

[A Simmons-Boardman Publication]

AMERICAN BUILDER

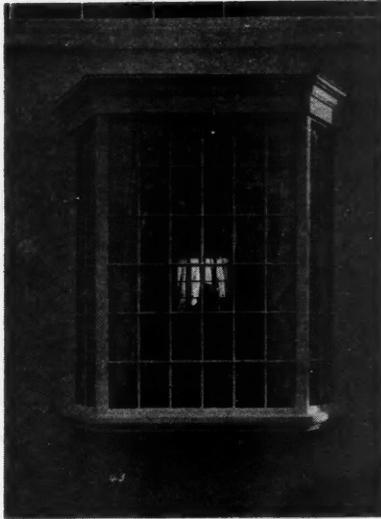
and Building Age

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A charming detail of the All-Copper House erected at Washington, D. C., sponsored by Chase Brass & Copper Co., built by Copper Houses, Inc., designed by John J. Whalen.

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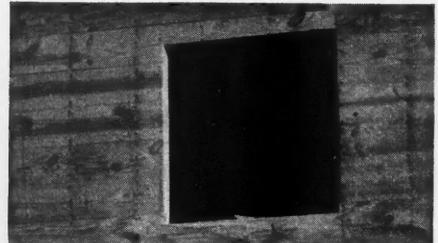
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BETTER WINDOWS THAT COST LESS

Fenestra

KEEP THE GOVERNMENT OUT OF HOME BUILDING

TWO widely differing policies for increasing expenditures on housing are being advocated by persons high in the government at Washington.

One is the policy represented by the National Housing Act—that of encouraging and stimulating investment of private capital by private individuals and companies. The other is that of investment and use by the government of hundreds of millions of dollars of the taxpayers' money in so-called "low-cost housing" in ways that will afford a subsidy to those occupying the houses and apartments built.

THE *American Builder* has done more than any other publication to promote the passage and successful administration of the National Housing Act. The large increase that has occurred within the last year, and is still occurring, in expenditures upon modernization and construction of homes demonstrates that this is the soundest and most effective measure for promoting economic recovery that has been passed since the depression began.

Its results present a striking contrast to those of other measures for huge government expenditures upon public works to "prime the pump" of business—measures which, while failing to "prime the pump," have caused an enormous increase in the national debt.

There is nothing more dangerous to the public welfare than a policy of huge government spending to promote recovery or for any other purpose. There is nothing more dangerous to an industry than to have the government enter it with a policy of government construction and subsidies. Never has this been so conclusively demonstrated as in the United States within recent years.

THE home-building industry and the American people should not be misled by the *apparent, but unreal*, temporary advantages they would derive from having the government provide a large

amount of "low-cost," subsidized housing. It would necessarily provide it, including the subsidies, *with the taxpayers' money*. The more of the taxpayers' money the government spends, *the less of their money the taxpayers themselves will be able to spend*. The more extensively the government invades the field of home building, *the greater will be the amount of private capital it will prevent from being invested in that field*.

Consider what is occurring in the public utility industry. Private companies in that industry desire to invest hundreds of millions of dollars in enlarging their facilities, but month after month are prevented from doing so by the government's invasion of their field and its threatened more extensive invasion of it—with the taxpayers' money.

HOME BUILDING is rapidly recovering from the depths to which it declined. The *American Builder* has a greater selfish interest in continuance of its recovery than any other publication in the United States, and would favor any sound policy that would stimulate it. Our selfish interest, however, is identical with that of every building contractor, of every manufacturer of or dealer in building materials, and of every employe of them; and their interest is identical with that of the entire American people.

The interest of all is to have the greatest practicable increase of the volume of building construction. *This can be attained only by a vast increase of private investment*; and the more the government invades the field the smaller will be the increase of private investment.

Samuel O. Drumm,
CHAIRMAN

AMERICAN BUILDER PUBLISHING CORPORATION
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Teel
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CEMENT**



AMERICAN BUILDER AND BUILDING AGE

KEEP THE COSTS DOWN

THE building industry should stop, look, and listen—and then give still more serious thought to the damages and dangers of high costs.

A healthy and encouraging pickup in business is getting under way. There is one sure way to smother this building improvement, and that is to boost prices and building costs.

It is perfectly natural for manufacturers, dealers, contractors, and financial institutions to want to increase their incomes. But if all of them unite at the same time to increase building costs, they will kill any chance for profits. There is an alarming amount of talk about increases in material costs. Labor threatens to demand large increases "just as soon as business picks up a little." Financial institutions, in spite of the universal talk about how easy it is to get a loan, are once again attempting to collect charges and commissions that are excessive.

WHAT the building industry—and particularly the home building industry—needs today is a good, low-cost house. The demand for low-priced homes that the average man can afford to buy is so great that something must or will be done about it. It is one of the reasons why the federal government talks of "doing something" for the housing field. It is the sole reason why the talk about pre-fabricated houses and "factory-built" houses attracts so much attention. President Roosevelt himself is reported as having said recently that what the country needs more than anything else (even than a good five-cent cigar) is a good twenty-five hundred dollar house.

The *American Builder* believes that the building industry, as now organized, can produce a satisfactory twenty-five hundred dollar house. In the small towns and rural areas, where land and labor costs are low, such houses are being built. But in these very areas, FHA or other long-term financing is most difficult. The government can help by making loans on low-cost, semi-rural houses more easy to obtain. The leading article in this issue describes the building of six-room, extraordinarily well-equipped houses on Long Island which sell for \$4990 each. Here is low-cost housing which is

within the reach of the working man in New York. Home costs in this project are kept down, but if labor, material and financing costs advance even these smart operators will be unable to produce such houses at less than five thousand dollars.

STUDY of the history of building booms and depressions shows clearly that good business follows a period of low prices; that as soon as the prices and building costs go up, volume falls off. This was true in 1920, when there was a tremendous housing need but high prices delayed construction for several years. It was true again in 1928 and 1929, when sky-rocketing prices put a damper on activity and eventually brought on not only a building decline but a general depression. It will be true again in 1936 and 1937, if building prices are allowed to go any higher.

There is no doubt that a great need for homes exists today. Every index shows it. There will undoubtedly be a healthy building increase. But as Roy W. Wenzlick, real estate economist, pointed out in his recent address to the Northeastern Lumber Dealers' Convention, high prices may very well delay any extensive revival for possibly several years. Many sound economists declare that the cost of a house today is far out of line with other costs and with the ability of the average person to pay.

American Builder believes events of the past few years have shown the dangers of high prices. The abrupt rise due to NRA killed a small revival at that time. The lower prices since NRA have stimulated construction. Today there are splendid opportunities for reasonable earnings for manufacturers, dealers, builders, and workers in this field. But in the long run the highest income will be earned by a small return on a greatly-increased number of jobs, rather than a high return on a few jobs.

Labor, materials, land, and overhead costs on houses are today at reasonable levels. They could be a lot lower. There has been a rise from the extreme lows of the depression. If homebuilding, under the present system, is to be encouraged, costs should not be greatly increased over their present levels.

In the boom days the greatest single "loading"

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charge was in connection with the financing of homes. The advent of FHA was supposed to have eliminated high financing costs; but it has not. Evidence is already apparent that many of the old evils of excessive charges and fees in connection with building loans are recurring. Builders should be on the alert to protect their customers against these charges.

It is true that some of the worst abuses are not yet extensively recurring, but excessive fees for appraisals, legal advice, title searches, and service charges of one kind and another, are common. In the New York area loaning institutions will attempt to charge an individual seeking an eight thousand dollar loan anywhere from three hundred to five hundred dollars. After all the platitudinous things that have been said about the low cost of home financing today, this charge comes as a great shock to the prospective home owner. The various building and loan, mortgage, banking and insurance institutions each has its own schedule of rates and charges, and there is such variation that the prospective home owner feels the whole business is a racket. The following costs and charges in connection with an eight thousand dollar loan are being asked in the New York area:

Commission	\$80 to \$160
Title Search and Insurance.....	\$75 to \$150
Mortgage tax	\$40
Recording fee	\$10
Survey	\$35
Appraisal fee	\$15
Inspection fee	\$10
Legal fees	\$50 to \$100

Is there any wonder that a home owner who has been scratching and scraping to make every dollar count in his new house is frightened and discouraged when he is confronted with such costs as these? The question may well be asked, Are the financing institutions in this business to make a legitimate income loaning money at an adequate interest rate (5½ to 6 per cent is certainly a good return in these times), or are they in the business to squeeze every cent they can out of little side rackets on legal fees and title investigations?

The solution to this problem of high costs of all kinds in connection with home building is in the hands of the residential contractor. He alone can protect the prospective home-owner against excessive financing charges or excessive labor and material costs. The smart, intelligent, and well-informed builder can get the costs down and keep them down. If he will do this his business will increase in volume and he himself will benefit along with the home owners whose interests he determines to protect.

Genuine Low Cost Housing

WASHINGTON news of late has had to do with clashes between the social planners as to who will pay the difference between what "housing" can be erected for and what slum-cleared renters can afford to pay. It seems that the lowest cost achieved to date on gov-

ernment housing projects requires for eventual amortization a monthly rental of \$8.00 per room. Reporting a meeting of "President Roosevelt's housing advisors" the Associated Press of Feb. 14 states,

"Some experts said that it might be necessary to rent the homes for \$5.00 a room that cost \$8.00 to build. Therefore, they contended, it would fall upon the federal and local governments to put up the difference, the question being the share each should bear."

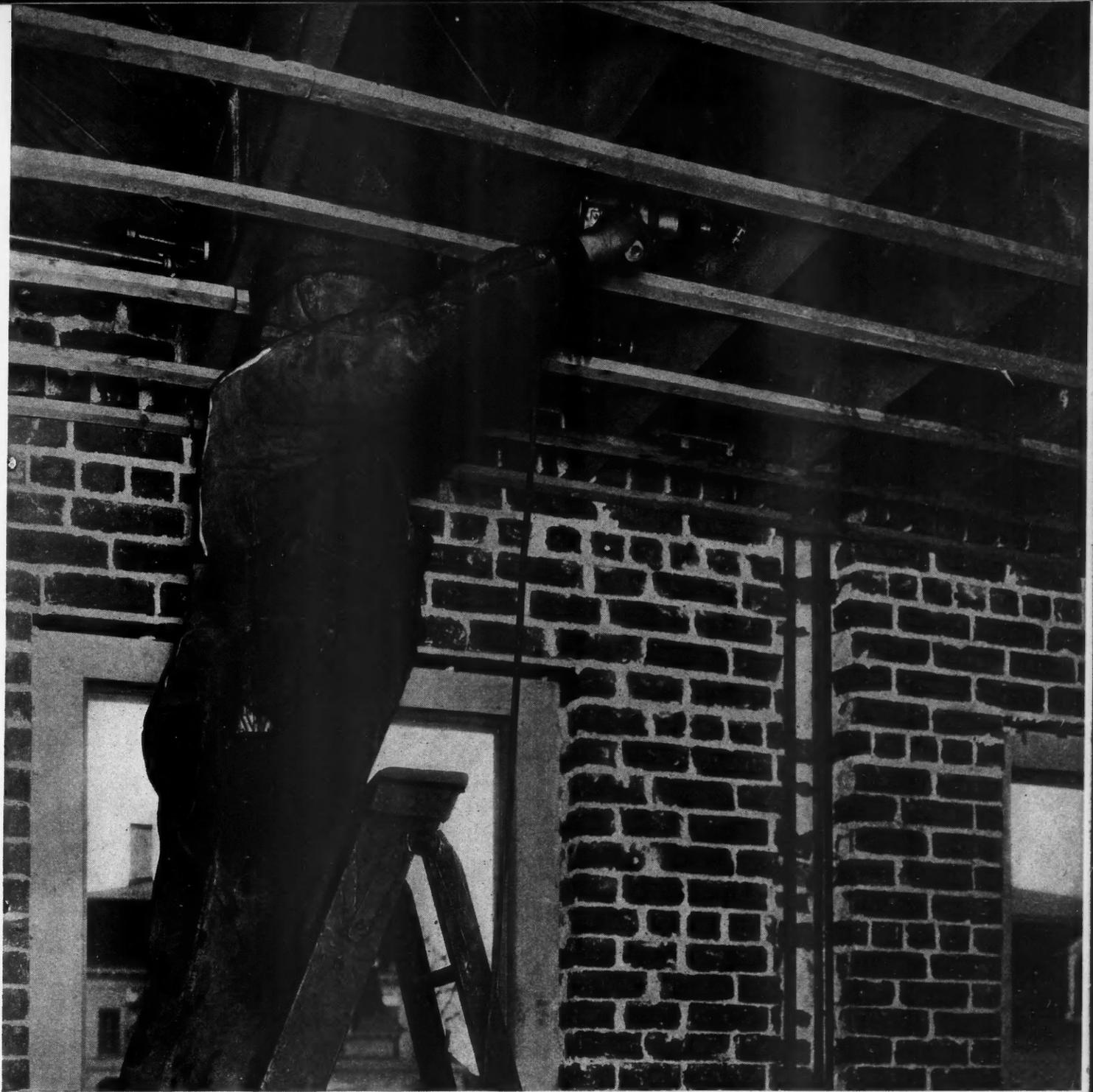
In wholesome contrast to this we read in the Chicago Daily News of Saturday, Feb. 22, the cheering account of private home building and home buying by low income families of sturdy little five and six room homes in one of that city's suburbs, each on a tract of fertile, garden land, 132 feet by 178 feet, and all at a cost of from \$2500 to \$4000 complete. These privately built and privately financed homes, it is stated, *can be purchased* on terms as low as \$5.00 per month per room. These homes are built under plans and specifications approved by FHA and the mortgage financing for their purchase is insured by FHA.

WE URGE the Public Works Housing Division to take careful note of this situation. They might well observe that there is no question here of *who will pay the subsidy* to permit \$5-a-room tenants to lease \$8-a-room quarters. *These* homes are planned so economically and built so efficiently that \$5.00 per room per month *will buy them*, paying all costs and carrying charges.

Here is genuine low cost housing that will appeal to 80 per cent of the population, and that can be promoted without regimentation or subsidies. The U. S. Building and Loan League released a statement on Feb. 23 directly in line with the *American Builder's* attitude on this subject of low cost housing, showing how widespread is the appeal of the small private home.

"We agree with the emphasis which many thinkers are placing upon the smaller, less pretentious dwelling unit as the keystone of the much needed home building revival," says the League directors' statement. "With our long experience in the building and loan field many a man with an average family has been able to own a \$2500 house on a salary of \$1000 to \$1200 a year, paying for it by installments. After all, sixty per cent of the people of this country live in towns of less than 25,000 in most of which a \$1000 to \$1200 a year income is adequate for plain, self sufficient living for a medium sized family, and in which thousands of families, with the aid of building and loan associations, have been able to buy nice homes on incomes of around \$1100 a year."

Privately financed home building is making a big increase this spring, putting thousands of men back to work and adding billions to the nation's wealth. This is wholesome, widespread business; it wants neither government subsidy nor government competition.



ELECTRIC JOIST BORING FOR PIPES

POWER HAND TOOLS SPEED PRODUCTION

**Lowered Costs and Improved
Efficiency Reward Builders Who
Keep Equipment Up-to-Date**

Cutting Costs with Power Saws



AN awkward cut that is being speedily handled at considerable saving with the electric saw.

Article II of a Series on Cost Cutting Methods with Up-to-Date Equipment

Getting the Power; Building a Bench; Concrete Form Cutting; Multiple Cutting of Floor Joists

IN THE first article on this subject in last month's *American Builder* the advantage of advance planning was pointed out. The speed and efficiency of the electric power saw is greatly increased and costs greatly reduced by planning every cut to be made and having this cut done right at the lumber pile.

The next step is to provide a proper working area; but before getting into that let us consider for a moment the problem of running in the electric power.

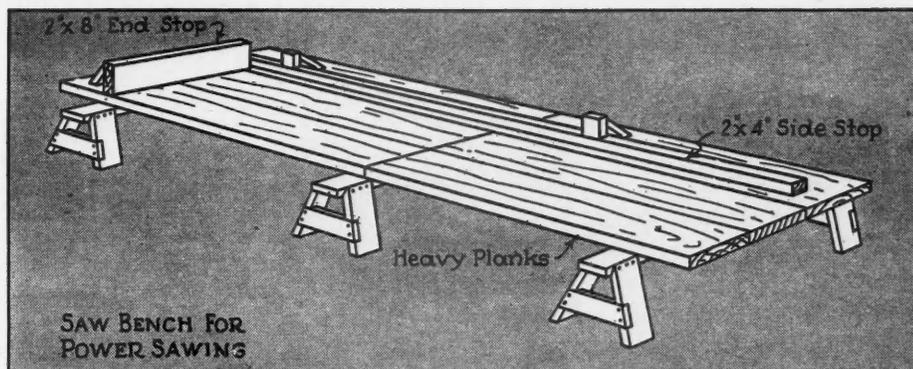
Since the power saw is needed right from the very beginning, arrangements should be made as soon as possible. Experience has shown that the cheapest arrangement is to run in a temporary line from the nearest neighbor. Since most electric saws operate from any light socket, it is a simple matter to run a wire from the neighbor's basement, porch light or garage to the saw bench.

It is suggested that a good arrangement is to offer to pay the family's electric light bill during the month

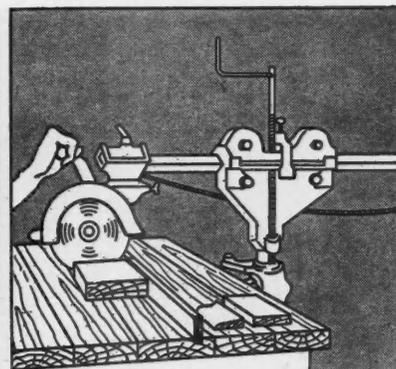
the saw is in operation. The average electric bill is very small, and the cost of this arrangement would not be excessive. As soon as the house is far enough along, a permanent meter can be installed.

The importance of a substantial, well designed saw bench is considerable. In our article last month we mentioned the "multiple cutting" of joists, rafters, etc. This system of cutting requires the laying out, measuring and piling one on top of another of pieces of lumber. This requires a solid, level and large work area. Every workman knows that a well designed and convenient work bench greatly speeds up work because everything is handy.

In the accompanying sketch a good practical type of saw bench is illustrated. Good stout planks are used and are supported on wide, substantial horses. Notice that a straight 2 by 4 is nailed along the side for use as a side stop, and behind this are placed several higher pieces near each end to help in lining up a pile of joists or boards when cutting several to one length. A square,



STURDY saw bench recommended with electric saw.



USEFUL radial arm attachment.

substantial bench stop made from a plank is nailed at the end of the bench.

With a good bench like this you are well set to handle the entire job in an economical and speedy fashion.

In building forms for concrete work, two general methods are followed. One is to build the form right in the trench, and the other is to build the form on a bench and then slide it into place in the trench.

Forms for Concrete

Under the first method sawing boards by hand is very difficult as the workman is in an awkward position in close quarters with the mud and dirt of the bank interfering. Using an electric saw the work can be greatly speeded up by the man in the hole calling up his measurements to the operator on the bank. The boards are handed to him squared to proper length faster than he can nail them in place. If the man on the bank were using a hand saw, the delay to the nailer would be so great as to make this scheme impractical.

Building forms in this fashion is greatly speeded up by the electric saw because the boards for a whole section of form can be cut at one time. These boards will have absolutely square ends, and this is an important matter in concrete work as it eliminates the fins and projections that mar the job.

Under the second method of form building, most of the construction is done on the bench. When this method is used, the boarding is allowed to project over the ends of the panel, and then cut off with a single quick sweep of the electric saw. Here again an even, straight edge is achieved and a time-saving of considerable importance.

In addition to the above, the electric saw is of great value in cutting up small pieces for spreaders, braces,

stoppers, etc. It is possible to use waste material without running up the cost of the operator's time.

The contractor interested in lowering his building costs should study some of the methods widely publicized by makers of prefabricated houses. The principle is to reduce construction to as few simple operations as possible. As was pointed out in article I in this series, in the February *American Builder*, the experienced builder can figure out in advance the number of joists, rafters and other pieces required and can cut these all at one time at the lumber pile with an electric saw at a great saving. This calls for an exact knowledge of what goes into the house and how it can be done. Many builders would do a better job, and a cheaper job, if they spent more time in advance planning of this sort.

Multiple Cutting of Joists

One method of saving time and money is in the multiple cutting of joists. The joists are piled one on top of the other on the saw bench with each one firmly up against the bench stop at the end. Quite a number may be piled up this way, taking care to see that they are piled evenly and square. Then the power saw is set just a little deeper than the actual thickness of the joist, so that when the first cut is made it will leave a mark on the joist below. The first joist is cut and quickly carried away. Then the one below has been marked and may be cut accurately and squarely without any lost of time.

Notching the ends of joists may be done quickly in batches. The joists are set side by side on edge and against the bench stop, and are held together by a strip tacked across the top. The saw is set exactly to the depth of the notch and a cut is made across the whole

(Continued to page 128)



CONCRETE form building involving extensive heavy cutting is done much more cheaply with electric power.



GEORGE M. GROSS, president

How Largest Home Builders in the U. S.

GET COSTS

EVEN that august institution, the New York Times, which rigorously passes on the literal truth of all advertising, permits the Gross-Morton Corporation of Long Island to call themselves "the largest builders in the United States." They have sold more than 4,000 houses in the past 15 years. They expect to sell more than 500 in 1936.

The present Gross-Morton project is Bayside Hills, Long Island, which was formally opened last October. This former golf course of 116 acres will accommodate 1,000 homes, of which more than 200 have been built or are now under construction. In Bayside Hills Gross-Morton are today selling six-room, two-story houses that are extraordinarily well equipped, located on a 40 by 100 foot plot with all improvements in, at a price of \$4,990. They give an alternate choice of a five-room bungalow with studio living room and a large usable attic for the same price. Both types are shown on pages 51 to 55.

The question home builders everywhere will ask is, "How do they do it! How do they get the cost down?"

As I sat in the office of Alfred Gross, vice president, in what used to be the old Bayside Hills Golf Club, discussing this point, we were interrupted by an *American Builder* reader from Akron, Ohio, who had come through one of the worst storms in history to see for himself whether such houses could be built at such a

price. Alfred Gross' answer to this question is, "First set your price and profit—then build as much as you can for that much money." He claims that the mistake most builders make is to build a house first and set the price later. Right now, the biggest and most profitable home demand on Long Island is for the \$5,000 house. That is what they are giving. A few years ago they sold houses for \$4,000. Back in 1921 the price was \$7,750—and the house of that day was not as well equipped or built as the \$5,000 house of today.

How to Keep Costs Down

Obviously, the full answer to Gross-Morton's low costs cannot be told, but there are many operative methods which other builders may well consider, of which the first and most important is the *elimination of overhead*.

Every conceivable building operation that can be subtlet is subtlet by Gross-Morton. They have practically no overhead expenses. Each of the three members of the firm, George M. Gross, president; Alfred Gross, vice president in charge of sales, and Lawrence Morton vice president in charge of construction, has a particular field. In addition to these three men the entire field "staff" of the five-million-dollar Bayside Hills development consists of two construction superintendents and an office girl. There are no company expense accounts,



1000 Homes Will Be Built at Bayside Hills on Long Island by Gross-Morton. Here is the Story of Their Low Cost, High Quality and Effective Selling Methods



ALFRED GROSS, vice president in charge of sales

By JOSEPH B. MASON

DOWN

no sales managers, drafting departments, warehouse men, truck drivers, or any other employes that make for overhead.

In 15 years of experience the firm has perfected a technique of breaking down the operations of the building of a house into the most efficient subcontracts, which are done by firms with long experience and low costs. The work is let out on a piece basis at so much per house, and each subcontractor is himself foreman of the job. The foreman is solely responsible for getting the most out of his men and materials, and it is to his loss if he does not.

At the end of each week the subcontractor receives a check in full for the materials and work installed that week. Because they always get their money they do not have to figure extra for this contingency. Gross-Morton select all materials and equipment themselves and handle the negotiations with the producers. They make the fullest use of their mass purchasing power which runs into tremendous orders. The actual purchase of the materials is done by the subcontractor. In many instances Gross-Morton write their check for the bill, which is endorsed by the subcontractors and turned over to the supply house.

The advantage, according to Alfred Gross, of having the subcontractor actually the owner of the materials is

Bayside Hills \$4990

A Residential Park on the Old Belloclaire Golf Course.
 30 different models in the nation's largest Federal Housing Administration approved project. 6-room, 2-story homes and 3-room bungalows. Plots 46x100. City sewers, concrete streets, slate roofs, etc. Only \$998 cash, \$30.13 monthly pays everything including 20-year F. H. A. mortgage installments. 2 furnished models open 9 a. m. to 9 p. m.

Gross-Morton Corporation
"The Largest Home Builders in the U. S."

BELL BLVD. & 48TH AVE. BAYSIDE, L. I., N. Y. C.
 DIRECTIONS BY SUBWAY—L. I. R. F. or E. M. T. to Main St., Flushing; any E & M Rosewood Bus to property. BY TRAIN—L. I. R. R. to Bayside Sta.; walk south on Bell Blvd. to property. BY AUTO—FROM N. Y.—Queensboro Bridge, Northern Blvd. to Bell Blvd., then turn right to property. FROM BROOKLYN—Sunrise Highway or Grand Central Pkwy to Springfield Blvd., then turn north to property.

A TYPICAL Bayside Hills newspaper advertisement

OPERATIVE BUILDERS
 A Monthly Department for the Men Who Plan, Erect and Equip Homes for Sale

that he thereby becomes solely responsible for them and will make strenuous efforts to prevent loss of time or waste of material. Under any other system, he says, there is a large wastage of brick, lumber, trim and other materials. Under *this* system, he declares, there is not more than a "bushel basketful" of waste on a job.

The subcontracts let on the Gross-Morton jobs consist of carpentry, concrete masonry, painting, plumbing and heating, electric, plastering, brick work, roofing. Long experience and constant repetition of the same job enables the subcontractors to get their jobs organized on a mass production basis that permits extraordinarily low costs. The long experience, plus knowledge of labor and material prices, enables Gross-Morton to estimate the cost of various operations very closely.

More About Costs

The average builder can learn much about costs by studying the designs and plans used by Gross-Morton. These plans are drawn by Architect Arthur E. Allen of Jamaica, Long Island, who has worked with the company for many years in creating the designs that have sold by the thousand. In response to the question, "How can you tell good house plans?" Alfred Gross said, "After you have sold 1,000 houses and the plans still work, you can be pretty sure they are good!"

Alfred Gross declares that although exterior styles change, the essential requirements of a family change very little. The Gross-Morton designs are planned for livability and economy. Every detail of the framing and of the exterior is adopted on the basis of effectiveness at the lowest cost. Before any exterior detail is adopted it is checked and rechecked for economy of construction. They insist on simple methods and eliminate all costly operations.



PLANS for the Bayside Hills houses are drawn by Architect Arthur E. Allen of Jamaica, L. I., who has worked with the company many years in creating popular designs. Allen estimates that more than 15,000 houses have been built from plans he has drawn.

THE MASTER bedroom of the Standard Bayside Hills house shown at right is 12'2" x 13'6". The arched recess for dresser with closet on either side is a very popular feature.

From Inside Out

When prospects go into Bayside Hills houses, they are impressed by the spaciousness, good light and air, and the efficient arrangement. This is because the houses are planned from the inside out, according to Gross-Morton. They figure the plan so that the living room has southern exposure. When the same plan is used on the opposite side of the street, it is reversed.

Of course the two spots in the house that attract the most attention are the kitchen and the bathroom. Builders from other parts of the country can hardly believe that such kitchens and baths are possible in a \$4,990 house. The answer is: few other builders are engaged in a 1,000 home program.

Selling Methods

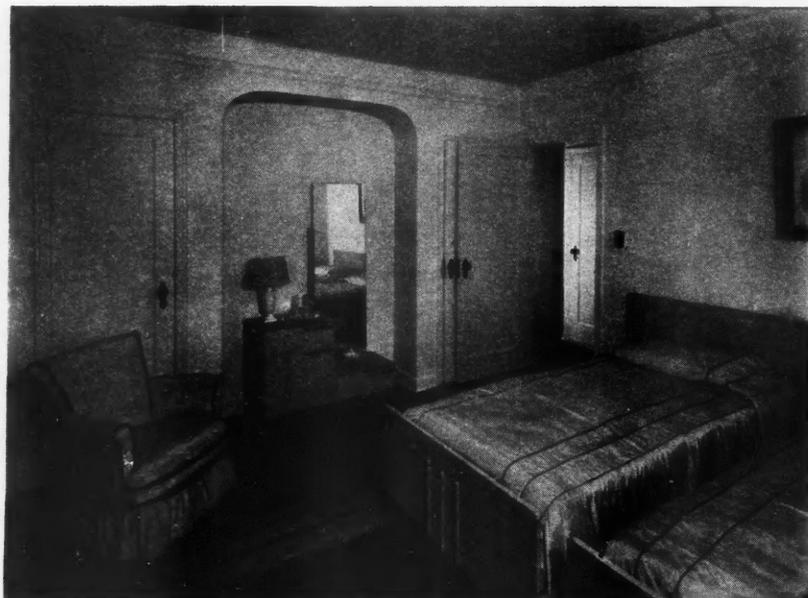
Bayside Hills houses are sold by a corps of seven salesmen who operate on a commission basis. While Gross-Morton did not divulge the commissions they pay, the common practice is \$50.00 a house on Long Island. Many of these men have been with the company for years, and they are experts.

Skillful advertising and publicity have made Bayside Hills the most talked of home building project in America. All the advertising, publicity and newspaper work are in the hands of Peter J. McKenna, who has specialized in real estate advertising for over fifteen years. Other builders might well consider turning over their advertising and publicity to an experienced man or agency on a fee basis if they are interested in getting maximum public attention.

Financing Methods

Gross-Morton make much of the fact that their houses are financed under the Federal Housing Administration's plan. They consider FHA supervision a big asset. On both the two-story and the bungalow designs, the cost is the same, \$4,990, with a down payment of \$998. The monthly carrying charge, including interest, amortization, taxes, insurance and water, is only \$39.12. The financing set-up is shown in the table, page 122.

(Continued to page 122)



SCIENTIFICALLY built cabinets which are attractively recessed into the wall are features of the Gross-Morton homes at Bayside Hills. Cheerful colors in red and cream are used.



BAYSIDE HILLS bathrooms are large and colorful, with tile floors and walls, best quality colored fixtures. The recessed tub and shower is popular.



SELECTED HOME DESIGNS

THE FIRST FIVE pages of this month's Design Section are devoted to plans and details of Gross-Morton's Bayside Hills houses. Complete specifications and construction details are given on pages 122 and 124.

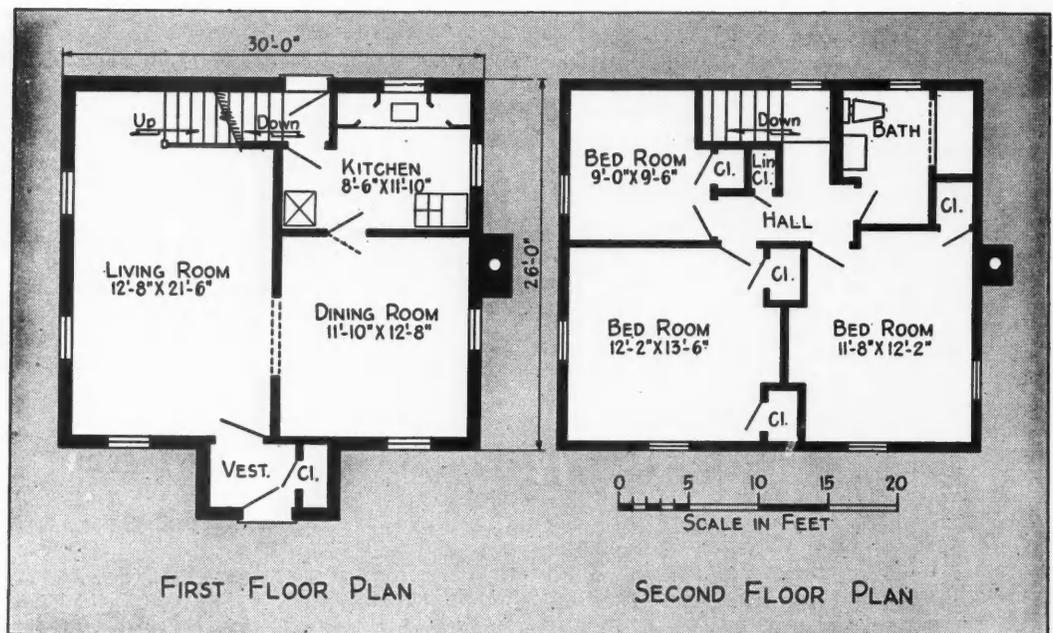
**16 Pages of Choice Examples
of the Builders' Art; Presented
on Special Coated Paper Stock**



BEST PLAN IN U. S.

Arthur E. Allen, architect

THIS IS the standard plan of the 1,000 home Bayside Hills project of Gross-Morton Company on Long Island, N. Y. It has six rooms, ample closets, is extremely practical and economical. Over-all size is only 26½ x 23 feet.





THE DUTCH Colonial above and the English design at left have the same floor plan and are two of the most popular styles featured by Gross-Morton in the Bayside Hills, L. I., project. Every detail has been studied for economical construction.

POPULAR EXTERIORS

Gross-Morton Corp., Builders



**Specifications
given on
pages
122 & 124**

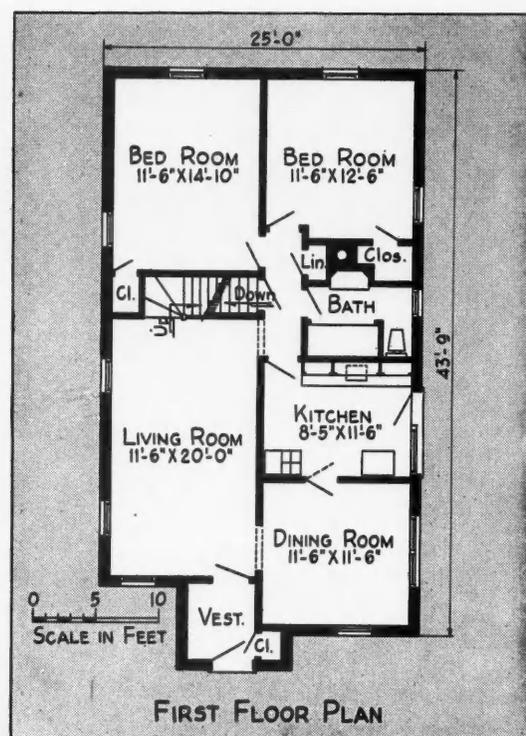
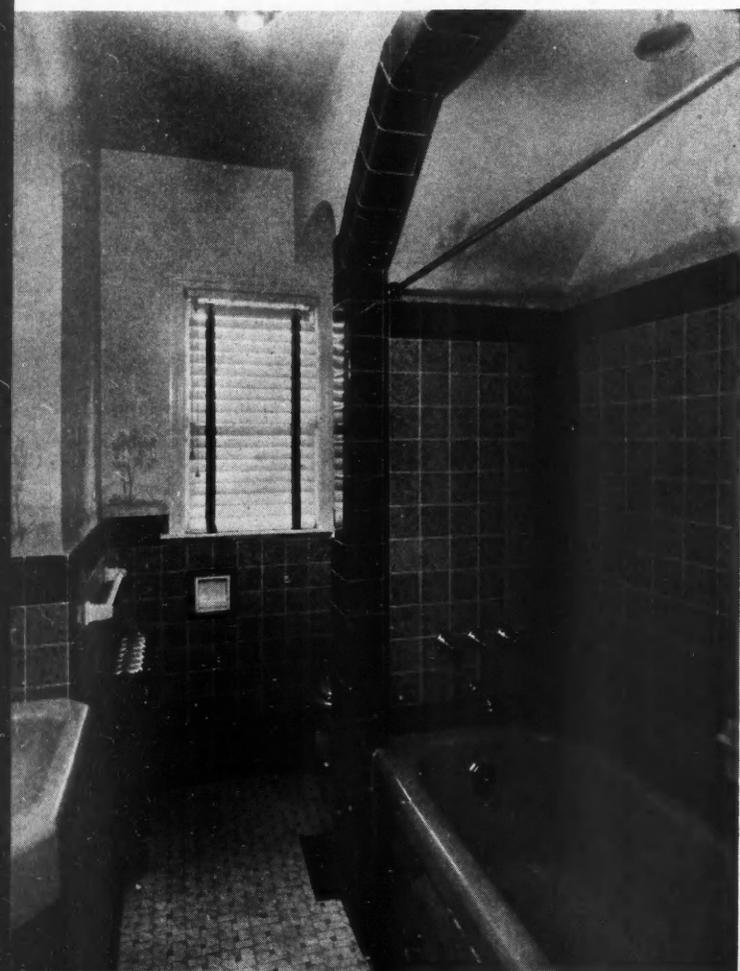
LIVING room is 12'8" x 21'6". An attractive archway leads to the 11'10" x 12'8" dining room. Both rooms are exceptionally well lighted.

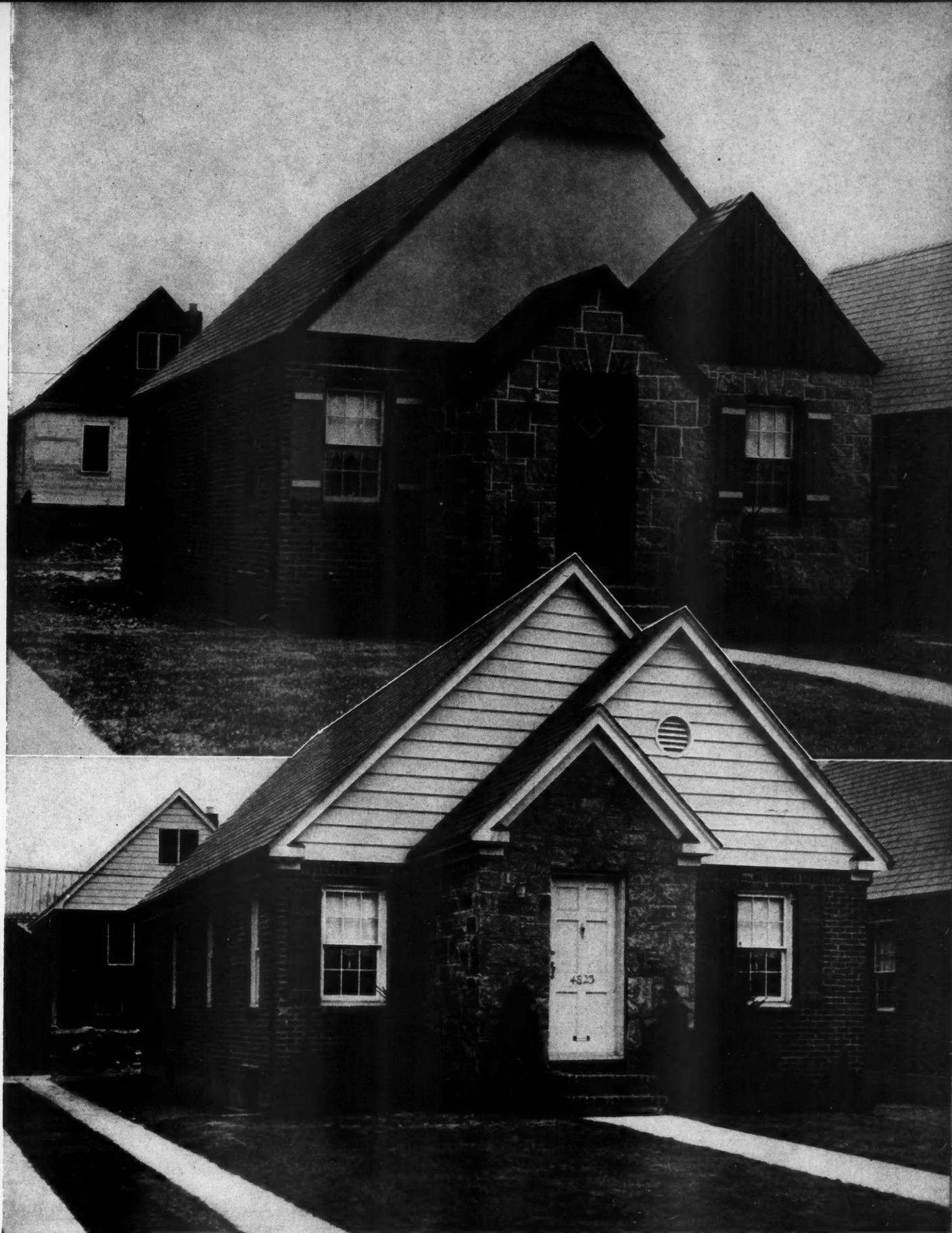


SUPER BATH, KITCHEN

Specifications on Pages 122 and 124.

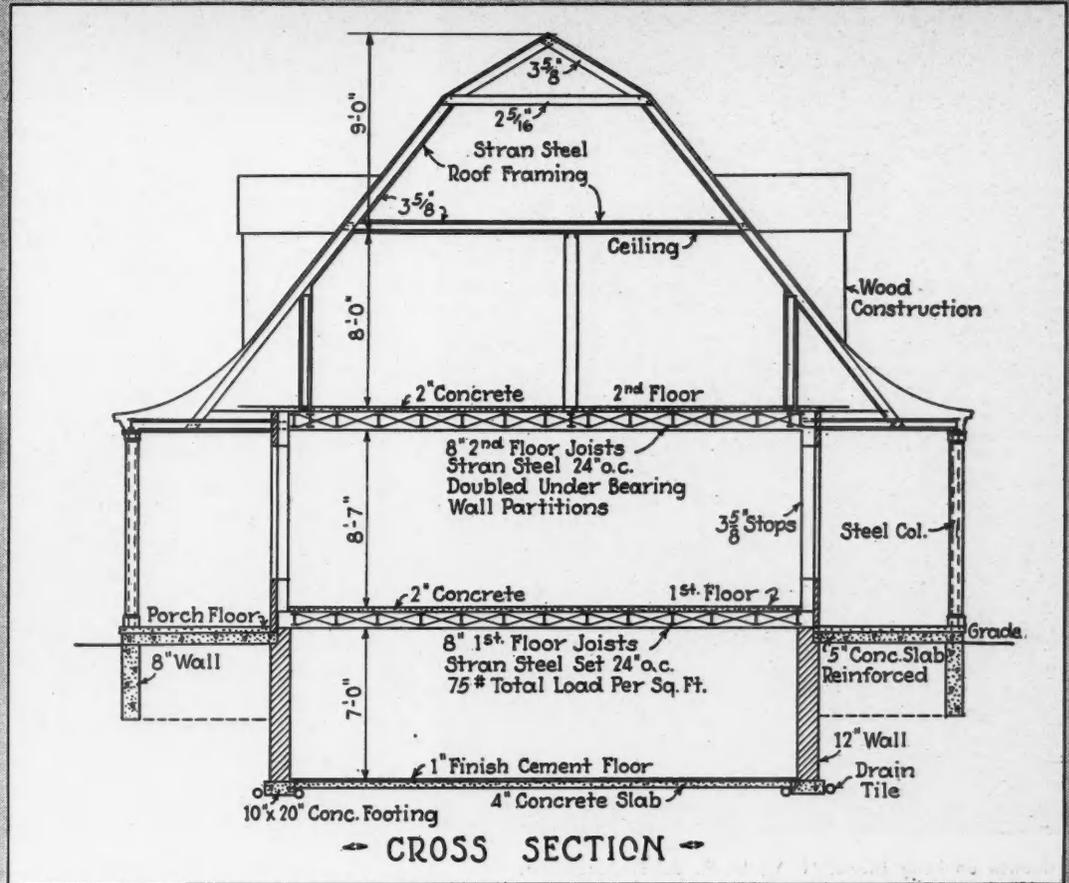
BEAUTIFULLY tiled baths with recessed tub and shower sell the husband. Careful, efficient kitchens with mill-built cabinets sell the wives. These are two outstanding features of the Gross-Morton low cost bungalows shown on opposite page. Of course there are other features, too, such as the efficient floor plan below, studio living room and a large open attic which provides space for future family expansion.





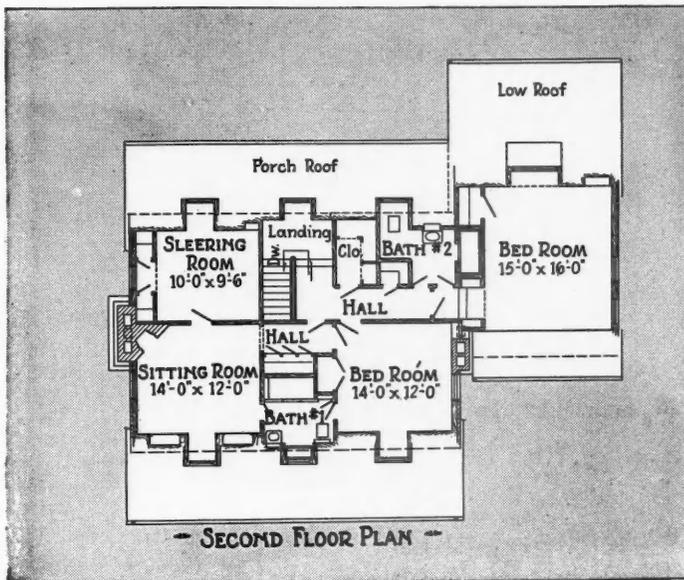
EXTERIORS of the Gross-Morton bungalows are varied somewhat as above. Over-all dimensions are approximately 25 by 43 feet. Specifications and further construction details of these houses are given on pages 122 and 124.

LOW COST BUNGALOW
STUDIO LIVING ROOM



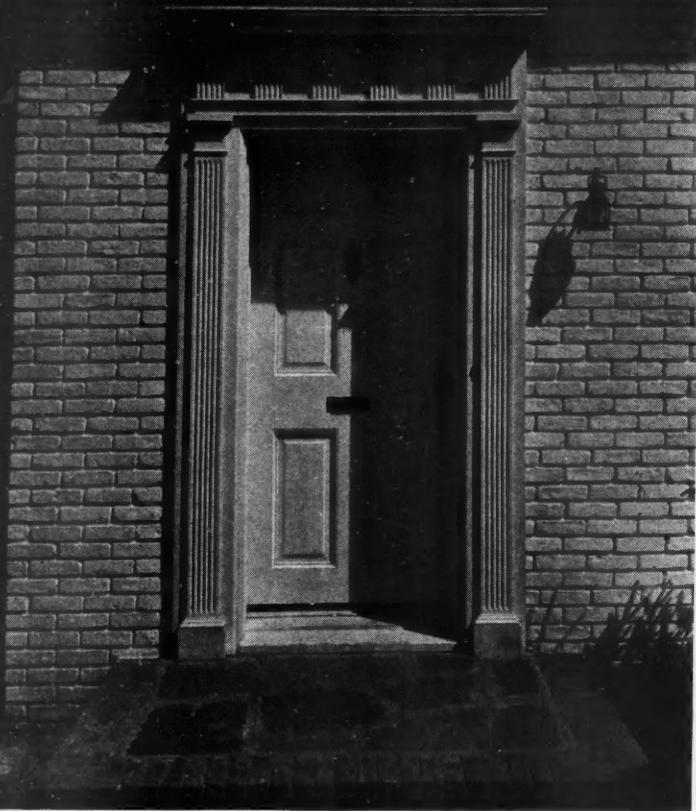
**Home located at
Grosse Pointe, Mich.**

COST KEY is 2,836—217—1230—54—30—34.

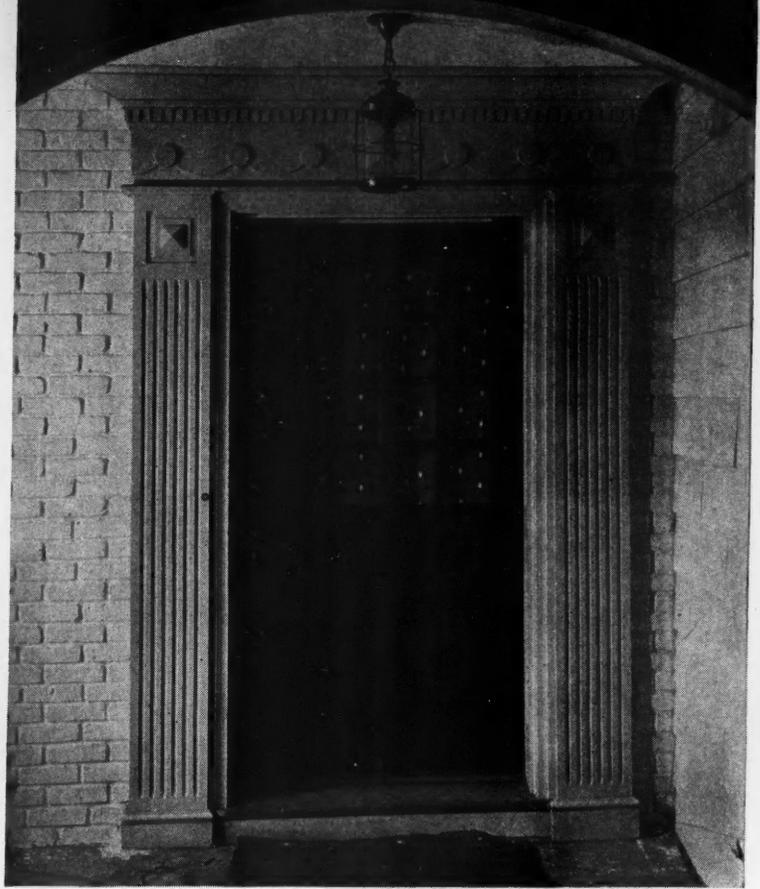


This house of the popular, tried and true Dutch Colonial style for the exterior makes use of the latest ideas in interior arrangement and in construction and equipment. The exterior walls are 12-inch solid brick; interior bearing walls in basement 8-inch brick; floors of 8-inch Stran-Steel joists topped with 2 inches of concrete over which is laid 7/8-inch parquet wood flooring for all the principal rooms; the kitchen, pantry and maid's quarters being finished with linoleum, and bathrooms tiled. Basement is provided with big recreation room with cheerful fireplace. Heating system is Gar Wood air conditioner with oil burner. Incinerator is built into the basement, with charging door in the pantry above. Wood burning fireplace provided on both first and second floors as well as basement. Garage doors are upward-acting. Exterior walls decorated with field stone. Shingle roof and wood dormers; all main roof framing Stran-Steel.

FLOOR PLANS to the left show ample provision for all present day home requirements. Full use is made of the basement as well as of the first and second floors.



Residence on Long Island, N. Y.; M. R. Johnke, architect.



Effective door detailing; Reinhard M. Bischoff, architect.

58

Six Selected Entrances

No. 1 of a New Series of Architectural Details That Sell Homes. Other Subjects in This Series Will Include Bay Windows, Stairways, Fireplaces, Built-in Cabinets and Cupboards. Each Will Feature Examples of the Best Recent Work in Residential Architecture.



Arched open porch; Randolph Evans, architect.

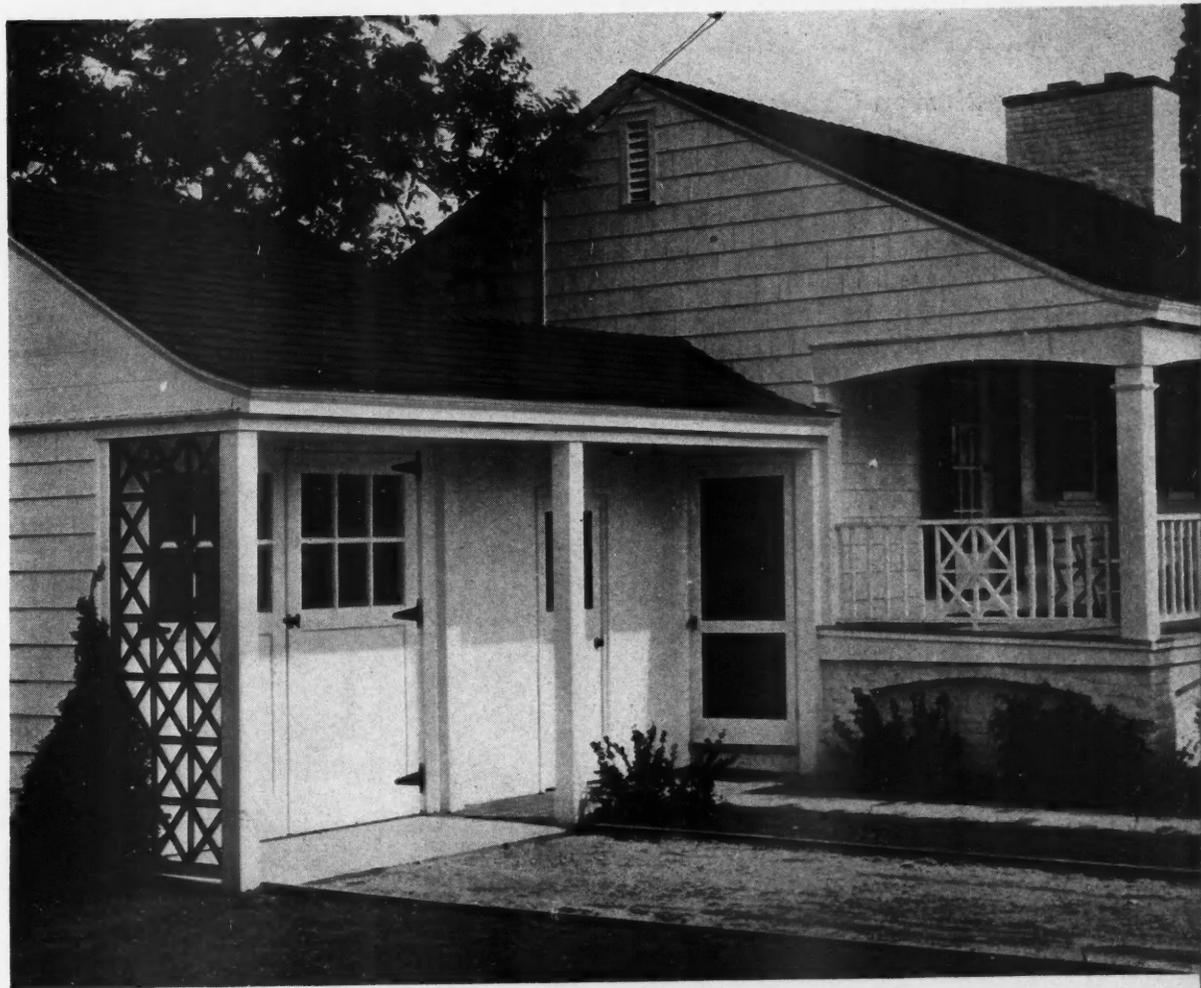


Cape Cod doorway; M. R. Johnke, architect.



Lovely Colonial detail; Wm. M. Pareis, architect.

59



Splendid porch and entrance detail; Randolph Evans, architect.



CLEAN COLONIAL

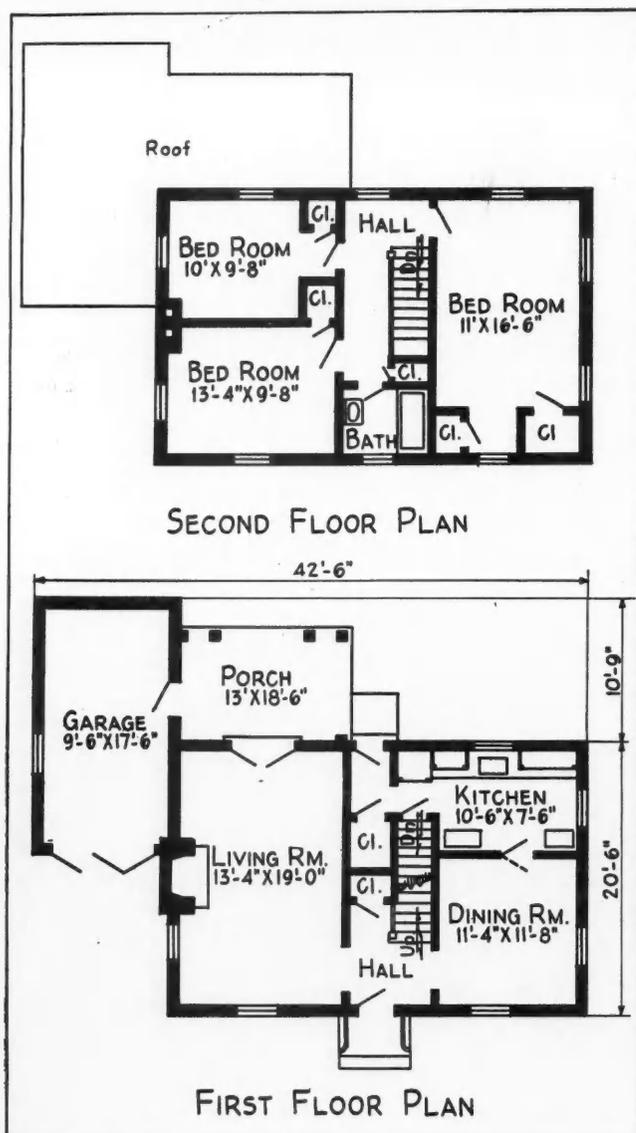
in a Washington, D. C., Suburb

Westhaven Construction Corp.
Builder

Schreier & Patterson
Architects

COST KEY is 1.563-150-680-30-23-13.

BELOW: Glimpse of living room.





SOUTHERN COLONIAL FAR FROM HOME

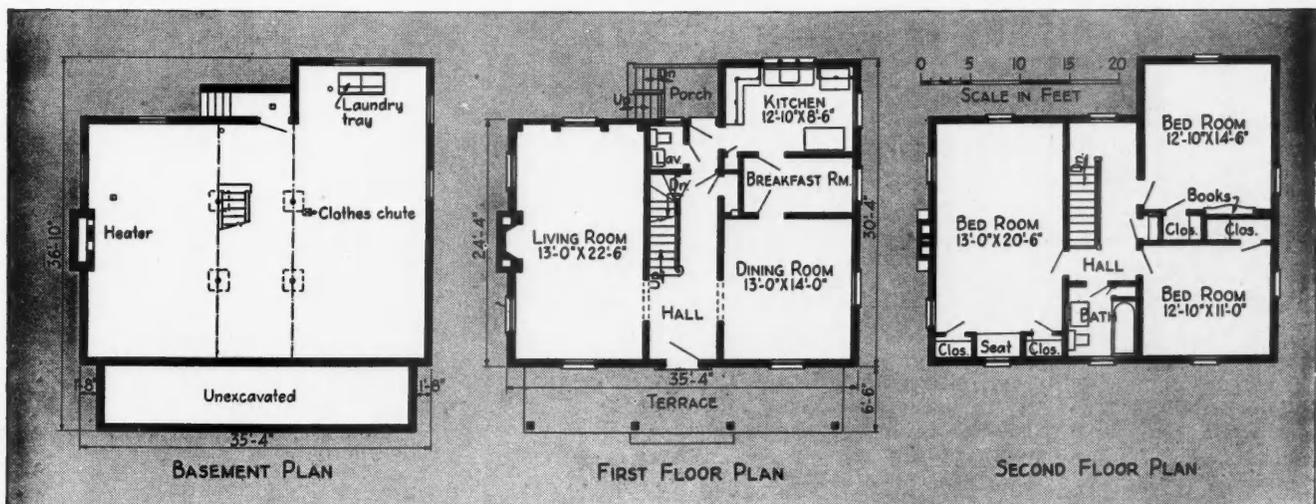
DIGNITY and social distinction are bound up in the Southern Colonial tradition. The two-story square columns supporting the high porch roof are one with the feeling of grandeur which this architectural style imparts. Often it is a form reserved for larger homes; but here we see it used successfully on a house costing less than \$10,000. The construction specified for this house was wood siding laid eight inches to the weather, two by ten inch floor joists on 16-inch centers, supported in the basement on two lines of eight-inch steel I beams on three-inch steel columns. Ceiling and roof rafters are two by six inches. Roofing asphalt shingles.

Built at Elmhurst, Ill.,

By Ryan Bros. & Sather
Builders, River Forest

E. C. Norling
Architect, Chicago

COST KEY is 1.977-130-946-40-26-12.



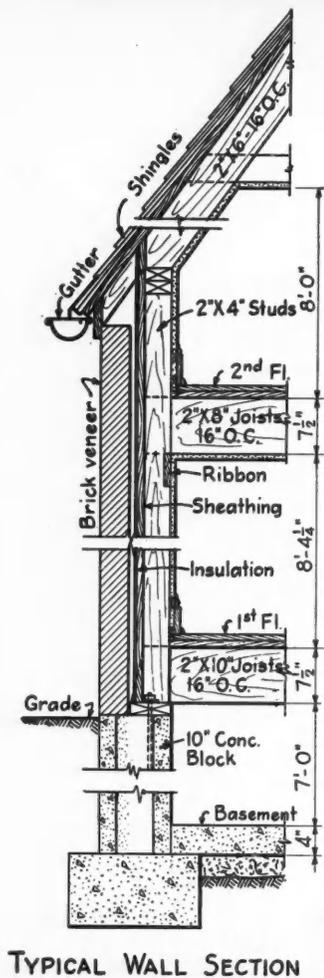


NORMANDY TYPE HOME at Erie, Pa.

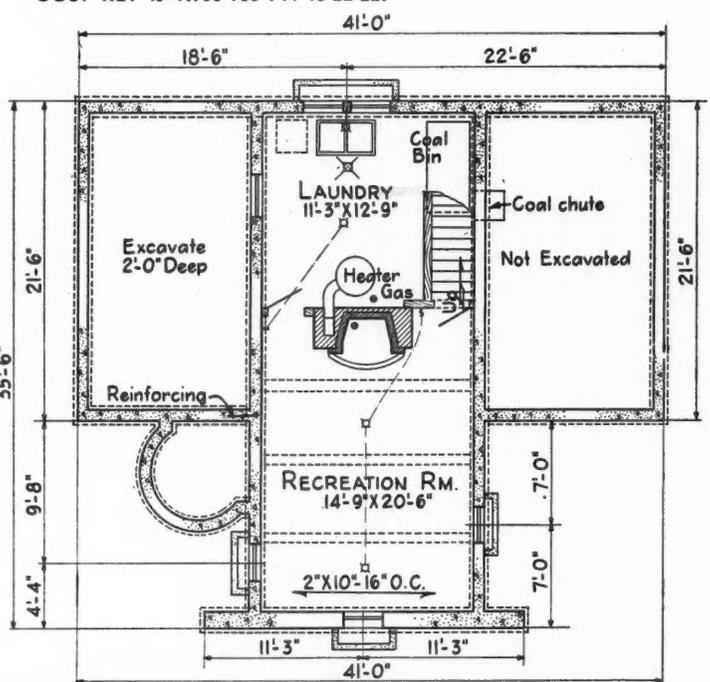
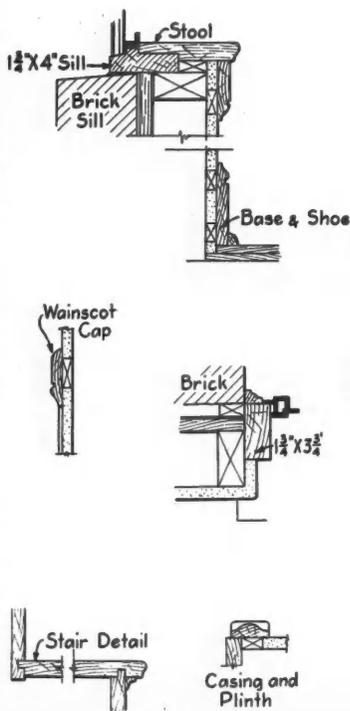
Frank A. Shutts & Carl E. Morrison, Architects

J. W. Anderson, Builder

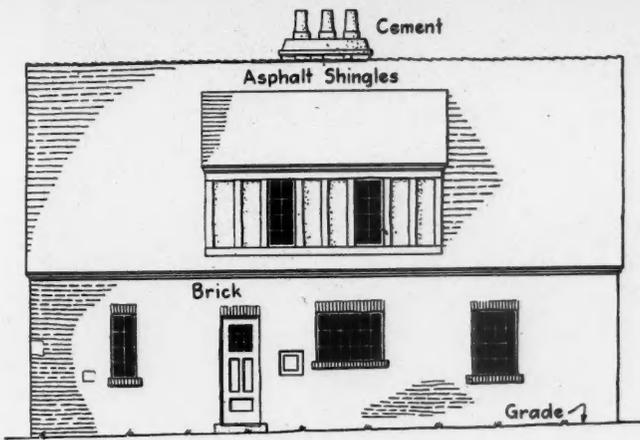
COST KEY is 1.980-153-944-40-22-22.



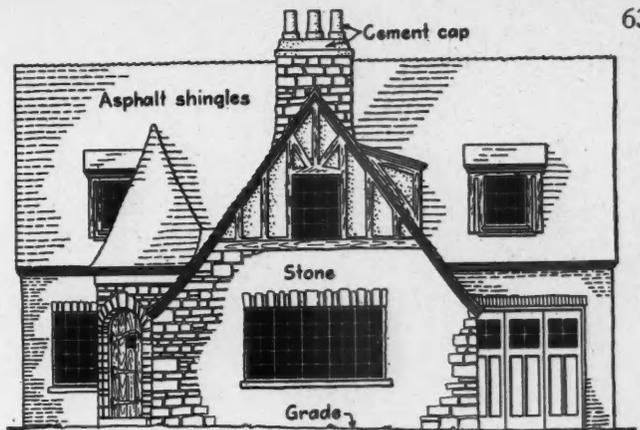
TYPICAL WALL SECTION



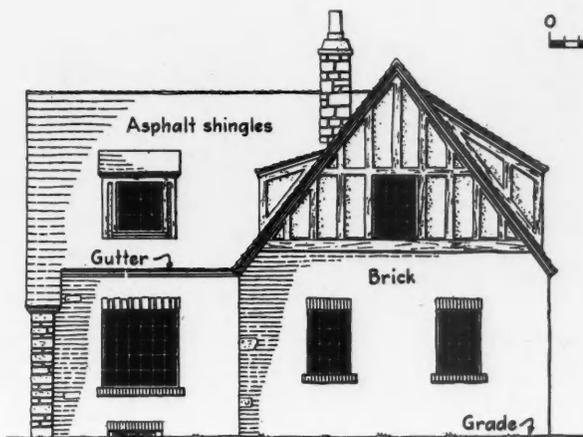
BASEMENT PLAN



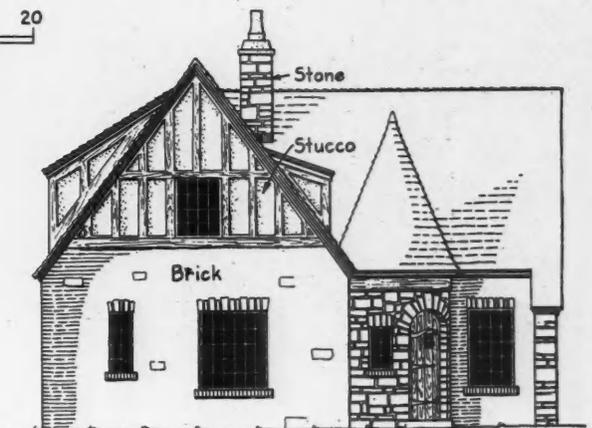
SOUTH ELEVATION



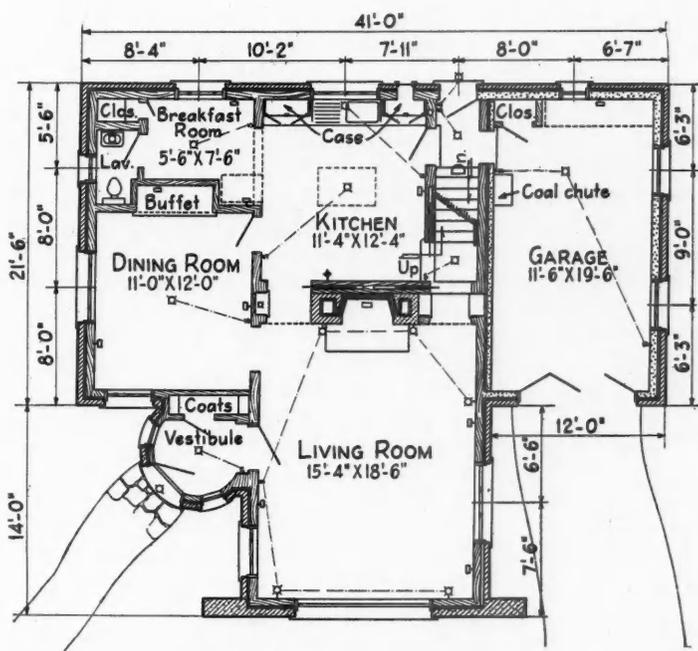
FRONT ELEVATION



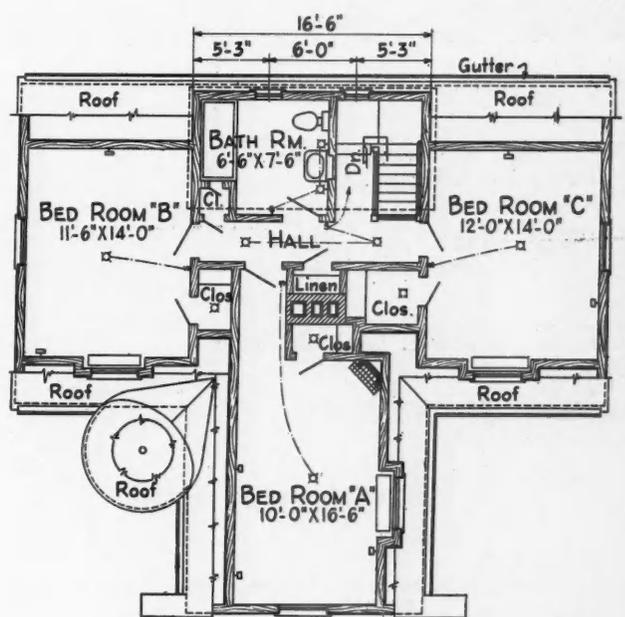
WEST ELEVATION



EAST ELEVATION



FIRST FLOOR PLAN



SECOND FLOOR PLAN



64

KALAMAZOO'S "HOME OF TOMORROW"

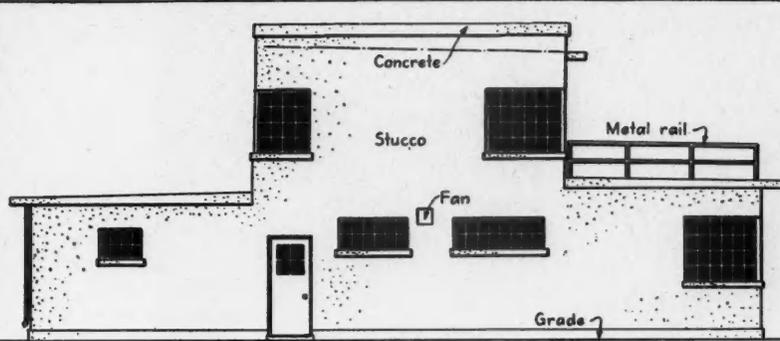
P. C. Schram Co., Builder

LeRoy & Newlander, Architects

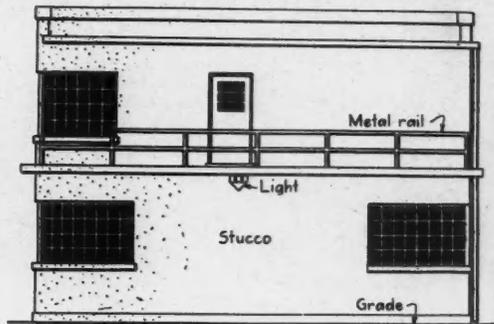
COST KEY is 1.903-161-1050-45-28-12.

Working plans on opposite page; interior photos on page 66.

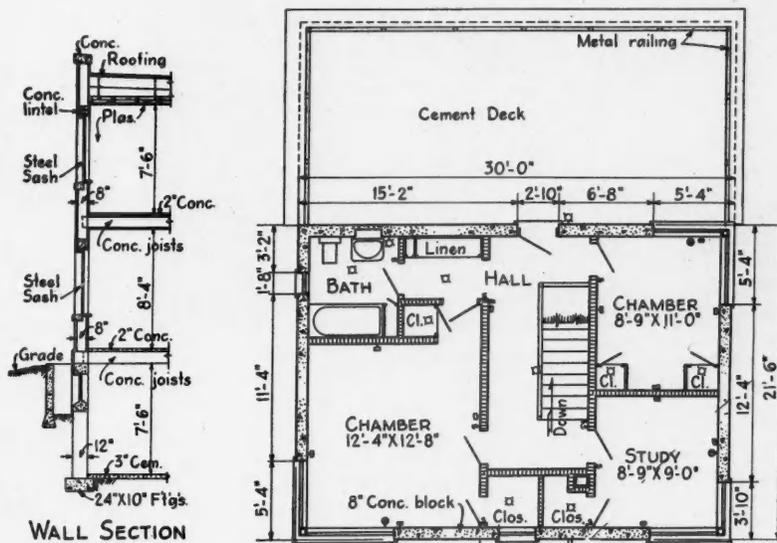
THE "Home of Tomorrow" is constructed of Haydite cinder blocks finished with "Colorcrete," a water proof glazed covering, which will not absorb dirt. The blocks have acoustical and insulation qualities not found in ordinary cement blocks. The joists are of pre-cast Haydite concrete reinforced with steel; and both floors and roof are made with pre-cast cement floor slabs, over which is poured a smooth coat of cement. Kalamazoo Haydite Tile Co. furnished these products. The roof is of built-up asphalt under which is a double thickness of Insulite insulating board. The roof is by Cooper Hoekstra Roofing Co. The G. E. air conditioning and oil burning unit was installed by the Fred J. Hotop Co. The oil fuel tank is underground and the oil is fed into the combustion chamber of the furnace from above, through a new designed burner. Air ducts overhead carry warmed air to the rooms, and a secondary line returns cooled air to a reconditioning unit where the air is washed, filtered, reheated and recirculated.



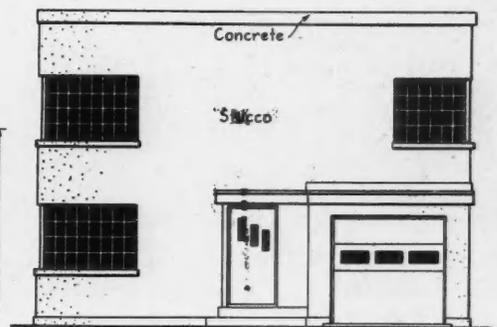
SOUTH ELEVATION



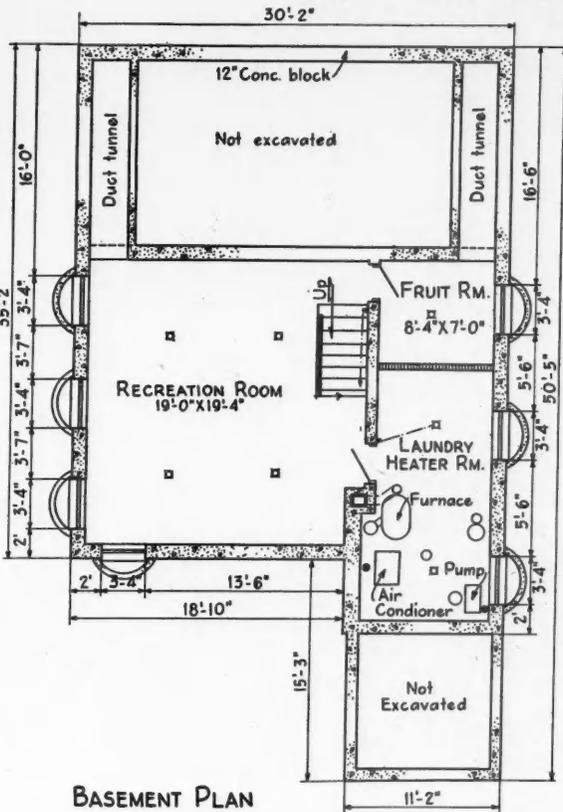
REAR ELEVATION



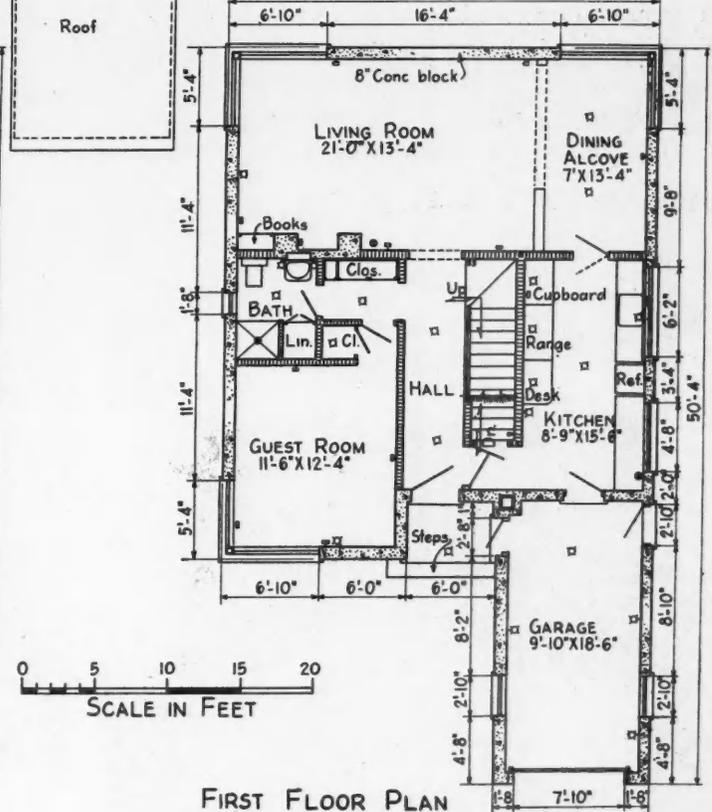
SECOND FLOOR PLAN



FRONT ELEVATION



BASEMENT PLAN



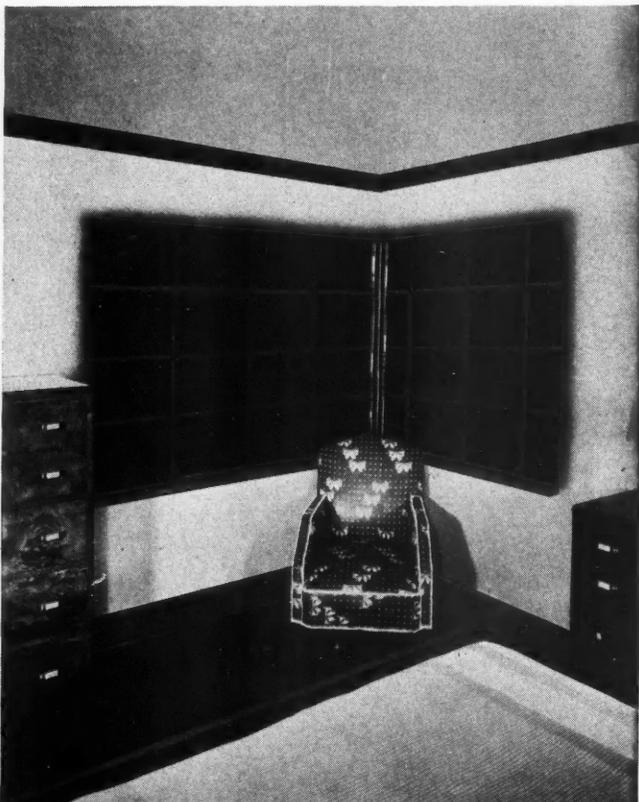
FIRST FLOOR PLAN



LIVING ROOM in Kalamazoo's "Home of Tomorrow"—Yellow buff side walls and blue grey ceiling set off the modern style furnishings.

AS ONE enters the Kalamazoo "Home of Tomorrow," he passes through a foyer and directly into the living room, which has a dining alcove literally joined in. This spacious living room is a gorgeous ensemble in blue-gray ceiling, step down moulded cove and a pleasing tone of yellow buff sidewalls, and furnished with modern-age furniture by the Goss Shop. A Bigelow carpet of enhancing design covers the entire floor and is laid over a heavy felt cushion. Partially separating the living room and dining alcove is a waist-high wall section of modernistic design, in which is an illuminated aquarium with chromium plated

frame. In the opposite end of the living room is a cleverly arranged fireplace and open book shelves. Above is a large mirror which extends to the ceiling and the entire length of fireplace assembly. The windows are Vento steel outswinging casement, with bronze bearing crank-type openers and lever locks. The sills on each are of black Vitrolite and set the opening off to good advantage. The corner windows afford 100% more light area than the average openings, having about 42 square feet of glass surface. Venetian blinds, especially made for corner windows, have been installed to complete the assembly.



ABOVE, is the Electric Streamlined Kitchen; to left is bedroom with corner window.

Are these Houses Best Value?

Contracts Let for First 5 Test Houses at Purdue

Each to Cost Less than \$5,000

Housing Research Project Sponsored by University to Develop Cost and Performance Data

FRANK WATSON, director of Housing Research, Purdue University, has issued a "Progress Report" on the activities and findings to date of the Project launched last June at West Lafayette, Ind., for the purpose of studying, building and testing the performance of a number of medium cost houses of various types of design and construction; these houses to be built on an addition to the Purdue Campus and to be leased to and occupied by members of the scientific staff of the University.

Mr. Watson states in this Report that in the development of the details of the housing research program every effort has been made to conform to the expressed wish of members of the building industry to engage in research and study of a basically practical nature.

"We are now engaged in the actual construction of nine* houses," he continues, "as a practical study of cost items. These houses are each of a different basic construction and represent the important materials and methods now available. Leading architects of the country have given freely of their time in designing the houses. Industry has been consulted on the proper use of the several materials employed. It may be fairly said, therefore, that these houses represent the best that can be done today in their respective classes.

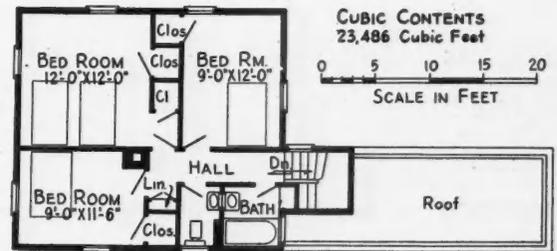
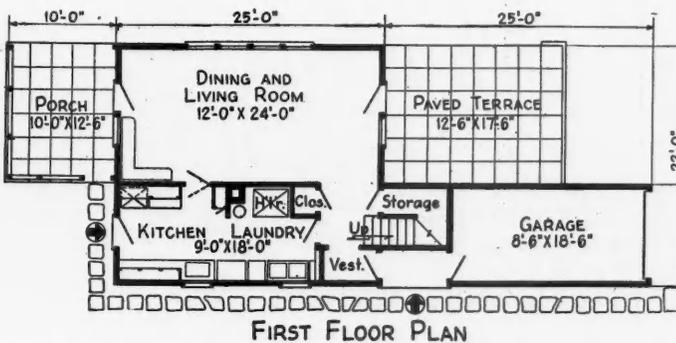
*The first five only are illustrated here, and as of Feb. 15 actual work at the building site was progressing on Houses Nos. 1, 2 and 3 only.—Editor.



WORK under way on House No. 1 on the Purdue University Campus, the Housing Research Project. This house, by J. Andre Fouilhoux, architect, is of insulated wood construction with flat roof.

"The specifications for these houses are an illustration of the practical approach which those in direct charge of the project have adopted. These specifications also reveal in a practical way the importance of the problem which lies ahead.

"Each house is designed to accommodate an average family of parents and one or more children of each sex. A garage is also listed as a necessity. This specification fits the mass of the prospective home owning public. The specifications also state that the house must be erected under ordinary conditions at a cost not to exceed \$5,000. It is recognized that this requirement does not fit the mass of prospective home owners. (See Effect of Incomes, page 75.) Those in charge of the Project were directly cognizant of this fact. The general income level of the country will not support an extensive housing development even in the \$5,000 price class. Preliminary studies revealed, however, that it is all but impossible in the present state



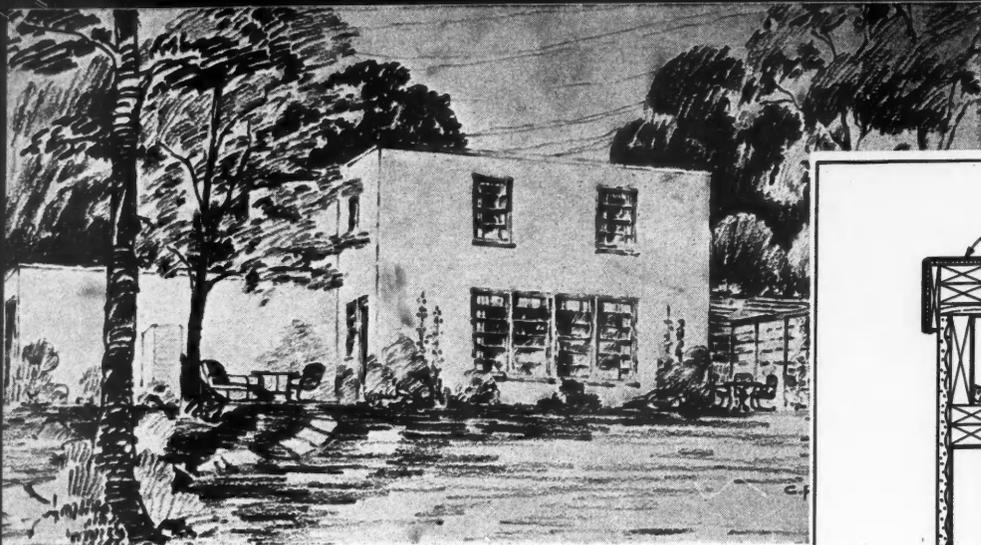
CUBIC CONTENTS
23,486 Cubic Feet

SCALE IN FEET

FIRST FLOOR PLAN

SECOND FLOOR PLAN

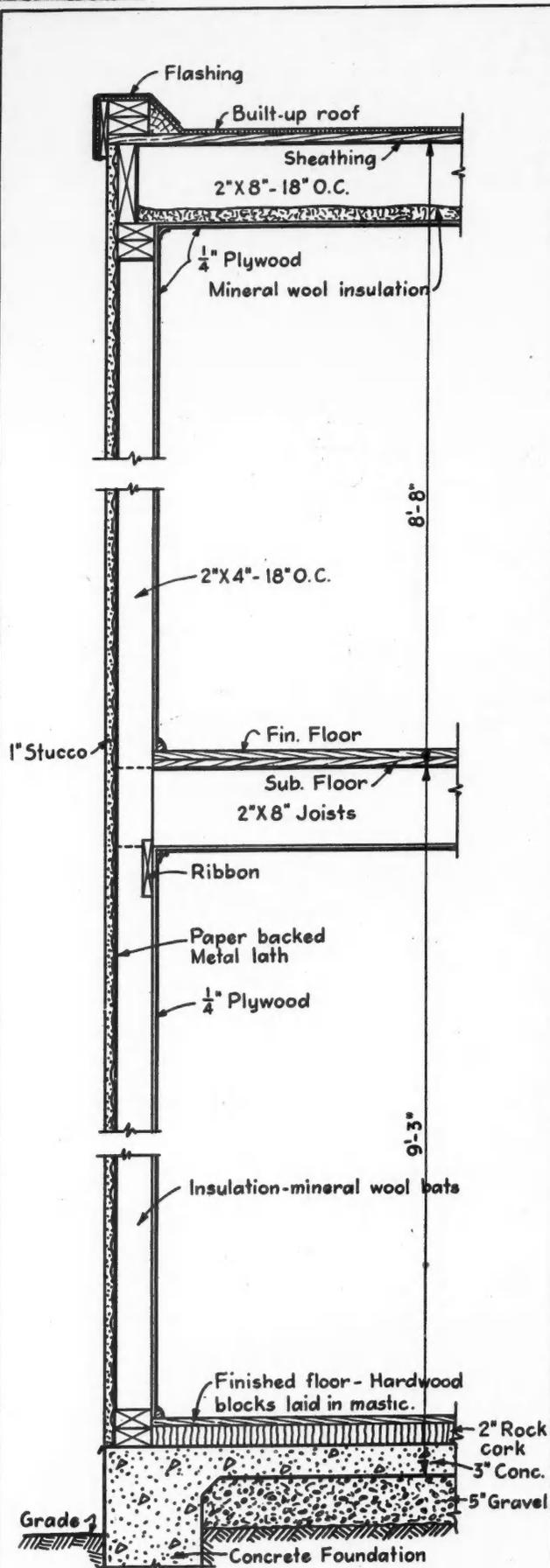
FLOOR plans of House No. 1; for details of construction and exterior perspective sketch see next page; cubic contents 23,486 cubic feet, contract price \$4,682; unit cost 20 cents per cubic foot.



HOUSE No. 1 at Purdue follows the design awarded first prize in a recent small house competition by the New York Chapter, A.I.A.; J. Andre Fouilhoux, architect, New York City; construction details to right, floor plans on preceding page.

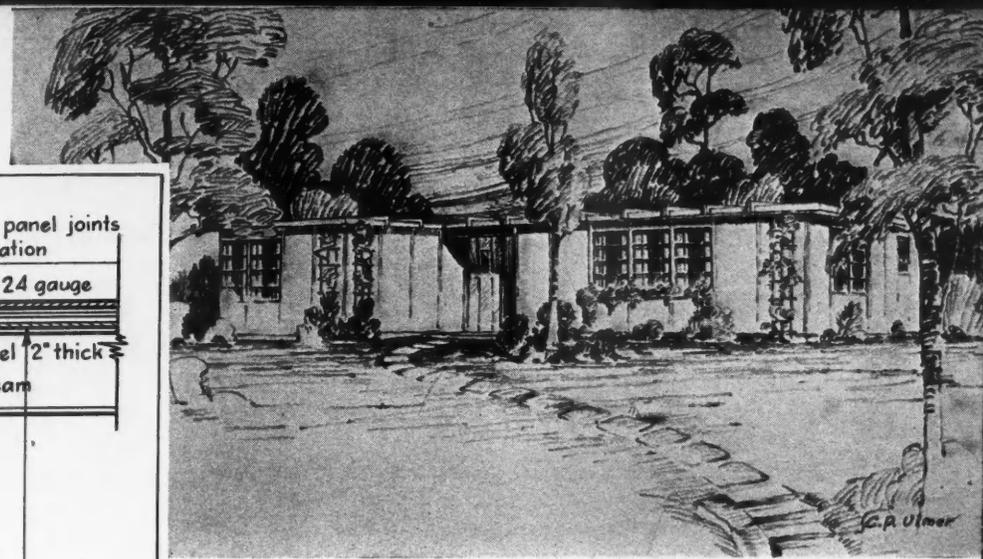
Outline Specifications—HOUSE No. 1

FOUNDATIONS	Concrete. Mix, 1 cement, 3 sand, 5 gravel
TERRACES AND WALKS	Poured concrete
FLOORS	
1st floor	Fill, 5" tamped gravel Slab, 3" concrete Insulation, 2" cold storage type Finish, hardwood blocks laid in mastic; Kitchen, linoleum
2nd floor	Framing, 2"x8" joists with 1"x8" T & G sub floor Finish, hardwood strip flooring; Bathroom, linoleum
Garage floor and drive	Gravel
WALLS AND CEILINGS	Framing, 2"x4" studding, western type Insulation, mineral wool bats Exterior finish, cement stucco on paper backed metal lath Partitions, 2"x4" and 2"x3" studding Interior finish, 1/4" fir plywood Ceiling finish, 1/4" fir plywood
ROOF	Framing, 2"x8" joists with 1"x8" T & G sheathing Insulation, mineral wool Roofing, 10 year built up roof Flashing, #24 gage galvanized iron, painted
TRIM	Yellow Pine trim for windows, doors, base and picture mold, etc.
PAINTING	Lead and oil
WINDOWS	Wood, casement type. Screens
DOORS	Wood
WIRING	BX cable
PLUMBING	Enameled iron fixtures; piping, copper tubing Water heater, 20 gal. boiler, automatic gas
HEATING	Forced warm air; automatically regulated Automatic flash type oil burner
HARDWARE	Bronze and plated

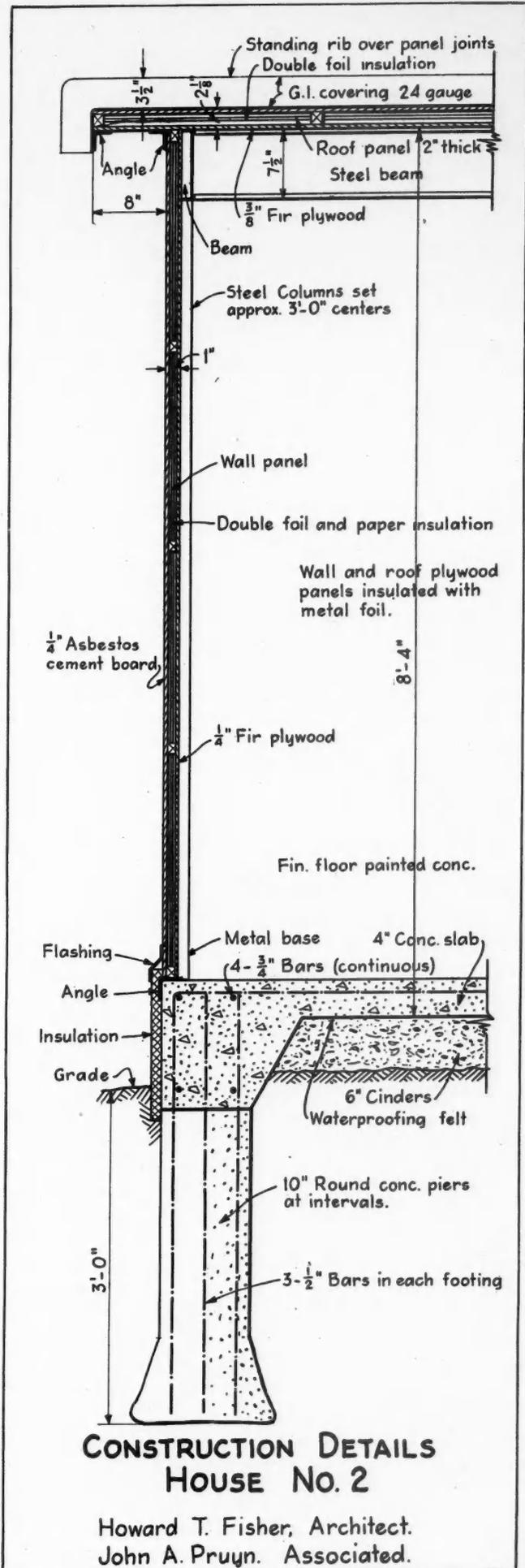


CONSTRUCTION DETAILS HOUSE No. 1

J. Andre Fouilhoux, Architect



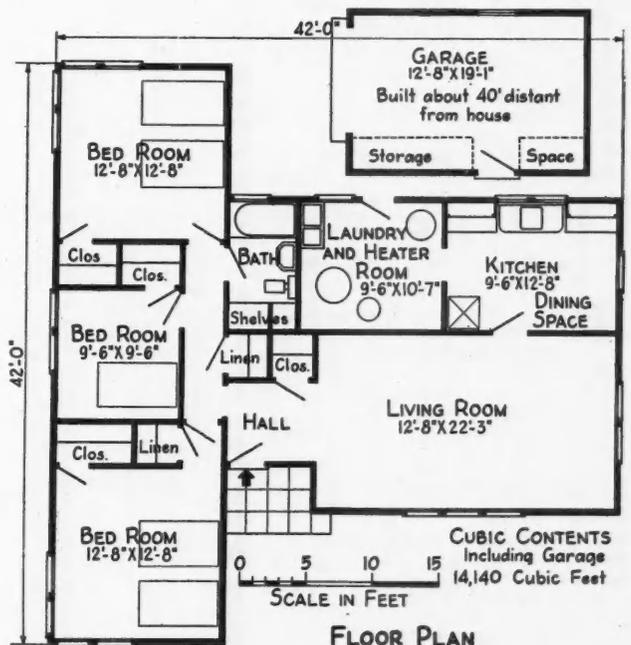
HOUSE No. 2 of prefabricated asbestos cement and plywood panels on a steel frame; constructed by General Houses, Inc., Chicago; Architects Howard T. Fisher and John A. Pruyn associated; construction details and floor plan on this page, photo of construction activity on page following.



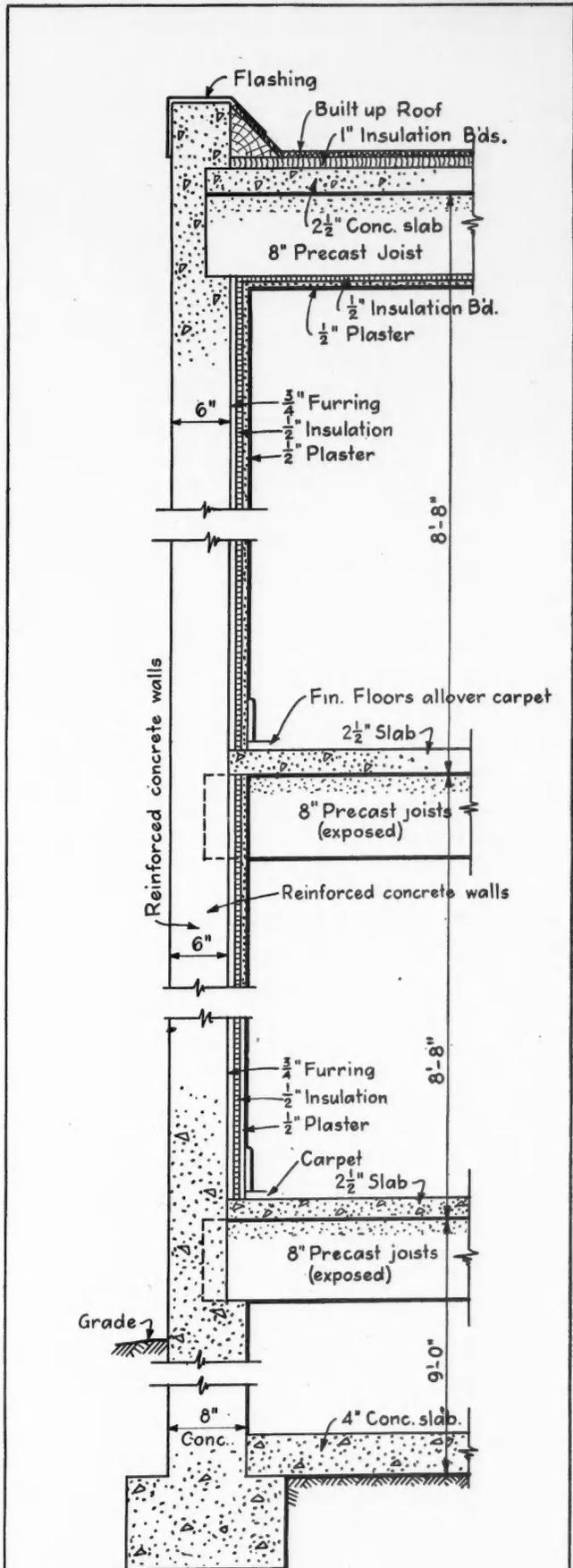
of the art of construction to erect well built, satisfactory and salable houses at a much lower figure.

"It must be frankly admitted that the houses being built do not represent all that many erroneously believe to be an average American standard of living. It has been generally necessary to eliminate dining rooms. Motor driven oil burners and automatic stokers could not be included. Only the simplest kitchen layouts and equipment can be utilized. In fact, very few if any of the countless new materials and equipment can be included under the price specified. By cheapening construction, eliminating insulation, etc., more might have been made available in the way of luxury items. But those in direct charge of the project, as well as the architects and industrial engineers who assisted in the planning, were of the opinion that no compromises in the basic soundness of construction should be made in favor of such items.

"In order to parallel as nearly as possible the situation which confronts prospective home owners, bids on



FLOOR plan of House No. 2 with detached garage; cubic contents, including garage, 14,140 cubic feet; contract price \$4,625; unit cost 33 cents per cubic foot,



CONSTRUCTION DETAILS HOUSE No. 3

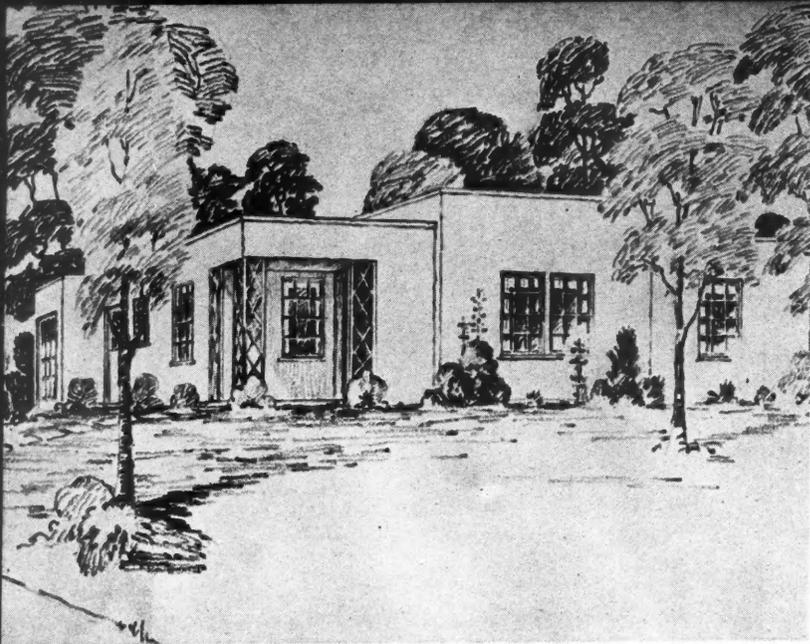
Burnham Bros. & Hammond Inc. Architects,



HOUSE No. 3 at Purdue is of poured concrete construction, sponsored by the Portland Cement Association; Burnham Brothers & Hammond, Inc., architects, Chicago. Basement excavation blasted through 2 1/2 feet of frost and work progressing under a canvas tent.

Outline Specifications—HOUSE No. 3

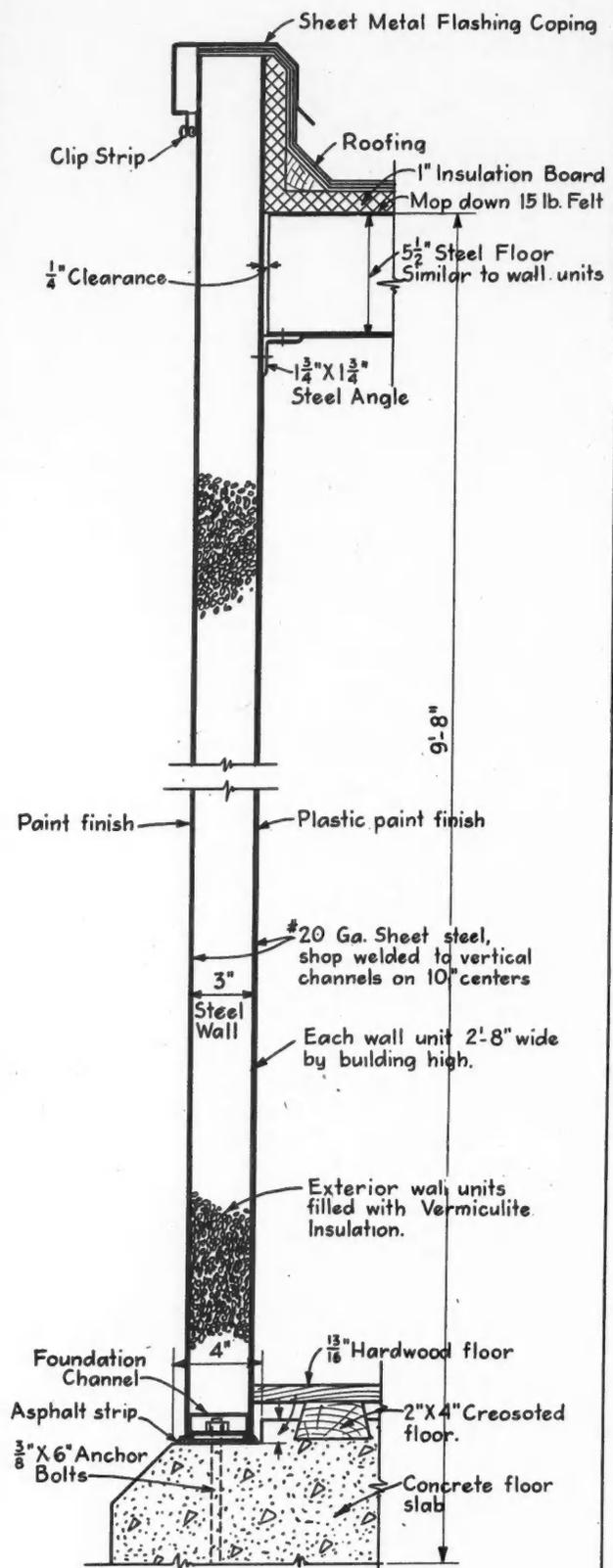
FOUNDATIONS	Concrete. Mix, 1 cement, 2 3/4 sand, 4 gravel
FLOORS	
Basement	4" concrete slab placed on earth
1st floor	2 1/2" reinforced concrete slab on 8" precast, reinforced joists
2nd floor	Same as first floor
Garage	4" concrete slab placed on earth
WALLS	
Exterior	6" reinforced concrete 3/4" furring 1/2" rigid insulation board 1/2" plaster
Interior	6" reinforced concrete, plastered direct
Partitions	2" x 4" and 2" x 6" studding Plaster on 1/2" rigid insulation board
CEILINGS	
2nd floor	Plaster on 1/2" insulation board
Kitchen	Suspended plaster and metal lath
Living room	Exposed joists and slab
Garage	1" rigid insulation board
ROOF	
	Framing, 8" precast joists 2 1/2" concrete slab 1" rigid insulation board
	Roofing, 10 year built up roof Flashing, #22 gage galvanized iron, painted
TRIM	Yellow pine, base, mold, etc. No trim around windows
WINDOWS	Steel casement, outswinging Screens, oxidized wire cloth
DOORS	Wood
PAINTING	Lead and oil Exposed concrete, 2 coats cement waterproof paint
WIRING	Iron conduit
PLUMBING	Piping, cast iron, wrought iron and wrought steel Water heater, 40 gallon automatic, gas fired Fixtures, enameled iron
HEATING	Gravity warm air, coal fired furnace



HOUSE No. 4 at Purdue is of prefabricated sheet steel panel construction, sponsored by Armco and designed and constructed by the Insulated Steel Construction Company, Middletown, Ohio. Details of construction to right; floor plan on page opposite.

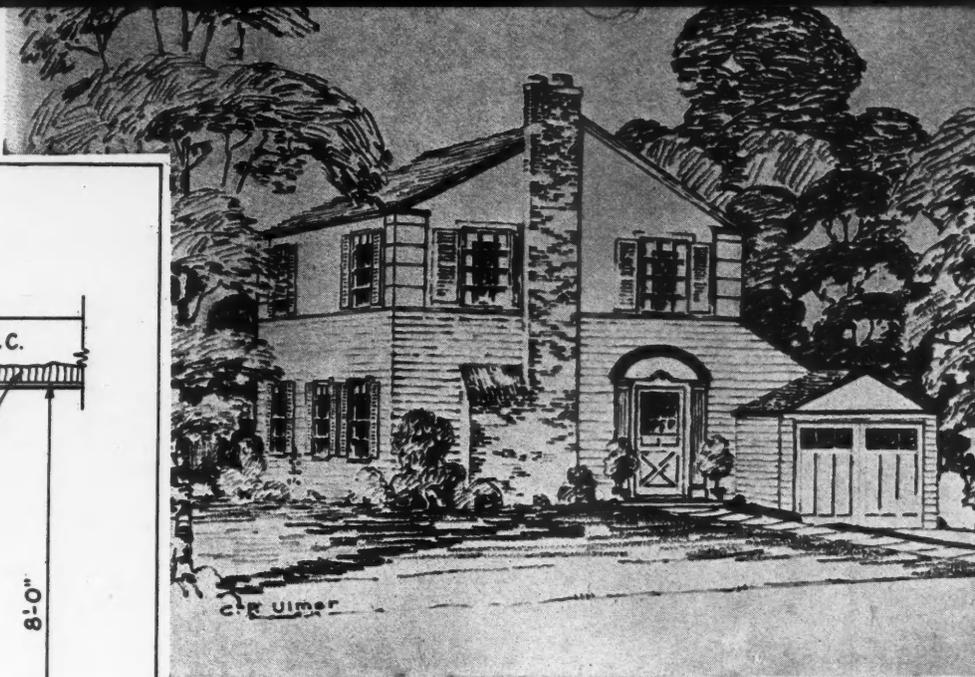
Outline Specifications—HOUSE No. 4

FOUNDATIONS	Concrete, 1:6 mix
FLOORS	Concrete, 1:2:4, trowelled finish 1:2, on fill 13/16" hardwood laid on 2"x4" creosoted sleepers Kitchen and Bathroom, linoleum
WALLS	Frameless Steel sections, painted Sections filled with insulating material Walls and ceilings, plastic paint finish
ROOF	Cellular steel construction 1" rigid insulation board Roofing, standard type built up roof Flashing, #26 gage iron
EXTERIOR TRIM	Cypress
WINDOWS	Wood, double hung
DOORS	Wood
CASES	Wood
WIRING	BX cable
PLUMBING	Pipe, cast iron, galvanized iron, black iron Water heater, 30 gallon range boiler with thermostat Fixtures, enameled iron
HEATING	Forced warm air, gas fired furnace auto- matically regulated

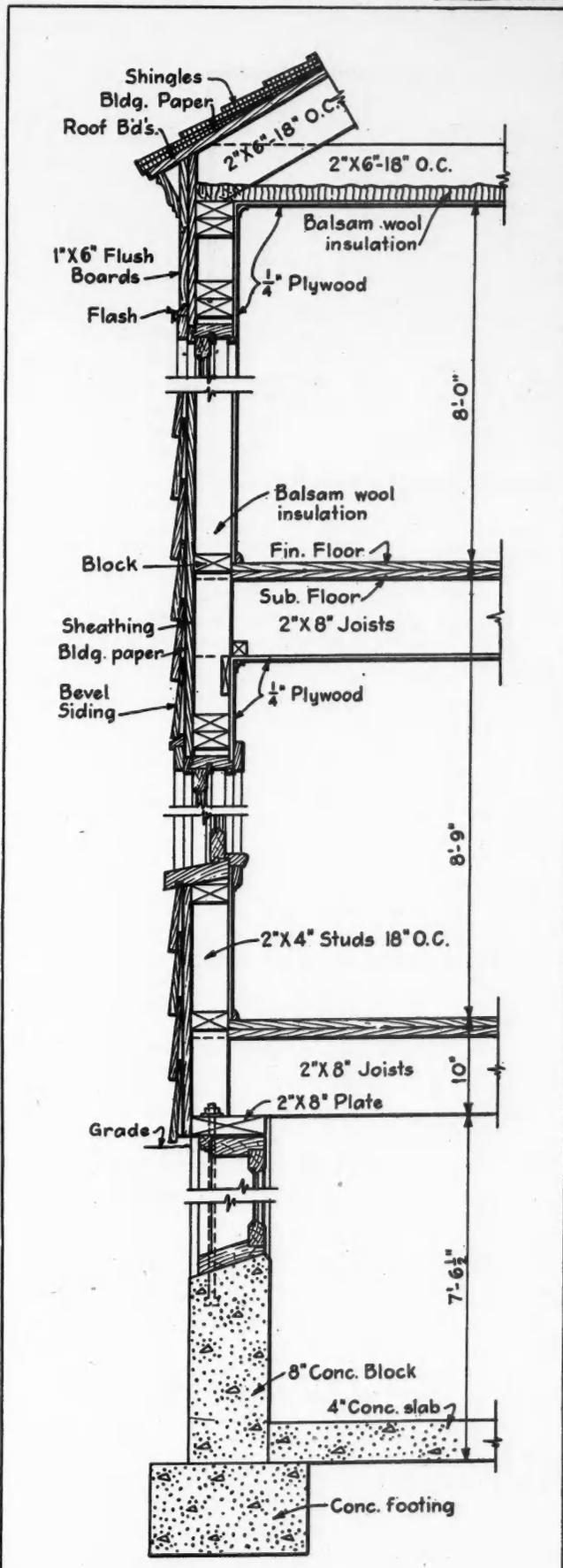


CONSTRUCTION DETAILS HOUSE No. 4

Insulated Steel Construction Co.
Designers



HOUSE No. 5 at Purdue is of improved lumber construction, sponsored by the National Lumber Manufacturers Association, McNally & Quinn, architects, Chicago. Detail of construction on this page; floor plans and outline specifications on page following.



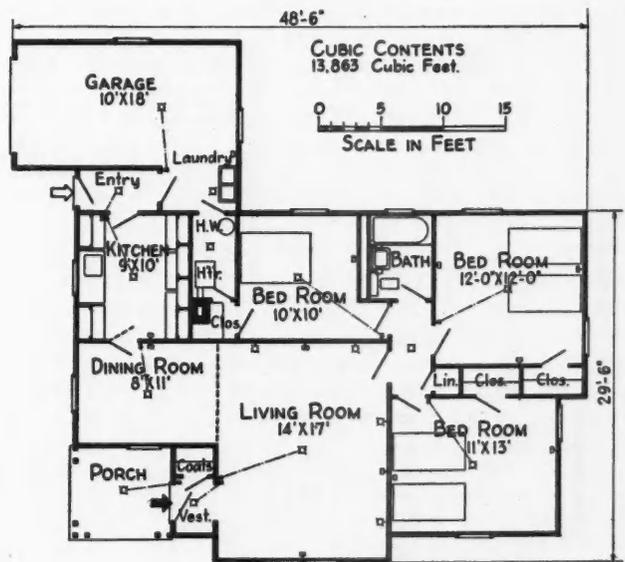
CONSTRUCTION DETAILS
HOUSE NO. 5
McNally & Quinn, Architects

home ownership should not be attempted. Land values have been figured from \$600 to \$1,200, varying with the price of the house. Provision has been made for maintenance, taxes, special assessments and insurance.

"The result of these calculations indicates that:

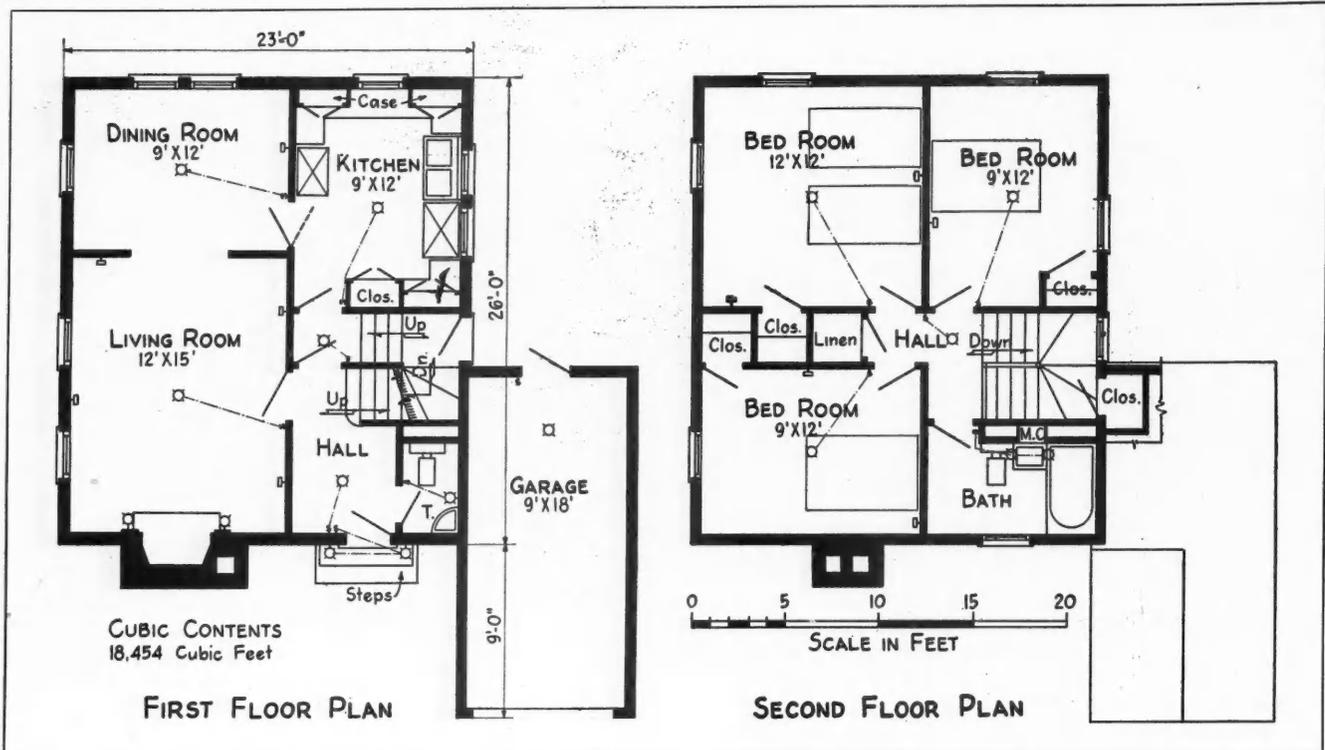
- A \$2,500 house is **TOO EXPENSIVE** for 35% of American families.
- A \$3,400 house is **TOO EXPENSIVE** for 53% of American families.
- A \$4,200 house is **TOO EXPENSIVE** for 66% of American families.
- A \$5,100 house is **TOO EXPENSIVE** for 75% of American families.
- A \$6,100 house is **TOO EXPENSIVE** for 80% of American families.

"The above figures are based on urban family incomes only. Farm incomes are much lower. The farm market may not be calculated on the same basis as the urban market, however. These figures are based upon 1929 incomes rather than 1935 incomes on the ground that we may properly build in anticipation of recovery and a more normal income level. 1929 figures are shown on page 75.



FLOOR PLAN

FLOOR plan of House No. 4 built of insulated steel wall and roof units. Cubic contents 13,863 cubic feet; contract price \$4,992; unit costs 36 cents per cubic foot.



FLOOR plan of House No. 5. For perspective sketch and detail of construction see preceding page. Cubic contents 18,454 cubic feet; contract price \$4,986; unit cost 27 cents per cubic foot.

"Preliminary surveys have been made in the various fields in which cost reductions might be effected. When construction of the houses is completed and detailed cost information of their component parts has been obtained, a more thorough study will be possible.

"These preliminary studies indicated no great practical possibilities in cost reduction. In materials, a great share, or what might be termed a disproportionate share, of cost appears in the distribution charges from original producer to ultimate consumer. Inasmuch as no one in this chain may be regarded as making too much profit, it follows that the only point of attack must be against the system as a whole. Such approach may produce savings in theory but the practical possibilities of making readjustments on the basis of any other distribution system looms as only a remote possibility. Experience has shown that the present system is apparently essential to the satisfactory merchandising of materials. No change seems possible short of a complete revolution engineered through the combined efforts of the entire building industry.

"Reduction of manufacturing costs in anticipation of increased volume appears as another possibility, but again it presents practical difficulties. Margins of profit are now slender in many lines. A ten per cent reduction in factory prices may wipe out profits for a considerable period and produce only a small saving to the home owner because of intervening distribution markups.

"In a different way, labor cost reduction in anticipation of increased volume does not appear as a practical possibility. Building trades wages are high in terms of hourly rates but generally low in terms of annual wages. This is due to the sporadic and seasonal nature of such employment. Since one day's labor becomes the next day's food for the worker, any reduction in rates in anticipation of increased volume is a practical impossibility. On the other side of the picture, it may be pointed out that the attitude of organ-

Outline Specifications—HOUSE No. 5

EXCAVATION	Full basement
FOUNDATIONS	8" concrete masonry blocks
FLOORS	
Basement	4" concrete on cinder fill
1st floor	2"x8" joists, 1"x6" sub floor
2nd floor	Same as first floor
Finish	25/32" red oak
WALLS AND CEILINGS	
	Framing, 2"x4" studding
	Exterior, 1"x6" sheathing, 8" beveled siding
	Interior, wood lath and plaster
ROOF	
	Red cedar shingles, on solid sheathing
	2"x6" rafters, 2"x4" ceiling joists
	Gutters and flashing, #26 gage galv. iron
INSULATION	1/2" wood wool, blanket type, wall and roof
TRIM	Wood
PAINTING	Lead and oil
WINDOWS	Wood, double hung Screen, copper bronze
DOORS	Wood
WIRING	BX cable
PLUMBING	Piping, cast iron, galvanized steel, black wrought steel Water heater, 52 gallon boiler, with thermostatic control Fixtures, enameled iron
HEATING	One pipe gravity system Coal fired boiler

ized labor in general has not been one of wholehearted co-operation on the problem of reducing costs. New methods which look towards a reduction of labor on the job are often resisted. Such a policy can have only one result and that result is now being felt.

"Unfamiliarity and ignorance of new methods and materials on the part of contractors is another important obstacle to reduced costs. It should be reported, however, that few of the many new developments in the building field which have thus far been investigated have been based on cost reduction possibilities. Most new developments look toward furnishing a better product at an extra cost.

Effect of Incomes on Potential Home Ownership

"A more graphic portrayal of the effect of incomes on potential home ownership is shown in the following chart. This chart is confined to urban families and ignores the lower income farm families. The amount of this market now being utilized according to 1935 Dodge reports and the amount included under housing presently being studied at Purdue University is shown.

"An analysis of the data involved reveals that building in the present price range and letting the lower income groups find shelter in secondhand houses can only result in an annual volume of residential construction of one billion dollars. It also indicates that houses will have to be approximately two hundred years old before they become available at the lowest end of the scale. That this may not in fact be so is indication that the residential building industry is built upon the insecure foundation of selling people on the glories of home ownership and inducing them to purchase homes which they cannot afford.

"As has been indicated, all figures are based upon 1929 incomes and include only the urban family incomes. Following is the source chart of incomes from studies by the Brookings Institution:



WORK proceeding on House No. 3 at Purdue Research Campus. After blasting the cellar excavation through 2½ feet of frost, the men are working in comfort under a canvas tent heated by salamanders.

CUMULATIVE DISTRIBUTION OF NON-FARM AND FARM FAMILIES, BY 1929 INCOME CLASSES

Income Class (In Dollars)	Non-farm Families		Farm Families	
	Number (In Thousands)	Per Cent	Number (In Thousands)	Per Cent
Under 0	50	0.231	70	1.207
Under 500	650	2.999	1,452	23.035
Under 1,000	2,735	12.619	3,164	54.552
Under 1,500	7,484	34.530	4,169	71.880
Under 2,000	11,578	53.419	4,776	82.346
Under 2,500	14,389	66.389	5,169	89.122
Under 3,000	16,156	74.542	5,390	92.933
Under 3,500	17,468	80.595	5,525	95.261
Under 4,000	18,366	84.738	5,620	96.899
Under 4,500	19,022	87.765	5,682	97.968
Under 5,000	19,496	89.952	5,722	98.658
Under 6,000	20,122	92.840	5,762	99.348
Under 7,000	20,510	94.630	5,781	99.676
Under 8,000	20,753	95.751	5,790	99.831
Under 9,000	20,921	96.526	5,794	99.900
Under 10,000	21,047	97.107	5,796	99.934

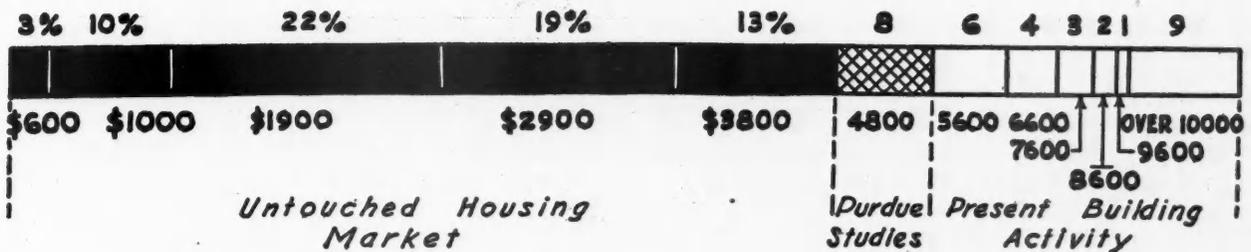
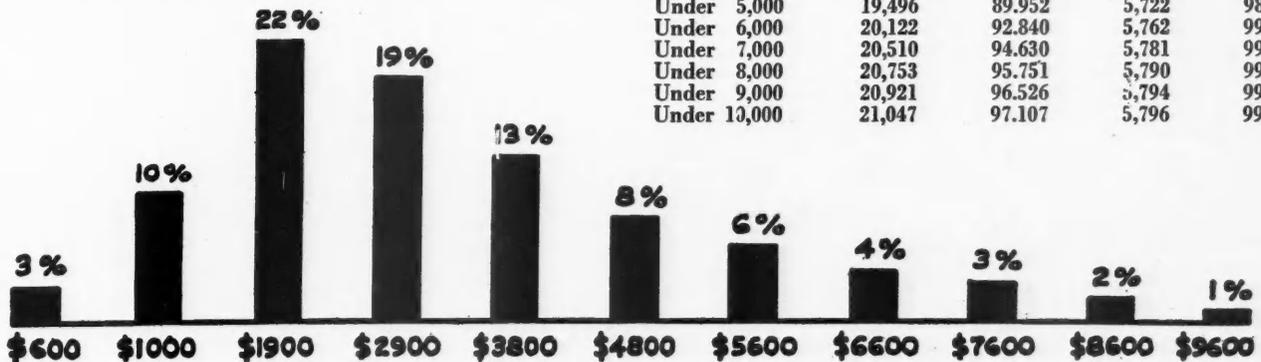
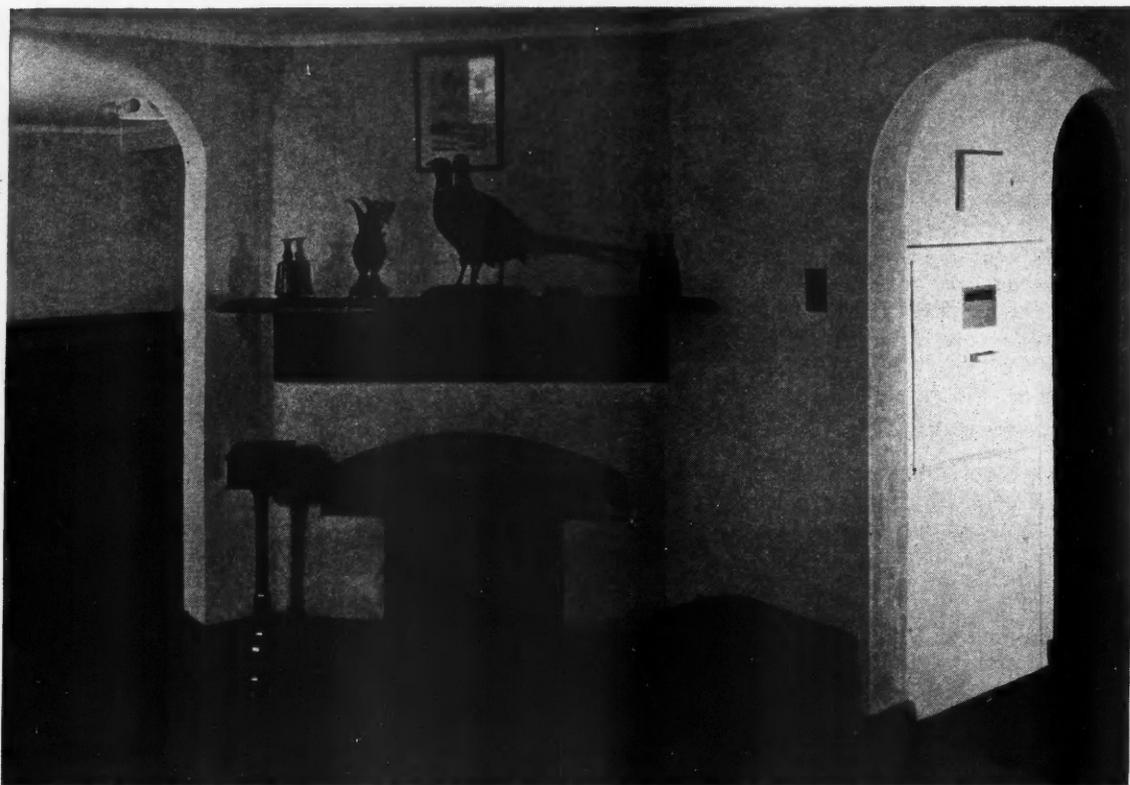


CHART prepared by Frank Watson showing percentage of families according to cost of house their incomes will support. The Purdue studies being in the \$4,800 group are shown to be of interest to eight per cent of the home buying market.



SHOWING FIREPLACE in card room. Part of billiard room is seen through left arch, with front of air-conditioning unit at right.

Cinderella in the BASEMENT

EVEN THOSE readers who have seen thousands of before and after pictures may have trouble associating the air ducts, ashes, shovels, and bare brick wall shown in the upper right-hand corner of the following page, with the accompanying illustrations showing arched doorways, and attractively furnished rooms. This furnace heated the home of Frank E. Russell, heating contractor, of Cedar Rapids, Iowa, until he converted the basement into an attractive card room, billiard room, and recreation center.

Several factors helped furnish the golden slippers and carriage that transformed this Cinderella of the basement. First, Contractor Russell has planned and built several homes, although he never before attempted a modernizing job. Second, he has a plastering contractor, L. L. Augustin, in the family. Third, young people of the family have grown to the age when they like to entertain in a separate part of the house. But these changes would not have been possible were it not for

the compactness, quiet operation, and general efficiency of present-day heating and air-conditioning equipment.

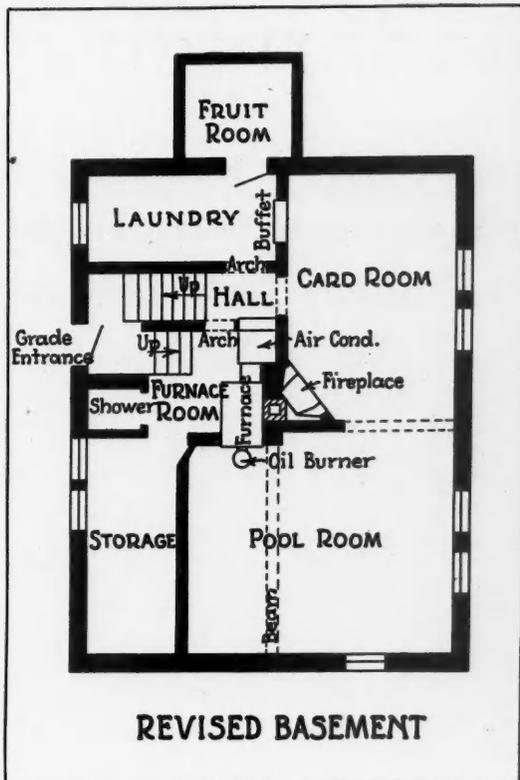
The basement originally had no partitions. There was an open stairway, and a triangular chimney near the center for a corner fireplace in the living room above.

"Ordinarily in an air-conditioning job," explained Russell, "I should place the furnace at one end of the basement. In this case the heating plant had to be centered around the chimney. The furnace is custom-built steel to my own specifications. It has twenty-six 4" tubes for greater heating efficiency. A long smoke collar extends through the square casing into the chimney thimble, and the furnace is set against one side of the chimney." (See floor plan.)

A McIlvaine burner is fed by an underground oil line from a tank installed in the garage. The furnace is coupled with a Hold-Heat air-conditioning unit. This combination, according to Contractor Russell, makes it possible to have cleanliness, warmth, and head

MODERNIZATION

"which makes buildings of all kinds more cheerful, more livable and more salable"



LEFT, plan showing how furnace and air-conditioning unit adjoin chimney. RIGHT, a view of basement Cinderella before the transformation.

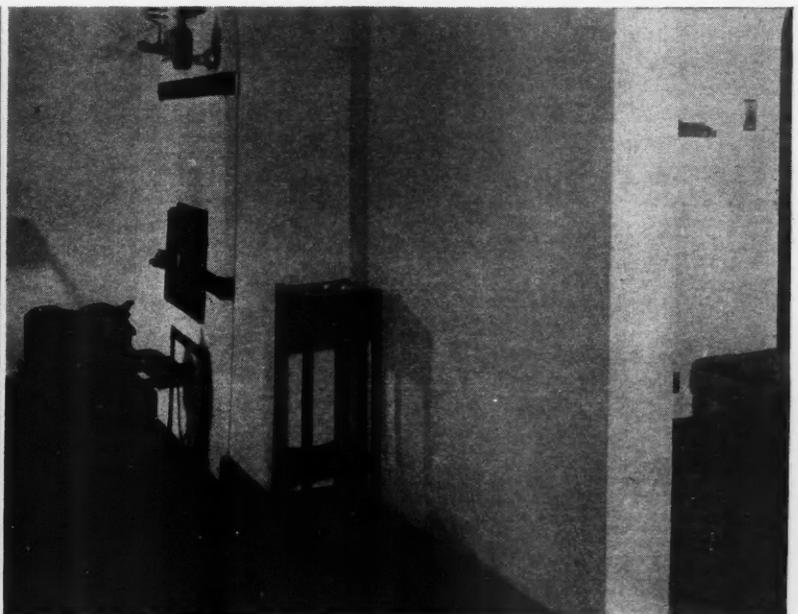
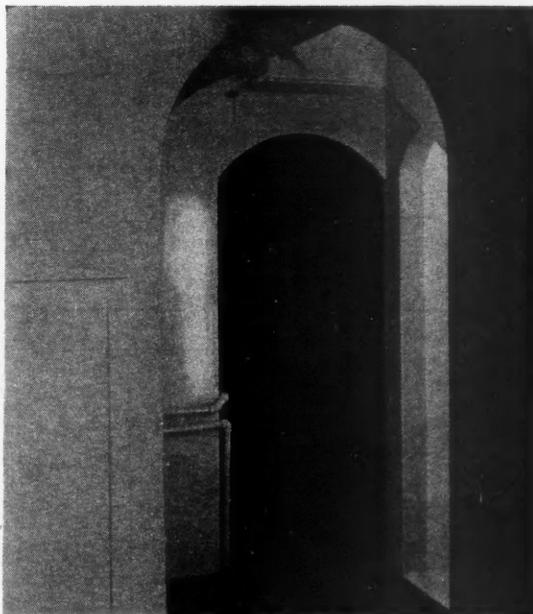
room. All pipes are run against the ceiling.

A fruit room was dug out under the front porch, bricked, cemented, and equipped with an insulated door. Stone outer walls of the basement were leveled with cement, then waterproofed with Elaterite. A bond coat of gypsum plaster was then applied, and finished with Chromeroc, a tinted plaster, which was textured in the two large rooms, hall, and stairway. A 2" plaster cornice and cement baseboard were used to finish the card room and billiard room. A sand finish of the same material was used in the laundry. The furnace room is smooth white plaster, enameled white, and the shower is of Keene's cement, tiled effect.

"This is the first job of the kind I ever did," stated

Russell. "I planned and executed all of it with the assistance of my family. We have received many favorable comments from those who have seen the basement, and have several parties contemplating similar improvements. This should be a profitable field for contractors, as it appeals to home lovers for many reasons. It certainly has made our home a popular place among our friends, and it is ideal for young folks who like a separate part of the house for their gatherings."

The modernizing that Contractor Russell has done in his spare time has practically added another floor to his home. It is a splendid demonstration of what can be done with modern space-saving heating and air-conditioning equipment.



LEFT, curtained entrance to laundry. RIGHT, view along wall of billiard room, showing furnace and burner. Part of card room is seen at the right.

Profits in Veneer Modernizing

Thin Brick Slabs Used for Remodeling Homes and Commercial Structures Found Satisfactory by Builders in Cleveland

INCREASING use of thin brick veneer for modernizing has brought out a number of interesting mechanical developments that simplify and speed up application. General advantages of the method lie in the fact that the light-weight thin veneer can be "hung" on existing walls. It also eliminates digging and foundation work, cutting and building up through porches, and changing eave lines.

Accompanying illustrations show one application of a thin veneer known as Brik-Lok. Most of the applications to date have been in Cleveland, where a number of contractors have specialized in the work and are said to have found it satisfactory from a profit standpoint. Other applications are reported all the way from

New York City to western Indiana.

Each Brik-Lok slab has the face dimensions of a standard brick, $2\frac{1}{4} \times 8$ ", and is $\frac{5}{8}$ " thick. A square, $\frac{3}{8}$ " groove along the top and bottom of each slab is fitted into a locking device that holds it to the wall. L-shaped corners, with standard $3\frac{3}{4}$ " returns are used. Sills of the same shape are made much heavier to provide more projection when placed in a rowlock course.

The wall is prepared for application by nailing vertical steel channels, $4\frac{1}{4}$ " O. C. These channels are made of 22g copper-bearing steel, galvanized, then aluminum coated after they are formed by punching extruding tongues that lock into grooves of the slabs before mortar is applied. Spacing of these tongues automatically provides a $\frac{3}{8}$ " horizontal mortar joint.

An advantage claimed for the method is that the vertical channels are self-furring over lap or novelty siding, or over shingles.

Preparatory carpenter labor includes plumbing of walls, furring out low spots, leveling high points to a common plane, moving scaffold, application of building paper, and the nailing of channels. Average carpenter production is $1\frac{1}{2}$ to 2 square an 8-hour day. On most jobs to date all locking in, cutting, and mortaring was done by bricklayers, who average $1\frac{1}{2}$ squares a day. Incidental materials average \$3.00 a square.



ABOVE, before and after views of remodeled Cleveland residence.



BELOW, mortar is being applied to brick slabs that have been locked in place on vertical furring strips.

The Parentage of Modern Home Improvements

By V. L. SHERMAN

Department of Mechanical Engineering,
Lewis Institute of Technology, Chicago

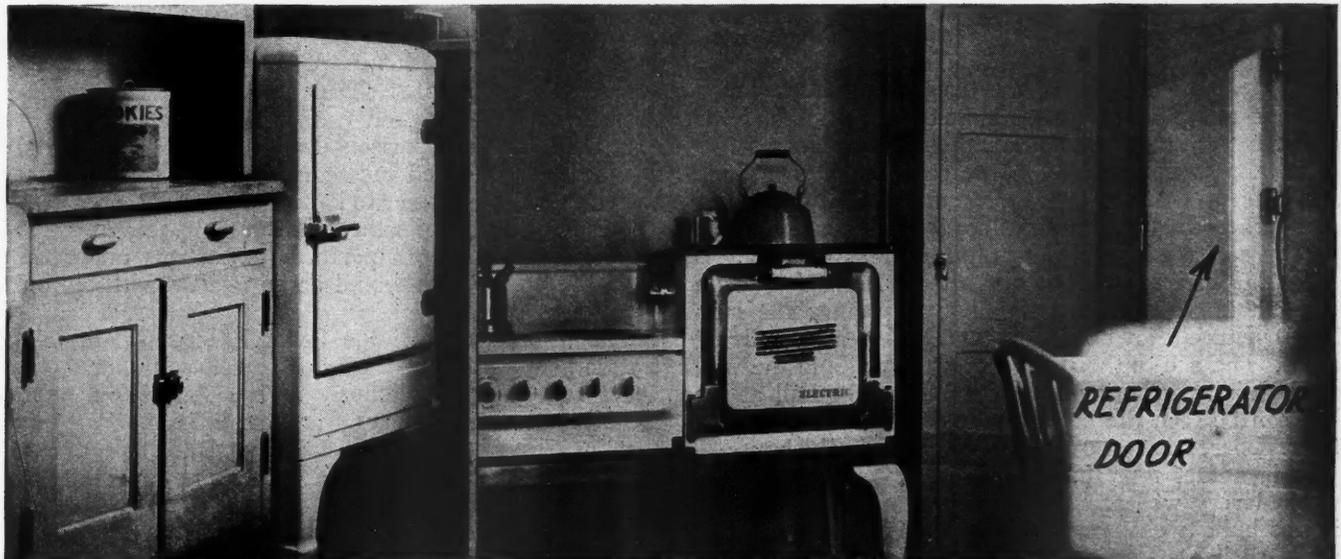


FIGURE 2. Refrigerator accommodation is not the struggle so often anticipated.

COAL stokers seem to be the topic of so many who ask concerning "modern" equipment. And those genuinely concerned are not seeking for "modern" equipment nearly so much as equipment for comfort. On a recent Sunday visit the question came up. All I was asked was in the nature of corroboration. This was not hard to give. But while I was there I chanced a couple of pictures to use in this article. If the place was built for anything it was certainly built for comfort. The living room has a large fireplace and opens onto a large sun-parlor. But, besides, it has four large windows which give just the light for eye comfort.



FIGURE 1. Adaptable lights and lighting are on the increase.

One of the main inquiries this month has been regarding illumination. It is a pertinent subject and one which will be followed. Times have changed, and designs as well, since the days of high ceilings and tall windows. But we find that in their way they provided just what many of us wish we did not lack, ventilation and ample lighting. Figure 1 shows a living room which gives every means to proper lighting.

There has been a gradual change for the better in windows. As houses were built smaller to compensate for increasing costs, the question of windows was often a question of appearances, chiefly from without. But as it became a growing question of appearances the manufacturers set out to design and build better windows for the smaller types of homes. The present nature of windows is just about in the class of mechanical equipment. Windows of both wood and metal are built today from a different viewpoint. They accept a good deal of responsibility. They give plenty of light, even to the ultra-violet if you wish. Although probably smaller than their progenitors they are a graceful part of the structure. They certainly are built with strength even if lighter in weight. But when it comes to snugness and general fit they are way ahead. If a home is to be air conditioned the market can provide double-glazing even with the single sash.

In this home referred to there was the question of refrigeration. If the mechanical refrigerator were to be placed within the kitchen the question of space became an important one. But the refrigerator does not have to go on the kitchen floor. The modern type can be placed as was this one shown to the right in Figure 2. The door to the refrigerator is placed where it is wanted in the wall, and the mechanism takes care of itself.

There was a time, too, when unless you had the

MECHANICAL EQUIPMENT FOR 20-YEAR FINANCED HOUSES

proper floor space you could not have the refrigerator in the kitchen. But those days have passed, as witness the little one to the left in Figure 2. It exactly replaced a small ice-box except for height, and only the window sill needed chamfering.

Inquiries regarding duct-work, wall grilles, and forced circulation are numerous. Are these recent installations effective? Why the sudden change? Are such arrangements more satisfactory? To bring out one or two points I took the two photographs shown in Figure 3. This place was built twelve years ago for a gravity feed system, although soon afterward two small fans were installed in the cold air return which might seem to make it a forced air circulation job, if one wished to stretch a point or two. As shown in the photograph the hall has a false ceiling. Above this ceiling is the main warm-air trunk. Branching from this trunk are ducts supplying each room. The left-hand picture shows one of two grilles in the living room. The one to the right shows the grille in the wall of the dining room. At the far end of the hall at the left can be seen the orthodox cold air face in the hall floor. There are two other cold air faces in the house.

It is a fact that this warm air heating system has worked very well and economically in this house since it was built twelve years ago, but it is also a fact that while such systems were, for their times, satisfactory, the more recent installations, their descendants, are much more satisfactory. The warm air, or cooled air, is positively circulated. The duct-work is more compact and consequently takes up less space. The insulation of ducts is improved and with the decrease in duct section the heat losses are reduced. The grilles are smaller and more conveniently placed. The cold air returns are more numerous with the result that the

room circulation is better controlled to varying needs.

These so-called modern improvements are not the impetuous lot that some of us think. They have come into use through previous efforts which have shown good results. And the results are even better now than many of us expected. One questioner points out that for the amount of air poured through a duct the circular sectioned duct will have the least surface. Of course this is true. But if we compare the heat-losing surfaces of a group of circular sectioned leaders with those of a well designed trunk and branch system of duct-work that comparison does not hold at all. And when it comes to feed and return of warm air the latter system is so much easier to handle and more economical.

Besides this there is the problem of space. A trunk or a nest of ducts can perform contortions under the basement ceiling that would be impossible with the old time leaders.

The whole set-up of the Federal Housing Administration points to the necessity of real home building, the very opposite of building for speculative purposes. Real homes are not ready-to-wear affairs. Probably they never will be in this country. But some of the essentials in home building have been pretty thoroughly organized along much improved lines. This is true especially of mechanical equipment. But such equipment and such improvement is not of the orphan type. All good, modern equipment comes of very good family.

Figure 4 is shown here in answer to inquiries regarding the necessity of providing special and expensive ducts for residential work. The drawing is meant to show that stock pieces in various sizes are available for this type of work. Not only does the chance of getting these pieces facilitate planning but there is a sureness in the branching and turns and in the joints as well. There is also a certainty about the gage.

From the East comes a letter: "In the January issue of the *American Builder* I note on page 57 a centrifugal pump and on the same page you mention compact pumps of this type of capacity between 30 and 800 gallons per minute and pumping against a head of 350 feet. . . ."

The progress in recent years in the design of pumps has been considerable. The study of fluid flow, whether air or water or some refrigerating medium, and the means for producing that flow has been intensive. Any of us may realize what a change has taken place in the pumping machinery of our city water supplies. The older pumping equipment would seem cumbersome to us now if we were to see it in the pumping stations. Just so has the fan and blower stepped up in design.

But it is not entirely fair to give entire credit to the pump designer. The pump drive is just as important. In one type of drive, for instance, there is an approach to perfection. The direct-connected motor-driven pump is about as reliable and substantial as anyone could ask for. Motor drive is

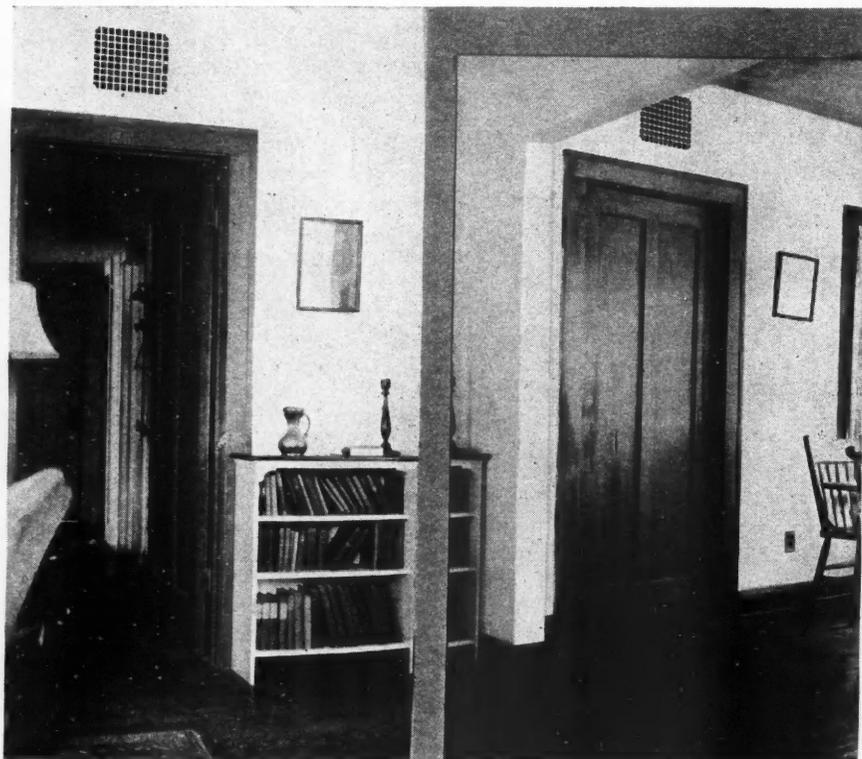


FIGURE 3. A gravity warm air system twelve years old with the trunk above a false ceiling in the hall.

HEATING—AIR CONDITIONING—PLUMBING AND WIRING

not new, of course, but the vast variety of power, speed, and voltage is to be wondered at. There is hardly any single need that cannot be filled, and I suspect that should a special requirement be met the motor builders would be able to pick it out of the air ready for use. Figure 5 shows a substantially built motor in what might be termed a dynamometer mounting on cushions, with a seasonal lubrication service.

It would be rather easy for me to grow enthusiastic over motor drives. Just for curiosity I have put them to all sorts of physical abuse, let them get dirty, broken the brushes, let the dirt accumulate on the commutator, and still they would run. Of course that is no way to treat a motor, but without doubt many of us do treat them that way, and the manufacturers return our human weakness with human kindness. (Overloading a motor, however, is not a human weakness.)

Letters have come in regarding insulation of houses. As a favorite topic these pages could be filled over and over with notes on insulation. The previous article dealing with insulation did not get very far into the subject. The question of insulation of walls, windows, floors, roofs for heat and for sound is a long subject. Insulation of pipes and surfaces of high and low temperatures is just as important and full of matter. The same is true of duct-work, and of other sources of heat or cold.

It seems to be a fact, shrewd as many of us are, that the average home owner has very little idea of the purpose or value of suitable insulation, and that it is just as necessary to emphasize the use of insulation in demonstrating the advantages of a heating or cooling system as it is to emphasize the proper fin-

ishes for wood surfaces when urging the selection of beautiful flooring or paneling. They must go together.

When an association of manufacturers will spend hard earned cash and years of time to determine the heat transmitting properties of various wall types it is time for the smart prospective owner to know that he cannot install a good piece of heating or cooling equipment and expect less than grief without properly insulating his house and the plant.

Wallace Ashby Corrects Housing List

Washington, D. C.

To the Editor:

The November issue of the *American Builder* contained a compilation of firms advocating various types of house construction. We wrote to most of the firms requesting literature and have received prompt replies. Your list proved a convenient source of reference. We are sending you the information below as it may be of interest.

The following firms advised us that for a number of years past they have discontinued making steel houses:

G. & J. Weir, Ltd., Cathcart, Glasgow, S.4.

Braithwaite & Company, Ltd., Horseferry House, London.

Letters to the following firms were returned unclaimed:

Societe de Constructions Metallique Fillod, Paris, France.

Societe de Construction Multi-Cellulaires, Paris, France.

Aluminaire House, Syosset, Long Island, N. Y.

Their return might have been for insufficient address.

We were very pleased by the courtesy of the Forges de Strasbourg which telegraphed their representative, who was scheduled to sail in a few days from New York, to visit us in Washington and explain their method of building.

WALLACE ASHBY, Chief,
Division of Structures,
U. S. Department of Agriculture.

THIS MIGHT SUGGEST THE BUILDING BLOCKS OF OUR YOUNGER DAYS, BUT IS REALLY THE PROPER FABRICATION FOR TRUNK, BRANCH, AND DUCT.

FIG. 4

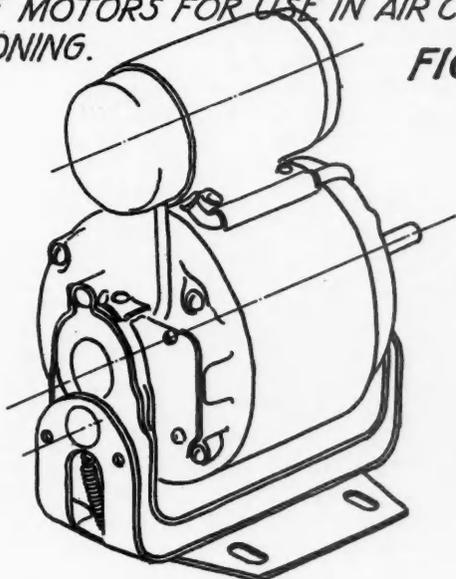
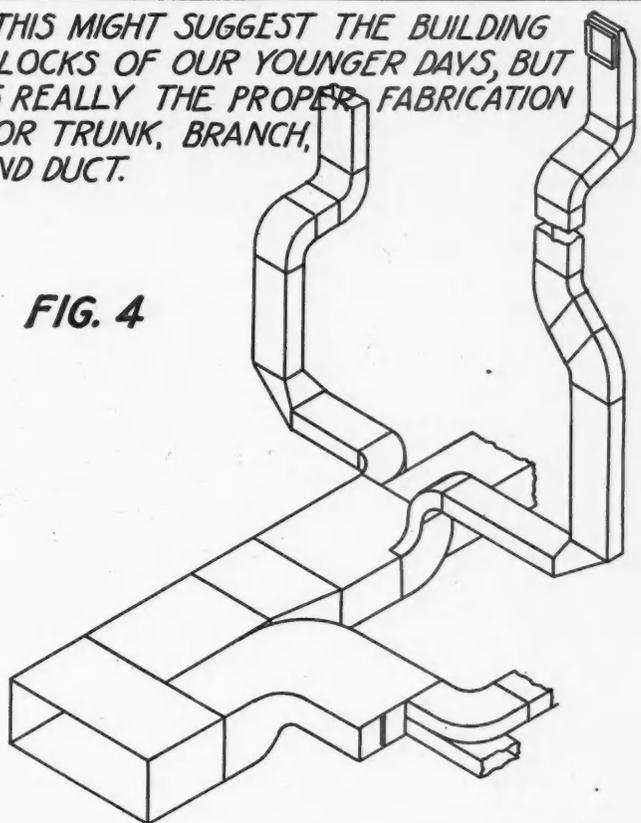


FIG. 5

PROBABLY NO GREATER ADVANCE CAN BE SHOWN THAN IN THE FIELD OF MOTORS FOR USE IN AIR CONDITIONING.

Large Apartment Building Costs

Bureau of Labor Statistics Report on New York City Slum Clearance Housing Project Gives Interesting Cost Figures

A STUDY of the costs involved in building Knickerbocker Village reveals important figures on this type of project as are shown in the report of the Bureau of Labor Statistics. A summary of the findings is given on these pages.

Knickerbocker Village was built by the Fred F. French Company with the aid of a loan of \$8,022,000 from the Reconstruction Finance Corporation. The project was started in 1933. One unit was ready for occupancy Sept. 25, 1934, and the other unit in December of the same year. The total cost of the development, including land and buildings, exceeded \$9,500,000. Both buildings are 12-story, red brick structures, and together are capable of housing in the 1,593 dwelling units provided a population of about 6,000. The apartments were designed primarily for white-collar workers. Monthly rentals average \$12.50 a room. A number of thoroughly modern 2½-room apartments, however, rent for

\$22.50 a month. The highest rent is \$87.50 for a 5-room penthouse apartment.

Because of its size and type, Knickerbocker Village provides an unusually good basis for measuring the labor requirements in building construction. Labor costs here used, for example, include only the cost of labor performed at the site of construction. The figures relating to material costs cover the cost of the materials laid down at the site of construction, including freight and drayage charges, and all shop labor required in fabrication.

The overhead charges included workmen's compensation insurance (amounting to approximately 10 per cent of labor cost), and other costs, such as maintaining and hiring concrete mixers, hoists, steam shovels, and other equipment. This analysis should be used in reference only to fireproof, multiple-story, elevator-equipped apartment house construction.

Table 2 shows the cost of each operation and gives the distribution for labor, material and overhead costs. It will be noted from the table that excavation and grading charges amounted to \$204,908. In this figure a charge of more than \$2,000 for landscaping was included. The use of machinery kept the labor cost down to the relatively small sum of \$89,677. The material account represents chiefly the cost of shoring and landscaping.

Table 1.—Construction Costs Per Cubic Foot and Man-Hours of Direct Labor Per 1,000 Cubic Feet Involved in Construction of Knickerbocker Village

Class of work	Construction cost per cubic foot	Man-hours at site per 1,000 cubic feet	Class of work	Construction cost per cubic foot	Man-hours at site per 1,000 cubic feet
All classes of work.....	\$0.468	132.56	Elevators.....	\$0.012	1.84
Excavation and grading.....	.015	7.62	Tile, terrazzo, and bathroom fittings.....	.007	2.50
Cement and concrete.....	.055	18.27	Weatherproofing.....	.004	1.89
Masonry.....	.072	30.73	Manufactured metal products.....	.017	1.96
Carpentry.....	.030	7.15	Glazing.....	.001	.33
Plumbing.....	.044	10.37	Equipment.....	.011	.13
Heating and ventilating.....	.021	5.06	Engineering and supervision.....	.008	4.64
Lathing and plastering.....	.028	14.09	Miscellaneous.....	.013	10.91
Roofing and sheet-metal work.....	.002	.76	Builder's fee.....	.026	
Structural steel.....	.046	4.04	Architect's fee.....	.008	
Electrical work and fixtures.....	.017	5.32	Financial and other.....	.020	
Painting and decorating.....	.011	4.95			

Table 2.—Labor, Material, and Overhead Costs Involved in Construction of Knickerbocker Village

Class of work	Total cost	Labor at site	Material	Overhead and other
All classes of work.....	\$6,216,899	\$2,019,838	\$2,636,179	\$1,560,882
Excavation and grading.....	204,908	89,677	8,173	107,058
Cement and concrete.....	723,363	273,372	345,417	104,574
Masonry.....	951,830	466,281	423,376	62,173
Carpentry.....	392,515	119,161	226,553	46,801
Plumbing.....	578,929	178,626	344,375	55,928
Heating and ventilating.....	281,228	82,721	176,598	21,909
Lathing and plastering.....	369,157	235,548	93,709	39,900
Roofing and sheet-metal work.....	29,091	13,070	12,938	3,083
Structural steel.....	616,209	86,947	376,167	153,095
Electrical work and fixtures.....	230,272	92,441	110,630	27,201
Painting and decorating.....	150,120	83,283	36,534	30,303
Elevators.....	157,120	25,552	130,866	702
Tile, terrazzo, bath fittings.....	90,178	40,194	39,759	10,225
Weatherproofing.....	55,918	29,410	23,862	2,646
Manufactured metal products.....	232,070	31,830	154,357	45,883
Glazing.....	15,382	4,472	4,982	5,928
Equipment.....	142,782	2,312	119,037	21,483
Engineering and supervision.....	108,640	92,113	1,060	15,467
Miscellaneous.....	173,003	72,828	7,786	340,098
Builder's fee.....	340,098			109,901
Architect's fee.....	109,901			264,185
Financial and other charges.....	264,185			

Table 3.—Labor Cost, Average Hourly Earnings, and Man-Hours of Direct Labor Involved in Construction of Knickerbocker Village

Class of work	Labor cost at site	Average hourly earnings	Man-hours at site
All classes of work.....	\$2,019,838	\$1.148	1,759,640
Excavation and grading.....	89,677	.887	101,143
Cement and concrete.....	273,372	1.127	242,525
Masonry.....	466,281	1.143	407,976
Carpentry.....	119,161	1.255	94,939
Plumbing.....	178,626	1.298	137,628
Heating and ventilating.....	82,721	1.232	67,153
Lathing and plastering.....	235,548	1.260	187,012
Roofing and sheet-metal work.....	13,070	1.290	10,131
Structural steel.....	86,947	1.623	53,570
Electrical work and fixtures.....	92,441	1.310	70,586
Painting and decorating.....	83,283	1.269	65,654
Elevators.....	25,552	1.045	24,446
Tile, terrazzo, & bathroom fittings.....	40,194	1.211	33,204
Weatherproofing.....	29,410	1.171	25,118
Manufactured metal products.....	31,830	1.224	26,011
Glazing.....	4,472	1.020	4,384
Equipment.....	2,312	1.302	1,776
Engineering and supervision.....	92,113	1.496	61,568
Miscellaneous.....	72,828	.503	144,816

The total cost of the manufactured metal products was \$232,070. This group covered a wide range of materials, but ironwork for the store fronts and stairs accounted for 21 per cent of the total and approximately 28 per cent of the total was accounted for by kitchen cabinets. Door frames, entrance and elevator doors were steel; moldings were also made of metal. These products amounted to 44 per cent of the total.

The class designated as equipment was made up of electric refrigerators, gas ranges, laundry dryers, and miscellaneous fixtures. The cost of the refrigerators was \$103,480, the gas ranges \$36,081, and miscellaneous equipment \$3,221. The miscellaneous group included such items as watchmen's wages, general clean-up work, removal of debris, cleaning of bathtubs and windows, and the finishing of a small auditorium in the basement.

The builder's fee of \$340,098 represented the amount received by the Fred F. French Company for the assumption of the building responsibility in addition to the general overhead and profit for supplying the masonry work. The architect's fee of \$109,901 included, in addition to the preparation of the plans, some inspection work at the site. Financial and other charges of \$264,185 were made up of interest on loans during construction, bond expense, mortgage expense, accounting expense, and other costs.

Cost Distribution Shown on Chart

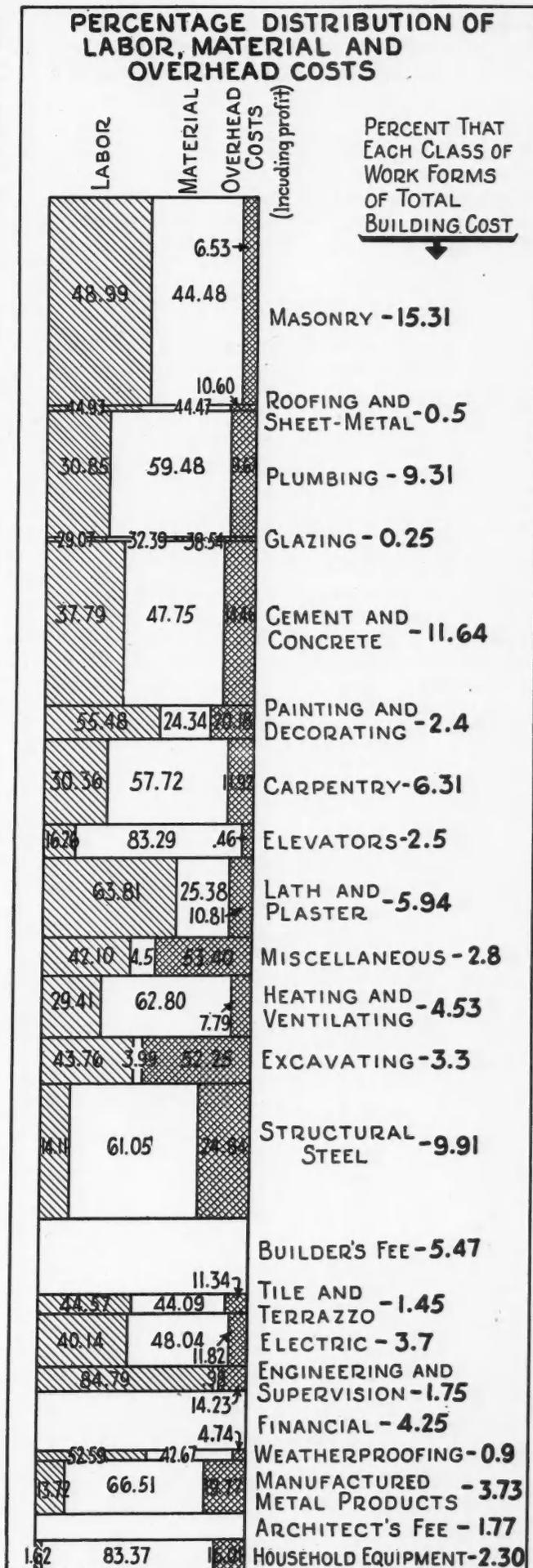
The relationship between labor, material and overhead (including profit) costs on the Knickerbocker Village project is indicated by the vertical divisions of each separate class of work in the chart on the right. It will be observed that in excavation and grading, the amount expended for labor and materials represented 47.75 per cent of the total charges and the overhead charges amounted to 52.25 per cent of the total. By contrast, the combined labor and material costs involved in the installation of the elevators amounted to 99.55 per cent of the total.

This chart also shows the per cent that each class of work forms of the total building cost.

The man-hours involved in each of the major classes of work are given in table 3, and also the average earnings per hour for each group and for the building as a whole. These average earnings are a composite of the wage rate of all the workers included in each specified group. In all instances, the rate of wage was the union scale.

A cubic-foot comparison of the costs of construction was obtained by dividing the costs of the various classes of work by the total cubic contents of the building—13,275,000 cubic feet. In a similar way man-hours per 1,000 cubic feet were calculated for the different classifications. These computations, which are of value for comparison with those of similar projects, are presented in table 1.

THE CHART at the right shows the percentage distribution of labor, material and overhead costs of each of the classes of work involved in the construction of Knickerbocker Village. The heavy figures on the right side of the chart indicate per cent of total cost each class of operation forms.



Some Simple Wrinkles

with the Steel Square

By **ERNEST I. FREESE**
 Architect, Los Angeles

Diagram 1: How to draw a semicircle with the steel square.

Determine the desired diameter, and drive a fine brad into the board at each diametral extremity, allowing the brads to project somewhat above the surface. Place the square against these brads, in the manner shown, and hold a pencil snug in the angle of the square. Now move the square, but keep it in constant sliding touch with the two brads. The pencil point will then trace a true semicircle having the given diameter. If this diameter does not exceed the projection of the short blade of the square, then the semicircle can be drawn in one operation. But, by drawing a quadrant at a time, that is, by reversing the position of the square, blade for blade, a semicircle can be drawn having a diameter 40 per cent greater than the projection of the short blade.

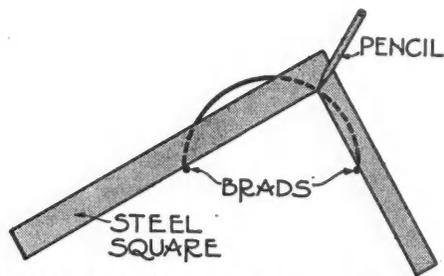


Diagram 1: How to draw a semicircle with the steel square.

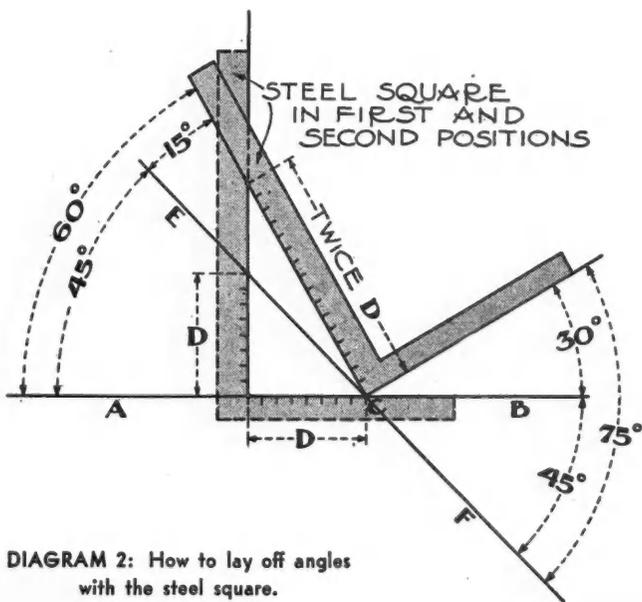


Diagram 2: How to lay off angles with the steel square.

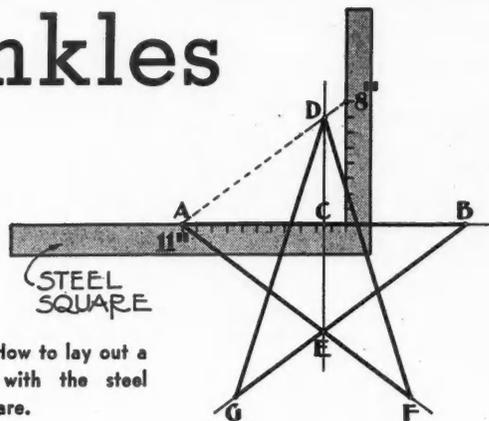


Diagram 3: How to lay out a five-point star with the steel square.

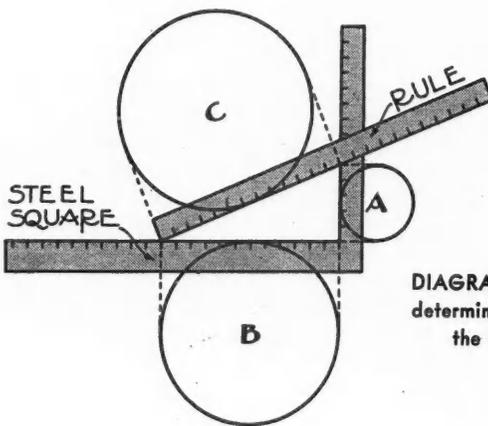
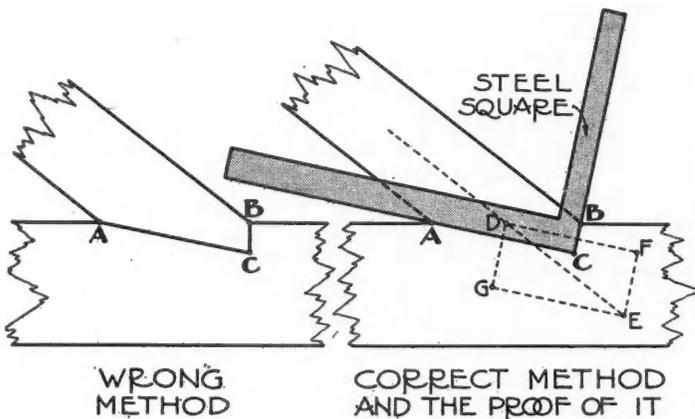


Diagram 4: How to determine pipe sizes by the steel square.



Diagrams 5 & 6: How to determine notch-cuts with the steel square.

The method is exact. Proof: Every angle inscribed in a semicircle is a right angle.

Diagram 2: How to lay off angles with the steel square.

From the relations here clearly shown and noted, the commonly-used angles of 15, 30, 45, 60 and 75 degrees may readily be laid off in relation to any given line *AB* or *EF*, and from any given point *C* thereon.

The methods are exact. Proof: The trigonometrical tangent of 45 degrees is 1. The trigonometrical secant of 60 degrees is 2. The other angles are gotten by graphical addition and subtraction, as the Diagram makes evident.

Diagram 3: How to lay out a five-point star with the steel square.

Lay off *AB* equal to the width desired. Mark point *C*, the center of *AB*; and draw the center line through *C*, square with *AB*. Lay the square along *AB* with the 11" mark at *A*. From this point, a straight line

passing through the 8" mark, on the other blade, locates point *D* on the center line of the star. Now make *CE* equal to *CD*; and make *AF* and *BG* each equal to *AB*. The required five points, *A, D, B, F, G*, are therefore found; whence, the remaining procedure is obvious.

The method is practically exact, since the fraction, 8/11ths is an exceedingly close approximation to the trigonometrical tangent of 36 degrees.

Diagram 4: How to determine pipe sizes by the steel square.

Example: Assume that two furnace pipes, *A* and *B*, having diameters of 5" and 12", respectively, are to branch from a single main pipe *C* whose capacity shall equal the combined capacities of *A* and *B*. What is the required diameter of pipe *C*? Well, just read it off, 13" on the rule; the distance between the 12" mark on one blade of the square, and the 5" mark on the other blade. The required diameter of the main pipe is equal to the hypotenuse of the right triangle whose other two sides are the diameters of the branch pipes. It always works. And, moreover, by an obvious extension of the same principle and process, the diameter of a main pipe may be found such that this pipe shall have a capacity equal to the combined capacities of any number of pipes of given diameters. No calculation whatsoever is necessary. Just read off the required diameter from the rule laid across the rectangular blades of the square, in the manner shown.

The method is exact. Proof: The areas of circles are to each other as the squares of their diameters. The square on the hypotenuse of a right triangle is equal to the sum of the squares on the other two sides.

Diagrams 5 and 6: How to determine notch-cuts by the steel square.

Diagram 5 shows the usual and erroneous method of letting one timber into another. Never do it that way.

Diagram 6 indicates the correct method of framing such a joint.

Proof: It is a principle of mechanics that, in order to avoid secondary or "moment" stresses in a framed joint, it is necessary that the centroids of action and reaction meet in a point. The layout at Diagram 6 fulfills this condition, since the angle of junction *ACB* is a right angle. If the line *DE*, at any convenient scale, represents the compressive stress acting in the brace or strut, then the lines *DF* and *DG* represent the resolved components of this stress on the planes *BC* and *AC*, respectively. Wherefore, without indulging in a further discussion of graphic statics, it may be briefly stated that the joint at Diagram 6 is not subject to either secondary or indeterminate stresses. On the contrary, the only stress acting on the planes of juncture is direct compression. Which is as it should be. The same can not be said of the joint at Diagram 5, though probably 999 carpenters out of a thousand would so frame it!

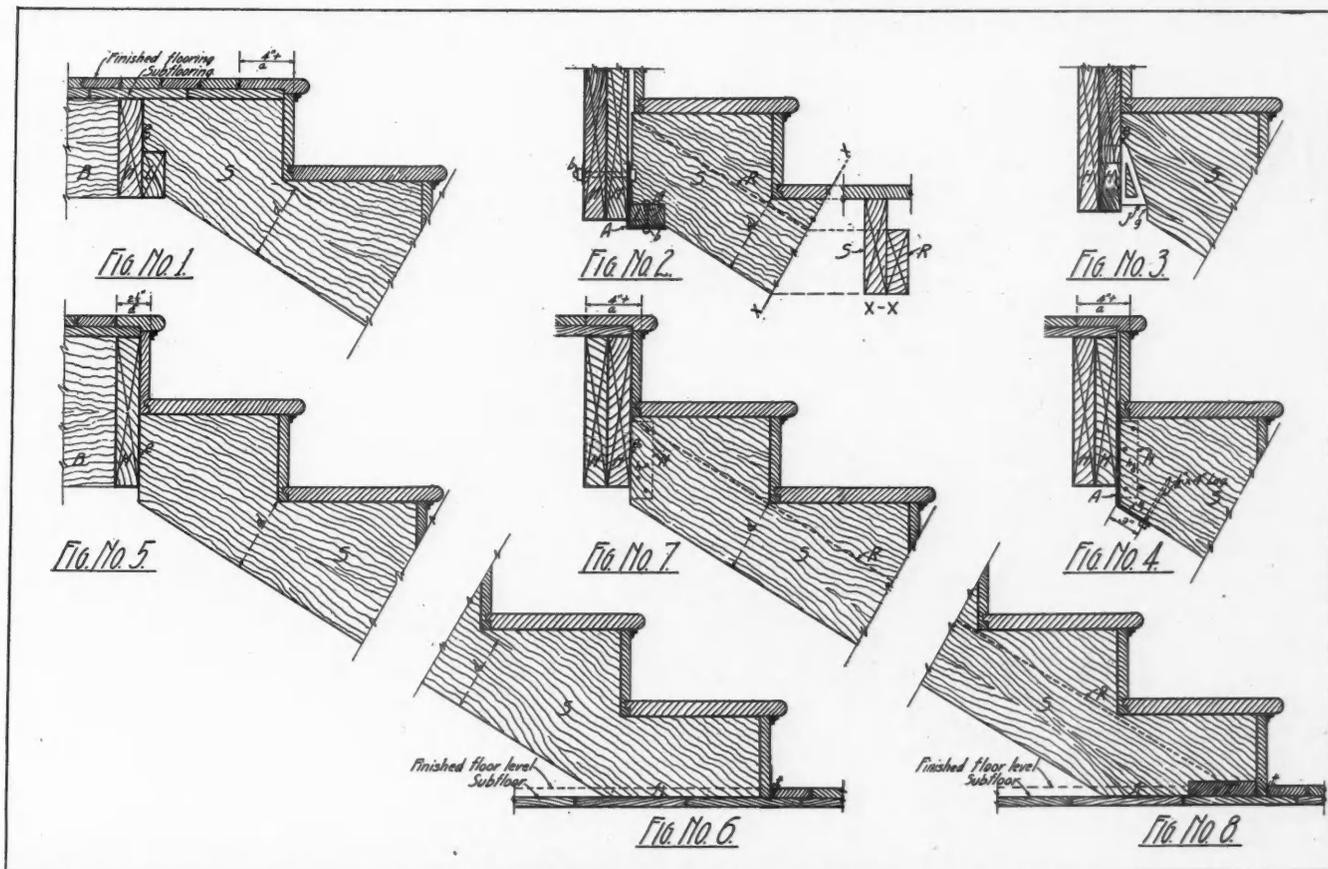
Stair Framing Suggestions

By OSCAR G. KNECHT

Chief Building Inspector, San Diego, California

WE SEE and read many and lengthy articles covering the subject of finished wooden stairways, rise and run, tread and riser, housing, wedging, gluing, finish, etc., but very little seems to be written about the rough framing and structural supports. In fact, many specifications mention stair framing in a vague manner, leaving entirely too much for the carpenter to calculate and work out. In view of these facts, this article will be devoted primarily to the rough framing and structural supports.

Structurally speaking, a great many wooden stairways are framed and built by rule of thumb methods, rather



than follow methods prescribed by sound, rational engineering practice. Consequently, the main supporting parts are often weak and over-stressed when loaded to capacity. In fact, many stairways are more or less unsafe, as evidenced by the failures we witness or read about every now and then. A careful inspection will often reveal initial or partial failure, especially in old buildings after all shrinkage and more or less settlement has taken place.

Describing the accompanying drawing in general: (S) denotes the supporting stringers, usually spaced 16 inches to 24 inches apart, depending on the live load requirements and length. (R) indicates a stringer reinforcing member, extending full length of stringer and effectively nailed thereto. The member (R) is often used to reinforce the effective depth or double the strength at (d). (H) is the header or upper support for the stringers. (B) indicates short blocks or solid bridging often necessary to add stiffness and buckling resistance to the headers (H). At (N) are shown nailing blocks fitted between the stringers and spiked to the header (H). The stringers are faced nailed to blocks (N) as indicated at (h). This face nailing is often necessary when sufficient end and toe nailing between (S) and (H) cannot be provided at (e). See Fig. No. 7.

Figure 1. Here we have a method of supporting the top end of a stair stringer when the headers (H) are none too deep. The top of the stair stringer which receives the first tread is made flush with top of joist. The diagonal sub-floor ties the stringer, joists and header together. Toe nailing area is provided at (e). The shelf or bearing strip (L) provides additional support. By providing 4 16 d toe nails at (e) and securing (L) with 20 d. nails 4" o.c. a 700 pound vertical support can be furnished the upper end of each stringer (S) when stringers are spaced about 16 inches o.c. The upper tread at (a) should be at least 4 inches wide. Otherwise the rear end may work loose and spring up when you step near the nosing.

Figure 2. Shows a good method for supporting long or important stair stringers. A continuous steel angle shelf is bolted to the headers (H). A continuous nailing strip (L) is bolted to the angle. The stringers are secured to (L) by toe nailing at (g). A reinforcing strip (R) is spiked to the stringer (S). See Section (x-x). The steel angle and supporting shelf can be made to support any reasonable load, depending upon strength of header, size of angle and number of bolts. (b)

Figure 3. This is another method of supporting very heavy loads. Joist hangers (J) are provided for the upper end of each stair stringer. Several toe nails may also be added at (e).

Figure 4. This method is somewhat similar to Figures 2 and 3. It has the advantage of avoiding an extra or special notch or bearing at (g). See (g), Figures 2 and 3. A steel strap (A) usually two inches wide and 3/16 of an inch in thickness is bolted or lag screwed to the headers (H). A small margin of additional strength and anchorage is obtained by providing nailing blocks (N). The 1/2" x 4" lag screw should be at least 3 inches from the bent steel edge as shown.

Figure 5. This shows a very common method, and no doubt the worst method. This stringer (S) is usually toe nailed to the header at (e). Also end nailing through from the back of (H) is often resorted to. If 8-16 d. nails could be effectively used for nailing or toe nailing (H) and (S) together at (e) we could develop a safe supporting strength of only 300 pounds

(Continued to page 128)

BOOKS on BUILDING

A REVIEW of current publications in the building field. For information about these and other books, write American Builder, Book Service Department, 30 Church Street, New York City or direct to the publishers.

MIRRORS IN THE NEW AMERICAN HOME. 1935. 28 pages, paper covered, well illustrated. Mirror Manufacturers Association, Tribune Tower, Chicago. 25 cents.

This booklet is full of pictures of interesting, unusual and delightful uses of mirrors in the homes of today. Small drawings supplement the photographs in showing the installation of mirrors.

AMERICAN SOCIETY OF HEATING & VENTILATING ENGINEERS GUIDE. 1936. 1,090 pages, tables, illustrations. American Society of Heating & Ventilating Engineers, 51 Madison Ave., New York City. \$5.00.

In the fourteenth edition of The Guide a large amount of new and revised authoritative engineering data has been assembled from the various sources on the subjects of heating, ventilating and air conditioning. The Problems in Practice introduced last year have been continued for each chapter with new and practical examples to amplify the text material. Four new chapters give more detailed information on the subject of Refrigeration, Drying, Electric Motors and Railway Air Conditioning. In addition to the new material which has been added, the previous chapters have been carefully checked and reviewed, and in some cases the text has been completely rewritten so as to conform to the more recent engineering practices. The 254 pages of Catalog Data include descriptive matter on the products of leading manufacturers.

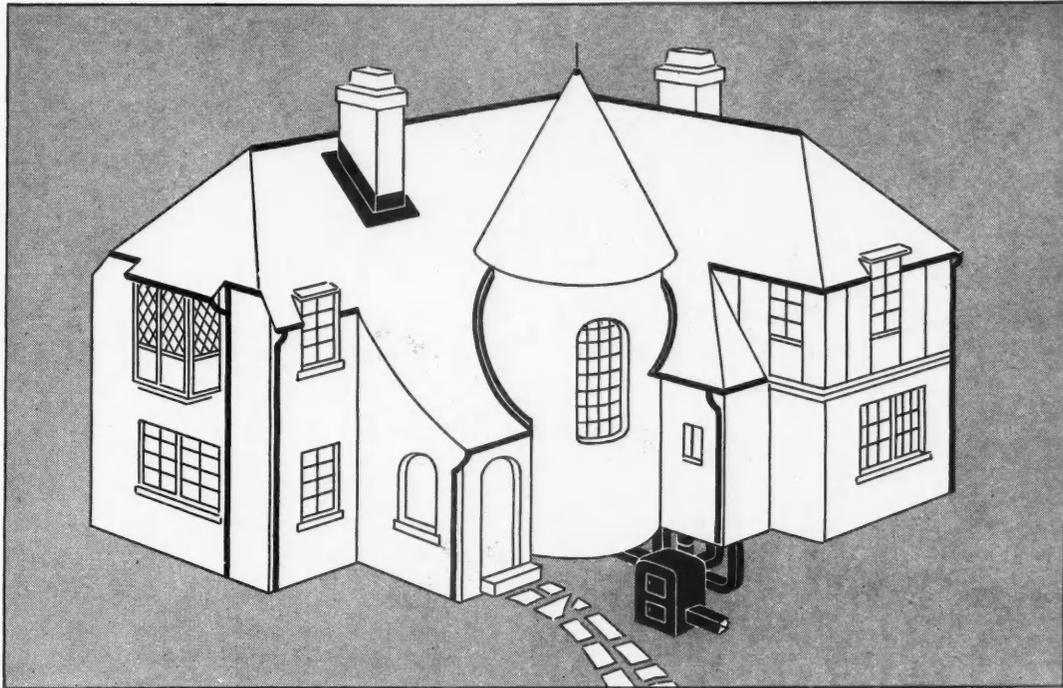
BUILDING COST CALCULATOR—by J. R. Smith, Architect. 1934. 184 pages with tables, 8 1/2 x 11. Imitation leather binding. J. R. Smith & Sons, Lincoln, Nebr. \$10.00.

This system arrives at construction costs by the use of tables giving the cost of standard units of construction at varying labor and material costs. The units of measurement used are based upon the decimal system. Surface areas are measured in squares of 100 square feet. When areas are once determined it is unnecessary to refigure the different materials entering into the same units of measurement. Each section is multigraphed on one side of different colored paper. The tables cover: Excavating and Clearing Site; Concrete and Cement Work; Masonry Construction; Frame Construction; Interior Woodwork; Roofing and Sheet Metal Work; Lathing, Plastering, etc.; Painting and Varnishing; Miscellaneous Tables.

AMERICAN PLANNING AND CIVIC ANNUAL—by Harlan James, 1935. 356 pages, illus. The American Planning and Civic Association, Washington, D. C. \$3.00.

The 1935 American Planning and Civic Annual is the sixth volume of the series of yearbooks which first appeared in 1929, and formerly called the American Civic Annual. This book is a record of recent civic advance, including the proceedings of the Conference of city, regional, state and national planning, held in Cincinnati during 1935 and addresses selected from the National Conference on State Parks. Planning enterprises by private agencies as applied to cities, counties and states are presented by experts connected with each activity. Articles are grouped under the headings of The Nation, with sub-heads on National Planning, Federal Lands, Rural Land Problems, Housing and Living Conditions; In the States, with sub-heads on Inter-State Regions, State Planning, State Parks, Highways and Roadsides and County Planning; In the Cities and Towns, Must American Cities Decay, The Functioning of the Plan, Rehabilitation of the Blighted District, State Planning and Urban Communities, Federal Activities and Urban Planning, Planning Administration and Public Support.

Wherever sheet metal is used . . .



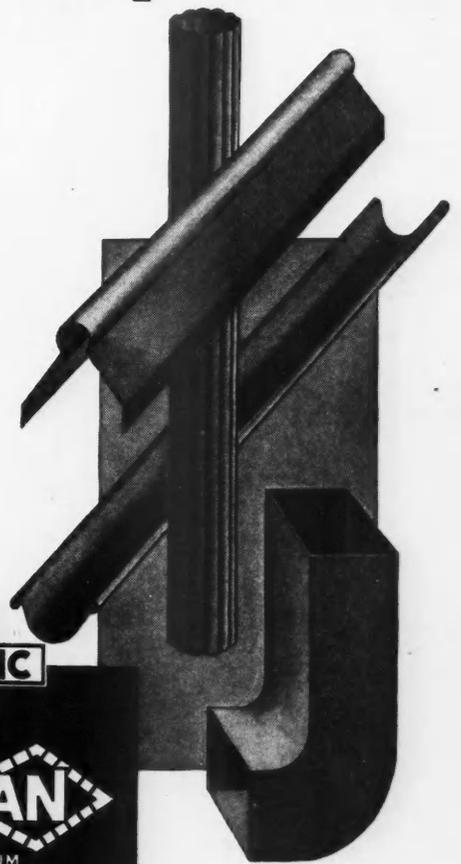
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"Standard" NEO-ANGLE BATH



Sit comfortably while you bathe



Have ample elbow room



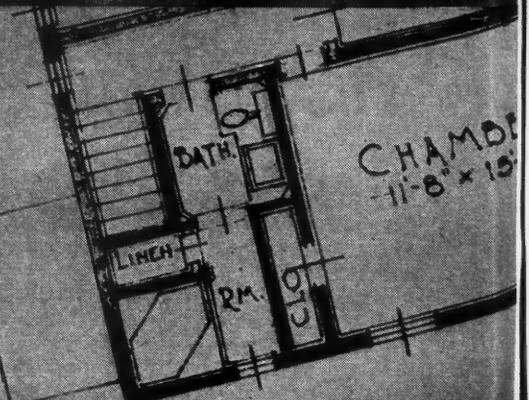
Speed the bath—two at a time



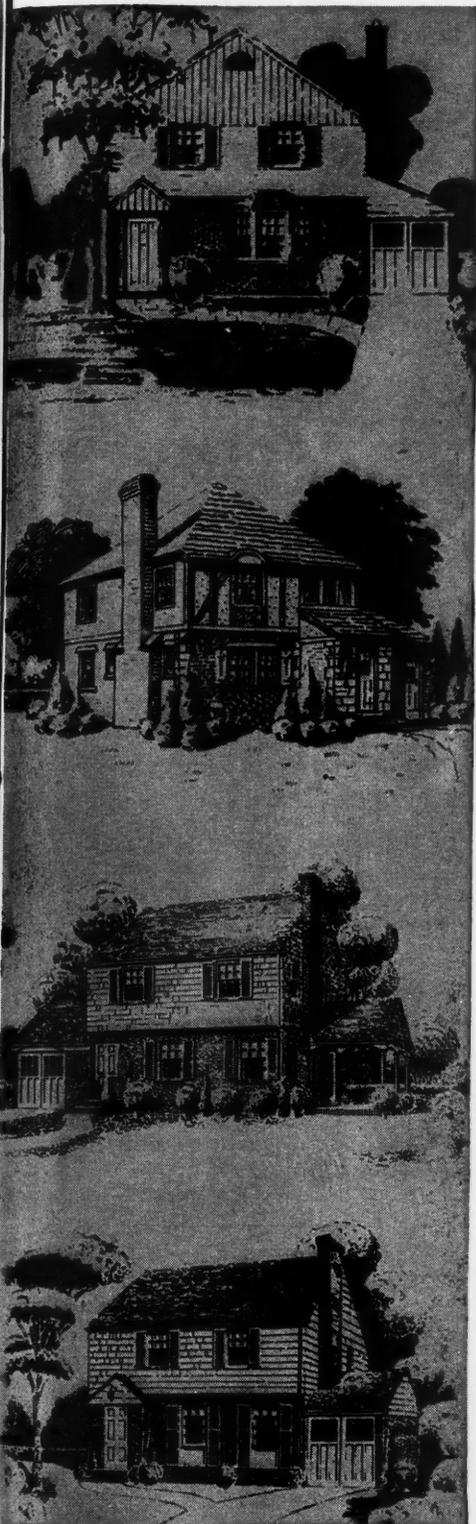
Have plenty of space for immersion



DOWNWARD VIEW OF THE NEO-ANGLE BATH



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SAYS CHARLES REIS, *Leading New Jersey Builder*

"Our experience in building more than 2,000 homes led us to select the "Standard" Neo-Angle Bath for small homes. It conserves space and has a distinctive sales appeal. It is one of the features that sells new homes."



IN ALL parts of the country . . . in small homes, as well as large homes, apartments and hotels . . . the "Standard" Neo-Angle Bath is being featured today as the distinctive mark of the modern home. Its unusual design, its roomy bathing space, its seats in two opposite corners, its saving of valuable floor space, have won the approval of Home-owners, Architects and Builders. It is truly "the bath of the future for the homes of today."

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Feature the Neo-Angle in your small homes, too. For complete details see pages 1AA to 1-AH of your "Standard" Catalog or write today for literature.



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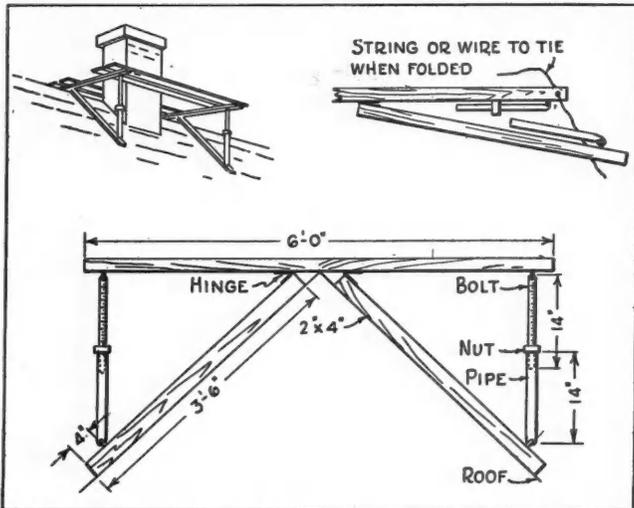
PITTSBURGH, PA. Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

PRACTICAL JOB POINTERS

A READERS' EXCHANGE of tested ideas and methods, taken from their own building experience. Two dollars or a year's subscription to American Builder is paid for each item published. State business connection or trade.

Adjustable Roof Jacks

THESE jacks are adjustable to fit almost any pitch roof and are very convenient for any bricklayer or mason to have for chimneys that come out at or near the ridge. They are the biggest time saver I have ever seen. Place one jack on each side of chimney (or where chimney is to be), adjust to

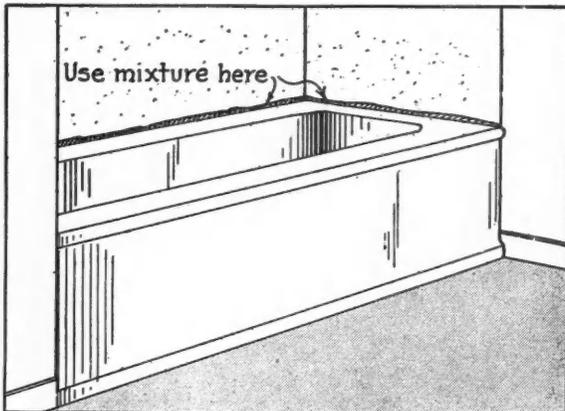


DRAWINGS of adjustable roof jacks.

fit roof and they are ready for scaffold boards or planks. I have used a pair of these jacks for ten years and would not do without them. The nut on threaded rod should work freely to assure speed in adjusting.—WAYNE HUNT, Mason Contractor, Bellevue, Ohio.

Filling Wall and Tub Joint

I AM a builder and have found one trouble around bath tubs that can be easily corrected. This is the point where the plaster breaks or rots away, due to water getting in between the wall and tub.



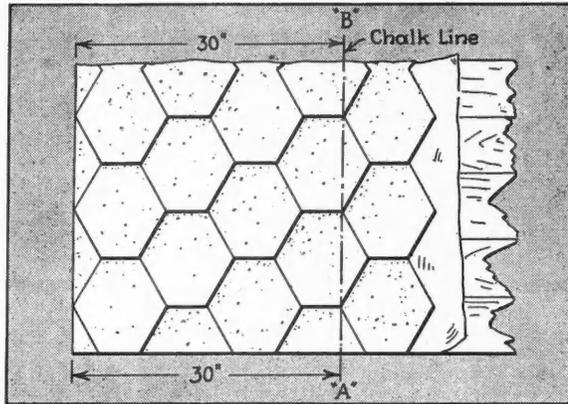
PLASTIC mixture used to fill crack above tub.

Mix hard wall plaster, that has had the fibre screened out, with flat white paint until you have a fairly heavy paste and apply with a paint brush, letting it lap over on the rim of the tub at least a quarter-inch. You will find that this mixture will stay soft and flexible for some time and can be painted over and cover up that ugly crack, which will expand or contract with the temperature.—FLOYD E. MATTOX, Builder, Pomona, Calif.

Lining Up Shingle Courses

I AM sending you a sketch of the way I use a chalk line to line up hexagon strip shingles.

On a straight roof, I start in the usual way until the first course is laid. Then I measure from the fascia to the right hand corner of the cut out as shown in drawing. This may be any distance along the bottom edge of the roof to point A. Then I take the same measure on the ridge point B. From point A to point B, I stretch a chalk line, and line up the



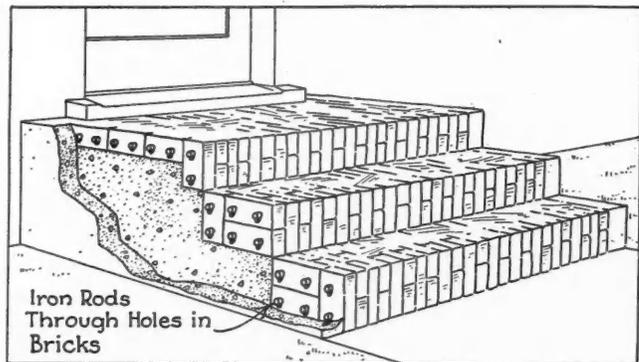
METHOD of lining up hexagonal shingles.

corner of the tabs of the next course on the chalk line; this helps to get the shingles in line.

On the hip roofs I measure the center of the ridge and the center of the bottom edge of the roof and stretch the line, then lay the shingles both ways from line.—JOHN F. HURST, Builder, Blanding, Utah.

Building Solid Brick Steps

I AM sending a sketch of a front entrance steps which I have found to work out well. It seems that no matter how good a job the mason does, the bricks in time are apt to become loose and fall out. To avoid this we use bricks that have two holes through them on the face. These are set out in rows to form the proper size for the steps and 1/2-inch iron rods



IRON rods through bricks hold steps together.

run through the holes. They are then set in place on the concrete base, mortar worked in the joints and the ends capped or plastered over to cover the rods which come out the sides.

If one brick later becomes loose, it won't fall out as the rods anchor them in place. Steps built this way will last for years.—MELVIN O. PHELPS, Builder, Montpelier, Idaho.

AMERICAN BUILDER

AND BUILDING AGE

APRIL 1936

SPECIFICATIONS and BUYING NUMBER

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of the residential and com-
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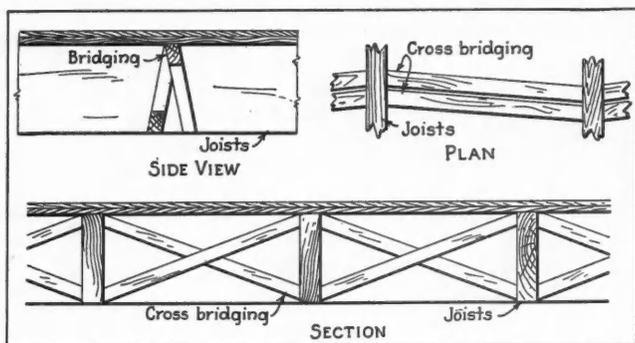
105 W. Adams St.
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30 Church St.
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Cleveland

Cross-Bridging for Old Buildings

THIS IS a method of cross-bridging old building joists as there are very few of the old buildings that were bridged when being built. In order to be able to drive the nails and to draw the ends of the bridging up tight, it is necessary to cut the bridging pieces so they will be about two or three inches less than right angle to the joists. The opposite bridging piece in between the next joists should be nailed end-to-the one before to prevent forming a spring in the joists. There are many old buildings that need this treatment to take the shimmy out of the floors and stop sagging of the ceilings.—HENRY M. LAKE, Draftsman, Cottage Grove, Ore.



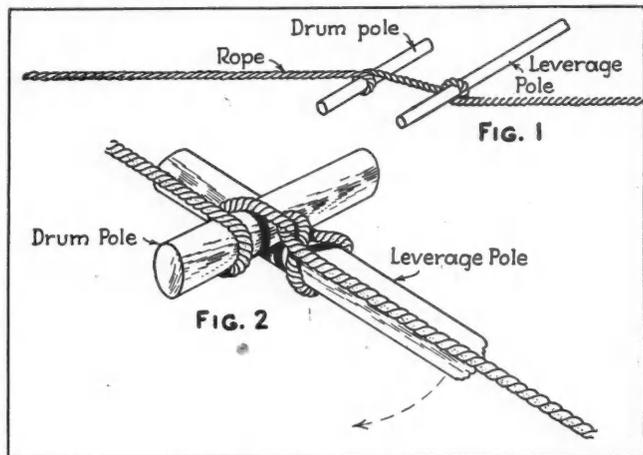
DRAWINGS of cross-bridging joists to stiffen old floors.

Method for Lifting or Pulling

I AM sending a useful method of getting a powerful pull or a hoist without blocks or mechanical power. All that is necessary to have is a strong piece of rope and two small poles about 2 inches in diameter and about 4 feet long.

How to do it: Simply tie both ends of the rope fast but allow enough slack so it will be possible to get one wrap of rope around one of the poles we will call a "drum pole." (Fig. 1.) This drum pole should be placed more to one side. The reason for this is that it will give a person more leverage holding it in a position about 90 degrees from the line of rope.

Next comes into play what we will call a "leverage pole." Place the "leverage pole" under the "drum pole" and nip the rope with the end, then raise the pole and wind it around the



TWO poles and a piece of rope used to give powerful pull.

drum pole, shifting the rope at each turn so the strain on the rope will center equally on each side of the "leverage pole." (Fig. 2.) A little practice with ordinary string and two matches or pencils should convince anyone of its great value. Where a powerful pull is needed but nothing is available except a piece of rope and a couple of poles or iron pipes or bars, two men can pull more than a team of horses. The poles do not necessarily have to be 4 feet long; they may be more or less.

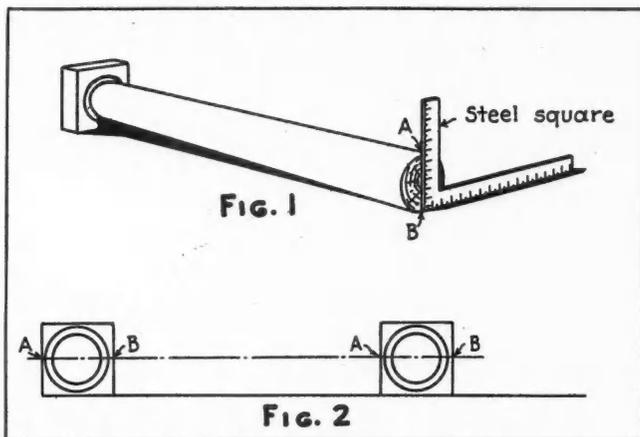
I do not claim the above to be original. My forefathers have used this method for ages in their native country, Finland.—VICTOR MAKELA, Builder and Carpenter, Tower, Minn.

Setting Porch Columns

IT IS not as easy as one might think to set round porch columns so that the sides of the caps will be parallel with the sides of the base blocks. This is not difficult, if the columns are set in place after the chord has been framed and finished. But very often the columns are set before any of the framework above is put together. This, in many ways, is the most economical method of setting porch columns, especially for small porches, and I am not so sure but what it is also the most economical method for porches of greater importance.

Fig. 1 is a perspective view of a round column, cut to the right length with the cap nailed to it. After this is done, the column is laid on an even surface—a good level floor will do—and with the steel square and pencil mark a perpendicular line through the center of the base of the column, as indicated on the drawing.

This done, place a witness mark at each end of the line, A and B, to show center line on sides of column. The base blocks should now be set in line and on a level, after which strike a chalk line through the center of the base blocks, about as shown by the dotted line A-B, Fig. 2. On setting the columns, make the witness marks, A and B, Fig. 1, intersect with



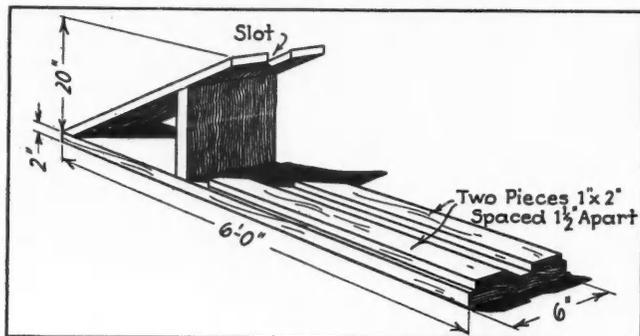
SETTING columns so that cap and base are parallel.

the points A and B of each base block shown on Fig. 2. If this is painstakingly done, the sides of the cap, shown in perspective in Fig. 1, will be parallel with the sides of the base block on which the column will be set.—H. H. SIEGELE, Emporia, Kans.

Door and Sash Jig

HERE is the way I built a jig for planing doors and sash which is shown in the drawing. The base is made of a piece of 2x6 with a piece of 1x6 nailed on at the angle of approximately 30 degrees. It has a 1½ x 3 inch slot and a vertical support nailed under it. Two pieces 1x2 inches are nailed on the top of the base 1½ inches apart.

The door is set in between these pieces and the end is pushed into the slot in the angular piece. This holds the door steady and the jig may be easily moved to any part of the house.—CHARLES REDINGTON, Jr., St. Petersburg, Fla.



JIG for holding sash and doors while planing.

This Spring...

plan on a larger market for BRONZE SCREENING



Because people everywhere are learning these 4 facts:

1. Bronze Screens *cannot* rust.
2. Bronze Screens do not need patching.
3. Bronze Screens last years longer.
4. Bronze Screens save far more than their slight extra cost.

Year by year the long, dependable, *expense-free* service that bronze screening gives is widening your market for this product.

More and more people—your customers among them—are recognizing the economy of bronze screens . . . are learning that the slightly higher first cost is more than made up for by long, satisfactory, *rustless* service.

This means a larger market for bronze screening *this spring*. Get ready for it! Be sure to carry an adequate

stock of bronze screen cloth. And remember—customers who buy it will expect it to stand up year after year! To secure maximum service, the wire should be of the standard gauge set by the U. S. Government, the A. S. T. M. and the Wire Screen Cloth Manufacturers' Institute. It measures .0113" in diameter, and makes up into 16-mesh cloth which weighs not less than 15 lbs. per 100 square feet.

Now is the time to order bronze screening from your wholesaler! We do not make screen cloth, but furnish Bronze Wire to leading screen cloth manufacturers.

88206

Once again in these widely-read home magazines Anaconda Bronze Wire for screens will be advertised to people who will *buy* from you.



THE AMERICAN BRASS COMPANY

General Offices: Waterbury, Conn.

Offices and Agencies in Principal Cities

Screens of ANACONDA BRONZE

NEW PRODUCTS

FOR INFORMATION ABOUT any new product write American Builder Information Exchange, 105 West Adams Street, Chicago, Ill.

Ro-Way Door Operators

A NEW electric door operator that instantly reverses its direction is now being produced by the Rowe Manufacturing Co., Galesburg, Ill. In addition to the standard "open-close-stop" button control, the Ro-Way operator employs a two-button station which changes the travel of the door no matter at what point it may be. The unusual feature is that a single phase motor is employed. Polyphase and direct current, however, are also standard.

On the larger sized doors a magnetic brake is furnished further to increase the safety factor. The possible mechanical

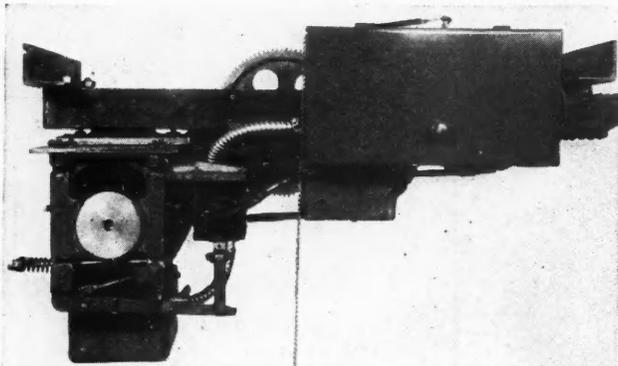


GARAGE equipped with Ro-Way electric door operator.

shock of reversal is taken up by a "floating power" scheme of construction which is said to add years to the life of the equipment. The designers call it the operator "which refuses to be abused."

The Ro-Way line covers every type of overhead door operation—from small residential installations to large commercial jobs, the appropriate equipment is listed for prompt delivery.

A large variety of controls is available—ceiling pull switches, toggle switches, electric eye control, floor treads, and constant



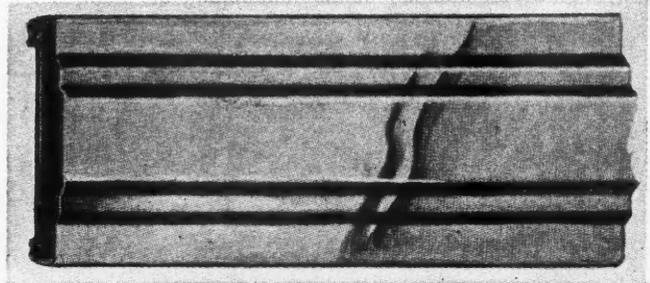
MAGNETIC driveway switch placed under drive.

pressure buttons can be furnished. In addition to the conventional control devices, a new magnetic driveway switch has been developed. With this switch hidden from sight in the path of a car approaching or departing from the garage, the driver may open or close the door without leaving his seat or slackening his pace. (See illustrations.)

Corrugated Snap-On Mouldings

A NEW line of corrugated patterns has been added to their designs of stainless steel Snap-On mouldings by the Pyramid Metals Company, Chicago. The new pattern shown, 16-CS, 1/4 inch, is made with the Pyramid Snap-On feature, having no exposed nails or screws after application.

Installing labor is claimed to be 50 per cent less than with the old style moulding, being applied on top of any background material. Pyramid mouldings are also available in bronze, copper or brass.

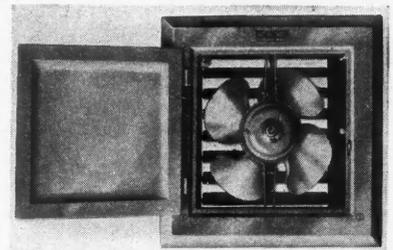


PYRAMID corrugated Snap-On moulding.

Wall Box Kitchen Ventilator

A FULL automatic wall box kitchen ventilator, a built-in type for permanent installation in new or old homes, is being marketed by Signal Electric Mfg. Company, Menominee, Mich.

Telescopic in design, it is adjustable to the wall thickness, 7 inches to 13 inches. No wood or metal frame or screws in the plaster, wood or brick are necessary. The inside and outside frames are polished cast aluminum, and the wall box is rust-resisting steel. Opening and closing of the door operates the motor and shutters simultaneously and the 10-inch silent blade fan is reported to remove cooking odors, smoke, steam and excessive heat efficiently. This Signal kitchen ventilator fan is available for A.C. or D.C., the A.C. type being non-radio interfering. Extending through the box from the four corners of the frame are four adjustable screws that hold the two sections permanently in place.



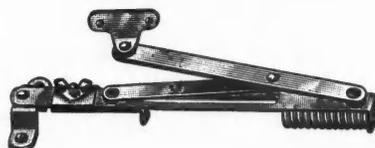
SIGNAL wall box ventilator.

Door Stay and Holder

THE SHELBY Spring Hinge Company, Shelby, Ohio, has recently placed on the market a new door stay and holder designed especially for storm doors, but may be used on any interior door or hinged windows.

It controls the opening distance of a door or hinged window and prevents its opening beyond 90 degrees, but if the door is forced beyond 90 degrees the spring acts as a shock absorber. This stay operates also as a holder by means of friction made by the real brass shoe and angle slide plate working on the slotted rod.

This friction is adjustable by means of the wing nut which, when tightened, holds the door at any desired angle up to 90 degrees. It is easily installed on either right or left hand doors or hinged windows.



SHELBY door stay and holder for storm doors.

THE HEATING HIT OF '36

Mueller's New Oil-Fired Air Conditioning Furnace



COMPARE this amazing new Mueller Oil-Fired Air Conditioning Furnace with any other heating plant you ever saw. You will agree, as did those who saw this new furnace at the International Heating and Ventilating Exposition at Chicago, that it is not only the most beautiful heating unit made today, but its new principle of heating is a sensation of furnace design.

Here are a few of the principles which place this new Mueller unit entirely apart from conventional furnaces: The radiator is the fan scroll . . . The air passes over heating surfaces not once, but three times, creating an unbelievable new rate of heat transfer. The unit consists of furnace, oil burner, filters, blower and controlled humidity, all enclosed in a beautiful, compact casing.

The basic design, covered by patents, secures a new standard of efficiency and reduced fuel cost revolutionary to home heating.

You will, of course, want all facts about this revolutionary Oil-Fired Air Conditioning Furnace. Write L. J. Mueller Furnace Co., Dept. AB-3 Milwaukee, Wis.

NOTE: Mueller-Milwaukee produces the most complete line of home heating equipment in the industry. Get the facts about new models of Gas Furnaces, Gas Boilers, Air Conditioning Units this year. And standard Mueller coal furnaces. Write for complete literature.

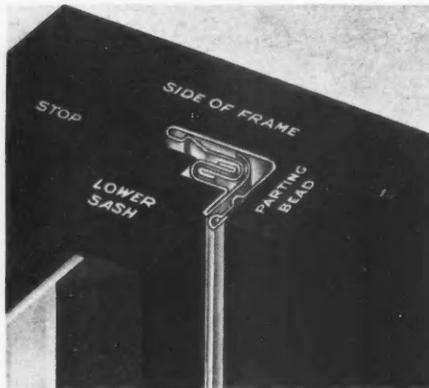
MUELLER-MILWAUKEE

MetaLane Alloy Weatherstrips

A NEW metal alloy designed especially for use in the manufacture of weatherstrips has recently been announced by the Monarch Metal Weatherstrip Corporation, St. Louis, Mo. MetaLane, as this new alloy is named, is a combination of aluminum, used as a base to give it lightness, and other metals, added to give it hardness, resiliency and durability.

Following the development of this metal, a new design for weatherstrips was evolved to make use of its characteristics, which are stated as being: hard wearing and non-tarnishing, resistance to corrosion, and lubricated, easy sliding surfaces.

An important consideration in the new design was simplified installation. Fewer nails are used, being one of the features which allow application by the average carpenter of from 1½ to 2½ windows per hour. Illustration shows the new strip for double hung windows.



Tests made at Washington University, St. Louis, showed that the new weatherstrip reduced infiltration of air from 45,511 cubic feet per window every 24 hours to 3,931 cubic feet. Other tests in which a Monarch equipped window was raised and lowered 26,000 times revealed that the frictional wear could not be measured by accurate gauges. This was the equivalent to 73 years of average use in a home.

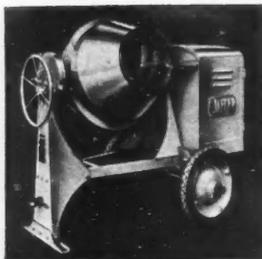
In line with the other changes, a new distribution plan has been set up under which the Monarch products will be sold by a large number of dealers for more intensive coverage instead of by exclusive dealers, as formerly.

New Line of Concrete Mixers

FEATURES announced by The Jaeger Machine Company, Columbus, Ohio, in its 1936 line of concrete mixers, are fast charging and discharge speeds; smoother operation due to machined steel drum tracks with ball bearing rollers and an average of 25 per cent more engine power; modern, compact, streamlined designs, including 2-wheel pneumatic tire mounting 3½S, 7S and 10S mixers.

For bridge building, curb and gutter and general construction work, the 2-wheel 10S and 7S Speed King models of the type pictured are said to be adaptable because of their end discharge design and ease of hauling and of placing on the job. Heavy 6- and 8-ply industrial pneumatic tires are used which, with Timken bearing axle, make it possible to trail these Speed Kings behind light trucks at speeds up to 35 miles an hour, it is stated.

RIGHT, pneumatic tired Speed King trailer. Below, streamlined tilting mixer.



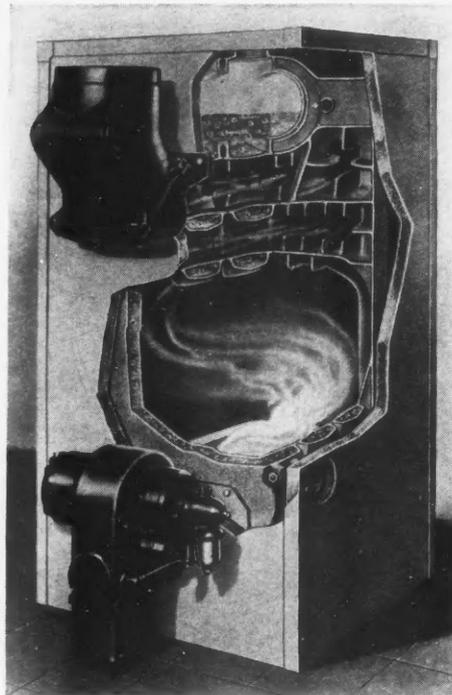
Streamlined tilting mixers are offered in 3½S to 7S sizes, featuring the Jaeger patented "Dual Mix" drum with "V" bottom on all models, a pneumatic tired 3½S trailer, and a popular priced 5S size with 2-wheel trailer mounting and end discharge adapted for work in congested streets, backing up to cellar windows and foundations, and pouring with swinging spout.

Jaeger non-tilting units are being built in 7S to 56S sizes with machined steel drum track standard on all sizes. Skip Shaker Power Loaders and gate-type Shaker Batch Hoppers, with wider, special shape discharge chutes and "forced discharge" bucket action make possible higher speeds and increased production in spite of the dry, sticky mixes used today.

Timken Markets Low Priced Burners

COMPLETION of an additional line of burners and oil burners designed to sell at substantially lower prices has been reported by the Timken Silent Automatic Company, Detroit, Mich.

Both conversion and combination unit types of the new GC burners, as they will be known, are of unusual simplicity of design and construction. Moving parts have been reduced to a minimum for pressure-type burners.

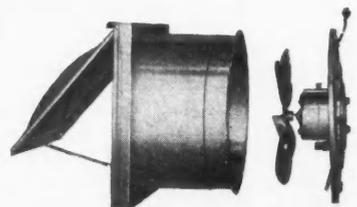


CUTAWAY view of GC oil-boiler featuring standardized refractories for low installation costs. Five sizes from 510 to 1090 sq. ft. available.

Victor 10-Inch In-Bilt Ventilator

THE Victor Electric Products, Inc., of Cincinnati, Ohio, is marketing a convenient and efficient kitchen ventilator, with a 10-inch diameter fan and a powerful motor, said to quickly eliminate cooking odors and greasy fumes with a minimum consumption of current. The simplicity of construction and the ease and speed with which it can be installed—thereby cutting time and expense—are claimed to appeal to the contractor and builder. As shown in the illustration, the exhaust duct is a round, adjustable sleeve. This design makes the ventilator easily adaptable to walls of any type or thickness, in old or new homes. Weather-tightness of the shutter and its automatic operation—a pull on the chain starts the motor and releases the shutter at the same time—as well as one-shot lubrication and rust-proof finish are other features of design and construction.

SIDE view of 10-inch Victor showing adjustable sleeve to which fan is attached.





**Here's where
you can make a
SUBSTANTIAL
SAVING without
sacrificing one
iota of quality**

**Another
Sloane-Blabon
MONEY-SAVER**
Prefabricated custom-
type borders, 9" and
12" wide. Choice of
6 color combinations.
Buy them by the roll.

SLOANE-BLABON Linoflor was developed during the depression to fill the need for a floor-covering in between felt-base and inlaid linoleum. Today it is one of the most popular items in the Sloane-Blabon line.

To all intents and purposes Sloane-Blabon Linoflor is exactly the same as genuine inlaid linoleum. It has a genuine inlaid surface—durable and long-wearing. Patterns are of the same high-styled type found in the most expensive inlaid. The

only difference is the back, which is cushioned felt-base, accounting for the moderate price.

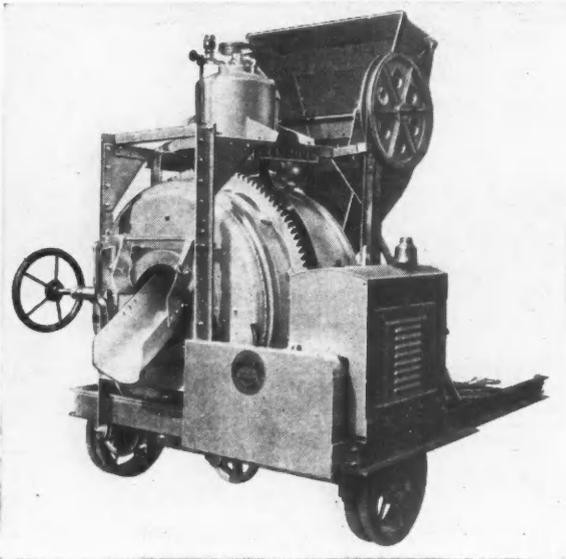
Sloane-Blabon Linoflor enables you to cut costs without cutting quality. Let us send you the name of an authorized Sloane-Blabon contractor in your city who will furnish you with Linoflor samples and prices and who is equipped to produce guaranteed installations. W. & J. Sloane, Selling Agents Division, 295 Fifth Avenue, New York, N. Y.

Sloane-Blabon LINOFLOR

New Ransome Mixers

RANSOME Concrete Machinery Company, Dunellen, N. J., has developed a new 1936 series of 7-S, 10-S and 14-S mixers, each size similar in design and construction to the one illustrated.

Each of these models is furnished either side or end discharge with mountings of either two or four wheels, furnished in steel, solid rubber or pneumatic rubber tired wheels, all wheels equipped with roller bearings. This new series of mixers is said to be compact in design, easily handled about the job and economical in operation.



VIEW of 1936 series Ransome mixer.

Milburn Paint Supply Spray Gun

THE Paint Spray Equipment Division of The Alexander Milburn Company, Baltimore, Md., has announced their entirely new Type MM paint spray gun. The gun is balanced like a pistol with coverage and shape controlled by turning two knurled nuts.

Every part touched by the paint is in the single unit detachable spray head which is made of drop forged bronze and machined with rifle-like precision and alignment. Entire unit has low center of gravity; gun handle and body are one piece, die cast aluminum alloy.

Standard air hose connection, located at the base of the handle, is designed for ease of handling and to prevent tangling of the air hose or obstructing adjustment controls. Atomizer head is of one piece, precision machined and concentrically centered on fluid nozzle. Direct and commodious air passages provide an abundant, free flowing air supply.

Other features are listed as two finger grip trigger conforming naturally to the shape of the fingers; fluid nozzle made of wear resisting steel with internal and external tapered seat; adjusting nut operating a non-corrosive needle valve to regulate air flow to the atomizer head.



MILBURN Type MM paint spray gun.

Drive Screw Roofing Nail

THE Deniston Company, Chicago, is now making a plain drive screw roofing nail, which features the nail blank carefully made with a circular head in which the shank is exactly centered; thread of the screw, deep and well cut to give positive turning action; edges of the thread, clean and sharp to give a strong grip.

The maximum practicable angularity or pitch is given to the thread. The fact that the thread is rolled after galvanizing on galvanized nails is said to insure that the threads will not fill up with zinc nor are there lumps of zinc to roughen the surface of the nail and tear the fibre of the wood when driven.

All nails are full gauge. They are made in two gauges, Nos. 10 and 11, in standard lengths of $\frac{7}{8}$ inches to $2\frac{1}{2}$ inches, the quantities per pound running from 280 to 115, depending upon gauge and length.

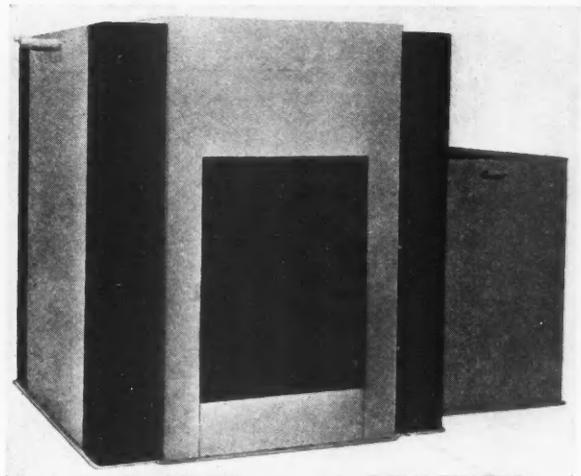


Oil Burning Weather Control Units

THE Heater Division of Motor Wheel Corporation has announced a complete series of newly designed models in its automatic oil burning Weather Control unit line for 1936.

All models are completely self contained units and provide facilities for automatically heating, filtering, humidifying and positively circulating the conditioned warm air.

This year's models are furnished in two styles—a standard round casing unit with rear mounted blower and filter housing and with a special streamlined burner housing in front, and a de luxe model in keeping with the most modern trend in cabinet design.

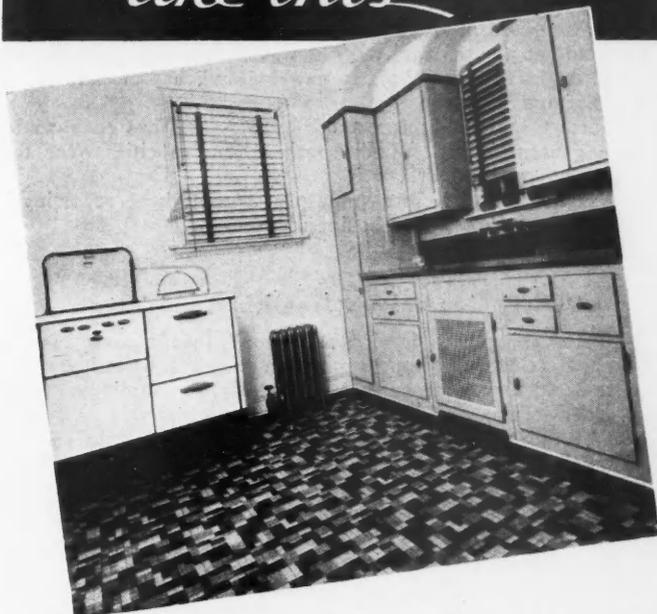


MOTOR Wheel oil-fired Weather Control unit.

The new weather control units are fired with the MW Emancipator pressure burner which is rubber mounted on the front of the furnace for quiet, vibrationless operation. Heating capacities range from 85,000 to 175,000 BTU output. The special MW prefabricated combustion chamber of a new pear-shape design is included as standard equipment and is said to result in a much higher efficiency rating from the burner. A large hinged door in the front panel of the de luxe casing gives ready access to the burner and the inspection door which also has a visible glass observation port.

Other features and equipment include a new type automatic humidifier, filters and blower, double casing in both the standard and de luxe models, heavy seven gauge steel welded and riveted heat drum, heavy gauge U-shaped radiator or Economizer, complete low voltage controls with choice of either Mercoid or Minneapolis-Honeywell.

ATTRACTIVE FLOORS
like this



HELP SELL THESE GROSS-MORTON HOMES
at Bayside Hills Development



Armstrong's Linoleum was used in kitchens at the Gross-Morton Corporation's Bayside Hills development of 1000 homes. Pattern is Embossed Inlaid No. 5460 in black, red, gold, gray, and green.

IN 1,000 new homes at Gross-Morton's huge Bayside Hills development, the kitchen floors are Armstrong's Linoleum. Here's why "America's largest home builders" chose Armstrong's.

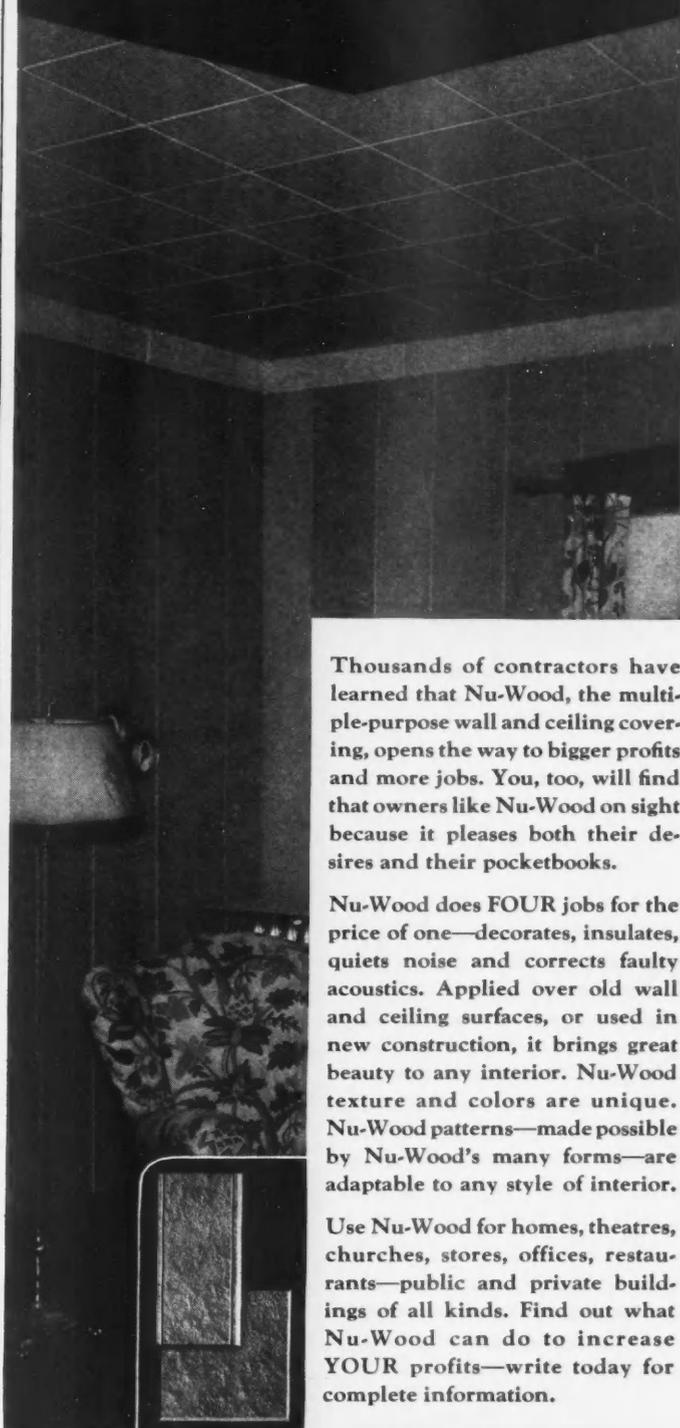
First, the Gross-Morton Corporation wanted a floor that was inexpensive to install and long wearing. Second, they wanted a floor that was cheerful and attractive yet easy to maintain—a floor that prospective buyers would like. Third, they wanted the added sales-appeal that nationally advertised Armstrong's Linoleum gives any property.

In your houses and apartments, Armstrong's Linoleum offers the same advantages. Send ten cents now for "Floors That Keep Homes in Fashion"—a bookful of smart, inexpensive decorating ideas. Armstrong Cork Products Company, Floor Division, 1218 State Street, Lancaster, Pennsylvania.



Armstrong's
LINOLEUM FLOORS

Here's a
CHAMPION
PROFIT-BUILDER!



Thousands of contractors have learned that Nu-Wood, the multiple-purpose wall and ceiling covering, opens the way to bigger profits and more jobs. You, too, will find that owners like Nu-Wood on sight because it pleases both their desires and their pocketbooks.

Nu-Wood does **FOUR** jobs for the price of one—decorates, insulates, quiets noise and corrects faulty acoustics. Applied over old wall and ceiling surfaces, or used in new construction, it brings great beauty to any interior. Nu-Wood texture and colors are unique. Nu-Wood patterns—made possible by Nu-Wood's many forms—are adaptable to any style of interior.

Use Nu-Wood for homes, theatres, churches, stores, offices, restaurants—public and private buildings of all kinds. Find out what Nu-Wood can do to increase **YOUR** profits—write today for complete information.

Nu-Wood Tile and Plank on walls and ceiling lend both dignity and beauty to the room shown above

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I want to know more about Nu-Wood. Please send me, without obligation on my part, information and illustrations.

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



NEWS of the MONTH

Building Activities and Meetings

Real Estate Survey Shows Improvement in Prices, Rents, Building Volume

THE Twenty-Sixth Semi-Annual Survey of the Real Estate Market, covering 275 cities, and made by the National Association of Real Estate Boards from confidential reports by its local member boards, reveals that there is a decided upturn for real estate in every section of the country, with earning power of existing buildings—index of real estate health—measurably rising.

Important trends are the dominance of the factor of favorable mortgage supply as affecting the amount of new home building. People who are ready to build a house can in many communities get a mortgage loan at interest costs perhaps one per cent lower than last year, and on terms that enable them to take advantage of land prices before they rise further. In these communities new roofs are rising by the fifties, even the hundreds. Many communities still report that only the borrower who needs no more than a 50 per cent loan finds any financing source open.

There are wide variations in degree of real estate's recovery as between communities where distressed properties have been dumped and those where the market has had orderly management.

Principal Market Elements

The following are the principal elements of the market as shown in the 275 cities:

1. Real estate is selling at prices higher than a year ago in 60 per cent of the cities of the country. The rise has reached 82 per cent of the very largest cities.
2. Turnover is more rapid than a year ago in 91 per cent of all cities over the 100,000 population mark, and in 85 per cent of all cities surveyed, great and small.
3. Shortage of single-family dwellings exists in two out of every three cities reporting.
4. Rents—index of how close we are getting to an appreciable volume of new construction—are coming out of the sub-cellar. For apartments they are up 10 per cent over last year in approximately three out of every four cities reporting, and up 15 per cent in one-third of the cities. They are rising in 76 per cent of all cities surveyed. But apartment rates, even in major cities, are still less than 60 per cent of the level prevailing in 1926.

Detached houses, even more generally than apartment, show that rents have risen. They went up 10 per cent or more in 83 per cent of the cities and are up 15 per cent in one out of every three cities. They are now within 20 per cent of the 1926 level.

Central business property is leasing at higher rates than a year ago in 54 per cent of the cities, the first time in ten years of these semi-annual surveys that a majority of cities report such a trend.

5. Actual interest rates at which first mortgage loans on new moderate priced homes are now commonly being made range as low as 5 per cent in 14 per cent of communities reporting. Six months ago only 2 per cent of cities reported this rate as yet come into existence.

No city of over 100,000 population, whatever its geographical section, now shows its common rate on first mortgage home loans as over seven per cent.

Shortage Grows in Apartment Space

The shortage of single-family dwellings shown in 66 per cent of the cities reporting is the most significant fact in the im-

mediate outlook for new construction, and one of the basic factors of the whole recovery situation. But apartment buildings have shown the most general change in space absorption. Actual shortage of apartment units is now reported by 43 per cent of the cities, whereas only 29 per cent so reported six months ago.

Only two per cent of cities still show overbuilding in single-family houses. But shortage here is not more general than was reported six months ago, when it was shown in 69 per cent of cities. At least one city states new building has already eased the shortage.

Shortage both of houses and of apartments has come to be more general in cities under rather than in cities over the 500,000 population mark.

A small group of cities—nine per cent of those reporting—already show shortage of business property.

Most General Up Trend in Ten Years

Most striking new development shown by the survey is the fact that rents for business space in the central business districts—cold turkey measure of the judgment of individual firms in general business as to their own future—are up in 54 per cent of the cities replying. Only 22 per cent of cities showed an up trend of central business property rates a year ago. The present is the first semi-annual survey of the Association since that of December, 1924—that is to say the first in ten years—in which a majority of cities show this trend.

For outlying districts business property rents are still at last year's level in 70 per cent of cities replying, higher in only 27 per cent of cities.

Downtown office space is renting at approximately last year's rates in 75 per cent of the 275 cities, but has moved up in 23 per cent of them. In outlying districts the change is slower, with 83 per cent of cities showing last year's rate, only 13 per cent showing a gain.

For either business property space or office space only, two to four per cent of cities show any lower rate.

No city of over 200,000 population shows rents down for either central or outlying business property.

Subdivision Market

Market for home sites is more active than a year ago in 90 per cent of cities over 500,000 population, at about last year's level in ten per cent of these cities. Not a one reports a less active market. For the country as a whole the market in vacant subdivision lots is more active than last year in 46 per cent of cities reporting, about on last year's level in 47 per cent of the cities.

Money Supply: Interest Rates

How general is the completely changed condition in real estate money supply is shown by the fact that 67 per cent of cities now report capital seeking real estate mortgage investment whereas in only 21 per cent of cities are mortgage loans seeking capital. Well over a majority of cities in every geographical section show capital seeking loans, and under five per cent of cities of over 100,000 population show loans seeking capital.

The largest cities (over 500,000 population) still have the most general capital supply. In 91 per cent of them capital is seeking investment, whereas in none of them are loans seeking capital. Nine per cent show equilibrium of supply-demand.

More than 90 per cent of cities in every population group above the 100,000 mark show capital seeking mortgage loans rather than loans seeking capital.

Interest rates are falling in 47 per cent of the 275 cities, are steady in 50 per cent of the cities, are rising in only three per cent of the cities. More geographical variation is shown here than is shown by any other market factor measured in the survey. For example, in the East South Central section 100 per cent of cities show falling rates as against 24 per cent of Middle Atlantic cities, 67 per cent of cities in the Mountain section, and 42 per cent of Pacific section cities so reporting. A very dominant proportion of cities above the 100,000 population rank shows rates going down. Not one reports rates going up.



Gar-Wood

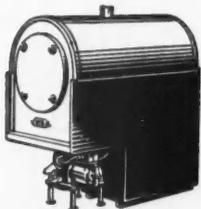
**OFFERS TEAMWORK
to BUILDERS**



Model R. A compact, fire-tube steam or hot water heating boiler, with an integral oil burner, using No. 3 oil. 5 sizes.



Indirect Air Conditioning Cabinet. Combined with the "R" boiler, it provides heating, humidifying, filtering and circulation of air. Six sizes.



Model O Water Heater. Oil fired. Provides quick, convenient, less expensive supply of hot water for industrial buildings. 2 sizes.



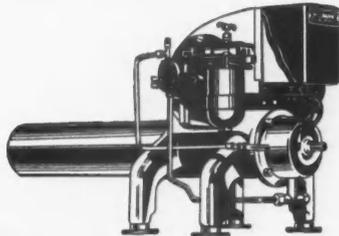
Tempered-Aire. Heating and air conditioning equipment includes filters, blower, humidifier, furnace (with "Economizer") and integral oil burner. All units can be equipped with a water heating coil for use in winter. 5 sizes.

No matter whether you are building new homes or remodeling old ones;—whether you want air conditioning for just a few rooms or a group of buildings;—whether you want a direct or indirect system;

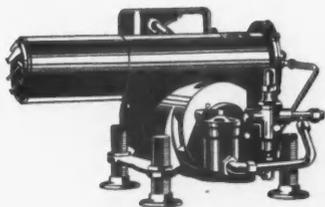
Gar Wood offers you a comprehensive line of efficient systems, coupled with an intelligent planning and installation service.

Many leading builders find Gar Wood **TEAMWORK** the surest and simplest means of executing their oil heating and air conditioning plans. We would welcome the opportunity of explaining this service more fully to you. Write

GAR WOOD INDUSTRIES, INC.,
7924 Riopelle Street, Detroit, Mich.
Branches and Distributors in principal cities



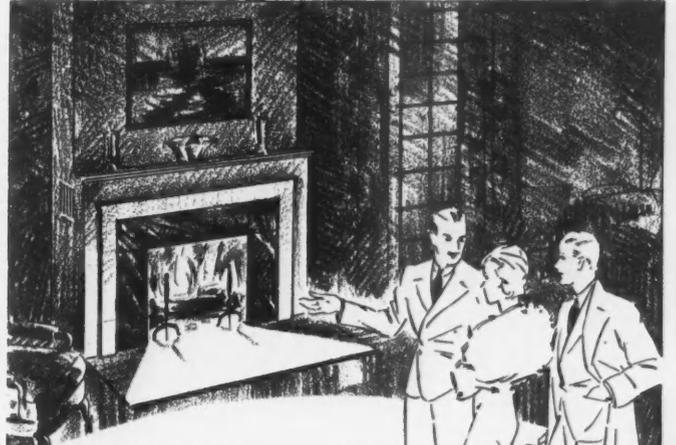
Model K. Conversion oil burner. Extremely flexible due to system of triple range blowers and two motor speeds.



Model H. An efficient low cost unit, to supply automatic heat for small homes. Handles up to 625 sq. ft. net radiation.



**This Improved
fireplace**



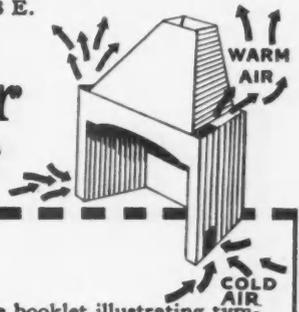
**Will Help You
Sell the House!**

Heatilator features are easy to demonstrate. The extra comfort of circulating heat—fuel saved in spring and fall—smokeless operation—these are real talking points for any house you build.

Circulates Heat—The Heatilator is a steel heating chamber hidden in the fireplace—a correctly designed form for the masonry. Cold air is drawn from the floor into this heating chamber—warmed—then circulated to every corner of the room and to adjoining rooms. This extra warmth provides new comfort during cool weather—cuts dollars off the fuel bills. Ideal for southern homes and summer camps.

Easier to Build—The Heatilator replaces the usual damper, smoke dome, firebrick and other materials. **NEW LOW PRICES** make the cost but little more than ordinary construction. Heatilators are sold by leading building-supply and lumber dealers throughout the country. Send coupon today for complete details. Heatilator Co., 513 E. Brighton Ave., Syracuse, N. Y.

**Heatilator
Fireplace**



Heatilator Company
513 E. Brighton Ave.
Syracuse, N. Y.

Please send Heatilator Fireplace booklet illustrating typical installations. Also new low prices.

Name

Street

City State

Report FHA Operations to Congress

THE annual report of the Federal Housing Administration to Congress as submitted by Administrator McDonald summarized developments during the Housing Administration's first full year as follows:

Mortgage money, frozen almost solid a year ago in most sections, is now generally available to home builders on the most attractive terms in the history of the country.

The long-term amortized mortgage has gained nation-wide acceptance at uniform lower interest rates in all sections of the United States.

Unsound second mortgage practices, bane of home financing in the past, are being driven into general disrepute.

Establishment of better housing standards is encouraging improved home construction and displacing "jerry" building.

The home financing system has thus been placed in a sounder condition for the anticipated building activity with both buyers and lenders more adequately protected against the possibility of a disastrous mortgage collapse such as necessitated federal government intervention through the Home Owners' Loan Corporation.

Business transacted under the Housing Act reached a total of \$540,080,202. Modernization loans to the amount of \$254,070,729 have been insured, and interest stimulated to a point where more than \$1,000,000,000 of modernization has resulted through other means of finance. Mortgages have been selected for appraisal amounting to \$257,561,769, and mortgages on large scale housing projects amounting to \$27,030,234 have been insured. (See Chart.)

Average Term and Amount of Loans

Further data on FHA activity shows the average range of loans in term and amount as follows:

The average mortgage accepted by the Federal Housing Administration extends for 16½ years for a principal amount of \$4,030 which represents 70 per cent of the valuation of the property.

Seventy-three per cent of all FHA mortgages are for amounts of less than \$5,000; mortgages on new construction are mostly for \$4,000 to \$5,000, while the average refinanced mortgage falls into the \$3,000 to \$4,000 group.

This difference is compensated for in part by the fact that mortgages on new construction represent a higher percentage of the property valuation than refinanced mortgages and that the period of years in which the mortgage is to be paid off is longer for new construction mortgages than for those refinanced.

As a consequence, the monthly payments for both new construction and refinanced mortgages are about the same. The man who builds a new house gets a 20-year mortgage and borrows up to 80 per cent of the value of his property, obligating himself for a monthly payment of about the same amount that a person who refinances the mortgage on an existing house pays under the FHA Single Mortgage Plan.

TOTAL VOLUME OF FEDERAL HOUSING ADMINISTRATION BUSINESS

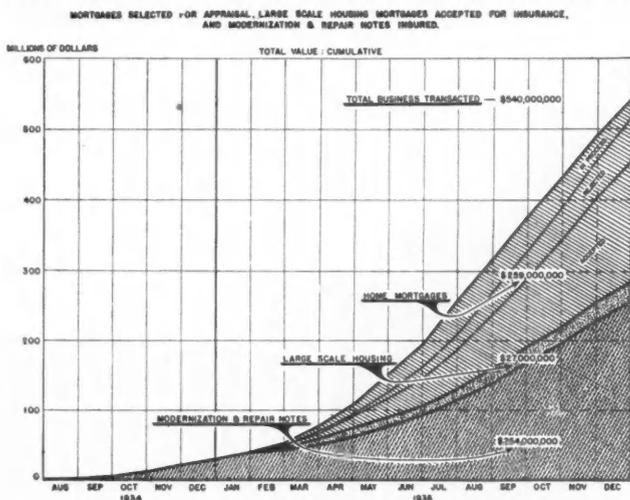


CHART showing total volume of FHA business.

That the FHA Plan appeals to persons of moderate income is evidenced by the fact that monthly payments on these mortgages range from \$21 to \$36 per month. On the basis of an expenditure of 20 per cent of the family budget for housing, these payments presuppose an annual income of from \$1,200 to \$2,200 for almost three-quarters of the families benefited by the FHA Plan.

Delco-Frigidaire Opens Eastern Office

ESTABLISHMENT of an eastern division general office and appointment of D. G. Spahr as eastern division manager has been announced by Delco-Frigidaire Conditioning Corporation.

Mr. Spahr formerly was sales manager for the Delco Appliance Corporation, Rochester, N. Y., automatic heating equipment sales of which recently were merged by General Motors Corporation with the summer air conditioning product sales activities of Frigidaire Corporation into a new company, Delco-Frigidaire Conditioning Corporation. The purpose of the consolidation of these activities was to deal more effectively with air conditioning through offering year-round air conditioning products.

Mr. Spahr will have associated with him as assistant manager of the eastern division, L. W. Curl, who has been assistant air conditioning sales manager for Frigidaire Corporation.



D. G. SPAHR

Building Volume Maintains Increase

TOTAL construction volume for the first half of February amounted to \$64,940,300 according to F. W. Dodge Corporation's report on 37 eastern states. Of this figure \$13,797,000 was residential building which maintains the substantial increase so far recorded over last year.

27 Eastern States	Feb. 1-15, '36	Feb. 1-15, '35	Feb. 1935
Residential	\$13,797,700	\$ 7,584,000	\$16,616,800
Non-Residential	29,249,800	14,419,000	30,612,800
Public Works and Utilities	21,895,800	17,218,500	27,817,500

Total \$64,943,300 \$39,221,500 \$75,047,100

For January a total of \$204,792,800 for all construction was reported. This compares with only \$99,773,900 for January, 1935, but represented a decline of about 22 per cent from the total of \$264,136,500 reported during December, 1935.

Improvement over January, 1935, totals was recorded in each of the 13 major geographic areas east of the Rockies without exception. The largest relative gains were registered in the Middle Atlantic states, the Chicago territory and Southern Michigan.

For residential building alone the Dodge organization reported a January, 1936, total of \$37,439,500 as against only \$22,410,200 for January, 1935, and \$45,140,100 for December, 1935. Gains in residential building over reported totals of a year earlier were shown in each major geographic district, except the Southeast.

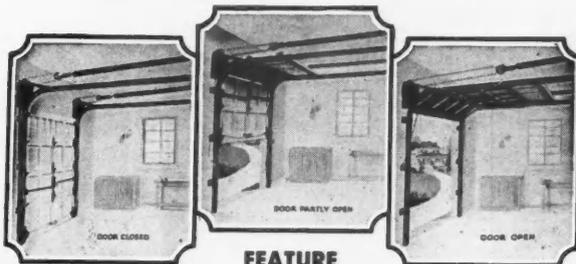
For non-residential building the January total for the 37 eastern states amounted to \$90,479,800; this was almost three times the total of \$32,958,400 shown for January, 1935, but was considerably below the December figure. The January, 1936, volume of heavy public works and utilities construction amounted to \$76,873,500 and contrasts with only \$44,405,300 for January, 1935, and \$94,490,400 for December, 1935.

EVEN IN WINTER STORMS
OR MARCH WINDS

THE **OVERHEAD DOOR**

FOR
GARAGE—FACTORY—WAREHOUSE—SIMILAR BUILDINGS
IS ALWAYS TIGHT
But Never Sticks

BACKED BY
NATION
WIDE
SALES
AND
SERVICE



BACKED BY
NATION
WIDE
SALES
AND
SERVICE

FEATURE

1. For old or new buildings.
2. Tight-top, bottom and sides.
3. Designed in any style.
4. Ball-bearing throughout.
5. Easy to open or close.
6. Guaranteed and serviced anywhere.
7. Ready to paint or varnish.
8. Any arrangement of glass.
9. Built to be permanent.
10. Adapted to any size of opening.

A MILLION USERS THE BEST RECOMMENDATION

OVERHEAD DOOR CORPORATION
HARTFORD CITY, INDIANA U. S. A.

CLIP THIS COUPON and MAIL NOW

MADE IN ANY SIZE FOR ANY OPENING
FROM A HANGAR TO A PRIVATE GARAGE

Please send me literature and full information regarding your product.
I am interested in doors for the particular purpose as checked.

Name _____
Address _____
City _____ State _____

Mail to: OVERHEAD DOOR CORPORATION, Hartford City, Indiana, U. S. A.

PRIVATE GARAGE
PUBLIC GARAGE
WAREHOUSE
FACILITY
FACING STATION
WOOD DOORS
STEEL DOORS
FACTORY DOORS
OTHER BUILDINGS
ELECTRIC CONTROLS
A. B. 3-36

**Contractors ARE GOING in a BIG WAY
FOR THIS REVOLUTIONARY NEW SANDER**

The DREADNAUGHT "8"

PRODUCT OF 20 YEARS OF SPECIALIZATION
IN THE MANUFACTURE OF FLOOR SANDERS

The DREADNAUGHT 8 is years ahead in design and construction—built on a new principle that permits higher cutting speeds, greater ease of handling, higher sander efficiency with much less weight and bulk.

Here is a machine, light enough to be easily taken from job to job without the use of a truck, that sands perfectly 600 to 2,000 sq. ft. of old varnished floor without clogging sandpaper; or 1,200 to 3,200 sq. ft. of new floor in 8 hours. It works right up to the quarter-round, is entirely dustless, uses from 1/3 to 1/2 less sandpaper—handles even the toughest jobs at lowest cost per sq. ft. and stands up under the most severe usage with outstanding dependability. These are FACTS, not merely claims—all backed by a bona-fide Guarantee that absolutely protects the purchaser.

If you are considering the purchase of a floor sander, by all means drop us a line requesting a free demonstration at once! This involves absolutely no obligation; and we feel certain when you see this machine in operation, note its sturdy, precision construction, you, too, like hundreds of other contractors will be thoroughly convinced that an investment in a DREADNAUGHT 8 will give you a great competitive advantage. Write today!

CLARKE SANDING MACHINE CO.

DEPT. A-336

MUSKEGON, MICHIGAN

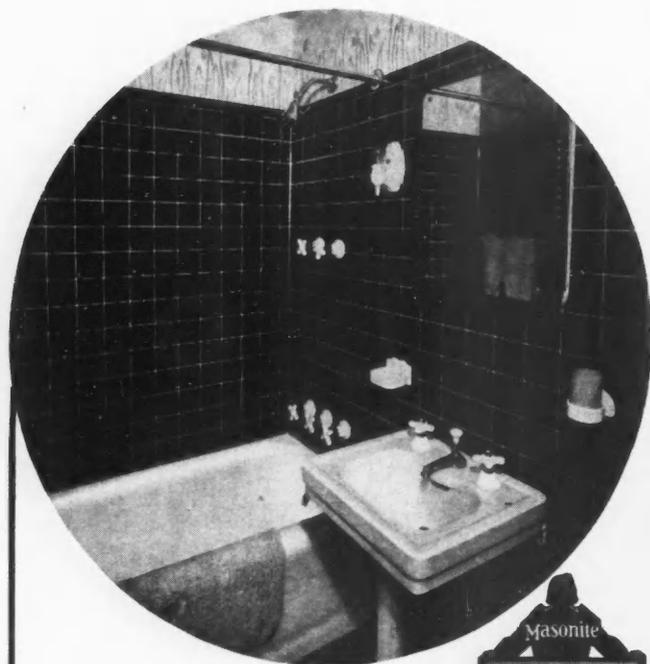


● Handles the Biggest and Toughest Floor Sanding Jobs at lowest cost per square foot.

Easily Portable —
Weights Only
94 lbs.

Operates
from Ordinary
Light Socket

FREE DEMONSTRATION ENTIRELY WITHOUT OBLIGATION



Trade-Mark
Reg. U. S. Pat. Off.

MAKE MODERNIZING AN INTEREST-BEARING INVESTMENT... USE GENUINE MASONITE PRODUCTS

Builders and architects everywhere are learning that Genuine Masonite Products in new or remodeled buildings create immediate interest with the buying and renting public. And they are discovering that these grainless boards achieve permanent, luxurious-looking effects at a fraction of the usual cost.

In bathrooms, for instance, tile-like walls, such as those pictured above, can be produced with Genuine Masonite **TEMPRTILE** . . . the grooved, hard board that can be cut with an ordinary saw and nailed into place by a regular carpenter. Properly applied, it will not chip or curl. And any color scheme may be procured by enameling it with standard preparations.

Masonite **STRUCTURAL INSULATION** combines beauty with extraordinary structural strength. It can be installed as sheathing, or for exposed wall and ceiling surfaces. It can be used in its natural warm-brown finish, or painted or papered. It is also a perfect base for plaster.

Masonite **TEMPERED PRESWOOD** is a hard board, recommended for wainscoting, and for use with ultra-modern decorative devices.

Genuine Masonite Products can save you money from start to finish. Mail the coupon below for free samples and further information.

**IT'S RIGHT!
MASONITE**

MASONITE CORPORATION, Dept. AB-3
111 W. Washington St., Chicago, Ill.

Please send me free sample and more details about
 TEMPRTILE STRUCTURAL INSULATION
 TEMPERED PRESWOOD

Name _____
 Address _____
 City _____ State _____

Alabastine Adds to Line and Staff

THE Alabastine Company of Grand Rapids, Mich., which since 1930 has expanded its line of wall-finish products, has now entered the field with a complete line of Alabastine oil paints, enamels, varnish and other paint specialties.

The entire Alabastine plant, consisting of three factories, and occupying a site covering 88 acres in and adjoining the city of Grand Rapids, has been completely modernized and renovated to improve production and greatly increase capacity. New machinery has been installed throughout, and the plant layout has been revamped to permit advanced line production at every stage of manufacture. New units can be added as needed without disturbing production.



LEFT, W. H. Hall,
director of sales,
Alabastine Company.



RIGHT, J. C. Corcoran,
Alabastine
treasurer and general
manager.

"This modernization of plant and equipment makes it possible for our paint division to start with an initial capacity of at least 2,500 gallons per day," Mr. Corcoran, treasurer and general manager, stated, "and we expect to increase this gradually to a daily capacity of 8,000 to 10,000 gallons, placing us among the largest paint manufacturers in the United States."

W. H. Hall has been appointed director of sales of the Alabastine Company. He has resigned his position with the Glidden Company to assume active direction of the sales program for the new Alabastine line. Harry N. Jones has been appointed general superintendent of the Alabastine factory to supervise all production operations. Mr. Jones has had 33 years of experience as paint formulator and plant superintendent for various prominent paint manufacturers.

RFC to Buy Insured Mortgages

GOOD news for the building industry and for prospective home builders in the low income brackets was contained in the recent announcement by the Federal Housing Administrator of an arrangement made whereby the Reconstruction Finance Corporation Mortgage Company will purchase mortgages given for construction of new homes and insured by the Federal Housing Administration.

While financial institutions have heretofore found a ready market for insured mortgages, this arrangement is equivalent to the establishment of a national mortgage association or a mortgage discount bank and supplies to lending institutions an additional outlet for such of their insured mortgages as they wish to convert into cash.

One of the beneficial effects expected to result from this arrangement is that it will enable banks or other lending institutions to turn over several times the limited amount of money they are permitted to invest in mortgages. Particularly is this

(Continued to page 106)

DON'T PASS UP WEATHERSTRIP WORK

Because You Lack These Tools!

Installing metal weatherstrips is profitable, and it is no more difficult than the work you do every day — if you have these Stanley Tools. They are the finest and most practical weatherstrip tools on the market.

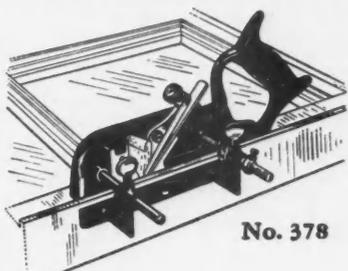
Rabbit Plane No. 378 cuts the rabbets on sash "meeting rails" for the hook and flat strips.

Groove Plane No. 248 cuts grooves in the sash for the weatherstrip rib.

Door Rabbit Plane No. 78W rabbets the lock joint and the head of a door for weatherstrips. A detachable runner acts as a gauge for cutting rabbets $\frac{1}{8}$ " wide on either side without adjustment.

These three tools are recent developments by Stanley—The Tool Box of America — the source of fine tools for those whose income depends upon long service and full value from the tools they buy.

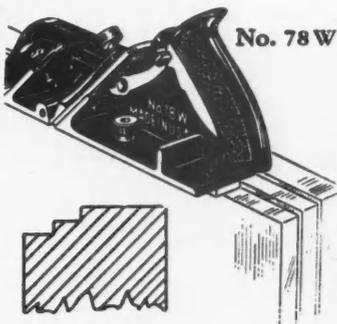
Descriptive Circular on request showing these and other Stanley Weatherstrip Tools



No. 378



No. 248



No. 78W



STANLEY TOOLS
New Britain, Conn.



Efficient Design Has Made 'KINNEAR' The By-word For Doors

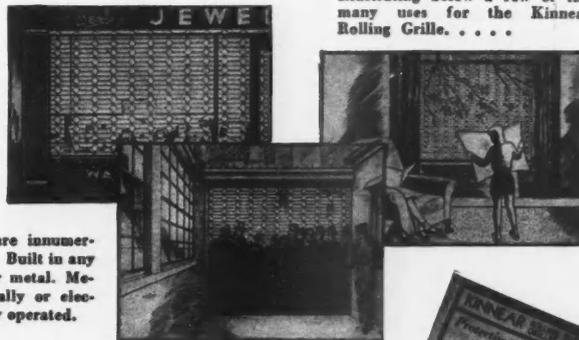


..and now comes the KINNEAR Rolling GRILLE

Protection plus AIR, LIGHT and VISION

Whether it's a residence, commercial or industrial building, the Kinnear Rolling Grille offers you a new type of protection. Remarkable strength combined with window-shade convenience . . . space saving, easy operating and economical to permanently install. Unnoticed when open—but when closed is an impassable barrier against trespassing, burglary or intrusion. Embodying the same design principle and workmanship as the famous Kinnear Steel Rolling Door it is a product of proved merit. Send for details. You're sure to find many uses for the Kinnear Grille.

Illustrating below a few of the many uses for the Kinnear Rolling Grille. . . .



Uses are innumerable. Built in any size or metal. Mechanically or electrically operated.

The KINNEAR MFG. CO.

1560-80 Fields Ave., Columbus, Ohio

Yes! You may send along the descriptive bulletin on the Kinnear Rolling Grille.

Also send catalog on Kinnear Doors. No obligation.

NAME

ADDRESS

CITY..... STATE.....



NOW!
AN EXTRA BATH
FOR HOMES OF
EVERY SIZE

SAFE
FOOT-GRIP, NO-SLIP
FLOOR

Exclusive Weisway feature gives sure-footed comfort. Equally effective wet or dry. Entire receptor is vitreous porcelain on Armco iron, one piece, rustproof, non-absorbent, thoroughly sanitary.

FOR luxurious homes, or the simplest cottage, there are Weisway Cabinet Showers to answer the insistent demand for extra bathing facilities. They add living comfort and re-sale appeal far beyond the small investment required.

Easily, quickly, economically installed in space no larger than a clothes closet. Equally adapted to modernizing or new construction. Require no special treatment of walls or floor. Completely equipped with quality shower head, valves, waste and curtain. May also be fitted with glass door.

Weisway Cabinet Showers are guaranteed leakproof. Being independent units they are not affected by shrinking or settling of structure.

Complete Weisway line includes models for homes of every size, for clubs, hotels, institutions and industrial buildings. Nationally distributed through leading plumbers. Write now for complete information, without obligation.

HENRY WEIS MANUFACTURING CO., INC.
ESTABLISHED 1876
CABINET SHOWER DIVISION, 301 OAK ST., ELKHART, IND.

Cabinet **WEISWAY** Showers

NEWS

(Continued from page 104)

of advantage in localities and sections where the available funds for mortgage investment are limited.

With the entire resources of the Reconstruction Finance Corporation Mortgage Company solidly behind the Federal Housing Administration, the flow of new capital into the mortgage field in increased volume will result in giving home construction an added impetus.

Gets Orders for CCC Table Tops

A SIZABLE business in Masonite Tempered Presdwood is reported as having been done last year by the Morgan Millwork Company of Baltimore through its lumber yards in several eastern and southern states by furnishing mess table tops to CCC Camps.

Based on its experience in one camp in Baltimore, the company sent letters soliciting similar business to all CCC Camps in its area, calling attention to the simple, inexpensive manner in which the mess tables could be erected. In many cases the pressed wood was laid over the old pine table tops, the result being a one-piece top, free from cracks or joints, waterproof, smooth, attractive in appearance, and sanitary.

The company quoted prices on standard sizes cut to fit, and inexperienced personnel at the camps was given the simple job of attaching them. Most purchases were made out of company funds.

F. D. Porter, Building Paper Publisher, Dies

FRED D. PORTER, Chicago publisher, died Feb. 14 while on a train en route to St. Louis from Tulsa, Okla., where he had been attending a real estate convention.

Mr. Porter was president of the Porter-Bede-Langtry Company, publishers of the *National Real Estate Journal* and *Buildings and Building Management*. He was a former president of the Chicago Trade Press and the Federation Trade Press Association. Mr. Porter was at one time publisher of *National Builder*, which, after a series of mergers, finally was acquired as part of *American Builder*.

Briggs Steps Up Production

DETROIT plants of the Plumbing Ware Division of the Briggs Manufacturing Company are operating on a 24-hour daily schedule with three shifts of workmen, according to a recent report. The division has been operating for several months with two shifts and just recently went to three in order to catch up with unfilled orders.

Manufacturing operations, which are centered largely in the company's Hamtrank plant, have been geared to the highest possible output as the result of mass production methods brought to the plumbing industry by Briggs.

Briggs has announced that Noland Company, Inc., of Newport News, Va., serving cities on the Atlantic Seaboard, and the W. A. Case and Son Mfg. Company of Buffalo with 21 branches located in south central and eastern territories, have been appointed wholesale distributors of Brigsteel Beautyware.

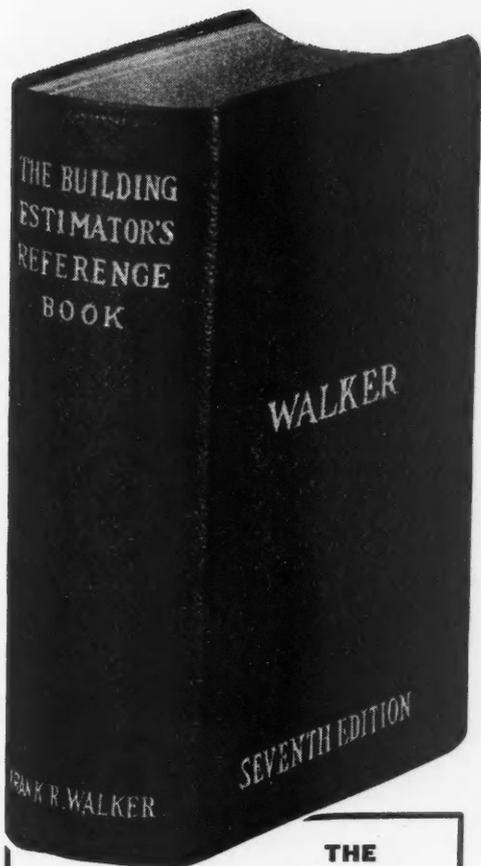
Organizes Stained Shingle Division

GEORGE EMSLIE has been transferred to the executive offices of the Weyerhaeuser Sales Company at St. Paul to manage sales of the company's Stained Shingle Division. Mr. Emslie has been active in the stained shingle industry for the past twelve years, and previous to his present appointment was eastern representative for the sales of Edham Shingles, a Weyerhaeuser forest product. Replacing Mr. Emslie in the East is Harlan P. Ross, Jr., who has been well known in the stained shingle field for ten years.

A feature of the sales and merchandising program behind the new Weyerhaeuser shingle is the Edham Finance Plan. Through this plan, the dealer is empowered to arrange loans for his customers to cover the cost of the shingles, plus application and all other costs incidental to the completed job. Briefly, upon ordering stained shingles, the dealer is issued a

(Continued to page 108)

Get YOUR Share of New Work at a Profit!



THE BUILDING ESTIMATOR'S REFERENCE BOOK
 Contains 1500 pages of up-to-the-minute estimating and cost data on all classes of construction work.
 Size 4 1/2 x 8 1/2 inches, Profusely Illustrated
 Flexibly Bound

HERE IS THE INFORMATION EVERY CARPENTER AND CONTRACTOR NEEDS to obtain your share of work under the New Housing and Modernization drive. Complete estimating and cost data on all classes of construction work that will enable you to estimate new work, remodeling or repair jobs quickly, easily and accurately.

Accurate Labor and Material Costs

This New Guide enables you to estimate labor and material quantities as accurately as is humanly possible, showing you just how all classes of work should be figured. Many new labor-saving tables help you do this.

All estimates are completely itemized, so that the contractor and estimator may insert local material prices and wage scales where necessary. This insures accurate estimates and permits you to make comparisons between estimated and actual costs.

New Methods and New Tools Cut Costs

Many new methods of handling your work are described that will enable you to increase your daily output. New labor-saving tools will help you cut your labor costs. They actually tell you just how much of a saving can be made over present methods.

The Books Must Prove Their Value to You—or Money Refunded

You take no chances in sending for these new books. Use them for 5 days on your own work or when preparing your own estimates. If they don't more than prove their worth to you, return them and the purchase price will be refunded at once.

FREE!

The New Vest Pocket ESTIMATOR



Size 2 1/2 x 5 in.
 Flexibly Bound

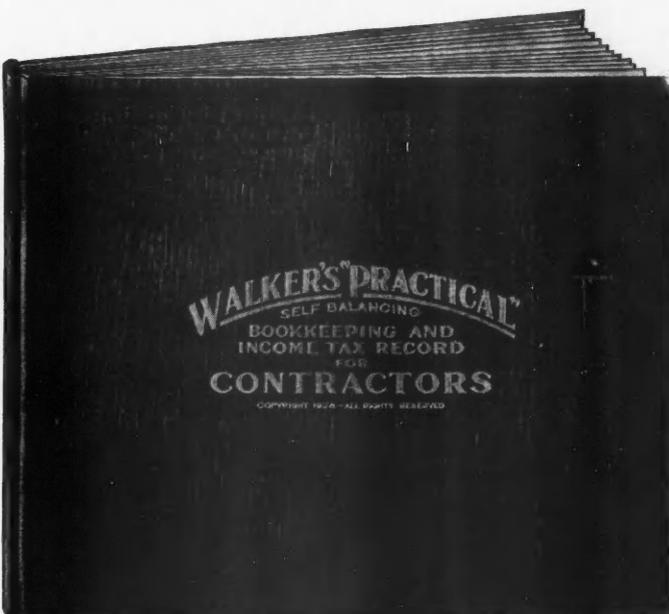
The most popular little book contractors have ever used. Between its flexible covers you'll find 220 pages crammed full of up-to-the-minute estimating and cost data that you can use to big advantage in your business every day. Always in your pocket when you want it—on the job or in the office. We'll send The New Vest-Pocket Estimator FREE with The Building Estimator's Reference Book.

WALKER'S BOOKKEEPING AND INCOME TAX RECORD for Contractors—ABSOLUTELY FREE!

A Complete, Easy Bookkeeping and Income Tax Record That May Be Kept in Spare Time

Tells you everything you should know about your business at a glance. Contains sheets for keeping detailed records of your Contracts, Job Cost Accounts, Sub-Contract Accounts, Accounts with Material Dealers, Monthly Totals of all Expenditures, Job Profits and Losses, and a Complete Statement and Profit and Loss Sheet for Making Up Your Income Tax Return.

Wm. Soltwisch & Son, Hinsdale, Ill., say: "Have certainly had great results with your Bookkeeping and Income Tax Record. Send us another."



AB-3-36

USE THIS COUPON AND SAVE \$5

American Builder and Building Age, 30 Church Street, New York.

Enclosed please find \$10 to cover cost of THE BUILDING ESTIMATOR'S REFERENCE BOOK, THE VEST-POCKET ESTIMATOR AND WALKER'S BOOKKEEPING AND INCOME TAX RECORD in accordance with your special offer.

NAME _____

ADDRESS _____

TOWN _____

STATE _____

Reardon's BONDEX * Makes a Bow in the SATURDAY EVENING POST BETTER HOMES AND GARDENS

THIS BEAUTY TREATMENT
KEEPS STUCCO HOMES..
Youthful



PROTECT that beautiful stucco home of yours from the ravages of wind, rain, snow and sun. Keep its complexion youthful with Reardon's BONDEX Waterproof Cement Paint—the finish that literally turns back time in its flight. Bondex is known the world over as the "Paint Eternal." Ask your painter about Bondex. The cost is little—the results amazing.

**REARDON'S BONDEX
WATERPROOF CEMENT PAINT**
For Leaky Basements, too

Bondex is used and praised in nearly every part of the world for waterproofing. Don't be annoyed by water in your basement. Get Bondex, and Dry Up!

THE REARDON CO.
CHICAGO ST. LOUIS LOS ANGELES

FOR INTERIOR WALLS AND
CEILING USE *R. W. K.

*REARDON'S WASHABLE KALSOMINE
LOW COST • PERMANENT • ATTRACTIVE

The Paint "Eternal" Now Advertised Nationally

Starting in the Spring when drippy basements grate on nerves and, on through the Summer months, when glinting sunlight shows up the dingy drabness of stucco homes and buildings, these unusually effective ads will be selling Reardon's BONDEX Waterproof Cement Paint to the millions who read Saturday Evening Post and Better Homes and Gardens. Every ad is packed with selling suggestions. Use them to get your share of this basement and stucco business.

*Combined Circulation of Saturday Evening Post and Better Homes and Gardens 4,209,954.



Use **BONDEX** on
STUCCO EXTERIORS
LEAKY BASEMENTS
SWIMMING POOLS

Manufactured Only by
THE REARDON COMPANY
ST. LOUIS • CHICAGO • LOS ANGELES

NEWS

(Continued from page 106)

Certificate of Available Credit equal to several times the value of the shingles ordered. This certificate entitles him to extend approved loans up to that amount to his customers, enabling them to have the work done at once, and pay for it in low monthly installments. The dealer simply acts as Weyerhaeuser's agent in the transaction, and makes a cash sale of the shingles and incidental bill of materials.

All shingles stained by the Edham process are selected and pre-inspected. The mineral pigments used are ground in the company's new, modern plant. Shingles are individually treated, and re-inspected before packing.

Kimbell Heads Promotion Department

RICHARD G. KIMBELL has been placed in charge of the national trade promotion work of the National Lumber Manufacturers Association, under the title of Director of Technical Service. Mr. Kimbell has been for many years and will continue to be in charge of the Building Code Division of the Association, and has been in close touch with all departments of that Association. For the last several years he was stationed in the Chicago office, but otherwise has been at headquarters ever since he joined the Association.

H. R. Northup has been added to the staff and will have the special duty of assisting Mr. Kimbell in building code administration. Mr. Northup has served the Association in different capacities for a number of years.

Offers Architectural Scholarships

THE College of Fine Arts, Syracuse University, Syracuse, N. Y., is offering to freshmen students of architecture one \$300.00 and four \$150.00 scholarships to be granted by competition on Saturday, July 11. The competition will be in two fields—drawing and preparatory school record. (1) Contestants must send to the College of Fine Arts not later than Monday, July 6, a portfolio containing not more than 20 examples of their work in freehand and mechanical drawing, together with three letters of recommendation as to personality, character and general fitness. Judging the drawings by a committee of the Architecture Faculty will take place on Saturday, July 11. (2) The High School records of all contestants will be carefully examined by the Director of Admissions and the Architecture Faculty Committee to determine fitness for a course in Architecture. Special attention will be given to ability in high school mathematics.

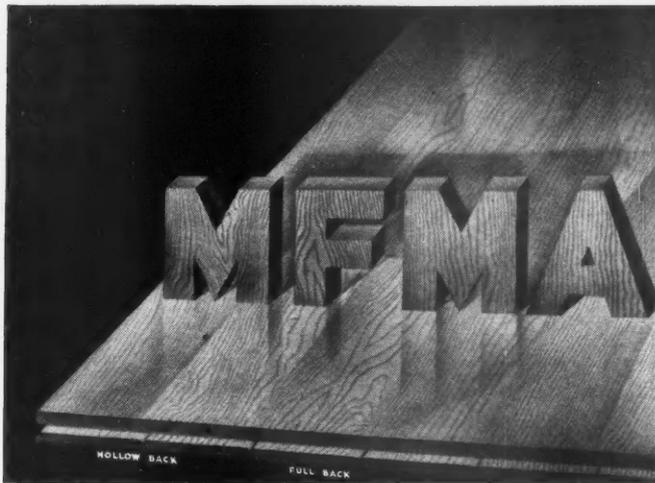
Each portfolio of drawings, etc., must contain the name and address of the student contestant and a statement from the student's high school principal that the drawings, etc., in the portfolio are the original work of the student submitting them. Stamps for the return and insurance of the portfolio must be sent to Dean H. L. Butler, College of Fine Arts, Syracuse, N. Y.

Ruberoid Buys Mine, Adds to Plant

OWNERSHIP of the only operating chrysotile asbestos mine in the United States, located at Eden, Vt., and with asbestos deposits estimated at the current rate of production to last more than a hundred years, has been acquired by a subsidiary of The Ruberoid Company, manufacturers of asphalt and asbestos building and roofing products, through purchase of the assets of the Vermont Asbestos Corporation, the former owners. The property is now being operated under the name of the Vermont Production Company, Inc.

Another recent development is the construction now under way of an extension to its plant at Mobile, Ala., which will cost more than \$200,000, and is a part of a general program of plant extension which has involved expenditures of approximately \$1,000,000 in the past two years. Completion of the plant extension at Mobile is expected by July first.

It is further reported that loans in excess of \$2,000,000 to home owners located in virtually every section of the country have already been placed with the Ruberoid Purchase Corporation, recently organized to assist in the financing of needed repairs, replacements, and improvements in residential properties.



TO BE SURE TO GET WHAT YOU WANT

When You Specify and Lay Maple Flooring

Countless performance records prove tough-fibred, tight-grained Northern Hard Maple to be the logical choice for the flooring of schools, stores, office buildings, homes, factories, mills, warehouses and similar buildings.

Combining comfort, beauty and remarkable service, use of standard grade Northern Hard Maple means a pleased customer and builds your reputation for laying floors that satisfy.

There is only one way, however, to be certain at all times of receiving these known qualities of MFMA standard Maple—and that is whenever you specify Maple Flooring, to specify trade-marked "MFMA" Maple.

Maple Flooring trade-marked MFMA is guaranteed to be all Hard Maple of the grade stamped thereon. This mark also certifies standard quality and millwork, conforming in every respect to the high standards set by the Maple Flooring Manufacturers Association.

You invite substitution if you specify merely "Maple Flooring" when you want MFMA quality and MFMA supervision. You make sure of getting standard MFMA quality only when you specify trade-marked "MFMA" Maple—available in strips or blocks.

MAPLE FLOORING MANUFACTURERS ASSOCIATION

1781 McCormick Building, Chicago, Ill.

See our catalog data in Sweet's, Sec. 15/53. Let our service and research department assist you with your flooring problems. Write us.

Floor with Maple

The letters MFMA on Maple, Beech or Birch Flooring signify that the flooring is standardized and guaranteed by the Maple Flooring Manufacturers Association, whose members must attain and maintain the highest standards of manufacture and adhere to manufacturing and grading rules which economically conserve these remarkable woods. This trade-mark is for your protection. Look for it on the flooring you use. **MFMA**



YOU might have heard that around a building job back in the days when the Pilgrim Fathers were putting up houses with one hand and fighting Indians with the other. But nowadays people don't make nails on the job.

Nor is there any reason for the long, slow job of fitting windows to frames on the job. That's all done for you when you use the Curtis Silentite Window Unit—pre-fit at the factory as expertly as are the parts of your radio or automobile.

That means big savings even on a relatively small house. And it means better satisfied customers . . . fewer call-backs for adjustments.

Silentite Windows help you build better houses, too. They're truly modern insulated windows, saving up to 25% in fuel costs alone by their efficiency in keeping cold drafts out and warm air in. And they've won plenty of friends among housewives: dust can't filter in, curtains stay cleaner, and Silentite Windows operate so smoothly and easily.

That's because the sash slides freely in all metal-to-metal weather stripping of a new type which prevents jaming in humid weather or rattling in dry winter winds.

The Silentite unit, when installed, is truly a better window for less money. It costs less than a well weatherstripped ordinary frame and window.

Silentite is a window that's mighty easy to install, and makes estimating easier and surer. It's the one really big development in double-hung sash for the last 200 years. But why not let us send you the full story of these new windows? Then you can see all their advantages—to you and to your customers. The coupon below is for your convenience.



No drafts. No seepage of heat with Silentite. Customers are satisfied.

CURTIS BROS. & CO., CLINTON, IOWA
 CURTIS & YALE CO., WAUSAU, WIS.
 CURTIS SASH & DOOR CO., SIOUX CITY, IOWA
 CURTIS DOOR & SASH CO., CHICAGO, ILL.
 CURTIS-YALE-PURVIS CO., MINNEAPOLIS, MINN.
 CURTIS COMPANIES INC., CLINTON, IOWA
 CURTIS, TOWLE & PAINE CO., LINCOLN, NEB., TOPEKA, KAN.

Curtis Woodwork is available through the following distributors:
 Allen A. Wilkinson Lumber Co., Indianapolis, Ind.
 Rust Sash & Door Co., Kansas City, Mo.
 Morrison-Merrill & Co., Salt Lake City, Utah
 Hallack & Howard Lumber Co., Denver, Colo.
 Campbell Coal Company, Atlanta, Ga.
 Jacksonville Sash & Door Co., Jacksonville, Fla.



THE "INSULATED" WINDOW

Other Curtis products:
 Exterior and Interior Doors • Frames • Trim • Entrances • Moldings
 Panel Work • Kitchen Cabinets • Cabinet Work • Mantels
 Stairways • Shutters • Screens • Storm Doors and Windows
 Garage Doors • Miterite Door and Window Trim
 "Curtis Woodwork in Walnut"

.....
 CURTIS COMPANIES SERVICE BUREAU
 Dept. 503 Curtis Building, Clinton, Iowa
 Please send me complete information on Curtis Silentite, the "insulated" window.

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

SKILSAW SAVINGS WILL BRING THE JOB TO YOU!

The architect's plan will become a job on YOUR books . . . if your bid reflects the savings that SKILSAW can bring. And, often, these savings can pay for SKILSAW on the very first job! SKILSAW is the leading portable electric handsaw because it has more power, more refinements, more sawing applications. Cuts wood, metal, stone and compositions. Made in 6 powerful sizes—safe, accurate, durable.



SKILSAW
will pay
for itself
on the **FIRST JOB!**

Here's how SKILSAW saves in construction work:

- Rips a two-inch plank, 12 ft. long, in only 40 seconds.
- On forms, cuts out 32 panels 16 x 2 ft. (two ends cut, one length ripped and pocket cut) in only 1 hour.
- Cuts out a 16-step stair stringer, from 2 in. rough, in only 10 minutes.
- Bevels thirty 2 x 4 in. rafters 50° in only 3½ minutes.
- Rips out 60 ft. of 3 in. old maple flooring in only 10 minutes.
- Makes fire cuts on eighty-four 2 x 14 in. joists (both ends) in only 38 minutes.
- Completely trims a door, ready for hanging in only 7 minutes.
- Cuts off 222 ft. of ¾ in. decking in only 12 minutes.
- Crosscuts ten 3 x 4 in. studs in only 40 seconds.
- Cuts 15,000 ft. of tongue and groove roofing in 2 hours 40 minutes.

See Your Dealer or Write for Our New Catalog

SKILSAW, Inc. • 3314 Elston Avenue, CHICAGO
210 East 40th Street, New York
52 Brookline Avenue, Boston
312 Omar Avenue, Los Angeles
Sales and Service for Canada: 85 Deloraine Avenue, Toronto

SKILSAW FOR SAVINGS!

Also 60 other time-saving tools
DRILLS - GRINDERS - BUFFERS - SANDERS - BLOWERS

1936 Better Homes Campaign Under Way

WITH the printing of the 1936 Campaign Guidebook for Better Homes in America, Miss Isabel Hodgkins, assistant administrator in charge of the campaign, stated that the fifteenth annual drive for community improvement is actively under way. The Guidebook is being mailed to some 5,000 Better Homes chairmen throughout the United States from the Better Homes in America headquarters, which were moved last year from New York to Purdue University, West Lafayette, Indiana. The booklet forms the basis of organized effort throughout the country to help people improve their homes and their communities. The campaign culminates in Better Homes week, April 26 to May 2.

The campaign for 1936 stresses the idea of improving and modernizing the entire residential block rather than isolated houses.

Trane Makes Changes

NORBERT D. DOWNEY, for many years the advertising manager of The Trane Company, La Crosse, Wis., heating and air conditioning equipment manufacturers, took complete charge of that company's Unit Heater and Gas-Fired Heater Department, sales and merchandising on Feb. 1.

Mr. Downey's broad experience in the marketing of heating equipment makes him well able to render excellent service to the trade in his new capacity and plans are already under development to include additional sales, engineering and merchandising information.

Succeeding Mr. Downey as advertising manager is Mr. L. A. Trumble who rejoined The Trane Company organization two years ago after having previously been their advertising manager for many years.

The Rural Building Market

EXCITEMENT ran high when screaming newspaper headlines announced the Supreme Court decision against AAA. Subsequent news stories and editorials have so frequently been colored by political bias that manufacturers of products sold in farm markets have been confused. Some have expressed concern as to the effect of this decision on their 1936 sales. In order to clarify the situation, *American Builder* contacted agricultural leaders, publishers, and market authorities to get their candid views.

Most of the men who made statements prefer not to be quoted. Their views range all the way from an opinion that cancellation "will be disastrous to agriculture unless effective legislation is enacted to replace these provisions," up to the prediction that "invalidation will have no appreciable effect on the farm market."

Study of the situation as reported by agricultural leaders indicates that: with the exception of dairy interests, the AAA helped farmers and increased farm purchasing power; farm leaders want and expect to have some replacement program that will help to control production and eliminate price-devastating surpluses; farm purchasing power will be as great or greater in 1936 than it was in 1935.

Principal benefits of AAA, according to farm leaders came from higher prices of farm products, rather than from actual cash paid out by the Government. Payments aggregating more than \$25,000,000 constituted only five per cent of the country's gross income during the last three years. "It was the difference between 8 and 10c corn and 60c corn;" says a farm bureau president, between 35c wheat and 90c wheat; the difference between 3½c hogs and 10c hogs that gave the farmer the purchasing power that he has exercised during the last year."

(Continued to page 112)



THE LUMBER YARD AND BUILDING-SUPPLY DEALER HAS MOVED TO Main Street

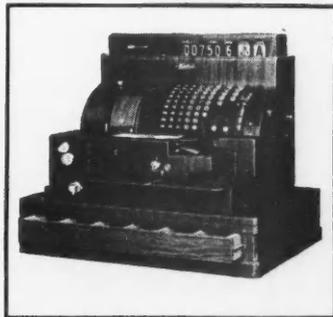
THE old-time "yards" and dingy office used to be "across the tracks," but today "building headquarters" are moving to Main Street. Yesterday's lumber yard or building-supply business is a regular department store today, handling a score of products. Its owners are doing a creative selling job that "old-timers" wouldn't have believed possible.

With a merchant's viewpoint and vision, the modern lumber and building-supply dealer has adopted the accepted standard of department-store operation—a National Cash Register System.

For with it, he has complete control over sales by departments and an easy, quick and accurate way to handle his "over-the-counter" and "cash-and-carry" business . . . and, in addition, full protection on all transactions—C.O.D.s, charge and delivery, deferred payments, received on account, and paid-outs . . . in fact, information which gives him complete control over his business—a control that shows him daily, and in a few minutes' time, the results of each day's activity.

Wouldn't you, too, like to have a National System which will give you such control? Ask a National representative to call and go over your store system. He knows store systems—that's his business. His time and service cost you nothing. It will pay you to follow his recommendations.

This machine has 16 totals. Totals in each of several departments, totals of several different types of transactions, and totals of individual clerk sales. It prints many other printed and counted records. It prints a one or two part receipt, certifies both copies of a duplicate sales slip. It is only one of a long line of cash registers and accounting-bookkeeping machines suitable to the modern "lumber store." One of these can be made to fit your particular business—exactly. GET ALL THE DETAILS.



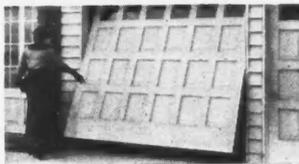
THE National Cash Register Co.
DAYTON, OHIO

Cash Registers • Typewriting-Bookkeeping Machines • Posting Machines • Bank-Bookkeeping Machines • Check-Writing and Signing Machines • Analysis Machines • Postage Meter Machines • Correct Posture Chairs

100 Jobs per Square Mile

MODERNIZING GARAGE DOORS

● In every good-sized town there are at least 100 garages per square mile with doors in bad shape. They can be remodeled with "Over-the-Top" Door Equipment at little more cost than for new doors. The property will be increased many times more than the cost of the equipment and garages so equipped rent easier. Many builders have been making good money at this for some time—especially with the National Housing Act financing remodeling jobs. Your dealer carries the equipment—no need for you to invest except as needed. See him—or write us for information today.



"Over-the-Top" Door Equipment was the first and only device for "overhead" operation that didn't require special doors. A real saving.



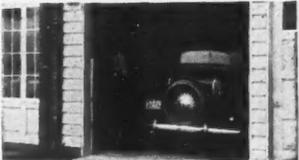
Women especially are so delighted with the effortless, quiet operation of this equipment that they tell others of it—one job sells another.



There's a size for every opening and only 3/4" head-room is required above standard openings. No excess trackage, no weights, pulleys, cables or chains.



You can interest truck fleet owners in group installations at less cost. Never need servicing or adjusting.



Public garage doors can be remodeled without costly cutting or fitting for openings up to 18' wide by 12' high. Automatic electric opening if desired.

FRANTZ Mfg. Co.
Sterling, Illinois

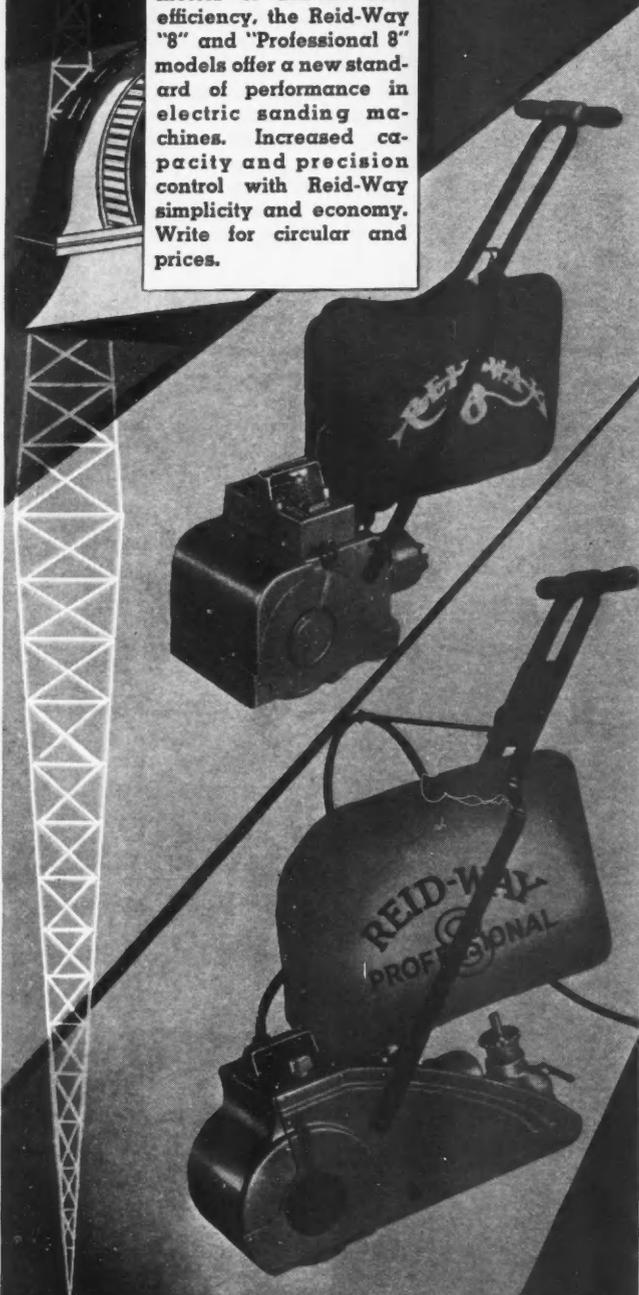


ONLY 3 OR 4 HOURS TO INSTALL A JOB

OVER-THE-TOP DOOR EQUIPMENT

MODERN MACHINES FOR THE ELECTRIC AGE

Powered with new type motors of unbelievable efficiency, the Reid-Way "8" and "Professional 8" models offer a new standard of performance in electric sanding machines. Increased capacity and precision control with Reid-Way simplicity and economy. Write for circular and prices.



THE REID - WAY
CORPORATION

2968 First Avenue • Cedar Rapids, Iowa

(Continued from page 110)

Farm leaders believe that price gains came through the elimination of surplus production, made possible by Government aid. On the other hand, a statistician of the administration-baiting Chicago Daily Tribune dug out figures to show that crops which did not receive Government subsidies and production control made greater price gains than "controlled" crops.

Farm leaders pointed out the need for a soil-conservation program and expressed the opinion that a replacement measure will be provided.

Edward A. O'Neal, president of the American Farm Bureau Federation, states, "I feel confident that we are going to obtain a satisfactory program to replace the invalidated provisions of AAA."

The head of a large organization in the dairy field says, "It is my feeling that unless something is done immediately to replace to a certain extent the value of AAA to most farmers, we will be affected, indirectly at least."

Because of the Government program and drought, agriculture in general has neither livestock nor crop surplus, and a new program is expected to be in effect before a surplus that will reduce farm income can be produced.

Fred Bohlen, of Successful Farming, says, "Spendable farm income stands now at the highest point since 1929, and further increases are predicted for 1936."

An agricultural economist states, "With a general pick-up in business and with the increased purchasing power of farmers which we have had during the past year, it would appear that business might continue on a good level throughout the coming season."

A Grange official, who asked not to be quoted, expresses doubt that "killing of the three A's will make very much difference in the purchasing power of agriculture this year. . . . I look for as good a year in 1936 as we had in 1935."

Floyd Keepers, managing editor of The Prairie Farmer, states, "Farm buying power probably will be higher in the next six to nine months than it was in the corresponding period in 1935. . . . Most burdensome surpluses have been disposed of and until new ones are built up, farmers should enjoy good prices and consequently continue the improvements they have planned for their farmsteads."

Hoard's Dairyman says, "Even those who are active proponents of the Agricultural Adjustment Act state that they do not anticipate any reduction in prices during the current year."

Earl C. Smith, president Illinois Agricultural Association, indicates importance of the farm market: "As compared with 1933, registrations of new passenger cars increased nearly 219 per cent in rural states in 1935. In industrial states they increased only 102 per cent. It should be clear that this great buying and consuming power had its origin in the increase of nearly \$3,000,000,000 in the farmers' share of the gross national income."

Roger Babson, in his review of 1935 and forecast for 1936, says, "Farm regions appear to me as the best selling territories. They have been the most favorable sales areas for the past eighteen months."

From the foregoing summary of opinions two conclusions can be drawn: first, that business should not work against a farm program that stresses soil conservation and will help balance supply with effective demand in domestic and foreign markets; second, that manufacturers whose products are sold in rural markets can expect continued improvement during 1936.

STUGGO SPRAYING MASONRY SURFACES NOW OFFERS BIG EARNINGS



This new machine and process completely solves the problem of permanently surfacing new or resurfacing old masonry buildings, walls, etc. It fuses a prepared waterproofed plastic mixture on any masonry surface.

It fills all cracks and checks and can be applied in any thickness desired and in 30 colors and shades. Fully proven by over ten years actual use under all conditions and every climate.

LARGE WAITING MARKET

Owners everywhere want to enhance present values and make their masonry buildings more attractive and livable. The better builders are striving for greater permanence, beauty and salability in their new construction. With Colorcrete stucco spraying, you can supply this waiting market and can offer permanent, colorful surfacing at amazingly low cost. Many operators report costs of 2c or 3c per sq. ft. and sell at from 4c to 7c. Some have paid for their equipment from first couple of jobs. Machine capacity over 300 sq. ft. per hour. Equip yourself now to cash in on this big waiting market and the big government modernization campaign opening up still greater possibilities for you.

Get the facts. The new Colorcrete books tell the whole story. Write today. It may mean business independence for you.

COLORCRETE INDUSTRIES, Inc.
505 Ottawa Avenue Holland, Mich.



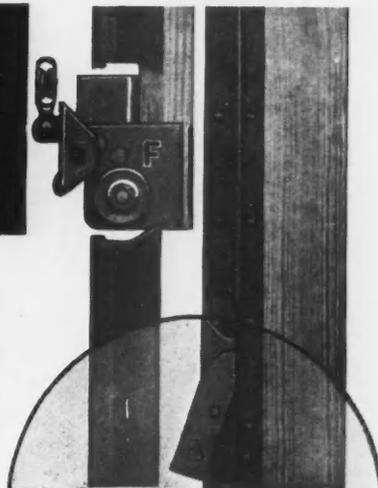
This Exclusive "SEAL-TITE" Feature



V-grooved Ro-Way Door designed to conform to architecture of building.

— makes RO-WAY Doors easier to sell and easier to operate

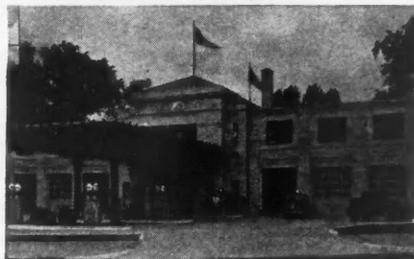
Investigate the extra value and service the patented "Seal-Tite" feature gives to every Ro-Way Garage Door. A simple gravity operated cam (Fig. B) instantly frees the lower section of the Ro-Way Door in opening, and just as effectively seals it draft-tight in closing. This trouble-proof mechanical hand never fails. It takes away 90% of the usual "drag" . . . gives unequalled ease in opening . . . lightens the "spring load" and pleases the user.



Not a particle of "drag" in opening the Ro-Way Door.

Land More Jobs Net More Profits

In addition to the exclusive sales-clinching "Seal-Tite" Feature, Ro-Way Doors offer contractors and builders the advantage of easier installation in new buildings and fewer alterations in old ones. Less head room is required for Ro-Way Doors . . . as low as 8 1/2 inches for residential garages. A complete line of electric operators including inexpensive operators for residential doors is available.



Goodyear Tire & Rubber Company Distributing and Service Store, at Washington, D. C. Jas. L. Parsons, Jr., contractor.

16 DIFFERENT TYPES For Commercial and Residential Use

with headroom requirements of 8 1/2 to 21 in. All standard sizes, as well as special sizes and heavy duty doors with special heavy tracking are available. Ask especially about the Ro-Way low priced doors for residence garages, and the specially designed torsion spring high lift doors for use in public service stations.

Write for Complete Catalog-Folder

ROWE MANUFACTURING CO.
726 Holton Street, Galesburg, Ill., U. S. A.

EDWARDS LOXSEAM ROOFING

Easier to Sell and to Install



BEAT competition by bidding on Edwards Loxseam Roofing and the job is yours! The customer can see that you are offering a better roof, tight as a drum from ridge to gutter, handsome in appearance and good for the life of the building, at a substantial saving in cost.

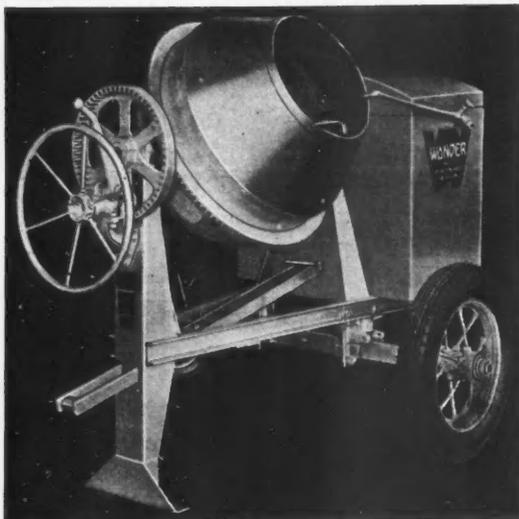
You can be low bidder and still make your full profit on material and labor because LOXSEAM is so much easier to install, on new construction or over

old roofing. Sheets interlock full length with watertight seal, as fast as you can nail and lock them together.

Send roof measurements for estimate. Write for Loxseam Circular and General Catalog No. 88

THE EDWARDS MANUFACTURING CO.
542-562 Eggleston Ave. Cincinnati, Ohio

**FROM
JOB
TO
JOB**



• AT 50 MILES AN HOUR

LOOK! Here's a new Mixer that you can wheel along as fast as you can drive. It's the New Wonder 3½—pneumatic tired with Timken Bearings and spring mounted for fast, quiet trailing. Or, available on cushion solid tires if preferred.

The Mixer itself has been wonderfully improved. It has all the features which have won top rank for C.M.C. Mixers on jobs during the past year.

A COMPLETE LINE OF MODERNIZED EQUIPMENT
Write for bulletins on C.M.C. Mixers—all sizes—pneumatic tired concrete Hoists, Pumps, Saw Rigs, Wheelbarrows. Don't buy before getting our prices. No obligation.

CONSTRUCTION MACHINERY COMPANY

Dept. AB
WATERLOO, IOWA

LETTERS from Readers on All Subjects

Facts, opinions and advice
welcomed here

Perhaps Designs are Sound Also

Minneapolis, Minn.

To the Editor:

It seems that I neglected to renew my subscription to your monthly effort. I am enclosing a check for a two year subscription. You might also send your latest edition of "New Era Home Designs and Modernization Plans." Why you should apply such a misleading title to a booklet that holds many a 1918 home is beyond me, but I am eternally hopeful of discovering a few suitable designs from the conglomeration.

I am very much in favor of the editorials by Samuel O. Dunn. They will do much to restore sanity to the many crack pots among the building tribe as well as any others who happen to read them.

ARVID E. CARLSON AND SONS

Contractors & Builders

By Evert A. Carlson

Proposes Home Building Expenditures Be Made Income Tax Deductible

Trenton, N. J.

To the Editor:

Has it ever occurred to you that the building industry, which has been subjected to government competition, could, if properly encouraged, do more in speeding up the wheels of industry and create more employment than any other industry? Few people realize that the construction industry consumes most all the natural products of the land; the mines, quarries and forests contribute the raw products that represent about 8 per cent of the final construction costs. These raw products must be transported and pass through many fabrication factories before reaching the finished stage and the other 92 per cent of the cost of construction is distributed over this vast scope in the form of wages, overhead and profits.

Considering these facts, don't you feel like writing to your influential friends, including in the group at least one United States Senator or Representative, in the hope that sufficient influence will be brought to bear on the administration to pass legislation rewarding a taxpayer who builds a new home or modernizes an old one, by exempting the cost of such work in his federal and state income tax returns.

C. EDW. MURRAY, JR., Vice Pres.,
Crescent Insulated Wire & Cable Co.

Thanks; But We Haven't Missed a Monthly Issue in 58 Years

Owensboro, Ky.

To the Editor:

Several years ago I read your magazine regularly until you discontinued publication and I am just now starting to read it again. Your January issue is the first one that I have seen and I take this opportunity to congratulate you on the improvements made. It certainly is the "tops" in that line of magazine.

I am planning to build several moderate priced homes in the spring and would like to receive several of the Catalogs listed on the coupon. Also, I would like to have the key to the cost prices listed with some of the homes you have in your magazine.

S. E. MOSLEY.

(Continued to page 116)



JUST
A PEEK
AT THIS
NEW

"CONTRACTOR SPECIAL"

NEW — PORTER-CABLE — EIGHT
FLOOR SANDING MACHINE

The sander that *dares* to be different in order to give you the highest production at the lowest cost on every bit of your floor work

YEARS AHEAD IN POWER —
PERFORMANCE — DESIGN

NEW MOTOR, packed with power . . . NEW BEARINGS, lubricated for life . . . NEW DRUM, with selective speeds . . . NEW double purpose DUST SYSTEM . . . NEW streamline DESIGN.

For the sake of your own profits see this CONTRACTOR SPECIAL before buying any floor Sander.

Write for a demonstration without obligation

The **PORTER-CABLE** SYRACUSE 2 8195
MACHINE-COMPANY
1721-3 N. Salina St., Syracuse, N. Y.

The Building Cost Calculator

By J. R. Smith, Architect

By using tables giving costs of all materials and labor for all types of construction, on the basis of the decimal system of measurement, the author says that estimating costs can be reduced 75%. His book contains 160 tables showing material and labor costs at any material price and wage scale. The Material Cost Tables give the cost at a glance, per unit of materials in place, with all waste and extras included. The Labor Cost Tables give the cost of the labor required for placing a unit of the different materials, at any wage scale.

Surface areas are measured in squares of 100 square feet. Linear measurement is based upon units of 100 linear feet, and cubic measurement upon units of 100 cubic feet. When areas are once determined it is unnecessary to refigure for the different materials entering into the construction, as all materials and labor costs are based upon the same units of measurement.

For the convenience of the estimator the book is divided into sections covering the different types of construction and materials, with each section multigraphed on different colored paper. Estimating blanks itemizing all materials and labor within each section, with marginal reference to the different tables, are provided. With a summary sheet listing the totals of each section and all additional charges that should be included, oversight or omission of important items is prevented.

1934. 168 Pages, Tables, 8 1/2 x 11 Inches
Imitation Leather, \$10.00

Money Back if Not Satisfied

Book Service Department

AMERICAN BUILDER AND BUILDING AGE
30 Church Street New York, N. Y.

HOW TO GET MORE MODERNIZING CONTRACTS

USE
THE 1936
WEATHERBEST

Sales & Service

PLAN



A Proven Plan that locates the business—and turns it into money in the shortest possible time. *Make us prove it!*

NATIONAL ADVERTISING—Five leading magazines regularly telling and selling advantages of genuine Red Cedar Shingles stained by WEATHERBEST—to home modernizing prospects and for new homes, too.

MOST EFFECTIVE LOCAL DEALER PLAN EVER OFFERED—House-to-house Community Surveys with colored photographs for every prospect—displays—samples—beautifully illustrated literature with winning examples.



WEATHERBEST CORPORATION
176 Main St., North Tonawanda, N. Y.

Send details of the new WEATHERBEST Selling Plan—without obligation.

It will pay you to
**GET THE
WHOLE STORY**

Name _____

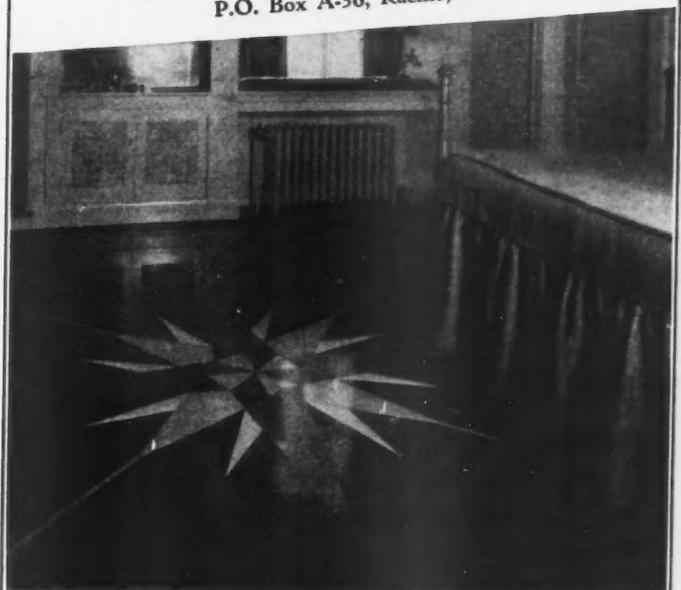
Address _____

TYPICAL HOME INSTALLATION OF WRIGHT RUBBER TILE

Get This Double Profit Business

New or existing buildings are prospects for Wright Rubber Tile Floors. There is a profit in the sale and a profit in the installation. Our Instruction Booklet has been instrumental in starting many men in a profitable business. Write for a copy today.

WRIGHT RUBBER PRODUCTS CO.
P.O. Box A-36, Racine, Wis.





Save Time and Money
with a
Speedmatic Saw

For absolutely *guaranteed* cutting speed and dependability in a saw — Speedmatic is the buy.

Its performance on wood, metal, stone, tile and compositions will actually amaze you.

It is *different* than ordinary electric hand saws in design—finger tip adjustment for depth and angle cuts—balanced for one-hand operation—quick blade change — automatic guards — rust-proof finish — and a motor that stands up and takes a tremendous lot of punishment.

Save with a *Speedmatic*

Ask us for a FREE copy of "Manual on the Use of Electric Hand Saws in House Building." It shows exactly how to save time and money. *Write for details today.*

The PORTER-CABLE SYRACUSE N. Y. MACHINE COMPANY
1721-3 N. Salina Street Syracuse, N. Y.

Letter Dept.

(Continued from page 114)

Building Up Data Files

Madison, Wis.

To the Editor:

Your interesting description of booklets covering different phases of building has attracted our attention. We are preparing a collection of material that might be helpful to our clients who expect to build this spring.

We would be grateful to you if you could send the pamphlets described.

THE PAUL E. STARK CO., Realtors,
By Rolf E. Darbo

"Will Get Back Some of the Lumber Business"

Oklahoma City

To the Editor:

We are very much interested in getting some good plan books. What we want is something new and would like different books showing both medium homes and cheap homes and garage apartments.

Your magazine has been tops on the homes you have shown each month. If you have incorporated them in book form we would like to have some of them.

Plan book people have been calling on us but all they do is gather up all the old stuff and add one new one and call it a plan book. The new colonial houses you have been showing are going to get back some of the lumber business. Our retail department is very enthusiastic about them.

KILPATRICK BROTHERS
Manufacturers and Jobbers of Hardwood Lumber,
Sash, Doors, Cabinets, Interior Trim
By John Kilpatrick

No-Dirt Fire Place

Champaign, Ill.

To the Editor:

When building a home a few years ago we wanted a fireplace, without the ashes on the floor. My husband drew the plans of his own idea and we built it. I have never seen one anywhere like it, and it is wonderful in saving dirt from floor.

MRS. EDITH BOYER



MRS. BOYER'S
No-Dirt Fire
Place

Working for Title I Extension

Des Moines

To the Editor:

You will perhaps recall the writer called on you at your office relative to Title One of the Federal Housing Act just before it became a law. Our experience with this portion of the Act has been very good, in fact we know that four-fifths of our remodeling business was financed through this measure last year, and we can see no reason why it should not be as effective this year if allowed to continue.

However, it is our understanding that there is a very good
(Continued to page 118)

WINDOWS THAT STICK
Doors that warp
Wood that changes its shape and size
Wood that rots
— because it
ABSORBS MOISTURE

Moisture is the friend and enemy of wood. A little is necessary for wood health. Too much is fatal.

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Interesting facts upon request.

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7440 Second Avenue Detroit

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Just Published

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By **GEORGE W. SPAULDING**
Superintendent of Construction

This new, condensed reference book is just what many contractors, designers, estimators, specification writers and material men have been looking for. It lists standard materials of all kinds, various work in all building trades, and construction equipment in a single handy volume. It does not contain cost data or advertising matter. Any estimate involving material lists should first be made up in the usual way. Then the applicable sections of this book can be checked through. A number of omissions, amounting to many times the cost of the Check-List, are very likely to be found.

CONTENTS

General Section, A to Z—Carpentry—Concrete—Construction Equipment—Electrical—General Provisions—Hardware—Heating—Landscaping—Masonry—Miscellaneous Metals—Painting—Plastering—Plumbing—Sheet Metal—Structural Steel—Tile.
1935. 322 pages, 7x11½ inches, 43 index tabs, flexible cover, \$7.00.

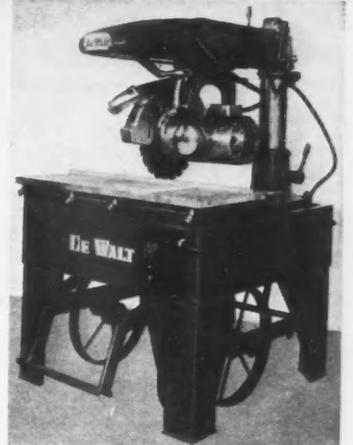
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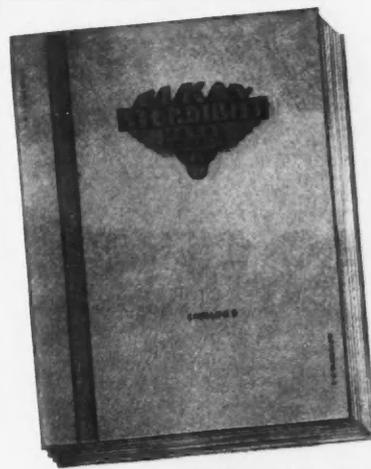
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 wood, brick, metal, stone.
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PANTRY and KITCHEN SINKS
SCULLERY SINKS
SHOWER BATH CABINETS

A valuable Catalog chock full of New ideas in modern Kitchen, Pantry, Laundry and Bathroom Equipment.

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AIR-FLO Type, heavily galvanized metal frame, casing and ventilating wings, to take 4 light 9 x 12 wood sash—only \$1.30. Four larger sizes up to \$2.00 each.

A sensational new window. Provides ventilation without drafts—no rattling or sticking—rot proof. Simple to install, fits between studing 24" on center. Use ordinary wood sash or special Clay Wood Sash with Ultra Violet Glass.

Ideal for farm buildings, barns, hog houses, poultry houses, sheds — for garages, cottages, tourist camps, warehouses and many other purposes.



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Heavy, solid section steel . . . \$5.60 to \$9.40. Open-Air Windows are furnished complete with sash frame and wings of heavy steel construction. Easy to adjust — provide ventilation without drafts. Write for information.

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Department AB-3
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TRY THEM ONCE

Then you be the judge and the jury.

WAPPAT ELECTRIC HAND SAWS

will cut your costs. Let them show you how.

Many Exclusive Features



Four Sizes 2" to 4 1/2" Cutting Capacity

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Division of Simonds Saw and Steel Co. 7526 Meade St., Pittsburgh, Pa.

Please tell me more. Size _____
Name _____
Address _____
City _____

Letter Dept.

(Continued from page 116)

possibility that the banking interests will stifle this Act, and not allow it to come up for extension in this session of Congress. We consider this would be a calamity to the people in the building industry.

We are writing our congressman and senators, and felt that you, perhaps would have some suggestions to make relative to the best way to keep this Act in effect. We know that the building material and lumber dealers of this country would appreciate any effort that you would make, or any suggestions as to how to keep it functioning. We feel that if enough heat were turned on some of the various Lumber and Building Material Dealers' Associations, which are only half alive, they might perhaps commence to function in a way that might be worthwhile.

CENTURY LUMBER CO.

By Don Meenach

"Text-Book" for Vocational Schools

Long Beach, Calif.

To the Editor:

I herewith enclose a list of publications, as per your offer on page 72 of *American Builder*, December 1935 edition, which I desire to use in my trade classes as related technical information. Said classes are in cabinet making and carpentry. However, I touch on all phases of the building industry, and would appreciate any available information on up-to-date innovations in the building field.

May I express my appreciation of the good work you are doing and the great value your journal has been to me in teaching my trade classes. Our school has been taking the *American Builder* for at least twenty years to my knowledge, and I certainly enjoy it. It is worth more than you charge.

R. C. WILSON, President

Southern Section, California Vocational Federation; Polytechnic High School

Now in Every Issue

Mansfield, Ohio

To the Editor:

In passing allow me to suggest a page or so of kinks that this paper formerly carried in the back part. A fellow has a better way to hang a door, fit a drawer, short cut on framing or stair construction. Believe there are many who like these things.

C. C. CONSTANCE

Likes Catalog Service

Salt Lake City, Utah

To the Editor:

We find the suggestions in the catalogs furnished by manufacturers in your publication very helpful in giving our builders and home owners up-to-the-minute suggestions in new construction as well as repair work.

We would appreciate having the catalogs listed sent to us.

McFARLAND LUMBER & HARDWARE CO.

By C. Taylor Burton

Library of Plans for Customers' Service

Ballston Spa, N. Y.

To the Editor:

During the past few years we have been convinced that the free distribution of plan books is a waste of money with comparatively little return. We consider it far better to present your magazine to our contractor and carpenter customers, and to include subscriptions for six months or a year to many prospective home builders.

In addition to this service we are considering gathering a library consisting of two copies only of all or many of the desirable plan books published. Single copies to be kept in our office where prospective home builders may spend as much time as they wish in looking them over, and after making their

(Continued to page 120)

\$685 without power

Does Whole Job From Rough Lumber To Finished Product

New Model "A" Planing Mill Special



Each of these eight full-sized machines is independently operated, with all bearings high-grade ball bearings. Sturdy, compact, with no excess weight. Can be purchased on the FHA Plan—three years to pay.

Send for a catalog of our complete line of individual and combination machines.

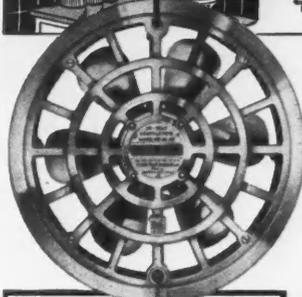
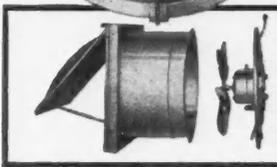
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Install the New **VICTOR 10" IN-BILT**

a real Sales Magnet

● Here is the last word in efficient kitchen ventilation for the modern American home! Cooking odors and greasy fumes are quickly banished by its powerful 10" fan. Round, adjustable sleeve makes it adaptable to walls of any type or thickness and cuts installation time and costs. Smart appearance—rust-proof finish—automatic operation—weather-tight shutter—and one-shot lubrication are some of its superior features. Write today for prices and literature on Victor's complete line of ventilators and exhaust fans.

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VENTILATION DISTRIBUTORS Investigate the unusual profit possibilities of handling the Victor line with its many superior features on an exclusive sales arrangement. Write for full details and please state whether you now contact builders, architects, and contractors—also mention present lines and territory.

Estimating Building Costs

By WILLIAM ARTHUR

THIRD EDITION
Revised and Enlarged



This concise and handy volume has been specially prepared for the use of building tradesmen, contractors, material men, technical students, instructors and all others interested in the construction of dwellings, barns, stores, and industrial buildings of moderate cost.

It contains a collection of material data covering all classes of building construction and arranged for quick reference. There are ninety-one tables showing the actual number of hours of labor and quantities of material on work done. These examples are all worked out on the basis of \$1.00 per hour for mechanics, and 60 cents per hour for laborers. The quantities are given and any change of rates can easily be adjusted by simple proportion.

LIST OF CHAPTERS:

- Excavating and Piling —
- Concrete — Brickwork —
- Stone Work — Plastering —
- Woodwork — Millwork and Glass — Solid and Sheet Metal — Roofing —
- Painting — Plumbing and Heating — Miscellaneous —
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239 Pages, 29 Illustrations,
4 1/2 by 7 Inches, Flexible
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Use This Sander for 5 Days AT OUR EXPENSE

A special demonstration offer to prove to you that the **SPEED-O-LITE** Floor Sander gives faster, more economical, better and more profitable service than any sander you have ever used. On the first job you see the difference.

The **SPEED-O-LITE** is light in weight (80 lbs.). It works directly up to the quarter-round. It requires no power wiring—operates from any convenient outlet. It collects the dust perfectly. And, in addition, the ball bearing construction provides smoother, faster and easier operation. No job is too tough for the **SPEED-O-LITE**—it assures a ballroom finish on every floor. The only machine that is guaranteed for one year including motor. Delivered complete ready for operation. Quickly pays for itself in savings on sandpaper and labor. Our time payment plan enables you to pay for it out of profits.



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NO DUST
NO MUSS**

MAIL THIS COUPON TODAY

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Send full details on your 5 day free trial Speed-O-Light offer. Also tell me how I can own it. Interested in time payments.

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In old homes or new, whether for renting or selling, "PERFECTION" BRAND Oak Floors give service and satisfaction. The greatest value for the money.

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PINE BLUFF ARKANSAS

**"TAKE ME
WITH YOU
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This modern, ball-bearing money-maker does the work of FIVE ordinary machines—eighteen or more of your everyday jobs—and does them faster; better. Portable? You can take it to any job—even through a 24 inch opening — by simply removing five bolts.

Cross-cutting	Ripping	Routing	Jointing
Boring	Planing	Sanding	Dadoing
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AMERICAN SAW MILL MACHINERY CO.
61 Main Street Hackettstown, N. J.

**THE 20th CENTURY
WOODWORKER**

Letter Dept.

(Continued from page 118)

selection of one or more plans which seem suited to their requirements, we propose to loan them the duplicate copy of the plan book for a short time.

We would like to be in a position to furnish full sets of blue prints of any of these plans from the Publisher of the book from which such plans are selected. Perhaps you can suggest where \$100.00 or less may be spent to best advantage in securing two copies each of the best plan books published.

STREEVER LUMBER CO.

Lester V. Streever, President,

Snug Home in a Snowy Land

Lewisville, N. B., Can.

To the Editor:

Enclosed please find two snaps of my new home, completed last year.

The general plan was taken from your book "Modern Homes," page 31, and with some alterations from the plan given, we have what we feel to be a nice home.

The shutters will no doubt improve the looks and we are having them installed this spring.

AUBREY C. ATKINSON



CANADIAN
Home from
American
Builder

Offers Free Space for Building Show

Saginaw, Mich.

To the Editor:

We are a Building and Loan Association in a town of approximately 85,000 people who are more or less trying for good mortgage loans.

We find an absolutely dormant activity among the building industries of this community in the fostering of repair, re-modernization and construction efforts.

We, of course, would appreciate seeing activities stimulated in this town not only as an outlet of mortgage money but as a means to greater local employment.

We have a very fine office building well located in regard to near location of the center of town, and as to parking facilities. We have two very usable spaces in this building that are at present vacant, approximating in size some fifteen hundred square feet. We would like to put this space to constructive use until at least such time as it might be rented.

In examining your magazine, we note the great number of your advertisers who are apparently going to expensive means of carrying their message to the public and are quite interested in giving them more or less detailed explanation of their products. The writer wonders whether or not any of these advertisers might be interested in putting on demonstrations locally as to the use of their products. The thought I have in mind is that possibly we could furnish them this free space for the exhibition and that they undoubtedly have experts traveling the country in educational and missionary efforts who might be glad of the opportunity of using such a desirable location for a display of their products.

PEOPLES BUILDING & LOAN ASSOCIATION
By James H. Jerome, Secy.



PEERLESS DOME DAMPERS

A fireplace makes a home more livable and adds charm and beauty. Peerless Dome Dampers assure successful operation of wood or coal burning fireplaces. You have three models to choose from—Rotary Control—Poker Control—Chain Control. Made in all standard sizes and built for lifetime service. Let us send you complete information on Fireplace Dampers and other Peerless building products.

Write us today

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1400 W. Ormsby Avenue Louisville, Ky.

CONTRACTORS WANTED

TO USE THE
HUTTIG



Kiln Dried Pine

Chemically Treated

Can Be Used in Any Standard Frame
Saves from 25c to 50c Per Window in Installation Costs
GUARANTEED FOR 25 YEARS AGAINST ROT AND DECAY

Ask Your Dealer for This Money Saving Product

Sold Thru Jobber-Dealer Channels Only

Manufactured only by

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FOREMOST IN TRANSPORT SINCE 1852

Motor Trucks

SOUTH BEND, INDIANA

METRO MODEL STANDARD MODEL

Cab Forward

\$595 and up, chassis
at the factory

\$565 and up, chassis
at the factory

Ideal Transport for the Building Industry

ONE COAT COVERS AND HIDES ... for Walls and Ceilings CUTS COSTS 25%

MURAL-TONE is the amazing new casein paint. Lithopone and real pigments in casein vehicle explain its revolutionary advantages. One gallon thinned with water gives one and two-thirds gallons of paint. Covers as much as 1,000 square feet. Velvet flat finish—washable. 10 soft pastel colors and a white that cannot yellow.

The speed, beauty and economy of MURAL-TONE amazes property owners, dealers and painters. A fraction of a day is all that's necessary for a perfect paint job.

Wide-spread advertising is telling this good news all over the country. Write today. Get complete facts. The makers of MURAL-TONE have been known since 1894 as sound, high quality people. MURAL-TONE is their answer to the crying need for a truly economical wall paint. Take advantage of this opportunity to make money—or to save money. Please address THE MURALO Co., Inc., 568 Richmond Terrace, Staten Island, N. Y.

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BETTER LIGHT

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The Money-Saving Paint

in the Orange Can

- DRIES IN FORTY MINUTES
- ADHERES TO UNSEASONED PLASTER
- ONE COAT COVERS AND HIDES
- WILL NOT LIME-BURN
- CUTS COSTS 25%



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DRIVER Saws Quickly Earn Their Cost In the Shop or On the Job



\$47.25

Less Motor
Write
Dept. AB3
For Complete
Catalog

B961 10" Bench Saw illustrated above.

In these days of highly competitive figuring, the contractor with DRIVER POWER TOOL equipment enjoys a distinct advantage. Because DRIVER Tools save time they enable him to quote a lower price or make an extra profit.

Many exclusive features place this saw in a class by itself. The table size as shown is 31"x21". The 10" blade rips and crosscuts full 3" stock. Table tilts to 45°. The mitre gauge is extremely accurate. The wood faced fence makes ripping accurate and easy. Another feature is the "nested" table insert. This comprises a small insert which is removed for dadoing inside a larger one removed for disc sanding.

Safety guard and splitter is standard equipment.

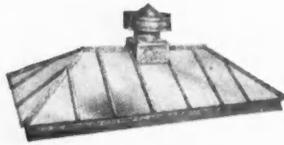
The DRIVER saw is a self-contained unit weighing 215 lbs. and may readily be transported to the job.

WALKER-TURNER CO. INC. PLAINFIELD, N. J.

More Light . . . Better Light

with

WILLIS SKYLIGHTS



Millions are being spent in "Better Light . . . Better Sight" education. Industrial plants will spend millions in 1936 in improved lighting. Willis Skylights utilize to the maximum degree the cheapest of all light . . . daylight . . . and also provide the proper ventilation.

Write for Skylight Catalog

The WILLIS Manufacturing Co.

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"STANDARD for almost half a Century"



MILLWORK



CURING AND PROTECTING CONCRETE



IF SISALKRAFT Will Do These Tough Things Well, Just Think What it Will Do in The Sidewalls of a House!

The wind and waterproof qualities of SISALKRAFT make it possible for you to wrap a home in a moistureproof and airproof blanket. Home owners deserve the complete protection that SISALKRAFT will give them. Why not show them samples of SISALKRAFT? Your lumber dealer will supply them.

THE SISALKRAFT CO.

205 West Wacker Drive

Chicago, Illinois

How Gross-Morton Get Costs Down

(Continued from page 50)

Cash on Contract	\$ 500
Cash on Title	498
Federal Housing Administration 20-Year United States Government Insured Mortgage	3,992
Total	\$4,990
MONTHLY CARRYING CHARGES	
Mortgage Payment (includes interest and amortization, paying off entire mortgage in 20 yrs.)*	\$29.72
Taxes (approximate)	7.75
Insurance40
Water	1.25
Total Monthly Cost	\$39.12

*Mortgage can be paid off in less time if so desired.

BAYSIDE HILLS houses are substantially built, with 12-inch poured concrete foundations, western frame construction, 3 by 8 inch joists on 16 inch centers, slate roofs, three coat plaster jobs, double nailed bridging, firestops, first quality equipment and accessories. The following specifications give an accurate picture of the construction methods employed:

KITCHEN: Duco finish, efficiency kitchen dresser by Boro Wood Products Corp. Sink and work table top by Tracy Mfg. Co. Armstrong inlaid linoleum floor. Insulated gas range by Cleveland Operative Stove Co.

BATHROOM: Kohler fixtures in selected colors. Built-in recessed tub, 5'6" long, with chromium plated brass handles and shower. Pedestal lavatory with chromium nickel handles. Standard closet combination; tile walls and floor. Steel medicine cabinet with Venetian mirror from the Columbia Metal Box Co.

HARDWARE: McKinney hardware. Doors hung on loose pin butts; locks, knobs, latches and necessary hardware conform to architectural type.

FOUNDATION WALLS: After the earth under walls is tamped, lay concrete footings as per plans. Foundation walls 12" poured concrete well tamped when pouring. Universal Atlas Cement.

SILLS: Door and window sills brick, to have wash on top to shed water, except cellar sills which are set in concrete.

BRICKWORK: Sound, hard burned Empire red brick. Exterior walls covered with 12 pound felt before brick is applied.

CHIMNEY: Provide T. C. flue as per plans. Lining is to be set in cement and run from bottom of chimney to top of cement cap.

STUCCO: All outside walls on metal lath. Apply first quality cement stucco in 3 coat work to make first class job.

PLASTERING: All walls, ceilings and partitions lathed with wood lath. Joints broken on studs only. All angles should be solidly formed before plastering. Plaster all walls and ceilings with 3 coats of Kings Windsor plastering. Brown coat floated down to a smooth even surface. Finishing of 3rd coat good, hard plaster paris finish. All angles sharp and well pointed. On all outside walls run a metal corner bead, properly secured from floor base to ceiling. On all interior corners metal lath is applied.

TILE: Bathroom floor to be depth to receive concrete over a sunken floor before setting small ceramic tile in a floor of cement. Walls tiled with 4 x 4 U. S. Quarry Tile Co. colored tile. All wall tiles to be laid up in regular course.

FRAMING: Western framing. Floor joists 3" x 8" on 16" center.

SHEATHING: Cover all roofs with 7/8" x 6" N.C. Pine. Solid sheathing nailed to each bearing. Side walls of building to be sheathed with 7/8" N.C.P. sheathing, nailed to every bearing.

OUTSIDE FINISH: All outside finish, including window trim, barge board, to be of good quality white pine and fir.

WINDOWS: Wood windows; sash to be caulked and weather-stripped.

(Continued to page 124)



SEND for information to increase sales *on* **FIREPLACE** CONSTRUCTION EQUIPMENT

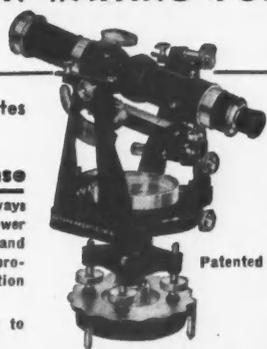
COMPLETE SPECIALIZED LINE
 at Popular Prices and High Margin of Profit
 Quality Products + Quantity Production
 = Competitive Prices + Attractive Discounts
 Complete merchandising and sales assistance. Nationally advertised.
 Write for complete description, prices and helpful promotion program.

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 36 Market St. Norwich, N. Y.

NEW! THE COMBINATION INSTRUMENT YOU'VE BEEN WAITING FOR
 Warren-Knight

Model No. 38-b

Transit-Level



Made for the contractor who appreciates good equipment.

10 Day Free Trial at our expense

This instrument gives you what you have always wanted in a low priced instrument—high power telescope—close focus—vertical arc with clamp and tangent—sensitive level—compass—plate level—protected circle—extra large shift—sturdy construction—low maintenance costs.

For complete details write for Bulletin F-13 to

Warren-Knight Co.

136 N. 12th St. Philadelphia, Pa.
 Liberal allowance for your old instrument.

Transit-Level No. 38-b
 Made also without compass and arc at lower prices.

WANTED . . .

Builder-Dealers to sell the new Monarch MetaLane Weatherstrip . . . new revolutionary discovery . . . new metal . . . new design . . . proved standard efficiency . . . low installed cost. Greatly increased demand.



A real money-maker for live, aggressive dealers. Booklet WHY tells complete story. Write for copy today.

MONARCH METAL WEATHERSTRIP CORP.
 6333 Etzel Avenue St. Louis, Missouri

GRADE-MARKED SOUTHERN PINE



SUPREME STRUCTURAL WOOD OF THE WORLD

For New Bulletin on Correct Construction Address:

SOUTHERN PINE ASSOCIATION
 NEW ORLEANS, LOUISIANA

DEALERS WANTED

Increase your profits by selling and installing **TILE-TEX Resilient Floor Tile.**

TILE-TEX is a high quality flooring made in many colors and sizes suitable for use in homes, public buildings, stores, etc. The only type of resilient flooring guaranteed to give satisfaction in basements. Easily installed by competent carpenters.

Write today for our free illustrated catalogue, layers' handbook, and dealer's proposition.

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Write or Wire for TILE Samples

CONTRACTORS & BUILDING MATERIAL DEALERS You Can Make a Substantial Profit handling our complete line. You carry no stock. You sell from our fully illustrated catalog printed in colors. Free Samples furnished when needed. 100% cooperation at all times.

PROMPT SHIPMENTS Our line includes tile for Bathrooms, Kitchens, Vestibules, Mantels, Store Rooms, Entrances, Store Fronts, Bulkheads, or any kind of tile work. Also Red, Buff, Grey and other Colors of quarry tiles, recessed tile, bath room fixtures, etc.

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FREE CATALOG and full information without cost or obligation. We want good representation in every locality.

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SAVE SPACE
INCREASE YOUR STORAGE SPACE

Install **FRAZIER** self-balanced, disappearing attic stairs. These stairs are made of clear stock White Pine with fir panel in door. All hardware cold-rolled steel—no weights or pulleys. Nothing to get out of order. **SELF BALANCED** an exclusive **FRAZIER** feature. These stairs can be installed in 30 minutes after opening has been prepared in ceiling.

CONSULT YOUR DEALER OR WRITE US

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COMPLETE CATALOG IN 1936 SWEETS



Accurate
METAL
WEATHER
STRIPS

Valuable territory
now open for right
men. Quick return.
**Jobbers
Wanted** Write
today
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218 East 26th Street, New York

Kenmar Copper Roof
a star selling
feature

Copper Roofs with Kenmar Shingles will give your houses a new, self-advertising feature that attracts favorable attention—speeds profitable sales. Why? Because Kenmar Copper Roofs are sensationally beautiful—different. And Copper means quality to every buyer. Better investigate. Write for Booklet B and pictures of Kenmar-roofed homes.

The New Haven Copper Company
Seymour, Conn.

BIG MONEY
IN FLOOR SANDING THIS SPRING

Get your share of the floor sanding business that is forging ahead so rapidly. This spring looks like it will be the best in years so get into the steadiest, most profitable end of the building game now with an—

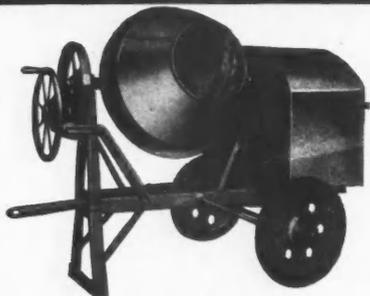
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Full anti-friction bearing. Light weight. Skip shaker. Automatic water tank. Spring mounting. Sizes: 3½-S, 5-S, 7-S, 10-S.



WRITE FOR LOW PRICE

KWIK-MIX CONCRETE MIXER CO.
PORT WASHINGTON . . . WISCONSIN

How Gross-Morton Get Costs Down

(Continued from page 122)

DOOR FRAMES: To be 1¼" thick for exterior doors, jamb rabbetted for door. Interior door frames ¾" thick, with ½" stop planted on.

ROOFING: Slate roofs by North Bangor Slate Co. and Knickerbocker Slate Co.

INTERIOR TRIM: White pine, 1" x 2¾" stool with 1" x 2¾" apron and mould under. Jambs of windows rabbetted to sash and screen. All doors filled with hardwood saddles, base throughout to be 4" high with floor mould at floor. Picture mould in all chambers. Interior doors 1⅜" thick, good quality one panel fir veneer.

FINISHED FLOORS: All floors except kitchen good quality ⅞" strip, oak clear white. All floors to be protected with heavy paper until house is completed. Finished floors well scraped before painters finish same. Kitchen covered with Armstrong inlaid linoleum.

CLOSETS: Closets in chambers fitted with shelf and wooden rod to each closet. Linen closet to have four shelves.

LEADERS AND GUTTERS: Heavy copper gutters on heavy hangers. Run well up into shingles; run copper leaders where shown on plans with elbows, etc., leading on to cement platforms, secured with heavy hangers.

FLASHING: Chimney to be flashed, running well up into wall and counterflashings. Flash all places where necessary with copper before applying shingles to roof. Flash timbers and frames where stucco is used, with gal. iron.

HEATING: First class steam heating outfit. Thatcher insulated steam boiler, Delco oil burner, cast iron radiators, complete set of fire irons. Cellar mains covered with asbestos cement. Guaranteed to provide 70 degrees in zero weather, without forcing boiler.

PLUMBING: All cast iron pipes and fittings sound, smooth, free from cracks, defects and of uniform thickness. No tar coated pipes to be used. Joints made with picked oakum and pure pig lead, bedded with caulking iron. No putty or cement joints. Supply pipes brass with fittings and screw couplings of brass. Branch, soil, waste and vent pipes galv. iron; bends of lead. Exposed pipes in bathroom chromium plated. Four-inch cast iron house drain to connect with sewer. Plumber to test plumbing pipes and repair all defects before plastering. Plumber to lay all pipes to sewer from house.

HOUSE TRAP: Trap outside drawn in with a cast iron running or half S trap placed where shown, with a handhole for cleaning covering with a brass screw top. Provide cast iron pipe connection to house drain of house trap.

STANDING SOIL, WASTE AND VENT PIPES: Run all standing soil, waste and vent pipes, shown or necessary. Soil to extend out and above roof where it comes in connection with roof, to have sheet lead flashing, to extend under shingles and caulked in a hub of the pipe. All fixtures are to be trapped and vented.

WATER SUPPLY: Contractor to connect with water main on street on which the building fronts. Run a ¾" copper pipe continuing with ¾" brass pipe to boiler. From this take off necessary ½" brass branches.

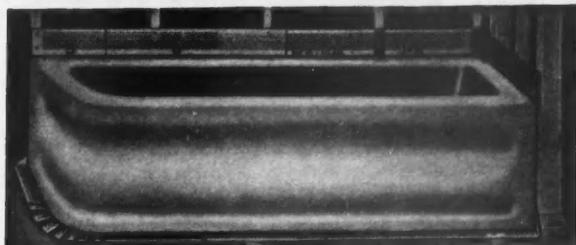
PAINTING: All paint mixed with pure lead and linseed oil. All colors, stains, varnish and fillers standard quality. Cover all sap knots and defects in woodwork and shellac before priming. Putty all nail holes, cracks and defects after priming. Putty to match wood where same is finished natural. Outside doors and all other outside trim, stained and oiled or varnished. Timber, all exterior woodwork painted, or stained and oiled or varnished. All interior trim, 2 coats of lead and oil and one coat of enamel. Doors same as trim. Floors 2 coats of shellac.

ELECTRIC WORK: All work to be done in the best manner and according to regulations of Fire Underwriters and a certificate secured at completion of work. BX concealed cable wiring to all outlets. All outlets to terminate with steel outlet boxes. Switch from first floor to cellar. Other switches marked on plans. Front door bells and rear door buzzer to ring in the kitchen. All base plugs 560 watts.

IRON WORK: Brick openings to have angle irons as called for on plans. Provide lally columns of size and location as shown.

SHRUBS, ETC.: Each plot seeded or sodded and suitable shrubs provided.

PERMANENTLY LEAKPROOF



USE LUCKE LEAK PROOF BATH TUB HANGERS for a complete leak-proof seal along the edges of your tub. No Cracks—No Leaks—Tub stays built-in—does not separate from the wall. **DESIGNED, PATENTED, AND MFG. BY**

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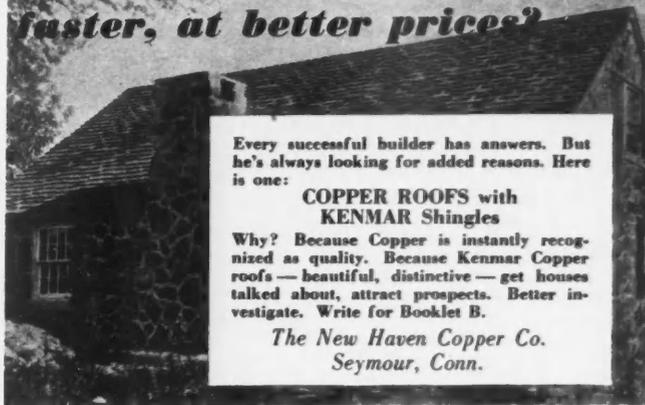
For those who love the beauty and sincerity of forged iron hardware, McKinney has produced authentic patterns for completely outfitting all types of houses at remarkably low prices.

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American Builder and Building Age 1935-1936 Supplement to the Building Age Book Guide

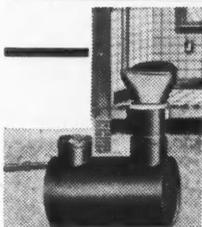
This 56-page 6x9 inch catalog supplements the 48-page "Building Age Book Guide" published in 1928. At the top of each corresponding page are listed the books in the "Building Age" catalog, with year of publication, price changes, new editions and out of print books indicated.

The remainder of the page contains descriptions of new books published since 1928. These cover all branches of the building field. Included are Plan Books, and books on Estimating, Foundation Work, Construction, Carpentry and Joinery, Plumbing and Steam Fitting, Painting, Interior Decorating, Real Estate, etc.

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anteed system of sanitary sewage disposal. Built-in units to meet any specifications. No odor, no freeze-ups, no upkeep cost. Send for attractive dealer proposition — Now!

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EQUIPMENT AND SUPPLIES

Latest Information for Contractors, Builders and Mechanics

The publications listed below may be obtained without charge either by using the coupon, listing the numbers desired and mailing to American Builder, 105 West Adams Street, Chicago, or by applying on your business stationery to the manufacturers direct, in which case kindly mention this publication. Either the titles or the numbers may be used in ordering. This list is an editorial feature for convenience of our readers.

POWER WOODWORKERS

200—Combination Woodworker—The C. H. & E. Home Builder Jr., a light weight, portable combination woodworker is illustrated and described in the new 8-page bulletin giving complete mechanical specifications.—C. H. & E. MFG. CO., Inc., Milwaukee, Wis.

201—Crescent Machinery for Small Shops—An illustrated handbook of 32 pages recently prepared presents not only the complete line of Crescent power woodworkers, all completely detailed and indexed, but also discusses the organization of small shops and the profit-making lines that are being turned out by successful operators of such shops. Many valuable suggestions here for builders and cabinet makers; also for power shop men generally.—THE CRESCENT MACHINE CO., Leetonia, Ohio.

202—Oliver Woodworkers and Supplies—A pocket sized compendium of 320 pages covering all kinds of woodworking shop equipment, tools and supplies, including a popular line of benches, vises, clamps, etc., has been prepared by the OLIVER MACHINERY CO., Grand Rapids, Mich.

SAWS AND CUTTER HEADS

203—Huther Saws—Catalog No. 54 has been issued by Huther Bros. Saw Mfg. Co., Inc.—a pocket sized book of 116 pages showing a large assortment of circular saws, grooving saws and cutter heads for power woodworkers; also the saw dressing tools completing this line. How to set up special heads for special work is shown.—HUTHER BROS. SAW MFG. CO., Inc., Rochester, N. Y.

CONCRETE MIXERS

204—Half-Bag Tilters—The Rex mixer in the 3½-S and 5-S sizes, rubber tired trailer models for builders' quick, convenient haulage, are presented in a new bulletin No. 277, 16 pages, 2 colors.—CHAIN BELT CO., Milwaukee, Wis.

205—Knickerbocker Mixers—The well known and old established line of Knickerbocker concrete mixers, available in a range of sizes, is attractively presented in a new folder accurately illustrating these machines.—THE KNICKERBOCKER CO., Jackson, Mich.

206—Smith Improved Non-Tilt Mixers—Full details of the 7-S and 10-S sizes with all improved features are offered in a new Bulletin No. 159. All parts are clearly illustrated and complete mechanical specifications tabulated.—THE T. L. SMITH CO., 2835 N. 32nd St., Milwaukee, Wis.

IMPROVED TOOLS

207—Millers Falls and Goodell-Pratt Tools—The first consolidated catalog of these two famous lines of mechanics' tools has been issued by the Millers Falls Co., Greenfield, Mass., numbered catalog 41. It is a book of 240 pages fully indexed, and picturing many improved labor-saving tools for carpenters and other skilled mechanics.

Electric hand tools, power grinders, jacks and precision instruments are also included.—MILLERS FALLS CO., Greenfield, Mass.

208—Bevil Devil and Its Products—"Artistic and Decorative Effects Produced with Insulation Board and Hard Board" is a bulletin prepared to show what can be done with the Bevil Devil wallboard-cutting tool perfected by KIMBALL MANUFACTURING CO., Inc., Royal Oak, Mich.

209—Abrasives—Behr-Manning quality abrasives for floor sanding are carried in a unique sample card and price list showing 36 grades and styles ranging from fine to coarse. A valuable booklet, "Abrasive Papers & Cloths for the Student and Home Craftsman" is also being distributed. It is a 30-page pocket sized manual.—BEHR-MANNING, Troy, N. Y.

HOME EQUIPMENT

210—Elkay Sturdibilt Metal Products—Stainless steel kitchen sinks, cabinet sinks and cabinet tops in a great variety of modern styles and designs have been assembled into an architectural file, fully illustrated and dimensioned, with working drawings showing construction and application. The Elkay unit type shower bath cabinet is also included in this collection. Catalog D, dated 1936, available from ELKAY MANUFACTURING CO., 4704 Arthington St., Chicago.

211—Stanley Closet Hardware—The Stanley shoe rack, clothes hanger bar, garment hook, pull-down hat holder and garment carrier, all designed to put order behind the closet door, are illus-

trated in a new folder from THE STANLEY WORKS, New Britain, Conn.

212—Stanley Door Hardware—"For Carefree Doors" is the title of an interesting little brochure of 32 pages bringing out some convincing points in regard to present day home hardware requirements. Front doors, back doors, garage doors, all are considered here.—THE STANLEY WORKS, New Britain, Conn.

213—Venetian Blind Hardware—New ideas in Venetian blinds equipped to operate from the top and providing new 4-way control are brought out in a new circular.—FIWALE EQUIPMENT MANUFACTURING CO., Inc., 64 Reade Street, New York City.

214—Fireplaces in Corastone—An art portfolio of mantel and fireplace designs in "Corastone" designed and built by artists and shipped in sections to facilitate erection at the building is now ready for distribution to architects and building contractors.—DETROIT DECORATIVE SUPPLY CO., 4240 14th Ave., Detroit, Mich.

IMPROVED MATERIALS

215—Nu-Wood Interiors for Every Wall and Ceiling—A 32-page handbook in natural photography with insert in full colors illustrates many new decorative effects in tile, plank and wainscot Nu-wood. Suggestions for the finish and decoration of many types of commercial rooms are given. Wall and ceiling tiled and paneled effects are startling in their beauty.—WOOD CONVERSION CO., St. Paul, Minn.

216—Thermax News—A periodical bulletin of information regarding Thermax fireproofing insulation and Absorbex acoustical corrective is now offered, together with a handy, stiff paper folder in which to preserve these bulletins on file.—THERMAX DIVISION, Northwest Magnesite Co., Pittsburgh, Pa.

217—Zonolite Loose Fill Insulation—"The Story of Golden Zonolite" is interestingly told in a well illustrated circular from F. E. SCHUNDLER AND CO., Inc., 45-15 Vernon Blvd., Long Island City, N. Y.

218—Non-Rusting Air Conditioning Ducts—A new folder bringing out the importance of cutting air conditioning costs through use of non-corrosive Toncan Iron has been prepared for general distribution by REPUBLIC STEEL CORP., Massillon, Ohio.

BUILDING SPECIALTIES

219—Kinnear Rolling Doors—A new 32-page handbook illustrated with photographs and working drawings and giving complete mechanical specifications presents the extension line of Kinnear rolling doors and window shutters; together with garage doors and special doors for industrial plants.—THE KINNEAR MANUFACTURING CO., Columbus, Ohio.

220—Forced Draft Fans—A 12-page technical bulletin gives full information regarding the Sirocco line of fans for domestic heating plants.

Other interesting information from the same concern covers the "Ventura Home Conditioner," a well engineered attic ventilating system; also regarding the "Sirocco Conditioner," a unit design to control the temperature, humidity, motion and cleanliness of air within the house both summer and winter in connection with any oil, gas or coal fired heating plant. All three from the AMERICAN BLOWER CORP., Detroit, Mich.

221—Duro Red Book—Catalog No. 35 covers shallow well pumps and systems, deep well pumps, power pumps, pressure tanks, cellar drainers, water softeners and water filters; the complete line of THE DURO COMPANY, Dayton, Ohio.

FARM BUILDING EQUIPMENT

222—Clay Barn Equipment—A library of farm building plans and information including general catalog of dairy barn equipment, ventilation book on the ventilation of barns, hog houses, poultry houses, stock water bowls, ventilating windows and Vita glass is available from the CLAY EQUIPMENT CORP., Cedar Falls, Ia.

OF SPECIAL INTEREST

230—Trimson Floor Sander—"Four Machines in One" are presented in a new specification folder of the new Trimson Time-Saver sander. It is used either with handle as a floor sander, or with handle detached as a bench sander with hand grips. A flexible shaft attachment is used for grinding, buffing, polishing, etc., in hard-to-get-at places.—TRIMSON MANUFACTURING CO., Cleveland, Ohio.

231—"Ideas for Building and Home Improvement"—Five ideas, interestingly presented, pertain to (1) good roofing, (2) asbestos cement siding, (3) mineral wool insulation, (4) Newtile wall panels, and (5) the Ruberoid finance plan. Strong sales value in this 16-page manual.—THE RUBEROID CO., New York City.

232—Expansion Bolts and Devices—"Architectural and Engineering Data

on Expansion Bolts and Devices for Holding to Masonry" is a loose-leaf portfolio of charts, tables, data, specifications, etc.; various materials in which anchors are used and the proper type anchors for each.—THE RAWLPLUG CO., Inc., 98 Lafayette St., New York City.

233—Open Truss Steel Joists—A new 40-page handbook, Catalog No. E 70, details the Truscon open truss steel joists for modern fireproof building construction. The standard specifications for steel joists as adopted by the Steel Joist Institute are included. Numerous tables of sizes and strengths for various spans and a clear explanation of how to figure construction for safe loads make this a book of very practical value.—TRUSCON STEEL CO., Youngstown, Ohio.

234—Wire Nails and Other Wire Products—The Bethlehem Steel Co. has issued Catalog W-3, a 72-page pocket sized, spiral bound data book covering a complete line of wire nails and fasteners, fence and other wire and fence accessories. This book contains information often required.—BETHLEHEM STEEL CO., Bethlehem, Pa.

235—Allith-Prouty Garage Door Hardware—Information regarding the Allith-Prouty "Forty-Ninety" hardware for garage and other wide door openings is offered in a new circular.—ALLITH-PROUTY MFG. CO., Danville, Ill.

236—Modern Woodwork—Huttig of Muscatine has put out a 16-page portfolio, in full color, illustrating its line of clear pine frames with aluminum primed joints, Red-E-Fit windows, inside and entrance doors, and kitchen cabinets.—HUTTIG MANUFACTURING CO., Muscatine, Iowa.

237—Stedman Rubber Flooring—New information regarding the Stedman line of rubber flooring and its advantages both in commercial structures and in home building is available from the manufacturers.—STEDMAN RUBBER FLOORING CO., South Braintree, Mass.

238—Electric Wall Heaters—Adams cheerful electric wall heaters for auxiliary heat in bathroom, bedroom and wherever occasional extra heat is desired are attractively presented in a new broadside.—ADAMS BROS. MANUFACTURING CO., Inc., Pittsburgh, Pa.

239—Indirect Illumination—Wide angle distribution and diffusion by ceiling reflection are featured in a new 16-page bulletin by the Edwin F. Guth Co. A wide assortment of styles of lighting fixtures, both for commercial and residential use, is shown.—EDWIN F. GUTH CO., St. Louis, Mo.

240—Leak Proof Tub Hangers—William B. Lucke, P. O. Box 130, Wilmette, Ill., has brought out a comprehensive handbook of 16 pages, fully illustrated and detailed, showing the why and how of the Lucke leak proof tub hanger. This is marked Catalog "D."

241—The Fireplace That Circulates Heat—The Heatilator Co., Syracuse, N. Y., has compiled a very satisfactory treatise on fireplace and flue construction, including also numerous suggestions for fireplace and mantel design, all with special reference to the improved Heatilator fireplace equipment which circulates heat at no added expense.

243—"Architectural Concrete"—An inspiring handbook of 36 pages in modern format and striking photographic illustrations presents a record of a number of outstanding public buildings recently constructed of concrete. Construction details and concise descriptive text add to the value of this portfolio.—PORTLAND CEMENT ASSN., Chicago, Ill.

244—Insulite Sheathing—An interesting consumer folder, "Between You and the Weather," calls attention to Insulite building board, Lok-Joint lath, Insulite tile and Hardboard. "Home comfort must start with your walls" is the basic proposition developed in this folder.—THE INSULITE CO., Minneapolis, Minn.

American Builder,
105 W. Adams St.,
Chicago, Ill.

(March, 1936)

Please have the following Catalogs listed in this issue sent me—

Numbers.....

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OCCUPATION*.....

*Please note that occupation must be stated if full service is to be given.



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For thirty years the accepted standard with builders, architects and home owners. Built in sections with steel reinforcing angle bar which anchors the facing and carries common brick backing. With the Colonial Fireplace Damper and our plans you are sure of a fireplace that functions properly, conserves heat, and gives joy to the owner. Three styles—fits any fireplace opening.

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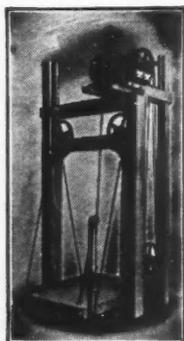
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A complete line of efficient Hand Power and Electric Elevators built to suit any requirement.

Fitted for rapid installation in your building. These straight-line-drive machines are little giants of lifting power and are surprisingly nominal in costs.

FREE Engineering Data

Give us your problems and let our engineers help you. Full descriptive literature on request.

KIMBALL BROS. CO.

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Council Bluffs, Iowa

Stair Framing Suggestions

(Continued from page 86)

at (e). Consequently, this method should not be used when the stringer (S) exceeds 4 feet in length.

When overloaded or when shrinkage occurs, the stair stringer tends to slip down at (e), thus causing a horizontal movement or slip at (f), which would have to be resisted by toe nailing at (f) and occasionally by the finished flooring at (t). (See Figure 6.) The upper tread at (a), Figure 5 is only 2½" wide. This is bad practice, though often followed in speculative built houses. This narrow tread soon works loose and often tips when one steps near the nosing.

Figure 7. Figure 7 shows an improvement over Figure 5, by adding the nailing blocks (N) and doubling the header. The strength of this connection can be made about twice that of Figure 5, on account of the nailing block (N) and more end nailing surface on account of the added member (R). A slight movement at (e) would be resisted by the continuous toe block (T) at bottom. (See Figure 8.) The member (T) avoids a thrust against the finished flooring at (t). The construction shown in Figures 7 and 8 may be used for stringers having a length up to but not exceeding 8 feet, provided that the stringers are spaced about 16 inches o.c. Toe nailing at (f) should always be resorted to.

Effective Stringer Depth. The strength of the stringer depends entirely upon the effective depth (d). The following table will prove quite convenient when designing stairways. The net size referred to in the table refers to the *net* or effective depth at (d). The stringer "span" mentioned in the table shall be considered the clear *horizontal* run between supports, and not the inclined length.

Net stair stringer size when stringers are spaced 2' o.c.	
For span of 5 feet or less.....	2 x 4 or 2 x 6
For span of 6 feet or less.....	3 x 4 or 2 x 6
For span of 7 feet or less.....	4 x 4 or 2 x 6
For span of 8 feet or less.....	3 x 6 or 2 x 8
For span of 9 feet or less.....	3 x 6 or 2 x 8
For span of 10 feet or less.....	4 x 6 or 2 x 9
For span of 11 feet or less.....	3 x 8 or 2 x 10
For span of 12 feet or less.....	3 x 8 or 2 x 10

The above table is based upon stairways requiring at least three stringers. Select Common Fir, (O.P.) or (Y.P.) or equal should be used. Better results, greater strength and less vibration will result when the stringers are spaced less than 2 feet o.c.

Cutting Costs with Power Saws

(Continued from page 46)

lot at one time. The rip cut is then made by cutting across the end to the maximum depth of the saw and finishing with a chisel.

Various types of jobs require various equipment and much can be said for both the hand power saw and the portable table saw or portable saw rig. There is a place for each. A number of manufacturers of hand power saws also provide a radial arm device that is very useful with a hand power saw for bench work. Such an attachment is especially valuable in handling long lengths. With the radial arm it is advisable to handle the pieces one at a time. The procedure is to set the bench stop the proper distance from the saw for the length of the joist. Then carry the joist from the pile and drop it on the outer end of the bench and against the side stop. Draw the saw across, squaring one end. Then slide the joist through against the bench stop and push the saw back, making the other cut. Thus in just a few minutes' stop on the way from the pile of lumber to the building, the work of cutting the joists has been done. This is also true for studs, rafters, collar beams, etc., which will be discussed in a later article.