

# SUBJECT SIGN-POST

A Quick Guide to the Business Articles and Designs  
Presented in This Issue

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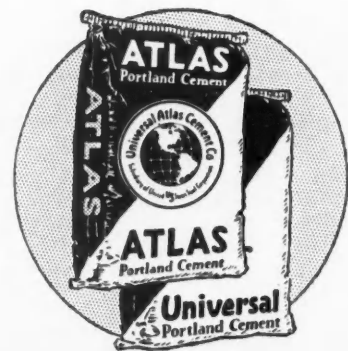


Concrete columns and floors at the newly remodeled Saddle & Sirloin Club, Chicago; high-early-strength concrete made with Universal Atlas methods and cement used in the construction. Poirot Construction Co., Chicago, contractor.

**S**aving time and materials with *Universal Atlas* high-early-strength concrete

● ● ● The high-early-strength concrete used in remodeling the Saddle and Sirloin Club, Chicago, permitted the removal of alternate rows of shores five days after the concrete was placed. This is much sooner than is practicable with concrete made by ordinary methods. Not only was time saved but equipment also. Shores that were removed at the five-day periods were immediately available for use on other sections of the work. This permitted the contractor to cut down on the equipment required for the job.

● ● ● High-early-strength concrete made with Universal Atlas methods and cement (the same Universal Atlas standard portland cement as furnished for regular work) is stronger, more durable and more watertight than ordinary concrete. Send for booklet containing these methods for saving time and securing improved concrete. . . . .



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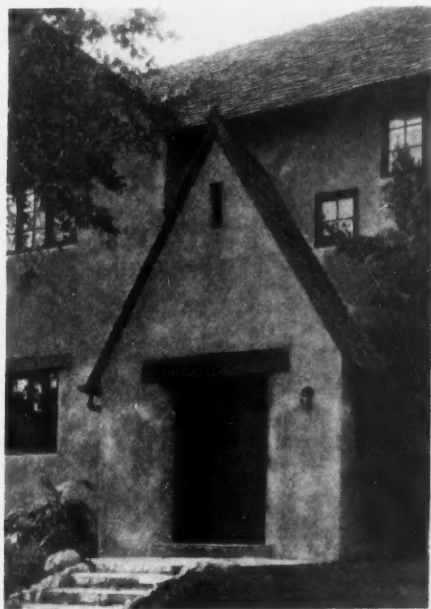
CHICAGO  
NEW YORK  
NEWARK  
PHILADELPHIA  
BOSTON  
ALBANY  
PITTSBURGH  
CLEVELAND  
COLUMBUS

**Universal Atlas Cement Co.**  
Subsidiary of United States Steel Corporation  
**Concrete for Permanence**

MINNEAPOLIS  
DULUTH  
ST LOUIS  
KANSAS CITY  
DES MOINES  
OMAHA  
OKLAHOMA CITY  
BIRMINGHAM  
WACO

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE





## FIGHT FOR LOWER TAXES

WHATEVER increases the cost of owning buildings also increases the obstacles to their construction. One of the most rapidly increasing costs of owning buildings is taxes. The total taxes being collected from the American people are constantly increasing. There are some kinds of property, especially securities locked up in safety deposit boxes, that largely or wholly escape taxation. Real estate, and especially buildings, are so exposed that they cannot escape the eye of the tax collector; and the one kind of real estate upon which the burden of taxes has increased relatively the most is residence property.

### High Taxes Discourage Building

Builders should be especially concerned regarding taxes on buildings, and particularly on houses and apartments. The prospective owner and occupier of a house or apartment is certain, in considering what it will cost him to own it, to take into account the amount of taxes he will have to pay on it, and to be thereby influenced in deciding how much he will invest in it. Increases in taxes upon residence buildings erected to be rented increase the rentals that must be paid for a house or apartment of any given size, and thereby tend to reduce the size and value of the house or apartment that persons of any given income will rent. Unwarranted increases in taxes upon residence property therefore adversely affect the business of every contractor who builds houses and apartments.

Increases in taxes are due to enlargements of the expenditures made by national, state and local governments. These enlargements of expenditures may be due either to extravagance in the conduct of government, or to the governments increasing the number of things they undertake to do. Whatever may be the

## AMERICAN BUILDER AND BUILDING AGE

cause or purpose of any increase in government expenditure, it is certain that one of its effects will be to make larger than otherwise would be necessary the total taxes collected.

The total taxes paid by the people of the United States increased from \$7,234,000,000 in 1923 to \$9,289,000,000 in 1928, or 22 per cent. The increase per capita was from \$64.77 to \$77.39. The increase in taxes collected by the federal government was small, being only from \$3,032,000,000 to \$3,194,000,000. State taxes increased from \$917,000,000 to \$1,465,000,000, or almost 60 per cent. Local taxes increased from \$3,285,000,000 to \$4,630,000,000, or almost 30 per cent. The increase in state and local taxes combined during this period of only five years was almost \$2,000,000,000, or not far from 50 per cent.

Who paid this enormous increase in state and local taxes? About 80 per cent of it consisted of "property taxes", which means that the bulk of it was imposed upon real estate, and that an extremely large part of it was imposed on residence property owned or rented by people of moderate or small means and incomes. Large property owners usually can protect themselves from excessive taxes. Persons of moderate means usually cannot do so because they have not enough money or political influence. These people are the backbone of the nation and cast a large majority of the votes by which public officials are elected; but when taxes are being levied their rights are disregarded by most public officials.

With respect to taxes on homes, two things are needed. One is a reduction of total government expenditures, without which no reduction of total taxes is possible. The other is adoption of a fairer system of taxation under which homes will not have to bear such a disproportionately large part of the total burden of taxes as they do now. The only way these objects can be attained is by organized action. Individually, those who pay the great bulk of taxes on real estate are

almost powerless. Adequately organized and forcefully led, they would be irresistible.

Organizations of property owners to fight excessive and unfair taxes on real estate have been formed in 70 cities, and progress has been made in Illinois, Ohio and New York state in the formation of state organizations having the same object. Builders in every community should be active members of these organizations, as few things are as essential to the future prosperity of the building industry as changes in taxation which will reduce the burden that must be assumed by those who become the owners of new buildings.

The taxpayers' organizations should not fight merely for readjustments of taxes, under which the burden upon real estate would be reduced and the burden upon other kinds of property increased. They should fight for improvements in government which will make the conduct of all our local and state governments, and even our national government, less expensive. There is a prevailing tendency at present to try to solve most of our economic problems by increasing government interference with business and by appropriating large funds from public treasuries to help those who happen temporarily to be needy in one way or another. The fact is constantly disregarded that no expenditure can be made by any of our governments, local, state, or national, without increasing taxes, and that, whoever may benefit by the expenditures made, those who have to pay the taxes will lose in exactly the same measure.

## TOO MANY LONE WOLVES

WE have been hearing a great deal lately about the disorganized state of the building industry. The "Business Week" put it, "the industry is without effective organization, devoid of co-operative spirit, leadership or long-range vision." While we feel that a great many of the comments are unfair and show lack of knowledge of conditions, it is true that the industry is badly disorganized.

This is due, in the first place, we believe, to the nature of the industry itself,—its vastness, its division into many parts that work independently of each other, its mobility—each job in a different locality.

Granting this natural tendency towards disorganization, another equally important element is the character or type of man who goes into the contracting business.

Unfortunately, men who have gone into the building business in the past have been essentially "lone wolves." They have fought their battle single-handed, and asked help from no one, nor encouraged advice from their fellow-men. They were fearless, free, and independent.

The individualist—and builders have certainly qualified as such—is to be admired. But in recent years there has been a growing tendency in modern business towards more co-operative effort. Builders in the past have been like farmers, running their small, independent affairs without help from anyone else. The builder may take a lesson from the farmer, who today is in such

a bad way, the economists point out, because he refuses to embark on any kind of co-operative enterprise. Farmers are still strong individualists all right, and many of them insist on running their farms just as their grandfathers used to. But it is not making them money.

We hope that men of the building industry will learn this lesson before it is too late. We hope they will stop being "lone wolves" and become friendly, well-informed business men, willing to co-operate with each other for the common good.

Not only to co-operate with each other, we should add, but to co-operate with other elements of the industry. Without doubt the greatest weakness of the building industry today is the lack of friendly, co-operative work between contractors, sub-contractors, architects, building supply men, financing institutions, realtors, and others. There is no reason why all these elements should not be united in local organizations to help them to work together for the common good of the whole industry.

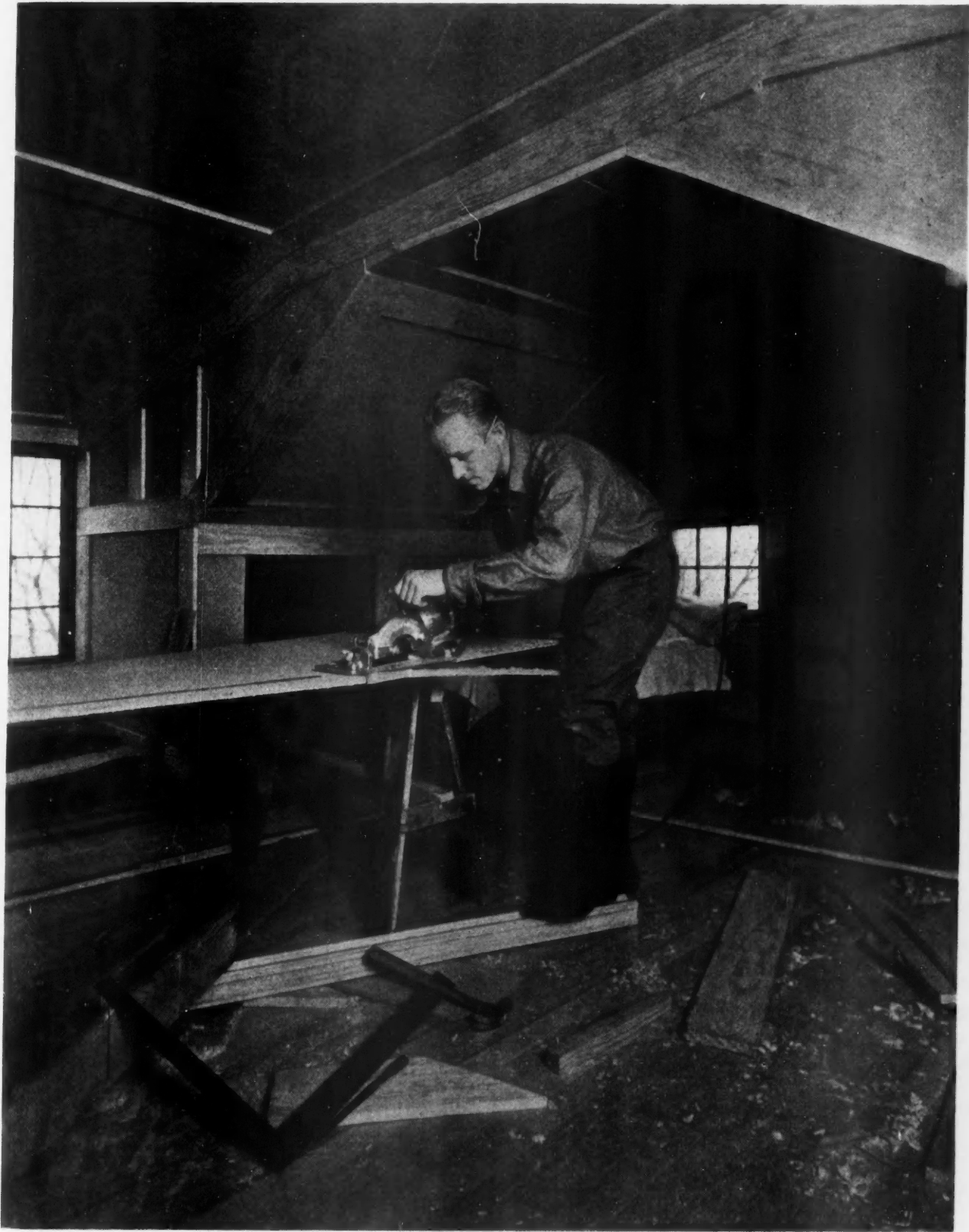
We repeat, this lack of co-operative effort is the weakest factor in the building industry, and we fear that the industry will not get back to its normal healthy stride until the condition is corrected.

The problems of the whole industry which could be met by co-operative work are manifold and pressing. One of the greatest, as AMERICAN BUILDER AND BUILDING AGE has pointed out in frequent editorials, is the need for effective advertising propaganda to make the American people more "home-minded."

Sooner or later every community must organize a co-operative exchange or association of some kind to represent the entire local building industry. We are quite aware of the fact that many communities have their building congresses, exchanges, local chapters of the A. G. C., or similar groups. If these are working effectively and can truthfully be said to represent the *entire industry* of the community, well and good. If they can be expanded to include the entire industry, well and good. If there is no such organization, or if the present one refuses to function, then one should be formed.

Such an organization should become a clearing house of information about building. It should maintain a modern, well-equipped office, where people can come for information. It should have a samples-display department, showing latest developments in construction methods, equipment, materials, etc. It should, above all, provide a means by which the responsible builders, architects, building supply men, and financing institutions, can conduct co-operative advertising, and get together to further the welfare of the entire building industry in that community.

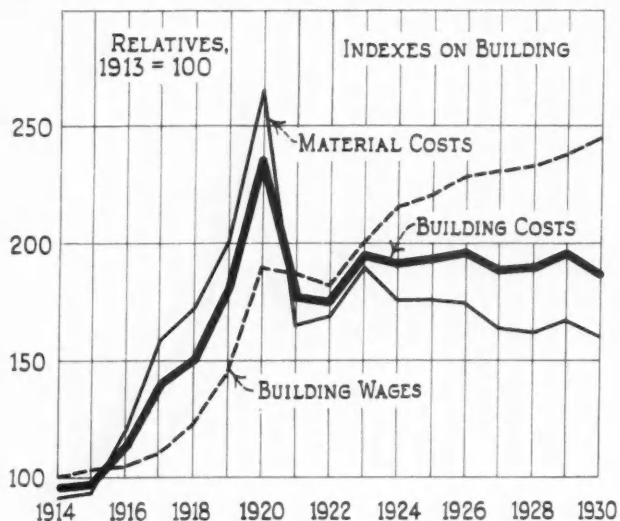
The cry for reforms will continue, and very likely many things may be done to improve conditions, but to our minds the first great step is the establishment of more effective, all-inclusive, co-operative, building industry groups.



## POWER TOOLS MAKE A GOOD BUILDER BETTER

Cold Weather Business Tip—  
When you panel an attic with fibre  
board you insulate the entire house.





Lower material prices are indicated although savings due to increased productivity of labor are not shown. Data from Standard Statistics Company.

# "BUILD NOW"

**Rock Bottom Building Costs  
Create Buyers' Market for  
Residences—Builders Urged  
to Capitalize on Situation**

FROM coast to coast the word is being passed, "this is a buyers' market for homes. Material prices are low, labor is unusually productive, money is available." Newspapers, home magazines, Chambers of Commerce, emergency unemployment committees, Women's Clubs, Federal and State committees are carrying the message to every corner of the nation, *build now and save money.*

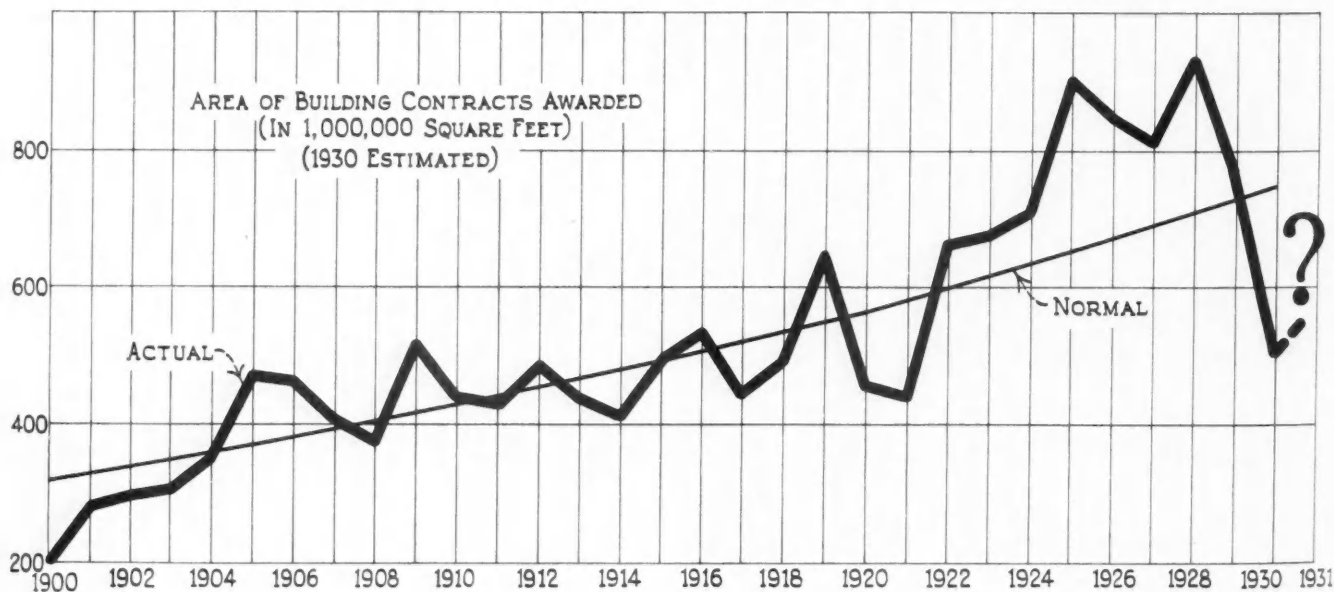
At no time in history has the building industry had such strong national support, such a wave of public opinion behind it, such an opportunity to flourish!

AMERICAN BUILDER AND BUILDING AGE, believing that builders should take advantage of these conditions now acting in their favor, urges its readers and the building industry as a whole to join in this work, to push "Build now and save money" campaigns in their communities, to embark on aggressive advertising and selling programs at once. The industry must develop fighters

who will not only lead it out of the depression, but will pave the way for prosperity for the entire country.

Our nation-wide survey shows that construction costs undeniably are at low ebb. Leaders of the industry, as shown in statements on the next page, are unanimous in their report that the logical time for a resumption of normal residential construction activity is at hand. Residential construction, which has been on the decline for twenty-three months, is on the verge of a great recovery which will lead other divisions back to normalcy.

Building costs are down in practically every community heard from, in varying degrees, ranging from ten per cent to thirty per cent. The U. S. Index of Building Material Prices shows a decrease of thirteen per cent in the last year and a half. Actual costs in various communities differ, as study of the chart on Page 59 will show, but for the country as a whole, building material prices are low. What is more important,



Annual building activity is here charted for thirty years and a normal trend line computed. This would indicate that the years 1922-29 were above normal and that present construction volume is far below normal. Chart by the Standard Statistics Company.

# CAMPAIGN SWEEPS NATION

## Editor's Survey Shows Low Building Costs Throughout Country—Home Builders to Lead the Way to Prosperity

many authorities declare that they have reached bottom, and if there is any change it will be upward.

The office of the Supervising Architect of the Treasury Department reports present bids on construction at various points east of the Mississippi, for which it has comparative data, ranging from 8 to 20 per cent below 1929 estimates and averaging about 14 to 15 below. The decrease is reported as greater on smaller buildings than on projects of major size, and as most pronounced in the regions east of the Mississippi River.

The office of the Quartermaster General of the Army reports a decrease ranging up to 16 per cent, and averaging about 9 per cent in the cost per cubic foot of construction of dwellings between 1929 and 1930. The Corps of Army engineers reports changes in contract costs in various parts of the country for dredging, rock removal, levees, and other river and harbor improvement work varying from a slight increase in one case, to a decrease of 44 per cent in another, as compared with computed costs during 1929.

The present plentiful supply of labor has resulted in such increased efficiency that it is estimated that construction labor is 20 per cent more productive than in 1923. Labor saving machinery is also responsible for a large increase in building efficiency, and reports from a number of regions show that steps are being taken by some contractors to take their men into partnership. Through a bonus arrangement by which the boss shares with his men any saving that they can make in speeding up work and delivering a good job, costs have in many cases been considerably reduced.

As an example of how this works, a plumbing contractor may size up a job and figure two men will rough it in in four days, and he establishes that time as a basis. The men then go ahead, and by application and

## What Leaders Say About BUILD NOW DRIVE

*OSCAR W. ROSENTHAL, President, Illinois Builders' League: "Labor today is at a peak of efficiency; material prices are low, and these two important factors should prove an economic incentive for persons to build now. Commercial buildings are 12½ per cent below 1927; residences 15 per cent below."*

*JULIAN CLARENCE LEVI, Architect, Chairman, New York Architects' Emergency Employment Committee: "Any person needing a building of any type can save from 15 to 30 per cent by starting the project at once. New buildings are on the bargain counter."*

*F. S. LAURENCE, Executive Secretary, Producers' Council: "Material prices today are at lowest point they are likely to reach, and representing, as they do, about 60 per cent of the cost of construction, building can go ahead economically now."*

*B. C. FORBES, Financial Observer: "Residential costs are lower by 25 to 35 per cent than they were five years ago."*

*COLONEL JOHN C. HEGEMAN, President, Hegeman-Harris Company: "Costs have been in a definite downward trend for more than a year. Productive efficiency has increased in a marked degree. Material costs have undergone a decided drop in all departments, and we believe have reached a point where further reductions will be small."*

*R. HAROLD ZOOK, Architect, Chicago: "On a home in River Forest for which I drew plans a year ago the bids went so high that the owner decided to lay it aside. The figures at that time were in the neighborhood of \$25,000. My figures today run from \$16,000 to \$17,000."*

enthusiasm finish the job in two days. This saving is split three ways: the workmen get one-third, the contractor one-third, and the owner one-third.

Lou R. Crandall, President of the George A. Fuller Construction Company, recently declared that construction costs on large buildings are only 3½ per cent above the lowest point for the last decade, and on monumental type buildings are 1 per cent below the lowest point.

"At no time within the last decade," says Mr. Crandall, "except for a short period during the slack winter of 1921-22, has the status of the building industry, from

# Extensive Data Show Downward Trend of Building Costs

**HOME COSTS DOWN**  
*American Appraisal Co. Figures. 1913=100*

District	Type of Construction	1930 Sept.	1929 Sept.
New England States	Frame	204.5	213.0
	Brick, Wood Frame	217.0	219.5
	Brick, Steel Frame	195.0	200.5
	Reinforced concrete	208.0	207.5
New York and North New Jersey	Frame	204.5	210.5
	Brick, Wood Frame	224.8	226.5
	Brick, Steel Frame	202.8	206.5
	Reinforced concrete	214.3	215.7
Middle Atlantic States	Frame	200.7	215.7
	Brick, Wood Frame	217.0	231.0
	Brick, Steel Frame	193.3	208.7
	Reinforced concrete	197.3	210.3
Pittsburgh District	Frame	196.8	209.2
	Brick, Wood Frame	214.3	226.5
	Brick, Steel Frame	192.0	206.0
	Reinforced concrete	199.3	212.5
Central Western States	Frame	193.7	204.6
	Brick, Wood Frame	211.2	218.1
	Brick, Steel Frame	192.0	200.1
	Reinforced concrete	202.5	209.7
Northwestern States	Frame	179.0	193.0
	Brick, Wood Frame	190.0	194.0
	Brick, Steel Frame	176.0	182.0
	Reinforced concrete	179.0	183.0
Southeastern States	Frame	179.3	200.0
	Brick, Wood Frame	204.3	220.5
	Brick, Steel Frame	184.5	198.7
	Reinforced concrete	185.8	201.0
Texas	Frame	178.0	195.0
	Brick, Wood Frame	191.0	201.0
	Brick, Steel Frame	179.0	190.0
	Reinforced concrete	177.0	185.0
Pacific Coast States	Frame	179.0	200.2
	Brick, Wood Frame	180.3	190.0
	Brick, Steel Frame	174.8	183.7
	Reinforced concrete	174.3	185.2
Average of Nine Districts	Frame	190.6	204.6
	Brick, Wood Frame	205.5	214.1
	Brick, Steel Frame	187.7	197.3
	Reinforced concrete	193.0	201.1

the point of costs, rapidity of manufacture, transportation, and general efficiency, presented greater opportunities to owners having projects under contemplation for immediate execution than exists at the present time.

"In times of depression the production of the labor unit is always high, due to the desire of every man to hold his job and to the ability of the executive to cull out the poor mechanic and choose only the best," he says. On the whole, there is little agitation for lower wages, but rather increasing evidence of efficiency.

Money for building purposes is available in abundance, but financing institutions are taking a conservative attitude, requiring proof as to the soundness of the project and evidence of quality construction. This conservatism is offset by the fact that there is more money in savings banks indicating that more people are better able to finance a home conservatively.

Giving due consideration to the above facts, we shall feel that the most important factor working in favor of contractors and builders right now is the vast accumulation of *desire to build* created in the minds of the

**6 ROOM HOUSES DOWN 16%**

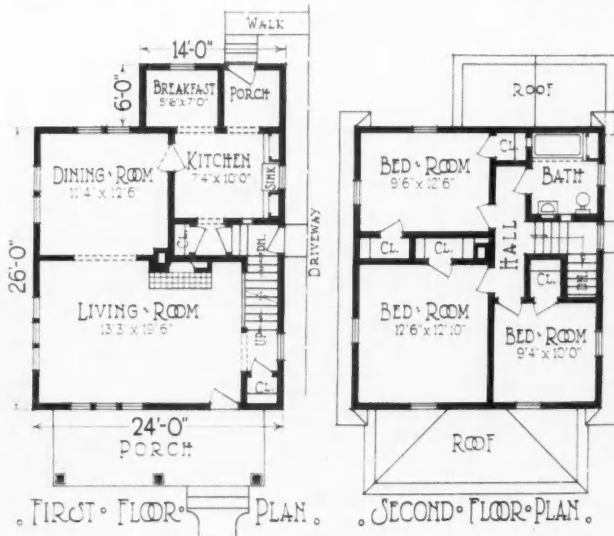
Two residences erected from the same plan at Springfield, Ohio, by Albert W. Carder, general contractor.

	1929	1930	Saving
Brick work	\$ 70.00	\$ 63.20	\$ 6.80
Carpenter labor	804.49	538.59	265.90
Cement block chimney	66.40	47.52	18.88
Foundation	231.54	213.93	17.61
Heating	200.00	170.00	30.00
Lumber and mill work	1,925.98	1,673.27	252.71
Plastering	450.00	395.00	55.00
Plumbing	610.00	548.00	62.00
Tin work	68.65	59.55	9.10
	<b>\$4,427.06</b>	<b>\$3,709.06</b>	<b>\$718.00</b>

Note: The following items are not included in the above capitulation because of different conditions at the two sites.

	1929	1930	Saving
Excavating	\$ 54.00	\$ 38.40	\$ 15.60
Cement work	200.00	150.00	50.00
Painting	382.49	261.88	120.61
Wiring and fixtures	170.77	119.36	51.41
	<b>\$807.26</b>	<b>\$569.64</b>	<b>\$237.62</b>



Albert W. Carder of Springfield, Ohio, Built This House in 1930 for 16% Less than in 1929. Ceiling heights, 8'-6" First and 7'-6" Second. Oak Floors in Living Room and Dining Room.



DEPARTMENT OF COMMERCE MATERIAL PRICES

As delivered on job, November, 1927 and 1930

	Buffalo		Philadelphia		Shreveport, La.		Milwaukee		Kansas City		San Francisco	
	1927	1930	1927	1930	1927	1930	1927	1930	1927	1930	1927	1930
Common brick	\$19.00	\$19.00	\$19.00	\$17.25	\$14.00	\$18.00	\$13.00	\$13.00	\$15.00	\$15.00	\$12.00	\$12.50
Portland cement	3.10	2.95	2.61	2.30	3.40	3.20	2.60	2.25	2.50	2.50	2.31	2.60
Douglas Fir			46.75	40.00			43.00	43.00	48.50	45.00	26.00	25.00
No. 1, 2x4-16'												
Common boards	50.00	34.00	43.50	37.50	51.00		48.00		52.50		26.00	25.00
No. 1, 1x6												
Y. P. Flooring	85.00	85.00		80.00		86.00	90.00	80.00	80.00	68.00		
1x4-10'-16'												
Red Cedar Shingles	6.00	5.25	6.85	6.75	6.00	6.00	5.00	5.00	6.50	5.20	5.50	
Extra Clear, 16" 5 to 2												
Gyp. plaster board	25.00	21.00						25.00	26.00	25.00		
Lime, hyd.	18.00	18.00	15.75	15.00	20.00		18.00	16.00	24.00	24.00	25.50	22.50
Building sand	2.43	2.50	1.85	1.80	2.00	2.00	1.90	1.50	2.35	1.70	1.75	1.40
Window glass	4.20	4.20	3.60	3.50	3.50	4.50	5.50	4.80	5.00	4.00	3.70	4.70
Single A 10"x12"												
Hollow tile	.16	.15	.21	.18	.25	.20	.15	.17	.16	.16	.26	
8"x12"x12"												

American public by the intense propaganda which has been released during the past year, and especially in the past few months, which has convinced people that not only is this the logical time to build, from an economic viewpoint, but it is the patriotic thing to do, to relieve unemployment and give impetus to general business.

We feel that every builder should ally himself with this cause, and through advertising, community activities, radio broadcasts, or any form of showmanship possible, call attention to the fact that he has the right organization to get immediate results.

The building industry is being held up as a powerful crusader for national prosperity, and individual builders everywhere should take advantage of the benefits accruing from this situation. At the same time, it is a sound economic fact that the building industry really is in a position to start the return of prosperity.

A growing mass of data revealed by the AMERICAN BUILDER AND BUILDING AGE Survey indicates that this is a logical time for the public to resume home building, and consequently for contractors to get into action. A tabulation of vacancies in the residential field recently reported by seventy real estate boards shows that average vacancy has declined to a low point of 2.91 per cent. Many communities already show a shortage of housing, due to the drastic drop in residential construction the past two years. By the time buildings started now are completed, demand for them will be active.

Increase in population, obsolescence, destruction by fire, and the normal demand for new homes and for new improvements, have not stopped during the past two years while residential building was at a standstill. This means that an enormous pent-up demand has been accumulating. In this connection, the Standard Statistics Company, in a report on the building industry, states:

"Replacement requirements in the building industry because of fire and obsolescence normally reach a value of 1½ billions per annum, and a few years of delay in construction corresponding with conditions, would provide an immense backlog of future business."

There is a normal need of 400,000 new

houses annually in this country, according to A. J. Hager, President of the National Retail Lumber Dealers' Association, and only a short cessation of building is necessary to store up a big demand. There are one million more families in the U. S. today than there were

BUILD

## DURING 1931

While Building Material  
Is Not Expensive



**Let Us  
Help You  
With Your  
Building  
Problems!**

**Only High Grade Materials  
Will Make Your Home the Best**

Building—that magic word is responsible for the growth of the nation. Let that word be on the lips of every citizen for 1931. The past year in Tucson has taught us that we can make new homes always. Make 1931 a banner year in the growth of the Old Pueblo.

It takes sound materials to erect sound buildings.

That is why you will ask us for figures when you are ready to build.

**We Carry In Stock**

Glidden Paints  
Sialkraft Water Proof Paper  
El Rey Roofing Paper  
Insulite—Wood fiber insulating board for efficient insulation.  
All grades of lumber  
Cement  
Galvanized Iron  
In fact, everything you need for building.

## TUCSON LUMBER & SUPPLY CO.

1435 So. 6th Ave.  
Phone 2781

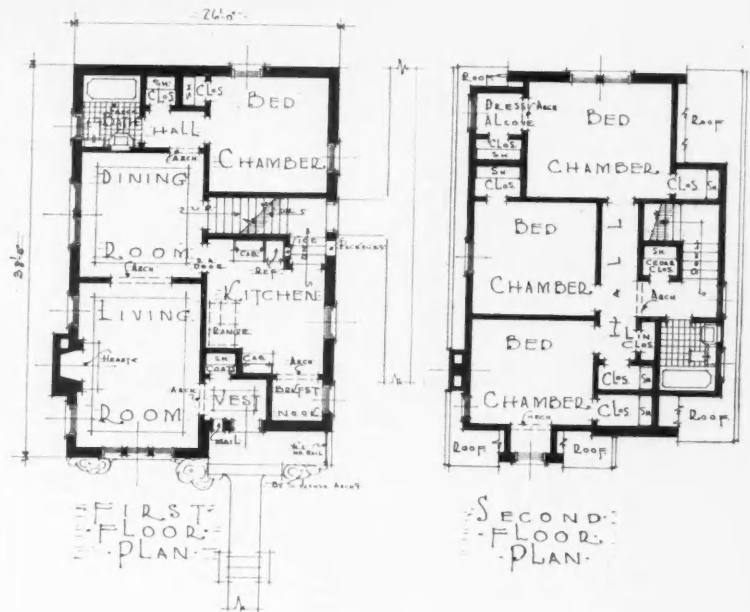
Advertisement in which advantage of building now at low prices is shown. Advertising featuring this appeal is proving unusually successful.



Down About 14 Per Cent is the Experience of the Mansionette Corporation, Hammond, Ind., in Building This Popular Little Home for Several Clients.

#### EFFICIENCY HAS CUT COSTS

OPERATION	COST 1927-28	COST 1929-30
1. Survey, Permits, Ins.	\$ 60.00	\$ 60.00
2. Excavation and Grading	55.00	50.71
3. Cement and Concrete	780.55	601.80
4. Masonry	1,545.80	1,282.50
5. Iron and Steel	138.55	104.50
6. Tile Walls	100.00	78.50
7. Lumber and Mill Work	1,332.80	1,261.30
8. Carpentry	768.00	705.00
9. Roofing	215.00	166.00
10. Lath and Plaster	485.00	415.00
11. Sheet Metal	55.00	43.40
12. Glazing	102.00	84.50
13. Painting and Decorating	295.00	260.00
14. Hardware	105.00	82.50
15. Electrical and Fixtures	280.00	225.00
16. Plumbing and Sew.	635.00	580.00
17. Heating	695.00	620.00
18. Window Shades	35.00	28.00
19. Utility Specialties	108.00	77.50
20. Kitchen Units	160.00	130.00
21. Contingencies		
22. Overhead and Profit		
	<b>\$7,950.70</b>	<b>\$6,856.21</b>

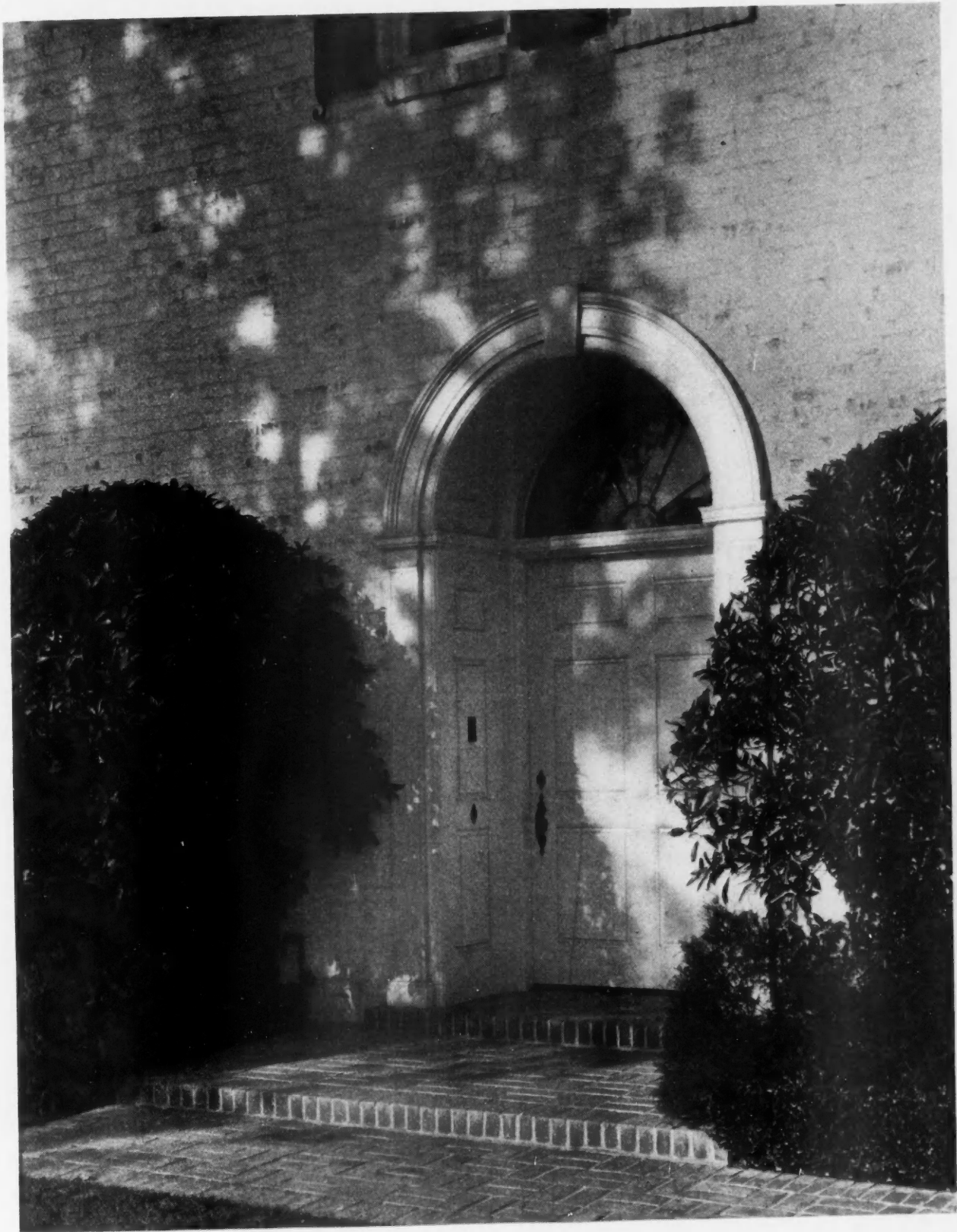


two years ago. In addition, thousands of families have been "doubling up" during hard times, while others have been putting up with crowded or unsatisfactory conditions which they will seek to change as soon as they are convinced that business is going to be good.

Although building costs are low at the present time, many people are asking whether they will remain so. It must be the business of the building industry to see that they are kept low, for the crying need of home building is lower costs. Builders must somehow manage to deliver to the American buying public more value per man-hour if they are going to get its approval. We are not recommending scaling down the wage rates, but we are interested in seeing greater production per man-hour and the elimination of unnecessary labor expense. If there are any union or other rules limiting production, or arbitrarily increasing costs, without delivering value in return, now is the time to get rid of them.

Contractors must study their organizations to secure greater efficiency. Better planning and designing, closer control of costs, increased use of time-saving equipment, and better management must be achieved. The disorganized state of the home-building industry is constantly being pointed out, and undoubtedly steps must be taken to simplify the home-building process. Builders must learn to work co-operatively with each other and with dealers, architects, and financial institutions, in order to develop mass buying, and mass production methods such as have proved successful in the automobile and other industries.

We do not encourage sale of homes on a basis of less than a 20 per cent down payment, for such a practice tends to make it too easy for the purchaser to let his payments lapse. Instead of decreasing down payments below this point of safety, we urge *decrease in the cost of houses.*



MOTT STUDIOS

MARSHALL P. WILKINSON

## Homes of Contentment





## **EARLY AMERICAN DETAIL**

### **The Entrance, Clark House**

DUNCAN HUNTER of New York City  
Architect

PAUL BRADLEY of Summit, New Jersey  
Builder



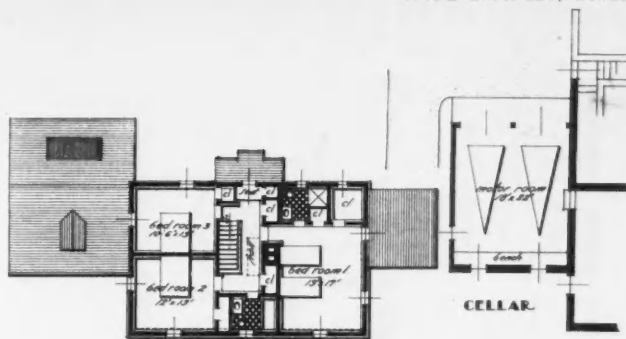
DUNCAN HUNTER, Architect

PAUL BRADLEY, Builder

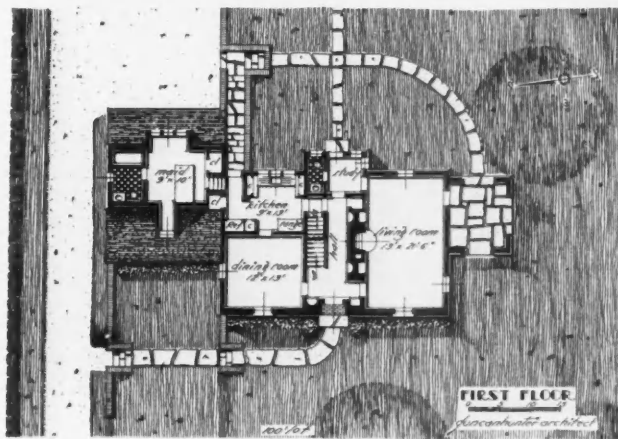
## The Early American Type

By DUNCAN HUNTER

The Early American type of architecture—that is, the simple early type of the New Englanders as contrasted with the later or more sophisticated Georgian type which was adopted from England—is in strong favor at the present time in residential work. This early architecture of the pioneers expresses much strength of character and yet it is decidedly domestic in feeling. None of the "grand and glorious" is found here—such had no place in the lives of the early Americans—not the Indians—the Colonists—and architecture as a rule reflects the living methods in vogue at the time. It has been said that economy compelled the early settlers to use simple materials and avoid waste. This may or may not have been the motive; but nevertheless the early houses show a sense of sincerity and frugality that stamps their real character. In the early work there was no attempt whatsoever at ostentation or display. Carvings and ornamental details to any but a very limited extent were not to be found. All timber and other construction materials were used to the best economy—no waste. This makes for a certain "hardness" in house design—a rather protruding angularity—but right here lies the character and key to the early work.



2<sup>nd</sup> FLOOR



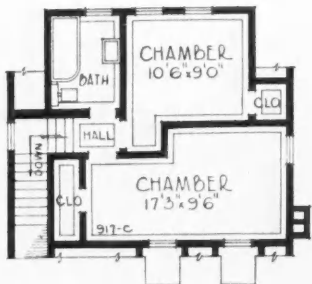
FIRST FLOOR

Duncan Hunter architect  
100 1/2 S. ...



### Smart Style in the Little

Two Designs That Scored a Heavy Popular  
Vote in the National Plan Service Competition.



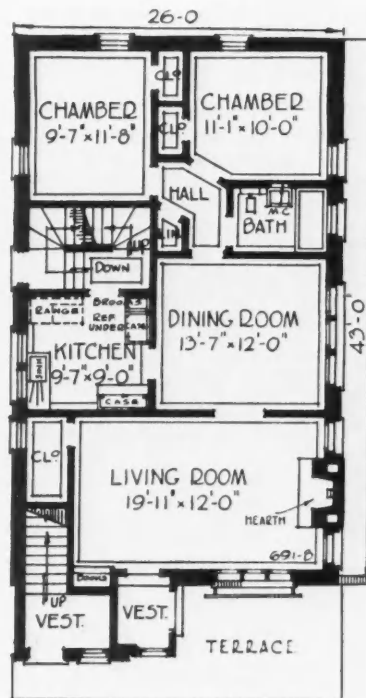




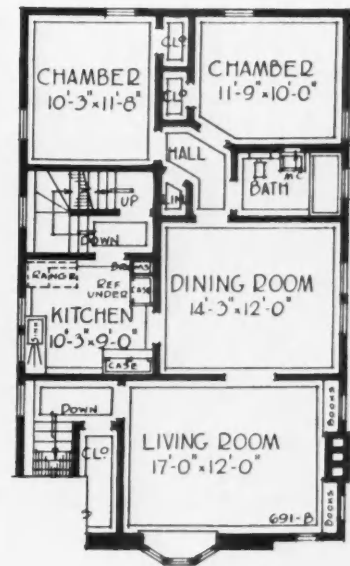
NATIONAL PLAN SERVICE Design

**For Two Families—  
Income Producing**

Two five-room apartments are concealed behind this charming home exterior. It is a thrifty, income property that would be welcome in any neighborhood. Note the clever way in which the two entrances are separated. Note the convenient arrangement of both apartments and the beauty of the exterior.



· FIRST FLOOR ·



· SECOND FLOOR ·



MILLER-STORM CO., Inc., Architects and Builders, Detroit, Mich.

**The Porch—  
An Open Terrace**

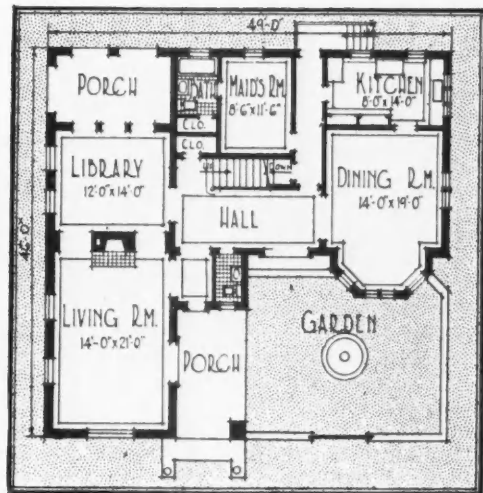
A Compromise Between the Old Fashioned Porch and the More Recent Porchless Style, So Well Handled that It Avoids All Appearance of Compromise.



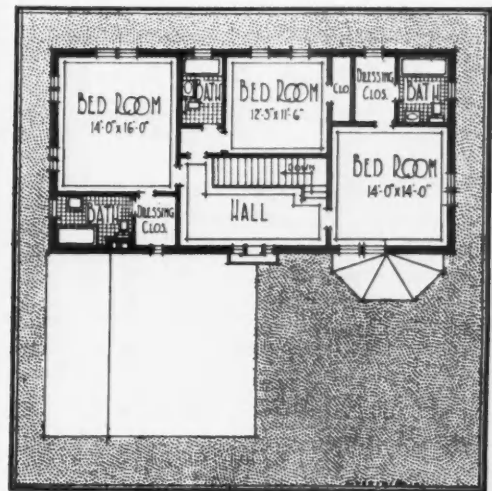


The intimate garden, enclosed by a low stucco wall and a simple gate of wood, is an outstanding feature in this design. The dining-room bay, the doors of hall and entry, and the covered porch look onto this garden, thus securing a pleasant outlook for all rooms.

**With a Strong Spanish Feeling**

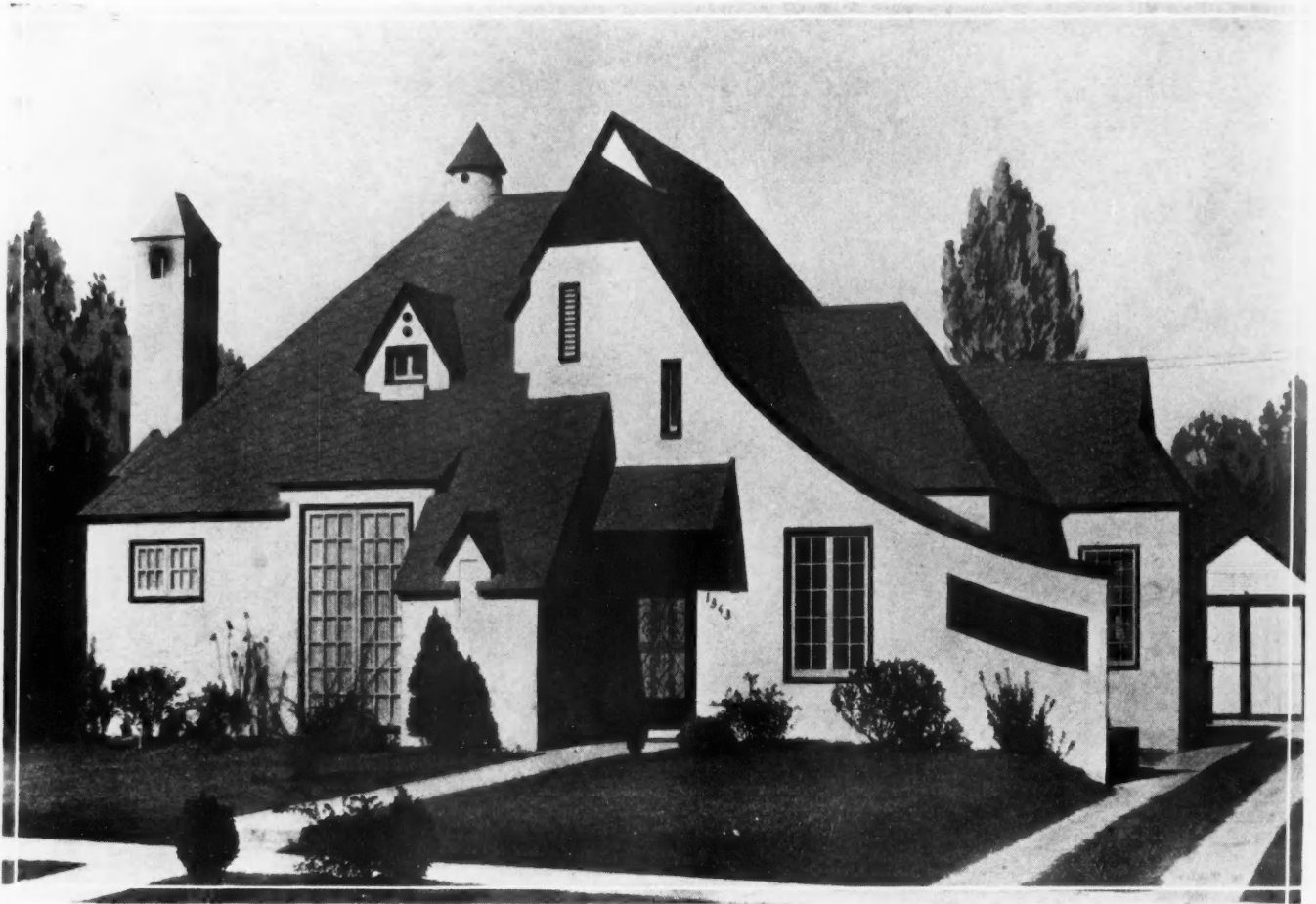


FIRST FLOOR



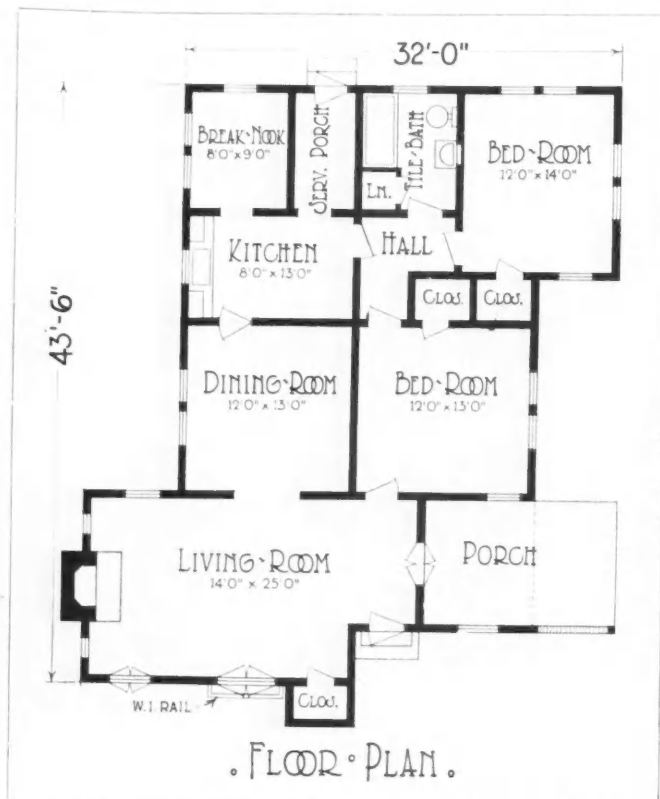
SECOND FLOOR





GUARANTY BUILDING CORP., Architects & Builders, San Antonio, Tex.

## Wide Flung Bungalow



There is a Quaintness and Impressiveness About This Home Which Immediately Catches the Attention. That it looks larger than it really is will be proved by the cost—only \$7,850.

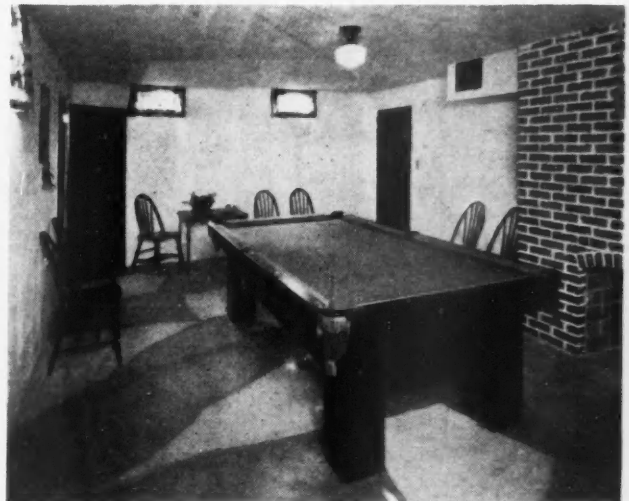
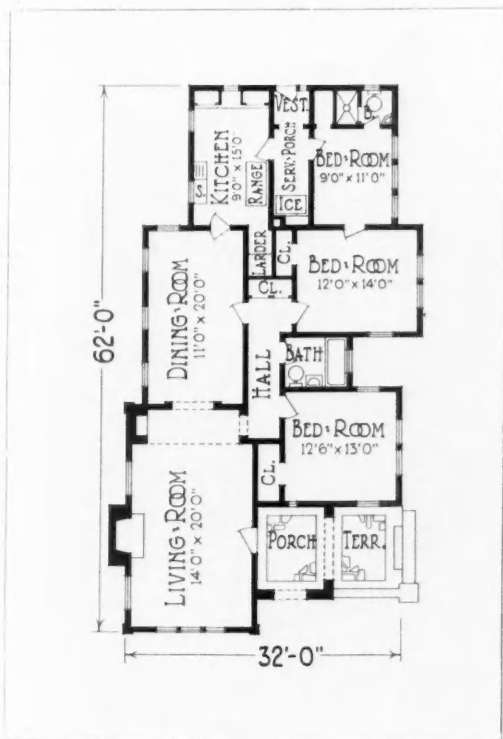


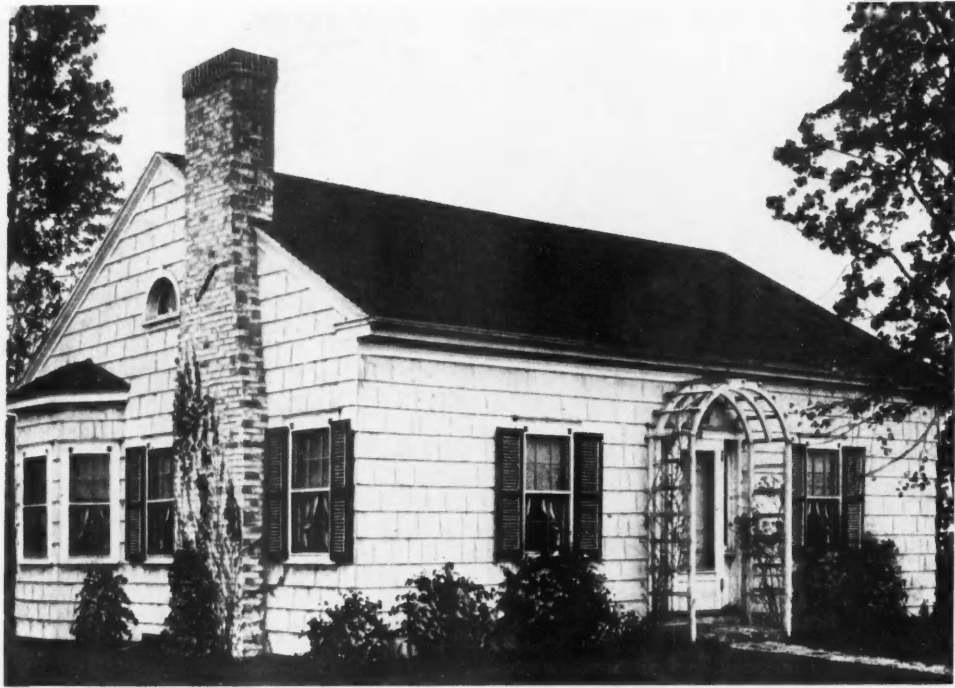
THOMSON & SWAINE, Architects

WALTER WHITLEY, Builder

### An Architect's Home

When an architect sets about designing a house for his own use extraordinary results are fairly to be expected. Here we have an example, the residence of Frank T. Swaine of Dallas, Texas. It is a six-room bungalow of charming lines and an interesting composition of shingles and stucco. The floor plans is worked out in an unusual way.



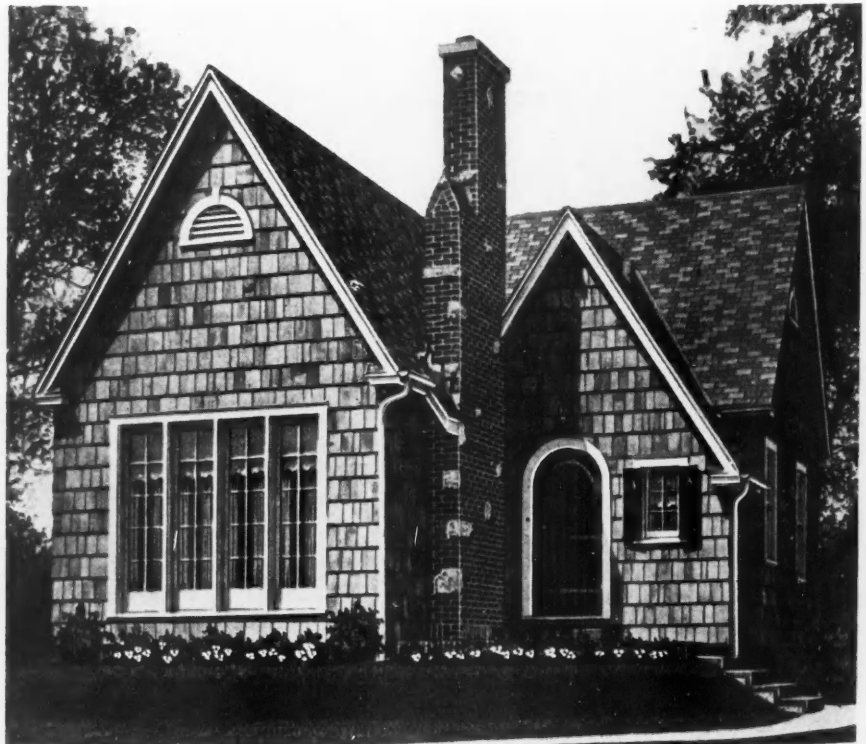


NATIONAL PLAN SERVICE Designs

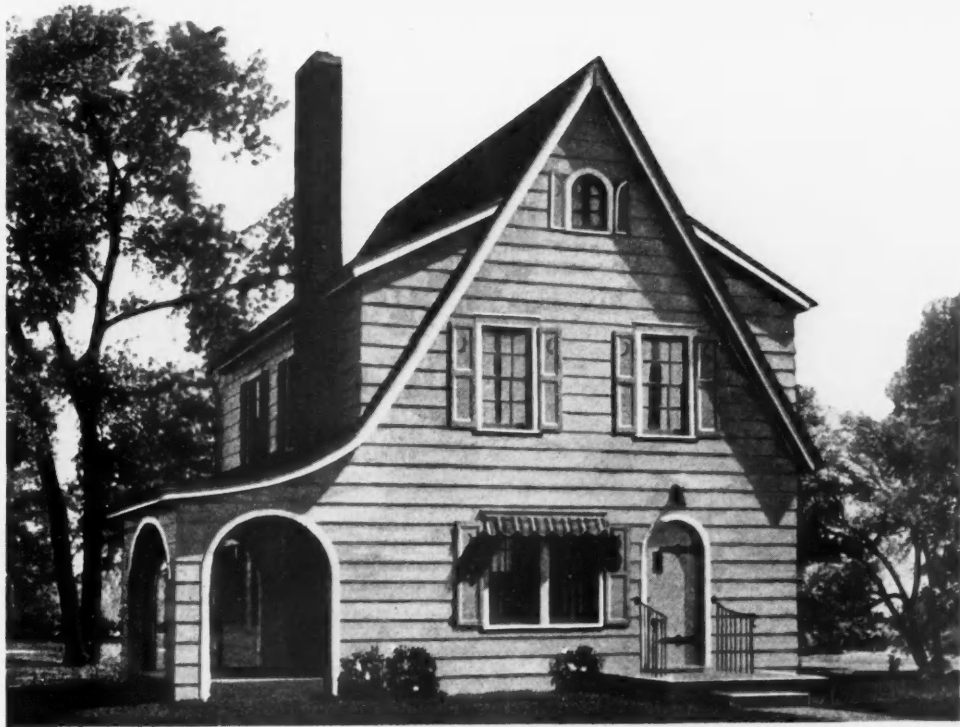


## Cottages Demure

Years of Study and Home Building Experience Are Compressed into These Two Little Homes. Can you see any way to improve them?



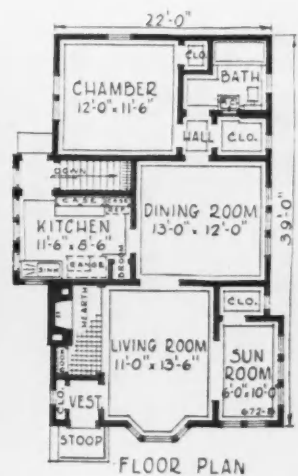
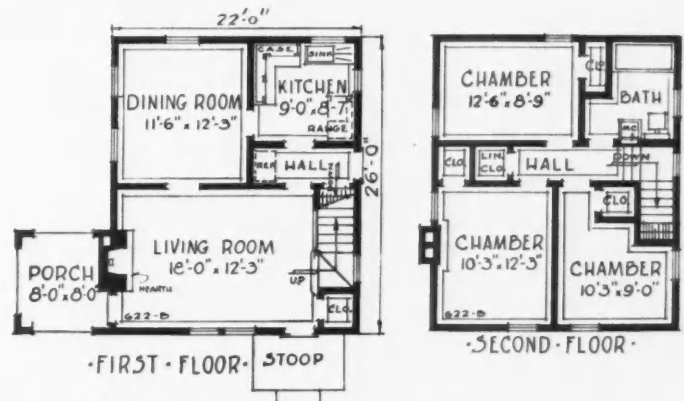




NATIONAL PLAN SERVICE Designs

## One Floor Or Two

Some Like the Bungalow, Others Don't Object to Climbing Stairs. Here are ideas for both. Style and hominess are built into each of these little homes.



# The "Confessions" of a

Mr. McClure's  
Office



THE AUTHOR  
at His Drafting Board

LIKE the term "Builder" rather than "Contractor."

The term "Builder" suggests to me more of the pride to be found in the accomplishment of work well done. We do enter into contracts, of course, and we are therefore "Contractors," but I feel that we are, first, capable builders.

No doubt many of your readers will be surprised in seeing through these photographs, the kind of houses being built in "out-State" Nebraska. I have relatives in the East who even yet visualize this great State as a vast expanse of open prairie, our houses of sod, and Indians for near neighbors!

Kearney, Nebraska, has a population of 8,500. It is located in the wide and fertile valley of the Platte River. The municipality has the benefit of every modern public utility service, including natural gas for heating and cooking. Our trade territory covers a great area of farm and ranch land; much of it under irrigation. Among our people are comparatively few of great wealth, and few are very poor.

My firm carries on its operations from our location in Kearney over a territory with a radius of approximately

"I AM one of those terrible hyphenated things, an Architect-Builder; but, going back into art history, we find—not so long ago—that the architect was the master builder."

By HUGH McCLURE

Manager, McClure & Co.,

"Particular Builders for Particular People"

Kearney, Nebraska

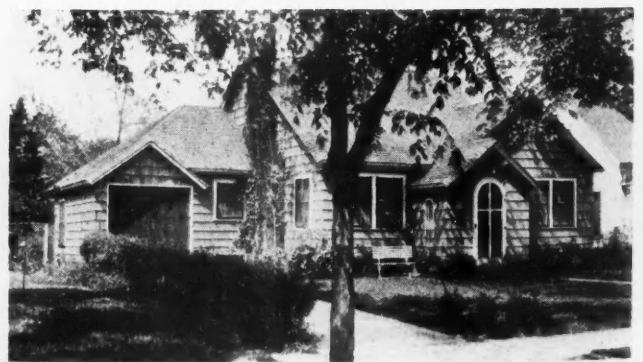
seventy miles. Good roads combined with the advantages of a well equipped woodworking shop and a carefully selected and efficient crew of mechanics make this possible.

You will perhaps be interested in the scope of our work, combining as we do designing and construction.

It seems to be true generally that the majority of the people living in communities such as ours do not often employ an architect for their residence work. Frankly, I believe the architects themselves are largely responsible for this truly deplorable fact.

Most "successful" architects do not appear to desire residence work in small houses unless they happen to have nothing else on their boards. The natural result of this attitude is that the people building small houses think of the architect as an aloof sort of cuss who perhaps could be induced to take an interest in them *if they had a lot of money.*

Of course it is true that the architect's fee as generally established is too small to permit profitable commissions in small house work. But what of the doctor of medicine, for instance? Does he give his best services



# of an Architect-Builder

## How the Home-Seeking Public is Well Served in America's 1500 Smaller Cities

only to those who can pay a fat fee? Perhaps unprofitable commissions in small house work would result in profitable good will to the architect's profession.

When I was ready to offer my services to the public I determined to have my shingle read something like this: "ARCHITECT, Specializing in Residence Work." The public did not exactly clamor for my services. I was still determined that the public really needed my services and should not be denied the benefits of my ability and my training. I thought I saw a way to administer the medicine in capsules and I proposed to a local builder that he allow me to design for him. You see, the people were just in the habit of passing up the architect, and practically telling the builder of good reputation to build them a house.

Well, the builder promised to try the arrangement and we tried at the first opportunity with the result that the house was fairly good looking and *obviously exceptionally well built*. The framing details called for doubled joists at either end of bearing partitions running parallel with the joists, thus furnishing extra support for the installation of heating stacks, soil and vent pipes, etc., without cutting supporting members. Joists were butted and spliced, avoiding more cutting in installing heating "flats." The stair was housed, wedged and glued. Doors and windows were not just where the piano or the bed or the dresser ought to be.

My friend, the builder, shortly became known as a darned particular builder. It profited him to build particularly well. It was easier for him to get jobs, too. To make a long story shorter, after a few years the builder retired, and left me in charge of the works.

I have had the pleasure of designing, since then a great number of houses in this territory—and a number at such distances that I have never seen them. I have built, through this crew of mine, most of those I have designed; and "supervision" under such conditions is honest to goodness authoritative supervision.

Of course, I am now an "Architect-Builder"—one of those terrible hyphenated things, you know. Architects refuse to recognize me. When I ponder over this I console myself in the thought that not so long ago the

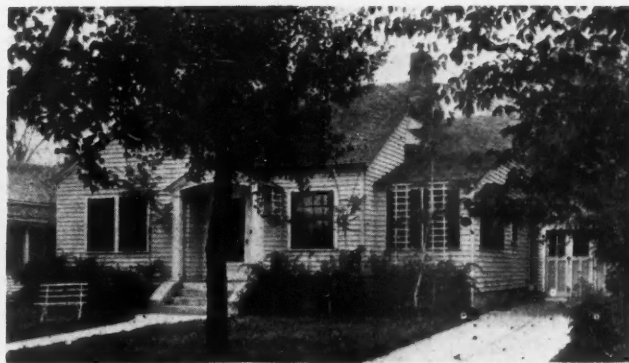


Well Designed and Well Built by Hugh McClure

architect was the master builder; and perhaps there is after all something in this thing of reverting to type.

I charge a regular fee for the preparation of plans. If the owner desires to receive proposals from other builders he is at complete liberty to do so. In most cases my proposal, which includes my fee for the preparation of the plans, is accepted; and my construction crew goes to work on the job. I supervise the work very carefully and in this I work entirely through the foreman, in whom I demand very capable men.

If the owner receives proposals from other builders, in some instances we are awarded the contract for construction as a result of having entered the low bid, and in some cases we are awarded the contract by preference. If, in any case, the owner awards the contract to another







HUGH  
McCLURE,  
Architect  
and  
Builder.

Unique Conservatory Porch with Aquarium  
in Home Pictured on Opposite Page.

builder, we are paid for the preparation of the plans. In all cases we try to be fair.

The fact that we are so often awarded the contract for construction by preference rather than as the result of entering the lowest bid brings me to mention the slogan we adopted some years ago; "Particular Builders for Particular People." This slogan has been very helpful. The first noticeable effect from it was the improved workmanship in our own organization of mechanics. The boys had something to live up to.

The claim that we are particular, and the implication contained in the slogan that we prefer to work for people who are themselves particular has, I am convinced, given us a considerable advantage over the general field of builders; especially in the higher class work. The importance of this advantage, it seems to me, becomes more apparent if it is true, as it seems to be, that more and more people are demanding better and more substantial construction.

The false economy of insubstantial engineering becomes so plainly evident within so few years that only the builder of soundly built buildings can maintain a good reputation—and a good business—throughout the years.

We advertise consistently. We have a regular space

in the local daily paper, in which space we change our copy frequently. We have space in the telephone directory and in the city directory. We take advantage of many little opportunities to carry our message to the people. In our advertising we are careful in our copy, in the methods we use and in our expenditures. But we believe in advertising.

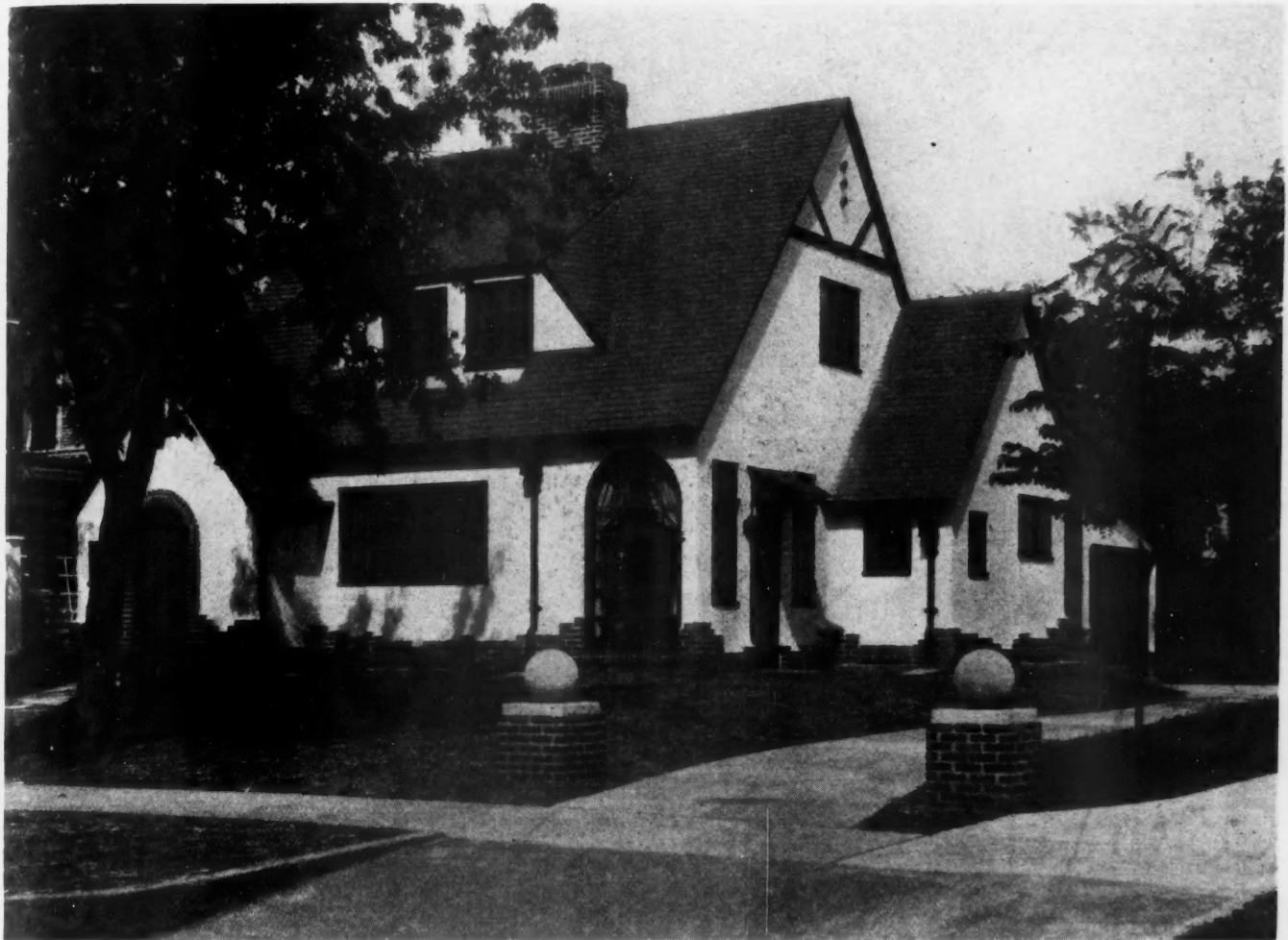
We have made up several pairs of wooden cut-out men carrying our signboard. You will note a pair of the little rascals on top of our office and shop building, if you will look at the photograph. The other members of the family are always on the job in plain sight wherever we have a job of any importance.

In the small display window of our office we display models of houses, samples of flooring, etc.—anything to fix in the mind of the passers by the fact that we are builders and can be found in this building.

Our associate membership in the local Real Estate Board is maintained because we feel that we need to keep in close touch with the trend in real estate values, zoning provisions and the like.

And now I wish to say something about my convictions regarding residence design as applied to the small house.

I wish the services of capable architects could be made



available to a greater number of people building small houses. In every community there stand, row upon row, houses of revolting ugliness. The shame of it is that they would have cost no more and in many cases less, had they been carefully and skillfully designed.

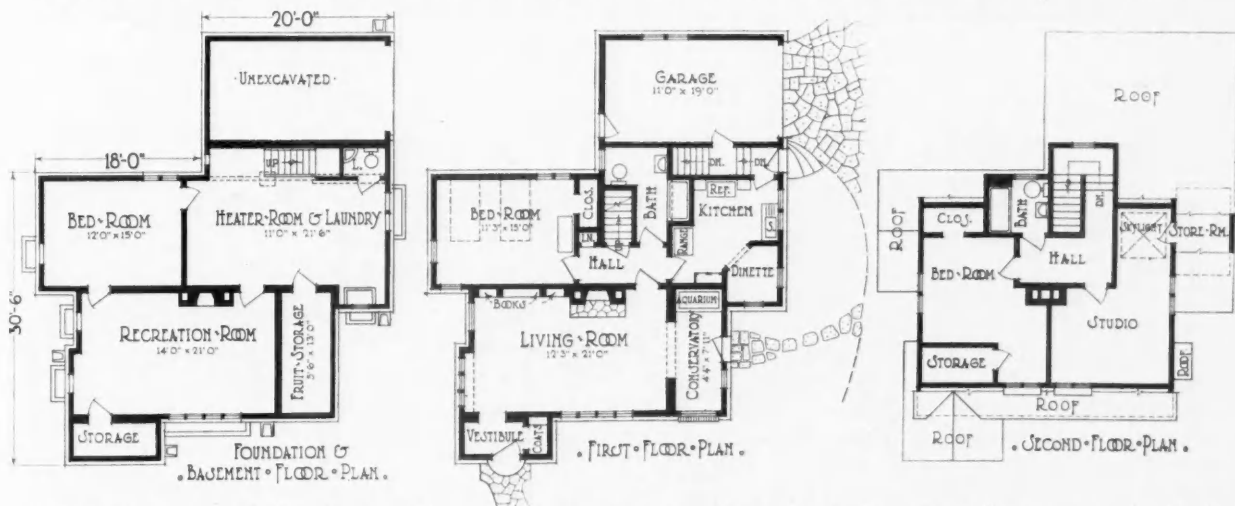
Such organizations as The Architects' Small House Service Bureau, the Home Owners Institute, etc., have helped a little; but the surface has scarcely been scratched.

Think of the thousands of houses built in our country in every normal year and then realize that the *builder*, in the small house field, is in nine cases out of ten, the

arbiter of what shall and what shall not be built.

If the builder is "a good practical man" he satisfies the owner generally. If this same builder could be made to recognize the value of balance, good proportion, and the fitness of materials for the use they are put to, we would very soon note a great improvement.

I would very much like to see in AMERICAN BUILDER AND BUILDING AGE an authoritative course in, and discussion of residence design, particularly as applied to small houses. I believe the results of such a discussion would constitute a very great contribution to the improvement of the design of our small houses.



Mr. McClure says of this design: The garage plat is interesting only because it indicates a variation in the driveway from the typical. Note that the car is driven into the garage, backed out only sufficiently far to turn, and is then driven forward to the street. It is really a great advantage to approach the street driving forward rather than backing.



## Contractor-Owner Works Out Unique Problem

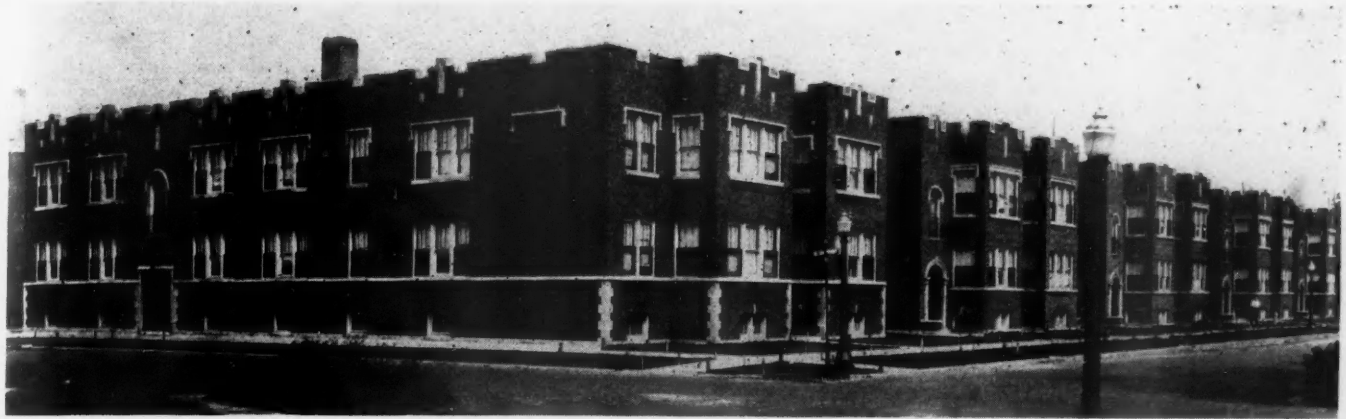
THESE are certain areas in the city of Chicago which are so restricted by zoning ordinances that only two story apartment buildings can be built economically, owing to the limits both as to height allowed and area to be covered.

When John A. Benson, Chicago contractor, consulted with his architect, John Hocke, a most unique solution to a problem was worked out. He had secured a piece of property 265 feet on Vernon Ave., north of 74th St., and 125 feet deep on 74th St., to an alley. Previous experience had shown the builder that in this particular location small apartment buildings would have a ready market and with this idea in mind it was decided to divide the property into various parcels, starting with the corner 55 feet and leaving six equal other parcels of 35 feet each.

On the corner 55 foot lot it was planned to erect an 8-apartment building as shown by plan No. 1. On the remaining six lots of 35 feet each, a 4-apartment half court building, as shown by plan No. 2, was erected, the unique part being that when one of these buildings is erected on one lot, by taking the same layout for the adjoining lot and reversing the plan, a full court is formed. The finished result is shown by accompanying photographs. Each one of these buildings has its own individual heating plant; and all these buildings were practically sold before being completed.

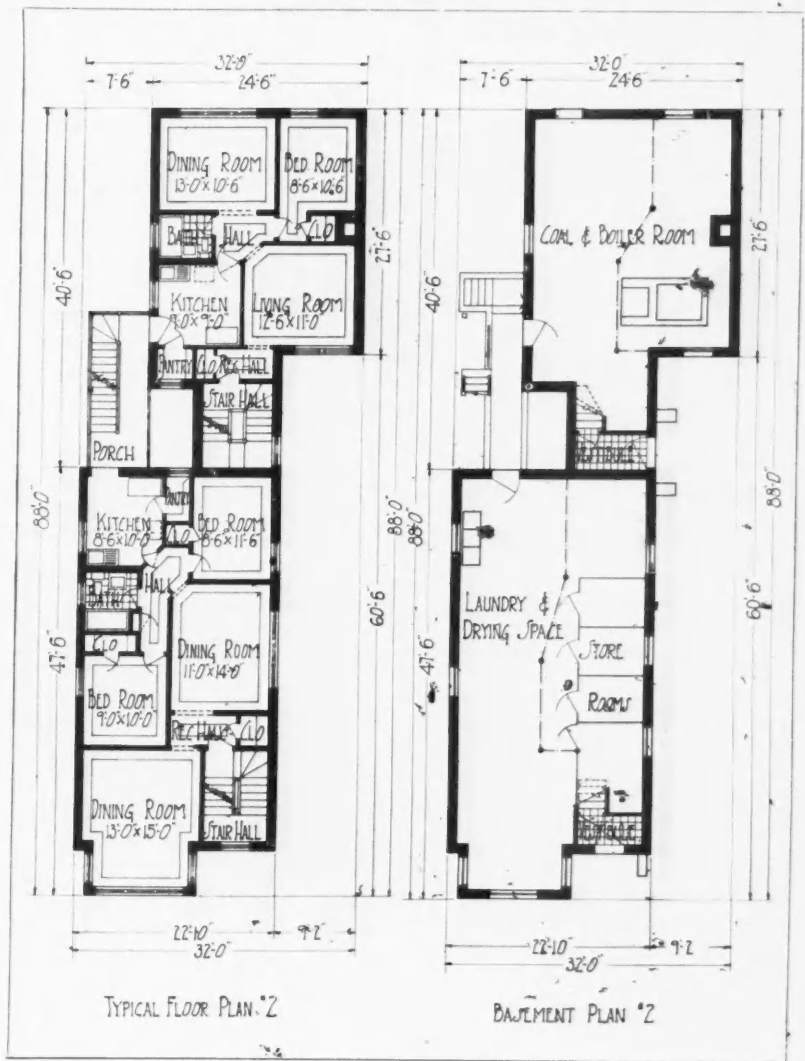
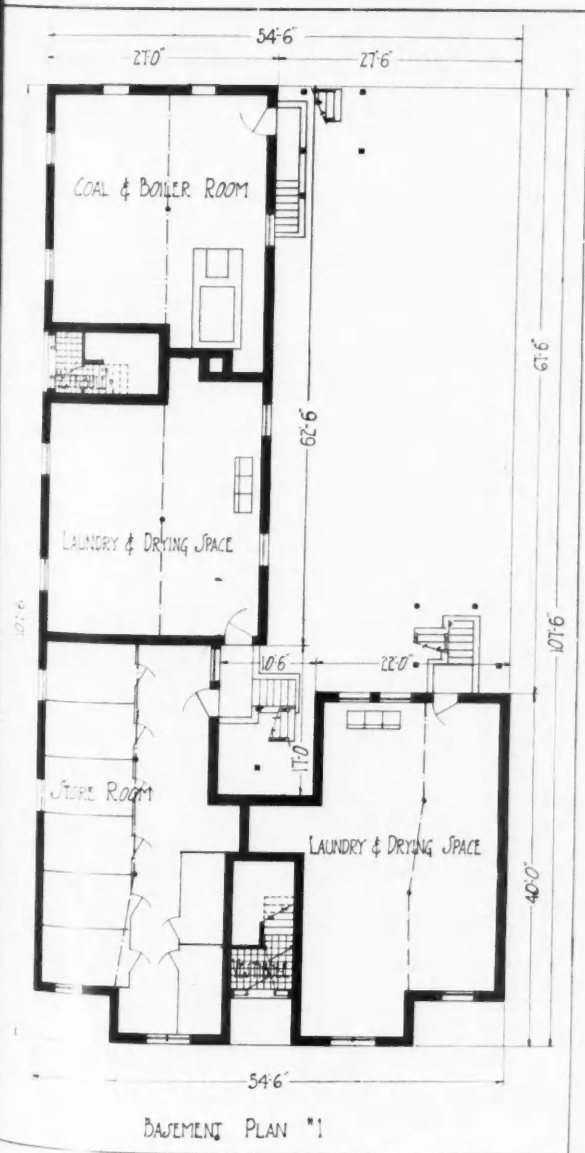
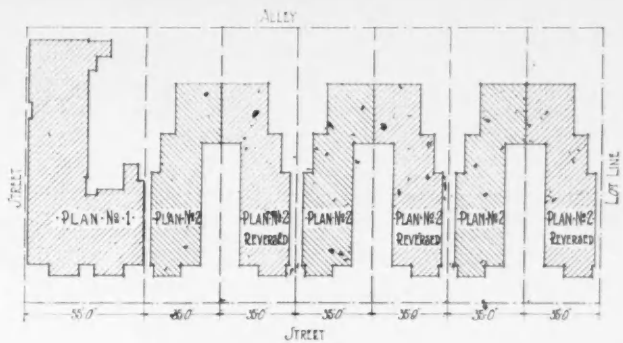






## APARTMENT UNITS BUILT IN SERIES

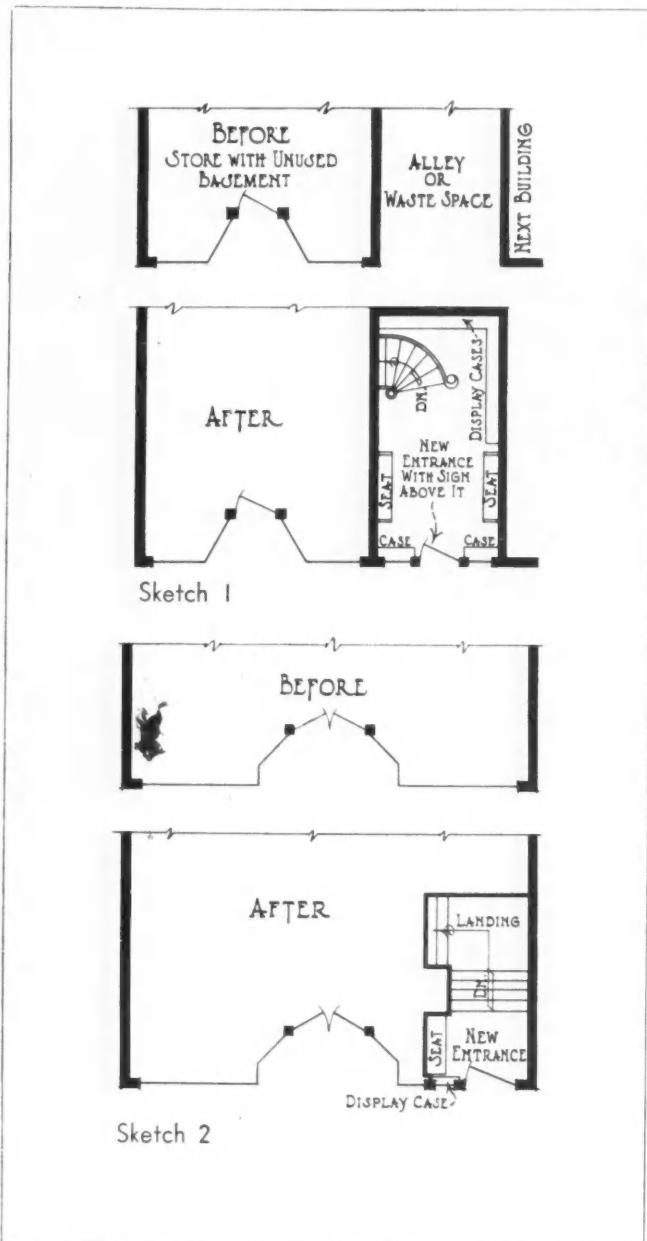
JOHN A. BENSON, Builder  
JOHN HOCKE, Architect



Basement Stores and Shops on Main Street are Money Makers. Look around for basement area now going to waste which may be modernized and made to bring in high rent.



## Basements Along Main Street Modernizing



WHEN times are hard and business is scarce, men sometimes discover some mighty clever ways of creating new work. Here is one that is especially good.

A number of builders have found that right on the main street of their town there are many basements filled with rubbish, or going utterly to waste. They have studied renting values on the front street as compared to side streets, and found that prices on the front street were many times higher than elsewhere. They put two and two together. Why not modernize the basements on Main Street and transform this waste space into valuable, rent-producing property. They tried it out, and it worked.

You can walk down the busiest street of practically any town and find numerous alley-ways, waste areas between buildings, and spaces in some of the buildings themselves, where entrances to basement property can easily be made. On almost every street there are many basements that because of old-fashioned heating equipment, improper lighting and ventilation, or simply neglect, are practically worthless. Some of them are being used for storage, when they might be bringing in hundreds and perhaps thousands of dollars in rent.

This latest scheme to create new building business requires in the first place a knowledge of the business district and the buildings that front it. The wide-awake builders are making their own surveys and are going to interested business men with a plan all worked out. The result is a contract that gets work started at once.

With business as slow as it has been, this is an idea that you cannot afford to overlook.

The first step is the making of a survey of comparative rents in various areas. Pick out a region that is bringing the highest rent. In this area locate some building in which the basement is not being put to profitable use. Study the lay-out and plan of the structure to see how an outside entrance to this basement might be made. If one is easily possible, look up a possible occupant. When the plans are complete, bring the interested



The Little "Downstairs Stores" are Money Makers. Entrance ways are sandwiched in on waste ground between expensive buildings, or are accommodated inside the store.

# Street Provide New Business

parties together, with contracts ready to be signed.

It is this sort of enterprise that is making money for builders even in slack times.

There are many ways of providing an attractive, easily-used street entrance to a basement. Four of the most simple are roughly sketched on these pages. For example, in Sketch 1 is shown a method for using the space between two buildings. This calls for walling off the area and providing a door and entrance vestibule with wide steps leading to the basement of the adjoining building.

Such an entrance can be made very attractive, and with a large display sign calling attention to it, will bring in just as many shoppers as the first floor entrance.

Entrances of this kind are often made more appealing by building in seats for use of shoppers who wish to meet there, and placing of large display windows all along the inside walls.

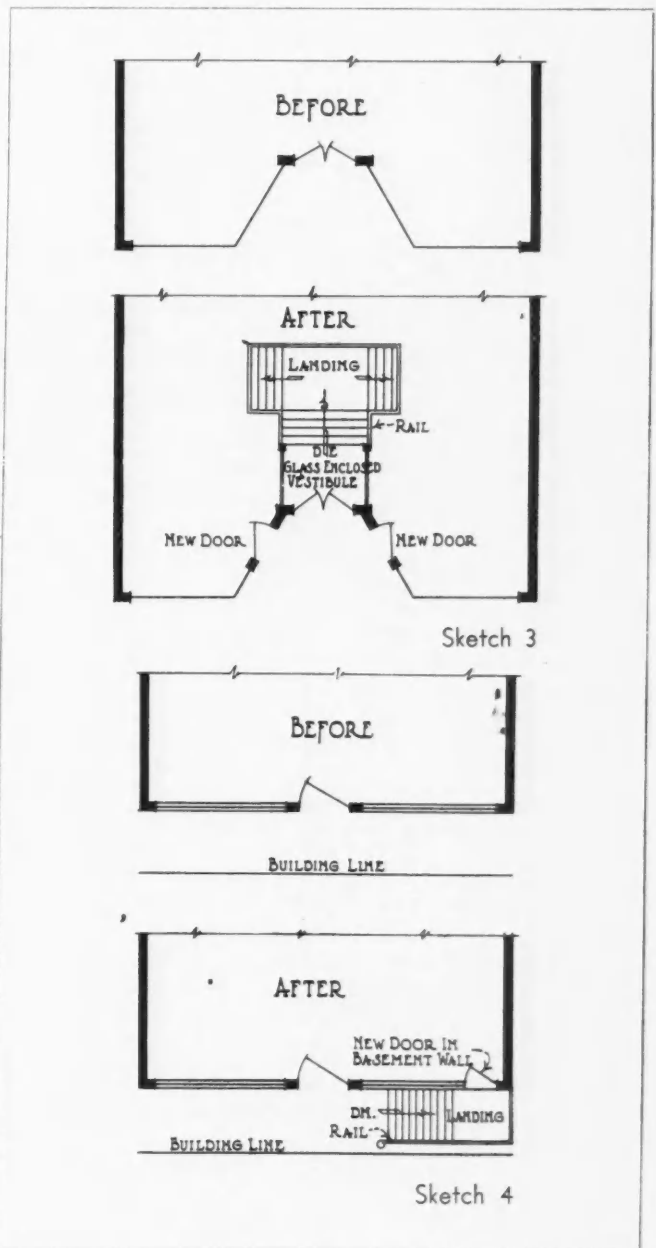
Another popular way of getting an outside entrance to a basement is by cutting a door near one end of the structure, as shown in Sketch 2. Such a door does not interfere with the main entrance to the first floor, and the value of the basement space will more than repay the loss of front window that it may cost.

A basement entrance that is inexpensive is indicated in Sketch 3, where the central door of the first floor entrance is transformed to a basement entrance, and a vestibule built with steps leading down. With such an entrance, it is just as easy for people to get to the basement as to the first floor.

Many other methods of gaining entrance can be worked out with a little study, or through consultation with a more experienced planner.

## A Two-Floor Parking Garage

The car parking problem is becoming so acute, not only in the larger cities but in smaller cities as well, that there is quite an opportunity for remodeling old





store buildings properly located into public garages for automobile storage and parking.

A clever idea has been worked out by H. W. Landis, an engineer of Philadelphia, by which two floors can easily be produced where there was only one before, thus practically doubling the rentable space. This is accomplished by going down four feet on a short ramp below street level, and also up four feet on a similar ramp to a new second floor. In this way, two eight-foot ceiling heights are secured in an old twelve-foot ceiling building by utilizing four feet of the former basement space.

Sketch 5 shows a suggested arrangement for such a store remodeling job.

The office with gasoline service is placed in the center with a driveway on each side, one going up, the other down.

This arrangement is said to be much more desirable than to have the first floor at street level and the second floor reached by a long ramp in the usual way. The shorter ramps are better liked by car drivers, and make it possible to get the same rental from space on both floors.

**Modern Clean Fuel Heating Plants Needed**

One of the greatest obstacles to proper use of existing basements of commercial buildings is the old fashioned or inefficient heating equipment usually installed. Modernizing the basement will probably call for installation of new automatic, clean, heating equipment, that will

eliminate dust and dirt and operate without attention of a janitor.

The great popularity of oil heating and other forms of modern equipment now makes it possible to have a basement that is clean and quiet and which provides a maximum amount of space for business purposes.

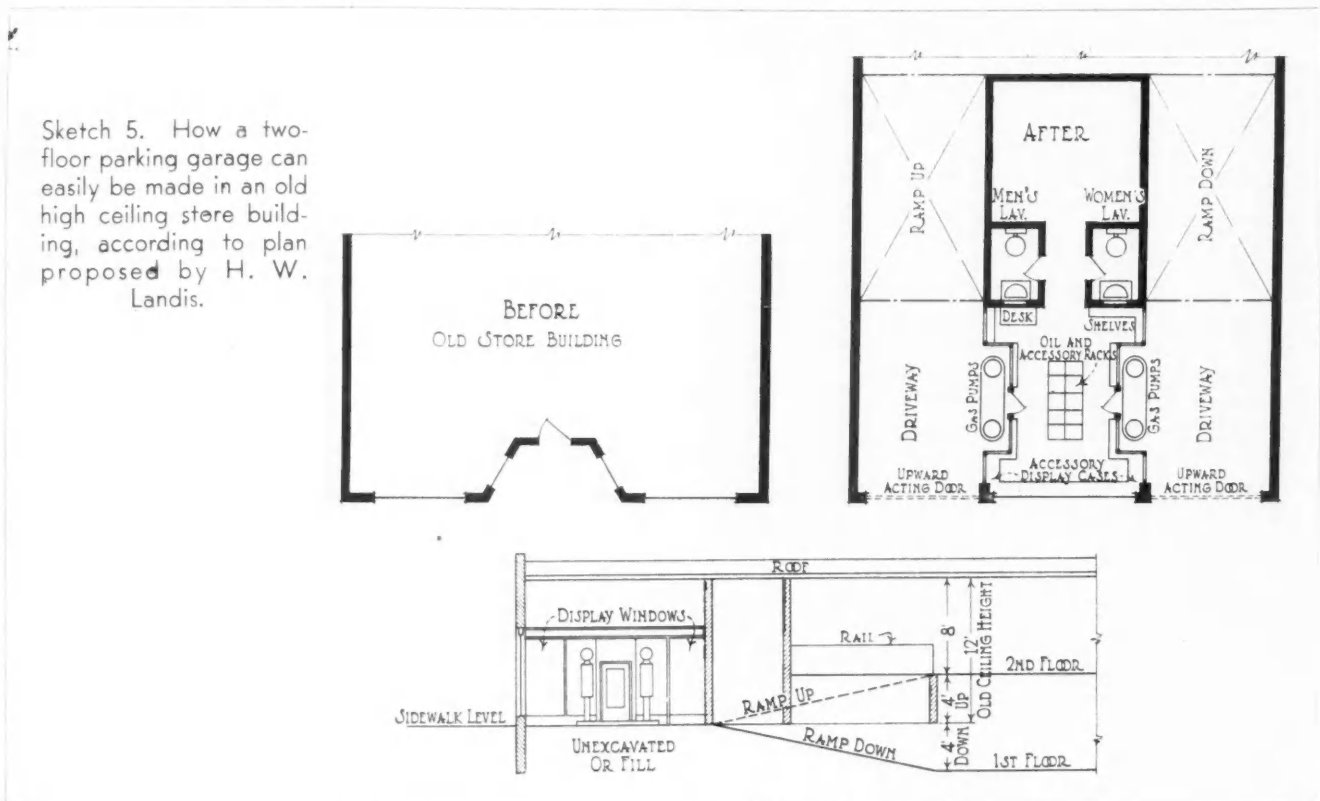
Builders should look up their local oil burner salesmen and work with them in developing this store remodeling business. It has been our observation that, quite frequently, oil burner salesmen in the larger cities lose a great deal of time in parking their cars, often getting two or three blocks from the prospect they have in mind when right next door, so to speak, from the place where they parked, is an unusually good prospect in the form of a dark, dingy store basement.

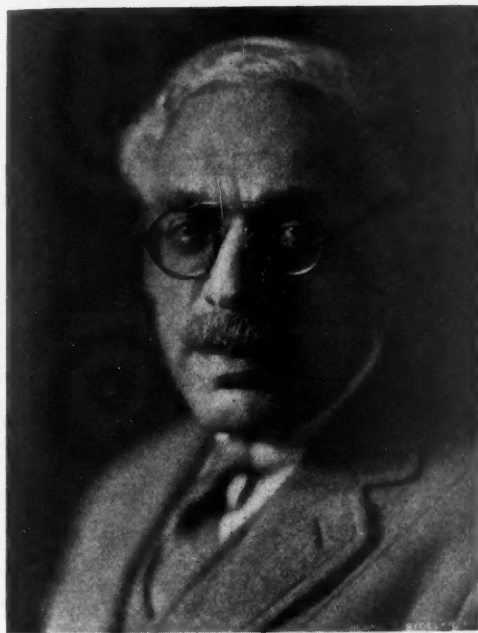
Modernizing of a basement is not a particularly difficult problem, due to the development of the many new materials in recent years that are designed particularly for this work. Use of fibre and composition boards of various kinds insulates the basement against dampness or cold, and provides a good base for attractive interior finishing.

Considerable attention should be paid to lighting. It may be possible easily to cut outside windows that will provide better light. In any case an abundance of first class attractive lighting fixtures should be supplied. One of the most modern types is the indirect or semi-indirect lighting.

With a well-selected location, well work-out plan, and the energy to put it across in a businesslike way, there is no doubt but that modernizing work of this kind can be successfully carried out in your community.

**This article outlines a live business getting idea that will help builders make money. There are others like it, and American Builder and Building Age is anxious to have them. Why not send in yours?**





Robert D. Kohn

# What Our Friends, the Architects, Expect of 1931

A FORECAST BY ROBERT D. KOHN

President, American Institute of Architects

WHAT progress has American architecture made during 1930, and what are the prospects for 1931? Do we know which way we would go in this matter of building design and construction? Have we been moving in that direction, and are we likely to keep going?

It would be quite impossible to secure from architects generally any measure of agreement on answers to these questions. But if I give my own opinion with any degree of assurance, it will be because I have tried to follow the current of forces and events in the American building world with some degree of detachment.

It seems evident to me then that American architecture does know where it wants to go, and is on its way both in the field of design and in that of materials and methods. What appears to me to be even more certain is that within the building industry of this country there are elements which are moving towards a realization of their responsibilities to the public and towards a definition and perfection of their functional relations to the industry as a whole.

Everywhere in the country there are indications of a greater freedom from conventional forms in public building design. The influence of the classic architecture of Seventeenth Century Italy is on the wane; rows of columns are no longer considered an essential element of a district high school or a library, nor the sole means of indicating dignity of function in a combined police headquarters, fire house and jail.

Indeed it is only fair to say here that perhaps the greatest progress has been made in recent times in American school architecture. It is becoming functional and virile. Our municipal architecture, and the architecture of the federal government, will free itself from outworn forms of expression as it is taken out of official governmental architectural bureaus, and put into the hands of competent architects, who will apply to it that same ability which has advanced American architecture to one of the leading positions in modern art.

During 1930 there has been much discussion of the modern trend in architecture and hints of what the coming Exposition in Chicago would do to give expression to that modernism. Unless it is not recognized that exposition architecture may properly give expression

to fleeting impulses in design then it is to be feared that buildings of the 1933 Exposition in Chicago, however interesting they may be, will have a sad and tumultuous effect on the minds and acts of that unfortunately large majority of designers who only copy.

In the world of the skyscrapers, 1930 has evidenced two signs of progress in the right direction. In this field architects have long since broken with tradition, but one indication of real progress is that they are now trying to make their designs more expressive of the skeleton within the envelope, and that they are trying to find new materials and new methods of construction more consistent with the nature of that envelope.

One valuable indication of progress in 1930 which will surely carry on in 1931 is the improvement that has been made in small house design. This can be realized by anyone who compares the houses that were being built only ten years ago with those being built today. The credit for this forward step is due to those competent men in the architectural world who have interested themselves in this field of design.

Twenty years ago we were building expensive country mansions of Tudor, or French, or Italian design, and small houses in imitation of the great ones. Nowadays we are building excellent six-room cottages, charming in design and material, more or less original in character, and at a modest price. Much has been accomplished by the publicity given by the new "small home" magazines, the small home exhibitions, and the work of groups of philanthropic architects working in the Small House Service Bureaus.

The year 1931 will surely add to the growing sentiment that a good home is not just a good house well and handsomely built. We have realized that group action is necessary. We know now that we must create neighborhoods, communities even, in order to give the right environment to a home. There are many experiments in this direction under way now, but the torch-bearer for the moment is Radburn, N. J.

Finally, in the world of architecture and building, 1930 has shown and 1931 will undoubtedly show to a greater extent, a growing consciousness of the interdependence between thinkers and workers in the building industry. In our inchoate and drifting democracy, there seems to me to be no hope of progress except through a clearer realization of functional interdependence, and this realization is rapidly making headway.

Our artistic progress can move along with certainty only when it stands on a solid basis of right relationship between the many essential elements that go into the process of designing and constructing a building.

## Wilmington, Delaware

# KEEPS BUILDERS BUSY

Local Contractors, Architects, Realtors,  
Supply Men Cooperate with Chamber  
of Commerce in Successful Building Drive

By KENNETH A. HORNER

FOR the last few years Wilmington normally has employed approximately 5,000 workers in the construction and allied industries, comprising about 12 per cent of the city's total labor. Throughout last year and up to August, 1930, there was a fairly steady volume of construction in progress which provided employment for virtually all workers in these trades.

Near the end of August, however, there came a sudden lull in construction, and a survey of projects under way and contemplated indicated that perhaps 40 per cent of the city's building trades workers would be out of employment during the winter and early spring.

Several of the leading contractors had completed every job they had on their books, others were keeping their forces intact by erecting dwellings which they hoped to sell at a later date, and several others were

working a skeleton force and dragging work out as long as possible. Architect's offices had practically no work for immediate release. Most of them had numerous plans completed and ready for bids when they received authority to proceed, but the general attitude was that "now is not the time—better wait."

Realizing that if nothing were done, the building trades employment situation would become acute, the Chamber of Commerce launched an active BUILD NOW Campaign which has produced remarkably good results.

The drive was conducted under the guidance of the Building Trades section of the Chamber with realtor Thomas B. Young as Chairman and the sub-committee on seasonal operations composed of E. S. Hickman, realtor, Chairman; Thomas J. Healy, contractor; S. M. Dillon, building supplies; G. M. Whiteside, architect; and Guy R. Ford, realtor. These men, with the manager and staff of the Chamber of Commerce, organized the drive.

A budget of \$1,500 was raised, through contributions by firms and individuals in all branches of the construction industry, to take care of advertising, printing, postage, etc. Newspapers offered to donate one page of advertising for every two pages of paid advertising placed for the campaign.

In its advertising and publicity program the committee utilized daily newspapers, billboards, cards inside and outside of street cars, slides at moving picture theatres, letters and circulars. A Speakers' Bureau was formed

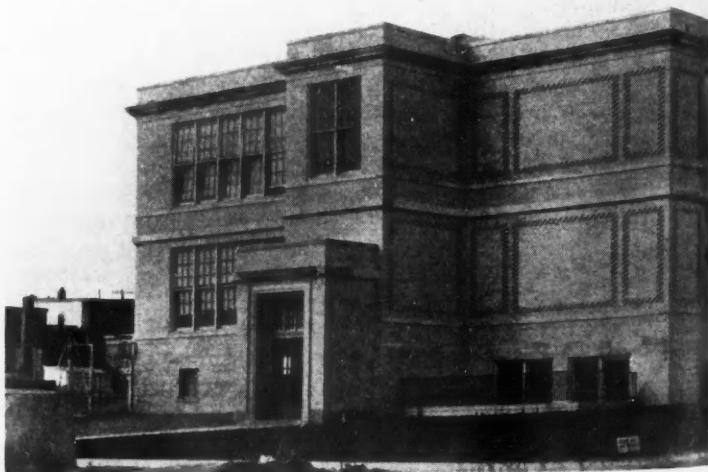
### IT WORKED IN WILMINGTON —WHY NOT IN YOUR COMMUNITY?

*CONSTRUCTION WAS lagging, and it looked as though 2,000 building trades men would be out of work during the winter. There was no other work for them.*

*BUT A LIVELY Chamber of Commerce got on the job, organized local building interests, \$1500 was contributed by firms and individuals representing all branches, and an intensive BUILD NOW drive pushed, accompanied by newspaper, car card, and direct-by-mail advertising.*

*RESULTS WERE 450 jobs started in first 20 days. Two builders reported more than a dozen new contracts the first week. Instead of laying off 2,000 men, 176 additional were hired to handle increased business. Builders were kept busy all winter in Wilmington.*

Contracts for a Wilmington School Similar to This One Were Let at Once, With a Saving of \$40,000 for the City, as a Result of the BUILD NOW Drive in Which Builders and Other Wilmington Business Men Took Part.







Contractors, Architects, Realtors, and Building Supply Men Cooperated in Putting Across the Wilmington BUILD NOW Drive. Members of the committee shown above are: left, G. M. Whiteside, architect; center, T. J. Healy, contractor; right, T. B. Young, realtor.

and brief talks were given by prominent persons over the radio and before service clubs and civic organizations. Twenty-five thousand circulars setting forth the plan, objects and need for the emergency measures were distributed through the pupils of public, private and parochial schools.

Actual inauguration was on October 16, when the President of the Chamber sent out a letter to all members urging their co-operation and assistance in providing jobs for building trade workers by starting immediately their programs of expansion, repairs and maintenance. Publicity was given to the movement in the news columns of the daily papers. On October 21 the first page advertisement of the Chamber appeared in the three daily newspapers, and the following Sunday in the Sunday newspapers. The following week the chairmen of the Chamber's eight sections sent letters to all section members urging them to provide jobs for building trade craftsmen. Similar communications were sent to all public officials—federal, state, county and

municipal—and to the various commissions, boards and institutions, to the heads of all manufacturing industries, banks, business houses, schools, etc. Personal conferences were held with public officials and large employers, and the Mayor issued a proclamation requesting the united support of the community for the movement.

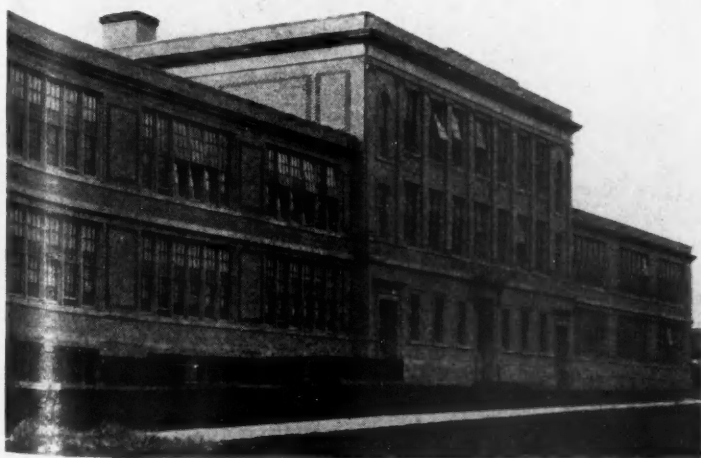
At the outset the Committee made use of a sentimental appeal, urging people to help others who needed assistance. "You Can Help Put Thousands of Men to Work Now!" was the headline of the first advertisement, and the slogan used was "Let's make it a Merry Christmas for all." Billboards and car cards urged citizens to "Put Men to Work; Do Repairs and Building Now." In later advertising and publicity emphasis was placed on the economic advantages of building and repairing at this time—savings to be made by having the work done now.

In every advertisement and circular there was printed a pledge form, listing a number of individual jobs, or different kinds of work in repairing, remodeling and improvements that residents might have performed to provide employment. These included: painting, paper hanging, roofing, guttering, brick work, woodwork, carpentry, heating, plastering, electrical work, flooring, weather-stripping, masonry, tiling, fencing, sidewalk, plumbing, porches, house additions, stone work, roadway, fireplace, laundry, glazing, etc.

Persons who could provide such work were requested to fill out these pledges, check the kind of work they had available, write in their names and addresses and send to the Chamber of Commerce. They also were asked to indicate if they wished estimates of work prepared or aid in financing. Arrangements were made with contractors to provide the estimate when requested and with the local banks to finance construction and repairs where such assistance accorded with sound policy.

Response of the community to the effort to meet the emergency was immediate. Definite, tangible results were noted within 24 hours. Two contractors reported more than a dozen new contracts directly traceable to the campaign during the first week. A paint store re-

(Continued to page 114)



# LARGER UNITS



**Five-Ply Fir Panels in Large Sizes Show Remarkable Results When Used as Sheathing, Rough and Finish Flooring, and Wall Lining**

Plywood  $\frac{3}{4}$ -inch Thick by  $8\frac{1}{2}$  by 16 Feet Being Hoisted Onto the Job. The men soon got the knack of handling these big pieces.

**T**HAT the home building industry is still using materials in the small sizes as a thousand years ago—sizes to fit a man's hand—is the complaint of the buying public that is looking for lower costs in homes, as elsewhere, through the use of mass production and the employment of larger units. Plywood, coming in large panels, is attracting serious attention from builders as a potential cost cutter of quality construction.

The past decade has seen a tremendous increase in the use of plywood as a building material, particularly in cabinet work and built-in features of modern dwellings.

And now demonstrations of this material are in progress which suggest a much wider range of usefulness and offer the progressive builder a number of ideas in residence construction.

Aberdeen and Hoquiam, twin cities of Grays Harbor, in the State of Washington, are two of the important centers of Douglas fir plywood production, so it is quite fitting that experimental work in the use of plywood should have been undertaken in them. Two large homes have been built there making extensive use of plywood.

The first of these "plywood homes" was erected in Hoquiam last spring for E. W. Daniels. In this house all of the walls and ceilings and all of the floors except those of hardwood, are made of plywood. With the exception of the library, which is paneled in black wal-

nut veneer, all of the walls and the ceilings present exactly the appearance of modern plastered walls.

"The advantage of these walls over plaster," declares J. A. Sundquist, the contractor who erected this demonstration building, "is that they will not crack, warp or shrink. The smooth, sanded surface takes any kind of finish readily.

"Because of its structural strength and lightness, plywood gives less strain on the walls and more support than other materials, which makes a more substantial building.

"As panels were available up to  $8\frac{1}{2}$  feet wide by 16 feet long, not many joints were required in each room. Of course it was necessary that wherever joints occurred no seams should be visible. Particularly on the ceilings, the panels needed to be nailed securely.

"These conditions were met by inventing a 'strip joint.' Five-ply panels were used for these walls and where they were to be joined a strip  $1\frac{1}{4}$  inches wide by  $\frac{1}{4}$  inch thick was cut from the edge of each. Thus, when the edges of two panels were fitted together, a space of  $2\frac{1}{2}$  inches was left that was grooved out to the depth of  $\frac{1}{4}$  inch. The panels were strongly nailed in place with nails driven in these sunken edges. Then a strip of 3-ply veneer,  $\frac{1}{4}$  inch thick was fitted closely into this space and glued. This covered the nail heads and when the joint was sanded it was practically invisible. After painting the wall or ceiling the joint could not be detected."

# S CUT COSTS

## Experience Building Two Washington Homes Points to Lower Costs and Higher Quality. Builder and Architect Describe Methods Used

All the floors that were to be covered with carpet or linoleum were built of 5-ply plywood. This proved an economy both in cost of material and labor, since the large sheets were laid more quickly than the usual narrow flooring. Another advantage was in producing a floor that is sound-proof and resilient.

This was accomplished by first placing upon the sub-floor a layer of deadening quilt and upon this laying sleepers of 2 by 4's, spaced about 18 inches apart, but not nailed to the sub-floor. The large sheets of plywood were then fitted and nailed to these sleepers, making a floor that rests upon the deadening quilt.

Another interesting use of plywood has been discovered in building the new home of A. R. Wuest, in Aberdeen. The outer walls of this house have all been sheathed with plywood.

Advantages claimed for this are higher insulation and stronger and more rigid walls with a saving in time and labor which makes it possible to sheath with this material at no increase in cost.

For this sheathing 5-ply plywood  $\frac{3}{4}$  inch thick has been used although it is stated that  $\frac{1}{2}$  inch material would be quite satisfactory. Before the plywood was applied it was given a coat of boiled linseed oil and the edges sealed with emulsified asphalt or paint. This seals it against moisture penetration.

The plywood sheathing is nailed directly to the studs and because this material takes nails without splitting and holds them firmly, it can be nailed so securely that when finished the wall is very rigid with a high resistance to racking under the stress of heavy winds.

All joints between the panels are sealed with asphalt or paint so that the sheathing is wind-proof and the dead air space between the sheathing and inner wall affords an insulation which requires no building paper or other insulating material.

In both the Daniels and Wuest homes, plywood has been used for as wide a variety of purposes as possible. Where curved surfaces or rounded corners were desired, flexible sheets of plywood have been curved to the desired proportions.

"Naturally we have been interested in finding additional uses for this material," explained Mr. Wuest, "but we are convinced by our own experience that many of the building methods which our architect and builders have worked out in these houses will prove valuable to builders and contractors all over the country."

Clarence W. George, a prominent architect of the Pacific northwest and a member of the American Institute of Architects, has pioneered the use of plywood as



Sawing Out Window Openings in Large Panel Plywood Sheathing in Wuest House.

a structural and finish material; and his experience and findings over a period of years indicate interesting possibilities for a much wider use of plywood. He says that to use plywood for sheathing will probably be most profitable for any constructor. The major benefit gained is that the building becomes insulated against heat, cold and dampness when plywood is used under any roofing or siding material.

Furthermore a building which is constructed with sub-floors and wall sheathing of plywood is practically free from failures resulting from diagonal and lateral stresses. These stresses are caused by frame shrinkage, wind pressures, and sometimes settlement of ground. This shrinkage develops diagonal and lateral stresses. Plywood used as sheathing will strengthen the frame materially and cut down these cracks and failures to a minimum.

### Plywood for Floors

The conventional method of laying  $\frac{3}{4}$ -inch dressed and matched sub-floors permits the transmission of sound, heat, and cold; and creates, if not properly nailed, a squeaky floor, and last but not least, creates channels for transmission of dust and odor from heating plants. Mr. George states that his experience with plywood used as sub-floors has proven that all the above conditions are corrected and that a dwelling with plywood sub-floors becomes insulated against vertical transmission of sound, heat and cold, dust and odor, or gas fumes, and absolutely stops noisy and squeaky floors.

Where the floors of a dwelling or any room which is to be carpeted to the walls or covered with linoleum is contemplated, plywood may be used with very suc-





More Than 100 Square Feet of Ceiling Completed at Once! Lower costs should come when workmen become familiar with the technique of handling these big panels.

cessful results. The cost of the labor and material in this case is much less than for other sub-floors of equal strength and durability. One man can lay down and nail a panel of plywood 4 feet by 8 feet in the same time that it would take a man to fit and nail down about two pieces of flooring as ordinarily used, and he will cover about ten times the area. This would represent a substantial saving in labor. The cost of plywood when used as finished flooring is probably in most cases less than any other forms of flooring. When plywood is used for finished floors the floor becomes a solid monolithic piece of construction, eliminating the noise that develops often in poorly nailed flooring, the squeak or cracking sound which is often heard when walking over it.

#### Relation of Costs

Plywood is competitive in cost to practically all materials that it replaces. The cost will vary, due to location, length of transit of material, labor conditions, and quantity of material used. When used as sheathing the cost is probably less in most cases than other manufactured boards, Mr. George states.

#### Cost of Application

By actual experience and recording costs Architect George has determined that when plywood is used as sheathing the labor consumed is 60 percent less than the labor necessary to apply dressed and matched sheathing 8 inches wide. Two carpenters can cover double the area with plywood in the same time allowed for nailing on and placing 1 by 8 dressed and matched

sheathing, the same quantity of nails being used in each case and the same conditions of sheathing and cutting being developed. When plywood is used for sub-floors and finished floors the same proportion of saving in labor will exist, and in some cases a greater saving in labor will develop when larger unbroken areas are to be covered.

#### Effort of Application

When plywood is used as sheathing on walls and roofs the effort necessary to put this material in place is not more than any other form of construction and in some cases considerably less. Two carpenters applying this material on a vertical wall can raise and put in place with very little effort the largest practical size panel that can be used.

Architect George states that it has been his experience to superintend the placing of panels 8 feet by 9 feet in size on the wall of a building at a second story height, and he records the fact two men can raise this panel and put it in place with very little effort. The weight of this panel is easily handled by two men and in a few minutes the nails are all in place and 72 square feet of surface has been covered in a very short time. When plywood is used as flooring material the effort necessary is almost negligible as there is practically no lifting to be done; the panel is merely moved into place and nailed and great areas are covered in a surprisingly short period of time.

The above conditions of labor and effort necessary to put plywood in place are typical of any condition or place that it is to be used.

### Interior Wall Covering

Where plywood is used to cover the walls on the interior of a dwelling or apartment, there are many possibilities. If the architectural scheme for the interior of any room requires a smooth uninterrupted wall, plywood may be used most advantageously. Joints between panels may be treated or constructed so that they will not separate. When the decorative scheme or paint is applied to the surface the joints disappear and the wall becomes smooth and even and uninterrupted. By different mediums of paint and decorative treatment most attractive results may be obtained. Plywood will receive any finish that is desired, and in some cases where certain materials are used the surface is hard and strong and wear-proof. In other cases where the architectural scheme calls for a panel treatment and the walls are designed with the use of mouldings, such as is often done in Colonial architecture, plywood presents a condition which is most attractive. By the use of mouldings and plywood the most refined and elegant results can be obtained. The finish placed on this type of work may be painted and stippled, enameled or over-glazed, or the wood may be left in its natural condition and given a rub or waxed finish, and in every case it develops a very beautiful room if designed properly.

During the last few years and by experiment recently, sandblasting of wood has presented a most interesting medium on walls for different elements of design for interior work. If properly composed sandblasting on plywood presents the most attractive results.

### Plaster and Stucco Base

If stucco or plaster is to be applied to any surface of a wall, interior or exterior, plywood has proved very successful as a base for this material. A bond exists between the plaster and the plywood, which is permanent. Plywood is being manufactured for this use and is especially treated for this particular condition. When used in this manner all the physical qualities such as the

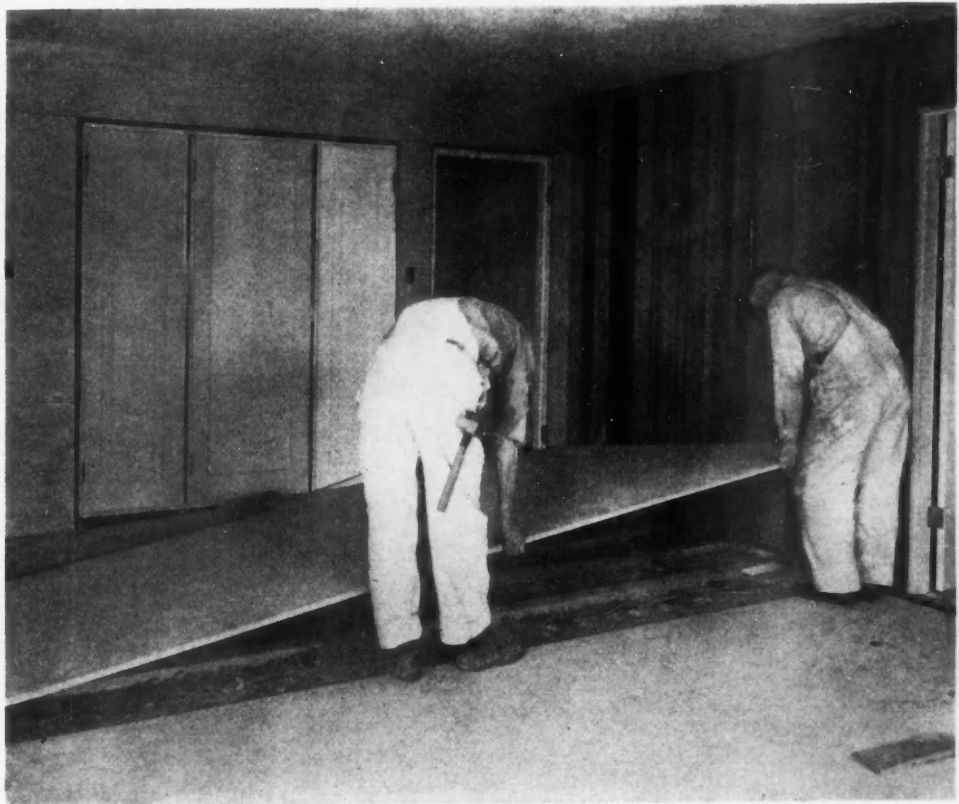
provision for heat, cold and sound transmission, and great strength on the building are taken care of in one operation, therefore making it most desirable in this respect, causing a material saving as compared to the use of other materials, Architect George maintains.

### Structural Uses

In localities where solid wood beams of longer spans are contemplated, a laminated beam or truss may be built up of plywood and bolted together with proper size bolts, spaced in the proper manner subject to the condition of the stresses and loads on the beam or truss. A laminated beam made in this manner is stronger and stiffer than the solid wood beam of the same span and size. The cost of building a beam of this nature is quite a little less, especially in localities where timber is not at hand, but where it has to be shipped in from distant points.

Where surface strength is required or existing construction is to be reinforced, plywood is useful. This material can be nailed on or bolted to any existing construction in one piece, covering a large area and developing strength in all directions in the same manner as a steel plate is riveted to or bolted on the surface of intersecting points of any steel frame directly back of it. The tensile strength of plywood is very high and can be applied in any direction, making it different from the conventional  $\frac{3}{4}$  inch or 2 inch lumber nailed or bolted to the surface of any existing construction, as is commonly done.

With a given size panel or frame covered on both sides, in one case with 1 by 8 dressed and matched lumber, and in another case with plywood of the same thickness, it has been proven that the latter will stand over four and a half times the load before any failure is recorded when the load is applied in the direction of the diagonal of the square. This proves that this material in a structural sense is much stronger than any other form of wood construction.



A Better and Cheaper Floor.  
Laying sound proof floor.  
Plywood nailed to sleepers  
that rest on deadening  
material.

## New Models BRING PROMISES



Clean Cutting  
Through Plas-  
ter and Tile.

**T**HIS is the time of year when manufacturers of automobiles are announcing new models, and are proudly displaying the latest gadgets and mechanical contrivances that make American motor cars the finest in the world.

Manufacturers for the building trade have taken a lesson from automobile experts and have put their engineers to work perfecting equipment that will give the very maximum of speed, accuracy, and safety. The trend is best shown in the field of portable electric hand tools, and the large number of new models show tremendous improvement in this field.

Of all times, this is one when money-saving equipment is especially needed by builders. Every dollar that can be shaved on construction costs now means additional business, for the "low-cost" talk has become in

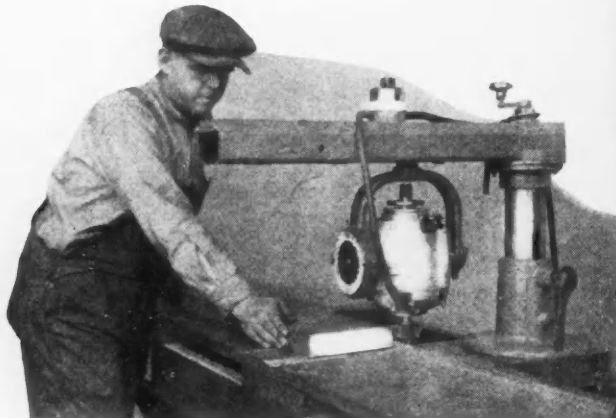
the last few months the biggest selling point the industry has.

Any equipment that will increase the efficiency of workmen from thirty to a hundred per cent and in some cases as high as eight hundred to one thousand per cent certainly demands the immediate attention of the alert builder today.

Tests of the new models of portable electric saws show the tremendous advantage they have over the old-fashioned hand saws. For example, manufacturers of one of the recently announced models have shown that this light-weight machine will rip a three-inch by twelve-foot plank in one minute, or cross-cut a three-inch by six-inch plank in two seconds. One of the recent models in a comparative test did the cutting on one job in three hours that formerly took fourteen to sixteen hours by hand work.

The electric saw has now come within the buying range of even the smallest businesses, for, like the new automobile models, increased efficiency has been accompanied by decreases in actual cost. The light-weight models are coming to be regular equipment for carpenters also, and the men who have them are in a better position to get jobs than those without.

Below is Handy Power Woodworker on the Job; Shaper Knives are Quickly Interchangeable with Circular Saw. To right workmen are electrically drilling concrete theatre floor for seats.





# OF LOWER COSTS On the Job

**Have YOU Seen the  
New Models? They  
Look Good — Com-  
pact, Light, Powerful**

Let us take a look at these new saws to see how they have been improved to meet the needs of this 1931 period of fast work and keen competition.

In the first place, the new models are more compact, light-weight, and efficient. There are less exposed parts, fewer controls to manipulate, and more ruggedness of construction. The trigger switch, which has become a standard feature, has been improved so that current is automatically shut off when released. New methods of direct gearing have increased speed of revolution and eliminated friction losses. The cutting power of the new models is extraordinary, and a few years ago it would have seemed impossible that such small compact machines could saw through such heavy and deep materials at such great speed.

Simple and safe operation is the keynote of the new electric saw. Improved guards make them practically fool-proof, and niceties of design have developed perfect balance, ease of adjustment, and accuracy in making delicate cuts to an amazing degree.

In cutting jack rafters, flooring, bridging, dados, long and difficult cuts and through heavy materials, the improved models function with great efficiency. Their lightness and simplicity of design make them easy to use

Easy and Accurate Power Trimming.



anywhere. Some of the new features are designed to eliminate wrist strain, give full vision of work, and provide rubber cushions to absorb shock and minimize vibration. Saw blades are easily and quickly changed.

Perhaps the most valuable recent improvement has been the perfection of the electric saw in cutting other materials than wood, such as fiber, lead, brass, plaster board, gypsum, slate, limestone, asbestos cement, porcelain, etc.

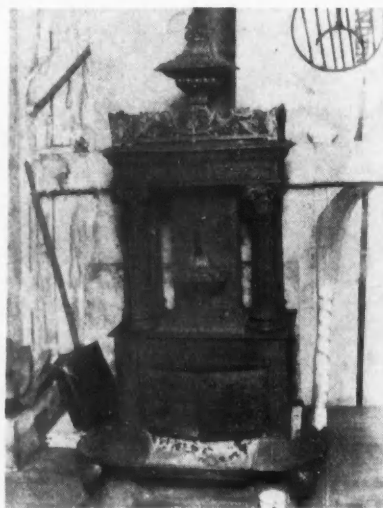
An interesting recent development has been the devices designed to convert the portable saw into a table or bench saw. When clamped in place the ordinary portable will do accurate cross-cutting, ripping, rabbetting, grooving, etc., either straight or bevelled.

Yes, the day of efficiency in builders' equipment is at hand, and the progressive men are making much of it.



Surprising How Much Slow and Costly Hand Drilling of Masonry is Still Indulged in! The electric drill, to left, does this job so much quicker and better. Below a clever saw is illustrated.





A Relic of the Past. One of the early ancestors of modern heating systems, in the country home of E. P. Brown near Montrose, Pa.

## Heating Progress Boon to Builders

Health and Comfort in Present Day Air Conditioning Heaters  
Such as Ben Franklin Never Dreamed of

**D**ISSATISFACTION with the heating comfort derived from fireplaces led the ingenious Benjamin Franklin to design and build the first cast iron stove ever made in America. He termed his stove "the Pennsylvania fireplace." Franklin was led to invent the stove because of the discomfort and disadvantages that accompanied the use of the old style fireplace, such as wastefulness of fuel and inordinate drafts.

Franklin opined that women in particular suffered from drafty conditions created by the fireplace. "Women particularly," he wrote, "as they sit much in the house, get colds in the head, rheums and defluencies which fall into their jaws and gums and have destroyed early many a fine set of teeth. Great and bright fires do also very much contribute to damage the eyes, dry and shrivel the skin and bring on early appearance of old age."

Franklin undoubtedly did not envision the highly efficient heating systems of today, of which his crude stove was the forerunner. Nor did he nor anyone else then conceive that the heating plant would be the fount of a winter indoor comfort comparable to the balmy, soft days that characterize Miami in winter, and in addition, the means of relieving the discomforts of muggy summer weather.

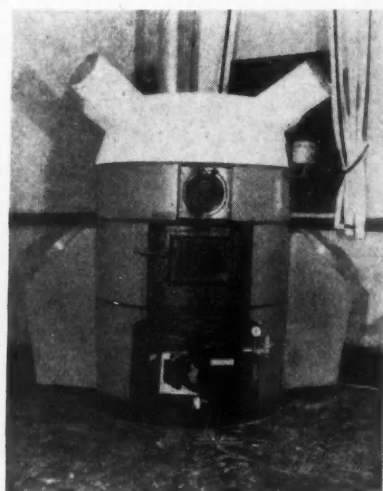
In spite of the fact that today's heating systems are highly efficient, if they are of proper size and properly installed, the time is not far distant when present day systems will be virtually out of date and the new systems will be as far superior to today's control heating systems as the latter are superior to Franklin's cast iron stove.

The trend of the day is the development of efficient, economical and fool-proof air conditioning systems which will be the source of a genuine indoor comfort heretofore unknown in the home and in addition, will efficiently safeguard the health of the occupants. Franklin said that "many of the diseases proceeding from colds, as fevers, pleurisy, etc., fatal to very great numbers of people may be ascribed to strong drawing chimneys whereby in severe weather a man is scorched before while he is froze behind."

The modern central heating plant has in large degree obviated these adverse conditions and in the average home where efficiency marks the installation, we are fairly comfortable on all sides. But indoor comfort is not merely a matter of generating heat. There are other contributing factors and the builder who would keep in the van should give serious consideration to the style of heating system that he installs in his buildings.

Efficient, satisfactory and comfortable home heating is dependent upon the factors of warmth plus humidity plus air motion and uniform heat distribution. The two heating systems in general use, namely the radiator type systems and the warm air systems are highly efficient as heat generators, but up until the past few years, generating heat has been their sole function. Today there are several devices on the market designed for use in conjunction with radiator type systems for humidifying the indoor air. Some of these are of the cabinet type for installation in walls and a later development is a radiator-humidifier which is installed in the heating line in lieu of a radiator.

In the warm air field the humidifying unit is an



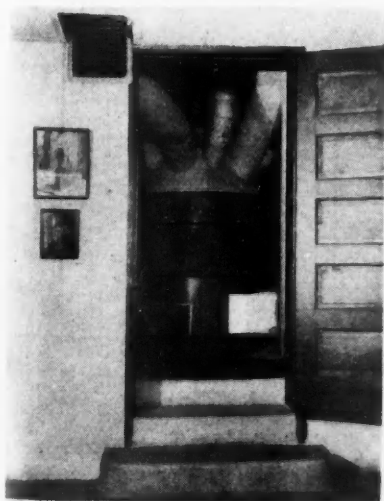
A Modern Type of Domestic Central Heating and Air Conditioning Plant Arranged with Oil Burner Unit.

Basement of E. T. Marsh Home, Geneva, Ill. This is a play and entertainment room, popular with all the family. During the winter season it receives its heat from the warm-air grille installed in ceiling shown in picture below.



integral part of the central heating plant, especially systems which inject the vapor directly into the air by way of the heat ducts. This unit receives a controlled supply of water direct from the water main and is of sufficient capacity to evaporate and inject into the home atmosphere as much as 25 gallons of water a day. In the average home of five or six rooms with a cubage of 12,000, at least eight gallons of water should be evaporated daily during the winter season to offset indoor moisture deficiency. This is about six or eight times the amount of water evaporated by the old style furnace pan, and to some it may seem like a prodigious amount of water to inject into the home atmosphere. However, it is infinitesimal when one considers that eight gallons of water constitute less than  $1\frac{1}{2}$  cubic feet and that during a 24-hour period almost half a million cubic feet of air pass through the average small home.

Inasmuch as the American public is fast becoming air-conditioning conscious, that is, cognizant of the indispensability of suitable proportion of moisture in the home air, and other factors that go to make for ideal indoor conditions during the heating season, it is safe



The Heating and Air Conditioning Plant in the E. T. Marsh Home is Partitioned Off from the Recreation Room.

to assume that today's house that is minus proper air-conditioning facilities will be considered obsolete within a very few years. Factors of this sort should be given due consideration by builders, not only from the standpoint of furnishing their clients with very latest type of homes, but also from the standpoint of financing. It is obvious that the home that is not up to date is not so suitable as a mortgage risk as one that is modern in every respect.

Warmth and adequate moisture are but two of the requirements of satisfactory home heating. Two important elements are air motion and uniform heat distribution. Heat distribution, today is by means of radiation, convection and gravity, generally a combination of these three. But even these time honored principles of heat distribution are being discarded and this is especially true in modern warm air heating systems.

The latest type warm air heating plants are equipped to provide forced circulation of the warmed air. This is by means of an electrically operated air propeller unit that is installed in the dome of the furnace jacket, the operation of which is controlled by thermostats. These greatly increase the velocity of the warm air flow from the central heating plant, although the force of the air motion is not perceptible nor sufficient to cause drafts. It is sufficient, however, to obviate the formation of pockets of stagnant or overheated air which are often the cause of much indoor discomfort and to overcome the resistance offered by a head of cold air in a distant room that ordinarily would prevent circulation by gravity.

Another vital achievement of forced circulation lies in uniform distribution of heat, and there are no wide variations in temperatures such as characterize homes heated the old style way. Temperatures at floor and ceiling levels are virtually uniform.

In the past home builders and home buyers have in a sense ignored the matter of heating plant installation. Buyers have been satisfied if the heating plant were big enough to provide all the heat that was wanted. But today conditions are changing. Home buyers are favoring plants that both heat and humidify.



# Time Saving Trim Details

## Short Cut in Finishing Door and Window Openings

THERE is an ever-increasing demand for speed and the simplification of labor operations in construction, and nowhere in the whole industry is this demand so insistent as in speculative building in the home development and apartment house fields. One of the largest contracts in such jobs is plastering which, because of its magnitude and importance to the decorative effect of every room of necessity holds up other trades, often for unreasonable periods. Builders are interested in any short cut which will reduce the plastering time or the time which plaster must be allowed to dry before other trades can proceed.

The gypsum plaster mortars have considerably reduced the drying-out period which must be allowed between successive plaster coats.

As soon as a room is plastered out the builder is anxious to begin trimming the openings and laying finish floors, though the plaster is still wet enough to damage the trim. The demand for speed often outweighs sound judgment, however, and all too commonly we find that as soon as the hard finish plaster is on and the rough floor is cleaned up the carpenters are put to work laying finish floors, erecting trim and hanging doors.

### Choice, Warped Trim or Delay

The results are bound to be ruinous to dry trim which commonly has a moisture content of four to eight per cent before it is brought into the saturated atmosphere of a room whose walls and ceiling are still almost dripping wet. The unfinished wood absorbs a great deal of moisture and warped and cupped trim results. Any millwork man or builder knows the cause of this trouble but usually the builder rushes the job anyway. A logical conclusion would be that the only solution is the use of materials which will not be damaged by excess moisture.

The integral steel buck, jamb and trim has come into use because it is cheap, not so much in first cost as in erection and because it is put in before plastering and may be enameled as soon as the plastering is finished. Ordinarily it is used in tile or gypsum block partitions but lately it has even been used in wood stud partitions. The metal buck shown in A of the accompanying sketches has no plaster grounds and so is architecturally

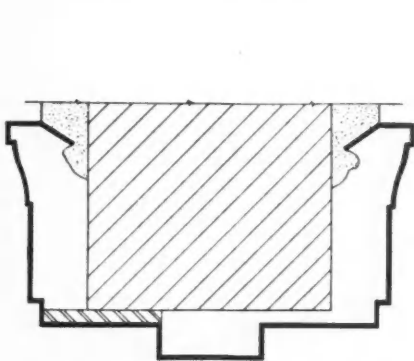
dependent upon careful screeding, darbying and floating. It is heir to all the many other objections to steel trim but nevertheless displaces much wood trim because it may be put in cheaper and quicker than ordinary wood trim. These two requirements must be met in wood trim if we are to have wood used in the more cheaply built buildings.

From Frank F. English, prominent architectural woodworker in the New York market, and Frank H. Alcott in charge of the New York Office of the National Lumber Manufacturers Association, comes a description of a method of applying trim to buildings in Westchester County which answers these difficulties with safety and simplicity. The jamb details in B and C of the accompanying sketches show the application of this trim to door and window openings. The details are unusual in several ways.

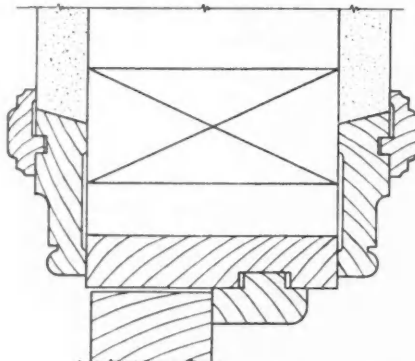
The walls and partitions are lined up to a  $3\frac{3}{4}$ -inch thickness and lathed with No. 1 wood lath. A single 2 x 4 buck in non-bearing partitions is faced with blocking wedges and a jamb, either single rabbetted or fitted with a stop as shown in B, and is set in place. The jamb is only  $3\frac{3}{4}$  inches wide and has its edges flush with the stud line. Then a narrow casing similar to that illustrated is finish nailed to the jamb and securely nailed to the face of the same stud to which the first ends of wood lath are nailed. Now the partition is ready to plaster.

If jambs and casings are to be erected before the walls are plastered they must be given some effective moisture proofing treatment. One good way is to kiln dry the lumber to four or five per cent moisture content and then immediately after the pieces drop from the molder run them through a bath of hot linseed oil. This oil protects the casings from moisture while the plaster is drying and is a non-injurious filler against which scratch, brown and hard finish plaster coats may be applied as rapidly as advisable.

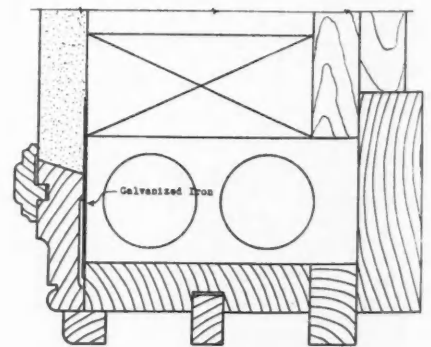
The face of the casing immediately adjacent to the plaster edge will be slopped over somewhat with hard finish and the groove into which the molded back band sits must be cleaned out. The joint is readily cleaned with the end of a spike or a cut flooring nail. Setting the back band is a simple operation and may be done very



A. Steel Combination Buck and Jamb in a 4-inch Tile Partition. This is the cheapest type of steel trim.



B. Wood Door Jamb and Trim Applied to a Frame Partition Before Plastering. Only the  $1\frac{1}{4}$  moulding need be applied after the plaster has dried.



C. Wood Trim Applied to a Window Jamb to Match the Door Jamb Shown in B.

soon after plastering if the back band is primed at the mill. A similar band is used along the top of the base board and mitered into the band which finishes the edge of the door casings.

The reason for the economy of the method of trimming openings will be readily apparent. Less lumber is required than for ordinary trim because the members are narrower. The trim costs almost as much to erect as does ordinary trim but all the labor and material cost of special plaster grounds is eliminated. Priming is done cheaper at the mill by dipping than by priming at the

job. Best of all, the main work of trimming can be done while the lathers are at work and it is necessary to add only the back band after plastering before the decorators can come in. If the material has been properly primed before erection, there will be no trouble with warped casings no matter how fast the job is rushed. The speculative builder gets the warmth, beauty and durability of wood trim at a price which compares very favorably with that of steel. Finishing costs are reduced as the wood trim does not come on the job with a red factory priming coat that will show through.

## Two Elevators in One Shaft

### Express and Local Service Arranged in Same Shafting

**A**N elevator of a new type, with two cars operated separately in the same shaftway, has been placed in regular service in the Westinghouse Electric & Manufacturing Company's main office building at East Pittsburgh, Pa.

"This new elevator, which is known as a 'dual' elevator, is the first actual installation of its kind," said Mr. H. D. James, consulting engineer in explaining this improvement.

"It has long been obvious that if cars serving both the upper and the lower floors of a high building could be operated in the same shaftways, the shaftways now devoted exclusively to 'local' service could be in part, or entirely, omitted and a considerable amount of additional revenue producing floor-space could be secured.

"For example, a study of the elevator layouts of certain typical projected buildings shows that the use of dual elevators in these cases would save floor space that could be rented for from \$35,000 to \$85,000 a year. At 6 per cent interest, these sums represent capital investments ranging from a half million to over a million dollars; and it can be said that the entire elevator installation for many buildings over 20 stories high can be financed from the additional income made possible by substituting dual elevators for separate banks of local and express cars.

"The engineering difficulties involved in the design of a practical and perfectly safe dual elevator system are very great, but as shown by the actual installation at East Pittsburgh, it has been possible to solve them satisfactorily.

"The details of the operation of a dual elevator will naturally vary with the height and character of the building, the number and speed of the elevators, and many other conditions, but the following will illustrate some of the features of an installation for a 20-story building.

"The upper car of the two is the express car. It starts from the street level and, running without stops to floor 11,

serves the floors from that point to the top. It is entirely unrestricted as to its operation except that it is automatically prevented from running downward while the lower car is running upward. It can, however, be 'inched' up or down by hand in case of an emergency.

"As soon as the express car is out of its way, the lower or local car, which has been waiting at a basement level, rises to the street level and then serves the lower ten floors. It, too, is unrestricted except in one respect—it cannot approach the upper car within a predetermined distance. Should the attempt be made to run the lower car up against the upper one, it would be automatically slowed down and stopped at the proper point and held there until either its operator runs it downward or the upper car moves farther upward.

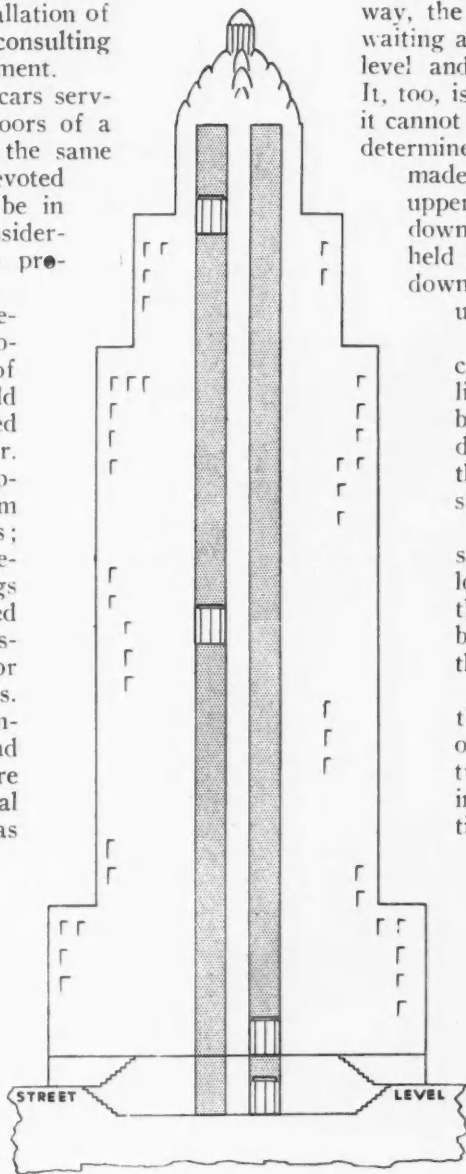
"Car operation is so timed that both cars will normally reach their upper limits of travel at about the same time, but if the express car arrives at its destination first, it is held there until the local car completes its run and starts downward.

"On the descent of the two cars, the same safety precautions apply—the lower car cannot run upwards towards the upper car, and the upper car will be stopped if it comes too close to the lower.

"Safety is insured by the use of three independent safety systems, one of which is electrical while the other two are mechanical. A signal system in the car informs the operator at all times of his own position and that of the other car and also indicates exactly what is happening should his car for any reason be automatically delayed or stopped.

"The dual elevator at East Pittsburgh serves 11 stories. The cars operate at 600 feet per minute and each can carry 3,000 pounds."

Frank J. Sprague, the eminent electrical engineer, has acted in a consulting capacity in connection with the development of this elevator. It is expected that this improvement will be quickly adopted.



Diagrammatic Sketch Showing Layout of Dual Elevator.

# Gingerbread House

## A Fairytale in Stone

Designed and Built by Joseph Urban for  
F. H. Bennett at Hamburg, New Jersey

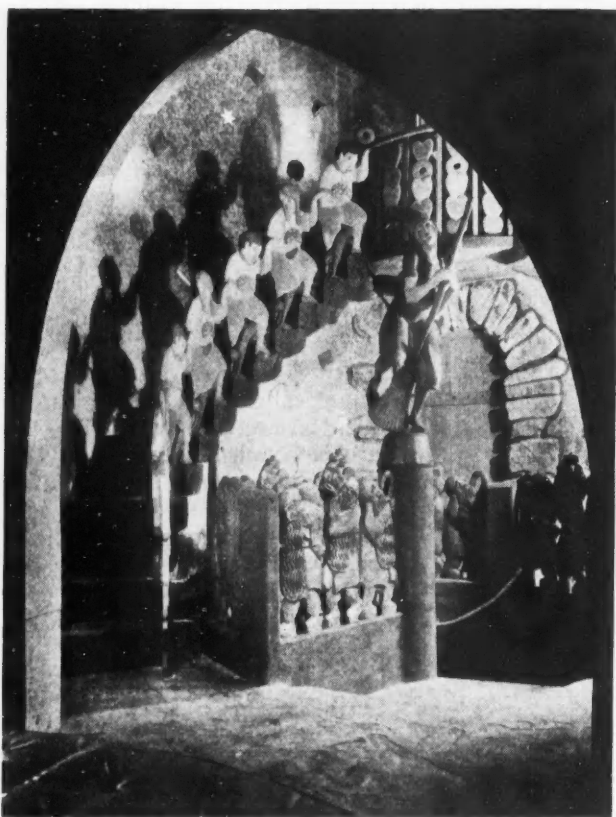
WHEN history, industry and artistic genius combine to create something of unusual public interest, the result is startling, as is well shown by The Gingerbread House designed and built by Joseph Urban for F. H. Bennett, famous whole wheat miller and baker of New York.

On the property with the historic Governor Haines Mansion at Hamburg, N. J., which Mr. Bennett is restoring to be fitted as a museum of relics of American wars, there stands a little old mill—built before the war of 1812. This business man wanted to preserve an early American mill and picked out the little old stone structure built by John Sharp in 1808. Across the flagstoned courtyard was an old stone lime kiln whose flat top jutted up 15 or 18 feet, adding a touch of desolation to the beautiful picture of the old mill and mill stream with the stately mansion of New Jersey's first governor just across the way.

Attending the opera, Hansel and Gretel, Mr. Bennett's eye was taken by the quaint fantastic fairyland Gingerbread House in the second act. He went to see the celebrated decorator, Joseph Urban, who builds the



Night View of the \$50,000 Castle of Children's Dreams.



The Hansel and Gretel Staircase in the Gingerbread House.

stage settings for the Metropolitan Opera. To his proposal that Urban build a Gingerbread House on the stone foundation at Hamburg, Urban replied that his work had always been for interior use. "Make this your greatest work, an everlasting monument to you, then," urged Bennett.

Urban went to work and for two years his limitless imagination and astounding creative genius have had full play in building a dream palace such as the wildest fancies of fairytale writers have never surpassed. It is made of poured stone, and is colored inside and out with all the radiance of the rainbow. Its permanent snow roof is like a cake icing six inches thick, with sugar hearts, crescents, and circles encrusting it in a myriad of beautiful tints. A life-size horse and rider, in full armor, gallop in the direction of the wind from its roof-tree, and a giant black cat crouches on a candy stick shaft that rises beside the dome-like exterior of one of the mystic rooms that will make the trip of any child through the building an unforgettable experience.

It may be entered from an exterior stone staircase, balustraded by elephants that look like giant animal crackers,—or one may go in the wierdly decorated ground floor door whose latch is lifted by pressing down the stuck-out tongue of a grimacing iron cat. From this door steps go down through a strange passage-way. Then a circular staircase is mounted and Hansel and Gretel form its banisters, holding each other's hand and dressed in their quaint colored costumes.

There is a giant metal plum pudding in a room at the head of one flight of the stairs, its walls studded with cork cookies. A witch rides a broomstick at the top of another flight, and a great wire spider web stretches



across the turret high above. From it the strange, many-legged spider with glittering glass eyes runs down a wire strand and dangles thrillingly above the visitor who has been prepared for his descent.

With bated breath the little ones will gather around the caldron in which the Giant was brewing his dinner from the bones of his victims when Jack slew him. The fire is there and the flame colored walls are studded with bones. It is truly a place of wonderful scenes, a complete transportation into fairyland for the mothers and children to whom it is freely open every day.

Mr. Bennett and his company, Wheatsworth, Inc., have, in this enterprise, done something on a par with Henry Ford's preservation of the Inn at Sudbury, Mass. Daniel Haines, who occupied the mansion on this property, was law partner of Daniel Webster; also being New Jersey's first governor under its State Constitution, originator of the free school system and first to introduce prison reform. In addition to recreating interest in nationally significant history, The Gingerbread House adds a note which will make new history all its own.

## No Fuses to Blow!

### New Circuit Breaker System Protects House Circuits and Gives Builders a New Sales Advantage

**L**OCATING and replacing a blown-out fuse in the average home fuse panel is not pleasant, although it is a fairly frequent duty for the home owner. The more complete his home is with electrical conveniences the oftener, it seems, he has to run down cellar and grope in the dark to find and replace blown fuses. But now this is all to be changed. A prominent concern has developed a combined switch and circuit protector, the use of which eliminates all dependence upon fuses for circuit protection.

This device can be operated as an ordinary "off" and "on" switch to control the circuits as desired: and, in addition, it has built into it a trip mechanism which causes the switch to open if the current exceeds the maximum for which it has been set.

The tripping action is not instantaneous, however, but the time of operation of the tripping mechanism is in inverse ratio to the amount of current passing through the device. Thus a small overload, say 10 per cent, takes about half an hour to trip the breaker, but this period of half an hour is considerably less time than it would take for the small overload of 10 per cent seriously to overheat the wiring and cause any damage. As the current increases, the time of operation of the trip decreases—always protecting the wire with an adequate margin of safety. A short circuit causes the device to open the circuit almost instantaneously.

It has been recognized for several years that the loads on branch circuits in homes are becoming much heavier. Only a few years ago the principle use of electricity was for lighting; wiring was installed with that idea in mind, and the wire comprising the branch circuits was practically never loaded to its rated capacity; the fuse was seldom called upon to operate. But when heating appliances, motor driven appliances, and portable decorative lamps of all kinds became common, the situation changed. Now the circuits are asked to carry heavier loads and excessive currents are more frequently causing fuses to perform their proper function.

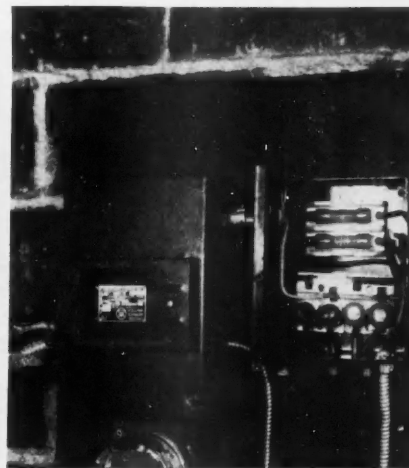
Because of the inconvenience of replacing blown fuses, people are tempted to use fuses rated at more than the permissible rating of the circuit or to bridge the fuse with a coin or other piece of metal. This situation has led to the demand for a small circuit

breaker to protect branch circuits in homes and elsewhere.

The switch in this new device is of the toggle type with the fixed center mounted on a swinging arm. This arm is ordinarily latched under a catch on the bi-metallic thermal overcurrent unit. As long as this arm remains latched under, the switch operates as any other toggle switch. As the current passing through the thermal unit increases, the bi-metal, being composed of two metals of unequal co-efficients of expansion, bends more and more until, when the current exceeds a certain limit, it releases the latch; the end of the toggle moves out of line; and the toggle promptly collapses and opens the switch.

Making the time of operation of the tripping mechanism inversely proportional to the amount of current passing permits a slight overload of short duration which would do no harm to the wiring. Therefore, if several electrical appliances happen to be connected on one circuit for a short period of time, the service will not be needlessly interrupted.

However, if it happens that too many appliances are connected on one circuit for too long a time, the breaker trips. In a case like this all that is necessary to do to restore service is to disconnect one or more of the devices loading the circuit, and then re-establish the circuit by reclosing the circuit breaker—a simple operation only requiring two movements of the handle. There is nothing to replace; no spare parts need be kept.

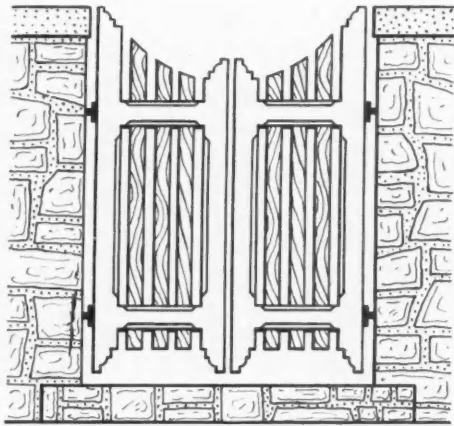


THE NEW WAY COMPARED WITH THE OLD

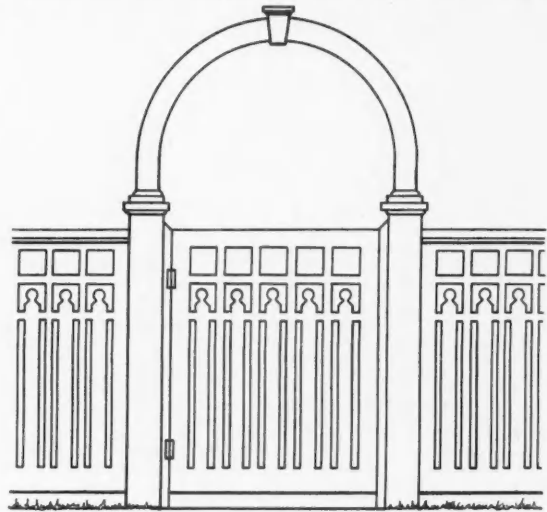
To left—A group of small circuit breakers installed in the load center of a home for the protection and control of all the circuits.

To right—The customary fuse board mounted in the cellar.

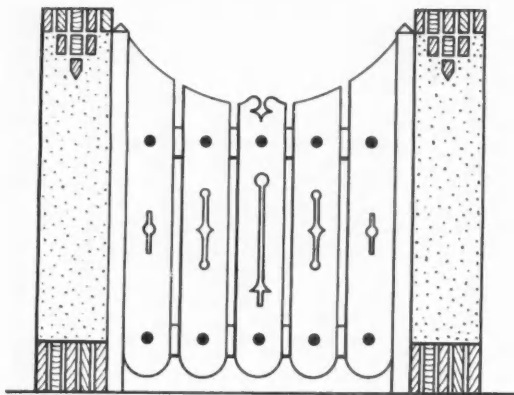
# GATES



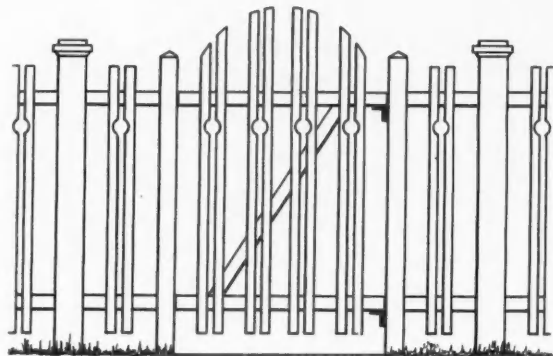
• ENGLISH •



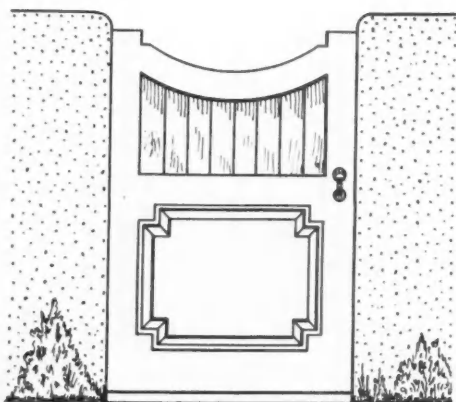
• COLONIAL •



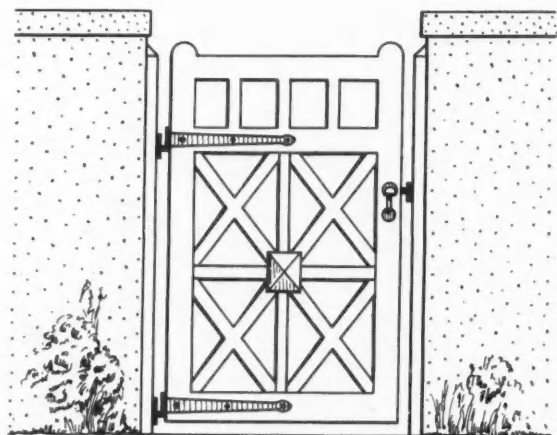
• MISSION •



• COLONIAL •



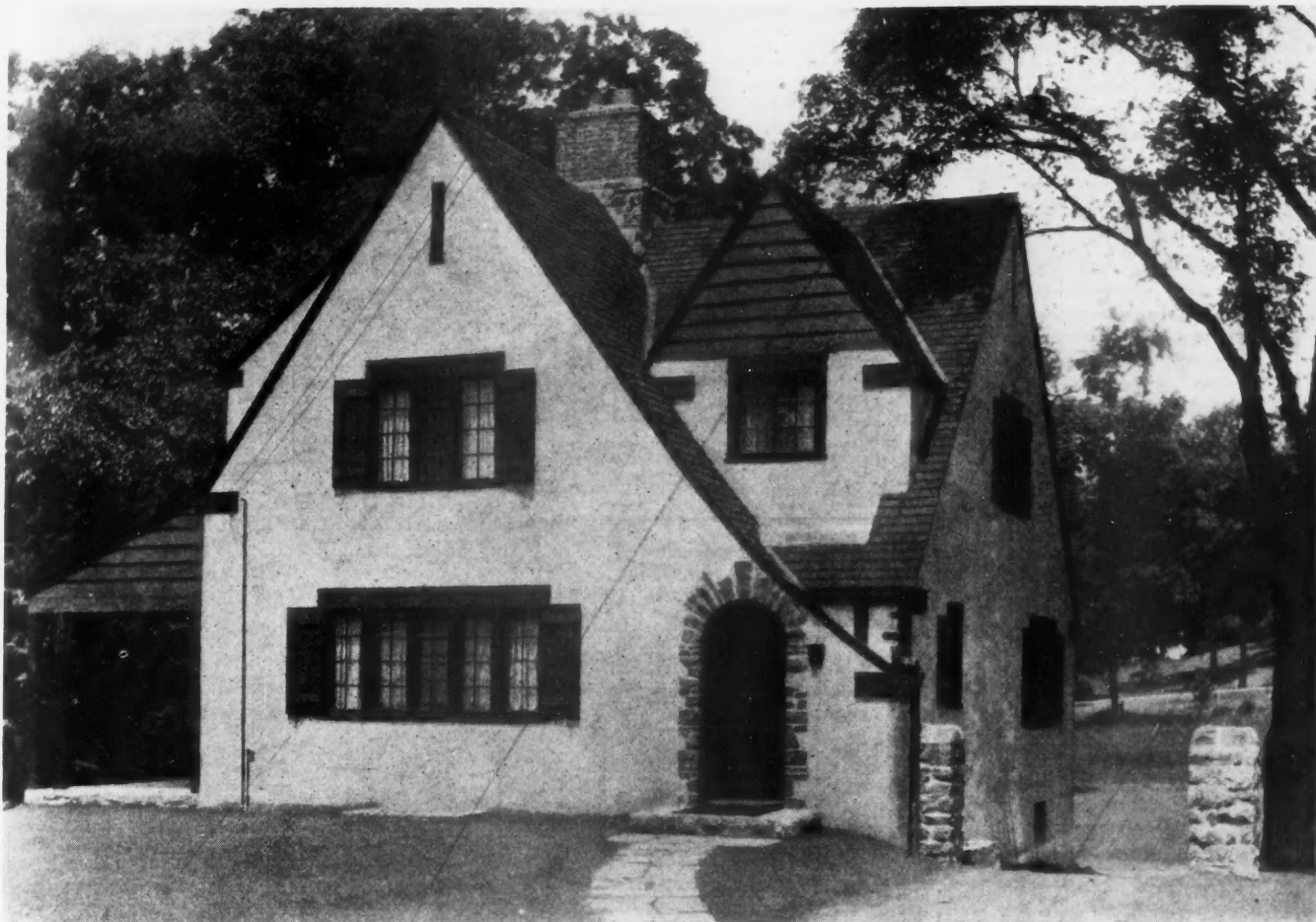
• FRENCH •



• COLONIAL •



Six Diagrams for Ornamental Gates, Quaint and Charming.



## The House of the Month

Popular Stucco Home of Six Rooms  
and Two Baths the Subject of This  
Monthly Lesson in Good Architecture

EVERY architect should have a good deal of the practical builder in his make-up; and every builder needs to know a good deal about architecture—more especially house planning. The preparation of plans and the reading of plans are the processes by which ideas are caught and made graspable by others who transmute them through lumber, bricks and plaster into buildings of lasting form.

Some plans do this well; they are clear, understandable, orderly. Other sets of plans—we all have seen them—are something of a Chinese puzzle; only the man who drew them knows what they mean, and he is not always sure.

Some sets of plans are inaccurate and contradictory, full of mistakes; a satisfactory building can not be produced, using them as a guide.

Some plans are beautiful to look at, but are impractical, calling for construction stunts that are not structurally sound. Others run the cost up needlessly by requiring odd sizes and special shapes not generally carried in stock.

Now a good set of plans is arranged systematically. The draftsmanship is clear, strong

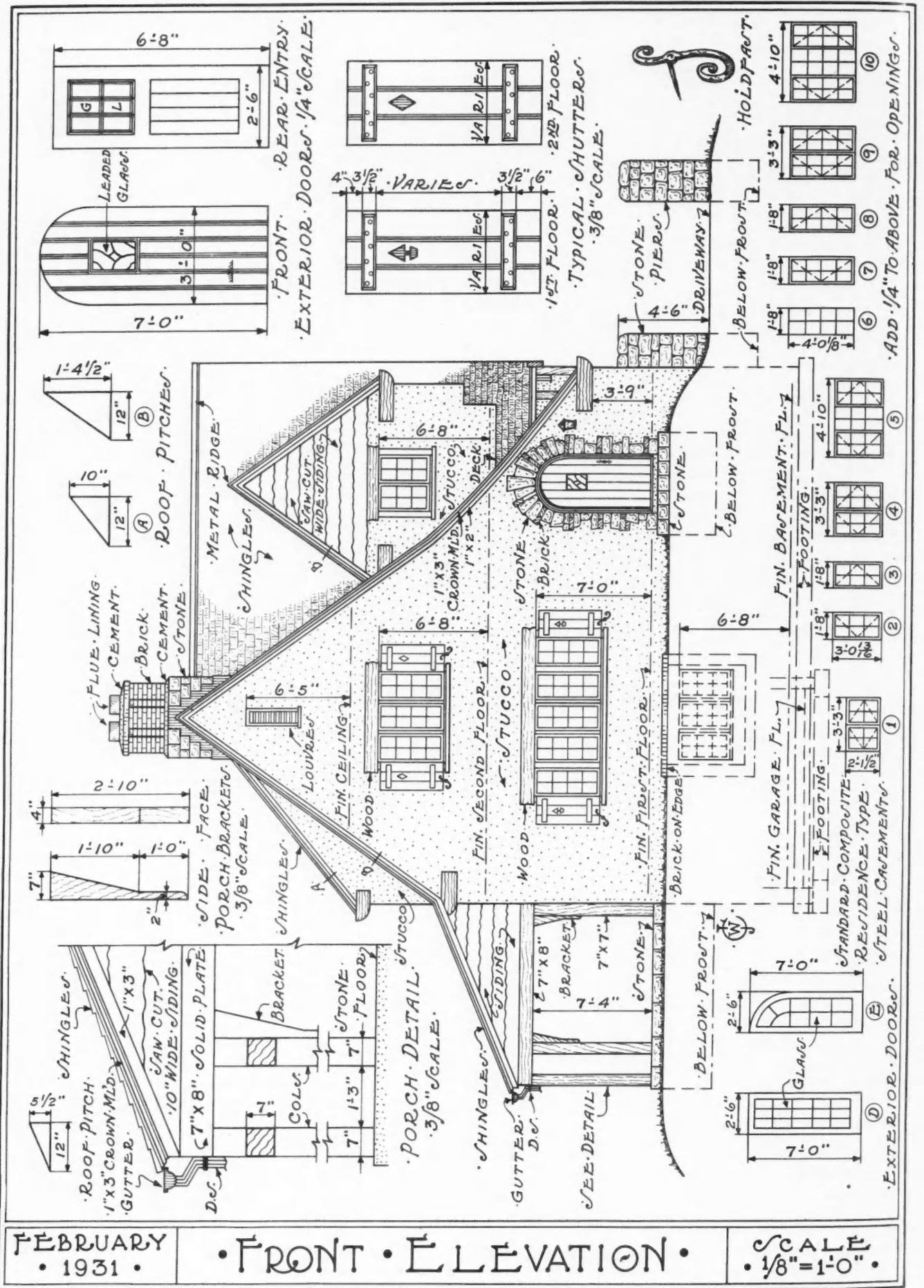
and neat. The purpose of the draftsman is plainly evident, namely to permit no uncertainty anywhere. He realizes that the working plan he is drawing is to be read and must be clearly understood by others; there must be no ambiguity nor uncertainty of meaning permitted to creep into it. A difference of many dollars may hinge on some detail heedlessly marked down.

As a lesson in drafting the accompanying plates are useful and instructive. The scale as shown is one-eighth inch to the foot for the plans, which is just half the size usually employed on blue prints. To the majority of our readers all of this is, of course, primary stuff and thoroughly well known. Yet to the younger men in the building industry—as well as to some of the older—we would say: Study drafting and improve your technique in the fixing of ideas on paper.

And to all we would urge: Study design, cultivate the eye to recognize correct proportions and learn to know what is real style. Public taste is improving faster than the design ideas of most builders. Employ the best architectural skill obtainable and you will sell more homes and get better prices.

**Many Build from These  
Plans – Many More  
Study Them for the  
Good Ideas They Con-  
tain and as Models  
of Draftsmanship**





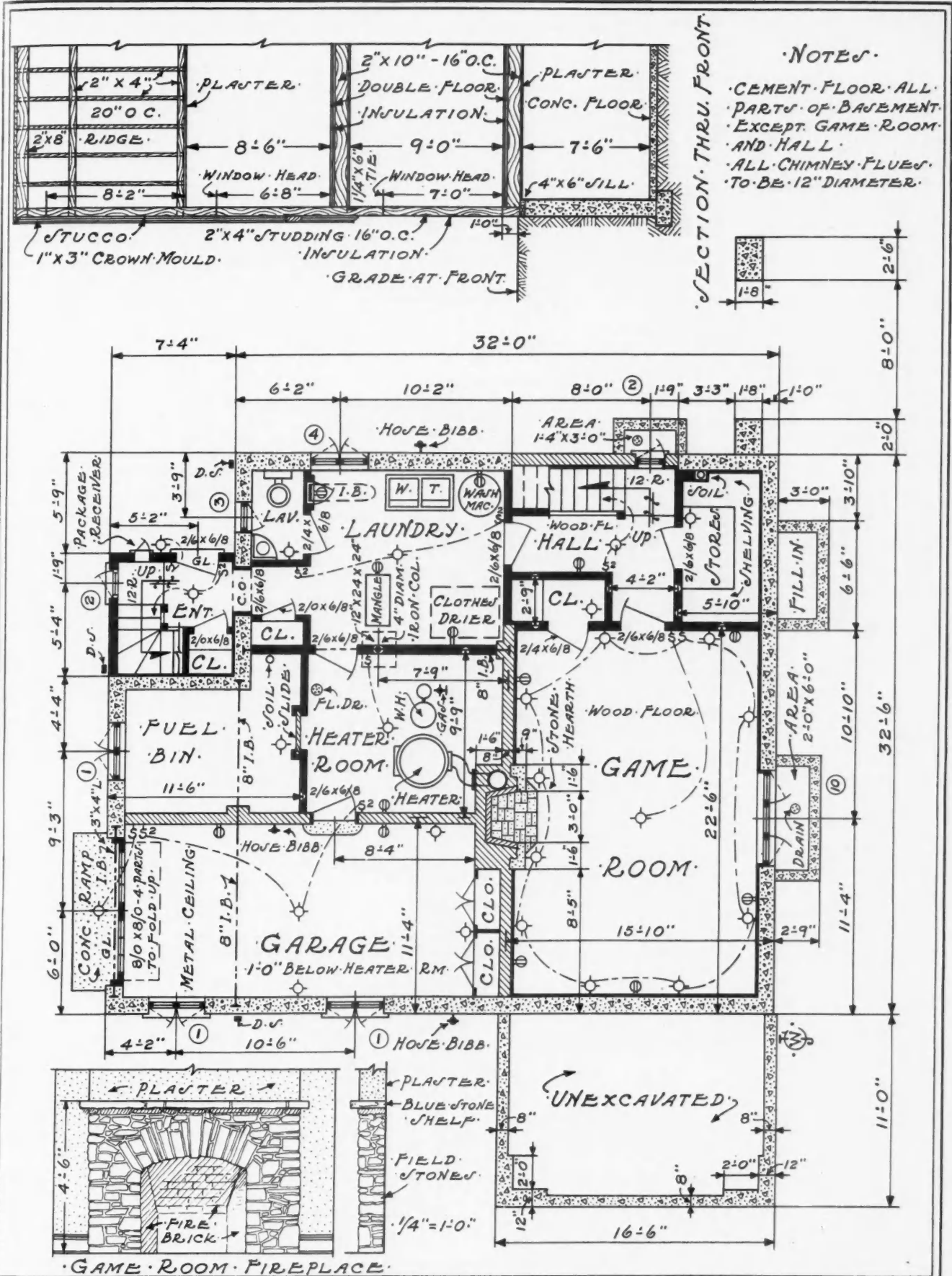
FEBRUARY 1931

FRONT ELEVATION

SCALE 1/8" = 1'-0"

Front Elevation Typical of the Three Other Elevations and Details of the House of the Month, Six-Room Stucco. Photograph of which is shown on page 97.

ADD 1/4" TO ABOVE FOR OPENINGS

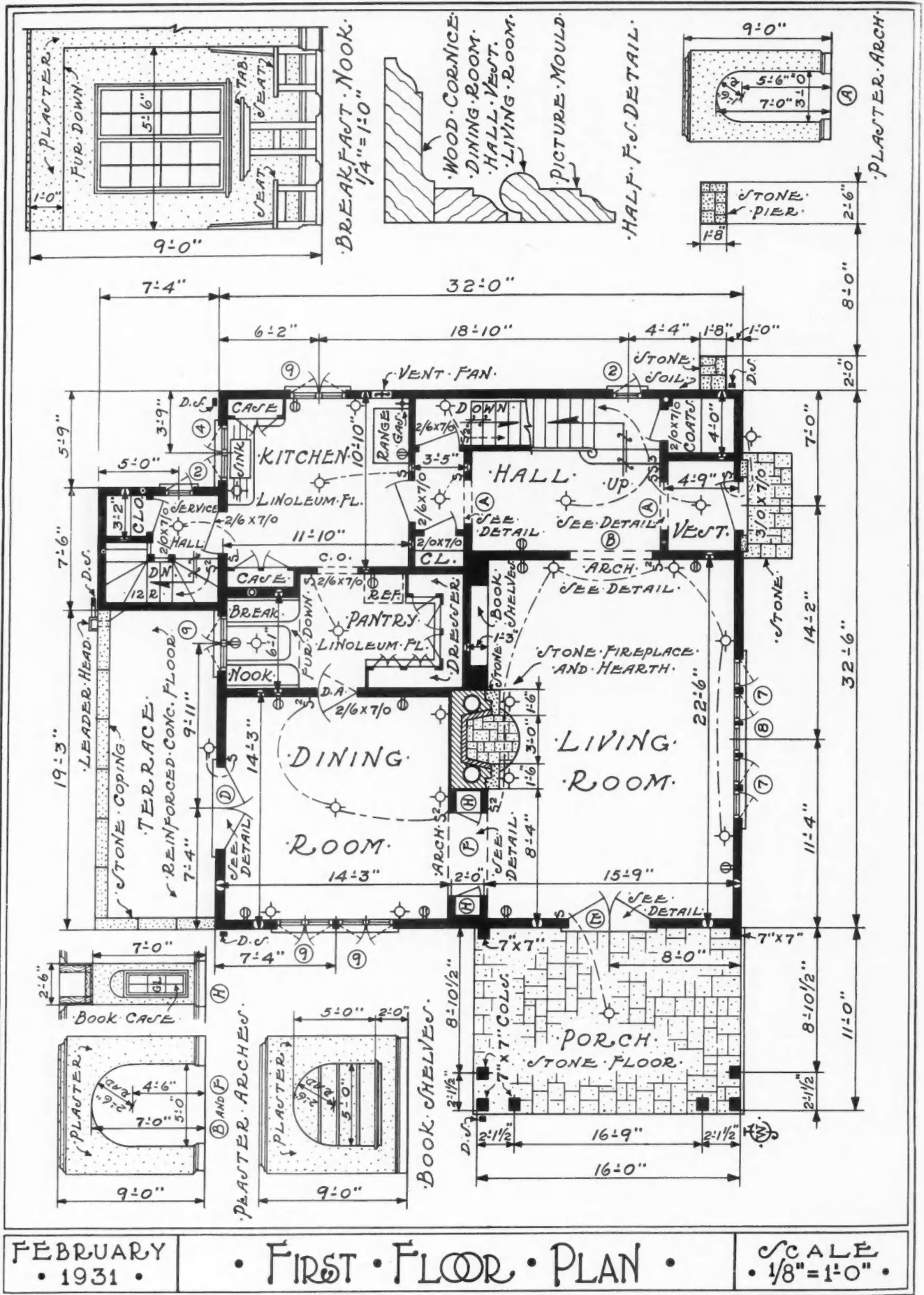


FEBRUARY 1931

# BASEMENT PLAN

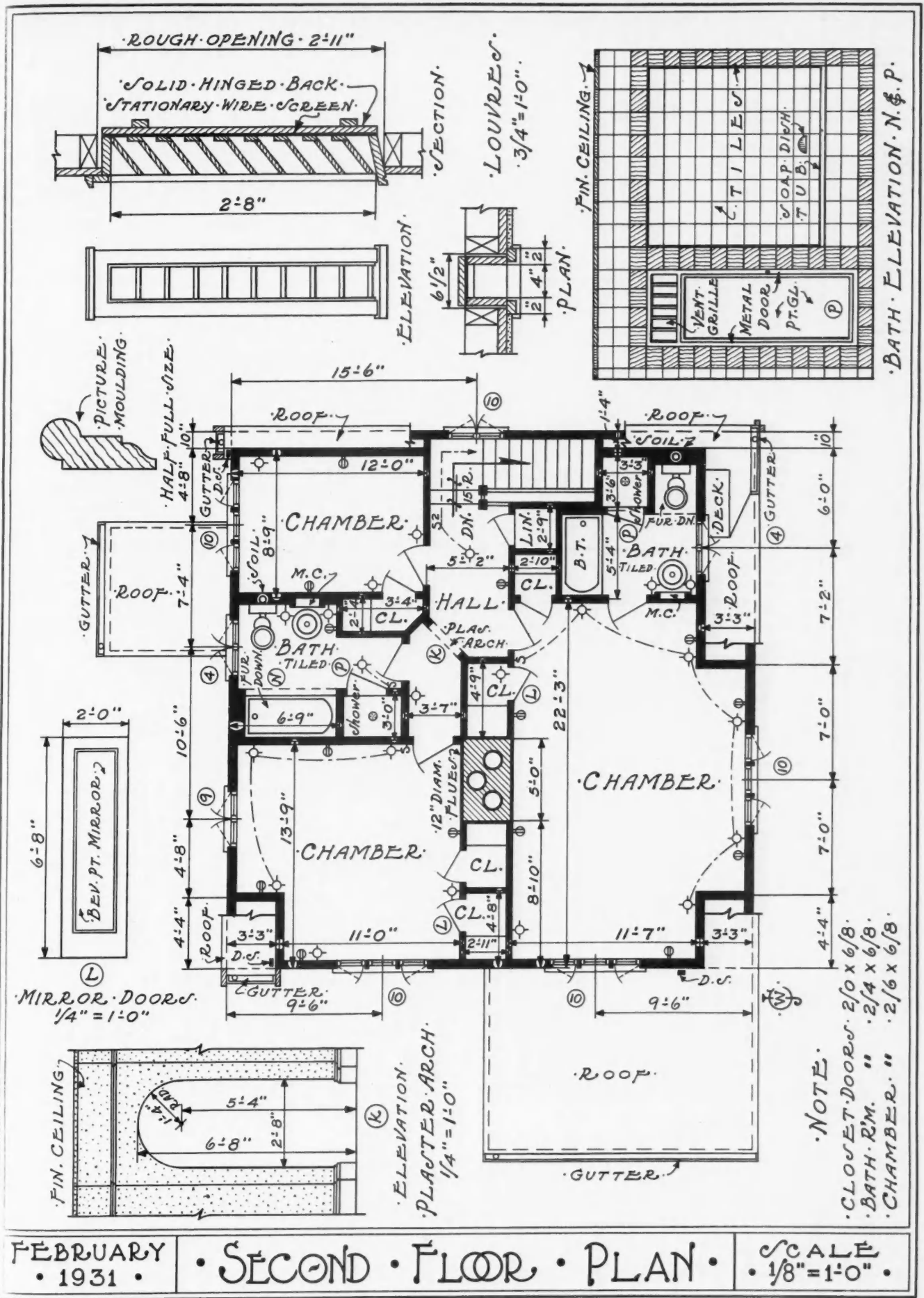
SCALE 1/8" = 1'-0"

A Gently Sloping Site Makes it Practical to Put the Garage in the Basement Along with Game Room, Heater Room and Laundry.



In Spite of Its Interesting Exterior this House of the Month is in Reality an Economical, Compact Square, 32 by 32½ Feet.





FEBRUARY 1931 • SECOND FLOOR PLAN • SCALE 1/8" = 1'-0"

Two Bath Rooms and Three Cheerful, Well-Ventilated Bed Rooms Comprise the Second Floor of This Model Home, Supplementing the Three Fine Rooms on the First Floor.

## GARAGE DOOR EQUIPMENT

COMPANY	TRADE NAMES AND MODELS	TYPE				EQUIPMENT FURNISHED			DOOR CONSTRUCTION		OPERATION						
		UPWARD ACTING	'ROUND THE CORNER SWINGING	SLIDING FOLDING SWINGING	SLIDING SWINGING	HARDWARE ONLY	COMPLETE DOOR	SECTIONAL	ONE PIECE	MOTOR	POWER		BALANCE		REMOTE CONTROL		
											MECHANICAL	HAND	COUNTER-WEIGHT	SPRING			
ALLEN - DREW, INC.	HORIZONTAL SLIDING MODELS				X		X	X	X	X						X	
	VERTICAL LIFT MODELS	X					X	X	X	X				X		X	
	SLIDE-UP TURNOVER MODELS	X					X	X	X	X				X		X	
	FOLD-UP & CANOPY MODELS	X					X	X	X	X				X		X	
	SWINGING & FOLDING MODELS			X			X	X	X	X						X	
	FOLDING-SLIDING MODELS			X		X		X	X				X				
ALLITH-PROUTY CO.	RIGHT ANGLE MODELS		X				X		X					X			
	AROUND CORNER MODELS		X				X		X					X			
	SWINGING MODELS				X		X		X					X			
	SLIDING MODELS				X		X		X					X			
	"AMERICAN"	X												X			
	"AUTOMATIC"	X					X										
	"BARCOL OVERDOOR"	X					X	X	X	X						RADIO OR SWITCH	
	HAND OR CABLE OPERATED					X	X	X	X	X							X
	ELECTRIC OPERATED	X		X			X	X	X	X							
	"BOCA"							X	X	X							
THE BOGERT & CARLOUGH CO. CARR, RYDER & ADAMS CO. (SEE BARBER-COLMAN CO.) COBURN TROLLEY TRACK MFG. CO. COLUMBUS ROLLING DOOR CORP. P. & F. CORBIN CO. CRAWFORD DOOR CO. CURTIS COMPANIES, INC. FARLEY & LOETSCHER MFG. CO. FRANTZ MFG. CO.	"BARCOL OVERDOOR"	X					X	X	X	X							RADIO OR SWITCH
	"COBURN"			X			X	X	X	X							
	"ROL-UP-OVER"	X					X	X	X	X							X
	CORBIN HINGES, HOLDERS & LOCKS				X		X	X	X	X							
	"CRAWFORD"	X					X	X	X	X					X		X
	"UP-AND-OVER"	X					X	X	X	X							
	"CURTIS SWINGING"				X		X	X	X	X							
	"WEATHERSEAL"	X						X	X	X					X		
	"OVER-THE-TOP" MODELS	X					X	X	X	X							X
	SLIDING-FOLDING MODELS			X			X	X	X	X							
	SLIDING MODELS						X	X	X	X							
	SWINGING MODELS						X	X	X	X							
"AROUND-THE-CORNER" MODELS		X					X	X	X								

Tabulation continued to page 104.

# GARAGE IMPROVEMENTS—

## The Brightest Spot in the Building Picture

With Garage Building Increasing in 1929 and 1930, and More and Better Equipment Available, Garage Construction Leads the Way to the Building Revival—the First of Two Articles

**D**ESPITE the much discussed business depression, garage building showed increases in both 1929 and 1930 over the preceding years. That is one of the most significant facts to be found in building figures. The same upward movement will, undoubtedly, continue in 1931 and garage building will be a vital factor in restoring the normal building volume.

Here is a field as yet almost wholly undeveloped but easily cultivated. There is an enormous potential demand throughout the country, for more and better garages. There is more and better equipment and material available for meeting this demand than ever before. The building industry is rapidly waking up to the possibilities of this formerly neglected field.

In quality, as well as in quantity, automobile production has far outstripped automobile housing. The fault lies with the building industry which has failed to keep pace with the motor age. Private garage design and construction have never been developed to the same extent as, and on the same plane with, other types of building activity.

The modern automobile is one of the most highly perfected products of an age of luxury and efficiency. Mechanical excellence is taken for granted in the modern motor car. It must be mechanically efficient to stay in the competitive race. Automobiles are sold, even in the so-called low price class, on a basis of convenience, beauty, and luxury, which are the products of the most skilled and ingenious designers.

The average provision for automobile housing is crude. True, some cars are kept in public garages where they receive the best of care; and some cars are housed in private garages comparable in design and equipment with the cars themselves. But the vast majority of cars are kept in garages which are little more than sheds, affording merely a certain degree of shelter from rain and snow.

Many thousands of cars are not given even this protection but are parked over-night in streets and alleys, an investment of hundreds, or even thousands, of dollars, exposed to rain, snow, freezing cold, and even theft. The owners of these cars would not think of "parking" their fine furniture or oriental rugs in the yard or on the porch at night. They have been sold on the idea of taking care of such furnishings. They can also be sold on the idea of taking good care of their cars.

Every one of these car owners who uses a "shed" type garage, or none at all, is a prospect for either a new garage or a remodeling job to give the old garage up-to-date convenience. These owners want convenience if someone will make the effort to sell it to them. Many of the old garages can be brought up-to-date by a comparatively inexpensive modernizing job. Weather-stripping, insulation and modern door equipment will do the trick.

It is not hard to sell a man these extras when he has just come in from a battle with old-fashioned garage floors on a cold, stormy, windy night. The moderate cost of such equipment seems absurdly small to him right

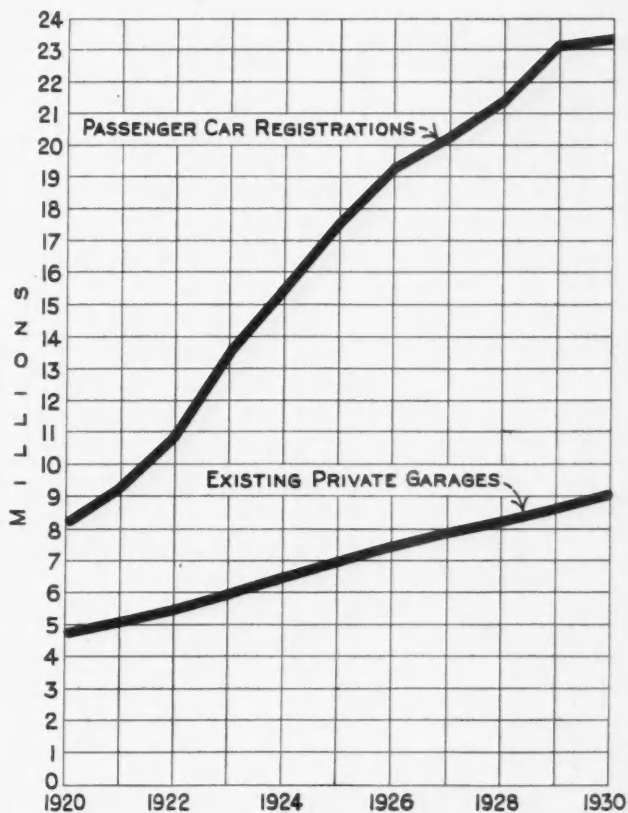
then. But he does have to be sold; for it is a characteristic of human nature that the average person waits for modern conveniences to be brought to him instead of going out after them.

### Garage Equipment Analysed

There is plenty of modern equipment available now, and in sufficient variety to meet every individual's ideas and financial ability. Equipment manufacturers have been busy and, especially in the last year or so, have been bringing out perfected equipment at a lively rate. Really the problem now is to select, from all this variety, just the right items to fit the particular job.

In order to make selection easier the various lines of garage door equipment have been analysed as to type and characteristics, and tabulated. If you are looking for a certain type of equipment, a glance at the tabulation opposite and on the next page will tell you just which manufacturers make this type. A letter to these manufacturers, on your business letterhead, will bring you complete information and prices; also from this tabulation you will be able to compare products quickly and conveniently without having to dig through a mass of literature.

Referring to the tabulation of garage door equipment,

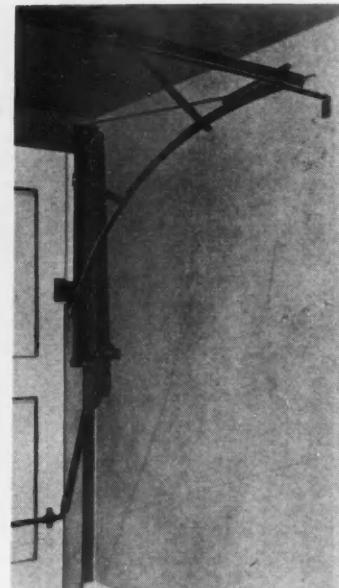
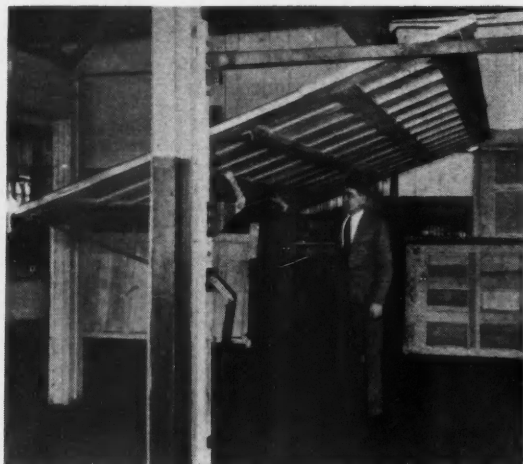


Private Garage Building Has Lagged Far Behind the Increase in Automobile Registrations.



GARAGE DOOR EQUIPMENT

COMPANY	TRADE NAMES AND MODELS	TYPE				EQUIPMENT FURNISHED		DOOR CONSTRUCTION		OPERATION					
		UPWARD ACTING	'ROUND THE CORNER SWINGING	SLIDING FOLDING SWINGING	SLIDING SWINGING	HARDWARE ONLY	COMPLETE DOOR	SECTIONAL	ONE PIECE	MOTOR	MECHANICAL	HAND	COUNTER-WEIGHT	BALANCE	REMOTE CONTROL
KINNEAR MFG. CO.	"ROL-TOP" HAND	X					X	X			X			X	
	"ROL-TOP" MOTOR	X					X	X		X				X	
LANEBRO MFG. CO., INC.	210 & 410 SERIES				X						X				
	292 SERIES		X								X				
MC KEE DOOR CO.	"MC KEE"	X					X	X		X				X	
MC KINNEY MFG. CO.	"MC KINNEY"	X	X	X	X		X	X	X		X			X	
MAJESTIC CO.	"VERTI-FOLD"	X					X	X		X		X			
F. E. MYERS & BRO. CO.	900-1100-1200-1300 AND 2100 SERIES				X		X		X		X				
	RIGHT ANGLE MODELS		X				X		X		X				
NATIONAL MFG. CO.	900 MODEL	X					X	X		X				X	
	801-802 AND 810 SERIES				X		X		X		X				
J. EDWARD OGDEN CO., INC.	803 to 806-812 to 817 SERIES			X			X		X		X				
	ONE SECTION TURNOVER MODEL	X					X		X		X			X	
OVERHEAD DOOR CORP.	TWO SECTION TURNOVER MODEL	X					X		X		X			X	
	"THE OVERHEAD DOOR"	X					X		X		X			X	
PAINÉ LUMBER CO. LTD. (SEE CRAWFORD DOOR CO.)		X					X		X		X			X	
POWER DOOR CORP.	"ELECTRIC DOOR MAN"	X			X		X		X		X			X	
RICHARDS-WILCOX MFG. CO.	"SLIDETITE" SERIES			X			X		X		X				
	"SLIDASIDE" SERIES		X				X		X		X				
ROWE MFG. CO.	SLIDING SERIES				X		X		X		X			X	
	"OVER-WAY"	X					X		X		X			X	
SCHOELKOPF MFG. CO.	"RO-WAY"	X					X		X		X			X	
STANLEY WORKS	"AIR-LEC"			X			X		X		X			X	
	AROUND CORNER MODELS		X				X		X		X				
WILLOUGHBY MFG. CO.	SLIDE-FOLD MODELS			X			X		X		X				
	SWINGING MODELS				X		X		X		X				
YODER-MORRIS CO.	"STAND PAT" DOOR LOCK			X			X		X		X				X
	"Y-M ELECTRIC"	X		X			X		X		X				X
	"Y-M JUNIOR"				X		X		X		X				X



Left: The Canopy Type Door as Made by The Majestic Co. Center: The Crawford Door Co. is offering a double width, one-piece upward acting door. Right: The spring balance device on the Curtis Company's upward acting door.

it will be noted that all doors are divided, by type, into five groups: Upward Acting; 'Round the Corner; Sliding-Folding-Swinging; Sliding; and Folding. Under each of these headings are listed all doors of that general type, but within each group there are one or more sub-types. For example, there are four kinds of upward acting doors.

#### Upward Acting Doors

There are, today, a large number of manufacturers making upward acting garage doors. The number has been greatly increased during the past year by the announcement of several newcomers to the field. It is in this branch of garage equipment that the greatest development has taken place in recent months; and the development has been so marked as to indicate definitely that a much enlarged importance is being attached to garage building.

Among upward acting garage doors, the sectional sliding group includes all doors which are made in hinged sections and which slide directly upward, then back into a horizontal position, along tracks. Fold-up or canopy models are also sectional but, in opening, move directly upward and fold, one section against another, in a horizontal position, directly overhead.

Then there is the upward acting door which is made in one piece. Some of the manufacturers supply hardware for this type of door which can be applied to almost any other type of door, converting it to this type of operation. In opening the one-piece, upward acting door, the bottom swings slightly outward and the whole door then slides up and back into the horizontal position.

Finally there is the vertical sliding door, in this group.

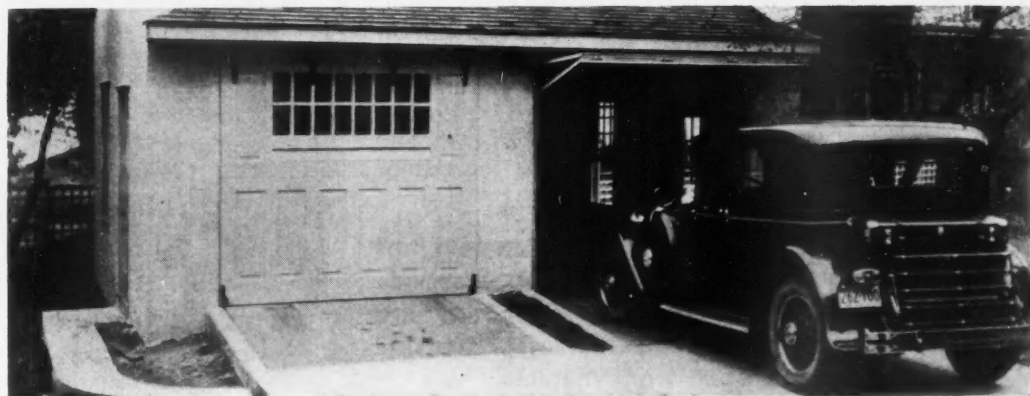
This latter is a long known model, used principally in warehouses and factories but also available for public garage service. It is not adapted to private garage use as the amount of head-room above the door opening, required for its operation, is not available in the ordinary private garage. For certain types of installation, however, it is especially suitable because of the simplicity of its mechanism. It makes an excellent fire door.

All of the upward acting doors are credited with certain advantages. In the first place they are no more difficult to operate on a windy day than at any other time. When opened they are entirely out of the way and do not occupy any of the floor space within the garage. Because they move upward, freezing snow and ice do not interfere with their operation and they close tightly against the floor, effectually shutting out wind and cold and also snow and dirt. On the whole they are weather-tight and special closing devices have been perfected to hold them tightly against the frame and exclude wind.

All of these doors are equipped with some mechanism to attain ease of opening. Since the weight of the door would make hand operation difficult, it must be compensated for, either by springs or by counterweights. Such compensating devices may also be used on upward acting doors which are motor operated to reduce the amount of power required and so reduce the size and cost of the motor. Some of these doors listed may be obtained with either hand or motor operation and in these cases they are checked under both headings.

In addition to motor operation of upward acting doors there is mechanical operation. This consists of a device by means of which the weight of the car itself, as it

The Weight of the Car  
On a Platform Approach  
Opens the Door in the Mechanical  
Operating Device  
of the Automatic Door  
Corp.





A Large and Growing Market for Equipment Also Exists in Auto Service Stations Which Utilize the Same Type of Equipment as do Private Garages.

To left: The Columbus Rolling Door Co. Provides Chain Pull for Operating its Upward Acting Door.

the door opening, either inside or outside the garage.

The straight sliding door corresponds with the vertical sliding door of the upward acting group. It is commonly used where there is a double door opening and the two doors slide parallel with each other, only one half of the opening being available at a time. Such doors can be used on double garages and are also suitable for public garages, greasing and service stations.

runs onto the garage approach, automatically opens the doors.

The 'round the corner, the sliding-folding-swinging, and the sliding types are almost identical in action with the upward acting doors, except that they move to the side instead of upward. There is, for example, the sectional, 'round the corner door which is made in sections and slides on a track to the side and back, around the corner of the garage, just as the sectional sliding door of the upward acting kind slides up and back.

#### 'Round the Corner Doors

The one-piece, 'round the corner door, sometimes called a right angle door, corresponds with the one-piece upward acting door. It is equipped with a track along the top of the door opening and another at right angles to it, along the side of the garage. The door is hung from these tracks and moves along them into a position parallel with and against the side wall of the garage.

Corresponding with the canopy style of upward acting door, is the sliding-folding-swinging type. This door is made in sections which slide along an overhead track and fold, one against another, into a position at the side of

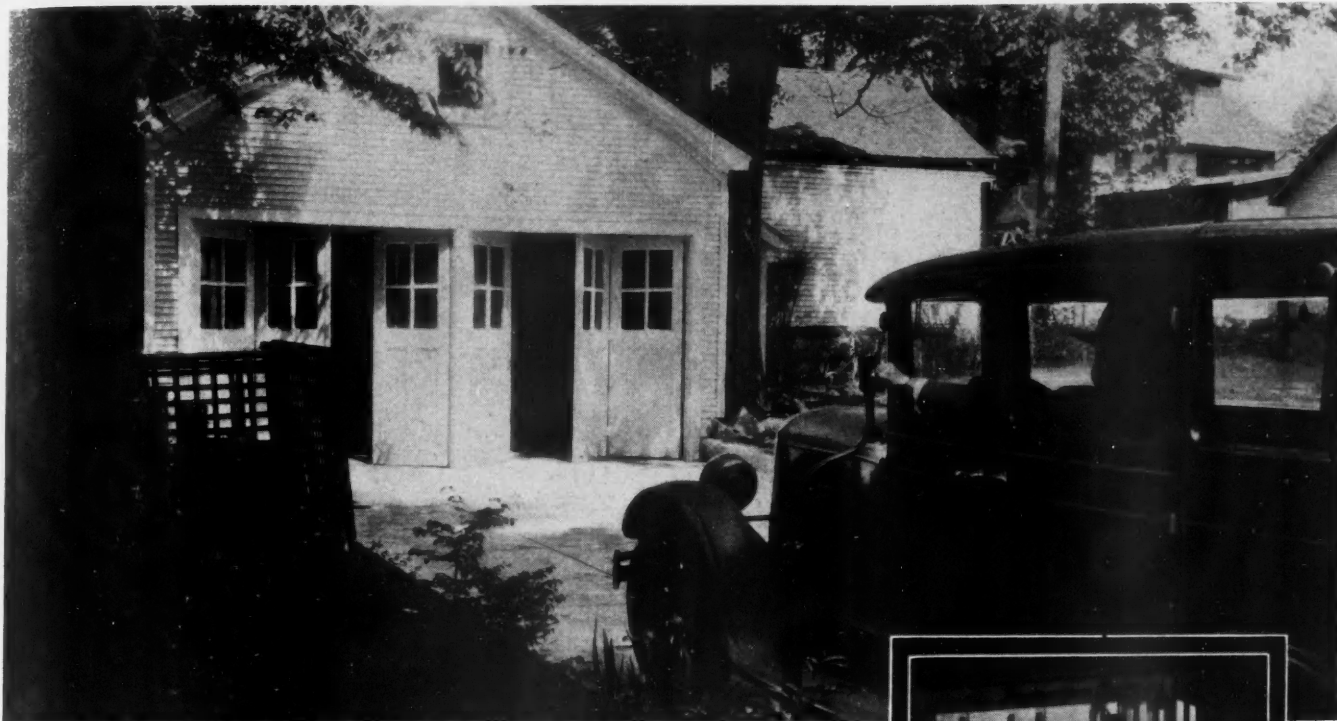
Since it is not necessary to lift the weight of this group of doors their mechanism can, of course, be much simpler than that of the upward acting group. It consists, for the most part, of simple tracks and hangers. On the other hand it is difficult to make them as close fitting at the bottom as is possible with upward acting doors and they require somewhat more space within the garage for operation. In regard to this last point, however, the in-



The Overhead Door Corp. Pioneered the Idea of Upward Acting Doors for Private Garages. Photo shows one of their installations.

**Other types of buildings using these same types of door equipment include: public garages, service stations, greasing stations, auto laundries, fire stations, warehouses, public markets, roadside stands and open front markets.**





As Applied to Private Garages, Remote Control Usually Refers to a Driveway Switch by Means of Which the Doors May Be Opened Without Getting Out of the Car.

creased space requirements are not great and, unless available space is restricted to an unusual extent, the ordinary private garage affords ample room for their operation.

**Swinging Doors**

The swinging type of garage door is the oldest, most widely used and, because of its obvious defects, is largely responsible for the development of the other types described. Much of the disfavor in which swing doors have been held, however, is unwarranted as properly equipped swinging doors can give a high degree of satisfactory service.

Many manufacturers of garage door equipment have perfected swinging door operators by means of which both doors are opened simultaneously and are held rigidly in position either open or closed. This eliminates the

To right: the Sliding - Folding Type of Door Developed by the Coburn Trolley Track Mfg. Co.



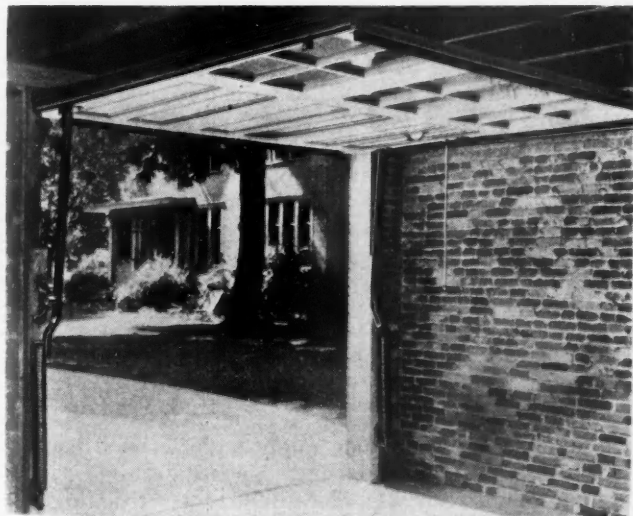
principle objection to the swinging door, the fact that it is likely to be slammed closed by the wind resulting in inconvenience, damage to the car and damage to the door itself.

Though the swinging doors require some extra space for operation, this space is outside the garage and the entire equipment is available at very moderate cost. It meets the need of a large group of garage owners who would be glad to pay for better garage equipment but are limited as to the amount they can spend.

**Door Openers and Remote Control**

Motor operation is available for practically any type of garage door. A number of the doors listed are either equipped regularly with motor operation or may be obtained with either motor or hand operation. Again some of the manufacturers supply motor operating devices which can be applied to almost any type of door. With most of these devices remote control is also available.

For public garage and service station jobs remote control is now almost essential. Very few public garage owners are willing to waste the time of mechanics who must drop their work to go and open doors when re-

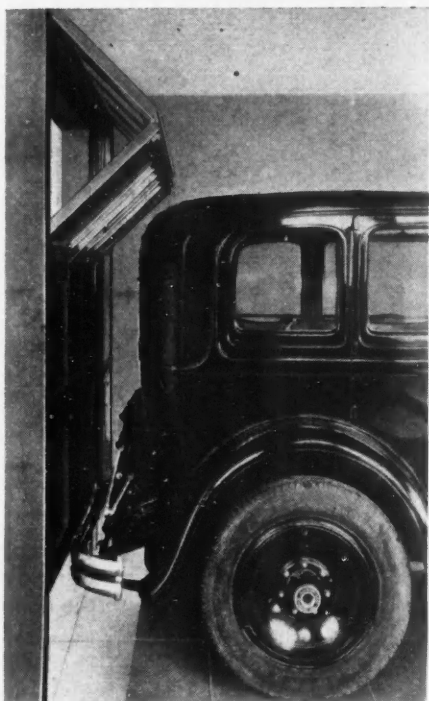


The Frantz Mfg. Co. Furnishes Complete Hardware, Which Converts Practically Any Existing Door Into the Upward Acting Type.

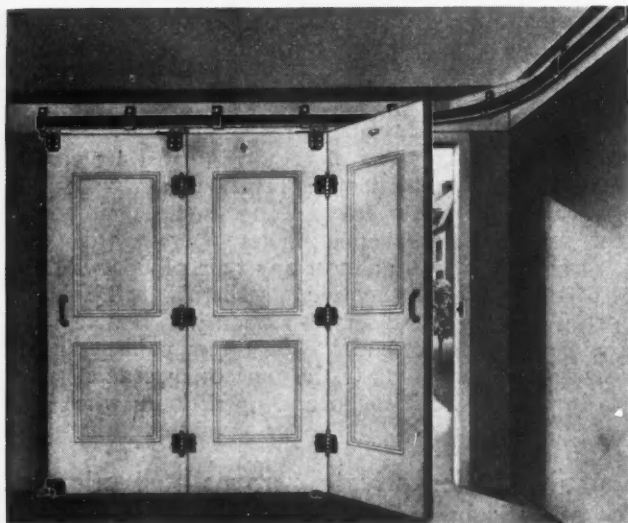
About five million private garages built prior to 1921 are still in use. Most of their owners are live prospects for remodeling work or for complete replacement jobs when shown the advantages of modern garage equipment.



Motor Operation Can Be Applied to Almost Any Type of Door and Is Sometimes Controlled by a Convenient Pull Cord as in this Installation by the Beeman Door Control Co.



Upward Acting Doors Require Little Clearance and Reduce Necessary Garage Length to the Minimum.



A "Round the Corner" Door with One Section Swinging for Use as a Service Door Is Part of the Richards-Wilcox Mfg. Co. Line.

mote control is not installed. Nor are they willing to risk losing the good will of customers who have become accustomed to prompt service, through delay in opening doors when the customer blows his horn.

Remote control for private garages is also rapidly becoming established. Such control is usually achieved by means of a switch installed on a post alongside the driveway. In this way the owner, who carries a special key for the switch box, can turn the switch without getting out of his car, the doors open automatically and he drives in with a minimum of inconvenience and without being exposed to the weather.

These devices also turn on the garage lights when the switch is turned. This is not only a point of additional convenience, but also a safety factor as it makes it unnecessary for the owner to get out and open the doors in the dark, running the risk of a holdup. In some cases the closing of the doors, and turning off of the lights, is accomplished by means of a second switch inside the house so that even the return to the house is safeguarded by ample light.

The most recent, and most elaborate development of this convenience and safety idea is a radio control. A radio receiver is connected with the door operating mechanism. A radio sending mechanism is installed in the car. As the driver approaches the garage he turns a switch in the dash of the car. Certain radio impulses, to which the receiver inside the garage is tuned, are sent out. The receiver starts the operating motor, the doors open, the lights are lighted, and the owner drives right into the garage without even stopping his car.

With unlimited tuning combinations available it is possible to tune this equipment so that only the one car can operate the opening mechanism. With all these operators, the garage is locked by the mechanism itself.

#### Size of Garage Market

With this wide range of equipment the question may well be asked, "Just how big a market is there for garage construction and remodeling?" The answer is, "A far bigger market than anyone might suppose who had not made a study of its undeveloped possibilities."

Out of approximately nine million private garages in existence in this country, over four and a quarter million have been built in the last ten years. The dollar value of this construction reached a total, for the ten years, of \$2,033,706,481, an average of \$203,370,648 a year.



In 1929 there were 23,121,589 passenger cars registered in the United States. The existing private garages provide housing for less than half of the passenger cars registered. There are thousands of automobiles for which no housing has ever been provided.

According to conservative estimates, about 650,000 new home units are required each year to provide for increasing population and the obsolescence of existing structures. With an average, during the past ten years, of 422,084 new private garages built per year, it is evident that two garages are built each year for every three new home units. With practically every family in the country owning one or more cars, the need for garages is increasingly great and will, undoubtedly, become greater as greater restrictions will inevitably be placed on street and alley parking.

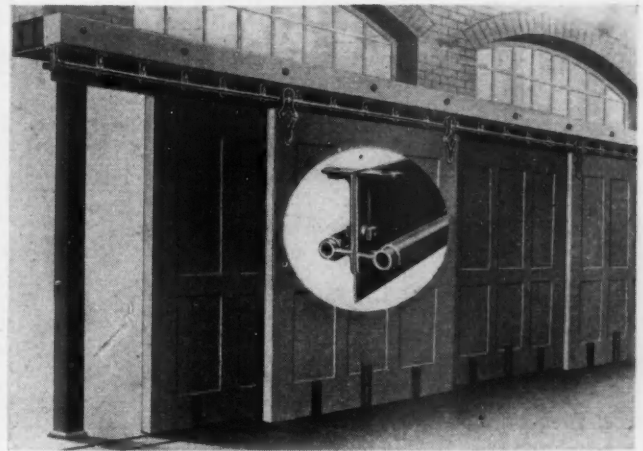
Nor does this take into consideration the accompanying demand for public garages, greasing and service stations which occasion an important volume of construction, and for which the same types of door equipment listed in the table are utilized.

In order to convert this need into actual building contracts, just one thing is needed; and that is aggressive selling. It is not difficult to sell private garage building. This is conclusively proved by the records of the last few years, which are as follows:

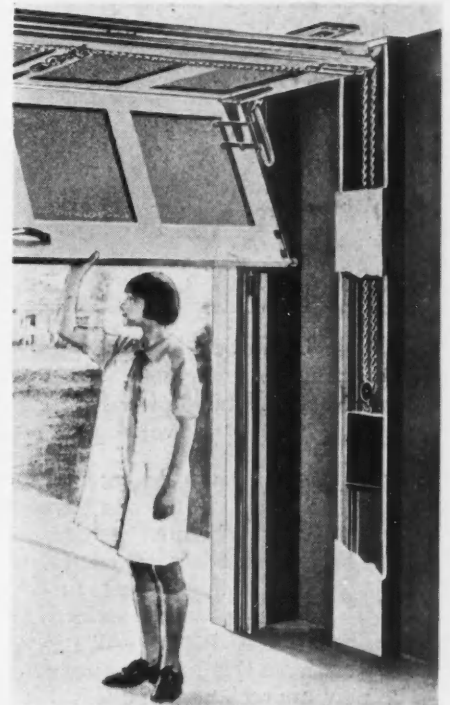
Year	Number of Garages Built
1921.....	277,736
1922.....	376,278
1923.....	517,592
1924.....	522,874
1925.....	487,648
1926.....	459,907
1927.....	424,337
1928.....	365,066
1929.....	377,671
1930.....	411,733

In response to the building shortage and the increasing automobile registrations, the number of garages built during this period increased to a peak of 522,874 in 1925 but, as general building assumed greater and greater proportions, and set ever higher records, garage building was neglected and gradually dropped off to 365,066 in 1928.

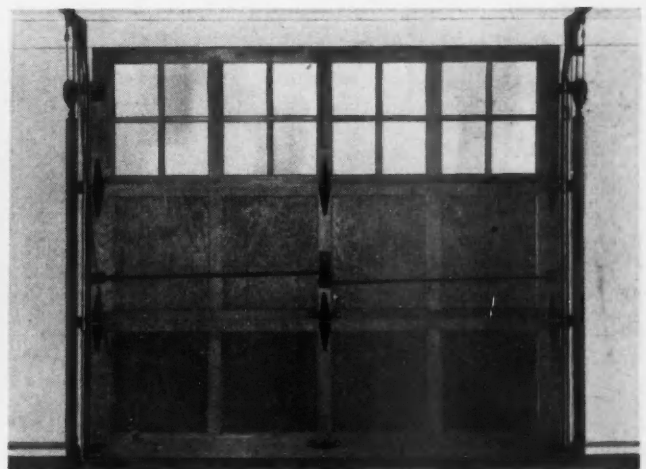
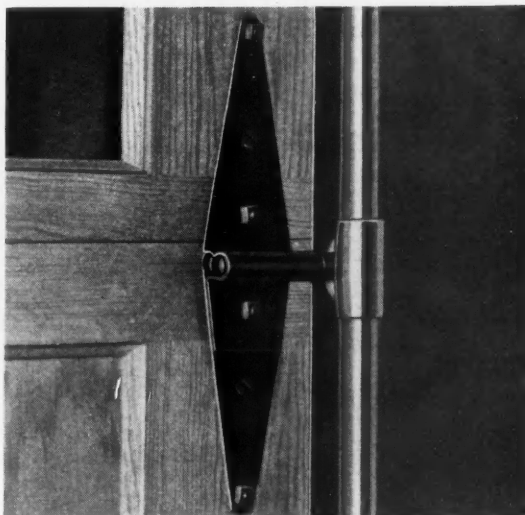
With the first falling off of general building in 1929, garage construction took an upward turn to 377,671 and increased to 411,733 during the depression year of 1930. In other words, more garage building was sold during



Parallel Sliding Doors Are Extensively Used on Public Garage and Service Station Jobs, the Allith-Prouty Co. Being One of the Leaders in the Production of Such Equipment.



The Farley-Loetscher Manufacturing Company's Door Is an Example of the Upward Acting Type Balanced by a Counterweight.

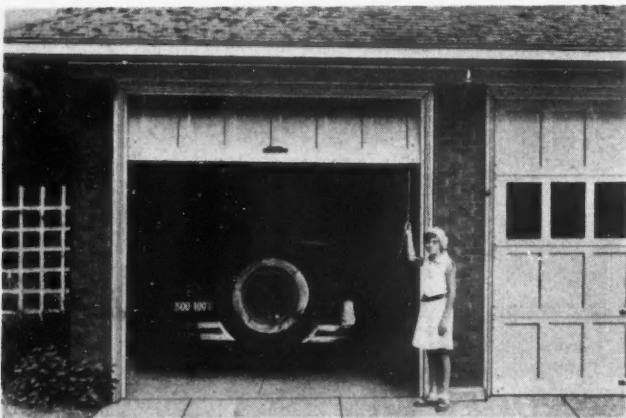


The National Manufacturing Company's Upward Acting Door Illustrates the Possibility of a Weathertight Installation. The Closing Device Is Shown Enlarged at the Left. A Wheel Attached to the Hinge and Acting against a Cam Device in the Vertical Track, Forces the Door Tight against the Frame.





This Installation by the Kinnear Mfg. Co. Illustrates the Attractive Architectural Effects That May Be Obtained with Modern Equipment.



Ease of Operation Has Been Provided in Modern Garage Door Equipment. Even a small child can easily handle this upward acting model of the Rowe Mfg. Co.

a year when selling was supposed to be difficult than during the time when selling was easy.

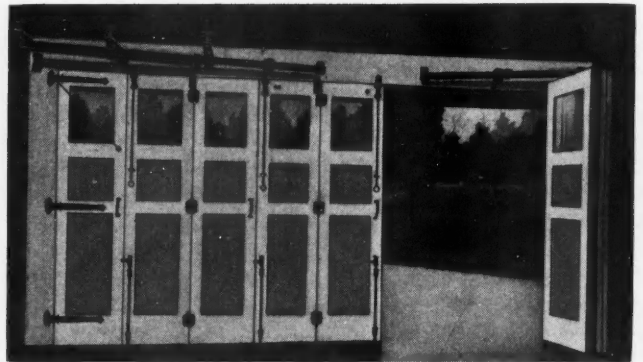
This was simply because garage building was easy to sell and because builders, faced with a need for work to keep their organizations intact, turned their attention to this work which formerly seemed too small to bother with. They found that it paid, too, and many will continue to cultivate this newly appreciated type of business.

The new appreciation of the value of profitable small work, which is usually non-competitive, has brought modernization to the fore and the private garage field

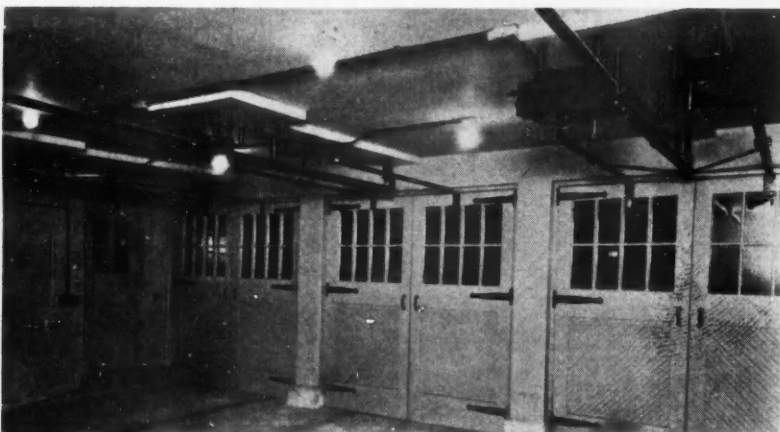
offers large possibilities for modernization. Practically all of the garages built prior to 1921 are badly in need of modernization or replacement. A large proportion of those built in the last ten years are also subject to modernization, or even replacement, if their owners are shown the convenience, and moderate cost, of up-to-date automobile housing.

In the building of new garages, it has been estimated that at least 10 per cent can be added to the investment in the average private garage without serious opposition on the part of the owner.

Part II of this article will be published in the March issue of American Builder and Building Age..



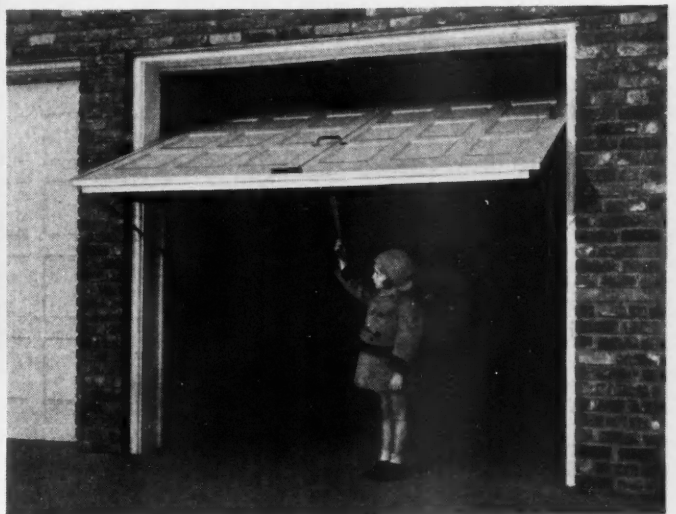
A Richards-Wilcox Mfg. Co. Job Showing How the Sliding-Folding Type Door Is Also Equipped with a Swing Section as a Service Door.



Motor Operators Equipped with Radio Control Have Been Perfected by the Barber-Colman Company. Just pull a switch on the dash as you approach the garage. The receiver in the garage is tuned to the sending set in the car and the impulse starts the door opening motor.



# NOW A NEW STYLE ELEMENT enters Garage Construction!



Two beautiful designs of Crawford Overhead Doors. Standard model (right) only \$39.50 complete with hardware less lock, f. o. b. factory.

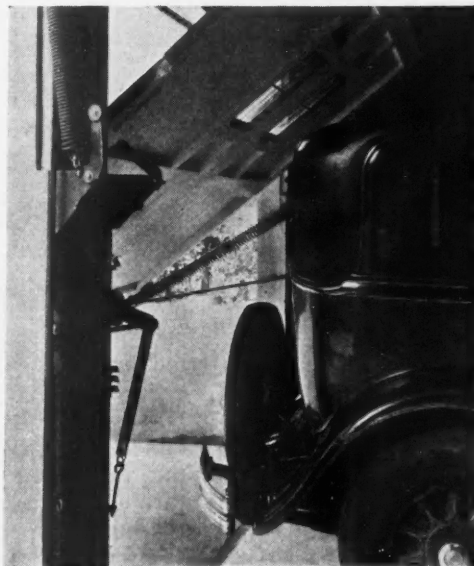
For the first time, you can now offer modern overhead garage doors especially designed to beautify the garage! The sensational new Crawford Overhead Door is available in a variety of artistic designs suited to even the finest architecture.

### New Low Cost

Utter simplicity of mechanical construction permits the sale of this unique, ultra-modern door at retail prices as low as \$39.50! All models No. 1 Pine . . . . highest quality throughout.

Separate Crawford Overhead

Hardware can be obtained at low cost to adapt present hinged doors or new doors of special design for modern overhead operation.



### Simplest Overhead Installation

Mechanically, the patented Crawford Overhead Door is rugged, simple and fool-proof. It is installed in one piece without breaks or hinges. Easy-to-operate, silent, weathertight.

See your lumber dealer or mail the coupon today for further details of this remarkable building construction sales asset.

*In opening, door lifts straight up 2 inches, then rolls smoothly overhead. Easily installed by one man. Requires less than 4 inches headroom.*

## CRAWFORD OVERHEAD DOORS

Made by Crawford Door Co., Detroit, Mich.

Distributed through Lumber Dealers East of Rockies by

**PAINE LUMBER COMPANY, LIMITED**

*Oshkosh, Wisconsin*

Paine Lumber Co., Ltd.,  
Oshkosh, Wisconsin.

Please send me complete information on the new Crawford Overhead Door.

Name .....

Address .....

Architect  Lumber Dealer  Builder  Prospective Owner

A-2

# What Price Houses Sell Best?

By E. L. GILBERT

Research Director, "American Builder and Building Age"

THE big department stores, when deciding on new lines of merchandise, often accept or reject a product because of its "price range." Sometimes the article is too expensive, sometimes too cheap, for a particular department store's trade. This practice of studying the "buying power" of customers has been developed by various other commercial interests in retail selling, and there are many experts who can predict with reasonable accuracy the probable sales volume for a new product on the dealers' shelves.

Although homes are not carried in stock like dry goods, the practice of finding the "price range" of homes for any given locality is rapidly being adopted by builders in all parts of the country. It eliminates a great deal of the usual sales resistance and assures a better chance for early sales of completed homes.

For instance, a building organization in western New York State discovered last year that the natural "price range" for their locality was \$5,000 to \$7,000 per house. They immediately began building (and advertising) homes priced from \$4,995 to \$6,850—and sold 131 jobs during a slump year! In June, 1930, their contracts were so far ahead of production that they could not promise delivery of additional homes before November. This sounds like a "fish story" of the recent building depression; but it is true and although price was not the only factor which influenced sales, it was a vital factor.

In some sections of the country during the past year it was found that higher priced homes were more easily sold. One Ohio builder tells of selling three houses ranging in price from \$55,000 to \$75,000 each, making more net profit than he did two years ago when he was working harder building a considerable number of \$7,000 residences.

The price range for any given locality is determined, of course, by local conditions. A factory town may absorb low-cost residences by the hundreds—and also provide the market for a few homes for executives who are willing and able to spend forty to seventy-five thousand dollars for a residence.

The trend for the past several years, in all classes of residential construction, has been toward more beautiful and convenient homes. The manufacturer of an incinerator recently made this surprising comment: "We never previously bothered with the builders of the lower priced houses because we figured they had a hard time to get the roof on for the prices they charged. Much to our surprise we have found them interested this year (1930) and willing to use one of our smaller model incinerators in their houses." The price range for your section, therefore, may be largely decided upon the basis of what equipment it is customary for builders in your locality to install, among other things.

The Research and Marketing Division of AMERICAN BUILDER AND BUILDING AGE secured actual copies of the building permits from the cities of Cleveland, Ohio, Rochester, N. Y., Utica, N. Y., Wilmington, Del., and Hagerstown Md., to make a study of the price ranges of houses built in these five cities last year. The table presented herewith shows what price houses were built.

PRICE RANGES OF HOUSES BUILT IN FIVE CITIES

Amount Shown on Building Permit	*Cleveland, Ohio	Rochester, N. Y.	Utica, N. Y.	Wilmington, Del.	Hagerstown, Md.	Total Number	Per Cent. of Total
\$ 2,900 or less	19	10	1	1	12	43	2.1
3,000 to \$ 3,900 incl.	44	21	1	5	17	88	4.4
4,000 to 4,900 incl.	113	180	5	63	6	367	18.2
5,000 to 5,900 incl.	220	96	36	58	9	419	20.7
6,000 to 6,900 incl.	209	35	20	72	10	346	17.1
7,000 to 7,900 incl.	99	18	4	7	5	133	6.6
8,000 to 8,900 incl.	61	16	8	4	6	95	4.7
9,000 to 9,900 incl.	51	12	14	11	0	88	4.4
10,000 to 10,900 incl.	71	6	4	8	4	93	4.6
11,000 to 11,900 incl.	22	2	2	2	0	28	1.4
12,000 to 12,900 incl.	59	4	6	1	0	70	3.5
13,000 to 14,900 incl.	31	1	3	3	0	38	1.8
15,000 to 16,900 incl.	23	0	0	6	0	29	1.4
17,000 to 19,900 incl.	16	1	0	5	0	22	1.1
20,000 to 24,900 incl.	81	1	0	5	0	87	4.4
25,000 to 29,900 incl.	18	1	0	1	0	20	1.0
30,000 to 34,900 incl.	15	1	0	3	0	19	1.0
35,000 and over	27	3	0	3	1	34	1.6
Totals	1179	408	104	256	70	2019	100.

\*Six months only.

That the cities selected for this study represent a good cross-section as to size, is shown by the 1930 Bureau of the Census figures:

CITY	1930 Population
Cleveland, Ohio	900,376
Rochester, N. Y.	325,019
Utica, N. Y.	102,633
Wilmington, Del.	104,941
Hagerstown, Md.	29,902

These population figures do not tell the complete story, however, because close-in suburbs are not counted as part of the cities. The table of houses built includes building inside the city limits, as well as the adjoining suburbs.

It must be borne in mind that the figures used in the table are *building permit figures*, and may not represent the full cost. A questionnaire survey of 257 cities throughout the country shows that the average residential building permit represents only 80.7% of the actual construction cost, and that the average non-residential building permit represents 81.7% of the cost. The Commissioner of Public Works of a large western city has this to say regarding the building permit records of his city: "All real construction costs will probably run slightly more than the estimated cost figures given on the application. Where there is no change in the building permit fees because of a change in the estimated cost of construction, the tendency is removed to save permit fees by under-valuation. On the other hand, there is a tendency on the part of some owners and builders to put in the estimated construction cost at a figure lower than the real cost, because they feel in so

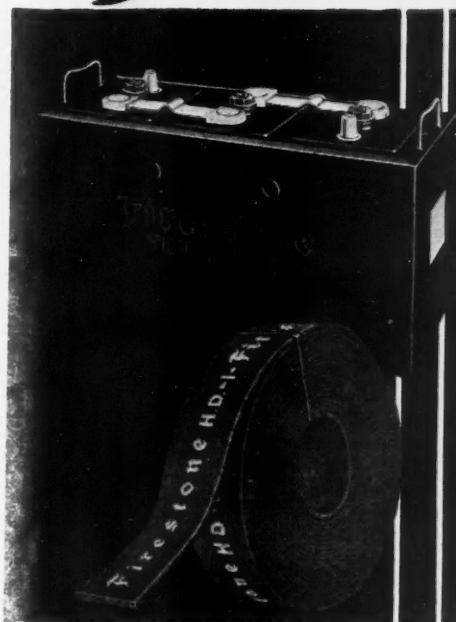


# Three Times *the* Mileage with **ROAD DELAYS** PRACTICALLY ELIMINATED



THREE times as many buses as they operated in 1926! Three times the mileage, amounting to more than three million miles. And yet since Firestone Gum-Dipped Truck and Bus Tires were adopted by the Washington Railway and Electric Company, four years ago, road delays have decreased from 254 a year to a mere 27—*having been practically eliminated.* During this time the bus miles operated per tire failure have been increased from 7300 to 120,542—an increase of over 16 times the average of 1926.

# Firestone



WHAT truly amazing evidence of the rapid strides that Firestone has been making in the improvement of Truck and Bus Tires! What eloquent testimony to the results which are being secured by Firestone's careful supervision of the use and care of its products—not for just a single year or two—but continuously over a long enough period of years to make a real test. And all this is but one of the many similar cases where owners of the country's largest fleets are depending on the Firestone Organization for more economical, less interrupted fleet operation. With Firestone Tires, Tubes, Batteries, Brake Lining and Rim equipment, you can profit by the broad experience of the Firestone Dealer, in the proper adaptation and care of your Truck or Bus equipment.

Specify Firestone Gum-Dipped Tires and Firestone Rims when purchasing new equipment.

**TIRES - RIMS - BATTERIES - BRAKE LINING**

doing they may be able to get a lower assessment and lower taxes on the building. Counterbalancing this situation, there are a number of speculative builders that put in a valuation in excess of the true costs for the purpose of inflating the valuation to give the public the impression that the building costs more than it really does. This they feel is helpful to them in selling their buildings. I believe that in (our city), however, there are more cases of under-valuation than over-valuation." All in all, the figures given in the table seem to be fairly reliable indexes to the price ranges of residential construction from Cleveland, Ohio, eastward to the Atlantic.

A few examples of successful builders who practice this method of determining wherein their best price range lies, will not be amiss at this point.

From Dallas, Texas, comes the report of a builder who did a \$48,000 residential business last year: "I am interested in building up-to-date cottages, moderate price homes from \$4,000 to \$6,000," he writes. A small builder in Philadelphia says: "It looks good for '31 as many people have been holding off and I am building five bungalows in the right price range for the spring of 1931." A large Cleveland, Ohio, construction company has found their price range in the \$6,000 to \$6,500 class and do an annual business of about \$225,000.

A check-up of local building conditions in regard to price ranges of residential construction usually improves the builder's judgment on what to build for sale. Following the prevailing practice in any locality may not be wise; often homes which sell for \$1,500 below or above other new structures will find buyers more quickly than the usual price building. It is well to remember, also, that the trend is toward better construction today.

## Wilmington's Build Now Campaign

(Continued from page 82)

ported three requests for information as to the names of painting contractors the day after the first advertisement appeared in the newspapers.

On November 5, twenty days after the campaign was started, a check-up of achievements disclosed that 110 individuals and firms had been enrolled on the committee's "Honor List," providing 450 different jobs (ranging from such work as weather stripping to construction of a big dam and pipe-line) which called for from one to several hundred workers each and for periods ranging from half a day to several months. The information was received from different sources of many other jobs that were given direct and without reporting to the Chamber of Commerce, due to the desire not to court publicity.

It was the feeling of the members of the campaign committee that there was plenty of work to be done, provided those responsible could see the advantage of doing the work at once. Architects and contractors were aware of numerous jobs that had been postponed, due entirely to the belief that the business depression and "hard times" justified such action. Accordingly, as the campaign progressed, emphasis was placed on the fact that the prices of building material had about reached bottom, contractors were estimating on work without regard to profits, and that this was the psychological time to contract for construction work of all kinds.

That the arguments were sound was proven to the Board of Education when that body was induced to request bids on a new school house which they contemplated erecting "next year." An appropriation of \$472,000 had been made by that body, but after final drawings

and specifications had been made the Board estimated that it would need about \$30,000 more to complete the structure. Under the Delaware law the School Board cannot contract for work for which an appropriation has not been provided, and the Board had decided not to start work on the building until the full amount required was appropriated.

Following a conference with the committee the board decided to ask bids for the entire structure and only award as much as available funds warranted. When the bids were opened it was found that the amount on hand would complete the building and leave a surplus so that the city saved approximately \$40,000 by asking for bids at this time instead of waiting until later.

Construction work of all kinds in Wilmington always had shown a falling off during the winter, due more to custom than to inclement weather. The campaign urged winter building in order to keep men employed, especially as to lay them off during the financial depression would be almost tragic. In former years they could have secured other employment; during the depression that would be almost impossible.

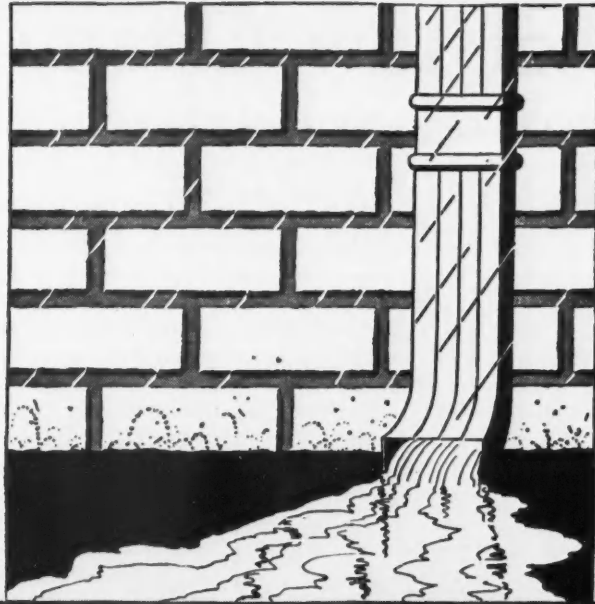
As a result of this phase of the campaign, the Homeopathic Hospital agreed to continue its \$650,000 construction program throughout the winter. The Lock Joint Pipe Company, which had been awarded a contract for a pipe line amounting to \$450,000 started work immediately instead of waiting until spring, which had been its intention. Several other public works jobs were advanced and contracts let.

One of the vice-presidents of the E. I. duPont deNemours and Company instructed architects to award contracts for a new residence to cost \$125,000. The Wilmington General Hospital awarded bids for an addition to cost \$185,000. An ice cream company decided to erect an addition to its plant to cost \$150,000, the Crane Company authorized immediate construction of a new office building and warehouse to cost \$48,000, several other companies announced alterations and new buildings costing from \$5,000 to \$25,000.

Architects were unanimous in their opinions that the campaign was a great success. They reported numerous instances where they were authorized to proceed with work that had been held up for months. Instead of the threatened "lay-off" of perhaps two thousand men in the building trades, an actual survey disclosed the information that 176 additional men had been employed. Instead of perhaps a third of the men engaged in the building trades being out of work during the winter, indications are that every one will have employment.

The results exceeded the most sanguine expectations of the committee, and the end has not as yet been reached. As stated by one of Wilmington's architects, it requires months to prepare plans and specifications, and many projects have not reached consummation. The development of these projects will make it possible to maintain the activity right through for a considerable period of time.

Wilmington had many contractors who threw cold water on the campaign before it started; some refused to donate a dollar, and others consented to "go along" although they thought it money wasted. However, there were sufficient "believers" and enthusiasts who determined to do their utmost, who raised the money to pay expenses, and it is to those as well as to the committee and members of the staff of the Chamber of Commerce, that credit is due. What was done in Wilmington can be done in any community where there are a few men who are willing to put their shoulders to the wheel and push; and what community doesn't have such men?



# FOR WATER REPELLENT MORTAR

**W**HEN Brixment is used, no water-proofing admixtures are necessary to produce a water-repellent mortar.

Brixment itself is made *permanently* water-resistant by a small amount of mineral oil, added during manufacture.

This makes the mortar more plastic and helps prevent efflorescence and fading of colors. . . Write for full details. Louisville Cement Company, Incorporated, Louisville, Kentucky.

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## BRIXMENT

for MASONRY and STUCCO





# Questions of Law Clearly Answered

## Legal Rulings of Interest to All Builders

By LESLIE CHILDS

**G**ENERALLY speaking, there is either a constitutional or statutory limitation placed upon the amount of indebtedness that a municipality, or other public body, may contract. In other words, such bodies are usually limited, when it comes to contracting for improvements, to a certain percentage of their taxable property. And such limitations are usually strictly enforced by the courts, and any contract that exceeds them may not be enforced.

In the light of which, it is obvious that contractors dealing with public bodies, as cities, towns, school districts, etc., should have a care about signing any contract that exceeds such limits. Needless to say, here is an important point of building law, and, as an illustration of the possible danger to a contractor in overlooking it, the following case may be examined with profit.

### Exceeded Tax Limitation

In this case the plaintiffs, who were general building contractors, entered into a contract with a school district whereby they agreed to erect a certain high school building. The cost of this building was to be \$212,090. and it is evident from the report that the plaintiffs entered into the contract in entire good faith, and without any knowledge of the inability of the school district to enter into the contract for the amount involved.

However, the school district was limited by a constitutional provision to five per cent, of the district's taxable property, when it sought to incur indebtedness. And at the time this contract was entered into the district had an indebtedness, which, taken with the amount of this contract, namely, \$212,090, made a total of \$16,319.61, in excess of what it could lawfully contract for.

Now as has been noted, the plaintiffs appear to have entered into the contract without taking into account that the contract price exceeded the school district's limit. So too, it does not appear that any of the school authorities had the exact state of affairs called to their attention.

After signing the contract, the plaintiffs proceeded with the work and completed the building according to the plans and specifications. The work was duly accepted, the architects issued their final certificate, and then plaintiffs discovered that payment in full would not be made, because of the fact that the contract exceeded the school district's debt limit by \$16,319.61.

This amount, it appears, was held back, and plaintiffs thereafter brought the instant action to collect. The trial of the cause resulted in a judgment in favor of the school district, on the ground that the contract was void, in respect to the amount it exceeded the district's debt limitation. From judgment on this the plaintiffs appealed to the higher court, and here in reasoning upon the point raised it was, among other things, said:

### The Language of the Court

"The question presented is whether any recovery can be had on the initial contract, and, if not, whether a recovery may be had upon the action of the school district \* \* \* at which time the building was approved and accepted, the school district officers authorized to pay therefor, and a tax for that purpose voted. \* \* \*

"The decisions of this court point clearly and un-

equivocally to the conclusion that no cause of action may be maintained upon the original contract. The consummation of that contract constituted the incurring of an indebtedness represented by the amount which the school district agreed to pay for the construction and erection of the high school building. The indebtedness was incurred as of that date. \* \* \*

"Concededly, the indebtedness thus incurred, together with the existing indebtedness of the school district, exceeded five per cent of the then value of the taxable property of the school district, as ascertained by the last assessment for state and county taxes. That part of the indebtedness incurred by the contract in excess of the five per cent limitation was void."

Following the foregoing disposition of the question of the right of the plaintiffs to recover on the initial contract, the court turned to the contention of the plaintiffs that, even though they could not recover on the contract, they should be allowed to do so on the acts of the school district authorities in accepting the building. The plaintiffs taking the position that such action amounted to an adoption or ratification of the contract that would support recovery for the work done. In denying this contention the court said:

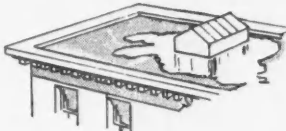
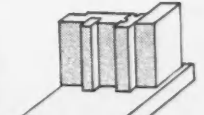
"That principle of ratification and adoption because of the moral obligation to pay has no application to the contract here under consideration, because that contract, at least that portion of it in excess of the five per cent limitation, was prohibited by the Constitution. To that extent it was a contract in violation of law. Because the district had no power or authority to enter into it in the first instance, it can never ratify or adopt it so as to make it a legal obligation of the school district.

"Nothing in the nature of a valid obligation against the school district can grow out of that contract so far as that portion of it in excess of the debt limit is concerned. That is a principle firmly established by the cases already cited, and nothing that here may be said can add to the weight of the authority of those decisions. \* \* \* The order appealed from must therefore be affirmed". (209 N. W. 472).

### Conclusion

So the contractors were denied a recovery for the \$16,319.61 balance due, solely upon the ground that the contract exceeded the constitutional limit of the school district by that amount. In other words, good faith on the part of the plaintiffs and a willingness on the part of the school district to pay the balance due, could not avail in the face of a positive violation of the law in entering into the contract in excess of the limit.

The holding in the foregoing case may seem harsh at first glance, but on second thought it would obviously be very dangerous, from the interest of the public to ever permit a violation of a public body debt limitation to go unpunished. So, after all, while the holding may appear harsh it is just, and in accordance with the great weight of authority on this subject. In the light of which, it is then clear that the important thing for a contractor to know, when dealing with public corporations or bodies, is their debt limitations, and to see that any contract signed stays within them.

A flat roof  holds water . . .  
 . . . so does a flat window sill 

*New Andersen Frame  
 with steep sill slope  
 insures perfect drainage*

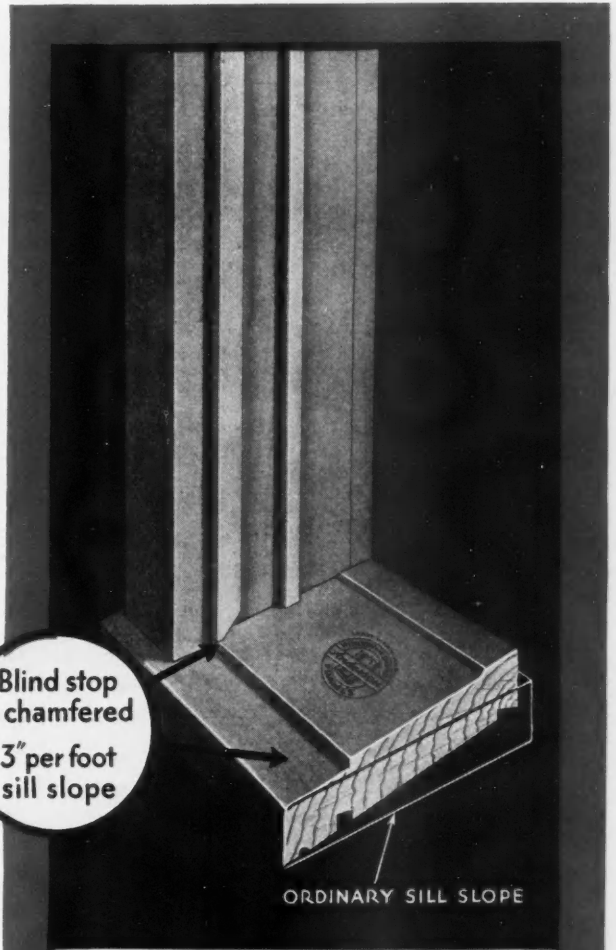
**LOOK** at the steep sill slope on the new Andersen Master Frame, a slope of 3" per foot—60% more than ordinary frames. Look at the chamfered blind stop which keeps dirt from lodging in corners.

Here you get perfect drainage and save the cost of water damage repairs. These are only two of Andersen's new features, which are helping builders to cut labor costs, get a better installation and earn a better profit.

Have you seen a demonstration of the famous locked sill joint and the other remarkable features of this new frame which now is made of genuine White Pine and also Pondosa Pine with primed joints? Ask your nearest dealer, or write direct.

THE ANDERSEN FRAME CORPORATION  
 Bayport, Minnesota  
 Represented by 4,000 Leading Jobbers and Dealers

*Andersen*  
**MASTER**  
*Frames*



*Actual photograph showing Andersen's steep sill slope and chamfered blind stop, which insures perfect drainage*



*Model home at Amarillo, Texas. Architects: Berry and Hatch; Andersen Master Frames No. 604 from Amarillo Sash & Door Company*

*for a leakproof installation*

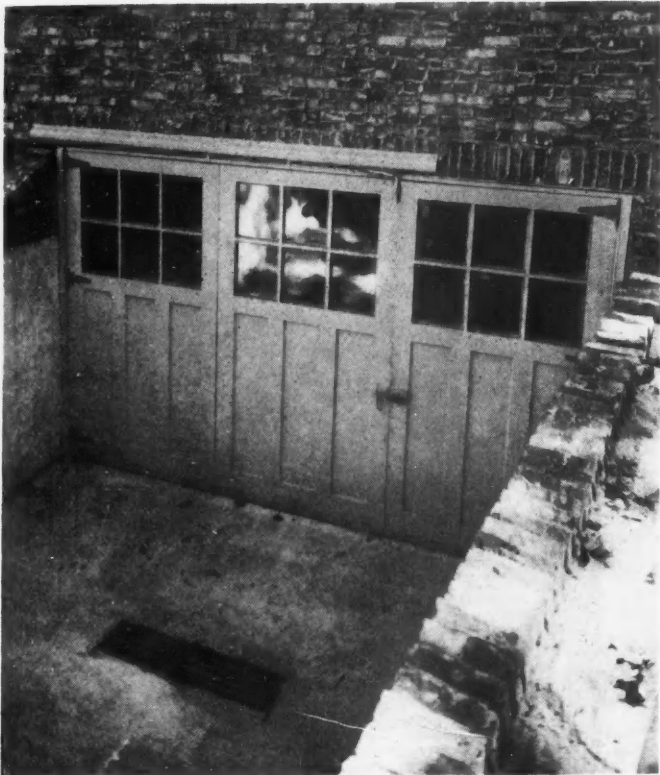
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE

# Practical Job Pointers

## For Sub-Grade Garages

IN many sub-grade garages the water which accumulates during a storm, or when snow melts, is a serious nuisance. This can be entirely removed by using the idea illustrated in the picture. The incline to the garage doors has, in this case, been brought to its lowest level a few feet in front of the doors. From this point there is a slight upward slope to the doors. A grating, over a dry well, is placed in the approach at the low point. In this way all water is drained off into the dry well, from both directions and there is no trouble from the rain water entering the garage. The grating should be at least three by one inch in size and it is advisable to place it in the center of the driveway. Even though made of heavy iron, it is well to keep it clear of the wheels running over it which might break it.

CHARLES JENNINGS, Brooklyn, N. Y.



With Proper Slope and a Drain Installed Water Never Enters the Garage.

## To Hold Parts for Grinding

IN grinding small metal parts, it is often necessary for the workman to get his fingers too close to the wheel for safety. Besides this, the heat generated in grinding rapidly heats up such small parts till they become too hot to be held without frequently dipping them in water. The difficulty is easily overcome, however.

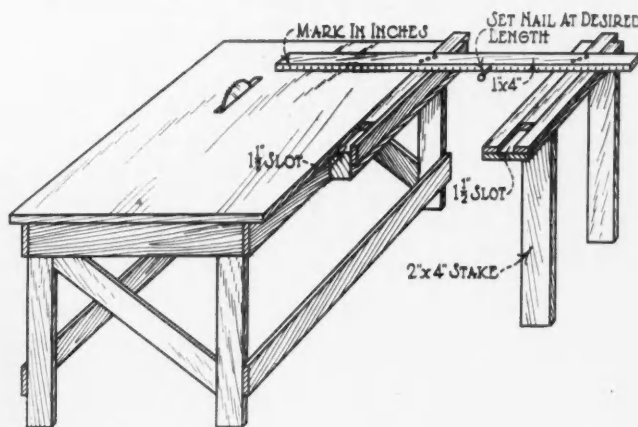
Clamp the small parts to be ground in a wood handscrew such as cabinet makers use. With the part held in the handscrew the grinding can go ahead at a much faster rate, without discomfort and without danger. If a wooden handscrew is not available, a carriage clamp, with two thin pieces of wood between it and the piece to be handled, will serve the same purpose.

JOHN E. HYLER, 501 Broadway Ave., Peoria, Ill.

A Reader's Exchange of Tested Ideas and Methods, Taken from Their Own Building Experience. Two Dollars Will Be Paid for Each Contribution Published in This Department.

## Convenient Saw Gauge

THE sketch shows a gauge that can be rigged up on any kind of a power saw. It is a real time saver as it saves all the measuring where a number of pieces are to be cut the same length. It also saves squaring each piece as the gauge slides parallel with the saw. This is particularly handy for cutting cleats for concrete forms, screed legs, spreaders and similar work. The two, 1½-inch pieces running parallel with the saw



This Is a Time Saver When Cutting a Number of Pieces of Equal Length.

bench should fit snugly in the 1½-inch slots but should slide freely in the slots without binding anywhere. This makes it possible for the gauge, with the piece to be cut held against it, to run along smoothly, parallel with the saw, without effort, producing a smooth, accurate cut.

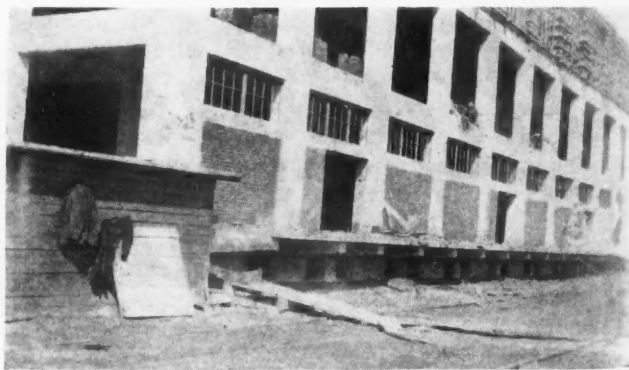
GARRETT L. PERIDO, 2713 Perez St., San Antonio, Texas.

## Concrete Loading Platform

AN excellent method of constructing a loading platform, regardless of whether it is to be surfaced with concrete, lumber or other material, is to construct the sill of well reinforced concrete, pouring this right along with the foundation of the building.

Make the sills much larger at the junction with the wall than they are at the outer end. This cantilever construction leaves nothing in the way of keeping the space beneath the platform clean, and gives the best possible appearance to the platform.

JOSEPH C. COYLE, 538 Santa Fe Drive, Denver, Colo.



A Cantilever Type of Loading Platform Is Excellent Construction.



# THERMAX

The FIREPROOFING INSULATION

*Gives*  
*more insulation*  
**PER DOLLAR . . .**



**STRONG**

**THERMAX DIMENSIONS**  
1 in. thick, 20 in. wide and 64 in. long  
2 in. thick, 20 in. wide and 64 in. long  
3 in. thick, 20 in. wide and 48 in. long  
*Special lengths will be furnished when specified in quantity.*



**WARM**



**FIREPROOF**



**QUIET**

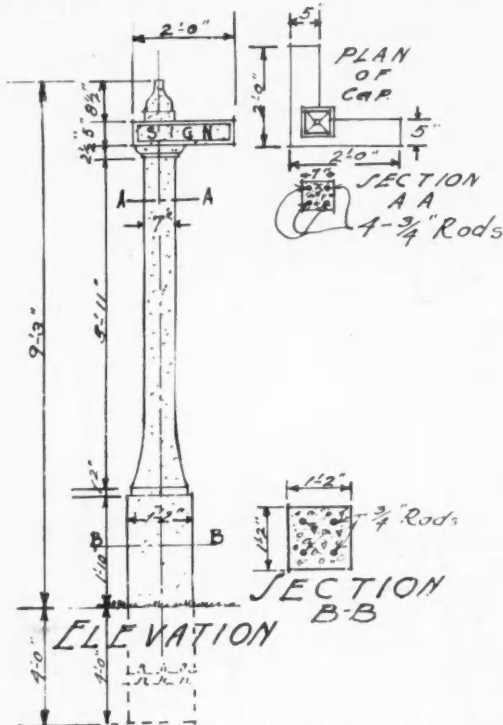
**THERMAX** actually provides more insulation per dollar of cost than other insulating boards. For this reason alone it would demand your serious consideration but there are other more vital reasons. For instance, 3 inch thick Thermax possessing high insulating value has such *structural strength* that it can be used as a self supporting roof slab. Again, it is the only definitely *fireproofing insulation board* . . . Nails laid on it will melt in the heat of a blowtorch while Thermax beneath will not support combustion . . . Thermax can be used economically as a lumber for industrial insulation purposes, for sheathing and is an ideal base for stucco or plaster. Partitions built of Thermax are strong and highly resistant to the passage of sound as compared with the ordinary tile, block or solid plaster . . . Our literature describes in detail this most modern of lumber. Write for it and a sample of Thermax.

**THERMAX CORPORATION**  
1411 FOURTH AVENUE ★ SEATTLE, WASHINGTON

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE

### Artistic Concrete Sign Post

IN laying out a development for medium priced homes, we needed a street marker that would not be expensive to produce but would be thoroughly durable and also artistic. Concrete was selected as the most suitable material and the design shown in the sketch was worked out. The posts were made right on the job.



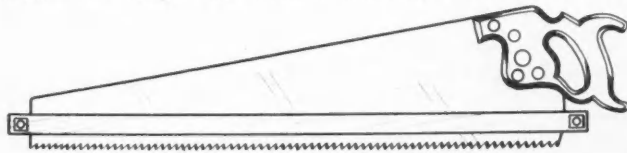
Concrete Posts for Marking Streets in a New Development Are Easily Made on the Job.

To add novelty and attractive appearance colored concrete was used for these posts. The coloring material was put directly into the concrete mix. The extra amount of coloring material needed by this method was small compared with cost of the hand labor that would have been necessary to coat the posts after casting.

ARTHUR HOMER, Hollis, N. Y.

### Sawing Gauge

ONE day while sawing and chiseling the grooves for door jambs. I happened to saw too deep. Thinking about how to prevent such a mistake, I hit on the idea



Simple Gauge That Prevents Sawing Too Deep When Grooving Jambs.

shown in the sketch. This is a gauge which clamps onto the saw and makes it possible to saw to any depth accurately.

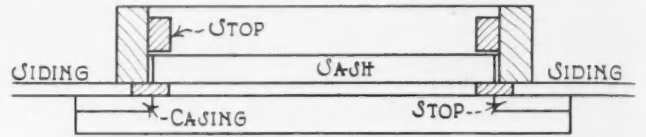
This gauge consists of two strips of wood 3/8-inch thick, 3/4-inch wide and about 2 inches longer than the blade of the saw. These pieces must, of course, be straight and square. Bore holes in these strips half an inch from each end and put a bolt through each pair of holes.

When the strips are bolted together, slip them onto the saw, measure with a ruler the depth you want to saw and tighten the bolts so that the strips grip the saw firmly. When the gauge touches the board you are sawing, you know you have just the right depth.

DONALD DE VRIES, Cortland, Neb.

### Garage Window Construction

THE sketch shows an economical construction for windows and doors of garages and similar buildings. The studs are placed to accommodate the width of the sash,



Here Is an Economical Type of Garage Window Construction.

which slides up. A 2 by 6 sill is cut in between the studs, with projections to receive casings. The siding stops half way across the studs to allow for placing 1/2-inch stops. The casings cover the crack between the siding and stops. At the top, the last siding board runs clear across, forming the stop.

HOWARD DICK, R. F. D. No. 3, Clyde, Ohio.

### Artistic Spark Arrester

IT is necessary, for the sake of safety, to have a spark arrester on the top of any chimney leading from an incinerator. In most cases a simple, square basket effect is used. While this is quite effective as an arrester it is not artistic and detracts from the appearance of the building.

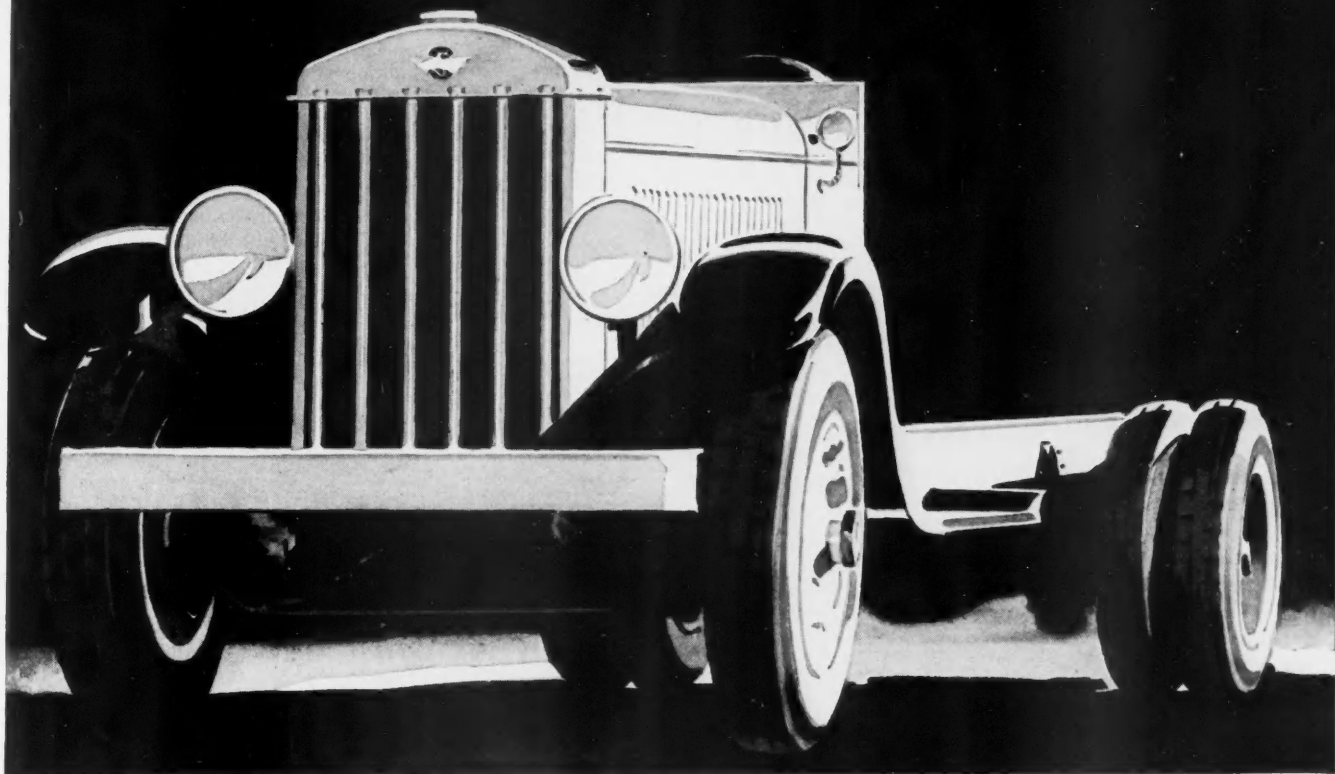
The picture shows a spark arrester which, instead of being an eyesore, forms an artistic finial for the chimney and really adds to the total appearance of the building. At the same time, it is just as effective for safety as the ordinary sort. In this case the basket is formed into the shape of a hip roof and wrought iron ornaments are attached to each hip and to the ridge.

JOHN KILPATRICK, Montclair, N. Y.



A Spark Arrester of This Sort Serves as an Artistic Finial for the Incinerator Chimney.

THE LOWEST PRICES IN REO HISTORY NOW PREVAIL



# REO- *Now Better than Ever!*

- Bar-protected Radiators
- Heavier Fenders
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*(Available all Models)*
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PRICES—  
**\$895 to \$2525**  
Chassis F. O. B. Lansing, Michigan

**M**ANY new and exclusive REO refinements, coupled with a record low price on the REO TONNER, have established new high standards of truck value.

Compare REO economy and long life factors—all-day speed on the highways and unrivaled agility in traffic; long-wearing chrome-nickel iron cylinder block and special alloy “Lo-Ex” pistons; REO-designed transmissions; the most effective brakes known to trucking; specially designed frames and springs; magazine oilers!

REO chassis and body combinations meet 95% of all haulage needs. See the latest REO SPEED WAGONS AND TRUCKS. Your REO dealer will gladly show how they will meet your requirements.

REO MOTOR CAR COMPANY, LANSING, MICHIGAN

SPEED WAGONS

# REO

AND TRUCKS



# Building Activities

## The Month's News of the Industry

### National Real Estate Survey

THE sixteenth, semi-annual survey of the real estate market, made by the National Association of Real Estate Boards, has just been issued. It shows that in approximately one-fourth of the 349 cities reporting, prices for real estate have remained stable. This is a significant fact, especially in view of the decline in commodity prices which has occurred during the same period.

In the light of this survey, the housing situation seems to be quite satisfactory. Three-quarters of the cities report a normal supply of single and two-family houses and, of the other quarter, the number reporting an under-supply is larger than the number reporting an over-supply.

Two-thirds of the cities report a normal supply of apartments and 18 per cent report a shortage. The reports do not indicate any conditions of a sectional character. Conditions are spotted all over the country. One-third of the cities reported an over-supply of business property, this condition being quite general in the Northwest.

A sharp difference between the large and small cities exists in the mortgage situation. In cities of over 500,000, capital is seeking mortgage investments while, in cities of 25,000 and under, mortgages are seeking capital. This might be taken as an indication of the extent to which money is drifting into the larger centers for investment.

### Builders Elect Officers

AT the 13th Annual Convention of the Illinois Builders League, held January 12 to 14, 1931, at the Hotel Sherman, Chicago, the following officers were elected: Oscar W. Rosenthal, Chicago, re-elected president; C. A. Petry, Champaign, Ill., vice president; William Y. Brownlie, Chicago, treasurer.

### Property Owners Organize

FOLLOWING close upon the announcement of a state wide organization of property owners in Illinois, under the leadership of the National Association of Real Estate Boards and the Illinois Association of Real Estate Boards, comes the announcement of a similar organization in Ohio. Other State real estate boards are, at the

### Coming Events

- Feb. 3-5, 1931—Iowa Lumber & Material Dealers' Association, Annual, Coliseum, Des Moines.
- Feb. 4-6, 1931—Michigan Retail Lumber Dealers' Association, Annual, Hotel Book-Cadillac, Detroit.
- Feb. 10-12, 1931—Illinois Lumber & Material Dealers Association, Annual, Hotel Stevens, Chicago.
- Feb. 11-12, 1931—North Dakota Lumbermen's Association, Annual, Fargo.
- Feb. 13-14, 1931—Virginia Lumber & Building Material Dealers' Association, Annual, John Marshall Hotel, Richmond.
- Feb. 17-19, 1931—Wisconsin Retail Lumbermen's Association, Annual, Milwaukee (Wis.) Auditorium.
- Feb. 18-20, 1931—Nebraska Lumber Merchants' Association, Annual, Rome Hotel, Omaha.
- Feb. 19-21, 1931—Western Retail Lumbermen's Association, Annual, Winthrop Hotel, Tacoma, Wash.
- Feb. 23-25, 1931—Kentucky Retail Lumber Dealers' Association, Brown Hotel, Louisville.
- Feb. 23-28, 1931—Kalamazoo Real Estate Board, Complete Home Show, Annual, Kalamazoo, Mich.
- Mar. 11-12, 1931—South Dakota Retail Lumbermen's Association, Annual, Sioux Falls.
- Mar. 16-18, 1931—Concrete Reinforcing Steel Institute, Annual, Edgewater Gulf Hotel, Biloxi, Miss.
- Apr. 11-18, 1931—Indianapolis Real Estate Board, Home Complete Exposition, Annual, Indianapolis, Ind.
- Apr. 13-18, 1931—American Oil Burner Association, Annual, Benjamin Franklin Hotel, Philadelphia.
- Apr. 14-16, 1931—Lumbermen's Association of Texas, Annual, Plaza Hotel, San Antonio.
- Apr. 18-25, 1931—Fourth Biennial Exposition of Architecture and Allied Arts, Grand Central Palace, New York City.
- May 27-30, 1931—National Association of Real Estate Boards, Annual, Lord Baltimore Hotel, Baltimore, Md.

present time engaged in and planning similar action, for the purpose of obtaining radical readjustment of existing tax systems which are prejudicial to home ownership and home building.

### Sales Increase 30 Per Cent

AN increase of 30 per cent in the sales of General Electric refrigerators was recorded in 1930, according to P. B. Zimmerman, sales manager of the electric refrigerator department of the General Electric Company. Mr. Zimmerman says:

"This was, by far, the best year in the history of our refrigerator selling, and we have every reason to believe that 1931 will show corresponding increases.

"One of the greatest forces contributing to our sales increase has been advertising. At the beginning of the year we decided that we not only would go ahead with our advertising program, but would enlarge upon it. The same policy will be followed in 1931.

"We expect to strengthen our distributing organization, enlarge our sales force, and add several thousand new retail outlets. Our manufacturing schedule is being speeded up and the new addition to the Fort Wayne, Ind., plant is being placed in operation."

### Treated Lumber Exhibit

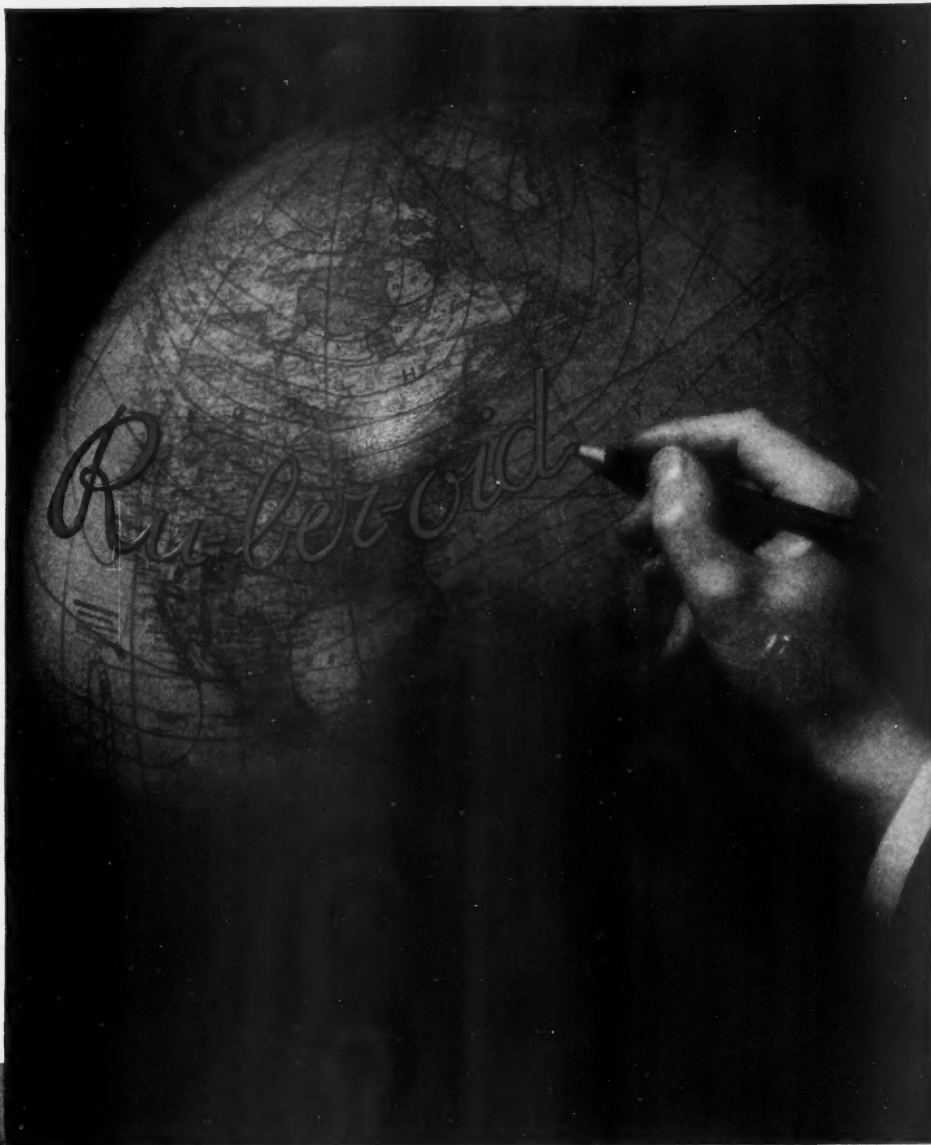
ECONOMY through the use of chemically treated lumber was graphically presented in an exhibit by the National Committee on Wood Utilization, at the recent convention of the Ohio Association of Retail Lumber Dealers, at Cleveland.

A house skeleton was featured with the portions in which treated lumber should be used indicated. These parts included porch columns, flooring and ceiling exposed to the weather, sills and certain foundation parts, window frames, lattice work and garden fixtures. It was pointed out that, while initial investment is greater in using treated lumber for these parts, longer service with minimum upkeep and replacement costs means economy in the long run.

The Committee has, during the past year, sponsored the retail distribution of treated lumber so that it is now available to small consumers as well as to large consumers. With the railroads of the country effecting a saving of \$145,000 a day through the use of treated lumber, its possibilities in the home building field are tremendous.

### C. E. Allen Promoted

ANNOUNCEMENT from the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., states that Claxton E. Allen, formerly of the company's southwestern district, has been elected a commercial vice president of the company.



## RU-BER-OID PRODUCTS ARE USED AROUND THE WORLD

**C**ONTRACTORS and builders the world over know that RU-BER-OID Shingles and Roofings are in a class by themselves when it comes to economy for the purchaser. Wherever civilized man penetrates, he proves his confidence in Ruberoid's leadership by extensive use of RU-BER-OID products in construction work of every type.

Colorful in variety, durable in use, fire-resisting, and impervious to weather, RU-BER-OID Shingles and Roofings set the standard for economical roofing service. No wonder thousands of contractors and builders recommend RU-BER-OID roofs on the basis that the dollars spent for RU-BER-OID go farthest.

If you are not using RU-BER-OID or haven't seen the complete line of RU-BER-OID products listed below, see your local RU-BER-OID dealer or write the nearest office. Your inquiry will receive prompt attention.

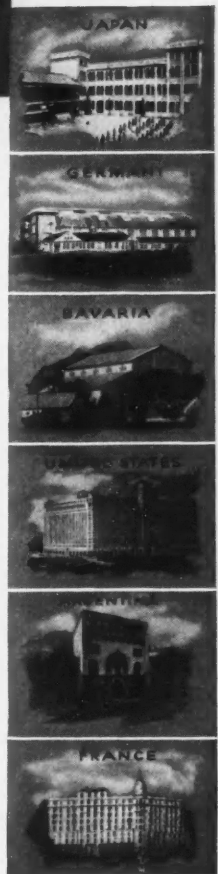
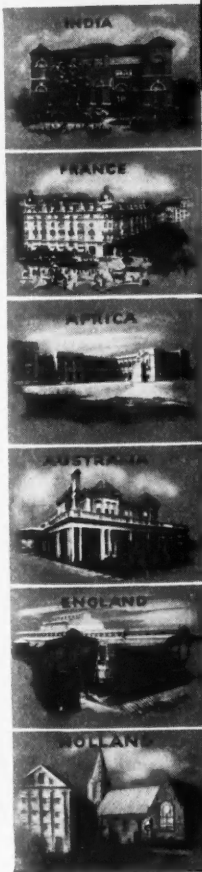
### The RUBEROID Co.

ROOFING MANUFACTURERS FOR OVER FORTY YEARS

Sales Divisions: RUBEROID MILLS—CONTINENTAL ROOFING MILLS  
SAFEPAK MILLS—H. F. WATSON MILLS—ETERNIT

ASPHALT SHINGLES AND ROLL ROOFINGS—ASBESTOS-CEMENT SHINGLES AND CORRUGATED SHEETS—ASBESTOS, ASPHALT, COAL TAR PITCH AND FELT BUILT-UP ROOFS—ASBESTOS SHEATHINGS, FELTS, MILL BOARD, PIPE COVERINGS—KRAFT WATERPROOF PAPERS—COAL TAR AND ASPHALT FELTS AND SHEATHINGS—ASPHALT WATERPROOFING PAINTS AND CEMENTS—DRY FELTS AND SHEATHINGS

Offices & Factories: New York, N. Y.—Chicago, Ill.—Millis, Mass.—Erie, Pa.—Baltimore, Md.—Mobile, Ala.



## CURRENT CONSTRUCTION FIGURES

**D**URING December, 1930, construction contracts maintained a highly satisfactory volume. The total, \$342,973,812, was less than two per cent under the total for the preceding month. This is a much smaller decrease than is normally expected from November to December and seems to lend color to constantly recurring statements that building has reached bottom and is definitely on the increase with promise of a fairly active season this spring.

The total contracts were divided among the various types of work as follows:

Residential .....	\$146,596,972
Commercial .....	27,600,650
Industrial .....	16,671,270
Educational .....	26,979,370
Hospitals and Institutions .....	7,445,350
Public Buildings.....	21,499,280
Religious and Memorial	5,694,370
Social and Recreational .....	6,433,900
Public Works and Utilities .....	84,052,650
	<hr/>
	\$342,973,812

These figures are based on reported contracts plus estimates by AMERICAN BUILDER AND BUILDING AGE for unreported work, covering the entire United States.

With the returns in for December the complete figures for the year 1930 are now available. AMERICAN BUILDER

### Demonstrate Modernization

**A**PPROXIMATELY 20,000 persons visited a modernized home demonstration in St. Paul, Minn., during the two weeks in December that it was open to the public. That these visitors were not mere curiosity seekers is proved by the fact that from the list about 4,675 actual prospects have been secured to date. Of these 675 are prospects for general construction; 1,500 for oil burning equipment; 1,200 for plumbing and heating; 700 for millwork, such as built-in cabinets; 600 for painting and decorating.

This demonstration was sponsored by the Pioneer Press-Dispatch, of St. Paul, and was ably supported by the St. Paul Modernizing Bureau and by A. V. Williams, Secretary of the St. Paul Builders Exchange.

### Will Use Aluminum Priming

**I**T is reported, by the Aluminum Company of America, Pittsburgh, Pa., that the idea of mill priming of wood with aluminum paint has been taking hold rapidly and will be exten-

AND BUILDING AGE estimates that total construction during 1930 amounted to \$6,219,282,575. Despite the heavy declines in residential building, this type of work still led all others with a total of \$2,455,300,265. The next largest item, public works and utilities, was nearly a billion dollars less. The complete distribution follows:

Residential .....	\$2,455,300,265
Commercial .....	691,690,450
Industrial .....	505,936,860
Educational .....	413,656,320
Hospitals and Institutions .....	179,432,660
Public Buildings ....	153,796,060
Religious and Memorial .....	102,120,810
Social and Recreational .....	124,628,200
Public Works and Utilities .....	1,592,720,900
	<hr/>
	\$6,219,282,575

That the total was of this size can be attributed, to a large extent, to the pushing ahead of public works and utilities in an effort to overcome the effects of the recession of private construction. The figure for this class of work, much of which is other than building construction, was proportionately high. On the other hand the greatest drop was in the residential field where the total amounted to only about half the average yearly volume for the preceding five year period.

sively used during 1931 not only by lumber mills but also by specialty manufacturers.

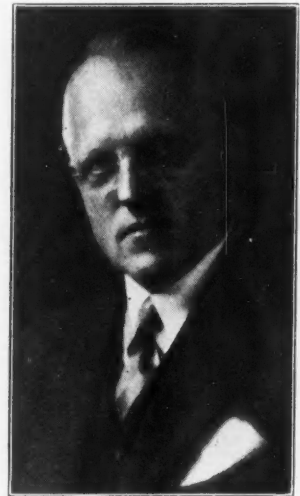
Last year The Stover Manufacturing Co., Mobile, Ala., started selling Southern pine siding primed on all four sides and both ends. More recently the Brooks-Scanlon Co., Foley, Fla., have gone ahead along the same line. C. A. Mauk Co., of Toledo, Ohio, will use this priming on red cedar, and the Hoosier Mfg. Co., Greencastle, Ind.; and the George W. Smith Woodworking Co., Philadelphia, have adopted priming with aluminum paint as a part of their production programs.

### Safety Trophy Awarded

**T**HE safety trophy offered by the Portland Cement Association was awarded, for 1930, to the Pittsburgh plant of Universal Atlas Cement Company. This is the largest cement plant ever to win this trophy. It employs more than 500 persons and has a production capacity of nearly 20,000,000 sacks of cement a year. It operated throughout the entire year without a single lost-time accident.

### Oil Burner Sales Increase

**S**ALES of domestic oil burners, in 1930, were slightly over 125,000 units, which was two per cent greater than for 1929, according to Walter F. Tant, president of the American Oil Burner Association. This increase was made in spite of the general business depression and the heavy falling off in residential construction which naturally influenced the sales of oil burners.



Walter F. Tant

These 125,000 burners represent a total manufacturers' gross of more than \$20,000,000. With accessory and installation costs added they represent a consumer outlay of approximately \$69,000,000, which is less than the 1929 dollar value due to price reductions made during the year.

An encouraging factor in the oil burner field is the fact that there is no over-production. There is a thin margin between demand and supply and manufacturers are not loaded with stock. Year-end inventories are uniformly low, and there is a distinct feeling of confidence among the industry's leaders.

### Stoddard Speaks on Brick

**R**ALPH P. Stoddard, secretary-manager of the Common Brick Manufacturers' Association, spoke over the Columbia Broadcasting System, on January 3, 1931, on the subject "Mud Magic Through the Ages." This talk, one of Columbia's Romance of American Industry series, was the story of brick in building.

Mr. Stoddard called attention to some of the recent developments in the use of brick which is one of the oldest products of man. These developments include the introduction of skintled brickwork, and the hollow brick wall and, even more recently, the development of reinforced brickwork.



# THE MCKINNEY DOOR

## OVERHEAD TYPE

### Is Better Because:

**1. HEAD ROOM.** The MCKINNEY GARAGE DOOR improvements have overcome the headroom problem. Eight inches are all that are required for very satisfactory operation. Furthermore the door will raise entirely clear of the opening. This minimum headroom requirement is especially important now that so many garages form an integral part of the residence basement with low ceiling. When necessary, The McKinney Garage Door can be made to operate satisfactorily in as little as five inches of headroom.

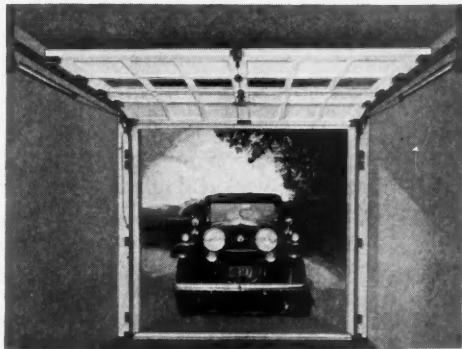
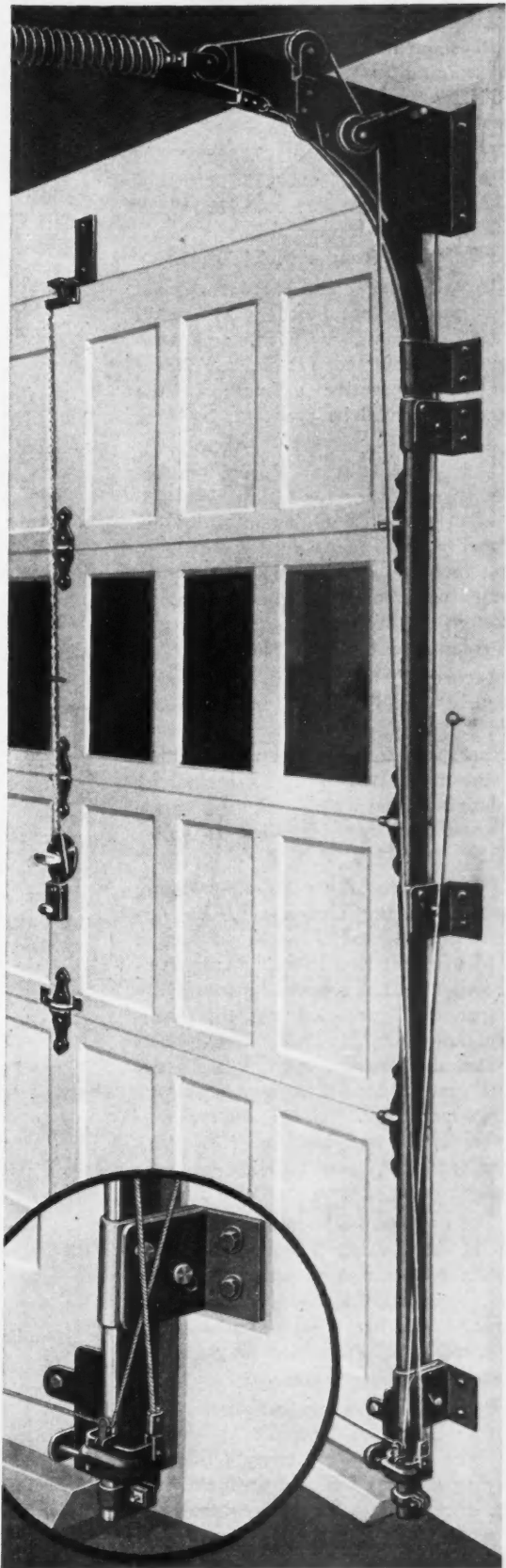
**2. NO WEATHER STRIPPING NECESSARY.**

A specially designed track bracket places the door tightly against the jamb when closed. This is effected by exclusive McKinney developments in track and an ingenious arrangement which functions automatically when door is lowered. No weatherstripping is necessary.

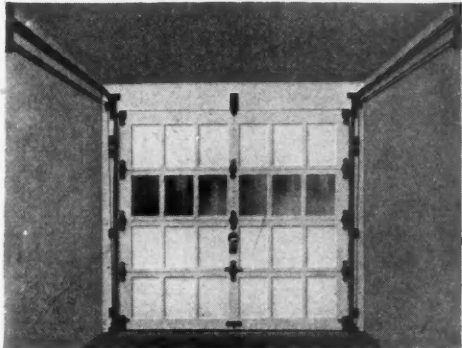
**3. NOISELESS.** The MCKINNEY GARAGE DOOR is made noiseless by three distinctly McKinney improvements.

1. Steel rope is used for raising and lowering the door instead of cheaper but very noisy chain.
2. Instead of steel the MCKINNEY GARAGE DOOR rolls on high grade noiseless ball bearing rollers. The bearing races are case hardened. The ball bearings are packed in grease.
3. Spring slapping is eliminated by the McKinney method of spring installation.

**4. SECURITY.** The MCKINNEY GARAGE DOOR is equipped with a pin tumbler cylinder lock which automatically locks the door when it is lowered. However, the latch may be set on the inside by a button which will leave the door free to be opened from the outside without the use of a key. This is sometimes desirable during the day.



The McKinney Garage Door opens completely out of the way and there is no "throw-back" making available the entire height of the opening. Opening the door is child's play, requiring very little physical effort.



The McKinney Garage Door will not twist and can be raised or lowered smoothly because the weight is equally distributed on both sides of the track. When closed it fits tightly at the top, sides and bottom, reducing the cost of heating in winter months to a minimum.

The special track bracket magnified on the right places the door against jamb when closed. This exclusively McKinney development functions automatically when door is lowered.

No weather stripping is necessary.

**MCKINNEY MANUFACTURING COMPANY**  
**PITTSBURGH, PENNSYLVANIA**  
 NEW YORK                      CHICAGO                      BOSTON

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE

## Forecasts of 1931 Building Are Optimistic in Tone

FORECASTS of the construction volume for 1931 which have been making their appearance from many sources during January are uniformly encouraging in tone. Four of these estimate the total volume for 1931 in definite figures as follows:

F. W. Dodge Corp....	\$5,806,000,000
"Architecture" .....	\$5,323,913,800
"Arch. Forum".....	\$4,939,787,200
Copper and Brass Research Assn. ....	\$4,600,000,000

"Architecture" states that "based upon performance in the past several years, contracts awarded, and construction projected, the figures shown are a conservative estimate of the money that will be spent for building in 1931."

The "Architectural Forum" forecast says, "Every indication points to the fact that the building industry will probably lead the way toward business recovery. . . . All indications point to a building program arising through normal channels at least equal in volume to that of 1930."

According to the F. W. Dodge Corp., "Completion of readjustment and beginnings of recovery seem to be indicated for the country's building program in 1931 . . . (including) a definite upturn and definite increase in total volume of residential building."

A survey of 2,300 building supply dealers, by the Universal Atlas Cement Co. showed a combined verdict of 66 per cent that in general the construction dip has reached bottom. Only 34 per cent predicted less total construction than in 1930, 48 per cent predicted the same total, and 18 per cent predicted an increased total for 1931 over 1930. All of the twenty-seven dealers replying from New York City predicted more building in every classification of city construction.

The national building survey release by E. M. Craig, executive secretary of the National Association of Building Trades Employers, recorded a consensus that nation-wide construction activities will be on their way to normalcy by early spring.

Peter Grimm, president of the Real Estate Board of New York, predicts a "fair amount of activity" in home buying and renting and business leasing during the next twelve months.

H. Morton Bodfish, executive manager of the U. S. Building & Loan League, predicts that "residential construction will pick up appreciably in 1931, and people will spend a great deal of money to fix up old homes." Mr. Bodfish bases his prediction on

recent reports of building and loans associations' business throughout the country, and trends noted by the officers of these associations.

## Hold Bridge Competition

STUDENTS of architecture in the United States and Canada have been invited to participate in a competition for the design of the most beautiful highway bridge in steel. Previous competitions of this nature have been held under the auspices of the Beaux-Arts Institute of Design. This year the competition will be held directly by the American Institute of Steel Construction, which offers prizes of \$500 for first, \$250 for second and \$100 for the third best design, to be judged by a committee of architects and engineers of international importance.

Preliminary sketches will be judged on April 3, 1931, and from these ten will be selected for final development. Final judging will be held on May 1, 1931.

## Organize Small Mills

THE Southern Pine Association, New Orleans, La., reports continued progress in organizing the small mills of the South, in its program for the bettering of production and marketing methods of these operators. The Alabama group held its first meeting on January 6, 1931. As a result of a meeting held on January 8, the small mill services of the association will also be made available to mill owners of Western Florida and Southern Georgia.

## U. S. to Maintain Wages

IN announcing that the total expenditure by the federal government for public works during the calendar year 1931 will be \$724,058,000, President Hoover let it be understood that the government will insist that contractors on this work shall observe the prevailing wage scales in the various sections and communities.

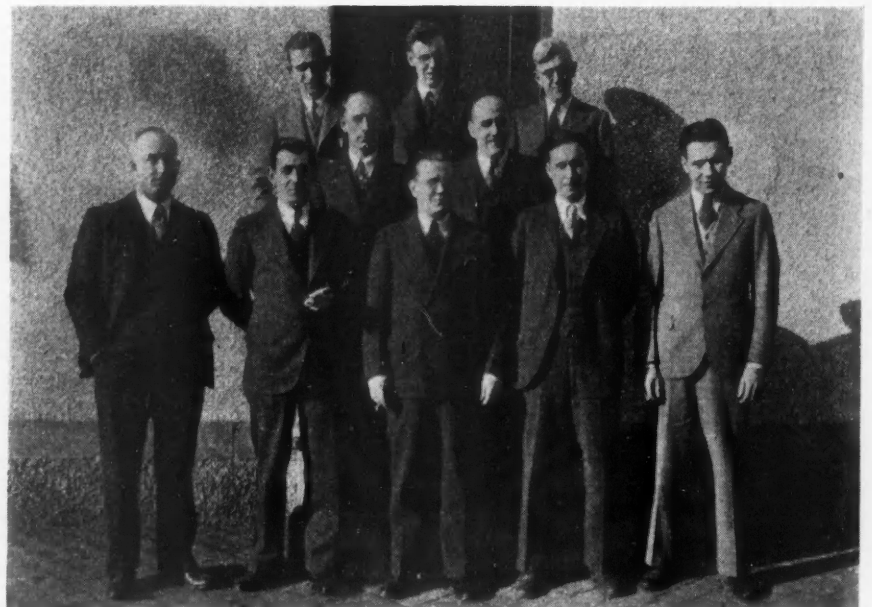
This is in accordance with the more restrictive policy favored by the Senate in attempting to insert an amendment in the \$116,000,000 emergency construction bill stipulating that local wage rates be paid in all work done under the terms of the measure. This amendment, however, was taken out upon the insistence of the House. It is pointed out that the President preserved the spirit of the amendment but has left out its restrictions.

## S. P. A. Offers New Service

THE Southern Pine Association plans to establish a new service which will be first tried out in St. Louis, Mo. This service will be known as the Consumers' Inspection Service. It will investigate all complaints of consumers as to grade, etc., and will be under the direction of E. C. Scott who has been an inspector for the association for many years.

## Hold Sales Conference

THE annual conference of the sales organization of H. A. Thrush & Company, was held at the home offices in Peru, Ind., recently. A round-table discussion and school were conducted daily with thorough study being made of the complete Thrush line of products and of future market possibilities.



Annual Sales Conference of H. A. Thrush & Company, Peru, Ind.  
H. A. Thrush, president of the company at the extreme left.



# BUILT FOR HEAVY-DUTY HAULING IN THE BUILDING INDUSTRY

Inspection of their powerful engines, alone, quickly proves how sturdy, how modern, how thoroughly "all-truck" Dodge Heavy-Duty Trucks actually are. And beneath the clean-cut, rugged exterior of one of these 96-horsepower engines are full force-feed lubrication, 100-pound

crankshaft, 7 bearings, crankcase ventilator, aluminum-alloy pistons and many other features that insure power, dependability, low cost and long life.

*Inspect Dodge Heavy-Duty Trucks—their engines, axles, transmissions, frames, springs. Select the type that fits your needs — payload capacities range from 3,600 to 11,175 pounds. Buy it complete with standard or special body.*

THE COMPLETE LINE OF DODGE TRUCKS RANGES IN PAYLOAD CAPACITIES FROM 1,200 TO 11,175 POUNDS—PRICED, CHASSIS F. O. B. DETROIT, FROM \$435 TO \$2695, INCLUDING 1½-TON CHASSIS AT **\$595**

## DEPENDABLE DODGE HEAVY DUTY TRUCKS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE



## Adopt New Grade Names

A CHANGE in the grade names of oak flooring was recently announced by the Oak Flooring Manufacturers Association, 1812 Sterick Bldg., Memphis, Tenn., effective January 1, 1931. The new grade names are as follows: quarter sawed (three grades) Clear, Sap clear and Select. Plain sawed (four grades), Clear, Select, No. 1 Common, and No. 2 Common.

This change of names was decided upon by the whole industry because of the trend toward designations that are more fittingly descriptive of the special qualities and particular uses of various grades of lumber. The new names follow the new trend toward simplification of practice. There has been no change, however, in the wording of the existing grading rules except for the names.

The association has also announced a new edition of "Oak Flooring Grading Rules" which is now ready for distribution.

## Organize Chemical Company

BECAUSE of its rapidly growing and widely diversified line of new products, the E. L. Bruce Company, Memphis, Tenn., has organized the Bruce Chemical Corporation, a division of E. L. Bruce Company, which will control the manufacture and sale of those products which are chemical in nature.

The chemical products now ready for distribution include T.T. (Tri-Treat), a group of preservatives fundamentally similar with each adapted to a particular class of wood products; Terminex, an insecticide used in the treatment of termite infested buildings; Everbond, a plastic cement used in floor laying; Bruce asphalt coatings and cements; Bruce floor finish, a penetrating material used for wood flooring.

## Material Exhibit for St. Louis

AN Architects' and Builders' Materials Exhibit, containing all types of materials used in residential industrial, institutional and commercial structures, will be a permanent feature of the Merchandise Mart and mercantile warehouse building to be erected in St. Louis, Mo., for the St. Louis Mart, Inc., according to announcement by E. L. Stancliff, president of the operating company. The exhibit will be located on the ground floor of this 19-story, \$5,000,000 structure. It is expected to be the largest consolidated, permanent display of building materials in the world.

## First Building and Loan House is Still in Use

ON January 3, 1831, a group of five men met in the back parlor of a tavern at Frankfort, Pa., now a part of Philadelphia, and organized the



The First Building and Loan Financed House Still Stands, Occupied, in Philadelphia.

first building and loan association. The centennial of this event is now being celebrated all over the United States for the building and loan business has grown into a \$9,000,000,000 business and one of the most important factors in American building.

That first association was named the Oxford Provident Building & Loan

Association of Philadelphia County. The house on which the first loan was made still stands, still occupied, on Orchard Street, in Philadelphia. It was built by Comly Rich, a street lamp lighter. Since then building and loan associations have financed more than 8,000,000 American homes.

## U. S. G. Buys Weatherwood

THE United States Gypsum Company has purchased and will operate, the insulation plant of the Chicago Mill & Lumber Company, at Greenville, Miss., where "Weatherwood" is manufactured and where, hereafter, Red Top Insulation Board, lath and allied products will be made. A separate organization has been formed to operate this division of U. S. G. business under the name of the Weatherwood Company. O'Neill Ryan, Jr., will be general sales manager and Harry D. Thorn, sales promotion manager.

The United States Gypsum Company has discontinued the distribution arrangement with the Insulite Co. under which it has operated during the last 15 months.

## H. A. Hammond Passes Away

HARRY Albert Hammond, for many years New York representative of the General Cable Corporation, passed away on January first, at his home at 390 Riverside Drive, New York City. Mr. Hammond had been associated with the Rome Wire Company since 1903, long before it became a division of the General Cable Corporation.

## IT IS REPORTED THAT—

Development of the industrial use of tungsten for electric lighting has effected important economies. If we had to return to the carbon arc light for illumination it would cost the United States \$3,000,000,000 more a year than at present for lighting.

Because of construction difficulties, a dam was recently built on shore, standing on end, and tipped over into the Saguenay River north of Quebec, fitting almost perfectly into place.

During the past eight-year period Los Angeles construction equalled 27 per cent of the total for the ten Western States.

Fire losses annually equal five dollars per capita and fire protection an equal amount, placing a total annual tax of ten dollars on every man, woman and child in the United States.

Twenty-five is the age at which the

average man should start paying interest on a home mortgage, according to the National Association of Real Estate Boards.

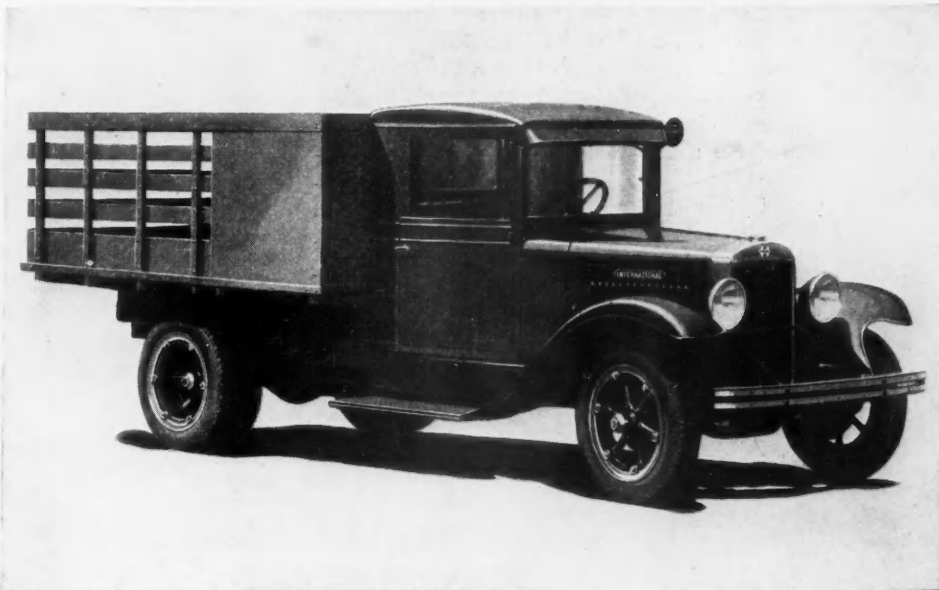
During the drought of the summer of 1930, several buildings in St. Louis which had shown no sign of settling in eight or ten years, developed cracks in brick walls, foundations and plaster, due to excess drying and shrinkage of the clay soil.

Salesmen of a retail lumber firm in Tacoma, Wash., who made house to house calls on home owners found 39 out of 66 employed home owners interviewed were prospects for home improvement work of some kind.

The direct compensation cost of 99,000-odd construction accidents in Pennsylvania was \$8,015,795 and the wage losses estimated in these accidents was nearly \$46,000,000.

# Here's the NEW

## International Six-Speed Special



The new 136-in. wheelbase Six-Speed Special with standard stake body 8 ft. long by 6 ft. wide, with 36-in. stakes

**N**OW we round out the new line of International Trucks by announcing the new "Six-Speed Special."

Have you seen the celebrated "Six-Speed Special" going through its paces? This is the truck that gave the hauling world something entirely new in performance. It is the original heavy-duty speed truck with six forward speeds and two reverse speeds. It has a remarkable 2-speed axle through which its driver gets generous speed instantly on the hard road, or changes instantly to tremendous pulling power on any kind of tough going.

The original "Six-Speed Special" was sold everywhere. You can see these sturdy trucks working on steep hills, through mud and gumbo, in heavy timber operations, in farm fields, in the roadless oil fields, in and out of excavations and speeding along the highways everywhere.

### BRIEF FACTS

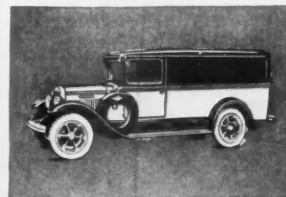
Wheelbase: 136 inches.  
 Rated Capacity: 1½ tons.  
 Engine: Powerful and unusually economical.  
 Clutch: Single dry-plate.  
 Transmission: 3 speeds forward, 1 reverse.  
 Final Drive: Spiral bevel gear of the 2-speed type, providing, with the transmission speeds, 6 speeds forward and 2 reverse.  
 Springs: Semi-elliptic front and rear. Auxiliary rear springs quarter elliptic.  
 Brakes: 4-wheel mechanical.

**1931 Edition — Ready to GO!**  
 NOW we offer the handsome new model, retaining all the famous "Six-Speed Special" features—an even better truck in every way. Increased power, 1½-ton rating; smoother operation and handling; greater comfort for the driver; improvements throughout making for sturdiness and long life; and the handsome design of hood, radiator, and body that characterizes all the models in the new International line.

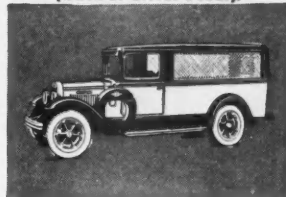
Come and watch this new "Six-Speed Special" perform. You'll admire its trim lines and speed on the delivery route. Its unequalled work on the heavy grade

will amaze you and its economy is sure to please you. Any International Harvester branch or dealer will demonstrate the new "Six-Speed Special"—at your convenience and without obligation.

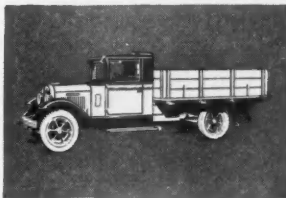
### Body Types for all Requirements



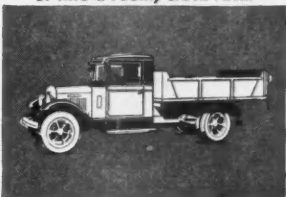
The International Type C panel body for the Six-Speed Special is available in 8 or 9-foot lengths (back of driver's seat).



The Type C body is also available with screen sides, as shown in this illustration, or with glass sides.



The Six-Speed Special with 60-bushel grain box. This body is quickly convertible into a flat bed or into a roomy stock rack.



Dump bodies of 1½ yards capacity are available in many styles for the Six-Speed Special.

**INTERNATIONAL HARVESTER COMPANY**  
 606 So. Michigan Ave. OF AMERICA Chicago, Illinois  
 (INCORPORATED)



# INTERNATIONAL TRUCKS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER AND BUILDING AGE

# These Are New

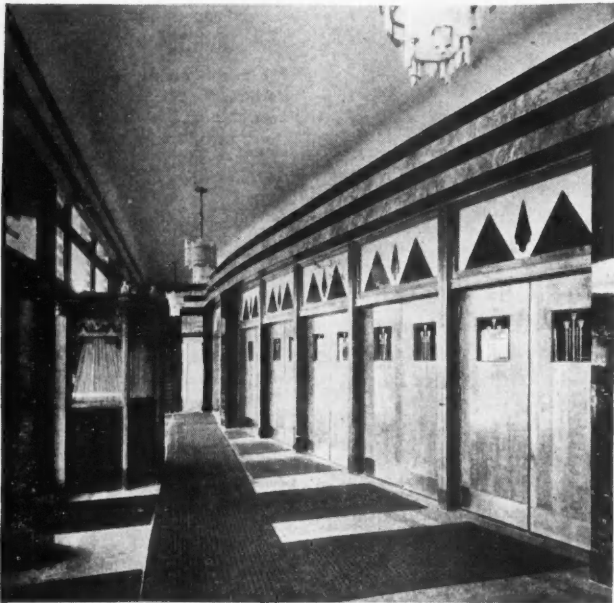
## Marble Finish Wall Board

A RECENT development is an asbestos cement wallboard finished with a faithful reproduction of marble effects. This company has previously placed on the market two types of marble finish board and the new finishes make this material more widely applicable.

The advantages of this material are its light weight, enduring finish and low cost, when compared to real marble, and also its fireproof qualities. It is particularly suitable for theater lobbies, halls of public buildings, show windows and similar installations and is also used for store fronts, lavatories, vestibules and residential wainscoting.

This material is furnished in sheets 32 inches by 48 inches and ¼-inch thick. Special sizes are cut from these sheets at the factory if desired.

Another wall board made by this company is furnished in sheets of the same size, scored for tile effect, in a choice of seven colors. This product is widely used for bathrooms, kitchens and similar places. Its cost is less than that of tinted ceramic tile and it is more quickly installed.



The New Asbestos Cement Wallboard, with Marble Finish, Is Used in the Lobby of the Erlen Theater.

## New Single Spindle Shaper

HERE is a new, single spindle shaper which is up-to-date in both design and workmanship. All the refinements required for particular work have been incorporated in this machine at a low cost. It is designed to operate with either a one or a two horsepower motor, operating on one, two or three phase, direct current. It is intended for light as well as heavy shaper work.

The regular spindle is made in one piece. It is exceptionally heavy. It runs in the best obtainable ball bearings and requires oiling only at long intervals. It is raised and lowered by means of a hand wheel and screw. A detachable spindle can be furnished in place of the regular spindle if desired.

The table, which measures 20 by 36 inches, is well ribbed and made as light in weight as is consistent with strength

For Further Information in Regard to Any Product Described in This Department, Write to the American Builder and Building Age, Information Exchange, 105 W. Adams St., Chicago.

will cut without reversing, against and across, as well as with the grain. The belt is always held at the proper tension by means of a conveniently located spring. The spindle has a vertical adjustment of 3¼ inches. The height of the table is 36 inches from the floor.

A shaper fence and guard for this machine are furnished at extra cost, and a router bit and chuck can also be furnished for use with the detachable spindle at a small extra cost.

and rigidity. The main frame or column is cast in one piece. The motor and belt are completely housed inside this frame.

The spindle operates at 10,000 r.p.m., this high speed, made possible without excessive cost or cycle changes, by belting direct from motor to spindle, eliminates the necessity of reversing as required in lower speed machines. It



A High Speed, Self-Contained Machine for Quantity Production.

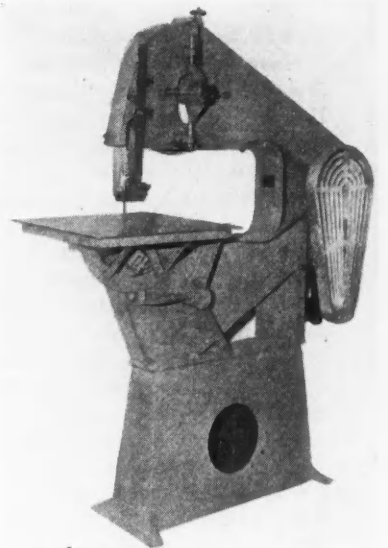
## New Line of Band Saws

A NEW line of all steel fabricated band saws has recently been announced. The fabrication of the complete metal frame and stand assures a light, sturdy machine and eliminates vibration, giving long life to the saw blade.

These machines are built entirely by electric welding and come in two types, the two-wheel unit and the three-wheel unit. The 16-inch capacity machine has two wheels, while the 24-inch and 36-inch models have three wheels. All models employ 16½-inch aluminum wheels, mechanically balanced and mounted on Timken bearings, with a simplified and easily adjusted tracking device for lining the blade.

The use of three wheels, on the large sizes, gives greater throat clearance and the whole construction reduces hazards by efficient guarding. The track and wheels are all contained in one frame, completely enclosing all running parts except the portion of the blade used in the cut.

The greatest feature of these saws, it is stated, is that they do not break blades.



One of a New Line of High Grade Band Saws.



# In RAPID CITY

Architect Endorses  
**DUNBRIK MACHINE**  
 for MANUFACTURER who  
 has used obsolete process

**DARK CANYON STONE CO.**  
 DUNBRIK  
 R. S. Dunn Mfg. Co.,  
 Holland, Michigan.  
 January 3, 1931.

Gentlemen:  
 I am glad to give you such a satisfactory report. We are now producing a line of bricks in which we have used DUNBRIK and the number of bricks that have gone to each. It will be increased within a few days.  
 I am glad to be able to give you such a satisfactory report. We have been in the concrete production business for 17 years. Previous to this year, we manufactured bricks under the old process and it was difficult to get our architects to specify it and the work was so high that we never made any real money out of it.  
 The new DUNBRIK machine has changed all of this. Our costs are so low that we can undercut any other brick in the territory. We are now producing a line of bricks in which every 100 were so good that they were approved by the architects and the one who used them will use a large amount of bricks.  
 Among some of our larger jobs are the following: The Masonic Temple, Commercial College, American Legion Building, and 15 business buildings. Photographs have been forwarded.  
 Summing up the result of the last six months of the year when our line was tested, we can truthfully say that we have had an exceptionally satisfactory business and that the DUNBRIK machine has done everything that you claimed for it.  
 Very truly yours,  
 R. S. Dunn  
 R. S. Dunn Mfg. Co.



Capacity 24,000 per Day, Modest Capital Starts You



**JAMES C. EWING**  
 LICENSED ARCHITECT  
 SPECIALIST IN FRAMING CONSTRUCTION  
 RAPID CITY, SOUTH DAKOTA  
 December 18, 1930

Dark Canyon Stone Company  
 Rapid City, S. Dak.

Gentlemen:  
 I am pleased to inform you that since you installed the Dun BriK equipment, I have approved your projects for several structures, and the owner and myself are well pleased with the materials.  
 I am satisfied that there would be a demand for roof tile and wall tile in this vicinity, and assure you that if you install the equipment for the manufacture of this product, I will be glad to encourage its use.  
 The brick formerly manufactured by you under another process were not satisfactory for important structures.  
 Very truly yours,  
 James C. Ewing  
 Architect

WHEN architects, like Mr Ewing, everywhere, endorse the new light-weight DUNBRIK, when introduced, and recommend its use for all types of construction, does it not demonstrate conclusively that here is a product that better meets the present-day demand? This, together with such low-cost production made possible with the line-production machine, gives you the whip hand over competition.

### READ MR. LOCKHART'S LETTER

When the Dark Canyon Stone Co., in such a comparatively small community as Rapid City, produce over a million brick in their first season, does it not prove, without reservation, what can be accomplished by a man of ambition in his own community?

To handle this light-weight unit,—to see the DUNBRIK machine in actual operation, turning out perfect brick at the rate of 51 per minute,—is to understand why such successes are made wherever DUNBRIK are being manufactured, and why they are possible in any locality.

### AN EXCLUSIVE BUSINESS

Visualize the enormous market for brick,—the most stable building unit of all time,—with plants in actual operation now producing DUNBRIK for less than \$7.00 per thousand,—your ability to supply this market with common, tinted, or face brick,—and,—a territory all to yourself, protected by a manufacturing franchise. Then send for complete data, and learn what such an enterprise offers you in your city.

### PAY FOR MACHINE AS YOU PRODUCE

We will supply you with the DUNBRIK machine on a pay-as-you-produce basis. A very modest investment starts you, and the balance comes out of earnings. The TOTAL represents only a fraction of what would be required to start any other business of such volume and profit. Get all the facts. Write today.

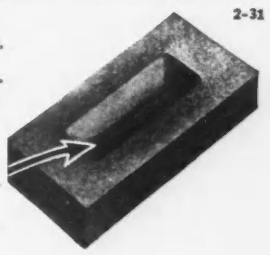
### RESERVATION COUPON

W. E. DUNN MFG. CO., 450 W. 23rd St., Holland, Mich.

I want to weigh the possibilities for a DUNBRIK low-production cost plant in this territory. Please send full details covering the establishment of this new industry for my city on your special pay-as-you-produce plan.

NAME.....

ADDRESS.....



2-31

### SEVEN SUPER ADVANTAGES

1. Supplies complete market,—common, tinted, faced.
2. Super-production speed—51 brick per minute.
3. Lighter weight, stronger bond, greater permanency.
4. 25% more brick from cement and aggregate.
5. Superior quality—proven by tests.
6. Accuracy unparalleled; true, sharp corners.
7. A trade-marked unit,—backed by a national organization.

THE RESERVATION COUPON BRINGS YOU COMPLETE DATA AND GIVES YOU FIRST CONSIDERATION. ACT TODAY.

### Sheet Metal Wall Tile

A NEW and practical form of tile has recently been placed on the market, which is made of 30-gauge metal in individual tile blocks. These tile come in two sizes, 6 by 6 inches and 6 by 9 inches. They are shaped with beveled edges and are finished in white and various color shades.

Plain walls and ceilings can be modernized with this tile at a surprising speed and at low cost. A putty-like, oil cement is applied to the wall and the individual blocks of metal tile are pressed into place, one at a time. This makes a permanent, fire resistant, sanitary, tile wall of any desired color or design.

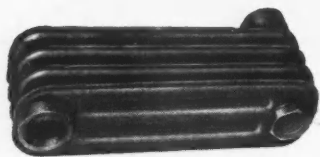
Fittings and corners are easily taken care of as the tile may be cut with shears or bent to shape without harming its durable finish.



Applying the New Sheet Metal Tile by Pressing Against the Oil-Cement Coated Wall.

### Improved Hot Water Heater

THIS new hot water heater is of entirely non-ferreous construction which eliminates all corrosion and rust. This feature is said to eliminate shut downs for cleaning. Besides this the domestic water is as clean when it leaves the heater as when it entered, and heating is rapid because of the free flow. The exterior of the unit is stream-line to form minimum resistance to passage of the heating medium. One of the principal advantages of this heater is that, when used either horizontally or vertically, there is a straight waterway instead of a friction producing



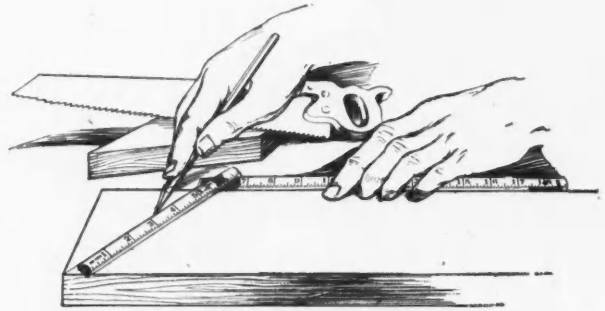
Showing the Construction of This New Type Water Heater.

return. The heads of the heater are reversible permitting the heater to be used in either position.

The capacities of these heaters range from 120 gallons to 2000 gallons with a temperature rise of 100 degrees in three hours. Greater capacities can be obtained by connecting them in multiples. In size they range from 22¼ by 5 inches to 76½ by 9 inches.

### Miter and Square Marking Rule

ANY 45 or 90 degree angle can be quickly and accurately marked with the folding rule shown in the illustration. This rule has invisible groove-locks which set automatically



Marking an Angle Cut Without Using a Miter Box.

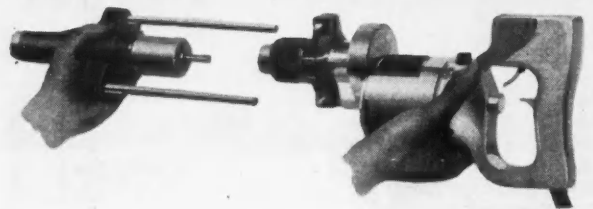
at 45 and 90 degrees. It requires no adjusting and is secure and lasting. A hammer blow tightens the joint. This is an additional feature now added to this high class rule of well know make. It comes in four, five, six, and eight foot lengths.

### Versatile Hand Drill

A NEW type of electric hand drill, which bores with equal facility into wood, metal, and masonry, is shown in the illustration. It is designed as a time, labor and money saver for anyone whose work requires installation of expansion bolts or drilling of holes up to 7/8-inch, in stone, concrete or brick.

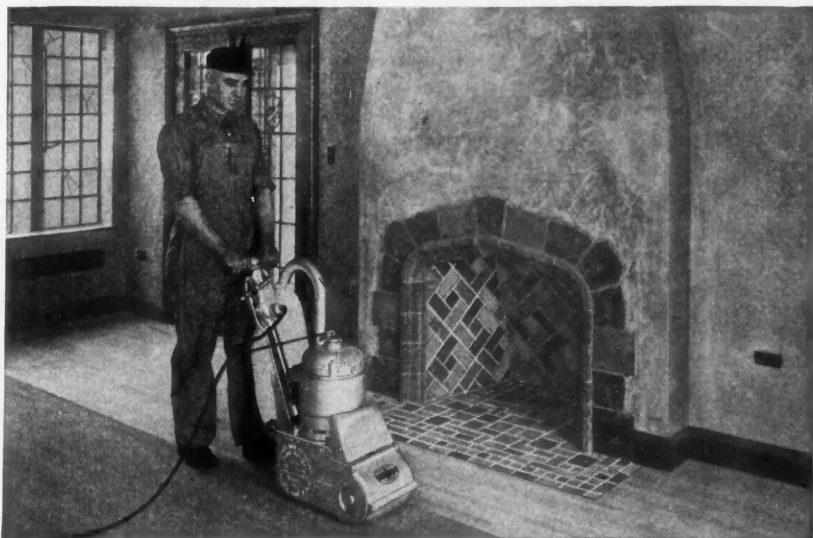
Only one minute is required to drill a 9/16-inch hole 3 inches deep, in concrete, it is stated. In addition to operating as a hammer, this is an efficient rotary drill with correct speed and power over a range of sizes up to 3/8 inch in metal and 1/2 inch in wood.

It can also be used for grinding, scratching or buffing, and permits the operator to sharpen tools and bits right on the job. It is furnished in a metal carrying case with star and twist drills, the entire kit weighing only 20 pounds and the drill itself but 12 pounds.



A New Electric Hand Drill Offering Wide Utility.

# MAKE MONEY FAST



### No experience required

American machines are so simple in their construction, so easy to operate, and our instructions so thorough that the most inexperienced can get entirely satisfactory results from the start. Simply connect the cord to the electrical connection, turn on the switch, guide the machine like you would a vacuum cleaner, and that's all there is to it.

### We will back you

If you're honest and not afraid to put on a pair of overalls, you won't need much money to get started. We will back you, work with you, and give you plenty of time to pay for the equipment. We've helped hundreds get started, seen them succeed, and there's no reason why anyone not afraid of work can't make the American Method of floor finishing a big success in their community.

## The American Method of floor finishing

### Opens up a tremendous field

In addition to smoothing up and sanding newly laid floors and the resurfacing of old floors—the new "American Method" enables you to wax, polish and finish complete any old or newly laid floor. This gives you two profits—one on the surfacing, another for the waxing and polishing.

There are hundreds of old floors that need resurfacing and refinishing in every locality, while there are many more that simply need waxing and polishing. With this dual system of either resurfacing or waxing and polishing there is no end to the work.

### Keeps the money rolling in the year 'round

Floor finishing is nice, easy and pleasant inside work out of the weather and cold. The "American Method" profits are big, twenty-five dollars a day clear profit not being unusual. Work is plentiful now all around you. Office buildings, stores, schools, colleges, clubs, hospitals, churches, apartments, dance halls, roller rinks, bowling alleys, auditoriums, banks, hotels, and

hundreds of residences all have floors that are being worn day in and day out by being constantly walked upon—which means constant wear—consequently a constant stream of good paying jobs to American Method floor contractors.

### Made in two sizes

You can start with the small machine—the American Handy Sander—or the American High Production machine. Both are money makers. The interior picture above shows the American High Production on the job and the American Method contractor coming out of the doorway is carrying an American Handy Sander.

### We help you get the business

A complete set of advertising material, post cards, folders, business cards, with your name and address, makes it easy for you to get plenty of work. This is a tried and proven plan that's bound to get the work. Every floor you refinish so delights the customer that you get several more from their friends.

### Building contractors take notice

Why sit around waiting for contracts when you, as an American Method floor finishing contractor, can be out cleaning up good money every day. The chances are that after you get a taste of the American Method way of making money you'll never go back to building again. There's no end to work—Surfacing newly laid floors—resurfacing old floors—waxing and polishing thousands of others.

C. H. Jimison of West Virginia averages \$25.00 a day; Parsons of Kansas making \$20.00 a day; Parr over in Iowa making \$24.00 a day; Turcott in Mississippi over \$400.00 in one month; and many others. Let us tell you of Cunningham in Detroit starting with one machine and now keeps a dozen machines going—and scores of others making big money.

### Get the facts—NOW

Don't turn this page over before you tear off the coupon below and mail it in. It costs nothing to investigate and there's no obligation. Here's a chance to get into something for yourself, to be your own boss, and the thrill of making some REAL money.

Don't throw your chance away, but tear off the coupon and mail it right NOW.



### A Money Maker

Here's a picture of an American Method floor finishing contractor—The job is done. The profits all go in his own pocket. He has no boss. He is just leaving the job and will hop in his machine and go on to the next. And he has plenty of them. He books a number of jobs in advance and then does them in order. That's the way to work it. He'll go far if he keeps it up, and make a lot of money. There is room for you, too. This is a big country. The demand for floor surfacing cannot be measured. Constant walking on floors causes constant wear, increasing daily the demand for refinishing.

Here is your chance to get into something for yourself and make the big money you have been looking for.

----- COUPON -----

## The AMERICAN FLOOR SURFACING MACHINE CO.

511 S. ST. CLAIR ST., TOLEDO, OHIO

Gentlemen: Without obligation, please send information on the "American Method" of floor finishing.

(Name) .....

(Street) .....

(Town) ..... State .....



# The Builder's Library

## Contractors' Equipment

### Grinding Machines

Three booklets, describing three types and sizes of grinding machines, made by the Norton Company, Worcester, Mass., are offered by this company.

### "Electric Arc Welding"

Here is a small handbook on electric arc welding, written in simple, non-technical language, presenting such facts as are essential to the successful application of electric welding to practical work. It is conveniently indexed for ready reference. Published by Hobart Brothers Company, Troy, Ohio. Price, \$1.

### Small Power Motors

The various types of Westinghouse small power motors are presented in a new booklet, Circular 1883, by the Westinghouse Technical Press Service, East Pittsburgh, Pa. It contains many illustrations showing the appearance and application of the motors.

### Floor Surfacing

A new circular covering "The 'American Method' of Floor Finishing" and the opportunities it offers to floor finishing contractors has been issued by the American Floor Surfacing Machine Co., 508 S. St. Clair St., Toledo, Ohio.

## Construction Materials

### Metal Windows

Catalogs covering Campbell pivoted industrial windows, Campbell projected windows and Campbell casements have been prepared by the Campbell Industrial Window Company, Inc., Pershing Square Bldg., New York City, and are now ready for distribution.

### Plank Flooring

"Plank Floors as Crafted by Bruce," is the title of a new booklet published by the E. L. Bruce Co., Memphis, Tenn., illustrating many beautiful installations of this company's oak plank flooring.

### Insulating Board

The Armstrong Cork & Insulation Company, Lancaster, Pa., has published a booklet containing complete descriptive matter and specifications on its new, inch-thick insulating board known as Temlok.

### Woodwork

The Morgan Sash and Door Company, Blue Island Ave. and Wood St., Chicago, has brought out an attractive booklet of "Correct Woodwork for English and Norman French Homes," and also a folder containing detail drawings of this material as produced by the Morgan Woodworking Organization.

**Check These Items Every Month and Write for Those You Need to Keep Your Files Up to Date. Any Item Listed Will Be Sent Free on Request Except Where a Price Is Noted. The American Builder and Building Age Should Be Mentioned When Writing for These Publications.**

### Lumber

The National Lumber Manufacturers Association, 702 Transportation Bldg., Washington, D. C., offers four new publications: a folder containing a series of merchandising helps entitled "Lumber Facts;" a booklet "Modern Methods of Selling Lumber," an address by Dr. Paul W. Ivey; a booklet entitled "Know the Lumber You Sell" on the subject of grade marking; and a booklet "Information on Lumber and Where to Find It," which is a directory of associations and their members, and of lumber publications.

### Steel House Framing

The Steel Frame House Company, Pittsburgh, Pa., has published two new booklets on steel house framing. "Erecting Mac-Mar Steel Framing" is described as a manual for architects and builders presenting economical field methods of erection. "How to Build with Mac-Mar Steel Framing" contains general and technical information on the use of this framing.

### Brick-like Siding Material

A descriptive folder, illustrating, in colors, the new Brick-Style Siding, recently announced by the Ruberoid Mills, Division of the Ruberoid Co., 95 Madison Ave., New York City, is offered by this company.

## Equipment for Buildings

### Incinerators

A new booklet offered by the Kerner Incinerator Company, 3707 N. Richards St., Milwaukee, Wis., covers the subject of "Safety, Economy, Sanitation, Convenience through Kernerator Incineration for Waste Disposal in Industrial, Commercial, Governmental and other Non-Residential Buildings."

### Boilers for Oil

Economical oil burner operation, by the use of specialized boilers, is discussed in a pamphlet offered by the Bryan Steam Corporation, Peru, Ind.

### Water Systems

A broadside published by The F. E. Myers & Bro. Co., Ashland, Ohio, treats the subject of running water supply where municipal water service is not available.

### Electric Equipment

The 1931-1932 general catalog of the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., is a book of 1352 pages presenting descriptions and illustrations of the extensive line of products manufactured and sold by this company. It includes an "Instant Index" which simplifies the finding of any given product.

### Lighting Equipment

Two interesting new booklets have been published by the General Electric Co., Nela Park Engineering Department, Nela Park, Cleveland, Ohio. These are both written by A. L. Powell. They are entitled "Tendencies in Lighting Practice 1930," and "The Coordination of Light and Music."

## Miscellaneous Publications

### Lighting Booklets

The Illuminating Engineering Society, 29 W. 39th St., New York City, has published in booklet form several important papers presented at its last convention, under the titles: "Daylighting in the Home;" "An Outline Course in Lighting for Architects;" "The Function of the Consulting Engineer in the Field of Illumination;" "Light Reflection Factors of Acoustical Materials;" "How Glass Affects Your Daylighting."

### "Index of Economic Reports"

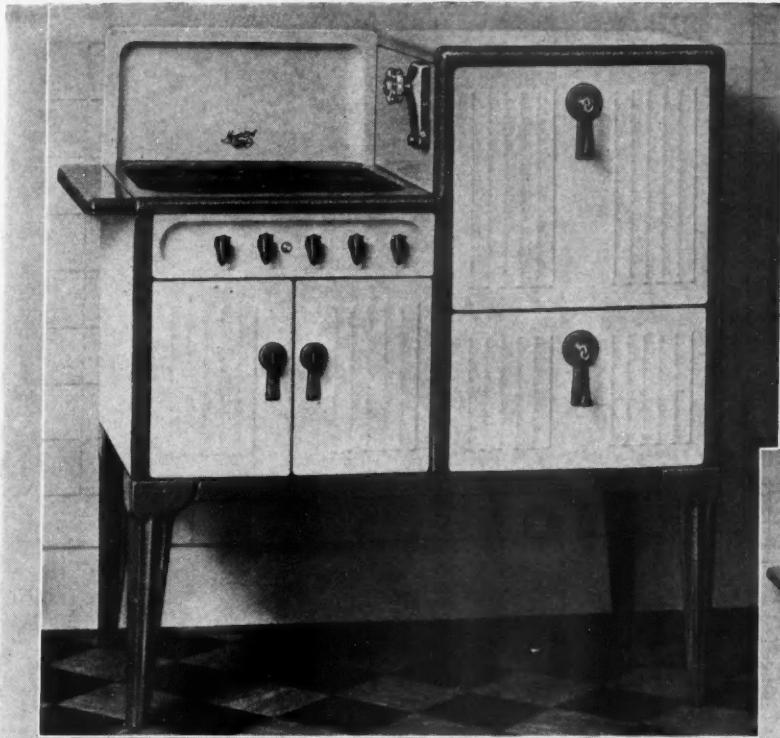
This is the title of a booklet published by the Policyholders Service Bureau, of the Metropolitan Life Insurance Co., New York City, listing more than 400 articles and reports issued by this Bureau, based on investigations of business problems.

### House Framing

"Light Frame House Construction" is the title of Bulletin No. 145, issued by the Federal Board for Vocational Education, in co-operation with the National Committee on Wood Utilization, of the U. S. Department of Commerce. It contains valuable technical information not only for the apprentice but also for the journeyman carpenter. Price, 40 cents, from the Superintendent of Documents, Government Printing Office, Washington, D. C.

### "The Apartment Cottage"

This is the title of a new booklet published by the Model Plan Service, 3725 Valentine Road, Kansas City, Mo. It contains illustrations of home plans, designed along small apartment lines, which this organization offers at moderate cost. Many of the designs are especially appropriate for summer cottages. Price, 20 cents.



It Is a GOOD Gas Range  
That Has This RED WHEEL



**MAGIC CHEF** DORIC MODEL CASH PRICE \$74<sup>75</sup> Patents Pending EXCEPT IN SOUTH and WEST

# Another NEW MAGIC CHEF

MODERN IN DESIGN, LOW IN PRICE . . . .

**A**MERICAN STOVE COMPANY announces another new Magic Chef... the Doric Model... to retail at \$74.75 Cash. This charming new Magic Chef, Grecian in design, is porcelain enameled in Old Ivory finish with green crackled enamel trim.

- Handles are of ebonized bakelite mounted on escutcheons of the same trim. Linings are also porcelain enameled. Insulation is optional at extra charge.
- Like all Magic Chef models, the Doric has the well known Red Wheel Lorain Oven Heat Regulator, found only on American Stove Company products.
- The Doric is only slightly smaller than the Tiffin model and will fit into more limited space, yet has ample cooking capacity for ten people.
- Magic Chef offers a selection of

several models—priced from \$74.75 to \$195.00—to meet all building requirements. Approved by authorities on design and interior decoration, they have the modern distinctive style and charm that will instantly appeal to your buyers.

- Advertised nationally in the leading women's magazines, Magic Chef Gas ranges are known and accepted by women everywhere as the new vogue in gas range design. Judging values as they do by things they are acquainted with, your women buyers will be strongly influenced in favor of the Magic Chef equipped house or apartment.

● See the Magic Chef line at your gas company or dealer, or write for full details to American Stove Co., Dept. C. 233 Chouteau Avenue, St. Louis, Mo.

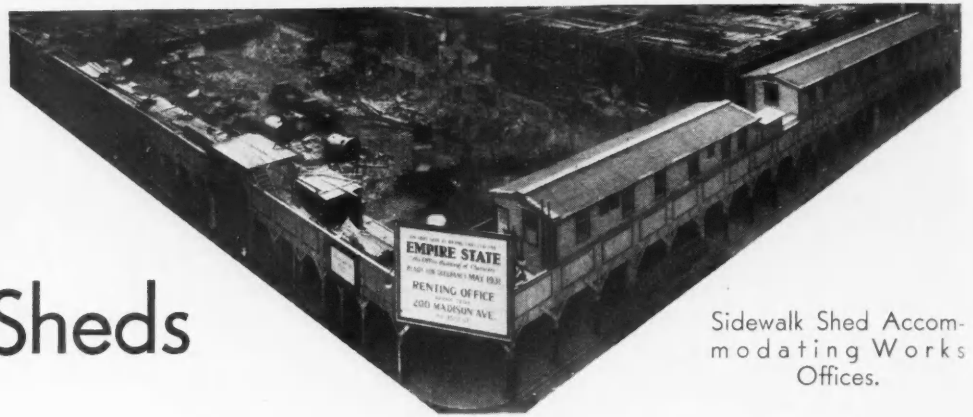


## AMERICAN STOVE COMPANY

*World's Largest Manufacturer of Gas Ranges*

NEW YORK PHILADELPHIA ATLANTA CLEVELAND  
CHICAGO ST. LOUIS SAN FRANCISCO LOS ANGELES

# Safety in Sidewalk Sheds



Sidewalk Shed Accommodating Works Offices.

**B**UILDERS are liable for accidents to the general public; and, although insurance is carried for this risk, the wise builder does everything possible to avoid accidents by protective devices.

Building operations have always been like a magnet to the public. Onlookers sometimes congregate in such numbers as to impede the work.

In our cities it is always well to protect the public by using a sidewalk shed. Too often these are erected for practical use only and are eyesores while they necessarily exist.

Whenever a structure, within 10 feet of the building line is to be erected to exceed 40 feet in height or whenever such a structure more than 40 feet in height is to be demolished or altered or repaired in such manner as to create a hazard, the builder should erect and maintain during such work a substantial shed over the sidewalk in front of the structure; in most cities this is compulsory.

The deck of the shed must be of ample width and where necessary should extend over the entire sidewalk except for clearances of, say, two feet from the building line and curb.

Sidewalk sheds may extend beyond the curb in special cases but should be high enough not to interfere with passing traffic; remember some auto trucks carry high loads.

The shed should remain in place until the structure is entirely enclosed and the sash glazed above the second story, masonry cleaned down, and all outside handling of material above the second story completed, or, in case of a demolition, until the structure has been reduced to at least the second floor level.

The open sides and ends of the deck of the shed should be provided with substantial railings and toe

boards except that in connection with structures exceeding 75 feet in height a substantial enclosure of solid boards or wire screen at least 42 inches high should be provided. This will prevent workers and materials tumbling down.

Adequate passageway on the sidewalk must be left for pedestrians. Handrails should be provided for the outside of sidewalks to prevent people walking out beyond the protection of the shed. The side toward the structure should have a fence at least 8 feet high. Necessary door protected openings should be provided.

During the construction or demolition of any structure more than one story high, all exterior door openings and passageways to the exterior should be protected by substantial overhead protections. Where there is a sidewalk shed it is well to have the protection fill the space between the structure and sidewalk shed. Where there is no sidewalk shed, the protection should project at least 8 feet from the structure.

When a foot bridge is used, it should be substantially built and provided with handrails on both sides. If the inclines are steep they should have cleats extending clear across. Avoid steps whenever possible.

For building operations that do not require sidewalk sheds it is well to erect and maintain in front of the structure during such operations, a substantial fence at least 8 feet high, of wood or other suitable material. Such fence may extend into the highway if permitted by the local ordinances and should be built solid for its full length except for openings, provided with sliding doors or doors swinging inwards, that may be necessary for proper prosecution of the work. The shed covered sidewalk and especially the steps or inclines should be well illuminated as it is at these points where falls are most likely to occur.



A Tubular Steel Supported Sidewalk Shed.



Sidewalk Shed That Presents a Neat Appearance.



# AMERICAN BUILDER

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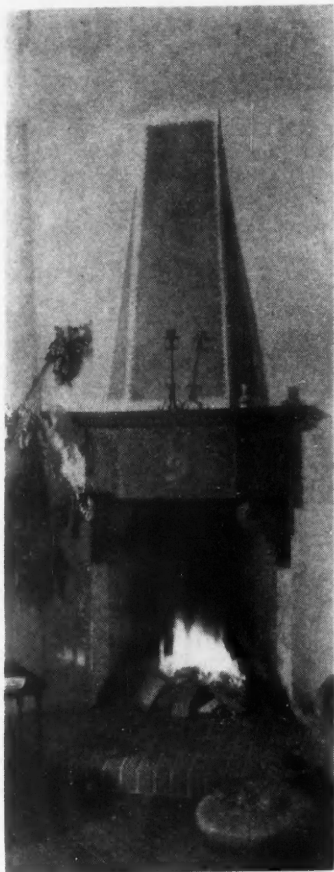
# BUILDING AGE

(A Simmons-Boardman Publication)

53rd Year

Vol. 50—No. 6

MARCH, 1931



## AMERICAN BUILDER and BUILDING AGE

IS THE BUSINESS  
JOURNAL OF THE  
ACTIVE MEN OF THE  
BUILDING INDUSTRY

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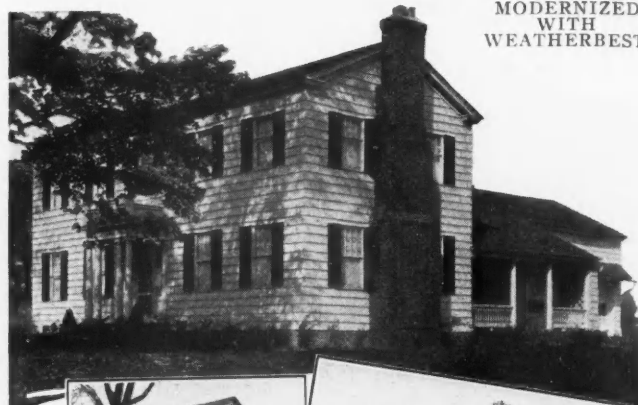
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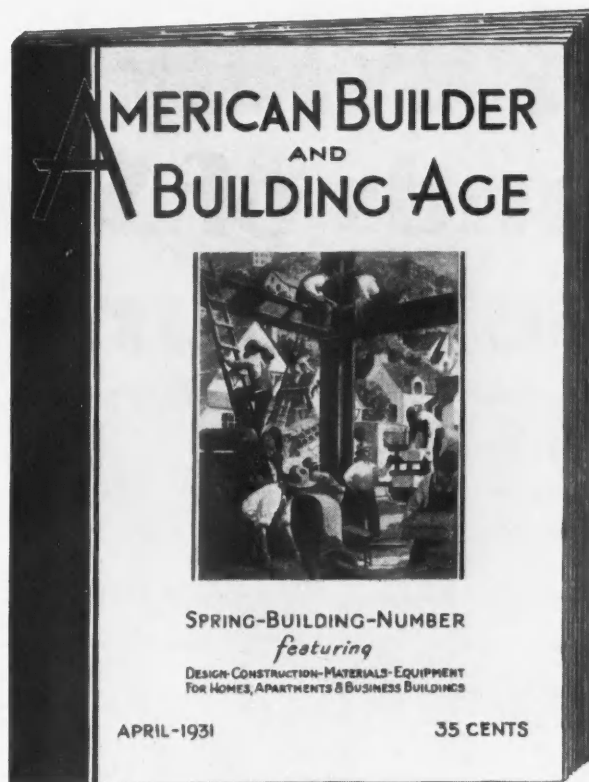
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LOOKING AHEAD  
WITH THE EDITORS

April, 1931

## Spring Building—Opportunity

**W**E are preparing for April an issue which will mark the beginning of a new era in construction—the end of the depression, the beginning of a big new building season—an issue marking the arrival of new opportunities for builders.

We will show in our April Spring Building Number the new opportunities available now as never before through (1) New materials and methods, (2) New equipment and devices, (3) New merchandising and selling methods geared to the new business era.

We will stress particularly advances in materials and equipment that are now at the disposal of builders, waiting to be used in developing another prosperous construction period.

During the last two years, while construction has been quiet, great progress has been made in materials and equipment. Therefore, being, as this publication thinks, on the verge of another active building season, now is the logical time to present an issue calling attention to recent progress.

One important part of this issue is made up of articles on advertising, selling and business getting for builders, contractors, specialty salesmen, dealer-contractors and established dealers. Aggressive merchandising and sales efforts to carry out to the consuming public the inspiring message that *now is the time to build* is the obligation and the opportunity of the readers of the **AMERICAN BUILDER** and **BUILDING AGE**.





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