures with any other cellar drainer made—and that's not all—by any means.

Write us for literature describing this improved model in detail. Place your orders with your jobber.

PENBERTHY INJECTOR COMPANY
New York Depot
71 Beekman St.

DETROIT
MICHIGAN

Canadian Plant
Windsor, Ontario
You can protect a whole bathroom with only 30 yards of Metal Lath

If you use KNO-BURN Metal Lath you'll save yourself a world of possible trouble from plaster cracks, falling ceilings, peeling walls and other expensive up-keep jobs at a very slight additional cost.

If you can't afford to use this crack-preventing, fire-safe plaster base in every room, at least put it in the places that need it most—in all bathrooms, over the furnace, under and around the stair wells and on the ceilings of the principal living rooms.

It pays for itself in repairs saved, in satisfied clients and tenants, in reputation gained and in new business obtained through good-will.

Let us send you a sample of KNO-BURN Metal Lath together with specifications for its use.

North Western Expanded Metal Co.
1204 Old Colony Bldg.

NORTH WESTERN
Kno-Burn
METAL LATH

"THE STEEL HEART OF PLASTER," STOPS FIRE—PREVENTS CRACKS
Like an automobile standing on your plate glass is the force of the wind when a gale strikes your store front.

Zouri Indirect Key

When a forty-mile wind strikes the store fronts on Michigan Boulevard, Chicago, the plate glass is put under a stress of about 8 pounds per square foot. When a gale from the East blows sixty-five miles an hour a window 8 x 12 feet may have to sustain a total pressure of 2016 pounds. This is the equivalent of a Ford Coupe and a 165-pound driver standing on the glass! If the glass is held only by direct screw pressure an extra strain or pinch here and there is

Write for this free book—"Getting People In"

In a manner helpful to architect, contractor and merchant, it gives plans and diagrams showing the best approved methods of arranging window display space and assuring permanency in the setting of the glass.
Preferred by merchants and building owners

-Set Store Fronts

almost sure to start a crash. Only Zouri's Indirect, Key-Set Method, which holds the glass in an even, velvety grip all around, distributes the stress evenly and enables the window to weather such storms. That's why owners of Michigan Boulevard windows that have repeatedly blown out eventually specify Zouri construction. Contractors find Zouri store fronts easier and quicker to set, safest, most lasting in service—hence most profitable to handle.

Zouri Drawn Metals Company

Factory and General Offices
1608 East End Avenue, Chicago Heights, Illinois

LISTED BY THE UNDERWRITERS LABORATORIES
EXTEND the life and service of sheet metal work by using only products that have an established reputation for durability and general trustworthiness. We are producers of high quality Steel Sheets and Tin Plates

Keystone Copper Steel lasts longest in the building field

The destructive enemy of sheet metal is rust. It is a well established fact that an alloy of copper gives to Steel Sheets and Tin Plates the maximum of rust-resistance. Keystone Copper Steel is unequalled for roofing, siding, spouting, gutters, culverts, metal lath, and similar uses. It assures roofs and sheet metal work that will withstand the ravages of fire, wear and weather. Shall we send proofs from actual service tests? We manufacture Steel Sheets and Tin Plates for all purposes and specially adapted to the requirements of builders and contractors: Black Sheets, Special Sheets, Apollo and Apollo-Keystone Galvanized Sheets, Corrugated Sheets, Formed Roofings and Siding Products, Roofing Tin Plates, Bright Tin Plate, Black Plate, etc. Sold by leading metal merchants. Our products represent the highest standards of quality and utility. Write for quotations, also our booklet — Roofing Tin Plates.

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General Offices: Frick Building, Pittsburgh, Pa.

District Sales Offices
Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis

Export Representatives: United States Steel Products Company, New York City

Pacific Coast Representatives: United States Steel Products Company, San Francisco, Los Angeles, Portland, Seattle
Cheapness vs. Economy

Which Plan Pays Best?

"The trouble is," complains one builder, "people set a certain price they want to pay for a home, and they want everything in it at that figure."

True, they generally do want everything modern in it, they want completely equipped homes. And if they discover, after moving in, that many extras must be purchased, dissatisfaction results and the builder's reputation suffers. But how about the "set price?" What's the best way to meet the price argument? More and more builders are doing it by emphasizing the economy of the completely-equipped home. It's a powerful sales argument. Take heating, for example. A heating plant equipped with

The "MINNEAPOLIS"
Heat Regulator
"THE HEART OF THE HEATING PLANT"

costs a little more, but the extra cost is not an expense, it's an economy factor. The Minneapolis pays for itself over and over again. It takes complete charge of temperature regulation, eliminates work, provides real heating comfort, makes the home more livable.

Such equipment helps to sell homes. Complete homes, built for economy of upkeep, are the easiest to sell. Home-buyers are willing to pay the small percentage of added cost when they realize it is far outweighed by the resultant advantages.

Let us give you complete information on the Minneapolis for any type of heating plant in which you are interested. Write today.

Minneapolis Heat Regulator Co.
Established 1885
405 East 28th Street, Minneapolis, Minn
Sold and installed by branch offices in principal cities and 20,000 heating contractors.

The New
MODEL 77
with 7-Jewel,
8-Day Clock
The story we have waited three years to tell

YOU, of course, know about Celotex. Shortly after its discovery—three years ago—this remarkable new insulating lumber was announced to builders and contractors.

But, although many millions of feet have already been built into homes, your customers have only begun to hear about it.

Celotex pointed the way to improvements in home comfort and economy so startling that even the bare facts were hard to believe.

So for three years Celotex has been tested. In thousands of homes in all sections of the country, it has proved every claim we make for it.

Now, after this thorough testing, the story of Celotex is being told fully to the home-builders of America.

It's a big story—and will be told in a big way. With one of the largest advertising campaigns ever attempted for any building material!

How it will be told

Look at the forceful double-page advertisement illustrated here! It is the first one of a series of double-page Celotex advertisements that will appear regularly throughout the year. Ads like this will run in The Saturday Evening Post—read by at least 5,000,000 people, many of them your customers. They will also run in House & Garden and in House Beautiful—magazines read by your best prospects, people definitely interested in building.

Newspaperspace will be used, too—in dominant full pages, in the principal cities.

This advertising will tell your customers all about Celotex. It will tell them of the greater comfort and economy of insulated homes. How ordinary building materials, such as wood, brick and stucco, can not effectively stop the passage of heat—that approximately one-third of the heat generated in an ordinary house is lost through the solid walls and roof.

It will tell them how Celotex stops this waste—makes possible a new degree of year-round comfort and healthfulness. And does all this at no extra cost over ordinary construction.

Celotex makes possible, for the first time, in every home, comforts hitherto only available to the rich. The market for Celotex is as broad as the market for wood lumber itself.

Definite selling points

Your customers will be told of the unique advantages of Celotex. They will be told how and where to use it to get the comfort they want in their homes.

How Celotex on exterior and interior walls is equal, as insulation to 3 1/2 inches of solid wood, 12 inches of solid plaster, 12 inches of solid brick, or 24 inches of solid concrete.

That it has a sound-absorbing coefficient of 31%, placing it high
among the most effective materials for absorbing sound — making homes quieter.

But, combined with these qualities, Celotex has what no other insulating or sound-absorbing material possesses. It has greater structural strength than the wood lumber it replaces.

Used on the outside walls of a house and under the roof in place of sheathing, Celotex actually makes the house many times stronger. This use of Celotex gives heat insulation without extra cost. And it reduces fuel bills from one-fourth to one-third.

Your customers will learn, too, of the advantages of Celotex as a plaster base. How plaster bonds with Celotex to produce a wall many times as strong as one made of plaster and lath. And a wall less likely to crack.

Architects and lumber dealers will read all about Celotex in their professional and trade papers. They will specify Celotex, and have it in stock.

Not infrequently, but at least once every three days in the year, a Celotex ad will appear somewhere.

**Your opportunity**

Your customers want the kind of comfort and economy in their homes that Celotex can give. They will willingly pay more for such homes.

Every progressive contractor and builder will be quick to take advantage of this fact — both in his building and in his selling. He will make this tremendous advertising campaign work for him.

Write us for additional information on the value of insulated homes, and how to build them at no extra cost with Celotex. We will send you complete specifications covering all the uses of this remarkable building material. Just mail the coupon below.

**THE CELOTEX COMPANY**
645 N, Michigan Ave.
Chicago, Ill.

**CELOTEX**
INSULATING LUMBER

"There is a use for Celotex in every building"
Securing Safety and Durability

Alundum Stair Tile, 9x4x3/4", is assuring a safe (slip-proof) and durable nosing on the stairs of the new Central High School, Columbus, Ohio. The use of this tile results in a surface that will never wear smooth and never wear into dangerous hollows—even under the severe traffic usual in schools.

Alundum Stair Tile is but one of the products known as Norton Floors. The others are Alundum Floor Tile, Alundum Ceramic Mosaic Tile, Alundum Aggregates and Alundum Aggregate Tile, Thresholds, Treads and Platforms. All of these products have wide application wherever there is a slipping hazard or unusually severe traffic.

Central High School, Columbus, Ohio.
Architect: Wm. B. Ittner, St. Louis, Mo.
Where a Dollar Saving Cost Ten!

"Hmm!", he says, "this is a pretty pickle!" And he thinks back to the person who saved him a dollar or two on building costs—at his expense later. Don't let any one hold this against you! The MAJESTIC Coal Window is your protection. It saves the expense of repairing or replacing a "cheap" coal window—and prevents depreciation that comes all too soon when an ordinary sash is used as a coal window. The Majestic is guaranteed break-proof—and rust-resisting—made of Certified Malleable Iron and Keystone Copper Steel. Electro-galvanized doors defy rust! There's a Majestic Coal Window to suit every house—and every purse—with or without hopper, and with glass or pressed steel door. It will pay you to use Majestic Coal Windows in the homes you build. Catalog and your dealer's name sent upon request.

Majestic Coal Window

BREAK-PROOF RUST-RESISTING

No. M101 MAJESTIC

No. M10 MAJESTIC

STORE COAL CHUTE

OTHER MAJESTIC PRODUCTS NEEDED IN EVERY HOME

GARBAGE RECEIVERS

PACKAGE RECEIVERS

FIREPLACE DAMPERS

THE MAJESTIC COMPANY - HUNTINGTON, INDIANA
Standing Seam Horse Head Zinc Roofing is shipped in casks complete with nails, Zinc for clips, and full instructions. Each cask contains enough Zinc to cover one roofing square.

Zinc roofs endure. They cannot rust. They need no protective coatings. They will not leak.

For complete information use the coupon.

The New Jersey Zinc Company
Established 1848
Products Distributed by
The New Jersey Zinc Sales Company
(INCORPORATED)
NEW YORK • CHICAGO • PITTSBURGH • CLEVELAND • SAN FRANCISCO
FOR exterior work, which is to receive stucco and for interior walls and partitions, to which the plaster may safely be attached direct without furring and lath, and because of its nail-ability, there is no material on the market which can equal it.

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

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

Ten Reasons Why:

1—Damp-proof, moisture-proof and frost-defying.
2—Sound-proof.
3—Tenacious with great strength.
4—Non-conductor of heat and cold.
5—Perfect key for inside plaster and outside stucco. (No wood or metal lath required inside or out.)
6—Fire-resisting.
7—As good as wood for nailing. Nails can be driven into it with ordinary hammer as easily as into wood and the nails hold.
8—Rot and vermin-proof.
9—Does not sweat—therefore requires no furring or lathing. No mold.
10—Great Saving in Cost.
A CONVINCING ILLUSTRATION

Assume for a moment that an aeroplane were built with the space between its wings enclosed with a fretwork similar to the face of an old-fashioned register. What success would the aviator have in flying?

The fretwork would not allow a free flow of air between the wings, without which the plane would be worthless.

The free flow of air is just as important in warm air registers as in aeroplanes.

It is obvious that in an ordinary register, the flow of air is obstructed by excess fretwork, whereas in the H&C Register, the air flows freely on its warming way, delivering into the room ALL of the heat, which the furnace sends thru the pipe. As an example, we offer for comparison, an ordinary 10 x 12 Register— with but 70 square inches of free area, to take care of a 10 inch pipe with 78 square inches of area, and an H&C Register of even smaller size—8 x 12 with 81 square inches of free area—

3 square inches more than pipe area!

and the price for the greater capacity is much lower!

(Other sizes show corresponding advantages in the H&C AIR CAPACITY LINE.)

BUY YOUR REGISTERS BY AIR CAPACITY—NOT BY SIZE!

THE HART & COOLEY COMPANY, INC.
NEW-BRITAIN, CONN.
NEW YORK PHILADELPHIA CHICAGO BOSTON
BRIXMENT mortar is so free and smooth in working that mortar joints of every type can be struck more easily, quickly and economically.

Sets fast enough to permit of speedy, uninterrupted work, slowly enough to retain its remarkable plasticity and hardens into clean, accurate, durable joints with a uniform strength equal to that of the brick itself.

No lime. No slaking. One part BRIXMENT; three parts sand. Requires less mortar color; will not fade the color used; can be re-tempered; resists moisture; less likely to freeze. Let BRIXMENT prove it on your next job. Sold through dealers.

Hard, durable joints

Perfect Mortar
At Less Cost

Strike it right the first time!

Send today for this free book

Contains helpful information and convincing tests, tells how BRIXMENT has overcome the difficulties of old-fashioned mortar practices and why this standard mortar material means better, more durable, more economical masonry.

BRIXMENT Mortar for Best Results on Every Type of Joint
V-tooled, raked-out, cut-flush, convex, rodded, weathered, concave or struck—whatever the type of joint, the smooth, buttery consistency of BRIXMENT mortar lends itself more satisfactorily to architectural demands.

Send today for descriptive handbook and list of nationally known buildings in which BRIXMENT has been used exclusively for mortar. Try BRIXMENT yourself and know, at first hand, why a continually growing number of leading contractors and architects are specifying BRIXMENT exclusively on all work.

LOUISVILLE CEMENT CO., Incorporated, SPEED BUILDING, LOUISVILLE, KY.

BRIXMENT
There is a certain sense of simple refinement about a blue-grey slate roof. Its very neatness and subdued color instantly stir the imagination—not burdensome in cost, yet a feeling of security, long life and absence of repairs.

There are many grades of slate and the cheapest is far better and costs only slightly more than a substitute roof. Why take a chance on something which is bound to need renewal in a short time?

Slate is the oldest known roofing material and is still the best—made to meet every requirement and suit any pocketbook.
Prospective home owners know that a house properly weatherstripped means lower fuel bills and a more comfortable home in winter. Improvements such as this swing many a sale.

The Home Comfort Weatherstrip is economical in cost and easy to apply. You simply tack it on, and turn the corners. No mitering, sawing or taking down windows and doors. It is also flexible; this means that when you put Home Comfort Weatherstrip on a new house, and the windows and doors warp or settle, it goes right with them, assuring a weathertight, waterproof, noiseless contact. Put Home Comfort Weatherstrip on the house when you build it. This is guaranteed to please or we'll refund your money. It'll last for years.

E. J. Wirfs Organization
119 South 17th Street, St. Louis, Mo.
Sole Manufacturer and Patentee

Wirfs Home Comfort
Insulated - Cushion - Flexible
Weatherstrip
Pat. Jan. 22, 1924
**The Biggest Value In a One Ton Truck**

Results obtained from actual service in lines of business where rapid transportation is required, have made the Ford One Ton Truck the Standard rapid delivery unit.

Its work is dependable under all conditions of traffic; it represents only a very small item of expense, both in operation and investment. It is easily the best value in truck transportation ever offered.

Authorized Ford Dealers can supply data on cost of operation covering every line of business involving motor transportation.

**Ford Motor Company**

'Detroit

---

Ford One Ton Truck
With All Steel Body and Cab - - $495

With canopy roof, side curtains, screens and end doors - - $540

One Ton Chassis $365

All prices f. o. b. Detroit
Civilization, in its truest sense, means life in cities. Life in cities means a continual striving toward greater comfort and greater compactness. The builders who are now planning apartments or homes to be rented or sold — those who wish to attract the best and promptest purchasers — are combining convenience, compactness, style and beauty in the kitchens they plan, by the use of Kitchen Maid Units. Thus the leaders maintain their leadership by always seeking and adopting new leading ideas. You, too, can profit by the Kitchen Maid Unit idea. Send for complete catalog, dimensional drawings, and special prices to builders. Check list at right.

Wasmuth-Endicott Company, Andrews, Indiana

"LET THE KITCHEN MAID BE YOUR KITCHEN AID"

MAIL THIS

WASMUTH-ENDICOTT CO.
1510 Snowden St., Andrews, Ind.
In Canada, Waterloo, Ontario

Please send me information regarding the units checked:

☐ Pulmanook, consisting of table and 4 seats folding into wall.
  ☐ For alcove.
  ☐ For any kitchen corner.

☐ Combination IX, consisting of cabinet, broom closet, dish closet and linen cupboards to set against wall.

☐ In-A-Wall Ironing Board, folding into wall when not in use.

☐ Broom Closet.
  ☐ To set in any kitchen.
  ☐ To be built into wall.

☐ Dish Closets, Linen Cupboards.
  ☐ To be set in.
  ☐ To be built in.

☐ In-A-Wall Telephone Seat.

☐ Kitchen Maid Kitchen Cabinet.

Name ..................................................
Address ..............................................
City ...................................................
State ..................................................
The Woman is the Real buyer of the home

To the woman (who decides) the kitchen is by far the most important room in the house. It is her headquarters for all household departments—cleaning, washing and cooking. All kitchen equipment, sinks, closets (refrigerator and cabinets if furnished) should be first-class. But the most important single attraction in the kitchen is the gas range.

A Few Outstanding Features of Smoothtop Gas Ranges

This smoothtop is not an attachment. It is a built-in part of the complete range—which is made in 5 sizes. One burner heats several vessels, or keeps a whole dinner hot. The top holds in the heat; makes cooking smoother. The top is strong, solid and smooth. No lifting, pots slide and don't tip. With lids off burners give direct, concentrated heat. Easy to clean. Reduces maintenance expense and complaints.

50% MORE COOKING SPACE
DOUBLE WORKING SPACE
NO MORE FLOOR SPACE

If the range attracts her she is likely to be half "sold" after inspecting it.

Hundreds of builders have sold houses or rented them with the help of the SMOOTHTOP gas range in the kitchen.

It makes the kitchen twice as attractive to a woman, and by talking about the wonderful cooking and labor saving features of the top alone you can quickly convince her that you know what a woman wants in a home.

There are many big, exclusive SMOOTHTOP features which make a hit with the housewife as soon as she steps into the kitchen. A few of them are noted on the left.

A VULCAN PRODUCT
The kitchen is uppermost in her mind

Mrs. Home Seeker will endorse your judgment in kitchens, when you explain all the added advantages of the SMOOTHTOP Gas Range. Every woman is looking for the best home she can find and make.

The selling power of talking about the range, in the kitchen, while the housewife and her husband are standing in front of it, can be readily grasped. Most every woman has read about the SMOOTHTOP Range in advertisement; or they have heard about it from friends who are using it.

We have prepared a kitchen plan folder especially for architects and builders, containing plans, facts and specifications. It explains well known operations by noted architects. Gives reduced scale drawings ready for immediate tracing. Affords eight complete plan and specification data sheets. Helps you find the best location for range and makes possible maximum economy in space with maximum convenience for housewives and cooks.

You can get this valuable book with all this useful information free, by writing for it on your letterhead.

Standard Gas Equipment Corporation
VULCAN DIVISION, Successor to
WM. M. CRANE COMPANY
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THROUGH the scientific handling of materials, improved working machinery, and standardization, "the Best glass" has maintained its leadership in the building field for over a quarter century.

"The Best glass" is the choice of leading architects and discriminating builders everywhere.

Each operation is conducted on scientific principles, under a system of rigid inspection. The superior chemical composition of "the Best glass" assures its even cutting, its greater tensile strength, and its higher modulus of rupture. It is less liable to chemical reactions, and fading.

The American Window Glass Company were the first to make use of machinery for glass making on a commercial scale, and are the holders of the fundamental patents which make possible the consistently high quality of "the Best glass."

Ask for "the Best glass" by name, and see that you get the genuine AMERICAN WINDOW GLASS CO.

GENERAL OFFICES: PITTSBURGH, PA. BRANCHES IN PRINCIPAL CITIES
FEBRUARY 1925

A few cents saves dollars

G-E Wiring System throughout any building adds less than one-tenth of one per cent to the cost of the building. It adds the quality assurance carried by the name General Electric, and offers to every customer quality that he knows.

Whether you are building a home for a client or one for sale, you will have an accepted quality point if you can say "The wiring installation is G-E throughout!"

A two-color campaign in the Saturday Evening Post is making the public appreciate the ultimate economy of a G-E wiring system.

Have you received our helpful booklet on complete wiring, "The Home of a Hundred Comforts?" Send for a copy.

Address Section BA-2
Merchandise Department
General Electric Company
Bridgeport, Conn.

WIRING SYSTEM
— for lifetime service

GENERAL ELECTRIC
Bake, Boil, Roast and Can in the Oven by the modern “Time and Temperature Method” which assures perfect results every time.

Lorain is approved by all leading test kitchens including: Good Housekeeping Institute, Priscilla Proving Plant, Forecast Experimental Laboratory, and New York Tribune Institute. It is used in more than 1200 of the leading schools and universities to teach thousands of women the science of cookery.

These are some of the reasons why home-seeking people are glad to rent suites that have Lorain-equipped Gas Ranges—they are also some of the reasons why architects should specify them whenever possible. For specific data as to sizes, styles, finishes, etc., see 19th Edition, Sweet’s Architectural Catalog, pages 2497-2506 inclusive. Our Catalogs, prices and other information on request.

These famous gas stoves are equipped with the Lorain Oven Heat Regulator:
Clark Jewel, Dangler, Direct Action, New Process, Quick Meal and Reliable.

AMERICAN STOVE COMPANY, 222 Chouteau Avenue, St. Louis, Mo.
Largest Makers of Gas Ranges in the World

LORAIN OVEN HEAT REGULATOR
DON'T be misled on Yellow Poplar. There is just as great a difference between lowland and highland poplar lumber as there is between lowland and highland oak.

Millions of feet of Yellow Poplar are cut from the best producing area of the Appalachian Highlands yearly by the W. M. Ritter Lumber Company. The advantages this timber offers over lowland poplar are greater freedom from shrinkage and warping, greater susceptibility to paint and enamel finishes, and ease of working. Ask for Ritter Yellow Poplar as assurance of satisfactory interior trim results.

The same conditions that influence the growth of Ritter Yellow Poplar also make Ritter Appalachian Oak superior for interior trim or flooring purposes.

W. M. RITTER LUMBER CO.
America's Largest Producer of Hardwoods
GENERAL OFFICES: 115 E. RICH ST.
COLUMBUS, OHIO, U. S. A.

There is Both Good Poplar and Bad

Some facts not generally known regarding the differences in Yellow Poplar Lumber for Interior Trim Purposes.

By the Research Department of the W. M. Ritter Lumber Company.

Just yesterday, as we sat at lunch in a new and otherwise very attractive hotel dining room, we had occasion to notice the interior trim and paneling. The wood was poplar and finished in white enamel. Close examination showed an uneven surface which had begun to chip or "string" off probably due to excessive shrinkage in drying, while reflected light throughout, disclosed to even the untrained eye unusual warpage of the panels.

What a shame, we thought, that the builder or architect responsible did not know the differences in popular lumber cut in different territories—or at least had not selected his material with the care it deserved.

Little is known by the average layman, and even some trim manufacturers of the differences between various stands of poplar. Furthermore, there is a tendency on the part of some lumber manufacturers to minimize this difference. Yet, the variation between texture, grain, color and working qualities here is just as pronounced as the difference between lowland and highland oak and due to the same reasons—locality of growth.

Climatic and soil conditions materially influence the growth of poplar just as they do oak or any other wood. Poplar grown in lowland or poorly-drained areas consists very largely of fibers with thick, hard walls, giving it greater density, hardness and weight than slow-growing, highland Yellow Poplar.

The highlands, particularly the Appalachian Region, provide conditions very favorable to the growth of poplar. Consequently, highland poplar has a comparatively mild, even texture, close, fine grain and uniform color, thus making it more receptive to paint and enamel finishes, less susceptible to shrinkage in drying and subjecting it to a less amount of warping and twisting. It permits working to a greater degree of accuracy, because of its desirable texture, and cracks and splits less, not only while being handled but during the use of the completed product as well.

These qualities make highland Yellow Poplar most desirable for interior trim, paneling, door panels, fixture parts, and other wide surfaces. The use of the right kind of poplar may often mean the saving of a well conceived interior to a deserved place of fineness and beauty where otherwise it may find its place among the mediocre or even inferior.

ACCEPT ONLY THE BEST

There is plenty of poplar. In 1922, approximately 300,000,000 feet were manufactured. Therefore, there is no reason for accepting inferior material. Accept only that which is known to come from the highlands and which possesses the qualities essential to satisfactory results.

Find out who in your locality handles Ritter Yellow Poplar and ask for it as assurance of the best. Write for details.

W. M. RITTER LUMBER COMPANY
115 E. Rich Street, Columbus, Ohio.

Gentlemen: Kindly send me further details on Ritter Appalachian Yellow Poplar, Oak and Flooring.

Name: 
Address: 
City: 

One of the first things which prospective home-buyers see...

is the hardware on entrance doors. They not only see it, but they take hold of it and try it. They note whether or not it is sturdy, harmonious, secure. Similar consideration is given to the hardware on doors inside the building—to window catches too. And it is generally true that people judge a building largely by the impressions they get from details such as these.

Sargent Locks and Hardware of solid brass or bronze do more than help you to convince prospects that choicest materials were used throughout. They give the buyer the fullest measure of hardware service and security for years and years. Immediate sale is most important. Hardly less important is a business-building return of good-will, which can only result from satisfied buyers. Sargent Hardware helps builders to realize both objectives.

The difference between the price of Sargent Locks and Hardware and inferior grades is a very small percentage of the total building cost. There are styles for every architectural design and every building need.

SARGENT & COMPANY, Hardware Manufacturers

52 Water Street

New Haven, Conn.
The OLD

Only 2 steps in using GF Duplex Bridging.

A twist of the wrist spreads the bridging apart in the form of an X.

-and the NEW!

An old time and money-wasting job now made surprisingly simple.

For generations, carpenters have been cutting, fitting and nailing wooden cross bridging.

Now, with GF Duplex Steel Bridging, the job can be done in one-eighth the time, or less, and with half the number of nails, making the old cumbersome, puttering way both obsolete and expensive.

GF Duplex Bridging is made in one piece of heavy steel, flanged and ribbed to give extra strength, and painted. It always remains tight, since steel cannot shrink or split as does wood. It makes a neater job, and gives added space between joists for pipes, etc. And it comes flat in bundles of 25, ready for use—easy to handle—easy to install.

This product tells its own story. Write for a sample, gratis, and an illustrated descriptive leaflet, prices, etc.

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Branches: New York - Chicago - Boston - Cleveland - Omaha - Minneapolis - St. Louis - Philadelphia - Atlanta - Kansas City - Syracuse - San Francisco - Los Angeles - Milwaukee

Export Department: 438 Broadway, New York City - Cable Address: "Genfire-New York"
Ambler Asbestos Shingles with irregular butts

provide, along with permanence, the texture that many architects and builders prefer for the better class of residence.

These new Ambler Asbestos Shingles have all of the sturdy qualities of the Ambler product. They are absolutely fireproof, are free from porous spots and get stronger as they age.

Combining varying colors of these shingles in specified proportions develops a roof subdued in tone and blended to harmonize with the other exterior colorings of the house and surroundings. This added artistic feature meets a constantly growing demand among property-owners for roofs designed to meet individual preference.

The section of roof illustrated is composed of 30% Newport (Natural) Gray, 40% Pearl Gray and 30% Black.

Mixed-Color Shingles come in the American style, 9 in. by 18 in., in 3/4 in. thickness, and may be had in Natural Gray, Pearl Gray, Slate Black, Brown, Indian Red and Tuscan Red—all with the broken-butt edge feature when it is desired.

Write us for color charts showing roofs covered with Ambler Asbestos Shingles in varying color combinations.

Asbestos Shingle, Slate and Sheathing Co. Ambler, Penna.

Branch Offices—Boston, Buffalo, Chicago, Cincinnati, Detroit, Cleveland, Minneapolis, New York, Omaha, Philadelphia, Pittsburgh, Washington, Wilkes-Barre, Toronto, Canada; Havana, Cuba.

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Fairfacts Fixtures have been widely imitated and many of these imitations are of extremely poor quality. The Fairfacts Certificate pasted on Fairfacts Fixtures is a definite guarantee from a responsible manufacturer that the Fixture will retain its original snow-white beauty and remain free from cracks as long as the building stands.

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The design of Fairfacts Fixtures has a simple motif which makes them harmonize with each other. Their snow-white color also makes a perfect blend with any color scheme or tint of walls.

Fairfacts Fixtures may be installed in walls of Tile, Plaster or Keene Cement. They are carried in stock by tile contractors who also install them.

Our new Catalogue F is now ready. Write us for your copy.

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Dept. B2, 234-236 West 14th Street,
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THE FAIRFACTS COMPANY, INC.
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Please send me your new catalogue for my files.

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Address ........................................................
Window wisdom

Window sash and frames must withstand the extremes of weather, wear, plus handling and friction—a most exacting demand upon the wood of which they are made. Accurate workmanship is paramount; and it is essential that this accuracy be preserved during the life of the sash and frame.

Millwork accuracy depends primarily upon the texture of the wood used. Soft-textured California Pines are naturally qualified for precision millwork. They cut easily, either with or across the grain, without splitting. They surface smoothly on four sides. Their uniformly even grain allows the cutting tool to produce sharp edges, which cast the contrasting shadows that accentuate the design of the building.

California Pine sash and frames preserve the structural form and design of the window unit, because these pines have the minimum tendency to expand and contract. They withstand the severe strains of opposing elements, as, for example, zero temperature outside the home, and 70 degrees inside; or, when the outside window woodwork is rain-beaten, while the inside is dry.

The very light weight of these pines makes sash operation easy, at the same time lessening the cost of balance weights, or, reducing the strain on mechanical sash balances.

Sash and frames are painted inside and out. Paint protection adds to the natural wearing qualities of wood. California Pine window parts paint perfectly, their smooth surfaces readily take the paint and hold the protective coating tenaciously. The light, natural color of these pines permits any exterior color treatment, and the finest interior window finish—with assurance of lasting, unblemished beauty.

Send for this free illustrated booklet

Sash and frame manufacturers find the qualities of California Pines parallel those of the Eastern white pines, the supply of which has been largely depleted by past demand. Many of these manufacturers now use California Pines, the supply of which is ample to meet the demands of the next two centuries.

California
WHITE & SUGAR PINE
Manufacturers Association
657 CALL BLDG., SAN FRANCISCO
Also producers of CALIFORNIA WHITE FIR
CALIFORNIA DOUGLAS FIR CALIFORNIA INCENSE CEDAR
IN A THOUSAND NEW HOMES IN AN EXCLUSIVE COMMUNITY

In the heart of the St. Louis country club district, two hundred acres of woodland are being developed into a community of a thousand homes. Each of these will be equipped with at least one Murphy In-A-Dor Bed.

The Majestic Homes Corporation, builders of these houses, have selected Murphy Beds for the purpose of making sleeping porches out of sun rooms and bed rooms out of libraries—of giving to each home the marked advantage of an extra bed chamber that costs nothing to build, decorate, heat, light or care for.

The action of the Majestic Corporation (one of the largest home builders in this country) in making this wholesale selection of Murphy Beds is significant. It definitely stamps the Murphy as a bed whose worth and dependability is unquestioned. It gives weight and prestige to the opinion of hundreds of other architects and builders who have, for some time included the Murphy in their plans for the finest types of residences.

It is the judgment of the Majestic architectural and engineering staff that when the question of the extra bedroom space, as applied to residences, has been given proper consideration, few new homes will be built without including the Murphy.

The Murphy is balanced by spring tension springs, all weights being eliminated. It is built to prevent self-closing yet so balanced as to make it easily operated in any position. It guides itself through the door opening. No steering is necessary.

The Murphy is made in four standard widths with any design, color and finish (wood or metal) to match any scheme of decoration. It is equipped with Slumber King, demountable coil or box springs as desired.
ONE of the leaders in the Kimball Elevator Line is the Light Electric. This machine, made in several sizes, is practical, efficient, and economical, both in original cost and operation. The Light Electric has a raising capacity of from 1,000 to 2,000 pounds and a speed of from 25 to 50 feet a minute.

Installation on this machine is simple, as all parts are furnished, sawed, drilled, fitted and built especially to fit your own building.

Other leaders in the Kimball Line are: Straight Line Drive Elevator Machines, Passenger and Freight Elevators (having special push button or regular operator controls) and light and heavy dumbwaiters.

Write for special folder of the type elevator you are interested in

KIMBALL BROS. CO.
1106-22 Ninth Street
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The best known small home near Chicago has a roof of Winthrop Tapers

Probably no small home ever was in the public eye more than this Chicago Daily News Model Home built in the suburb, River Forest, to demonstrate right construction and good materials to home builders. Every item, every move in its construction was under the scrutiny of thousands, whose interest was aroused by the publicity given it, through the columns of the News. For this Model Home the supervising architect selected, without any solicitation, the distinctive, durable and beautiful Winthrops.

Winthrop Tapered Asphalt Shingles

The strongest quality feature ever put into any slate-surfaced asphalt shingle is the exclusive, distinctive taper found only in the Winthrop. Snugly close to the roof they offer the greatest thickness where exposed to weather and possible firebrands. These thick butts, due to extra coats of asphalt on both sides of the heavy felt core, cast the attractive shadow lines that made the old wooden shingles popular. Deeply imbedded crushed slate gives the outside surface beautiful and lasting colors—tile-red, sea-green, blue-black and golden-buff. These shingles are made in two styles—individual form and the popular 3-in-1 strip. When laid over old shingle roofs, Winthrops have no equal for re-roofing. We want you to have a free sample of this beautiful shingle, to feel and see its goodness and beauty for yourself. Just tell us what color you'd like to have.

Beckman-Dawson Roofing Company
830 F. C. Austin Bldg., 111 W. Jackson Boulevard, Chicago, Illinois

Factories at Argo, Illinois, and Detroit, Michigan
Styles for every room in the house

Plain and Pastel Flat Finish
Tints that can be hung as they come, or stenciled, frescoed, or Tiffany blended.

Decorative Flat Finish
Conventional and foliage patterns, neutral toned designs of vague formations, stripes, mottled effects, and reproductions of tapestry, grass-cloth, leather and various fabrics.

Brocade and Metallic Finishes
In embossed effects for paneled treatments and trimmings.

Enamel Finish
Plain colors, tile effects and decorative patterns, for kitchens, bathrooms, laundries, etc.

A real estate operator in one of our large eastern cities is erecting over two hundred Budget Homes. On the advice of his wife, all of the plastered walls are being decorated with Sanitas Modern Wall Covering. He himself says:

"I am sold thoroughly on Sanitas as the most serviceable and modern wall covering. The Sanitas which I have used in my own home has been subject to the abuse of four youngsters, and there has been no mark or stain on it that has not been easily removed.

"In the short time that I have been using Sanitas in the Budget Homes, I am convinced that it has been the cause of my effecting quite a number of sales which I otherwise would have lost."

Sanitas covered walls are stronger, more permanent, easily wiped clean with a damp cloth, and do not crack, tear, peel, blister, or fade. Sanitas is made on cloth, ready-painted with durable oil colors. It comes in styles for every room in the house, and can be hung on any flat surface; new walls as soon as the plaster is dry, old walls when the cracks have been filled, plaster-boards any time, anywhere.

Write to our Architects' Service Bureau for sample book, prices and literature.

THE STANDARD TEXTILE PRODUCTS CO.

320 Broadway, New York

DEPT. B.A.
FEBRUARY
1925

Homes with IDEAL warmth are easier to sell or rent!

ASK any prominent realtor or builder who has had experience with all types of heating. He will tell you that radiator warmth from IDEAL Boilers and American Radiators is a real salesman.

“Last year,” writes one, “we built a row of houses all alike, except that four had pipeless furnaces and two had ARCOLA hot-water systems.

“The ARCOLA houses cost us $300 each more than the others—otherwise they were exactly alike. We priced the ARCOLA houses $550 higher. Both of them were sold before a single one of the others.”

Why not try this experiment yourself? Let IDEAL warmth go to work for you. Remember that IDEAL Boilers and American Radiators are real salesmen for the buildings you sell or rent.

For larger buildings
the new IDEAL Smokeless Boiler where soft coal is used. Through its IDEAL Smoke Oxidizer it burns its own smoke and saves fuel as well.

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For medium-sized homes
the new IDEAL ARCO Round Boiler. For a generation, the standard in its field, and now greatly improved though lower in price.

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the IDEAL ARCO Sectional Boiler. Another new member of the IDEAL family, moderately priced, efficient and economical.

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IDEAL Boilers and AMERICAN Radiators for every heating need
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The Portland Cement Stucco textures here shown are taken from photographs of actual stucco jobs. Any competent workman in the plastering trade can reproduce these beautiful, permanent and economical finishes.

A Texture for Each Period

Controlled and directed by the creative genius of the architect, Portland Cement Stucco assures a range of beauty obtainable with no other material. It makes certain a texture and tint that complete harmoniously the style of the period in which the structure is designed. Have you received your copies of "Portland Cement Stucco Textures" and "Portland Cement Stucco"? If not, send for them today. Address the nearest office listed below.

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SOUNDS like dumb foolishness.
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It's just plain, everyday horse sense, hitched up to your heating problems.

Hitched up so the folks you are building for, will stay hitched.

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Its name is "Letters To and Fro."

We'll gladly send you all you want, after you have sent for this first one.

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In 1925 Cyclone will be the biggest factor in the roofing business. Cyclone double-locked butt; long head-lap; wide side-lap; and features of economy, durability and beauty all combine in the success of Cyclone.

Mail the Coupon
Cyclone will deliver the goods for you. So mail the coupon NOW and get the facts about Cyclone which make it the most advanced step ever made in roofing development.

Ford Roofing Products Company
535-539 S. Franklin St., Chicago, Illinois

Please send me details of the Cyclone Shingle and full particulars. FREE and absolutely without obligation.

Name: ____________________________
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Business: ____________________________
If Laminex withstands these tests—

Won't it withstand every abuse a door can meet?

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The beauty of old growth Douglas fir is combined in Laminex with a resistance to expansion and contraction, due to our building up of layers and compressing under great pressure with a wonderful waterproof cement. At leading building material dealers. Send for interesting monograph on Laminex doors and sample of Laminex wood so you can make the famous water test yourself.

THE WHEELER, OSGOOD COMPANY, Tacoma, Wash.

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WILL NOT SHRINK, SWELL OR WARP
NOW IS SCREEN PROFIT TIME FOR YOU

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Due to the no-chip, non-pee1 metallic coating, which is a secret process, exclusive with Gilbert & Bennett, PEARL Wire Cloth is an exceptional rust resister. And you know that RUST, not WEAR, ruins screens.

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Because of its long life and because it requires no paint and no repairs, PEARL is, and has been for years, the most satisfactory cloth made.

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Due to the smooth coating and even mesh PEARL offers no lodging place for dust or dirt. It is a clean screen that stays clean with little care.

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After short exposure PEARL turns an "invisible gray" shade which offers no obstruction to the vision.

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

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

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PEARL is made in REGULAR GRADE (12 x 15 mesh) and 14, 16, 18, 20, 24 and 30 Mesh also EXTRA HEAVY GRADE (14 Mesh only)

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Through detailed plans and specifications they show exactly how to provide double capacity in beautiful modern closets at great savings in space and building costs.

Knape & Vogt fixtures are very inexpensive. No other item of modern home equipment offers so much convenience at so little cost.

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<tr>
<th>Size</th>
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<td>14 inch</td>
<td>$4.00</td>
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<td>16 inch</td>
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These fixtures are sold in hardware stores everywhere. If no dealer in your territory, order from us direct. Send for the free booklets today.

KNAPE & VOGT MFG. CO.
GRAND RAPIDS MICHIGAN
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The Newestar Realty Corporation builds houses that are models of design and construction. Those shown above have stucco over brick walls with slate roofs, metal casement windows, and many other features in keeping with the popular Old English style of architecture. Of especial interest is the fact that wallpaper is used in every room.

Mr. James B. Fisher, President of the Company, says: "Our houses are built of the finest materials obtainable. Roofs, windows, walls, fixtures, etc., are the best that money can buy and are selected to make an attractive home that will be durable as well as comfortable. Naturally, with such a background we use wallpaper. There are no painted or plain plaster walls in the houses pictured above. Every room is papered. I believe that carefully chosen wallpaper adds immeasurably to the attractiveness of a house and is a valuable selling asset."

There is a style of wallpaper which will harmonize in color and design with the decoration scheme of every room in every house. The most successful builders all over the country are using wallpaper. It makes sales and makes them quickly.

Write to our Interior Decoration Service Bureau for practical co-operation in supplying builders samples of wallpaper and other aids to the solution of specific problems in the decorations of walls.

WALLPAPER

MANUFACTURERS ASSOCIATION of the United States 461 EIGHTH AVENUE, NEW YORK
Mr. Walter Richter, well-known builder and contractor of Columbus, Ohio, says: “All my remodeling and repair work is done with Sheetrock. Used nearly two carloads of it last year. Sheetrock enables me to finish these jobs in minimum time; also avoids muss and assures satisfactory results.”

You, too, will find Sheetrock, the fireproof wallboard, ideally suited for quick alterations and repairs. This gypsum wallboard is unaffected by cold or damp. It is easily erected in any weather, saws like lumber, comes all ready for nailing to the joists and studding. Makes solid, non-warping walls and ceilings that take any decoration.

Sheetrock is sold by your dealer in lumber or builders’ supplies. Write today for a sample and free copy of the 48-page Sheetrock Time Book.

Sheetrock is impeded and approved as an effective barrier to fire by the Underwriters’ Laboratories, Inc.

UNITED STATES GYPSUM COMPANY

SHEETROCK

The FIREPROOF WALLBOARD

Clip and mail this coupon today!

UNITED STATES GYPSUM COMPANY, General Offices: Department 3, 205 W. Monroe St., Chicago, Ill.

Please send me the Sheetrock sample and the free Time Book.

Name

Address

Sheetrock comes in standard sizes: 3/8 inch thick, 32 or 48 inches wide and 6 to 10 feet long
Unique Placement of Mixer  
Speeded Up Work on This Job

There is more than one way of pouring a concrete job—as proved by the method used by the Cline-Corrick Co., general contractors, Los Angeles, in building a modern concrete tennis court in the Wilshire District of that city.

As shown in the illustration above, the Smith 7-S Non-Tilting Mixer was placed on one side of the court and by means of a special hopper on the discharge side of the mixer, the concrete was poured into wheelbarrows down on the court, thereby eliminating up-and-down runways for the barrows and the consequent extra haulings.

Whether it is on small jobs of this kind or on larger ones, the Smith 7-S "does its stuff" with unfailing regularity. It has the fast, accurate mixing action for which all Smith models are famous; it has the same speedy discharge; and both its operating and maintenance costs are always at a minimum. It is a true quality mixer, economical to operate, and one that keeps the red figures out of your ledger.

Write for catalogs today—we have complete lines of both Non-Tilting and Tilting Mixers.

The T. L. SMITH COMPANY
1028 32nd St., Milwaukee, Wisconsin
Sales Offices and Service Stations in all Principal Cities
Increase the Value of the Homes You Build

Nothing gives a home greater individuality and distinctiveness than the roof. The type of roof, its attractiveness and substantiality frequently determine a home's sale and resale value.

Prospective home owners have come to realize this. They know the roof protects their entire investment.

The builder who senses this can get more for the homes he builds—just as breakfast nooks, disappearing ironing boards, built-in closets, book cases and window seats make a home more saleable.

When you roof with Ruberoid Giant Tee-Loks, you get this extra sale value and at no greater cost. Here are the reasons:

Ruberoid Giant Tee-Loks give you a roof of tile-like appearance.

They offer greater headlap protection, are safer and more durable as the shingles can't lift with the wind. They are locked down.

Ruberoid Giant Tee-Loks can be applied at the cost of the ordinary four-in-one strip, for each shingle is self-spacing and self-aligning. There are 272 less nails to buy and drive.

Let us send you a sample of Ruberoid Giant Tee-Loks and pictures of attractive homes whose sale values have been increased through their use.

The coupon will bring them and without obligation.

The RUBEROID Co.
95 Madison Avenue, New York

Chicago Boston

RU-BER-OID
TEE-LOK SHINGLES
The easiest merchandise in the world to sell is the kind that millions of people know and respect.

That's why it is easy to sell Capitol Boilers. A great national advertising campaign broadcasts the story day and night.

**Capitol**

**Boilers**

**United States Radiator Corporation**

General Offices, Detroit, Michigan

*Branch and Sales Offices*
- Detroit
- Chicago
- Milwaukee
- Indianapolis
- Louisville
- St. Paul
- St. Louis
- Kansas City
- Des Moines
- Omaha
- Denver
- Seattle
- Portland, Ore.

*Warehouse stocks carried at points indicated by star*
Unwisely chosen furniture may be easily discarded—not so with woodwork

What you build into a house is built to stay. The woodwork—the right kind of an entrance—the stairway, bookcases, china closet, mantel, cabinets, breakfast nook, to say nothing of the doors and trims. These are items which should be selected with care. Therefore, experienced home builders specify their woodwork by name. And in many thousands of instances it is "Morgan-Quality." They insist upon having the genuine with this well-known quality mark stamped on every piece—Morgan.

To those familiar with the products of this concern, the name Morgan stands for (1)—Over 60 years of woodworking experiences. (2)—A great organization of master craftsmen, factories and the most modern woodworking equipment. (3)—Vast acreages of timber, supplying lumber at lowest cost. (4)—A perfected system of standardized manufacturing which reduces "quality" production cost to a minimum. (5)—Highest standards, rigidly maintained through three generations of service to the home builder.

Write for copy of our current Price Supplement. Or mail coupon for prospectus describing "Building with Assurance."

"Building with Assurance" (Second Edition) contains the information you need to help you cut costs, save time and avoid mistakes.

This great book shows page after page of homes of all types in colors—with floor plans. The home illustrated above, for example, with complete floor plans, will be found on page 39. In addition, you get help on room arrangement, interior decoration, floor coverings, lighting, heating, plumbing and landscaping.

Mail coupon for prospectus

"Building with Assurance" is not for general distribution. It is for earnest home lovers. Our prospectus tells all about it—shows beautiful homes in colors, with floor plans. The prospectus is gladly sent to those who mail the coupon.

Address nearest office, Dept. U-2

Morgan Sash & Door Company, Chicago, Illinois
Morgan Millwork Company, Baltimore, Maryland
Morgan Company, Oshkosh, Wisconsin

Gentlemen: I am a contractor, so please send me at once a copy of your beautiful prospectus which describes "Building with Assurance."

Name ..................................................

Address ..............................................

Town ................................................

State ...............................................
EQUIPMENT WHICH IS NEEDED IN EVERY SCREEN FACTORY

We Make a COMPLETE LINE OF

BRAD DRIVING TOOLS
GLUE BRUSHES
GLUE POTS (Electric)
CARPENTER'S CHALK CRAYONS
CORRUGATED FASTENERS
CLAMPING BENCHES
GLAZIER’S POINTS
GLAZIER’S POINT DRIVERS
HATCHETS
MITRE CUTTERS (Foot and Hand Power)
MORTISERS
NUMERAL NAILS
SCREEN HANGERS
SCREEN WIRE CLOTH
SCREEN HARDWARE TRIMMERS
WRECKING BARS AND
NUMEROUS OTHER WOODWORKERS' SPECIALTIES

Automatic Screen Tacker

A very convenient and quick operating device for stretching screen wire. It stretches the wire and holds it while tacking, until it is released. It is operated entirely by foot, and works faster and far better than home made devices. Makes your screens 100% Perfect. Will take any width wire up to 48 inches but can be built larger if desired.

Moulding Mitre Cutter

This Handy Tool is Filling a Long Felt Want With Window Screen Makers
It cuts smooth both ends of a strip in less time than it can be dropped in a mitre box, and does it right every time. It is operated entirely by foot and is so simple that any boy can operate it.

Write for Our Complete Catalog on Screen Factory Equipment

A. & L. MARKWELL MFG. CO.
79 STEUART STREET... SAN FRANCISCO, CALIF.
176 FRANKLIN STREET....... NEW YORK, N. Y.
WHITCO "The Easy Hardware"

Any carpenter — whether he is familiar with it or not — can install Whitco Hardware on a casement sash or transom easier, quicker and more economically than any other kind of hardware.

The only fitting it requires is the chiseling of two housings, one at the top and one at the bottom of the sash — just as easy to make as those ordinarily required for butts, but only half as many.

If the sill is bevelled, he levels it out from the jamb for eight inches, but otherwise, a screwdriver is the only tool he needs, for, after housing out the sash, he has only to attach the hardware to it — set the sash in the opening and secure the hardware to the header and the sill.

Whitco takes the place of both butts and adjusters for swinging and controlling casement sash and transoms. It is entirely concealed; it is absolutely self-adjusting, and it holds, without rattle, in any wind.

You can buy Whitco from your Hardware Dealer

In Solid Brass (per set) the equipment for one casement sash or transom $2.25
Rust-proofed Steel " " " $1.75

VINCENT WHITNEY COMPANY

Western offices:
365 Market Street
San Francisco

Eastern offices:
Boston

Send all inquiries to nearer Office.
The Safest, Cleanest Most Easily Installed
STAIR TREAD

SAFEST because the foot can’t slip on the effective lead or carborundum anti-slip surface.

Cleanest because dirt, cigars, etc., lodge in the open grooves, leaving the walking surface free for firm, effective foot contact. These grooves are easily swept clean.

Most easily installed because any desired width can be had by combining standard sections. Special anchors furnished to hold the treads firmly in place when to be set in new concrete.

Wooster Safe-Groove Treads prevent accidents, protect stairways for years against wear. The metal and anti-slip wear away simultaneously, evenly—the anti-slip always works.

Send for blueprints showing installations on every type of stairway, platform or landing. See our catalog in Sweet’s. Sizes carried in stock in all widths for immediate shipment.

Made with a Steel, Yellow Brass or White Brass Base, Carborundum or Lead Filled.

Wooster Safe-Groove Stair Tread Co., Wooster, Ohio

Wooster Nosing is designed to protect the edges of stair steps and the linoleum or other stair covering. Beautifully finished, cut to desired length, holes drilled and spaced, ready for installation. Made in yellow brass and white brass. Fastened with screws through flange. Send for blueprints showing six installations.

THE SAFETY STAIR TREAD CO., WOOSTER, OHIO
EQUIP it to your special needs. Rubber tires to save the time waste of between-job hauls, and to expand your working territory. Light duty hoist. Low charging platform or power charging skip. Automatic water-measuring tank.

Most important, you can be sure of full capacity — utmost reliability — and long service-life — because this mixer is Koehring built, engineered and constructed to out work, out last anything in the light mixer field. Price? Not the lowest price — no — but the most remarkable value of all light mixers — and still within the range of light mixer prices.

Dandie Capacities
7 cu. ft. Mixed Concrete. Gasoline power. Power charging-skip or low charging platform with hopper, light duty hoist, automatic water measuring tank. Standard or flanged rim steel wheels, or disc wheels, rubber tired. Mixes mortar as well as concrete.

KOEHRING COMPANY
PAVERS, MIXERS—GASOLINE CRANES, DRAGLINES AND SHOVELS
MILWAUKEE, WISCONSIN
Sales Offices and Service Warehouses in all Principal Cities
Foreign Dept., Room 1378, 50 Church St., New York City
Canada, Koehring Company of Canada, Limited, 106 Front Street, East, Toronto, Ontario.
Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.

Send Back the Coupon. Get the Dandie catalog. Get free detailed information about this remarkable value before you think of buying a mixer. Use the coupon now before you let it slip your mind.
A Complete Line of Gasoline Hoists

NOVO manufactures light and heavy duty, single and double drum hoists from 4 to 40 Horsepower. These hoists are good for every job in the hoisting field. Powered with the reliable Novo single, two and four cylinder gasoline engines.

The photograph shows two Novo hoists hard at work on a job which included nine large buildings similar to the one shown. The two Novo hoists handled all brick, cement and other materials.

This is only one of hundreds of cases where Novo reliability and service have saved money for Novo owners. If you have hoisting problems, get in touch with one of our 65 distributors or with us direct.

NOVO ENGINE CO.
Clarence E. Bement, Vice Pres. & Gen. Mgr.
LANSING, MICHIGAN
Cable Address, "NOVO LANSING"
Distributors Throughout the World

NOVO POWER
Keeps Operations Moving

ENGINES
Single Cylinder, 1-6 H.P. (front pump)—two cylinder, 1-12 H.P.—four cylinder, 12-40 H.P.

HOISTS
Single and double drum— one and two speed and reversible, portable heavy duty types— powered with Novo Engines

PUMPS
Open and closed top diaphragm— centrifugal— deep well— single, double acting and triple pressure pumps.

COMPRESSORS
Three sizes— 5 to 175 cubic feet with steel housings mounted on trucks. Combination hoists and compressors.
The Good Things—the Big Things—of Life are for those who will reach out for them. You can have them for the grasping—just an energetic thought—saying “I Will” and they are yours. Are you content to make a small profit slowly on hand labor or—will you make a large profit quickly by means of a modern machine? Which?

Make More Money—Be a Bigger Builder

Let the Magic Mixer Mix Your Concrete

FEBRUARY 1925

IT'S EASY

Does it faster—better—cheaper This Mixer will put you in position to do all kinds
And classes of concrete work. It’s will enable you
to work faster, do more work, do bigger work, do
different work—and will help you build up a per­
manent and substantial business.

$25

BRINGS IT TO YOU

Balance on Aloe’s Easy Rental Pur­
chase Plan—you have TEN MONTHS
TO PAY—and the mixer will be mak­
ing money for you faster than the
easy Payments come due. Certainly
this is a rare opportunity for you to
get away from the old shovel method
and get into the class of the big
men who are doing the big jobs in
the modern way.

WHICH?

Your Big Opportunity for Bigger Success

With this wonderful machine and two men you can do as much work as you
formerly did with six men. And you can do it easier, quicker and better, pro­
ducing an absolutely uniform batch every time. It will mix 4 1/2 to 6 1/2 cubic
feet per batch—and can be speeded up to a batch every minute—over 2,000 cubic
feet per day. It is the most practical and efficient mixer made—scientifically constructed of the
best materials—light in weight, portable, simple and durable. Backed by the Aloe iron-clad
guarantee to give the utmost service and satisfaction.

The Engine
Fitted with 25 hp horse-power four
cycle, horizontal gasoline engine
with high-grade Webster magneto.
Simple, powerful, reliable, econ­
omical—requires only two gallons
of gasoline a day. Protected by all­
steel housing. Two doors at rear
make it easy to get at.

Comes Complete
Nothing complicated—nothing to get
out of order. Can be operated by
anyone who will read and follow the
simple directions which are fur­
nished with each mixer. It comes
complete—ready for work the day
you get it.

Free Trial—Easy Terms
So confident are we the Magic Mixer will
please you in every way we will gladly send it
to you for TODAY’S FREE TRIAL on payment
of only $25.00. Take it out on your jobs—put it
to the most severe tests. Then, if you can
be induced to part with it again ship it back
at our expense—and we will promptly return
your money without a word.

Get This FREE Book
You ought to have this booklet of invaluable
facts about the wonderful opportunities the
Magic Mixer offers you. Send FREE to­
either with full particulars of our Easy
Rental Purchase Plan by which the Magic
Mixer will pay for itself and put you on
the road to greater success at the same
time. Get this remarkable offer.

MAIL COUPON TODAY

Send me FREE booklet, "The Concrete Road to
Success", full description of the Magic Concrete Mixer
and particulars of your Easy Rental Purchase Plan.

INVESTIGATE NOW!

The road to success is open to you. The opportunity to make yourself a big man is
before you. The simple act of signing and mailing this coupon may be the turning
point of your career. Don’t sit idly by while other men are forging to the front.
Start the coupon on its way. Get the facts. The time to act is NOW.

A. S. ALOE CO.
632 Olive St., St. Louis, Mo.
The "Master"

THE NEW

WITH MODERN OVER UNDERSLUNG

Rips 30 Lineal Feet

Cross Cuts 3"

DADOES 2" WIDE

JOINTS 6" WIDE

ACTUALLY WEIGHS INCLUDING MOTOR MOTOR and JOINTER FOR ONE MAN LIBERAL

YOUR MONEY REFUNDED

Manufactured by

The Master Woodwork

612 Brush Street, Dept. A
MODEL NO. 12
HEAD CROSS CUT AND RIP SAW
2" Stock per Minute
STOCK AT FULL SPEED
x 2" DEEP
x 1/2" DEEP
PORTABLE
395 POUNDS
AND JOINTER
QUICKLY DETACHABLE
HANDLING
TERMS
IF YOU ARE NOT SATISFIED
Catalogue on Request
Manufacturing Co.
Detroit, Michigan
A distinctive Roof that gives a home individuality

The soft, mellow effect of Preston Sunset Shingles is not unlike the tones of old copper or autumn foliage. Each shingle is surfaced with colored slate and stone particles firmly imbedded into the asphalt coating. Preston Sunset Shingles have been successfully used on every type of house from a cottage to a mansion.

The design of the patented Hexo-Diamond Shingle makes a pattern which is a series of uniform hexagons.

Preston Hexo-Diamond Shingles are made in three weights, Standard, Extra Heavy and Massive and besides the Sunset shade in three other colors: Green, Blue-Black and Red.

The “massive” weight is much thicker than any other slate surfaced asphalt shingle on the market, and approximately one-third thicker than a Standard No. 1 slate shingle.

We shall be glad to send you name of Regional Distributor on Request.

KEYSTONE ROOFING MANUFACTURING CO., Dept. C2, YORK, PENNSYLVANIA
As each giant of the forest begins to totter, the steady zing of the saw ceases and the axman calls the warning, "Timber!" This is the signal to look up, gauge the direction the giant will take and step to a position of safety. The cry of "Timber" means another thing also. It is a signal that one more carefully selected pine has passed the first test of quality and started on its long journey to supply your need for Shevlin Pine.

Shevlin, Carpenter & Clarke Company
900 First National-Soo Line Bldg., Minneapolis, Minn.
HOW MUCH IS COLOR WORTH?

Mail-order houses are able to determine to a penny how much they make on any page in any catalog. Their records show that a page in color sells from four to seven times as much as when it is printed in black and white.

Color adds so much in attention value and in vividness of presentation that mail-order houses have found it profitable even when the cost is many times as much as black and white.

In 1914 only one per cent of national magazine advertising was in color. Today it has increased to over thirty per cent.

Three of the color advertisements in this issue were prepared by this advertising agency. They are those of:
- Shevlin, Carpenter & Clarke Company
- Andersen Lumber Company
- The B. F. Nelson Manufacturing Company

Four pages were printed at one time thus greatly reducing the cost per page. These advertisements appear in a list of publications reaching the entire building material field,—architects, contractors and lumber dealers.

MAC MARTIN ADVERTISING AGENCY
Security Building, Minneapolis
EXACTLY the right roof for the house—rugged of texture, clean of line and rich in coloring. A shelter that will give not only pride of ownership but comfort for years to come.

For, beneath the beauty of a Nelson Master Slab roof, lies the durability of high grade materials, the safety and economy found in expert workmanship.

May we send descriptive booklet?

The B. F. Nelson Manufacturing Co.
Minneapolis, Minn.
Andersen Frames are always ready

Another reason Andersen Standard Frames are so popular is that builders always want their frames in a hurry.

You see, any Andersen dealer can make immediate delivery of 121 different sizes of window frames right from stock. They can take care of cellar sash frame and door frame orders just as promptly. Time is money to the builder.

Andersen Lumber Company
Bayport, Minnesota

Andersen FRAMES
Why Pay More for Less!

BEFORE spending your money for a heating plant and installing it in your home, where, if it does not prove successful, it can only be replaced at great loss,— investigate the Hess Welded Steel Furnace.

You will find the Hess most economical in the use of fuel; that it sends up heat immediately; that its heat can be increased or diminished at will; and that it provides proper humidity and thorough circulation of heat. The Hess is easy to install and easy to operate. In spite of its superiority, it is low in price and will never cost more than a few dollars for repairs through many years of service.

The secret of Hess clean, successful heating lies in the welded steel radiator, rectangular firebox, and fire brick lining. Verify these facts by asking Hess users. We will send you the names of many in your community.

For Contractors

We make special rates to Contractors, for resale, and very many are installing Hess Furnaces from our heating plans. These plans, showing all details, are free to all inquirers.

"Modern Furnace Heating", a technical book on heating and fully describing Hess Furnaces, will be sent on request. Ask about our Free Heating Plan Service, under which we guarantee satisfactory heating.

HESS WARMING AND VENTILATING COMPANY
1201-G South Western Avenue - Chicago

Branch Offices: Brooklyn, N. Y; Detroit; Cincinnati; Milwaukee; Minneapolis; Minneapolis.

Local Distributors: B. M. Huntington, Walla Walla, Wash; H. Taylor & Sons, Jacksonville, Fla; H. Cable, Falls Creek, Pa; J.B. La Gesse, Garden City, Kans; F. Mauers, Eastman; Way C.E. Shinglesdercher, Clarion, Pa; J.E. Good & Son, Harrisonburg, Va
All tilting-drum mixers are not Jaegers. "The Jaeger" is far superior to any mixer made, and should not be confused with inferior machines, even though they be of the tilting-drum type. Protect yourself by getting the "genuine Jaeger." Look for the name on the drum and the flat spots inside.

Write us for the name of the distributor nearest you.

Jaeger’s Famous Tilting-Drum

Insures Perfect 3-Way Mixing Action

Forward—back—center—and cement, water and aggregate are forced into perfect combination. The rapid, powerful 3-way mix of the Jaeger Tilting-Drums speeds production at mix-a-minute speed. Its knife-like rigid paddles slice across the mix, turning it over and over and towards the center. The flat spots on the bottom of the bowl force it forward while its own weight carries it backward. An instant’s tilt of the drum and a smooth, thoroughly mixed batch is ready for use.

The Jaeger Tilting-Drum is the first tilting-drum built into a concrete mixer. It is the basis of the complete Jaeger Line of 30 complete concrete mixing outfits. Mounted on one center bearing, this famous Drum is a model of simplicity and strength, combined with generous capacity. Quick loading and rapid discharge are the outstanding characteristics of all Jaeger Tilting-Drum Mixers.

The Jaeger organization with its years of manufacturing experiences, ample resources and broad-gauged policies is back of every Jaeger Concrete Mixer. Its guarantee of satisfaction is your surety for perfect service.

When next in the market check up Jaeger reputation and Jaeger’s Record of Performance. Our catalog will be sent promptly on request.

STOCKS CARRIED IN ALL PRINCIPAL CITIES

The Jaeger Machine Co.
216 Dublin Road, Columbus, Ohio
Back of Every JAEGER—
The Most Imposing Concrete Structures of the Nation

THE world's tallest concrete office buildings—the greatest concrete stadiums—palatial hotels—acres of busy concrete factories—beautiful homes—and wide, winding concrete boulevards! These form the milestones of Jaeger Progress and mark the efficiency of every Jaeger Concrete Mixer.

A Jaeger means to you the greatest value you can buy in a Concrete Mixer. It is not just a concrete mixing machine—it is the Original Tilting-Drum Mixer—built for service in every bolt and screw—in every part and parcel of material that goes into it.

From towering sky-scrapers to modest garage or garden walk, Jaegers have served the concrete industry faithfully. They afford you downright dependable production year after year. They cut your building costs enormously—make possible estimates that "get the business at a profit."

Before you buy another concrete mixer, look around. Notice how many Jaegers are in daily use. Ask their owners for their records and find out the tremendous amount of work they handle. Then you'll find the answer and the reasons for it—low cost, thoroughly mixed, high speed concrete production for every working hour.

Jaeger Mixers make up a complete line of 30 concrete mixing outfits ranging from 3 to 14 cu. ft. per batch of mixed concrete. One of these outfits is what you need. Write us today for our illustrated catalog and start the New Year with a Jaeger "Mix-a-Minute" to turn out profits for you.

Stocks carried in all principal cities. Write us for the name of the distributor nearest you.

THE JAEGER MACHINE CO.
216 DUBLIN ROAD
COLUMBUS, OHIO

JAEGER
The Original Tilting Drum Mixer
Saves $100 on Every 5-Room House

TAKING his Wallace Universal Saw and Wallace 6-inch Jointer to every job as soon as the foundation is in has enabled Park Henson, carpenter-contractor, of Liberty, Mo., to save more than $100 on every small house job. He uses these machines not only for necessary cutting of rough stock, but for making all interior finish and cabinet work right on the job at a tremendous saving over mill prices.

Wallace Portable Machines are precision-built for absolutely accurate work on the smallest operations. Every Wallace Machine is direct-motor-driven, developing ample power for fast work on the largest operations within its capacity. They can be easily moved to any part of the job, and derive their power from any light or power circuit—just plug them into any light socket.

Builders everywhere are meeting completion dates and cutting down costs by using Wallace Portable Machines to do away with practically all hand work in building.

Wallace Portable Machines

Wallace Universal Saw  Wallace 6" Jointer
Wallace Plain Saw  Wallace 4" Planer
Wallace 16" Band Saw  Wallace 6" Lathe
Wonder Disc Sander  Wonder Spindle Sander
Wallace Glue Pot, automatic heat control

Write today for Catalog 402C and price list giving full descriptions and terms on all Wallace Portable Machines—a post card will bring it.

Use machines of the proper size and take them to the job

J. D. WALLACE & CO.

150 S. California Avenue  Chicago, Illinois
Back of GMC

An important safeguard to any truck purchase is the stability of the institution which built the truck.

The differences in truck design simply amount to this: whether a truck was merely built to sell, or whether it was built to do better work longer—like GMC.

GMC truck engineering experience goes clear back to when the truck industry began. Constant experiment and test in General Motors Research Laboratories to find and perfect overstrength materials and parts; the increased purchasing power of a General Motors Division; and finally the General Motors determination to let no one build a better truck—all these are reasons why your GMC will show you greater value and stamina for more years.

There is a valuable new GMC booklet on Motor Truck Operation and Care. Mail the coupon for your copy.

GENERAL MOTORS TRUCK COMPANY
Division of General Motors Corporation
PONTIAC, MICHIGAN
Cuts any kind of lumber—and, say!—how it cuts costs!

This American Portable Variety Woodworker is letting hundreds of contractors figure low on jobs. And clear up bigger profits, too! No slow hand sawing for them. No waiting on the nearest shop for special jobs. Instead, they have a complete woodworking plant right at hand. Four men can work at it at once.

This one machine may be used as a rip, cutoff, or 20-inch scroll saw, as a dado, gaining, grooving, rabbeting, tenoning, or boring machine, as a jointer or planer, a matcher, molder, or sander, and as a hollow chisel mortiser.

Our Bulletin No. 80 describes in detail this and other time-saving "American" machines. Write for it.

American Saw Mill Machinery Co.

61 Main Street, Hackettstown, N. J.
1361 Hudson Terminal Bldg.
New York City

Manufacturers of woodworking machinery for use on the job or in the shop
New Ideas—Modern Methods—Short Cuts

This course "Audel's Guides for Carpenters and Builders" consists of 4 handy volumes of over 1500 pages with thoroughly illustrated charts, diagrams, graphs, pictures with calculations for every job from making the excavation to constructing the entire building. You will find these new Guides most complete and comprehensive in addition to being both timely and practical. There are 3700 actual examples of efficient construction work with new methods, ideas, solutions, plans, systems, short cuts, time and labor saving suggestions, new ways that cover the entire theory and practice of the subject illustrated by sketches and forms all specific and practical. Audel's Guides save you the short cut, professional information you want. No need to guess or take chances. Every day you have before you in this set the exact, practical, useful information that will help you with every job that comes up in your daily work.

Thousands Say Guides Are Carpenter's Best Friend

"Reasonable Price I find the Guides very satisfactory. The knowledge in them is worth much more than the price; especially as Audel's are more than the purchase price. Anyone expecting a complete satisfaction. Anyone expecting anything better than the purchase price surely worth much more by using the Guides daily. —W. B. M. McIlwihon, East Chicago, Ind.

"Valuable for Beginners or Old Timers" I have looked over a good many Guides and find a wealth of information. Their size makes them very handy to carry. The books are well written and have them for ready reference. The arrangement of subjects and the simple way it is explained makes it valuable for the beginner. The rules and formulas are clear, and the practical work will help you. Sumner Point, N. J.

"Good For Professional" It is the most handy reference work that I ever came across. A splendid thing. It needs every day for reference. I wish to state further that there is not a foreman or superintendent who can afford to be without this valuable work. I wish you to try it. —George H. Watam, St. Louis, Mo.

"Guides Save Hard Knocks" The Guides are truly wonderful and should be in the hands of all young carpenters as well as a lot of the older hands. I have had them 20 years ago and you have saved me many a hard knock and also sleepless nights trying to figure out the next day's work. —Mr. M. A. Johnson, E. R. 1, Hammond, Ind.

"Save Money" The Guides have met my complete satisfaction. Anyone expecting to build a house can well save $120 or more by trying the guides in your books. W. J. Hillyer, 3rd Ave. & 92nd St., New York, N. Y.

"Good For Amateurs" The books are exactly what I was looking for. The Guides are worth millions more than the purchase price; especially as they serve as a guide to the non-professional like myself who is trying to build himself a house at the least expense. —G. P. Sturow, 144, Westmont, Ill.

"Save Time" The Guides save hard knocks and money. —L rins. F. Siepp, P. O. Box 143, Tuscarawas, Ohio.

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— some detail of a job being figured — usually wanted most when not at hand — can often be acquired quickly by referring to the Selected List of Manufacturers' Literature that appears in every issue of BUILDING AGE and NATIONAL BUILDER. See pages 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216 of this number.

These lists are comprehensive, and the carefully prepared catalogs and booklets of leading manufacturers contain specific information—exactly the sort you may need badly at times.

Consult the list, jot down the numbers wanted on the coupon, and the specified literature will be sent you promptly—free of charge.

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Where Lasting Concrete Begins!

To turn out good, lasting concrete a mixer must be a mixer. Each batch has to be sufficiently agitated to "concrete-coat" even the smallest stone. This is the drum-duty—its construction, balance, bearing construction and shape of the mixing blades and mixing capacity—all are important factors.

The secret of the Kwik-Mix's speed and thorough-mix lies in its drum.

The Kwik-Mix Mixing Drum is oversized, has an exceptionally large opening, is perfectly balanced and affords a visible mix.

It is equipped with four steel mixing blades so arranged as to insure thorough, quick mixing of materials.

The drum bearing is bronze and is oiled through hollow shaft and is dust-proof and easy running.

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This sturdy, well-built drum is a part of every Kwik-Mix Mixer. Every Kwik-Mix Mixer is made with the same pains-taking care and precision. That's why they have won nation-wide acceptance. They are economical to operate. Let us send you detailed information covering any model you wish.

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TRUSCON Standard Steel Basement Windows are an item of permanent construction now within the reach of any home builder. Truscon standardization and quantity production make their cost as little as wood. Double-daylighting and high quality make Truscon Basement Windows the logical choice for large or small homes.

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Three light Truscon Standard Basement Windows. 10"x20" Glass. 2' 9¼" wide, 1' 11" high.

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TRUSCON COPPER STEEL
BASEMENT WINDOWS
From Building the Pyramids to Building in America

No one knows how long it took to build the pyramids; certainly it was a long, weary time. Labor was cheap in those ancient days — cheap and plentiful — for there was an inexhaustible supply.

All said and done, the swarthy engineers and builders made a good job; but they might have made an equally good one, and an infinitely faster, with the aid of modern machinery and equipment.

We live in more enlightened times. Ours is the age of invention, and of men eager to seize upon and apply each new time-saving and accuracy-ensuring device.

Building methods have been completely revolutionized in the last half century, thanks in large part to the remarkable array of equipment that this period has brought forth.

But there are other factors that have contributed to the change. Scarcity of labor, high wages, demands of owners for rapid construction owing to the finances involved — these have played no insignificant roles.

The condition obtaining today in the world of building can be adequately met in only one way — making use of machinery and modern appliances wherever possible. This holds good, not only for the larger construction jobs, but also for many smaller ones.

The time element is very often of paramount importance in present-day building operations, and machinery means time saved — a vital source of economy. Where is the wisdom in having a carpenter take a half hour to saw lumber on the job when a portable machine can easily do the identical job in five minutes?

Power is plentiful, cheap, and universally available. Where electricity is easily to be had, this source of power can be used. The portable gasoline engine has numerous advantages to commend it to the enterprising.

At this season of the year builders should be carefully planning how to take care of work for the next six months at least. That is a form of prudence that pays rich dividends.

Good equipment is vital to the builder's success. The man who lacks equipment is sadly handicapped in this age of keen competition and rapid, first-class work. He cannot turn out a job so quickly or so cheaply as his neighbor who is making use of modern equipment. He is attempting to turn back the clock, something that can only be indulged in at a cost, as is only quickly realized.

It is false, penny-wise economy to have five men carry a load when one man with a tractor will do twenty times the amount of work. It is silly to have twelve men delivering material when three men and a hoist will do the job better and quicker. There is no use mixing mortar or concrete by hand when there are now small mixers made that are economical to use even on small jobs.

This is essentially the day of equipment, of labor-saving devices. The old times are gone, and to say the truth, no one would really wish them back again. Machinery has come to stay; the wise constructor recognizes and gladly accepts that fact. For these reasons, and because their importance cannot be overstated, we are devoting considerable space in this issue of Building Age and National Builder to the subject of builders' equipment.
CLEVERLY modeled stucco frames this sturdy paneled door. The entrance spells security while the wrought lantern above adds a note of friendly welcome. Through the grille on the right one can take a peep into the tiny patio just around the corner of that charming rough cast wall of Spanish type.
The two-story house illustrated here is one of California’s newest representations of the Mission style of architecture in residence designing. In roof treatment, wall finish, color scheme and detail handling, its exterior is exceptionally attractive and interesting, and its interior, in arrangement, built-in effects, finish and every other respect, contributes to the making of a home that is most satisfactory and practical, as well as possessed of charming character. The house, in short, is a decidedly distinctive creation.

As adding much to the individuality of the house's general outside appearance, a number of features and details, to be studied both from the photographs and floor plans, deserve special attention.

Note the simple but effective designing of the front entrance, with its cement-floored stoop; the tiny walled-in flower garden on the front corner to the right, with its undecorated corner and its interestingly grilled window; the manner in which the roof elevations are improvingly broken by a one-story section over a small first-floor bath room and a somewhat higher section over the reception hall and stairway.

Spanish Type House

By Charles Alma Byers

Again note the delightful walled-in but unroofed terrace, also paved with cement, that extends from the left end, directly accessible from an end of the living room through two separate doors; the grille treatment of several of the front windows, including a dummy window in the upper part of the chimney, and, lastly, the rough treatment accorded to the walls, which, incidentally, done with the trowel, produces an appearance somewhat suggestive of walls of rough-dressed stone.

The exterior walls are of cement-stucco over frame construction and are of a light chocolate-brown shade, and the roof is of tile, of variegated colors, with reds, browns and greens predominating. The front door, attractively panelled, is of oak, set in a framing of artificial stone, and the grilles are of black iron. The foundation is concrete; a small basement under the entrance corner is walled and floored with cement.

By Charles Alma Byers

Spanish Type House

Preston S. Wright

Architect
Unusual Building Development
By Clever Planning

By Roy M. Singer

We have become somewhat accustomed to hearing about the novel building developments projected in the West, but there always seems to be another one, more interesting than the last.

Why this Western country should be more particular to make its buildings attractive than other regions, is difficult to account for unless it is because of the fact that due to climatic conditions, lighter and less expensive materials may be used in California than in other parts of the country where severe winters are to be encountered.

The project described here is located in a prominent business district in the city of Los Angeles. Pierpont and Walter S. Davis, of Los Angeles, were the architects, and the Garden City Company the owners.

Not only is this group of buildings attractive to the eye but also it is so economically planned to use the maximum amount of ground area without in any way interfering with the comfort of the tenants or the beauty of the design.

There are many such hilly sites and this article gives some pointers how it can be handled to advantage.

The buildings are located on a corner lot, 170 ft. by 150 ft. approximately, and the site slopes down from the level of the street where the store groups are located. It was formerly a swampy tract but it is now converted into a business and dwelling group where tenancies are at a premium.

Two distinct groups comprise the development: a store group, and a bungalow court. Due to the sloping site no excavation was required to provide full basements under the stores.

The store group is in two units as shown in the illustrations: one group of the English type, and one of American Colonial. The English style stores are built of frame and covered with stucco, half timbering.
being used to further the English effect.

The Colonial group is finished in wood siding, painted white. The architect's offices are located in the center of this group. Reference to the plan will show the manner in which the stores have been divided.

The bungalow court in the rear of the store group is truly novel. Though this development is located close to the center of the city one may imagine that he is far removed from a metropolitan center by stepping inside the court.

The buildings are extremely simple in design and seem to fit exactly into the atmosphere created by the dense shrubbery growth in the court. There are eight bungalows, and the front elevation and size of each one is different, thus breaking up the monotony of the average bungalow court.
Masses of shrubbery give a rich and colorful background for this simple bungalow. The windows disclose an inviting vista.

A glance at the panorama view which heads this article gives an idea of the charming ensemble which greets the passerby. Even the most casual can hardly fail to be struck by the happy combination of architectural styles. The prim Colonial is cunningly set off and relieved by use of the quaint English style, and both harmonize in a most satisfying manner.

In several instances, the tenants of these toylike structures, aware of the quaint character of the exteriors, have taken full advantage of it. The result has been signs bearing legends old fashioned in wording or in spelling, lending a charming touch to the whole development.

Naturally, many artists have been attracted by the dwellings and their design. In such cases the bungalows serve the double purpose of studios and living quarters.

The third house from the right in the front unit is occupied by the architects of the whole design, Pierpont & Walter S. Davis. Their quarters combine snugness and inviting charm in a high degree. A few steps lead from the street to a terrace set around a diminutive lily pond. A loggia surmounted by an arch gives on to the terrace and provides direct access to the office.

At the left end of the lot the plan shows a different disposal of space. Two stores, both of narrow proportions, are adjoined by a photographer's office and studio and a store. In the studio are a darkroom and a toilet.

Four more stores provide another link in the chain of buildings. It will be noted that this group is brought forward from its neighbors; the buildings are set in alternate units and groups, recessed and set forward in turn. In this way not only is monotony and a generally flat and dull facade avoided, but pleasing effects of shadows are secured.

The stroller now reaches the architect's office, and this leads in turn to the fairly commodious tearoom, with a large kitchen in the rear, and, on the right, a final shop.

An airplane view of the bungalow court would again show a pleasant arrangement of spaces and masses. The various bungalows are placed with an eye to harmony and fitness in the general scheme. In two instances they are in pairs, but everywhere else a ten-foot space between the dwellings is provided.

A pond of quaint shape, looking the least bit like a strange, bumpy fish, breaks up the main space in delightful fashion. A tiny bridge, besides saving time for dwellers and their guests, is an ornamental touch.

The general arrangement of footpaths is again admirable, avoiding as it does stiffness and giving easy communication between the several building units.

Adjoining Bungalow No. 8 is a drying yard of ample proportions and here is situated a wash house 10' long.

The buildings themselves are very simply constructed of wood, as a glance at the illustrations shows. Casement windows are one of the secrets of the charm of these miniature buildings, but as a whole the effect is secured by good proportions and harmoniousness of architectural styles. Another clever stroke is the manner in which the architects have taken advantage of the sloping site.

Another pleasant outlook. The light walls of the buildings gain not only color and setting from the trees and shrubbery, but pretty shadow effects as well.
FEBRUARY
1925

Meet a Family of Builders

Duluth Boasts of a Building Organization
Composed of a Father and His Four Sons

DULUTH, Minnesota, has a unique organization of home builders. It is the only one of its kind in the city, and it is doubtful if there are many like it in the entire country. Certainly there are few similar organizations which function as smoothly and efficiently and with as great a degree of satisfaction to both builder and home buyer.

This organization is known as A. Hedenberg & Company, and is composed of the father and four sons, all deeply interested in the work of building and selling modern, well-built, moderately priced homes.

Each member of the firm—which is the same as saying each member of the family—has charge of a definite division of the work, and each attends strictly to his own job and has full authority over it, which is said to account for the effective, competent and harmonious manner in which their work is carried on.

Andrew Hedenberg, the father, is a carpenter by trade. He started in business for himself on a small scale about 12 years ago, by building two or three houses on a speculative basis. To help finance these operations, he did miscellaneous contract work, including cement work and sewer work for the city, when carpenter work was slack. He had five sons growing up, who had to be clothed, fed and given an education, and he needed all the money he could make.

When war was declared in 1917, four of the Hedenberg boys, all except the youngest, entered the service. The oldest boy never came back.

THE cry is often heard that young men shun the building trades in favor of office work. Here is one family that can laugh at such a charge. A father and four sons in Duluth have joined hands in a building business endeavor and are most decidedly making good. They provide a living example of success won through cooperation and devotion to a common aim. It is an example worth following. After all, apprenticeship in the building line can begin in no better place than right at home.

Told by Philo Brockway

four remaining sons are now associated with their father in business. These boys are George A. W. Hedenberg, Arthur A. Hedenberg, John R. Hedenberg and Phillip Hedenberg.

Andrew Hedenberg, the father, and Arthur personally supervise all construction work. George is in charge of the office and transacts all business, having authority to sign checks, contracts, deeds and all papers for the firm. John is superintendent of the company's cement block factory, while Phillip, the youngest boy, is office assistant.

The business is growing and expanding and the company is now formulating next season's program, which includes the building of at least 50 houses.

Nearly six years ago, very shortly after the signing of the armistice, when George Hedenberg returned from the service, he needed a job. Building had been practically at a standstill during the war and many homes were needed. Duluth was growing and George Hedenberg foresaw that construction work was going to be a good business. Besides, his father needed his help, so they entered into a partnership and began by building six houses the first year, on a speculative basis. To help finance these operations, they did miscellaneous contracting work, including cement work and foundations.

These houses were well built and sold readily. As the brothers returned, they entered the business and more houses were built. The Hedenbergs realized the value of sound construction and square business methods. The Hedenberg houses were good houses and people began to talk about them. Prospective home owners began coming to the Hedenbergs when they wanted a house built, and the company would agree to build it on contract. They continued to build houses for speculation, and for the last three years their business has been about equally divided between building on a speculative basis and building on contract for others.

The methods employed by the Hedenberg company insure the highest grade of construction at a...
minimum cost. They sublet no contracts, but build all their houses complete with day labor under their own personal supervision. They hire all their help, including carpenters, masons, plasterers and painters at day wages, so there is no incentive to skimp a job, rush it through or use inferior materials. The company buys all its materials at wholesale prices in large quantities, including building hardware in bulk lots.

The Hedenbergs maintain and operate a cement block plant in Duluth, known as the Lakeside Cement Works, where they manufacture a sufficient quantity of cement blocks to take care of their own construction work and to fill an increasing demand in the market. The company has two trucks with which they do their own hauling, and three cars which they use in general supervision work. The organization is complete to the last detail. They are not dependent on anyone else for the completion of a job, they themselves being solely responsible, so when they undertake the construction of a house they know that it will be finished on schedule time.

More than 90 per cent. of the homes built by the Hedenberg company on a speculative basis are sold before they are completed. Of the 28 houses constructed this year, all except one are sold, and many inquiries concerning that one have been received, although it is not far enough along to be shown and has not been advertised.

When the Hedenbergs organized the business, they resolved to make home building their life's work. They are in the business to stay and therefore they realize the need of building for permanency and the value of good will to their business. They have waged a continuous warfare against shoddy construction and the use of inferior materials. The houses they have built have proved their worth. They have stood the test of time and shown that good materials and sound construction are the best creators of good will in the world.

One of the chief problems in quantity house production is to secure variety of style and effect in the exteriors while using the same general floor plan for each. This problem has been ingeniously solved by the Hedenberg company, as will be seen from an inspection of the pictures of typical Hedenberg houses accompanying this article. The floor plans are identical in almost every case, locations of windows and doors being the same. Contrast is secured by the treatment of porches, entrances and hoods, and by the use of different materials. Thus one of the houses is all stucco, one shingle, another clapboard and stucco, and still another all clapboard. The resulting effect is that while a certain unity is preserved, thanks to general similarity of proportions and openings, ample variety is assured by variation of details and building materials.

These builders have made a special study of insulation, which is an important factor in home construction in this northern climate, and their houses are easy to heat. They insulate not only the inside and outside walls thoroughly, but the ceilings as well. Reducing fuel bills, they have found, makes satisfied customers and gives the purchaser a better opportunity to pay for his home.

The Hedenberg company does some display advertising in the newspapers. This is mostly in the form of showing cuts and giving descriptions of homes they have built, in order to keep their name and work before the public, but their most profitable publicity has been word-of-mouth advertising by people who have purchased and are enjoying the comforts and satisfaction of Hedenberg-built homes. These people pass along to their friends
the desirable qualities of their new houses.

A sign on a house, "Built by A. Hedenberg & Company," usually gets results. The name Hedenberg means much the same to Duluth home buyers as the Sterling mark on silver. The company now figures the good will of the public as a tangible asset, worth at least half the value of their business, according to George Hedenberg, business manager.

Another of the activities carried on by A. Hedenberg & Company is that of real estate brokerage business, which they have found fits in admirably with their construction work. When the Hedenbergs began to build on contract, they found that many of their clients who were having new homes constructed, had old gage, the remaining 80 per cent. being financed by the company. The firm usually demands 20 per cent. of the value of the property as a down payment. They take a contract for deed for approximately 30 per cent., and place a first mortgage on the property for the balance. When the purchaser has paid up the contract for deed in small monthly payments which include all interest, charged at the rate of 6 per cent., he gets title to the property, and may have the mortgage renewed or pay it in part or wholly as he desires or his circumstances will permit.

Mortgages are usually placed for five years, which gives the buyer time to pay up the contract. The company has never had a loss on a contract or sale. All the business of the firm, including financing, buying, selling, contracting, mortgages, loans and insurance, is done in their own offices which are conveniently located in a downtown building. They design all the houses first and then turn them over to an architect to have the plans drawn. The company finds it necessary to do very little soliciting, as most of the work comes to them. Their business is increasing at the rate of about 30 per cent. a year.

The Hedenberg boys are up-to-date. They are constantly studying advanced building methods and they keep abreast of the times in all matters pertaining to construction work. When the writer called at their offices for this interview, he found the latest copies of BUILDING AGE and NATIONAL BUILDER on George Hedenberg's desk.

"We are in the business to stay," Mr. Hedenberg declared, "and therefore we must build houses that will last and will be satisfactory in years to come. We build not alone for architectural beauty and design, but for comfort and convenience, utility and permanence."

Duluth is maintaining a steady growth. With the construction of the proposed deep waterway to the sea, it is expected that the city will grow rapidly. Farsighted business men are now building a modern hotel of 13 stories, to contain 500 rooms and to cost $1,700,000, to accommodate the traveling public. Many additional homes will be needed to house the permanent population.

 Variety with unity. These houses were recently built by A. Hedenberg & Co. in Duluth. Floor plans are similar, but contrast is secured by use of varied exterior design and materials.
Building a Great Cathedral for America

French Gothic Style for St. John the Divine's

On the banks of a river in oldest Paris stands, erect, rugged, sombre, the jewel of France: Notre Dame.

Within earshot of grave Big Ben, in ancient London, stands, mellow and serene, Westminster Abbey.

Rising proudly and with majesty from the eminences of Morningside Heights in young New York is growing an American Cathedral: St. John the Divine.

Men who watch the patient creation of master-works rarely sense the greatness of what is transpiring before their eyes. Few, perhaps, who passed by the embryo Notre Dame, or Amiens, or Mont St. Michel, or Cologne, in a bygone day paused to ponder on the feelings that these heaped stones were destined to inspire. They were too near greatness—both in time and space—and could not see it.

A mighty cathedral is building in New York—has been building these 35 years. But today it no longer takes centuries for the realization of a grand architectural conception. Not all those 35 years have been devoted to the actual building of St. John's, or rather to the fragment thus far erected.

The project has long been quiescent, owing to lack of funds, and only with the dawn of the New Year has a nation-wide appeal gone forth to people of all creeds and races to complete the work first dreamed of a century back and begun in the nineties. The total cost will be $15,000,000, and at the time of writing, funds were pouring in from every side, from rich and poor alike, at a

THE contract for building the Nave of St. John's was let on January 28 to Jacobs & Youngs, of New York. It will cost $5,900,000 and take four years to build. Ralph Adams Cram, of New York, is the architect.
rate to assure the raising of the re-
quired total.

St. John's first began to take
shape—at least on paper—in the
late eighties, when a competition was
held for a design. In 1889 sixty
designs were received, and in July,
1891, the designs submitted by
George L. Heins and C. Grant La
Farge were accepted.

Many other noted architects have
contributed to the planning of the
complete conception. Today the
architect is that American master of
the Gothic, Ralph Adams Cram.

The actual construction was be-
gun in 1891, and on December 27,
1892, St. John's day, the corner-
stone was laid. Now, 32 years later,
all America is gladly responding to
the summons for money to complete
a great cathedral.

Heins & La Farge were in charge
of the project from July, 1891, until
the death of Mr. Heins in 1907. Mr.
La Farge remained as the architect
until the completion of the Choir, in
1911. Among the other firms con-
sulted have been Cook & Welch,
Warren & Wetmore, and Howells &
Stokes, while the seven chapels built
round the Choir and Sanctuary are
the designs of Carrere & Hastings,
Cram & Ferguson, Heins & La
Farge, and Henry Vaughan.

Today the Cathedral lacks Nave
and Transepts. But in addition to
the creation of these, the present
architect's task embraces the remod-
ing of the Choir to harmonize with
the French Gothic style used
throughout the cathedral.
A brief study of the accompanying illustrations reveals the magnitude of this single task. The eight huge granite columns of the Sanctuary, and the arches surrounding them, are strongly permeated by Byzantine influence. Above the arches is seen the present false ceiling of clay tile. The new design retains the columns, but substitutes for Byzantine arches true Gothic examples. Above these a row of Gothic windows raises itself and melts into the groined ceiling.

Viewing the exterior, the result is seen to be an extra windowed story, flanked by flying buttresses, and a shallower roof than that of the present structure, somewhat recalling, in its slender grace and "feeling," Notre Dame de Paris.

Thus, the whole style of the contemplated edifice will be harmonious and pure Gothic throughout. It is an intricate and delicate piece of remodeling that the present architect has undertaken, but one that was felt to be necessary to the style and proportions of the whole scheme.

The eight mammoth columns of the Sanctuary are rivalled in size only by those of St. Isaac's Cathedral, Petrograd. These shafts of Maine granite were quarried as monoliths and were turned on a special lathe costing $50,000 to build. In the polishing the first two monoliths broke, and permission was given the contractor to make the columns in two pieces. Each column is 60 ft. high and 6 ft. diameter, and weighs 130 tons—the lower stone, 40 ft. high, weighing 90; the upper, 20 ft. high, 40 tons.

The Cathedral of St. John the Divine will be the third largest in the world, exceeded in size only by St. Peter's in Rome and the Cathedral of Seville, Spain. None of the famous English cathedrals approaches it in area. Notre Dame de Paris has an area of 64,000 square feet; Chartres, 68,000; Rheims, 63,000; Amiens (largest in France), 71,000. St. John's, with an area of nearly 110,000 square feet, will be almost as large as Rheims and Notre Dame combined. When the Nave and Transepts are completed the church will seat 7,000 and will accommodate several thousand more standing.

The portion thus far constructed has cost about $4,500,000. The Nave will cost $5,900,000, and the total cost will be about $15,000,000. The contract for building the nave has been awarded.

Choir and Chapels seen from the east. Set on an eminence and facing Morningside Park, the cathedral has an incomparable point of vantage.
The year 1925 will be particularly noteworthy for the volume of new school construction which it will witness in the United States.

Conservative estimates show that during the present year no less than 15 per cent of the total estimated sum — $5,000,000,000 — to be expended for construction, will be for the construction of schools and for school equipment. This makes upwards of $750,000,000 which will be expended in this one direction.

It must be remembered that school construction follows population.

Wherever there has been a building boom and a large number of residences erected, it follows that provision must be made for the wants of these people. Stores, churches, theatres and schools follow as a natural result. The millions of homes that have been erected in the last few years in localities that were practically farm lands must be supplied with schools.

Therefore, builders who are making a specialty of this form of construction will be assured of considerable work of this nature.

The school pictured on this page is an interesting example of a school building adapted for the less thickly settled community. The symmetrically arranged floor plans result in a simple but pleasing exterior which derives appeal and interest in part from the character of its brickwork.

It is the Round Prairie Grade School, Fort Dodge, Iowa, and was designed by Damon & O'Meara.
There's a Flavor of Rustic England in This Bungalow

Designed Specially for Building Age and National Builder

By R. C. Hunter & Brother Architects

Not sketched in a Devonshire lane or Surrey byway (although it might very well have been), but a unique and thoroughly winning little American conception is the bungalow pictured above.

This cozy house has an unmistakable flavor of rustic England in its details and general lines. Low broadness persuades the passerby that the bungalow has, as it were, "grown" in its setting. It fits the latter admirably.

Stone, stucco, brick, timber and shingles are so delightfully employed that the resulting ensemble has no suggestion of monotony or the commonplace; yet it avoids freakishness by a wide margin.

The English influence makes itself felt in numerous details, but in this respect, as well, the architects have been careful to avoid extremes.

Note the pert little roof ridges. This touch comes straight from the English countryside, being in true English farmhouse style.

Again, note the big honest chimney of brick and stone, and the cunning way in which these materials are made to set each other off. Happy, also, is the treatment of the brickwork on the chimney. It does its full share to keep monotony at a safe distance.
The half timber work is another characteristic English ingredient, and one which lends a homelike appearance to the house. Stucco sides, brick vestibule gable, sturdy door of solid sticks, iron hinges, lantern and hardware—all contribute something individual and inviting to the design as a whole.

Worthy of admiration is the broad, free sweep of the classic vestibule gable roof, contrasting well with the lines of its neighbor on the left, just as its wall surface of brick shows up splendidly alongside that of stucco and half timber. The semi-circular step leading to the vestibule harmonizes neatly with the brick vestibule gable. Comfort and dignity are both suggested by the generous chimney, and, as will be seen from a glance at the plan, it provides the living room with a huge fireplace in which the logs can blaze merrily in the winter time. The roof is composed of variegated shingles of asbestos or slate, wood or asphalt. The variegation makes for a pretty play of restrained color.

The garage in the rear is of the simplest, yet, despite its modesty, manages to add a note consonant with the rest of the ensemble. In addition to the delectable exterior, the house is well planned within. In fact, it is an object lesson in careful and compact planning. Note how space has been conserved wherever possible. The hall dimensions are reduced to a minimum, yet the hall is so planned and arranged that it gives ample room and convenient access to every chamber. The perspective section shows the bungalow ready for occupation and gives a good idea of the space available for furniture.

The gate leg table makes it possible instantly to transform the dining room into a very spacious living room, and as a matter of fact, this is no doubt how most people would use this chamber except when entertaining guests at luncheon or dinner. The alcove with built-in seats and table situated off the kitchen will be found adequate for all ordinary occasions. Conveniently situated between the bedrooms and the bath is a linen closet, and ample clothes closets are to be found in both bedrooms and in the vestibule.

In this feature the architects have planned wisely and carefully. Just as the hall space is minimized without sacrificing convenience, the closets are usually large yet not enroaching on the rooms. A linen closet has become a necessary item in home design.

The living room porch is of good size—10' by 14'. It has a colored cement or tile floor spaced in squares and makes a pleasant outdoor retreat.

Tucked away between a few trees and set off with clumps of flowery shrubbery, a smooth lawn and a stone wall or hedge, this bungalow will make an alluring picture. It is certainly in every way a very livable house. The estimated cost is about $8,300.
HERE is a little home of definite character and appeal that is economical to build. There is nothing ornate or elaborate about it, yet its early American influence is bound to attract and is in faultless taste.

The roof is exceedingly happy in its shingles of variegated green; while the wide siding of the walls may be either white or ivory in hue.

The Colonial shutters are a pleasant shade of green, and they harmonize well with the roof and walls of the house and with the foliage of its setting.

One enters through the living porch, which is enclosed in glass, into the living room, with its fireplace flanked on either side by windows. The kitchen with its cozy breakfast nook, and the dining room are on the other side of the house.

The plan is exceedingly convenient. Stairs leading from the rear of the living room, land in a center hall on the second floor. The three bedrooms and the tiled bath all connect conveniently with this short hall.

Closets are always useful, and this house is well equipped in this respect. All bedrooms have excellent light and cross ventilation.

The laundry and coal bin, heater, storage space, etc., will be found in the cellar.

The casual observer will value this home in the neighborhood of $10,000, probably slightly above. In the mind of an admirer, its simplicity does not speak in terms of dollars. Actually, the cost is about $8,100.
A Brick and Stucco House of Character

THERE are many people that like the appearance of brick houses, and there is no doubt an air of substantial construction about them that is not obtained to the same degree by any other material.

The house shown here is of brick on the first story and stucco above. The lines of this house are good and the dark shingles and brick are relieved by the stucco gables and entrance. The treatment of the brick under the dining room window on the front of the house is unusual and adds a touch of character as do the rough pieces used in the half timber work. The chimney is brick and has a stucco top and squatty pots to cap it off.

The plan is so conceived that a maximum of space is given the rooms. On the first floor one enters into a small vestibule, thus space that would ordinarily be used for hall space is given over to the living room. There is a large fireplace in this room where one may enjoy the warmth and glow of the open fire during the cool days, and a small sun porch opens from this room by French doors and makes a cool and restful retreat in summer.

There is a good size dining room with an attractive window seat and a kitchen with every convenience to aid the housewife in her work.

Within and without the house is at once attractive and compact, giving a maximum of space and charm for the least amount of money expended. The cost is about $9,400.
Advocates Means for Promoting

Building Trade Prosperity

NOTABLE for its scope and for the character of its program, no less than for the celebrated speakers participating, was the sixth annual meeting of the Associated General Contractors of America, held in Washington, D. C., on January 12, 13 and 14.

Leading the list of distinguished guest speakers was President Coolidge, whose address brought to a memorable conclusion the morning session of the first day. Secretary Hoover, Secretary Work and Postmaster General New, and General Lord and Senator Wadsworth were also among the speakers who addressed the convention. The sessions were held in the Washington Hotel.

Suggestions and policies outlined by President Coolidge, Secretary Hoover and Secretary Work in addressing the convention were followed in the resolutions adopted.

It was urged that the present system of Federal construction be coordinated into a single division to be known as the Division of Public Works in the Department of the Interior. A resolution on Apprenticeship approved and endorsed the report of the Committee on Labor on a national system of training for building trades craftsmen, and also approved the work of the Federal Board of Vocational Education. The Association pledged its support to the public program of vocational education.

An important resolution dealing with seasonal fluctuation in construction advocated the further cooperation of the A. G. C. with the Department of Commerce and commercial organizations to eliminate seasonal habits in construction and encourage more continuous operation throughout the year. The separate contract system was scored in a resolution "vigorously opposing the use of separate contracts and the enactment of any legislation to establish the use of such contracts by law."

Bonding practices were dealt with in a sharply worded resolution attempting to influence the placing of these bonds with any specific surety. It was further advocated that "legislation permitting optional use of other forms of surety be introduced in every State to break monopoly which has already been created for the corporate surety bond," and that "this Association will welcome a complete investigation of rebating by agents to contractors, public officials, owners and their representatives."

The Association went on record as opposed to the enactment of any lien law which may be used as an extension of credit to the purchaser of materials, and also resolved to fight the "practice of sales being made under the protection of lien laws in such States as the lien law now exists.

President Coolidge's appearance was the signal for a prolonged demonstration of enthusiasm. In his address the President emphasized the importance which a smooth functioning of the construction industry holds as a factor in the prosperity of the country. He outlined the benefits to be gained from equalization of the volume of construction throughout periods of abnormal activity and depression.

The President also indicated the vast aid to the economic structure of the country to be obtained from development and adoption of uniform contract forms. "These forms," he said, "promise much as an assurance of fair treatment to all." The President said, in part:

"The importance of construction among the country's industries hardly needs any testimony. A recent analysis reached the conclusion that the national income in 1924 was $53,600,000,000, of which approximately $6,000,000,000 was expended for construction. That is, over 11 per cent. of the income. Constructions of one kind or another largely represent the accumulated wealth of a community, and it is, therefore, important that they be erected at the lowest feasible expense consistent with a high standard of permanence and usefulness."

"During the war, owing to more instant demands upon producing capacity, construction was neglected and an enormous construction deficit resulted. The necessity of restoring the balance was realized when peace returned, and we have had an era of high construction activity in recent years."

The President emphasized the importance of construction as a balance wheel in the industrial scheme. "The idea of utilizing construction, particularly of public works, as a stabilizing factor in the business and employment situation has long been a counsel of perfection among students of these problems."

(Continued on page 156)
The Building Industry

Is Now Face to Face With

The Five Day Week Problem

Will it be adopted?
Will it curtail building?
Will it cause a labor shortage?
Will it increase building costs?
Will it harm the building contractor?
Will it better living conditions
Will it really benefit the workers?

An Interesting Entrance

Too often in doorways purporting to be of Colonial design, the entrance columns are too thick and stubby and the cornice too wide. The result is anything but pleasant. In this entrance, however, these details are properly handled, and are combined with other interesting features. The fanlight transom is nicely drawn and the small panes of the sidelights are in good taste. The six-panel door is well proportioned and the raised panels give a reveal that is most attractive. Note also the ornamental caps, surrounding the delightful little newels, with their entrance and enclosing seats.

Reports submitted by the conference, which was held under the auspices of the National Association of Building Trades Employers, indicate that in a number of the cities some of the trades have already succeeded in putting into operation the short week. The latter is being asked by the Cleveland plasterers and lathers and it is believed that the painters and glaziers will make a similar request.

At the last annual convention of the United Brotherhood of Carpenters and Joiners of America, a resolution was adopted authorizing carpenters in those cities where there is a District Council or more than one local union to take a referendum vote on the five-day week. This vote is now being taken in the larger cities and the results will shortly be announced.

Employers feel that if one of the key trades is successful in this effort, the movement will spread to all the other trades in the construction industry. Any shortening of hours is bound to increase construction costs, and any advance at this time will seriously curtail the great construction program planned for this year.

The resolution adopted by the conference declared in effect: "There is an extreme shortage of mechanics in the building trades in the United States today, and the efforts being made by some labor organizations in the building industry to establish a five-day week would further increase this shortage by almost 10 per cent, thereby increasing the cost of building homes and other essential structures and limiting the amount of construction possible. The employers in the construction industry here assembled from throughout the United States believe that the efforts on the part of several trade unions now to put into effect a five-day week, thereby nullifying the splendid work of the apprentice schools to create more mechanics to take care of the shortage, is unwarranted and is a distinct step backward for the building industry. It is expected and requested that organized labor will join wholeheartedly with the employers in the building industry throughout the country so that this further restriction in hours of labor will not be sanctioned or upheld, and that they will earnestly assist the employers in removing from the working agreements of any trade any such restrictions as a five-day week."
The horse has almost lost its place in excavation work. When Spring thaws the ground and the "digging in" season opens, hitch your scraper to the back of a truck and see what modern methods will save for you in labor costs.

The winter will shortly be over. Construction has progressed despite the cold; but the rush for the industry will come as usual after the frost is out of the ground. It, therefore, behooves every contractor to take stock of his entire equipment now so that everything will be ready in shipshape condition when it is required.

It may be that some things in the office need looking after. A well fitted-up office is a genuine asset to the builder. An air of quiet prosperity here will impress and influence future customers. Show them that you are a genuine business man, using up-to-date office methods and equipment; the confidence thus gained will offset the cost of a new desk, filing cabinets, etc., many times over.

The good jobs come from people who are themselves in business. Business men sense efficiency at a first interview. Therefore, avoid anything likely to militate against the formation of a good opinion at the very first meeting. First impressions are often decisive.

One great essential is to have a good-sized drawing board, together with all necessary appliances. Even though you receive well-drawn plans from the architect, there will always be some details to be drawn out, such as framing plans, full-sized details for the mill, etc.

Proper equipment in the office for dispatching this kind of work will pay for itself many times over and will furthermore have its effect in creating a good impression upon your prospective customers. Reference books, catalogues, models of houses, samples of material, etc., are all valuable aids to efficient sales work in the office.

At the present time no building contractor can really get along without having a shop of his own, and where the work is on rather a large scale, it will pay to have a field shop installed. Even on smaller operations it is well to have at least a portable saw and jointer on the job. One can hardly figure out how many hours are actually saved by the use of power equipment. Hours are dollars! Labor is high and power is comparatively cheap; so lets use it.

Today, with the high cost of
One tractor hauling loads like these will keep many men busy loading, while the workmen on the job are assured a steady flow of material.

labor, builders should take advantage of every labor-saving device in order to keep down to a minimum building costs.

Take a look at another industry and see what is accomplished there despite high wages and high prices of raw materials. Ford cars are today selling for less money than they did years ago and a better product is being put out. Formerly that would have been an impossibility; today it is a reality.

The answer is, efficient methods or working. No one is worked to exhaustion, but all are working in the proper way — no lost motion and no unnecessary manual work — machines do everything. Power directed by brain is more capable of good results than simple manual operation.

Perhaps one of the best investments that you can make is in a good-looking office and shop building of your own. Make this building an object of beauty as well as utility — show that you can really build something that will be talked about — advertising cannot be secured more cheaply or effectively. Believe in your own business, and show that you do.

In case that you have built such a structure, BUILDING AGE AND NATIONAL BUILDER will be glad to print a description of it if you will kindly send us photographs, plans and data. It will certainly be a help and an inspiration to your brother contractors.

Take a little thought of your tool shanty or field office. There is no reason why these should be the ugly looking contraptions they so frequently are. They can be transformed with just a touch of color so as to be attractive. It pays, even on a temporary structure of this nature. Many contractors in cities are adopting this clever way of securing good advertising. They even make their sidewalk sheds artistic canopies.

WHEN the pyramids were built all those huge stones were slowly moved up an incline by brute strength of the unhappy captive slaves of the Egyptians. They were goaded on to their task by the lash of the slave driver. Today a simple touch of a push-button starts an electric winch a-going — or the turn of a lever starts a gasoline-operated one — and away goes an immense draft of building materials to its appointed place without driving anyone to physical exhaustion.

The builder of today has all sorts of modern machinery and equipment as well as a wide variety of improved building materials to help him erect monumental buildings, such as are required by our present day civilization.

Despite the fact that there is a good deal of shoddy construction going on, it is also true that we are today building houses for laborers that have more convenience and comfort than the palaces of kings in bygone years.

At this time of the year, when there is a little breathing spell in the rush of work, it is well for builders to go carefully over all that is new in their respective lines. Some certain kind of new fabricated material may enable your men to work more rapidly and thereby effect a big saving.

Different articles in this issue tell about certain phases of construction equipment, and some interesting points are brought forth. We are also giving a checking list of different items of equipment. You can go through this and check off the items you need to buy or look into.

It is surprising, indeed, what a variety of tools, machines and appliances the building contractor

Pile driving is simplified with modern machines. Here concrete piles are driven in rapid succession, keeping pace with the demand for rush foundation jobs that must be good
Loading, wheeling and dumping are eliminated in this concrete project. To any point on the job this tower and chuting apparatus needs. There are different sizes of practically every piece of equipment made. Be sure that you select the size for which you have the most use. If your jobs are on a large scale, small-sized equipment will not answer.

Now is the time to think about all things that you will need for

Equipment You May Need

Material hoists and concrete chutes render stalwart service to hurry-up construction in concrete. Motive power is always available in the form of gas engine or electric motor units of various sizes.

THAT the contractor may survey his field and make judicious choice of labor-saving equipment, it is recommended that a study of the articles in this issue be followed by reference to the Selected List of Manufacturers' Literature and the advertising sections — signboards pointing the way to a veritable builders' pot o' gold.

For Your Office:
Desk, files, typewriter, adding machine, check protector, time clock, metal lockers, drawing tables, drawing instruments, drawing pencils, inks, drawing paper and tracing cloth, blue prints, blue print machines, house plans, reference books, instructions, cameras, stationery.

For the Shop:
Work benches, woodworking machinery, electric motors, gasoline engines, shafting, pulleys and belts, hand tools, measuring tools, steel squares, tri-squares, etc., files, pencils, levels, miter boxes, clamps, grinding stones, veneer presses, nails, screws and bolts, etc., glue and glue heater, sand paper, bins for storage, hand trucks, fire extinguishers, first aid kit, lockers, electric blowers for bench, ventilating fans.

With foot rails, guard rails and safety nets, this hanging scaffolding is a model for the competent builder to follow on his next erection job. Safety and convenience here aid builder and workman.

DELIVERS CONCRETE IN A PRACTICALLY CONTINUOUS FLOW. THE JOB NEED NOT BE SO VERY LARGE TO JUSTIFY EQUIPMENT LIKE THIS STURDY APPARATUS THE SPRING RUSH. FROM ALL INDICATIONS, THERE WILL BE PLENTY OF BUILDING TO DO IN 1925—ENOUGH TO RETURN EVERY LIVE CONTRACTING BUILDER A GOOD YEAR'S PROFIT. PROPER EQUIPMENT WILL UNQUESTIONABLY ENABLE YOU TO SAVE TIME AND MONEY, AND WILL ADD MATERIALLY TO YOUR TOTAL PROFITS.
Careless and hastily thrown together stagings are usually unsatisfactory. Here, the structure is insecure and unsteady. In addition, in tearing it down the boards are damaged beyond further use.

For the Field:
Axes, air compressors, anvils, auto-passenger, auto truck, auto trailers, axes and hatchets, bar benders and cutters, barrels, brick cleaning machines, brick clamps, brackets-scaffold, brackets-shingling, buckets, buckets for concrete hoisting, canvas covers, capstans for house moving, cement bag cleaners, chain blocks, chain, chains, chains, chain blocks, chalk, chutes for concrete, clamps-form, clamps-scaffold, clips for forms, cloth for covering windows, etc.; concrete trucks, concrete mixers, conveyors-hod, cord for chalk lines, crow bars, derricks, ditch digging machine, door mortiser, dynamite, elevating machinery, excavators, first aid kit, flood lights, floor scrapers, polishers, sanders, gasoline engine, hammers-sledge and carpenter, hand carts and dump carts, hand tools for masons, plumbers, electricians, carpenters and painters, hand trucks, hods, hoses, hose, hoists, chain, hoists, iron sheets for mixing mortar, jacks, kerosene engine, ladders, lanterns, lights, levels and plums, lumber crayons, mattocks, mitre boxes, mortar mixing boxes, pencils, portable tool shanties or field offices, picks-hand, picks-power, pile drivers, power shovels, planks, portable woodworkers, pulley blocks, pumps-drain, centrifugal-force rams, etc., rakes, rollers for house moving, rope-hemp, manilla and wire, ropes and tackle, surveying instruments, transits and levels, shovels and spades, steam engine and boiler, stone crusher, stone drills, scoops and drags, stump pullers, steel tapes, surfacing machines, stone, stucco machines, screens-sand and gravel, scales-weighing, sand blast machinery, salt, saw horses, or trestles, tampers, tanks, trowels, tractor, tool chests, tool bags, tents, trenching machines, time clock, tarpaulins, well drilling tools, wheel barrows, windlass, etc., etc.

Some Appliances and Building Equipment:
Ash hoists, ash receivers, awnings-cord, etc., auto turn tables, bath-room cabinets, disappearing door and porch, shades, show cases, stair treads, safety, vacuum cleaners, ventilators in doors, etc.; roofs windows, transoms, weather stripping, weather vanes.

Up-To-Date Materials:
Never has there been such a wealth of new developments in building material as is set before the contractor today. And the home buying public is well informed of the progress; the manufacturers see to that.

Better construction in concrete, the attractive use of face brick or common brick with colored mortar, novel stucco finishes, effective wood work, etc.—all these represent the progress of which the consumer is now well aware.

He has been taught to speak of roofing in terms of different shapes, materials and sizes, and the architectural value of each.

In electrical equipment, building hardware, brass pipe plumbing, windows, insulating materials, and kindred materials, the home purchaser displays an active interest — the result of publicity in popular magazines to create these consumer demands for specific building materials.
For the carpenter contractor, or the general contractor who does carpenter work, the machine-saw is an important piece of equipment. It has been the common thought among builders that equipment of this character could be used to advantage only on large jobs but recent experience has shown that even on small jobs a power saw soon pays for itself. This will be more readily appreciated by anyone who has seen a carpenter saw a heavy piece by hand, and then has had an opportunity to watch a power saw do the same kind of job.

Of course, there is hardly any limit to the size and elaborateness of a plant, and there is no limit to the amount of money that can be spent in the installation of machinery, but upon investigation it will be found that a small power saw, sufficiently large enough to handle any average size job, can be purchased for a very moderate sum. There are also many different types of machines, each of which is best suited to a particular kind of work.

Fig. 1 shows a type of machine that has recently come into prominence due to the many operations which may be performed upon it. It may also be used outside on the job as well as inside in the shop. It consists of a saw, planer and joiner, and is compactly mounted, all operations being carried on by a single motor.

In Fig. 2 is shown a band saw. This type of machine is for use only in the shop as it is hardly fitted to handle heavy materials such as joists and studs. Its purpose is rather for making frames and ornamental woodwork than for cutting heavy pieces for roughing in a job.

A simple saw-rig, partly "homemade," is shown in Fig. 3. Here a gas engine is used to furnish power, and the saw is mounted in a table made on the job.

The builder who has a good deal of work for his saw will find that the arrangement shown in Fig. 4 will give the best results. Here the job was big enough to warrant the erection of a shed for the saw and table so that not only would the machinery be protected, but also the plant could be operated in bad weather. Notice that the saw has been mounted in the center of the shed, with two tables on each side of the blade. This makes possible the feeding of material from both sides of the blade, and will also be found to be a great convenience when long pieces are to be ripped.

There are any number of good power saws on the market, and the contractor will find no trouble in getting one to suit a particular job.
Fig. 2. For frame making and ornamental woodworking this band saw is a valuable addition to the contractor's shop equipment.

It is recommended here, however, that an "all-around" type of saw be purchased rather than a saw suitable only for a single purpose. It will be found mighty convenient to be able to do a few "tricks" when the need arises. It is unwise, however, to buy anything but a simple saw if it is to be used only for roughing in on the job.

Elaborate equipment naturally requires more careful consideration preparatory to the actual purchasing. On the other hand, the contractor can quickly estimate his immediate needs and buy accordingly.

Used where the building is going on, the simple saw that can be set up and taken down in a jiffy represents a good investment. Labor is an item in the estimate that only labor-saving equipment can materially reduce. The elimination of unnecessary routine effort benefits the builder directly through money saved and by a scarcely less direct channel through inexpensive home building proportionately with greater volume.

A labor-saver, designed primarily for use on the job, is shown in Fig. 5. Here, time-consuming old methods have been discarded in an interesting manner. Practically every contractor has one or two Ford cars standing around on the job. Better than leave these to eat up the investment, this portable saw puts them to work to good advantage. In a very short time, one of these may be attached to the front end of the car, taking its power from the motor. The pulley shaft passes through the crank hole and engages in a special fan belt pulley on the end of the crank shaft.

Fig. 5. Taking care of the old Ford's idle hours. Here is the unique Jaeger labor-saving machine.

Each unit is equipped with a sliding table, gauge, a guard over the saw, a 12" cut-off and a 10" rip saw.

It is estimated that one man operating this type can furnish a half dozen carpenters with material to put in place. When not in use, the 150-pound unit is taken down and carried to the next job in the back of the Ford. In this way, the labor saved collectively on several jobs cares for the investment on the one machine.

The operator who feels justified in operating several kinds of saws—for example, shop saws and "on the job" saws—will find some interesting reductions in his cost sheet as a result.
Selecting a Concrete Mixer to Fit the Job

It has been said before that this is an age of machinery, and as we review the trend of events towards the mechanization of industry, this fact becomes readily apparent. More and more is machinery being used, and it is constantly coming to take over that labor that was once done only by hand. The building field is finding new uses for mechanical assistance, and wide-awake contractors are constantly on the lookout for labor-saving devices.

It is one thing to use machinery, and another to use it intelligently. Even the best of machines will not produce a return upon their investment unless they are used in the proper manner and correctly maintained. This is consistently true of concrete mixers.

These machines have come to be almost indispensable to the mason contractor and to the builder who works with concrete. They are built in various sizes to suit various conditions of use, and by the selection of the proper size at the time of purchase is determined a good deal of the satisfaction to be obtained from future use.

For instance, it would not be economical to use a heavy mixer for light work, and likewise a small mixer where a large volume of concrete and a steady flow will be required. There are, of course, instances and emergencies where it is impossible to find the right sized mixer for the work at hand, but these are generally few and far between.

For the contractor who is engaged constantly in large work and who is seldom called upon to do small jobs, a big mixer, such as is shown in Fig. 3, is the thing. This is a two-bag mixer, and is capable of handling a batch of concrete containing two bags of cement and sufficient aggregate to make a mix of the required proportions. In emergencies, this mixer can be used for small work, though it means somewhat of a loss due to the larger amount of money invested in the machine and the extra expense of operating as compared with a smaller sized machine better suited to the work at hand.

By way of contrast, see the mixer illustrated in Fig. 1. This is a small tilting mixer of four cubic feet capacity, and suitable only for small work, where a small amount of concrete is required, or where it is not
necessary to pour large amounts of concrete continuously. This machine is excellent for small sidewalk jobs and for laying foundations in small buildings but it is hardly possible to use it on a reinforced concrete job where a steady flow and large volume are required. It would take a battery of these to do the work of the machine illustrated in Fig. 3.

Fig. 2 shows a mixer of the same type as illustrated in Fig. 1, except that it is slightly larger in capacity and is mounted on a rubber-tired carriage. This machine has an advantage in that it is readily portable and may be moved from job to job with little difficulty. It can be readily attached to the rear of a light truck and carried along at good speed due to the type of mounting upon which it is fixed.

There is a trend toward the portable machine, not alone in concrete mixers, but in other building equipment as well. The fact that cost cutting on several jobs may serve to balance one investment offers an attractive way out to the small contractor.

In Fig. 4 is shown a one-bag mixer such as has been found to deliver the best results for all-around work. It will provide a steady flow of concrete for a fairly large job and can be used on even small jobs with little increase in overhead. Contractors engaged in laying apartment building foundations have come to find this size of machine most suitable to their needs.

A glance at Fig. 5 will recall another factor that bears directly on the selection of a proper mixer. It is the factor of job layout. The small concrete machine on the big job will often produce a steady flow if the materials are distributed in easy reach. In the January issue an article, entitled "Small Concrete Job Layout," discussed this phase in detail.

On the construction operation described, the mixing machine was doing the work that ordinarily calls for larger capacity equipment. Efficient planning of the piles of aggregates made possible the production of the batches in rapid succession. Had the all too common hit-or-miss dumping of stone, sand and cement been permitted the size of the mixer would probably have been insufficient to keep pace with the progress at the receiving end.

Usually, the contractor can estimate in advance the nature of the work on which the prospective apparatus is to be used. If his contracts are of large proportions throughout the year, he should consequently select a large capacity machine.

On the other hand, if the large construction jobs are seasonal with small contracts sandwiched in between, a medium sized machine represents the soundest investment. Then, with careful planning the one piece of equipment serves for both at a moderate average operating cost.

A third phase involves the small builder. While the small mixer is the logical choice, he should bear in mind that occasionally he may figure on a large contract. So the plans for the future should carry a safety factor just as the bridge engineer designs his structures to bear weight far beyond the contemplated greatest loads.

Remember this when you go to buy your mixer: It is the proper size machine for your work which will produce the best results.
How They Increase Profits On the Job

The cost of any job depends to a great extent on the task of distributing materials over the work. Where the job runs over one story high the problem becomes an important one indeed, for then all items used in the second story must be lifted from the grade level to the place where they are to be used. For large jobs, where heavy steelwork is to be handled, machinery must be employed. No contractor would think of lifting a heavy fabricated steel girder into place by simply blocking it up. He uses a derrick.

Just as a derrick has been found to be economical in the hoisting of heavy objects it may be used as well where comparatively light materials are to be handled. It must be continually borne in mind that a derrick multiplies man power, and that man power is a mighty expensive thing on any kind of work. Why let a man carry a hod up a ladder when the same man could lift two hods on a hoist? Why pass lumber from floor to floor when by means of a derrick it may be lifted from the ground to the top floor without re-handling? These are the things to be recalled when the efficiency of a derrick is discussed.

There are several types and kinds of derricks in use by building contractors ranging from the simple derrick shown in Figs. 1 and 2, which are operated by hand, to the heavy guy derricks shown in Fig. 4 which are operated by steam engines. Each is especially suited to its own particular kind of work and a good deal of the satisfaction to be obtained from a derrick is dependent upon the proper selection of type and size.

Fig. 1 illustrates a simple roofer's derrick of the "stiff-leg" type. The cross-arm may be swung on its vertical axis. Fig. 2 shows another roofer's derrick of the "breast" type. This is lighter than the derrick shown in Fig. 1 and is mounted in a different manner.

In Fig. 3 we have a "stiff-leg" derrick mounted on the second floor of a building and used for the purpose of lifting materials from the grade to the floor under construction. As the building progresses in height the derrick will be moved from floor to floor so that it will control the entire height, and may be used for bringing up materials to any floor.

The derricks shown in Fig. 4 are generally called "guy" derricks from the fact that their main support is derived from the guy lines which run from the tops of the derricks to the ground, and prevent the vertical members from tipping.

Fig. 2. The roofer finds this light "breast" type extremely convenient for small loads

When used in the fashion illustrated here, the best results are obtained when the derricks are so arranged that the circles described by the booms meet as shown in Fig. 6. If this is done, it is possible to transfer objects from one derrick to another and thus aid in their distribution over the job.

Derricks may be used to good advantage in wrecking as well as in building as is illustrated by Fig. 5. Here it was impossible to build a rubbish chute on account of lack of space, and the debris was lowered to the ground in a bucket which was handled by a derrick mounted on the roof.

Though an economizer of labor and time the derrick has its limitations. Too often the tremendous power of a large derrick leads to carelessness in loading. Fig. 7 shows the result of straining the boom beyond its limits. This derrick, capable of raising easily 3 or 4 steel beams, became a twisted mass of metal under the 5-ton load to
which it was subjected. Avoiding over-loads may sometimes mean an extra trip but that is an inconsiderable disadvantage compared to a breakdown such as pictured here.

For many small jobs where even a simple derrick seems inadvisable, an improvised gin-pole may be used to good advantage. A timber gin-pole, 40' or 50' long, with a little skill in handling, often answers the requirements with a material saving in money.

Where the duty is to be more severe, steel gin-poles may be built. The erecting contractor should have, as a judicious addition to his equipment, the necessary parts of a steel gin-pole—a basic top and bottom section and sufficient intermediate sections to provide for maximum length. The available storage space decides the length of these intermediate sections.

The usual practice of lifting steel work calls for only wire slings and friction blocks. This type of binding is by far the safest and most expeditious. In this manner several slings may be kept in use—the ground men assembling members while the bridgemen release the loads and return the slings.

A chain is sometimes used for raising structural pieces, though this practice is extremely dangerous. Faulty welds and even frigid weather are responsible for serious accidents through link failure.

This is built with a hemp core and wound with six strands of nineteen wires each. Its strength varies from 2,000 pounds in ¼" size (10d) to 4,000 pounds, depending on the metal—Swedes Iron, Crucible Cast Steel or Plow Steel. In the largest size 2½" (00), the strength ranges from 222,000 pounds for Swedes Steel to 555,000 pounds for Plow Steel.

Manilla rope, of course, has a lower breaking strength than wire for the same diameter. The small size, ¼", will bear only 120 pounds without failing. The load limit for the largest size, 3½", is 75,000.

Wire rope should be examined with great care. The hemp core, in particular, should be able to bear inspection and, if damaged, safety demands that the cable be destroyed. At all times, wire rope and manilla had best be stored in a dry place under the charge of a responsible person. Upon his condemnation the faulty cable should be destroyed to avoid the possibility of issuing it again by mistake.
There are three methods of supplying power for the operation of ordinary builder's equipment: gas engines, steam engines, and electricity. Each has its advantages and disadvantages, and each is suited for a specific purpose. Where excessively heavy work is to be done, steam is most desirable. Where intermittent operation is required, then electricity is preferable. For all-around work, however, the gas engine is the thing.

It is not meant to imply in this article that gas engines will ever take the place of steam or electricity. Each of these has its own points of superiority which cannot be denied, but for the average contractor who requires a piece of equipment that can be used in as many different ways as possible, and under as many different kinds of conditions, the gas engine will be found the most satisfactory.

First there is the variety of makes and types from which to choose. There are dozens of different makes on the market, all good, and each manufacturer generally turns out several sizes and types. Engines may be had from 1/2 h.p. up. Gasoline is a universally distributed product, and so no difficulty will be encountered in obtaining fuel anywhere. No engineers are required to run them; they need only be started and given a moderate amount of care to keep them in operation.

The uses to which a gas engine may be applied are many. Fig. 1 shows an engine used for supplying power to a material hoist. Here the engine is mounted close to the which, the power being transmitted by means of a chain. In this arrangement, the engine is kept running continually, the hoist being operated by means of a clutch.

Fig. 2 shows a gas engine used to drive a power saw for a carpenter crew. In this instance the operation was more or less intermittent, the saw being allowed to stand idle for a long period. The drive here is by belt, the customary type of drive for this kind of machinery. Fig. 3 illustrates an engine mounted on a chassis of a concrete mixer and used for turning the mixing drum.

In Fig. 4 we see how a contractor's ingenuity may assist him in getting the greatest benefit from his equipment. This man has mounted his engine so that it can be easily moved about, thus providing an excellent means of handling it. There are many other numbers of ways in which a piece of equipment of this type may be used on a job. They will suggest themselves to the contractor as he goes along with the work. In many cases, manufacturers of power equipment group in one unit the machine and engine. Concrete mixers and roughing-in saws are common examples of this type. They are compact and easily moved from job to job.
ECONOMY of properly conducted safety work is shown in the actual savings to employers who pay in money for the cost of accidents just as the worker suffers through bodily injury and his loss of earnings.

Such was the burden of an address on "Your Interest in Safety in the Building Industry," given by L. D. Woedtke before the New York Building Congress on January 14 at the Hotel Commodore. Mr. Woedtke is general representative of the Construction Section of the National Safety Council and head of accident prevention and safety work of F. T. Ley & Co., Springfield, Mass.

It was pointed out that safety work not only requires comparatively little cash outlay, but in many cases means a great saving for the employer in liability insurance costs. In this connection there was chosen for an example an estimated payroll of $100,000 at an average manual rate of 5%, or $5 per $100 payroll.

The latter figures would result in a manual rate premium of $5,000 on which a 10% experience credit rating reduction would result in a saving of $500, or a 20% reduction would save $1,000.

"As a matter of fact," declared the speaker, "most contractors pay a manual rate averaging nearer to 7% than 5%. Therefore, let us go a step further and now take an estimated annual payroll of $500,000 with an average insurance rate of 7% and then apply a 20% reduction, under experience rating, would result in a saving of $500, or a 20% reduction would save $1,000.

Accidents destroy morale as well as life. They sap the workers' spirit for days after.

Accidents can be prevented, it was indicated, by incurring little extra cost on the part of employers and in most cases by the employment of very simple methods. Safety work requires the taking over of the responsibility by some efficient executive and the development of an internal organization specially designed to conduct it.

The speaker was at pains to point out the human aspects of accident prevention, stating that with the genuine and fine type of American employer the humanitarian appeal never fails to reach his heart. At the same time Mr. Woedtke emphasized the economic value of safety work as a straight business proposition. The employer often fails to realize the business value of safety work.

At the conclusion of the speaker's remarks President Stephen F. Voorhees of the New York Building Congress, stated that the Congress had already formed a committee on Safety which was rapidly getting this work under way.
It will surprise many Americans to know that Sydney, Australia, boasts a number of skyscrapers. Here is a group of our Australian building buddies enjoying their noonday meal at 150 ft. height. The view, the lunch and the company are all excellent.

Modern machinery makes razing and excavating work easy in London, England, at the site of Lloyd's new main office building.

An Austrian nobleman makes his living and sees the country in this motor bungalow. In the Tyrolean cottage he lives with his family; in the rear annex is an assortment of many home-made candies which this migratory entrepreneur sells to village folks.

Milan, Italy, is also boasting skyscraper apartment houses. Here is one of the newest. Its counterpart is going up across the street.

(Right) One of the gems of Greenwich Village, New York, that few tourists will stumble upon. This charming Italian garden lies in back of a studio settlement seldom seen.
The drive for funds for completing New York's Cathedral inspired a Morristown, N. J., schoolboy, Thomas M. Emory, to build this cardboard model of St. John's.

The General Motors Building in Detroit has lost its laurels as the world's largest building. The Furniture Mart, shown below, a $1,000,000 structure recently completed in Chicago, passes all construction figures.

Models of houses always attract crowds at exhibitions. Here is one advertising a magnesite stucco.

America somewhat neglects its historic shrines. Here is the present dilapidated condition of the last home of President James Monroe in New York. Funds are being solicited for its restoration.

Concrete lends itself readily to artistic forms. Here are three fine examples of American sculpture by Clark that grace the entrance to the library of the University of Washington at Seattle. The sculptured figures symbolize, in the order shown, Knowledge, Inspiration and Mastery.
Is There a Building Shortage?

Since Building Age and National Builder inaugurated, several years ago, a survey of the building situation, the idea has been widely adopted by various organizations, and this has done a real service by bringing to light and broadcasting much useful information regarding American construction.

In some quarters investigators have recently put forward the view that the building shortage has been met and that henceforth building will be on a normal basis. This view is diametrically opposed to that of Building Age and National Builder, which holds that the shortage will not be adequately met for several years. However, when properly analyzed, the figures of these statisticians are found to embrace only projects designed and supervised by architects. This of course leaves out of the question entirely the very great mass of small building projects. And it is in this class of construction that a real shortage still exists.

In line with the data given by the different surveys, it is especially interesting to read an editorial published in the New York Sun of January 26, which corroborates the conclusion that the actual building shortage is increasing. The editorial reads as follows:

"To what extent has the activity in the building trade in recent years relieved the housing shortage? Has the deficit been wholly made up? Is there any danger of creating a surplus of housing in the near future? What is the outlook for the building industry in the next year, or in the next two or three years?"

"Such questions are not easily answered. We are informed that in 1924 the value of buildings put up reached a higher total than in any previous year in the nation's history; that the amount surpassed even the record breaking total of 1923, which in turn had surpassed the record figure of 1922. But this information does not indicate the amount of work still to be done, and the figures, moreover, are apt to be very misleading.

"They represent dollar values, not physical quantities. They show, in other words, how much we have been spending for new houses, but they do not show how much new housing we have been getting. They must be considered in the light of the huge inflation of building costs.

"To arrive at a clear idea of the present situation it is necessary to know just how much housing has been constructed in terms of square feet, just how many square feet of housing is required for a given population, and what the population increase in recent years has been. An attempt to deal with the problem on this basis was recently made by statisticians in the office of W. R. Ingalls, formerly editor of the "Engineering and Mining Journal." These figures covered the period from 1909 to the end of 1922.

"Bringing the figures down to date, using the same sources of information and basis of figuring, gives some surprising results. The following table shows the total cost of new construction throughout the country in millions of dollars for each of the years from 1909 to 1924 inclusive, the total new construction in millions of square feet and the cumulative shortage in millions of square feet:

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Square Cumulative Feet</th>
<th>Shortage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1909</td>
<td>$1,839,903</td>
<td>903</td>
<td>+12</td>
</tr>
<tr>
<td>1910</td>
<td>1,745</td>
<td>831</td>
<td>-18</td>
</tr>
<tr>
<td>1911</td>
<td>1,653</td>
<td>795</td>
<td>+10</td>
</tr>
<tr>
<td>1912</td>
<td>1,782</td>
<td>831</td>
<td>-18</td>
</tr>
<tr>
<td>1913</td>
<td>1,587</td>
<td>733</td>
<td>-271</td>
</tr>
<tr>
<td>1914</td>
<td>1,415</td>
<td>673</td>
<td>-382</td>
</tr>
<tr>
<td>1915</td>
<td>1,305</td>
<td>609</td>
<td>-380</td>
</tr>
<tr>
<td>1916</td>
<td>1,750</td>
<td>703</td>
<td>-321</td>
</tr>
<tr>
<td>1917</td>
<td>1,790</td>
<td>792</td>
<td>-464</td>
</tr>
<tr>
<td>1918</td>
<td>1,428</td>
<td>196</td>
<td>-693</td>
</tr>
<tr>
<td>1919</td>
<td>2,745</td>
<td>739</td>
<td>-662</td>
</tr>
<tr>
<td>1920</td>
<td>2,511</td>
<td>518</td>
<td>-691</td>
</tr>
<tr>
<td>1921</td>
<td>2,488</td>
<td>515</td>
<td>-625</td>
</tr>
<tr>
<td>1922</td>
<td>3,666</td>
<td>753</td>
<td>-1,048</td>
</tr>
<tr>
<td>1923</td>
<td>3,866</td>
<td>776</td>
<td>-1,243</td>
</tr>
<tr>
<td>1924</td>
<td>4,500</td>
<td>793</td>
<td>-1,420</td>
</tr>
</tbody>
</table>

"The figures of values in the foregoing table are based on the compilations of Bradstreet's up to and including 1918. From 1919 on they are based on the compilations of the F. W. Dodge Company. Area of construction in square feet is based on the figures of the United States Geological Survey and those of the F. W. Dodge Company. The figures include industrial and business buildings as well as residences, but do not include public works and public utilities.

"In the last three years the country has been spending for new buildings an amount never approached before. But the building shortage, instead of being relieved, is indicated by these figures to be growing steadily worse.

"These shortage figures do not necessarily mean that there may not be cases of local overbuilding, in certain classes of apartments, for instance. They do not necessarily mean, either, that anybody is out on the street. But they do mean that, taking the country as a whole, people are living closer together; that many people have three room apartments where they used to have five room apartments, that rooms are being built somewhat smaller than they were, that more people are living in older buildings.

"The cumulative shortage is calculated from the relation of population growth to the volume of building construction. It was assumed that the average construction in square feet per capita increase in population for the four years 1909 to 1912 (499 square feet) represented 'normal' building requirements. The accuracy of these building shortage calculations, therefore, depends to a large extent upon whether this assumption is justified or not. It is possible that the four years may have been more than 'normally' active.

"But certain significant facts stand out. Though the country paid for building in 1924 the unparalleled sum of $4,600,000,000 it secured only 793,000,000 square feet of new floor space. This, it is true, was the largest in eleven years, but it was exceeded by construction in each of the four years from 1909 to 1912. It took $2.51 in 1924 to buy as much building as $1 bought in 1913. There is enough work to be done to keep the building industry going at top speed for at least several years.
A Bungalow of Sedate Charm

The Plans Shown on Blue Print Supplement Specially Drawn for Building Age and National Builder

The secret of true simplicity consists in the proper subordination of details as well as in unity of conception. The bungalow pictured here exemplifies this rule very happily. There is a certain sedate charm about this five-room little home which is difficult to define but is instantly felt.

What could be simpler than the design as a whole or the materials employed? Yet the house is not devoid of those characteristic touches that lend beauty and identity. The gracefully arched and justly proportioned Colonial doorway, the trellis work, the three tiny vents, the balance and harmony of the main masses—all give character to this dwelling.

The white siding with shingle roof in dull green or brown makes an admirable color scheme. A couple of entrance pots and some creepers to break up the wall surfaces with their mottled effects of shadow give the final cheery touch. A welcome note of sturdy strength is lent the exterior by the interesting chimney of swell brick relieved here and there by stone fragments.

Outline of Specifications

EXTERIOR:
Walls to be wide bungalow siding on wood frame construction, sheathed and insulated.
Swell brick with rough hewn local stone is used for chimneys.
Steps and porch floor are of concrete, cement topping colored and blocked off in squares.
Walls and exterior trim are to be painted three coats.

ROOF:
Roof to be covered with shingles as selected by owner. Leaders should be rectangular in section, either galvanized iron, zinc, or copper.

WINDOWS:
All first floor sash and frames of wood—cellar sash and frames of steel.

INTERIOR TRIM:
Bedrooms and bathroom of poplar or white pine. Living room of mahogany. Dining room of oak. Living room and dining room doors are of oak; all others of white pine or Douglas fir.

PAINTING:
Living room walls papered, ceiling in relief paper and dining room walls plastered rough finish and tinted. Trim stained and waxed; ceiling tinted between beams in dining room.
Bedroom walls and ceiling papered, trim painted.
Closets and hall in cold water paint tinted to suit owner.
Bathroom walls and ceiling to be painted and enamelled in color to suit owner.
Kitchen walls and ceiling painted; trim enamelled.

Laundry to have painted wallboard partition finished with waterproof varnish.
Shiplap partitions for coal and wood storage painted with white cold water paint.
Ceiling in white cold water paint.
Cement floor painted with brown cement paint.

HEATING:
Heating to be of warm air with wide opening registers as indicated on plans.
Temperature to be controlled by thermostat.

PLUMBING:
Sink, bathtub, and lavatory of enamelled iron.
Toilet and wash tubs of porcelain.
Drainage and vent pipes cast iron; brass water pipes.
# Quantity Survey of Materials

**Prepared by Walter J. Fradgley**

**For the Bungalow of Sedate Charm**

## EXCAVATION

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basement (one foot larger than wall measure-ment)</td>
<td>350 cu. yds.</td>
</tr>
<tr>
<td>Areas, trenches, and pier footings</td>
<td>28 cu. yds.</td>
</tr>
</tbody>
</table>

## MASONRY AND IRON WORK

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete foundation walls and footings</td>
<td>1521 cu. ft.</td>
</tr>
<tr>
<td>Concrete porch floor, 4&quot; thick, 6&quot; cinder fill</td>
<td>140 sq. ft.</td>
</tr>
<tr>
<td>Concrete basement floor, 3&quot; thick, 4&quot; cinder fill</td>
<td>921 sq. ft.</td>
</tr>
<tr>
<td>Cement step—rear entrance</td>
<td>24 cu. ft.</td>
</tr>
<tr>
<td>Face brick for chimneys</td>
<td>1120 brick</td>
</tr>
<tr>
<td>Common brick for chimneys</td>
<td>2408 brick</td>
</tr>
<tr>
<td>Stone inserts for chimneys</td>
<td>20 cu. ft.</td>
</tr>
<tr>
<td>Fine lining, 8&quot;x12&quot;</td>
<td>32 cu. ft.</td>
</tr>
<tr>
<td>Face brick for fireplace</td>
<td>200 brick</td>
</tr>
<tr>
<td>Fire brick for fireplace</td>
<td>142 brick</td>
</tr>
<tr>
<td>Fireplace damper</td>
<td>1 piece</td>
</tr>
<tr>
<td>Cast iron cleanout door and frame</td>
<td>1 piece</td>
</tr>
<tr>
<td>Wall plate anchors</td>
<td>30 piece</td>
</tr>
<tr>
<td>Cast iron coal hole frame and cover</td>
<td>1 piece</td>
</tr>
<tr>
<td>Plaster on all interior walls and ceilings</td>
<td>408 sq. yds.</td>
</tr>
</tbody>
</table>

**Note:** Metal or wood lath to cover. (Omit if wall board is used.)

## CARPENTRY

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;x6&quot; Posts</td>
<td>108 bd. ft.</td>
</tr>
<tr>
<td>6&quot;x8&quot; Basement girders</td>
<td>165 bd. ft.</td>
</tr>
<tr>
<td>4&quot;x4&quot; Wall plates</td>
<td>187 bd. ft.</td>
</tr>
<tr>
<td>2&quot;x10&quot; 1st floor joist</td>
<td>1160 bd. ft.</td>
</tr>
<tr>
<td>2&quot;x4&quot; Ceiling joist</td>
<td>555 bd. ft.</td>
</tr>
<tr>
<td>2&quot;x4&quot; Roof rafters</td>
<td>803 bd. ft.</td>
</tr>
<tr>
<td>1&quot;x3&quot; Floor bridging</td>
<td>30 bd. ft.</td>
</tr>
<tr>
<td>2&quot;x4&quot; Exterior studing and plates</td>
<td>1603 bd. ft.</td>
</tr>
<tr>
<td>2&quot;x4&quot; Interior studing and plates</td>
<td>936 bd. ft.</td>
</tr>
<tr>
<td>1&quot;x6&quot; Rough flooring</td>
<td>1037 bd. ft.</td>
</tr>
<tr>
<td>1/2&quot; Face finish floors</td>
<td>9 squares</td>
</tr>
<tr>
<td>Floor paper under finished floor</td>
<td>742 bd. ft.</td>
</tr>
<tr>
<td>1&quot;x4&quot; Roof boards</td>
<td>4000 shingles</td>
</tr>
<tr>
<td>Wood shingles</td>
<td>14 squares</td>
</tr>
<tr>
<td>1&quot;x8&quot; Shiplap sheathing</td>
<td>1502 bd. ft.</td>
</tr>
<tr>
<td>Building paper over exterior walls</td>
<td>1565 bd. ft.</td>
</tr>
<tr>
<td>Lap siding</td>
<td>150 bd. ft.</td>
</tr>
<tr>
<td>Furring and ground</td>
<td>150 bd. ft.</td>
</tr>
<tr>
<td>5/8&quot; Matched and beaded ceiling front porch</td>
<td>162 bd. ft.</td>
</tr>
<tr>
<td>2&quot;x4&quot; Pergola rafters</td>
<td>43 bd. ft.</td>
</tr>
<tr>
<td>2&quot;x6&quot; Pergola rafters</td>
<td>28 bd. ft.</td>
</tr>
<tr>
<td>1&quot;x4&quot; Underhanging gutter</td>
<td>100 bd. ft.</td>
</tr>
<tr>
<td>2&quot;x8&quot; Verge board</td>
<td>56 bd. ft.</td>
</tr>
<tr>
<td>1&quot;x6&quot; Cut-between rafters</td>
<td>60 bd. ft.</td>
</tr>
</tbody>
</table>

## STAIRS

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>First floor to basement</td>
<td>1 flight</td>
</tr>
</tbody>
</table>

## MILL WORK

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closet shelving</td>
<td>30 bd. ft.</td>
</tr>
<tr>
<td>Chair rail—kitchen and bath</td>
<td>64 lin. ft.</td>
</tr>
</tbody>
</table>

## Hook strip for closets                  | 20 lin. ft.|
| Base and quarter round                    | 340 lin. ft.|
| Picture mould                            | 196 lin. ft.|
| Book cases                               | 2 pieces   |
| Wood mantel shelf                        | 1 piece    |
| Buffet                                   | 1 piece    |
| Kitchen cupboard, sink and ice box       | 6 pieces   |
| Kitchen dresser                          | 1 piece    |
| Clothes chute                            | 1 piece    |
| Medicine case                            | 1 piece    |
| Linen case                               | 1 piece    |
| Beamed ceiling—dining room               | 108 lin. ft.|
| Scuttle door and frame and trim          | 1 open'g   |
| Outside doors, frames and trim complete  | 2 opn'gs   |
| Inside doors, frames and trim complete   | 11 opn'gs  |
| Casement windows, frames and trim complete | 2 opn'gs   |
| Mullion casement windows, frames and trim complete | 2 opn'gs   |
| Windows, frames and trim complete        | 4 opn'gs   |
| Mullion windows, frames and trim complete | 2 opn'gs   |
| Triple windows, frames and trim complete  | 3 opn'gs   |
| Basement windows, frames and trim complete | 4 opn'gs   |
| Front porch pergola post                 | 1 piece    |
| Front porch post                         | 1 piece    |
| Front porch entrance arch frame          | 1 piece    |
| Gable vents                              | 3 opn'gs   |
| Wall board (if used instead of lath and plaster) | 3700 sq. ft.|

## PAINTING

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior woodwork</td>
<td>22 squares</td>
</tr>
<tr>
<td>Interior woodwork</td>
<td>22 squares</td>
</tr>
<tr>
<td>Finished floors</td>
<td>10 squares</td>
</tr>
</tbody>
</table>

## SHEET METAL

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gutters</td>
<td>112 lin. ft.</td>
</tr>
<tr>
<td>Down spouts</td>
<td>50 lin. ft.</td>
</tr>
<tr>
<td>Chimney flashing</td>
<td>21 lin. ft.</td>
</tr>
<tr>
<td>Metal ridge roll</td>
<td>102 lin. ft.</td>
</tr>
</tbody>
</table>

## HARDWARE

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;x4&quot; Exterior door butts</td>
<td>3 pairs</td>
</tr>
<tr>
<td>Exterior door lock sets</td>
<td>3 sets</td>
</tr>
<tr>
<td>3½x3½ Interior door butts</td>
<td>7 pairs</td>
</tr>
<tr>
<td>Interior door lock sets</td>
<td>7 sets</td>
</tr>
<tr>
<td>3½x3½ Casement sash butts</td>
<td>6 pairs</td>
</tr>
<tr>
<td>Casement fasteners</td>
<td>6 pieces</td>
</tr>
<tr>
<td>Double acting door hinges</td>
<td>3 sets</td>
</tr>
<tr>
<td>Door bumpers</td>
<td>9 pieces</td>
</tr>
<tr>
<td>Coat hooks</td>
<td>2 dozen</td>
</tr>
<tr>
<td>2½x2½ butts, bookcases, kitchen case, etc.</td>
<td>27 pairs</td>
</tr>
<tr>
<td>Cupboard catches, bookcases, kitchen case, etc.</td>
<td>21 pieces</td>
</tr>
<tr>
<td>Drawer pulls</td>
<td>4 sets</td>
</tr>
<tr>
<td>Basement sash hardware</td>
<td>4 sets</td>
</tr>
<tr>
<td>Sash pulleys</td>
<td>68 pieces</td>
</tr>
<tr>
<td>Sash lifts</td>
<td>17 pieces</td>
</tr>
<tr>
<td>Sash locks</td>
<td>17 pieces</td>
</tr>
</tbody>
</table>
More Yards per Day

That spell

Drum Openings
FREQUENTLY the carpenter is called upon to lay off a brace apparently beyond the limits of his square. This particular brace is part of a grand stand and the carpenter found its design of difficult solution.

If a piece of bridging is to be laid off with a steel square for 2" x 10" joists, spaced 16" on centers, for example, the solution is one familiar to many contractors. Assuming that a 2" x 10" joist is actually 1\(\frac{1}{2}\)" x 9\(\frac{3}{4}\)" then the distance between joists would be 14\(\frac{3}{8}\)"—the run of a piece of bridging. Referring to Fig. 1, it is seen that the rise of the piece of bridging is the width of the joist or 9\(\frac{3}{4}\)".

The square is applied to bridging as shown with 9\(\frac{3}{4}\)" on tongue and 14\(\frac{3}{8}\)" on blade—the tongue mark held against the upper side of the piece and the blade mark against the lower side. A mark along the tongue gives us the cut that will fit accurately against the joists (A) and (B) and the length, of course, is the diagonal of 9\(\frac{3}{4}\)" and 14\(\frac{3}{8}\)".

Notice, however, that the length of the bridging is the diagonal (D), a different meaning than that we apply to the length of rafters. A study of this figure will explain why cuts on bridging and other braces often do not fit or are too long when marked off with a steel square.

The problem of laying off braces for a grand stand or similar construction is hardly more intricate. Fig. 2 shows a typical design with (ABCD) the piece from which a brace is to be made. For the time being, the 3" cut that fits on the column will be neglected. A glance back at Fig. 1 will show that part of brace (abgh) is identical with the piece of bridging having a run of 5' 6" and a rise of 4' 0". In the same proportion, the diagonal (ag) is the length of the measurement line.

A square with a tongue 4' long and a blade 5\(\frac{1}{4}\)' long, if one were available, could be applied to the piece as the steel square was in Fig. 1—making a 4' mark on the upper edge of the piece and 5\(\frac{1}{4}\)' mark on the lower edge. The 4' mark would designate the plumb or miter cut while the length to (a) would measure 5\(\frac{3}{4}\)'.

As in the case of a rafter, a similar triangle within the limits of a steel square may be used here. Divide the rise, 48", by three; the resulting 16" is the tongue measurement. Divide the run, 66", by three; 22" on the blade. Since three is the common divisor these numbers 16" and 22" properly applied to the piece with the steel square.

(Continued on page 142)
The Proof of the Pudding

The old saying: "The Proof of the Pudding Is in the Eating" is probably more applicable to wood finishes than anything else. Formulas, claims and promises mean nothing until a real painter tries the product out on his own paint brush, under average conditions, on a regular job.

Here is a typical fine modern building, the 36-apartment—Franklin Arms of Milwaukee. Schmidt and Seitz, painting contractors, used on this job 795 gallons of Johnson's Varnishes, Enamels and Flat Wall Finish.

The hard-headed, practical, business man painter knows results, working qualities and profits. Can anything speak more for Johnson products?

FREE—Manual on Wood Finishing. A complete and concise booklet for the practical man. Contains concrete information on the best methods for all sorts of jobs on floors, walls and trim, covering capacities you ought to get, costs, etc.


S. C. JOHNSON & SON, Dept. B.A. 2, RACINE, WIS.
"The Wood Finishing Authorities"
Please send me copy of your Book on Wood Finishing.

MY DEALER IS: ____________________________

NAME: ____________________________

ADDRESS: ____________________________

CITY and STATE: ____________________________
INTERESTING in its details, aims and implications is a plan worked out at a meeting of the
Save the Surface Campaign Executive Committee in Philadelphia, whereby facilities are now available
enabling painters to have painting contracts financed anywhere in the
country.

The plan as proposed by this Campaign has been accepted by two
finance companies, namely, the Aetna Finance Company of Phila-
delphia, and the Commercial Credit
Company of Baltimore.

The arrangements with these companies provide
"1. That no painter, dealer, or
any marketing agency becomes an
endorser or guarantor of the paper.

"2. They will make no special
arrangements with any paint and
varnish firm, but render the same
service to all under the same terms.

"3. Having satisfied itself re-
garding the high standard of these
companies, the Save the Surface
Campaign suggests that the trade
utilize the facilities of these two
firms and will extend its coopera-
tion to these two companies exclu-
sively in 1925, but the Campaign
shall in no way be responsible or lia-
ble for the transactions of these
companies."

The partial payment plan for
painting as adopted by these two
companies is as follows:

"Painter finds home owner who
desires to paint and pay for same
over a period of time.

"Painter submits estimate in writ-
ing to the home owner, and if sat-
isfactory the owner is asked to sign
a contract in which he agrees to
make a cash payment of at least
one-fifth of the amount of the con-
tract to the painter, and the balance
to the finance company in not more
than ten equal monthly payments.

"Having secured the contract
signed, the painter asks for certain
credit information on a standard
credit information blank, furnished
by the finance company.

"This credit information blank is
submitted to the finance company,
which promptly investigates the
credit of the owner. Painter is noti-
fied if credit has been accepted or
rejected. For each credit investi-
gation the painter pays $1.50 to the
finance company.

"The painter collects the cash
payment of at least one-fifth of the
amount of the contract from the
owner either before starting work—
when the first coat has been applied
— or on completion of the job, ac-
cording to the arrangements he can
make.

"On completion of the work the
painter mails the bill made out in
the name of the owner, to finance
company. This bill shows the total
amount of the contract, the amount
paid, and the balance due.

"The finance company mails bill
to the owner for approval. On re-
cipient of approved bill from the own-
er, the finance company pays to the
painter 87½ % of the amount still
due, retaining 12½ %, which in-
cludes the charge for service to
painter and interest. No reserve is
held by the finance company.

"In figuring the contract price to
the owner, the painter takes into
consideration the cost of financing
by adding 12% of the estimated cost
of the job.

SELLING on the installment plan has made a success of the selling of household
goods, books, phonographs, pianos, automobiles, etc. The merchandising principle
is sound and in a small way it has been applied to buying a house, but it has never come
in general use in buying the necessary repairs for the preservation of a house or its
remodeling.

If the owner does not have the ready cash to go on with the improvement the job is
not done. Make it easy for the people to buy remodeling and repairs. BUILDING AGE
AND NATIONAL BUILDER has advocated this from time to time.

Here is a plan devised by the paint industry to increase sales. Its method is sound in
principle and it is bound to be successful. It will result in more work for painters—
more paint supplies sold by manufacturers, better looking houses and better satisfied
owners. Good is created all around.
The BIG SIZE offers the BIGGER VALUE you're looking for

When you use the BIG SIZE Carey Asfaltslate Shingle on one of your jobs you are giving more roof value for the money your client pays you. This shingle makes a better roof because it is heavier (weighing approximately 300 pounds to the square) and thicker (it makes a very deep shadow line).

This BIG SIZE Shingle is 10 by 15¾ inches, and allows a 5 inch exposure, yet gives a three-thickness roof. This means quick, easy, economical application. You save time and nails—and you serve your customers better.

And, of course, you have the most valuable sales argument in the building industry—"the Shingle that Never Curls." This shingle is generally preferred.

In the new and distinctive silver-green, blue-black and red—natural slate surface. Use the BIG SIZE Carey Asfaltslate Shingle on ALL your jobs. Ask your supply dealer, or write us. We'll see that you are supplied promptly. The coupon will bring the information.

THE PHILIP CAREY COMPANY
520-540 Wayne Ave., Lockland, Cincinnati, Ohio
**BUILDING AGE and NATIONAL BUILDER**

**THERE is no sound reason why the same beneficial results cannot be applied to other items of building repair work.**

A new bathroom should be added to the house—$500, however, in a lump sum is lacking. A new breakfast nook should be installed besides a new kitchen dresser—the $150 is not available in the lump sum; and so it goes down the list.

It is good merchandising to make it easy for the people to buy. The installment plan will do it. Local banks or credit associations should get behind and finance the owners and builders of their community. It means local prosperity and all around satisfaction. There is much in this article for everyone to think about.

"This 12% is equivalent to the finance charge of 10% of the unpaid balance plus an interest charge of 2½% of the unpaid balance and the investigation charge of $1.50.

"The painting contract is a direct obligation on the part of the owner to pay the unpaid balance to the finance company. Neither the painter nor any agency of the paint and varnish industry becomes an endorser or guarantor, or in any way contingently liable for payment due the finance company."

Ernest T. Trigg, chairman of the Campaign, in explaining the position of the Save the Surface Campaign, states:

"The Save the Surface Campaign proposed the partial payment plan to the trade. It took like wildfire, and could not be stopped now if we wanted to stop it. The Save the Surface Campaign therefore has a responsibility to direct the application of this method along right channels. If not given national direction, many different plans would be submitted by finance companies. Dealers and painters would become endorsers of the paper and cause a very unfortunate condition. As it is, the Save the Surface Campaign will give supervision so that a uniform plan with proper safeguards is adopted."

The Campaign sub-committee in charge of this work plans to make detailed information regarding the partial payment plan available as soon as possible to manufacturers, enabling them, if they wish, to transmit the details of the plan to their dealer and painter customers, and thus get the maximum benefit through increased sales during the immediate winter months. The plan will be personally explained to the industry wherever possible. It is proposed to hold meetings in each Federal Reserve city, preferably under the auspices of the Paint, Oil and Varnish Club in each of these cities. The public will be advised through a special publicity campaign. The committee, while confident of the ultimate benefit to the paint and varnish industry, believes that united effort on the part of the manufacturers will be very desirable.

The application of the time payment plan to the painting of homes points the way for other industries. The plan itself is long out of the experimental stage and its soundness has been proved conclusively. As time goes on it will no doubt spread to other building trades, permitting more regular house repairs and remodeling, thus resulting in better preserved and more modern homes. By creating better satisfied owners and stimulating business in the business industry the plan cannot but exert a beneficent influence.

**Small Squares on Large Braces**

(Continued from page 138)

We have in Fig. 4 another example of brace design with which this method can be used advantageously. Here the run is 69" and the rise 48", both divisible by three. Laying out the surface of the brace into three equal parts with two parallel lines as shown in Fig. 2, we apply the square to its first position in a similar manner, only, using this time 23" on the blade instead of 22".

The application of this practice of brace design is practically without limits. We must only first determine the best common divisor for the run and rise and the width of the brace. Once a convenient set of measurements is established the steel square may be placed in as many successive positions as are needed to complete the work. For unusually long braces and where the cuts must be of special accuracy, it is best as a preliminary step to plot the work on paper and determine the length of the diagonal. This length may then be laid off without the danger of progressive errors. For ordinary work, however, the method illustrated in Fig. 2 is the quicker and more satisfactory. If careful measurements are taken and the results accurately plotted, the carpenter will find his finished braces able to withstand the most rigid inspection.
A HE-MAN'S SAW

The Four Hundred Saw pictured on this page is in demand by master carpenters and artisans who want something above the average in quality and finish.

ARE YOU USING THIS SAW?

The finest saw ever made. Manufactured from Silver Steel, Atkins' exclusive formula. Tempered perfectly to insure long-wearing and sharp cutting teeth. Furnished in regular pattern, skew back; ship pattern, straight back. Ship pattern saws are made in 26 inch lengths only. Ground to a full four gauge taper, and will cut fast and easy with very little set. Mirror polish with Improved Perfection Rosewood Handle, the handle that prevents wrist strain.

Order one from your hardware dealer and find out for yourself that it is "The Finest On Earth"

In 26 inch length, price $5.65 east of the Rockies. Price slightly higher west of the Rockies.

E. C. ATKINS & COMPANY

THE SILVER STEEL SAW PEOPLE

Established 1857

Machine Knife Factory:
Lancaster, N. Y.

Home Office and Factory:
Indianapolis, Ind.

BRANCH HOUSES:
Atlanta Memphis New Orleans Portland Seattle
Chicago Minneapolis New York San Francisco

Canadian Factory:
Hamilton, Ont.

Vancouver, B. C.

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BRANCH HOUSES:
Atlanta Memphis New Orleans Portland Seattle
Chicago Minneapolis New York San Francisco

Canadian Factory:
Hamilton, Ont.

Vancouver, B. C.
How to Use Wall Board for Artistic Interiors

CARRIED along in the widespread trend toward more comfortable homes and given further impetus by the demand for attractive kitchens, the breakfast nook continues to gain in popularity. The plans for more than one new home include a corner for the breakfast set while the old home finds room for one in some unused portion of the house.

Just off the kitchen in a bright, sunshiny nook, the breakfast corner is often the cheeriest of the home. An even more charming arrangement places the table and benches in a little room in calling distance of the kitchen. There, the morning meal is enjoyed with the food in preparation within convenient reach.

Whether built in the home originally or added as a pleasant afterthought, the breakfast corner demands two dominating qualities—it must be bright and cheery. Upon the selection of the location and the decorative scheme depends its success or failure.

Daylight, by far superior to artificial lighting at breakfast time, can usually be worked into the plans, even though a window must be cut for the purpose. If possible, the opening should be made just over the end of the table rather than above the
I would have bought that house but for one thing—

"I turned the faucet in the bathroom while the real estate agent was showing us around. The water was rusty—even in this new house. I knew what that meant. Uninviting, discolored water. Pipes rusting in the walls. Trouble ahead. Expensive repairs and replacements. Not for me!"

Houses equipped with Anaconda Brass Pipe are more salable because a man who buys wants to be assured of perfect water service. He wants clear, clean water—and not plumbing repair bills. He wants rustless Anaconda Brass Pipe.

About $75 more puts this permanent plumbing in a $15,000 house.

Let us send you our publication B-1, which tells how to save money on plumbing. It is free. Address Department A.

THE AMERICAN BRASS COMPANY

GENERAL OFFICES: WATERBURY, CONNECTICUT

New York, Chicago
Boston, Philadelphia, Providence
Pittsburgh, Cleveland, Detroit
Cincinnati, St. Louis, San Francisco

Mills and Factories:
Anaconda, Ansonia, Conn., Torrington, Conn.
Waterbury, Conn., Buffalo, N. Y.
Hastings-on-Hudson, N. Y., Kenosha, Wis.

In Canada: ANACONDA AMERICAN BRASS LIMITED, NEW TORONTO, ONTARIO
For Building a Well Designed Dining Nook of Wall Board

Here are Complete Detail Working Drawings

A kitchen nook brings out this point in vivid reality. Whether it is to be bright and cheery or light and glaring depends to a large measure on the decorative paneling.

The method of applying wallboard is best shown in the accompanying detail drawings. Care must be taken to have nailing pieces at the top of all baseboards, frieze panels and lower edges of cornices. This precaution holds the wallboard firmly against the various kinds of trim and eliminates pockets and gaps when the job is finished. The wallboard in this ease is fastened directly on the studs with self-clinching fasteners.

The decorative paneling strip, as well as those that form the cornice, are worthy of close scrutiny. Too often, strips no wider than a lath are used with the result that the finished job has a scant and skimpy appearance. The width specified here is sure to meet with the lasting approval of those who will use the breakfast nook. Before the strips are applied the wallboard should receive a first coat of paint, preferably a flat coat.

Furniture for the breakfast nook of the design shown here can be purchased ready to set in place. Or, if the ingenuity of the carpenter permits, the table and benches may be built into the nook. Very often, this practice offers a more attractive arrangement.

A study of the plans will serve not alone to facilitate the building of a panelled breakfast nook but further will pave the way for new ideas in the use of wallboard for interior finishing.

This design is reproduced from one of many, showing attractive uses of wallboard in the home, prepared by the Upson Company, Lockport, N. Y. This large volume, called the Upson Blue Book, contains forty complete detailed blue prints for the application of artistic wallboard paneling. Various problems connected with the use of wallboard are clarified, with suggestions opening new channels in designing with wallboard.

The Upson Company make a well-known fibre wallboard and are, of course, greatly concerned with the correct application of their product. This led them to produce the set of working drawings that show all the necessary details involved in producing a finished wallboard job.

The book, representing three years of research, with architects and decorators collaborating, is being distributed to local lumber dealers. Builders may obtain at a moderate cost the blue prints for carrying out these attractive wallboard treatments.
Mail the Coupon for These Two Books and Blue Print Plans

If you are in any building trade, we want to send you these 2 books and blue prints at our expense. One of these books contains a lesson in Plan Reading prepared by the Chicago Tech. experts; the other explains the Chicago Tech. method of training men by mail in the building trades for the jobs that pay the most money or for businesses of their own. All you have to do to get them is to mail the coupon. Don't send a penny.

Get the Knowledge That Will Make You Worth More Money

You may be as good a man as there is in the use of tools, but as long as you remain a workman you won't earn more than the wage scale. It isn't manual skill that puts a man in big pay class—it's the ability to use his head that brings the fat pay check or enables him to "go in for himself." That has been proved over and over again by workmen who took the Chicago Tech. training in the higher branches of building and are now foremen, superintendents and contractors.

J. B. Woodside of Oklahoma was a carpenter working for $6 a day when he took a course in training by mail at Chicago Technical College and was advanced to a foremanship in 2 months, became a superintendent 5 months later and then went into contracting.

Carl Testroet of Iowa is another man who got into a successful contracting business through his training, as did J. G. Hart of West Virginia, and C. W. Busch of Kansas.

Become a Building Expert

Plan Reading. Every man who has got very far ahead in any building trade can read blue prints. No man can expect to be a first rate foreman or superintendent until he knows what every line on a plan means and how to lay out and direct work from the architect's plans. By the Chicago Tech. Method you quickly learn to read any plan as easily as you read these words.

Estimating. Of course a man who wants to be a contractor or to hold a big job in a contracting organization must know how to figure costs of labor, material and everything else that goes into any kind of building. The Chicago Tech. course covers every detail of this important branch—shows you just how it is done from actual blue print plans.

Superintendent. How to hire and direct men, how to keep track of every detail of construction as it goes on, how to get the work done in the least time at the lowest cost is also fully covered in the Chicago Tech. Builders' Course.

Also special courses in Architectural Drafting for builders, taught by practical men. These explained in Special Catalog "D" sent on request.

Mail This Coupon—Today

CHICAGO TECHNICAL COLLEGE
Dept. 138, Chicago Tech. Building, 118 East 26th Street, Chicago, Ill.
We here put before our readers another plan which will help them to a bigger and better building business—more sales!

When we say "bigger and better" we mean precisely that. This or any other good industrial publication is a continuous endeavor to promote the business welfare of its subscribers. But occasionally there is developed a front-rank idea that deserves special emphasis. Such is the one presented here. It is new but not revolutionary. It is the logical next-step-forward. It is based on a belief that theory is fine but practice is better as an immediate money-maker. It will appeal to you as a practical man. It is designed to help you build greater reputation and profits now. It will do it. It is easy of accomplishment.

We are all agreed, we think, that the holding of Prize Contests for Better House Designs has been a fine thing for building in America. It has advanced the cause of better homes and has helped lift this country out of its previous condition of jig-saw and gingerbread architectural design. We and others have published excellent books of plans. They have achieved a fine purpose. But how often have these plans been actually built into houses which have put real cash into the builders' pockets. An unbuilt design is after all only a framed picture so far as commercial benefit to our readers is concerned. In brief, the scheme of "best house designs" leaves something to be desired in this one respect: There is no guarantee that the public will buy the plans. And, in the last analysis the people are judge and jury. It is they who select, who pay the cost and who must live in the home. After all is said and done the plans must be commercially successful to be of benefit to the builder.

We may find an analogy in another field of endeavor. An almost perfect parallel exists in the theatrical world where the wants of the people as a whole are so closely touched and gauged. An experienced playwright concocts a drama. A producer, grown gray and shrewd through many failures, makes a few changes and gives the play his stamp of approval. A superior cast is engaged. The opening night arrives. The critics attend in a body. The first night audience, usually friendly, seems to approve. The verdict in the morning papers is highly favorable. The company, the author and the producer smile jubilantly—for about one week. Then the tickets are found for sale at the theatrical bargain emporium and shortly thereafter the scenery is packed off to the warehouse. Another failure is recorded because the public refused to patronize.

"Abie's Irish Rose," seemingly the most successful play ever produced, was universally condemned by the professional critics. It is now in its third year on Broadway and, like the brook, seems destined to go on forever. The people like it.

Further down the street is another play which opened not long ago. This by perhaps the greatest living playwright, with a scintillating young star in the leading role. Today tickets for that show may be bought at cut rate agencies. The people won't go.

WHAT we purpose doing is to publish only "plans" which have succeeded. Only those which have been most successful all over the United States. This is the idea which will place in your hands, through the pages of this paper first and later in book form, "The Best Selling Houses in America."

Undoubtedly many of these houses have appeared first in some of the hundreds of books of plans that have been published. So, this book will be a digest of all of them; instead of a hundred books of thousands of designs, one book with the best selling designs; the commercially successful ones; the ones which have actually brought cash to builders the country over.

Do you see the real practicability of this plan? When it has been put into effect you may show your prospective customers' photographs and floor plan of house which exist in fact instead of only in imagination.
EVERY READER SHOULD PARTICIPATE

SINCE it is true that average people have selected and bought these houses it will be true that the selected designs will represent an accurate cross-section of the people’s desires. No matter where you are located or whether your customers are wealthy or only in moderate circumstances there will be designs to suit them because there will be no limit in either way on size or price; no limit on the number of rooms; on the two or more story or bungalow type; none on the style of construction whether frame, hollow tile, brick, stucco, stone, concrete or a combination of any of these materials. “The Best Selling Houses in America!” That’s the test. There is but one limitation—the designs must be architecturally in good taste. This paper will never sponsor anything else.

Now the facts in which the test will be based exist but have never been gathered together. Right in your office now you have some of them. It is to you that we come for co-operation in making successful this movement which will be of great benefit to you personally and the whole building industry.

We ask you to send us:

1—A photograph of the house or houses which have proved to be “best sellers” with you together with the floor plans.

2—A statement telling how many of each were sold, where they were located and the selling price of each.

That is all there is to do. There isn’t any more. It’s easy. All you have to do is go to your files, make your selection and send the photos, plans and facts to us.

This is not a prize contest. We believe that you have the pride in your accomplishments and in your industry to perform this easy service which we shall turn, through co-operation in making successful this movement which will be of great benefit to you personally and the whole building industry.

We rely with great confidence, upon your participation. Please send the data now. Address, “Editor, Best Selling Houses. BUILDING AGE AND NATIONAL BUILDER, 239 West 39th Street, New York.

YOU know that when two or more building men get together they talk shop. We all do. We tell what we are doing and what we hope to do. We take a lot of justifiable pride in speaking of our business accomplishments. It’s good for everybody. This movement is simply one of those get-togethers, done on a big scale. Instead of a few you’ll be talking to 75,000 subscribers—and the Lord knows how many other readers—of this publication. There’s an audience for you!

Please don’t neglect to send in your “best sellers” on the ground that you “haven’t got a chance.” You have. Nobody knows now anything about this subject. That’s precisely what we intend to find out. You may be numbered among the elect.

THE BEST SELLING HOUSES IN AMERICA will be a brilliant contribution to the libraries of those connected with the building industry—if you will enter your contribution.

We rely with great confidence, upon your participation. Please send the data now.

Address, “Editor, Best Selling Houses, BUILDING AGE AND NATIONAL BUILDER, 239 West 39th Street, New York.
Seasonal Employment in Cedar Rapids

A STUDY of seasonal employment has been made in Cedar Rapids, Iowa, at the suggestion of Fred A. Canfield, Commissioner of Conciliation of the United States Department of Labor, and at the request of the Cedar Rapids Building Trades Council. The study was made under the direction of Professor W. F. Bristol, Extension Department, University of Iowa.

Following his study of the situation in Cedar Rapids, Professor Bristol made this comment: "It is common knowledge that work in the building trades is seasonal with a resulting loss of several months' income during each year. Weather conditions are often unfavorable even during the building season, time is lost in moving from one job to another, and building operations are usually at a standstill during the winter months.

"The average amount of work in the building trades during the normal year seems to be in the neighborhood of eight months, certain trades doing some work nearly every month of the year, others falling as low as only five months of actual work."

Professor Bristol prepared a table showing the average time lost for all building trades in Cedar Rapids for the three-year period, 1920-1922. The table follows:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Men</th>
<th>Women</th>
<th>Months</th>
<th>Meat</th>
<th>Month</th>
<th>Oars</th>
<th>happiest</th>
<th>Foot</th>
<th>Last</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenters</td>
<td>424</td>
<td>4.0</td>
<td>0.0</td>
<td>0.0</td>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masons</td>
<td>77</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricians</td>
<td>10</td>
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<td>0.2</td>
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<td></td>
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</tr>
<tr>
<td>Painters</td>
<td>113</td>
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<td>0.2</td>
<td>2.5</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Paper Hangers</td>
<td>40</td>
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<td>0.2</td>
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<td>0.0</td>
<td></td>
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<tr>
<td>Plasterers</td>
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<td>3.0</td>
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<td></td>
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<tr>
<td>Plumbers</td>
<td>43</td>
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<td>1.5</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Sheet Metal</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Laborers</td>
<td>287</td>
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<td>2.3</td>
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<td></td>
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</tr>
</tbody>
</table>

The Department of Commerce, from knowledge gained from the nationwide survey, contends that not only in Cedar Rapids but in every other part of the country as well, the unemployment question relating to the building trades can be greatly relieved.

It says that with modern machinery and methods of heating materials, many forms of buildings can now be carried on even in freezing and rainy weather. Even the placing of steel, concrete and masonry work can go ahead in inclement weather, according to the report, if shelters are provided and materials properly prepared.

For the purpose of encouraging building during what has been known as the "off season," the Division of Building and Housing of the Department of Commerce is prepared to supply communities with data for determining what average weather conditions may be expected over a given period, for the use of builders.

The Division will also supply a chart for scheduling the beginning and completion of new buildings and repair work.

When filled in to show the seasonal unemployment in the building trades for a city or locality, the chart may be blue printed and circulated among builders and architects for use in planning operations.

Standardizing Materials

THE manufacture of cement bricks and hollow building tile and blocks in standard and uniform sizes has been recommended by the Division of Simplified Practice of the Department of Commerce. A conference of manufacturers was recently held at which the sizes considered were as follows: concrete block, 73/4 x 153/4 inches, in widths of 6, 8, 10 or 12 inches; concrete building tile, 5 x 12 inches; concrete brick, 2 1/8 x 8 inches in widths of 3 1/2 and 3 3/4 inches.

Eleven, sizes of steel bars for reinforcing have been adopted by manufacturers and distributors, effective Jan. 1 for producers and March 1 for distributors. The standard areas in inches, as adopted, are .049, .110, .250, .307, .442, .605, .785, 1.00, 1.266 and 1.583.

Plan Largest Building in Chicago

P LANES are on foot to erect in Chicago the largest building in the world. The structure would be known as the American Agricultural Society Building. It would be a world's temple to agriculture, and would include a broadcasting tower rivalling that of the famous Eiffel Tower in Paris, a convention hall of 20,000 seats and a commercial hotel of 3,500 rooms.

The building which will cost $30,000,000, is planned by a Midwest group of financiers headed by former Governor Frank O. Lowden.

The building, according to plans announced, would be the national center of farm activities in the country. It would front on Michigan Boulevard at the juncture with the Chicago River, with docks for passenger and freight boats and warehouse facilities, and would include a suburban train station.

Building Boom for Buenos Aires

A N American development company is soon to launch an extensive building program in Buenos Aires, according to the United States Department of Commerce. The total expenditure involved in the operation is expected to amount to $50,000,000. The project is to be financed in New York City and materials manufactured in the United States are largely to be used in the construction.

Model Town Exhibition

"TINY TOWN," the miniature model city which was exhibited in Springfield, Mo., in 1918, will be repeated on a larger scale this year, the exhibition to be held from May 25 to June 6. Combined with it will be an exposition of building materials and home equipment.

The project consists of small models of all types of buildings that make up the modern city, and their arrangement in the best style of city planning. The model city will include parks, boulevards, business and industrial districts, residence districts and small buildings. It will have municipal lighting and sanitation system, all planned and laid out by students. Many prizes will be offered for the best displays in various sections of the exhibit. William H. Johnson is director in charge.

Building Trade Courses at Carnegie Tech

C OURSES in bricklaying, masonry and reinforced concrete construction have been established in the Carnegie Institute of Technology, Pittsburgh, for persons already engaged in these trades who wish to have a scientific knowledge of the best methods.

Special courses have been arranged in plan reading and estimating, laying out and cutting of arches, methods of bonding, leveling and measuring brick work, and contract specification and management. There is also a course in the installation, construction and maintenance of electric equipment.

Change Exposition Date

O WING to the large number of applications for booths and an appeal from exhibitors for more time to prepare for the exposition of the American Institute of the City of New York, the Exposition Committee has decided to advance the date to Monday, April 27, to Saturday, May 2, inclusive. The exposition, which will be held in the Engineering Building, West 39th Street, will open on Monday evening, April 27, at 8 o'clock, and will be open on the following days from 11 a.m. to 11 p.m.
There is satisfaction and profit in being the...

"Eternit Shingle Man"

BEING the Eternit Shingle Man gives you the keen satisfaction of selling a product in which you can take honest pride.

The quality of Eternit Asbestos Shingles backs up every claim you make for them. They are built of layer upon layer of tough, interwoven asbestos fibres, reinforced with the finest cement—welded into place under enormous pressure—seasoned for three whole months. So they are even-laying, storm-tight, fire-proof and wear-free—a finer shingle to uphold your reputation as a judge of good roofing.

Profits are sure—for one Eternit roof sells another. Many of our best customers, now buying car after car, started with a few squares for a single job. You get more business—and Eternit Shingles are priced so you make more money. They are easier and faster to lay. And their uniform quality and dependable strength give your customers better roofing jobs.

Many of our carpenter, builder and roofer friends are establishing increasingly profitable businesses by specializing on Eternit Shingles. We'll be glad to tell you of their success—show you how you can do the same thing—and then help you do it. Your territory holds just as big opportunities. Write today for details.

AMERICAN INSULATION CO.
Roberts Avenue and Stokley Street, Philadelphia, Pa.

Eternit
ASBESTOS SHINGLES
Make your first roof last
Review of Building Situation

THE month of December completed a record-breaking building year as indicated by the F. W. Dodge Corporation’s review of building activity. The total construction volume of the country exceeded five billion dollars—an increase of 12 per cent over 1923. The valuation of new work during the second half of last year was only slightly less than that started during the first six months, showing that the increase in construction volume over 1923 was maintained at a consistent level.

Over 67 per cent. of the work contemplated for 1924 was actually started. The normal excess of construction planned over contracts awarded is about 50 per cent. Last year it dropped to 48, indicating a high degree of confidence in building conditions.

The first demands that 1925 will make upon building facilities, according to the present outlook, will be felt in the industrial and public utility fields and in small residential work. Following these commercial and educational needs must be taken care of is the quantity of work now in progress and planned for this year approaches the estimated totals.

In New York State and Northern New Jersey, the year’s total for this district exceeded all previous records. Fifty-six per cent of the total $1,329,366,100 was expended in residential buildings.

The report for New England shows another record-breaking year. December contracts exceeded the previous month by 7 per cent. and December, 1923, by 3 per cent. The year’s total of work started was $352,195,100, the highest on record for this district.

Total construction started in the Middle Atlantic States last year was 23 per cent. over 1923. The $477,746,300 in contracts awarded was divided as follows: Forty-six per cent. for residential, 20 per cent for public works, 11 per cent. for commercial and 16 per cent. for educational and industrial. The contemplated work for 1924 ran so greatly in excess of the construction actually started that it indicates a considerable construction demand still to be met.

In the Central West, 44 per cent. of the building total went for residential work. The sum for all work, $1,049,585,900, was just a million dollars over the 1923 figures. The demand for this year’s operations is pronounced strong, due to the enormous excess of contemplated work for last year over the work actually started.

In both the Pittsburgh district and the Northwest, 38 per cent of the total was expended for residential work.

The December report from the Southeastern States recorded a total of $44,895,400, a sum 17 per cent. over the previous month and 41 per cent. over December, 1923. A large potential demand is indicated for 1925.

Record of December, 1924, Building Contracts Awarded

<table>
<thead>
<tr>
<th>Classification of Buildings</th>
<th>New England District</th>
<th>New York District</th>
<th>Mid-Atlantic District</th>
<th>Pittsburgh District</th>
<th>Middle West District</th>
<th>North West South Atlantic District</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Buildings</td>
<td>$4,013,500</td>
<td>$13,224,600</td>
<td>$8,287,700</td>
<td>$6,611,500</td>
<td>$8,614,500</td>
<td>$541,000</td>
<td>$49,922,500</td>
</tr>
<tr>
<td>Educational Buildings</td>
<td>2,070,000</td>
<td>10,506,800</td>
<td>1,066,100</td>
<td>1,208,000</td>
<td>7,113,100</td>
<td>5,000</td>
<td>4,102,000</td>
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<tr>
<td>Hospitals and Institutions</td>
<td>390,000</td>
<td>6,907,000</td>
<td>1,065,100</td>
<td>880,000</td>
<td>35,000</td>
<td>3,900</td>
<td>10,538,000</td>
</tr>
<tr>
<td>Industrial Buildings</td>
<td>1,444,500</td>
<td>3,728,500</td>
<td>1,033,400</td>
<td>12,057,900</td>
<td>6,159,700</td>
<td>509,000</td>
<td>5,845,400</td>
</tr>
<tr>
<td>Military and Naval Buildings</td>
<td>25,000</td>
<td>37,500</td>
<td>7,500</td>
<td>37,500</td>
<td>10,000</td>
<td>204,000</td>
<td>11,500</td>
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<tr>
<td>Public Buildings</td>
<td>669,700</td>
<td>710,100</td>
<td>187,600</td>
<td>54,900</td>
<td>12,000</td>
<td>290,400</td>
<td>55,400</td>
</tr>
<tr>
<td>Public Works and Public utilities</td>
<td>1,344,500</td>
<td>4,013,500</td>
<td>1,381,500</td>
<td>10,820,400</td>
<td>7,030,500</td>
<td>3,900</td>
<td>29,400</td>
</tr>
<tr>
<td>Religious &amp; Memorial Buildings</td>
<td>430,000</td>
<td>1,331,500</td>
<td>887,500</td>
<td>1,033,400</td>
<td>40,500</td>
<td>1,531,000</td>
<td>5,924,200</td>
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<tr>
<td>Residential Buildings</td>
<td>16,255,900</td>
<td>57,297,800</td>
<td>15,705,100</td>
<td>19,322,600</td>
<td>41,385,000</td>
<td>2,044,900</td>
<td>14,619,900</td>
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<tr>
<td>Social &amp; Recreational Buildings</td>
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<td>3,178,900</td>
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<td>2,699,000</td>
<td>1,693,600</td>
<td>229,000</td>
<td>1,273,600</td>
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<td><strong>Total</strong></td>
<td><strong>$27,396,100</strong></td>
<td><strong>$101,040,800</strong></td>
<td><strong>$25,014,500</strong></td>
<td><strong>$50,375,100</strong></td>
<td><strong>$75,979,600</strong></td>
<td><strong>$7,557,400</strong></td>
<td><strong>$44,895,400</strong></td>
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</table>

Building Projects Contemplated, December, 1924

<table>
<thead>
<tr>
<th>Classification of Buildings</th>
<th>New England District</th>
<th>New York District</th>
<th>Mid-Atlantic District</th>
<th>Pittsburgh District</th>
<th>Middle West District</th>
<th>North West South Atlantic District</th>
<th>Totals</th>
</tr>
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<tbody>
<tr>
<td>Commercial Buildings</td>
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<td>$83,122,200</td>
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<td>2,941,000</td>
<td>1,381,500</td>
<td>10,538,400</td>
<td>8,123,500</td>
<td>4,910,000</td>
<td>44,017,000</td>
</tr>
<tr>
<td>Hospitals and Institutions</td>
<td>1,705,000</td>
<td>271,000</td>
<td>1,867,500</td>
<td>9,421,500</td>
<td>455,000</td>
<td>1,425,900</td>
<td>11,940,900</td>
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<tr>
<td>Industrial Buildings</td>
<td>1,139,500</td>
<td>5,148,200</td>
<td>2,284,900</td>
<td>4,724,400</td>
<td>8,777,700</td>
<td>703,500</td>
<td>7,823,400</td>
</tr>
<tr>
<td>Military and Naval Buildings</td>
<td>340,000</td>
<td>1,331,500</td>
<td>887,500</td>
<td>1,033,400</td>
<td>40,500</td>
<td>1,531,000</td>
<td>5,924,200</td>
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<tr>
<td>Public Buildings</td>
<td>2,070,000</td>
<td>1,878,100</td>
<td>1,295,000</td>
<td>9,029,900</td>
<td>703,500</td>
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<tr>
<td>Public Works and Public utilities</td>
<td>4,015,500</td>
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<td>8,123,500</td>
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<td>1,425,900</td>
<td>11,940,900</td>
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<tr>
<td>Residential Buildings</td>
<td>1,139,500</td>
<td>5,148,200</td>
<td>2,284,900</td>
<td>4,724,400</td>
<td>8,777,700</td>
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<td>40,500</td>
<td>1,531,000</td>
<td>5,924,200</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$228,337,900</strong></td>
<td><strong>$22,583,700</strong></td>
<td><strong>$25,014,500</strong></td>
<td><strong>$50,375,100</strong></td>
<td><strong>$75,979,600</strong></td>
<td><strong>$7,557,400</strong></td>
<td><strong>$327,985,900</strong></td>
</tr>
</tbody>
</table>
Wayne-Soft Water Cleaner and Softer Than Cistern Water

A Profitable Way for You to Eliminate the Dirty Cistern From the Homes You Build

A Wayne rapid-rate Water Softener is far superior to a cistern—and far more desirable from the viewpoint of the buyer.

Here, then, is your opportunity to increase the salability of your houses—and make the merchandising profit on the sale of Wayne Water Softeners.

A growing public demand for Wayne Water Softeners is being created by the Wayne national advertising in The Saturday Evening Post, Collier's and Good Housekeeping—reaching millions of families every month.

The Wayne Softener costs no more, and often less than a cistern.

Wayne-soft Water is cleaner and fresher than cistern water. It is ideal for bathing, for laundry use, and is also suitable for cooking and for drinking.

Thus you can see that the Wayne Softener is an attractive, desirable household device—one that thousands of families are installing in old homes, and which is going into more and more new homes every day.

Special Terms for Builders

Write for complete details, and descriptive booklets. Make the profit that Wayne pays.

Wayne Tank and Pump Company
805 Canal Street, Fort Wayne, Indiana


An International Organization with Sales and Service Offices Everywhere

REG. U. S. TRADE MARK

ORIGINAL RAPID-RATE

Water Softeners
## Trend of Material Prices

The following are wholesale prices of basic building materials in the three markets which set prices for the rest of the country. These prices are presented to show the trend of the wholesale market, which forecasts prices in the retail market. They are not prices which the average contractor can buy at, but are quoted to show him the movement of materials so that he can buy to better advantage.

Followed in conjunction with the Review of Building Conditions, these prices will prove invaluable.

All prices are for carload lots, F. O. B. market quoted, unless otherwise noted.

### NEW YORK PRICES

**LONG LEAF YELLOW PINE**

- Better Edge Grain Flooring, 25/32 x 2 1/4" Face $80.00
- Dimensions, SISIE, No. 1 Common, 2x6", 10' $41.75
- Timbers, Merchantable, 2x6", 10' to 20' $50.00
- B. and Better Ceiling, 5/32x4" $42.50
- B. and Better Partitions, 5/32x4" $56.00
- B. and Better Finish, 1x4" $40.25
- No. 1 Common Boards, 1x4" $49.75

**DOUGLAS FIR**

- No. 2 Better Flooring, 13/16x2 1/2" $62.00
- Roofs, 13/16x4" $55.50

**NORTH CAROLINA PINE**

- No. 2 and Better Flooring, 13/16x2 1/2" $52.00
- Roofs, 13/16x4" $45.50

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<thead>
<tr>
<th>Material</th>
<th>Description</th>
<th>Dec 26</th>
<th>Jan 25</th>
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</thead>
<tbody>
<tr>
<td>B &amp; Better Roofing, 25/32x2 1/4&quot; Face</td>
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<td>$80.50</td>
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</tr>
<tr>
<td>Dimensions, SISIE, No. 1 Common, 2x6&quot;, 10'</td>
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<td>$42.75</td>
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</tr>
<tr>
<td>Timbers, Merchantable, 2x6&quot;, 10' to 20'</td>
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<td>$51.00</td>
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</tr>
<tr>
<td>B. and Better Ceiling, 5/32x4&quot;</td>
<td>$42.50</td>
<td>$43.00</td>
<td></td>
</tr>
<tr>
<td>B. and Better Partitions, 5/32x4&quot;</td>
<td>$56.00</td>
<td>$56.50</td>
<td></td>
</tr>
<tr>
<td>B. and Better Finish, 1x4&quot;</td>
<td>$40.25</td>
<td>$40.75</td>
<td></td>
</tr>
<tr>
<td>No. 1 Common Boards, 1x4&quot;</td>
<td>$49.75</td>
<td>$50.25</td>
<td></td>
</tr>
<tr>
<td>No. 2 Better Flooring, 13/16x2 1/2&quot;</td>
<td>$62.00</td>
<td>$62.50</td>
<td></td>
</tr>
<tr>
<td>Roofs, 13/16x4&quot;</td>
<td>$55.50</td>
<td>$56.00</td>
<td></td>
</tr>
</tbody>
</table>

### CHICAGO PRICES

**YELLOW PINE**

- Beards, 1 x 8, No. 1 Com. $43.00
- Ceiling, 3 x 8, Btr. $22.50
- Dimensions, No. 1, 3 1/4 x 12 to 14 ft $32.50
- Drop Siding, 1 x 6, B. and Btr. $22.50
- Finish, 1 x 4, B. and Btr. $32.50
- Flooring, B. and Btr., E. G., 1 1/2 & 3 $85.00
- Lath, 1/8, No. 1 $6.00
- Timbers, Long Leaf No. 1, 10-20 ft, $.48, 6x12 to 12 x 12 $5.00

**HARDWOODS**

- Maple Flooring, 13/32 x 2 3/4, clear $34.00
- Oak Flooring, 13/32 x 2 3/4, Cl. Pl., White $100.00

**REDWOOD**

- Siding, SISIE, 10 ft., 30 ft., 7/16 clear $34.35
- Finish, SISIE, 1 x 6 to 8 in. clear $41.85

**WESTERN RED CEDAR**

- Bevel Siding, 1 1/2 x 4, clear $35.00
- Shingles, extra clear, 16 in. $4.32

**COMMON BRICK**

- Per M. f. o. b. Job $12.00

**PORTLAND CEMENT**

- Bbls. in car lots to contractors, not including containers $2.20

### ST. LOUIS PRICES

**YELLOW PINE**

- Beards, No. 1 Com, 1 1/4 $46.75
- Partition, 3 1/2 x 24, B. and Htr. $38.50
- Dimensions, No. 1, SISIE, Short Leaf, 2 x 4 in. $32.50
- Flooring, B. and Btr., E. G., 1 1/2 x 2 $32.50
- Flooring, B. and Btr., E. G., 1 1/2 x 3 $46.50
- Lath, 4 ft., No. 1 $5.10
- Timbers, No. 1 rough, short leaf, 6 x 12 to 12 x 12 El to 20 ft to 30 ft $49.90

**CALIFORNIA REDWOOD**

- Finish, SISIE, Cl. 1 x 6 in $34.00
- Siding, 1 1/2 in. Bevel, 8 to 20 ft $31.25
- 8 in. Colonial $66.75
- In Bungalow $50.25

**HARDWOODS**

- Oak Flooring, 5x1 1/2 & 2"n, clear, Qtr. White $37.00
- Maple Flooring, 13/32 x 2 3/4, clear $30.00

**RED CEDAR**

- Siding, 1 1/2 x 6, clear $41.00
- Shingles, clear, per M $4.31

**COMMON BRICK**

- Per M. f. o. b. Job $10.00

**PORTLAND CEMENT**

- Bbls. in car lots to contractors, not including containers $2.20

**STRUCTURAL STEEL**

- Per 100 lbs. at warehouse $3.00

---

**WALL TIES**

- (Galvanized) Per 100 lbs. at warehouse $3.75

**PLUME LINING**

- 8 1/2 x 1 3/4 in., per foot $34.34

**HOLLOW TILES**

- 8 x 12 x 12 in., heavy, Each delivered $25.25

**MAGNETIC STUCCO**

- Per ton $43.00

**TILE**

- 4 x 8 Square or Hexagon, White, per sq. ft. $0.27
- 8 x 8 in., White Wall $0.60
- 8 x 8 in., Red Floor $0.60

---

For the full list of prices and other information, please refer to the documents linked.
Here Is Something You Can Afford

Fits in the Wall of a New House Between Standard Studding
14" Wide, 4" Deep, 6' 9" High

Jobbers
In Millwork, Sash and Doors, Lumber, Builders' Hardware or Other Supplies.

Travelling Men
Selling in the Above Fields
We have a proposition that sells itself. A profit maker for wide awake merchandisers.

Write for Information

A guaranteed product that should be installed in every new house or apartment.

National Mill & Lumber Co.
2 Rector St. New York
318 Market St. San Francisco, Cal.

A LINE OF PRACTICAL BUILT-IN-TYPE CABINETS
Building Trade Prosperity
(Continued from page 108)

If in periods of great business activity the work of construction might be somewhat relaxed; and if in periods of business depression and slack employment these works might be expanded to provide occupation for workers otherwise idle, the result would be a stabilization and equalization which would moderate the alternations of employment and unemployment. * * *

"The economies possible under such a plan are apparent. When everybody wants to do the same thing at the same time, it becomes unduly expensive. Every element of costs, in every direction, tends to expand. These conditions reverse themselves in times of slack employment and subnormal activity, with the result that important economies are possible. * * *

"It is found by those governmental agencies which maintain touch with these matters, that notable progress has been made in efforts to lessen the seasonal element in employment in the construction industries. They report that employment is better spread through the year than ever before, and that in the last two or three years the proportion of winter-time employment has been considerably increased. This is entirely to the good, although much remains to be desired in this regard.

"Organizations such as your own represent possibilities of much good usefulness in dealing with these problems. * * *"

The afternoon session heard an address by the Hon. Herbert Hoover, Secretary of Commerce, who said, in part:

"In the Department of Commerce we have endeavored to develop a national program for the elimination of waste. * * * We have now had four years of what we may call experimental work in that direction. A great deal has been accomplished in the industries with which you are associated. It is only through the development of associational action that we can attack this one great deficiency in our economic system."

"I know of nothing," the Secretary said in the course of his address, "that will tend more to create stability in the contracting world, will give better protection to both the contractor and to the public, than a more uniform contract based on a more careful and scientific understanding of both the material and the economic and the legal problems that are involved.

"There are great economies for the consumer; there is more stability for the contractor; and in one, perhaps a side issue to such an effective basis of relations, there are great economies for the nation, and that is in the reduction of the amount of misunderstanding and conflict and fraud and litigation that grows out of badly expressed and badly entered upon contracts."

He commended the introduction into contracts of arbitration clauses.

With Every House A Garage

Brick, Concrete or Wood

Tidy and pleasant is this garage of wood

Concrete gives novel effects in garage design

Brick and tile lend sturdy, dignified character

BUILDING AGE and NATIONAL BUILDER
A Barn Door is judged by the Hanger. Every heavy door you hang that slides along the rail as if it were greased—is an advertisement for you.

The “Big 4” rolls on steel bearings, making it easy for a small boy to operate the heaviest barn door. It is a flexible hanger that will please the owner in every way. Thousands of “Big 4” Hangers have been sold and are giving entire satisfaction.

It is built on extremely heavy lines and in the simplest form of construction. No complicated parts to get out of order. Full description of “Big 4” and Braced Rail in the National Catalog—Free.

BRACED RAIL helps make the running easy.

- Brackets are same width and thickness as the Rail itself.
- Holes are staggered so screws will not go into the same grain of wood.
- Brackets are only 12 inches apart and double-riveted, giving rigidity.
- Millions of feet are in use.

NATIONAL MANUFACTURING COMPANY
Sterling Illinois
Planning for Electrical Convenience

LEGEND

- Ceiling light
- Bracket light
- Ceiling fan
- Convenience outlet
- Floor outlet
- Power outlet
- Switch
- Convenience outlet under light
- Switch under light
- Annunciator
- Push button
- Telephone
- Telephone extension
- Door switch

FLOOR PLAN

- Living Room: 15'0" x 12'0"
- Guest Room: 15'0" x 12'0"
- Bed Room: 14'0" x 12'0"
- Nursery: 14'0" x 11'0"
- Hall: 12'0" x 10'0"
- Dining Room: 13'0" x 12'0"
- Kitchen: 12'0" x 10'0"
- Laundry: 9'0" x 10'0"
- Patio: 22'0" x 14'0"
- Garage: 15'0" x 20'0"
- Fountain: 3'0" x 3'0"
Sold—and Inter-Phones helped put them over!

WIDE-AWAKE builders know the value of refinements in home construction. Competition has taught them that.

Western Electric Inter-Phones are a practical refinement. They provide a saving of time and effort that your prospect will be quick to appreciate. They are made for houses of every size, and made to Western Electric standards of design and workmanship.

For data on Inter-Phone systems and installation, and for everything electrical that builders use, consult our nearest house.

Western Electric
OFFICES IN FORTY-NINE PRINCIPAL CITIES
These illustrations show the Electrical Home Beautiful that was recently erected and equipped by the El Paso Electric Cooperative Association, an organization composed of nineteen firms of El Paso, Texas. In addition to the association, more than forty other individual firms, representing almost as many different lines, entered into the building, from the financing to the furnishing.

The house was, of course, used for demonstration purposes in connection with electrical appliances and equipment. Incidentally, it served as a model of good construction and finishing. The general contractor was the Orndorff Construction Company and the architects were Lehmann & Wuehrmann of El Paso.

These individual floor plans are reproduced from a very instructive booklet prepared for distribution to those who visited the house during the exhibit. The plans are valuable for the information they offer regarding proper provisions for both lighting and convenience outlets.

With each plan is appended a list of desirable electrical equipment for each particular room. Convenience outlets to serve these appliances should be provided whenever possible—not necessarily a separate outlet for each one but a sufficient number for convenience and efficiency. Only when under construction can wiring be done to advantage.
In Transoms of LUX LENS PRESSED TILE Are Found Beauty Daylight Distinction Permanence

And They Are So Easy To Keep Clean

Write for descriptive Bulletin on better store fronts, with Lux Lens Transoms.

American 3 Way-Luxfer Prism Co.
1209 S. 59th St.
Cicero, Ill.

238 Webster Ave.
Long Island City, N. Y.
The Electrical Installations in El Paso's Home Electrical Should Be Studied for their Application to Modern Homes throughout the Country.
Sales Stories

1. Mr. M. R. Austin, of Belleville, N. J., increased his sales of Johns-Manville Asbestos Shingles 300% in two years.

2. Mr. L. T. Burritt, of the Cadillac Lumber Co., Cadillac, Mich., sold a Johns-Manville Asbestos Shingle roof in 20 minutes after the owner had already ordered another brand that cost $100 less. His sales have increased four times in a single year.

3. The Pen-Mar Co., of Baltimore, Md., has developed an intensive plan for getting re-roofing business that is so good that it was made the subject of a special issue of The Asbestos Roofer, dated December 20, 1924.

4. Mr. Frank Barnes, of Greenville, Miss., is covering the roofs of his town with Johns-Manville Asbestos Shingles. He says "There is hardly a roofing job we cannot get when we go after it."

5. Mr. W. M. Carter, of Laurel, Miss., usually has about two Asbestos Shingle jobs a week. One month his contracts totalled over $10,000 and they're still increasing.


7. Seaman and Schuske, St. Joseph, Mo., sold two carloads of Asbestos Shingles in 1922, eight carloads in 1923 and last reports were that 1924 would close with twenty carloads.

8. Mr. John C. Muller of Asbury Park, N. J., recently got a phone call at 1 P. M. from a man who had seen an advertisement. At 2:30 he sold this man $1,400 worth of re-roofing.

9. Right in here there's room for your story—
What shall we say about you?
**First**, we will take up the matter of estimating the quantities of brick for building brick walls. The size of the brick and the thickness of the mortar joint have much to do with the amount of material required for any job. It is important that the contractor should know these things before estimating the material. It makes but little difference just for the foundation of an ordinary residence, but for a large brick building this difference may run up into several thousands, so it is important to know what you are doing when making an estimate.

The standard size of face brick as adopted by the American Face Brick Association is 8" x 2 1/4" x 3 3/4" and most manufacturers of common brick are now conforming to the same size so that their brick can be more readily used with the face brick in backing up and in joining the face brick wall with a wall laid up with common brick. Following is a table giving the number of face brick required per square foot of wall surface according to the thickness of the mortar joint used.

<table>
<thead>
<tr>
<th>Thickness of Joint</th>
<th>7/64&quot;</th>
<th>5/32&quot;</th>
<th>1/4&quot;</th>
<th>3/16&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Brick</td>
<td>7</td>
<td>6 1/2</td>
<td>6 1/4</td>
<td>6</td>
</tr>
</tbody>
</table>

To estimate the number of brick required find the total area of wall surface and deduct for all wall openings over 8 square feet and multiply by the number shown in the table according to the thickness of the joint used.

Ordinarily nothing need be figured for waste. What is gained on openings less than 8 square feet and on turning corners of the building will usually make up for the waste. But if there is a reveal around the openings of 8" to 12" or more faced with face brick, then this has to be figured as wall surface.

It is best to figure separately the reveals and all other places where face brick are used without the backing of common brick, for the reason that when you have the face brick figured, an 8-inch wall will take an equal number of common brick. A 12-inch wall takes twice the number; a 16-inch wall three times the number, and so on for each additional brick in thickness of the wall. In fact, you multiply the number of face brick by the number of tiers of common brick used for the backing.

If more than one tier is used for the backing, make the proper deductions for the corners, for the gain in turning corners on a thick brick wall is quite considerable.

A percentage has to be added to face brick on account of the bonding, depending upon the kind of bond used in laying up the wall. Figure 1 represents the common American bond. Two 3/4 brick are used on the corner in order to avoid the vertical joints in the header course coming in direct line with the stretcher course just below, the two little corners to be filled with bats as shown. For a bond of this kind at every 5th course, add 20% or 1/5. If the bond is at every 6th course, add 16-2/3% or 1/6. If every 7th course, add 14-2/3% or 1/7.

Figure 2 represents a Flemish bond with a single header and one stretcher. With this two 3/4 brick are used on the corner and a closure piece of a half brick split lengthwise. By this means no vertical joints will appear in the bonding course directly over the joints in the course below. For this kind of bond every 5th course, add 5-2/3% or 1/15.

Figure 3 shows a Flemish bond with a double header.
Armstrong's Linoleum
for Every Floor in the House

Floor Beauty in the Smart Shop

How quickly an appropriate linoleum floor can make over a simple little refreshment shop! Take away this floor of Armstrong's Marble Inlaid, and half the appeal of this place is gone.

This pattern of red-brown-and-yellow-streaked gray marble, interspersed with six-inch blocks of black, is one of a score and more of fine new designs in Armstrong's Inlaid Linoleum of special interest to the architect and builder. These designs give you color and design in floors at moderate cost.

Every shop, store, restaurant, and office can afford to have a beautiful linoleum floor, quiet, comfortable, long wearing, and easily maintained. If you are not familiar with the fine patterns available in Armstrong's Linoleum, ask for "Business Floors," which shows colorplates.

Armstrong Cork Company, Linoleum Division, Lancaster, Pa.
and one stretcher. This corner is more difficult to lay than any of the others. On the corner use one % brick and one full brick with the corners clipped as shown. Next use one % brick and one ½ brick as shown, filling in the remaining portion of the corner with bats; then you are ready to start the double header and single stretcher bond.

No vertical joints in the bonding course will come directly over the vertical joints in the course below, thus making a perfect system of forming the joints which is so essential on all good jobs of brick work.

![Fig. 2. Flemish bond with single header and one stretcher. Two % brick are used on corner and a closure piece of a half brick split lengthwise](image)

For this kind of bond every 5th course, add 10% or 1/10.

It is evident that the face brick used in the bond displace an equal number of the common brick used in the backing, consequently the same number of common brick should be deducted as was added for the face brick bond.

### Quantities of Material Required for Laying 1,000 Brick

#### Mortar For Laying 1,000 Bricks, 3/8 In. Joint

<table>
<thead>
<tr>
<th>Proportions</th>
<th>Quantities</th>
<th>Screened Sand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement mortar:</td>
<td>1 part cement</td>
<td>7 sacks</td>
</tr>
<tr>
<td></td>
<td>2 parts sand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 part cement</td>
<td>5½ sacks</td>
</tr>
<tr>
<td></td>
<td>2½ parts sand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 part cement</td>
<td>4½ sacks</td>
</tr>
<tr>
<td></td>
<td>3 parts sand</td>
<td></td>
</tr>
<tr>
<td>Lump lime mortar:</td>
<td>1 part lime</td>
<td>1 bbl.</td>
</tr>
<tr>
<td></td>
<td>2 parts sand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 part lime</td>
<td>¾ bbl.</td>
</tr>
<tr>
<td></td>
<td>2½ parts sand</td>
<td></td>
</tr>
<tr>
<td>Hydrated lime mortar:</td>
<td>1 part lime</td>
<td>3½ sacks</td>
</tr>
<tr>
<td></td>
<td>2 parts sand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 part lime</td>
<td>3 sacks</td>
</tr>
<tr>
<td></td>
<td>2½ parts sand</td>
<td></td>
</tr>
<tr>
<td>Cement-lime mortar:</td>
<td>¾ part cement</td>
<td>1 sack</td>
</tr>
<tr>
<td></td>
<td>1 part lime</td>
<td>2½ sacks</td>
</tr>
<tr>
<td></td>
<td>3 parts sand</td>
<td></td>
</tr>
</tbody>
</table>

In the tables given, Portland cement is figured by the sack, the way it is usually sold and handled. A sack weighs approximately 95 lbs. and is also rated as 1 cubic foot in estimating. A barrel of lump lime is estimated at 180 lbs. Hydrated lime is put up and sold in 50 lb. sacks. Approximately 4 sacks of hydrated lime equal 1 barrel of lump lime.

### Mortar for Laying 1,000 Tile One-Half Inch Joint

<table>
<thead>
<tr>
<th>Size of Tile</th>
<th>Cement</th>
<th>Lime</th>
<th>Screened Sand</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x 5 x 12</td>
<td>6½ sacks</td>
<td>¾ bbl.</td>
<td>1,800 lbs.</td>
</tr>
<tr>
<td>5 x 5 x 12</td>
<td>12 sacks</td>
<td>¾ bbl.</td>
<td>3,000 lbs.</td>
</tr>
</tbody>
</table>

### Mortar Required to Lay 100 8 x 8 x 16 Cement Blocks

<table>
<thead>
<tr>
<th>Cement mortar:</th>
<th>1 part cement</th>
<th>1½ sacks</th>
<th>450 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 parts sand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Tile Sizes Compared With Brick

<table>
<thead>
<tr>
<th>Approximate Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x 5 x 12 tile equals</td>
</tr>
<tr>
<td>5 x 5 x 12 tile equals</td>
</tr>
<tr>
<td>8 x 5 x 12 tile equals</td>
</tr>
<tr>
<td>8 x 12 x 12 tile equals</td>
</tr>
<tr>
<td>12 x 12 x 12 tile equals</td>
</tr>
</tbody>
</table>

#### Estimating Quantities of Hollow Tile for Backing Brick Walls

- Multiply Sq. Ft. of Wall by:
  - 4 x 12 = 2.6
  - 5 x 12 = 2.15
  - 8 x 12 = 1.4
  - 12 x 12 = 0.94

When 5 x 12-inch tile are used for backing, the bonding course of brick will occur every 5th course of brick with a ½" mortar joint, then one-fifth of the tile should be deducted and brick size tile or common brick should be added for use behind the stretcher in the bonding course, adding at the rate of 12 to every 16 square feet of wall surface.

If 12 x 12 tile are used, then the bonding course will occur every 6th course with a ¾" mortar joint. In this case one-sixth of the tile should be deducted and brick size tile or common brick added at the rate of 12 to every 20 square feet of wall surface.

### Estimating Tile for Solid Tile Walls

<table>
<thead>
<tr>
<th>Size of Tile</th>
<th>Thickness of Wall</th>
<th>Multiply Sq. Ft. by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x 5 x 12</td>
<td>4 inches</td>
<td>2.15</td>
</tr>
<tr>
<td>8 x 5 x 12</td>
<td>8 inches</td>
<td>2.15</td>
</tr>
<tr>
<td>8 x 10 x 12</td>
<td>8 inches</td>
<td>1.4</td>
</tr>
<tr>
<td>12 x 12 x 12</td>
<td>12 inches</td>
<td>0.84</td>
</tr>
</tbody>
</table>

In estimating for tile, deductions for all openings over 8 square feet in size should be made and 2 to 3 per cent, added for waste, since some waste is bound to occur.

Accurately estimating the quantity of mortar needed on a job will insure quite a saving—preventing waste makes for profit.
OVER $1600 PROFITS IN THREE MONTHS
Made by J. A. Thomas of Montgomery, Ala.

The manufacturers of the “American Universal” floor surfacing machine are constantly receiving letters, similar to the one quoted below from men who have gone into the floor surfacing business the “American Universal” way. We thought the story of Mr. Thomas might prove of interest to a great many men who find themselves out of work during the cold winter months and other slack business seasons.

“I’m keeping my ‘American Universal’ busy all the time. As soon as I finish one job there is another waiting for me. It keeps me busy but I don’t care as long as I can pull down $176.11 on one job like I did last week.

“I have had my ‘American Universal’ for three months now. In balancing my accounts tonight I find that I have made $1,653.44 clear money since I started in the business, which amounts to over $100.00 per week clear profit for me and my ‘buddy’—the ‘American Universal.’

“I surfaced four bowling alleys yesterday and had twelve calls during the day to go out and look over old floors and make prices on work of resurfacing and finishing them.

“I went out today while my operator was working and contracted for five of the jobs, and never missed a prospect.

“One contractor told me not to wait for orders from him but to go on the job and watch the houses and when the floors are ready to surface, to get on them. He told me to measure up the jobs and send the bills to him as the floors were finished. This fellow is not a big contractor but he builds about four houses a month, averaging about a thousand square feet to the house, which is not a bad customer to have on my books.”

The manufacturers of the “American Universal” electrically driven floor surfacing machine with which Mr. Thomas and so many others have made such remarkable earnings, will gladly supply the readers with full information regarding how this machine can be secured on a five-day trial so that any carpenter can fully convince himself as to whether or not he wants to buy a machine. The Company is willing also to supply a lot of other valuable information regarding the floor surfacing business, all of which will be furnished without any obligation whatever to those inquiring. Address all mail to The American Floor Surfacing Machine Company, 514 South Saint Clair Street, Toledo, Ohio.

KEEP THE MONEY ROLLING IN DURING THE WINTER MONTHS

Go after and get the floor surfacing business in your locality with an American Universal Electrically Driven Floor Surfacing Machine. When building is at a standstill and there are no profits coming in, you can make $25.00 to $50.00 a day resurfacing old floors with the American Universal floor surfacing machine. It does the work of six men.

WORK EASY TO GET

The beautiful smooth, uniform work which the “American Universal” floor surfacing machine turns out puts the most expert hand scraper’s best efforts to shame. There is absolutely no comparison.

WHO STANDS A BETTER CHANCE THAN YOU?

You know the owners of buildings and homes where floors require resurfacing. You are acquainted in your community and this will make it easier for you to land the contracts for resurfacing the great number of floors in your locality which are in need of it (and badly so) right now.

AN INVESTMENT WORTH $5,000 A YEAR TO YOU

An “American Universal” floor surfacing machine is always a good investment. It will replace six men on your payroll during the building season—and turn low into big profits during the dull season. One fair sized job pays for the machine.

THE AMERICAN FLOOR SURFACING MACHINE CO.
514 S. St. Clair Street, Toledo, Ohio

Write Today for Full Particulars.
For the Builders' Library


In the cause of brick as a home-building material the publishers of this volume are responsible for an unqualified achievement. The treatment of old English brick work is incomparably charming in the 44 plate illustrations that make up the edition. Tudor and Georgian designs with a few recent examples of American work show the influence of the early English period upon our present-day architecture. The spirit of the book is in itself sufficient to charm its readers.

Compendium of Building Data by J. Soman, B.S.C.E.: 18, 8x11 inch pages, paper bound, price $1.00; published by J. Bunl Publishing Company, 581 East 170th Street, New York City.

While the author compiled this information with respect to the New York Code, he recommends it for national use. The New York Code is accepted by many places having no code of their own, while in addition architects and engineers called to New York for structural work find such information invaluable. Charts and tables make up the arrangement of this handy data book.

Damp Walls by Ernest G. Blake: 245, 5x7¼ inch pages, cloth bound, price $3.00; published by D. Van Nostrand Company, 8 Warren Street, New York City.

This handbook deals with the various causes of dampness in house walls and the best methods of remedying the defects. Temporary remedies and permanent correction of house walls are taken up in several chapters. Another chapter deals with condensation—its cause and effect, "dew point" and general remedies.

Library Buildings by Chalmers Hadley: 254, 7x10 inch page, cloth bound, price $3.50; published by American Library Association, Chicago, Ill.

When the smaller cities plan to build a library, seldom is there a resident architect thoroughly acquainted with library design. It was with this in view that Mr. Hadley prepared his volume. Only buildings costing less than $50,000 have been considered. Of this class representative examples are taken from many cities throughout the country. Exteriors and in some cases details of interiors are shown with accompanying plans. The arrangement and typography of the volume are excellent.

Tree Ancestors by Edward Wilber Berry of Johns Hopkins University: 272, 6x9 inch pages, cloth bound, price $3.00; published by Williams & Wilkins Company, Baltimore, Md.

For teachers, students and laymen, the publishers recommend this book for study. The main theme is the geological or distribution in time, and the geographical or distribution in space, of the trees. All technical terms that seemed unnecessary have been eliminated, with the result that the book is well within the comprehension of the layman.


The author states that the book is an attempt to offer in usable form the mechanics' lien law of New York and the rules of pleading and procedure as laid down by the courts. The contractor will find it a valuable reference work.


For contractors' every-day figuring this little book is compiled with unusual conciseness and arranged in good order for hasty reference. It is intended mainly as a check on the estimator's own figures.

Damp Walls by Ernest G. Blake: 245, 5x7¼ inch pages, cloth bound, price $3.00; published by D. Van Nostrand Company, 8 Warren Street, New York City.

This handbook deals with the various causes of dampness in house walls and the best methods of remedying the defects. Temporary remedies and permanent correction of house walls are taken up in several chapters. Another chapter deals with condensation—its cause and effect, "dew point" and general remedies.

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In the prebuilding season, the builder must complete his plans for the coming year. The vast volume of work promised for 1925 makes such preparation this year doubly necessary. Instruction and reference books, at all times the useful tools of construction engineers, are indispensable when the rush of work makes rule-of-thumb methods impractical. We will gladly assist our readers in the selection of the best books on a particular subject. For the convenience of our readers any book published may be ordered through BUILDING AGE AND NATIONAL BUILDER, Book Department, 239 West 39th Street, New York City.


In the design of office buildings and schools, as well as churches, these designs will prove useful to the architect and builder. The first two volumes of "The Library of Architectural Documents"—series: "Architecture Toscane" and D'Espowy's "Fragments D'Architecture Antique," serve a purpose similar to the aim of this recent volume. The usefulness of the Gothic in commercial or educational design, well known to builders, is brought out to good advantage in this beautifully prepared book.


It is interesting to note that here a director of education and an architect have collaborated to produce a handbook of instruction for the journeyman bricklayer and the bricklaying apprentice. The purpose of the work is to improve and facilitate bricklaying jobs. Various illustrations of right and wrong methods and of work in process are scattered throughout the pages.


Elementary treatment of a text book involves more than the use of non-technical terms. In this recent volume the authors have succeeded in doing a very creditable task—they have evolved problems that are not alone simple but eminently practical. The builder who has undertaken to make his own working drawings without a fundamental training in architectural drawing will appreciate this feature of the text.


This hand book is designed for everyday use in estimating labor costs. Based on the principle that the average output of the average American workman is constant, various tabulated costs are arranged to facilitate quick and accurate computing. The book is pocket-sized; explanatory and requires no extensive study prior to use. Its convenient form allows of the addition of personal notes and memora in one handy volume.
Economy—the Basis of Development

Gabriel Rolled Steel Products are as modern as the most up-to-date structure. Gabriel alone has kept pace with building progress. And we have never forgotten the importance of economy.

The Gabriel Steel Company brings to the builder an economic solution of scaffolding through its perfected Collapsible Scaffold Bracket. An equal convenience is the indestructible Collapsible Horse Leg. Products that conserve time and material.

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ROLLED STEEL PRODUCTS
Fastening a Guy Line in a Brick Wall

There is not a building contractor who, sometime or other has not wished for a "sky hook." However, if we are working near a brick wall we have a means readily at hand as is illustrated by the photographs.

It will be necessary to provide a hole in the wall about one foot long and six or eight inches high so that there will be no danger of the guy line rubbing against the wall and breaking. A length of plank, about six or eight feet, will also be needed.

Set the plank on the side of the wall opposite to that from which the guy line comes, and pass a loop of the guy line over the plank. In order for the guy line to come through the hole, one of three things must happen: the plank must break, the guy line must break, or the wall must come down. There is little likelihood of either of these conditions occurring if proper care has been exercised and the method illustrated here will be found perfectly satisfactory under almost any conditions. It may be well to set a block against the face of the wall at the point where the guy line goes through, in order to prevent the wearing of the line by rubbing against the edge of the brick.

Three precautions should be observed:
1. Limit the height of the opening to eight inches.
2. Use a plank at least six feet long so that the load transmitted by the guy line will be distributed over a large area of the wall.
3. Set a block against the face of the wall where the guy line enters to prevent the wearing of the line by its rubbing against the edge of the brick opening.

A Permanent Base for Builder's Level

Every builder knows the importance of maintaining the foundation at the correct level, and every mason contractor is, or should be, familiar with the builder's level. This instrument is indispensable to the man who is engaged in the business of mason contracting for it is by its use that the level of the building is determined.

The ordinary method of using the level is to set it on the tripod each day, he used a stump which was in such a location that it afforded a view of the entire work.

Thus, since the stump was stationary there was little difference in the H. L. for each day's work, and there was absolutely no danger of the tripod being overturned and the level damaged.

Stiff Ceiling Joints

In apartment buildings where flat roofs are used, it is necessary to provide a slope to the roof so that rainwater may drain away. This requires that two sets of joists be used on the top story, one for the room, which is sloped, and another for the ceiling, which must be leveled.

It is possible to stiffen these ceiling joists (D) if they be of long span by using the method shown here. At their mid-point, where the deflection is bound to be greatest, a piece of 2"x6" (B) is nailed to the ceiling joist (D) and to the roof joist (A) so that the joist (D) is really suspended from the joist (A). This will increase the stiffness of the ceiling to a great degree. The stiffness may be further increased by a cross strip (C).
TAPESTRY GLASS

Adds beauty and dignity wherever used

Many notable architects have been quick to recognize the unique qualities of Tapestry Glass. Wherever the maximum of clear, brilliant light is necessary and privacy is desirable, Tapestry Glass offers many possibilities for unusually beautiful effects.

Tapestry Glass has all the strength, purity and clarity of the finest plate. And by a special, exclusive process the surfaces are given a smoothly rounded texture, not unlike fine fabric. These surfaces collect and diffuse light in a brilliant flood, yet they obscure vision.

Plain Tapestry Glass may be easily and inexpensively decorated with designs conforming to any architectural plan. These may be permanently chipped, ground or mitred upon the surface before installation.

Decorated by any of these processes, Tapestry Glass is particularly suitable for exterior doors, windows, ceiling lights or other openings. For office partitions, connecting doors, bank screens and other interior uses, plain Tapestry Glass is widely used, its even, brilliant surface giving an interesting and decorative effect.

Tapestry Glass is now installed in many new and beautiful churches, schools, office and business buildings, residences and apartments throughout the country. Investigate its possibilities through the nearest glass dealer or write for catalog and samples to the Pittsburgh Plate Glass Company.

PITTSBURGH PLATE GLASS CO.

GLASS VARNISH PAINT
Framing Floor Joists to Wood Trusses

Methods of building public garages have undergone a considerable change when compared with those built years ago. The older buildings made no attempt to provide a clear floor area but were cluttered up with posts to support the roof, thus making it a difficult task to turn cars on the floor.

Modern garage buildings are designed to do away with the nuisance of an obstructed floor. Not only garages, but industrial buildings as well, and other types of structures such as dance halls, and sales pavilions require that the floor space be clear, and engineers have provided a simple and comparatively inexpensive type of construction which is especially adapted to the requirements demanded.

This type of construction involves the use of the laminated wood truss, of which there are several designs, some patented and others not. This truss provides a maximum of strength at a minimum of cost and is generally fabricated at the building site, being built up of small dimension lumber as shown in the accompanying sketch.

There are as many ways of framing roof joists to these wood trusses as there are designs of trusses but it is the writer's opinion that the method illustrated here is as simple and effective a way of doing the job as any.

It consists of having a shelf-cleat (C) fastened at the lower part of the top chord (D) of the truss. This may be done while the truss is being fabricated or it may be put on after the trusses are erected, although the former method is preferable.

The joists (A) are cut so that they lap at the top chord of the truss (D), and rest on the shelf-cleat (C). While this shelf-cleat (D) does not provide a great amount of bearing for the joists (A), there will be no danger of their slipping off if they are nailed together at the lap.

Furring a Steel Beam for Lath

Of some buildings where steel girders are used it becomes necessary to allow the steel to project below the surface of the ceiling. This may be due to the framing system employed, to the necessity for maintaining a given elevation, or in an effort to conserve wall height; at any rate some provision must be made for attaching the lath to the beam in order to hold the plaster.

Where metal lath is used, the problem is simple. The metal lath is wired to the beam with thin wire and the plaster applied directly. In cases where wood lath is used, however, the problem is not so easily solved and a bit more work is required.

There are several conditions to be encountered in framing, each demanding a different method of furring but where it is necessary to fur out for the lather with joists framed in the manner illustrated here, the method shown will be found to be simple as well as inexpensive.

The strips used for the furring are the ordinary 1" x 2" rough pieces used in furring brick walls. In this case, pieces are cut the same length as the space between joists and nailed between the joists somewhat after the fashion of solid bridging, their position being horizontal, and their lower edge coinciding with the lower edge of the joists.

To these horizontal strips were nailed vertical pieces, their length being such that they allowed room for another horizontal strip to be nailed below the steel girder. This was done on both sides of the girder.

Then another horizontal strip, set against the lower flange of the girder was nailed to the two verticals, thus providing a wood nailing base for the lath all around the girder. If 1" x 2" furring strips are not available, any sort of light scrap lumber may be used.

A Trim Brick Sill

It is sometimes difficult to get a straight horizontal line in a brick sill, but if a short cleat is nailed directly under the sill and the bricks laid upon this cleat, they are bound to be set true.

This photograph was taken on a job being done by the Commercial Building & Securities Company of Des Moines.
Disfigured for Life!

More treacherous than earthquakes or tornadoes—more costly than fires or vandalism—is the damage that follows carelessness in the selection of wall materials. In cottages, in mansions, in factories and in skyscrapers—everywhere walls are built—lack of interest in lath and plaster has left its ugly traces.

To you, who some day will build, these blemishes ought to be "the handwriting on the wall"—visible warnings that the beauty of your rooms, too, will be disfigured for life unless your walls are made of materials that will withstand the vibrations, the settlings, the knocks and the other abuses of time.

Look about you. There are some walls that have come through the years undamaged—enough to convince you that cracks, lath marks, spots, checks and other wall defects can be avoided. They are the exceptions which prove the wisdom of knowing, exactly, the quality of the plaster or any other wall materials you buy.

Let us send you samples and descriptions of Beaver American Plaster, Plaster-Wall Board, Gypsum Lath, Beaver Tile Board or Fibre Wall Board. Compare them for price or quality. Convince yourself that Beaver Products build walls that stand unblemished through the years. Mail the coupon today.

Beaver Products
Buffalo, N. Y., Dept. N-2
Thorold, Canada
The Beaver Products Co., Inc.
London, England

The above advertisement will appear in the February 7th issue of the Saturday Evening Post.
SCAFFOLDING is expensive to erect, as every contractor knows only too well. For this reason job profits may be increased by cutting down the amount of scaffolding used on a job, thus saving the material required and the mechanic's time used in erection.

Scaffolding should be used only where absolutely necessary; if any substitute for it can be found which is not as expensive as the scaffolding itself then it were wisdom on the part of the contractor to use it.

It sometimes happens that carpenters will erect interior scaffolding in order to place such material as cornice moulding, trim set high on the wall, and etc. This is not at all necessary since there is a way of providing the carpenter with a means of reaching the high places, and that is by the use of a trimmer's ladder such as is illustrated here.

The ladder is 5 ft. high, and although strong enough for the purpose required of it, exceedingly light. The fact that it is lightly built makes it unsuitable for any purpose except that for which it is originally intended.

The stringers which carry the ladder treads are made of 1" x 6", notches being cut out at 15" intervals. This size provides a comfortable step which is fairly easy to ascend and descend. The treads are nothing more than 1" x 4", with the exception of the top tread which is made wider so that it furnishes a fairly wide platform upon which the trimmer may find a solid footing.

The leg which forms one of the supports, is also 1" x 4", fastened at the top of the ladder by being nailed to the inside of the stringers. At the back of the ladder a diagonal brace runs across the legs and serves to brace them.

The horizontal braces are set about 1 ft. off the ground so that the upper edge of the brace sets under the first tread. Everything is nailed securely, and the ladder moved about in the open position.

All told, the ladder is 60" high, and has a base of 30" from the outside edge of the stringer to the outside edge of the leg. The stringers are spaced 27" apart from outside edge to outside edge, and the treads allowed to project over the stringers 1½".

Furring Steel Beams For Lathing

WHERE wood joists are framed to steel beams it is sometimes necessary to provide furring in order to allow the lath to be fastened. In the case illustrated here, the joists were framed to a plate fastened to the lower flange of the I-beam and inasmuch as it was necessary to plaster underneath the beam, some method for holding the lath had to be devised.

It was done as shown in the accompanying illustration and sketch. Small pieces of 1" x 2" (B) was set across the I-beam (C), underneath the steel plate fastened to the bottoms of the joists. They were tapered at the ends in order that nails might be driven through them.

In order to take advantage of this method of furring it is necessary to allow the joists to project a short distance (about 1½ inch) below the steel plate (D) so that there is a place provided to which the cleats (B) may be nailed. Two nails should be used instead of one so that a good solid foundation for the plaster ceiling is assured. The above photograph illustrates the application to a job of this method of furring steel beams.

Plumbing Steel Columns

In most of the buildings erected today it is not uncommon to find steel used for the floor supports instead of wood as formerly. In the smaller buildings the old form of wood joist floor construction is quite generally adhered to but steel is used for columns and girders. In setting the steel columns it is sometimes quite a task to get them plumbed exactly correct.

The common way of setting these columns is to fix two base angles to the bottom, and to these angles a plate is riveted. This plate provides a good bearing on the footing for the column and is an essential agent in helping to distribute the load evenly over the footing.

In placing the column in its final position it is customary to spread a layer of cement mortar over the footing and set the column upon the mortar, allowing it to bed itself in position.

It sometimes occurs, however, that it is advisable to tilt the column slightly to assure its being plumb when the mortar hardens. This may be done by driving a couple of nails of a desired thickness between the plate and the top of the column footing.

Thus the column will be tilted and the degree of tilt will depend upon the location of the point where the nails are driven.

The horizontal braces are set about 1 ft. off the ground so that the upper edge of the brace sets under the first tread. Everything is nailed securely, and the ladder moved about in the open position.

All told, the ladder is 60" high, and has a base of 30" from the outside edge of the stringer to the outside edge of the leg. The stringers are spaced 27" apart from outside edge to outside edge, and the treads allowed to project over the stringers 1½".
Standard Steel Casements Attract Buyers and Stimulate Sales

The use of Crittall Standard Steel Casements lends a distinctive appearance to a home that immediately lifts it above the average. Prospective buyers are first attracted by their charm, then quickly sold through their practical utility.

Crittall Standard Casements can open either in or out, and when properly installed are guaranteed weather tight. No weatherstripping is required. Hardware is of solid bronze, finished a beautiful dark statuary color. Glazing may be either clear or leaded glass.

Quick sales and complete and lasting owner satisfaction are factors which will readily appeal to every home builder. Insure fast turnover of your completed houses by installing Crittall Standard Steel Casements.

Illustrated Catalogue No. 2-24 giving sizes and types may be had upon request. Screen details are also shown.

Crittall Cottage Casements

Are standard in size and design and low in cost for use in small residences, apartment houses, etc. They have the usual advantages of steel over wood in that they can be easily operated under varying weather conditions. Made to open out only. Ask for Cottage Casement literature.
Clamp for Filing-Saws

This idea may not be new to some contractors but from the many makeshift saw-holders the writer has seen, it will be welcomed by many. It is simple to operate, easy to make, and the time and materials required to put it together will not run up into very much money.

It consists of two 2"x4" legs (D), held together by the 1"x3" braces (B). At the tops of the legs (D) a "V" notch is cut so that two pieces of 1"x4" (A) when tapered at the ends and driven into the notch will be held firmly together. This is the principle of the clamp. The two 1"x4"s (A) need only be tapered at the ends so that they will be held fast when driven into the notches in the tops of the legs.

When it is desired to hold a saw tight for filing, the two 1"x4"s (A) are taken from the clamp and the saw set between them. Then, with the saw between them they are again set in the notch and driven fast with a few light blows from a hammer.

The saw will then be found to be held firmly and will stay so until the 1"x4"s (A) are taken out of the notch. The clamp may be set up anywhere and nailed to any convenient wood column or any stable object in order to hold it upright.

Finishing Cement Floors of Large Area

When it comes to laying cement floors of large area some difficulty may be encountered in finishing them.

For this purpose, the float illustrated here will be found to work in a satisfactory manner. It consists of a piece of 1"x6" supported on a light truss in order to give it sufficient stiffness so that it will not sag. The handle is made of 2"x2" and it is held away from the 1"x6" by means of two other pieces of 2"x2". The whole arrangement forms a truss which may be depended upon to maintain its shape after much hard use.

It will be found easier to handle this float if the handle is allowed to project beyond the bottom piece. It is also necessary to hold 2"x2"s to the 1"x6" by toenailing them in such fashion that the toenails do not cut into the lower edge.

If the nails were allowed to cut the under side of the 1"x6" they would scratch the cement surface and so defeat the purpose for which this tool is intended.

Hanging Heavy Pipes

In basements where heavy pipes are to be run it is sometimes a problem to support them. The first means of support that generally presents itself is the floor system of the floor above.

In building up this kind of a hanger system the line of piping should be marked on the joists so that the location of the hangers will be determined. After the location has been made the cleats (D) should be set in place between the joists.

These cleats should be made of short sections of 2"x4", firmly nailed to the floor joists for they are the main support of the system. Across these 2"x4"s (D) short sections of joists should be set to form a shelf.

These pieces need not be nailed to the cleats but it is well to tack them with at least one nail so that they will not be liable to shift. They must fit tightly between the joists so that they take a firm bearing on the cleats. The shelf (C) should be bored to take the steel rods (H) which carry the pipe (E).

The pipe which is supported (G) is held in the saddle formed by the pipe (E) and the two rods (H). In order to prevent the rods (H) from being pulled through the shelf (C) a large sized washer should be used as illustrated. If the pipe saddle (E) is not truly level it may be made so by tightening or loosening the nut (F).
FEBRUARY
1925

When you build, you start a voyage
Some facts and figures to guide you

When you build a home, you begin a lifetime project which starts right on the day you sign the contract. Your architect and builder will plan and build your new home, but you will take part in it every day of the way. You will be interested in the progress, and you will be eager to know how it is going. You will want to know when it will be finished, and you will want to be sure that it is worth while. You will want to be sure that it will be a home that you will be proud of, and that will give you and your family all the comfort and satisfaction that you desire. You will want to be sure that it will be a home that will last, and that will be a home that you will be able to enjoy.

When you build a home, you start a voyage. Some facts and figures to guide you.

How you are being advertised to the public

The Lehigh Portland Cement Company has a brand new service for contractors. In a tremendous advertising campaign, it is advising millions of people to employ the services of competent contractors. This will develop business for you if you will co-operate.

Lehigh advertising says:

(1) "Even with the best of materials you can get poor results unless you secure competent workmanship."

(2) "Go to a good contractor. He will save you money."

(3) "A good contractor will put quality both where it will be seen at the start and where it will be noticed for its wearing qualities in the years to come."

(4) "A point to remember in choosing a contractor: The contractor who insists on dependable materials is likely to hire competent help and to put skill and dependability into all that he does."

Cash in on this. Two things to do:

(1) Write for an outline of how we help you locally develop your reputation for using (1) Dependable Materials and (2) Competent Workmanship.

(2) Use Lehigh Cement and Lehigh job signs to indicate to your community the high quality of your work.
"A builder or contractor is justified in relying upon the plans and specifications which he has contracted to follow, unless they are so apparently defective that a builder of ordinary prudence would be put upon notice that the work was dangerous and likely to cause injury," declared the New York Court of Appeals in the recent case of Ryan vs. Feeney & Sheehan Building Company, 145 Northeastern Reporter, 321.

One Ryan was killed through fall of a canopy constructed by defendant for the United States Government, and his administratrix unsuccessfully sued to recover damages. What the court decided in the case would have equal force upon a contract to construct a building for an individual or private corporation.

The defendant constructed a building and a canopy according to plans and specifications furnished it by the United States Government and its duly authorized architect. The defendant was a builder it was not an architect. The defendant fully complied with the plans and specifications as it was required to do. The canopy fell down because the supporting iron supports and braces did not have sufficient spread or were fastened at too low an angle with the base. How was an ordinary contractor or builder to know this? The matter was for the engineers and architects to determine and design. The builder's experience might have suggested that another construction would have been better, but it was not its judgment on these matters which was to be taken, and it was justified in relying upon the experience and skill of the architect and supervising engineer.

"There was nothing to show that the plans and specifications were so obviously defective that a contractor of average skill and ordinary prudence would not have attempted the construction according to the plans. This is the rule to be applied. A builder or contractor is justified in relying upon the plans and specifications which he has contracted to follow, unless they are so apparently defective that an ordinary builder of ordinary prudence would be put upon notice that the work was dangerous and likely to cause injury. Such was not the case here.

"In Hardie v. Boland, 205 N. Y. 336, 98 N. E. 661, the plaintiff's intestate while standing upon a scaffold was killed by being thrown from the scaffold by the collapse of a chimney. The contractor was erecting the chimney in accordance with plans made by architects who were employed by the owners. The court said:

"'The fall of the chimney in these circumstances may be prima facie evidence of the negligence of the architects, but it cannot support a charge of negligence against the defendant, unless supplemented by proof showing that the plan was so obviously defective that a contractor of average skill and ordinary prudence would not have attempted the construction according to the plan.' Page 339 (98 N. E. 663).

"A charge (instruction to the jury) reading as follows was held correct:

"'The contractor is presumed to know his business. But unless the defect was such a defect as he ought to have realized and known about it, which he ought to have anticipated and thus have avoided the injury, then there is no negligence even though the chimney fell.' Page 341 (98 N. E. 663).

"Owing to a strain on the supporting rods some timbers 'kicked out,' but Major Smith, who was in charge of the construction for the government, and a
A Matter of Principle

Design, in all probability, has had as much to do with Ford success as price. For no car, however low in price, could establish leadership on anything less than superior performance.

The foundation of this Ford superiority lies in its three point suspension principle carried out completely in engine suspension, spring suspension and chassis bracing.

This same three point suspension is one of the features that makes the Warford ideal equipment for the Ford truck.
Mr. Grimm, the government’s supervising engineer, decided to put the traps on. The defendant made these changes on the assumptions that it was his duty to do so, that the presence of these defects, if any, should have been so obvious to any expert as to allow the defendant to be held liable, and that the government had enough to hold the defendant liable. The defendant had honestly believed at that time that the art glass was included in the order. It was noticed of that fact to defendant, and, if defendant had honestly believed at that time that the art glass was included in the order, the only unusual or reasonable thing for him to have done was to have written back and said that the art glass was included in the $4,185 order. This was before any of the material had been shipped by plaintiff, and if there was any uncertainty or misunderstanding as to the meaning of the contract it could have been adjusted before expense had been incurred."

An Object Lesson for Material Buyers

In the case of Segelke & Kohlman Manufacturing Company vs. Johnson, 199 Northwestern Reporter, 474, decided by the South Dakota Supreme Court, it appeared that defendant had a contract to erect a church building. The plans and specifications were submitted to a representative of plaintiff, a manufacturer and dealer in building materials. This representative made an estimate of the price which certain portions of the materials would be furnished. A separate notation was made as to what art glass, symite glass, and ventilators would cost, a total of $3,297.13. Defendant sent his order to cover a certain described estimate, which did not include the items just referred to. Later he claimed that those items were to be included, but his claim was disallowed by the Supreme Court, which said, in part: "We fail to see why there should be any dispute over what was to be included in the contract for $4,185. When plaintiff furnished defendant with the detailed statement of the items to be included in the order, which was received and retained by defendant without objection, this superseded all previous negotiations, and became the contract. But this is not all. On May 26, 29 days after defendant signed the order, Mr. Haller [plaintiff’s salesman] wrote defendant relative to the transactions, saying: "Regarding the art glass on this job, we would like very much to get the order for this in connection with the other millwork, so kindly send us designs for same so that we may submit a quotation."

"Now this letter, if honestly written, shows conclusively that Haller did not intend or understand that the art glass had been included in the order. It was notice of that fact to defendant, and, if defendant had honestly believed at that time that the art glass was included in the order, the only unusual or reasonable thing for him to have done was to have written back and said that the art glass was included in the $4,185 order. This was before any of the material had been shipped by plaintiff, and if there was any uncertainty or misunderstanding as to the meaning of the contract it could have been adjusted before expense had been incurred."

Payments Due During Progress of Work

"I WOULD like to know how I can be protected in building, say, a $10,000 house for one who has only about $2,000 cash and expects to get $8,000 on a bank loan," writes a Massachusetts builder. "How can I be protected so as to get my payments as the house progresses?"

The most common means of doing this appears to either have the owner give an order on the bank before work is commenced, providing for payment of the loan proceeds over to the builder as payments fall due, and have the order accepted by the bank, with a suitable memorandum binding the bank to comply or to have a three-party contract between the owner, bank and builder to the same effect.

In cases of this kind it is always advisable to have a good attorney nearby see that the papers are properly prepared, to guard against the possibility of the mortgage loan proceeds being diverted away from the builder’s hands, leaving him, perhaps, with a lien subordinate to the mortgage and an empty claim against an insolvent owner.

Building on Wrong Lot

HERE, through one’s own negligence, he builds on a lot to which he has not acquired title, and the owner of the lot does not know of the making of the improvement at the time, there is no right to compel the latter to convey the land on which the building is so constructed, and no right to a lien against the land. In reaching this conclusion in the case of Friel vs. Turk, 123 Atlantic Reporter, 610, the New Jersey Court of Chancery said:

"The case of McKelvey v. Armour, 10 N. J. Eq. 115, 64 Am. Dec. 445, cited as authority for the relief which complainants now seek. In that case a lien was enforced in favor of one who had innocently built a valuable house upon the lands of another because the lot owner had participated in the mistake by standing by and seeing the improvements made upon his property without objection, and, while it appeared that he did not realize that it was a property that was being improved, it was held that he had at least equal opportunity with complainant to know the boundary lines of his lot.

"In the McKeelway Case there were several of the important features that are absent from the instant one. In that case Armour had stood by and seen the improvements being made upon his property.

"It is true, as counsel claims, that this is a case of a mistake producing great hardship to complainants, but it is equally true that this situation is the direct result of complainant’s own inexcusable negligence and the evidence discloses that it is not such a mistake from the consequence of which equity can grant relief. The authorities are in accord in holding that—

"If one erects a building by mistake on the land of another, who knows nothing of it, and, of course, cannot acquiesce, he has no relief on the ground of his own mistake only.

"Equity will not grant a man the relief now sought, whose condition is attributable solely to his failure to exercise that diligence which may be fully expected from a reasonable person."

Injury to Articles on Premises

UNDEB a building contract, the owner reserved the plumbing, which was awarded to an independent contractor. The plumbing contractor so placed an uncrated bath tub in the building that the general contractor’s employees found it necessary to move it, in order that plastering might be done. They rolled the tub, instead of sliding it. Later the tub was found to have been scarred, apparently through having been slid along the floor on a pebbly surface. We are asked whether or not the general contractor is liable.

Liability depends upon whether or not the tub was negligently handled by the general contractor’s employees. The mere fact that it had to be moved cannot excuse injury to it. The general contractor had a right to move it, so that the plastering could be done. But he was bound to do it in a careful manner. If it be conceded that the tub was scarred while being moved by his employees, a presumption of negligence arises, and I believe liability becomes fixed, unless the general contractor can explain in some way how the tub happened to get scarred while being carefully moved.

Mr. the general contractor was in exclusive control of the premises at the time, the fact of injury would seem to raise a presumption of negligence on his part.
Brighter Basements Are Easier to Sell

HOME buyers today are looking for bright basements. They want the extra light, air and general usefulness that Fenestra Basement Windows give. They know that a basement can be a workroom or playroom, as cheery, healthful and useful as the rooms upstairs.

At little or no extra cost, any builder can equip his houses with these sturdy, steel basement windows that everybody wants. It's a long step toward a quick sale.

Fenestra Basement Windows are easy to install in brick, hollow tile, concrete block, poured concrete or field stone. They come complete—sash and frame with hinges and lock attached. Dealers everywhere carry them in stock ready to deliver with your other foundation material. Four standard sizes: 2-light 14 x 20; 3-light 10 x 12; 3-light 12 x 18; 3-light 11 x 24.

We shall be glad to tell you more about Fenestra Basement Windows—how little they cost and how much they help in selling the houses you build.

Fenestra Casement Windows

Fenestra Casements in the first and second floor rooms provide strong selling advantages, also. Their narrow muntins and small glass lights give an old world charm—a cozy, bright, homelike appearance to both interior and exterior. Fenestra Casements are being used today without any extra cost. You can do the same.

Fenestra Utility Windows

In garages equipped with Fenestra Utility Windows, it is not necessary for motorists to back a car into the drive whenever they want to "tinker" with it. These steel windows admit an abundance of light down low, where it is of real use. A large, easily opened ventilator that never gets in the way provides ready escape for deadly exhaust gases.

Detroit Steel Products Company

Fenestra for homes, large and small
shops and small factories
garages and service stations
stores and other buildings
Some Real Aids to Planning

Of all the phenomena that fill our world, human ingenuity is perhaps the one that most nearly exemplifies that long-sought form of activity called "perpetual motion."

The human mind is tireless; it works overtime and all the time; and the fruits of its activity are constantly ripening. New devices are produced every where, in countless forms and for a myriad of purposes. Existing devices are constantly being improved, and a thousand variants are put forth where a hundred existed before.

Thanks in good part to this fertility of production and adaptation, especially in our country, American building has reached an enviable plane, so that today it easily leads the world.

The modern builder shares this quality of mind that produces improvement after improvement. He is interested in all that is going forward; he wants to examine and apply to his own needs every genuine time, labor, or money saving device and piece of equipment.

Such a builder keeps his finger on the pulse of progress largely by means of the catalogs and descriptive literature issued by the hundreds of great manufacturers throughout the country. The catalog tells him what he wants to know just when he wants to know it, and with a minimum of fuss and detail. Its illustrations, descriptions and diagrams tell him at a glance what any particular product looks like and how it operates. The price list permits him to figure cost data without preliminary correspondence.

Modern needs imperatively demand modern methods, and the catalog is a recognized short-cut to efficient working methods. In these pages will be found a thumbnail description of the latest aids to planning. It aims to be a compendium of useful information and a record of what is going forward in the building and allied manufacturing fields.

Your client will be interested in the devices and equipment described in these catalogs. Send for the catalogs now if you wish to have a complete list available whenever needed. Mail your request direct to the manufacturer or to this department of Building Age and National Builder and we will have the particular catalogs mailed direct to you.

Asbestos Shingles multiply the life of a roof, besides adding to its attractiveness. Shingles of asbestos reinforced with Portland cement are made in various sizes and colors by the American Insulation Co., Roberts Ave. and Stokley St., Philadelphia. Builders will be interested in a descriptive booklet put forth by this company.

Combination Doors quickly and easily convertible from screen doors to storm doors and vice versa, are thrice useful, especially in fickle climates and seasons. The change is readily accomplished, according to information submitted by the Combination Door Co., Fond du Lac, Wis.

Construction Machinery of every description, including concrete mixers, concrete block machines, pumps, hoists, etc., is described at length in a catalog issued by the Construction Machinery Co., 83 Vinton St., Waterloo, Ina.

Built-in Conveniences make the home doubly attractive and livable. Kitchen cabinets, closets, etc., assembled in units and ready for installation, and trim and moldings of all varieties, are described in literature issued by the Curtis Companies Service Bureau, Clinton, Iowa.

Building Instruction by mail, including practical lessons in plan reading, estimating, superintending and building construction, is afforded by the lessons of the Chicago Technical College, 113 E. 36th St., Chicago. Literature and a sample lesson will be mailed upon request.

Metal Lath is one of the notable features of fire resisting construction. Incombustible plaster over this type of lath makes a wall calculated to resist the fiercest flames. Specification booklets of the North Western Expanded Metal Co., 1204 Old Colony Bldg., Chicago, contain descriptions of metal lath for all uses.

Wood Carvings that lose nothing alongside expensive hand carvings are practical and economical to use. Carvings for fashioning capitals, scrolls, plaster capitals and period work are described in detail in a new catalog, No. 9, of the Ornamental Products Co., 750 Fourteenth Ave., Detroit, Mich.

Doors of distinctive design and cabinet shop constructions are illustrated in a catalog of the Paine Lumber Co., Oshkosh, Wis. The doors are made in both hard and soft woods.

Radiators and Heating Outfits are vital points in every type of building. Those of approved type help materially in house-selling campaigns. The role of hot water heating systems in augmenting business for the contractor is told in literature of the American Radiator Co., Dept. T 199, 1803 Elmwood Ave., Buffalo, N. Y.

Door Hardware of dignity, substance and character is a bigger asset than might be imagined in selling a house. These are the details that the prospective buyer is the first to note, and first impressions are often all-important. Builders will find useful hints regarding the selection of hardware in a booklet issued by Sargent & Co., 53 Water St., New Haven, Conn.

Floor Surfacing Machinery operated by electricity is doubly valuable in the work it accomplishes and the saving in labor and time represented by its use. A catalog issued by M. L. Schlueter, 225 W. Illinois St., Chicago, describes an improved machine which requires no experienced operator and will surface right up to the quarter round without use of an edge roller.

182
No home need be without water under pressure

Water under pressure should have a prominent place in the specifications for every new home and for the remodeling of old homes. It is one of the greatest of all modern conveniences. It is an invaluable aid to health and sanitation.

Even though the home is beyond city water mains, water under pressure is easily available at an exceedingly low cost for bathroom, kitchen, laundry, garage, barn, watering trough—any place.

Fairbanks-Morse Home Water Plants are a source of greater health and happiness. They are made in a variety of sizes to meet all requirements. There is a plant for drawing water from any source. Furnished in both electric and engine drive. Electric plants are automatic in operation—self-starting—self-priming—self-oiling.

The name Fairbanks-Morse is your guaranty of highest quality. Leadership has been attained by reason of absolutely dependable service year after year. An extensive advertising campaign in national publications is strengthening that leadership.

Let us send you our latest literature which covers thoroughly the subject of water under pressure for home and farm. These booklets are of special interest to builders and architects.

FAIRBANKS, MORSE & CO.
Manufacturers
Chicago, U. S. A.

NATIONALLY ADVERTISED
Some More Useful Catalogs

Concrete Mixers of advanced design and construction are illustrated and detailed in a catalog of the Stewart Mfg. Co., 366 East St., Waterloo, Iowa. Literature will be sent upon request.

Roofing Tile makes roofs as handsome as they are enduring. Particulars of roofing tile of rough and smooth texture may be had by addressing the B. Mifflin Hood Brick Co., Tile Dept., Daisy, Tenn.

Structural Slate is uniquely adapted for use in floors, shower stalls, toilet enclosures, urnial stalls, tubs and sinks. Information regarding this enduring material is contained in literature of the Structural Slate Co., 120 Robinson Ave., Pen Argyl, Pa.

Wall Tiles, wall plugs, base and corner bend are details of construction where quality is especially important. Literature of the Sykes Metal Lath Co., Niles, Ohio, gives copious information regarding many varieties of building specialties including dome dampers, ash dumps, chimneys, steel coal chute doors and ash pit doors.

A Plan Book containing over 300 illustrations of homes ranging in cost from $5,000 to $20,000 will interest builders and home owners alike. A description of such a book is contained in literature issued by Robert L. Stevenson, 521 Paddock Building, Boston, Mass.

Water Softeners should eliminate the insanitary cistern from the home by providing a constant supply of clean, fresh water, and should do away with hard water scale, so saving coal, plumbing and water heaters. A rapid-rate water softener of tested quality is illustrated in literature of the Wayne Tank and Pump Co., 506 Canal St., Fort Wayne, Ind.

Store Fronts that make the most of display space, and that can be set without interruption or breakage expense, will appeal to the builder and merchant alike. A description of such a book is contained in a booklet issued by the Zoeri Drawn Metals Co., 1608 East End Ave., Chicago Heights, III.

Low Charging Mixers are economical both of men and materials. A concrete mixer in which the drum opening is almost as wide as the drum itself and which dispenses very rapidly of material is detailed in a catalog of the R. M. Cropp Co., 3346 W. Kinzie St., Chicago, Ill.

A Coal Chute the frame and bottom of which are pressed out of one piece of heavy “copper steel” is a modern improvement which protects the building from damage and defacement. A descriptive circular giving information about new, improved coal chutes of this type is issued by the Kewanee Mfg. Co., 606 Tremont St., Kewanee, Ill.

Metal Sheathing and Roofing Brackets are easily and quickly attached and thoroughly safe for supporting scaffoldings on steep roofs. A folding bracket of this type is described in a catalog of the Ajax Bracket and Outlet Co., 1551 Rydal Mound Road, Cleveland Heights, Ohio.

Drawing Instruments and other incidental equipment needed for work in the up-to-date builder’s shop and office are in constant use and must meet exacting demands. An illustrated booklet entitled “Be a Bigger Builder” lists and describes several types of instruments indispensable to the contractor.

It is issued by the A. E. Aloe Co., 22 Olive St., St. Louis, Mo.

Canvas Roofing Fabric specially treated to resist dry-rot and mildew, and that is weatherproof, is particularly useful for balconies, flat roofs, roof gardens and sleeping porches. Such a material is described in detail in Booklet A of the Wm. L. Barrell Co., 50 Leonard St., New York City.

Movable Stairways are easily installed and are great space savers. Details regarding this product are given in literature of the Bessler Movable Stairway Co., 1902 East Market St., Akron, Ohio.

Plumbing and Heating Supplies, equipment and fittings reaching the impressive number of 10,000 devices are illustrated in a special catalog, “The Handy Man,” issued by the Hardin-Lavin Co., 4538 Cottage Grove Ave., Chicago. The book is a veritable encyclopedia of its kind.

Electric Switches with radio outlet, bringing radio service to every room in a centrally-run building, form the novel feature of a new catalog, No. 2139, with Plate No. 2137, put forth by the Bishop & Hegenian Mfg. Co., Hartford, Conn.

The Engine is the driving heart of every job where machine power is called for. Sturdy engines that combine power and durability pay rich service dividends. Engines for every type of job are listed by the Hercules Corporation, Evansville, Ind.

Opaque Glass is indicated wherever privacy is required. A tapestry glass that obscures vision and breaks up direct rays of light in a clear, brilliant flood is described in a recent catalog of the Pittsburgh Plate Glass Co., Pittsburgh, Pa. It is a booklet that every builder should have.

Screen Wire Stretchers are invaluable for window and door work. A convenient and rapid-operating device of this kind is described in a new illustrated catalog, No. 15, issued by the Markwell Mfg. Co., Inc., 176 Franklin St., New York. The same catalog lists a multitude of other time-saving devices, such as a clamping bench, automatic screen tackers, mitering machines, etc.

Weatherstrips of approved type and quality are essential for better all-round home satisfaction. These appliances, together with flyscreens and window shades, are products described in literature of the Vortar Parting Bead Co., Reading, Pa.

Water Service anywhere and for any purpose is an argument that speaks eloquently to the prospective home buyer. A service that takes water from any source and provides running water under pressure in any section, and which is equipped for any power, is detailed in literature of the Flint & Walling Mfg. Co., 41 Oak St., Kendallville, Ind. Builders will be interested in their book, “How to Have Running Water.”

Hinges that combine durability and utility with beauty, and spring hinges designed to meet the hardest of service, form the subject of a new catalog, No. 47, issued by the Bommer Spring Hinge Co., Brooklyn, N. Y. It is available to builders upon request.

Sugar for Building use seems at first thought a rather fantastic idea, but that ingredient forms the basic part of a lumber substitute possessing rigidity, economy, and the insulation value of cork, besides being water-resistant and virtually indestructible. The makers, the Celotex Co., 645 N. Michigan Ave., Chicago, Ills., will send a plan book, “Your Home,” which contains complete information regarding this material.

Stucco Construction calls for a strong, substantial base joined with a durable and attractive surface. An insulating base that is both fireproof and waterproof, and a prepared stucco for application to it, are described in an illustrated booklet issued by the Bishop Mfg. Co., 17 Este Ave., Cincinnati, Ohio.

Homes of California Style are becoming increasingly popular with clients. Books of plans giving many varieties of this style of architecture are described in literature of E. W. Stillwell & Co., 270 California Bldg., Los Angeles, Cal.
Pondosa Pine—an old friend with a new name

You've known this choice timber under the name of "Western White Pine." Its new name is "Pondosa Pine," derived from the botanical designation of this species—pinus ponderosa. Pondosa Pine, from the Inland Empire of the Great Northwest, is the finest lumber for all-round use. It is light, yet strong. Takes nails without splitting and holds the paint. Every trade-marked stick of this all-purpose lumber is rigidly graded, thoroughly seasoned and carefully milled. It's great wood to work with! For sale by all good lumber dealers. Write for the Pondosa story. Address Dept. 23, Western Pine Manufacturers Association of Portland, Oregon.

¶ Pondosa Pine
The Pick o' the Pines
Kinks from the Job and Office

Cellar Door Device

Where the stairs to the attic or third story rise over the stairs to the cellar, a condition frequently arises where the landing at the top of the lower flight can be used as a closet provided

A door can be hung to shut out the dust. This door would have to open out over the stairs, and would ordinarily strike the soffit of the stairs to the attic. To avoid this the door should be notched as shown in the drawing, and a swing panel rounded out in the edge on both sides. When the door is opened this panel strikes the soffit of the attic stairs, but does not stick because of the rounded edge. As it opens in it allows both sides. When the door is opened the top of the extension will stand hence if the strips are cut 2 1/4 inches wide, according to the height wanted for the flash. The mailing seams will stand slightly more than 1 1/4 inches high, a good height for any ordinary sized porch.

The extension is nailed through the flange E, back of the bead and should be nailed close; the outer edge of this flange is formed up (X) and over the nail heads, hammered smooth and tight forming a "blind nail" to be soldered over completing the flash or it may be smoothed over with the mixture used for leaks, etc., mentioned in previous numbers.

Laying the tin roof over the corner circle is merely a continuation of the main roof, with due observance that the tin projects over the edge of the circle at all points far enough to cover the shingle butts, the sheeting board edge and extend down on the pine shingles. The tin is then sheaved to a true circular sheath-

Building a neat circle with the flash extension is somewhat more difficult, yet it can be done nicely by snipping the nailing flange, and use a small three corner file to cut into the back of the bead at near one-inch intervals. Use care in bending the bead to the radius of the circle when nailing the flash and a presentable front will have been obtained.—L. S. Bonbrake.

A Merchandising Hint

The photograph shown here illustrates a window display which has been used by a local real estate dealer and builder with remarkably effective results. The foreground of the window is filled with photographs of cottages and bungalows that the builder has erected, together with literature which can be obtained inside the office. As a background to this display is a large poster with the underl ine "Why Pay Rent?" Above is printed in large type, easily read through the window the story of John Jones, which is an interesting narrative of a couple before and after they owned their own home. Here is an idea which builders may well utilize. Posters effectively laid out and attractively colored are magnets to the passerby. Variations on the above method will occur to the enterprising. Local conditions will often suggest particular lines of thought.—B. C. Reber.
NEW and BETTER LATCHES for Screen Doors and French Doors

Study carefully the accompanying illustrations and you will discover that here is an item on which you can do a splendid volume of business.

No. 1150. All exposed parts solid brass, beautifully finished. Installed by simply boring two holes. Various styles, sizes and finishes for all uses.

Drop forged steel spindle, practically everlasting.

Strong tempered steel spring assures positive quick action always.

Seamless tubular brass case carries bolt and spring—a compact, trouble-free unit.

Note how these Latches meet the builder's every requirement. They're good looking, soundly constructed, long lived, and they incorporate the exclusive DEXTER Tubular design that makes possible neatest and speediest installation. Simply bore two holes. Slip Latch and handle into place and they fit, perfectly.

You will see for yourself that this superior Latch is positive in action and practically indestructible. This Latch, with its long positive bolt, has only three simple, substantial working parts.

These latches have been adopted by the largest screen door manufacturers in the United States for the season of 1925. Also by the largest showcase manufacturers in the United States.

The business on DEXTER Latches is growing by leaps and bounds. Get your share. Use the coupon to send for descriptive literature.

National Brass Company
1603-11 Madison Ave., S. E.
Grand Rapids, Mich.

DEXTER Tubular Cupboard Turns
Just as handsome, efficient and durable as DEXTER Screen Door Latches.
Wide range of styles, sizes and finishes. Coupon brings descriptive folder.

Name ...........................................
St. Address .......................................
City .............................................
State ..........................................
Screen Hanger

The illustration on this page shows an original screen hanger, which is both simple to make and serviceable for many seasons.

Fig. 1 shows a side view of the hanger, while the front view is shown in Fig. 2. It can be made from a nail and a staple. The upper part, or hook, is made from a 10 penny nail, with the head sawed off. The lower portion, or eye, is a staple of extra long make.

To put up the screen, first lay the frame on a flat piece of iron for a solid foundation. Drive the staple into the wood at a slight angle. When the points of the staple come out on the other side, they will be clinched into the wood as they strike the iron. When this is done, bend the loop of the staple inward so that it will be in line with the frame.

Set the frame in place in the window and drive the sawed-off nail through the loop into the woodwork, allowing about three-quarters of an inch of the nail to project. Bend the projecting nail to form a hook.—H. Segele.

A Basement Hotbed

One can easily construct a small hotbed in one end of the basement that will greatly facilitate the growing of hardy, early plants.

Construct a concrete wall four inches thick and three feet high beginning at one wall, three or four feet from the south wall, and extend it as far as your purpose requires. The forms for the wall can be erected from scrap lumber. Wires may be run through the sides and twisted together in the empty form to maintain the proper thickness. Cleats can also be nailed across the top. A short length of pipe should be placed through the wall at the lowest point to drain off surplus water.

Reinforcing should be imbedded in the concrete, especially at the corner. To prevent the wall from slipping where it meets the basement wall, the old concrete might be chipped away.

When the concrete has hardened and the forms are removed, the interior is filled with soil, and the top or seed bed prepared in the usual manner. If the natural light available is insufficient, then one or two electric lights can be attached to the joists overhead.—Dale H. Van Horn.

Arches to Match

The problem often arises in alterations of interiors that an arched entrance is desired at the same height as an arched window already constructed, and with the spring lines of both to be at the same level. Figure 1 represents a double arched window in a room, and Figure 2 is an entrance which is to be arched so as to be in symmetry with the other opening.

Locate point A over the center of the proposed entrance. Join A to S-S, the full width of the span. Bisect at B-B. Square down to C for center, and C-A will be the radius and B-A-S the segment of the true circle. In the same manner a center and radius may be found to draw a circle through three points not in a straight line.—A. N. Phillips.

Economy in Cement Walks

Here is a pattern of cement side-walk that I call beam-construction. Experience with this type of walk for more than four years has demonstrated its durability. A cross-section of a two-inch slab is shown in Figure 1; a longitudinal section in Figure 2.

The irregular lines indicate woven wire fencing used as reinforcing material. The heavy dots show where pencil rods are placed laterally. Each slab constitutes a beam supporting the walk, which is made of cinders or ashes carefully filled into the spaces and on the surface. The spacing of the slabs should be at intervals of two to four feet.

The following table shows the amount of material used in building four walks of varying thickness, with each section measuring 2 x 4 feet:

<table>
<thead>
<tr>
<th>Thickness of slab</th>
<th>Sand and gravel</th>
<th>Cement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 inches</td>
<td>16 shovels</td>
<td>4 shovels</td>
</tr>
<tr>
<td>1 1/2 &quot;</td>
<td>14 &quot;</td>
<td>3 1/2 &quot;</td>
</tr>
<tr>
<td>1 &quot;</td>
<td>12 &quot;</td>
<td>3 &quot;</td>
</tr>
<tr>
<td>3/4 &quot;</td>
<td>10 &quot;</td>
<td>2 1/2 &quot;</td>
</tr>
</tbody>
</table>

A shovel ordinarily used for handling gravel was used. Although these four sections have been subject to regular usage for more than three years, they have never been in need of repair.—H. H.
YOU can't buy better cement than Pennsylvania. Every bag exceeds the U. S. Government standard requirements. Starting with the best quality of rock, through every step of manufacture the cement we produce must always be worthy to bear the Pennsylvania brand.

We thoroughly test the fused clinker from which cement is made, 30 days or more before any cement is ground for shipment. A miniature grinding mill installed in our laboratories duplicates actual process of manufacture. This makes it possible to know that the quality of Pennsylvania Cement is certain every time. Nothing is left to chance.

This reputation for quality has been the determining factor for the selection of Pennsylvania Cement in such important work as the New York and Brooklyn Subways, the Polo Grounds, the Catskill Aqueduct, Hell Gate Bridge and the Equitable Building Foundations.

We shall be glad to send you "Pennsylvania Concrete Manual," a booklet of interest to all cement users. Address our New York Office, Pennsylvania Cement Company, 131 East 46th Street, Dept. A-1, New York City.

Pennsylvania Cement Company

Offices:
New York
Philadelphia
Boston
Buffalo

Plants:
Bath, Pennsylvania
Portland Point, N. Y.

Pennsylvania Cement is used in the approach of the Vehicular Tunnels which, when completed, will provide a direct route for motorists between New York City and New Jersey.
Hygiene and Economy Via Water Softeners

It is a fact, little suspected by the layman but nonetheless lamentably true, that the use and effects of hard water mean a waste of thousands of dollars throughout the country.

Hard water has a variety of drawbacks, among which one of the most prominent is the formation of scale deposit in pipes and tubes. But before touching on this factor, let us consider briefly what hard water is.

Water, as it passes through or over the earth, absorbs certain mineral elements, among them lime and magnesium. These give to water certain unpleasant characteristics, such as rendering it difficult to work up soap lather. Scale deposit is the result of lime and magnesium incrustation. The latter not only attacks kettles and pans and closes up pipes, but has the effect of insulating against heat, thus wasting fuel.

It is being generally realized that hard water means annoyance and unnecessary expense.

Cistern water, while it is rain water, is not soft, and it is invariably dirty and often contaminated. Many cities, recognizing the danger to health of cisterns, have legislated against their use.

The common-sense cure for hard water troubles is the modern, improved type of water softener. This is a filter-like device which connects to the city water supply line softening city water as it flows through under regular city pressure. The water is automatically softened and perfectly meets all household requirements. Water softeners obviate the need of the insanitary cistern.

The modern water softener consists of a heavy steel container tested under high hydrostatic pressure. In the top an inlet water diffuser and funnel are attached. The raw water enters through the funnel and passes through a bed of mineral which retains the hardening elements.

This mineral is not a chemical but a sand-like substance containing the element sodium which it has the property of exchanging for the hardening elements calcium and magnesium. Hard water filters through this mineral and emerges clear and soft at virtually the same pressure.

Modern water softeners are both healthful and economical. They are a complete unit, occupy a minimum of basement space and are easily installed by a plumber in a few hours' time. Regeneration, the only attention necessary, is accomplished in about 20 minutes every two weeks.

Another method of avoiding hard scale deposit formed in pipes and tubes by oxide of iron (rust) is by the use of brass pipe. Many are the occasions when an elbow or small pipe clogged with scale has meant a menace to health by deranging the water system just when it was most in demand. The expense for repairs and renewals on ordinary pipe through this one factor alone is often a serious item. Brass pipe costs more in the beginning but less in the end.

The wise builder will install a water softener and brass piping in every job—it will add to his reputation of building satisfaction in every house.
Fifty miles outside the ancient city of Rome, there was a lake which by decree supplied the imperial table with water. To accomplish this and supply the city at large with other suitable water, the ancient engineers built aqueducts of masonry and underground tunnels. The necessity for siphons across the valleys and for branch lines developed a need for pipe.

Sections still exist of 12 to 18-inch lead and terra cotta pipe used in siphons which withstood a pressure of 100 pounds per square inch.

Just picture an old Roman "plumber" fitting his 10-foot length of pipe into a block of stone more than a foot square in whose adjoining walls connecting holes had been cut, the whole serving as an elbow.

Those who did not wish to gamble to such an extent on leak proof water lines imbedded the pipe in concrete. Today, the wise builder who does not wish to gamble on his clients' walls and furniture and hence his own reputation, installs brass plumbing throughout.

Uniformity insures dependability, for which reason Bridgeport Plumrite Brass Pipe behind the walls and Bridgeport Plumbing Goods where the plumbing shows, combine to form the ideal plumbing installation from the standpoint of economy, beauty and comfort.
All Steel Scaffolding Brackets

SCAFFOLDING of the old-fashioned type has many drawbacks, for in addition to being dangerous it is unsightly and wasteful of both lumber and time.

A device designed to eliminate these drawbacks is the Beaver Bracket, manufactured by the Beaver Metal Products Co., of Boston. These brackets are all steel, are portable and easily adjusted. They can be used any number of times and will sustain heavy loads, having been tested up to 4,000 lbs.

Brackets of this type are notable time-savers, as they can be put up in about half-a-minute and taken down very quickly. The spur points are heat treated for extra strength, to be used on the hardest pine timber. No tools are necessary to fasten brackets to the poles.

These brackets, in combination with Beaver Boxes, can be employed in a variety of other ways, such as for plasterers' staging barrel racks, automobile tire racks, storage platforms, interior scaffolding, etc. They are made in two sizes to fit standard 2" x 4" and 4" x 4" planks. The illustration below shows Beaver brackets adjusted and gives an idea of their adaptability.

Scientific Damp-Proof

THE elements are the arch-enemy of all exterior building surfaces. Their action, atmospheric dust, penetration of rain, and frost—all tend to destroy the surface texture of brick, concrete, stone, cement, terra cotta, etc. Once begun, the disintegration is constant, ruining not only the surfaces but often impairing even the stability of buildings.

Sand blasting, while it cleans the surfaces of stone structures, removes a thin layer of the outer surface and eventually destroys the beauty of texture and details. The conditions call for a scientific preservative to arrest and prevent the action of the elements. A preservative made by the Kuckro Chemical Co. of New York, effectually fills the surface pores, thus preventing penetration of moisture.

This compound, Dampex, is a scientific weather, water, and damp-proof. It is neither a paint nor a coating, but a light, colorless, non-inflammable liquid, which, applied to brick, stone, cement, stucco, brownstone, wood, etc., penetrates the pores, rendering the surface absolutely waterproof. Its action is the same in any climate, since it is not affected by heat or frost. It does not contain acid or alkali, and thus will not cause stains or discoloration.

Dampex is not an ordinary surfacer or coating, but a preparation which thoroughly fills the pores or voids. It will penetrate any material from % to % securely sealing it against weather and atmosphere.

This preparation is applied as easily as paint, and can be done by any laborer. It dries in about an hour without staining or changing the color of the most delicate marble or tinted stucco.

It can be used on all types of construction and is especially useful for swimming pools, cisterns, etc.

Improved Mail Boxes

THE great desideratum in mail boxes is strength combined with ease of operation and protection against tampering. A box meeting these requirements and which has all cast brass front and doors with reinforced edges is the Standard Mail Box, manufactured by the Standard Sales & Mfg. Co. of New York.

These apartment house boxes are stronger and safer than the stamped or sheet metal kind.

As shown in the accompanying illustration, the upper doors are connected by a half round brass rod with concealed fastenings, forming a master door, so that any series of boxes can be operated at one time and mail deposited by the carrier. It is controlled by a government lock attached to the center door.

Cleansable Window Shade Fabric

WINDOW shades are often ruined by rain, when windows are left open, or are faded by sunlight. In order to meet this condition, E. I. du Pont de Nemours & Co., of Wilmington, Del., have developed a window shade fabric formed of material with a woven cotton base and a pyroxylin finish. This fabric when soiled through use or exposure can be renovated by scrubbing with soap and water. It has been specially constructed and treated chemically so that it will not crack or sag, thus avoiding two of the main reasons for the replacements of shades at frequent intervals. The introduction of this pyroxylin coated material permits a cleaning and restoration of shades even after long use.
GF Herringbone Doublemesh, has the smallest mesh of any expanded metal lath. The least plaster waste, and the most rigid metal lath, weight for weight, on the market.

On the right is shown perfect keying of Doublemesh. Plaster curls around each strand, and ribs catch and support all plaster coming through. Plaster can't crack with a key like this.

Now Metal Lath Can Be Used In Every Plaster Wall

The introduction of GF Herringbone Doublemesh Lath opens the way to the general use of metal lath in dwelling houses.

At a cost almost on a par with that of ordinary wood lath construction, you can today give house buyers the manifold advantages of metal lath construction. You can assure them of complete freedom from lath streaks, checking, cracking and falling plaster. With all this they get the fire protection of plaster reinforced with steel.

Economies of labor and material, when using it, enable builders to make more money on Doublemesh construction, and at the same time build good will by giving their customers a permanently satisfactory job.

Samples will gladly be sent, together with illustrated booklet: "Better Walls and Bigger Profits."

THE GENERAL FIREPROOFING COMPANY, Youngstown, Ohio

New York - Chicago - Philadelphia - Boston - Cleveland - Los Angeles - St. Louis - Omaha
Kansas City - Minneapolis - Milwaukee - San Francisco - Syracuse - Atlanta - Mexico City

Export Department: 438 Broadway, New York City

Cable Address: "Genfire-New York"

GF Herringbone Doublemesh Lath
What’s New in Materials and Equipment

Copper Steel Casement

IMPROVED casements of copper steel made in three standard units, that can be combined to fill large or small openings, are recent improvements made by the Truscon Steel Co., Youngstown, Ohio. By reversing the casement, opening from either right or left hand may be secured.

In the latest type, the method for attaching the friction stay at both top and bottom is provided in the process of manufacture. The handle is attached directly to dead center, making it possible for the casements to be reversed.

New Tilting Mixer for Small Jobs

CONTRACTORS who specialize in small jobs will find greater economy in the use of a small concrete mixer. A new small tilting mixer expressly designed to meet their needs has been placed on the market by the T. L. Smith Co. of Milwaukee.

This mixer is known as the Smith Mascot and is the smallest tilter made. In spite of its diminutive size it embodies all the qualities of its makers’ larger models and gives to the small job efficient, economical service, while its simplicity of design and rugged construction insure long and low maintenance costs. It is extremely light (750 lbs.) and easily portable, and can be used in cramped quarters because of its compact construction.

The drum is of the fast mixing, fast discharge, and self-cleaning Smith Tilting type. It is all steel construction, electric welded, gear-driven, and has the exclusive “end-to-center” mixing action.

The drum is of the fast mixing, fast discharge, and self-cleaning Smith Tilting type. It is all steel construction, electric welded, gear-driven, and has the exclusive “end-to-center” mixing action. It is practically self-tilting, because the batch shifts to the discharge side as soon as tilting is started. Because of the double-cone two-opening design, it is only necessary to tilt the drum 45 degrees for discharge, and the tilting is readily accomplished from either side of the mixer by means of a tilting lever that slides back and forth and is easily lifted or depressed by hand.

The charging opening is described as being the lowest of any tilting mixer, and a feed chute is provided giving an unusually large charging opening. The charging hopper, which is only supplied on the Smith Tilter, serves as a rest for the sack of cement when splitting it, giving faster and less wasteful handling.

A Placer for Small Patching Jobs

OFTEN painters, decorators and homeowners desire to do small patching jobs but are loath to go to the expense of buying large quantities of plaster. To meet their requirements the United States Gypsum Co., of Chicago, is putting on the market “Red Top Patching Plaster” in 2½ lb. cartons.

This plaster is ready-mixed, subject to quality control at the factory, so as to require the addition of water only before it is applied. It has been formulated to work easily, to spread far and to set after ample time has been allowed for smoothing the surface. It is adapted to filling fine cracks or larger wall-defects. This material forms a chemical bond with the old plaster, and by making the patch homogeneous with the rest of the plastering, it safeguards against reappearance of the crack or hole.

Automatic Saw Filer

NO sooner was the saw invented than it needed to be sharpened. For scores of years the filing and setting of saws has been an irksome, tedious job, and mechanical or automatic saw filing a problem many inventors have struggled to solve. A solution is provided in the machines manufactured by the Foley Saw Tool Co., of Minneapolis.

Two devices have been perfected, one for filing saws, and one for setting the teeth. The saw filer is very simple in construction, having only four moving parts, with simple adjustments. A standard file is placed in a carrier which moves in a horizontal direction, bearing on the saw tooth one way, and returning above the saw for the stroke on the next tooth on the same side of the saw.

The saw is moved forward after each stroke of the file by automatic feed paws, which are quickly adjusted for any saw to bring the next tooth exactly under the file. The bars which clamp the saw are graduated on each edge to provide a perfect feed for different saws. In this way a perfect uniformity, spacing and alignment of the teeth is restored and maintained on the saw. After filing the teeth on one side the saw is reversed, no change being necessary in the adjustment of the saw filer.

The carrier holding the file can be quickly adjusted at any desired angle to the saw, thus giving any degree of pitch or bevel required on the teeth of the circular saw.
Tested and used for twelve years — and now ready for YOU!

IT WILL PAY YOU TO READ THIS:

Dampex is a tried and proven waterproofer with a history that will interest every architect and builder.

Twelve years ago, Dr. Wm. Kuckro first used Dampex. At that time, he was Chief Chemist of the Metropolitan Museum of Art. Necessity proved to be the mother of invention, and Dampex was discovered to treat all stone work at the museum, including the world-famed Obelisk.

Results were so successful that Dr. Kuckro applied Dampex at the U.S. Military Academy at West Point, The National Museum at Washington, The East Brooklyn Savings Bank, The Government Storage Warehouse at Mill Island, N.Y., and innumerable other buildings, some of which are listed on this page.

What Dampex is:

Dampex is a scientific weather, water, and dampproofer, not a paint or coating, but a light, colorless, non-inflammable liquid which, when applied to brick, stone, cement, stucco, brownstone, and wood, penetrates and makes them absolutely waterproof.

What Dampex does:

Dampex fills all crevices and pores, thus preventing the penetration of dampness, water, and air. Dampex is positively water-proof, will stand up in any climate and is not affected by heat or frost. Dampex does not contain acid or alkali, and is an absolutely neutral preparation that will not affect any kind of stone. Dampex will keep your building from deteriorating, and give it longer life.

How Dampex is applied:

Any unskilled laborer can apply Dampex. Merely spray or brush Dampex over the surface to be waterproofed. One gallon of Dampex will cover 300 square feet the first application, and 500 feet the second application. Hence it is a very economical waterproofing material. When mixed with paints, Dampex replaces linseed oil or other material and hardens the paint like an elastic mass, so that it does not oxidize thereafter. Dampex will dry in about an hour, so that you will save time, as well as money by using it.

We guarantee all claims that we make for Dampex in the booklet that we shall gladly send to you upon request. There are other good waterproofing materials on the market but we firmly believe that there is no preparation as thorough, as easily applied, and with results so positively assured as Dampex. Send for this booklet, samples of concrete and wood treated with Dampex, and recommendations from builders and architects who have found Dampex satisfactory during the past twelve years.

Dealers:

Write for our especially attractive dealer proposition. Exclusive territories now being given if you act quickly. ACT NOW!

Kuckro Chemical Co., Inc.
105 Hudson Street, New York, N.Y.

Kuckro Chemical Co., Inc.
105 Hudson St., Dept. A, New York, N.Y.

Gentlemen:

Please send me the facts on Dampex, with a sample treated on concrete and wood.

Name: ___________________________

Firm: __________________________

Street: __________________________

City: __________________________

Sena for FREE Sample NOW!
SKINTLED BRICK WORK

New Surface Effects That Make Uncommon Homes with Good Old COMMON BRICK

You would never guess that the wall to the left is Common Brick. The irregular surface secured by the skillfully wrought pattern gives a unique antiqueness quite in keeping with the design of the home.

Mortar is used in the wall illustrated at the right in a quite out of the ordinary way. This home is in one of Chicago's most exclusive residential districts. In this instance Common Brick was used for its beauty alone.

The illustration at the left shows a corner of an attractive bungalow in which the brick project at various angles. The effect is far from ordinary, yet low-priced Common Brick is used for this wall.

The porch at the right illustrates a more conservative variation. These illustrate only four of the many new, novel and ancient effects that have been produced by leading architects in Common Brick work.

Complete dimension sketches showing how to secure these and other novel effects are given in this newest booklet "Skintled Brick Work." Send 15 cents for a copy. Do it now—the edition is limited. If you have not yet received your copies of our latest plan books send 35 cents for all three books.

The Common Brick Manufacturers' Association of America
2133 Cleveland Discount Building, Cleveland

Further information from any of these district offices

Chicago—Chamber of Commerce Bldg.
Detroit—404 Penobscot Bldg.
Hartford, Conn.—226 Pearl St.
Los Angeles—342 Douglas Bldg.
Nashville, Tenn.—Harry Nichols Bldg.

New Orleans, La.—904 Carondelet Bldg.
New York City—25 W. 45th St.
Philadelphia—2027 Chestnut St.
San Francisco—411 Sharon Bldg.
Winter is half over—keep busy the remaining half.
Load up your yards and you will have “first call”
when the new season opens up.

Keep your gang intact—reduce your overhead—be a step ahead of competition.

Why Tamp by Hand?

Tamp quickly, efficiently, economically with the

Ideal Fit-All Tamper

and you’ll never again think of tamping by hand. This high-grade, reliable and easy-to-operate tamper works over any kind or make of Block Machine. You can use it on a face-down or stripper type machine (two or three core) and your tamping will be speedy, dense, uniform.

New Circular Ready—Ask for It

GARDEN FURNITURE WANTED

by the people of your community. Educate them to look to you for all their demands. Manufacture and advertise—there’s a ready sale for attractive pieces, at good prices.

The accurate and attractive Ideal Molds will prove a “first aid” to you in building up this business. The Etruscan Mold is illustrated herewith—it’s one of our many artistic pieces. Write for prices and circular showing other Molds.

MACHINERY REPRESENTATIVES:

Atlanta, Ga. - R. D. Ballentine, 1203 Meade Bldg.
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THE IDEAL CONCRETE MACHINERY CO.

5012 SPRING GROVE AVE. CINCINNATI, OHIO
Any Handy Man can install his own plumbing and heating by our new easy method and save half. During the last 50 years, we have saved builders and contractors hundred of thousands of dollars in the cost of:

- Plumbing Goods
- Pipeless and Warm Air Furnaces
- Steam Boilers
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You Save Half

SUPER-IMPROVED AUTOMATIC ELECTRIC WATER SUPPLY SYSTEM, Complete

One of the most carefully designed, substantially constructed Automatic Electric Water Supply System on the market today. It is simple to install and use. Can be depended upon to give lasting service with practically no attention. A better outfit is not made. FITS ALL SHALLOW WELLS OR CUSTOMER WHERE WATER IS NOT OVER 22 FEET BELOW SURFACE.

Noiseless Pump Runs in Oil
One pump is contained, double shaft, throughout and fully equipped and lubricated by the New Pastry System. A saving of over 50% in oil bath, which insures lasting service. Latest Type oversize 1, 1/2, Horse Power Regulator with automatic safety valve, shut-off valves, necessary pipe and fittings, Chicago A-31, 1, galvanized heavy porcelain tank, with pressure gauge; 1 1/4 inch galvanized foot valve and strainer. Pump has 3 1/2 inch discharge. Unit equipped with 80 ft. 110 vol. 220 volt, single-phase alternating current, 1,600 watts, 1,000 Horse Power electric motor. Latest type oversize 1,000 Horse Power electric motor, In oil bath, which insures lasting service. Latest Type oversize 1, 1/2, Horse Power Regulator with automatic safety valve, shut-off valves, necessary pipe and fittings, Chicago A-31, 1, galvanized heavy porcelain tank, with pressure gauge; 1 1/4 inch galvanized foot valve and strainer. Pump has 3 1/2 inch discharge. Unit equipped with 80 ft. 110 vol. 220 volt, single-phase alternating current, 1,600 watts, 1,000 Horse Power electric motor. Latest type oversize 1,000 Horse Power electric motor, In oil bath, which insures lasting service.

Outfits Complete—No Extras
System complete at the lowest possible price with automatic air valves, water shut-off, automatic overflow, automatic safety valve, shut-off valves, necessary pipe and fittings. Complete at Chicago A-30, 1, galvanized heavy porcelain tank, with pressure gauge; 1 1/4 inch galvanized foot valve and strainer. Pump has 3 1/2 inch discharge. Unit equipped with 80 ft. 110 vol. 220 volt, single-phase alternating current, 1,600 watts, 1,000 Horse Power electric motor. Latest type oversize 1,000 Horse Power electric motor, In oil bath, which insures lasting service.

A HUNDRED TRADE SECRETS

The "Handy Man" book catalog shows many valuable diagrams and plans and elevations of simple installing systems. Also trade secrets and money, time and labor-saving tips. No expense has been spared to make this book the most useful and valuable of its kind ever published. Send for your copy TODAY.

CHICAGO HIGHEST GRADE BATHROOM OUTFIT COMPLETE $59.95

Fixtures furnished with our Chicago bathroom outfit are built along practical and attractive lines, and of the highest grade that it is possible to make. Shows that FIRST quality Hardin-Lavin products can be had at low costs.

White Enamel Bath Tub

Tub is cast iron, heavy white porcelain-enamelled inside and over the 3 1/2 inch turned over rolled rim; outside of tub is painted. This is our newest design, having a pleasing appearance and the highest grade leg tub manufactured. Fitted complete with heavy brass, nickel-plated compression bath faucet, with china indexed handles, nickel-plated heavy brass adjustable waste and overflow and supply pipes to floor; width 30 1/2 inches, length 4 1/2 or 5 feet, weight 300 pounds. Chicago A-30—Bathub complete as shown, price $31.10, special to builders, $28.95.

White Closer Outfit

Improved, snow-white composition china closer with tank (beautiful and indestructible); fitted with solid brass elevated noiseless valves and improved china flushing handle. Highest grade white vitreous china syphon washdown bowl. Highly polished, reinforced birch mahogany seat, with heavy brass, nickel-plated bar hinges, flashing inlet, supply pipe, closer bolts, etc., weight 125 pounds. Chicago A-32—Closet Outfit, complete as shown with iron pipe connections. Special to Builders—$19.95, special to Builders—$18.75.

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Send us a rough sketch or blue print of your plant or plumbing system. We will give you a complete estimate free, and will make the plans necessary for your work. Our Bonded Guaranty covers every purchase. Behind our Guaranty stands our 50 years of successful service to our large and growing list of 60 years' service to economy buyers.

HARDIN-LAVIN CO.

ESTABLISHED 1876
When in Chicago Visit Our New Plant at 105-15 West Pershing Rd., CHICAGO
Selected List of Manufacturers' Literature

(Continued from page 200)

New York Blue Print Paper Co., 382 Reade Street, New York.

(See listing under Artists' Materials.)


515. Special prices quoted on Drafting Materials upon request.

DRAWING BOARDS—See Artists' Materials

DELABE LINES

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Hardware of "Sterling" Tracing and Detail Papers.

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Catalog "R." The latest book on Wiring Devices, complete
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1186. Descriptions and Specifications.

1188. ELEfCTRICAIK BOXES

Wiring devices

describing the various models of


1192. Electric Tampers, Folder, 4 pp. 3½ x 6 in. Illustrated.

1194. Light of Life Manuscript Building, 6 x 9 in. 25 pp. Illustrated.

1196. Lectures, 16-page treatise on the construction Digest of Information

on the Values and Uses of Redwood.


1202. Technical bulletin describing a new composition flooring which is


1192. American Institute of Architects. A technical treatise on

gauges and weights, specimen specifications and detailed direc­
tions for laying linoleum.


1196. FLOOR MAINTENANCE MACHINERY

1198. American Universal Wire. Catalog showing elevator

descriptions and directions for laying and other helpful data. Illustrated in color. 6 x 9 in.

1160. Closet, Door, and Parts.


1196. Electric Switch folder. 952. Coindcrs (Continued from page

1198. Johnson's Universal Way." Also opportunities of making money in the

1194. 6-page folder describing a new composition flooring which is durable, sanitary and resilient.

1196. "American Universal Wire."

1198. "Robbing the Stairs of Their Terror." 3½ x 6 In. 6-page
descriptive booklet showing the value of this product.

1200. Martin Company, 375 Union Street, Waukegan, 111.

1202. Marketing, Base, Wainscoting, etc. 8½ x 11 in. Illustrated.

1204. 6-page folder describing the new composition flooring which is durable, sanitary and resilient.


BUILDING AGE and NATIONAL BUILDER

FIRE PLACES AND SHUTTERS—See Doors and Windows

FIREPLACE FURNISHINGS

Nicholas Hardware Co., 126 Marion Street, Oak Park, Chicago, Ill.

1210. Catalog No. 19 shows a complete line of Builders' Hardware and Carpenters' Tools.

FLAG POLES

General Electric Co. (Continued from page

1216. "Robbing the Stairs of Their Terror." 3½ x 6 In. 6-page
descriptive booklet showing the value of this product.

1228. "Robbing the Stairs of Their Terror." 3½ x 6 In. 6-page
descriptive booklet showing the value of this product.

1236. Electrical Wires, Cables, and Fans. 24 pp. 11¼ in.

See listing under Artists' Materials.

1238. "Robbing the Stairs of Their Terror." 3½ x 6 In. 6-page
descriptive booklet showing the value of this product.

1246. "Robbing the Stairs of Their Terror." 3½ x 6 In. 6-page
descriptive booklet showing the value of this product.
Any Floors to Scrape?

If so, here's a good way:

The fellow who said, "Experience is a good teacher," said a mouthful. Here is experience that should interest you:

A busy Gary contractor bought a Triple "A" Spring Driven Floor-smoother some time ago, and after using it on a large apartment building said, "My carpenter scraped and sanded three flats per day, and that's about three times as much as we were formerly able to do with our electric sander."

Consider the difference in cost! First cost, up-keep, cost for power and, most of all, the cost per square foot.

Then, again, there are some other points worth considering: The Triple "A" is lighter and easier to move around. It requires no electric current for its operation, and is always ready finishes the room completely—right up flush with the base on all sides. Operators, who know from experience, prefer to run the Triple "A," because it raises no dust, and runs easier.

One of our busiest Chicago contractors said the other day that he was doing his floor surfacing at an average cost of less than a half (5c) cent per square foot with the Triple "A" Floorsmoother.

Do you wonder how? Consider briefly from your own experience: If you had a floor to surface by hand, how would you go about it? Wouldn't you depend on your scraper for most of the work, and then finish with sandpaper? At least, most carpenters would—and that's the way of the Triple "A."

"The Triple 'A' Way" is just an enlargement upon the old reliable way that you are familiar with, by hand. You know the principle is right. Here are some of the mechanical features of the

Triple "A" Spring Driven Floor Smoother:

—it has all of the necessary mechanical adjustments required to insure smooth and easy cutting.

—Two demountable weights to supply the required leverage for light or heavy cutting.

—A powerful Spring Motor that reduces the labor of operating to a minimum.

—A simple and efficient means for sharpening the scraper in the machine without removal.

—A Sander Attachment that works on the right principle—the rub action—that insures a finish free from waves, hollows, or cross grain scratches.

—it comes to you fully equipped with an assortment of six double edge scraper blades (of three different thicknesses), adaptable to any and all of the various classes of floor surfacing work, together with a complete set of sharpening tools—all in a small handy tool box.

Free trial—Easy terms—Full information on request

TRIPLE "A" MACHINE COMPANY

4601 E. RAVENSWOOD AVENUE

CHICAGO
Electric Rotary Machine Co., 3823 W. Lake St., Chicago, Ill. 1136. Write for descriptive information. Described in this electric machine. It is a means of becoming independent.

Fox Supply Co., Brooklyn, N. Y. 1132. Complete line of lathes, machine tools, metal cutting equipment.


Keeler Company, 223 W. Illinois St., Chicago, Ill. 921. The Lightning Electric Floor Surfacer is described in a 4-page circular. Describes the unique design, new type of surfacing machine, the gears, pump, plate, and roller. There are 24 features built in the "Lightning."


The Roehl Company, Mfrs. of Wilson Plate Glass, is described and illustrated in a 4-page folder. Many time and labor saving reasons are given for using the Wilson Plate Glass.


FLOOR Voids FOR USE IN CONCRETE

FIRST PROTECTIVE
The General Fireproofing Co., Youngstown, Ohio. 1094. The General Fireproofing Co. describes the use of General Fireproofing Co. for Portuguese Accelerator as a combined accelerator, anti-friction, hardener and fire retarder.

Tech Bros., 119 E. 42nd Street, New York. (See listing under "Pyro Barb Gypsum Tile."

FURNACES—See Heating Equipment

GARBAGE DESTROYERS


GARBAGE RECEIVERS

The Dooley Bros. Co., 13290 Miles Ave., Cleveland, Ohio. 900. Catalog No. 1, 6 x 9 in. 60 pp. Giving a complete list of Gas Stove Parts and their cost.

GLASS

American Window Glass Co., Pittsburgh, Pa. 1013. Describes circular describing different varieties of window glass and how to select the proper kind.

American Thermoway Plate Glass Co., Cheverly, Chicago, Ill., also 3828 Webster Ave., Atonia, N. Y. 70. Write for details and price of glass prisms that will project daylight into dark interiors.

GARAGES—See Ranges

GARAGE RANGE PARTS


Auer Register Co., The, Cleveland, Ohio. 1137. Catalog No. 19 for radiator enclosures.

Buffalo Wire Works Co., Inc., 322 Terrace Street, Buffalo, N. Y. 818. Describes circular describing grills for windows, radiators, toileters' cases, floor rugs, etc., manufactured by Buffalo Wire Works Co., Inc., Buffalo, N. Y.

The Hart & Company, New Britain, Conn. 747. 24-page illustrated catalog describes the line of plate grills manufactured by this company.


Tetley & Bulley Mfrs. Co. W. 49th Street, New York. 1129. Circular describing the line of plate grills, Cast Ferro-Cast Eagles in plain lattice or choice of 50 special designs. Also cast in brass and bronze, and stocked steel grills.

GRINDING EQUIPMENT


GUARDS, MACHINE
North Western Expanded Metal Co., 1204 Old Colony Bldg., Chicago, Ill. 697. "Practical Machine Guards." 9½ x 6½ in. 25-page illus. Describes various types of guards on machinery, the application of the "Ezomco" mesh.

GUARDS, WINDOW & DOOR
Buffalo Wire Works Co., Inc., 322 Terrace Street, Buffalo, N. Y. 1130. Illustrated catalog, showing various sizes of grilles and door specialties.


Guttering


New Jersey Zinc Co., 109 Front Street, New York. 1005. "Once in a Lifetime." Booklet containing information about downsputs and gutters made from "Horse Head" zinc.

GYSUM


HANGERS—See Hardware

Hillery, S. & Son, Manila, N. Y. 1314. Price list and catalog of 44 pages listing and describing a splashing variety of objects showing the beauty and durability of this brass hardware.


Co., H. B., New Haven, Conn. 448. Write for their illustrated folder, describing hardware, window frames and door fixtures.


Myers & Bros., Co., F. & A. 450. Catalog describing the ordinary house, No. 30 Simplex Garage Door Hanger.

National Brass Co., Grand Rapids, Mich. 1136. "Dexter Locks and Latches" is fully described in a circular showing the beauty and durability of this brass hardware.


Nicholas Hardware Co., 121 Marion Street, Oak Park, Chicago, Ill. 1263. Catalog No. 10 shows a complete line of Builders' Hardware and Carpenter's Tools. 402.

Pullman Mfg. Co., Rochester, N. Y. 662. Pullman Unit Basin Stove. The Pullman Unit Basin Stove is a coiled spring in a housing that replaces walls and corners. This book tells why it costs less on nearly all installations, why it is better in all respects, and gives a list of important buildings in which this balance is in satisfactory use. Contains blue print sheet of details. 12 pp. 8½ x 11 in.


Distributice Garage Doors and Gates Co., No. A-22. This is more than a catalog. It is a treatise for architects and builders of the door equipment, garages, operating cider, and combination sliding and folding doors, with their hardware. 94 pp. Illus. 8½ x 11 in.

Sliding Door Hardware, Catalog No. A-17. A catalog of sliding door hardware of Parallel, Accordian and Flush door parittions. 32 pp. Illus. 8½ x 11 in.

Sargent & Company, New Haven, Conn. 1131. Details of Which Standard Hardwood Can Be Applied, Booklet. 6 pp. 9 x 12. Illustrated. Treats with diagrams, portions of doors and windows to which hardware can be applied.

HEATING EQUIPMENT—See also Ranges


Hess Warming & Ventilating Co., Hilswlana, Wash. 1003. Ideal-Arcola Heating Outfits, 5½ x 7½ in. 30-page illustrated booklet, describing a hot water heating outfit for small homes.

Andrews Heating Co., 2601 Heating Bldg., Minneapolis, Minn. 1004. "Write for agency offer." A well illus. descriptive catalog of heating, sewage disposal, water supply and plumbing.

Beech Furnace Works, 61 W. 30th St., Waterman, Iowa. 1228. Price list listing the various styles and prices, Simplifies the task of computing the cost of the heating plant in various sizes and capacities.


Hess Warmers & Ventilators, Delaware, Ohio. 1135. Modern Furnace Heating. Catalog, 6 x 9 in. 48 pp. Illustrated. Complete information on hot-air furnace heating useful to the architect and contractor.

Holland Furnace Company, Chicago, Ill. 203. "The Whole House Comfortable and Clean." A booklet describing an efficient heating system backed up by a corps of heating specialists.

Molby Boiler Co., Lansdale, Pa. 1137. "There's no heating boiler like the new Molby." 24 pp. 4 x 9 in. illus. catalog, explaining the advantages of the Molby from every angle, living areas, capacities, dimensions and prices.

Thatcher Furnace Co., 29 St. Francis Street, Newark, N. J. 1176. "Your Warm Friends." A well illus. descriptive catalog of describing the construction of the Thatcher Furnace, the reduction of coal bills and the even distribution of heat.
SARGENT PLANES AND SQUARES

For accuracy and speed!

Sargent Planes and Squares help carpenters to produce the finest possible workmanship with the greatest possible speed. Sargent Squares are the most accurately and completely tabled squares on the market. Time-savers. Favorites wherever comparisons are made. Sargent Planes in every style and size are the result of years of knowing just what these tools must do. They are designed and built only for professional use.

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SARGENT & COMPANY
Manufacturers
52 Water Street New Haven, Conn.
Selected List of Manufacturers, Literature

(Continued from page 204)

Tuttle & Bailey Mfg. Co., 2 West 45th Street, New York, N. Y.
1025. Catalog, 9 x 11 1/4 in. 164 pp. Illustrated catalog on paper coated, profusely illustrated, giving full details of everything an architect, draftsman and builder requires in the way of supplies.

Stevens, E. R., 350 Newton Falls, Ohio.
1026. Circular describing the genuine "Stevens" line levels.

1027. "Sterling" Levels and Transit, 32 pp. Illustrated catalog describing transits and prismatic advantages, required in modern practice for establishing lines, levels, angles, etc. Pocket note book containing full specifications for modern practice in leveling sent free on request.

White Co., 867 Chestnut Street, Milwaukee, Wis.
1028. Catalog A, "White's Instruments," is a 36-page booklet with a hard cover and illustrated.

1029. "White's Improved Compass," is a 40 pp. Illustrated catalog telling how to use this level.

Winstead Instrument Co., 600 N. Broadway, St. Louis, Mo.
1030. Write for our complete booklet describing our converting levels. Prices included.

LIGHTING—See Electrical Equipment

American 3 Way-Luxfer Prism Co., 1900 So. 5th Street, Cicero, Ill.
1031. "White's Improved Compass," is a 35 pp. Illustrated catalog describing transits and prismatic advantages, required in modern practice for establishing lines, levels, angles, etc. Pocket note book containing full specifications for modern practice in leveling sent free on request.

Winstead Instrument Co., 600 N. Broadway, St. Louis, Mo.
1032. Write for our complete booklet describing our converting levels. Prices included.

LOCKERS, STEEL

Hart & Hanson Co., New Britain, Conn.
1033. "Asbestos Insulation for Modern Practice in Leveling," is illustrated book containing full instructions and specifications for modern practice in leveling sent free on request.

LOCKERS, STEEL—See Steel, Structural.

LOCKS—See Hardware

LINOLEUM—See Flooring

LOCKS—See Hardware

LINING

See Hardware

LUMBER ANTI-ESTORS

1034. "Asbestos Insulation for Modern Practice in Leveling," is illustrated book containing full instructions and specifications for modern practice in leveling sent free on request.

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This instrument will add immeasurably to your efficiency and put you in the big builder class—will do more to increase your business, income and prestige than any investment you ever made.

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256. Tested Blackened Brass Rod. Booklet, 10½ x 8 in. 16 pages. Illustrated. Short treatise on the manufacture of Brass rods for use in the Bridgeport Trowbridge Brass Company, with particular reference to improvements originated by the Bridgeport Trowbridge Brass Company.

The Donkey Bros. Co., 13293 Miles Avenue, Cleveland, Ohio.

257. Black Sheets and Special Sheets on "Donkey Devices and Building Specialties." 6 x 9 in.

METAL TRIM—See Doors and Windows

MILLWORK

Arkaras Soft Pine Bureau, 113 Boyle Bldg., Little Rock, Ark.


Morgan Sash & Door Co., Chicago, Ill.

1236. "Building with Assurance." 440 page illus. catalog, showing attractive bungalow houses in colors, with floor plans, hints to room arrangement, interior decorating, floor coverings, lighting, heating, plumbing and landscaping are also included.


1233. "Concerning Linoleum and Its Uses." 48 pp. illus. booklet, 4½ x 9 in., describing coil, wall, work, gutters and conduits, shingles, clapboarding, columns, etc.

MINERAL WOOL

E. S. Mineral Wool Co., 250 Madison Avenue, New York.

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MODEL—CARDBOARD HOUSE


MORTISING MACHINE—See Woodworking Machinery

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Wagner Products Co., Ashland, Ohio.

1232. All-stone mortar board, 30" x 36" top and stands 5" high. Inquiries promptly attended to.

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Hussey & Co., C. C., 250 14th Avenue, Pittsburgh, Pa.

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OIL RANGES—See Ranges

ORNAMENTS—CARVED BRASS

The American Brass Co., Waterbury, Conn.

1230. Illustrates the use and adaptability of Extruded Architectural Shapes, Benedict Nickel, Brass and Copper Rods, and Iron Pipe sizes for plumbing installations. 8½ x 11 in.

Dow Co., The, 362 N. Buchanan Street, Louisville, Ky.

1233. Extruded Architectural Shapes for all types of ornamental and miscellaneous uses for buildings.

ORNAMENTS—ELECTRICAL

Jewel Electric & Mfg. Co., 1400 Ravenswood Avenue, Chicago, III.

1971. 12-page illustrated and descriptive booklet of the Jewel portable illuminated electric furnaces.

PACKAGE RECEIVERS

The Donkey Bros. Co., 13293 Miles Avenue, Cleveland, Ohio.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES


Clifton Metal Plate Co., Clinton, N. J.

1396. Booklets on mortar colors and stucco colors are obtainable in interesting and attractive form.

The General Fireproofing Company, Youngstown, Ohio.

970. Technical Paints and Coatings. A bulletin describing methods and materials for rendering walls, doors and containers proof against acids and oils, for protecting structural steel and water tanks from rust, and timbers from dry rot and decay. 12 pp. 8½ x 11 in.

The Gilded Company, Cleveland, Ohio.


Johnston & Sons, S. C., Racine, Wis.

1232. The Proper Treatment for Floors. Woodwork and Furniture. Booklet, 5pp., on finishing hard and soft wood in stained and enameled effect; also natural wood effects.

Portals of Wood Panels, 8½ x 10½ in., 14 pp. Containing actual panels of finished wood. Also contains valuable information on staining and refinishings done and woodwork.

The New Jersey Zinc Co., 100 Front Street, New York, N. Y.

1089. "Roger Boardbook." Contains valuable information regarding paint and painting, having especially to do with Magna No. 1, pure zinc paint. A number of blank pages for memoranda are included.

1184. zinc plates showing combination containing a number of illus. explaining the use of Zinc oxide in paint.

1150. "40-40-20," booklet describing a new type of grade exterior paint made from New Jersey Zinc Co. "XX" Zinc Oxide in accordance with the recommended so-called 40-40-20 formula.

The Ripolino Company, Chicago, Ill.


1187. "Why Ripolin Has an International Reputation," 8 x 10 in. 24 pages. Describes the method of application of Ripolin to many varied uses of Ripolin enamel paint in all parts of the world. Profusely illustrated.

Toch Bros., 110 E. 42d Street, New York.

1169. "Selections," 8½ x 11 in., 60 illustrated catalog giving and technical painting.


1168. Portable of 8½ x 11 in. 244 pp., Describes methods for light saving by the application of light reflecting enamels to interior walls and ceilings.

PANELS, WOOD


1232. Plywood-Stick gives general information. Panels used for cupboards, built-in work, wainscots and paneling entire room.

PARQUET FLOORING—See Flooring

PARTITIONS

The General Fireproofing Company, Youngstown, Ohio.


Hart & Hutchinson, New Britain, Conn.

284. Write for this Catalog, describing the sanitary and durable usages of these partitioning walls.

Richards-Wilcox Mfg. Co., Aurora, III.

1232. Partitions, Booklet, 7 x 10 in. 32 pp. Illustrated. Shows complete line of tracks and hangers for all styles of sliding, parallel, accordion and Rod door partitions.

United States Gypsum Co., 205 W. Monroe Street, Chicago, Ill.

1231. Loose Leaf Bulletins, 8½ x 11 in. Jeter-Sackett consists of plaster board applied to metal channels with special clip, ready for plastering.

134. Fireproof, 32-page booklet, 8½ x 11 in., including description, specifications and working details of Pyroboard partition tile.


1177. "Wetted Metal Compartment." Illustrated catalog, giving full details regarding this compartment.

PERGOLAS

Hartmann-Sanders Co., Elston and Webster Avenues, Chicago, Ill.

1200. Four-page illustrated circular 0-01 on Pergolas and Arbors will be sent free on request from the company.

PIPE—See also Metals and Metal Building Specialties

The American Brass Company, Waterbury, Conn.

1056. "Bulletins B-1, "Brass Pipe for Water Service."" 8½ x 11 in. 28 pp. Illustrated. Gives schedule of weights and sizes (I.P.S.) of seamless brass tube and pipe, shows typical installations of brass pipe, and gives general discussion of the corrosive effect of water-in brass pipe. It is a valuable treatise for all architects and engineers. 47 pages. Illustrated. 8¼ x 11 in.

Bridgeport Brass Company, Bridgeport, Conn.

941. Brass Pipe and Piping: When and How It Should Be Used. Bulletin, No. 15. This book contains valuable illustrations, charts, examples and the design of hot-water installations, with illustrations of detailed and complete specifications. It will prove of great value to any one desiring information and prices.

The New Jersey Zinc Co., 100 Front Street, New York.


1141. Something new in a conductor pipe. Write for further information and prices.

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See listing under "Books."

PLANS—BUILDING

Selected List of Manufacturers Literature

Continued from page 206

1188. The New Jersey Zinc Co., 100 Front Street, New York, N. Y.

1089. "Roger Boardbook." Contains valuable information regarding paint and painting, having especially to do with Magna No. 1, pure zinc paint. A number of blank pages for memoranda are included.

1184. zinc plates showing combination containing a number of illus. explaining the use of Zinc oxide in paint.

1150. "40-40-20," booklet describing a new type of grade exterior paint made from New Jersey Zinc Co. "XX" Zinc Oxide in accordance with the recommended so-called 40-40-20 formula.

The Ripolino Company, Chicago, Ill.


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257. Black Sheets and Special Sheets on "Donkey Devices and Building Specialties." 6 x 9 in.
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One layer of “Quilt” will stop as much heat as 28 to 40 layers of cheap building paper! One layer is equal to nearly four inches of solid wood, or nearly twice that thickness of brick wall.

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How can you render better service than this to make your clients loyal?

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United States Gypsum Company, 205 W. Monroe Street, Chicago, III.

POWER PLANTS
Hercey & Company, Evansville, Ind.

ROOF DECKS—See Roofing Materials
American Insulation Co. (Asbestos Shingle Dept.), Roberts Avenue and Stockley Street, Philadelphia, Pa.

ROOFING MATERIALS
American Insulation Co., 611 W. Jackson Blvd., Chicago, Ill.

REFRIGERATION
Herccy Refrigerator Co., Waterloo, Iowa.

REGISTERS, WARM AIR
Plummer Register Co., The, Cleveland, Ohio.

ROOFING MATERIALS
American Insulation Co. (Asbestos Shingle Dept.), Roberts Avenue and Stockley Street, Philadelphia, Pa.

ROOFING MATERIALS
American Insulation Co., 611 W. Jackson Blvd., Chicago, Ill.

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<th>Product</th>
<th>Per M</th>
<th>Price</th>
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<tr>
<td>2,985 Mill and Factory Supply Houses</td>
<td>Per M</td>
<td>$18.00</td>
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<tr>
<td>Manufacturers $50,000 and up</td>
<td>Per M</td>
<td>$12.00</td>
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<td>2,979 Hardware Dealers, retail.</td>
<td>Per M</td>
<td>$18.00</td>
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<tr>
<td>964 Railroad Purchasing Agents</td>
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<td>3,756 Farmers owning Autos</td>
<td>Per M</td>
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<tr>
<td>18,100 Paint, Oil and Glass Dealers, retail</td>
<td>Per M</td>
<td>$15.00</td>
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<tr>
<td>6,120 Building Contractors over $5,000 per year</td>
<td>Per M</td>
<td>$12.00</td>
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<td>613 Hardware Dealers Heavy</td>
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<td>615 Country Clubs</td>
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<td>7,870 Hospitals, Asylums and Sanitariums</td>
<td>Per M</td>
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<tr>
<td>7,095 Eglg. Material Dealers, $5,000 and up</td>
<td>Per M</td>
<td>$12.00</td>
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By D. L. Stoddard

1925 Edition

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Ritestone stucco is specified by architects and home owners and used by builders who demand a super mineral strength body. A material which is flexible and waterproof, being immune to streaks during rainy and damp weather. A material which thru a wide range of uniform permanent colors worked in harmony with textures of the individual’s selection blends beautifully with all types of architecture and exterior surroundings. Ritestone Colored Stucco is a boon to those who desire Magnesite Stucco for its many advantages but who are not impressed with Marble Dash Finishes. The colors are permanently embodied in the Ritestone, the first cost is the last, eliminates upkeep, continues high-class appearance and makes valuations permanent.

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15,000 WINDOWS

In One Building Operation Equipped in 5 Weeks with

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Winter’s blizzards hold no terrors for the dwellers in homes and workers in offices protected by this most-efficient-of-all weatherstripping. (Our staff having just finished a large installation in the phenomenal time of five weeks for fifteen thousand windows, we are now ready for IMMEDIATE INSTALLATION of A B C Weatherstripping in new or field buildings—apartments, dwellings, offices or lofts.

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ARCHITECTS

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ALL BRONZE CONSTRUCTION

ALL 15,000 WINDOWS

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No Dust—No Sticking—No Splitting—Installed Without Removal of Dash

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Made of Spring Bronze, follow any expansion, shrinkage or warp of the dash. Always snug against the dash with no possibility of sticking the window, installed without grooving or removings the dash, SAVING TIME, LABOR AND EXPENSE.

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FEBRUARY 1925

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The New
DAYTON $85
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the Guaranteed “DAYTON”

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Since the Dayton Pump & Mfg. Co., fifteen years ago, pioneered the way in the manufacture of private water systems, the dependability of Dayton Pumps for continuous, uninterrupted service and freedom from repair bills, have made them justly recognized as leaders.

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“Dayton” Pumps
Make the water do the running
Redwood Finish

for exteriors and interiors

For Exterior Woodwork—such as siding, frames, cornices, gutters, porch flooring, rails, balusters and lattice.

Redwood is protected against all forms of fungus rot and decay by a natural preservative which permeates the wood fiber during growth.

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California Redwood Grades

Clear

Clear Redwood, as the name implies, is all clear heart stock, entirely free from sap and knots and allowing a small amount of bird's eye.

Sap or A

This grade is also clear, as far as freedom from knots is concerned, but allows any amount of bright sap. Owning to the contract between the reddish tone of the heart wood and the white of the sap wood this grade is generally used where a paint finish, rather than a natural or stained finish, is applied.

John Nyden, Architect

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The Commonwealth Hotel, Chicago, is another of the recently constructed buildings in which Hess snow-white steel Cabinets and Lavatory Mirrors were installed throughout. The durability, dustlessness, and beauty of the Hess steel cabinet make it a favorite for finer buildings. Steel is free from warping, sagging, or shrinking. Doors close quietly, never binding. The baked enamel never chips nor peels. Absolutely satisfactory in every respect.

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Whether the water supply, well, lake, cistern, spring—it can be put under pressure by Jno. See Water Service.

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On Chisels, Bits, Gauges, Augers, Draw Knives, Screw Drivers, etc. High Grade Mechanics' Tools known to good workmen.

THE JAMES SWAN COMPANY, Seymour, Conn.

Awarded the Medal of Honor on Mechanics' Tools at the Panama-Pacific Exposition

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Connect with any clamp saws and best work. Takes more from 4" to 14". Will rip or crosscut up to 12" in material. Set one angle. Takes Ills to 50 degree angle. Table 8 x 13 3/4". With thrust 6 x 6" and will take dado plates up to 2" wide. Made of best grade of steel and steel and hardened ball bearings. Bed of steel bored to take drill bits, or support saws on dadoes. Its outstanding quality is ease and speed and use a saw for cutting metal. Takes only 1 1/4 x 2" boards. Weight about 60 lbs. Price, $38.50.

TO DEALERS: Write for our proposition on this fast-selling saw.

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BALL BEARING
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SAFETY FOR $5.00

Save Life, Limb, Time, Worry

Advantages for Painters and Tinners
Fitted to any ladder in two minutes.
You risk life and limb every time you climb a ladder.
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Made of Drop Forged Steel—3 pounds, 10 oz. per pair.
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Grimm’s Gal-Cor Wire Lathing will conform to practically any shape or form.

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Write for New Lathing booklet No. 81-B.

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MECCO METAL SHINGLES

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MECCO METAL SHINGLES
Fig. 58B

“Mecco” Shingles make an equally sturdy roof not warp, split or buckle. Especially designed for modern architects and builders because quickly applied, therefore labor-saver. Four designs, in one size only—16 lin. x 14 in.—packed one square to the box, sufficient to cover 160 sq. ft. flat surface. Allowance for loss in hips and valleys must be made.

THE MOESCHL-EDWARDS CORRUGATING CO., Inc.
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CINCINNATI, O.
Manufacturers of Everything in Sheet Metal Building Material—Write for Catalog and Samples

Fig. 227

Fig. 227. The side view is a guar­

tance against leakage because of the non-synthesizing feature. Although not war­

ted, the presence of these features not seen through or drain over seams.

“Ideal” Shingle

Fig. 227 gives an illustration of the side view (open and closed) used on “Mecco” Metal Spanish Tile and “Mecco” Metal Shingles. This is the best and most satisfactory lock made.

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For Residents and Other Buildings Where Architectural Beauty and Long Life Are Desired

Unexcelled in simplicity—security—durability.
LUFKIN BUILDERS TOOLS

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