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AMERICAN BUILDER

and Building Age

NAME REGISTERED U. S. PATENT OFFICE

FEBRUARY, 1933

55th Year Vol. 54—No. 5

American Builder, February 1933.

A "MILLION-DOLLARS that will get you

REMODELING business? There's plenty of it to be had. In your town, in every town, home owners need new roofs . . . they want new rooms for old . . . they crave the comfort and savings that insulation brings.

But, you say, they haven't got the money! All right. Lend them the money. *And with absolutely no risk or expense to yourself.*

If you are a responsible business man with a reputation for good workmanship, you can draw on the Johns-Manville $1,000,000 fund. You can offer home owners full credit on remodeling and repairs.

Never before has there been a time payment plan like this in the building field. In the first place, J-M materials may represent *as little as 25%* of the total cost of the job.

And in the second place, this is a "non-recourse" plan. That means that *we* assume all credit risks; *we* pay all legal and collection expenses.

You get *full* cash; no deductions whatever. And you get paid just as soon as you finish your work; *no delays of any kind.*

• • •

We've given you the gist of the plan. The complete story is in our new booklet, "A Million Dollars to Lend." Now it's up to you. Will you take the first step toward profitable re-

AMERICAN BUILDER
AND BUILDING AGE

Business Is on the Up-Grade

THE contractor or builder who has searched in vain during recent months for a construction project, or the materials dealer or manufacturer who has been anxiously watching his sales record sink lower and lower, is likely to receive the assurance that business is improving with skepticism.

Neither building permits nor contracts let show any increase; in fact, construction figures have continued their downward trend, with 1932 totals off 56 per cent from the year before. Comparing the figures month by month, they were progressively bad as the year advanced. Nevertheless, and in spite of these building field evidences to the contrary, we state that a radical change for the better in the trend of general business occurred late last summer and that business has been getting better ever since. Building is usually late in responding to conditions making for better business; but still such conditions are now at work.

Freight Car Loadings Show Improvement

The current measure of railway freight business is the number of cars loaded weekly with freight. This happens also to be the very best single measure of the trend of general business, because freight business consists of physical tonnage and every ton of freight shipped by railroad is produced by somebody, sold by somebody and bought by somebody.

A complete change occurred in the trend of freight business about September 1. Its trend was steadily downward from October 1, 1929, to September 1, 1932. Its trend has been more sharply upward since September 1, 1932, than it ever has been in any other year since car loading figures have been compiled.

In June and July, 1932, freight car loadings were 34.3 per cent less than in June and July, 1931. In August they were only 31.3 per cent less; in September, 22.8 per cent less; in October, 17.2 per cent less; in November, 16.2 per cent less, and in December, only 10 per cent less. Observe that in each of these cases, comparison is made between *corresponding* months in the two years, and, therefore, allows for seasonal variations.

Lumber Shipments Gain

You may ask in what industries did business improve? The answer is—virtually every industry. General business reached relatively its lowest level in July. What has occurred since then could not be better illustrated than by an example from the building field. The only complete figures available regarding shipments of building materials are those for lumber. In the table herewith are figures showing average weekly car loadings of lumber in the last six months of 1931 and the last six months of 1932. The table also includes figures showing the percentages by which lumber shipments increased or decreased after July in 1931 and 1932.

	Average weekly car loadings of lumber last six months 1931-1932		*Increase or Decrease — per cent each month compared with July*	
Month	*1931*	*1932*	*1931*	*1932*
July	26,554	14,339		
August	27,612	15,457	+ 4.0	+ 7.7
September	26,062	17,139	— 2.0	+ 19.5
October	24,550	18,907	— 8.0	+ 32.0
November	21,873	16,073	— 18.0	+ 12.0
December	17,794	14,173	— 33.0	— 1.2

As these figures show, in August, 1931, weekly lumber shipments were 4 per cent greater than in July, 1931, while in August, 1932, they were 7.7 per cent greater than in July, 1932. The remaining figures in the table are much more significant. In 1931, shipments in September were 2 per cent less than in July; in 1932, 19½ per cent greater. In 1931, shipments in October were 8 per cent less than in July; in 1932, 32 per cent greater. In 1931, shipments in November were 18 per cent less than in July; in 1932, 12 per cent greater. In 1931, shipments in December were 33 per cent less than in July; in 1932, only 1.2 per cent less.

Total Loadings in Favorable Trend

That the facts about lumber shipments given are not exceptional is shown by the statistics regarding *total* car loadings given in another table herewith.

Average Total Car Loadings Per Week

	1931	*Per Cent Inc. or Dec. Compared with July*	*1932*	*Per Cent Inc. or Dec. Compared with July*
July	732,692		477,862	
August	749,457	+ 2.2	551,553	+ 15.4
September	726,988	— 0.7	561,150	+ 17.4
October	762,691	+ 4.0	631,621	+ 32.2
November	654,926	— 10.6	548,802	+ 14.8
December	555,190	— 24.2	497,366	+ 4.1

Of course, in each of these months loadings were less in 1932 than in 1931. What we are emphasizing is the *trend,* which the figures demonstrate was entirely different during the latter half of 1932 from what it was in the latter half of 1931. Stating the facts in *absolute*

rather than in *relative* figures, we find that in December, 1931, total loadings averaged 177,502 cars per week *less* than in July, while in December, 1932, they averaged 19,504 cars per week *more* than in July. The difference in trends shown by these figures is unmistakable.

These evidences of the improved trend of business since September 1 could be supplemented by many evidences of other kinds that show the same general tendency. Business is still bad, of course, but the evidence that it has been improving since September 1 is absolutely conclusive. It is significant that there never has been, so far as can be found, a single instance in the forty-two years for which complete railway statistics are available, when a downward trend of freight business in the last one-third of a year was not followed by poor business during the next year, or when an upward trend of freight business in the latter part of a year was not followed by a year of improving general business. The improved trend of freight business is, therefore, highly encouraging.

TAXES ON HOMES MUST COME DOWN

IN the leading editorial in the January AMERICAN BUILDER, it was emphasized that home building and ownership should be encouraged by the tax structure instead of being penalized, as now. The entire tax burden should be reduced and the irreducible minimum of taxes should be redistributed so that real estate would bear only its fair share of the burden.

Taxpayers' strikes in many cities during the past year, and still continuing, show that home owners and (so-called) income property owners are unwilling and unable to meet such levies as have grown up during the recent boom years of riotous spending. The property owners are tax-conscious and tax-rebellious; they demand a real slash in taxes, not a 10 or 15 per cent reduction.

On such a basis, home owning would again become good business. Repairs, remodeling and new home building would again be permitted to flourish.

The building industry has a strong ally in the realtors in this fight to reduce taxes. Kenneth F. Duncan of New York, treasurer of the Harmon National Real Estate Corporation, writing in the New York Times of Jan. 15, states that realty interests, for so many years divided and disorganized, have at last united in the fundamental premise that real estate taxes must be brought down to a point within the ability of the owner to pay out of his real estate earnings.

There Is a Limit

He goes on to say that if real estate is to be relieved of its crushing burden of taxation it will be only because those vitally concerned—including the average home owner and renter—rid themselves of a lot of misconceptions regarding the functions of government and theories of taxation.

He continues, "One misconception already fairly well disposed of is the idea that governments—local, state and national—differ from individuals and corporations in having no limit to their spending power or credit. The rapid and almost continuous inflation during the past four decades was largely responsible for this fallacy. Inflation simply kept one step ahead of our politicians' well-known ability to spend. It is, however, now evident that governments are subject to the same economic laws as individuals. Towns, cities, states and nations remain solvent only so long as their expenditures, including of course interest on past borrowings, remain within their income.

Real Estate and Other Forms of Wealth

"There is another misconception of vast interest to realty owners toward the elimination of which little progress has as yet been made. That is the commonly held belief that real estate should furnish most of the tax revenues.

"The foundations of this misconception are historical, dating back to the days when real estate constituted the only form of wealth. As such, it had necessarily to furnish the entire source of governmental revenue. It has continued to furnish a disproportional share for the very simple reason that it is a form of property impossible to hide—hence a tax on real estate is almost impossible to evade."

The comparatively recent imposition of new forms of taxation—income, gasoline, amusement, etc., and finally the proposed sales tax—are not so much based on a change of sentiment that it is inequitable for one form of wealth to carry the entire tax load as upon a growing realization that real estate simply cannot foot the entire bill.

Real Estate Cannot Pay All

For many years real estate has furnished the greater part of government revenues, and having furnished them has watched the expenditure of real estate taxes for every conceivable purpose, cheerfully consenting to an additional "assessment for direct benefit" whenever it was decided to spend some government money that might possibly benefit real estate itself. Fortunately the end of that period of complacency is in sight.

We see real hope for the future in the many signs indicating a changed point of view on the part of the real estate taxpayer. It appears that they are in the frame of mind not only to insist upon budget economies but to go much further and question many time-hallowed, tradition-encrusted policies both of taxation and expenditure. We believe that local building men can perform a vital service to the building industry by taking a vigorous part in city, county and state drives for lower taxes on homes and real estate at once.

Better Details Will Promote Home Improvements

Remodeling work is chiefly a matter of fine craftsmanship. Probably the best way to build business this year is to convince home owners that they too can have such attractive interiors as these.

Photos by Mott Studies

Four pine interiors from the California home of Dr. Nye Goodman. Arthur Munson, architect. Top left—corner cupboard detail; top right—wood mantel and interesting bookcase; above—[illegible] spreading of dining room details; at [illegible] a return of the in recreation room[illegible] get us all trying and [illegible]he battle."

NATIONAL PLAN T

A SEVEN billion dollar need for home repairs and new housing has accumulated since 1929—

PART of this is in YOUR TOWN and it is your local job to find it and develop it into actual business—

THE American Builder Four-Point Program will help you to business and profits this year—

THESE Four Points are: get together —organize—clean house—advertise—

CONSTRUCTIVE teamwork and aggressive selling in the local community backed by your local newspapers will rewin for the home building industry confidence of the buying public.

By L. R. PUTMAN
Marketing Editor American Builder

IN THE November issue, I discussed a plan to stimulate sales and cut the cost of distribution in local communities.

In December, the discussion continued, covering the local problems to be met; and in January, there was set forth the part that this publication has assumed as its contribution toward this nation wide movement to revive the building business through more intelligent and aggressive teamwork and effort in each local community by the dealers, contractors and other building industry men.

Men who have "grown up in" the building industry and are thoroughly familiar with its practical problems will not underestimate the size and difficulty of the task undertaken. The necessity for action on the part of the building industry and the lack of leadership and a plan, have inspired this publication to tackle this job wholeheartedly. The favorable reaction already apparent is convincing evidence that the plan is sound and workable.

The Four-Point Program

The main points of this plan are four in number. Briefly stated, they set up this Four-Point program for the building industry men of each local community: *get together—organize—clean house—advertise.* Something must be done, and that quickly, to increase the confidence of the general public in the integrity and skill of the men of the building industry, and to create new interest in home owning, home building and home improvements. This is a job that must be done locally in each community by the local lumber dealers, contractors, subcontract dealers, architects, building trades craftsmen, realtors and home loan institutions.

As has been previously described, a non-profit newspaper editorial service has been perfected by the AMERI[illegible] of its crushing to provide any group of building men in those vitally [illegible]orial backing for a drive to promote owner and renter—[illegible]With this service, local building in[illegible]d carry on a campaign to stimulate interest in building and modernizing, and what is very important, such a program will be exclusively in their control at all times.

We have repeatedly said that the building industry is local. In order to put the plan into operation, staff men have spent most of the last two months conferring with the leaders of the several branches of the building industry in many towns and cities. Strong endorsements and offers of co-operation have been made by the dealer association leaders in Ohio, Illinois, Indiana, Wisconsin, New York and New England where this Four-Point program has been presented.

Organization Work in Ohio

In Ohio, where I personally have spent considerable time, Secretary Findley M. Torrence of the Ohio Association of Retail Lumber Dealers has given unlimited time and help to the necessary preliminary organization work. We have traveled together to hold industry meetings in Springfield, Dayton, Franklin, Columbus and Cincinnati. These communities represent the small town, city, state capital and large metropolis. In their home repair and home building conditions, they are typical of communities throughout the United States.

In Springfield, Homer Ballinger, head of the Clark County Lumber Company (one of the Peter Kuntz yards), and incoming president of the Ohio Association, called a meeting of the lumber dealers of Springfield and the neighboring towns. Mr. Ballinger presided and was able to report that he had canvassed the building interests of Springfield and found them willing to join in such a plan and start to work at once. Representatives from other towns expressed their willingness to head similar movements in their towns.

At Cincinnati, a more elaborate program, including a Modernizing Bureau, has been perfected, whereby the entire building industry of greater Cincinnati, which covers Hamilton County, is to have the full co-operation of about two hundred building and loan associations in that county. The arrangement for handling the financing might well be known as the Cincinnati plan. It is fostered by the Federal Home Loan Bank of that city, through its director of public relations, John M. Wyman. The work in Hamilton County heads up around Ross Kuhlman, manager of the Cincinnati Lumbermen's Club.

The cost of the Bureau is being underwritten by the several individuals and groups of material dealers and manufacturers. A unique system of continued revenue for future operation has been adopted. It is briefly as follows:

The AMERICAN BUILDER newspaper service will be used throughout Hamilton County to attract the attention of the public and induce them to repair and remodel their homes. The Cincinnati Modernizing Bureau will offer to inspect the property of interested parties and recommend loans. Contractors and architects co-operating will make sketches and estimates. The Home Loan

N TO REVIVE BUILDING FORGES AHEAD

Bank has assured the local building and loan associations of four million dollars or more for such loans. The associations will give preference to present borrowers who have made substantial reductions on their loans.

The building and loan association making a loan under this arrangement will deduct 2 per cent when furnishing the money to the contractor. He in turn will be allowed 2 per cent on his purchases from dealers supporting the plan, and the building and loan association will turn the 2 per cent over to the Modernizing Bureau for use in additional promotion work. On the entire $4,000,000 planned for, this 2 per cent would develop a fund of $80,000. It is felt, however, that when business starts, a vast amount of work will be financed with money now in savings accounts, banks, safety vaults and other hoardings.

Announcements to the home owners of Hamilton County will be made over the radio when the plan is put into operation, on or about February 1. The Cincinnati newspapers will carry the AMERICAN BUILDER news service to encourage home building and home repairs, and the local building interests will use adequate advertising space to promote their materials and services. In this way, the cost will be spread over the entire industry and will fall very lightly on any firm or individual.

Other promotional activities will be carried on, such as surveys of property needing repairs, estimating, and exhibits in down town vacant stores, etc. It is felt, however, that the newspapers must be depended upon for the principal work of winning back the confidence of the people and renewing their interest in more and better homes.

Through the co-operation of President Ballinger and Secretary Torrence, great interest has been aroused over the entire state of Ohio in the Four-Point plan. The Ohio State League of Building and Loan Associations has joined in the movement. The AMERICAN BUILDER is ready to co-operate all over the country as fast as the local building interests are ready.

Working arrangements are being effected between the building interests and the newspapers in Aurora and Elgin, Ill. Other communities in that state are showing great interest in the plan which has received the hearty and unqualified endorsement of President Wenthe and Secretary Bryan of the Illinois Lumber and Material Dealers Association.

The leading lumber dealers in Indianapolis are sponsoring the movement in their city and are arranging with the other building interests to join them. At the Annual Convention of the Retail Lumber Dealers Association of Indiana on January 18, the plan was presented in detail and was heartily approved and endorsed.

As Mr. Ballinger of Ohio stated, "The spreading of this plan over the country looks like a return of the building business. It certainly will get us all trying and working together and that's half the battle."

Can You Local Fellows Get Together To Get Building Started?

IN OFFERING the Four-Point Plan for local building industry effort to create building business this spring, this publication fully appreciates that in many communities, local conditions make it hard to put any plan into operation.

INDUSTRY teamwork is required if this plan is to function properly. And that teamwork may be humanly difficult to secure. The lumber dealers, the contractors, the plumbers, the heating men, the painters—all, in fact, whose joint services are necessary to create the modern home—have a common interest in the success of this plan to revive building confidence and to encourage needed home improvements.

WHO WILL be the leader? Someone must take the initiative—it may be a lumber dealer, an architect, a builder, a real estate man, a banker—perhaps a carpenter out of work and needing a job.

IT MAKES little difference who steps forward to lead; others will follow and soon the entire local industry will be sitting around one table talking this plan over and devising new ideas for developing local business of value to all.

THIS IS your job, fellows. If you are going to have a building season this year in your town, it will develop because you local building men have encouraged it. No one from outside can help you so much as you can help yourselves. This is your local job and your local opportunity.—The Editors.

The Lumbermen Offer a SHOP-BUILT H

By W. F. SHAW

THE OPINION is widely held that shelter is more expensive and less serviceable than other things, such as food, clothing, transportation or recreation, which make life pleasant and convenient. It appears to be a fact that houses, particularly those for low income occupants, give less value for the dollar than other forms of benefit for which that dollar might be spent.

So far as the structure itself is concerned, it is held that costs are excessive, largely because the house-building industry has retained its traditional materials and construction methods, which do not allow to any extent of mass production, factory supervision and control, and the greatest use of mechanical equipment.

To secure these advantages it is generally recommended:

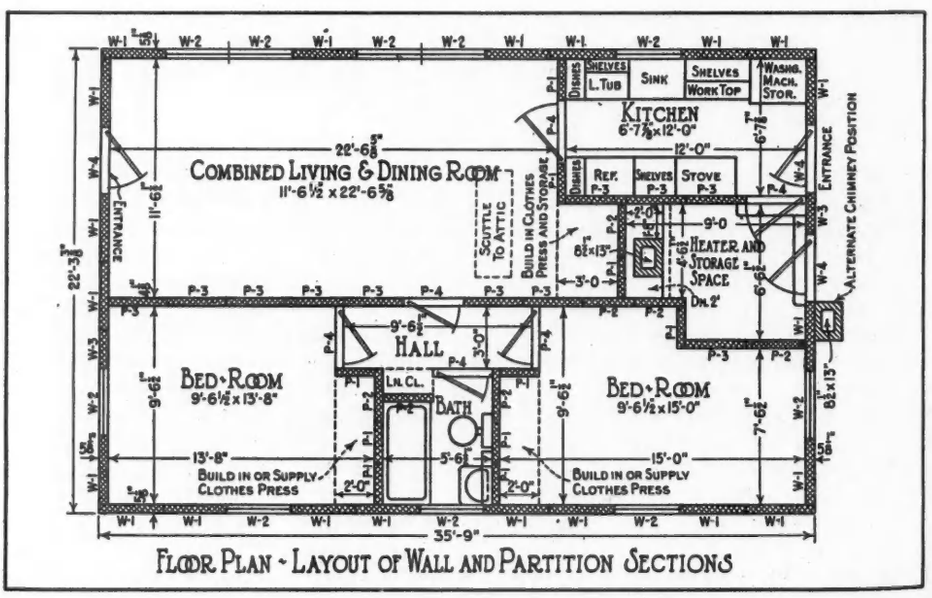
1. That prospective home owners be offered a standardized structure, adapted to the needs of the greatest number.
2. That materials be cut to length and/or shape to a greater extent than is now customary before being taken to the job.
3. That materials and equipment be assembled under factory conditions into convenient panels or sections which can be transported to the job and assembled by hand or lifted to place with a small crane.
4. That complete, small houses or assemblies of one or more rooms be built under factory conditions and trucked to the site, to be there assembled into a finished structure.

A certain rather large group further demands that a radically new type of architectural treatment be adopted in combination with materials heretofore not generally employed for house construction, and that a system of distribution and financing be set up for such structures which will by-pass the existing dealers in building supply materials.

The staff of the National Lumber Manufacturers Association (now the American Forest Products Industries, Inc.) has carefully studied the above points and other statements as set forth in numerous publications, and is of the opinion that the best and most practical possibilities of reducing home construction costs lie in a combination of the sectional panel idea (No. 3) with current methods of interior and exterior finish, as applied to a small and relatively simple dwelling, selling at a maximum price of $3,000.

Plans have been prepared, therefore, for such a dwelling in such a way that the panels or sections can be produced by practically any retail lumberman, millwork plant or lumber manufacturer, with the usual mechanical equipment, and personnel capable of reading simple plans and following them accurately. The proposed method does not leave the local carpenter out of the picture, since in addition to the possibilities of plant employment on such production there is considerable work to be done on the structure after the panels are assembled. The methods employed also call for considerable additional service by the lumber retailer, by which he is made the logical and necessary channel of distribution.

The price limitation adopted calls for a genuinely small house, costing to build, under present methods of financing home construction, not more than $2,500 and preferably less. For greatest simplicity of panel construction and assembly, and with particular reference to the roof, it is obviously necessary to have a simple rectangular floor plan without roof valleys. The structure was de-



FLOOR PLAN - LAYOUT OF WALL AND PARTITION SECTIONS

To right: Floor plan of panel-construction house. Location of each wall and partition panel is shown. With a total of only 8 different types of panels, their placing is easy.

T HOUSE for LOCAL DEALERS and BUILDERS

THE SECTIONALLY BUILT LUMBER HOUSE—is it a timely idea? Is it structurally feasible? Are plans so far developed acceptable?

An opinion on these questions was sought. Plans were distributed to lumber manufacturers and retailers for review and criticism. Their comments are:

Q. Is the stage set for sectional house construction?

Ans. Of 14 manufacturers, 8 expressed no definite opinion. Four believed it inevitable, and 2 were doubtful of its necessity.

Q. At what point should a compromise be made between supplying lumber in its customary condition, and supplying the complete, fabricated structure?

Ans. Most took it for granted that the two-man section is a satisfactory and sane solution.

Q. Should the manufacturer of sectional lumber houses plan a series of standardized sections with which numerous floor plans can be secured, or should he first fix upon a standardized floor plan?

Ans. The consensus strongly favored a variety of plans capable of being constructed with a few standard sections.

Q. This project calls for siding or shingles, roofing and finish flooring to be put on after the panels are assembled.

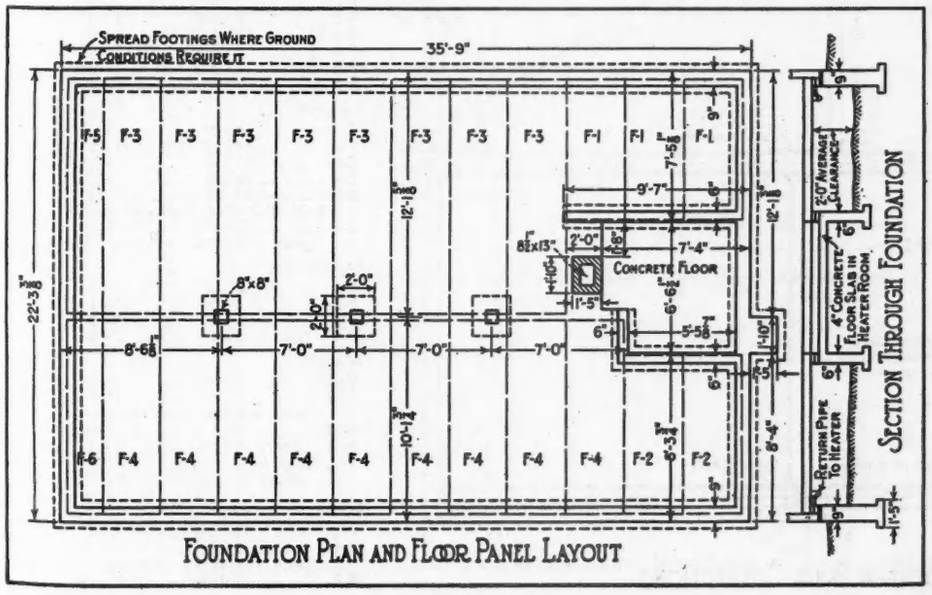
Ans. Reviewers uniformly took the attitude that this would be necessary.

signed to eliminate all basement excavation and foundation work except that absolutely necessary for access to utility services and for operation of the heating plant. There is a roomy attic available for storage purposes.

A plan was selected which has proved widely popular for small house construction. This was refined with careful attention to the requirements of kitchen equipment, heater-room space, and the customary dimensions of standard furniture. Generous closet space was included. The customary half partition marking off living room and dining room space has been omitted. The result is a 4-room-and-bath plan with minimum hall space and direct travel between kitchen and dining room space.

The foundations, together with the house sewer, accurately spotted for the plumbing stacks, and a connection to a floor drain in the heater-room, should be provided in advance. A concrete foundation wall is shown. The foundation walls and piers, or at least the sills indicated to be placed upon them, *must be made exactly level at all points* with a surveyor's level, otherwise the panels will not fit together well. Horizontal dimensions also must be measured with a steel tape to an accuracy of at least $\frac{1}{8}$ and preferably $\frac{1}{16}$ inch.

After foundations are complete it is proposed that all sections required for the house construction will be transported by truck to the site and rapidly assembled. Either through the selection of favorable weather conditions or by use of suitable covering, the chance must be avoided of the sections becoming rain-soaked before assembly. After assembly, it is believed the type of panel and joint proposed will be sufficiently weather tight to shed a severe rain without material damage to the interior, even



FOUNDATION PLAN AND FLOOR PANEL LAYOUT

To left: Foundation plan and floor panel layout. Six different sizes of floor panels are used, made with 2"x6" framing. Finish flooring is laid on the job over the panels.

if such a rain should occur before the roofing and siding can be applied.

Panels are limited to sizes and weights which can be carried easily for some distance by four men or shifted in placing by two men. All panels are planned to be essentially of the same construction, i. e., main longitudinal framing members and short cross pieces of 2-inch dimension covered both sides, except for the roof and gable wall panels, with sawn lumber running the long way of the panel, lined with asphalt-saturated building paper, which in turn incloses a complete insulating fill of loose but not powdery or dusty material.

All lumber used must be dry, to an average of at least 12 per cent. Otherwise shrinkage difficulties between manufacture and assembly will make panel assembly difficult and satisfactory performance in the future questionable. Doors, and sash and frames, with screens or storm windows where desired are to be completely installed before shipment, protection boards or cleats being applied wherever necessary to prevent damage in transit.

Sheathing boards may be of any desired length consistent with the spacing of nailing pieces, and need not be of high grade, but should avoid decay or large, loose knots and must be tongue and grooved or shiplapped. Roof panels, and wall, floor and ceiling exteriors, if economy will permit, should be swabbed directly after manufacture with hot asphalt. This will prevent moisture absorption and water penetration in case of a rain before the roofing and siding are applied. Partition facing and the interior surfaces of walls and ceiling panels may be of any one-inch or even thinner pattern considered suitable or of any grade of softwood or hardwood adapted to the painted or natural finish desired. If desired, a low grade of boards can be used here also, and a plywood wall finish applied after the panels are assembled. Finish materials containing water are not recommended.

Panels *must be true to square and accurate to dimensions* or they will not fit.

In assembly, it is planned that the side wall sections will be set up first, being held in place by the spline at the sill. As the wall sections are erected floor panels will be installed following one panel width behind them and affording anchorage for stay laths to hold the wall panels vertical. End wall panels are then to be installed, followed by the longitudinal center or bearing partition and the partitions around the heater room. Ceiling and roof panels are then to be applied in order. The grooves for splines should in all cases be mopped with white lead paste or asphalt paint or mastic, just before the sections are pushed together, and 16d nails driven in the edges of both adjacent wall panels to catch the splines. Adjacent rafters and ridge pieces can readily be nailed together, the rafters thoroughly nailed to the ceiling panels at the eaves.

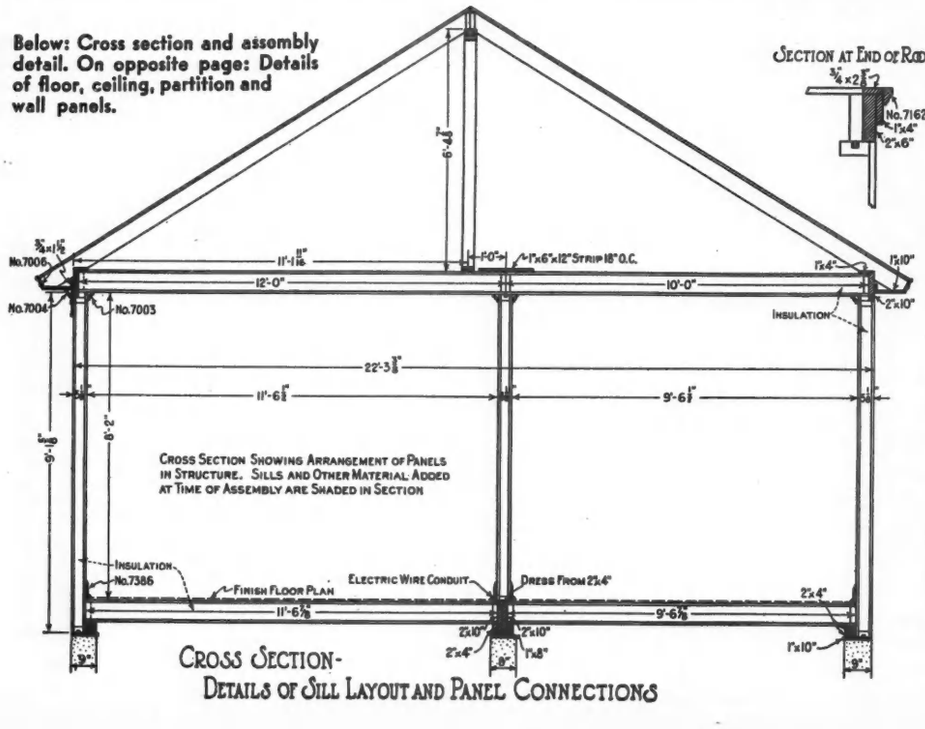
After the panels are all assembled, roofing, cornice trim, siding and porch work should follow in the order given, while piping, wiring, fixtures and millwork are being placed within. Interior trim and a finish floor will then complete the job.

From the nature of the enterprise proposed, the accompanying set of plans cannot be more than suggestive in character. They show a method of sectional house construction which appears in the light of available information to be feasible and probably economical.

A feature of this proposed departure in house construction which will undoubtedly have a strong appeal to lumber retailers is the fact that, consistently followed through, it should bring through the hands of the retailer an increased proportion of the materials and equipment involved in the complete structure. The project provides for roofing, exterior finish and finish floors to be applied after the sections are assembled, making the lumber retailer the logical channel of distribution.

It should not be expected that the house described in the plans herewith can be produced at materially lower cost than by traditional methods in lots of five or less, nor that it necessarily can be produced even in larger numbers at a cost to compete with the ordinary cheaply-built frame dwelling lacking its numerous advantages of careful planning, thorough insulation, economical heating, and sound construction. Where labor conditions and equipment at hand permit the economical employment of yard labor in idle time, it may well be on the other hand that sectional houses can be produced by building materials dealers at a very low overhead, and capable of competing even with the current types of ordinary small frame houses.

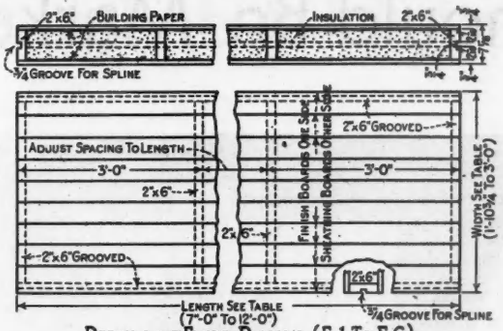
Below: Cross section and assembly detail. On opposite page: Details of floor, ceiling, partition and wall panels.



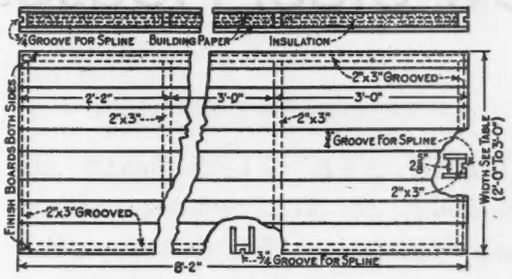
Cross Section—
Details of Sill Layout and Panel Connections

TABLE OF PANELS

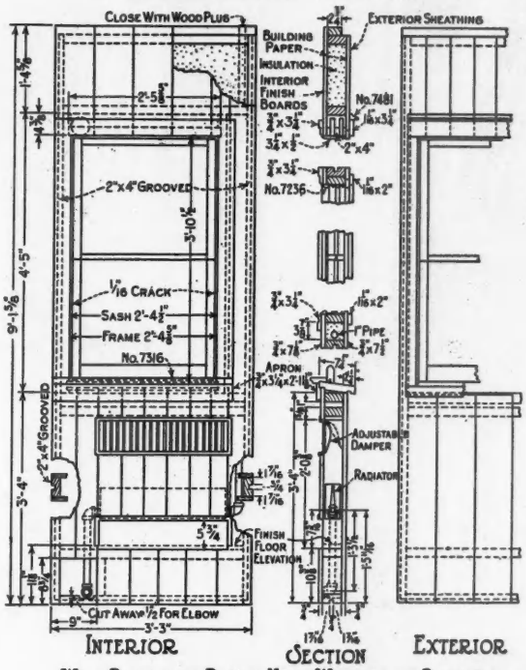
Kind	Length	Width	Number Required
FLOOR			
F-1	7'- 0"	3'- 0"	3
F-2	7'-10½"	3'- 0"	2
F-3	11'- 6⅞"	3'- 0"	8
F-4	9'- 6⅞"	3'- 0"	9
F-5	11'- 6⅞"	1'-10¾"	1
F-6	9'- 6⅞"	1'-10¾"	1
CEILING			
C-1	12'- 0"	3'- 0"	9
C-2	10'- 0"	3'- 0"	11
C-3	12'- 0"	1'-10¾"	1
C-4	10'- 0"	1'-10¾"	1
C-5 (with 2'-0"x5'-6" stairway opening)	12'- 0"	3'- 0"	1
C-6 (with 1'-8"x2'-0" chimney opening)	12'- 0"	3'- 0"	1
PARTITIONS			
P-1	8'- 2"	2'- 0"	10
P-2	8'- 2"	2'- 6½"	6
P-3	8'- 2"	3'- 0"	11
P-4 (door)	8'- 2"	3'- 0"	6
WALLS			
W-1	9'- 1⅝"	3'- 3"	21
W-2 (with window and radiator)	9'- 1⅝"	3'- 3"	10
W-3	9'- 1⅝"	1'-11½"	2
W-4 (door)	9'- 1⅝"	3'- 3"	3
W-5 (gable ends)	10'- 8⅜"	6'- 4⅞"	r.-h. 2, l.-h. 2
ROOF			
R-1	13'-11¾"	3'- 0"	21
R-1-a (with 1'-8"x2'-7" chimney opening)	13'-11¾"	3'- 0"	1
R-2	13'-11⅜"	2'- 5¾"	2



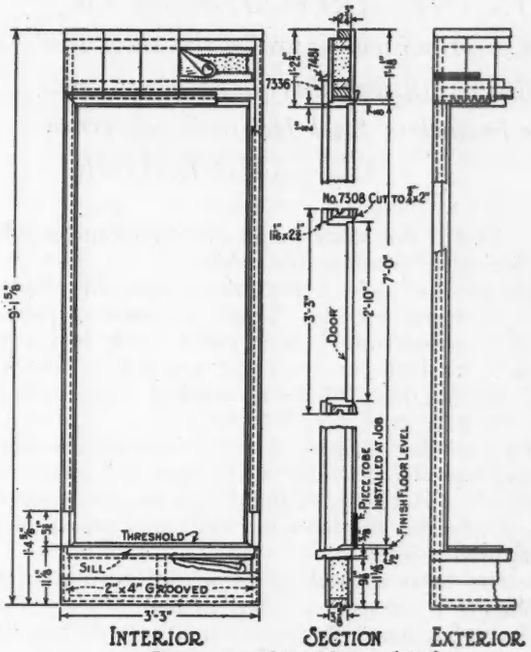
Details of Floor Panels (F-1 To F-6) and Ceiling Panels (C-1 To C-4)



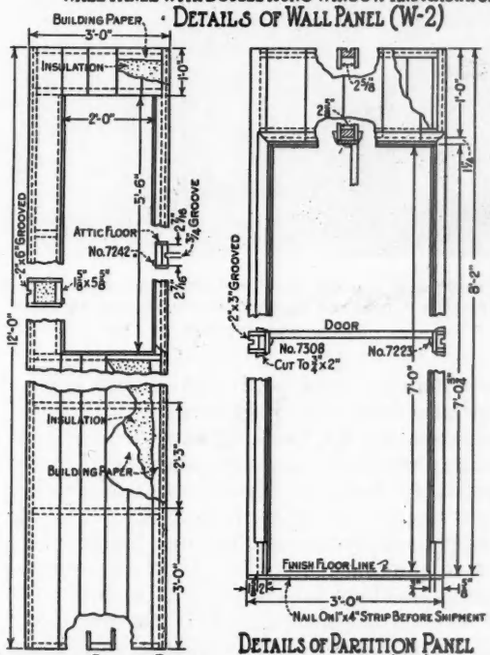
Details of Partition Panels (P-1 to P-3)



Wall Panel with Double Hung Window and Radiator



Details of Wall Panel (W-4) Outside Door Opening

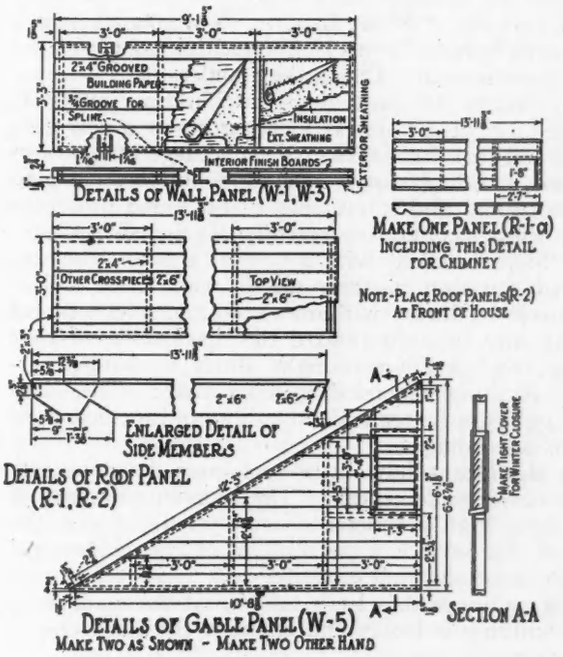


Details of Wall Panel (W-2)

Details of Partition Panel with Door (P-4)

Details of Ceiling Panel for Stairway (C-5)

Make Dimensions of Opening Conform to Those of Stairway to be Installed
Finish Underside of Stairway Frame to Match Ceiling Boards



Details of Wall Panel (W-1, W-3)

Make One Panel (R-1-a) Including This Detail for Chimney

Note - Place Roof Panels (R-2) At Front of House

Details of Roof Panel (R-1, R-2)

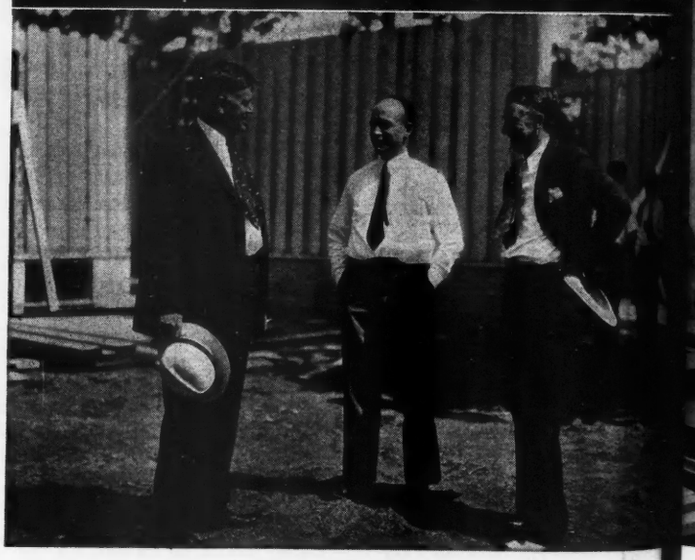
Details of Gable Panel (W-5)

Make Two as Shown - Make Two Other Hand

New Steel Houses Should Be Marketed Th

¶WHEN NEW TYPE houses are mentioned, the first anxious question among builders is "how will they affect me?"

¶IN THIS ARTICLE Bennett Chapple, a prominent figure in the sheet steel industry, answers this question—so far as the Frameless Steel House is concerned.
—THE EDITOR.



Above, sheet steel window panel in fabricating shop. Below, Bennett Chapple, Mills Clark and Ralph Leavenworth talking it over at the building site.

THEY TELL the story of an old mountaineer who sat dozing in front of his cabin.

Suddenly the valleys resounded with his shout: "Sary, fetch me my rifle. Thar's a wildcat in yander tree, and it's a squirmin' around gittin' ready to jump."

His wife rushed out with the weapon. "Shucks, Henry," she laughed, "thet's no wildcat; you're seein' a beetle on your eyebrow."

On the business horizon of today is a dark shadow which is throwing a chilly scare into the hearts of many people. Actually, it may only be the enlarged apparition of a tiny beetle on our eyebrows whose name is "misapprehension."

There has been a dazzling parade of revolutionary developments in the past decade. In fact, so many new things have happened that when another one appears we worry lest the new order of things destroy our vocation and our business. When the full significance of the new contribution is thoroughly understood we usually re-act differently. "Why, it won't hurt us at all," we exclaim. "It may help us." Years ago Virginia farm hands burned Cyrus McCormick's reaper because of misapprehension. Later, they understood.

Many things are worrying the building industry. The pre-fabricated home is looming up as a new possibility, and its effect is disturbing. Large numbers of architects, building supply men, and builders came to see an original and interesting metal home project—the frameless steel house—recently developed in Cleveland, Ohio. I talked with many of them. The unanswered question in their minds was "how will it affect me?" Almost without exception, and without directing any thought toward the dissolution of that fear, the conversation brought about a changed attitude. Nothing remarkable about that: They had merely gained a better understanding and formed their opinions accordingly.

It is significant how little such new developments change basic fundamentals. The economic scheme of things is a highly functionalized system. Upon the value of the service a person, or group of persons, perform, depends their position and their importance in the economic scale. Let's take apart the main links of the building industry and examine the functions of the various groups.

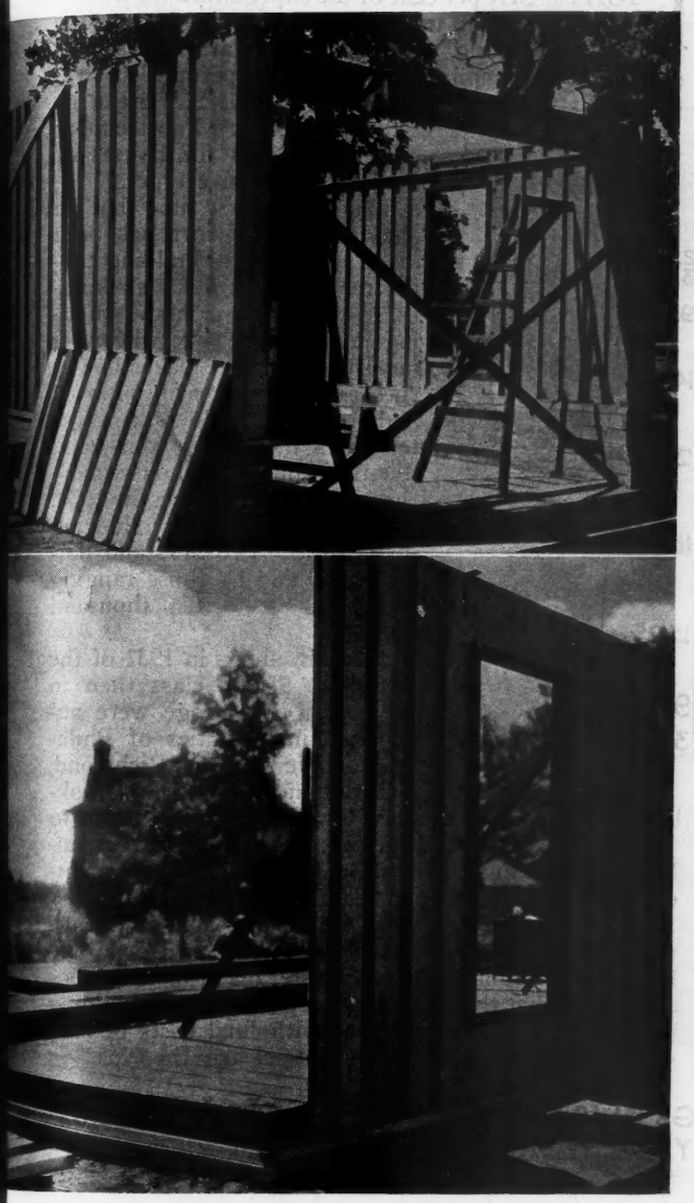
Start with the architect. Functionally, he engineers homes and gifts them with grace and beauty. Without him our homes would be drab and ugly. Why should his useful services be eliminated?

Then consider the building supply dealer. We must have distribution of building materials. His function is indispensable. As long as he serves intelligently how can the industry get along without him?

Next comes the contractor and builder. His function is to purchase materials from the supply dealer, and assemble them into a home according to the plans of the architect and the desires of the owner. It would be out of reason indeed to dispense with his function.

The building industry may entirely change its methods; new and more useful materials may be abundantly developed; any number of changes are bound to occur. No industry can escape change, for change is progress. Adjustments must be made accord-

Through Established Building Channels



Above, workmen placing the floor sections on the erected wall panels. Below, side wall panels set up, braced temporarily and welded or nailed together.

ingly but the system will remain functionally intact. It isn't who we are but what we do that counts.

The appearance of steel sheets as a new building material on the business horizon need cause no alarm. There have been many new materials in the past. It is only a matter of finding a proper place for these new products and learning how to service the public with them.

The substitution of one material for another is only a superficial change. It is not fundamental and basic to the building industry itself, although it sometimes causes confusion in our conception of the future.

There have been so many fantastic articles on factory-built homes that it is no wonder confusion exists. What is a "factory-built" home? As the articles picture it, a factory-built home is completely assembled in

Says BENNETT CHAPPLE

the factory, transported to the site in completely finished units which are set on the foundation and presto! You have a house. Most of these schemes however are still on the drawing board.

What is a pre-fabricated or industrialized house? That's a different conception, and in my opinion, far more of a commercial possiblity at the present time. In a sense, it is a compromise between the completely factory-built house and the present method, the amount of factory work varying according to the designer's conception. There are a number of plans under way for houses of this type and some of them appear to be sound and practical.

At present, the method and channels of distribution of the pre-fabricated house have not been established. Probably the new idea will start out in a small way and develop its market along natural lines.

Let's analyze the frameless steel house development from the merchandising angle as it affects the building industry.

The metal walls as demonstrated in the Mills G. Clark house in Cleveland are fabricated from light gage sheets and welded together in large sections in the factory. The floors are also fabricated from sheet metal, each piece being formed in a longitudinal "Z" or step shape, overlapped and welded in large sections. These sections are then trucked to the site. The field work isn't all eliminated for the different units must be fastened together into a metal chassis or structure. Right there ends the chief interest of the fabricators for they do not especially desire to do the entire construction work. Paralleling the practice of the structural steel shop which supplies the material ready for the contractor to erect a skyscraper, the carpenter, the plasterer, the electrician,—all have their work to do.

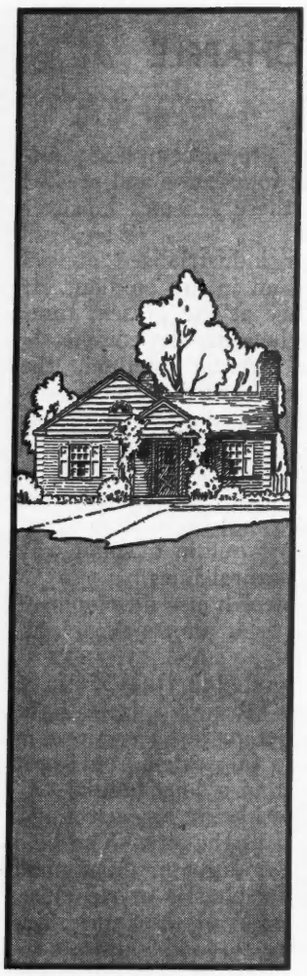
The frameless steel method of construction is extremely flexible. Almost any type of architecture may be reproduced. There are no fixed dimensions to meet. There is nothing complex about it—in fact, it's just a new way to assemble materials already well-known to the market. The builder, architect, or owner can choose his exterior and interior finishing materials according to his own taste, for stone, brick, stucco or even wood may be used for siding while plaster, wallboard, or any of the conventional wall finishes may be applied to the interior. The finished floors, also may be of any desired material.

The joining of the floor and wall sections, and the fastening of the finishing materials in position is accomplished by nailing. A spirally threaded specially-tempered nail makes the attachments to the sheet metal floors and walls as easily as a wire nail penetrates a two by four. And it holds firmly. Fastening materials together has long been the barrier to the metal house, but no one expected such a simple and familiar solution. It means that the bulk of the work of house building is still in the realm of the carpenter, the most experienced trade in home-building activities.

It seems assured that a satisfactory metal chassis of the home, which has been planned by the architect

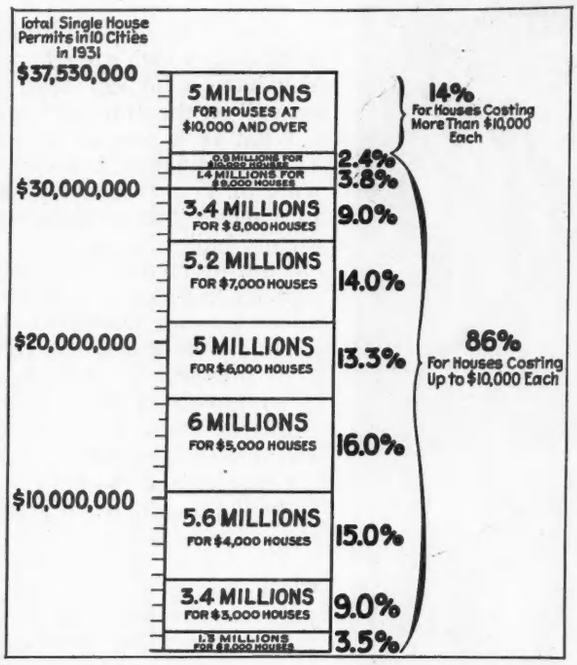
(Continued to page 58)

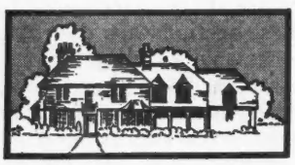
Big Market Is in Small Houses



86% for houses costing up to $10,000. each

Official Figures Show Most Spent for Small Homes





14% for houses costing more than $10,000. each

EIGHTY-SIX per cent of the expenditure for houses built in 1931 in ten widely separated cities was for houses costing ten thousand dollars or less, according to a compilation of building permits just released by the U. S. Bureau of Labor Statistics. Fourteen per cent, only, went for houses of the more expensive types.

This is the first time that an analysis of this sort has been made from official building permit records. It reveals strikingly, in today's total home building market, the overwhelming importance of the smaller houses such as are customarily planned and erected by builders. In these ten cities the three-, four-, and five-thousand dollar houses were the most popular sizes in 1931, with a fairly good showing made by the two-thousand dollar group and by those ranging from six up to ten thousand dollars.

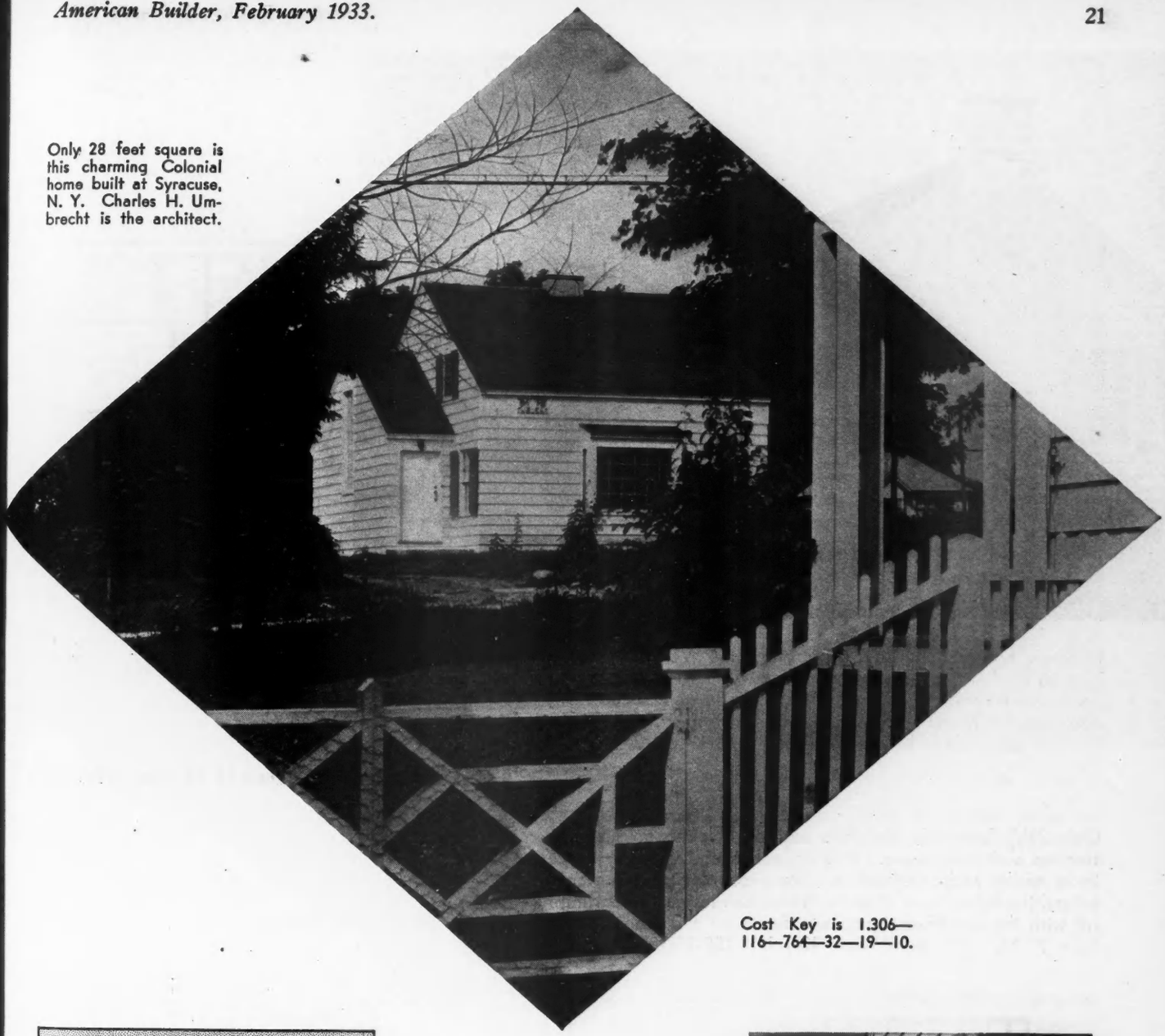
More dwellings in 1931 of the $4,000 to $5,000 class than in any other cost range were authorized in the cities of Philadelphia, New Haven, Richmond, St. Paul and Denver. In Brooklyn and Cincinnati, more dwellings cost $6,000 to $7,000 than any other amounts; in Milwaukee and Cambridge $5,000 to $6,000; while in Los Angeles the greatest number cost $2,000 to $3,000.

The survey explains that within the same cost range the dwellings differ greatly as to size and type, influenced by climate, popular taste, material and labor costs, also that the estimates being based upon building permits may not be identical with final costs of construction. However, they indicate clearly the type.

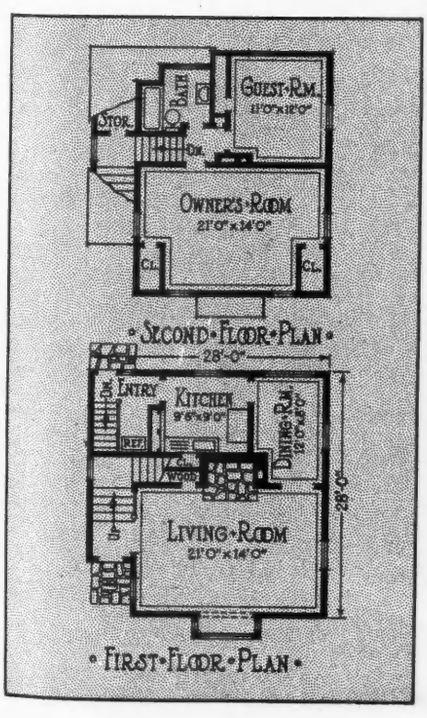
NUMBER AND COST OF 1-FAMILY DWELLINGS IN 10 CITIES FOR WHICH PERMITS WERE ISSUED IN 1931 BY COST GROUPS

Cost group	Brooklyn	Cambridge	Cincinnati	Denver	Los Angeles	Milwaukee	New Haven	Philadelphia	Richmond	St. Paul	Total, 10 cities	
											Number	Cost
Under $2,000	7		1	19	607		1	3	12	4	654	$ 1,308,000
$2,000 and under $3,000	2	3	7	42	996	6	1	40	27	18	1,142	3,426,000
$3,000 and under $4,000	8	1	20	77	915	17	6	265	25	73	1,407	5,628,000
$4,000 and under $5,000	13	2	75	206	372	82	40	298	40	86	1,214	6,070,000
$5,000 and under $6,000	80	3	153	85	143	101	35	149	18	72	839	5,034,000
$6,000 and under $7,000	348		154	27	67	88	11	12	10	29	746	5,222,000
$7,000 and under $8,000	190		91	18	51	27	11	22	4	12	426	3,408,000
$8,000 and under $9,000	48		49	7	19	16	10	1	7	6	163	1,467,000
$9,000 and under $10,000	23	1	21	2	26	10	6	1		1	91	910,000
$10,000 and under $11,000	4	1	17	5	22	1	1	10	4	7	72	792,000
$11,000 and under $12,000			6		9	1	1	1			18	216,000
$12,000 and under $13,000	1		14	3	13		3	4	2		40	520,000
$13,000 and under $14,000			4		2		1				7	98,000
$14,000 and under $15,000	1		9	1	2	1		4			18	270,000
$15,000 and under $16,000		2	1	1	11			3	1	3	22	352,000
$16,000 and under $17,000			4	1	4					1	10	170,000
$17,000 and under $18,000		1	3		7			2			13	234,000
$18,000 and upder $19,000	1		4	1	4					1	11	209,000
$19,000 and under $20,000			2		3						5	100,000
$20,000 and under $25,000		1	3	1	15			4			24	600,000
$25,000 and under $30,000		1	4	1	7			1			14	420,000
$30,000 and under $35,000	1		1	1	1			2			6	210,000
$35,000 and under $40,000					2			1			3	120,000
$40,000 and under $45,000			1		1						2	90,000
$45,000 and under $50,000								1			1	50,000
$50,000 and over (average $75,000)			2		4	1		1			8	600,000
Total	727	16	646	498	3,303	351	127	825	150	313	6,956	$37,530,000

Only 28 feet square is this charming Colonial home built at Syracuse, N. Y. Charles H. Umbrecht is the architect.

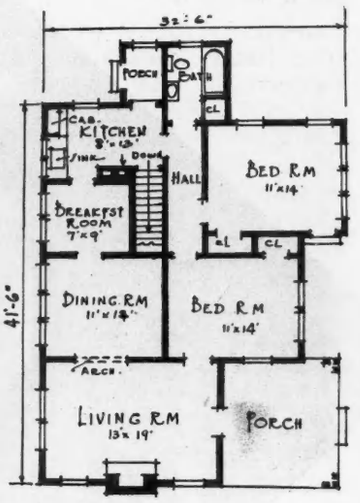


Cost Key is 1.306—116—764—32—19—10.



Home Plan Section

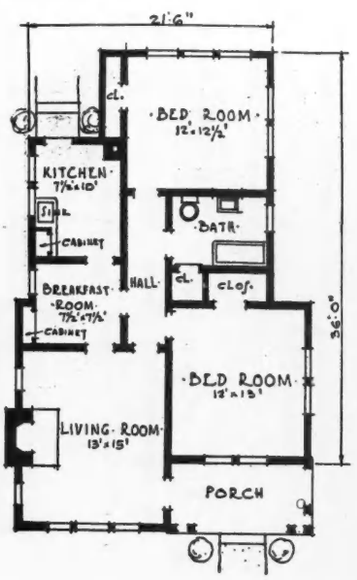
The small homes shown on this and following pages are selected because they represent popular well tried types. Floor plans are practical and efficient. Each house has a cost key so that its cost can be quickly figured for any locality.

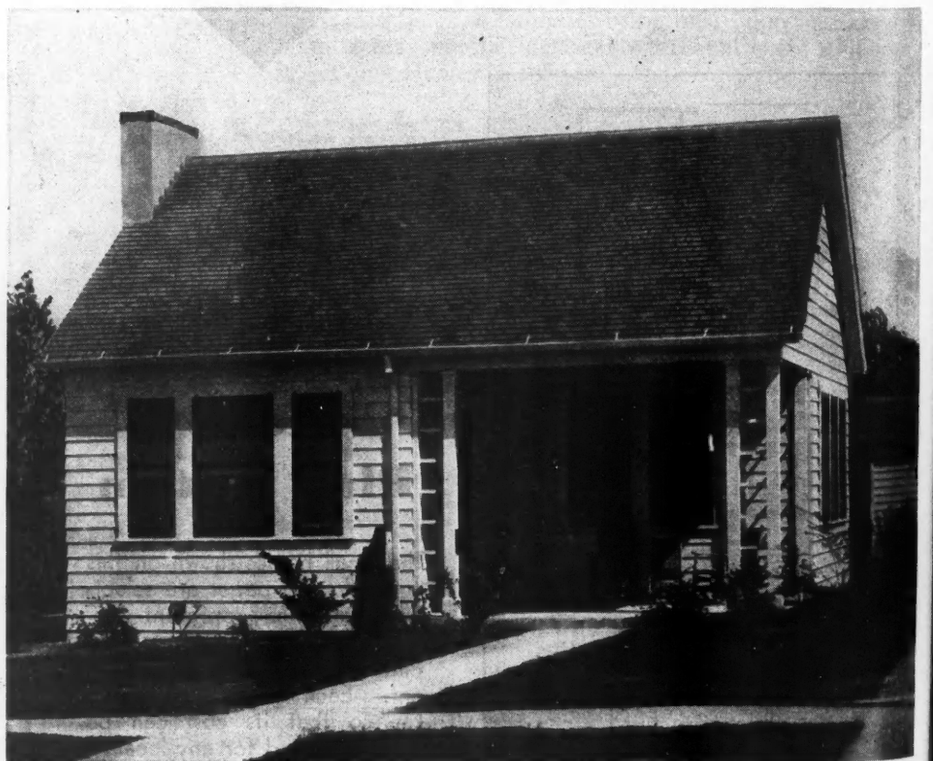


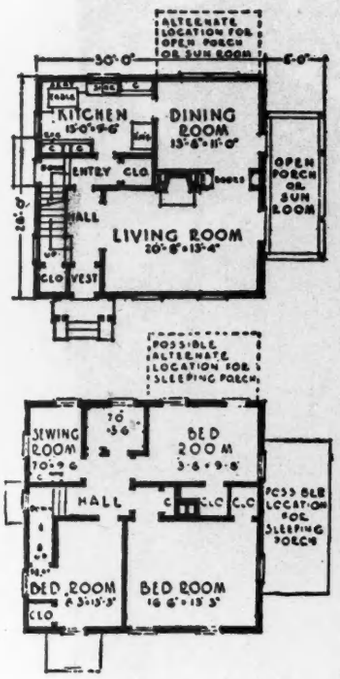
Here is a type of house that is popular in the West where there is room for it to cover a lot of ground. The end gable is well proportioned and the chimney attractive and well placed. The open porch is a well liked feature. Design from R. M. Williamson. Cost Key is 1.467-160-1168-49-16-18.

Two Likeable Small Bungalows

Only 21½ feet wide, the little cottage below is unusually attractive and inexpensive. It is appealing and yet very simple in its design and construction. Some people would prefer to extend the living room clear to the kitchen instead of cutting it off with the breakfast room as is shown on this plan. Design from R. M. Williamson. Cost Key is 1.158-137-896-38-16-15.







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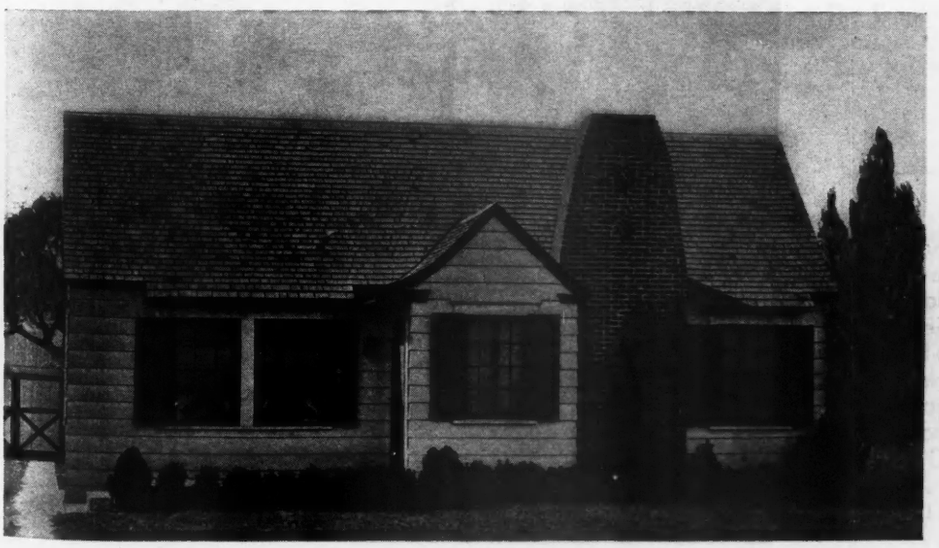
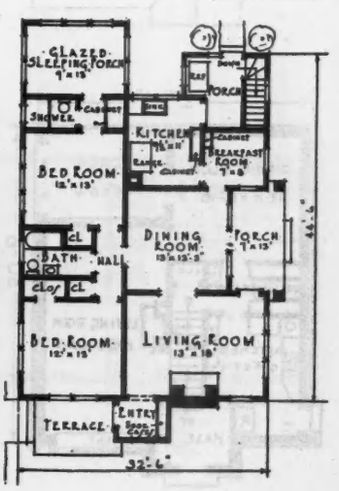
Brick Colonial of Tested Type

The brick Colonial above is a handsome and conservative type that never goes out of style. The plan is soundly arranged, with plenty of closets and built-in conveniences. The fine Colonial door, attractive shuttered windows and pleasant porch add to its charm. Design No. 6-A-67. The Cost Key is 1.742-116-840-35-25-16.

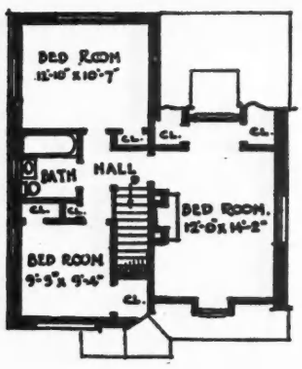
It would be hard to classify the style of the little house below unless it were called "American bungalow". Just the same it has a cozy appeal that many people like. The floor plan is a type that is popular in Texas and the Southwest. Design from R. M. Williamson. Cost Key is 1.717-192-1481-62-23-19.

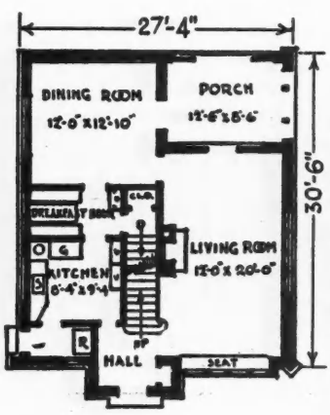




One of the three most popular face brick houses is this compact design sponsored by the American Face Brick Association. Suited for either an inside or a corner lot, this house deserves its popularity for it is both practical and attractive. Design is by Floyd Yewell, Architect. Cost Key is 1.718-122-747-32-19-13.

Three Most Popular Brick Designs



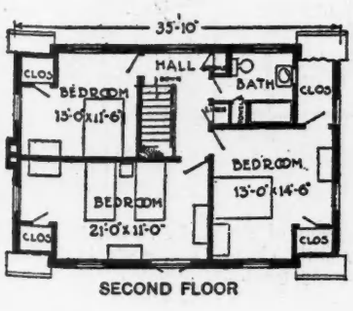


Another old favorite, the design which tied for first place. Floor plan is same as house on opposite page. Cost Key is 1.902-144-1104-46-25-17.

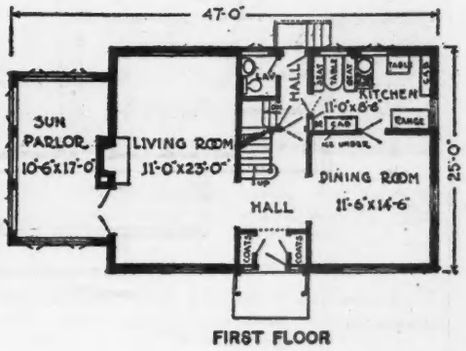
From thousands of inquiries about face brick houses this design was selected as the most popular, the records of the American Face Brick Association show. The two houses on the opposite page were close runners up.

Picked for Practical Features

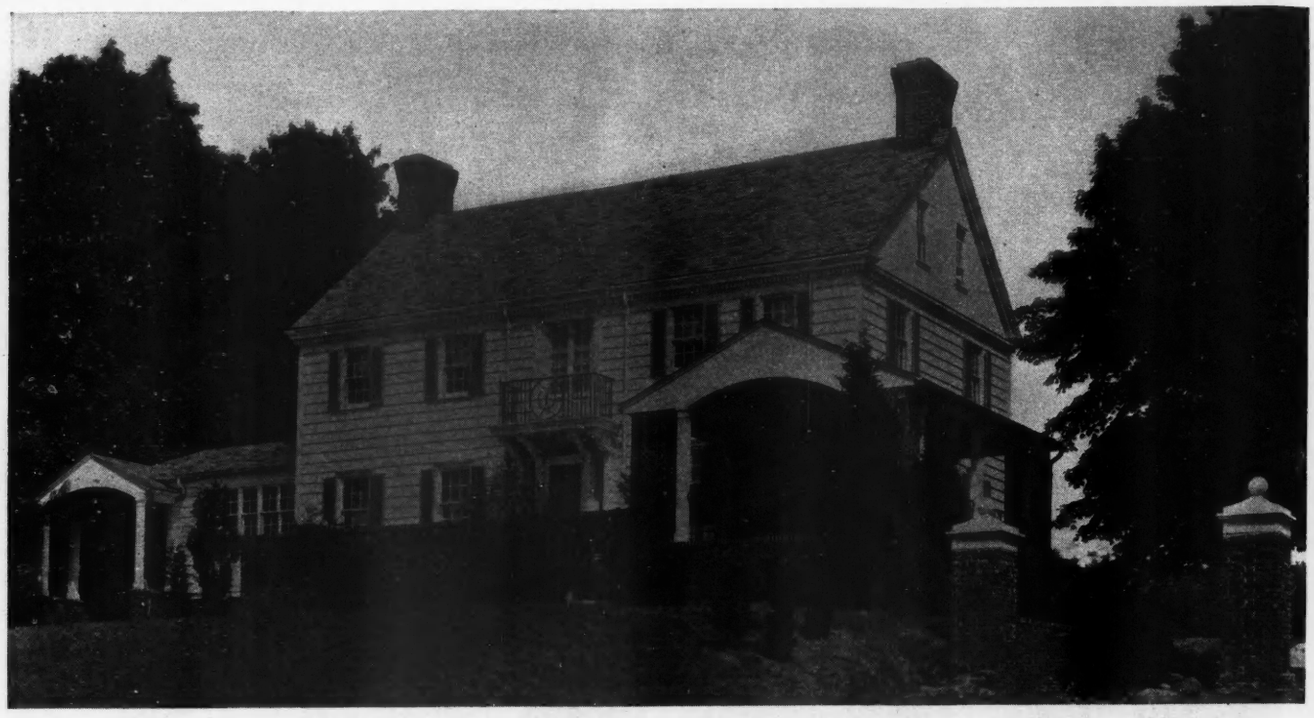
The practical floor plan is the most outstanding feature of this house. The English exterior strikes a popular note, and the interior possess a hominess that has great appeal. Cost Key is 1.907-144-1104-46-25-16.



SECOND FLOOR



FIRST FLOOR



How the reconstructed home of J. C. Forbes, Katonah, N. Y., appeared after it had been completely modernized.

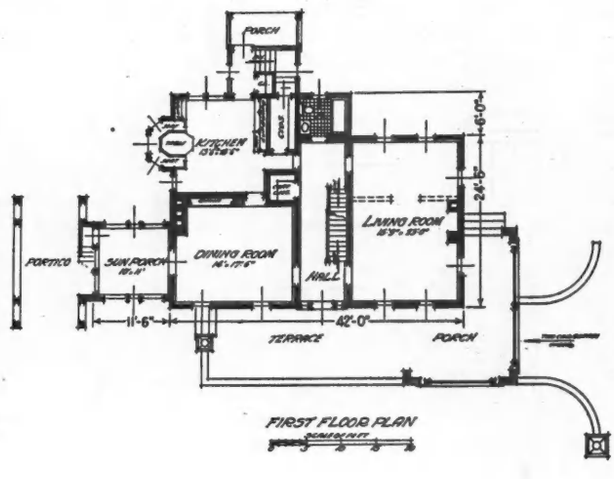
Everything Modernized But the View

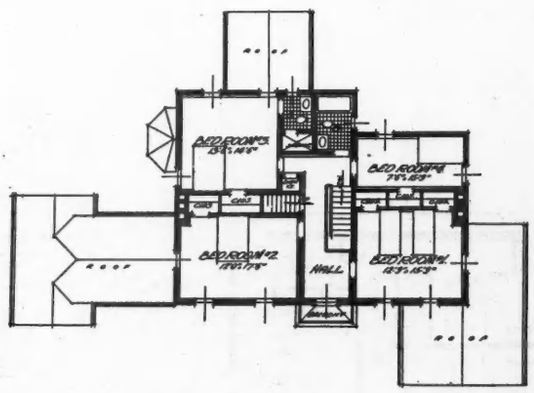
COMPLETE RECONSTRUCTION of an old house at Katonah, New York, was recently completed by Henry W. Piering, New York contractor. R. C. Hunter of New York was the architect. Approximately $12,000 was spent by the owner, J. C. Forbes, in modernizing the structure.

The old house was purchased principally because of the unobstructed view it commanded of Croton Lake and the mountains beyond. Like many other old homes, its setting and surroundings could not be duplicated anywhere; yet the house was worthless in its old fashioned state. Modernizing was decided on, and architect Hunter was instructed to make the best use he could of the old house.

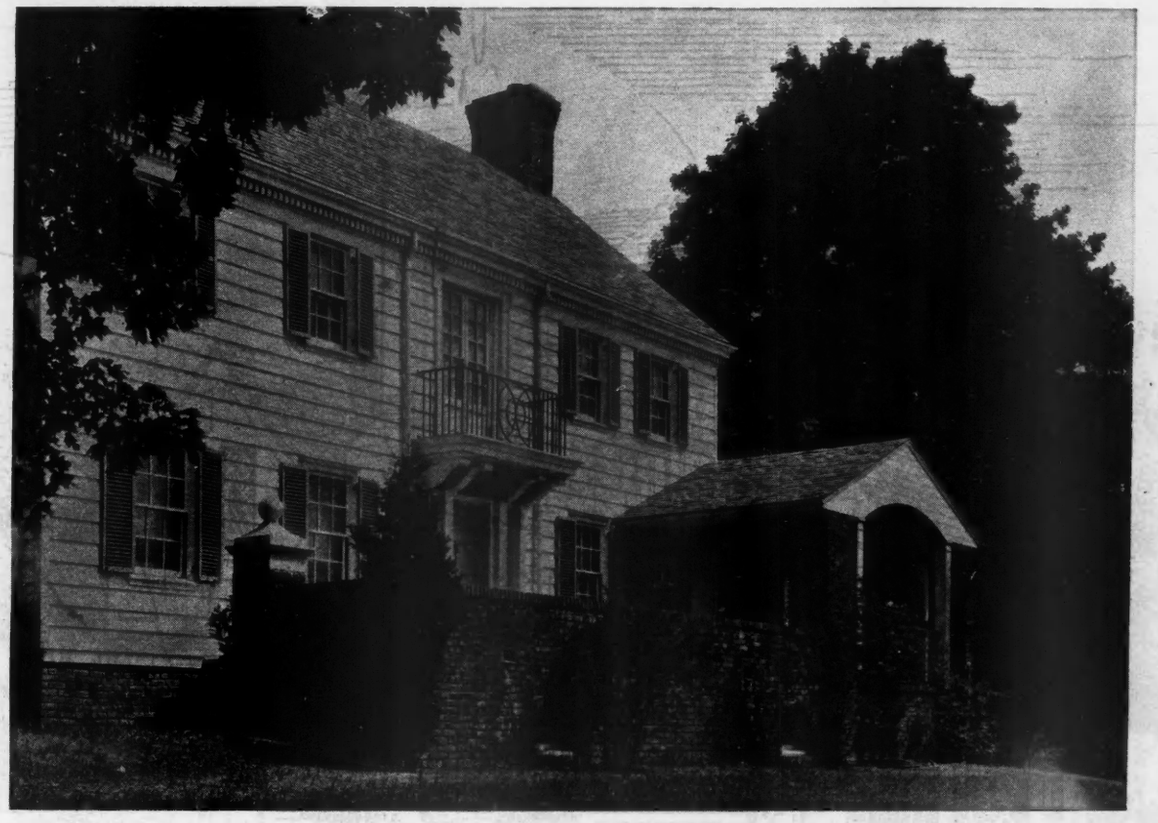
One of the principal problems was to design a porch which would permit the owner to enjoy the natural scenic beauty. The original porch was of such design as could not be tolerated and had to be removed.

The present grade in front of the house also presented a serious problem which has been rather gracefully overcome by the introduction of a terrace. The terrace floor was waterproofed and tiled, and the space below utilized



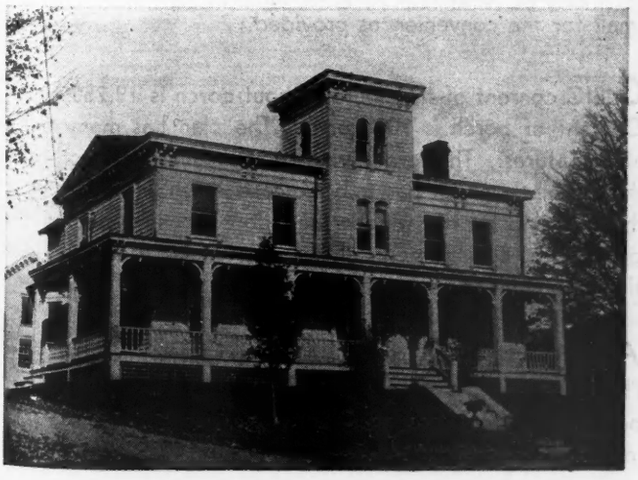


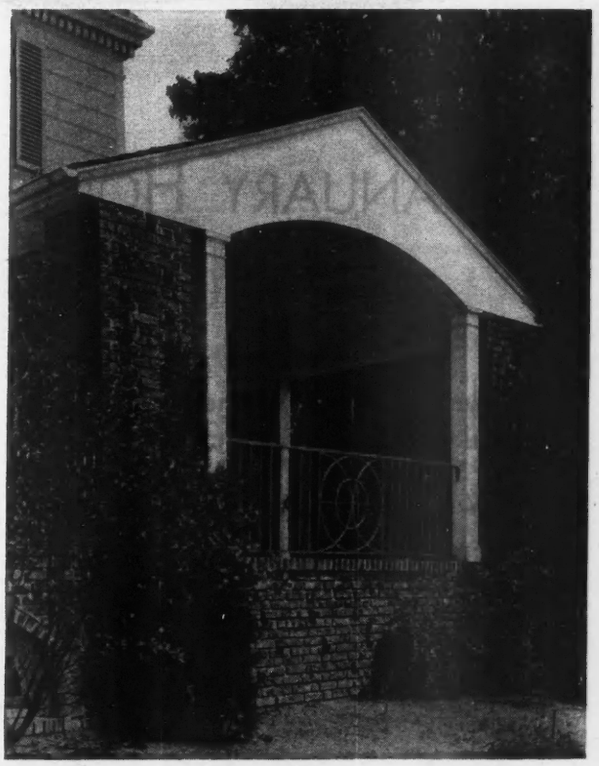
First and second floor plans of the J. C. Forbes house after remodeling. Very little change was made in the arrangement.



for a two-car garage—a practical and attractive solution.

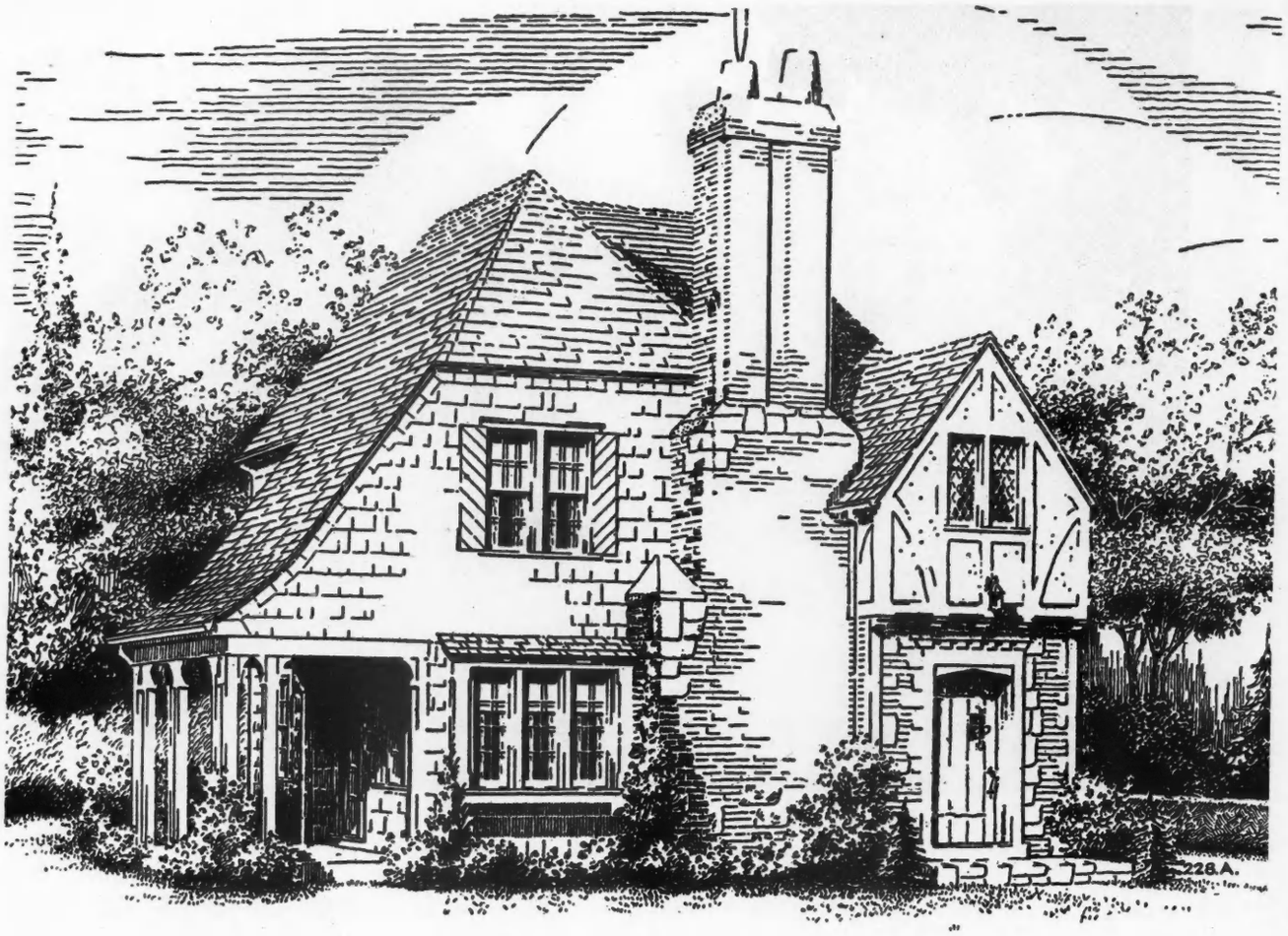
Very few changes were made in the original plan of the house. The exterior was clothed in entirely new materials. The wide siding boards were applied over the original siding; new sash were installed in the old openings and blinds added to the windows; the old cornice and tower were demolished; the roof was raised to a much sharper pitch and a new roofing material applied. It is quite interesting to note the unsymmetrical spacing of the windows in the front, which has been treated in such a manner that the irregularity of spacing is not apparent to the casual observer. The front entrance door is likewise not in the center of the facade. A new heating plant, plumbing system and complete modern equipment were installed. The project is an example of intelligent rebuilding such as is greatly needed today in many regions and which will produce a much needed volume of construction work.





ABOVE—two views of the modernized home. The porch was especially desired by the owner to enable him to enjoy the view.

AT LEFT—how the old house looked before it was reconstructed. Its chief value was its setting and view. About $12,000 was spent to remodel it inside and out.



THE JANUARY HOUSE OF THE MONTH

Design Number 228-A by the National Plan Service, Inc.

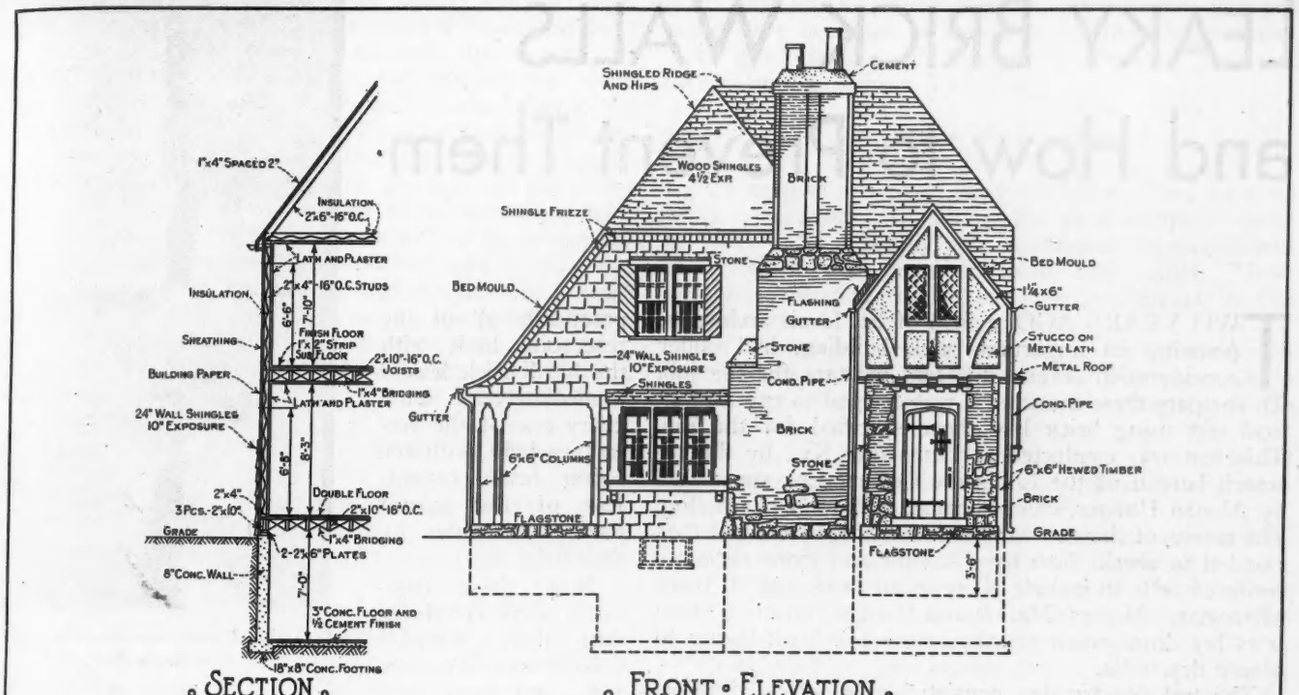
Cost Key is 1.592—114—686—30—21—16

English In Character With Every Element of Design Contributing to Utility and Comfort

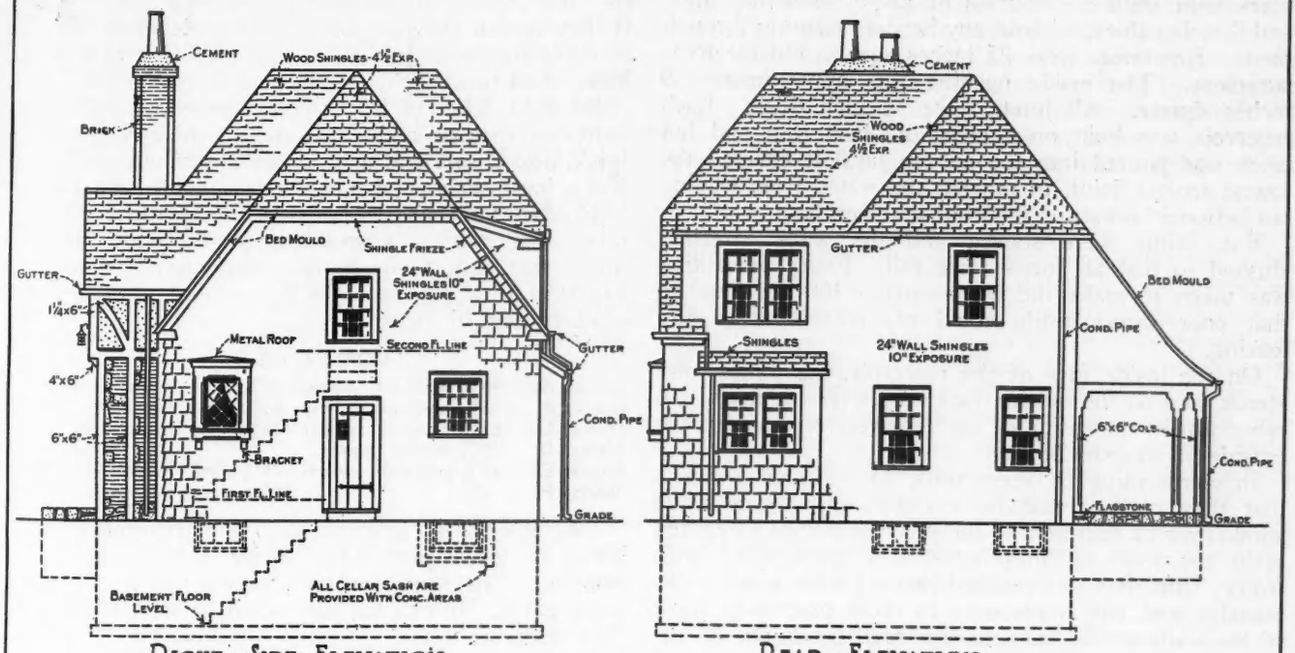
HERE is a house that combines a maximum number of modern comforts and conveniences in a practical arrangement and design that is well down in the price bracket. The size of the main structure, only 26 by 24 feet, is remarkably small for the conveniences provided.

CUBIC content of the house without porch is 19,250 cu. ft. Content of porch is 900 cu. ft. The plan has many desirable features. The large living room is made attractive by the fireplace which has a book case extending from it to the wall and by the window and door opening out on the porch. The arrangement of the downstairs rooms in relation to front and rear entrances is practical and convenient.

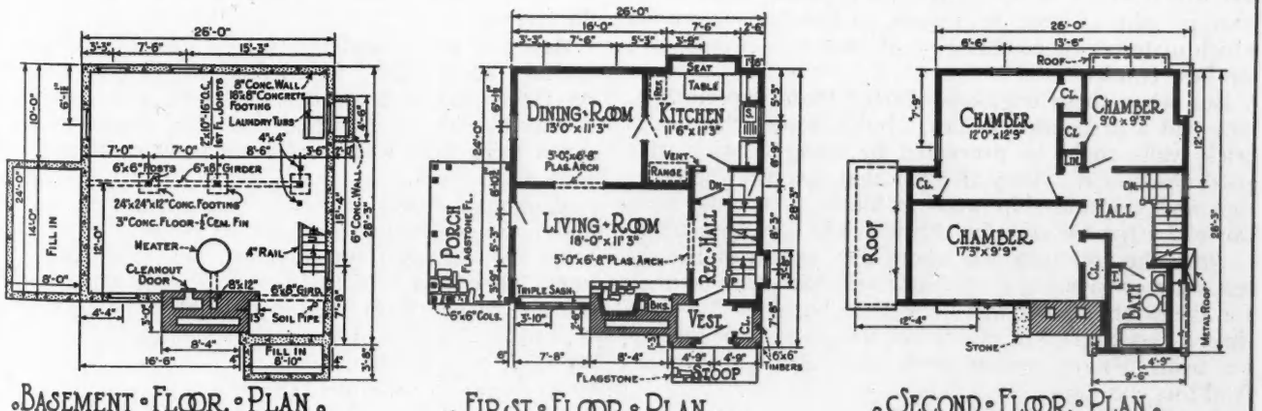
ACCURATELY drawn details are given on the next page. These are slightly less than 1/16 inch to the foot and can be easily enlarged by the photo-enlarging process to 1/4 inch scale for further detailed study.



∘ SECTION ∘ ∘ FRONT ∘ ELEVATION ∘



∘ RIGHT ∘ SIDE ∘ ELEVATION ∘ ∘ REAR ∘ ELEVATION ∘



∘ BASEMENT ∘ FLOOR ∘ PLAN ∘ ∘ FIRST ∘ FLOOR ∘ PLAN ∘ ∘ SECOND ∘ FLOOR ∘ PLAN ∘

LEAKY BRICK WALLS and How to Prevent Them

Example of poor workmanship—holes in the wall.

TWO YEARS AGO, a firm of St. Louis architects, planning an important brick building, had under consideration several different mortars for the job. To compare these mortars, it was decided to run a practical test using brick like those specified for the job. This test was conducted at Louisville, Ky., by the research bureau of the Louisville Cement Co., supervised by Alonzo Hanger, chief chemist, and John H. Mallon. The results of this test were so interesting that it was then decided to check them by a second and more elaborate series of tests to include all types of brick and all types of mortar. Messrs. Mallon and Hanger reporting these tests lay down some practical rules for brick laying to assure dry walls.

The test construction consisted of a series of reservoirs with walls six courses or about 18 inches high, and 8 inches thick, without any headers running through them. Reservoirs were 25 inches square, outside measurement. The inside opening was approximately 9 inches square. All joints were ½ inch thick. Each reservoir was built on a piece of sheet iron and hot pitch was poured into the bottom until it covered the lowest mortar joint, to prevent the water from leaking out between bottom of reservoir and iron base.

End joints were shoved and the walls carefully slushed so that all joints were full. Every precaution was taken to make the workmanship 100 per cent so that poor workmanship could not contribute to any leaking.

On the inside face of the reservoir, the joints were struck, and on the outside face they were cut flush. In other words, the inside of the reservoir represented the outside of an exterior wall.

In commenting on these tests, Mr. Mallon explains that they realized that no exterior wall above grade would ever be subjected to the severe conditions imposed upon the walls of these reservoirs when filled with water. But they also realized that with the good workmanship and full joints used in these reservoirs, none of the walls would leak under normal conditions of exposure to rain. And so they had to choose a method of test which would be severe enough to make water penetrate in spite of good brickwork, in order to determine which material, or combination of materials, would give the best results.

But when these engineers started these experiments, they had a preconceived idea, Mallon states, that leaky brick walls could be prevented by using a brick with good absorption. They thought that, except where design and workmanship were to blame, wet walls were caused by the use of a hard brick, with low absorption.

Now, the architects for whom they were running the test were considering a comparatively hard burned brick for their job. So it was decided to build, at the same time, a check series of reservoirs, using the same mortar, but using a more porous brick with higher absorption. And this was done.

At the end of thirty days, a hose was turned into the reservoirs and the results observed. Sure enough, practically all of the reservoirs built with the hard brick leaked immediately, and every one of the reservoirs built with the softer brick, regardless of the mortar used, held water indefinitely.

Now these engineers were convinced that their pre-conceived idea was correct, and were sure that the entire problem of leaky walls could be solved if they ran an elaborate test with a wide range of brick to determine with just what kind of brick they would leak. And this they determined to do.

So eight different brick were selected—a soft and a hard clay wire cut and a soft and a hard clay sand mold brick, also a soft and a hard shale wire cut and a soft and a hard shale sand mold brick. With each kind of brick, they built six reservoirs, using six different mortars. The mortars represented such a wide range of mixes that almost any mortar encountered on any job would at least approach the proportions of one of the mortars used in the test.

MORTARS USED

Mortar A.	90%	portland cement	10%	lime	hydrate	by	volume
Mortar B.	75%	portland cement	25%	lime	hydrate	by	volume
Mortar C.	50%	portland cement	50%	lime	hydrate	by	volume
Mortar D.	100%	mason cement				by	volume
Mortar E.	25%	portland cement	75%	lime	hydrate	by	volume
Mortar F.	0%		100%	lime	hydrate	by	volume

The mix for all mortars was one part cementing material to three parts Ohio River sand, measured by volume. The sand for all reservoirs came from the same batch. It was the same kind of sand used in the first reservoir tests.

So the 48 reservoirs were built, and thirty days allowed for them to cure. Then the hose was turned into the reservoirs.

Again it was found by Hanger and Mallon that all mortars acted alike. According to their report, if a reservoir made of a given brick leaked with one mortar, it leaked with all mortars, and if a reservoir with a given brick held water with one mortar, it held water with all mortars.

And again it was found that every reservoir that held water did so indefinitely. For at the end of 48 hours, when the water was siphoned out, there was still no leakage. They held a 16 to 18-inch head of water, and according to Dr. F. D. Anderegg of the Mellon Institute, a head of 3 inches of water is equivalent to rain driven by a 120 mile per hour wind.

And again it was found that the reservoirs that leaked, leaked immediately. With most of them the water began coming through and trickling down the outside even

before the reservoir could be filled with a hose.

In so short a time the water could not possibily have soaked through the brick or through the mortar. It was the conclusion of Hanger and Mallon that there must have been small openings and cracks between the brick and the mortar, where the mortar had not bonded with the brick, and through which the water could seep.

Later, in order to trace the passage of the water through the reservoirs, some of them were filled with a stain, gentian violet, which was left in the reservoirs for fifteen minutes and then siphoned out. Then these reservoirs were knocked apart and samples taken from the wreckage. The path of the water through the reservoirs between the brick and mortar could be clearly traced by the discoloration left by the stain. It showed clearly on the surface but left no mark on the inside of the brick or the mortar.

But here is where the preconceived idea of these test engineers exploded:

Brick No. 5 (soft clay sand mold), the very brick which in the first series of tests had held water with all the mortars, in the second series now leaked with all mortars.

And brick No. 3 (hard shale wire cut), the brick which in the first series of tests had leaked with all mortars, in the second series of tests now held water with all mortars.

These two diametrically opposite results indicated, according to Mallon's report, that certain important, unknown variables were not controlled in these tests. These variables determined whether or not a tight bond could be secured by the use of a soft brick or a hard brick.

Conclusions From Tests

What conclusions can be drawn from these tests? This much at least is definitely shown, according to the report:

FIRST—The water does not soak through the brick or through the mortar, but enters through openings and cracks between the brick and mortar where a close bond does not exist.

SECOND—No particular type of mortar causes leaky walls. For in every case all mortars gave identical results when used with the same brick.

THIRD—No particular kind of brick causes leaky walls.

Based not so much on the results of these tests, as upon a study of building with brick walls that leak, reports of research work, and articles by others on the subject, the following recommendations are submitted by Hanger and Mallon. A reasonable observance of them will, they are confident, insure dry walls. They can be conveniently grouped under five headings in the order of their importance: 1, Workmanship; 2, Design; 3, Type of Joint; 4, Brick; and 5, Mortar Materials.

Good Workmanship

"Of course, as every architect knows, and as even brick contractors will admit, the most frequent cause of leaky walls is simply poor workmanship—insufficient mortar in the wall, especially in the head joints. Those who have studied the subject are unanimous in this opinion.

"Dr. Anderegg, for instance, says: 'Upon the bricklayer's workmanship, more than upon any other single factor, rests the responsibility for the integrity of the wall.'

"Mr. L. A. Palmer (of the Bureau of Standards) says: 'Neglecting to fill the head joints is the most prevalent cause of moisture transmission.'

"The Common Brick Manufacturers Association submits convincing evidence (the picture shown on the first page) which shows a close-up of an 8-inch wall built with faulty workmanship. A casual glance shows that there is actually very little mortar in the wall.

"Good workmanship should insure full head joints, preferably shoved joints, and careful bedding of the headers. Inside longitudinal joints which parallel the face of the wall should be slushed full of mortar.

"In fact, many architects are now specifying that the face brick be backplastered before the back-up units are laid. The resulting solid sheet of mortar behind the face brick acts as an effective barrier to any water which may find its way past the outside four inches of the wall."

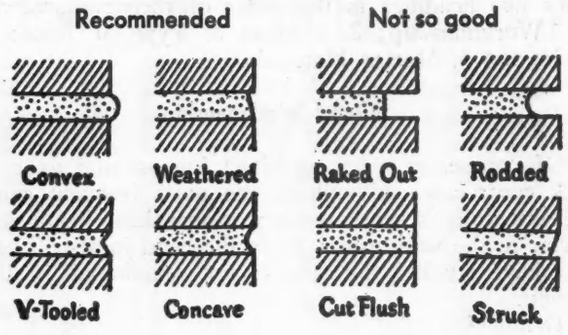
Proper Design

But even when the workmanship is above the average, and often when it is absolutely beyond suspicion, leaky walls sometimes occur, these engineers maintain.

"In such cases improper design or construction details are sometimes responsible. It should be unnecessary to emphasize the importance of so designing the building that water will not concentrate against any part of the wall, or the importance of proper flashing under copings, brick sills, projecting belt courses, and trim, especially if the materials used are not impervious, or if the joints cannot be made tight. And yet these obvious precautions are sometimes neglected."

The 48 Test Reservoirs laid up with 8 different types of brick and 6 different types of mortar.

TYPES OF MORTAR JOINTS



Continuing, the Mallon report cites John E. Nicholson, of Nicholson & Galloway, New York waterproofing engineers, who says:

"No matter how good the material and workmanship may be, wall saturation will always occur. The important thing to do is to flash the wall at all doubtful places."

An added precaution is to backplaster the inside face of the wall with a coat of waterproofed mortar, or to apply a coat of dampproofing to inside face of the wall.

Type of Mortar Joint

"One of the best precautions that can be taken," states the report, "is to select the proper type of mortar joint. A tooled finish, preferably concave or V-shaped, is strongly recommended. The importance of this cannot be over-emphasized."

Stanley Newman, a Boston waterproofing engineer, advances this sound argument:

"Cut flush and raked joints, while they may improve the appearance of a wall surface by adding color and texture, are so difficult to construct properly that we recommend their elimination for buildings accessible to wind-driven rain. It has been our experience that in forming cut flush and raked joints, the tendency is to open up the body of the mortar and to draw the mortar away from the units. The joints that afford the best protection are those of the weathered and concave type. These not only present an excellent surface for the shedding of water, but require for their formation an amount of pressure sufficient to compress the mortar and create a firm bond between the mortar and the brick at the face of the wall, thereby reducing the probability of hidden cavities."

The use of excessively thick mortar joints should be avoided, it is stated. All mortars shrink slightly when they dry out. This may cause trouble in the head joints, if the joint is too thick.

Brick

A good many people think that a good bond is difficult to get with a highly impervious brick, especially if it is wet. For instance, P. H. Bevier, Engineer, Hollow Tile Manufacturers Association, has said:

"The porosity and absorption or suction of a brick effect its bond to the mortar. It is desirable to have a brick with a moderately high absorption that will not only absorb the water in the mortar but take up some of the fine cement; which, entering the pores of the brick, creates a firm bond. Hard, smooth, non-porous brick effects very little bond with the mortar in which case there will invariably be found cracks between the brick and the mortar through which water can enter."

But it is equally true that a brick with too high a rate of absorption is just as apt to prevent a bond in hot, dry weather unless it is generously wet.

As Dr. Anderegg says:

"If the absorption is too rapid, so much of the moisture is removed from the mortar in contact with the dry brick that the mortar congeals on coming in contact, has no chance to spread out evenly over surface, has inadequate opportunity to make thorough contact and bonds poorly."

And so, brick with a high rate of absorption must have their excessive sucking power diminished by wetting before they are laid, especially in hot, dry weather, this report concludes. Everything considered, it seems wise in choosing a brick to avoid both extremes.

"Sometimes, however, impervious face brick must be used to get the desired architectural effects. In such cases it is important to use, for backing up the face brick, masonry units which have quite a little absorption. So if any water penetrates beyond the face brick these softer units, acting something like a sponge, will absorb and hold back the moisture, which would otherwise pass on through to the inside of the wall. Later, when the sun hits the face of the wall, this moisture will evaporate out again, almost as though the wall were breathing."

Mortar Materials

"As compared with the precautions so far mentioned, the mortar materials play a minor part in causing or preventing leaky walls," is the conclusion of these two engineers associated with this mortar cement company. "And yet," they continue, "for best results there are certain characteristics which mortar should have to insure a good initial bond and a tight joint.

"It should be plastic so it will spread out evenly, permitting a more complete bedding of the brick and an increased area of contact between the surface of the brick and the mortar; and so that the longitudinal joints which parallel the face of the wall will be completely filled when mortar is slushed into them.

"It should have high water-retaining capacity, to prevent the absorbent brick from sucking the water out of the mortar too fast.

"If the mortar loses water and congeals too rapidly,

(Continued to page 58)

Recommended precautions to prevent leaky walls:

GOOD WORKMANSHIP

Full head joints—preferably shoved.
Careful bedding of headers.
Full inside longitudinal joints which parallel the face of the wall.

PROPER DESIGN

Prevent concentration of water against wall.
Proper flashing.
Inside face of wall covered with dampproofing or plastered with waterproofed mortar.

TYPE OF MORTAR JOINT

Tooled finish—preferably concave or V-shaped. Thin joints.

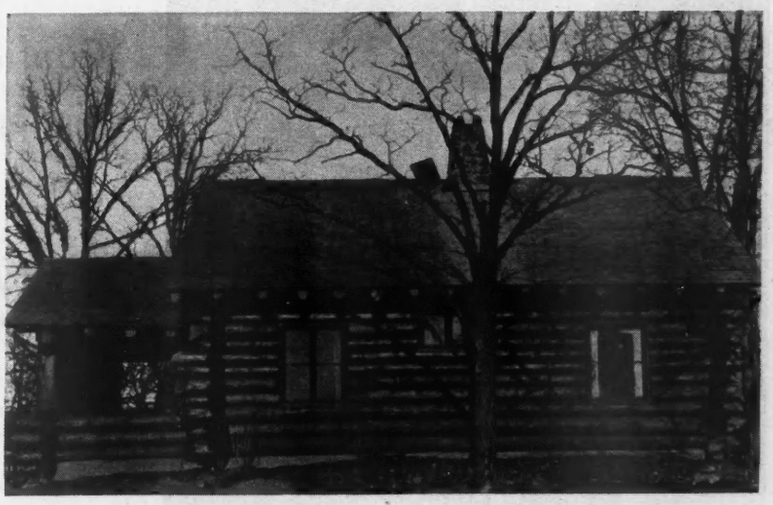
BRICK

Avoid brick with extremely high and extremely low absorption.
Use absorbent back-up units.

MORTAR MATERIALS

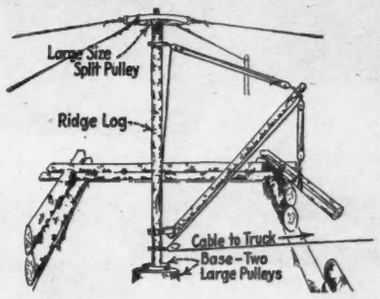
Plasticity.
High water-retaining capacity.
Integral stearate waterproofing.

Log Cabins — An expert tells how to build them right



Sunset Lodge, built by C. B. Wilcox, illustrates several important points of log cabin building. Logs fit well together, have permanent, tight joints.

At left — log spiking detail used by Wilcox. At right —rig used to handle logs on job.



SUNSET Lodge, the log cabin pictured on this page, was recently completed by C. B. Wilcox, cabin builder, timber cruiser, saw mill man and engineer. In describing this cabin, several important points about this type of work were brought out by Mr. Wilcox.

Of first importance is accurate planning. Wilcox designs the cabin and has it clearly down on paper before he cuts the logs. When he goes into the woods, he carries accurate working papers which show the length and size of every log needed. Mr. Wilcox's experience in timber work enables him to go through the woods and quickly select trees for cutting that he knows will be suitable.

The position of each log is charted out on the working plans before the logs are cut. The builder is thus able to take into consideration the location of doors and windows, and to determine the quantity and size of logs required for each side of the cabin.

A record is kept to make sure that logs of corresponding size are picked for each side of the cabin, in order to bring it to a course level on all sides.

Great care is taken in the cutting of the logs, and they are immediately marked for their position in the cabin. They are then dried, peeled and sanded. The logs for Sunset Lodge were kiln-dried. Peeling must be done with concern to see that enough of the inner bark is left to bring out the natural color and individuality of the logs after they have been scraped and sanded. Economy is achieved by hauling the logs by truck direct from the woods to the site of the cabin.

Next to careful planning come accurate workmanship and good judgment in cutting and trimming the logs.

Rear view of Sunset Lodge showing entrance to garage in basement. Although inexpensive, this cabin is built to last many years and is warm and weathertight.

The logs are hewed out, one to fit tightly over the other on the job before they are hoisted into place. This much is done so skillfully that they very rarely need to be handled more than once. Cutting is done so that no ax marks are visible, either inside or outside the cabin, and the logs fit together tightly. In hewing the logs, crooks and bulges are taken care of so that when they are laid one upon the other, they take on an almost straight appearance, and fit very tightly together along their entire length.

Sunset Lodge is a practical demonstration of the effectiveness of accurate planning and workmanship. Although 47 tons of logs were put into the building, there was less than 2 wheelbarrow loads of waste.

That troublesome factor in cabin building, shrinkage, is taken care of by Wilcox by special nailing joints illustrated above. A 1-inch hole is bored down from the top of the log about two-thirds the depth. Another hole slightly bigger than the spike is bored the rest of the way through the log. The spike is then placed in the hole and driven down into the bottom log. When shrinkage takes place, the logs settle down naturally and are not held apart by the spikes.

Before one log is lowered into place on top of another, a cushion of plastic cement composed of asphalt and asbestos is laid between them. This type of joint, coupled with the careful axmanship, makes a water-tight, air-tight joint that never gives trouble and that keeps the cabin warm. This is of course a very important point.

(Continued to page 58)

G. S. Bartleson demonstrates difference between cheap and quality work with sample sections of floors.

Floor Sanding

Confidence lost by shoddy work; big apartment market opening up; good and bad details explained

By G. S. BARTLESON, Engineer
Metropolitan Floor Surfacing Company, Chicago

CITIES like Chicago, with crowded apartment house districts, offer a huge field in floor maintenance work, and a chance to study materials and methods that will work out equally well in other less congested fields.

At present, Chicago's thousands of apartment buildings are suffering in maintenance care because of pinched finances and unwise, short sighted economies. Many are in a very bad state of repair, and will soon require a large outlay of money to return them to a rentable condition. Many owners and property managers are beginning to realize that they must do something soon—floor surfacing especially.

Apartments are redecorated on an average of at least every two years, and many of them every year. In general, the purpose is either to keep the present tenant, or to entice a new tenant. In showing a redecorated, vacant apartment to a prospective tenant, the floor cannot help but stand out as the largest unbroken area in the place. A marred, grimy or scarred surface disgusts customers. Equally, if it presents a clear smooth sheen, it cannot help but present a powerful appeal. Almost universally renting agents will testify to the drawing ability of a good floor.

It follows then that the floor maintenance problem justifies considerably more attention and a greater share of the expense of redecoration than it has been getting.

A widespread practice in floor maintenance when floors are in fair shape or when the interested parties think they can get by with it, is to scrub up the floor with soap and water and steel wool, and then put one coat of varnish over this surface. This practice may be all right if the cleaned floor presents a firm, clear foundation for the new varnish. But unfortunately stains of all sorts and grimy spots are usually covered over with a protective coating to perpetuate them there for the vexation of the new tenant.

When floors get beyond this first aid, the next move by short sighted economy seekers usually is to remove the old coats of varnish with varnish remover. Here great care and good judgment is called for. Too much remover will often soak down into the wood and "burn" it. Not enough will leave small patches of a thin, tough varnish film which will mar the beauty of the refinished floor. After the old softened varnish has been removed, the floor is thoroughly scrubbed with soap and water. Following this, the floor is treated with a weak solution of oxalic acid and water, and dried up immediately. Extreme care must be exercised not to allow the acid solution to remain on the floor too long. It will be seen that this is an undesirable, messy and laborious job; and consequently must be watched over with care to get even fair results.

The third step in renewing old floors is resurfacing. This entails removing not only the old varnish, but the worn out, stained and often fuzzy surface of the wood. Unfortunately, this step is frequently looked upon as an extreme emergency measure, instead of as a legitimate, beneficial practice which improves the floor. Consequently, it is usually delayed too long, thus requiring a deeper cut than would otherwise be necessary.

What Floor Resurfacing Is

Floor resurfacing, with an electric floor sanding machine, requires as much or more careful execution than the other methods. In the present times of penny-pinching and cut-throat competition, it has fallen upon evil days. Continued slipshod work by careless or unscrupulous contractors has brought "floor sanding" into disrepute and has destroyed confidence and fair prices.

Clients should be made to understand from the first that floor resurfacing is just what the name implies, and

Needs More QUALITY Work

not a substitute or emergency method in place of varnish removing. It not only removes the old varnish, and the worn, acid eaten, sun, water and varnish stained surface of the wood; but in exposing a new layer of fresh, live wood, it smooths down warped boards, takes out grooves and scratches and presents a new clean surface.

Good floor resurfacing, like other worth while improvements, cannot be rushed through, but must be done with care, skill and judgment. The industry has recently had too much slipshod work.

The first step is to remove the old varnish. This requires a heavy, coarse-grained sandpaper with wide spaces between the grains to prevent the paper from filling up with varnish particles. This is usually what is called "No. 4 open coat." For the usual run of old varnished floors that are slightly warped, and have several coats of old grimy varnish on them, it is necessary to start by taking the first "cut" with No. 4 paper across the grain of the wood. This rough paper necessarily tears the grain of the wood and must be used sparingly to prevent damage to the cellular structure. This cut must be followed by another cut with No. 4 paper *with* the grain of the wood. Occasionally, if the floor is quite smooth and if the varnish is not too thick, the first cross cut can be eliminated, but usually this operation is necessary to level off the high edges and make an even cut which is essential for a smooth, finished job.

Do Not "Step Down" Too Fast

The machine operator is allowed some choice in the selection of paper for the second step. Some prefer to use a No. 3 grit which cuts faster than a No. 2½ but which will make an intermediate step necessary if a good smooth finish is desired. Others may prefer to use a No. 2 grit, which will be considerably slower but will leave the floor in a good condition for the finish cut.

A favorite grade for this purpose is a No. 2½ grit close coat paper. If the floor was formerly filled with a good old silica and boiled oil filler, this is a slow cut requiring patience and care for a good job. After the floor has been smoothed down, the low edges cleaned out, and scratches, stains and marks removed, the floor is ready for the finishing operations.

The grade of grit should not be stepped down more than two full grades for successive cuts parallel to the grain of the wood, or not more than one grade for a cut with the grain following a cut across the grain. To exceed these jumps in grade of grit will tend to leave the floor surface with minute corrugations that cannot always be seen with the eye, but which will remain to plague the housewife who wonders why her floors are so hard to clean and why they so quickly begin to lose their luster.

The third step is to finish the new layer of fresh live wood to a polished surface. For ordinary oak and maple floors in residences and apartments, a No. ½ grit sandpaper finish is acceptable. This last operation must be carefully and thoroughly done. It should be noted that the shorter the jump between the finish and its preceding cut, the finer a polish the finishing operation will leave upon the floor. It is also significant that the smoother the finish desired, the more careful the work must be to make the floor look well.

One of the worst abuses of the floor resurfacing industry is to eliminate either the intermediate, second step, or to try to combine the second, cutting, and the third, finishing, step. After the floor has received its second operation, it looks smooth and clear, and to the uninitiated, it might appear to be a finished job. Unscrupulous contractors will leave the floor in this shape when they think it will not be noticed. Others will jump directly from the No. 4 grit cut to a semi-finish cut with No. 1½ paper. In either case, the floor is left in a roughened condition and is not ready for the varnish. Examination will reveal minute fibers sticking up from the surface of the wood. These fibers in the varnish coat will act as wicks absorbing the dirty water when the floor is washed and will catch dirt and grime and cause a patchy, lusterless floor. It is low grade work of this kind that is ruining the floor surfacing business. What is needed more than anything else is *quality* work and quality operators.

After the main part of the floor is properly finished, the floor man has his most troublesome detail to finish: the edges and corners that cannot be reached by the large machine. These can be taken care of successfully with an edging machine or by the laborious task of hand scraping. In either case, the care with which the edges are done will either make or spoil the effect of the entire job, for the blending of this part of the work with the main floor will remain forever to be seen, as it is not covered by rugs or carpets.

There are many other pitfalls in the road to an attractive, serviceable floor. It is, unfortunately, a widespread practice among reputable decorators to use shellac for the first coat, after removing the old varnish, and finish with one coat of "floor and trim" varnish.

Dangers of Shellac

Shellac is brittle, not being able to stand the flexing that the more elastic varnish will take. Heavy furniture which leaves slight impressions in the wood, or constant traffic over uncovered spots, will soon cause the shellac to crack and flake in minute particles, bringing up the varnish with it and destroying the floor finish.

Since a good filler coat requires quite a little more labor and must be left for several hours before continuing with the next coat, shellac is very commonly substituted as the first coat on newly sanded oak floors. It dries quickly, usually in a half an hour at ordinary room temperatures, temporarily sealing the pores of the wood so that the floor does not take an excessive amount of varnish. But the use of shellac is even more objectionable on freshly sanded oak floors than on the older surfaces, for the wood is softer than after it has been treated with filler, and also more absorbent, so that the result will likely be that it will crack up sooner and result in a dirty

(Continued to page 56)

¶ *Next month Mr. Bartleson will describe quality methods of floor surfacing, including a new process that is of especial interest to quality operators.*

New Shrink-Proof Fr
Sagging Floors and Pl

By E. H. KARP
Carpenter and Builder

HAVING been a carpenter, superintendent of construction, general contractor and builder for twenty-four years, I know at first hand the many defects and unsound practices of our present methods of lumber frame construction.

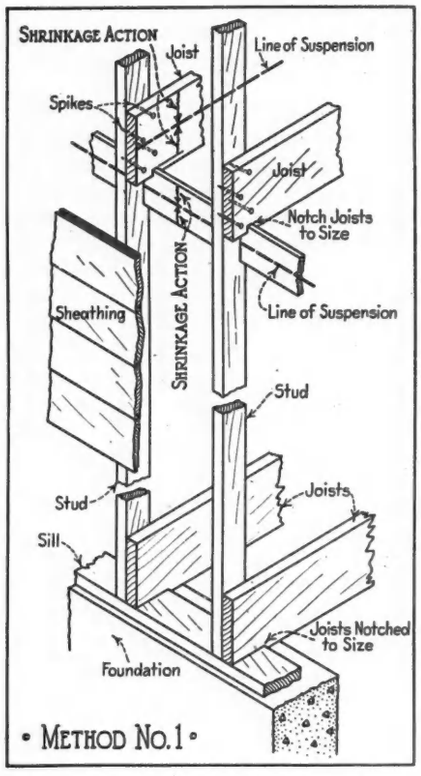
It is certain that lumber, with its minimum cost, inherent insulation and tremendous flexibility is an ideal type of construction material, providing it can be so used and framed as to eliminate or control its outstanding defect, SHRINKAGE.

The more I studied this problem, the more convinced I became of the possibilities of its solution. Although knowing the method of procedure necessary to accomplish the results desired, it took several years of study and of practical tests finally to perfect a practical shrinkage eliminator.

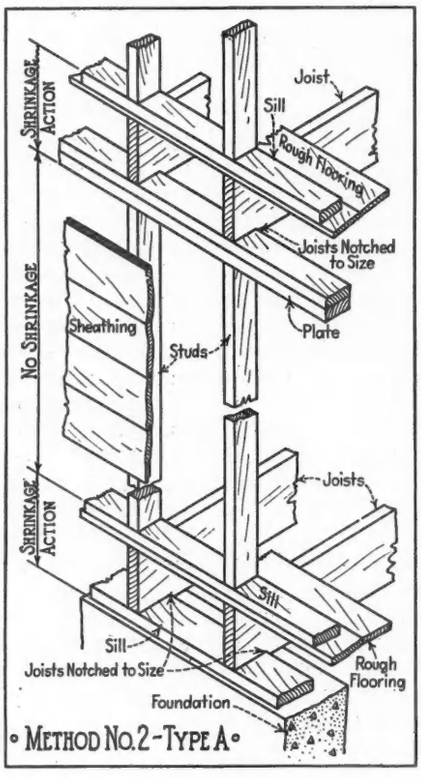
To understand thoroughly the merits of the new system which prevents sagging floors and plaster cracks due to shrinkage I will describe and illustrate the former methods of framing and point out their defects.

Method No. 1, with 2-story through-studs, uses the ribbon type of joist support; it has one decided advantage over methods No. 2, in that it possesses a wind resistance ability and stiffening factor not present in either of the other methods. The only other advantage is that of economy in both labor and material. Its defects are as follows: by cutting and notching the stud to receive the ribbon joist support, we weaken its wind resistance with no means of reinforcing. By nailing the ribbon into the studs, we automatically create suspension along its center line, causing shrinkage to take a two-fold action, namely from top to center and from bottom to center. This identical action takes place by nailing the joist into stud, with the result that our ribbon, instead of being a joist support as originally intended, has simply become a piece of wasted material and labor.

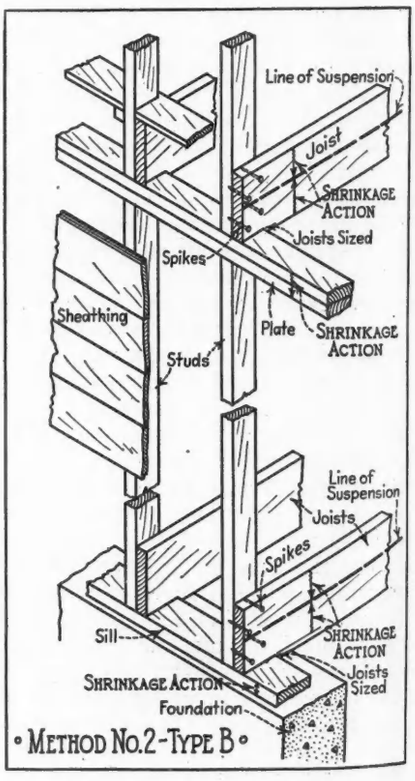
In the case of a cross partition, the tremendous weight placed over and resting upon a single or doubled joist is great enough to overcome the suspension of both joist and ribbon, forcing them to their lowest possible level, and including in its downward movement all the combined shrinkage of both joist and ribbon. Actual observations have shown two joists spaced 16 inches apart with a variation in elevation of more than ¾ inch after a period of two years of shrinkage action and load bearing, one with partition load, the other none. The result of such variation in the short span of 16 inches, upon the plastered and decorated sur-



Common 2-story through-stud framing



Platform framing, 1-story studs.



Better Type of Platform framing

Framing to Avoid Plaster Cracks

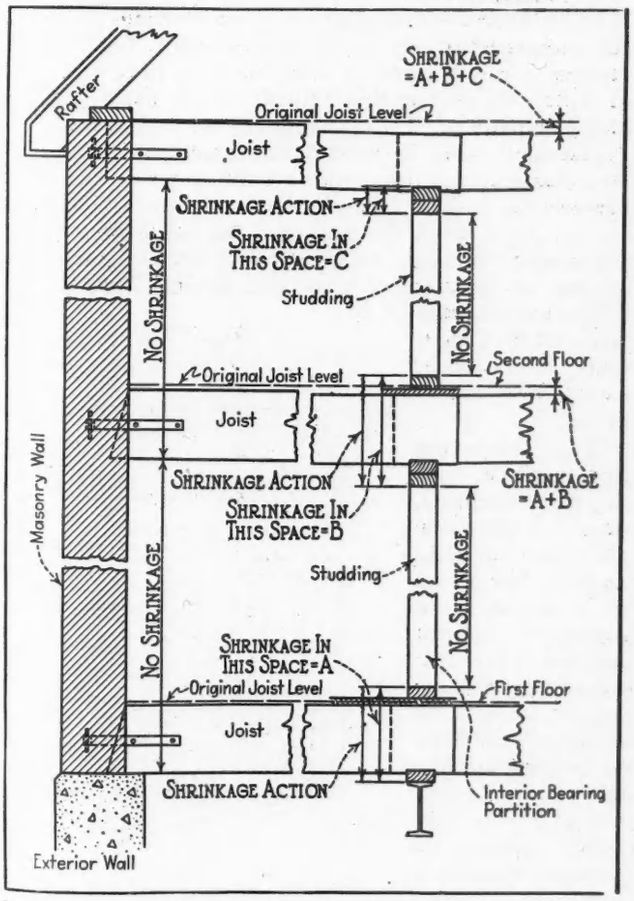
Drawings by the Author

faces, trim, etc., can be readily seen and appreciated.

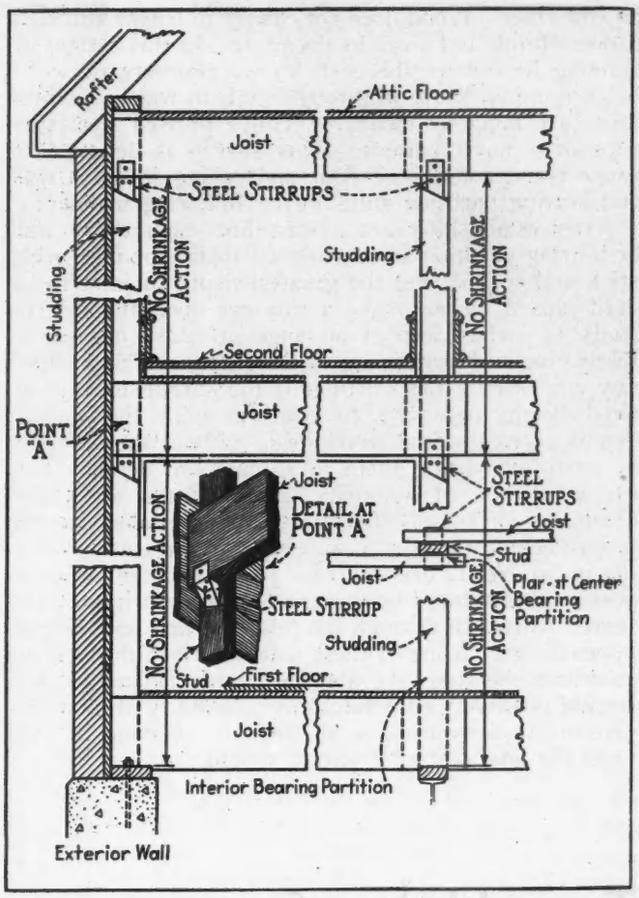
Methods No. 2, platform framing with 1-story studs, have one redeeming feature. Although they permit a tremendous amount of shrinkage action, if used throughout the entire structure, it is at least uniform. However, it is a poorer type of framing from the standpoint of wind resistance, in addition to being the most costly in both material and labor.

Method No. 2, Type A, shows a shrinkage action of horizontal lumber of not less than 15 inches in depth supporting a floor load of one or more stories above. This is by far the poorest type of framing used. Imagine the effects upon plaster, decorations, doors, windows and trim with the tremendous movement twice yearly due to shrinkage and expansion of all this horizontal lumber, since it is the sole means of supporting all the loads above, including the roof in many cases.

Method No. 2, Type B, is the best but least used of present methods of construction framing due to its cost factor; but it still has one major defect in its lack of wind resistance at the ceiling line of each and every story. In most cases of this type of framing, the joists



Sagging floors result when joist ends rest on masonry while inside bearings are of side-grain wood.



In this new shrinkless method of framing 2-story studs are used and joists are supported by adjustable steel stirrups.

are spiked to the side of each stud, thereby creating the old defect of joist suspension and voiding the structural purpose of the plate support in every case of non-load bearing joist.

The jerry contractor or builder of the past omitted and most probably would not concede the positive necessity of uniformly sizing all joists used in any of these methods of lumber framing; but every contractor, builder, architect, engineer or mechanic familiar with and accustomed to good construction will positively agree to its necessity.

A widely used method of lumber framing, because of economy in both labor and material, is a combination of Method No. 1 at exterior walls and Method No. 2, Type A, at interior bearing walls. Another such combination widely used is a masonry exterior wall and Method No. 2, Type A, at the interior bearing walls. Picture the results of such combinations with a suspended joist at one end and the other end of that same joist subject to the downward movement of horizontal load bearing lumber 15 inches deep!

The average home owner is invariably convinced that the breaking of plaster, ruined decorations, sticking doors and windows and the opening of wood work joints, etc., were due to a faulty foundation, when in reality 90 per cent or more of such destructive action is due to lumber shrinkage and unbalanced load bearing abilities at all points of floor and wall contact. It is absolutely impossible to combine any of these former methods and produce equalized bearing and shrinkage action.

A new method of framing has been worked out by a Chicago builder, which avoids all unequal shrinkage action. No side-grain load bearing timbers are used; all members are arranged and connected so as to rest

on end-grain. Wood does not change in *length* although it does shrink and swell in *thickness.* In this system of framing he utilizes this well known property of wood by carrying all loads on through-studs to which the floor joists are hung by means of simple pressed steel stirrups of a novel pattern. This stirrup is designed to support and connect all floor and ceiling joists to wall and bearing partition studs in the following manner:

After establishing a top joist line upon every wall or bearing partition stud, using a template or measuring stick and considering the greatest depth of joist to be used plus 3 inches, make a saw cut upon the side of studs ⅜ inches deep at an angle of 22½ degrees to receive inclined bearing leg of the stirrup. This inclined saw cut permits the shifting of the stirrup to any desired height necessary to conform with the various depths of commercial wood joists without the necessity of uniformly sizing them to a minimum depth. This simple method of automatically sizing the joists also eliminates all but one handling. After establishing the proper height, the stirrup is secured to the stud by driving in two No. 12 drive screws. Joists are then placed in position and secured by means of three rivet headed and burred nails, two through the joist seat and one through upper flange. None of these nails is driven through the joist into the stud; the absence of any nailing of joist to stud positively eliminates any possibility of joist suspension, thus assuring at all times the bearing of joist upon the joist seat and bearing shoulder.

Elimination or control of lumber shrinkage, so far as structural effect is concerned, has thus been accomplished because all wall and bearing partition studs rest upon a base of masonry, concrete or steel and have a shrinkage of zero from end to end. The complete elimination of all ribbon and plate type of joist supports, with their resultant shrinkage, establishes at the joist bearing points a positive zero shrinkage action.

In this system of framing, the floor and ceiling joist are the only members subject to shrinkage action, and this is controlled as follows:

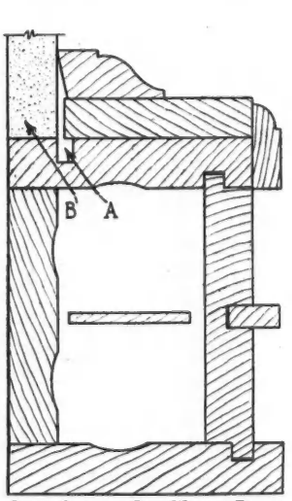
The absence of nailing of joist to stud eliminates joist suspension and assures a complete absence of movement at the point of contact between walls and ceilings. Any shrinkage action of floor and ceiling joists takes effect at the top. This shrinkage action being present only at the top of joist has no further effect than merely raising or lowering the base shoe along the surface of the base member if the base is nailed to the wall or partition studs and the base shoe is nailed to the floor surface only.

This steel stirrup system of framing has proved its merit in actual use, showing a saving in labor and material sufficiently large to cover the cost of the stirrups and pay a premium besides, to say nothing of the constant savings year after year in cost of repairs, redecorations, adjustments of doors and windows, etc., which have been an unwelcome but ever present associate of lumber framing. Depreciation, a most costly companion of customary lumber framing, has been reduced to a minimum.

Two Helps For Better Millwork

By W. E. GRIFFEE
Engineer, Forest Products Laboratory

SETTING GROUNDS FOR PLASTERED REVEALS:—In school and hospital buildings which have 17-inch brick walls, the trim is often nailed directly to the box window frame and the inside 6 or 7 inches of the reveal plastered as shown in Figure I. The angle where the reveal meets the inner surface of the wall may be trimmed with another casing or merely returned with a metal corner bead.



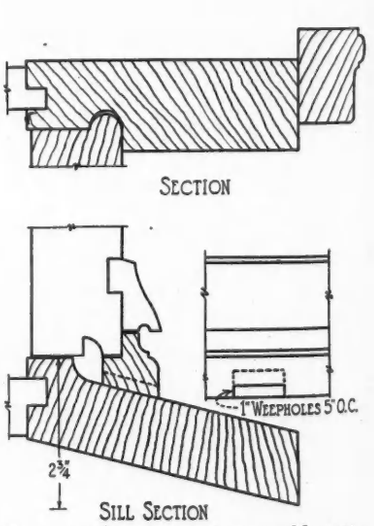
JAMB SECTION BOX WINDOW FRAME

FIGURE 1

Ordinarily grounds (B in Figure I) for the plastered reveals are nailed to the inside casings after the frames have been set in place. A groove run at the point A in the inside casing is practically as easy to plaster to as a ground strip would be. The groove, because it is made by machinery at the mill, is more accurately located than a strip could be. The saving amounts to practically the entire cost of setting grounds, and so is well worth while on the larger jobs using plastered reveals.

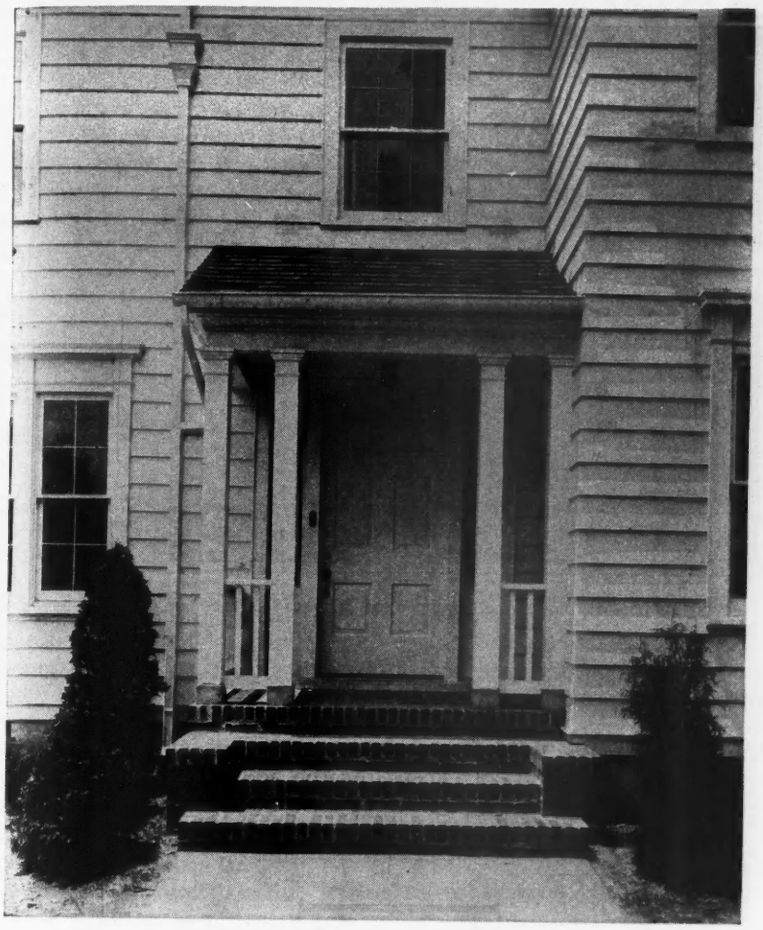
WATERPROOF INSWINGING CASEMENT WINDOWS:—Inswinging casements having the usual sill construction are fairly weatherproof, but a hard driving rain will work in over the sill a little on many of them. To correct this difficulty the Gravois Planing Mill Company of St. Louis supplies for high class work a casement made as shown in Figure 2. This construction makes it impossible for the water to splash up between the sash and the sill, the little water which finds its way in between the sash and the moulding quickly draining out through the weepholes. Six or seven years of use in many residences and several severe tests with water from a hose have shown that these casements are waterproof.

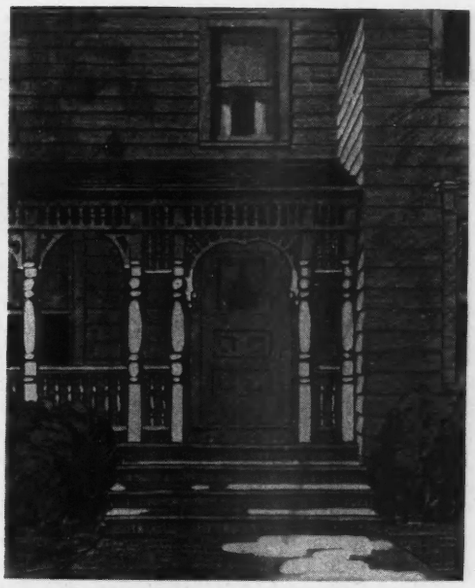
This construction, because it is more enclosed, does not allow the sill to dry out quite as fast after a rain as it would in an ordinary casement window. For this reason careful selection should be made of the stock to be used for the sill and extra moulding. The jamb construction shown is a common one, and satisfactory in every way.



SILL SECTION
WATERPROOF INSWINGING CASEMENT WINDOW

FIGURE 2

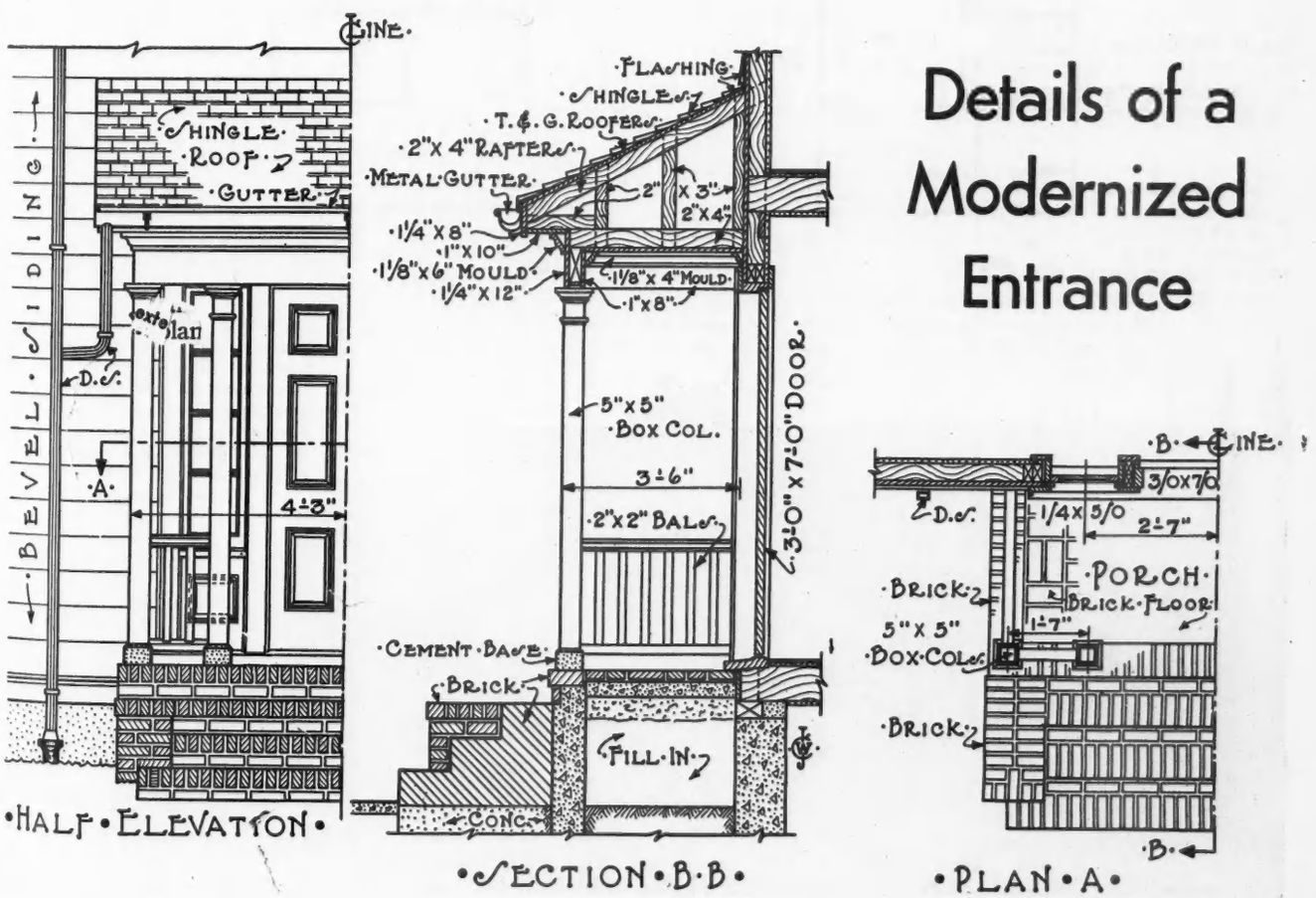




OLD FASHIONED—there are hundreds of houses with porches that look like the above in almost every town. They offer a big market for painting and repair work which will transform them as detailed below. Promotion of this work will pay.

MODERN PORCH—the porch shown at left is well constructed and attractive in Colonial style. The brick steps are pleasing and permanent. The detail drawings below indicate sound, up to date construction methods. Predictions are that modernizing work of this type will form a large part of 1933 building volume.

Details of a Modernized Entrance



Modernized Economically

A typical type of old house which offers chance for economical remodeling

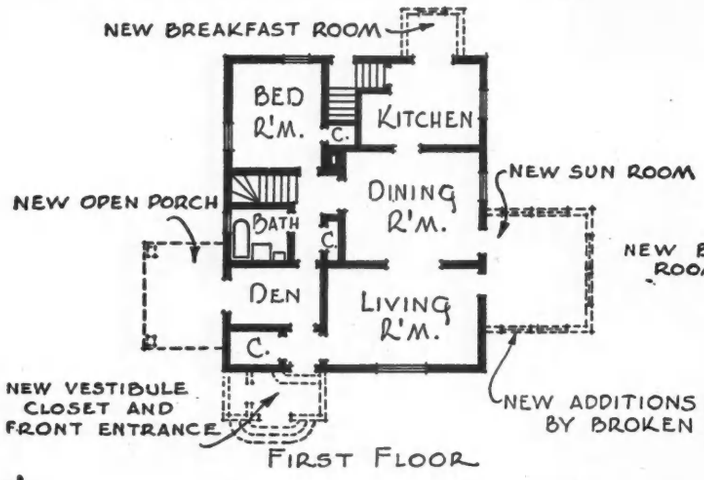
PREDICTIONS for 1933 construction indicate that economical repairs and improvements will play an important part on the builder's volume of work. In promoting business, contractors report, they find the most successful selling approach is "let me help you *save* money by doing this economical repair work now."

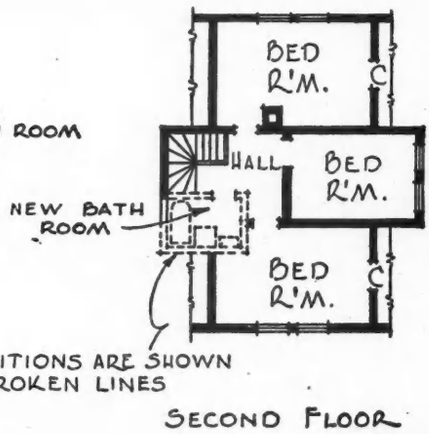
Two examples are given, on this and the opposite page, of economical modernizing. Alteration details were drawn by the modernizing department of the National Plan Service.

The alteration suggestions for the house above illustrate a point about partitions.

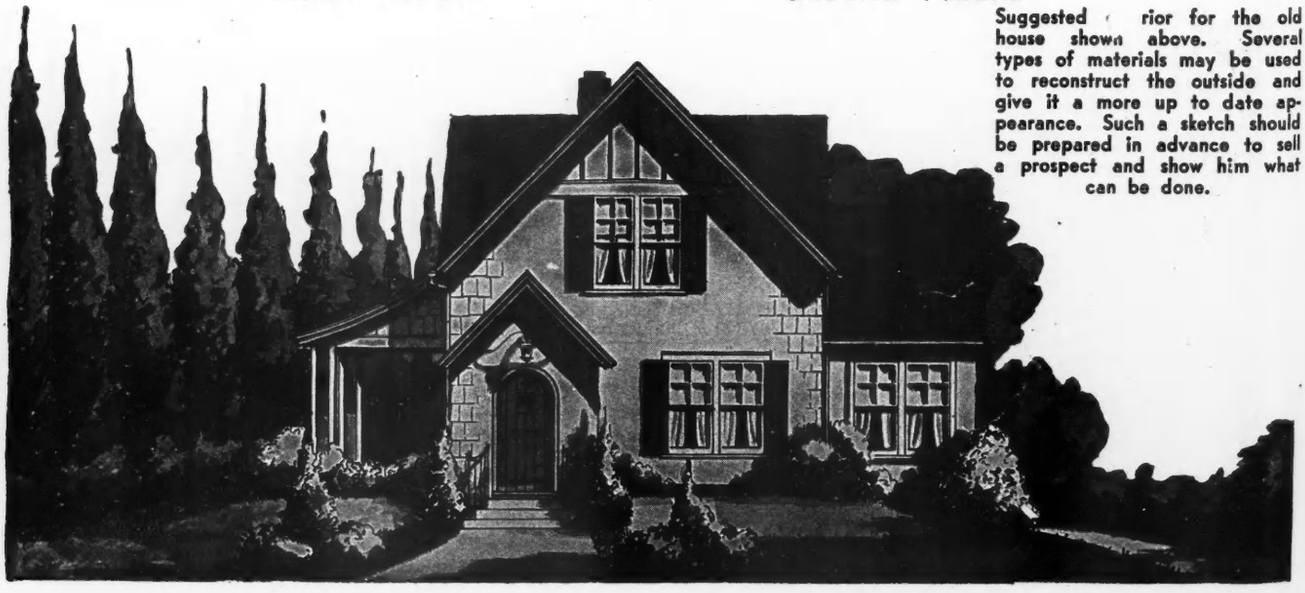
It does not always pay, nor is it advisable in many instances, to tear out the partitions of an old house. In most cases the rooms are laid out to very good advantage. The old house proper usually lends itself as a unit to which various additions may be added and the style of home changed to conform to almost any of the pure types of architecture.

As an example, you will note the convenient layout of the floor plans of the old house which were not changed at all except for the addition of a bathroom. Note the additions which have been built and the inex-

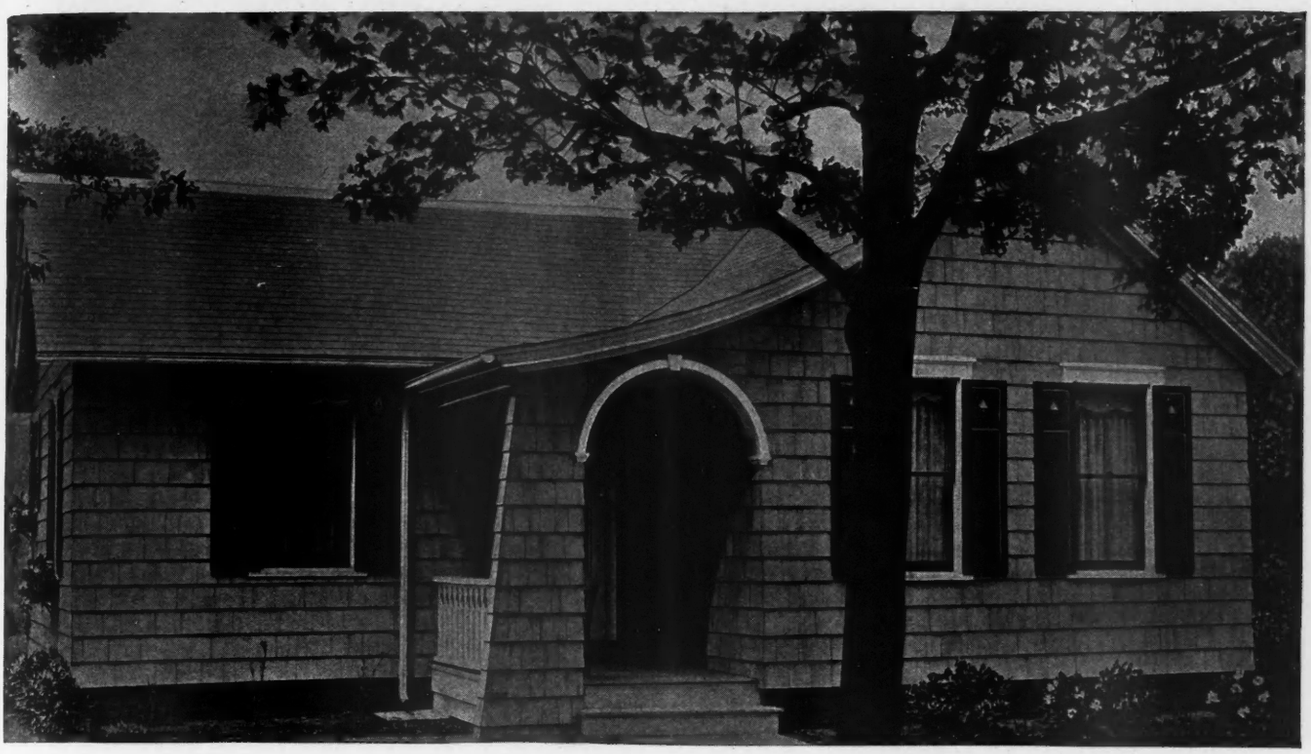




The floor plans of this old house did not need extensive changes. But what work is called for makes an important change in the appearance and comfort of the structure.



Suggested ... rior for the old house shown above. Several types of materials may be used to reconstruct the outside and give it a more up to date appearance. Such a sketch should be prepared in advance to sell a prospect and show him what can be done.



pensive changes made on the exterior to bring the house into modern design.

The illustrations on this page show what was actually accomplished to bring an old cottage up to date. It required the following simple operations:

No. 1—Building the new porch.

No. 2—Bringing down the front gable roof to sweep over the new porch.

No. 3—Relocating the front door as shown.

No. 4—Covering the outside walls with stained shingles.

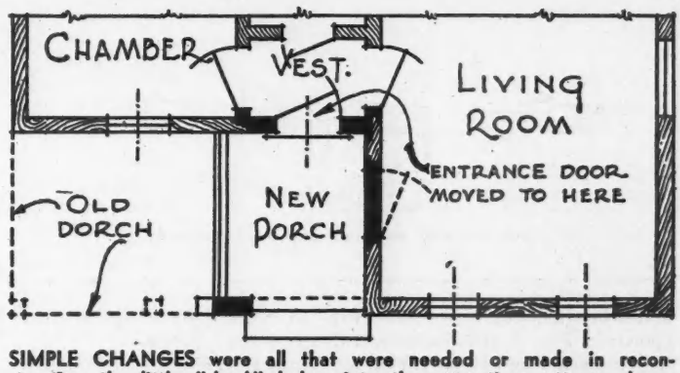
No. 5—Painting all outside woodwork except shingles.

This old house can now take its place among those of modern design. Old homes usually have certain lines and angles which are easily adapted to modernizing; therefore, economically, it is desirable to retain those original lines. Careful architectural planning and study should precede every modernizing job. With completely worked out plans to follow, much uncertainty is eliminated and a thoroughly economical and satisfactory job can be delivered.

Several factors enter into conditions today to make modernizing and repair work important. The neglect of recent years has been building up a growing need that owners cannot safely neglect. Builders are therefore getting a hearing where formerly they were not given a chance.

The program being used by many is to first select certain local areas where houses are most run down, or whose occupants have been least hit by wage reductions or layoffs. Pick houses that are obviously in need of repairs. Find out the needs of the occupant and have plans prepared showing how the structure may be improved. Such sketches are inexpensive, and they are of very great help in enabling the occupant to visualize the proposed changes.

The strongest argument, as has been said, is



SIMPLE CHANGES were all that were needed or made in reconstructing the little "shack" below into the attractive cottage above. The sketch shows how easy these changes were. The stained shingles transformed the outside.

the economy to the owner through performing needed and worthwhile changes now. It can be explained that not only have prices of materials and labor come down, but new products have been developed which aid modernizing.

NEEDED FIXING—this is what the neat cottage at top of page looked like before modernizing. The changes made were low in cost, but the effect on the value and comfort of the house was great.

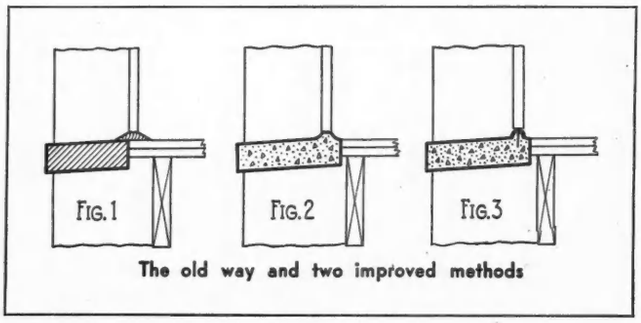
PRACTICAL JOB POINTERS

A readers' exchange of tested ideas and methods, taken from their own building experience. Two dollars will be paid for each contribution published.

Rot-proof Thresholds

IN the August issue I found described a method of fitting thresholds which I have used for more than forty years. This suggests that some other ideas I have about thresholds may be worth while.

Fig. 1 shows the usual way of placing a threshold over a stone door-sill. It is impossible to keep the water from penetrating under the outer edge, causing curling and rotting, and frequent renewals are necessary. In this part of the country, cement sills formed in place have largely superseded the dressed stone,



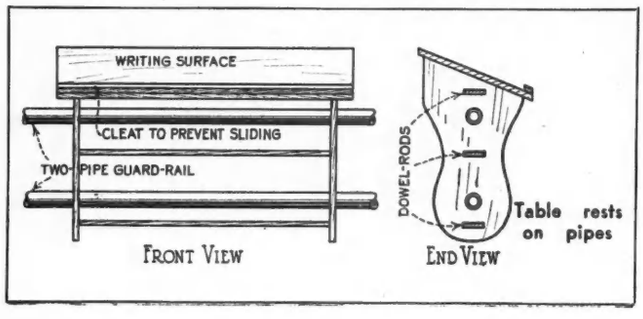
The old way and two improved methods

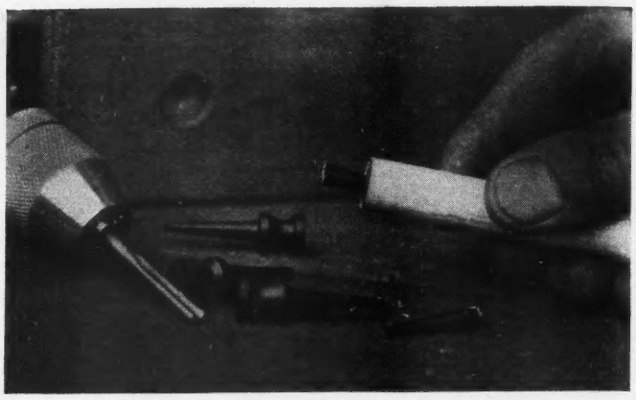
and when molding these, it is easy to make them of the shape shown in Fig. 2, and dispense with the wood entirely.

Some years ago I had left on my hands a number of galvanized corner beads with anchors on the back, intended for the edges of concrete steps. As they had 1" radius, I found them too cumbersome for this purpose. Set in as shown in Fig. 3, they make an excellent metal wearing surface for a threshold, especially suitable for garage doors.—J. A. HAUGHEY, Burlington, Colo.

Pipes Support Chart-Table

THE switchboard in an industrial plant in our city is studded with a maze of panel metres—clock-dial affairs. Readings of these metres at frequent intervals must be recorded on charts. A table which I devised (and picture herewith) is the ultimate in convenience as one can see, since being built upon (and around) the guard-rails, it is simplicity itself to slide the table directly in front of each successive metre, preventing confusion




Golf tees make hard, smooth wedges useful for building purposes.

and permitting more accurate readings all along the line. Dimensions and choice of material are optional, of course, and it may prove useful in many other types of places.—BERT W. CULBERTSON, Jackson, Miss.

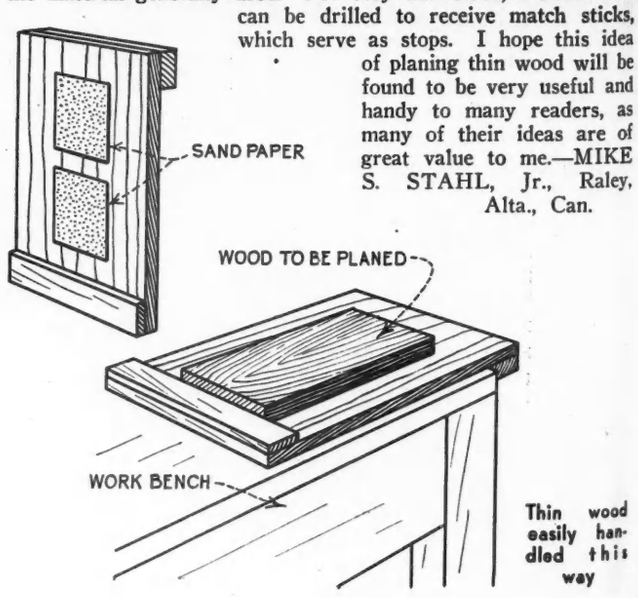
Golf Tee Wedges

SMALL round pieces of wood are generally fitted and expanded into holes by means of a small whittled wedge which enlarges the end of the piece as it touches the bottom and the round piece driven over it. Such wedges, particularly with light brittle stuff, often crack it and do not allow the piece to sit straight. Get a package of inexpensive golf ball tees of the type shown above with the tapered ends or points. A small hole can be drilled into the end of the round piece, an end cut to suit from one of the tees, placed in the hole and driven in. It expands the end evenly, is not so liable to split or crack, and affords a straight, even job. Can be quickly and easily cut to any sized stick and small hole. A packet of them will do a good many jobs of this kind.—FRANK W. BENTLEY, Jr., Missouri Valley, Ia.

A Help in Planing Thin Wood

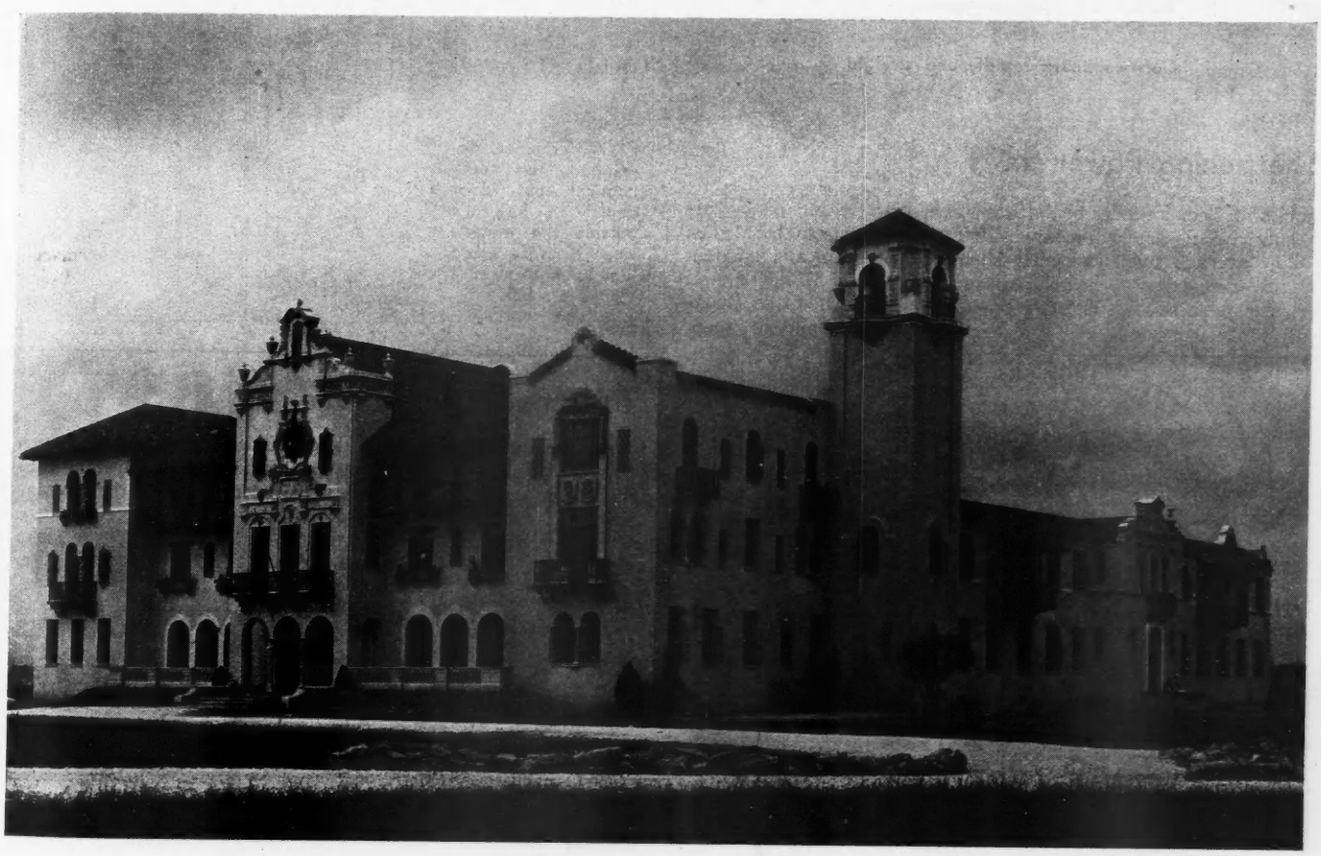
PLANING thin wood is quite difficult to do without injuring it. When the ordinary bench stops are unsatisfactory for the purpose, a false bench stop with a cleat at each end on opposite sides, and sandpaper glued to one side as clearly shown in my sketch, will be found to be convenient.

The sandpaper holds thin work that is not as wide as the cleats. The cleats of course should be a trifle narrower than the material generally used. For very thin stock, a small hole can be drilled to receive match sticks, which serve as stops. I hope this idea of planing thin wood will be found to be very useful and handy to many readers, as many of their ideas are of great value to me.—MIKE S. STAHL, Jr., Raley, Alta., Can.



Thin wood easily handled this way

FOR LIGHT-OCCUPANCY STRUCTURES USE KALMANTRUSS JOISTS



MADONNA MANOR, MARRERO, LA.
Architects: Diboll & Owen, Ltd., New Orleans, La. Contractor: Lionel F. Favret, New Orleans, La.

MADONNA MANOR is an interesting example of the adaptability of Kalmantruss Steel Joists to special types of construction. It is one of many varied types of light-occupancy structures erected in all parts of the country in which Kalmantruss Steel Joists have been used throughout.

Apartment and office buildings, institutional structures, and even private dwellings offer advantageous opportunities for the use of Kalmantruss Joists in constructing the floors. These joists are extensively used by contractors and builders. They provide a standardized method of constructing light, strong, rigid and fire-resisting floors which meet every demand of modern design. At the same time, lower costs are made possible by the ease and speed of erection and the elimination of expensive form work.

Kalmantruss floor construction consists of a combination of Kalmantruss Steel Joists, Kalman Rigid Bridging, Kalman Metal Lath, and the necessary anchors and clips. This same combination is used for roof construction.

KALMAN STEEL CORPORATION
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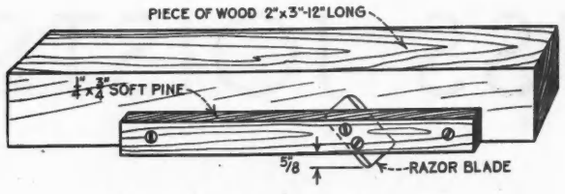
Tool for Cutting Wall Board

THE enclosed sketch shows a tool I have used a lot for cutting insulating boards such as Masonite, Celotex, Insulite, Firtex and so forth, as well as light wall boards. The tool is pushed along the line to be cut, like a plane, and makes a clean straight cut. It is much faster than sawing and doesn't leave a ragged edge as a saw does. I recently trimmed one end and one side of 75 sheets of Masonite 4' x 10' with a single blade.—J. O. STRADLING, Mesa, Ariz.

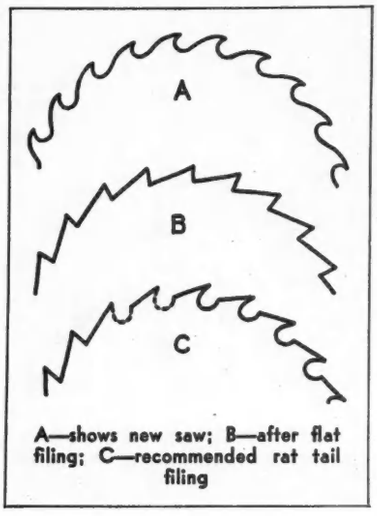


Cuts wallboard rapidly and straight

Sharpening Power Saws

I HAVE been a reader of the AMERICAN BUILDER for many years but have never written any "Pointers" before, so here goes.

The average small carpenter shop, cabinet shop, and amateur woodworker today uses a lot of small 6, 8, and 10-inch power circular table saws. These, when used a lot, have to be sharpened and put in shape quite often.



A—shows new saw; B—after flat filing; C—recommended rat tail filing

Most of them are hand filed with a flat file and it isn't very long before the teeth have a low, flat look to them, as in B, and the cutting hook of the original teeth when the saw was new, as in A, is gone.

A very good way to fix them is to get a small, round rat tail file that will fit the teeth and file out the notches, as in C. They can then be retouched up a little with a flat file afterwards.

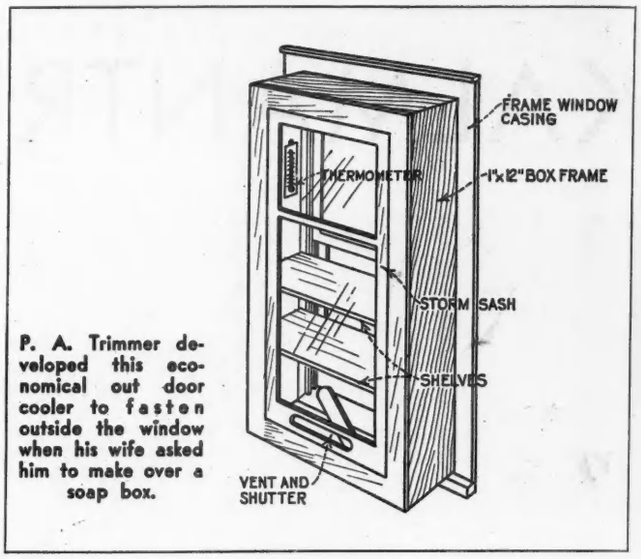
The results will be very pleasing to the saw user and he will find the saw cuts faster and better, and will not have to be sent back to the factory to be gummed out, and tie up the use of the saw.—C. C. AMES, Mayville, N. Dak.

Self-Lifting Shore

HERE is a very practical idea that we have used many times in our work. It is a carpenters' jack or self-lifting shore. This device can be made of scrap pieces and is remarkably effective and quick-acting. It beats wedging where pounding is objectionable.—F. M. HAMLIN, Lake Villa, Ill.

Winter Window Cooler

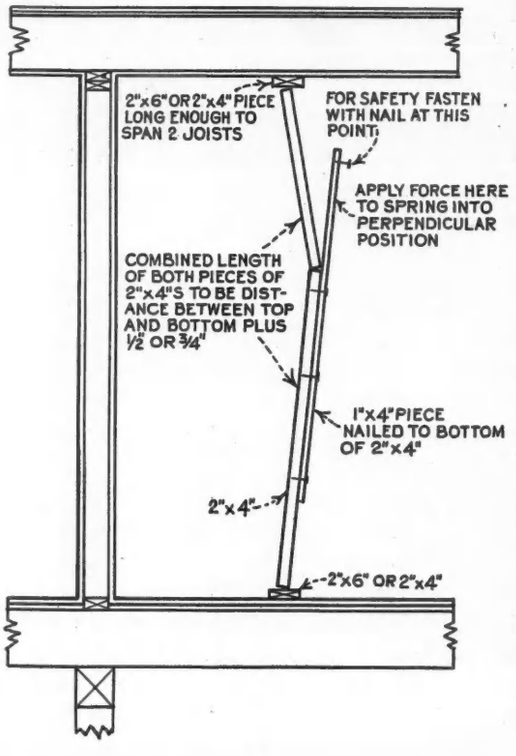
MY wife brought home a soap box for me to nail up on the the outside of pantry window for outside icing. Feeling a little ashamed, I made the box shown in attached sketch. Meat and other perishables can be reached by raising inside window. Temperature can also be regulated by raising or lowering the window inside. I made the box removable by hooking it to the window frame. Hang a cheap thermometer inside.—PETE A. TIMMER, Villa Park, Ill.

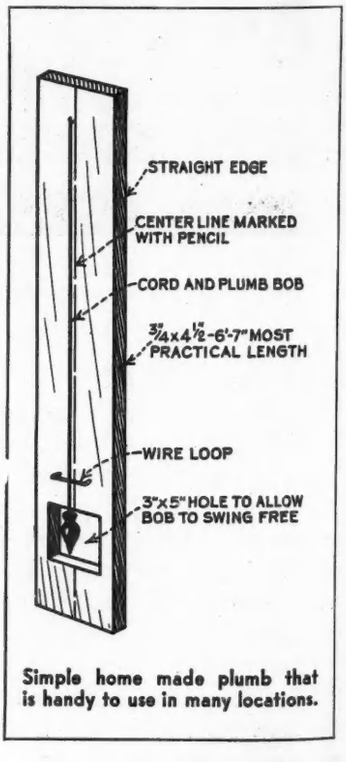


P. A. Trimmer developed this economical out door cooler to fasten outside the window when his wife asked him to make over a soap box.

Homemade Plumb Rule

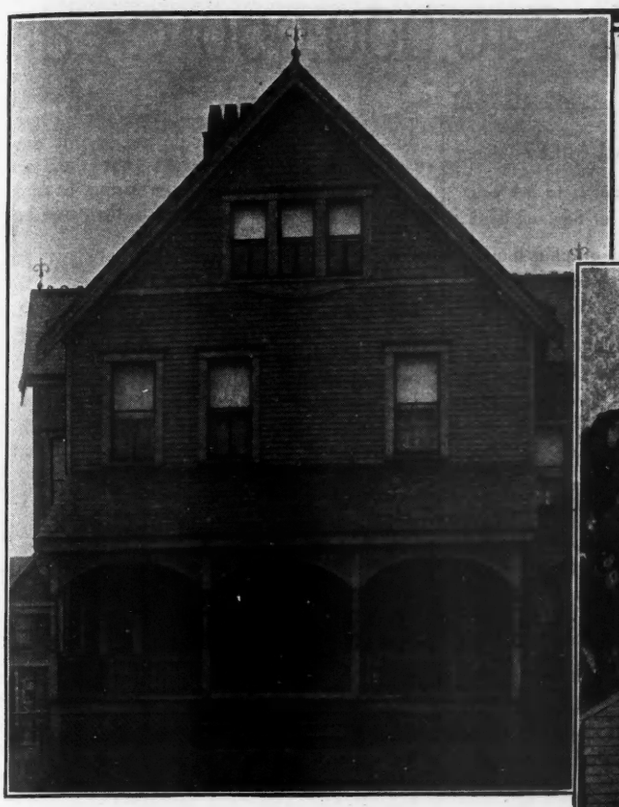
I AM enclosing a sketch and description of a plumb rule, which comes in handy for plumbing door bucks, window frames, wall furring, framing, etc. This is more accurate than the average spirit level and straight edge, and with a little practice it can be used just as rapidly. As my drawing shows, it is simple to make and very inexpensive.—STANLEY G. GREENE, Norfolk, Va.



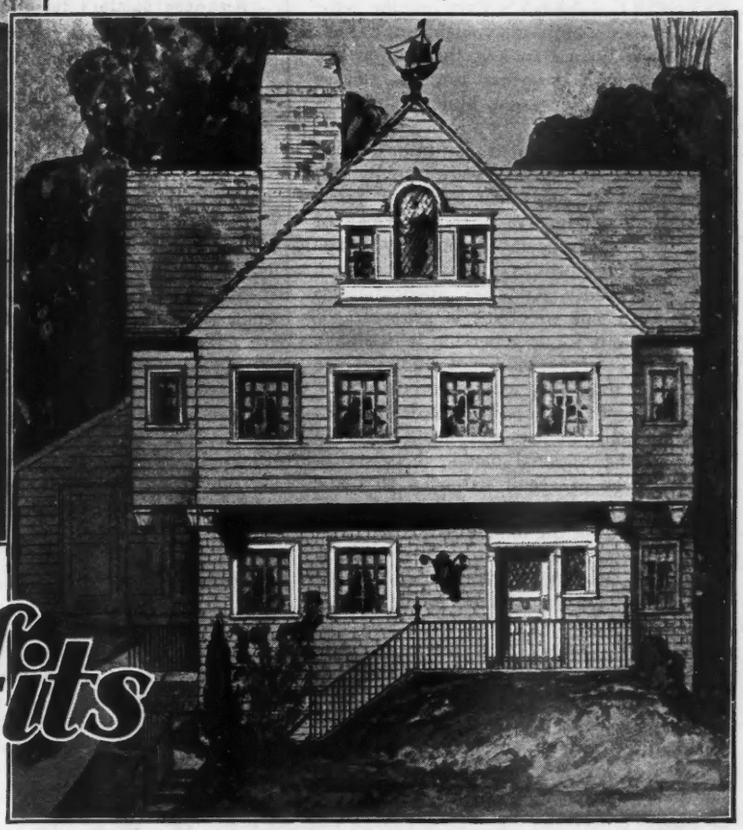


Simple home made plumb that is handy to use in many locations.

At left is self lifting jack or shore that saves much work.



Note the wonderful transformation which is indicated by comparing the photograph of the old house with sketch of the same structure after restyling and modernizing with Careystone Normandy Brick Siding and Careystone Colonial Clapboards.



Create *New Profits from Old* Houses!

Don't let the procession pass by while you wait for new building to pick up! Make profits *now* by restyling and modernizing old homes with Careystone Colonial Clapboards, Normandy Brick Siding or Cape Cod Shingles. Made of asbestos and cement, permanent, colorful and fireproof, Careystone Units are a splendid investment for home owners, because they eliminate painting expense.

We *know* there is modernizing business available in most communities, because we have sold Careystone Units for a large amount of such work in the past 2 years. We can help progressive builders and dealers secure this business by a definite plan which gets results. Insure your share of the 1933 profits which will be made on Careystone modernizing—write today for full details.

THE PHILIP CAREY COMPANY • *Lockland,* Cincinnati, Ohio

Branches in Principal Cities

BUILT-UP ROOFS
ASPHALT PRODUCTS
ELASTITE EXPANSION JOINT
WATERPROOFINGS
ROOF PAINTS

Carey PRODUCTS

HEAT INSULATIONS
ASBESTOS MATERIALS
CORRUGATED ASBESTOS SIDING
ASFALTSLATE SHINGLES
ROLL ROOFINGS

Home Loan Bank Extends $40,000,000 Credit

Loans Being Made. First List of Active Members Given In This Issue

DESPITE DELAYS that for the most part have been unavoidable, the Federal Home Loan Banks of the country are making definite progress towards release of large sums for home building and repairs.

Lines of credit granted institutions which have joined the system were rapidly approaching the $40,000,000 mark on January 17th, Franklin W. Fort, Chairman of the Board, announced. In one day 42 applications for membership in the system were approved. As each application is approved, a line of credit is granted.

Applications for membership which have reached the Board in completed form are now more than 400, with more than $60,000,000 worth of credit asked. Actual loans to home owners are being made in seven of the regional banks, it is stated.

With lines of credit extended to home financing institutions of the Indianapolis Bank exceeding the bank's $8,000,000 capitalization and other lines being constantly granted in the other districts it may be necessary to raise additional funds through the sale of bonds at no very distant date, according to Mr. Fort. Interest rate will probably be uniform on bonds that are issued simultaneously, but some of the banks may issue them at one time and others three, five or six months later.

Lines of credit extended to institutions in the Little Rock, Ark., bank exceed $5,000,000; those in the Indianapolis Bank and the Evanston Bank each exceed $3,000,000; the Winston-Salem Bank has granted a line of credit amounting to a little less than $2,000,000; the Des Moines Bank a little over $1,500,000; the Pittsburgh Bank $1,300,000; the Newark Bank $600,000, and the Los Angeles Bank $100,000.

Believing that its readers would want to know names of institutions in their districts that have joined the Home Loan Bank and are therefore presumably in a position to make loans, AMERICAN BUILDER addressed telegrams to each of the Regional Banks asking for its list of members. The following replies were received:

DISTRICT No. 1—CAMBRIDGE, MASS.—"Because of need of enabling legislation in the several New England states we are unable to comply with your request for list of subscribing members. We have to date 49 conditional applications for membership."

DISTRICT No. 2—NEWARK, N. J.—"While it is our desire to render every reasonable co-operation—it is not our policy to furnish names of member institutions. . . ."—G. L. Bliss.

DISTRICT No. 3—PITTSBURGH, PA.—"—there exists a difference of opinion as to whether it would be advisable to publish such a list at present. We will advise you . . ."—W. F. Bell.

DISTRICT No. 4—WINSTON-SALEM, S. C.—"We are enclosing herewith list of institutions whose applications for membership have been approved, as of this date (Jan. 23).

"Approximately 135 additional institutions have made application for membership. However, we are including only those which, after careful examination, have definitely been approved and which may now call themselves members of the Federal Home Loan Bank of Winston-Salem."—Karl B. Hancock.

MONEY AVAILABLE?

The only way to find out is to ask your nearest Building & Loan or Savings bank.

American Builder's telegraphic inquiry shows that many have joined. Credit is being advanced, a few loans made.

Organizing a great national home bank is necessarily a slow task. But progress is being made. Loans should soon be available for sound home building and repair work.

Members—Winston-Salem Bank

Eastern Bldg. and Loan Assn., Washington, D. C.; Brookland Bldg. Assn., Washington, D. C.; Occident Perpetual Bldg. and Loan Assn., Baltimore, Md.; Midland Bldg. and Loan Assn., Cumberland, Md.; Piedmont-Mutual Bldg. and Loan Assn., Winston-Salem, N. C.; Lynchburg Mutual Bldg. and Loan Assn., Lynchburg, Va.

First Mutual Bldg. and Loan Assn., Atlanta, Ga.; Wake Forest Bldg. and Loan Assn., Wake Forest, N. C.; District Bldg. and Loan Assn., Washington, D. C.; Va. State Bldg. and Loan Assn., Inc., Charlottesville, Va.; American Bldg. Assn., Washington, D. C.; Commerce Bldg. and Loan Assn., Commerce, Ga.

Clyde Bldg. and Loan Assn., Clyde, N. C.; Home Bldg. and Loan Assn., Durham, N. C.; Sanford Bldg. and Loan Assn., Sanford, N. C.; Roanoke Mutual Bldg. and Loan Assn., Roanoke, Va.; Washington Permanent Bldg. Assn., Washington, D. C.; Cooperative Bldg. and Loan Assn., Lynchburg, Va.; Standard Bldg. and Loan Assn., Columbia, S. C.

Fayetteville Bldg. and Loan Assn., Fayetteville, N. C.; Home Bldg. and Loan Assn., Atlanta, Ga.; Citizens Bldg. and Loan Assn., Rome, Ga.; Carolina Bldg. and Loan Assn., Wilmington, N. C.; Southwest Va. Bldg. and Loan Assn., Roanoke, Va.; Mocksville Bldg. and Loan Assn., Mocksville, N. C.

Gate City Bldg. and Loan Assn., Greensboro, N. C.; Oxford Bldg. and Loan Assn., Oxford, N. C.; Raleigh Bldg. and Loan Assn., Raleigh, N. C.; Mutual Bldg. and Loan Assn., Burlington, N. C.; Columbia Permanent Bldg. and Loan Assn., Washington, D. C.

DISTRICT No. 5—CINCINNATI, O.—"The Board of Directors has taken the stand that inasmuch as there are several of our associations that do not at this time care to publicize the fact that they are members, all information pertaining to same will be withheld, at least for the time being."—John M. Wyman.

DISTRICT No. 6—INDIANAPOLIS, IND.—"Associations that were accepted into membership before December 31 are in attached statement.

"The work of accepting members has been speeded up since, and the present list is three or four times the number in the statement; yet, we have no authority from them to use their names publicly."—Frank B. McKibbin.

Members—Indianapolis Bank

Anderson Loan Assn., Anderson, Ind.; Muncie-People's Savings and Loan Assn., Muncie, Ind.; Valparaiso Bldg. Loan-Fund and Savings Assn., Valparaiso, Ind.; Home Bldg. and Loan Assn., Washington, Ind.

East Lansing Bldg. and Loan Assn., East Lansing, Mich.; Union Bldg. and Loan Assn., Ltd., Lansing, Mich.; People's Bldg. and Loan Assn., Saginaw, Mich.; Saginaw Bldg. and Loan Assn., Saginaw, Mich.; Calhoun Savings and Loan Assn., Battle Creek, Mich.

DISTRICT No. 7 — EVANSTON, ILL.—A complete list of the 39 members as of Jan. 24 was immediately provided.

Members—Evanston Bank

Chicago

Austin Bldg. and Loan Assn.; Bell Savings Bldg. and Loan Assn.; First Croatian Bldg. and Loan Assn.; Holland Bldg. and Loan Assn.; Homan Bldg. and Loan Assn; Kedzie Bldg. and Loan Assn.; Lawn Manor Bldg. and Loan Assn.; Narodni Bldg. and Loan Assn.; St. Paul Bldg. and Loan Assn.; Brookfield Bldg. and Loan Assn.; Lombard Bldg. and Loan Assn.; Rainbow Bldg. and Loan Assn.

Additional members as of Feb. 1, are: Ben Franklin Bldg. and Loan Assn.; General Sowinski Bldg. and Loan Assn.; Parkside Bldg. and Loan Assn.; A. J. Smith, Home Bldg. Assn.; Almira Bldg. and Loan Assn.

Illinois (outside Chicago)

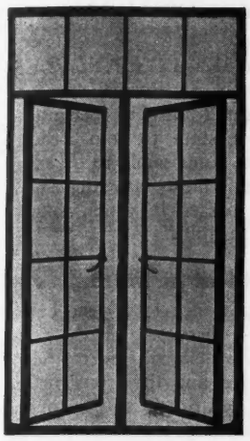
Quincy Peoples Bldg. and Loan Assn., Quincy; Flora Mutual Bldg. Loan and Homestead Assn., Flora; Citizens Bldg. and Loan Assn., Chicago Heights; DeKalb Bldg. and Loan Assn., DeKalb; Sycamore Bldg. and Loan Assn., Sycamore; Union Bldg. and Loan Assn., Kewanee; Kankakee Bldg. and Loan Assn., Kankakee; Libertyville Bldg. and Loan Assn., Libertyville.

North Shore Bldg. and Loan Assn., North Chicago; Waukegan Bldg. and Loan Assn., Waukegan; Equitable Loan and Bldg. Assn. of La Salle, La Salle; Madison B'dg. and Loan Assn., Madison; Union Bldg. Assn., Collinsville; Bushnell Homestead and Loan Assn., Bushnell; Citizens Bldg. and Loan Assn. of Peoria, Peoria; Southern Ill. Improvement and Loan Assn.,

(Continued to page 48)

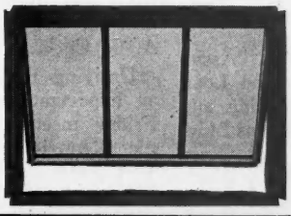
CASEMENTS and BASEMENT WINDOWS

For New Homes and Modernizing



The Truscon Residence Steel Casements provide a high quality product which can be used economically, even in the modest home. Every desirable feature of the more expensive heavy casements is offered in the Residential Type. Artex or Auto-Lock Under-screen operators can be furnished as standard equipment. Or, Rol-Up or Side-Hinged Screens can be supplied.

Basement Windows are hinged either at the top or at the bottom, designed to admit maximum daylight. They will not warp, swell or stick. Screening is simple. Holes are provided in the face of each frame for bolting screen securely in place.



INSULMESH

A Plaster Base that Insulates Deadens Sound and Reinforces

Easily handled, easily cut to size, economically plastered and moderate in cost this modern plaster base provides all the metal lath advantages of permanence, firesafety and crack prevention plus insulation against heat, cold and sound. Truscon makes a complete line of metal lath and accessories.

Write for Sample and Prices.

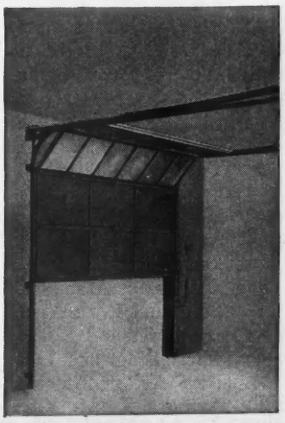
40 Sheets to Carton
Easily handled and stored.

OVERDOORS for GARAGES

Steel Doors Operating Overhead

Completely out of the way when open, these Truscon doors are ideal for garages and other buildings requiring easy access. They are fireproof, waterproof, light in weight in comparison to strength, permanent and neat. They do not shrink or swell, hence, they can be made to fit closely for better weathering and at the same time will not stick and bind.

Because the steel door will not absorb water and thus change in weight, it is possible to provide perfect balancing so that smooth operation always is assured.



Overdoors require no drilling, cutting or fitting—all operations, are completed in the shop, so that field assembly is reduced to a minimum. Sizes and types for every requirement.

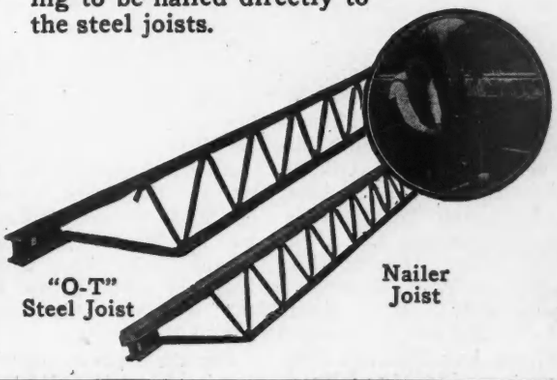
Truscon will gladly submit suggestions for any door problem.

STEEL JOISTS

Firesafe Floors for Residences

OPEN TRUSS JOISTS: Light in weight and permanent. Shop fabricated, ready to install. No cutting or fitting. No wastage or shrinkage. A high degree of soundproofness. Freedom from plaster cracks. All joints electric welded. Open web permits passage of wires and pipes.

NAILER JOISTS: They are similar to "O-T" Joists except they have a wood nailing strip attached to the top chord which permits wood flooring to be nailed directly to the steel joists.



"O-T" Steel Joist

Nailer Joist

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO
THE TRUSCON LABORATORIES, DETROIT, MICHIGAN
(FOR WATERPROOFINGS AND PAINTS)

TRUSCON

SALES OFFICES IN ALL PRINCIPAL CITIES
DEALERS EVERYWHERE
PACIFIC COAST PLANT AT LOS ANGELES, CAL.

NEWS—building activities of the month

Sparta; Rock Island Mutual Bldg. Loan, and Savings Assn., Rock Island.

Security Improvement and Loan Assn., Springfield; Caseyville Bldg. Assn., Caseyville; First Mutual Bldg. Assn. of Belleville, Belleville; Greater Belleville Bldg. and Loan Assn., Belleville; West Side Bldg. and Loan Assn. of Belleville, Belleville; Whiteside County Bldg. and Loan Assn., Sterling; Rockford Savings and Loan Assn., Rockford.

Additional members as of Feb. 1, are: Commercial Travelers' Loan and Homestead Assn., Peoria; Macomb Bldg. and Loan Assn., Macomb; Rainbow Bldg. and Loan Assn., Cicero; Citizens' Bldg. and Loan Assn., Chicago Heights; Rock Island Mutual Bldg. and Loan Assn., Rock Island; Fidelity Savings and Loan Society, Galesburg; Hawthorne Club Savings, Bldg. and Loan Assn., Cicero.

Wisconsin

Appleton Bldg. and Loan Assn., Appleton; Hopkins Street Bldg. and Loan Assn., Milwaukee; Northern Bldg. and Loan Assn., Milwaukee.

DISTRICT No. 8—DES MOINES, IA.—"We have received a number of applications. . . . Some of these have been approved for membership by the Executive Committee of this Bank and are now in the hands of the Federal Home Loan Bank Board at Washington awaiting its approval."—R. J. Richardson.

DISTRICT No. 9—LITTLE ROCK, ARK.—"We are attaching hereto list of 55 institutions which have been accepted by the Federal Home Loan Bank Board in Washington whose stock subscriptions total $710,600.00.

"We cannot give you a list of our additional stock subscribers due to the fact that some of them may not be accepted for membership. We have had stock subscriptions from 63 institutions that are in process of being considered for membership, totaling $588,900.00."—B. H. Wooten.

Members—Little Rock Bank

Fayetteville Bldg. and Loan Assn., Fayetteville, Ark.; Commonwealth Bldg. and Loan Assn., Little Rock, Ark.; Texarkana Bldg. and Loan Assn., Texarkana, Ark.; Warren Bldg. and Loan Assn., Warren, Ark.; Equitable Bldg. and Loan Assn., Little Rock, Ark.

Alexandria and Pineville Bldg. and Loan Assn., Alexandria, La.; Citizens Bldg. and Loan Assn., Baton Rouge, La.; Union Homestead Assn., Baton Rouge, La.; Community Homestead Assn., Houma, La.; Acme Homestead Assn., New Orleans, La.; Citizens Homestead Assn., New Orleans, La.; Crescent City Bldg. and Homestead Assn., New Orleans, La.; Fifth District Homestead Society, New Orleans, La.; Homeseekers Bldg. and Loan Assn., New Orleans, La.; Sixth District Bldg. and Loan Assn., New Orleans, La.; Union Homestead Assn., New Orleans, La.; Home Bldg. and Loan Assn., Shreveport, La.; Shreveport Mutual Bldg. Assn., Shreveport, La.; Mohawk Homestead Assn., New Orleans, La.; Batesville Bldg. and Loan Assn., Batesville, Miss.; Kosciusko Bldg. and Loan Assn., Kosciusko, Miss.; Miss. Bldg. and Loan Assn., Vicksburg, Miss.

Panhandle Bldg. and Loan Assn., Amarillo, Tex.; Texas Plains Bldg. and Loan Assn., Amarillo, Tex.; Mutual Deposit and Loan Co., Austin, Tex.; Jefferson Co. Investment and Bldg. Assn., Beaumont, Tex.; Provident Bldg. and Loan Assn., Beaumont, Tex.; Bryan Bldg. and Loan Assn., Bryan, Tex.; Dallas Bldg. and Loan Assn., Dallas, Tex.; Guardian Savings and Loan Assn., Dallas, Tex.; Metropolitan Bldg. and Loan Assn., Dallas, Tex.; News-Journal Employes Bldg. and Loan Assn., Dallas, Tex.; Texpolite Bldg. and Loan Assn., Dallas, Tex.

Denison Bldg. and Loan Assn., Denison, Tex.; El Paso Bldg. and Loan Assn.; El Paso, Tex.; Peoples Bldg. and Loan Assn., El Paso, Tex.; Equitable Bldg. and Loan Assn., Fort Worth, Tex.; Fort Worth Bldg. and Loan Assn., Fort Worth, Tex.; Tarrant Co. Bldg. and Loan Assn., Fort Worth, Tex.; Bankers Home Bldg. and Loan Assn., Galveston, Tex.; Greenville Bldg. and Loan Assn., Greenville, Tex.; Mutual Bldg. and Loan Co., Greenville, Tex.

Gibraltar Savings and Bldg. Assn., Houston, Tex.; Houston Bldg. and Loan Assn., Houston, Tex.; Huntsville Bldg. and Loan Assn., Huntsville, Tex.; Citizens Bldg. and Loan Assn., Marshall, Tex.; Olney Bldg. and Loan Assn., Olney, Tex.; Western Bldg. and Loan Assn., Pampa, Tex.; Paris Bldg. and Loan Assn., Paris, Tex.; Port Arthur Bldg. and Loan Assn., Port Arthur, Tex.; Travis Bldg. and Loan Assn., San Antonio, Tex.; Citizens Bldg. and Loan Assn., Texarkana, Tex.; Gate City Bldg. and Loan Assn., Texarkana, Tex.; Pioneer Bldg. and Loan Assn., Waco, Tex.; Wharton Bldg. and Loan Assn., Wharton, Tex.

DISTRICT No. 10—TOPEKA, KANS.—No reply. Kansas passed legislation week of Jan. 23 permitting institutions in that state to become members.

DISTRICT No. 11 — PORTLAND, ORE.—"In this district, we have about 300 eligible institutions that can participate in the Federal Home Loan Bank System. At the present time about 60 have signified their intentions of joining the system.

"Up to the present time no associations have qualified for membership, as it is necessary to have enabling legislation."—W. H. Campbell.

DISTRICT No. 12—LOS ANGELES, CAL.—"Governor of California approved bill Saturday night (Jan. 21) permitting institutions of this state to join Federal Home Loan Bank. Impossible to give any figures that would mean anything until suitable time has passed in which to permit associations to join."

Builders Meet at Detroit

Subjects of importance to all the building industry were discussed at the joint meeting of the Associated General Contractors of America and the Construction League of the United States as part of the Highway and Building Congress held at Detroit the week of January 16.

A report on technological unemployment and an analysis of man hours per unit work was given by H. L. Campbell, president of the St. Louis chapter of the A. G. C.

Unifying the construction industry was an important subject of discussion at the Friday meeting. A. E. Horst described the "Renovise Philadelphia" campaign and J. L. Davis spoke on "The Failure of Finance In the Field of Construction."

A. C. Tozzer, vice president of the Turner Construction Co. of New York, assumed the presidency of the A. G. C. for 1933, succeeding Henry J. Kaiser of Oakland, Calif.

Realtors Discuss Low Cost Homes

How homes can be built at lower cost and yet have equal comfort was an important subject discussed by H. L. Whittemore at the Midwinter Convention of the National Association of Real Estate Boards at Washington, D. C., Jan. 25 to 28.

Early January Contracts Show Increase

CONTRACTS awarded for new construction in the 37 states east of the Rocky Mountains during the period from January 1 through January 15, 1933, totaled $43,261,300 according to F. W. Dodge Corporation. During the corresponding period of 1932 a total of $37,312,000 was reported.

The December construction contract total aggregated $81,219,300; this contrasts with a volume of $105,302,300 for November, and a total of $136,851,600 for December, 1931.

Building permit figures in 533 cities and towns of the United States during December, 1932, amounted to $26,218,996, according to official reports made to S. W. Straus & Co. This figure represents a 20.08 per cent decrease from November, 1932, when the volume for these cities was $32,338,936.

For the second successive month California topped New York in state figures, although New York City held first place among cities. Six California cities are among the first 25. The 25 cities reporting the largest volume of permits are:

	Dec., 1932	Dec., 1931
1. New York, N. Y.	$ 4,638,594	$12,698,298
2. San Francisco, Calif.	3,153,727	751,421
3. Minneapolis, Minn.	2,308,015	1,247,550
4. Jacksonville, Fla.	1,394,830	136,565
5. Los Angeles, Calif.	865,476	2,590,563
6. Galveston, Tex.	521,818	28,036
7. Philadelphia, Pa.	512,016	1,022,065
8. Boston, Mass.	498,030	1,332,372
9. Baltimore, Md.	482,520	801,600
10. Cincinnati, Ohio	472,710	563,175
11. Torrance, Calif.	452,300	12,400
12. Washington, D. C.	418,815	925,785
13. San Diego, Calif.	392,835	344,732
14. Lansing, Mich.	386,350	37,500
15. Indianapolis, Ind.	292,059	166,358
16. Hartford, Conn.	233,460	132,000
17. Alexandria, La.	224,161	28,416
18. Dayton, Ohio	209,448	125,327
19. Greenwich, Conn.	193,950	77,950
20. Norristown, Pa.	185,056	4,465
21. Alameda, Calif.	175,709	19,475
22. Yonkers, N. Y.	174,307	155,716
23. Cleveland, Ohio	169,800	272,925
24. Wilkes-Barre, Pa.	166,805	28,982
25. Oakland, Calif.	147,184	215,387
	$18,212,354	$23,690,697

New Waterproof Glue Bond Used in Laminated Products

New types of laminated products are being produced by a firm specializing in this work, with a new type of glue film which the company states is the first thoroughly waterproof adhesive which can be controlled by a scientific process.

Features of the new type of glue or bond are its uniformity, and the fact that a uniform moisture content can be maintained throughout the bonding process. The plywood panels and laminated products are produced in hot plate presses under controlled heat pressure.

In the pressing operation, due to the fact that no penetrating of moisture occurs through the glue, moisture contents in the core remain the same. This means that when proper core material is selected, the panel will not warp.

The bond in effect welds the laminated layers together. It has the quality of extreme flexibility. There is no cracking and the bond cannot be destroyed by distortion. Sufficient flexibility is present to allow expansion and contraction between rapid temperature change from —25° to +400° F. without destruction or injury to the bond when placed between core materials of all kinds and metal faces.

The plywood panels are generally produced with thin face veneers. 1/80 and 1/100 veneers will show no glue stain and maples, crotches, light and porous woods of all kinds will maintain their beauty in the finished panel, the manufacturers state.

To the building trades, these laminated products offer a new material with which to work. When thin veneers are bonded to insulating and other composite building materials, a distinctly new product is offered.

By this process and using this new type of glue film bond, sheeted metals of all kinds may be laminated together. This includes ply-metal, laminated bakelite products, laminated composition products, veneer products, etc. Such products have a wide and growing use in new forms of construction. The glue bond is non-hygroscopic, is a non-conductor of electricity, and is chemically inert. It is not attacked by most acids, solvents, oils, etc., and of course, what is especially emphasized by the manufacturer, it is absolutely waterproof.

Finished Flooring for Modernizing

ONE of the products recently developed of especial interest for modernizing is a new ready finished flooring that can be laid with a minimum amount of disturbance to the home owner.

No driving or blocking is necessary to lay this new type flooring and no setting of nails. The material is ⅜ inches thick, end-matched with metal splines and made of edge sawn white oak. The lengths run from t feet to 12 feet. It is made 1½-inch and 2-inch face and one-third must be added to either width for the matching.

An even joint between the two members is obtained by the tightly fitting wedge-shaped tongue and groove, and the bevel lip under the tongue which brings the two flooring boards even on the face after they are drawn in place with the nails.

Another advantage is in the clearance provided for the nail heads in the tongue so that they will not raise the upper part of the groove and create a bulge on the surface of the floor, a frequent occurrence where this safeguard is not provided.

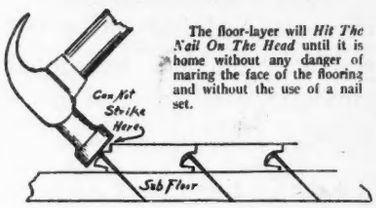
The flooring is specially shaped and completely finished before laying with a special slanting groove sunk for the nails to prevent the danger of injuring the finished face, splitting and bulging.

It is laid without dust, smell or muss as it is only necessary to nail down the finished strips and the floor is ready for use. The finish has had sufficient time to dry and become hard before it is used so that it will wear well and not scratch or mar easily.

The wood pores are sealed and filled, providing a foundation for a wear-resisting surface for the several coats of finish.

The under side is treated to guard against moisture, and the surface is rubbed with pumice stone and oil.

New type ready finished flooring is especially adaptable for modernizing work and can be laid both ways from center.



The floor-layer will *Hit The Nail On The Head* until it is home without any danger of maring the face of the flooring and without the use of a nail set.

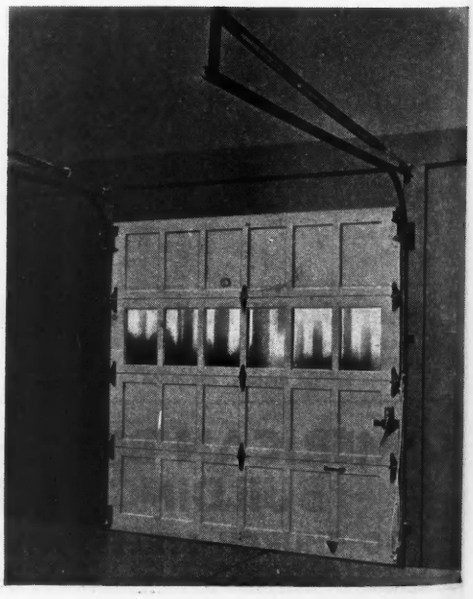
Low Cost Garage Door

Another manufacturer of fire and service doors, whose upward-acting garage door has had wide use, has recently announced a similar type of garage door in the low price field.

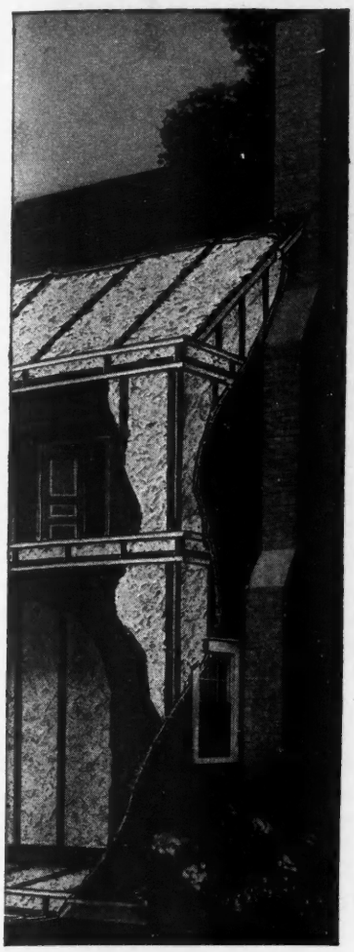
This low cost door is the result of a growing demand for up-to-the-minute garage doors that are priced within the reach of the majority of automobile owners.

The new door is of sectional wood with sections rabbeted and hinged together. Ball bearing rollers placed at the end of the sections operate in steel tracks. Springs connected to the bottom of door by means of steel cables give proper counterbalance for easily raising the door into the overhead position.

Raising to the overhead position saves in floor and wall space as well as putting the door out of the way of moving cars or wind. It opens easily the year around as snow, ice or rain cannot bind it. When closed, it can be securely locked. A special sealing device, that forces the door snug to the jamb, assures weathertightness. Having attractive paneling of selected lumber, the door harmonizes with practically any architectural design.



New model upward acting garage door brought out to compete in low price field.



INSULATE WITH U. S. MINERAL WOOL

By insulating your house with U. S. Mineral Wool, you actually save enough money within a short period of time to pay for installation.

Year after year this saving continues as U. S. Mineral Wool is indestructible and all rooms are made more comfortable and draftless—warmer in winter and cooler in summer.

No other insulating material offers a like protection from cold, heat, fire, sound and vermin.

Sample and folder sent on request, address nearest office.

U. S. MINERAL WOOL COMPANY
280 Madison Avenue,
New York

Western Connection
Columbia Mineral Wool Co.
South Milwaukee, Wisc.

BUILDING CONSTRUCTION DETAILS

No matter how much you know about the building game you will find this collection of 160 plates well worth the price of $1.50. For lack of space we can't list the thousand or more ideas that are given on these 9 x 12 inch plates but every one of them is in large size so that you can apply them in saving time and material in your own work.

Everything from foundation to decoration is covered including balloon framing and mill framing up to steel skeleton construction. Stone work, brick details, hollow tile, concrete, etc., etc. Window and door details of wood and metal from cellar windows to cathedral windows. Interior trim, panel work, stairs, breakfast nooks, china closets and other built-in fixtures. Little details of ornament such as chimney tops, gable ends, etc., etc. Ornamental exterior work such as stucco, tile, terra cotta, ornamental brick inserts, etc., etc., in great profusion!

Money back if you don't find this worth many times its cost of $1.50 to you.

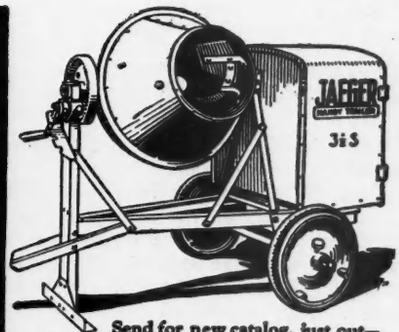
160 Pages, 9 x 12 Inches. Over 1,000 Figs. Bound in paper. Only $1.50.

AMERICAN BUILDER AND BUILDING AGE
30 Church Street, New York

$169.00 F.O.B. FACTORY on STEEL

$179.50 F.O.B. FACTORY on RUBBER

JAEGER'S "HANDY" 3½S TRAILER



Send for new catalog, just out—Tilters and Non-Tilters, all sizes—trailer and power loader types.

THE JAEGER MACHINE CO.
521 Dublin Ave. Columbus, Ohio

The RIGHT NAIL for these jobs is a READING CUT NAIL

For the special nailing jobs shown here, Reading Cut Nails do what no other kind of nail *can* do. That is why so many builders insist on having them.

for Parquet Floors — Rico Flooring Nails are designed for fine flooring jobs. Their better grip assures lasting floor beauty. Specially hardened and tempered, these nails will not bend, no matter how fast you drive them.

for Boardwalks — Protruding nails are a menace on outdoor boardwalks. Reading Cut Nails will not work loose, as do round nails, because Reading Cut Nails have an average of 72% greater holding power.

for Stairways — There are no squeaky stairs where Reading Cut Nails are used. These nails go straight into the wood—and stay there permanently. Their wedge shape enables them to "stay put".

for Finishing — Reading Finishing Nails are easier to drive and assure a more enduring, more satisfactory job.

READING IRON COMPANY
Philadelphia

Reading Cut Nails

CUT FROM SOLID PLATE

LETTERS from Our Readers

A Question for the Manufacturers

Redding, Conn.

To the Editor:

What has happened to your advertisers? We builders know that there has been a depression but we're coming out of it and we all need equipment and new ideas in materials, etc., but who the dickens is manufacturing equipment? Has every firm in the country folded up and died?

Really, I'm not kidding. Right now we need a new concrete mixer, a new portable power wood worker, and possibly a new portable sander and a power paint spray outfit, but the question is, where are we going to get dope on what's new and up to the minute and reasonably priced?

Now, seriously, if any of these products are being manufactured, I would appreciate knowing the addresses.

However, I would much rather see firms advertise their products if they are worth advertising.

Am still reading the American Builder and appreciate the work you are doing, but it would be a far better magazine if it had about a hundred additional pages of equipment and material ads.

Charles McCollam,
H. C. McCollam & Son, Builders.

Fire-Cuts and Wall Anchors

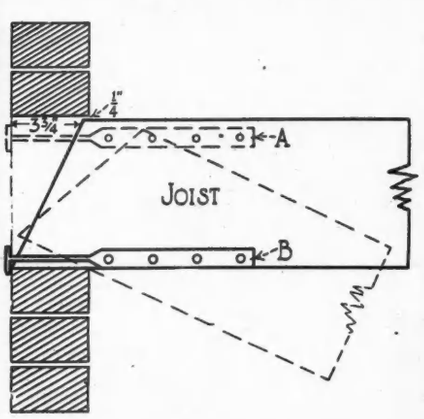
Willoughby, Ohio.

To the Editor:

I am submitting an idea that may be of interest to the construction world of a method of construction that has been sadly abused.

I am now working on a large remodeling job of a warehouse in Cleveland. The superintendent for this firm is very capable and has charge of 72 warehouses in the United States.

We were building an office over a loading platform and were placing 2 x 12 joists in a brick wall. I was making the fire-cuts on the joist and he asked me how far they were resting on the wall. I said about four inches. He said, "Is that all you allow in this town?" I asked if I had enough fire-cut bevel on them and he said, "Yes." (about 3¾ inches). "What good is a fire-cut?" "None."



I said that is the big common mistake; they are no good because they are not used right. The illustration points out the correct method of construction.

Also, in reference to joist wall anchors, a common mistake in nailing them on the side of a joist near the top is shown by figure A. If a fire causes the joist to fall away from the brick wall, the anchor pulls the brick wall with it. while in figure B the iron anchor simply bends as the joist drops down.

About a year and a half ago, I was a foreman in charge of roof framing and erection of 75 houses in one of the largest

(Continued to page 54)

Letters from Our Readers

(Continued from page 52)

developments in Cleveland. As these were brick homes, the use of wall anchors was employed on nearly all the houses.

I think in every instance the anchors were placed at the top side of the joist, as at A.

The general superintendent, carpenter superintendent and the crew in general were as qualified a group as was ever assembled, but still everyone overlooked this important factor.

Should this merit publication and a $2.00 award, kindly credit it to my subscription to the AMERICAN BUILDER. I have been receiving same for about six years.

WM. A. WEINKAMER, Builder.

Architect Anxious to Help

Lansdale, Pa.

To the Editor:

Your article, "Getting Ahead in 1933," in the January issue is indeed very interesting and your plan of local advertising should prove beneficial to the building industry.

I would be pleased to receive complete information as to the exact cost of your weekly editorial services in providing attractive and interesting news and feature matter for use in our local newspaper and furnished to the newspaper in matrix form.

Should your charge for this service be compatible with our local conditions, I shall sponsor such an advertising campaign.

SAMUEL S. CONVER, Architect.

Rarin' to Go!

Westfield, N. J.

To the Editor:

We are mighty glad that you are making available to local communities a comprehensive building promotional service for newspaper use; and Tuttle Bros. certainly want to be counted in on it and will be glad to get behind the program with both fists.

We have sold the local building factors the idea of co-operation and working together behind our leadership and believe they will stay sold on this idea, even though all factors are pretty well down in the mouth today and financing has about completely dried up, at least for new construction.

Your plan is sorely needed in every community.

We had the editor of our leading weekly newspaper here in the office this morning (we have no daily) and went over the January issue of AMERICAN BUILDER. He seems quite anxious to get behind your suggestion and hope you will lose no time in getting all the dope to us.

Tuttle Bros., Bldg. Material Dealers,
By GEORGE H. RILEY, Jr., Sec'y.

Encouragement from a Big Builder

Alton, Ill.

To the Editor:

We are very much interested in your January article—"Getting Ahead in 1933."

The writer heard several of your addresses at the conventions of the Illinois Builders League and always was impressed with the manner in which you have handled your subject and felt that your stuff really went over.

We feel there is considerable food for thought in your article in the January issue.

J. J. Wuellner & Son, General Contractors,
By J. C. WUELLNER, Treas.

He Misses the Ads

Bronx, N. Y.

To the Editor:

Everyone who hopes to build his own home some day spends countless hours planning his design. Even if that day is not very near, there is a great satisfaction in putting the "dream house" on paper.

To such amateur architects, a building construction magazine is a great source of information. The numerous adver-

(Continued to page 56)

AMERICAN FLOOR SANDERS

MAKE BIG PROFITS

American Spinner Disc Edging Machine

With the Spring cleaning season just ahead the resurfacing of old floors offers you a big income and there is plenty of work to be done.

Get Into Something For Yourself. We start you out and supply business getting circulars and cards that bring in the jobs. No experience necessary.

The New American Spinner disc edging machine eliminates hand work on edges. It is easily handled, compact and powerful. Write quick for full details, sent without obligation.

THE AMERICAN FLOOR SURFACING MACHINE COMPANY
511 South St. Clair St., Toledo, Ohio

FOUR IN ONE $260

GIVES YOU THE EDGE!

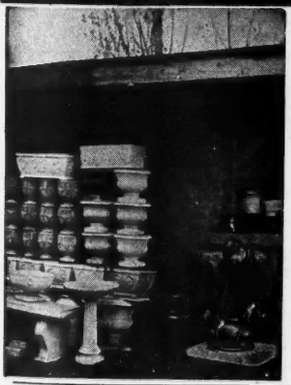
With a Parks it's easy to outbid competitors and make a good profit.

Send for complete catalog.
THE PARKS WOODWORKING MACHINE CO.
Dept. BL-2, 1524 Knowlton St., Cincinnati, Ohio
Canadian Factory: 338 Notre Dame East, Montreal

PARKS WOODWORKING MACHINES

BALL BEARING
Includes 22" band saw, 12" jointer, circular rip and crosscut saw and boring machine.

EARN BIG MONEY
MAKING COLORCRETE PRODUCTS

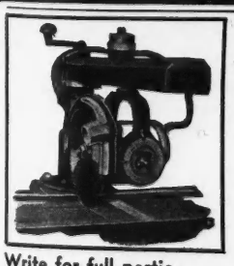


A Complete Home Industry. Profitable. Sell for 4 times cost to make. Offers quick returns and future growth. You have a waiting market, protected right in your own territory. Easily made. Only small workroom required. Your materials cost little and are easily obtained locally.

Why Be Idle?

Turn your spare time into profit by making permanent pottery. Vases, Boxes, Birdbaths, Garden Seats, Flagstones, Fireplaces, Porches, etc. With Colorcrete you can supply these in **30 Colors and Shades.** Beautiful and exclusive designs that sell quickly. We start you right. Franchise free. Molds cost $20 up. Write today for complete information. Also ask for machinery catalog for making block, brick and tile.

COLORCRETE INDUSTRIES, Inc.
500 Ottawa Ave.,
Holland -:- Michigan



for Range!

29 distinct cutting operations in lumber, tile, brick and metal.

Write for full particulars of the most modern development in power cutting methods.

DE WALT

MACHINES CUT WOOD—METAL—STONE

PRICED FOR TODAY'S MARKET

DE WALT Products Corp.
223 Fountain Ave., Lancaster, Pa.

---

* Each One Means Low Costs On Its Job

MIXING • MOVING • PUMPING

The right Rex equipment in the right spot

There's a spot in the construction business where each Rex Unit will exactly fit. The right equipment in the right spot will mean lower costs in this year when low costs mean everything. From the 3½-foot Tilter to the 5-yard Moto-Mixer, every Rex Mixer finds a lot of spots where it makes up a part of the lowest cost method of doing the job. From the simplest diaphragm to the Pumpcrete—the new concrete pump—every Rex Pump means low cost on its job. From a simple elevator to the complete concrete factory, Rex Handling Equipment will move material at lowest costs.

Look over this Rex Line—check the coupon and return it for complete information that will enable you to pick your spots . . .

CHAIN BELT CO., 1621 W. Bruce St., Milwaukee, Wis.

Name.....

Firm Name..... *Address*.....

City..... *State*.....

Please send me information.

JOB MIXERS
- ☐ 3½ Tilter
- ☐ 5-S ☐ 10-S
- ☐ 7-S ☐ 14-S

PUMPS
- ☐ 2"-Speed Primer ☐ Diaphragms
- ☐ 2½"-Speed Primer
- ☐ 4"-Speed Primer
- ☐ 6"-Speed Primer ☐ Road Pumps

HANDLING
- ☐ Belt Idlers
- ☐ Belt Conveyors
- ☐ Elevators
- ☐ Concrete Factories

PLASTER AND MORTAR MIXERS
- ☐ "6" Plaster Mixer
- ☐ "11" Plaster Mixer
- ☐ Cold Patch Mixer
- ☐ Saw Rigs

PLANT MIXERS
- ☐ 28-S ☐ 56-S ☐ 84-S
- ☐ 27-E PAVER

MOTO-MIXERS
- ☐ 1-Yard ☐ 3-Yard
- ☐ 1½-Yard ☐ 4-Yard
- ☐ 2-Yard ☐ 5-Yard

REX CONSTRUCTION EQUIPMENT

CHAIN BELT COMPANY
1621 West Bruce St., Milwaukee, Wis.

Letters from Our Readers

(Continued from page 54)

tisements make a great impression. When the opportunity to build arrives, the products that have been chosen from the magazine are the ones the contractor uses.

The point I wish to bring out is that the contractor who gives a prospect some copies of a building magazine along with his regular advertising is creating good will, and the products represented therein will be seen by the most interested part of the buying public.

I have almost a complete set of the AMERICAN BUILDER from November, 1926, to April, 1928. Just compare the contents then with the present issue. The old AMERICAN BUILDER was almost entirely of advertisements of all kinds, large and small. The few articles were about new materials, methods of construction and like data of interest for the prospective home builder, the student taking architectural courses and the man on the job who wanted to learn more about the business. I saw my first copy of the AMERICAN BUILDER when studying drafting in the evening session of the College of the City of New York, and I've read it ever since. I hope the manufacturers will again realize the importance of a magazine like yours.

IRVING PODELL.

Wants Advertising Help

Lancaster, Pa.

To the Editor:

Several years ago—perhaps ten years—there was an association of oak floor manufacturers. Can you furnish us with their present name and address?

This oak floor association published or printed advertising matter that we hardwood floor layers could buy, have our name and address printed on it, and use for advertising purposes in our locality.

Can you give us the name and address of someone who could furnish cuts of advertising matter that we could use in soliciting business? Perhaps your organization can furnish what we need. We have used parts of articles we read in your paper in circular letters that we have sent out. We now believe if we could also enclose pictures of rooms, etc., it would at least help to hold the attention of our prospect.

FRANK G. DERR, General Contractor.

Quality Floor Sanding

(Continued from page 35)

as well as dull surface.

Shellac does not necessarily leave a good base for the varnish coat. I have seen many good sanding jobs nullified by the application of a poor or improperly cut shellac which raised the grain of the wood and hardened that way. The least that should be done if shellac must be used is to let it dry thoroughly and then steel wool it thoroughly to cut off all the excess shellac above the surface of the wood. Two coats of varnish on the bare boards will give a better wearing floor surface than one coat of shellac followed by two coats of varnish. But here again, the floor has not received that impervious hardening seal coat that filler can give it. As the varnish becomes old and eventually cracks up or is softened, the dirt will get down into the wood pores, where it will stay.

Varnish is the most frequently used finish for floors, and is successful largely in proportion to the care used in the selection and blending of the ingredients chosen for the particular service that varnish is intended to give. Curiously enough, ordinary "floor and trim" varnish is not the best varnish for floors. It is usually a cheap varnish which is perfectly acceptable for interior woodwork, but it lacks some of the qualities that floor service requires. A good floor varnish must be very elastic, and be very water-resistant as well as have a good luster. A good "spar" or waterproof varnish, which is designed to resist the elements, chiefly sun and water, will fit the requirements of a floor much better than the ordinary floor and trim varnish which, being designed for interior use, is not so impervious to water.

Classified Advertising

RATES:
Small letters 50c per word.
Capital letters $1 per word.
Minimum twenty words.

Business Opportunities
For Sale and Exchange
Help and Situations Wanted

To Insure Insertion Remittance Must Accompany Order

INDEX TO ADVERTISERS
FEBRUARY, 1933

NOTICE TO ADVERTISERS

Forms for the March Number of the American Builder and Building Age will close promptly on February 15. New copy, changes, orders for omissions of advertisements must reach our business office, 105 W. Adams St., Chicago, not later than the above date. If new copy is not received by the 15th of the month preceding date of publication the publishers reserve the right to repeat last advertisement on all unexpired contracts.
AMERICAN BUILDER AND BUILDING AGE.

Marketing Steel Houses

(Continued from page 19)

according to the individual desires of the owner can be economically erected. After the chassis has been put in place the local contractor may finish the structure. Instead of something to alarm the building industry the pre-fabricated house offers real possibilities for the future.

It is pretty generally agreed that the cost of housing is out of line. We still need homes. The need exists though the demand has decreased. The law of economics dictates that where demand exists, and value is given in proportion to the service rendered, goods are bound to move. The pre-fabricated or industrialized house merits careful investigation and study. It may be a real source of profit for the building industry in the years to come. Calling on the factory to pre-fabricate materials is a logical way for the building industry to get costs down to lower levels. It does not necessarily mean the interruption of the flow of materials through the building trades. A "closed mind" attitude from that source would only delay its benefits to the public.

Leaky Brick Walls and How to Prevent Them

(Continued from page 32)

as soon as it comes in contact with an absorbent brick, the next brick placed on or against the mortar cannot be properly bedded, and will not bond with the stiffened mortar. As a result there will be a network of small capillary openings or even distinct cracks betwen the brick and the mortar through which water will pass.

"It should contain an integral stearate waterproofing. If the inside longitudinal mortar joints which parallel the face of the wall are filled with a waterproofed mortar, they are a very effective barrier to the water which gets in past the face brick."

Log Cabins

(Continued from page 33)

An interesting hoist, also pictured, has been developed by Wilcox from old machine pulleys. The central boom is placed in the middle of the cabin, and power is provided by truck. The ridge log is used as the boom so that when the other logs are all placed, it also is used.

In the interiors of cabins, the logs are smoothed down, finished in natural color, given a treatment of linseed oil and turpentine, and then waxed.

On the outside, a like treatment is given the logs except that a small amount of stain is added to the oil to give them a darker, weathered aspect.

The shingles on the roof are generally stained a dark green. A heavy shake, laid eight inches to the weather, completes a most attractive roof.

No log cabin, declares Wilcox, is finished without a good fireplace, and Sunset Lodge is equipped with an especially attractive one in this respect. The huge fireplace is designed to furnish heat for the entire building. Large fieldstones, selected with special regard for their color, and including shades of red, yellow, blue and white, are employed to create a charming effect.

Sunset Lodge has double floors, with the finished floor of handmade oak and walnut, put down with wooden pegs of walnut, mahogany, oak and white pine.

The interior is divided into two large rooms and a sleeping loft which covers the upper part of the building. This is reached by rustic stairs constructed of split oak logs highly polished. The railings, banisters, and trimmings are of white birch. Doors, windows and flooring are hand made.