AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER

Vol. 38. CONTENTS FOR JANUARY, 1925 No. 4.

Published on the first day of each month by American Carpenter and Builder Co.; Wm. A. Radford, *President, Treasurer and Editor-in-Chief;* Wm. A. Radford, Jr., *Vice-President;* E. L. Hatfield, *Vice-President and General Manager;* Bernard L. Johnson, *Vice-President and Editor;* Roland D. Radford, *Secretary;* S. C. Kellenberger, *Dealer Service;* Delbert W. Smith, E. B. Wolfrom, C. R. W. Edgcumbe, L. H. Reich, O. H. Sutter, Howard W. Dexter, *Advertising Staff.*

Publication Offices:
Radford Building, 1827 Prairie Ave., Chicago
Telephone: Calumet 4770
Eastern Office: 261 Broadway, New York City
Telephone: Barclay 5265

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

SUBSCRIPTION RATES—One year, United States, Canada and Mexico, $2.00; six months, $1.00; single copies, 35 cents. Foreign countries, $3.00.

PROTECTION FOR OUR READERS—The publishers of the AMERICAN BUILDER reserves the right to decline any advertising they believe is detrimental to the interest of its readers; to edit advertising copy and to change or eliminate any statements that reflect injuriously or cast discredit upon other building products, machinery, equipment, supplies or tools.

Be sure in writing to advertisers to say: "I saw your advertisement in the AMERICAN BUILDER."

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AROUND THE FAMILY TABLE

Our Covers Varnished for Greater Service

EXAMINE the outside surface of the AMERICAN BUILDER this month. Notice the brilliancy, the luster.

By a special process we have given these covers a varnish coat to enhance the beauty of the colors of the paintings reproduced, and to preserve them from fading and soil.

This is an expensive process. It is indulged in by only a very few publications, and they high-grade, popular magazines.

We have decided on this for the AMERICAN BUILDER because the varnish finish is a preservative and will help to keep the AMERICAN BUILDER fresh and clean as it circulates around among prospective home builders, or is consulted in the offices and sales rooms of dealers, architects, realtors, contractors and builders.

Also many times the AMERICAN BUILDER is carried out onto the job to help solve some difficult problem; and this new varnish finish being waterproof will tend to keep the magazines clean and presentable.

Compare the covers this issue with those of last month and you will quickly note the improved appearance. This special varnish treatment will make the colors absolutely non-fading and permits all of the fine details of the architectural rendering to come out sharp and clear.

The AMERICAN BUILDER front cover designs differ radically from most cover designs on popular magazines. On the AMERICAN BUILDER we have both an artistic and striking cover design and also a true presentation of a practical, livable home plan. For this reason these cover designs have a practical utility in the hands of our readers and we are willing to go to this extra expense so that these cover designs will continue to present a good appearance for weeks and months after the ordinary publication would have outlived its usefulness and been cast aside.

The AMERICAN BUILDER Front Cover Home is deservedly a very popular feature of this publication. Illustrated in full colors on the front cover, and also fully detailed and with working scale drawings presented in the body of the magazine, this becomes one of the most prominent and popular designs of the month for the entire building field.

Many of our readers are very active in promoting home building and in selling the home building idea to all of those in their community who are thinking or should be thinking of building a new home. These subscribers find the AMERICAN BUILDER their greatest help. With its beautiful and attractive front cover home and its remarkable section of *sixteen pages of Homes in Colors* they have a publication which instantly holds the attention and interest of the prospective home builder and his wife and family.

Many of our readers have formed the habit of taking a copy of the AMERICAN BUILDER with them when going to consult with a prospective client or customer. Some are subscribing for several copies of each issue so that they will always have a fresh, clean copy of the AMERICAN BUILDER on hand to loan. They believe in keeping this magazine working and they make it circulate among many prospective new building owners every month.

This new varnished surface is going to help to keep these working copies of the AMERICAN BUILDER clean and presentable and also add to the long life of the magazine in the architects' offices, in the dealers' sales rooms, and wherever new buildings are being planned and built.

A circulation of 100,000 copies and every copy doing double and treble duty each month circulating among professional builders and prospective new building owners IS OUR AIM FOR 1925.

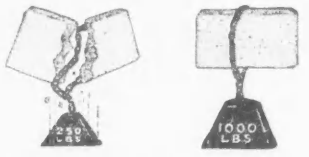
We wish you a happy and prosperous New Year.

—Editor, AMERICAN BUILDER.

Res. of James Gilmore, Esq., Reg. Arch. Cincinnati, Ohio, Bishopric Ivoral Cream Stucco over Bishopric Base on all exteriors

Stucco walls of greater strength

Ordinary Stucco — Bishopric Stucco



The enormous tensile strength of Bishopric Stucco is illustrated here. This is just one of the Bishopric guarantees of permanence on the wall.

How Bishopric provides
lasting beauty and protection

Rare beauty of shade and texture, with permanent protection from the elements are exclusive Bishopric qualities that are being appreciated more and more by those interested in home-building. BISHOPRIC is a super-stucco with greatly increased strength, thus providing durability and protection so vital to every building, whether it be large or small. In Bishopric only can be obtained the wide variety of beautiful shades and textures now demanded by those who appreciate the best. With Bishopric, beauty and protection go hand in hand.

Tensile strength tests show BISHOPRIC far superior to other stuccoes.

BISHOPRIC is fireproof, magnesia rock used is the same as that used to line furnaces and smelters — Tremendous heat has no effect on it.

BISHOPRIC is thoroughly waterproofed by a secret process shutting out moisture, cold, heat, wind and vermin.

BISHOPRIC Insulation Qualities are practically perfect, retarding heat and cold, eliminating objectional noises.

BISHOPRIC requires no painting or renewing — A wall built to stand for generations.

In mansion or bungalow, Bishopric Stucco has a place, whether laid over stately lines or designed after those quaint cottage effects, now so popular.

Bishopric Stucco endures in every clime, retaining its strength and its original color in temperatures of either extreme. Economical in original cost, negligible in upkeep, warm in winter and cool in summer, BISHOPRIC STUCCO over BISHOPRIC BASE not only wins friends but keeps them. And no wonder, for it yields itself to any form and endures from generation unto generation.

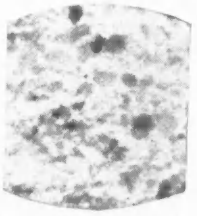
An interesting booklet "Bishopric For All Time and Clime," illustrated with photographs of beautiful houses built with Bishopric Stucco, plaster and sheathing units will be mailed you Free.

Bishopric is Sold by Dealers Everywhere

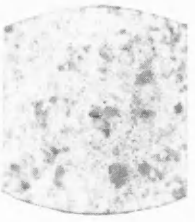
The BISHOPRIC MANUFACTURING Co
5 1ST. AVE. CINCINNATI, OHIO
NEW YORK CITY CINCINNATI OTTAWA, CANADA

The BISHOPRIC MFG. CO. OF CALIFORNIA
LOS ANGELES

Ordinary Stucco



The average stucco being marketed today is extremely porous and therefore NOT WATERPROOF. Notice the spongy porous formation in this enlargement and compare the density of Bishopric shown below.



Bishopric Stucco

BISHOPRIC STUCCO over BISHOPRIC BASE

"A Complete Wall Unit for all Time and Clime"

AMERICAN BUILDER

Formerly AMERICAN CARPENTER AND BUILDER

Lumber Conservation

ONE of the big problems confronting the construction industry is the rapidity with which lumber is being consumed and the lack of interest in the matter of reforestation. In an address before the leading lumbermen of the United States and Canada President Coolidge recently had the following to say: "The era of free wild timber is reaching its end, as the era of free wild food ended so long ago. No longer can you depend on moving from one primeval forest to another. The sound of the axe has penetrated already to the last of them. This nation has now left about 745,000,000,000 cubic feet of timber; the annual drain upon it is 25,000,000,000 cubic feet. Our forest problem is a land problem of the first magnitude."

It has been estimated that approximately 60 per cent of the entire original supply of American timber has been exhausted to date. Every year America is consuming more than four times the amount of the annual new growth of available timber.

✣

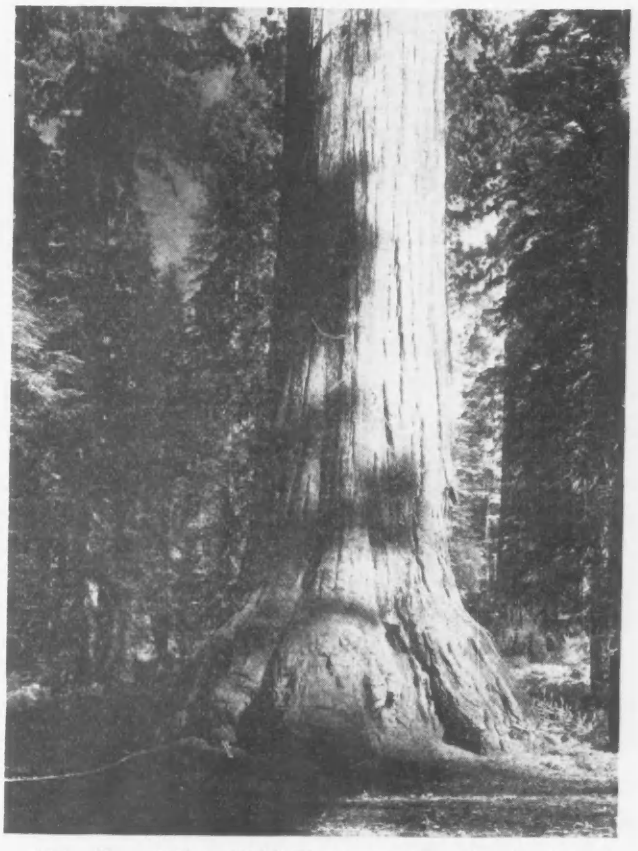
Future Builders

ANOTHER triumph for overalls over white collars is reflected in the report that more than 1,700 of the 2,700 night students at Carnegie Institute of Technology this year are taking courses in the building and machinery trades. The growth in night student enrollment in these trade courses, which is this year about 100 per cent over that of three years ago, gives further evidence, the report suggests, that young men are more and more appreciating the opportunities to win success by the "overall route" rather than through the "white collar" jobs.

Although a majority of the night students enrolled in the trade courses are regularly employed in trades directly or indirectly related to their night studies, attention is called to the fact that a surprisingly large proportion of the students are filling "white collar" jobs in the daytime. Many of these are working as draftsmen, tracers, clerks, or timekeepers and are taking trade courses, the report points out, either to shift later to work as tradesmen or to familiarize themselves with more skill in craftsmanship in order to progress faster up the ladder of industrial success.

Special significance is seen in the report that 844, or nearly half, of the students taking courses in the College of Industries, are enrolled in courses connected with the building trades. This number is also nearly one-third of the total night enrollment for the whole institution.

In the building trade courses the largest group enrollment is reported for the Department of Electrical Equipment and Construction with an enrollment of 174 night students. Next in line is the Carpentry Shop with 121 night students, a registration that taxed facilities to the extent that further enrollments were stopped early in the term. The courses in Plumbing constitute the next highest enrollment in the building trades with 115 students.



"The Era of Free Wild Timber Is Reaching Its End," Warns President Coolidge. The problem of reforestation must be solved.

✣

Gasoline as a Floor Wash!

GROSS misuse of gasoline is an old, old story to fire preventionists; yet not often is there exhibited such complete disregard of the known hazards of this fluid as is disclosed in a report reaching the National Board of Fire Underwriters from a small Texas city. In a power station there, it is alleged, the concrete floors are scrubbed nightly with ordinary brushes and mops soaked in gasoline, about ten quarts of the volatile liquid, in open cans, being used for this work every twenty-four hours.

Not the slightest necessity exists, of course, for employing gasoline to remove even grease and oil. A caustic soda solution, together with a good grade of soap, will serve the same end and do it with entire safety. If a small quantity of kerosene be added to this solution it will eradicate the most tenacious dirt and stains. Certainly gasoline should be used for such a purpose as floor cleaning never, nowhere.

✣

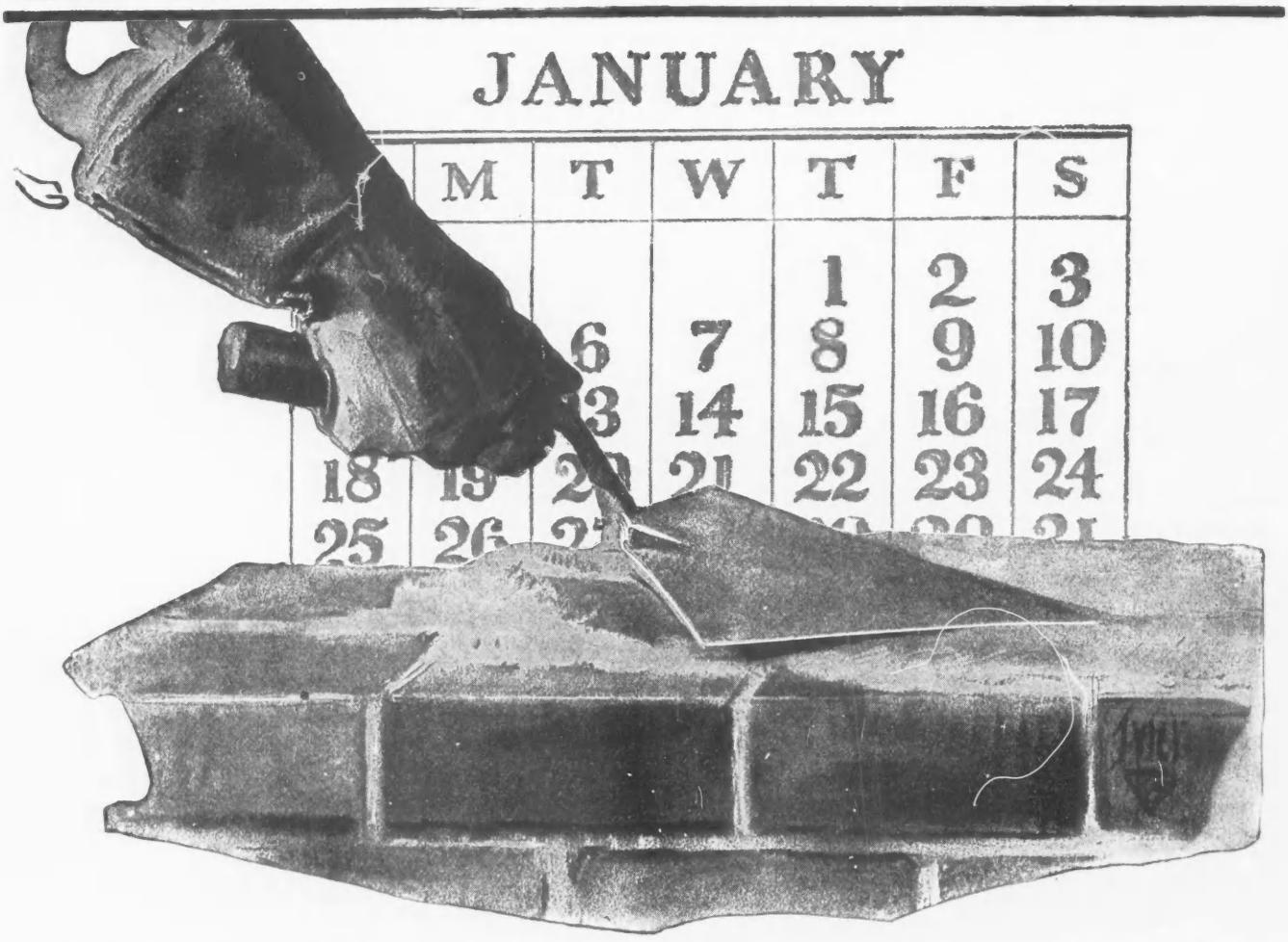
Carpenters to Urge Americanization

DELEGATES to the United Brotherhood of Carpenters and Joiners of America meeting in Indianapolis voted to drop any member of their organization who comes here as a foreigner and fails to become a naturalized citizen in a period of five years.

✣

FEW mechanics, comparatively speaking, thoroughly understand the steel square and its possibilities. Often the act of familiarizing oneself with the simple principles of the practical uses of the steel square solves many of the problems that the saw-and-hatchet men never learn by experience.

BETTER MASONRY AT LESS COST



BRIXMENT winks at winter "jinx"

MANY difficulties of cold-weather masonry are removed when BRIXMENT is used for mortar. BRIXMENT mortar repels moisture instead of absorbing it and can therefore be used at lower-than-usual temperatures with less danger of freezing.

Its unusual plasticity enables the mason to strike quicker, more accurate joints that attain a final strength equal to that of the brick itself.

No lime. No slaking. Can be used immediately after mixing—one part BRIXMENT; three parts sand. Used by nationally known engineers and contractors for greater efficiency and economy and to insure unquestioned permanence of their work. *Ask the BRIXMENT dealer.*

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

BRIXMENT

WHO'S WHO IN THE BUILDING INDUSTRY

A Department of Late New Photographs of Men Who are Right Now in the Public Eye

C. H. CRAWFORD
Prominent lumberman of Walla Walla, Wash., President of the Western Retail Lumbermen's Assn.

THOS. C. SPENCER
Prominent lumberman of Houston, Texas, President of the Lumbermen's Assn. of Texas.

M. B. SPRIGGS
Prominent lumberman of Weston, W. Va., President of the West Virginia Lumber and Builders' Supply Dealers' Assn.
Schrider Photo

R. SKOV
Prominent lumberman of High River, Alta., President, Western Retail Lumbermen's Assn., Canada.

CHAS. PROEBSTEL
Prominent lumberman of Santa Fe, N. Mex., President, The Mountain States Lumber Dealers' Assn.
Cross Photo

F. C. WESTOVER
Prominent lumberman of Bay City, Mich., President of the Michigan Retail Lumber Dealers' Assn.
Alexander & Butterfield Photo

MAC MARTIN
Well known Minneapolis advertising agency man who, with the assistance of Mr. Ferrall, has this month begun a series of notable advertisements in colors for the benefit of American Builder readers.
Sweet Photo

E. R. FERRALL
Well known Minneapolis advertising agency man, associated with Mr. Mac Martin in putting color into the advertising of building materials in the American Builder.
Sweet Photo

A. A. GARDNER
General Mgr., Pacific Coast branches, Henry Disston & Sons, Inc., who has just opened a new factory at Seattle, Wash.

DAKIN B. FERRIS
of Pettit & Ferris, architects, New York City, has designed a model all-gypsum (structolite) dwelling now building on Long Island, N. Y.

GERHARD F. MEYNE
Prominent Chicago contractor, presented a notable paper before the National Vocational Educational Society at Indianapolis, Dec. 13.
Moffatt Photo

CHARLES Z. KLAUDER
Architect, Philadelphia, has designed the Pittsburgh Tower of Learning, as illustrated in our Duo-Tone Art Supplement of Notable Architecture this month.
Donner Photo

A Builder at the "Golden Gate"

Harry C. Allen, President of the San Francisco Real Estate Board, Has Promoted at Sea Cliff an Unusually Fine Home Building Development

By JOHN W. RYCKMAN

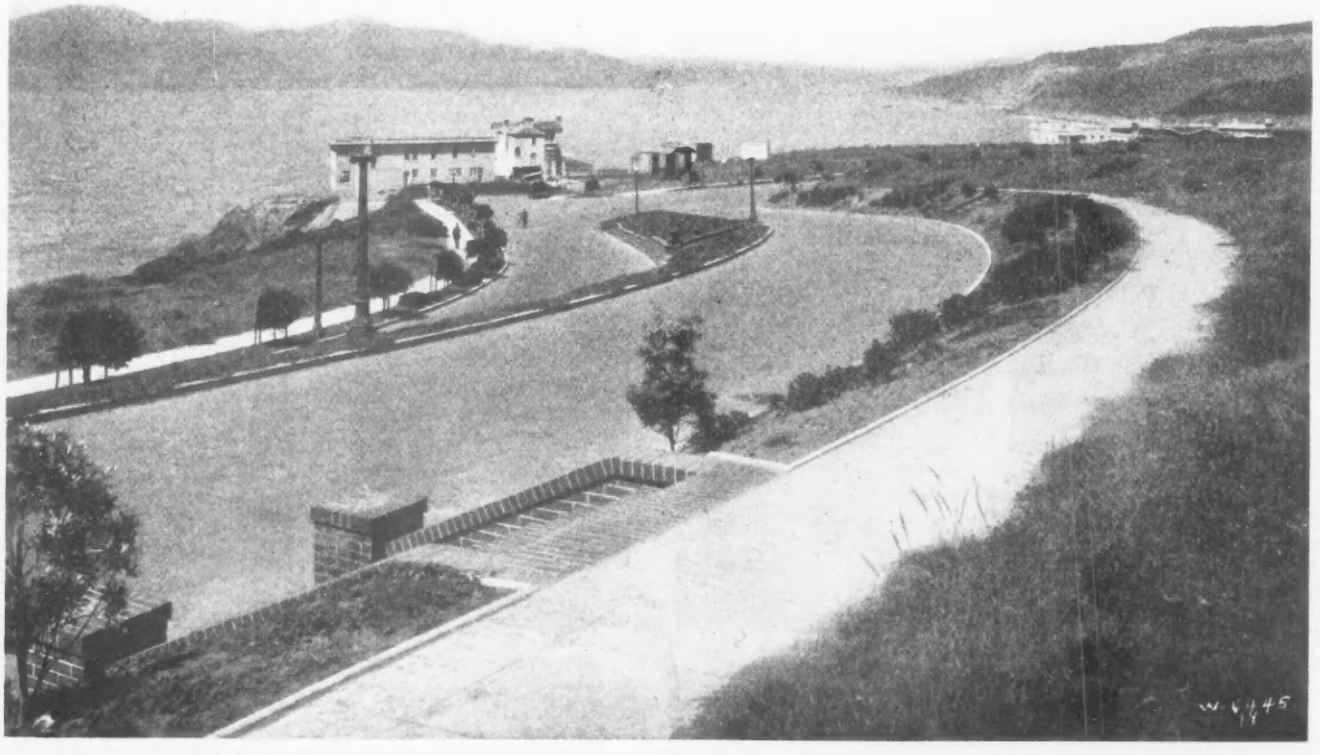
A FEW years ago there was a barren sweep of cliffs and sand dunes stretching along the ocean front, between the Presidio and Lincoln Park in San Francisco which seemed to present little residential possibilities. Old timers may have dreamed dreams of a time when it might be converted to some practical use, but a young man, surveying land and sea with a clear eye, caught a glimpse of Utopia and capitalized it. He saw the wonderful sunsets that gave the Golden Gate its name; he saw the purple peaks across the water with Tamalpais towering supremely over the scene; he saw the ocean liners passing in and out of the great port and the white sails of pleasure-craft scudding joyously before the breezes. Landward, there were many promising features, in addition to the clear air and bright sunshine. This region was sequestered between government reservations and public parks, which would prevent intrusion of undesirable elements. He saw that future dwellers there would have always before them a panorama more wonderful—of more varied moods—than could be found along the Mediterranean in the far-famed Riveria.

Harry B. Allen, the Head of Allen & Company, Leading Realtors of San Francisco, Who Founded Sea Cliff and at 35 Is a Recognized Factor in Building the Great City on the Pacific Coast.

Boye Portrait

It was with this vision before him that Harry B. Allen laid the foundation for Sea Cliff, which in a few years was to be renowned as one of the finest home-places in all of California and probably the most successful enterprise of the kind, financially, on the Pacific Coast. Reflecting the viewpoint and the energy of a man growing from his mid-twenties to his mid-thirties, the development of Sea Cliff has been little short of marvelous. More than $3,500,000 worth of homes have been built in the first section of the district—over two hundred and fifty homes, ranging in cost from $15,000 to $60,000.

At the inception of the undertaking, Allen employed his own architectural staff and



Sea Cliff Is in Full View of the Only Golden Gate. Across the bay, Tamalpais towers above the inspiring scene.

organized his own building department, which has now grown to be the largest organization for the building of better class homes in San Francisco. His policy, as he explained it, was to build honest homes, of the high standard, with lasting qualities, and to surround them with the finest environment. His ideals have been visualized in accomplishment and today, after four or five years of active work by this young promoter, many of San Francisco's prominent and wealthy citizens have their homes in Sea Cliff. Mr. Allen's own magnificent home is a conspicuous feature of the group.

Large as this undertaking was, it represented merely a part of Allen's activities. The firm of Allen & Company is one of the leading real estate institutions in California, with a business running into millions annually and operating in eight separate departments. He is now serving his second term as president of the San Francisco Real Estate Board and is a commanding figure in public affairs. Heavy business responsibilities, however, rest lightly on his shoulders. He is as unpretentious as a farmer and as approachable; never hurried or ruffled; talks about the weather, the crops, the world series, the traffic cop on the corner—the passing show. He is human enough himself, in a sunlit way, to enter into all the humanity of others.

Harry B. Allen entered the real estate field in his twenties with the enthusiasm of youth. A native son, he knows San Francisco thoroughly and never loses a detail of the changing scene. He is recognized authority on local and state conditions and is credited with prophetic accuracy in his forecasts of real estate development.

He planned with modest confidence, to be a factor in the growth of San Francisco and his success clearly indicates the accuracy of his judgment. He is a fine example of the type of men who have had faith in the country and have built up the West.

There are two ideas of the source of success; one is that it can be compelled from the outside; the other is that if it is to be achieved in any appreciable measure it must come from within and must be the fruit of individual effort. The latter was Allen's idea of the real basis of success and he has demonstrated its truth. There has been no more notable career in the present-day business life of San Francisco than this virile, resolute man, still in his mid-thirties has developed.

The Homes in Sea Cliff Were Built to Enrich an Incomparable Environment.

A Pleasing Vista in Sea Cliff Where No Encroachments Can Disturb the Serentity of the Neighborhood.

Sea Cliff is but one of Mr. Allen's enterprises, but it shows, in a striking way, the vision and vigor with which he prosecutes an undertaking to a successful conclusion. He never flinches at the cost, but takes great care that all improvements are in harmony with the ultimate destiny of the district. Note the broad and well paved streets, the fine houses and landscaping and the absence of any structure which fails to harmonize with the scene. It seems safe to say that the development of Sea Cliff will continue until there is an unbroken succession of beautiful homes and estates looking out over the water towards the sunset and the "Golden Gate."

The architectural inspiration, the spirit of Sea Cliff, is due to Earl B. Bertz, who, having a free hand, a wonderful natural environment to deal with and no difficult problems to hamper him, gave to Sea Cliff a refined, classic architectural treatment. In designing the homes, no hard and fast rules were observed; in some instances, the English Gothic gave a charming effect to the general vista; in others, a Spanish or Italian example was applied. Here and there, the Colonial, the French and other schools of architecture supplied the motif.

Allen & Co. are the builders of all the homes in Sea Cliff which, to date, have a total value of over $3,500,000.

Sea Cliff Has a Diversity of Architecture Much Admired by World Visitors. Earl B. Bertz, Architect, designed all the homes in this neighborhood.

The "Tower Age" in Architecture

Many Fine Buildings Planned

Four Pleasing Perspectives Presented in Duotone This Month

By BERNARD L. JOHNSON

Editor, American Builder

DARING investments of capital in new and notable buildings are being announced almost every week in the United States. Architecturally, this period will be known to posterity as the "Tower Age." Announcement has just been made of an enormous new group of buildings in Chicago to house an American Hall of Agriculture. This auditorium is to be the largest in the United States. Fronting Michigan Avenue near the Boulevard Link Bridge, a towering office building is planned in connection with this project which will overshadow the Tribune Tower, the Jewelers' Building and rival in height New York's highest—the Woolworth Building.

Pittsburgh is to have one of the most spectacular of tower buildings for the University of Pittsburgh and we believe our readers will be particularly interested in the perspective drawing of it which we present in this month's Art Supplement. The architect has given this building a treatment which emphasized its great height and makes it distinctive. Gothic in style, it is still quite unlike anything ever built. Variety is given to this month's selections by including an office building, a church, a university and a memorial building of great beauty.

Murray Hill Office Building, New York City—The 26-story Murray Hill Office Building, now being erected on the northeast corner of Forty-fifth Street and Madison Avenue, New York City, will be completed next October.

Its exterior will be of a modified Italian Renaissance design with the lower part displaying more of the characteristics of the Florentine period and blending into the upper part, reminiscent of the Venetian period. The first three stories are of sandstone and above that a rough facade effect will be achieved by the use of gray terra cotta and of a coffee colored brick. The show windows will be surrounded by carved figures modeled after the Italian figures of the 16th century.

The entrance will be similarly treated with carvings of the same period. The lobby will have a painted vaulted ceiling and marble walls. It is built strictly in accord with the New York City zoning regulations and all the dormers are concentrated on the corner giving the building a rather unique effect. The windows are unusually wide, their steel casings being 5 feet 6 inches across. Units of offices will be constructed to meet the demands of prospective tenants.

Bryn Mawr Community Church, Chicago—As is evidenced by the illustration, the Bryn Mawr Community Church, designed by Granger, Lowe & Bollenbacher, has been developed in the Gothic type of architecture. There probably is no other type of architecture that adapts itself quite so well to church building as the Gothic. It is a type of church architecture that can be adapted to all creeds and sects and immediately stamps itself as being a place of worship.

This building, to be erected at 7000 S. Jeffery Avenue, in the midst of a rapidly growing community, is designed with the intent of meeting the needs of social, as well as spiritual life. There will be a gymnasium and game room, showers, school rooms, rest rooms, club rooms, a large dining room and a well equipped kitchen. The church auditorium will seat in the neighborhood of 700 and will be truly Gothic in development. The estimated cost is $250,000. A small community building, erected when the community was thinly inhabited, has been enlarged and plans are now under way for the building of the church and another addition to the community house. Bedford stone will be used in the building of this church. The lot is 200 by 134, a corner location.

Chas. E. Anderson, of Chicago, was the contractor for the alterational and addition work to the old Community House and is at present preparing figures for the new work, which will undoubtedly go ahead the early part of this year.

INVITATION TO ARCHITECTS—We particularly request the architects who are numbered among our Big Family of readers to submit perspective sketches of their best recent or projected work for reproduction in the American Builder Art Supplement of Notable Architecture. Sketches in pen and ink, pencil or crayon are preferred. A photographic print of the sketch, not smaller than 7 by 10 inches may be submitted if desired.

We will appreciate your co-operation in making this duo-tone lithographed supplement of American Builder the most notable in the architectural and building field.—Editor.

University of Pittsburgh, Pittsburgh, Pa.—The architect of this impressive building, Charles Z. Klauder, of Philadelphia, has employed a rather unusual treatment which unifies the design with sweeping lines extending from base to pinnacle. It will be 52 stories—680 feet—in height, springing from a base which is to be 360 feet long by 260 feet wide. The building, of course, will be of steel frame construction, faced with Kentucky limestone. It is the result of years of planning by Chancellor John G. Bowman and other prominent Pittsburgh men interested in education.

The building is to cost $10,000,000 and will house every department of the university except the schools of medicine and dentistry. The saving in site and upkeep of the building, it is expected, will more than offset the increased cost of building to such a dizzy height and making the structure rigid against wind pressure. It will be equipped with 16 high speed elevators of the latest type, capable of traveling from the ground to the 52nd floor in about a minute, providing no stops are made.

Centennial Memorial Building, Springfield, Ill.—This building, recently completed by the state of Illinois, commemorates the 100th anniversary of the admission of Illinois into the Union. Our plate is from perspective drawing of the architects, Richard E. Schmidt and Hugh M. G. Garden, who designed the building. Edgar Martin was supervising architect.

Graceful dignity is expressed in the architecture of this building, with its 12 Corinthian columns, which harmonizes well with the Capitol Building which it flanks. Sufficient land has been acquired by the state for four departmental buildings surrounding the Capitol, to relieve congestion in the departments. The Centennial Building houses Memorial Hall, in which the historical treasures of the state are preserved, the state library, the state historical library, the state museum, the Lincoln Memorial room, a Grand Army room, an assembly room and minor department offices. The base of the building is of gray granite and the walls of Indiana limestone.

ART SUPPLEMENT *of* NOTABLE ARCHITECTURE

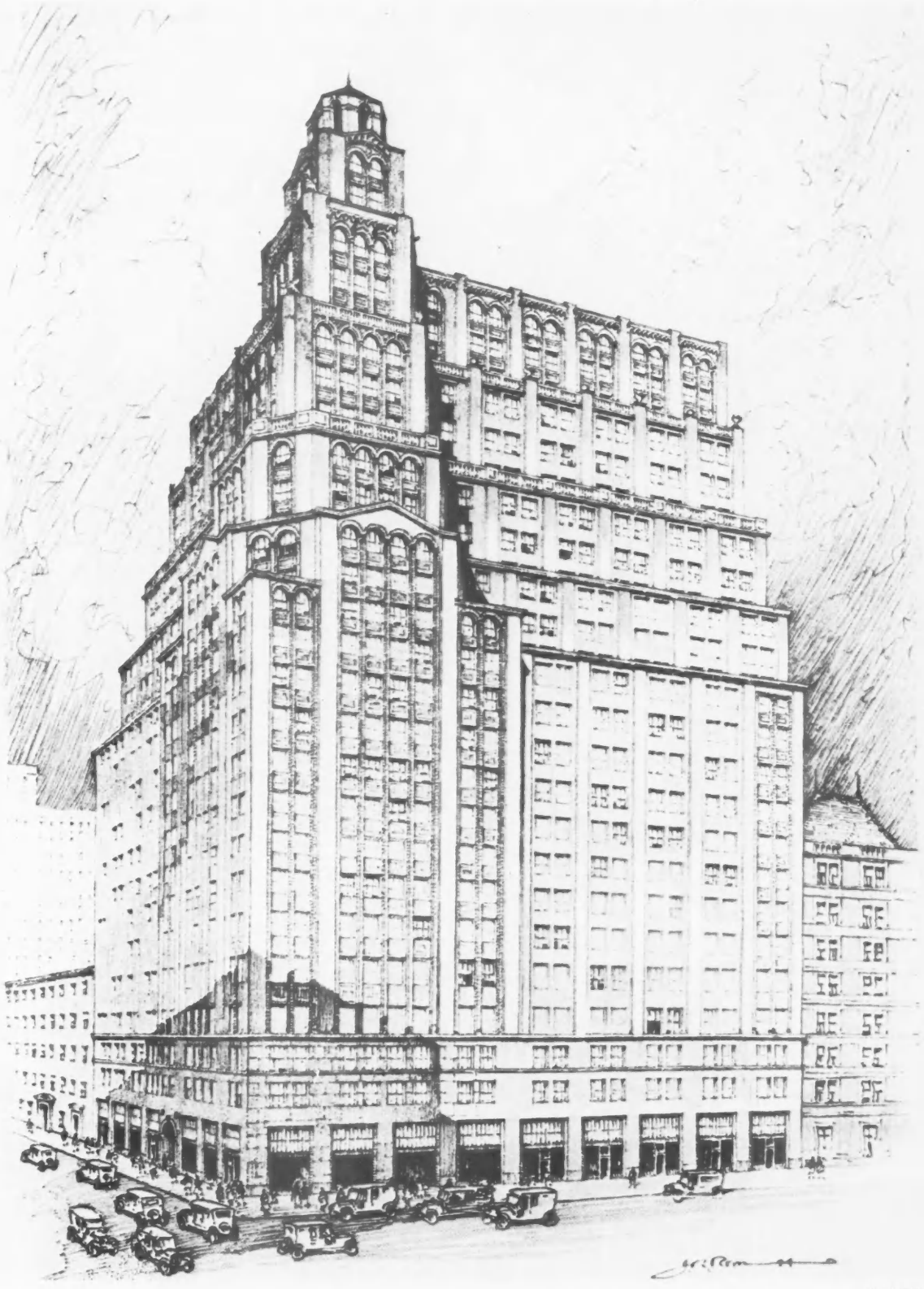


PLATE XIII

The MURRAY HILL BUILDING, Madison Ave. at 45th St., New York; Rouse & Goldstone, New York, Architects; is an interesting example of set-backs; 25 stories high; to cost $8,000,000; completion scheduled for next October.

PLATE XIV

The Bryn Mawr Community Church, 7000 Jeffery Ave., Chicago; Granger, Lowe & Bollenbacher, Chicago, Architects; a Gothic group to house the many spiritual, social and athletic activities of a fast growing community.

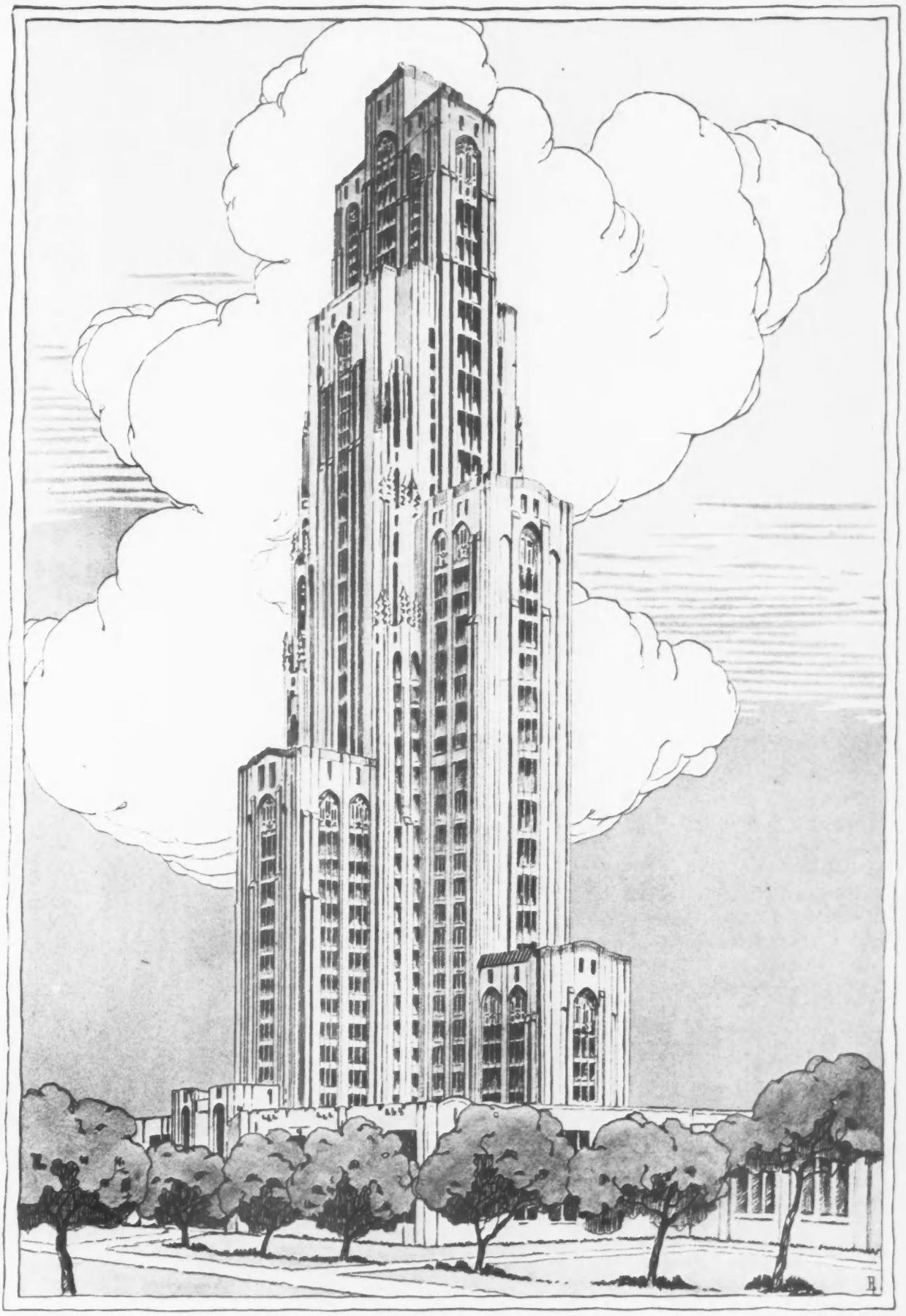


PLATE XV

Pittsburgh's Cathedral of Learning, to be erected in 1925 by the University of Pittsburgh; cost $10,000,000; 52 stories, 680 feet tall; capacity 12,000 students; Charles Z. Klauder, Philadelphia, Architect.

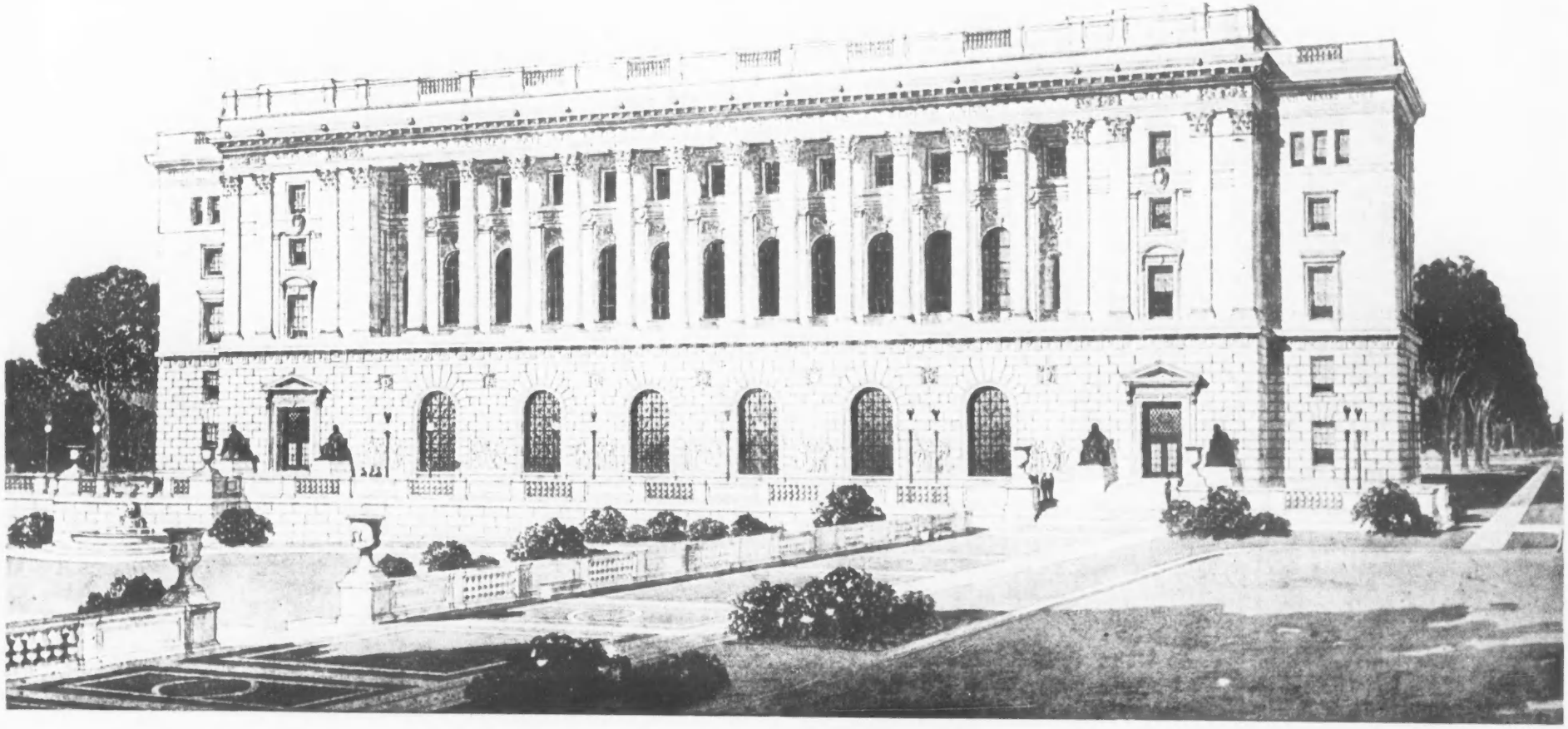


PLATE XVI

The Centennial Memorial Building, Springfield, Ill.; Schmidt, Garden & Martin, Chicago, Architects; Erected to commemorate the one-hundredth anniversary of the admission of the State of Illinois to the Union.

How to Save 10% and 10% and 10%

Construction of Rippowam Village at Stamford, Connecticut, Demonstrates Some Interesting Cost Saving Possibilities

By W. H. HAM

Treasurer and General Manager of the Bridgeport Housing Co.

RIPPOWAM VILLAGE is an evolution and not a first effort in construction of a village of small homes nestled together. The fundamentals are few in number but most important; and study of the village as a whole is more important in many ways than the study of the details however interesting these may be.

Rippowam Village is the third of its kind to be built; and has as its predecessors built along similar lines, Connecticut Village in Bridgeport, Seaside Village in Bridgeport, and plans now completed of Charter Oak Village in South Manchester, Conn.

Two of the largest manufacturers in New England have been instrumental in having these plans prepared under the direction of the Bridgeport Housing Company. The plans are now standardized and models in wood of all the units are available for this type of village. From these models a miniature village can be built to suit any lot of land.

Among the fundamental principles which have been considered and studied very carefully, the following are the outstanding: First, the demand for the small unit of home centrally located in a manufacturing city.

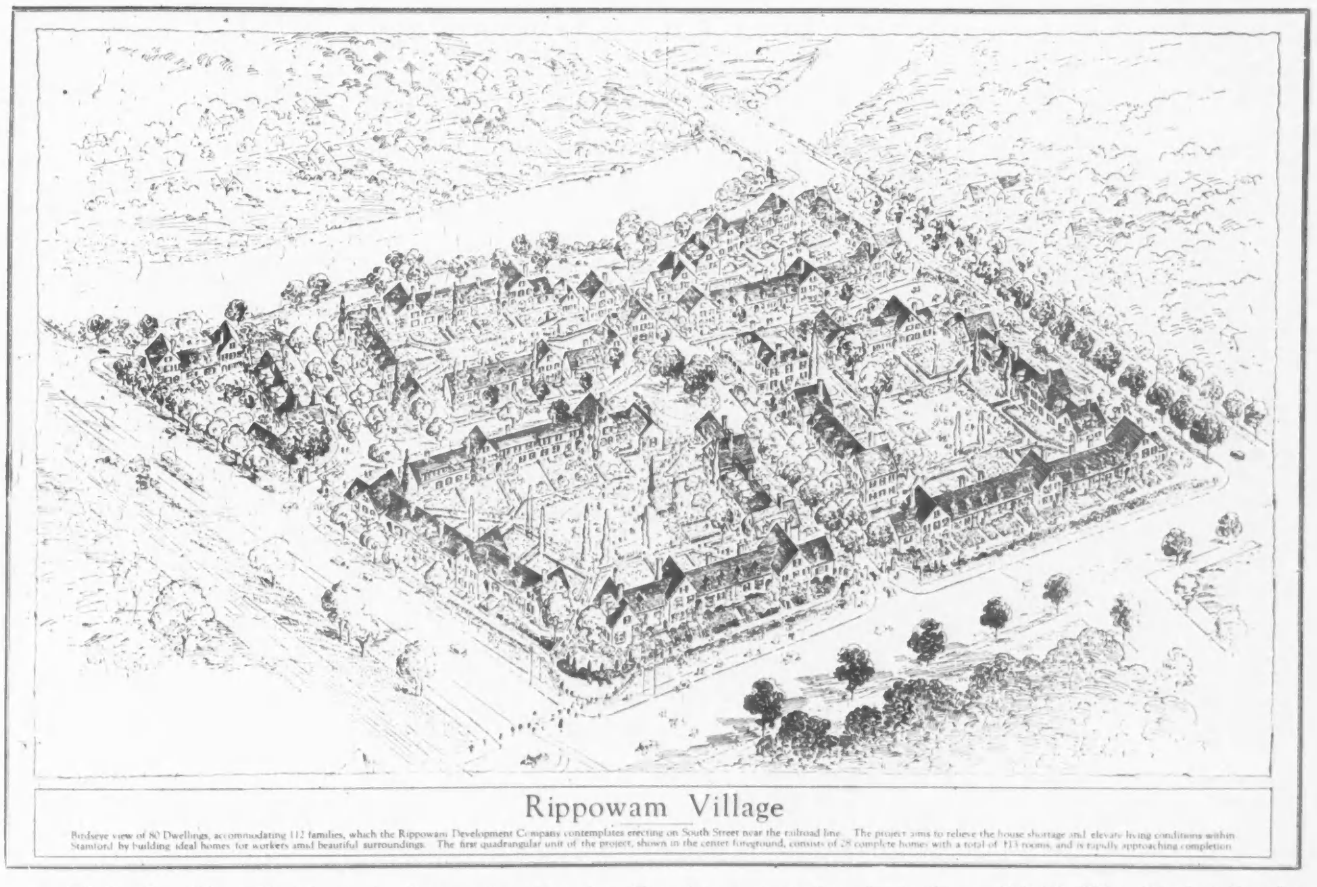
Second, building these houses in such a way as to satisfy the artistic requirements which all houses should satisfy, and give to a manufacturing company of large means an accomplishment of which they would be proud.

Third, the preparation of standardized home units which can be repeated a large number of times without monotony and which may with results of repetition be reduced in price from the high figures of the present time to a commercial proposition.

The properties as built are almost commercial, and this means that the owners can secure from rentals at the market rate, a sufficient income to take care of proper allowance for maintenance and repairs, a proper allowance for insurance—fire and accident—and a fair amount for depreciation which would overcome the obsolescence of the buildings over a long period of years, and a return on the investment of between 5½ and 6 per cent.

This on the face of it shows that the properties are not speculative and can only become such when the price of building is reduced, a matter of 10 to 25 per cent.

A statement of the contractor on this work in the preparation of the estimate is very significant. "All building," said he, "can be reduced 10 per cent by substitutions and by careful study." It is the opinion of the writer of this article that this is true and that a second 10 per cent can be saved



Bird's-Eye View Sketch of the Interesting Housing Development at Stamford, Conn., Which Was Carried Out by the Author and His Associates for the Yale & Towne Mfg. Co. Some unique but very practical cost-saving methods were demonstrated on this job.

by repetition of exactly the same type of building and a continuation of the construction with the same mechanics as far as possible.

I think it is possible to change the program of building in such a way as to save another 10 per cent by careful planning of the work, careful study of the detailed drawings so as to be sure that all elements of repetition are carefully provided for and fabricated products as far as now possible with the present day standards of building construction in mind can be made, so as to bring to the job as many parts already built as possible and have these as completely fabricated as possible.

I think it is a fair assumption that the first 10 per cent above referred to was eliminated from the cost of this job; the second 10 per cent I think is readily available and can be counted on without any difficulty when the next unit is built. The third 10 per cent I believe is absolutely possible for developments of this character with study on the details, and use of a complete and exact set of shop drawings like those used for bridge building.

For example, a bridge which is to be erected in Queenstown, Africa, is fabricated at Ambridge, Pa., from drawings made in Boston, Mass., and erected by a company whose office is in Pittsburgh. Every drawing means something. Every measurement is exact. Every line is drawn to scale. And the bridge is erected without any difficulty and everybody expects this result. The result is one of long study of plans by plan makers and fabrication of the crude materials in a shop whose every expert knows plans and their meanings, and the refinements of the work is entirely in the hands of the fabricators. The erectors of the structure do not dictate except in minor details.

A Good Many Roof Dormers of Uniform Size and Design Were Required. They were all shop-built and quickly set in place on the roof.

Almost the reverse of this condition is found in the building trades where such structures are built. The superintendent on the job details to the foreman a lot of work to do and gives him a bunch of blueprints more or less accurate without much detail in the way of dimensions, mostly crude materials for the structure itself, uncut, and unworked. The finished materials, a most important function of the results for the interior of the home and very largely responsible for the appearance of the exterior of the home, come in the unfinished condition of boards, mouldings, and brackets, to be put together on the job by workmen who have few tools, and only the meagerest amount of machinery.

Each Dormer Weighed About 240 Pounds. They were easily handled. Why do work at a disadvantage on an awkward roof slope that can be more quickly and better done in the shop?

Take, for example a dormer window. Its frame consists of two by fours, which are sawed from rough materials, usually one cut to get the approximate length, and two additional cuts to get the actual size On the outside of these joists, boarding is nailed and a box is created on the roof of the building from a scaffold prepared, and two ladders, usually two men working together. Finally a hip roof is made by a similar process and eventually the window frame is installed and very long after a window is put in and then taken out again and fitted, and some weights are added, and months after this, approximately sixty days to ninety days according to the size of the job, somebody paints that window, and a long time after this someone cleans off the putty and the paint. And at a still later date, someone hangs the shade and the dormer window is fairly complete.

The weight of a dormer of average size is probably about two hundred pounds, without the plaster on the inside of the sheathing, and if plaster board is used, as it ought to be and was at Rippowam Village, it would add forty pounds, or two hundred and fifty pounds maximum for the whole dormer.

It would be unbelievable that a man working with the transportation facilities of the present day would build a dormer anywhere except in his shop, but many arguments have to

A Glimpse of One of the Interior Courts or Central Community Gardens at Rippowam Village. The center of each block was developed as a park or a playground. Arthur A. Shurtleff, Boston, city planning architect.

be gone into with foremen and superintendents and contractors themselves to have this little element of the building fabricated where it should be, where machines are ready to cut off all kinds of materials and where the waste material of the shop can be used very largely for these short member parts of a building.

A dog house of equal size for a large dog would be bought at the hardware store and carried home on the back seat of the flivver many times without any thought of any other way of preparing a home for the dog, and still the same sized member of the building is almost universally built on the building, and the man on the top framing materials sent up to him from the man below, and the drawings often are not accurate and the window frames are liable to minutest variations depending upon the location in the country where the sash was bought or the frames were made, and if the sash and the frame were not made for the same standard, there is liable to be a very great variation which is almost beyond repair in the building.

However, we are not quarreling with the building business. Rippowam Village was built to prove that *art* and *comfort* and *simplicity* and *economy* could go hand in hand and that this village would satisfy the people who ought to live in it, and come very close to the fundamental theme of all building programs, namely, commercial results.

Electus Litchfield, one of the fine architects of New York, stated to the writer that he would have been proud to have done this piece of work, and I thanked him for his kind words, but he said: "That is not all. You and I ought to build a city together, where we could have beauty and economy, and where the size of the home would be designed to meet the requirements of the family, and where the character of the materials and workmanship were intended for a long life."

Rippowam Village is a finished demonstration of the possibility of doing work in a simple, elemental way. Go to Portsmouth, N. H., and walk up and down the streets of that beautiful old New England city and you will see many examples of a similar treatment of walls and windows, doorways and the roofing of the building. Those houses in Portsmouth are usually of the larger scale, intended for the homes of the well-to-do people of the shipping port in the days of the clipper ship. However, Portsmouth has marked one thing well, and that is the proportion of the building, and whether those be made in large scale or small scale, the elemental proportions remain, and the use of them lends beauty to the structure.

Bay Windows and Roof Dormers Were Standardized as to Size and Design, Then Built in the Shop, and Delivered to Each Job Complete, Ready for Installing.

Fenestration is another feature of building construction which has only been touched in the last few years by careful hands. A riot of disorder has progressed out of the Victorian badness and not much evidence that the people understand is yet to be observed. Fenestration of Rippowam Village is pleasing because the houses are small, and the windows are not only small but good. Where light and air are needed in quantity, two of them are used together. Always the bay window is used where the outlook is on a pleasant scene, or to reach the exposure desired for sun and air. These bay windows are the first evidence on this job that fabrication of parts of buildings is at hand. The bay windows came on an automobile truck, all completed ready to build in on the brick wall and a bay window was established on the wall exactly the same as the simple rough window frame, only it was a completed bay. I say

completed; I mean the structure of the bay itself was completed. The sashes came from another part of the world and were put in afterward.

There is no reason why the bay window, including its window sash, cords, hardware, every piece of the bay window should not have been shipped ready made to the job and built in, only it isn't done that way, that's the only reason, and I'm sure that with more effort given to planning for a large number of these which can be repeated, from standards which can be adopted, and developed in the shop, we can lower the cost of the building tremendously.

Rippowam Village surrounds a garden area and a play ground. And why? "Home, Sweet Home," is a song, a song without a building simple in its lines, fine in its fenestration, but back of which and around which there has always been a garden and a place for children to play. I have no doubts that children sing "Home, Sweet Home" thinking it is a song instead of thinking that it is a building, planned for a family to live in, planned by a simple, honest, efficient carpenter of the past, worked in harmony with good taste of that period and I am quite sure that Rippowam Village presents the opportunity for the making of home, sweet home, and that was the new home of the bride and groom and should have the protection of thought and care always given to that happy state of family life, the romantic period of marriage.

And so Rippowam Village has reached the hearts of the people because it suits the bride and groom, and if it were not for the bride and groom and the next stage in family life where young children prevail and dictate the requirements of the family, Rippowam Village would not be worth the effort and study and preparation of plans, for unless there are weddings and families, we need not build, and this brings us to the fundamental element in Rippowam Village. It is intended for the bride and groom and those families having small children, who need the protection from the street demons, and perhaps more important, protection from the devastating mental influences of mediocrity closely associated with the tenements of all of our great cities.

Rippowam Village is intended to get away from mediocrity and to reach that spark in the human heart which is not touched at all in the tier upon tier of homes piled up on each other flat-wise. Rippowam Village is built as a challenge to the flat builders of our great cities. We have ample area in all of our metropolitan districts to build as open as

The Architects of Rippowam Village, Perry, Shaw & Hepburn, of New York, Used Great Skill in Combining Standardized Elements, Such as Colonial Entrances, Projecting Bay Windows and Roof Dormers, in Such a Way as to Give Variety and Picturesqueness to the Whole Group of Houses at Rippowam Village, at the Same Time Keeping the Cost to a Minimum.

the gardens and the play ground back of the houses will be one of the considerable elements of the happiness of the young people who make one of the home units of this city village their first home.

Take the four-room house, for example. A house almost a duplicate of this built in Seaside Village in Bridgeport was furnished by the Good Housekeeping Institute, a branch of the *Good Housekeeping* magazine for the Bridgeport Housing Company, with a budget rigidly adhered to for the total sum of $300.00, including with the furnishing fifteen good books suitable for the family who must live in this simple surrounding, for the first unit of their library.

This house was opened to the public and the comment on the books and the furnishings was interesting to everybody connected with the effort, and the whole city talked about it for weeks. One woman who came to visit this home said: "It is not quite modest to include in the library of a bride and groom a book on the Care and Feeding of Children," and this simple remark is repeated here to show that those who visited this home were sure in their own minds that this Rippowam Village, and our transportation facilities will not be overburdened if we build all of our areas with a play ground for each block. No song has ever been written which starts "Flat, Sweet Flat," or "Tenement, Sweet Tenement," and it is believed that Rippowam Village has been so carefully studied that those who live there may speak about their cozy little home in words of endearment. We who have built this village believe in our work because it is just plain every day common sense with a little of humanity and art thrown in.

✣

Free Employment Agencies Advocated

THE establishment of a free nation-wide public employment service, to be maintained by the states in co-operation with the federal and local governments, for the benefit of men, women, and juniors in all walks of life, is recommended by the Russell Sage Foundation in a 600-page report on employment methods, needs, and agencies which was made public recently as the result of a five-year study which took the foundation's investigators into more than seventy cities of the United States and Canada.

Modern Woodmen Memorial Building

Charles E. Thomas, Architect

ONE of the greatest humanitarian enterprises in the country is that conducted by the fraternal order of the Modern Woodmen of America at its sanitarium near Colorado Springs. The latest addition to its large plant is a Memorial Building, designed to house all the patient activities, occupational and recreative.

The slope of site from the main road permits of a full story below in which is housed the vocational therapy department consisting of a shop and accessories for woodwork, ample facilities for basketry, reed work, art metal and similar occupations; also a full photographic department for use by institution as well as patients.

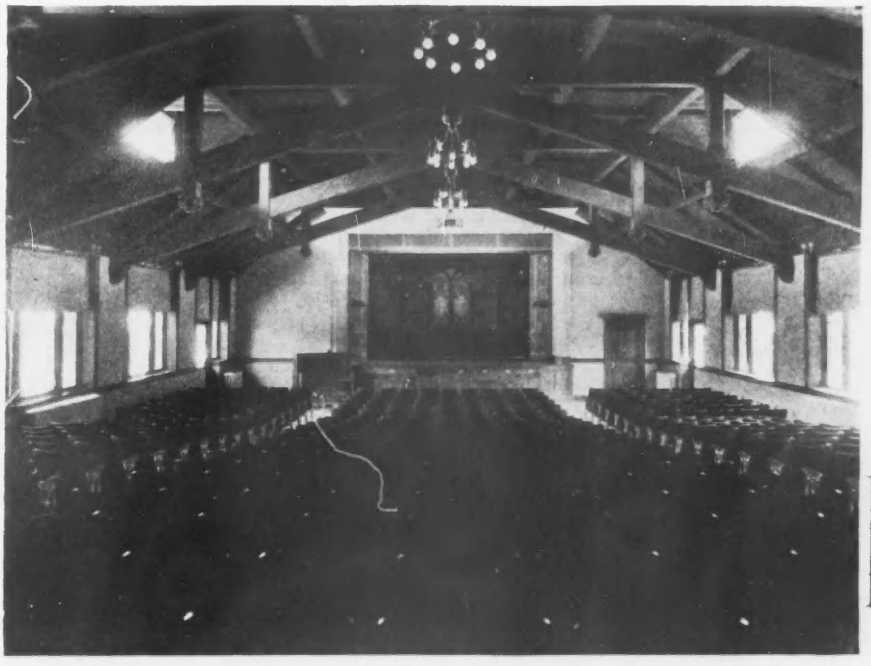
Back of the vocational therapy department is located a small officers' club.

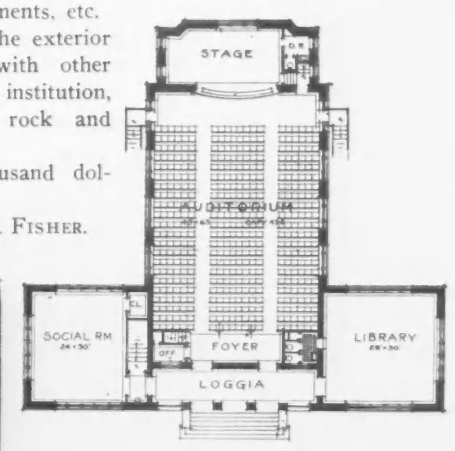
The front part of first story is occupied by the library on one side and a social room on the other, connected by the open loggia. The assembly hall is entered from the loggia and is designed to appropriately house the various activities for which gatherings are held, such as religious services, pictures, entertainments, etc.

The design of the exterior is in harmony with other structures of the institution, using local cap rock and dark tile roof.

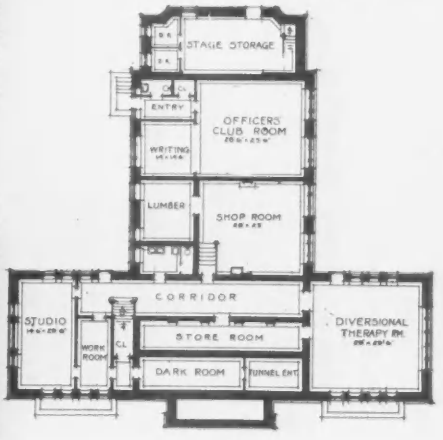
Cost, sixty thousand dollars.

THEO. M. FISHER.



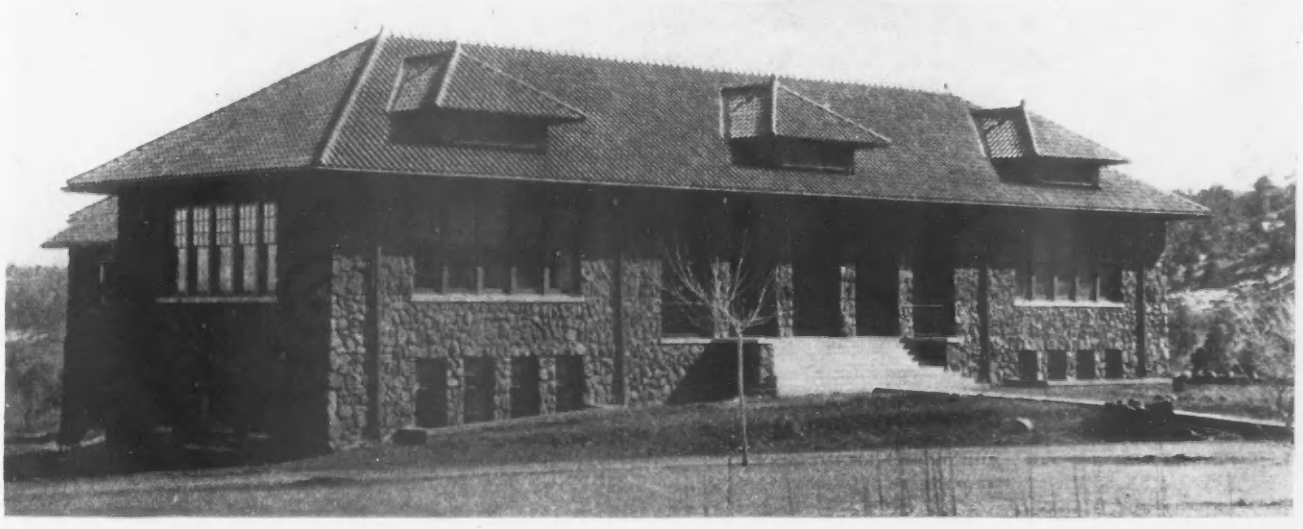


FIRST FLOOR PLAN

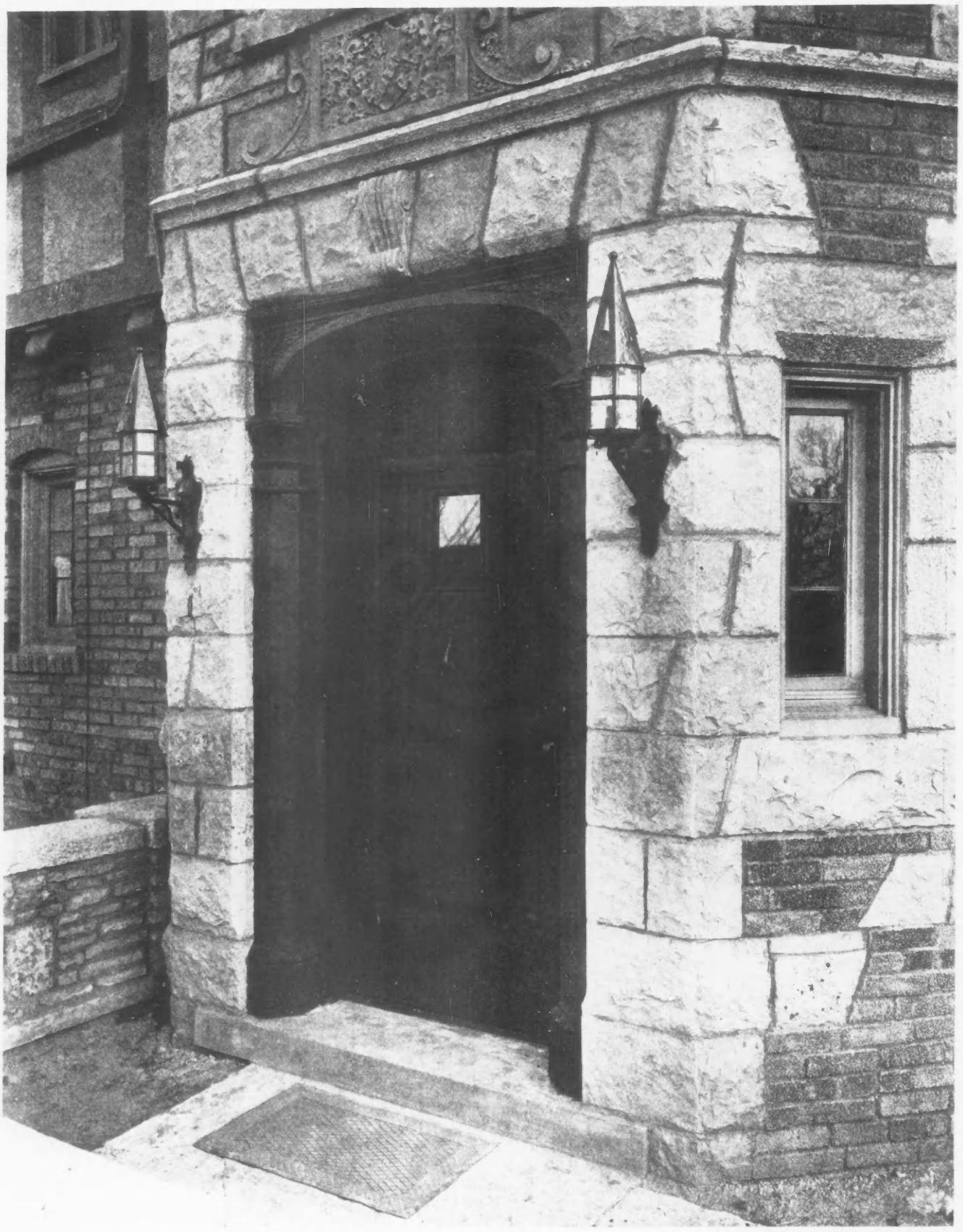


BASEMENT FLOOR PLAGE

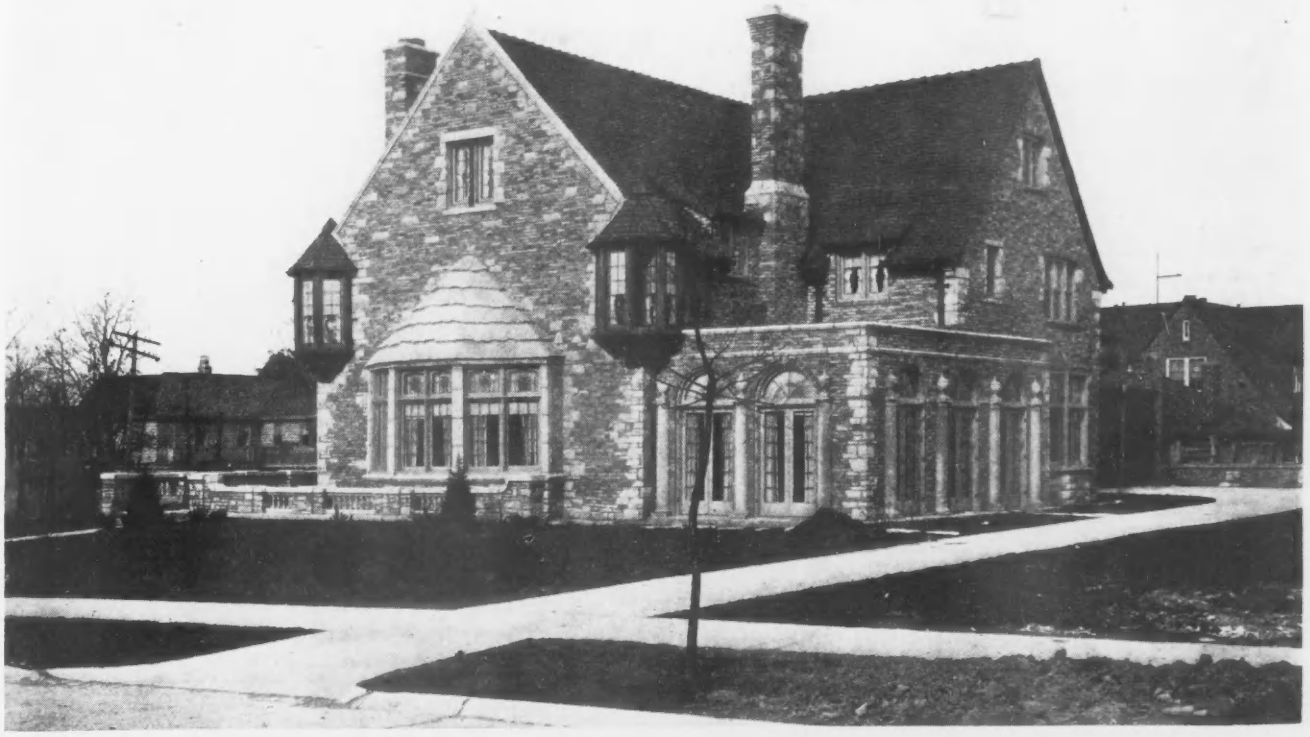
Auditorium Memorial Building, Modern Woodmen of America Sanitarium.



Memorial Building, Modern Woodmen of America Sanitarium at Colorado Springs, Colo. Charles E. Thomas, architect.



The Entrance to the New Home of Frank F. Hase, Well Known Manufacturer of Contractors' Equipment, Milwaukee, Wis., Features the Rough Hewn Timbers and Hand-Wrought Hardware, and Quaint Side Lanterns of an Earlier Day. The architect, Thomas Van Alyea, of Milwaukee, has handled these details in connection with the light gray brick walls and Lannon stone trim in a most commendable style. It is interesting that Dan Danielson, the contractor, using his regular equipment, mixed all the mortar for this house with a power mortar mixer, and ran all the millwork on a power saw rig, both of Mr. Hase's manufacture.



View of the Delightful Sun Room in the Residence of Frank F. Hase, Esq., Milwaukee, Wis. Above, general view of the house showing the south exposure.

The Welder as an Artist

More Use of Ornamental Iron in Building Predicted

By D. C. McGIEHAN

ONE of the differences between the field of applied science and that of art occurs in choice. Science continually craves something new—something to lessen labor and facilitate production, whereas art continues two groups, the new and the old. We have the impressionistic work of the moderns and the conservative and realistic work of the old school.

Consider one phase of art—ornamental iron work. In centuries past, all this was wrought by hand with no better tools than a forge, an anvil, a hammer and cold chisel. The worker in iron was a true artist. He probably spent days in working several bars into a small candelabra. When it came to making up a large ornamental gate—why that was labor for months. Now, however, conditions are greatly changed. We moderns are worshippers of a fetish—production. Machines grind out our ornaments as well as almost everything else that touches our lives.

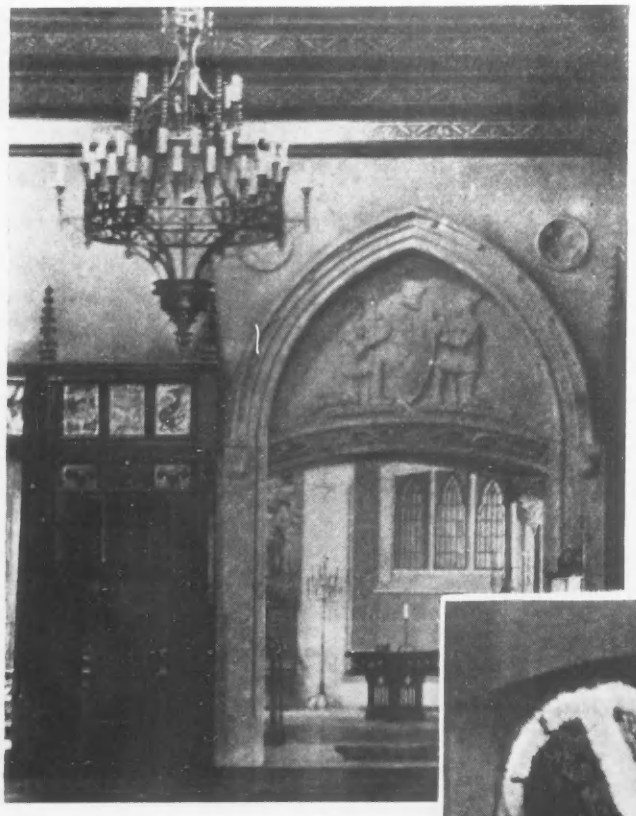


Fig. 1. Chandelier Made Up of Many Small Pieces of Iron Which Were Easily Cut, Bent to Shape and Welded by the Oxy-Acetylene Process.

There have been reversals, however, and we at least admire the handsome wrought work of the past. In fact, there are still among us men who can duplicate it, but they are few and their time is extremely valuable. Most of us do not care to spend a thousand dollars for a hand-wrought candelabra or bridge lamp and yet we desire these in period design.

Fortunately, we are not required to forego possession of such objects. An oxy-acetylene welding and cutting outfit in the hands, not of a natural born artist, or of a highly trained craftsman, but rather just a practical operator, will greatly cut the time and cost of producing the most intricate of ornamental iron products. All the welder needs is a photograph or sketch to work from.

That the motion picture industry realizes the rapidity and ease with which beautiful wrought creations may be produced by means of the oxy-acetylene process is proved by the accompanying illustrations. They are all enlargements from the film "The Hunchback of Notre Dame" and show various ornamental iron fixtures which were wholly fabricated by by oxy-acetylene cutting and welding at the studios of the producing company.

The chandelier of Fig. 1 is made up of many small pieces of iron which were cut to size with the cutting blowpipe, then heated with the welding blowpipes, bent to required shape and finally welded in place. Not only would it be extremely difficult to forge weld an intricate piece like this, but such welds are not as durable as one made by the oxy-acetylene process.

The table candelabra shown in Fig. 2 is effective, yet easy to make. Here again is merely an assembling proposition, for the separate pieces after being cut, heated, and bent to shape are readily oxwelded together.

Fig. 3 illustrates a type of floor candelabra which were made complete in a few hours. The candle sockets of such a piece are readily formed by heating and swaging down short nipples of 1-inch pipe, then reaming out washers and

Fig. 2. Thousands Have Admired the Magnificent Furnishing and Stage Properties Used in the Film, "The Hunchback of Notre Dame." The wrought-iron candelabra, floor lamps and chandelier of wrought iron were all easily and inexpensively made with the help of the oxy-acetylene process.

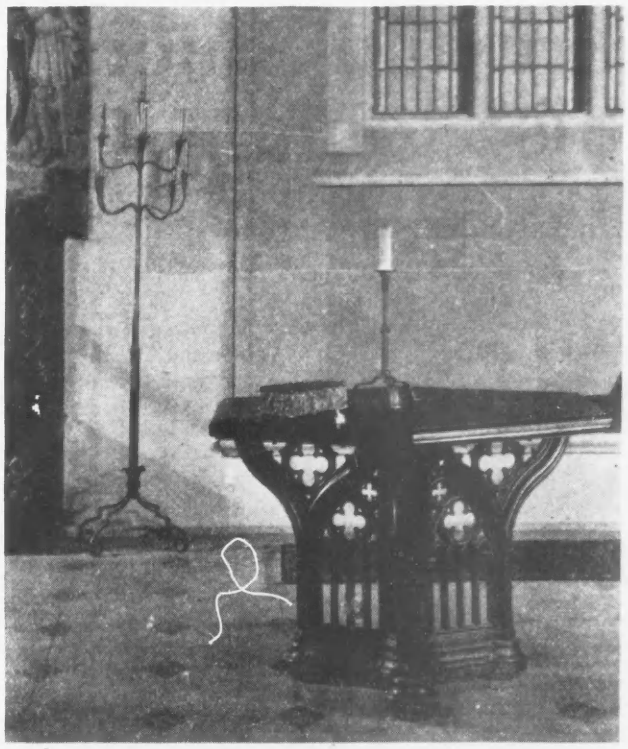


Fig. 3. Candle Stick and Floor Lamp Used in the Film, "The Hunchback of Notre Dame," Made of Wrought Iron at Small Expense Through the Help of the Oxy-Acetylene Flame.

oxwelding one to the top of each socket. If the whole socket is then heated and peaned slightly, an antique hand wrought appearance will be produced. Small rods are next heated, bent in the desired curves, and oxwelded to the bottoms of the candle sockets. Then the free ends of these rods are bunched, tack-welded together and finally oxwelded to the main standard. This may be a plain, square, or round bar throughout its length, a combination of the two, or a twisted bar,. A decorative effect is obtained by heating a square bar with the blowpipe and then twisting it. If it is desired to fit the candelabra for electric candles or make a lamp rather than a candelabra, pipe can be used for the standard, thus permitting wires to pass through it. The feet of these candelabras can be made in accordance with almost an infinite number designs and are readily attached to the standard by oxwelding.

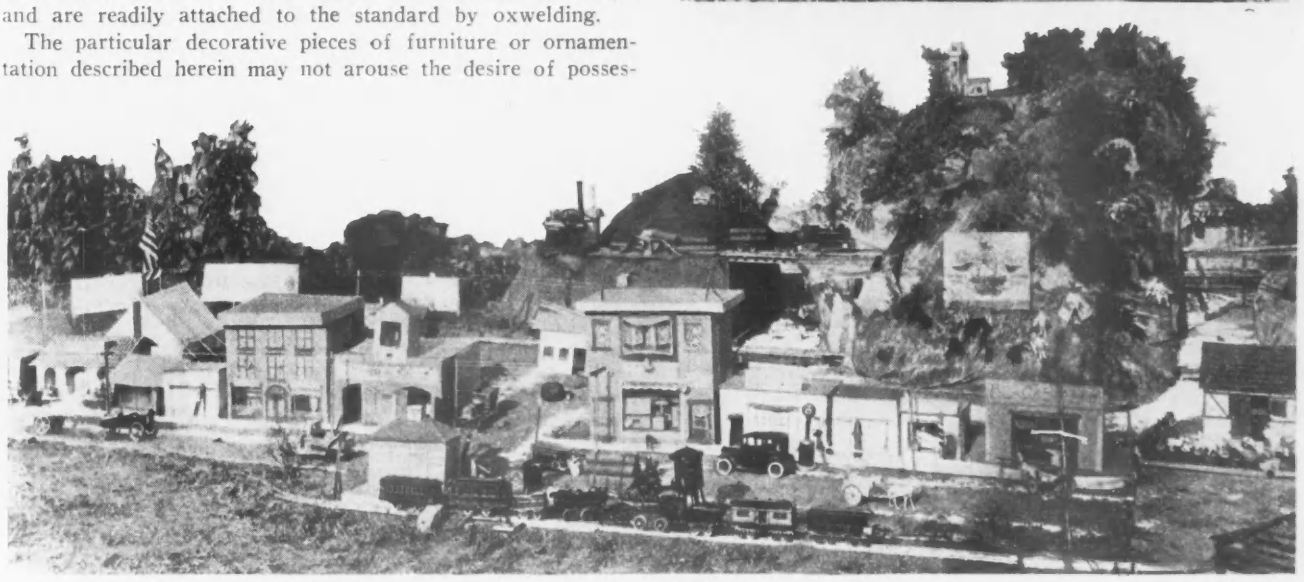
The particular decorative pieces of furniture or ornamentation described herein may not arouse the desire of possession in the reader, but if he happens to need a floor lamp, bridge lamp or rustic garden gate, not much thought is required to connect the two ideas and it should not be long before the downtown welding job is doing the necessary artistic work.

✣

Boy of Twelve Builds City of Cardboard

GLENN MACELROY, the twelve-year-old son of a Cincinnati merchant, was awarded a prize of $250.00 in the recent Better Homes Contest when he constructed an entire city of cardboard.

His work, illustrated below, is a replica of Newtown, a Cincinnati suburb, and includes a logging camp, coal mine, and faithful copies of all of the buildings in the town. All of the window displays, trains, automobiles, and fire trucks were also constructed of cardboard, and painted in natural colors.



Youthful Architect Wins $250 Prize in Better Homes Contest. Glenn MacElroy (above), son of a Cincinnati, O., merchant, recently won a prize of $250 for constructing an entire miniature town of cardboard in a better homes contest. Here he is with one of the cranes and a "wrecked flivver," which were part of his garage exhibit.

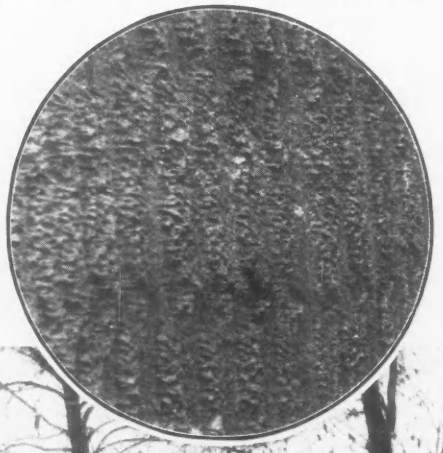
Italian Architecture and Stucco Beautify This Home

Influence of the Italian Villa Seen in This Modern Eight Room Residence Designed by the Owner After an Extended Stay Abroad

THE sunny skies of Italy, the blue waters of the Mediterranean, the gardens and flowers surrounding Italian villas—all these enhance the beauty of Italian house designs. But the architecture itself is graceful and appealing and many new homes in the United States are being modeled along these lines.

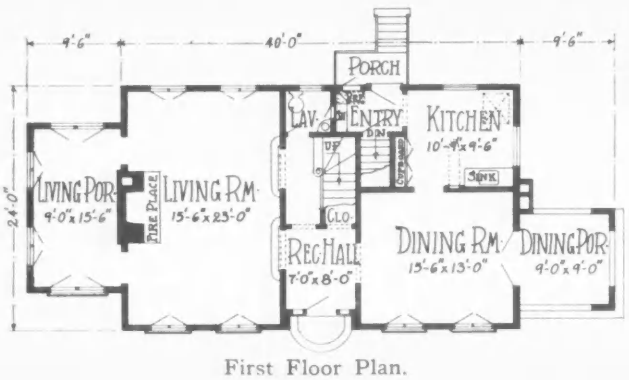
An instance of this is to be found in the new home of Grinnell F. Oliver, at Wheaton, the suburban city which is the county seat of Du Page County, Illinois, and the site of two famous golf courses—that of the Chicago Golf Club and the Green Valley Golf Club. Many players who visit these courses, select Wheaton as a home site, as did Mr. Oliver, who embarked on the creative pleasure of designing his own home. Although engaged in the manufacture of auto parts, Mr. Oliver has had a training as an electrical engineer and so was well qualified for the work of design. However, he engaged an architect, Mr. H. Maxwell Rubens, to perfect the plans and the result is both pleasing and practical.

The house is located on four large lots in a newly developed section of Wheaton, at Harrison Avenue and Howard Street.

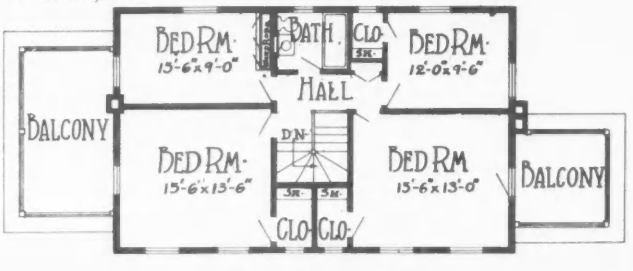


Close-Up View Showing Texture of Stucco Work.

Ornamental Terra Cotta in the Window Arches, a Special Tint and Texture of Stucco, a Red Tile Roof and Italian Architecture Feature This Modern Home at Wheaton, Ill.



First Floor Plan.



Second Floor Plan.

The architecture is after the Italian, with many arched entrances. Even the full length casement windows of the lower floor are set in arches and, in the upper part of each is a piece of decorative terra cotta, to suggest the sgraffitto decoration usually executed in special stucco for Italian villas. Outside of each of the casement windows is a wrought iron railing. Owing to lack of local facilities this had to be hand wrought by the "village blacksmith."

No photograph can do entire justice to this fine Wheaton home, the charm of which is due largely to its coloring and special stucco texture.

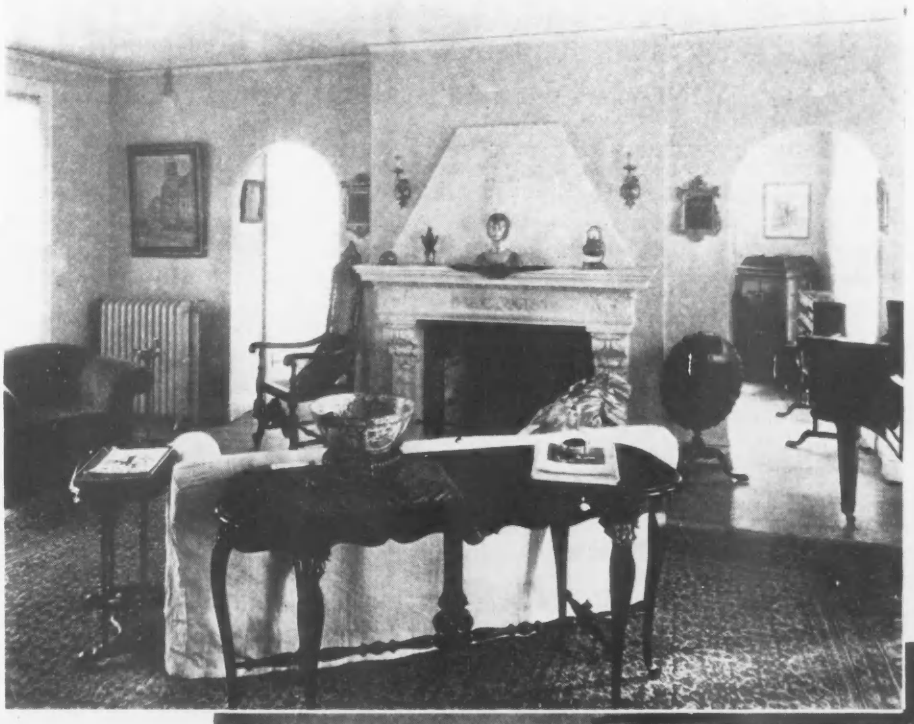
The roof is of Spanish red tile, which gives a rich effect against the background of summer foliage. The stucco has a special sweep and curl which provides a valuable texture effect and the tint is a warm sienna — one of the lighter orange tints. This stucco is of magnesite mixed with calcium chloride, which gave rise to the fiction that it was mixed with fuel oil. Mr. Oliver himself had to show the stucco workers the special curl or texture he wanted. A broom and a wire brush were used to secure the desired sweep. The stucco finish was carried out on the under side of the eaves along the front and back of the house.

When our photographs were taken, the grading had just been completed and, shrubbery and bulbs have since been set out in large number, which will give the house a setting of great beauty. The land slopes sharply to the south and here Mr Oliver plans to install an outdoor swimming pool of concrete which will be 65 feet long by 35 feet in width. The ground floor dimensions of the house are 40 by 24 feet or 59 by 24 feet, including the porches, one of which is enclosed. This porch is connected with the living room and is floored with red tile It is heated—as is the entire house—by hot water radiators and special vapor system valves, which heat the house at extremely low pressure. The building is of hollow tile construction, stuccoed, and is heat-insulated with a fiber insulation. The interior plaster has a sand float finish, painted and all interior trim is mahogany. The floors are oak, unstained, with wax finish. A special decorative fireplace adds to the appearance and cheeriness of the living room, which measure 23 feet by 15 feet 6 inches.

Fine electric light fittings adorn the house, many of Butler silver finish. The window draperies are of fawn-colored silk and the furniture is handsome and appropriate. Numerous pieces of bric-a-brac and ornaments picked up by Mr. Oliver in France and Italy adorn the living rooms. The living room and enclosed porch are on a slightly lower level than the other rooms with a step down from the reception hall.

A fine vista through the rooms on the ground floor is visible through the arched openings, which are without doors. A partition in the basement shutting off the boiler room and laundry provides space for a billiard room.

A two-car garage at the back is finished in the same tint and texture of stucco as the house. The property, complete, represents an investment of well over $25,000.00. Most of the construction work was done under the supervision of Mr. Henry Wheaton, local contractor.



Above: The Fireplace with Ornamental Mantel Adds to the Attractiveness of the Living Room in the Upper Picture. Below: Arched door openings give glimpses of hall and dining room beyond.

A View of the Dining Room Showing Glassed Doors to Dining Porch.

SAVE THE SURFACE DEPARTMENT

Written, Illustrated and Edited by the Headquarters Staff, SAVE THE SURFACE CAMPAIGN

Decorate During Winter Months

Interesting Facts About Colors and Color Schemes

WINTER months are an excellent time of the year to do the interior painting and decorating which is necessary or desirable. Walls and woodwork are dry and in proper condition to receive paint or varnish. The dry, warmed house atmosphere is free from humidity and freshly painted surfaces will dry well. The painters, at his season, have more time than during the "spring rush" and can work more comfortably than in hot weather. Interior painting during the fall and winter is thoroughly practical and work done during these seasons is apt to be more satsifying, and done for less money, than the same work done at other times of the year.

In the use of paint there are two outstanding considerations to be observed. One is the preparation of the surface. If the paint or varnish is to render the best service, the surfaces to which it is applied must be clean, dry and smooth.

The second consideration is the paint or varnish to be used. In every building there are numerous surfaces requiring paint or varnish. Each surface has special requirements and a product should be used that meets these needs. It would not do, for instance, to use a varnish on floors that is intended for interior wood trim. Floor varnish is made specially to withstand traffic and the same principle applies to other paint products. It is just as easy, and no more costly, to use the right product as it is to use the wrong one.

Considering the influence of colors on the value and salability of a property, certain facts about color should be understood before color schemes are selected. On this subject an authority has said: "Color materially affects the appearance of surface according to the speed at which the light rays travel—reflective ability, that is. Red is an aggressive color, irritating to some. Blue, a receding color, is soothing. A dull red does not bring a surface, apparently, as near the eye as a brilliant red.

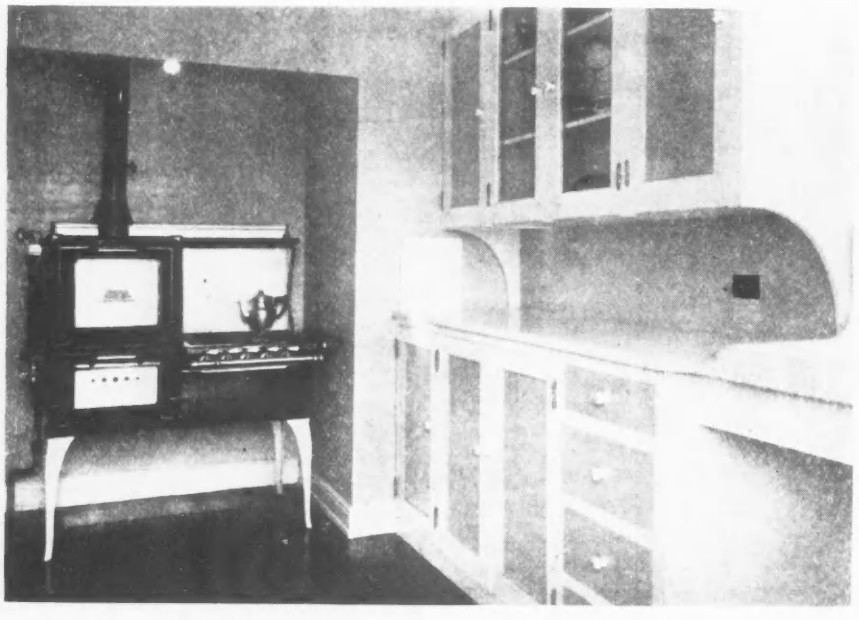
"Green is considered a static color, while gray as well as green, unless influenced either by yellow or blue, retains the apparent position. Yellow appears to enlarge the size of an object or surface without changing its position. For this reason orange can make a surface appear smaller, depending upon the amount of red it contains, or larger if the yellow predominates.

"Violet can be either aggressive or receding, depending upon the amount of red or blue it contains; light violet, like gray, is static unless it leans more to the red."

There are three kinds of color combinations of value in the decorative field. Monochromatic harmony, a combination made up of different values of one color; analogous harmony, a combination made up of related colors or colors which lie next to each other in a selected color scale, such as a combination of yellow, green yellow, green and blue green; complementary harmony, combinations made by the use of contrasting colors.

The first combination produces a restful appearance which, to some, may become tiresome. The second produces interest, it avoids monotony. This is the safest combination to use. The third produces greatest interest and the most individual results.

In decorating interiors attention should be given first to backgrounds. The consideration of the background is essentially a consideration of color. Floors



The Attractive Painted Finish of This Kitchen, According to the Purchaser "Had a Lot to Do With My Buying the House." Decorating can be done better and often cheaper during winter months. In order to help eliminate the dull winter season, a movement is on foot to reduce the wage scale of journeymen painters from fall to early spring.

must give a feeling of strength, walls of stability, ceilings of protection; finishing colors advance or retard these effects. Coloring of walls, floors and ceilings should be less intense than the objects which will appear against them. Ceilings lightest, walls next, floors darkest, with trim either in lighter or a darker shade of the sidewall color—that is the order of coloring as seen in nature—the sky is light, the trees darker and the ground darkest.

Light, warm colors make a dark cold room appear just the opposite. For rooms on the sunny side of the house use the cooler colors. Blue, green and gray make rooms appear larger; yellow, red and orange make them appear smaller. Large areas should always be in subdued tones. Horizontal panels of wood or color appear to lower the height of rooms; while stripes suggest height.

Living Room Finishes

Four Appropriate Decorative Methods with Suggested Color Schemes for Dark and Sunny Rooms

LOOKING into the living room through the eyes of the owner or owner-to-be whose task it shall be to transform the house into a home, who has decorations to buy and furniture to place—whose viewpoint, in short, is somewhat different from that of the builder—what are the requisites of a method of wall decoration that will give the greatest satisfaction?

It is worth taking into consideration, this buyer's viewpoint. In any case, living room walls must be finished, and if the finish given is well considered it will prove a sales appeal of no small value.

Perhaps Mr. and Mrs. Newly Married consider durability without monotony the most important requisite. But appropriateness of decoration to a particular room with respect to location, finishing and cleaning are also very important.

This room is the place of family intercourse and rest. Friends and callers are entertained and made happy within its walls. It should be comfortable and express refinement. In its decoration these facts must be considered. Likewise, it should be remembered that walls, ceilings and floor should form a happy background for furnishings, and that height and size may be apparently increased or decreased by the use of stripes and patterns, and the shades and depths of colors.

With these guides before us there are at least four appropriate methods of decoration that will produce, at minimum cost, finishes rich in satisfaction. These methods are shaded effects, two toning, paneling, and stenciling. The widest range of color schemes is possible with each method. The resulting finishes are distinctive and original, and may be as pronounced as is desirable. And finally, these finishes may be washed. Incidentally, for flat finishes the best practice is to apply over them a thin coating of transparent starch size which, when soiled, can be washed off with a sponge. Dirt comes off with the starch. The sizing can then be renewed.

For the sunny living-room of good size with white woodwork, a shaded effect on the walls, produced with a gray paint made from raw umber and white, is excellent. By "shaded effect" is meant a treatment that shades from a dark shade at the baseboard to a higher tint of the same color at the ceiling. The contrast between top of wall and ceiling color may be pronounced, or the wall color may shade into the ceiling color. On a shaded wall eight or ten feet in height there should be twenty-five per cent more light reflected at the ceiling than at the baseboard. Shaded walls have the effect of increasing the height of rooms. "Mixed" furniture would look well in the rooms described.

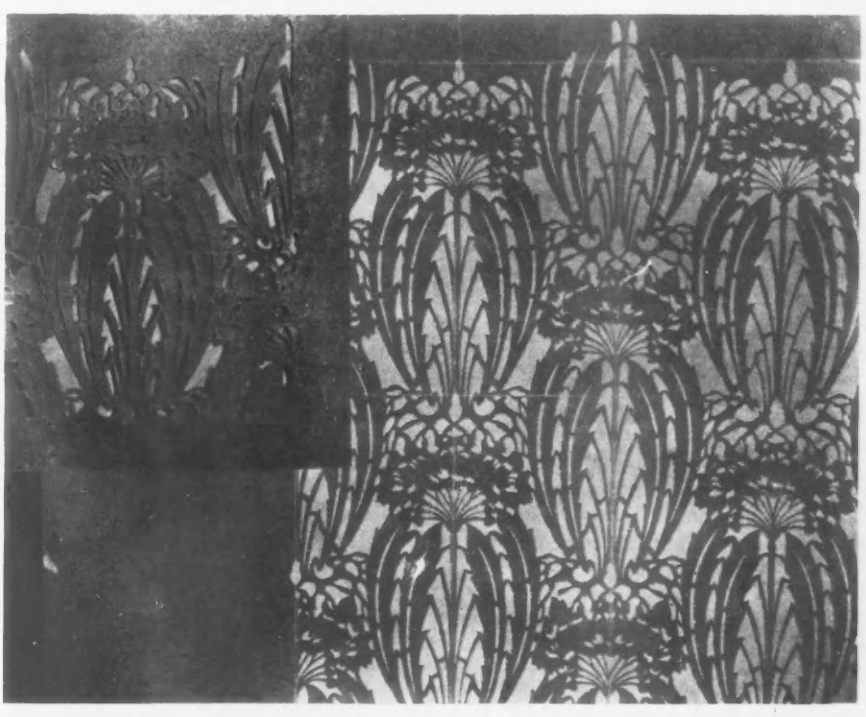
For the medium sized living-room with northern or northeasterly exposure, a shaded effect in warm tan will brighten and lighten the interior, and make it appear larger. On the walls of the medium size room the windows of which face the west or southwest shading in cool green would be pretty and combine nicely with light oak furniture.

If the overhang of a porch shades the living-room, use of the lighter tints with shaded effect will brighten the room. In such rooms wall color should shade into ceiling color with little contrast. It will be found that shaded walls of blue-grays and gray-greens make good backgrounds for mahogany, cherry or dark oak woodwork and furniture.

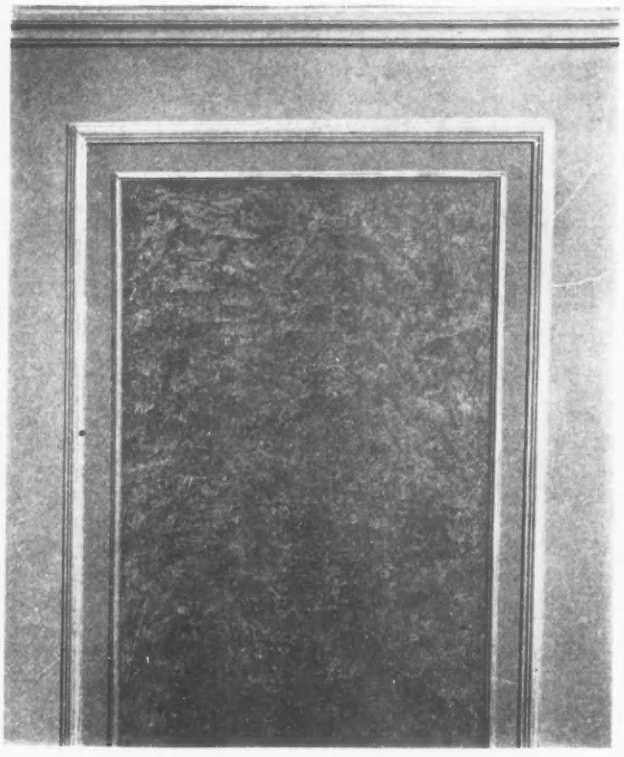
Paneling in the living-room is interesting and satisfactory, although a trifle more formal than shading. The old rule of odd numbers in units of decoration should be followed in the use of panels. An area large enough to take a number of panels will look better if done in one large or two small panels than if three panels of equal size are used. Panels are best on large, unbroken wall areas.

For the large room of northern exposure with dark furniture the panel color should be the darkest color on the wall—a bright tan. The stiles should be a lighter tint of the same color, while the painted mouldings that mark off the panels can be either a still lighter tint or tan, or an interesting harmonizing color taken from the trim.

For the large bright rooms follow the same plan, using grays and greens. In smaller rooms there should be little contrast between the color of panels and stiles. If it is



An All-Over Stencil Design With Stencil Shown at Left. The guide lines have not yet been removed from the finished portions of the wall.

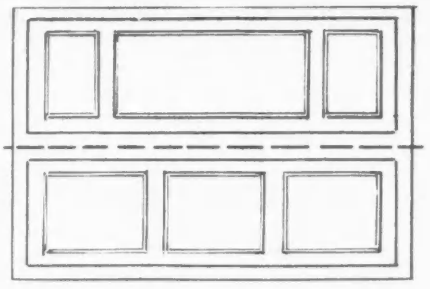


Section of Wall Showing Cornice at Angle of Ceiling and Panel With Two-Tone Finish. Stiles are lighter than the field and panel is darker. An all-over stencil might be used in the panel, or merely a solid tone.

desired to panel the walls or ceilings of a room that has no plaster cornice, a wood cornice moulding should be erected at the angle of ceiling and wall, and this should be heavier than the panel moulding. In most rooms done in French period, paneling should be used.

Interesting variation is given by two-toning the panels, using either the crumpled paper method or a sponge and stippling brush.

The use of stencils in living-room decoration is a big subject. In this article only the "all-over" stencil will be discussed. In selecting stencil patterns for living-rooms choose conventional designs which will allow areas of generous size and interesting shapes to show on the wall as a background for the applied design.



This Sketch Compares Two Methods of Paneling. The upper portion shows the added interest of having panels vary in size as compared (lower portion) with having them all of one size.

A poorly lighted room of good size can be made very attractive by this type of stenciling. On a green wall the stenciled design might well be done in a rich cream color. On the light tan wall stencil in dull red or blue. On the cream wall orange or tan might be used; on the gray wall, yellow. It is always safe to stencil in a lighter tint or a darker shade of the wall color. "All over" stenciled walls are given a sparkle and additional interest when the stenciling is done with paint that dries to a high gloss and so contrasts with the semi-gloss or dull finish of unstenciled wall spaces—a beautiful silk damask effect may be had by a gloss background on which the stencil design is applied with a paint that dries to a flat finish.

For the small, especially the northern or dark living-room there is nothing better than a two-tone finish in warm colors and light tints. Generally speaking, for such finishes the background should be the lighter of the two colors used. Good combinations for such a room would be an ivory background with finish coat in acorn yellow, orange background with russet gray or drab, or a light French gray with pink. Good combinations for the small sunny room are deep ivory with apple green, pearl gray with sky blue, or cream with fawn.

Paint Sense and Dollars

What the Money Spent for Paint and Painting Really Buys

HOW much paint will the house require? What will the job cost me?

These are serious questions that confront the home owner and home builder. They come forward for solution at a time when bank balance and credit resources may be strained. Too often, indeed, the pre-building calculations fail to include them or neglect to give them the consideration they deserve.

Every house is a problem unto itself. But the question is important, and a general idea may be had from the paint requirements of a six-room frame New England Colonial house that might be placed lengthwise on a 35-foot frontage, and which includes porch, entry hall, breakfast nook, linen closet, closet for cleaning materials, and two closets in each bedroom. Generally speaking, the exterior painting of such a house would require:

16 gallons of body paint	1 gallon of sash color
6 gallons of trim paint	½ gallon of shutter color
3 gallons of boiled oil	½ gallon of varnish
40 gallons of shingle stain	1 gallon of japan
¼ gallon of porch floor paint	10 pounds of putty

For the interior, such a house would require:

12 gallons of white paint	2 gallons of oil
7 gallons of enamel	1 gallon of turpentine
6 gallons of filler stain	1 gallon of japan
3 gallons of shellac	1 gallon of alcohol
11 gallons of interior varnish	4 pounds of steel wool
6 gallons of floor varnish	

A five-room bungalow for a 40-foot lot, with a living room measuring a little over 21 by 13 feet, a sun porch 10 feet long by 13 feet wide, a dining room, kitchen and two bedrooms about 11 feet square, would need, for the exterior, the following paint materials:

9 gallons of body paint	1 gallon of screen paint
4 gallons of trim paint	1 gallon of sash paint
3 gallons of oil	1 gallon of japan
50 gallons of shingle paint	1 gallon of turpentine
½ gallon of porch paint	6 pounds of putty

For the interior:

11 gallons of paint	2 gallons of oil
8 gallons of enamel	1 gallon of japan
5 gallons of filler stain	1 gallon of turpentine
3 gallons of shellac	1 gallon of alcohol
7 gallons of varnish	4 dozen sheets of sandpaper
4 gallons of floor shellac	3 pounds of steel wool
6 gallons of floor varnish	

Painting estimates, like other construction costs, should be considered on the cost per year of service basis, not on face value. Unless you know the master painter, it is not always good economy to accept the lowest bid. Remember that the best paint materials to be had are the cheapest in the long run, and that when three coats are recommended three coats will prove an economy. Be sure that the painter gives you three coats if he agrees to do so.

There is another very important aspect of this question of the cost for paint and painting. Preservation is the most

important service paint renders and is sufficient to justify the cost. But paint products render other services. Let us take the dollar spent for paint and see what it really buys.

Let us allot 45 cents of each paint dollar for insurance; it would be difficult to invest the same amount of money in any other form of insurance where it would return as much. From 4 to 10 per cent, according to the type and location of the building, is the proportionate cost of the painting contract on most new construction.

Serious defects due to deterioration often begin to appear in less than two years on steel and in four or five years on woodwork. A paint film costing an average of 6 per cent protects the remaining 94 per cent of the property for years. Is is worth 45 cents of the paint dollar?

Thousands of dollars are spent on decoration. Not long ago the chief attribute of paint was considered to be the beauty gained by its use, yet we will charge off only 20 cents of our paint dollar for beauty. Only one-fifth of our paint dollar for beauty, but no one other item adds so much to the attractiveness of the building, as that produced by the painter's brush.

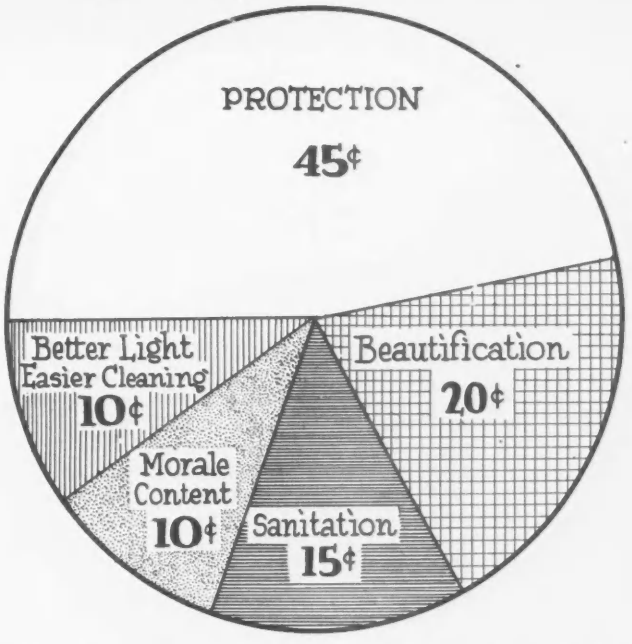
As the world improves—as more attention is given to the well being of the general public, sanitation comes in for a very large share of attention. Causes for one disease after another are located, and care is taken to prevent epidemics and even individual cases by removing the cause. Germs cannot live without a place for lodgment—they breed in dirt. They require moisture, they welcome darkness. A smoothly painted surface offers little chance for organic matter (dust and dirt) to collect and is moisture-proof. A good paint film reflects light and fills the cracks and crevices where germs and vermin may collect and breed. With walls and ceiling and radiators coated with washable paint; cracks in floors and mouldings sealed with varnish; stairways, cellars and attics well painted—germs and vermin, and the menace to health they mean, will find small opportunity to develop and collect in dangerous numbers. We may charge off 15 cents toward disease prevention and sanitation and know we are making a good sound investment.

Closely allied with sanitation is the cost and labor of house cleaning. In surroundings that are well painted there is not the tendency to allow castoffs and rubbish to collect. There is an incentive to keep freshly painted surroundings clean. They are easier to clean and keep clean. If the cellar ceiling is painted, dust will not sift up through the house. It is very easy to push a mop over a painted floor—much easier than to scrub a rough, unpainted floor. Paint and varnish reduce house cleaning cost and labor. Surely we may charge off 10 cents for this service.

Quarter soldiers in a dirty barn, or force a family to live in a shed, and see how long before they begin to slack off in their appearance. It is not only appearance—when a man is careless about that he quickly loses his care about details.

Great factories, immense stores, our public schools, in fact every building where many people come together regularly, have often proved the effect the surroundings have on the occupants. Large employers of labor have shown by production tests that light clean, attractive walls and ceilings increase output, reduce overhead and make bigger profits.

Millions were expended during the war to keep up the morale of the army. Morale—that is the word. Freshly painted and varnished surfaces suggest prosperity; pleasing color combinations suggest cheer and happiness. In combination these stimulate pride and ambition, and foster contentment. They make the house into the home. Will 10 cents of the paint dollar be enough to pay for morale? You know how a good looking new suit makes you feel; paint gives the same feeling of satisfaction.



When You Spend a Dollar for Paint You Are Buying Value Along Five Principal Lines in About the Proportions Illustrated by This Chart.

We have invested our dollar and made no allowance for improved lighting which paint brings about; nor have we considered the value of paint as a conserver of heat. The whole study of the paint dollar spells satisfaction and we repeat that each dollar spent for paint and painting is well invested.

In conclusion, reference should be made to the new and charming decorating techniques for painted walls. The requirements for every room and the widely differing tastes of discriminating people are satisfied as to pattern, design color and texture by these methods of decoration. To examine them leads one through a delightful series of color harmonies, each more attractive than the last, all appealing to the reason by virtue of the sanitary, washable and durable qualities of such decorations.

From the plain tinted wall to the shaded or paneled wall, through the field of stenciling wherein lace patterns are now being used, and on to mottled effects, two-tone finishes, Tiffany work, color—misting and air stippling—and we still have for consideration three or four-tone glazing, two toning in combination with paneling, and a myriad of other possibilities. And in finishes for woodwork almost the same possibilities are to be found—color stippled finishes, the beautiful Sugi finish and an endless variety of effects secured with stains and fillers of contrasting color.

✣

Practical Pick-Ups

By H. H. SIEGLE

TO obtain the distance for spacing saw-kerfs in circle work where kerfing is necessary, measure off a distance equal to the radius of the circle from one end of a piece of the material to be used—at this point cut a saw-kerf. Then nail the piece down on a straight surface, keeping the saw-kerf up. The part representing the radius is then lifted until the saw-kerf comes to a pinch—the distance between the end of the radius-piece and the straight surface represents the distance for spacing the saw-kerfs. It must be remembered, however, that the kerfing must be done with the same saw with which the test kerf was made, and that the depth must be the same throughout. This painstakingly done, the work will be workmanlike.

HOMES in COLORS

New Ideas for the New Homes of the New Year, 1925

By WM. A. RADFORD
President and Editor-in-Chief of American Builder

IT looks as though 1925 would be a good year for home building and home builders. Prices have stabilized, and all of the building trades are working hard on an efficiency basis that will insure the receipt of good value for every building dollar spent. However, there will be plenty of home building activity in most localities. The wise home seekers will therefore make their plans early, and start before the big rush.

When we compare the cost of building a home now with what it was 20 years ago, we are apt to draw back in amazement and conclude that it costs too much. But when we look a little closer and compare the modern, fully equipped homes of today, with the mere shell of a house which most people were satisfied with a generation ago, we can easily see the reason for some of the extra cost.

We sometimes hear it said that building in the old days had all the quality, and that nowadays nothing but cheap work is done. Nothing can be further from the truth. Few today would be willing to put up with the crudities and lack of comfort which marked even the best homes of 30 years ago. Those houses were big, we admit. They had size, but that was all—no plumbing, nor heating, nor lighting in the modern sense. And as for quality in the walls and the structure itself, we much prefer the present-day practice of concrete foundations, a water-proofed basement, insulation in the side walls and roof to keep the heat in and the cold out, and a liberal amount of structural steel beams and posts to prevent sagging.

The houses today are being built smaller and better.

Less is being spent for ornament, but more for equipment—for better heating plants, plumbing installations, for lighting fixtures and for builder's hardware.

In 1925 we are going to see more homes equipped with electrical refrigerators, and there will be a still further increase in the number of electrical outlets in every room so that still more floor lamps and other lamps can be used conveniently.

Nineteen twenty-five will see still further developments in radio. Builders should take note of this wonderfully popular marvel, and should build in wiring and outlets so that loud speakers or head-sets can be "plugged in" in various rooms, taking their energy from a centrally placed receiving set. Enterprising manufacturers of electrical goods have anticipated this need, and are ready with special radio outlets. Radio extension service to every room in a hotel or hospital, or to every apartment in a well kept apartment building will prove a wonderful attraction. The same idea extended to private residences will be appreciated, allowing extensions to the nursery, upstairs bedrooms, basement game rooms, etc.

Nineteen twenty-five will see the number of bathrooms and lavatories increased in the home. And there will be still further refinements in the plumbing fixtures and a more generous use of bathroom accessories—porcelain and white enamel towel bars, soap dishes, glass holders, etc. Shower baths will be included. Bathrooms will be larger.

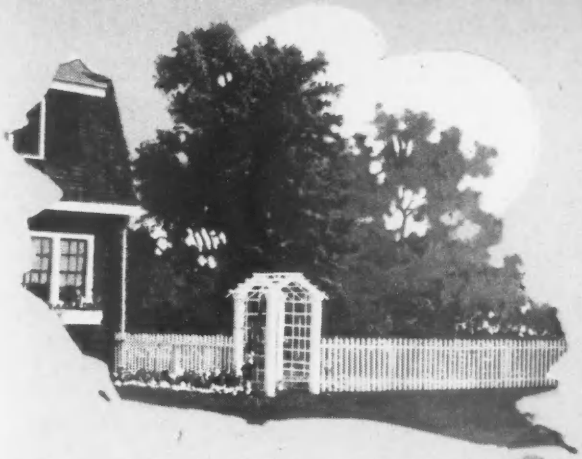
Nineteen twenty-five will see the general adoption of water softeners for homes in most of the hard-water sections. The cistern has proved thoroughly unsatisfactory—a nuisance, often a menace to health. Counting the cost of building the cistern, and also the cost of pressure pumps and tanks to get the cistern water up to the kitchen, and to the second floor bathroom, cistern water proves very expensive. Water softeners of domestic size have been perfected, and can now be had at a reasonable price. They take the hardness out of the drinking water, and make it softer than rain water for washing.

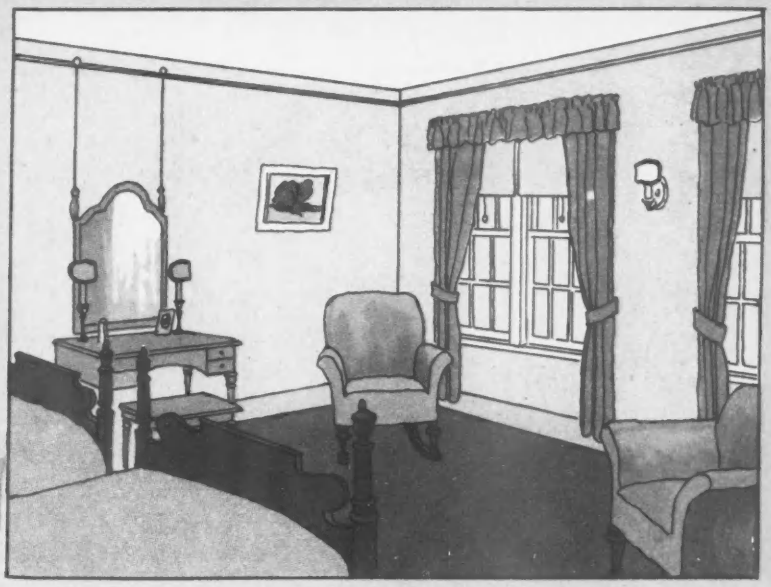
Ninteen twenty-five will see more attention paid to the kitchens, as to their arrangement and equipment for convenience, efficiency and cheerfulness. Kitchen cabinets and cabinet units to be built-in will tend to supplant the regulation pantry. Kitchen door cabinets and package receivers, garbage incinerators, and garbage receivers will add to the ease of housekeeping.

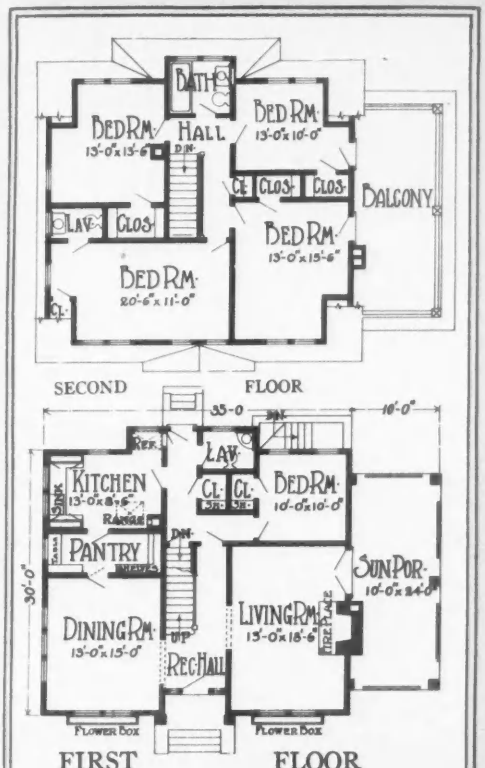
With the movement toward smaller homes, every square foot of space becomes more important and valuable and many will include a disappearing, space-saving bed or two in their plans for the new home. The very best hotels are equipped with disappearing beds, dressing closets, space-saving wardrobes with telescoping clothes hangers, and neat little combined kitchenette dining rooms. The best people occupy these hotel apartments and willingly pay $200 or 300 per month for the privilege. So why not incorporate something of the same idea of efficiency and space-saving into our home plans?

In the sixteen pages of Home Designs in Colors which follow, you will find many of these ideas worked out and you will find many designs that will be very popular in 1925. We expect to see no let-up in the vogue for Colonial and Dutch Colonial designs, and the Italian, Spanish and Moorish will make some great strides this year.

For the latest ideas in building materials and for the equipment, comforts and conveniences to build into these homes, refer to the pages of the AMERICAN BUILDER where the leading manufacturers of the industry are exhibiting their wares. A trip through this monthly exhibit is an inspiration and a liberal education, both to the professional builder and to his client or customer—his friend who would build a modern home and have it the latest word in design, construction, equipment and finish.

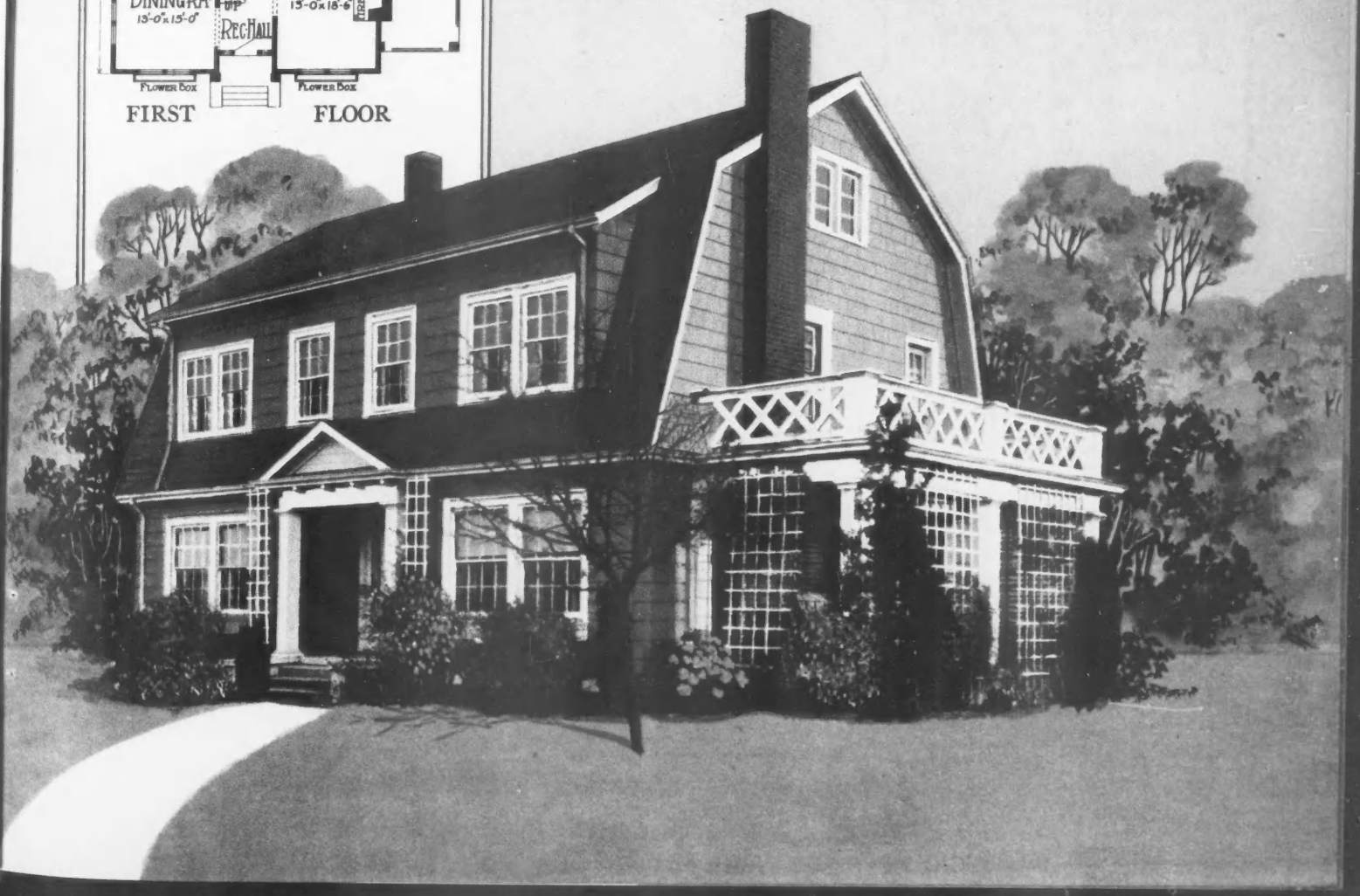


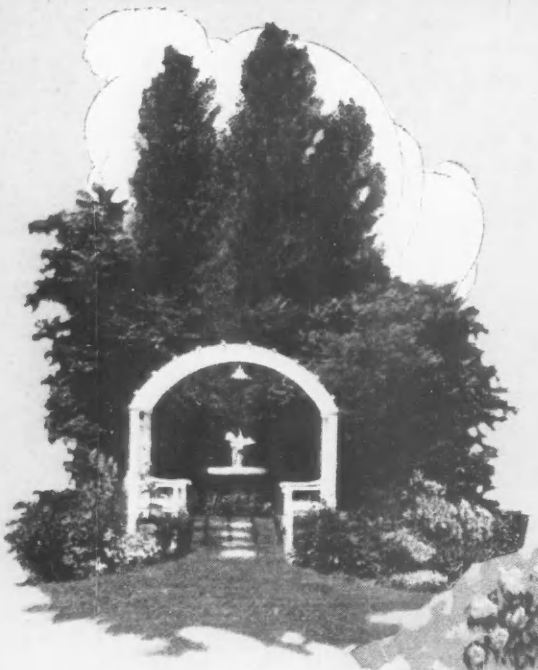


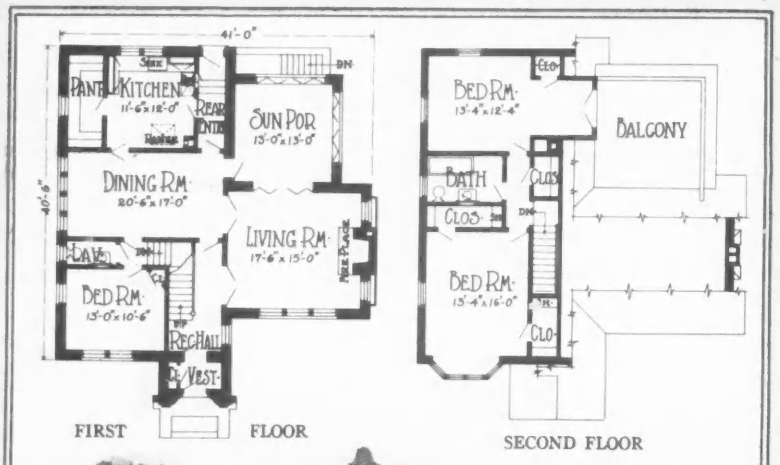


The Dover

A PRETTY little Colonial home with shingled side walls and graceful roof lines in the gambrel style is offered. It measures 30x35 feet, and contains eight well arranged rooms. The decoration and furnishing of one of the bedrooms is suggested.

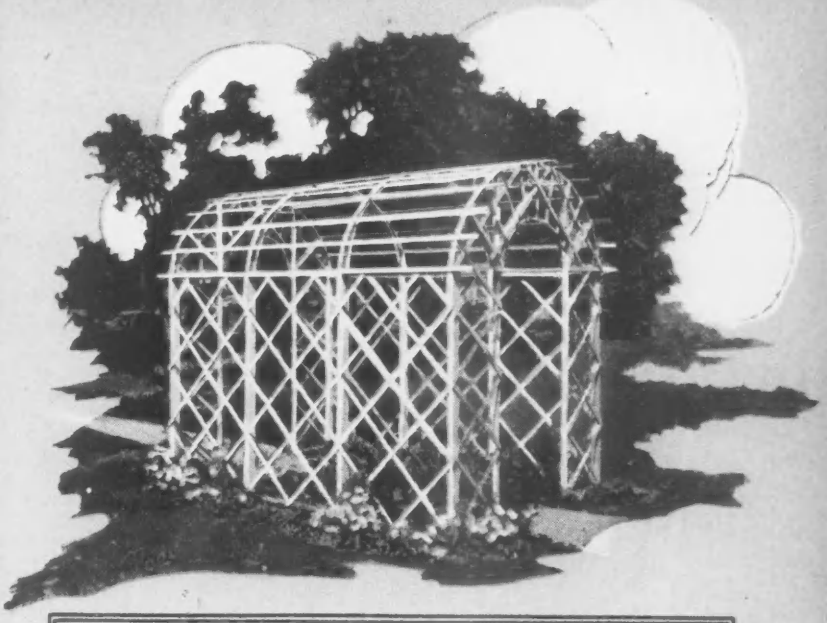


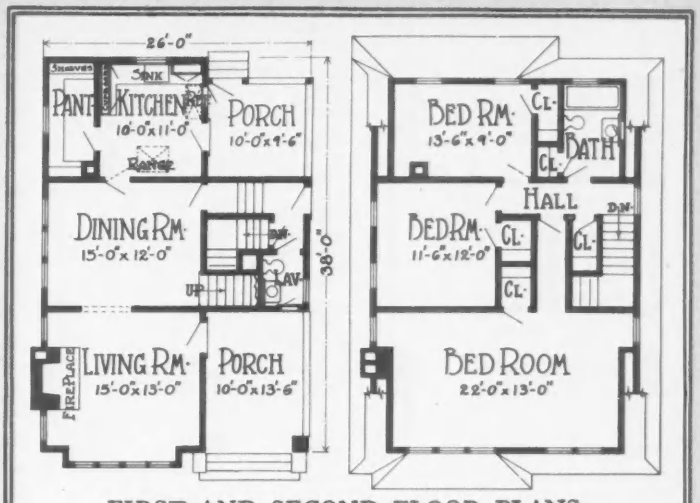




The Dorchester

AN ENGLISH design of brick with just a touch of half timber work over the entrance is presented. Many will like the downstairs bedroom, and the big sun porch opening out of both living room and dining room. The charm and comfort of the living room are suggested in the sketch above.

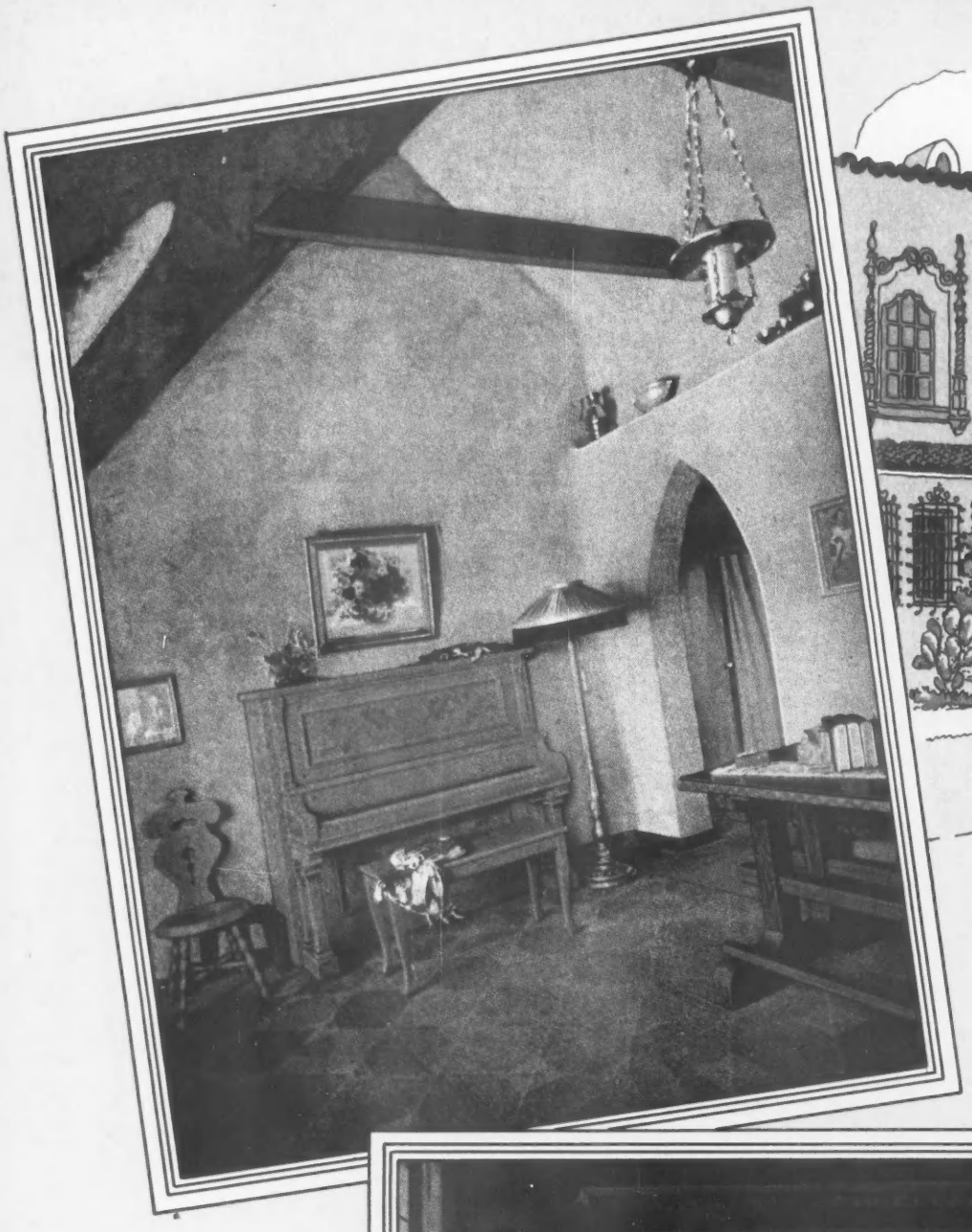




FIRST AND SECOND FLOOR PLANS

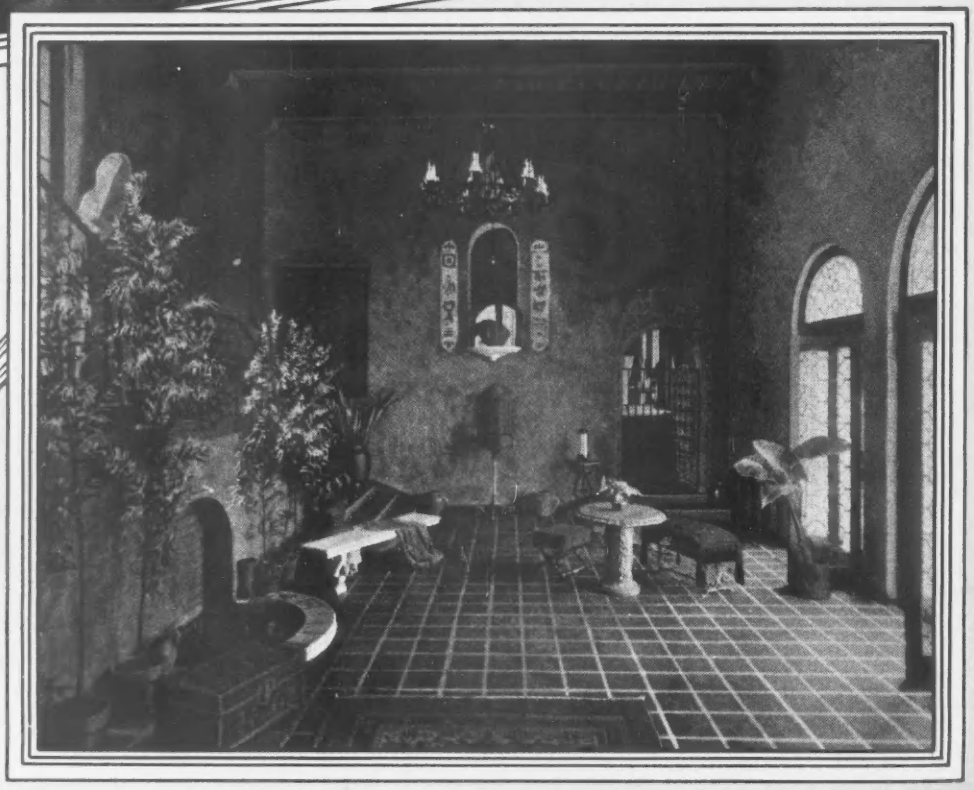
The Devon

A SIX-ROOM Dutch Colonial home, 26x38 feet. A suggestion for handling the furniture and decorations in the dining room are presented, also an attractive arbor for the garden.



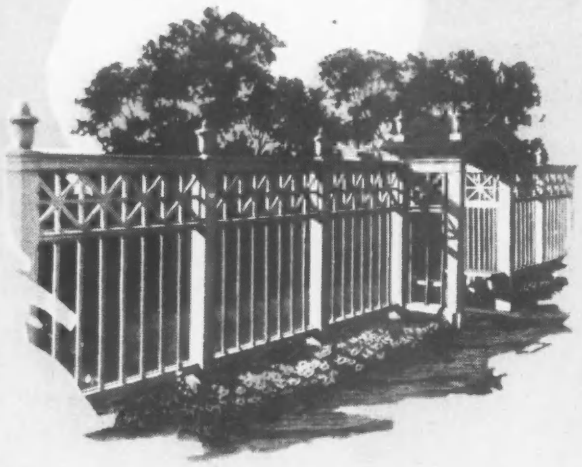
LEFT—*Spanish living room with irregular ceiling and exposed beams in the primitive style.*

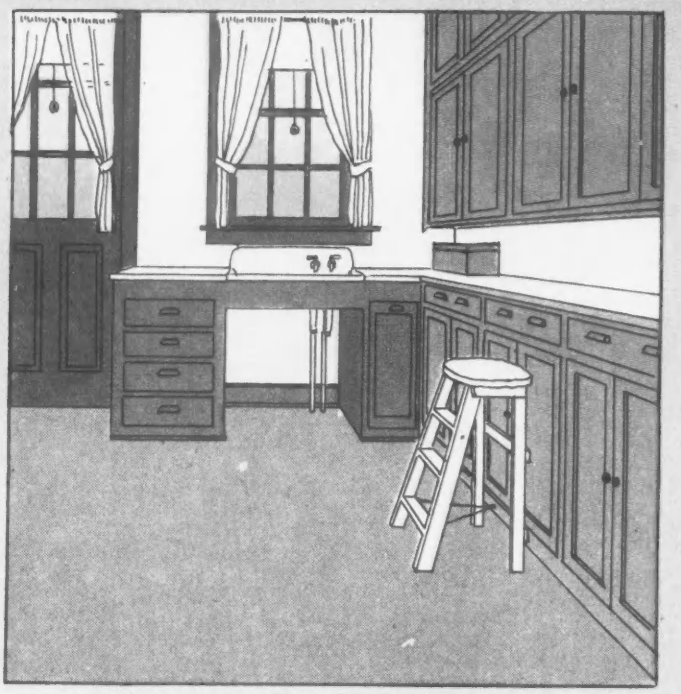
BELOW—*Stair hall of cool, inviting tiles, rough plaster and wrought iron.*

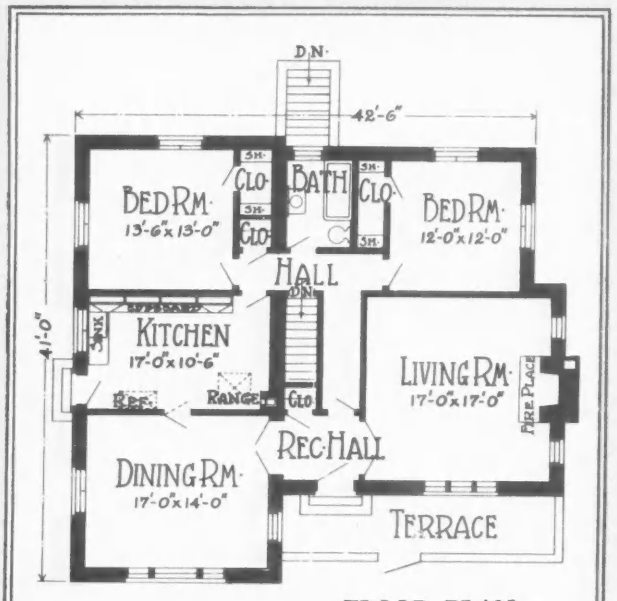


RIGHT—*High ceiling and giant chimney feature this Spanish apartment.*

BELOW—*The high living room with balcony produce a studio effect.*



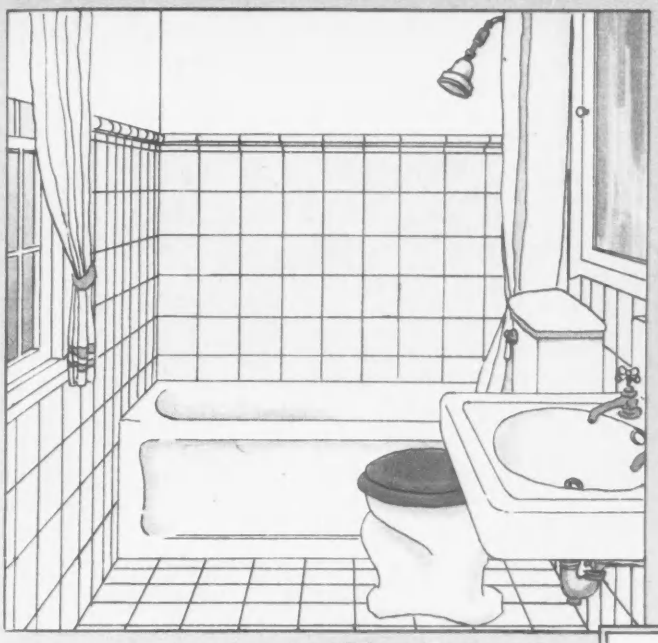


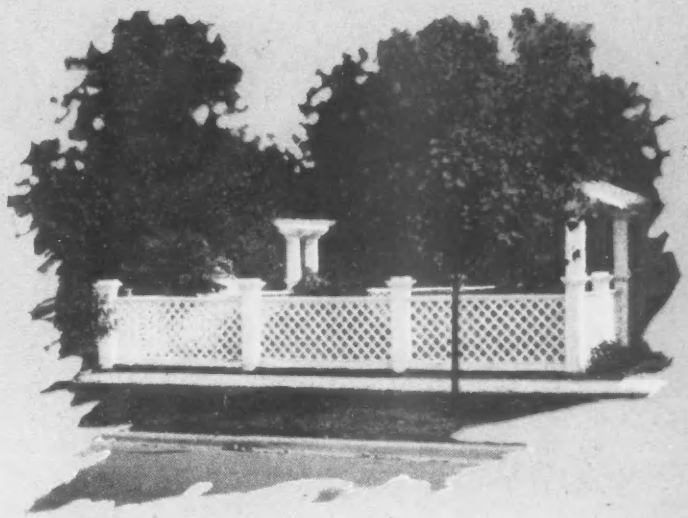


FLOOR PLAN

The DeSoto

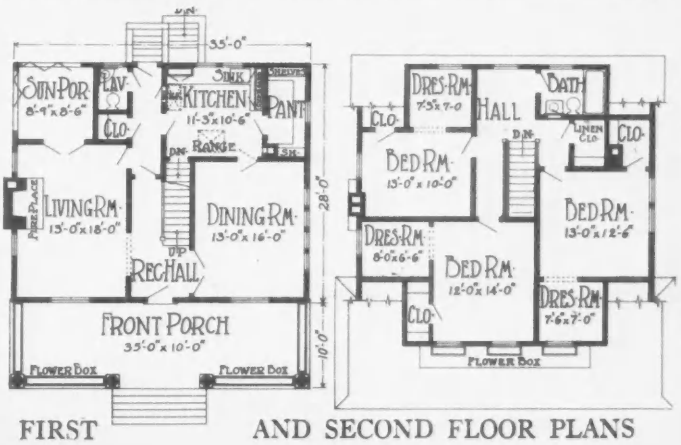
CREAMY PINK stucco with a flash of brightly colored awnings and Spanish roof tile make this design the choice of the discriminating. A glance at the floor plan shows the interior just as convenient as the outside is attractive. A sketch of the efficiency kitchen is illustrated above.



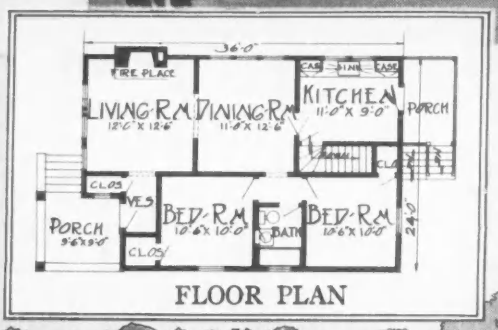


The Dixon

A COMPACT attractive home of the Pennsylvania Colonial style, 35 by 28 feet, plus the big 10 foot front porch. Six fine rooms are provided. Above is a suggestion for a rich tiled bathroom.



FIRST AND SECOND FLOOR PLANS



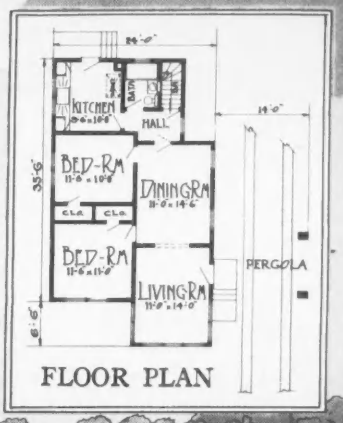
FLOOR PLAN

The Danville

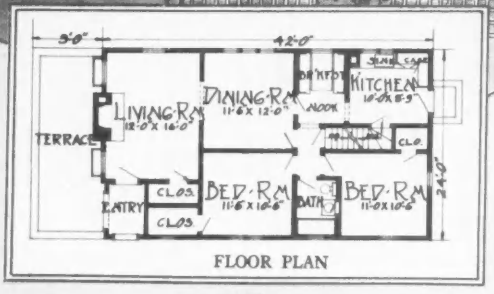
Five Rooms
Size on ground
24 by 36 feet

The Delta

Five Rooms
Size on ground
24 by 42 feet



FLOOR PLAN



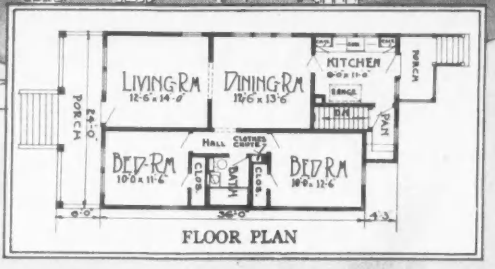
FLOOR PLAN

The Dixie

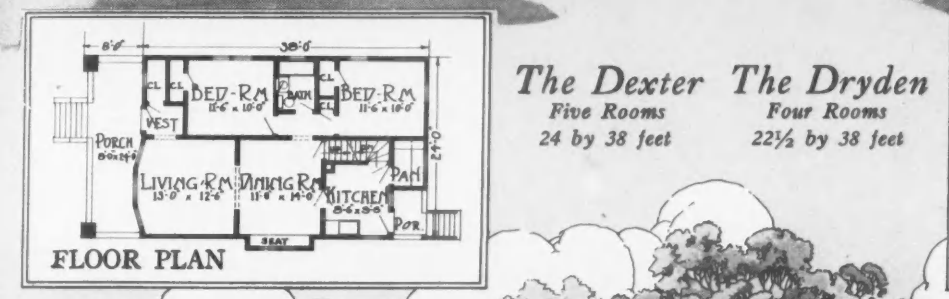
Five Rooms
24 by 42 feet

The Denver

Five Rooms
24 by 40 feet



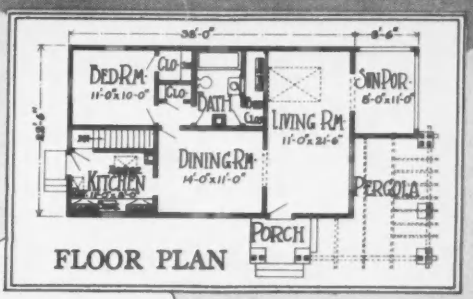
FLOOR PLAN



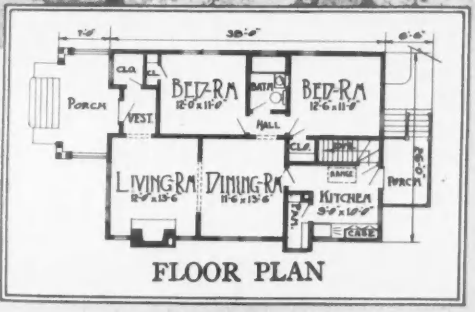
FLOOR PLAN

The Dexter — *Five Rooms* — *24 by 38 feet*

The Dryden — *Four Rooms* — *22½ by 38 feet*



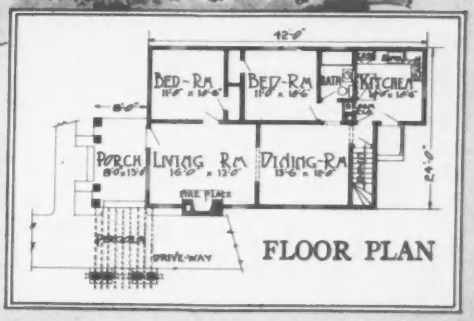
FLOOR PLAN



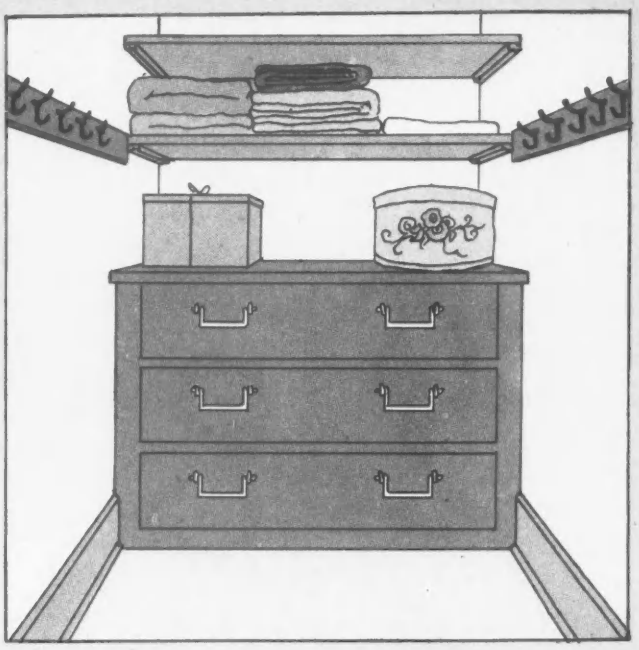
FLOOR PLAN

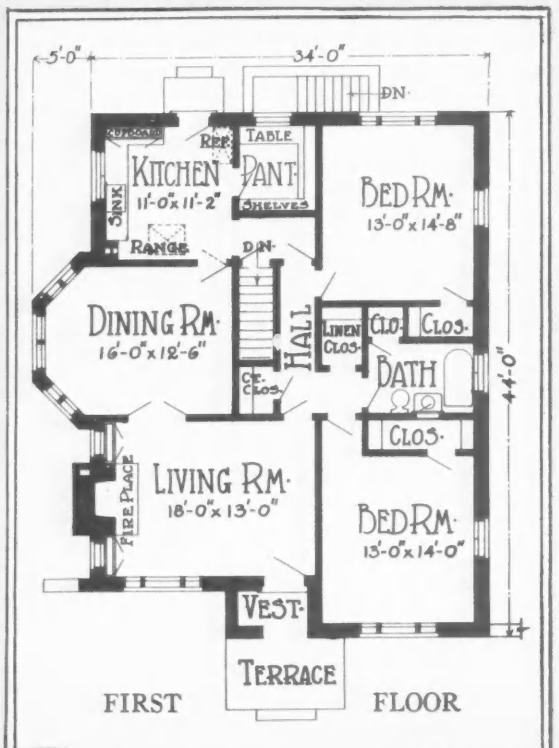
The Dunbar — *Five Rooms* — *26 by 38 feet*

The Denton — *Five Rooms* — *24 by 42 feet*



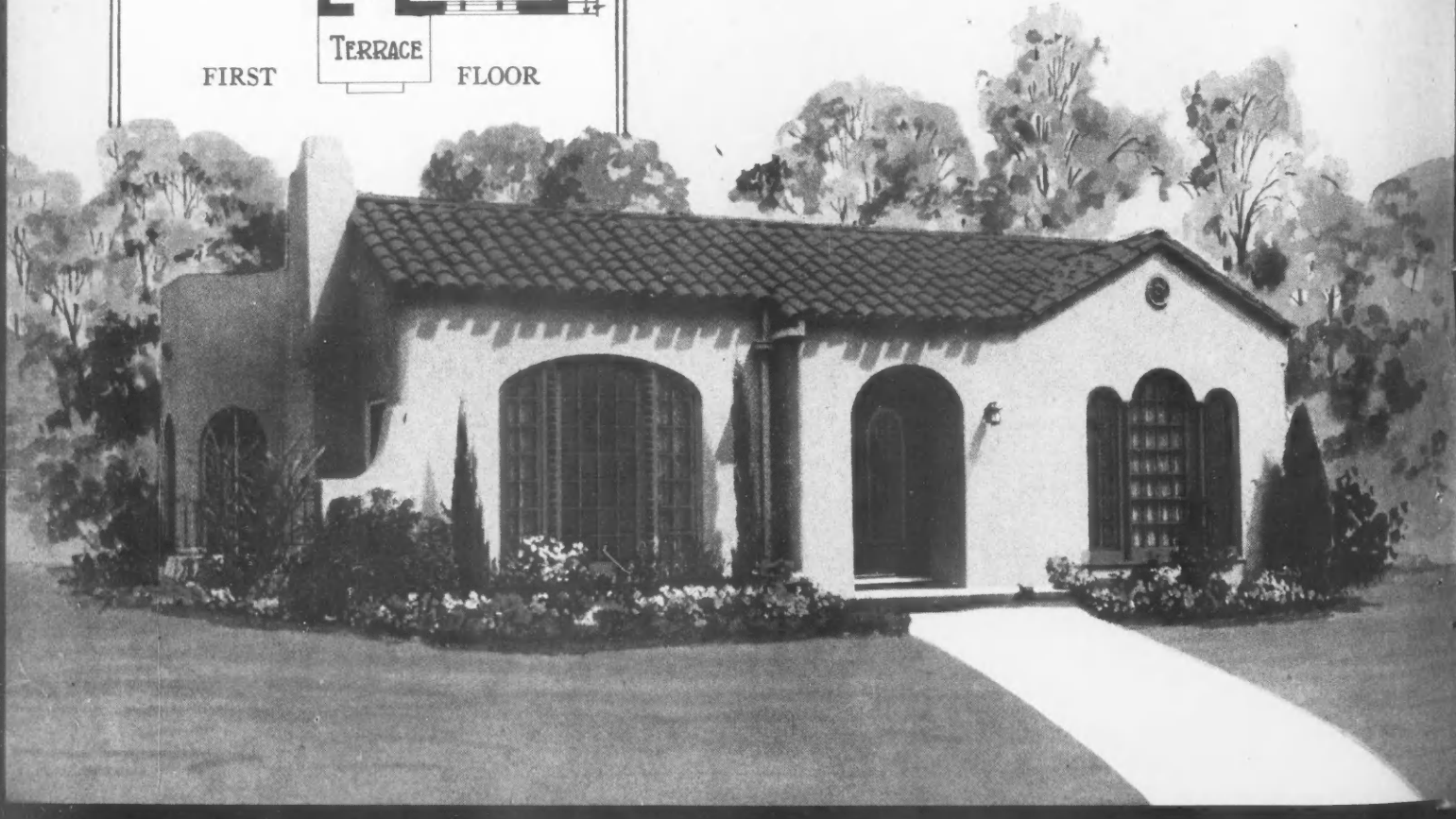
FLOOR PLAN

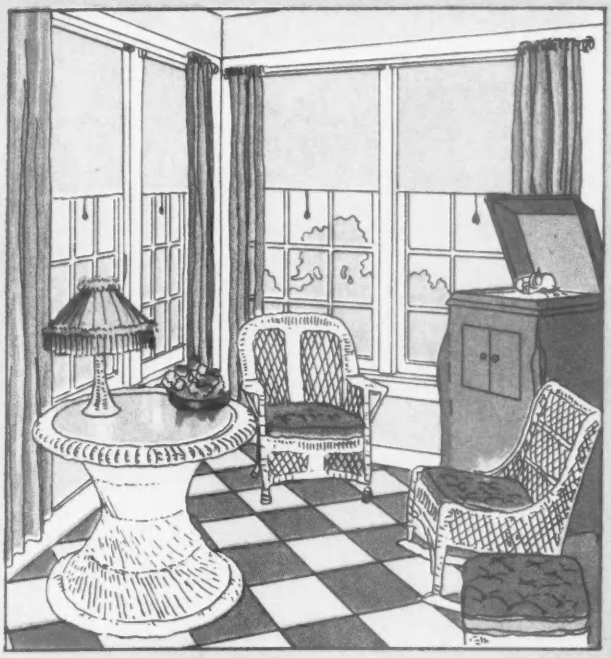


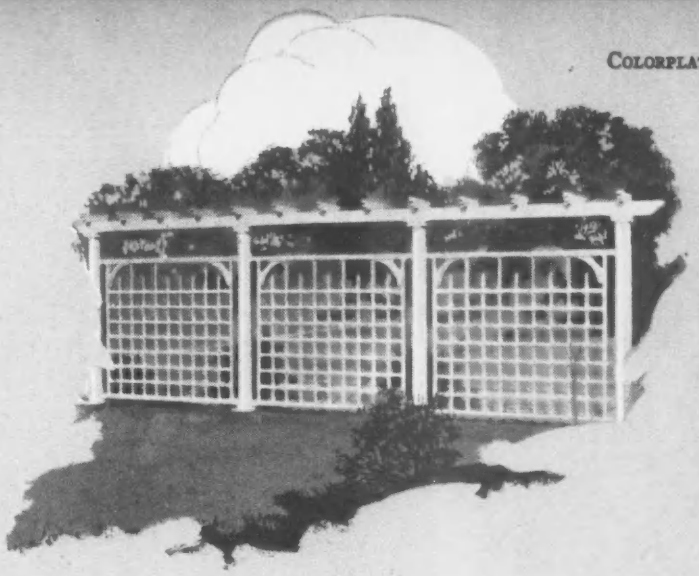


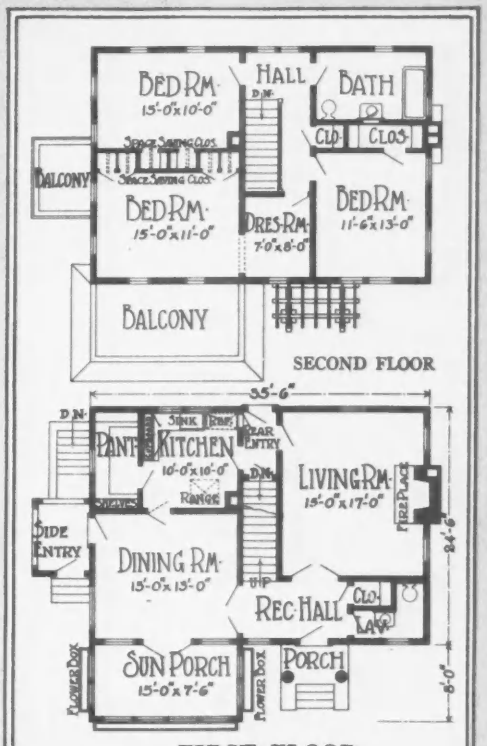
The Del Monte

SPANISH architecture continues its conquest of the American home building situation unabated. Here is a little gem of five rooms. Details of the commodious linen closet are presented in the sketch above.



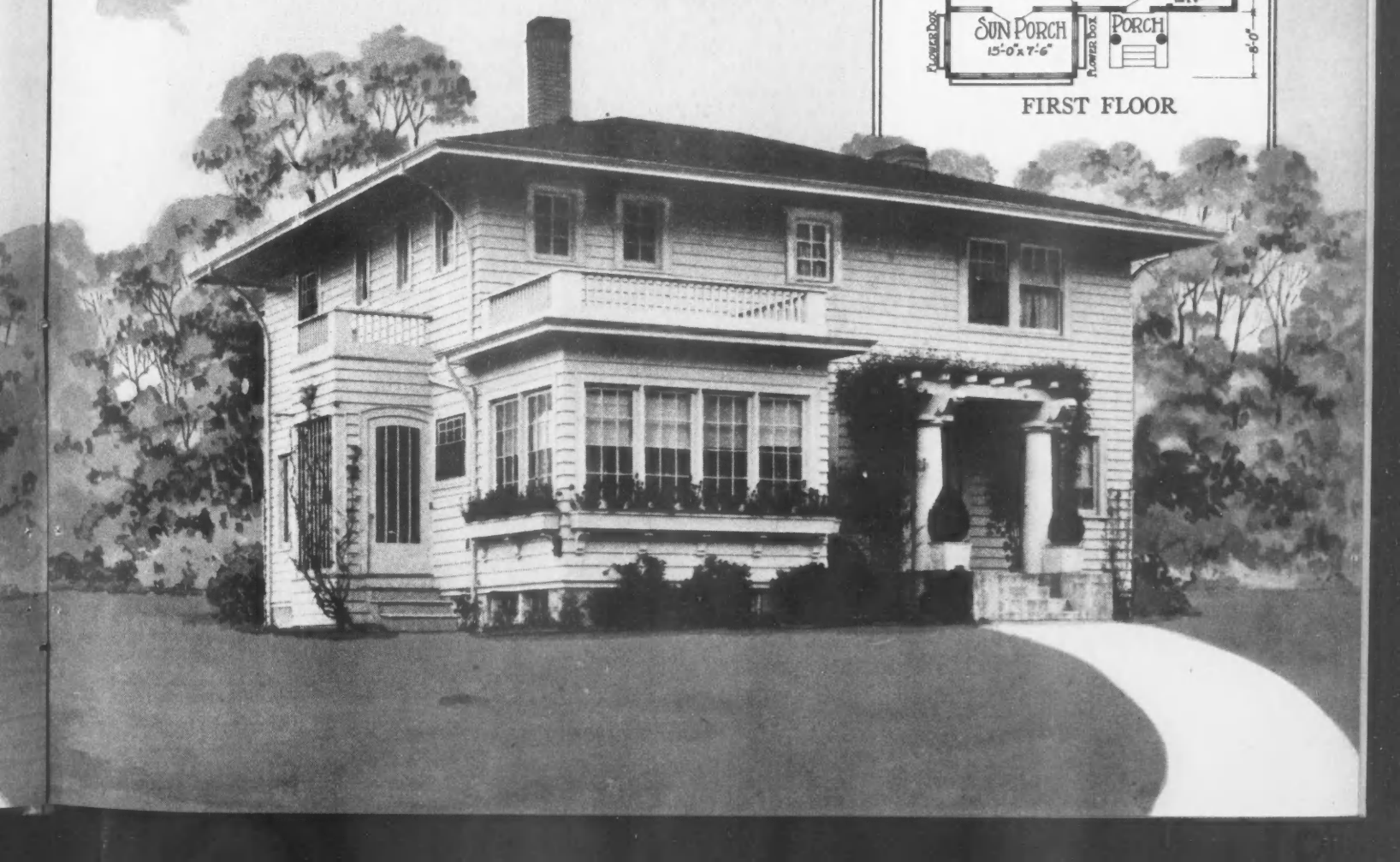


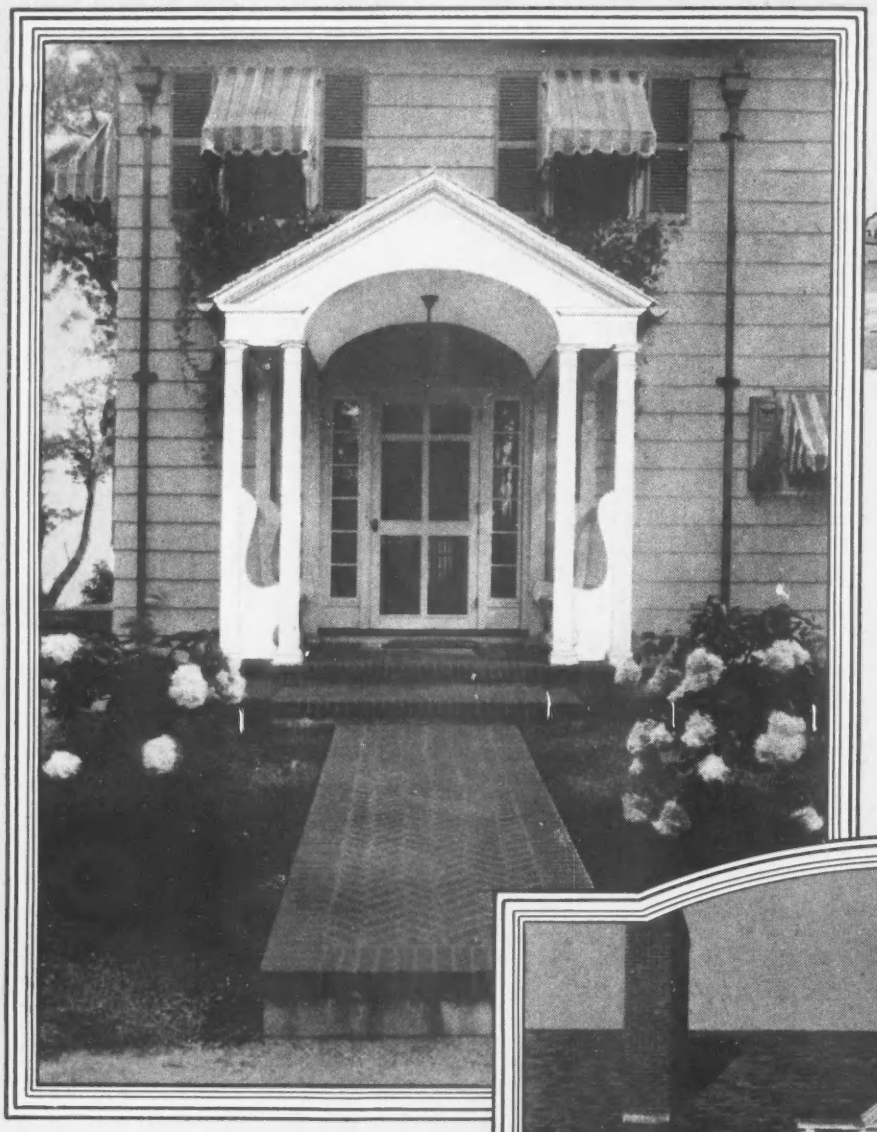




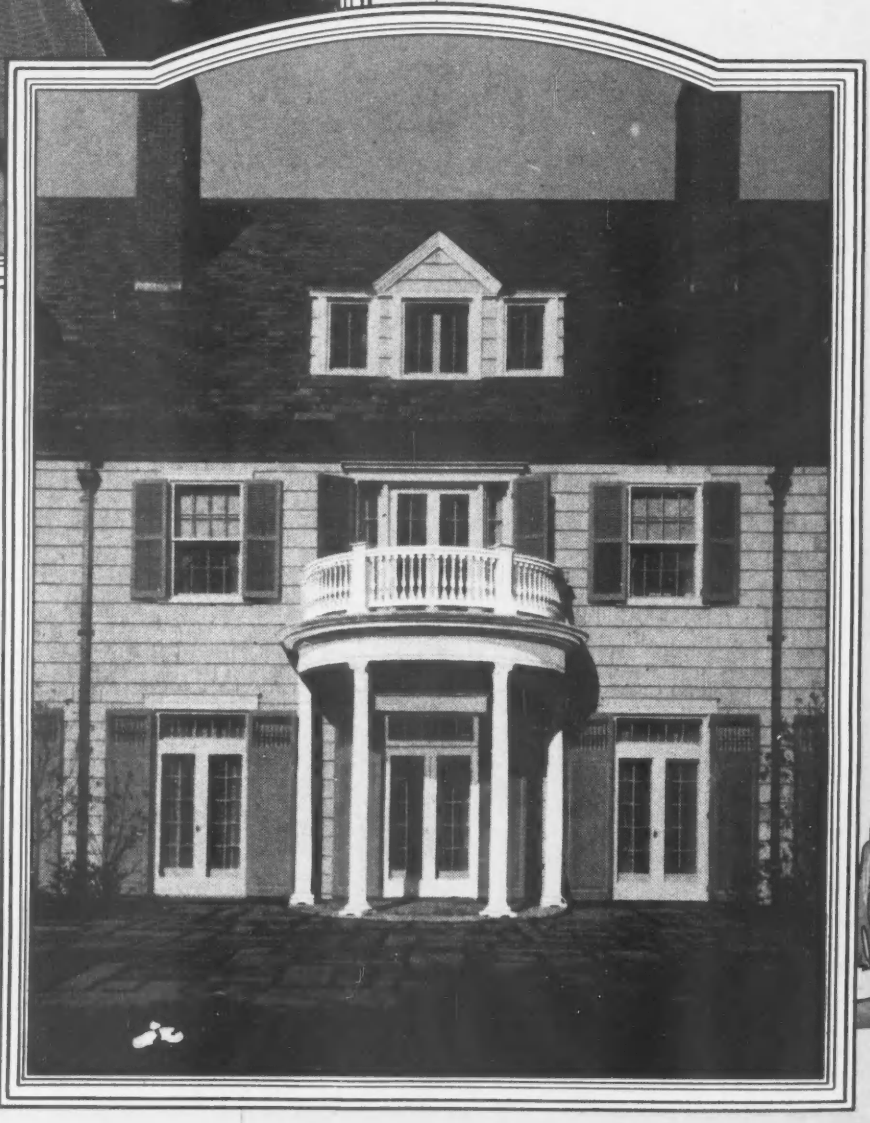
The Dallas

THE square type, hip roof house with wide cornice continues in favor. This design containing six fine rooms is made extra pleasing by the addition of the generous sun porch. The delightful appeal of this sunny room is suggested in the sketch above.

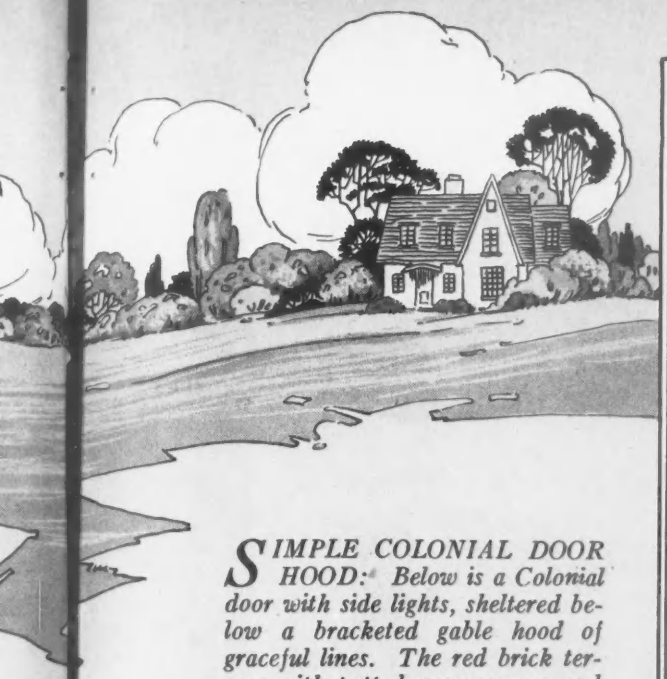




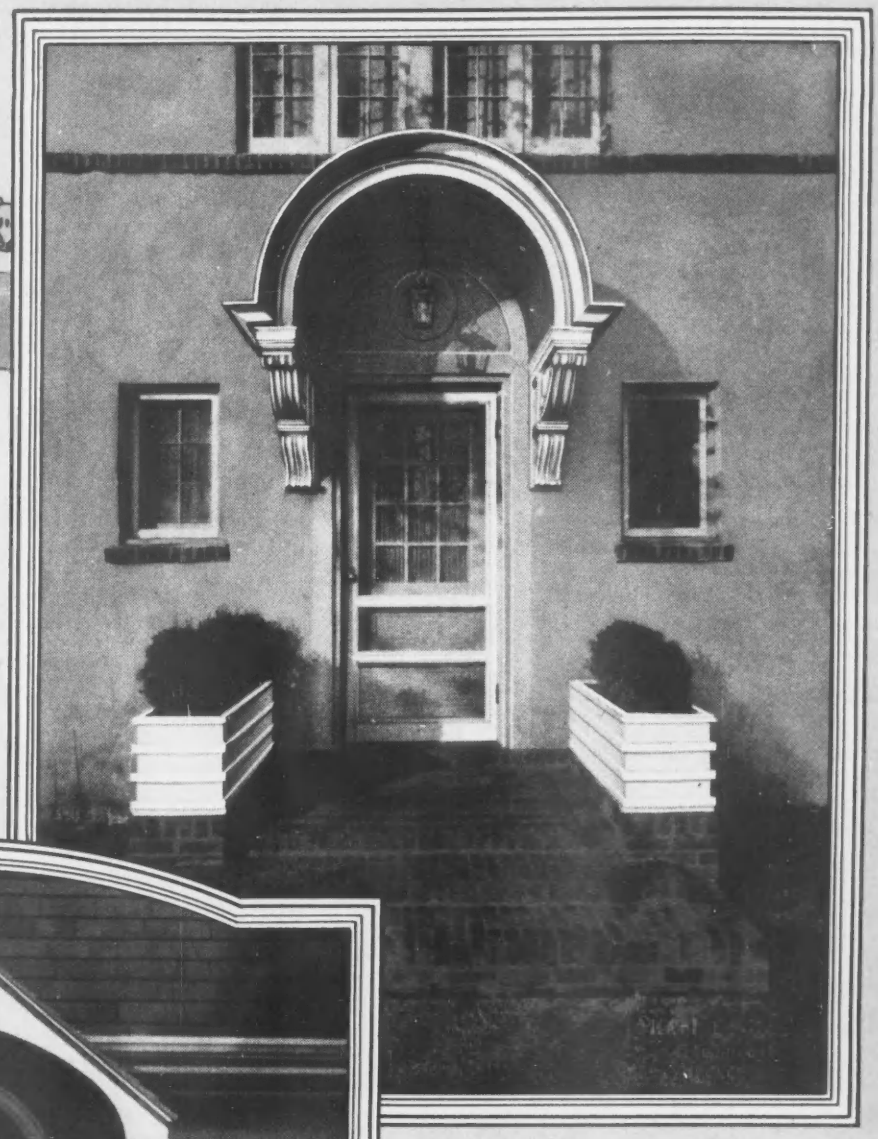
HALF-ROUND COLONIAL PORCH: The photograph below shows several interesting and authentic Colonial details. The full length shutters with spindles in the upper panels corresponding to the transom lights over the double French windows, the blinds above, and the unusual gable roof dormer are in Colonial harmony with the flagstone court and columned entrance.

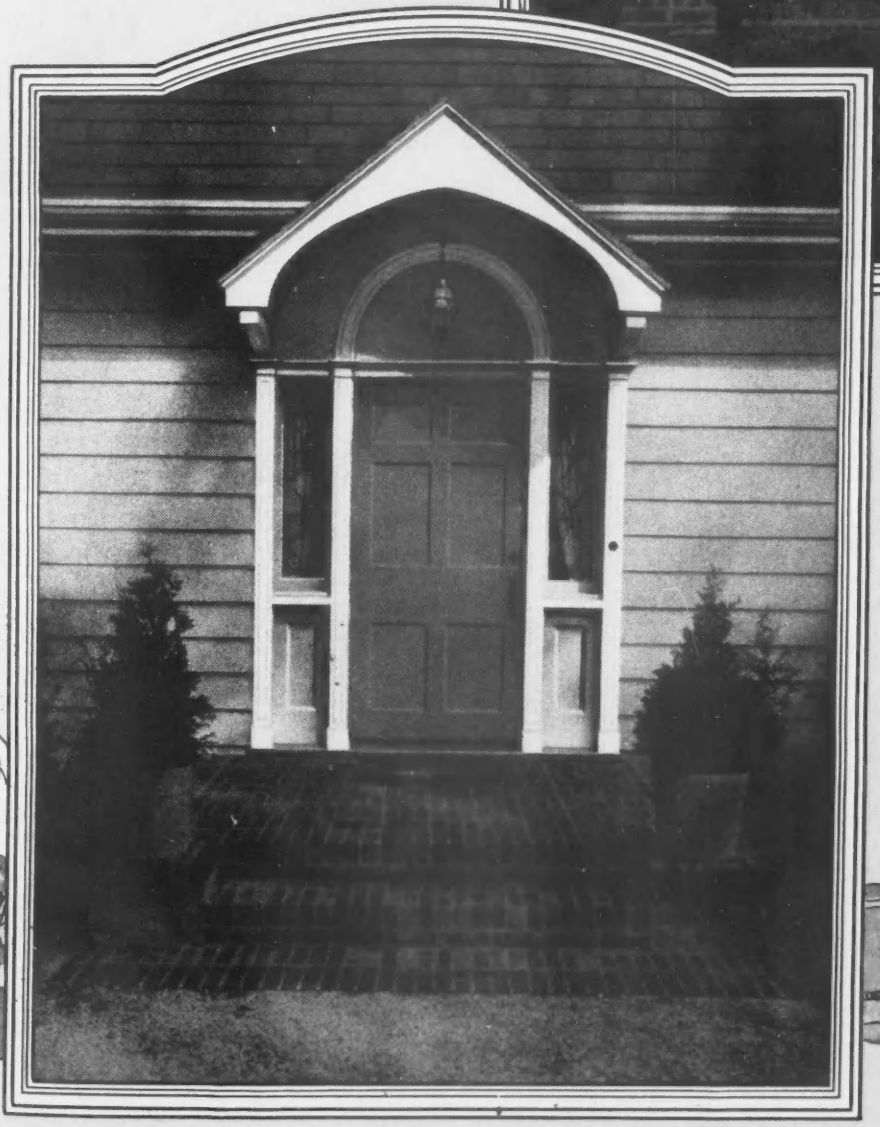


GRACEFUL COLONIAL ENTRANCE: Eight slender columns, four round and four square half-columns back against the wall, support this attractive barrel ceiling porch roof. High back settees form the ends.

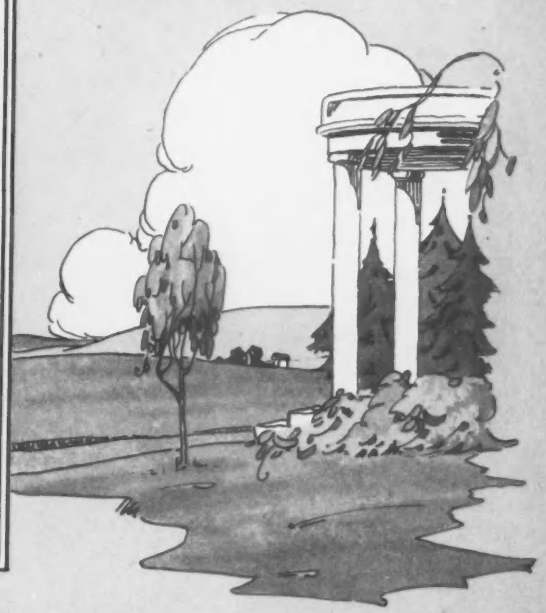


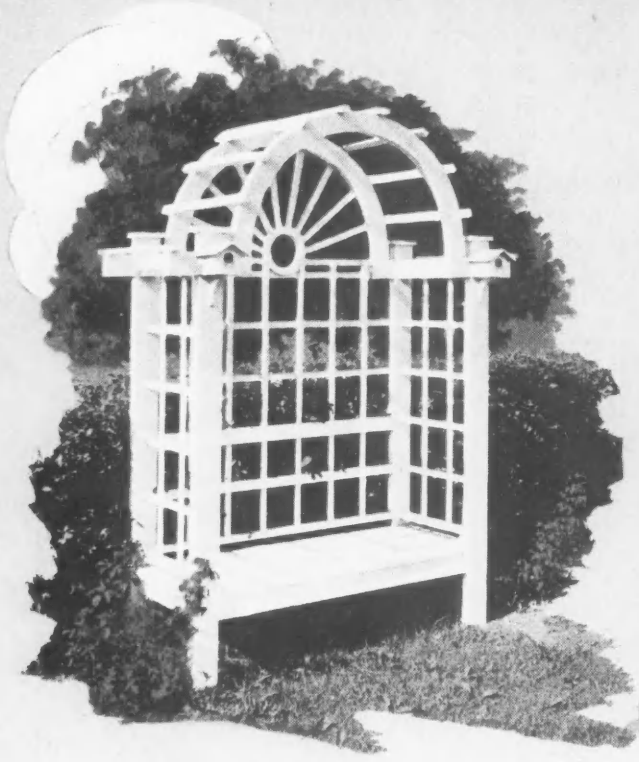
SIMPLE COLONIAL DOOR HOOD: Below is a Colonial door with side lights, sheltered below a bracketed gable hood of graceful lines. The red brick terrace with potted evergreens sound a cheerful, inviting note.

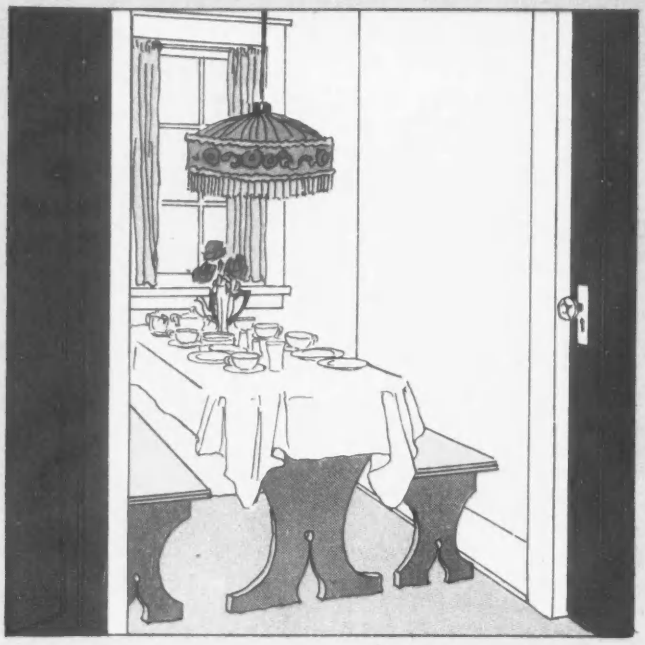


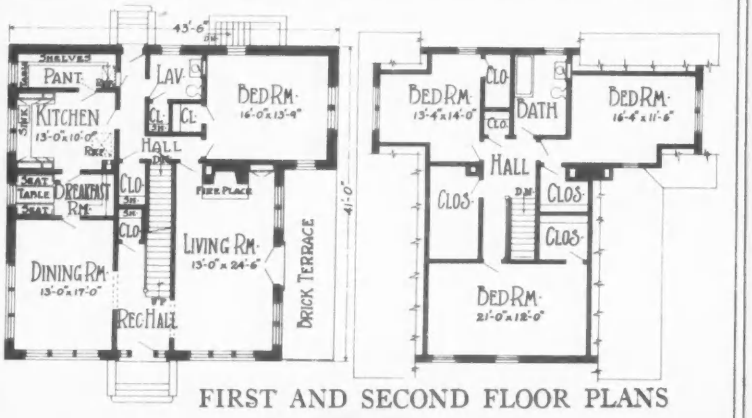


CIRCLE-HEAD CANOPY: The stucco house lends itself well to Colonial design. The brick window sills and the second story sill course, and the brick steps and platform, contrast brightly with the cream, white or grey of the walls.





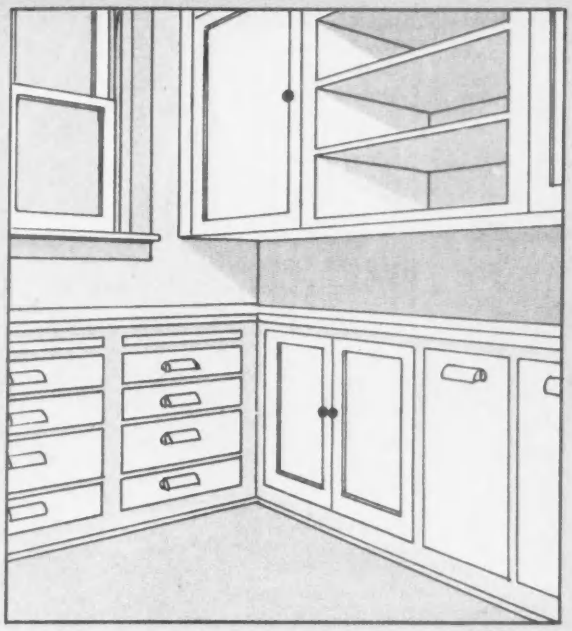


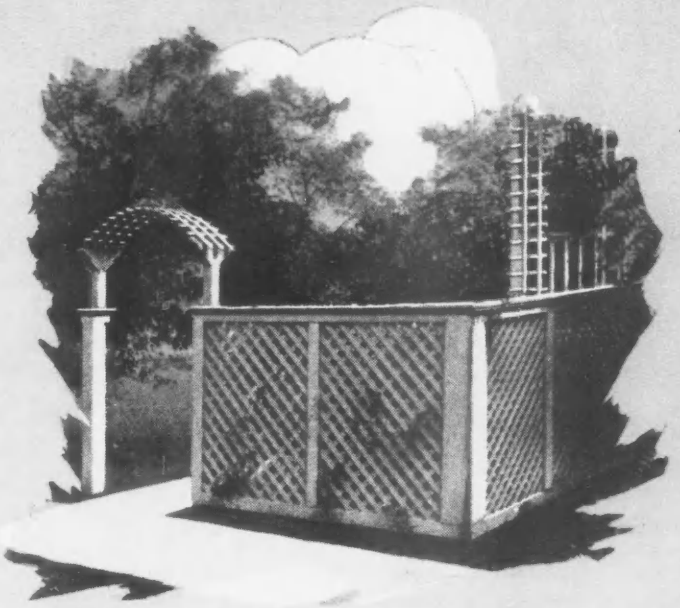


FIRST AND SECOND FLOOR PLANS

The Delavan

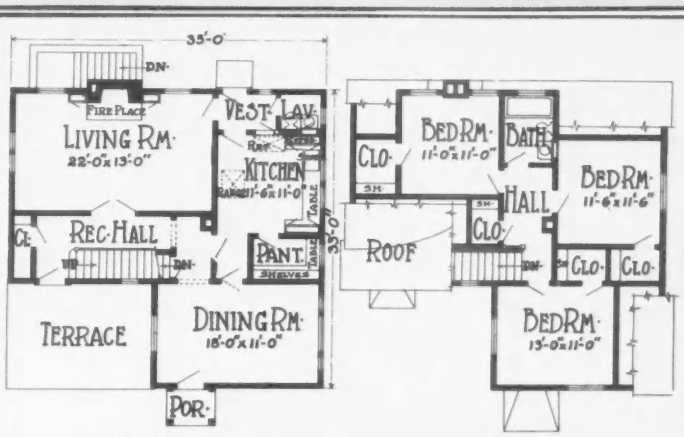
HERE is a modern stucco home of seven rooms and an artistic outline. The sketch above shows the delightful breakfast nook with built-in table and benches.



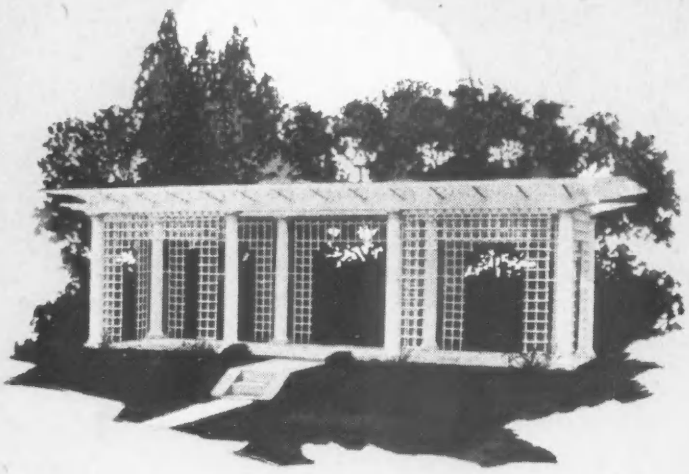


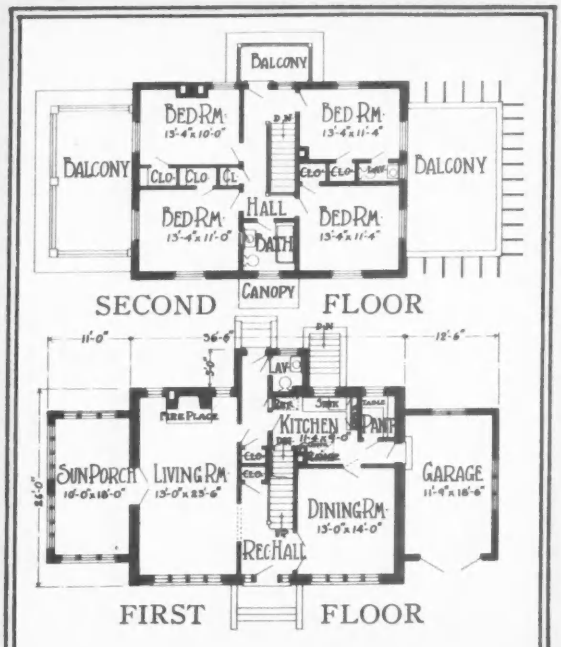
The Darlington

A HOME design of artistic possibilities with walls of shingles stained in several shades of brown and roof shingles laid with studied irregularity. Six very pleasant rooms are provided. A glimpse of the pantry with its built-in cases shows the perfection of this home.



FIRST AND SECOND FLOOR PLANS

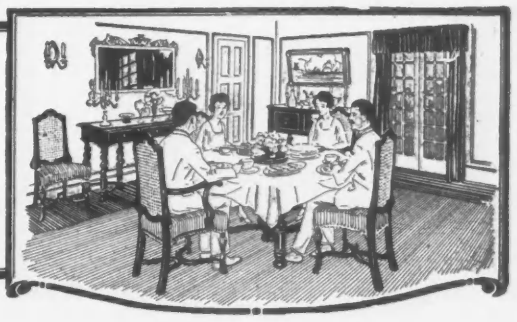




The Davenport

HERE is a substantial home of eight rooms, and attached garage—a dignified, substantial design containing every convenience. A suggestion for the stair hall is shown above, also proper pergola for the garden.

Our Front Cover Home



Pennsylvania Dutch Design With Overhanging Roof and Massive Porch Columns Features This Low Cost Six-Room Home

THE Front Cover Home this month is a good narrow-lot house requiring only 26 feet in width, while the depth is 35 feet. The overhanging roof at the front, supported by three massive columns in the Pennsylvania Colonial manner, give this house a look of solid stability.

The space inside is arranged in a straightforward, convenient way, giving the cheerful side of the house to the living room and dining room which open together, and providing easy access from the front door and reception hall through to the kitchen as well as to the grade entrance, and the basement. The cozy and cheerful breakfast nook adjacent to the kitchen will be appreciated.

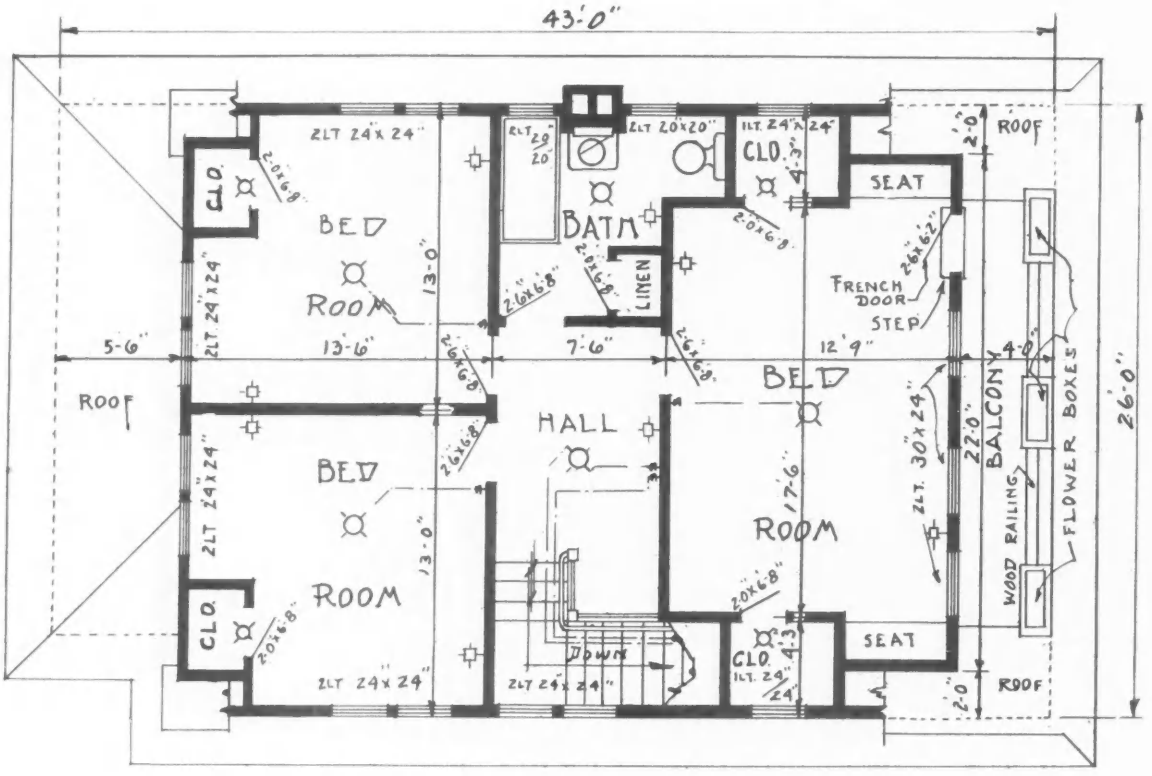
Notice the convenient placing of the refrigerator in this kitchen. It can be conveniently iced from the outside through the icing door indicated, or if this is to be a truly modern home, the refrigerator will be an electrically operated ice machine, and its placing as indicated will prove most convenient.

Entering the front door from the imposing, columned porch, you step into a reception hall of good size with attractive open stair going up to the left. It starts with two steps to a square landing, just the place for a grandfather's hall clock. Then the stairs continue up eleven steps to a second landing, then turning back again to land in the central upstairs hall. This makes a convenient, easy stair, well placed with reference to both floors.

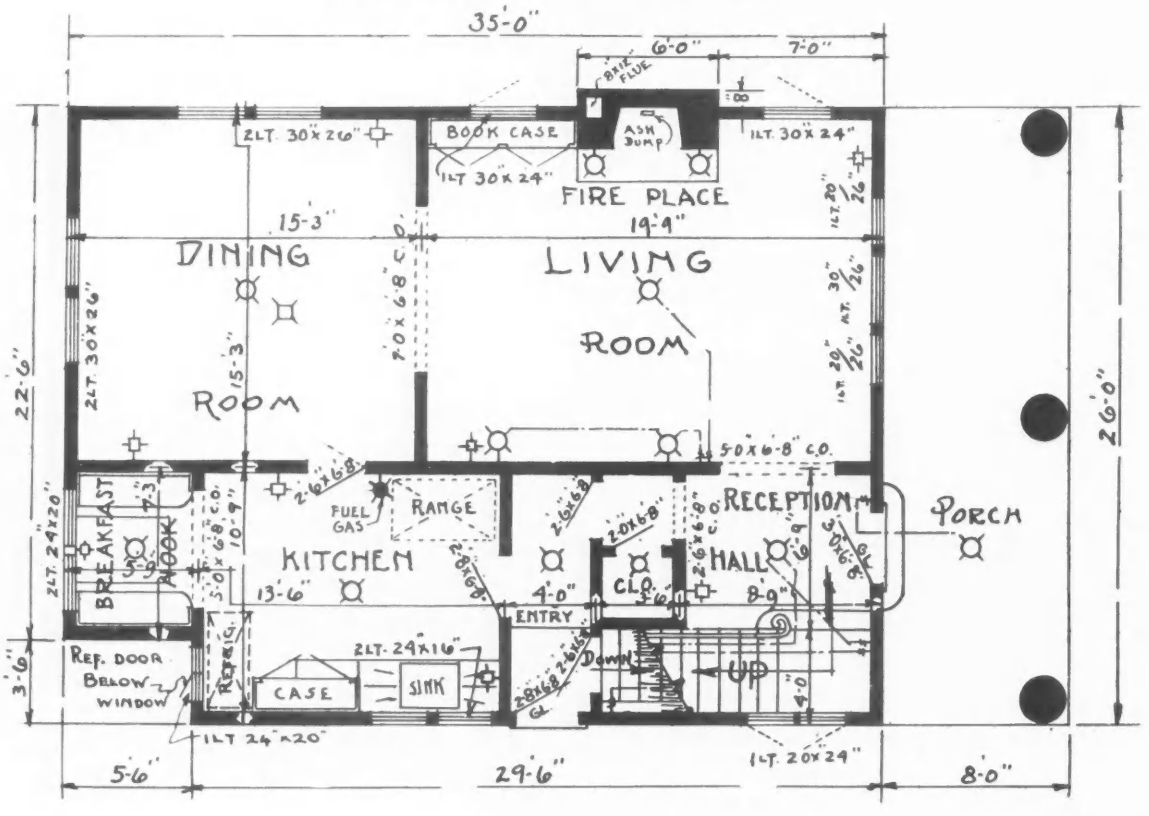
On the second floor are three bedrooms, the front one extra large. There is an extra generous supply of closet space, and the bathroom is large and conveniently located.

On the four pages following you will find working drawings made to ⅛-inch scale, showing the floor plans and the principal elevations of this house, and on sheet four of the drawings construction details are presented to a scale of ¾ inch equal to 1 foot.

Photograph of Our Front Cover Home. Working drawings made to ⅛-inch scale are presented on the four pages following.



SECOND FLOOR PLAN

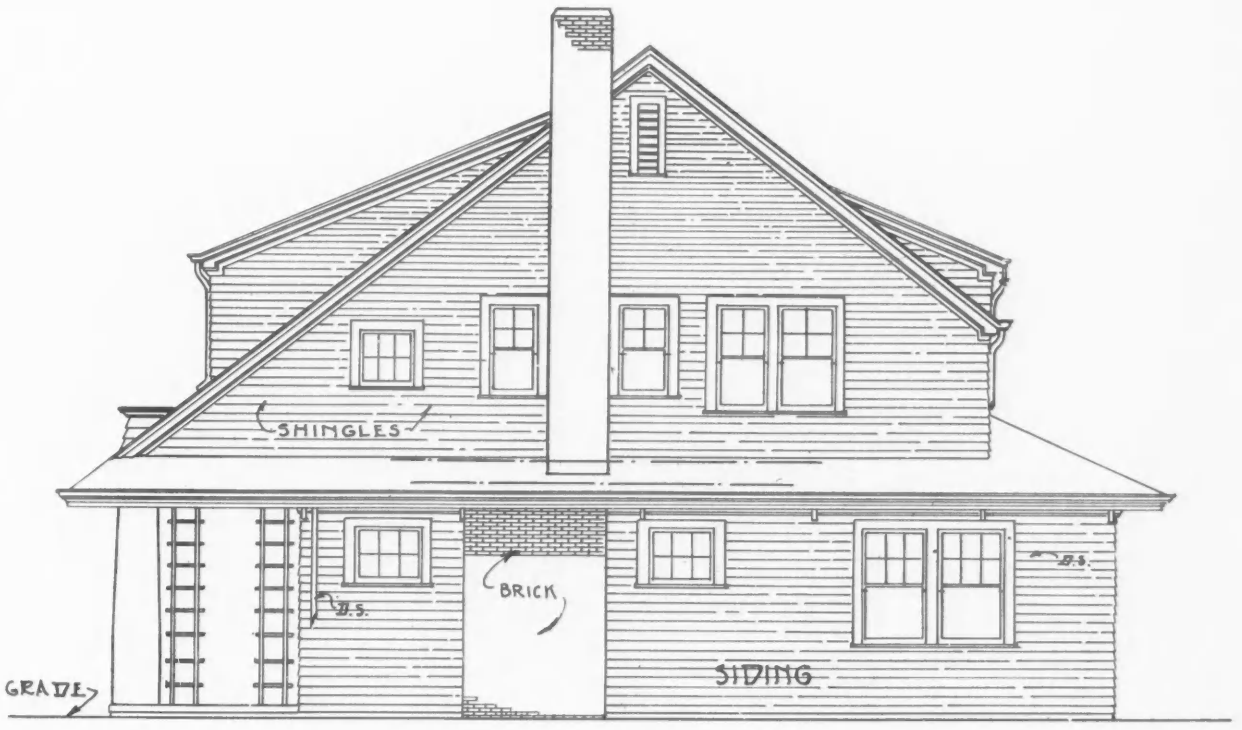


SHEET № 1

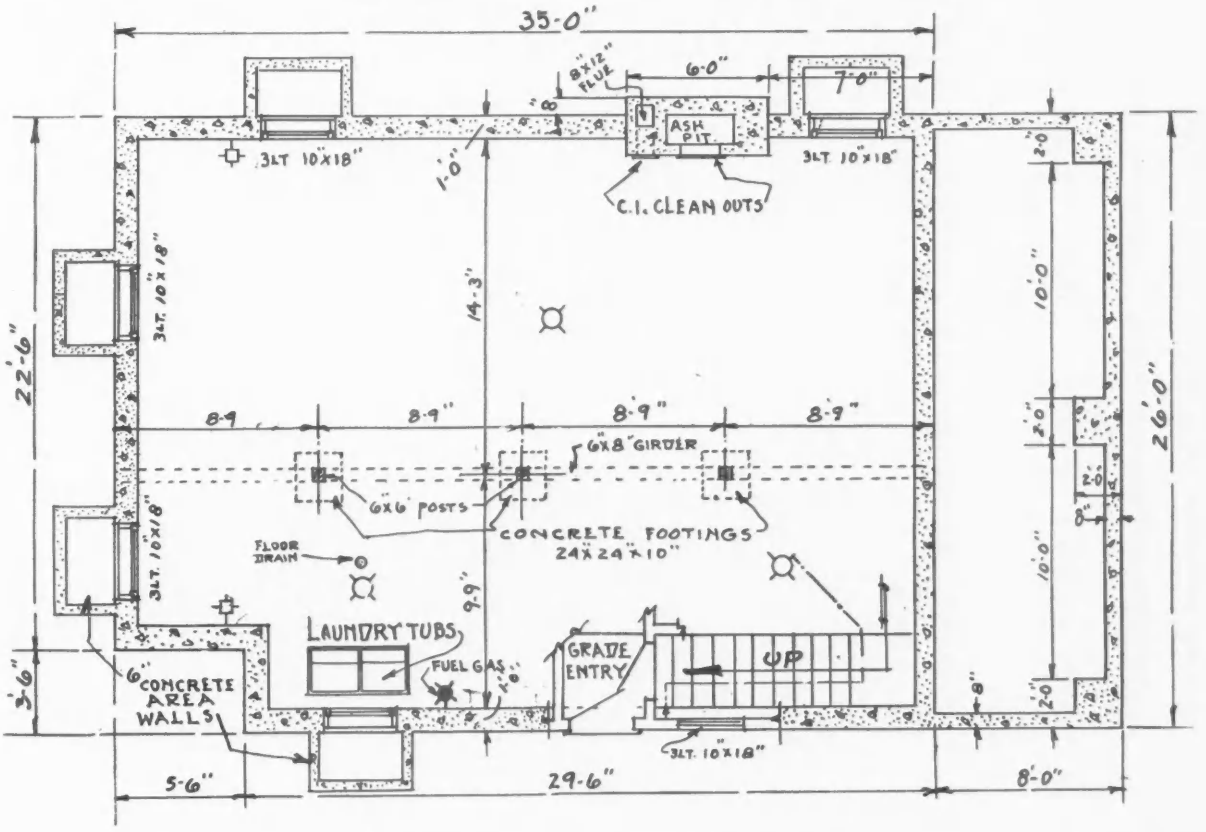
FIRST FLOOR PLAN

SCALE $\frac{1}{8}$" = 1'-0"

The First and Second Floor Plans of Our Front Cover Home Show a House 26 by 35 Feet, Conveniently Arranged into Six Fine Rooms. Elevations and construction details are on the pages following.

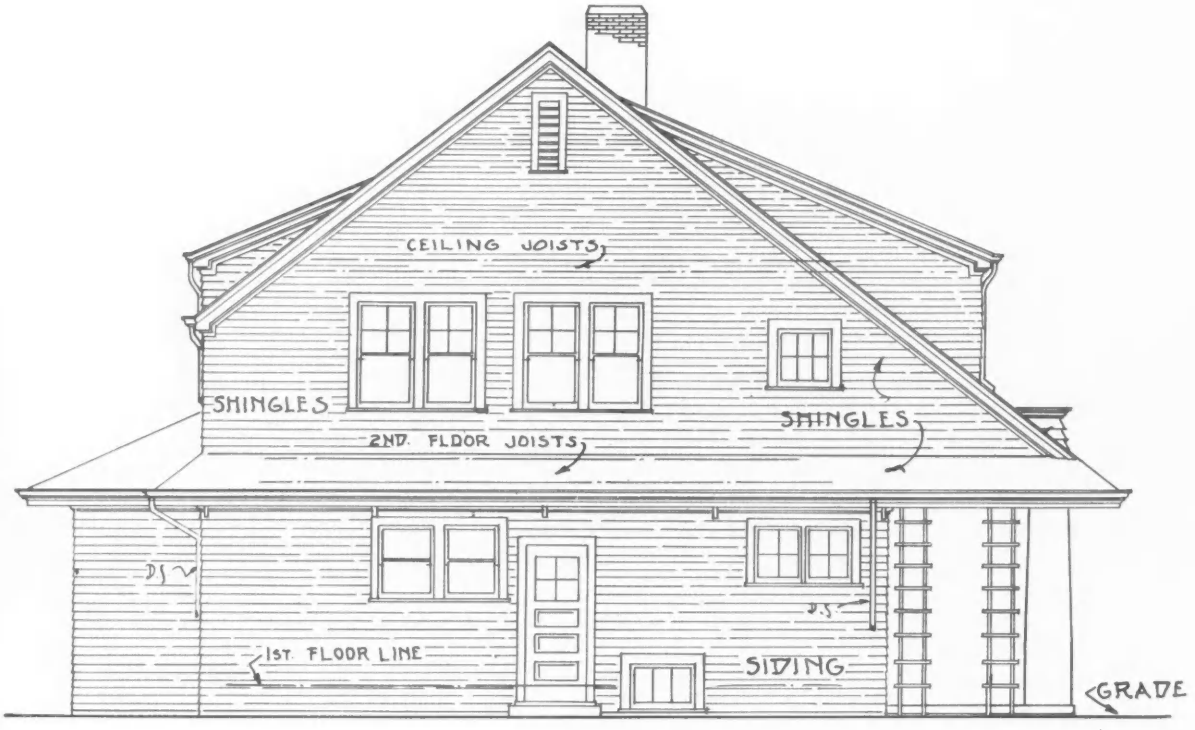


RIGHT SIDE ELEVATION



SHEET Nº 2. BASEMENT PLAN SCALE ⅛"=1'-0"

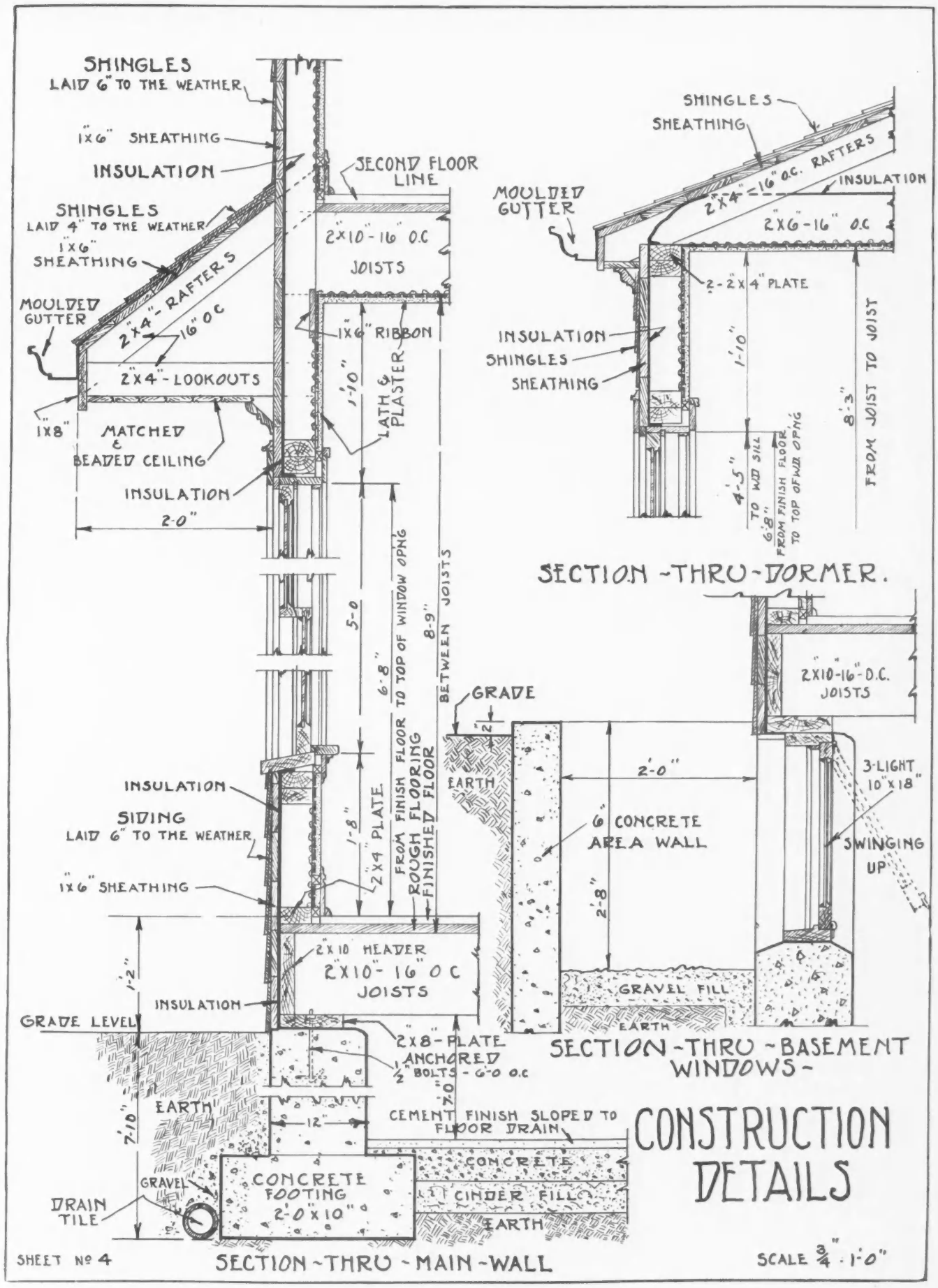
The Basement Plan of Our Front Cover Home Has Been Left Undivided by Partitions. Storage space for either coal or oil should be provided. For additional elevations and details of construction see next two pages.



LEFT SIDE ELEVATION

SHEET No 3. FRONT ELEVATION SCALE 1/8"=1'-0"

The Elevations of Our Front Cover Home Show a Pennsylvania Colonial Design of Substantial Charm. See details of construction on next page.



Details of Construction for Our Front Cover Home. Side walls and attic space are thoroughly insulated. For additional working plans see the three preceding pages.

A Hillside Home in Hollywood

Mott C. Montgomery, Architect, Plans Home on Three Levels for Sloping, Irregularly Shaped California Site

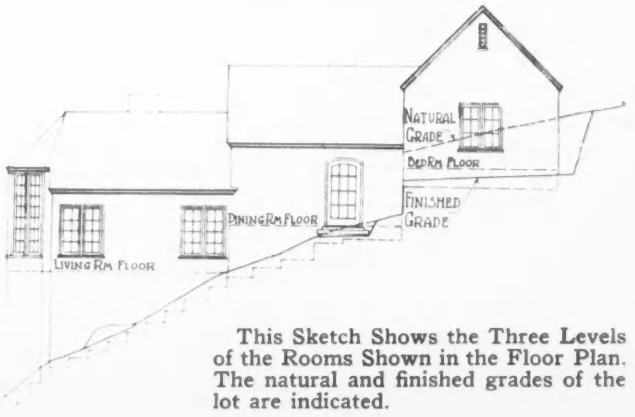
By C. M. LINDSAY

THERE are plenty of houses built *on* a hill; but this article is about one which is built *in* a hill. the home of Mott C. Montgomery, architect, in the foothills of Hollywood, California. It is built on three levels, with the living-room on one, the dining-room on another, and on the third the sleeping rooms and bath room. The third level is fully sixteen feet higher than that of the living-rooms, the main entrance being on the middle level. Living or sleeping rooms are reached by flights of steps leading from an entrance hall triangular in shape.

The lot is pie-shaped—or should one say like a *wedge* of pie?—being about seventy feet wide at the rear and narrowing toward the front, with a grade rising about five inches in twelve.

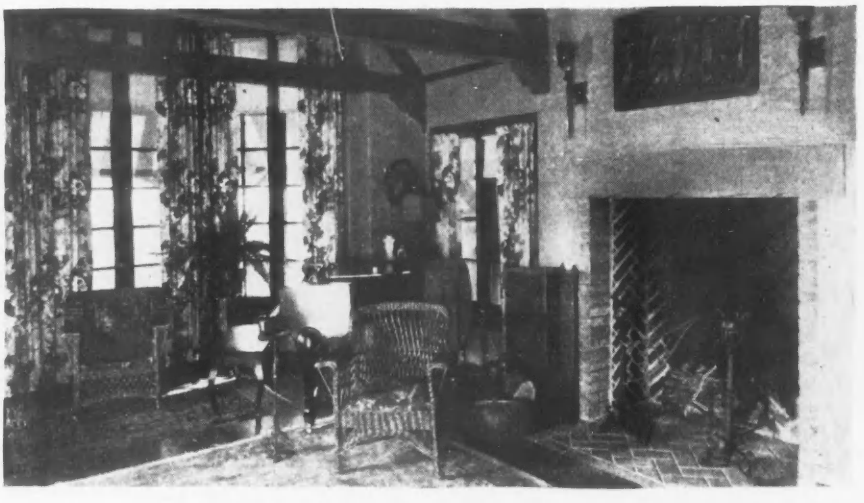
The interior walls are finished in texture plaster, being putty finished and troweled down—the texture having the appearance of being applied over stone or adobe. Floors are dark, filled with a blue paste filler, coated with shellac and with a couple of final coats of wax. The fireplace is a roomy affair, four feet in width, five in height and two in depth; red

The Entrance to the Hillside Home Is Made Unusually Pleasant by the Steps and Walk Beside the Rough, Vine-Grown Retaining Wall.



This Sketch Shows the Three Levels of the Rooms Shown in the Floor Plan. The natural and finished grades of the lot are indicated.

This Unusual Floor Plan Fits Well the Peculiar Shape of the Lot on Which the Home Was Built.



One End of the Sunny, High Ceilinged Living Room of the Hillside Home, Planned by Mott C. Montgomery, Hollywood Architect, for His Own Home.

This Side Yard, Reached by Concrete Steps, Is on the "Third Level" of the Home.

brick set in a herringbone pattern form the fire back, and then there is a stone lintel and a bronze plaque of Greek-Assyrian design, flanked by torchieres of wrought iron.

The kitchen is painted a canary yellow, with black outlines on the cupboards; blue crepe being employed for the window curtains, and on the floor is a blue covering.

A trussed ceiling in the living-room with timbers stained by over-glaze treatment has resulted in a hard wood effect. This over-glaze means first: a dark oil stain, then a coat of shellac, and finally a coating of gray paint—immediately rubbed off with a rag—thus aging the timber. That's a wrinkle which may be utilized by many home planners.

The walls of the master-bedroom are of orchid, with furniture of lavender-gray; while the guest-room has cream walls, rag rugs and rose accessories. The maid's room is in pink.

The house has windows of the casement variety—swinging inward—and taken altogether it is a very appealing home both inside and out.

✣

A NEW type of brick wall known as the Ideal Wall was recently tried out in Detroit and the results of the test were satisfactory according to those who witnessed the demonstrated. The bricks are laid in such a manner that a hollow wall is formed with air chambers which insure a dry wall.

The Living Room of the Hillside Home Is Reached by a Flight of Stars Down from the Entrance Which Is on the Dining Room Level. This room can be seen to the rear of the picture, as can the stairs to the sleeping quarters, which are on a level still higher than the dining room and kitchen.

Sheet Metal Details

Sheet 3—Flashing Over Doors and Windows and Around Columns

EDITOR'S NOTE: *This is the third of a series of articles, presenting authentic details for flashing and metal work problems in building. The drawings, presented on the opposite page, were prepared by the Copper and Brass Research Association, and may be applied in the use of all roofing metals.*

The first of this series was published in the November issue of the AMERICAN BUILDER. *Readers will remember that the drawings are intended to show the details of construction for every trade involved and are suitable for use by the drafting room in designing details. The distortion of the drawings will be apparent at a glance, but this purposely has been done that the methods may be made more clear.*

NOTES FOR DRAWINGS ON OPPOSITE PAGE

FIG. 15. When a doorway or window built of wood is placed against a brick wall, as indicated in Fig. 15, the junction of the two materials should be carefully flashed with non-corroding metal. In this type of construction the brick work is built up as the building progresses, but the moulded wood doorway is not placed until sometime later. This necessitates a two-piece flashing (cap and base).

Each sheet of the cap flashing is built in as the brick work progresses and each sheet laps outside the next lower sheet at least 2 inches. The cap flashing may be cut from one or more sheets, instead of several sheets as shown, by notching the upper edges and turning them into the brick work. In either case the lower edge of the flashing should be turned back on itself ½ inch for stiffness. After the woodwork is in place and the base flashing set, the cap flashing is turned down over the base flashing far enough to lap the base flashing at least 4 inches. For a detail of Section A-A and description of the method of placing this flashing see Fig. 17.

Fig. 16. A wood doorway against a stucco wall is shown in Fig. 16. In this case the wood trim of the doorway will be in place before the stucco or shingles are applied. The cap and base flashings may, therefore, be made in one piece or two, as desired. If the doorway has a segmental head as shown on the left-hand side two-piece construction only may be used, owing to the curved-shape doorway. The horizontal length of the sheet on the wall is also determined by the radius of the doorway head. Each sheet should lap outside the next lower at least 2 inches. In the doorway shown on the right-hand side of the illustration the flashing may be made in one sheet, if desired. For a detailed description of Section B-B and C-C and the method of setting see description of Figs. 18 and 19.

Fig. 17. A Section A-A through the cornice in Fig. 15 is shown in Fig. 17. The cap flashing is built in as the brick work progresses, the upper edge being first turned up ½ inch (although some prefer to turn it completely back on itself). The lower edge is also turned back on itself and later turned down over the base flashing. After the woodwork is placed the base flashing is hooked over a brass edge-strip and turned up on the wall. The cap flashing is then turned down over the base flashing so that it will lap the base flashing at least 4 inches.

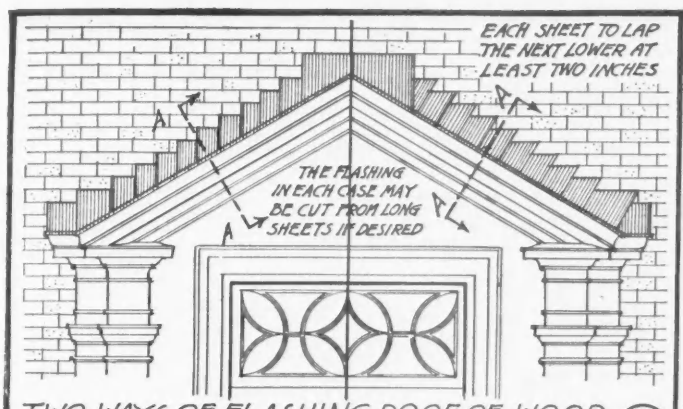
Fig. 18. When the head of the doorway is curved as indicated by the left-hand side of Fig. 16, it is necessary to make the flashing in two pieces as shown in Fig. 18, instead of in one piece as shown in Fig. 19. The lap of the two pieces should be at least ½ inch well soldered.

Fig. 19. If a wood doorway is set against a wood wall covered with stucco as shown in Fig. 16, the mouldings will be in place before the stucco is applied. The flashing may be made in one piece instead of two, as shown in Fig. 17 (except when the head is segmental). The flashing is first hooked over a brass edge-strip nailed or screwed to the face of the top moulding and extended up on wall at least 4 inches. The lath is brought down outside and a little in front of the flashing, but nailed above it and the stucco then applied. If the flashing is made in several sheets as shown in Fig. 16, each sheet of flashing should lap outside the next lower sheet at least 2 inches. The flashing may be made in one or more long sheets if desired, except where the doorway has a segmental head.

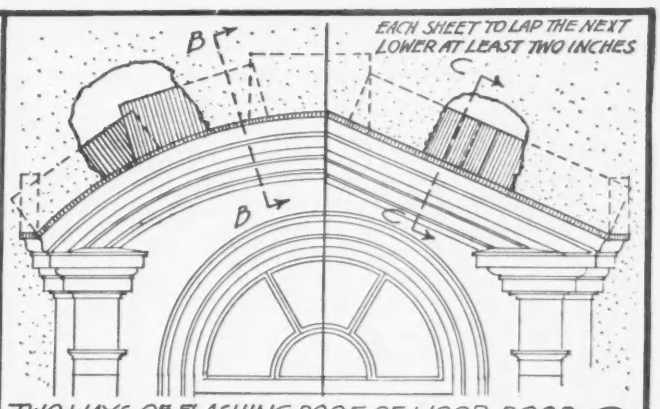
Fig. 20. If a wood or composition column-cap is exposed to the action of the elements, good practice demands that the upper surfaces of the exposed projecting parts of the cap be protected from dampness. To accomplish this the top is covered with copper in the manner shown in Fig. 20. The portion over the dowel is made separately and soldered to the flat portion and the edges of the flat part turned down over the edge of the column cap about ½ inch and secured by copper nails as shown at "B."

Fig. 21. At the place where the base of a wool column rests on or penetrates a composition roof laid over wood, provision should be made to make the junction water-tight by means of a copper flashing cap as shown in Fig. 21. This is made up in one unit by soldering the various parts together and placing it either over the dowel on top of the column below or over a projection raised on the deck for this purpose. The metal should extend out on the roof at least 4 inches and be set in the layers of felt in the usual manner for composition roofs as shown and described elsewhere. The upper column is then placed over this cap and rests on top of it. The sides of the column base should be made to clear the composition roof from ½ to 1 inch to prevent rot. The above method with slight variations is used for round wood columns as well as square columns.

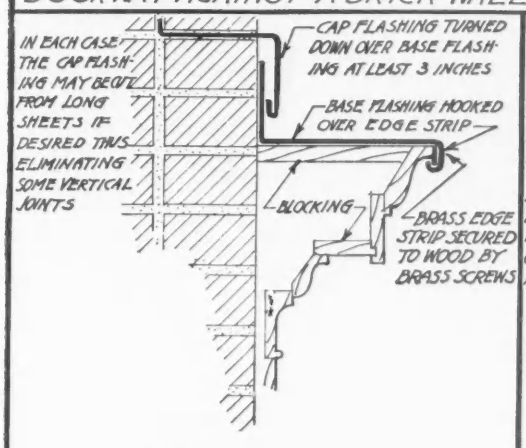
This Chain is Historic—Salvaged from the Battleship "Maine" in Havana Harbor—and Put to this Peaceful Task.



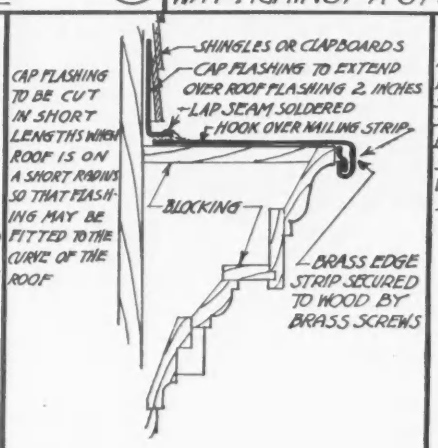
TWO WAYS OF FLASHING ROOF OF WOOD DOORWAY AGAINST A BRICK WALL (15)



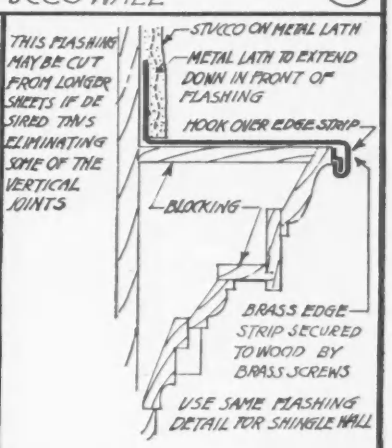
TWO WAYS OF FLASHING ROOF OF WOOD DOORWAY AGAINST A STUCCO WALL (16)



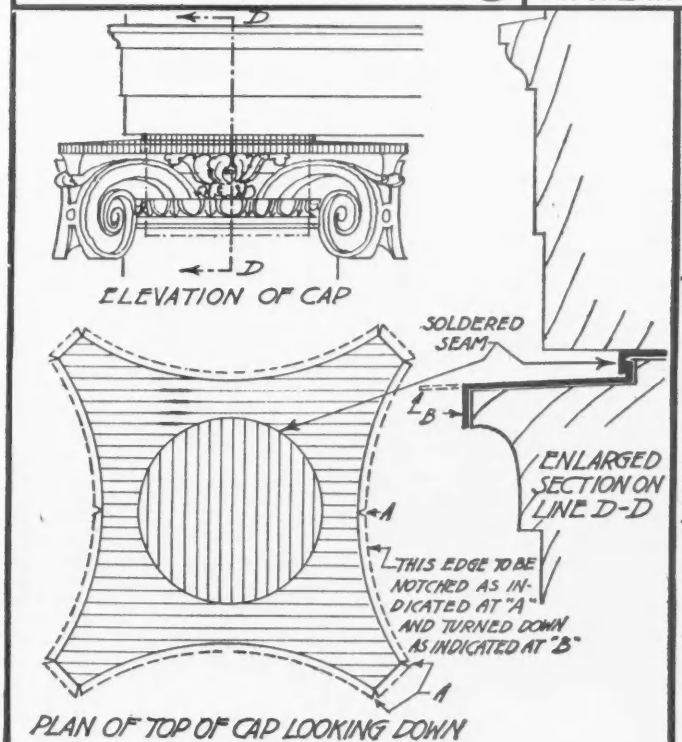
SECTION "A-A" FIG. 15 (17)



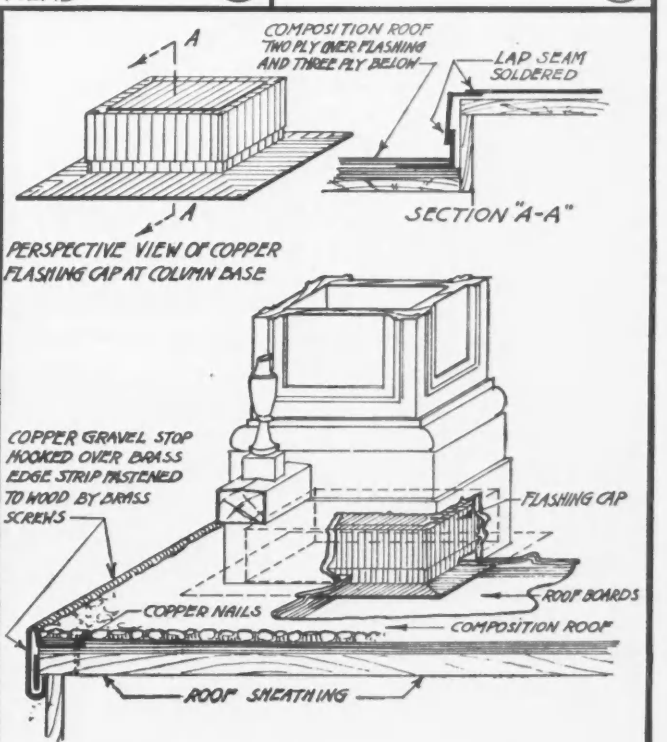
SECTION "B-B" FIG. 16 CIRCULAR HEAD (18)



SECTION "C-C" FIG. 16 (19)



FLASHING FOR A COLUMN CAP (20)



FLASHING FOR BASE OF WOOD COLUMN OF BALUSTRADE ON ROOF OF DECK (21)

Sketches for Sheet Metal Working Methods, Explained on Opposite Page.

The Demonstration Home on Michigan Blvd.

High Priced Building Site in Chicago Used to Sell the Public on Home Building and the Use of Quality Materials

THE subject of this sketch is a little house, simple and harmonious in design, convenient in its accommodations, honest in construction, and containing those comforts with which the most advanced science surrounds the home dwellers of today.

This little house stands on Michigan Boulevard, in Chicago, one of the busiest thoroughfares in the world. Its architecture is Spanish. Its white exterior plaster gives the impression of having been moulded by hand, which together with its red tile roof causes it to stand out like a veritable gem in its sombre setting of business buildings. The land on which it is erected adjoins the general office building of The Celotex Company.

The design and plans of the bungalow were developed by this company through collaboration with the Architects Small House Service Bureau of the United States.

The house is completely enclosed with insulating lumber, used in all cases as part of the structure—floors, walls, ceilings and roof. It is constructed without a basement. Basements in small dwellings are a tradition of the past. They were built to house the winter's supply of foods and fuel and furnish laundry space. In a basementless house all these utilities may be cared for in a room 10 feet square built upon the ground level, or if the laundry is omitted the heater may be installed in the hall or living room.

Insulation makes the basementless house possible and practical. Every frame house should be ventilated under its ground floor to prevent dryrot of the underfloor timbers. This ventilation will produce a cold floor in winter and admit dampness unless the floor is insulated.

In this little house it is estimated by the best heating engineers that it will demonstrate through the winter months a saving of from 40 to 50 per cent in fuel as against a house of equal cubical contents uninsulated and containing a basement.

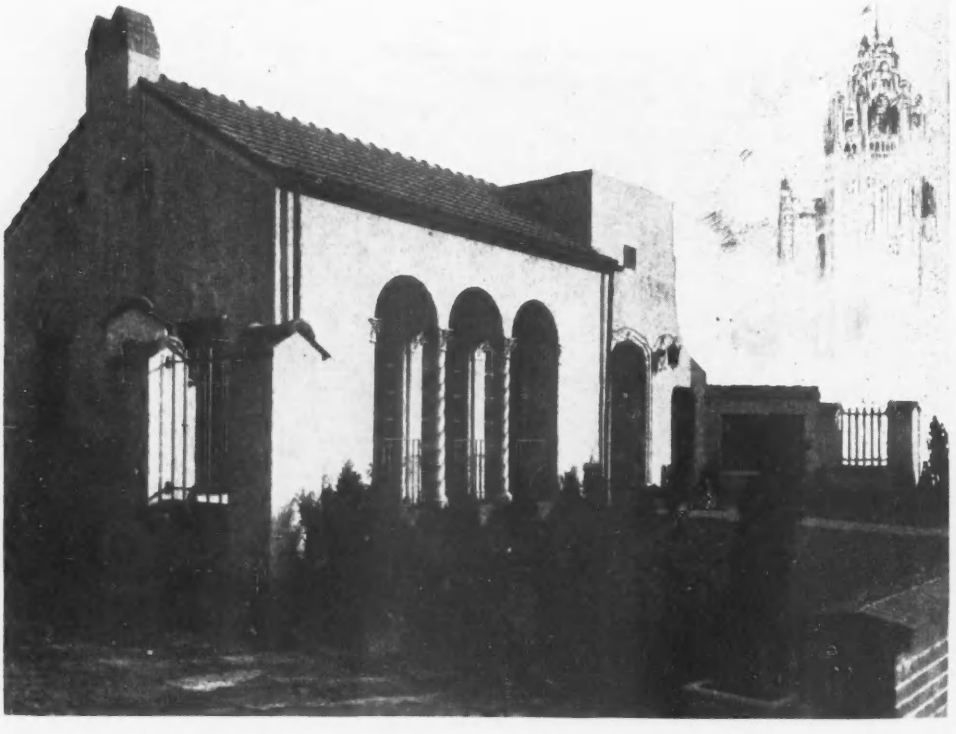
Aside from the convenience and compactness of this advanced method of construction a saving of approximately 20 per cent is effected in the initial cost of the house.

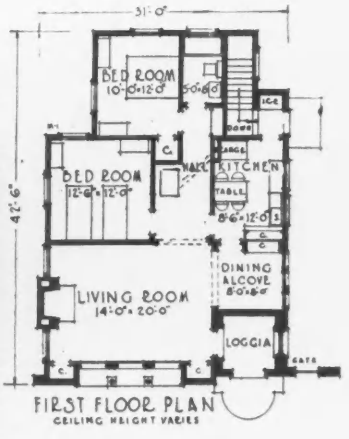
A foundation wall with a maximum of 4-foot depth is substituted for a 10 to 12-foot basement and foundation wall. The concrete cellar floor is omitted. Waterproofing and foundation drainage are eliminated. The chimneys find footings at a higher level. The plumbing pipes have shorter runs and all ditches for sewer, gas and water are shallower. Actual figures collected at Indianapolis showed a difference of $2,300 between foundation walls of a 5-room basementless house and the concrete basement walls and floors of the same house built with a basement. In this calculation the other savings enumerated above added $800 more to the total saving in construction cost.

This bungalow, as it stands, built in the center of Chicago's fire district, with all its up-to-the-last-second equipment, cost about $8,000. It would easily cost $10,000 if it had a cellar. Added cost of a cellar would have included excavating, building the basement and accessories, waterproofing walls, drainage, deep sewers, deep chimneys, longer runs for plumbing pipes, etc., totaling from 20 per cent to 25 per cent of the cost of the entire house.

Every nicety of exterior and interior treatment has been studied to make the ensemble of the bungalow perfectly true to type.

From the avenue, the bungalow is approached by a brick walk laid in an interesting pattern, while on either hand are low wing walls in the panels of which appear an invitation extended to the public to visit the bungalow and learn about good forms of construction. These walls are not





This Demonstration Bungalow on North Michigan Boulevard, Chicago, Has Attracted the Interested Attention of Thousands of America's Motoring Population. The design is Spanish by the Architects' Small House Service Bureau.

sign boards, but knit into the construction of the house like garden walls, and are built of a pleasing combination of stucco and ornamental iron with red tile copings.

The entrance porch is paved with Spanish tile and admits the visitor into an ample studio living room with ceiling trussed with wood beams. The side walls are of hand molded Spanish plaster applied to the insulating lumber as a plaster base. The fireplace is of Spanish tile, as are the window sills and other side wall trimmings. The floor is interestingly paved with rubber tile in a perfect imitation of black and gold sienna marble in diagonal squares.

Adjoining the living room is a dining room alcove of the same general treatment. The furniture and furnishings of this group, while not extravagant, have been selected to maintain the perfect harmony of type which exists throughout.

The bedroom is tastily furnished, while the bath and kitchen are models of convenient and modern equipment.

All the surroundings of the structure have been studied with equal care. As the visitor approaches the house, he finds himself surrounded on either side with artistic planting. Behind the house a small formal garden is under construction. A brick walk along the side of the structure leads through an iron wicket to the street.

The plan to erect this prominent demonstration bungalow

(*Continued to page 168.*)

The Bedrooms in the Demonstration Home Are Tastefully Furnished. Notice the steel casement windows. The walls and ceiling are attractively panelled with sound deadening and insulating board.

The Studio Type Living Room in the Demonstration Bungalow is the Center of Interest and a Work of Unusual Beauty. Some rare effects in wall texture and coloring have been achieved.

Fireplace Construction

How to Build an Open Fireplace That Won't Smoke. A Good Wood-burning Fireplace is a Joy to the Owner and is a Paying Proposition if You Are Building to Sell

WOOD-BURNING fireplaces are now so popular that one or more are put in nearly every good residence, whether for sale or for private occupancy. Unfortunately either through ignorance or from careless construction many of these fireplaces fail to give satisfaction. When the owner lights up the fire and finds that some of the smoke finds its way out into the room he is a disappointed man and it has been the source of friction between owners and builders many times. As it is just as easy to build fireplaces right in the first place, as it is to build them wrong, the careful builder should observe a few simple rules, which, if followed, will avoid all this trouble.

Many times the trouble is caused by a flue too small for the fireplace. It is advisable never to use less than a 13 inch by 8½-inch tile for wood-burning fireplaces and this flue

As the Fireplace is Generally the Dominant Leading Feature of the Room Too Much Care and Thought Cannot Be Spent Upon it to Make it Appropriate and Attractive, For it is the Family Gathering Place and When the Fire is Lighted Draws the Eye Irresistibly.

is good for a fireplace up to 3 feet wide and of ordinary height, say, 30 inches. If the opening is wider than 3 feet it is advisable to use 13-inch by 13-inch tile up to 4 feet wide, and for 4 feet 6 inches or 5 feet wide the flue should be 13 inches by 18 inches. Care must be taken to keep the flue clear of mortar projections and if there are any offsets in the flue, measures should be taken to prevent mortar droppings falling down the flue and lodging in the offset, reducing its capacity at that point. The flue should be carried at least 2 feet or 3 feet above the highest ridge of the house. If it is necessary to offset the flue the angle of the offset should not be less than 45 degrees, and careful miters should be made at the angles.

Every wood-burning fireplace should have a damper built above the opening for controlling the draft and the cast iron combination throat and damper is the best type, the front flange of which forms a lintel for the support of the masonry above the fireplace.

The chamber connecting the top of the damper and the flue is called the smoke chamber and this space should be reduced gradually at an angle of about 60 degrees, to the point where the flue proper begins. The steel smoke chamber plates forming the sloping sides of the smoke chamber as shown in the accompanying drawing are excellent as they give the mason a form to work to and secure smooth surfaces for these slopes, eliminating much friction. At the top of this steel smoke chamber is an iron collar upon which the tile flue starts. The damper shown in this illustration operates a ratchet just underneath the front flange of the damper in the center of the fireplace, and this is an excellent control, giving a clear smoke opening, very easy to regulate and which is less conspicuous than some other forms of control.

It is not advisable to make the fireplace very deep unless very large logs are to be used. We think that 20 inches is deep enough for the average fireplace and the back of the fireplace should be sloped from a point 8 inches or 10 inches above the hearth forward to and below the rear flange of the damper.

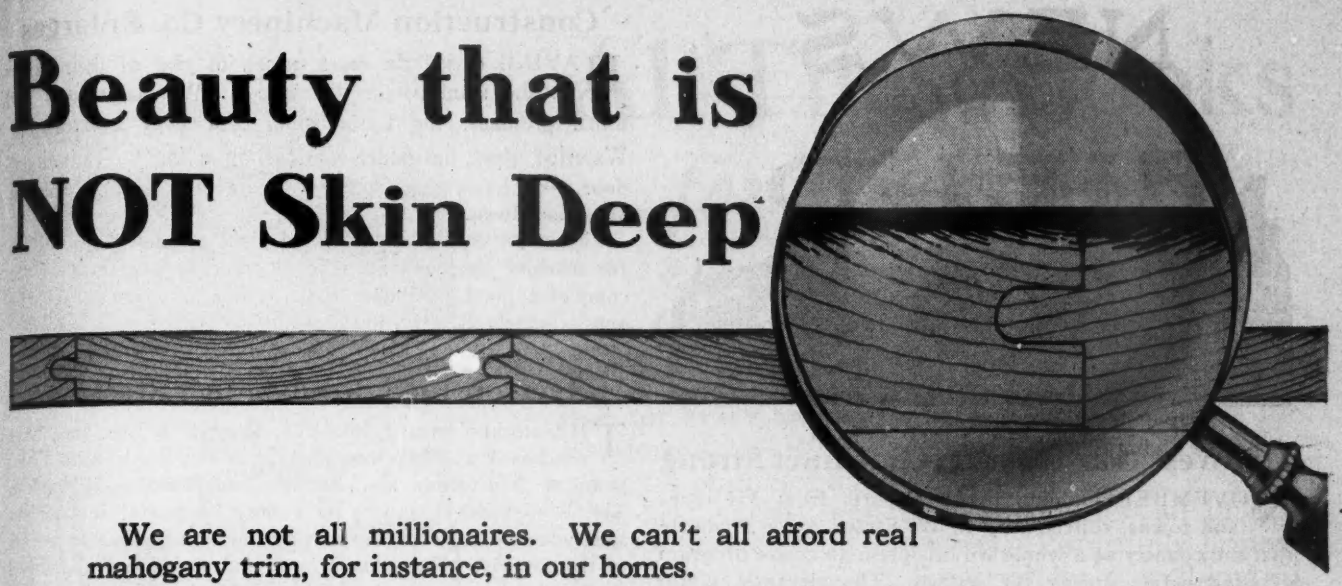
This sloping back tends to throw more heat into the room and is an excellent form of construction. The back and jambs of the fireplace can be built either of fire brick or of any good hard burned ordinary brick, but no soft or pale brick should be allowed.

If the chimney is built hollow in the cellar a small ash flue can be carried from the rear of the hearth down to this chamber so that the ashes may be dropped. In this case an iron door should be provided near the cellar floor and an iron tilting ash dump set in the hearth above the ash flue.

A simple brick fireplace can be constructed at small cost by the use of richly colored texture brick and perhaps a few old fashioned Moravian tiles used for decorative effect.

Fireplace Throat and Damper Cut Open to Show Construction.

Beauty that is NOT Skin Deep



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NEWS of the FIELD

Mid West Construction Continues Strong

NOVEMBER building permit reports from 354 cities and towns, collected by S. W. Straus & Co., indicate that the country as a whole will maintain an active program of construction during the winter. The eleventh month of the year normally shows a decrease of 15 or 20 per cent from October. This year the decrease was 18 per cent, attributable largely to heavy losses in Greater New York. The decrease from November, 1923, in the 354 cities was 13 per cent, also due in the main to a loss of 47.5 per cent in plans filed in the five boroughs of New York.

The total for the 354 cities and towns for November was $250,477,492, compared with $288,330,263 last November and with $306,348,757 in October this year.

The eastern section of the country, 100 cities reporting, showed a loss of 24 per cent from last year, the largest of any section. The Pacific Coast section, 79 cities reporting, had a loss of 10 per cent from last November. The Central West, 117 cities reporting, had a loss of 1 per cent, and the South, 58 cities reporting, practically broke even with last November.

In the 25 leading cities (on the basis of volume of permits issued) the decrease from November, 1923, was 16 per cent and from October, this year, 17 per cent. Among the 25 leading cities, however, 17 showed gains over November last year. It is significant, also, in analyzing the building situation, that 60 per cent of the total for the 354 cities and towns in November was within these leading cities. This would seem to indicate renewed activities in many centers of population. A few of the larger cities, however, show a tendency to slow down, at least for the present. Among those reporting a decrease in November were: Los Angeles, Cleveland, Washington, D. C., St. Louis, Buffalo, Oakland and Newark, N. J. Gains were reported from Chicago, Detroit, San Francisco, Philadelphia, Boston, Baltimore, Milwaukee, Pittsburgh, Minneapolis, Cambridge, Mass., Portland, Ore., Denver, Birmingham, Utica, Seattle, Worcester and Cincinnati.

Now that the construction industry appears to be stabilized, activity may be governed largely by local housing demands. A recent housing survey was made by S. W. Straus & Co., in 528 cities of more than 10,000 population. In 380 of these cities there was reported a total shortage in excess of $4,000,000,000. In 148 of these cities "no shortage" was reported. A shortage in towns of less than 10,000 population also was indicated.

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"Never-Split" Invades South America

MESSRS. JOHN & JOSEPH DRYSDALE & CO., Buenos Aires, have been appointed agents in the Argentine Republic, Uruguay and Paraguay, for the Never Split Seat Company of Evansville, Ind., U. S. A.

Construction Machinery Co. Enlarges

HAVING closed the most successful year of their career in the manufacture and sale of Wonder mixers and allied products, the Construction Machinery Company of Waterloo, Iowa, has under construction at this time additional floor space amounting to 22,000 square feet, to their plant in Waterloo, Iowa.

The majority of this additional plant space will be utilized for machine shop and assembly floor. The total area of the completed plant, including the foundry department, will be approximately 80,000 square feet.

✣

Ryerson Buys Reed-Smith Steel Co.

THE stockholders of Joseph T. Ryerson & Son, Inc., have purchased a substantial interest in the Reed-Smith Company at Nineteenth and South Canal streets, Milwaukee. The Reed-Smith Company is a very successful independent steel warehousing company serving the industry in that section of the country. They have a large and varied line of finished steel products in stock, with ample facilities for quick shipment.

Under the new plan the officers of the Reed-Smith Company of Milwaukee are: Mr. D. M. Ryerson, president; Mr. George W. Smith, vice-president and general manager; Mr. E. L. Hartig, treasurer, and Mr. Carl Gallauer, secretary.

✣

Popular for Stucco Dash

IN the foot-hills of the Adirondacks and not far from Lake Champlain at Crown Point, N. Y., are situated quarries that are yielding rose and green colored stucco dash and concrete facing materials.

Mr. M. L. Thomas, a mining engineer of New York City, first saw the possibilities of this important mineral deposit and is now operating these quarries. He is supplying several stucco manufacturers and many building material dealers and building contractors with stucco dash, facing for concrete blocks, bricks and ornamental concrete.

✣

Another Milcor Factory Expansion

DURING 1924 the business of the Milwaukee Corrugating Company expanded to such an extent that in spite of the addition of 50,000 square feet of floor space completed late in 1923 and the acquisition of a large branch plant at La Crosse, Wis. (formerly occupied by Gund Brewing Company), another extensive addition is now necessary.

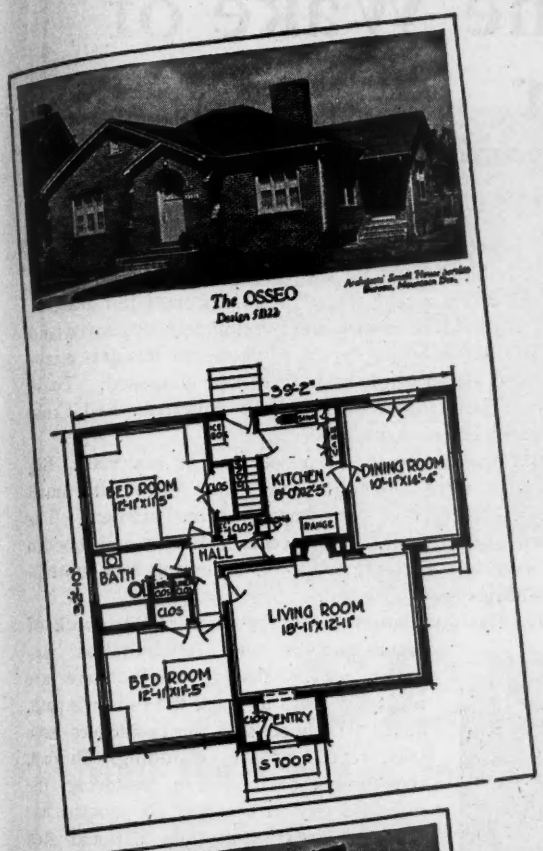
Work has been started on a new 100,000-square foot extension to the Milcor Milwaukee factories. This addition, running 200 feet back from the main plant, two stories high, will be completed within the next sixty days and will be in operation in time to take care of the increased spring demand.

✣

NEW processes in making Sand's aluminum levels use automatic machinery to eliminate several operations formerly necessary. This has been done, we are informed, without in any way interfering with the accuracy that has always been built in these tools. The time and labor saved reduces costs and the savings thus effected are being passed on to dealers and level users.

✣

THE T. L. Smith Company, of Milwaukee, has appointed as its distributors the Pacific Hoist & Derrick Company and D. C. Elphinstone Company, Inc. The Pacific Hoist & Derrick Company maintains its offices at 818 First Avenue, South, Seattle, Wash., and D. C. Elphinstone Company, Inc., is located in the Continental Building, Baltimore, Md. Both of these companies will carry a complete line of the Smith tilting, non-tilting and paving mixers.



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Construction in the Wake of Disaster

Lorain, Ohio Rebuilds in Record Time

By FRANK MALOY

NEW buildings aggregating an expenditure of more than $7,500,000 have either just been completed or are under way in Lorain, Ohio, a city of 50,000 population. And $5,000,000 of this total represents residence construction.

This is more building than Lorain or the average city of its size sees in half a decade. Furthermore, to make it more remarkable, 99 per cent of this building had not even been considered previous to last June.

The explanation is simple, however.

On June 28, 1924, a yellow funnel-shaped cloud swept in from Lake Erie upon Lorain. Two minutes later it was gone, leaving in its wake seventy-nine people dead, 350 injured and a property loss estimated at more than $25,000,000. Electric light wires were down. Gas mains were broken. Tons of debris filled streets. The business district was wrecked and the biggest theater in town was completely demolished with more than a score of persons buried in the wreckage. Only a torrent of rain and prompt action on the part of public utilities officials saved the community from being swept by fire.

Scores of Homes of Working Men Were Completely Destroyed in the District Shown in This Picture. A colony of tents went up to house the homeless families. Some are still living under canvas, but most of the homes have been rebuilt in this section.

It was in the residence section, however, that the greatest losses were suffered both in life and property. Entire blocks of houses were devastated by the tornado which tore a path, almost a mile across at the widest point, through the heart of the city. Two hundred homes were completely destroyed and more than 700 partially destroyed, while eleven business establishments were demolished and sixty-five damaged. These figures were taken from reports of the American Red Cross Relief Commission in Lorain.

The twister was no respector of persons or materials. Big brick residences were blown into the same heap with small frame homes. No type of construction seemed immune. The storm played queer tricks. Aged, weather beaten and wooden structures were left standing while on adjoining lots substantial new buildings were crushed.

Within twenty-four hours after the disaster the work of reconstruction and rehabilitation was under way. Today, while there are plenty of scars to mark the twister's path, about 90 per cent of the residences have been rebuilt or are rebuilding. In fact, the progress made in restoring the wrecked city in the last six months has been so great that even national Red Cross officials, familiar with major disasters in all parts of the world, have expressed amazement. "Lorain has come back more rapidly from its disaster and with greater thoroughness than any city in the history of Red Cross rehabilitation," said Judge John Barton Payne, chairman of the Red Cross and former secretary of the interior under Wilson, during a recent inspection of relief work in the tornado devastated area. The Red Cross is in charge of the distribution of a million-dollar relief fund, most of which has already been appropriated.

More than $550,000 of this relief fund has been expended on building materials and construction, according to Henry Baker, national Red Cross director of disaster relief, who is in charge of Red Cross activities in Lorain. Appropriations were

Lakeview Park, Lorain's Exclusive Residence District, Suffered the First Blow from the Tornado. Practically everyone of the 50 or more houses in the district was destroyed or damaged.

only made in cases where victims were unable to finance the cost of reconstruction themselves.

Estimates of architects and contractors indicate that at least 800 houses have been or are being erected or repaired at an average cost of $6,500 each. Eleven churches, either building, repairing or projected, will cost well over $1,000,000. Five church edifices were completely demolished in the storm and several suffered heavy damage. In the downtown district $1,542,000 is being expended.

Practically every local contractor has from five to twenty houses under construction. With a few exceptions all have been and plan to continue working through the winter. Three reasons are given for this. Owners, who were delayed in financing their rebuilding, are now clamoring that the work be completed as soon as possible. Cold weather has caused building to fall off elsewhere and as a result the shortage of skilled workmen has been relieved. Post-election forecasts promise a business and industrial boom in Northern Ohio and contractors fear that conditions under which contracts were accepted will not prevail when warm weather arrives.

The first snows and cold weather of early December failed to hold up construction to any appreciable extent. Builders explain this by pointing out that 99 out of every 100 residences going up are frame. Since most of the tornado wrecked houses are going up on the foundations of the former structures, there is little masonry work to be done.

Several things mark the reconstruction of homes. Seven and ten-room houses, built a decade ago, are being replaced by houses of a more modern type containing five to seven rooms. This holds true even in the case of residences being repaired. Parlors and reception rooms are giving way to enlarged living rooms and sun porches. Many of the built-in features of residence construction of today, such as breakfast nooks, book cases and buffets, are being installed. Owners are also taking advantage of the opportunity to correct mistakes in the original building and as a result a better and more modern type of home is growing up in the wrecked districts. Then, again, a large percentage of the devastated houses have been or are being built over into duplexes or two-family flats. A Lorain contractor, who put up many of the homes he is now rebuilding, states that 20 per cent of them are being converted into two-family houses. The same percentage holds true throughout the wrecked area, the Red Cross reports. The fact that many families, hard hit by the tornado, need the revenue added to a housing shortage is the reason for the practice. It is also pointed out that two modern apartments are made to grow in the place of one big and old fashioned house with little difficulty.

Lorain's experiences hold lessons for both contractors and the man who pays the bills. Let Mr. Baker of the Red Cross explain these. In the last five years he has been through eighty-nine disasters in all parts of the United States and he finds that practically the same conditions hold true in every case.

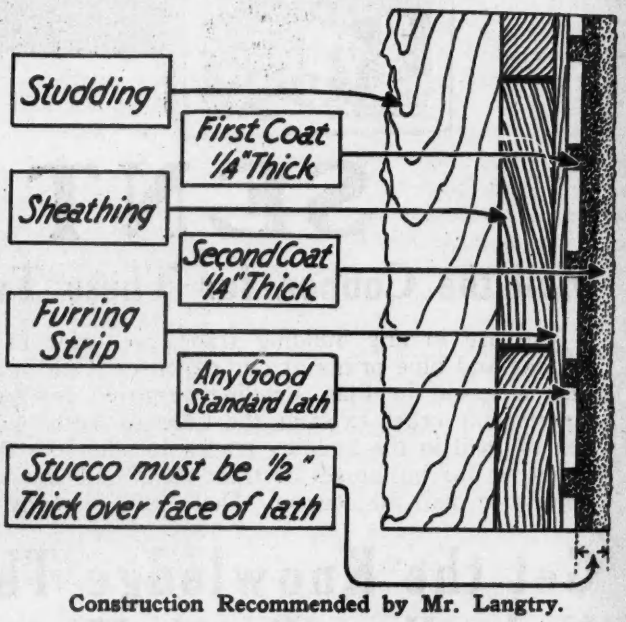
"There are three things I would advise a contractor to do in preparing to take reconstruction contracts after a disaster," says Mr. Baker. "The first is to come to the headquarters of the controlling relief organization with credentials and bond and be registered. In most cases, this places the contractor on a white or preferred list and separates him from the horde of contractors, many of the unscrupulous, who pour in from every direction and take contracts which they are unable to carry through. Second, a contractor is unwise to take more work than he can handle. If he is able to handle ten contracts and accepts twenty, there is trouble all around. Poor jobs result, work is delayed, the owner is dissatisfied, reputations suffer and the reconstruction program is held up. Third, the contractors should know their men. Hundreds of men follow in the wake of disasters and many of them are incompetent, and since a contractor with several houses to look after cannot supervise the work of each man, a lot of poor work results."

Can You Apply Stucco?

By P. W. LANGTRY

THE popularity of magnesite stucco is unquestioned. It is one of the most popular exterior wall coverings on the market and it is surely here to stay. The adaptability of stucco for use in modernizing old and dilapidated homes is well recognized. The variety of finishes that can be obtained is unlimited. Magnesite stucco is in a class by itself—it can be compared with neither frame, brick nor stone. Stucco is a veneer that costs much less than brick and but little more than frame. It has, however, many of the qualities of a brick veneered house, but at much less cost.

Magnesite succo can be applied in any temperature—some of the most perfect jobs have been put on when the thermometer registered zero. So this material is one that can be applied when ordinary building is at a standstill. When a water-proofed magnesite stucco is properly applied, permanent and beautiful results are sure.



Construction Recommended by Mr. Langtry.

We have all seen bad stucco jobs. We have seen the material badly cracked, falling off the building, disintegrating and anything but attractive. The average man might blame the stucco for such failures, but the practical man knows that 99 per cent of the failure are due to one or more of three causes. One is improper construction, where lath is poorly nailed, corners are not wrapped with wire mesh and water is permitted to get behind the stucco from such points as window frames, water tables, etc. Another cause is lack of waterproofing in the stucco, which permits driving rainstorms to penetrate the material. This can be corrected with waterproofed stucco.

In a great majority of cases, however, the trouble is due to one very important cause—applying the material too thin. You yourself can very easily correct this and at the same time obtain the backing of reputable stucco manufacturers. Reliable manufacturers will stand behind their product only when it is properly applied to the correct thickness of at least ½ inch over the face of the lath. You cannot expect any commodity to stand up properly unless it is properly used. Magnesite stucco must be applied at least ½ inch thick over the face of the lath. You will find many cases where stucco has been applied in two coats even less than ⅛ inch thick. This is not only an injustice to the material, but it is an injustice to ordinary good workmanship.

Take all the magnesite jobs you can get, for they will prove very profitable. But be sure to protect your good reputation by applying the material correctly—in two coats not less than ½ inch thick over the face of the lath.

Are You Still Carrying a Tool Box?

Why not lay down the tool box and get into something for yourself, where you can be your own boss and take all of the profits?

Become an "American Universal" floor surfacing contractor. The "American Universal" electrically driven floor surfacing machine does the work of six hand scrapers and earns you six men's pay.

Keep Busy During the Winter Months

Right now, during the winter months, the opportunity of a lifetime stares you in the face. Floor surfacing is all indoor work. Hundreds of old floors in every locality are waiting right now to be resurfaced at big profits to men equipped to do the work, and will keep you busy in winter as well as the summer.

Make $25.00 to $40.00 a Day

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American Universal
FLOOR SURFACING MACHINE

Every day in the year, winter and and summer, month in and month out. You need no special training. Anyone, old or young, can handle the "American Universal" floor surfacing machine. A small amount starts you in business for yourself.

Contractors and builders find the "American Universal" method of floor surfacing a profitable side line to keep the money rolling in during the winter and dull periods between their jobs, besides saving wages of six men on all of their own work.

Write or fill out the coupon today and ask for particulars and other valuable and interesting information which we will urnish you without any obligation on your part whatever.

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515 South Saint Clair St., TOLEDO, OHIO

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Please send me without any obligation on my part full information as to how I can become an "American Universal" Floor Surfacing Machine Contractor.

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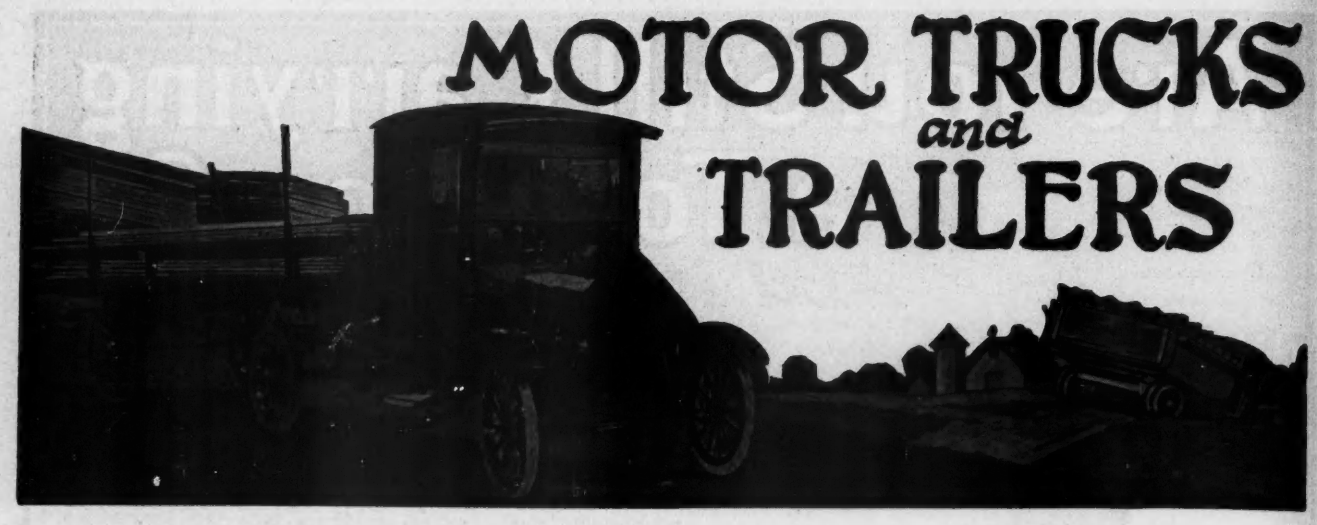


Important Points on Truck Lubrication

THE items of lubrication is by far the most important thing the building contractor has to think about in operating a motor truck. By neglecting lubrication the length of serviceable life obtained from a vehicle is greatly reduced and the cost of repairs increased considerably.

The proportionate cost of lubrication among the various items of running cost is surprisingly small. For instance, the following table, showing the percentages of operating costs, has been compiled from records covering several hundred trucks of various sizes over a period of a year. They represent fairly well the division of expense involved in operating a motor truck under the most general conditions.

	Per Cent
Gasoline	23.21
Depreciation	21.76
Repairs	17.06
Tires	15.16
Garage	14.31
Int., taxes, license, insurance	6.49
LUBRICATION	2.01

A glance at this figures immediately shows how little actual saving could be accomplished by buying low priced lubricants, even if the lower grade materials could render as satisfactory service as the higher grade and those which are higher in cost. In attempting to save money on the purchase price of oils and greases or on the unrestricted use of lubricants where needed, the truck operator is singling out the very lowest item ot operating cost which is so small that if he could save it all he would be better off by only $2.01 out of every $100.00 he is compelled to spend to keep his truck equipment going.

The cost of gasoline, depreciation and repairs is 62.03 per cent of the total operating cost, and these three items are kept down to the minimum or made excessive by the intelligent use of lubricants, or the failure to exercise judgment in that respect.

A better understanding of the importance of lubrication can be gained if the truck operator will consider that the molecules which compose oil are perfect globes. So, as a lubricant, oil not only has the advantages of being liquid and therefore flowing freely, but it practically places ball-bearings between all moving parts and reduces friction to the minimum. Oil, therefore, actually wears out, and it is for this reason that the crank-case and transmission must be drained, cleaned and refilled at regular intervals. To mix good oil with old oil is just about as effective as to take four dead, or partly dead dry-cell batteries and hook up one good one in the center.

One of the first ways to get the most out of truck operation then, is to use a lubricating oil of good quality and to establish a systematic routine for draining and refilling the crank-case at intervals of at least every 500 miles.

✣

Air Cleaners Effective

ROAD DUST, a subtle but vicious enemy of motor truck and passenger car engines, no longer receives important consideration by owners of trucks which are equipped with an air cleaner.

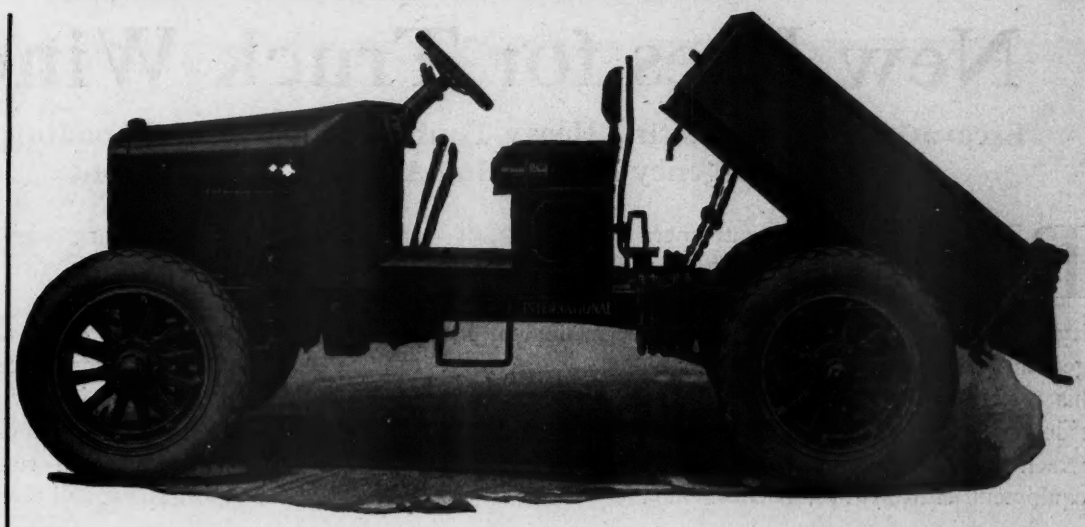
One truck engine which has for some time had an air cleaner as standard equipment is not affected by the ravages of dust and fine grit, because of the effectiveness of this equipment, it is claimed by the maker. The danger of dust accumulating in the motor and cutting it is very prevalent in trucks which must make use of all kinds of highways. Sand, gravel and silica pits where trucks are in almost universal use, also hold great dangers for the truck motor.

One of the outstanding examples of this danger came to light in a silica pit where the engines of the trucks in use were so badly damaged within a few weeks that they had to be completely overhauled. The substitution of trucks equipped with air cleaners solved the problem.

International Motor Trucks are sold and serviced through the largest company-owned truck service organization in the world. Direct company branches are located in 105 cities as follows:

Aberdeen, S. D.
Akron, Ohio
Albany, N. Y.
Amarillo, Tex.
Atlanta, Ga.
Auburn, N. Y.
Aurora, Ill.
Baltimore, Md.
Billings, Mont.
Birmingham, Ala.
Bismarck, N. D.
Boston, Mass.
Buffalo, N. Y.
Cedar Falls, Iowa
Cedar Rapids, Iowa
Charlotte, N. C.
Chattanooga, Tenn.
Cheyenne, Wyo.
Chicago, Ill., (3)
Cincinnati, Ohio
Cleveland, Ohio
Columbia, S. C.
Columbus, Ohio
Council Bluffs, Iowa
Dallas, Tex.
Davenport, Iowa
Dayton, Ohio
Denver, Colo.
Des Moines, Iowa
Detroit, Mich.
Dubuque, Iowa
Duluth, Minn.
East St. Louis, Ill.
Eau Claire, Wis.
Elmira, N. Y.
El Paso, Tex.
Evansville, Ind.
Fargo, N. D.
Fort Dodge, Iowa
Fort Wayne, Ind.
Fort Worth, Tex.
Grand Forks, N. D.
Grand Rapids, Mich.
Green Bay, Wis.
Harrisburg, Pa.
Helena, Mont.
Houston, Tex.
Hutchinson, Kan.
Indianapolis, Ind.
Jackson, Mich.
Jacksonville, Fla.
Kankakee, Ill.
Kansas City, Mo.
Knoxville, Tenn.
Lincoln, Neb.
Little Rock, Ark.
Los Angeles, Calif.
Louisville, Ky.
Madison, Wis.
Mankato, Minn.
Mason City, Iowa
Memphis, Tenn.
Milwaukee, Wis.
Minneapolis, Minn.
Minot, N. D.
Nashville, Tenn.
Newark, N. J.
New Orleans, La.
New York, N. Y.
Ogdensburg, N. Y.
Oklahoma City, Okla.
Omaha, Neb.
Parkersburg, W. Va.
Parsons, Kan.
Peoria, Ill.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Ore.
Quincy, Ill.
Richmond, Ind.
Richmond, Va.
Rochester, N. Y.
Rockford, Ill.
Saginaw, Mich.
St. Cloud, Minn.
St. Joseph, Mo.
St. Louis, Mo.
Salina, Kan.
Salt Lake City, Utah
San Antonio, Tex.
San Francisco, Calif.
Sioux City, Iowa
Sioux Falls, S. D.
South Bend, Ind.
Spokane, Wash.
Springfield, Ill.
Springfield, Mo.
Terre Haute, Ind.
Toledo, Ohio
Topeka, Kan.
Watertown, S. D.
Wichita, Kan.
Winona, Minn.

Three great factories are devoted exclusively to the manufacture of International Trucks. A corps of factory-trained Road-Engineers inspect regularly and without charge all Internationals in service.



The new Model SD, carrying a 1-yd. body, appeals to large and small contractors in all lines. It is unusually convenient, genuinely economical to operate and is built to last.

Much to do *with your profits*

Any factor in the building business that represents as big an item on the cost sheet as transportation has much to do with the profits. And the more accurately the cost sheets are kept the more clearly you will know the truth about the performance of the different trucks on record.

Power, simplicity, ton-miles at low cost, long life—what must you get from a truck? Be sure of this—you get no more out of it than has been built into it so think of the maker behind it.

For twenty years the Harvester Company has been building trucks that have been building profits in every line of business—trucks that are living up to the reputation earned by products of this institution for almost a century.

International Heavy-Duty Trucks are built in 3,000, 4,000, 6,000, 9,000 and 10,000-pound maximum capacities with bodies to meet every requirement. There is also a sturdy Speed Truck for loads up to 2,000 pounds. Upon request we will gladly supply you with names of International owners in your own line of business and the address of the nearest showroom where the full line of new models is on display.

INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. of America (*Incorporated*) Chicago, Ill.

INTERNATIONAL HARVESTER COMPANY

TRUCKS

FOR LOW-COST HAULING

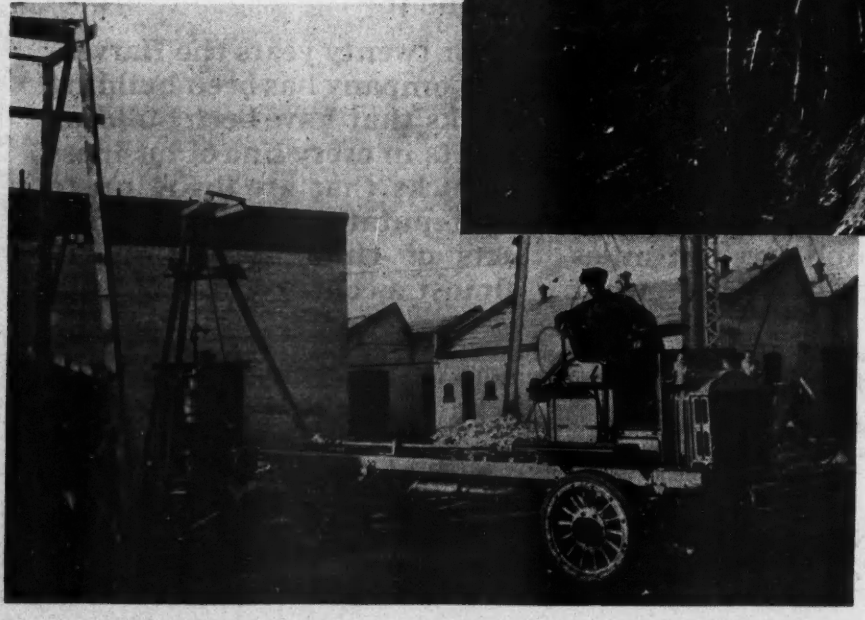
New Uses for Truck Winches

Excavation Work, Hoisting Heavy Timbers, Snaking and Loading Logs and Emergency Pile Driving Are Possible Functions

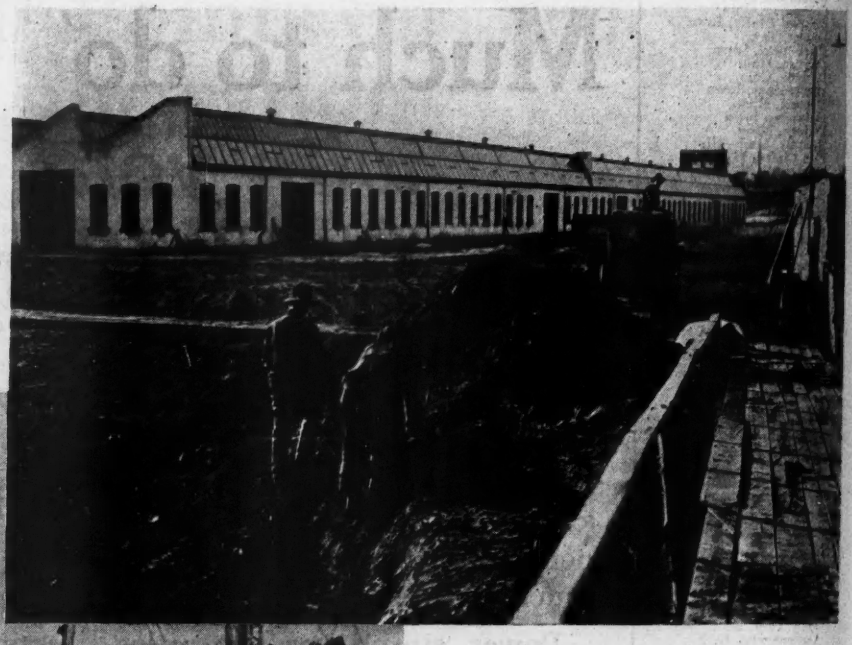
BECAUSE of the inventiveness of owners of winch equipped trucks and through the efforts of motor truck manufacturers, the truck equipped with winch is becoming more prominent in general truck work. The operator is finding uses for his winch equipped truck which, until lately, he considered well out of the field of truck work. The winch which has been for some time considered as auxiliary equipment entirely has, because of the various uses made of it, through experimentation, become a necessity.

As emergency and auxiliary equipment, the winch has served well in oil fields for transporting drilling equipment, erecting drilling rigging and loading and unloading heavy machinery. In the logging industry it has been used for snaking logs out of difficult places, loading them onto trucks and trailers and unloading them at the dumping points. In the contracting field, it finds a variety of applications, such as hoisting heavy girders and timbers into place, erecting scaffolding and even moving buildings. In helping other vehicles over roads that would otherwise be impassable, the winch is used regularly. In quarries, where loading and unloading heavy stone is a daily occurrence, it is a necessity. Other uses to which the winch is put are moving boilers and dynamos, pulling underground and aerial cables, pulling casings and moving broken vehicles from the roads.

Probably the latest addition to these many uses is excavation work and sinking well casings. The make-shift pile driver illustrated is driving a 10-inch pipe. One end of a heavy rope is fastened to the 800-pound "hammer" and the other end run through a block fastened to a support above and then wrapped a couple of times around the winch drum. The winch is in operation continuously, the weight being lifted and let fall as the rope is tightened and loosened on the revolving winch drum. The other picture illustrates the winch being used in excavation work.

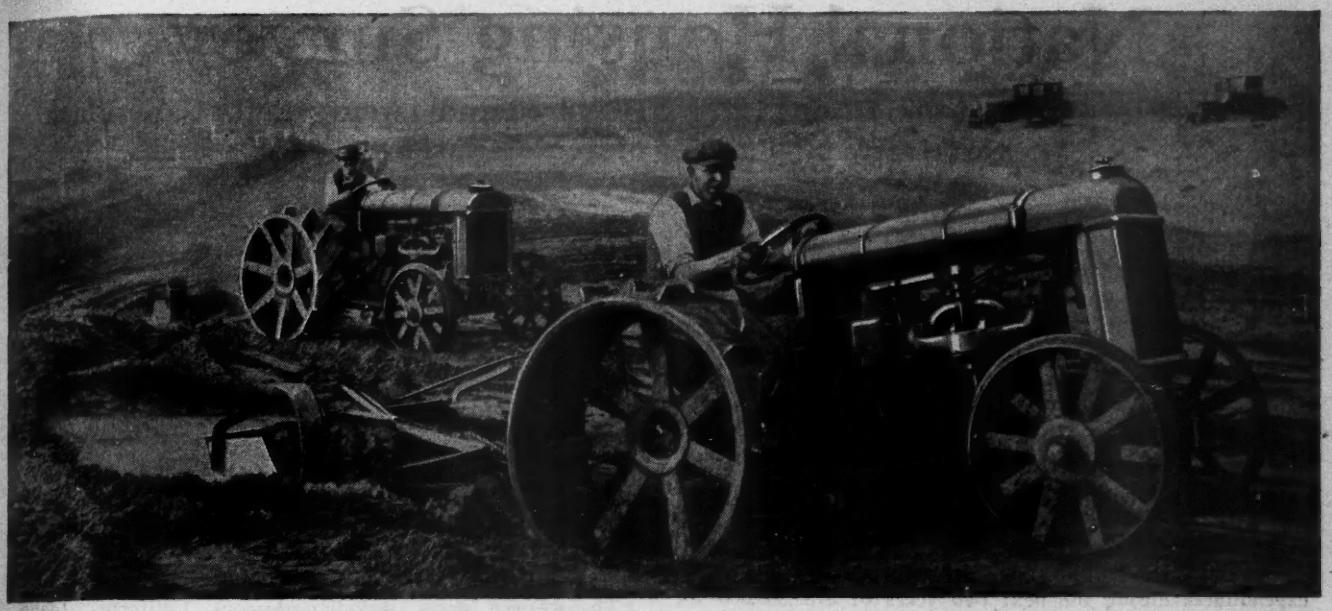


Making Use of a Truck Winch as a Make-shift Pile Driver Is Shown Here. One end of the rope is fastened to an 800-pound hammer and the rope is run through a block fastened to a support above and then wrapped a couple of times around the winch drum. The winch is in operation continuously, and the weight lifted and let fall as the rope is tightened and loosened on the revolving drum.



Excavating With this Truck Winch and Scrapers Is Possible Because of the Peculiar Position of the Winch, Which Is Mounted Under the Rear End of the Frame. Because of its low position it can exert a maximum leverage without twisting or straining the frame.

The equipment illustrated is mounted under the rear end of the frame of the truck. This position, the manufacturer claims, does not in any way interfere with the loading space and is never in the way regardless of the load being carried. It is always accessible and because of its low position is capable of exerting its maximum leverage without twisting or straining the chassis, as would be the case were it mounted elsewhere on the truck.



Reduce Grading Cost 30 Cents Per Cubic Yard with Fordson

White Bros., Red Bank, N. J., are developing 125 acres near Red Bank, to be known as Knollwood. The entire development of this land including road building, grading, cellar digging, stump pulling and tree removal is handled by seven Fordson Tractors. Six Ford Trucks equipped with dump bodies do the hauling.

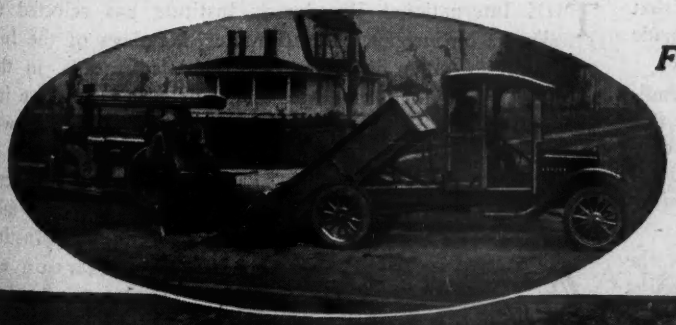
Fordson Tractors replaced horses for grading and excavating because Fordsons moved ground at an average cost of 20 cents per cubic yard as compared to a cost of 50 cents a cubic yard when horses were on the job. Besides, Fordsons could build better roads, pull stumps and handle other power operations at a saving in time, money and labor!

The six Ford Trucks equipped with dump bodies are doing heavy trucking work at a surprisingly low cost. They haul gravel and building material from pit and railroad to ground, averaging 25 round trips of 4½ miles each per day. The average mileage per truck per gallon of gasoline is 12½ miles.

Only your own experiences added to this could supply you with more conclusive proof of Fordson Tractor and Ford Truck operating economy and dependability. Why not let your nearest Authorized Ford dealer give you a practical demonstration—on any power or hauling job you have!

Fordson Tractor, $495 f. o. b. Detroit

Ford Ton Truck Chassis, $365 f.o.b. Detroit



Ford

CARS · TRUCKS · TRACTORS

National Housing Survey

Analysis of Building Conditions in Five Hundred and Twenty-Eight American Cities of 10,000 or More Population

Prepared by S. W. STRAUS & CO.

THAT an actual building shortage of more than $4,000,000,000 exists in 380 cities of over 10,000 population in the United States is shown by reports of S. W. Straus & Co. In 148 cities out of the 528, where building conditions were studied, no shortage was reported.

That the $4,000,000,000 figure does not represent the entire housing shortage of the country was indicated by reports from towns under 10,000 population. Inquiry by S. W. Straus & Co. in 20 typical towns of this type in various parts of the United States revealed a shortage of $14,591,000. Of these cities surveyed, 12 showed shortages and 8 revealed normal conditions.

The investigation also revealed definitely contemplated expenditures during the next two years of $787,303,000 for the construction of churches, hospitals, charitable and educational institutions or other public buildings. These figures are not included in the reports of actual shortages now existing.

The survey was undertaken by S. W. Straus & Co. through its educational department because of the uncertainty now felt as to the extent of the building shortage throughout the United States. Investigations were started in 574 cities, principally through the Chambers of Commerce, but where results were not quickly obtained the local real estate boards or the building departments of the city governments were consulted. The reports were made between the period of June 1 and October 1, 1924.

There are areas, of course, where the saturation point in building has been reached. These districts in some cases are found in sections of cities where the general building situation is such as to warrant reports of shortages. For example, there are certain districts in the Boroughs of Brooklyn and The Bronx, New York, that have an ample supply of buildings for the time being, although in other sections of these same boroughs the supply still is far below normal. In Chicago, the greatest need is for commercial, federal, state and municipal types of construction as the city practically has reached a temporary saturation point in residential types in a number of localities.

Reports of "No Shortage" may be taken to mean that building conditions in cities so reported are normal, and that future building requirements are such only as will be made necessary through normal growth and improvement.

The 380 cities report shortages which will take an expenditure of $4,050,820,000 to restore normal conditions. Of this amount, $2,102,698,500 is needed for residential types of construction, $1,130,851,500 for commercial types, $870,270,000 for federal, state and municipal buildings. The remaining 148 cities reported that no shortage existed.

The total shortage is greatest in the eastern section of the United States, which shows a need for building construction amounting to $2,312,510,000 with the residential types demanding more than 71 per cent of the total, or showing that $1,652,887,500 must be expended in these eastern cities reporting to restore normal living conditions. Of this residential shortage, $695,000,000 is represented in the boroughs of Brooklyn, Bronx, Queens, and Richmond, New York.

The central states take second place as to the amount of money required to eliminate the present shortage. According to the returns, $1,149,700,000 must be expended to meet the requirements in this section. Included in this amount is $10,000,000 needed for the city of Lorain, Ohio, which was swept by a disastrous tornado during the summer. Besides the need for residential and commercial buildings, this report shows that eleven churches, two schools, and half a million dollars' worth of city property must be replaced. In the central section the requirement for commercial types predominates, with a reported need for construction of $462,741,500 or 40 per cent. The amount needed for residential types in the central states is $294,486,000.

Of the 103 southern cities reporting, 72 shows a shortage amounting to $307,495,000, with the greatest requirements for commercial types of construction. For commercial buildings these southern cities claim that $137,515,000 must be expended to restore normal conditions.

The western states, including Arizona, California, Idaho, Nevada, Oregon, Utah, and Washington, show the smallest shortage of any of the four sections of the country, thus ranking fourth in the amounts of money required, a ranking in keeping with the population, according to the last census, of 3,083,000. Of the total amount of $281,115,000 required to wipe out the building shortage in the western states, the greatest portion, or $117,840,000 is needed to make up shortages of governmental types, including national, state, and local government classifications.

Of the 25 leading cities New York led with a shortage of $855,000,000, the greater part of which is needed for residential types of buildings. Chicago, with a shortage of $501,543,000, was second. Philadelphia reported a shortage of $240,000; Milwaukee, $130,000,000; San Francisco, $78,500,000; Pittsburgh, $77,000,000; Los Angeles, $51,000,000; Denver, $45,500,000; Cincinnati, $42,000,000; Portland, $35,000,000; Cleveland, $29,750,000; St. Louis, $16,000,000; Buffalo, $5,250,000; Newark, $5,000,000; Detroit, $7,000,000; Indianapolis, $3,000,000; Seattle, Wash., $2,050,000; Rochester, $1,800,000. No shortage was reported in Boston, Baltimore, Washington, D. C., New Orleans, Minneapolis, Kansas City, or Jersey City.

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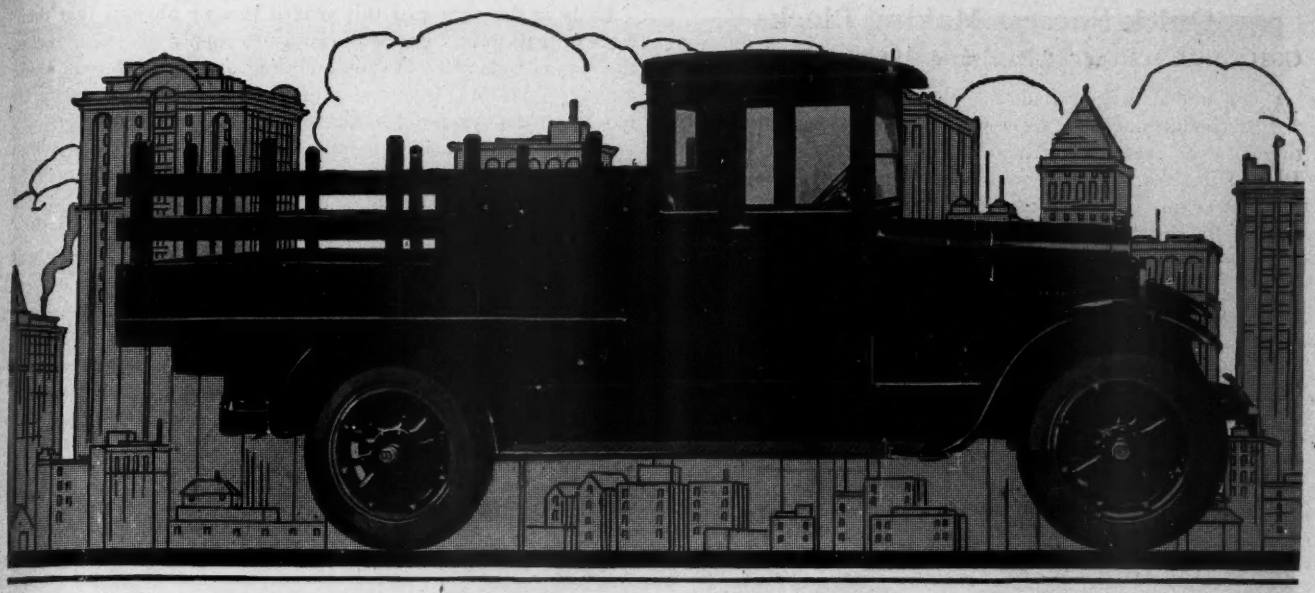
International Woodwork Institute Adopts Trademark

THE International Woodwork Institute has selected this sign as its insignia or trademark. Members of the Institute may use this trademark on their letterheads, in their publicity, in all their literature and will be urged to use it in some manner on their products. It will appear in all the work of the Institute. It will be the connecting link among all members of the Institute and between each member of the Institute and the activities of the Institute itself.

This Mark Will Identify Institute Members.

Mr. Fred C. Smith is secretary-manager of the International Woodwork Institute, which maintains headquarters at 605 North Michigan Avenue, Chicago.



GRAHAM BROTHERS

New One Ton *Truck*

Impressive appearance, well built bodies, quick acceleration, volumes of reserve power, easy handling, comfortable riding, extremely low upkeep cost—and dependable service everywhere!

Everything that is desirable in a truck is embodied in the One-Ton. To see it is to realize that Graham Brothers have solved an important problem in commercial hauling.

1 TON CHASSIS
$1175
1½ TON CHASSIS $1375
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GRAHAM BROTHERS
Detroit & Evansville
A DIVISION OF DODGE BROTHERS

GRAHAM BROTHERS TRUCKS

SOLD BY DODGE BROTHERS DEALERS EVERYWHERE

Quick Success Making Blocks

G. H. Muth at Reading, Pa., Builds Up Profitable Business

ANY builder might well be envious of the record of quick accomplishment set by a young concrete engineer in getting into the cinder block manufacturing business at Reading, Pa. This man himself, however, modestly disclaims any unusual genius or good fortune in this success, but says that anyone today who will qualify himself and select the proper location can do equally as well. The demand, he says, for permanent building materials is now well developed almost everywhere, so that there is no lack of opportunity.

Berks Building Block Plant, Reading Pa.

G. H. Muth, Manager Berks Building Block Plant, Reading, Pa.

Mr. G. H. Muth in the course of his work came in contact with Straub patented cinder concrete blocks throughout New York, Pennsylvania and New Jersey, noted how extensively they were manufactured and how well they were received by the building public. He made a trip through four or five other states, taking care to look into all cities where these blocks were being made and used.

As a result Mr. Muth became well sold on their value in construction and on the excellent possibilities they held as a manufacturing proposition. He started to look for a plant location and after surveying many different territories, selected Reading. Here he found the market ready for the product and he found men of means and of ability as business associates.

The Berks Building Block Co. was organized early in 1923 with a capital of $100,000, every cent paid in. Mr. Muth had arrived in Reading June 6—they broke ground for the plant July 10, 1923, on a seven-acre tract along the line of Philadelphia & Reading R. R. in Northmont, a suburb.

On November 7, they made their first blocks. The plant was designed originally to make 5,000 blocks per day and that production was reached two weeks later. During the entire winter they made an average of 6,000 units per working day and accumulated a stock by April 1st of 325,000 blocks. On account of the mild winter, products moved at a very satisfactory rate.

Early in the spring of this year it became obvious that their capacity had to be increased in order to supply the trade during the summer months. Certain additions and changes were made during April and May and now the plant has a capacity of more than ten thousand blocks per ten-hour working day.

During the last two months the daily average has been better than 7,600 blocks. In spite of this output and the stock on hand in spring, the company is still behind the demand, and its stock today is only 80,000 blocks.

Mr. Muth is a good merchandiser as well as a manufacturer and is a believer in advertising.

In capitalizing the result of a public fire-test the Berks Company has been unusually alive to the advertising possibilities. For instance, the evening of Friday, October 3, was designed at the leading vaudeville and motion picture house in Reading as "Berks Building Block Night." The only motion pictures shown were the reels showing the fire-test, in which many people in this part of the state took part. One reel showed the complete process of manufacture, from the receipt of raw cinders at the plant to the delivery of the finished block on the construction job. The picture demonstrated perfectly the toughness of the cinder blocks by showing a load being dumped onto the pavement, with no breakage of the blocks.

In spite of cuts in prices on competing materials, the Berks Company has not found it necessary to reduce their prices below the same scale on which they started. At these prices the builder gets a superior building unit that can be placed in the wall very economically and the manufacturer gets a profit commensurate with his investment.

✣

Well Insulated Demonstration House Is Heated from Main Floor

(*Continued from page 153.*)

attracted the attention of architects, producers and others interested in building materials and construction, with the result that nearly all of the non-competitive materials that entered into its construction were furnished by other producers, who viewed the undertaking as an opportunity to display in the best and most appropriate surroundings their various products and structural units.

From those who offered co-operation, the Celotex Company selected the following manufacturers:

General contractor—John Jucker, Chicago.
Building materials—Central Lime & Cement Company, Chicago.
Framing lumber—The Lord & Bushnell Company, Chicago.
Face brick and hollow tile—H. D. Conkey & Co., Chicago.
White and portland cement—Atlas Portland Cement Co., New York.
Roofing tile—The Hawthorne Roofing Tile Co., Cicero, Ill.
Sheet metal work and roofing—Fred S. Bremer, Chicago.
Metal casement windows and hardware—The International Casement Company, Inc., Jamestown, N. Y.
Ornamental iron and lighting fixtures—Edwin F. Guth Co., St. Louis, Mo.
Oak flooring—L. D. Leach & Co., Chicago.
Tile fireplace—Batchelder-Wilson Company, Los Angeles, Calif.
Bathroom and vestibule tile—American Encaustic Tile Co., Chicago.
Tile work installed—Updike & Co., Chicago.
Plumbing fixtures—James B. Clow & Sons, Chicago.
Gas heating equipment—The Peoples Gas Light & Coke Co., Chicago.
Painting and decorating—National Decorating Service, Chicago.
Glazing—Hart Pederson Glass Co., Chicago.
Screens—Robbins Manufacturing Co., Chicago.
Rubber tile floors—Bonded Floors Company, Inc., Chicago.
Composition floor in kitchen—Butor & Moran Company, Chicago.
Steel kitchen units—The Cabranette Corporation, Chicago.
Living room and alcove furniture and draperies—W. P. Nelson & Co., Chicago.
Bedroom furniture—The Estey Manufacturing Company, Owosso, Mich.
Davis floodlights—American Lighting & Manufacturing Company, Chicago.
Clothes closet equipment—Knape & Vogt Manufacturing Company, Grand Rapdis, Mich.
Thermostat—Minneapolis Heat Reg. Co.

It would be well for any readers of AMERICAN BUILDER to visit this bungalow when in Chicago.

Constant Duty

THE first year is not the hardest for trucks. But after they have taken the pounding of the road for several years, it will be very plain to you that your GMCs are requiring the minimum of attention. They are out on the job, instead of off the job, in the repair shop.

GMCs are better trucks—sturdier—every part designed overstrength—every part built of overstrength materials—every wearing part easily replaceable. More for your money—not more of it!

These better trucks are backed by better service. Parts or mechanical assistance in quick reach anywhere in America. Seldom needed but *always* ready!

GMCs are seven steps ahead. When you learn the details of the many features of GMC design you will understand why every GMC is saving money for the man who owns it—why GMC is honestly entitled to be called the "constant-duty" truck. Ask for the GMC catalog.

GENERAL MOTORS TRUCK COMPANY
Division of General Motors Corporation
PONTIAC, MICHIGAN

General Motors Trucks

GMC

CLIP AND MAIL

GENERAL MOTORS TRUCK CO.,
Dept. 9, Pontiac, Mich.

Send me the GMC catalog.

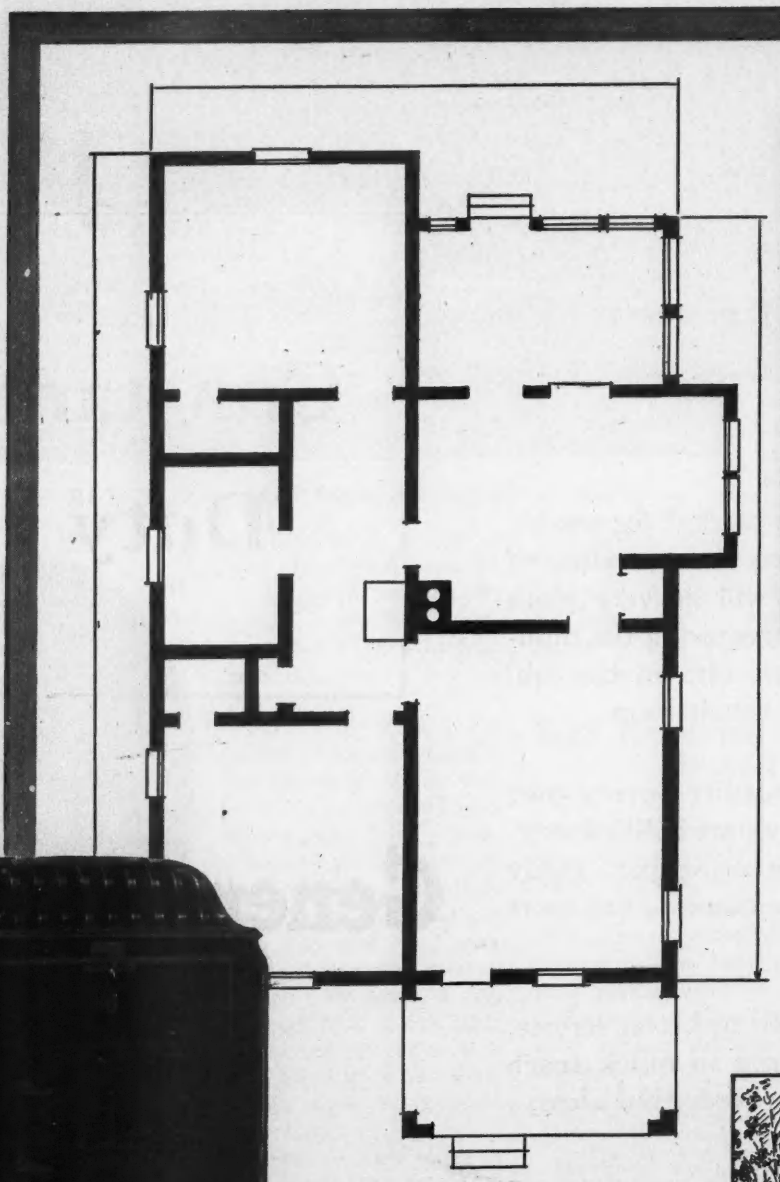
Name_____

Business _____

Address_____

Can you design a

$1,000 in prizes

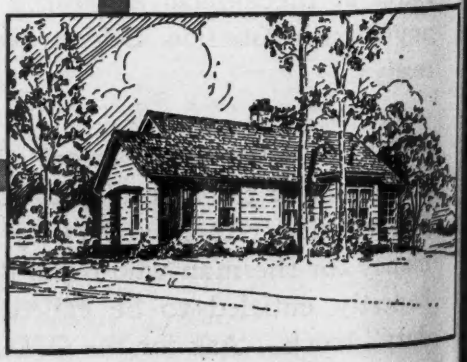


Eighteen prizes!

1st prize in each class - $200
2nd prize in each class - $100
3rd prize in each class - $50

Six other prizes in each class of $25.00 each.

In case of a tie for any of the prizes offered, the full amount of the prize tied for will be awarded each tying contestant.



The house, the floor plans of which are shown above, has no basement. Yet it has furnace comfort! The Heatrola standing in a first floor location circulates even, friendly warmth to every room, keeping all parts of the house cozy even in the coldest weather.

Estate

Heatrola-heated cellarless house?

for the best ideas

Contest closes February 16th

On the opposite page is a sketch and floor plan of a Heatrola-heated cellarless house, the work of the Architects' Small House Service Bureau. Can you design a better Heatrola-heated cellarless house, or one as good? Then send in your ideas at once to the Estate Stove Company, builders of the Estate Heatrola. Eighteen prizes, ranging from $200 to $25—$1,000 in prize money—will be given for the eighteen best ideas for such small homes.

Only—and this is important—the contest closes February 16th. Just a month and a half in which to create, work out and send in your ideas. You'll have to hurry!

The contest is open to everyone, and is strictly a contest of ideas, not of draftsmanship. Plans submitted will be judged solely on their merit. Standard layout sheets will be furnished for your convenience, but it is not necessary to submit ideas in any certain form. Just send them in—that's all.

The competition is divided into the following classes:

(1) Nine prizes for the best ideas for one-story cellarless houses, Heatrola-heated, of four or five rooms.

(2) Nine prizes for the best ideas for two-story cellarless houses, Heatrola-heated, of five or six rooms.

The judges will be Mr. B. L. Johnson, editor of The American Builder; Frank F. Woolling, realtor and builder, Indianapolis, Ind.; and Fred W. Barry, Heating Engineer, The Estate Stove Company, Hamilton, Ohio.

Before you start work on your plans, however, you will want to know all about cellarless houses, and the Heatrola method of heating them. The coupon will bring you such information. Fill it out and mail it—then work out your ideas at once—only 45 days till the contest closes!

Facts about the Cellarless House

..and Heatrola as the heating unit

The cellarless house idea is not new. Ernest Flagg, famous designer of the Singer Building, has experimented for years with cellarless houses, and found them practical from every standpoint: beauty, comfort, durability, and economy of construction.

It was not until the invention of the Heatrola, however, that the plan gained its present popularity. The difficulty of finding an efficient heating method had long been a bugaboo to cellarless house builders. But Heatrola banished this difficulty once and for all. Heatrola requires no basement—from its location in a downstairs room, it supplies friendly, even warmth to every part of the house. Besides, Heatrola's quiet beauty, its economy in fuel consumption, its cleanliness and convenience all work together to make it the ideal heating unit for the cellarless house. As a result, hundreds of these houses—all Heatrola-heated—are being built today throughout the country. And, these homes are built at a saving of 15 per cent or more over old methods—a fact that makes them readily salable.

Literature giving complete details on the Heatrola cellarless house plan has been prepared. Mail the coupon today for this material—study it, then—work out your ideas and send them in. There are $1,000 in prizes waiting.

THE ESTATE STOVE COMPANY

Hamilton, Ohio

Pacific Coast Office and Display Room, 366 Post St. at Powell, San Francisco, Calif.

Builders since 1845 of the famous Estates. A stove, furnace and range for every requirement—for cooking and heating with coal, wood, gas and electricity.

HEATROLA

This will bring you full details

The Estate Stove Company
Hamilton, Ohio

☐ Please send complete information about Heatrola and the Cellarless House Idea.

☐ Please send layout sheets for Cellarless House Contest.

Name _____

Address _____

City _____ *State* _____

MODERN PLUMBING

Added Profits in Better Plumbing

By W. K. GLEN

TO an American traveling abroad, one of the outstanding differences between Europe and the United States lies in the plumbing and heating systems of hotels, homes and public buildings. In capitals like Paris, elaborate and costly bathrooms have been fairly common, even fifty and seventy-five years ago. But even today the fixtures, fittings and pipe lines used are often surprisingly crude and old-fashioned when compared with the highly developed equipment which we enjoy in this country.

A bathtub is still a rarity in the middle class Continental home. In fact, the entire population of many large towns still bathe in movable tubs and bowls and frequently empty the dirty water into the gutters before the homes. What a contrast to this is the general prevalence of modern plumbing fixtures in almost every American city home! Yet this development has come so swiftly and appears so complete and satisfactory that unless we watch the trend of the public's desires closely we are apt to overlook sources of substantial added profit and also ways of effecting definite savings.

Realtors, managers of the office and apartment buildings and hospitals, as well as residential property owners and contractors, will be interested in learning of these new means of making and saving money. The man whose business deals with housing in any form must needs keep abreast of the times, not only in the interest of economy and profit-making, but because he simply must be alert if he is to meet on even terms the competition which exists in every phase of the building field. The public today is demanding—and getting—better bathrooms and more convenient plumbing and heating fixtures than ever before in the history of the world.

It is a natural American trait, one that we are all proud of, to want the best of everything, to enjoy life to its utmost, and to see to it that we are surrounded with the little luxuries and conveniences which can mean so much. A nation of readers of advertisements, we have come to appreciate the fact that the bathroom is one of the most important rooms in the house and that the good health and cleanliness of each member of the family depends largely on the correct design and construction of the plumbing fixtures and fittings. Prospective tenants and purchasers are more critical in this regard today than ever before. And at the same time they are quick to appreciate a modern installation when they see it.

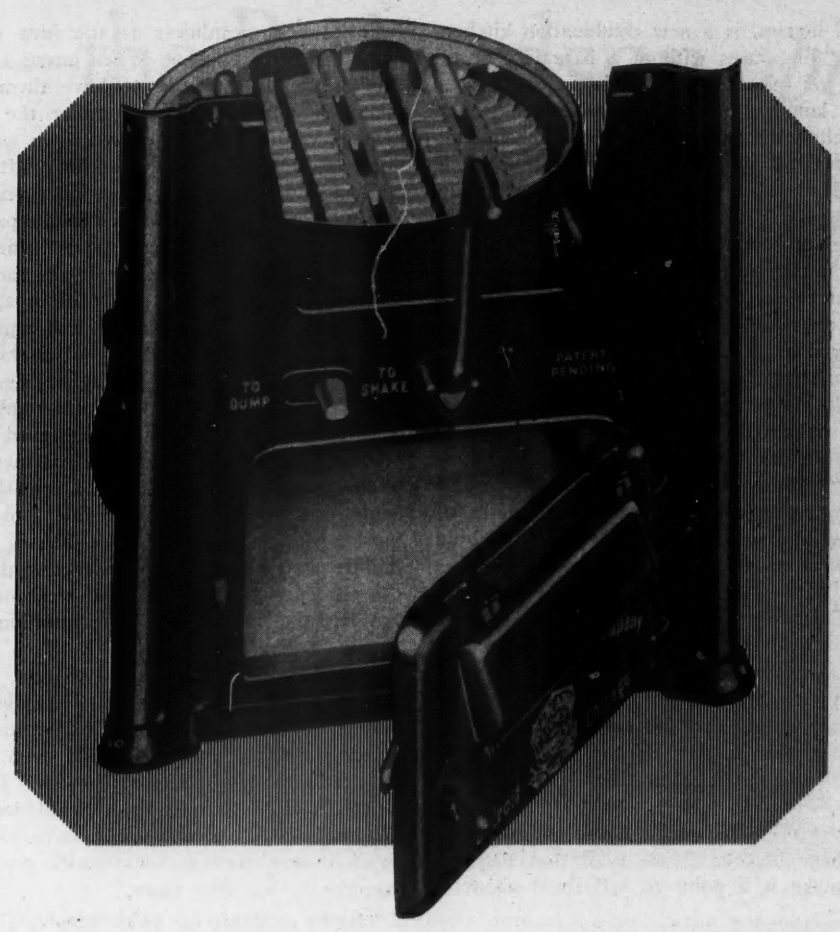
Today the bathroom is regarded not merely as a cold, impersonal room holding no possibilities for beauty. Instead we know that a careful selection of fixtures and a wide choice of wall and floor materials will make it an attractive and livable room, where bathing and dressing is a daily pleasure.

For many, white remains the essential seal of cleanliness in bathrooms, both for glistening fixtures, snowy tiles and paint work. Of late, however, a strong tendency on the part of home owners and builders has been to inject color into the bathroom, not only in the walls and floors, but in the fixtures themselves. This individual expression of taste gives a charming air of distinction to the home and is an idea which those who build to sell or lease can adopt with profit. These modern, out-of-the-ordinary bathrooms appeal instantly to any prospective purchaser or lessee.

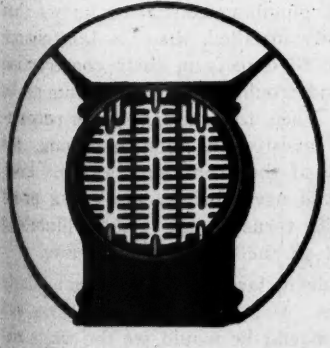
Manufacturers of plumbing fixtures have been quick to see that the most pressing problem in modern building is the problem of space. With high building costs, every inch saved without sacrifice of comfort means a substantial saving in dollars and cents. The newer types of fixtures now on the market reflect this condition, they are compact yet convenient and are much smaller than the cumbersome affairs our grandfathers found quite satisfactory. The built-in bathtub is one such modern fixture. With straight sides and flat bottom, it gives the bather ample room, yet its over-all length may be as little as five feet. It sits right up against the wall, making possible a water-tight joint and saving quite a bit of floor space. Since it can be placed in a right or left-hand corner, in a recess, against the wall or in the center of the room, many pleasant arrangements may be effected, making the most of the space available.

Lavatories and closets, too, are designed along the same compact space-saving lines, built for convenience even when placed in very small quarters. A distinctive shower bath, recently brought on the market, is worthy of mention here. Designed to fit on one end of the built-in tub, it consists of a three-sided arrangement of plate glass panels with overhead and needle sprays fed through the nickel plated uprights. With such a shower the clinging, uncomfortable curtains of the ordinary bathtub shower are done away with, as well as the need for building a separate compartment for the shower bath alone.

Of great interest to all housewives and to those men



A New Triplex Double-Action Grate In Garland Furnaces



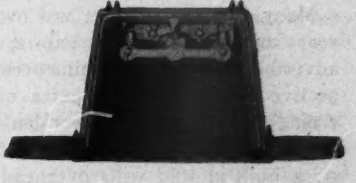
This cut shows the 3 Bar construction which gives the new Garland Grate its name "Triplex."

Two notable improvements in grate construction add new efficiency to a furnace famous for its superiority in all fundamental qualities.

1 The use of three shaker bars instead of two insures a more thorough and even elimination of ashes, and thereby exposes a maximum amount of the lower surface of the fire to the draft.

2 The shifting of the indicator, clearly shown at the left of the shaker handle on the illustration above, permits either shaking or dumping to be done by the same action of the crank.

Note the large size and the smooth walls of the ashpit. Neither draft nor shovel meets any obstructions here.



The Michigan Stove Company
Detroit, Michigan

GARLAND

HEALTHFUL HOME HEATING

who build or sell small houses, is a new combination kitchen sink and laundry tray. In houses without a basement or at best only a small one, or in apartments, this fixture makes the kitchen serve as a laundry as well and saves the tenant or owner much stair-climbing and time. The kitchen sink in this unit is full size and by removing the drainboard a roomy laundry tub is disclosed, ample for the average family washing.

A feature of all the improved fixtures being made today is the ease with which they can be cleaned. The art or science of applying enamel on iron has been highly developed and the enamel today on reliable fixtures is permanent, true and even in color as well as smooth and free from pinholes. Then, too, there are no sharp angles or crevices hard to get at with the cleaning cloth on busy mornings. Rounded corners and flat surfaces help make the housewife's task easy.

That the public in general is familiar with these new improvements, we know. Moreover, they have formed definite opinions regarding the merits of certain advertised lines of plumbing materials and fixtures whose names are household names, familiar to every one as standing definitely for high quality.

Said a well-known Chicago realtor the other day: "I have been amazed at the quick reaction I get when showing prospective tenants an apartment equipped with ——— plumbing. When I tell him that this concern's fixtures are used, it seems to have a very decided and favorable influence. So marked is this tendency that I play up the maker of the plumbing fixtures far more than I do the other building materials used.

"Apparently people are more particular about the plumbing than they have ever been before. I see to it that they get good plumbing—and make it a point to tell them about it. I find it pays!"

Not only do people manifest great interest in the name of the plumbing and fixtures used in apartments and homes, but they are becoming less and less tolerant of inadequate bathroom facilities. We as a race are quick to adopt new improvements and every one living in a "one bathroom home" envies some more fortunate neighbor's possession of two such "shrines of personal cleanliness"—and makes up his mind to enjoy a similar convenience. We all know how an extra bathroom adds greatly to the comfort and convenience of the entire family, how it straightens out the "bathroom traffic" in the mornings and enables every one to reach the breakfast table on time. With the wide range of compact, inexpensive fixtures available, builders are now able to equip even their smaller homes and apartments with two or more bathrooms. And experience is showing us that no investment of similar amount pays greater and quicker returns either in rentals or in sales than this "extra" bath equipment.

Many Chicago realtors and owners of homes erected a few years ago find, as leases expire, that it becomes necessary or advisable to make some improvements for the old or the prospective tenant; that an extra bathroom does more to modernize the house than any other single improvement they can make. When it is realized that a complete bathroom consisting of a built-in tub, with overhead shower, lavatory and toilet, can be fitted up in a space as small as five by seven feet, it is easily seen how many available corners in the average home can be equipped with a shining new bathroom and the rental justifiably and easily increased to a considerable degree.

Many plumbing contractors are making a close study of this phase of their work and are achieving surprising results in small space. Two adjoining clothes closets can be thrown together, or a small hall bedroom used, or the end of a hallway, or the angle beneath stairs, or waste space under the roof on the top floor. Such jobs are good profit-makers—the man who suggests the idea and shows how it can be worked out gets the business and gets it at a fair price.

Hand in hand with this progressive selling of additional facilities for cleanliness is the idea of a lavatory on the first floor of dwellings. When guests call it is infinitely more convenient for everyone to have them find this convenience tucked unobtrusively away, under the stairs or at one side of the vestibule, than to have them wander about the upper floor, searching for the right door. It saves time and stair-climbing for the family, too, many times a day.

While, of course, this desire on the part of tenants for more complete and adequate bathroom fixtures is strong, the most important point to remember is the fact that they want, first of all, fixtures that are graceful in appearance, reliable and durable and served by fittings and pipings of equally permanent character. This demand, of course, affects the owner or renting agent not only in higher rentals and easily closed leases, but in decreased operating expenses as well.

Too often, in the past, well designed houses have been built of good materials, by reliable contractors, only to have the plumbing contract awarded on a price basis to the firm which could equip them with plausible looking bathrooms at the lowest possible figure. If the houses were built to sell, the builder generally did not suffer any direct cash loss. When the plumbing began quickly to wear out and develop defects, however, it did not help his reputation as an honest business man.

If the building was erected to rent, on the other hand, the story was quite different—and unpleasant. Frequent complaints from tenants required constant attention. Incessant repairs, ripping into the walls, even actual replacement of fixtures ate heavily into his profits. Janitors were constantly being "hounded" to fix some small defect in faucet or drain. And all these troubles might have easily been avoided, and much money, time and annoyance saved by installing reliable fixtures in the first place.

Hardly anything can cause greater disturbance to the smooth running of a household than defective fixtures and fittings. And, on the other hand, nothing can contribute more to the lasting value of a building and the satisfaction and peace of mind of its owners and tenants than plumbing which is modern and reliable.

Plumbing contractors can do much to spread this gospel of better equipment. A good installation of reliable plumbing not only advances the contractor's reputation but also the reputations of the general contractor, builder, architect and owner. From his own standpoint the plumbing contractor knows that better fixtures are more easily installed, there is less chance of damage or breakable due to defects in their construction and little or no expensive and troublesome adjustments to be made after the units are in. Then, too, the larger the percentage of total building cost invested in good plumbing, the larger is his individual share of the profits on the job. Poor plumbing or heating equipment never brings any one a profit except the manufacturer who turns it out. Good plumbing benefits every one concerned all the way down the line.

This is especially noticeable in large buildings, particularly hotels, apartments and offices. If a man had X-ray eyes and could pierce brick, steel and mortar he would see the walls and floors of these great structures as literally honey-combed with the piping, valves and fittings that supply the great number of fixtures required by guests or tenants. "What a terrible mess all this plumbing and heating can become," he might easily think, "if it is not properly designed, built of good materials and correctly installed to last a lifetime without giving trouble."

The men who select the materials and erect these large buildings realize this and in the main the pipes and valves used, though buried in the walls and difficult of access, give little or no trouble. But all too often the latest and most improved fixtures are not selected and then the building owner pays—in trouble and unexpected expense—year after year. One small. The building houses an army of feminine workers who loop office buildings, the drains of the lavatories are all too

New—the Richardson *opal* roof

In coloring especially effective on a house of creamy stucco

Opal—a roof with the coloring of brown October leaves silhouetted against a deep blue sky.

Here is a note that's new in roofing beauty. To almost any home it would add attractiveness.

And if that house of yours is a trim-lined stucco of creamy tan, it is *the* roof.

It's a roof that sets comfortably on such a house. Light enough in tone so as not to make it look top-heavy; yet so distinct in coloring that it isn't lost against a background of sky and trees. It is cool and restful in color; yet neither cold nor monotonous. Interesting in its endless variety of softly blending patterns, it is never obtrusive.

This unusual Richardson Multicrome Roof is formed of shingles on each of which are blended slate flakes of jade green and Richardson's rare weathered brown. The opal effect is secured by applying them just as they come from the bundle. No sorting nor special work in laying is necessary.

Other rich blends of color

This, however, is but one example of the beauty secured in Richardson Multicrome Roofs. There are other new colorings, likewise suited to different types of homes.

The *tapestry tan* roof for example; predominately weathered brown in tone, and patterned like a rare tapestry in soft tile red and jade green mixtures. It is unusually rich looking on a brick house of almost any color.

And for a white Colonial home nothing could be more attractive than the *onyx* roof, where opal and *bronze mosaic* shingles (similarly formed with weathered brown and tile red slate flakes) add interesting touches of color to a jade green background.

Before you build, before you re-roof, by all means see these new roof colorings. One of them can give your home just the distinction and charm you have always wanted.

Richardson Multicrome Roof

Ordinary Roof

The Multicrome Roof is built of Richardson Super-Giant Shingles—extra large, extra heavy. Its 50% greater thickness adds both beauty of texture and years of endurance. Its base is sturdy, long-fibre Richardson felt. Its waterproofing is Viskalt—99.8% pure bitumen, especially vacuum-processed. Its surface is slate in close, overlapping flakes—further protection against weather and fire hazards.

The Richardson Multicrome Roof represents the maximum roof value at a moderate price. It is economical to lay and equally good for new or over-the-old-roof jobs

To help you choose

With these new colors you can make the roof one of the most effective units of your decorative scheme. It is all-important, of course, that the coloring of the roof be in harmony with the rest of the house. Only then can it contribute its full share of beauty to your home.

To help you choose the roof which will make the most of this opportunity we have prepared an authoritative booklet fully illustrated in color. It shows page after page of beautiful homes in different architectural styles. And with the Richardson Harmonizer which it contains you can see the complete effect of 54 different combinations of body, trim and roof colors.

The booklet also gives valuable information on the principles of any harmonious color scheme. It is called *What Color for the Roof?* The price is 25c. If you are planning on building or re-roofing, this booklet will be worth many times its cost. Write for your copy today. Or perhaps you will be interested in our booklet, *A Richardson Product for Every Roofing Need;* sent free.

See the new colors ... your dealer's

Meanwhile, go to your nearest dealer in lumber, hardware or building materials. Ask him to show you these and other beautiful Richardson color effects, as well as the solid tones of weathered brown, jade green, tile red and black pearl. Ask him, too, why the points mentioned in the panel at the left make their beauty *lasting.*

DEALERS: *There is a Richardson product for every roofing need. Perhaps you can secure the Richardson franchise for your territory. Write us.*

The RICHARDSON COMPANY
Lockland (Cincinnati) Ohio

Chicago — New York City (1008 Fisk Building)
Atlanta — New Orleans — Dallas

The Richardson Company
Lockland, Ohio

Enclosed find 25c (stamps or coin). Send me your new booklet, *What Color for the Roof?*

Name.....

Street.....

City.....

☐ *Check here if you want the free booklet, A Richardson Product for Every Roofing Need.*

RICHARDSON ROOFING

An announcement of importance to builders

ON THE other side of this page is a reproduction of an advertisement which starts the Richardson campaign for 1925 in The Saturday Evening Post, House Beautiful, and elsewhere, this month.

It announces the latest color development in Richardson Multicrome Roofs.

Every progressive builder will be quick to realize the home owners' interest in these new colors; and to cash in on it to get more business in his building and selling operations.

Our new booklet, *What Color for the Roof?* described in this advertisement, will be a real help to you, both in building and selling. Send for a *free* copy today. Just write us on your letter-head.

THE RICHARDSON COMPANY
Lockland (Cincinnati) Ohio
Chicago · New York City (1008 Fisk Building)
Atlanta · New Orleans · Dallas
63 Albany St., Cambridge (Boston) Mass.

beauty. In consequence the water in these bowls is filled many times a day with a fluffy waste which frequently clogs the traps and necessitates a special trip of the house engineer to remove the trap and clean it. Yet there has been available for some years a line of lavatories with extra large wastes and traps which drain the bowls quickly, the rush of water taking all dirt with it. Such equipment gives no trouble, saves building managers much bother and pleases tenants with its satisfactory operation.

Business men, when they choose a new location for their offices, are almost as interested in the plumbing fixtures of the several buildings under consideration as they are when selecting a house in which to live. Graceful, well designed fixtures of reliable make and clean and inviting general wash rooms, toilets and rest rooms appeal definitely. They stand as convincing evidence that the building owner is giving tenants the best of everything. And the successful business executive insists that his offices be located in a building which not only gives him service but which by its modern appointments favorably impresses customers and clients who visit him in the course of the business day.

The men who are responsible for the smooth working of the sanitary and heating systems of our great hospitals, schools and other public institutions know how vitally important are sound design, correct materials and proper installation. They know that the presence of sewer gas, an obstruction in some hidden pipe line, or a lack of water pressure often endangers lives and hampers the efforts of doctors or teachers in their work. Left to them, the first price would never be the governing factor in the awarding of a plumbing or heating contract. Instead, the first consideration would be that the system, when installed, should work perfectly, so that the staff may give entire attention to its regular duties.

This policy is prompted by financial consideration as well. Schools and hospitals are generally operated on fixed budgets or appropriations. It is assumed that a building, when completed, is finished and that operating expenses and not upkeep costs shall be the chief item to make provision for. If countless small repairs are necessary, a critical point is soon reached in the financial operation of the plant and sacrifices made that will hamper the work of the institution.

Fortunately, these facts are common knowledge among the architects who plan and supervise the building of this type of structure and the greatest care is usually exercised in choosing fittings and fixtures that will do the work well—and give no trouble.

The general attitude of realtors, owners and builders towards plumbing and heating equipment gives grounds for satisfaction. The economy of installing reliable plumbing is an accepted fact. The increased selling value which attractive fixtures give a house or apartment is a matter of common agreement. Manufacturers, recognizing the necessity for fixtures that are inexpensive and space-saving, yet graceful and durable, have achieved notable new designs which meet all modern requirements. And the general public is awake to the importance of sanitary, trouble-proof plumbing. It is demanding ample bath facilities, extra bathrooms, attractively finished, conveniently located. The builders and realtors who are meeting this demand are finding their selling tasks made easier and their maintenance troubles greatly reduced.

This Amphitheater in Arlington, Va., Just Across the River from the National Capitol, Is Where the Unknown Soldier Rests. This unusual picture was taken from an airplane. In the left background of the picture may be seen the mast of the U. S. S. Maine, standing as a sentinel over the plot where the bodies of the victims of the Maine are interred.

It's Water Softener vs. Cistern

And the Water Softener Wins on the Double Score of Lower First Cost and of Better Service—Popularity with Homebuilders Growing

HOUSEHOLD use of water is a subject with which we are all more or less familiar. We use water perhaps a hundred times a day and often for as many different purposes. We readily distinguish between the common classifications, hard and soft water, using hard water for certain purposes for which rain or cistern water is objectionable and using the so-called soft rain or cistern water to accomplish certain results which are impossible with hard water.

Why do we make these distinctions? What causes the condititon known as hardness in water? Why is cistern water generally objectionable for household use? What is really soft water?

Cast Aluminum Teakettle with Two Months of Scale.

Hard Water

The condition known as hardness in water is caused by the absorption of certain mineral constituents as the water passes through the earth or flows over its surface.

There are two mineral elements in particular which are easily absorbed by both ground and surface water. These elements, calcium and magnesium, are chiefly responsible for hardness in water whether it be pumped from wells, springs, lakes or streams.

Even small amounts of lime and magnesium in water can always be recognized by the difficulty in securing a lather with soap. Similarly in the laundry, the bath, and all cleaning operations, this hardness is very unsatisfactory. This same lime and magnesium hardness is also noticed as scale accumulation in tea kettles, pans, water heaters and boilers where it forms an incrustation which causes an insulation against heat. It often so clogs the pipes that the flow of water is greatly retarded.

All of these objections are further emphasized in the waste of soap and fuel and extra effort necessary in any household use of hard water.

Cistern Water Is Not Soft

When rainwater falls on your roof and drains its way through dirty troughs and conductor pipes to a more dirty cistern it is hardened in much the same way as rainwater that filters through the earth's crust and is pumped from wells as hard water.

The majority of city cistern water contains an average of 5 to 8 grains of hardness per gallon. This amount is often overlooked when compared to hard water but, nevertheless, it is sufficiently hard to produce a considerable loss in efficiency and economy when used for general household purposes.

The great objection to cistern water, however, is not its hardness content but its contamination due to contact and storage where dirt and filth necessarily exist. The average cistern is nothing more than a stagnant pool of dirty water and so questionable are its contents that many cities have enacted ordinances prohibiting the use of a cistern.

Other cistern short-comings are the usual mid-winter and mid-summer shortage of water, the troubles and limited delivery pressure of cistern pumping equipment and the necessity of an annual cleaning.

Softened Water

There is a soft water, however, that is really soft and instantly and always available at full city pressure. It is always clean and 100 per cent desirable for every household use. This is the soft water from the modern water softener.

This soft water is your city water supply with the hardness completely and automatically removed. For drinking, cooking, bathing, shaving, shampooing, laundering, cleaning and every other possible use of water, this soft water is ideal.

It is always soft, always clean. It is efficient and economical. It is provided without cistern, pump or chemicals. It is made possible at low cost by a natural softening process by means of the water softener.

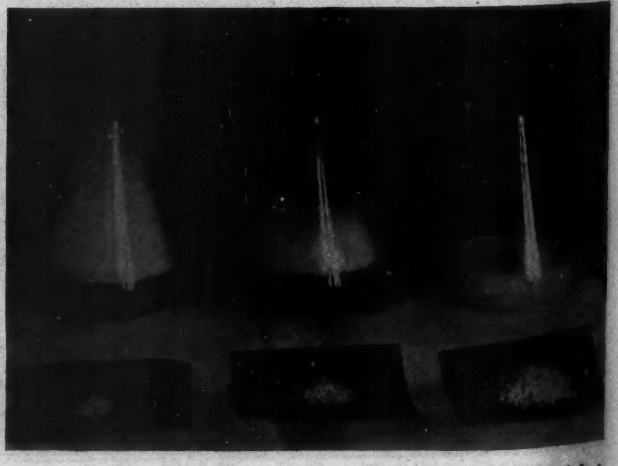
From every standpoint the use of softened water in the home bespeaks efficiency and economy. Time, labor and supplies are saved in every use of water. It may be truly said that softened water lessens home labor and multiplies home comforts.

Softened water is an all purpose water. There is not a single use of water in the home to which softened water is not better adapted than either hard or cistern water.

You owe it to yourself and your clients to investigate water softeners and learn why you should arrange for this wonderful softened water in all the homes you build.

The first cost of a water softener is surprisingly low—much less than a cistern and pump of equal capacity—and the upkeep cost is negligible in view of the service rendered.

The economies effected by the water which the softener



Lather Test. 1st bottle—hard water softened. 2nd bottle—cistern water. 3rd bottle—city water. In front of each bottle is the amount of soap flakes used.

Wayne-Soft Water Cleaner and Softer Than Cistern Water

A Profitable Way for You to Eliminate the Dirty Cistern From the Homes You Build

A Wayne rapid-rate Water Softener is far superior to a cistern—and far more desirable from the viewpoint of the buyer.

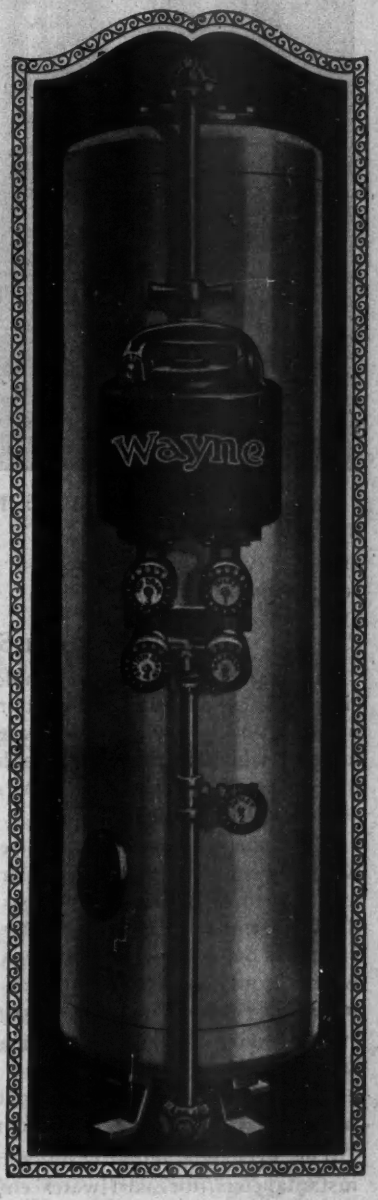
Here, then, is your opportunity to increase the salability of your houses—and make the merchandising profit on the sale of Wayne Water Softeners.

A growing public demand for Wayne Water Softeners is being created by the Wayne national advertising in The Saturday Evening Post, Collier's and Good Housekeeping—reaching millions of families every month.

The Wayne Softener costs no more, and often less than a cistern.

Wayne-soft Water is cleaner and fresher than cistern water. It is ideal for bathing, for laundry use, and is also suitable for cooking and for drinking.

Thus you can see that the Wayne Softener is an attractive, desirable household device—one that thousands of families are installing in old homes, and which is going into more and more new homes every day.



Wayne Tank and Pump Company
808 Canal Street, Fort Wayne, Indiana

Branch Offices: Atlanta, Boston, Buffalo, Chicago, Cleveland, Columbus, Dallas, Detroit, Kansas City, Los Angeles, Minneapolis, New York, Philadelphia, Pittsburgh, San Francisco and St. Louis. *Warehouses:* San Francisco, Philadelphia, London, England and Paris, France. *Foreign Offices:* London, Paris, Toronto.

An International Organization with Sales and Service Offices Everywhere

REG. U.S. TRADE MARK

Wayne

ORIGINAL (Reverse Point) RAPID-RATE

Water Softeners

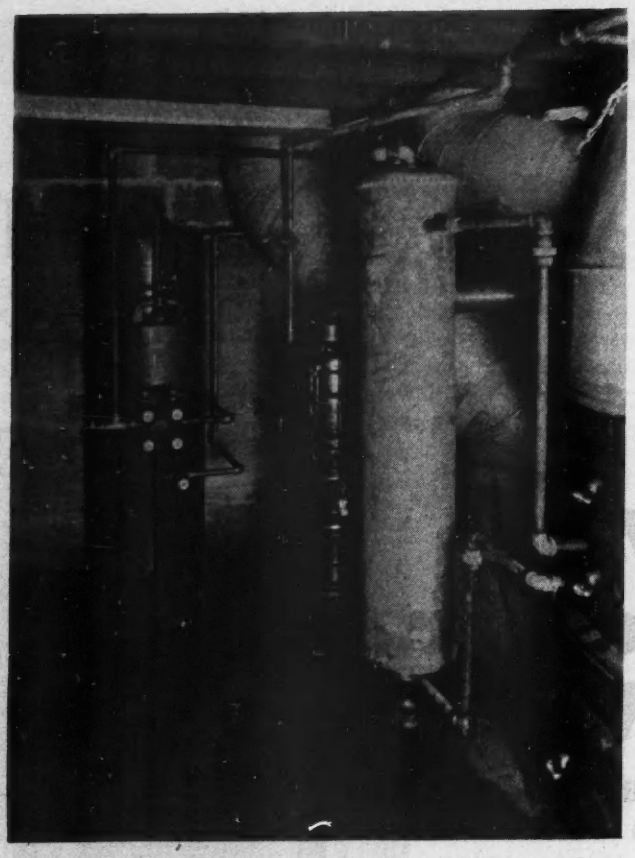
Wayne Tank and Pump Company
808 Canal St., Ft. Wayne, Ind.

Gentlemen:—

Please send me free booklet on the Wayne Water Softener and the benefits of Wayne Soft Water in the home.

Name_____

Address_____



Water Softener Installed in a Home at Portland, Ind.

produces will of themselves pay for the equipment in a comparatively short time.

The Modern Softener

In design the softener resembles a water filter. It consists of a cylindrical steel container which holds a bed of mineral through which the water must pass. It is this mineral which attracts and holds to itself the hardening ingredients, lime and magnesium, and renders the hardest of waters 100 per cent soft.

This mineral is a natural softening agent which softens water by contact. It is a granular sandlike substance mined and refined by a patented process which makes it hard and durable and therefore practically everlasting. It is not a chemical put into water to break the hardness. The hard winter is simply filtered through the mineral which is permanently retained in the special steel container.

This mineral may be defined as an exchange silicate or sand for in its active softening condition it contains the element sodium which it is capable of exchanging for the hardening elements calcium and magnesium.

This exchange action is by contact and to all purposes is instantaneous, for hard water entering the top of the softener filters through the mineral and emerges at practically the same pressure—clear, clean and soft.

As this softening action continues the mineral finally reaches a point when its sodium content is exhausted or, in other words, the softening action ceases. Restoration of this activity is quickly and easily accomplished by a simple process known as regeneration of the mineral.

Regeneration of the mineral is a process which accomplishes in effect the exact reverse of the softening process. The cover of the salt feeder which is attached to the softener is removed and the feeder filled with common salt (sodium chloride). As water is admitted to the softener the salt is dissolved and passes through the hardness-laden mineral. Here the reverse exchange action takes place, the mineral releasing the lime and magnesium which it holds and taking from the salt a new charge of the element sodium. The hardening elements are then flushed from the softener to the drain and the revived mineral is ready for another run.

All operations of regeneration are accomplished in 20 to 25 minutes' time without muss or fuss.

These water softeners are quickly and easily installed in any home, old or new, large or small.

✣

New York's Permanent Home Building Exhibit

IT is significant that the annual observance of National Thrift Week which begins on January 17th, Benjamin Franklin's birthday, finds nearly completed in New York City the finest monument of thrift that has yet been erected. This outstanding expression of the savings instinct is the eighteen-story structure of the Railroad Co-operative Building and Loan Association located at Forty-fourth Street and Lexginton Avenue, only one block from a main entrance of the Grand Central Station.

If this building were to house only a progressive building and loan association it would represent a decided advance in the promotion of thrift and savings and especially savings for home ownership. However, the announcement that the main floor and basement of this great thrift center will be devoted to a permanent exhibit of home builders' materials and supplies is a prediction of a unique service to home owners and prospective home owners.

According to present plans this new structure will be in effect a home magnet attracting to its carefully supervised displays of nationally advertised products not only the thousands of members of the building and loan association, but also many other thousands who are interested in building, furnishing and decorating their homes with materials of recognized quality.

On the main floor of this exhibit, scheduled to open May 1, 1925, will be a living room, dining room, bedroom, bath and kitchen fully furnished with the most modern devices that make for ease and satisfaction in home ownership. Then there will be artistically arranged booths where manufacturers can have their goods displayed to unusual advantage.

Never before has a permanent educational exhibit of this sort been contemplated where the conditions were so ideal. The location not only in New York City but in the heart of the city where the streams of passing citizens assure capacity attendance could hardly be improved.

The enterprise is well and ably managed and the whole undertaking represents one of the most important developments of the national monument to greater encouragement of thrift through careful buying of the comforts and necessities of life.

✣

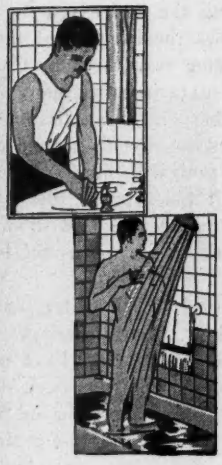
Fenestra Enlarges Plant

GROUND has been broken by the Detroit Steel Products Company for an additional factory unit to be devoted to the manufacture of steel casement windows. It is expected that all necessary equipment will be installed and in operation by February 1st.

Production facilities, at the present time, are insufficient to meet the demand, and will undoubtedly remain so until the new unit is completed.

Such development speaks well for the growing popularity of the steel window, and its future in this country. The Detroit Steel Products Company, manufacturers of Fenestra Casements, has been unusually successful in incorporating in its product those features which seemingly make a strong appeal to architects, builders and home owners.

FAIRBANKS-MORSE HOME WATER PLANTS



120 gallons per hour capacity pump, 60 cycle motor, 8-gallon galvanized tank, complete..... **$84.75** list

200 gallons per hour capacity pump, 60 cycle motor, 35-gallon galvanized tank, complete..... **$115.00** list

Prices, cash f. o. b. factory

Every *Modern* Home Has Water Under Pressure

When you are building a new home or remodeling an old one, remember that water under pressure is one of the greatest conveniences of modern life. Even though the owner lives in the country or beyond the city water mains, he can have water under pressure at an exceedingly low cost in bathroom, kitchen, laundry, garage, barn, watering trough—any place.

Fairbanks-Morse Home Water Plants are an additional source of profit for you. They are made in a variety of sizes to fit all requirements, whether the source of supply is a lake, spring, stream, deep well, shallow well or cistern. Furnished in both electric and engine drive. Operation of the electric plants is automatic — self-starting, self-priming, self-oiling.

The name Fairbanks-Morse is a guaranty of quality. It is your protection. In addititon, you are backed by an extensive advertising campaign in leading national publications.

Let us send you our latest literature, including valuable Home Water Plant Service Library. This is of particular interest to builders and architects.

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Manufacturers Chicago, U. S. A.

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Send complete information concerning the Fairbanks-Morse Home Water Plant dealer plan.

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NATIONALLY ADVERTISED

Extra Winter Profits for Builders

Floor Surfacing is Comfortable Inside Work Which Offers Big Opportunites to the Man Properly Equipped with a Power Machine

WOULDN'T you like to fool the weather this winter by keeping the money rolling in during the winter months? It's rather unusual for building contractors, whose work during the winter is governed entirely by weather conditions, to maintain the same good income in winter as they make in summer. But they're doing it Hundreds of building contractors have the money coming in faster right now during the winter than ever before—even making more money than during the summer when building is good.

These men we refer to are building contractors who are going into the floor surfacing business during the winter with electrically driven machines.

J. M. Grimes, a contractor, living in Manistee, Mich., saw an ad in AMERICAN BUILDER last winter when building was tied up and became interested. He sent for a machine on five days' trial, found it to be just as represented, and although sixty-five years of age, he makes $35.00 per day right along with his machine.

South End of Exchange Hall, Board of Trade, Montreal, Que., Being Resurfaced by Charles A. Roy.

J. F. Ashenfelter, a contractor in Decatur, Ill., has been averaging $100.00 per week. E. M. Phillips, in the small town of Athens, Ohio, averages $20.00 a day. J. W. Fleming, of Bloomington, Ind., says that he has been averaging $20.00 to $30.00 per day, and that he would not sell his machine for $1,000 if he couldn't get another like it.

These building contractors, like hundreds of others, do not know what a dull winter is since they got going with floor surfacing machines, because floor surfacing is not seasonable work—it's good the year 'round.

You can do the same. There is no secret about it. All that it takes is to get a machine and go to it.

There are floors in hundreds of homes in your town right now that need resurfacing. In addition there are the banks, bowling alleys, apartments, dance halls, hospitals, office buildings, schools, store buildings and many public buildings where the floors are subject to constant wear.

But listen to this. There is another big thing in favor of your getting a floor surfacing machine. It will save you the wages of six hand scrapers on the floors on every building you put up. This is a saving of about 80 per cent in your payroll, which frequently pays for the machine on one good sized job. So you see the machine not only keeps the money coming in by resurfacing floors during your dull periods in the winter months, but also between your building jobs, which are liable to occur at any time during the entire year.

The accompanying picture shows the interior of the Board of Trade at Montreal, Canada, being resurfaced by Charles A. Roy. Mr. Roy bought one floor surfacing machine and within thirty days after he put it on the job found that he got so much work that he was compelled to buy his second machine, and looking at the photograph you will find both of these machines on this job. You will also notice the wonderful difference between the old floor and the new floor. This photograph has not been retouched—it is just as the lens took the picture.

All agree that a resurfaced floor is much better than a new floor, for the boards in a new floor, after it is laid for some time, will become sort of cupped and doesn't have nearly as good an appearance as an old floor which has been down for many years, and is well dried out, for when these old floors are resurfaced it brings out the grain just as well as the day it was first laid and all the shrinkage and warping is out of it, and they can be surfaced to a smooth surface and will always stay that way.

✣

Weather and Construction

THE Department of Commerce at Washington, Division of Building and Housing, has prepared a 32-page pamphlet on this subject which they are mailing out in mimeographed form to the secretaries of local builders' exchanges and similar organizations. The pamphlet gives in complete detail the winter weather conditions in nine construction centers, a summarized table of which was printed in our November issue.

An interesting example is given of a building situation in which these weather tables could be used to great advantage, as follows:

"A prominent public utility organization in the vicinity of Chicago has outgrown its quarters and officials have discussed the possibility of erecting a building for its exclusive use. Representatives of another concern approach the officers in the late spring with a very advantageous offer for the balance of the lease which has some time to run. There is a stipulation that occupancy must be given by the following April. The officers make inquiries and learn that it is entirely possible to erect a suitable building through the coming winter and have it ready on time provided a decision is reached promptly. Plans for a three-story brick and terra cotta trim building expected to cost about $300,000 are prepared and bids called for.

"The contractor who figures on this building can turn to the Chicago weather table, page 24, and find for each month the average number of days on which rain, sleet, snow, or cold is likely to cause trouble. Supposing that he starts operations on September 1, the total of inclement days as shown up to April 1 is 75.8. These include 24.2 Class I days, 16.5 Class II days, and 31.4 Class III days. Precipitation would be a factor on 0.9 days of these and also would make up the difference between their sum and the 75.8 inclement days given up to April 1. This difference amounts to 3.6 days. Knowing from experience and established standards what precautions are necessary for his particular work in each gradation of weather, he has some basis for figuring anticipated delays and expense."

INSTRUCTIONS IN ROOF FRAMING

Explanation of Rafter Table

By JOHN T. NEUFELD

Column 1. Rise Per Foot Run of Common

THIS column expresses the pitch of a roof, as a ratio of the rise to the run (not to the span, as in the second column). See Fig. 2. To find the rise per foot run, when the pitch is given, multiply the pitch by 24. Example, a two-thirds pitch room has $\frac{2}{3} \times 24 = 16$ feet rise per foot run.

Another way to find the rise per foot run is to divide the total rise given in inches by one-half the span (or the total run taken in feet). Example, a building has a span of 28 feet and a rise of 7 feet. The run would be 14 feet and the rise would be $7 \times 12 = 84$ inches; 84 inches $\div$ 14 = 6. Therefore, the roof has a rise of 6 inches for every foot run, or rise of run = 6 inches.

Column 2. Rise Over Span

This column gives the pitch of the roof expressed as a ratio of the rise to the span. To find the pitch of a roof divide the rise by the span. Example, a roof with a span of 30 feet and a rise of 10 feet has a pitch of $10 \div 30 = \frac{1}{3}$. See Fig. 2.

Column 3. Pitch by Degrees

Pitch is expressed in this column by degrees and minutes. Example, a one-third pitch roof makes an angle of 33 degrees and 41 minutes with the horizontal. See Fig. 3.

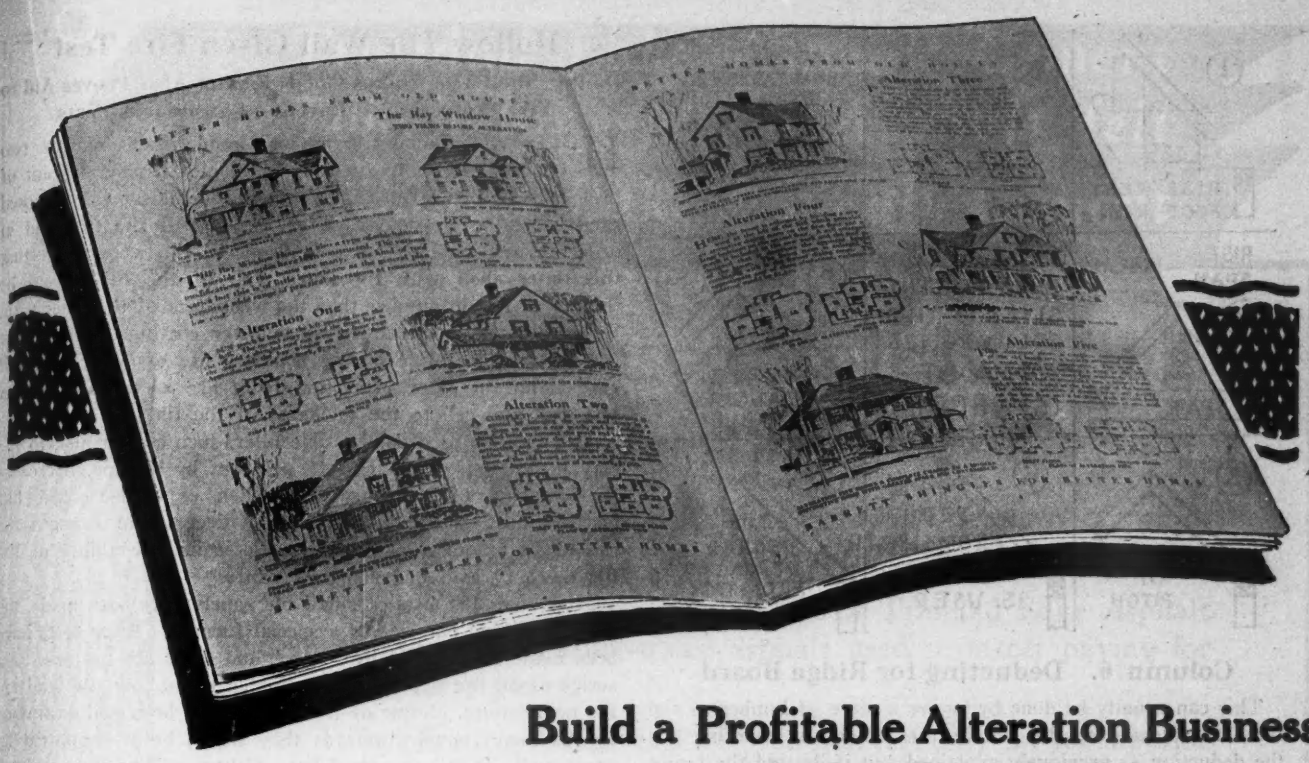
Column 4. Length of Common Rafter Per Foot Run

This column can be used to find the length of the rafter. Multiply the length per foot run by the total run of the rafter. Example, a building is 20 feet wide and has a one-third pitch. The run would be 10 feet. The length per foot run is given as 14.42 inches. The length of the rafter = $14.42 \times 10 = 144.2$ inches, or 12 feet and $\frac{2}{10}$ inch. "Length per foot run" for a pitch may be found by taking the square root of (the "rise per foot run squared," plus 12 squared). Example, given that the rise per foot run equals 8½ inches, the length per foot run would = $\sqrt{8.5^2 + 12^2} = 14.70$ inches. See Fig. 4.

Column 5. Per Cent to Be Added to Area in Plan

This column is used for finding the area of a roof and is based on the method of adding a certain percentage to the area in plan. If from the length per foot run taken in feet we subtract 1 foot we have the number of square feet that must be added to each square foot in plan to obtain the area of the roof. To a one-third pitch roof we must add .202 or 20 per cent to the area in plan to get the area of the roof. Example, a roof 20 feet wide and 30 feet long = $20 \times 30 = 600$ square feet in plan. If the roof has a one-third pitch then the area would be $600 + (600 \times .202) = 600 + 121 = 721$ square feet.

PITCH			COMMON RAFTER					
1 RISE PER FOOT RUN	2 RISE OVER SPAN	3 DEGREES	4 LENGTH PER FOOT RUN	5 ROOF AREA	6 DEDUCT FOR 1 5/8" RIDGE	7 CUTS WITH SQUARE	8 BOTTOM CUT BY DEGREES	9 TOP CUT BY DEGREES
24	1	63° 26'	26.63"	1.239	1 13/16	12-24	63°26'	26°34'
23½	47/48	63°00'	26.38"	1.180	"	12/23½	63°00'	27°34'
23	23/24	62°27'	25.94"	1.165	1 3/4	12/23	62°27'	27°33'
22½	15/16	61°55'	25.50"	1.025	"	12-22½	61°55'	28°05'
22	11/12	61°23'	25.06	1.089	1 11/16	12-22	61°23'	28°37'
21½	43/48	60°50'	24.62	1.052	"	12-21½	60°50'	29°10'
21	7/8	60°15'	24.19	1.015	1 5/8	12-21	60°15'	29°45'
20½	41/48	59°40'	23.75	.98	"	12-20½	59°40'	30°20'
20	5/6	59°02	23.32	.943	1 9/16	12-20	59°02'	30°58'
19½	13/16	58°20	22.89	.908	"	12-19½	58°20'	31°40'
19	19/24	57°44'	22.47	.872	1 1/2	12-19	57°44'	32°16'
18½	37/48	57°05'	22.05	.838	"	12-18½	57°05'	32°55'
18	3/4	56°19'	21.63	.803	1 7/16	12-18	56°19'	33°41'
17½	35/48	55°30	21.22	.768	"	12-17½	55°30'	34°30'
17	17/24	54°47'	20.81	.734	1 3/8	12-17	54°47'	35°13'
16½	11/16	54°00'	20.40	.700	"	12-16½	54°00'	35°60'
16	2/3	53°08'	20.00	.65	1 3/8	12-16	53°08'	36°52'
15½	31/48	52°15'	19.63	.636	1 5/16	12-15½	52°15'	37°45'
15	5/8	51°20'	19.21	.601	1 5/16	12-15	51°20'	38°40'
14½	29/48	50°20'	18.83	.569	1 1/4	12-14½	50°20'	39°40'
14	7/12	49°24'	18.44	.536	1 1/4	12-14	49°24'	40°36'
13½	9/16	48°20'	18.06	.505	"	12-13½	48°20'	41°40'
13	13/24	47°17'	17.69	.475	1 3/16	12-13	47°17'	42°43'
12½	25/48	46°10'	17.33	.444	"	12-12½	46°10'	43°50'
12	1/2	45°00'	16.97	.414	1 1/8	12-12	45°00'	45°00'
11½	23/48	43°50'	16.62	.385	"	12-11½	43°50'	46°10'
11	11/24	42°31'	16.28	.356	1 1/16	12-11	42°31'	47°29'
10½	7/16	41°10'	15.94	.328	"	12-10½	41°10'	48°50'
10	5/12	39°48'	15.62	.301	1 1/16	12-10	39°48'	50°12'
9½	19/48	38°20'	15.30	.275	"	12-9½	38°20'	51°40'
9	3/8	36°52'	15.00	.25	1 —	12-9	36°52'	53°08'
8½	17/48	35°20'	14.70	.226	1 —	12-8½	35°20'	54°40'
8	1/3	33°41'	14.42	.202	1 —	12-8	33°41'	56°19'
7½	5/16	32°00'	14.15	.179	15/16	12-7½	32°00'	58°00'
7	7/24	30°15'	13.89	.158	15/16	12-7	30°15'	59°45'
6½	13/48	28°30'	13.65	.138	"	12-6½	28°30'	61°30'
6	1/4	26°34'	13.42	.118	7/8	12-6	26°34'	63°26'
5½	11/48	24°40'	13.20	.100	7/8	12-5½	24°40'	65°20'
5	5/24	22°37'	13.00	.083	7/8	12-5	22°37'	67°23'
4½	3/16	20°35'	12.82	.068	7/8	12-4½	20°35'	69°25'
4	1/6	18°26'	12.65	.054	7/8	12-4	18°26'	71°34'
3½	7/48	16°20'	12.50	.041	13/16	12-3½	16°20'	73°40'
3	1/8	14°02'	12.37	.030	13/16	12-3	14°02'	75°58'
2½	5/48	11°50'	12.26	.021	13/16	12-2½	11°50'	78°10'
2	1/12	9°28'	12.17	.014	13/16	12-2	9°28'	80°32'
1½	1/16	7°10'	12.09	.008	13/16	12-1½	7°10'	82°50'
1	1/24	4°46'	12.04	.003	13/16	12-1	4°46'	85°34'
0½	1/48	2°25'	12.01	.001	13/16	12-½	2°25'	87°35'



Build a Profitable Alteration Business with this Free Book!

This book—"Better Homes from Old Houses"—has proved a real business-builder to carpenter-contractors all over the country.

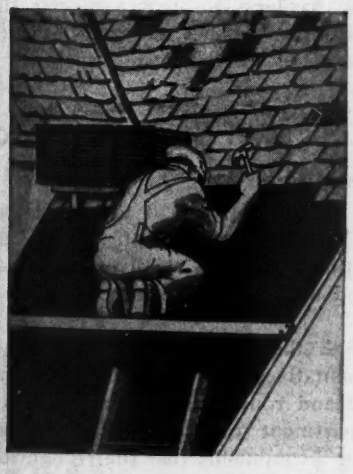
Between its covers all the common types of old houses are shown with sound suggestions for making them more artistic, more comfortable and worth more money. Prepared by a staff of leading architects, it is authentic in every detail. It's a book of suggestions—not of working plans.

There are any number of old houses that could easily be improved *in and around your town.* The main difficulty is getting the owners to think "alterations."

Put a copy in the hands of every man or woman in your town who owns an architecturally out-of-date house.

Right there the "remodeling idea" starts! Some of these house owners will send for you to talk plans and costs of alterations! A good number will go through with the job now—others later. This is *building business.*

Get your free sample copy of this book. Fill out the coupon, giving your name and address, also name and address of your building supply dealer.



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

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

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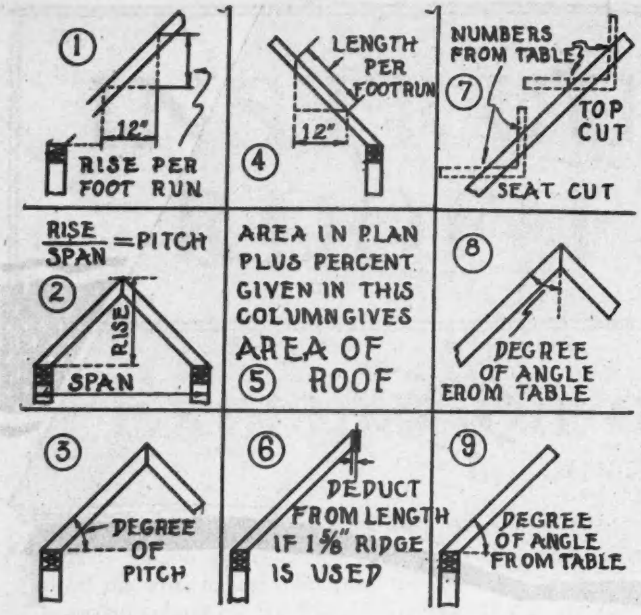


Column 6. Deducting for Ridge Board

This can usually be done by laying a piece of lumber of the same thickness over the end of the rafter and marking for the deduction as previously explained, but if desired the figure given in this table may be used.

Find the length of the rafter as if no ridge-board were used, then deduct the amount given in this column. Example, given the length of a rafter for a certain building with a ⅓ pitch roof is 14 feet 6 inches. The length of the rafter, if a 1⅝-inch ridge board is used, would be 14 feet 6 inches less 1 inch = 14 feet 5 inches. See Fig. 6.

Column 7. Cut by Square

The numbers in this column are based on the following rule: The plumb and seat cuts (or top and bottom cuts) are obtained by taking the "rise per foot run" on the tongue of the square and 12 inches on the blade, marking along the blade for the seat cut and along the tongue for the plumb cut. To use the table take the first number (the 12) on the blade of the square and the second number on the tongue, mark along the blade for the seat cut and along the tongue for the plumb cut. See Fig. 7.

Column 8. Bottom Cut by Degrees
Column 9. Top Cut by Degrees

The figures in these columns may be used where the mechanics are accustomed to work by degrees. Some miter boxes are marked in degrees and the numbers in these columns may be used to set miter box for cutting mouldings and trim on the rake of the roof. See Figs. 8 and 9.

Problems

(Use Table in Answering)

1. A house is 22 feet 0 inch wide and 36 feet 0 inch long. It has a five-twelfths gable roof with overhang of 2 feet wide on each side and also at the ends. What is the "rise per foot run"?
2. What is the pitch expressed in degrees?
3. What is the "length per foot run" of the common rafter?
4. What is the total length of the rafter if no ridge board is used (not including overhang)?
5. What is the total length of rafter if a ⅝-inch ridge board is used (not including overhang)?
6. What numbers on the square give the plumb and seat cuts of the rafter?
7. Give the top cut by degrees.
8. What is the area of the roof?

The answers to these problems will be found on page 196.

Hollow Tile Wall Given Fire Test

Double Shell Tile Makes Good; Plaster Also Proves Aid to Fire Protection in Bureau of Standards Tests

HOLLOW building tile having double shells on the two exposed sides give very good results from the point of fire protection, the Bureau of Standards finds. The exposed shell serves as a protection for the rest of the tile, and in order to distribute the stresses properly, the webs connecting this outer shell with the inner wall of the tile should be thinner or less in number than the webs back of the inner wall.

Gypsum and portland cement plaster coatings over hollow tile will stay in place during ordinary fire exposure and will give about the same protection from fire as the addition of one wall and cell to the thickness of the tile.

The addition of a combustible filler, such as sawdust, to the clay in amounts from 5 to 15 per cent by volume, decreases the cracking of the burnt tile when exposed to fire, but has the disadvantage of producing a decrease in strength for the larger amounts of filler, thus lessening the ability of the tile to carry load under fire exposure.

More than 100 tests of small tile panels have been made, the panels forming one side of a special furnace. Eight tests have been made on walls 11 by 16 feet, and these are the first of a series of 50 fire tests to be conducted on hollow tile walls in the near future. Some of these walls will be tested restrained by the heavy panel frame as they would be if supported by cross walls during an actual fire. Others will be unrestrained, being supported only at the bottom. In some of the tests the walls will carry their normal working load.

Other points found to add to the quality of tile are sufficiently fine grinding of the raw material, the even burning of the clay to normal hardness for that particular clay, the provision of sufficiently heavy shells and webs, and the use of ample fillets where the webs join the shell.

✣

Only Eleven Sizes of Steel Reinforced Bars After January 1, 1925

AS a result of a conference held at the Department of Commerce in Washington on Sept. 9, 1924, the following recommendation was made, relative to the manufacture, distribution and use of steel reinforcing bars—round and square:

"In accordance with the unanimous action of the joint conference of representatives of manufacturers, distributors and users of square and round steel reinforcing bars, the United States Department of Commerce, through the Bureau of Standards, recommends that the recognized sizes of square and round steel reinforcing bars, in terms of cross sectional area, be reduced to the following:

Size in Inches	Area in Square Inches	Size in Inches	Area in Square Inches
¼ round	.149	⅞ round	.601
⅜ round	.110	1 round	.785
½ round	.196	1 square	1.000
½ square	.250	1⅛ square	1.266
⅝ round	.307	1¼ square	1.563
¾ round	.442		

"It is further recommended that this reduced list of sizes become effective as applying to new production Jan. 1, 1925, and that every effort be made to clear current orders and existing stocks of the eliminated areas before March 1, 1925."

This recommendation has received practically the unanimous acceptance by manufacturers, distributors and users throughout the entire United States.

At a recent meeting of the Concrete Reinforcing Steel Institute, made up of members of the reinforcing bar interests of the United States, these recommendations were accepted.

This was accomplished through the untiring efforts of the Division of Simplified Practice of the Department of Commerce at Washington.

How We Produce Good Buildings at Low Cost

By J. A. STANSBURY, Builder

OTHER builders, like myself, find it continually necessary to discover the most economical materials and methods of construction. No matter how highly we resolve to build only the best, it must be admitted that in nine cases out of ten we can't get an opportunity to build the best unless we can compete closely with ordinary standards.

In the hope of being able to build superior construction at competing prices I hit upon the idea of manufacturing my own wall material in order to save the usual manufacturer's profit and also save money in the laying. After looking over the field I selected a concrete building unit which varies from ordinary concrete block in a number of respects.

This concrete building tile was really selected because of its system of sizes which makes it easily adapted for work in connection with clay brick and tile. Much of our work involves face brick fronts and veneers and some of it the use of concrete tile for bearing walls with clay tile for the light partitions. Our 4 by 5 by 12-inch and our 5 by 8 by 12-inch tile have proven very handy in work which involves the use of face brick. Although I have never read any particular claims as to the trueness of wall easily obtained with these concrete tile, it is a fact that they lay in a true plane very readily and for that reason they have proven very economical to plaster and stucco over. The molds form scored surfaces which take the plaster with much less loss than commonly experienced.

The first 20,000 tile manufactured in our factory were used in our own buildings and represented a saving of about $300 as compared with the cost of other masonry material. Laying costs were very moderate, although our masons were unaccustomed to laying anything except common brick, and costs on the wall, laid in 1:1:6 cement lime and sand mortar, were around 46 cents per square foot, as compared with 65 cents for the next cheapest wall heavy enough to house our operations.

A recent summary of laying costs shows that 4 by 5 by 12-inch tile, occupying 5/12 square foot of wall surface, can be laid by a mason and helper at the rate of 800 units per eight-hour day, while the 5 by 8 by 12-inch unit lays with even greater efficiency, reaching an average of 450 units per eight-hour day. This is probably because the weights make these units easy to handle, as the smaller tile weighs about 12 pounds and the larger tile is less than twice that weight.

Interior View of Concrete Tile Walls.

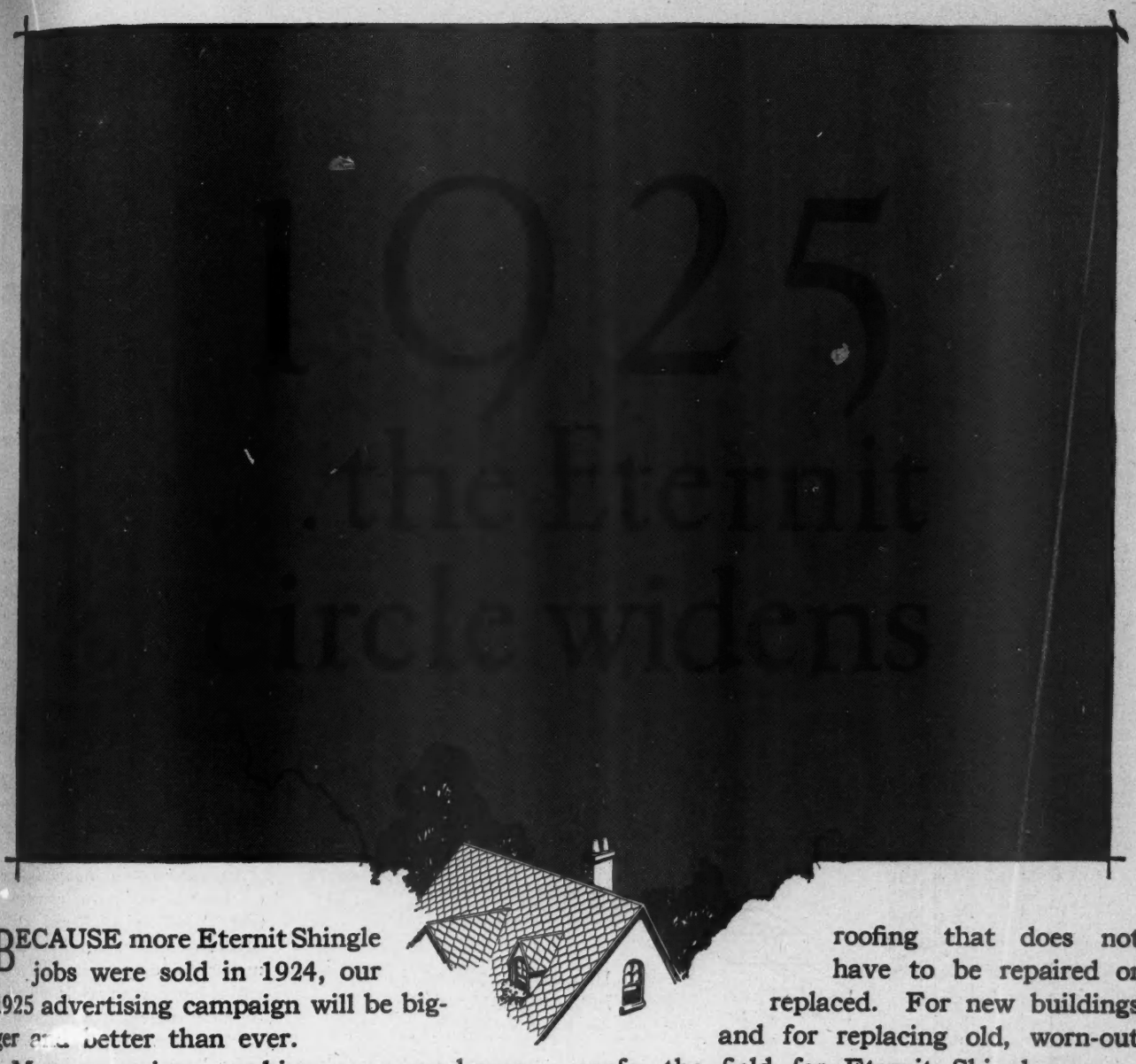
Showing the Public

We experienced some little difficulty in explaining our construction to the public and it became necessary for us to prove every claim made. Fortunately we landed a small job consisting of a little building to the side of the town hall and fire station which was used for the storage of oils and to house a gasoline pump. A chemical cart collided with the wall the night we finished it, damaging only a few tile. As a result of observation of this structure our building inspector issued a permit for a two-story house, for which we had a plan drawn with a great deal of care as to details, in order to assure highest degree of success for our first concrete house, which we are now building.

Our Building Inspector Issued a Permit for a Two-Story House.

Our last several houses were built with our concrete tile basements, which is the most difficult use for a tile of this kind and will show defects if it has any. In talking the use of our new material for upper walls we have had no trouble in demonstrating the advantage of the horizontal air spaces, entirely eliminating convection currents, thereby reducing the passage of heat and cold. Our tile have shown no tendency to pass moisture through the joints, which may be accounted for by the wide, easily buttered space provided for the mortar. We have kept manufacturing costs down so far by eliminating all specials, laying our entire jobs with whole and half tile. This we have found thoroughly practical because the corrugated shape of the tile permits fairly easy cutting.

Our foundation walls for the concrete house will be laid with 4 by 4 by 12 and 6 by 6 by 12 tile laid alternately inside and outside every 12 inches in height, as shown in our drawing. This



BECAUSE more Eternit Shingle jobs were sold in 1924, our 1925 advertising campaign will be bigger and better than ever.

More magazines reaching more good prospects. Big full pages in glowing colors. The same kind of advertising that right now is bringing business to roofers, contractors and builders who are specializing on Eternit Asbestos Shingles.

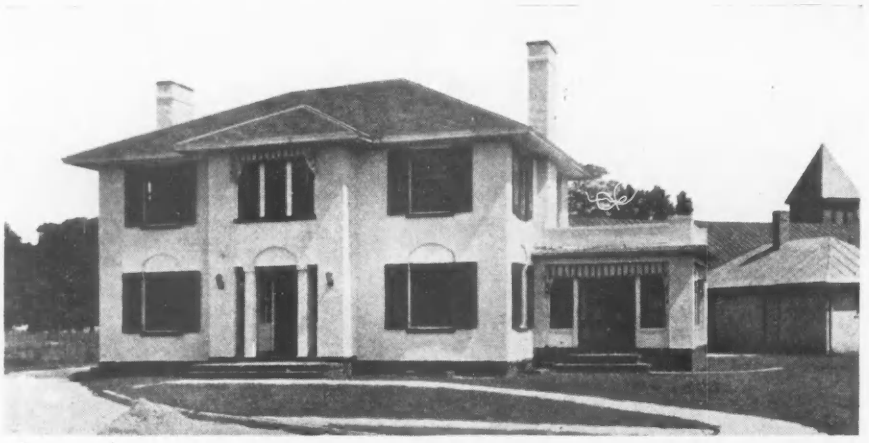
Consistent advertising is making Eternit Shingles better known and easier to sell. They meet the demand for a permanent roofing that does not have to be repaired or replaced. For new buildings and for replacing old, worn-out roofs, the field for Eternit Shingles seems limitless.

We can show you instances of profitable businesses that have been developed entirely by handling Eternit Asbestos Shingles. We can tell you how to do this and help you accomplish it. Every territory has a big opportunity for the Eternit Shingle Man. Write today for details.

AMERICAN INSULATION CO.
Roberts Ave. and Stokley St., Philadelphia, Pa.

Eternit

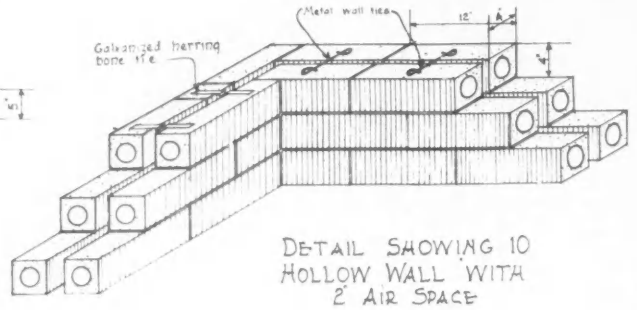
ASBESTOS SHINGLES
Make your first roof last

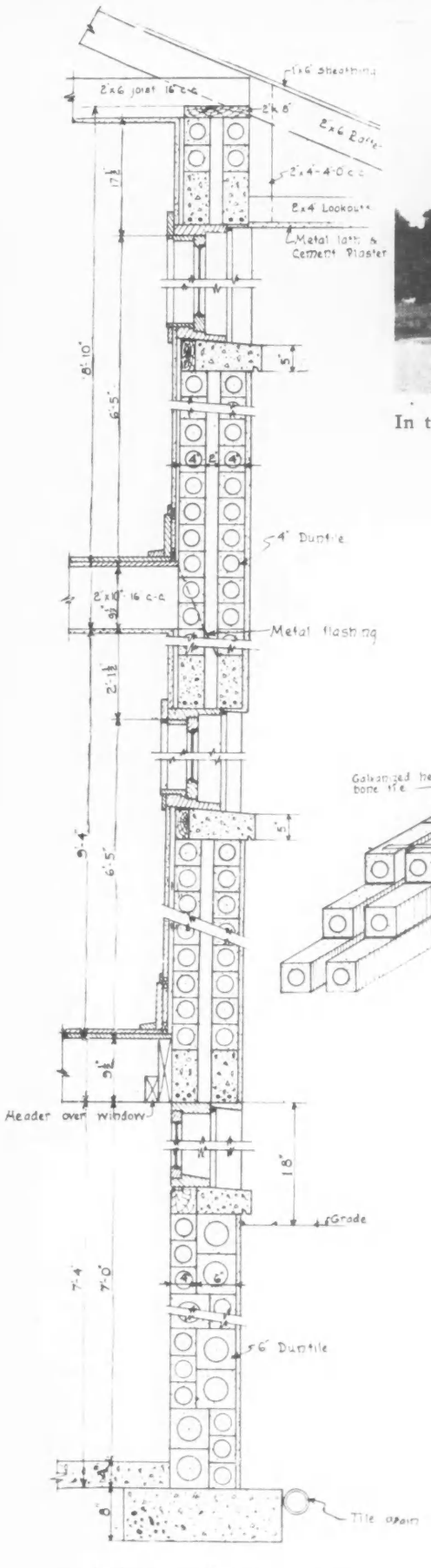


In the Writer's Experience, Concrete Tile Has Proven an Excellent Base for Stucco, as the Above View Illustrates.

gives an ample wall for all house purposes and complies with building codes in cities of our acquaintance. Above grade our walls are made almost entirely of 4 by 4 by 12 tile laid with 2-inch air space, spanned by heavy galvanized wire ties, giving medium weight masonry of unusual strength, with total thickness of 10 inches. Stucco is applied safely to the exterior and plaster directly to the interior, due to the triple air space. For shop and light manufacturing buildings 6 by 6 by 12-inch tile probably is going to meet the needs. There are several garages that we have seen with such walls in Holland, Mich., as well as our own, and one with 4 by 4 by 12 tile walls, which we are persuaded is the economical size for single car garages.

Anyone who doubts the future of this tile system of construction should visit Royal Oak, Mich., where there are not only numerous examples, but one entire block with walls entirely of these tile, right in the center of the town. Concrete tile was used there for the construction of a large and very handsome bank building, a half million dollars worth of store buildings, a large new school and many miscellaneous purposes. We have been using these examples very successfully to convince our people as to the merits of this new method.

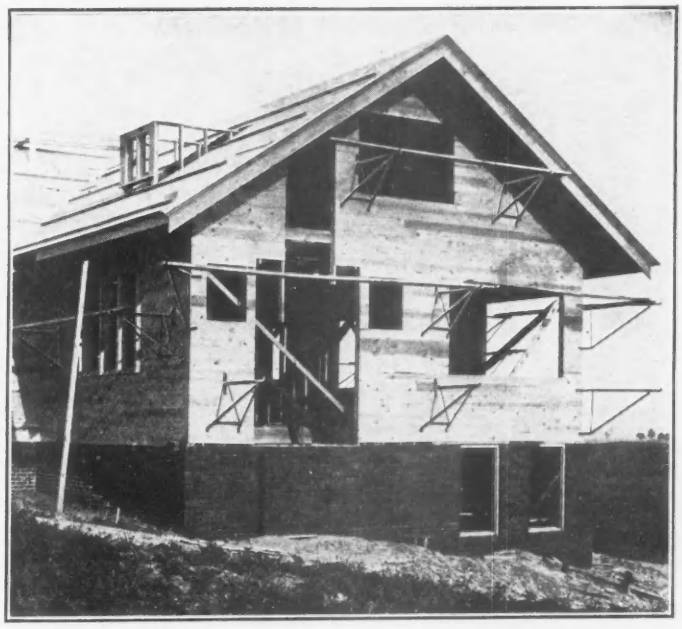




Construction of Concrete Tile Walls as Built by J. A. Stansbury.

House of Concrete Tile in Course of Construction. A stucco finish coat may be applied over this if desired.

Start The New Year Right by Equipping Yourself with Steel Scaffolds

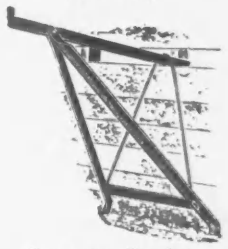


Change that every-job expense into a permanent saving

"Trouble-Savers" will do that very thing

Write at once and we will tell you why

(Patented)



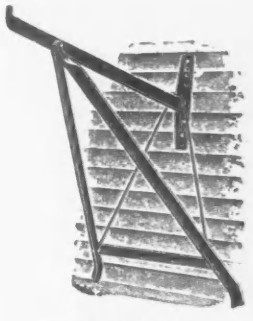
Carpenters Bracket
It hooks around the studding and stands on two legs

They Fold

for Cartage and Storage

"Would not part with them for twice their price" — "Rightly named" — "Best Ever" — "Rush 8 dozen more" — "Safest scaffold made" — "Paid for themselves on First Job" — "Quick and handy" — "Our men feel Safe on 'Trouble-Savers' ".

These are just a few of the thousands of testimonials we have received from all parts of the country and we would like to prove these facts to you.



Stucco Bracket
Attaches to wall with Four Nails

There's a "Trouble-Saver" for You and We Will Send You Full Information on Request

(Patented)

"Trouble-Saver" Adjustable Trestles Prove their worth on each and every job —and they Fold for Cartage and Storage Like all "Trouble-Savers" do.

Let Your Men Feel Safe on "Trouble-Savers"

Our 30 Day Trial With a Guarantee of Satisfaction Will Convince You

Ladder Jacks
Take the weight on Three Rungs

MANUFACTURED ONLY BY

The Steel Scaffolding Company

EVANSVILLE, INDIANA

ELECTRIFY ALL BUILDINGS

A Department of Up-to-date Information for all who Plan and Build

No Home Really Modern Without One

By F. J. ST. JOHN

DO you remember the days when there would be a question as to whether the new house under construction was to be wired for electricity?

Do you know of any houses built lately that weren't wired?

Electricity as a feature of modern home equipment has long been accepted and nobody stops to question, nowadays, whether the new house is going to be served with electricity. They just put in the wiring as a matter of course.

The Modern Electric Refrigerator with Its Low Cost, Low Temperature, Heathfulness and Convienience Is the Pride and Joy of the Home.

Since the introduction of electricity as a feature of modern homes, electric service has become more and more varied—and desirable. One of the newest varieties of electric service to come up over the horizon is electrical refrigeration.

It had to come. Ordinary methods of refrigeration were not keeping up with progress in other directions, when it came to developing the strictly modern home. Heating had gone forward, plumbing was offering constantly more gratifying possibilities for home convenience, lighting had become a thing of joy as well as of boundless utility, but refrigeration was still achieved by means of a cake of melting ice in the household icebox.

It had long been known that mechanical refrigeration was possible and practical for the great cold storage plants were employing it with complete success. A cold storage plant in small size for the home was the thing, manifestly, to be sought, and refrigeration engineers proceeded to seek it. There is proof in abundance that they have found it, in the several brands of electrical refrigerators which are now on the market and in use in the modern homes of this country and elsewhere.

The electrical refrigerator for the household is possible due to the fact that certain liquids, like sulphur dioxide and ammonia, change into a gas at temperatures away below freezing. In this changing, they absorb great numbers of heat units, or B. T. U.'s, if you want to talk the language of the refrigeration engineer. This B. T. U. is the nickname by which those who are familiar with the British Thermal Unit are wont to address it, and B. T. U. signifies the amount of heat necessary to change the temperature of one pound of water 1 degree Fahrenheit.

In the food compartment of the family icebox, pure food experts tell us, the temperature ought to be kept always below fifty degrees above zero,

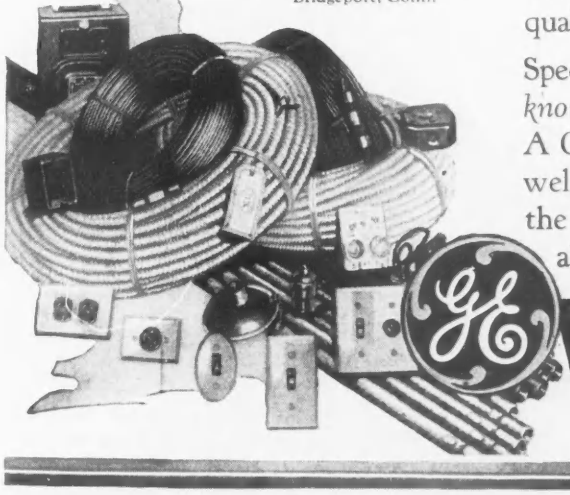
From power house to wall switch — !

MEN KNOW General Electric quality in such imposing accomplishments as the equipment in the great power houses. They know the same quality in every G-E product. And an educational campaign, using full pages in color in the Saturday Evening Post, is driving home the importance of G-E quality throughout the wiring system of every building.

Specify G-E wiring materials. It means not only quality—but *known* quality. It means lifetime service—definite economy. A General Electric wiring system in a house has *sales* value as well as service value. And for your own protection, it places the responsibility for *all* the wiring material on one dependable manufacturer—the General Electric Company.

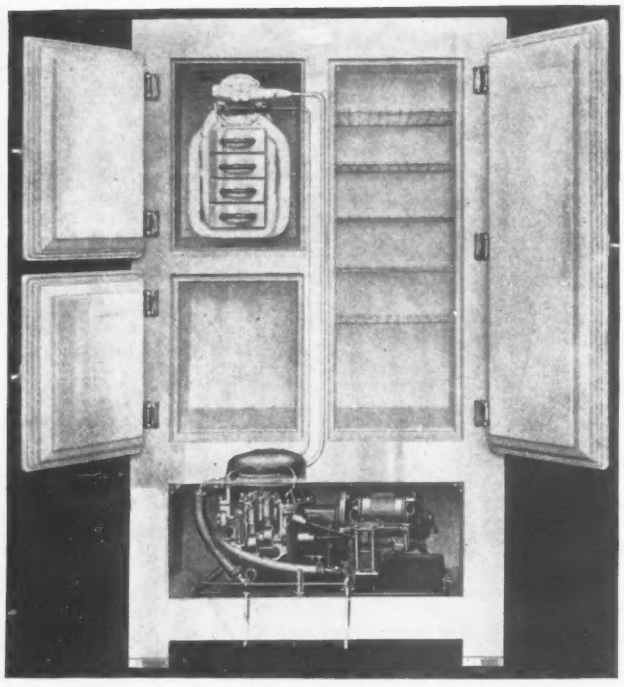
Have you received our helpful booklet on complete wiring, "The Home of a Hundred Comforts"? Send for a copy.

Section AB-1
Merchandise Department
General Electric Company
Bridgeport, Conn.



WIRING SYSTEM
—for lifetime service

GENERAL ELECTRIC



X-Ray View of an Electrical Refrigerator Showing the Cooling Coil, the Liquid Lines, and in the Base of the Cabinet the Electric Motor and Compressor.

Fahrenheit, so that germs will not become active and spoil the food. It ought to be kept above freezing, too, for most of the food kept in the family ice-chest would be spoiled if freezing temperatures were permitted. The electrical refrigerator offers the most nearly ideal equipment in the world for this, for a mere matter of mechanical adjustments will keep the temperature continuously between these points, 32 and 50 degrees above zero, Fahrenheit.

The refrigerating liquid, sulphur dioxide, for example, is caused to circulate through a set of copper coils placed in a compartment in the chest, corresponding to the ice chamber of an ordinary ice-box. Here the liquid picks up all available heat units, from the surrounding air and the food compartments and soon has absorbed enough of them to cause it to change to a gas. In the base of the refrigerator cabinet itself, or perhaps in the basement of the home, there is placed the compressor pump, driven by an electric motor. When a certain temperature has been reached up in the cooling coils, this motor starts automatically to drive the compressor, and the heat-laden gas is drawn out of the cabinet down into the compressor. Here it gives up its heat, either into the surrounding air or cooling water, it is cooled and is changed back to a liquid. It is returned to the cooling compartment of the refrigerator cabinet where it is held, to absorb more heat and to start again its cycle of cooling.

While the temperature in the food compartments must be kept above freezing, it will be considerably below freezing in the vicinity of the cooling coils themselves. Consequently, trays of water placed within the field of these coils, before long will hold a number of ice cubes, hard, crystal and pure as the drinking water from which they are frozen.

The home builder can purchase his electrical refrigerator complete, with the refrigerating mechanism built into the cabinet at the factory, or he can buy the refrigerating mechanism alone and use it in connection with an ice-box of his own selection, or perhaps one he already has. The chief requisite is that it shall be well-constructed and well-insulated, in order that no unusual amount of heat may leak into the cabinet and cause the mechanism to operate unduly.

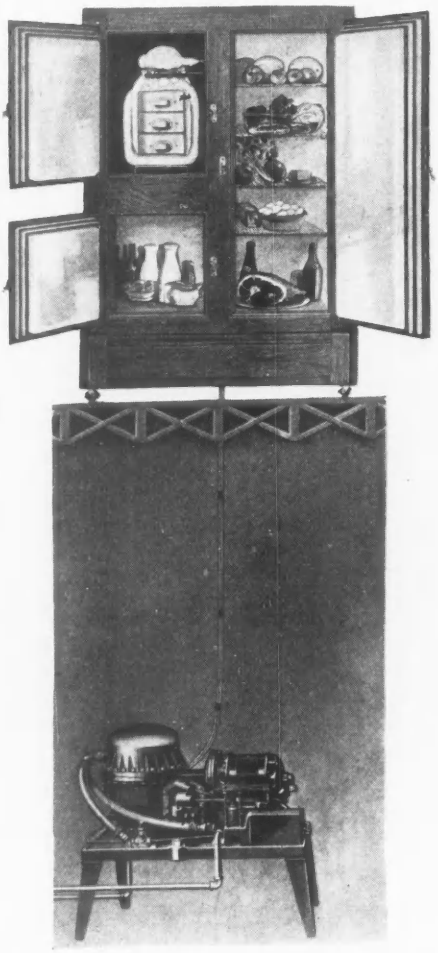
There are a good many thousands of these electrical refrigerators now in operation in the better-than-average homes of this country and of course a big question in the mind of the owner, when his new electrical refrigerator was started, would be, "What is it going to cost me to run it?"

The almost unvarying result has been—sometimes to his surprise—that it cost less to run than he was in the habit of paying for ice. Even if it had cost more, the owner and all the members of his household would declare that it is worth more and would have no complaint on that score. But it doesn't cost more and so they just accept it as another one of those blessed modern conveniences that keep coming along to make life more than ever worth living.

Electrical refrigeration is as nearly ideal refrigeration as the mind of the man has been able, so far, to imagine it. Clean, safe, dry and continuous cold, provided automatically and at small expense. Ice cubes in abundant quantity, pure and hard, and a variety of desserts that are frozen in the same ice trays where the cubes are frozen, these are just additional features that make the whole thing seem almost too good to be true.

But it is true. Electrical refrigeration is an accomplished fact, an achievement which everybody can accept without reservation. Reliable and responsible manufacturers are sponsoring its manufacture and distribution and they place back of their products guarantees of satisfaction which is added assurance to every purchaser. Well organized service organizations reaching all cities and towns offer additional guarantees for the continued and satisfactory performance of electrical refrigerators wherever they may be installed.

Electrical refrigeration has come to take its place along with the other features that go to make homes modern. Architects and builders of modern homes, if they have not already done so, may well adopt the slogan, which so many homeowners themselves have accepted, that "No home is modern without electrical refrigeration."



Here Is a Set of Cooling Coils Installed in the Owner's Ice-Box, with the Compressor Unit Placed Below, in the Basement.

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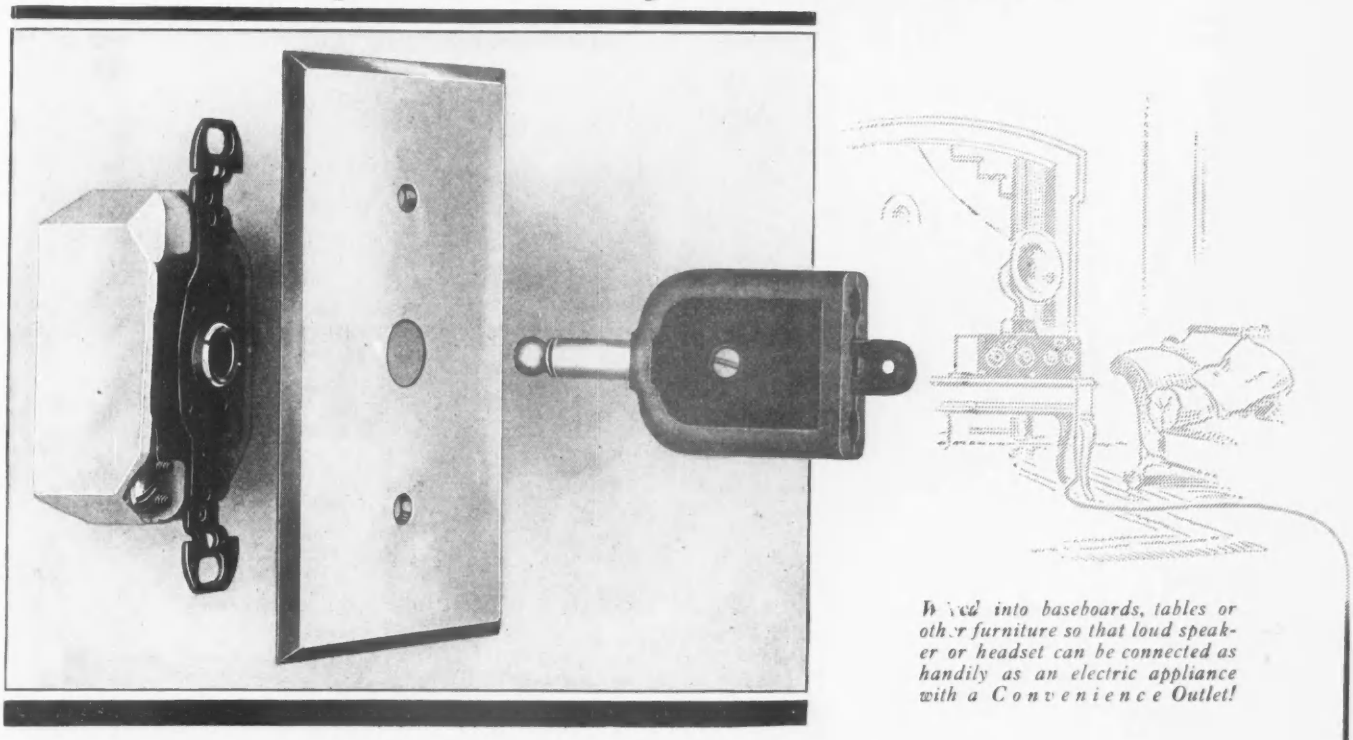
ARE the houses you plan and build really modern? Or are you still thinking and operating in the same old way? Electrify all your buildings.

H&H Radio Outlet

by the makers of H&H Switches



Wired into baseboards, tables or other furniture so that loud speaker or headset can be connected as handily as an electric appliance with a Convenience Outlet!

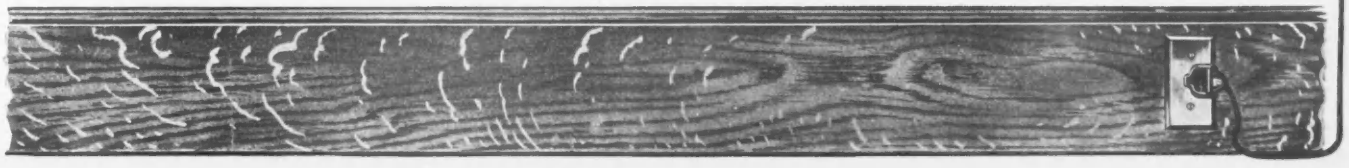
THIS brings Radio Service to *every room* in the hotel, apartment, hospital or any centrally-run building. Wires carry from a main receiving set to the H&H Wired-in Receptacle—and the user "plugs in" with his own loud speaker or headset, same as connecting with electric current through a Convenience Outlet!

You can make a *feature* of the Radio Receptacle in almost any public building where guests or tenants or customers should be entertained. In private residences, it allows extensions to childrens' nursery or to bedrooms.

Or, the Outlet will serve to transmit battery service to the guests or tenants, from a central storage battery operated and charged for by the management. This does away with individual battery upkeep, with the constant risk to interior finish.

In specifying, refer to the new Radio Outlet as Catalogue No. 2139, with Plate No. 2137. Build-in this most popular of *all* electrical service!—while it's *new*.

THE HART & HEGEMAN MFG. CO. HARTFORD, CONN.



Look Into the Wall!

New Portable X-Ray Outfit Quickly Locates Pipe, Wires and Beams

By G. BARTLETT

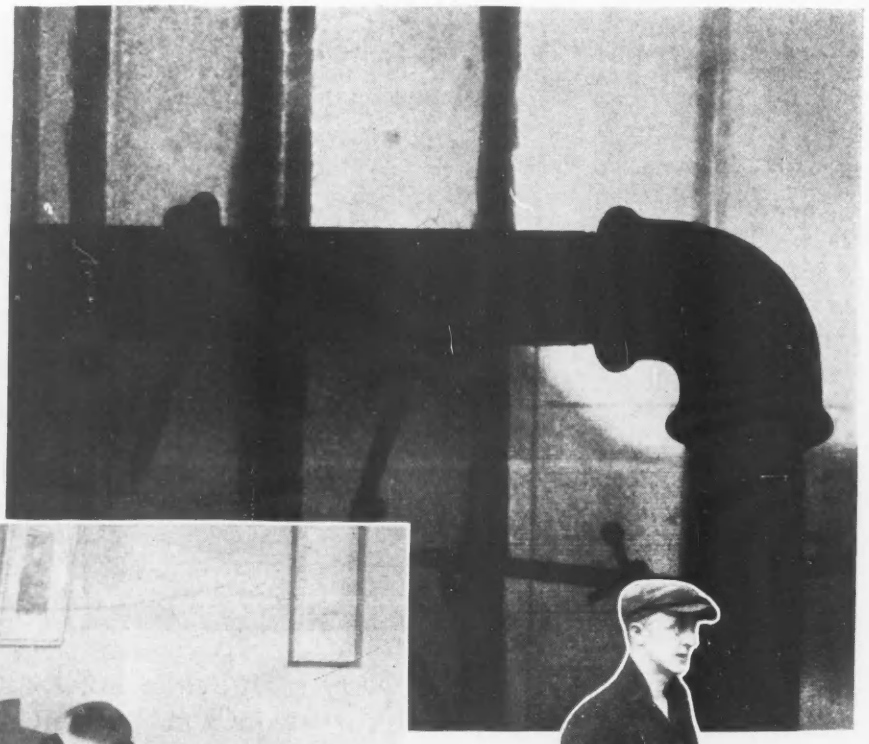
NO longer will it be necessary to guess at the location of pipes, wires and beams within walls or floors of buildings which are to be repaired or remodelled. In the research laboratory there has been developed a portable X-ray outfit which makes it possible to see within and through walls. The location of elbows in pipes, of main rafters and of wire connections becomes an easy matter.

Complicated arrangements of high voltage equipment and protective devices, making the use of X-rays a job for the specialist only, are no longer necessary. With the new equipment, developed by Dr. W. D. Coolidge and his associates, X-ray apparatus has been made indeed portable and safe. Complete in all of its details, the newest outfit weighs only 20 pounds, can be carried with ease, and is far from fragile.

All of the equipment is mounted in a small wooden carrying case. The resulting X-ray generating unit, with its compactness, ease of manipulation, and freedom from external electrostatic field, seems especially well adapted for special uses in the trades, and in numerous lines of physical investigation work. It is merely necessary to connect an ordinary extension cord in the nearest socket of the house circuit. X-rays are then produced merely by pressing the switch. There is no high-voltage hazard since the outfit is ground to the container.

There recently arose a case where a contractor needed to know the location of pipes and timbers within the floor of a home in Schenectady. The necessary information was quickly obtained with the outfit. The apparatus was placed on the floor of the room below, with an operator, and the observer in the room above was able to study the floor with a flourescent screen. The pipes and timbers were easily seen.

Below: How a Typical Wall Looks in an X-Ray Photograph. Very handy for plumbers, electricians and other building mechanics.



A Portable X-Ray Outfit Has Been Perfected So Simple, Light and Handy That Plumbers and Other Building Mechanics Can Take It Out Onto the Job and Look Right Into Any Wall

CORRESPONDENCE

Questions Answered—Ideas Exchanged

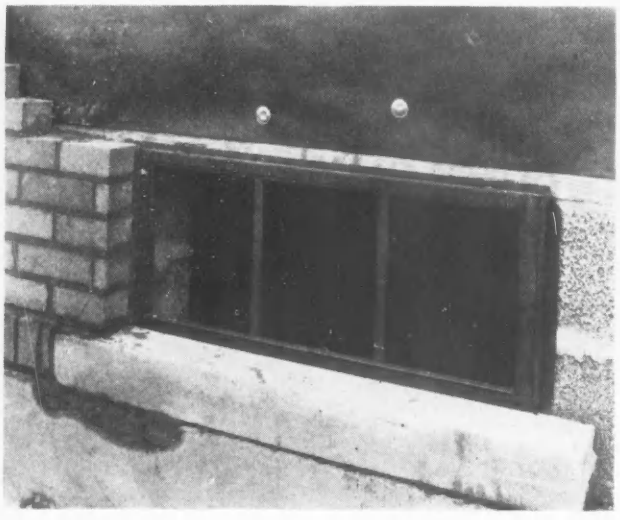
How to Set Steel Cellar Sash

To the Editor: Detroit, Mich.

On this page is shown a very good installation of a steel casement window in a cinder block wall, with brick facing. In view of the growing popularity of cinder block construction, this subject should be of considerable interest.

In laying up the blocks, the mason leaves an opening just large enough to receive the window. The sill is then set and the window dropped into place in a bed of mortar, and the brick veneer laid up around it.

The jamb construction is clearly visible on the right side,



Steel Cellar Sash Being Made Into Cinder Block-Brick Veneer Wall.

showing both the wide fin which laps over the opening and provides a solid bearing surface, also the narrow fin which acts as a guide in laying up the outer course of brick. A glance at the left side of the window, where the veneer is complete, shows what a neat, weather-proof joint is possible.

R. D. Hughes,
Detroit Steel Products Co.

✣

Answers to Roof Framing Problems on Page 186

1. Rise per foot run = 10 inches.
2. Pitch is 39 degrees and 48 minutes.
3. The "length per foot run" = 15.62 inches.
4. The length of the rafter is 15.62 inches × 11 = 171.82 = 14 feet — 3 13/16 inches.
5. The length of the rafter if a ridgeboard is used is 15 feet—3 13/16 inches less 1 1/16 inches = 14 feet — 2¾ inches.
6. The numbers 12 and 10 taken on the square give the plumb and seat cut of the rafter.
7. Top cut by degrees is 50 degrees 12 feet.
8. Total area in plan is 26 × 40 = 1,040 square feet.
To this must be added 1,040 × .301 = 313.040 square feet.
Total area of roof = 1,040 + 313 = 1,353 square feet.

What Size for Economy in Home Building?

To the Editor: Palmetto, Fla.

I am sure it is very gratifying to most of us to note the marked approval that our nation as a whole is giving the "Own Your Home" idea. The magazines and newspapers are featuring this idea with plans and figures with the result that a large per cent of our salaried people are really putting forth an effort to own their home. We notice so many of them studying plans, observing houses and getting estimates with the view of building and owning their home, which is the most important thing in my mind for a happy married life.

Many of these people are inexperienced and have no knowledge whatever as to how to buy material, make estimates, plans, etc. Now as the foremost question that arises is: what will the house cost? they commence at the start to eliminate all unnecessary expense. So first of all they dispense with the services of an architect or even a good set of plans. Their ideas are formed which are invariably too large and these are reduced in an effort to get a plan that will be commensurate with their income, and still be livable. Some drop the idea entirely while others try to put it over with the result that they get a house that is too small for anything. They can scarcely live in it themselves and much less sell it if the time should come when they would have to sell. The house is nothing but a bunch of doors and windows, flower boxes and brackets.

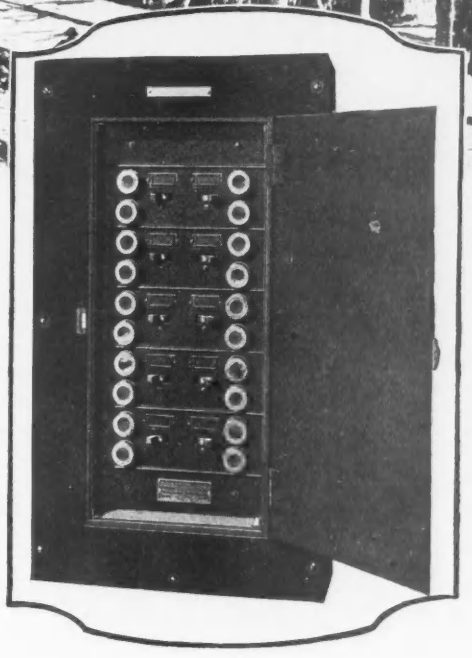
I have been in hundreds of houses and observed that they could have been made quite a bit larger with only a slight additional cost. The chances are that the builders of these homes are misled by an inexperienced contractor or carpenter or did not have any one to lead them at all. There are lots of carpenters who can do good work under the direction of some one else, but when left alone they are helpless. Likewise there are contractors that can put up good buildings if they have plans to guide them, but to make the plans themselves they are lost.

In designing a house there is a point where we get the maximum amount of floor space, so to speak, for a minimum cost per unit, and this is the point to look for. It is needless to say, everything being equal, the larger a house is, the more it will cost. It is also a fact that the increase in cost is not in proportion to the increase in size. I have in mind a little house that cost $2,000, made up roughly as follows:

Material	$1,000.00
Labor	500.00
Plumbing	250.00
Wiring	75.00
Painting	175.00

This is a nice little five-room plan 24 by 42 feet exclusive of a front porch, but it was too small. Being in the lumber business and somewhat interested, I decided to figure out as near as I could what it would have cost to have made this house 2 feet wider. To my surprise I found that the extra two feet the full length of the house would have cost only about $50.00 extra. This would be one-twelfth larger house for one-fortieth the cost. However, if we take into consideration the cost of the lot, garage, cement walks and other improvement amounting to around $1,000.00, the extra two

Hotel Van Curler, Schenectady, N. Y. H. L. Stevens & Co., Architects & General Contractors



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means quick shipments and moderate prices.

For hotels, apartment houses, large residences and similar buildings the requirements for adequate electrical service can readily be met with

G-E Narrow Unit Panelboards

These high grade safety type panelboards for moderate duty sell at the price of live front types.

The principal features are:

Three-wire mains, with two-wire double branch circuits controlled by 30-amp. light duty tumbler type switches and arranged for Edison plug type fuses.

Main buses supplied with terminal lugs or unfused safety switch at the bottom or fused or unfused knife switch at the top of the panel.

Inspected and approved by the Underwriters' Laboratories.

Complete specifications, list prices, dimensions and weights are shown on descriptive sheet 67000-A, a copy of which may be obtained from our nearest office.

22-2

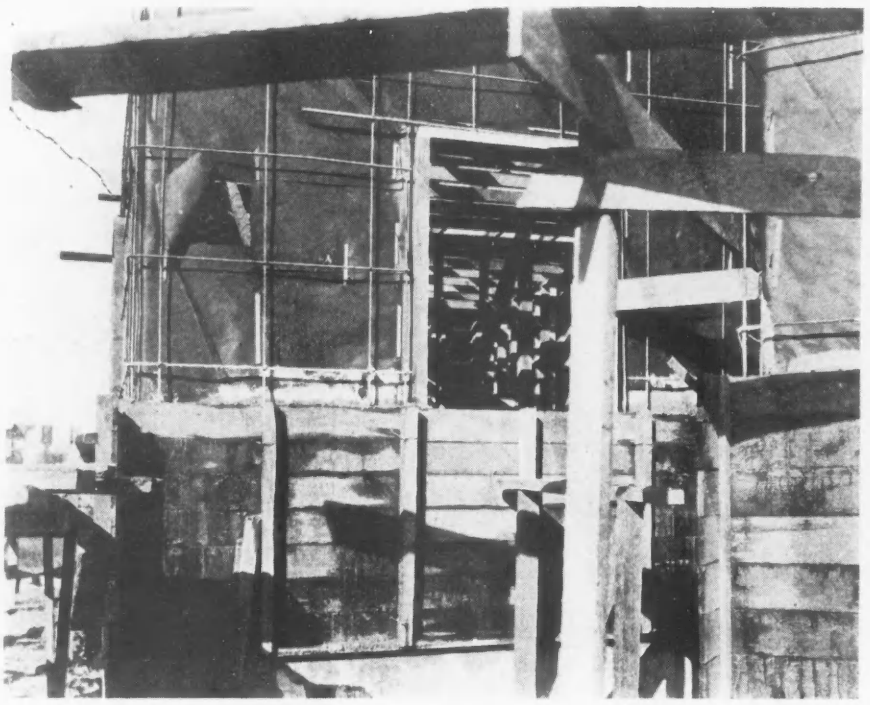
GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN ALL LARGE CITIES

feet to the house mentioned above will give one-twelfth larger house for one-sixtieth more money.

In practically every house there are some items of cost that remain the same regardless of the size of the house. For instance, the front door will cost the same whether the house has five rooms or six rooms or whether the rooms are 9 by 10 or 12 by 14 feet. Likewise there are other things such as doors, windows, locks, hinges, frames, plumbing and wiring that must cost a certain price whether the house be 24 feet wide or 26 feet wide. Now, then, since these items just mentioned represent a large percentage of the cost of a house, so long as we keep them constant, would it not be wise to build as large a house as possible while keeping within the limits of good architecture?

This same idea could be applied to the height of the ceiling as well as the floor space. So many houses nowadays are being built with 8-foot studs. If one will figure the difference in the cost of a house with a 9-foot stud over that of a house



View During Construction Showing Forms and Reinforcing for Fluor's Concrete Veneer.

with an 8-foot stud I think it would be found that this difference would be negligible when compared with the comfort of the 9-foot house, especially in warmer climates.

A. T. Brandon,
Palmetto Lumber Company.

✣

Fluor's Reinforced Concrete Veneer

To the Editor: Los Angeles, Calif.

Fluor's reinforced concrete veneer was created to enable anyone to have a good substantial building at a reasonable cost. A building, whether it is a home, apartment, school, store, or office that will stand all sorts of weather, is indestructible, easy to heat in winter and always cool in summer, also is quake and soundproof.

It is applied to frame structures, the only change necessary from ordinary work to provide larger foundations.

Concrete veneer can be finished any color or texture, depending on the requirements.

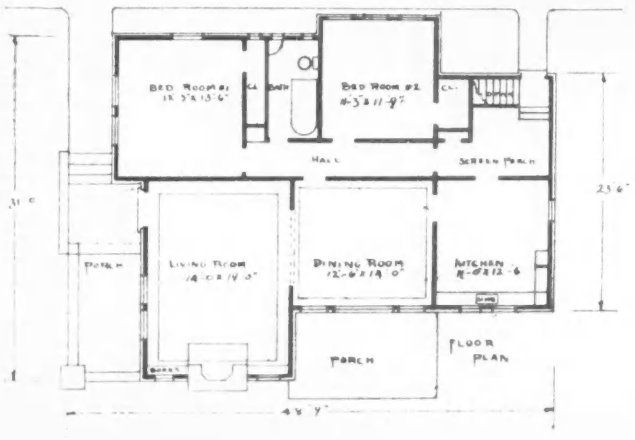
Owing to the nature of the inexpensive and easily placed inside mold and the fact that skilled mechanics are not required is the reason that the cost is not much more than an ordinary stucco.

Everyone knows that reinforced concrete is indestructible, so why not protect your frame work with this inexpensive and permanent exterior?

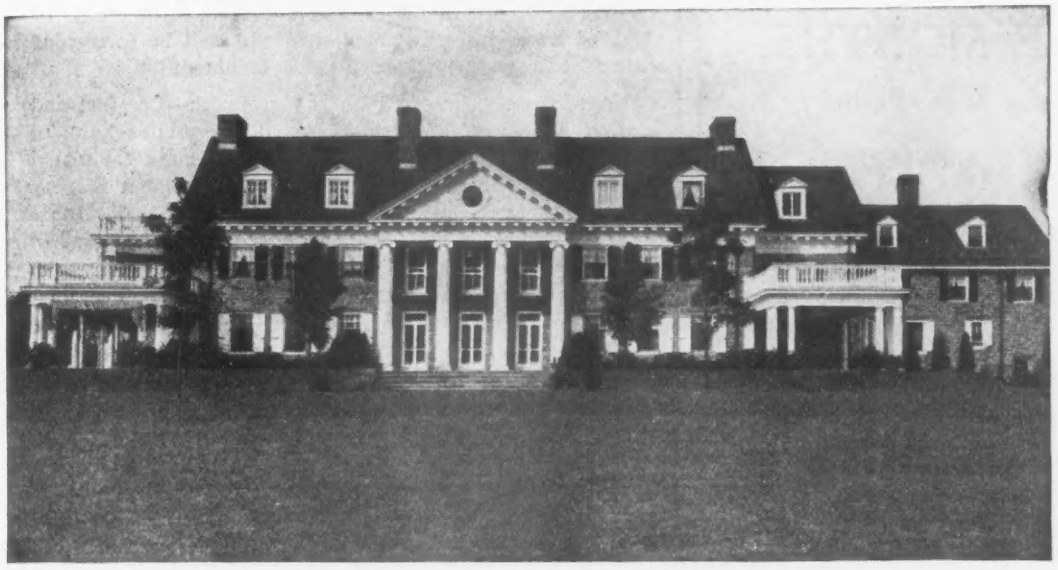
J. Simon Fluor,
General Contractor.

✣

NAIL-SETS and other small tools, when they drop between studdings or into other places where it is impossible to get to them, can be found and lifted out by lowering a magnet into such places with a cord. Hand-axes and hammers can also be lifted in the same way with a strong magnet.



Photos and Floor Plan of Beautiful Spanish Bungalow Built by Contractor Fluor Near Los Angeles. An example of his reinforced concrete veneer.



Residence of Louis Rozman Page, Villa Nova, Pa., Brockie & Hastings, Architects, another of the many fine homes equipped with a McCray Refrigerator.

Most Important of All in the Home

When you build a new home, the most important considerations of your client are comfort, convenience, health Consider for a moment how much a McCray refrigerator enables your client really to enjoy his home. Also McCray equipped homes are easier to sell.

By keeping foods pure, wholesome and fresh, the McCray assures wholesome, palatable meals—protects the family's health—and does all this efficiently, economically, conveniently.

The McCray can be used, without change, with either ice or mechanical refrigeration. Outside icing features, originated by McCray, available if desired.

Not only in homes of the finest type, but in hotels, clubs, hospitals, florist shops, stores and markets, McCray is the recognized standard. McCray builds refrigerators for *all purposes*.

Send for our latest catalogs for your files. McCray builds to order to meet any requirement and will gladly cooperate with you in every way possible. *Free Blue Prints* of suggested equipment will be provided. Simply send a sketch of your client's requirements.

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You'll find it on the refrigerator equipment in the better grocery stores, markets, restaurants, hotels and in homes. This name plate gives positive assurance of fresh, wholesome foods.

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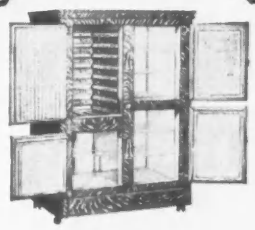
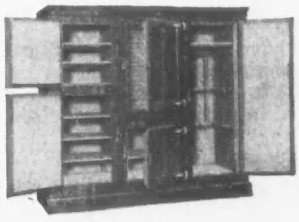
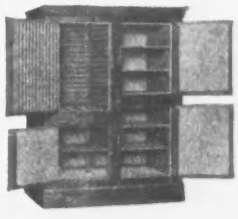


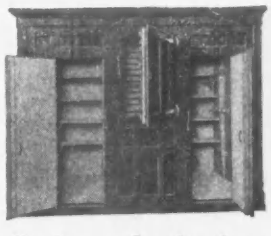
For Residences



For Hospitals



For Clubs, etc.



For Larger Institutions

OVER $1600 PROFITS IN THREE MONTHS

Made by J. A. Thomas of Montgomery, Ala.

The manufacturers of the "American Universal" floor surfacing machine are constantly receiving letters, similar to the one quoted below from men who have gone into the floor surfacing business the "American Universal" way. We thought the story of Mr. Thomas might prove of interest to a great many men who find themselves out of work during the cold winter months and other slack business seasons.

"I'm keeping my 'American Universal' busy all the time. As soon as I finish one job there is another waiting for me. It keeps me busy but I don't care as long as I can pull down $176.11 on one job like I did last week.

"I have had my 'American Universal' for three months now. In balancing my accounts tonight I find that I have made $1,653.44 clear money since I started in the business, which amounts to over $100.00 per week clear profit for me and my 'buddy'—the 'American Universal.'

"I surfaced four bowling alleys yesterday and had twelve calls during the day to go out and look over old floors and make prices on work of resurfacing and finishing them.

"I went out today while my operator was working and contracted for five of the jobs, and never missed a prospect.

"One contractor told me not to wait for orders from him but to go on the job and watch the houses and when the floors are ready to surface, to get on them. He told me to measure up the jobs and send the bills to him as the floors were finished. This fellow is not a big contractor but he builds about four houses a month, averaging about a thousand square feet to the house, which is not a bad customer to have on my books."

The manufacturers of the "American Universal" electrically driven floor surfacing machine with which Mr. Thomas and so many others have made such remarkable earnings, will gladly supply the readers with full information regarding how this machine can be secured on a five-day trial so that any carpenter can fully convince himself as to whether or not he wants to buy a machine. The Company is willing also to supply a lot of other valuable information regarding the floor surfacing business, all of which will be furnished without any obligation whatever to those inquiring. Address all mail to The American Floor Surfacing Machine Company, 515 South Saint Clair Street, Toledo, Ohio. For further information see advertisement on page 161 this issue.

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

"Your Home—How to Plan It for Health—Comfort and Lasting Economy" is a beautiful and informative book of 48 pages and covers just issued by The Celotex Company, 645 North Michigan Avenue, Chicago. A number of very attractive home designs by The Architects' Small House Service Bureau are presented in two colors. The story of Celotex and how to use it is told.

"Lumber Data Filing Folder" is an attractive container for a series of information sheets on California White Pine and California Sugar Pine which the California White & Sugar Pine Manufacturers' Association, Call Building, San Francisco, Calif., is sending to architects and contractors. It is of standard size for vertical filing.

"Heat Insulation for Houses" is a book of 24 pages and covers, published by the Flaxlinum Insulating Company, St. Paul, Minn. It is written to appeal both to the practical man and to the scientist or engineer. Considerable data on the heat transferred through various types of walls and roofs with and without insulation are presented.

Berloy Metal Lumber and Metal Lath for light, strong, fireproof construction is featured in an illustrated circular prepared by The Berger Manufacturing Company, Canton, Ohio.

"Boss Hoists" are illustrated in an 8-page, 2-color catalog issued by The American Cement Machine Company, Inc., Keokuk, Iowa. This line of hoists includes single and double drum hoists and also the popular Boss Fordson Winch.

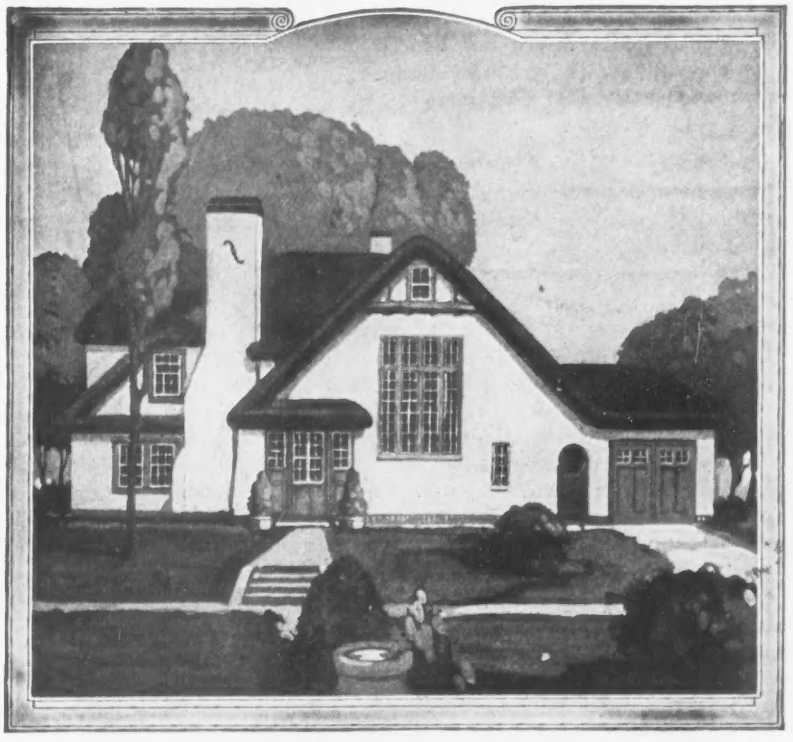
"Skintled Brickwork" is the subject of Vol. 1, No. 1, Brickwork Working Details, prepared by The Common Brick Manufacturers' Association, Cleveland, Ohio. This is a pamphlet of close-up photographs showing just how the various rough and shaggy effects are produced with the use of common brick and mortar which have become popular among Chicago architects.

"The Water Supply for Swimming Pools" is a bulletin of 20 pages prepared by the Graver Corporation, East Chicago, Ind. It presents useful data on the design, construction and operation of swimming pools with special reference to keeping the water in proper condition.

"Standard Electrical Dictionary," by Prof. T. O'Conor Sloane, with additions by Prof. A. E. Watson, has just been published by the Norman W. Henley Publishing Company, 6 west 45th St., New York City. Price $5.00 a copy. This is a newly revised and an enlarged edition of this standard work. A dictionary of radio terms has been added.

"Library Buildings," by Chalmers Hadley, published by The American Library Association, 86 E. Randolph Street, Chicago. Here's a book of 154 pages, substantially bound with hard covers and containing a large number of photographs and plans of Public Libraries of small to medium size, together with general notes on the planning and equipment of library buildings. It will be of great value to architects and builders.

"The Properties and Uses of Wood," by Arthur Koehler, The McGraw-Hill Book Company, Inc., 370 Seventh Avenue, New York City. Price $2.50. Mr. Koehler is in charge of the office of Wood Technology, Forest Products Laboratory, U. S. Forest Service, Madison, Wis. In this book of 354 pages, he presents many of the practical results of the laboratory's work. The chapters on air seasoning of wood and kiln drying will be especially valuable to AMERICAN BUILDER readers.



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"Structural Engineers' Hand Book," by Milo S. Ketchum, The McGraw-Hill Book Co., Inc., 370 Seventh Avenue, New York City. Price $7.00. 1,066 pages, leather flexible binding. This is the third edition, enlarged of this standard book of data for the design and construction of steel bridges and buildings.

"Seasonal Operation in the Construction Industries," The McGraw-Hill Book Company, Inc., 370 Seventh Avenue, New York City, price $2.50. This book of 214 pages presents the report and recommendations of a committee of the President's Conference on Unemployment. It makes out a strong case for winter building activity. Contractors desirous of continuous operation the year round will find a quantity of useful information in this book.

The Hawthorne Concrete Roofing Tile Machine as offered by the Concrete Tile Machinery Company, 2136 S. 48th Avenue, Cicero, Ill., is featured in an illustrated catalog which not only shows the machine, but also the different styles of roofing tile which it automatically produces. The cost of operating a plant and the prospect for sales and profits are well worked out.

"Consider the Windows" is a very inspiring little booklet, 48 pages, in colors, presented by David Lupton's Sons Co., Philadelphia. By means of photographs and architectural drawings and appropriate text, the story of Lupton's Steel Windows is told.

"Architectural Monographs on Tiles and Tile Work," published by the Associated Tile Manufacturers, Beaver Falls, Pa. The second of this series is devoted to the Ceramic Architecture in Ancient Egypt, Babylonia and Assyria. The text is by Professor Rexford Newcomb, of the University of Illinois. The illustrations are both in full colors and in black and white, and together with the text are exceedingly interesting.

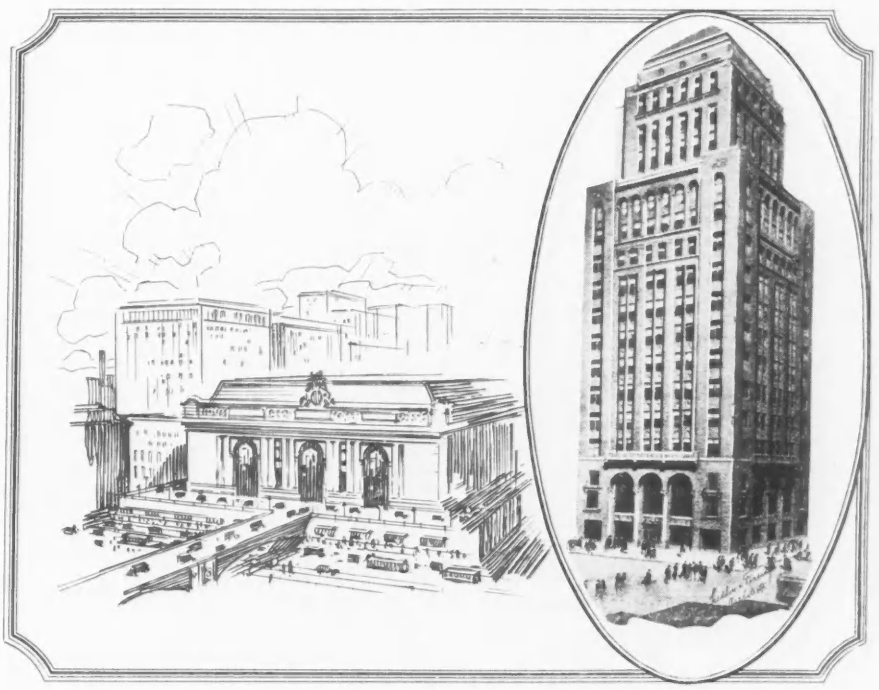
The Heart of the Heating Plant is the claim advanced for their thermostat by The Minneapolis Heat Regulator Company, Minneapolis, Minn., in a new catalog of 32 pages and covers, which fully describes the operation of this thermostat and its high-grade construction.

"Drafting Room Mathematics," by DeWit C. Pond; Charles Scribners Sons, 597 Fifth Avenue, New York City; price $2.50. Explains in a simple, straight forward way, the problems usually encountered in the architectural drafting room. 154 pages, numerous illustrations and diagrams, bound in cloth hard covers.

"Factory Floor Surfaces" is a text book prepared by A. B. MacMillan, chief engineer, The Aberthaw Company, construction managers, Boston, Mass., and published by this company. While this book carries a price of $1.00, it is intended for free distribution to engineers, builders and industrial owners. It takes up various types of factory flooring as constructed by The Aberthaw Company in their more than a quarter of a century's experience.

Hornet Mantels. A beautiful catalog of 48 pages showing Hornet Wood Mantels in Colonial and period designs, also their fireplaces of Batchelder Tiles and their line of fireplace furniture, andirons, screens, gas logs, etc., is presented by The Hornet Mantel & Tile Company, St. Louis, Mo.

"Timbers—Their Structure and Identification," by W. S. Jones, the Oxford University Press, American Branch, New York City; price $5.00. A text book for an advanced course in the microscopic study of the various species of timber. 148 pages bound in cloth, hard covers.



More People Visit New York than Any other City in the World—More than Half of These Arrive at the Grand Central Terminal, Only One Block from This Building

More than 30,000 keenly interested homebuilders, now actually putting their savings into the Building and Loan Association each month, will pass through the Homebuilders Exhibit in reaching the bank personally to make their monthly deposits. The home-building program of these people alone will represent a total expenditure of nearly $400,000,000 in cost, in homes costing from $3,000 to $25,000.

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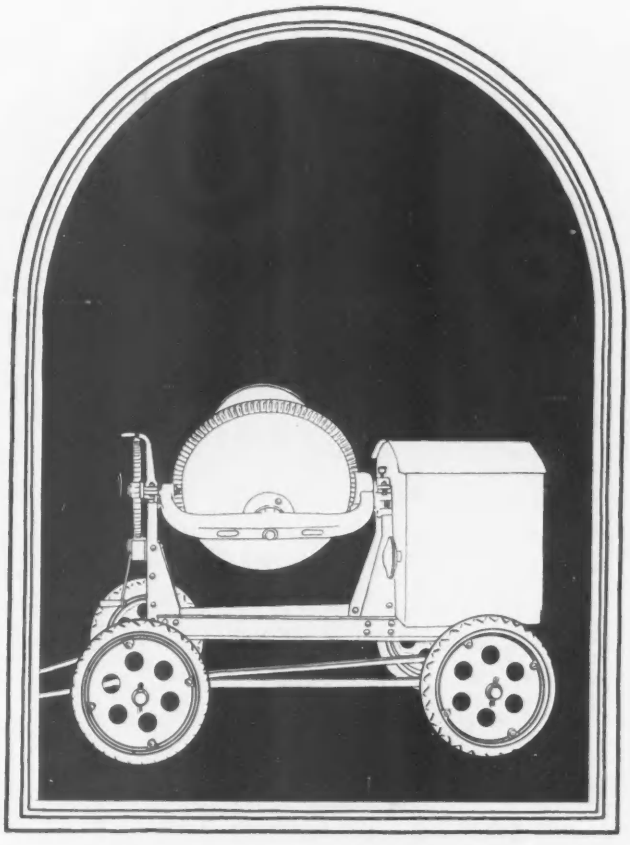
"Concrete Products—Their Manufacture and Use," by Wallace R. Harris, managing editor, Concrete Products, published by the International Trade Press, Inc., Monadnock Block, Chicago. Price $3.00. This is a book of over 600 pages of handy pocket size, leather bound. This book presents the complete story of concrete products, taking up the matter of plant layout, the manufacture of block, brick, ornamental and architectural units, drain tile, irrigation and culvert pipe, light standards, fence posts, etc., also methods of testing and of approved construction. Standard specifications for various types of concrete products and also a model building code with respect to concrete products are included.

"Practical Brick Laying," by Howard L. Briggs, revised and enlarged by William Carver, architect, The Common Brick Manufacturers' Association of America; published by the McGraw-Hill Book Company, Inc., 370 Seventh Avenue, New York City; price $1.75. This is a well arranged book in text book form, suitable for classroom work and for the use of brick mason apprentices. 224 pages well illustrated with both photographs and drawings and well arranged for ready reference.

Details of Space Saving Lavatory. The Invisibowl Manufacturing Corporation, 38 S. Dearborn St., Chicago, has prepared a set of layout sheets and details showing how to provide for the installation of the Invisibowl, that ingenious disappearing lavatory that requires only 4 inches depth of wall to conceal it completely.



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THE Leach-Oshkosh "half-bag" tilter is a new addition to an old established line of building and paving mixers. It represents an investment in sound mixer value for the contractor who has a definite need for a small, portable, reasonably priced machine—a mixer that will yield highest satisfaction at lowest cost over an extended period.

In this tilting model is incorporated the same high standard of manufacture that has been rigidly maintained by the Leach Company ever since entering the manufacturing field over half a century ago.

Long experience in the mixer industry has enabled the development of a tilting mixer to meet every requirement. A special blading system together with the large capacity of the mixing drum has been carefully developed to provide a thorough and perfect mixing action. The hot riveted, all steel frame has surplus strength and rigidity, yet lightness and perfect balance. Bronze bushings with oil reserve chambers protect all important bearings against possible neglect.

Regardless of size or type, each mixer built by Leach represents the highest development of Leach design and construction.

Full information on any model or detail will be promptly furnished on inquiries to the factory or nearest office.

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