

AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER

Vol. 39.

CONTENTS FOR JULY, 1925

No. 4.

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PROTECTION FOR OUR READERS—The publishers of the AMERICAN BUILDER reserve 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.

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AROUND THE FAMILY TABLE



Urges Use of Standard Lumber

"STANDARDIZATION of lumber sizes and grades," says a bulletin from the Central Committee on Lumber Standards, "is, above everything, a quality guarantee for the house builder as well as for the general lumber user. After more than two years of exhaustive study by experts in government offices and laboratories as well as by engineers employed by the great commercial lumber manufacturers, American lumber standards have been adopted by makers of lumber and officially endorsed by the Departments of Commerce and Agriculture. All this has been done to improve the product and insure uniformity.

"Having provided American standard lumber that meets every requirement, it is now squarely up to lumber users to take full advantage of this great industrial achievement. Unless consumers of the product demand and secure lumber made upon standard specifications now sold almost everywhere, lumber satisfaction cannot be guaranteed by manufacturers. The Central Committee on Lumber Standards, created under Secretary Hoover's supervision, is now engaged in impressing upon the lumber-buying public the necessity of co-operation in putting lumber standardization into universal practice."

Engineers Inspect Stadium

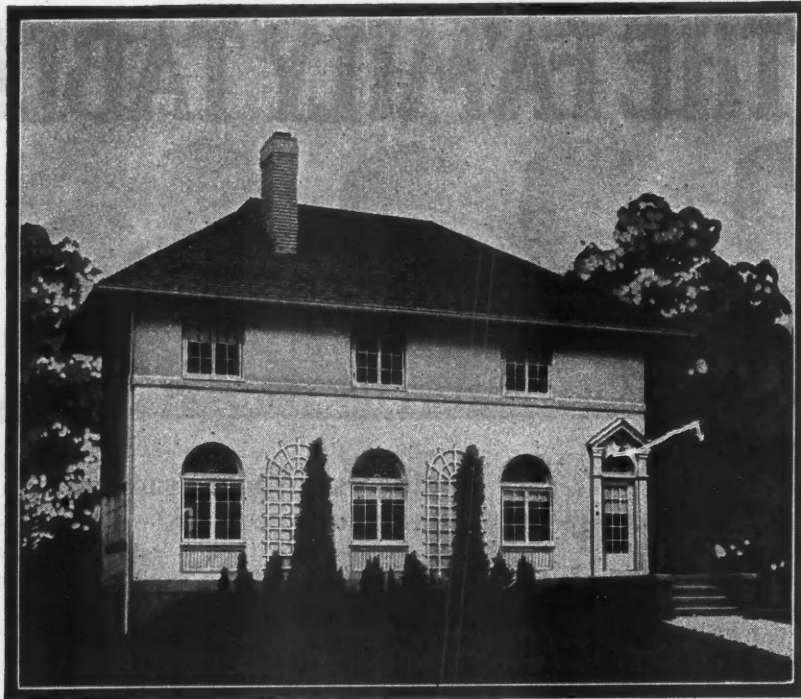
FORTY-THREE of the leading subway engineers of the country recently met at Pittsburgh, Pa., as guests of the Blaw-Knox Company of that city to visit the company's factory and inspect the construction of the new University of Pittsburgh stadium. The principal interest in this work centered in the use of the Blaw-Knox inundation system in the making of concrete.

A number of interesting features and engineering problems are involved in the construction, one of which is the building of a 220-yard straightaway track which begins in a tunnel at one side of the stadium and ends in a tunnel at the other side. There will be a seating capacity of 70,000 which can be increased by 30,000 if required. Twenty thousand cubic yards of concrete and 1,000 tons of reinforcing steel are used as well as 2,200 tons of structural steel in the superstructure.

Part of the stadium is supported on a structural frame and part on the ground, the concrete piers piercing a coal mine on the way to solid rock. These piers are insulated from the danger of burning coal by means of shale. It is figured that if the seats in the completed structure were placed end to end they would extend a distance of 17 miles.



Group of Prominent Engineers Assembled to Inspect the New Stadium of the University of Pittsburgh.



Residence Farrington Road, E. Cleveland, Ohio. Owners and builders: The Joseph Larong Co. Architect: Jos. L. Weinberg. Bishopric used on the Interior and Exterior.

THE DRUM



Bishopric Stucco is shipped in hermetically sealed metal drums. There is no waste or deterioration in storage and you are assured of absolutely fresh new material. The Roll and the Drum meet with the endorsement of architects, builders and satisfied home-owners throughout the world.

THE ROLL



Bishopric Base comes to the building operation in large rolls containing 100 square feet. It is easily handled, quickly cut to desired size without waste—Bishopric Base saves 25% in plaster or stucco material and increases the strength of the building.

This Wall Meets Every Test

Ease of Application, Speed of Construction
Beauty, Economy, Permanency

Builders, Architects and Contractors everywhere recommend Bishopric Stucco over Bishopric Base because they know they are getting full value for their money in every respect. They are buying not only reliable, trade-marked materials, but every roll of Bishopric Base and every drum of Bishopric Stucco delivered on the job means **economy** because they are so easily and quickly handled.

Bishopric Base saves mortar and is applied to the wall quicker than other materials **without waste**. Bishopric Stucco is so easy and smooth under the trowel that more and better work is done in far less time.

The beauty of Bishopric Stucco in color and texture means increased business for the builder because every job sells another.

Just one word more: Bishopric is built to endure and that is just the best reason why each time you use Bishopric you get a new and better reputation for good building.

Let Us Send You the Story of Bishopric

"Bishopric For All Time and Clime" beautifully illustrated comes to you for the asking. It opens to the builder an avenue to the ideal structure—ideal in beauty, permanency and living comfort. Send for it today.

Bishopric is sold by Dealers Everywhere

The BISHOPRIC MANUFACTURING CO.
5 ESTE AVE. CINCINNATI, OHIO.
NEW YORK CITY CINCINNATI OTTAWA, CANADA
The BISHOPRIC MFG. CO. OF CALIFORNIA
LOS ANGELES

BISHOPRIC STUCCO *over* **BISHOPRIC BASE**

"A Complete Wall Unit for all Time and Clime"

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

See how it Locks the Stucco

Bishopric Base is first nailed securely to the studding of the building—a Bishopric nail to every wood strip at every bearing point.

Bishopric Stucco is first dry-mixed. Then nothing is added but clear water. Bishopric Stucco works up to a uniform mortar and is easily laid on because it works so smoothly. Plasterers everywhere enjoy putting on Bishopric Stucco because of its unexcelled smoothness and uniformity.

The mortar goes over and in between the wood strips and locks into an inverted wedge clasp.

Note how the wood strips of Bishopric Base are embedded in a tough layer of asphalt mastic on a wood fibre background. This forms an asphalt curtain which effectively shuts out moisture, heat, cold and vermin.

AMERICAN BUILDER



Formerly AMERICAN CARPENTER AND BUILDER

Tax Revision Needed

PERSISTENCE of old trade practices, poor merchandising methods and over-production were designated as the chief causes of waste in the lumber industry by John W. Blodgett, before the annual meeting of the Chamber of Commerce of the United States. Concerning over-production, Mr. Blodgett spoke in part as follows:

"It is when we approach the third cause of waste—namely, over-production—that we are up against a real problem. Perhaps the first question to ask is, what is the urge that impels men to sacrifice property which they cannot replace in the face of almost certain loss, or at least with no promise of a fair profit?"

"The hazard of forest fire is often an important factor, but the answer lies more in the peculiar conditions surrounding the manufacture of lumber. It is chiefly the urge of the increasingly heavy annual property tax, pyramiding year after year.

"Cutting timber to meet the reasonable needs of consumption is economy; cutting it to avoid confiscation of capital values in waste; but it is a waste due in this case not nearly so much to the voluntary act of the timber owner as to an unwise method of taxation."



Building Costs Are Stable

ALL existing records for volume of construction work under way in the United States during a single month were shattered in May, according to statistics compiled by the Associated General Contractors of America. The May volume was 26 per cent greater than that of April, reflecting the great volume of contracts awarded during the two preceding months. The amount of construction activity during the first five months of this year is being taken as an indication that 1925 will set a new twelve-month record.

The cost of construction in the principal centers of the United States remains stationary during May, being exactly double that of 1913. The fact that costs have not increased as a result of the heavy volume of contracts awarded in March is being viewed as a marked assurance of the present stability of the construction industry.



Save Short Length Lumber

IN a recent survey, conducted by the National Lumber Manufacturers' Association, the production of short length lumber during 1924 was estimated to be slightly more than three million board feet, according to a statement by Arthur T. Upson, Lumber Standards Advisor of the Association, formerly of the U. S. Forest Products Laboratory.

Of this the longest, shortest and mean length of short lumber saved for all species averaged 7, 3 and 5 feet, respectively, though some manufacturers do not save lengths shorter than 10 feet.

It is significant that in ordinary house construction many of the short lengths could be used to a far greater extent. It is almost universal to cut the short pieces used around windows and doors as backing for the lath, braces for

floors, roofs, etc., from 16 to 18-foot lengths with considerable waste. Material for these purposes could be obtained from short lengths with little if any greater waste.

Lumber manufacturers sell these lengths at a lower price than strictly long lengths. Thus not only is an inducement held out to the dealer to buy shipments containing short lengths, but also he is able to buy high quality lumber at a lower price than long lengths.

Without doubt a sound and economic policy of production, distribution and consumption of short lengths lumber would reduce by one-tenth or more the amount of standing timber which must annually be removed from the forests in order to supply the present lumber demand. This would amount to enough material to build over 300,000 eight room homes each year.



Single Family Houses Gain

A STUDY of home building in the principal cities of the United States has recently been completed by the Department of Labor. This study, which was based on the building permits issued for 1924, shows an interesting development in the type of construction which now predominates.

Of all buildings erected for dwelling purposes 47 per cent were of the single family type, 29.6 per cent were apartments, 19.3 per cent were double houses and 4.1 per cent were apartments or double houses combined with stores. This percentage of single family houses shows a decided increase over that for 1923.

There is apparently a growing tendency for city residents to build single family houses as contrasted with the rapid apartment house development of recent years. It is likely that this tendency will increase as automobile roads, and other means of transportation from suburbs to metropolitan centers, are extended and improved.



Normal Prosperity

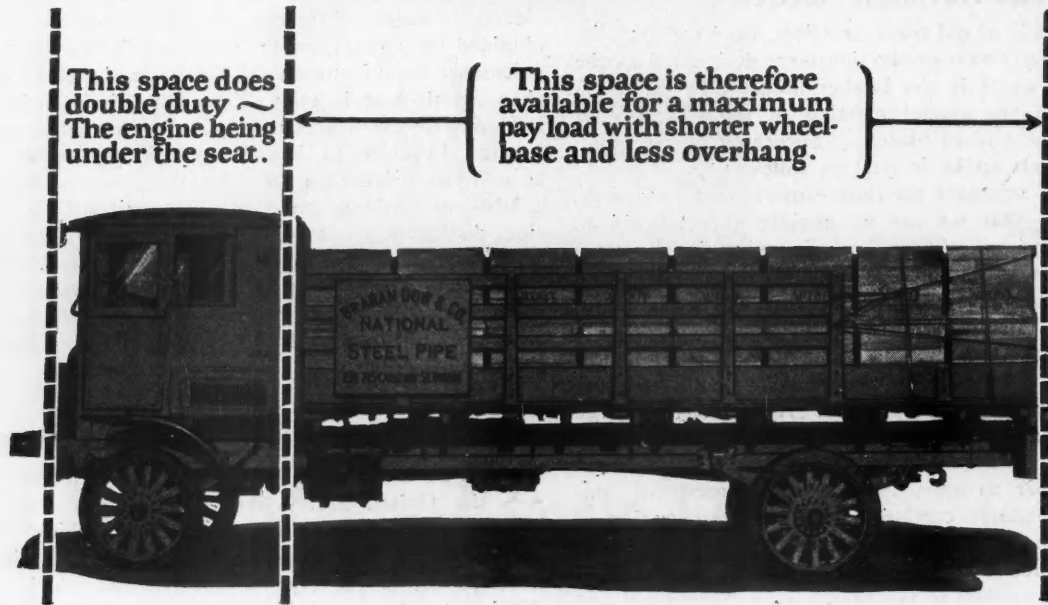
"MEASURED by any reasonable standard, business has been good since the first of the year, is good today, and will continue to be so unless quite unforeseen changes should take place in underlying factors," says an editorial in the last issue of Commerce Monthly, published by the National Bank of Commerce in New York City.

This statement from one of the leading financial and business authorities is encouraging in view of the fact that many people have been disappointed in the failure of the expected boom which was predicted. Present conditions are preferable to boom conditions, for the latter are always followed by a reaction which destroys whatever benefits may have been derived from the preceding boom. Stabilized prosperity, such as now exists, is most desirable.

In view of the fact of present stabilization the activity of the building field may be considered entirely healthy and no slump need be anticipated. This, in spite of the fact that certain prophecies have been made that the building shortage had been eliminated and building would subsequently fall off to a serious degree.

Prosperity is here on a normal basis and it is here to stay.

Waste space eliminated by Autocar construction



This space does double duty ~ The engine being under the seat.

This space is therefore available for a maximum pay load with shorter wheelbase and less overhang.

THE distinctive Autocar engine-under-the-seat design is what makes possible the shorter wheelbase that always gives sturdy Autocar trucks the valuable advantage of maneuverability in and around building operations.

The Autocar Company, Ardmore, Pa.

ESTABLISHED 1897

Direct Factory "Autocar Sales and Service" Branches or Affiliated Representatives in

- | | | | | | | |
|----------------|------------|--------------|--------------|---------------|----------------|-----------------|
| *Albany | *Buffalo | *Detroit | *Los Angeles | Orlando | *San Diego | Tampa |
| *Allentown | *Camden | *Erie | *Memphis | *Paterson | *San Francisco | Trenton |
| Altoona | *Charlotte | *Fall River | Miami | *Philadelphia | *San Jose | *Washington |
| *Atlanta | *Chester | Fresno | *Newark | *Pittsburgh | *Schenectady | West Palm Beach |
| *Atlantic City | *Chicago | Harrisburg | *New Bedford | *Providence | Scranton | *Wheeling |
| *Baltimore | *Cleveland | Indianapolis | *New Haven | *Reading | Shamokin | Wilkes-Barre |
| Binghamton | Columbus | *Jersey City | *New York | *Richmond | *Springfield | Williamsport |
| *Boston | *Dallas | Lancaster | *Norfolk | *Rochester | *St. Louis | *Wilmington |
| Bronx | Denver | *Lawrence | *Oakland | *Sacramento | *Stockton | *Worcester |
| *Brooklyn | | | | | *Syracuse | York |

* Indicates Direct Factory Branch

Autocar

gas and electric trucks

EITHER OR BOTH - AS YOUR WORK REQUIRES

He Makes Quality Construction the Basis of Success

By ALINE NORVELL HANDLEY

SOME twenty years ago a tall, thin young man, just out of the A. and M. College of Texas, obtained a job as a day laborer at a lumber mill in Kirbyville Texas.

Today that young man who started on the lowest rung of the lumber industry less than a quarter of a century ago stands well among the leaders of the Southwest in the building industry and certainly is one of the three or four foremost builders of Oklahoma.

H. E. Hanna of Tulsa, Okla., has built almost 500 homes since starting in Tulsa seven years ago and his consistent success is founded upon just one principle—he feels his responsibility to the public. It is his firm conviction that the curse of the building business is the number of inexperienced men who enter it with no thought of the responsibility they owe the public.

And surely Mr. Hanna has practiced what he preaches, for he set out to learn everything he possibly could about build-



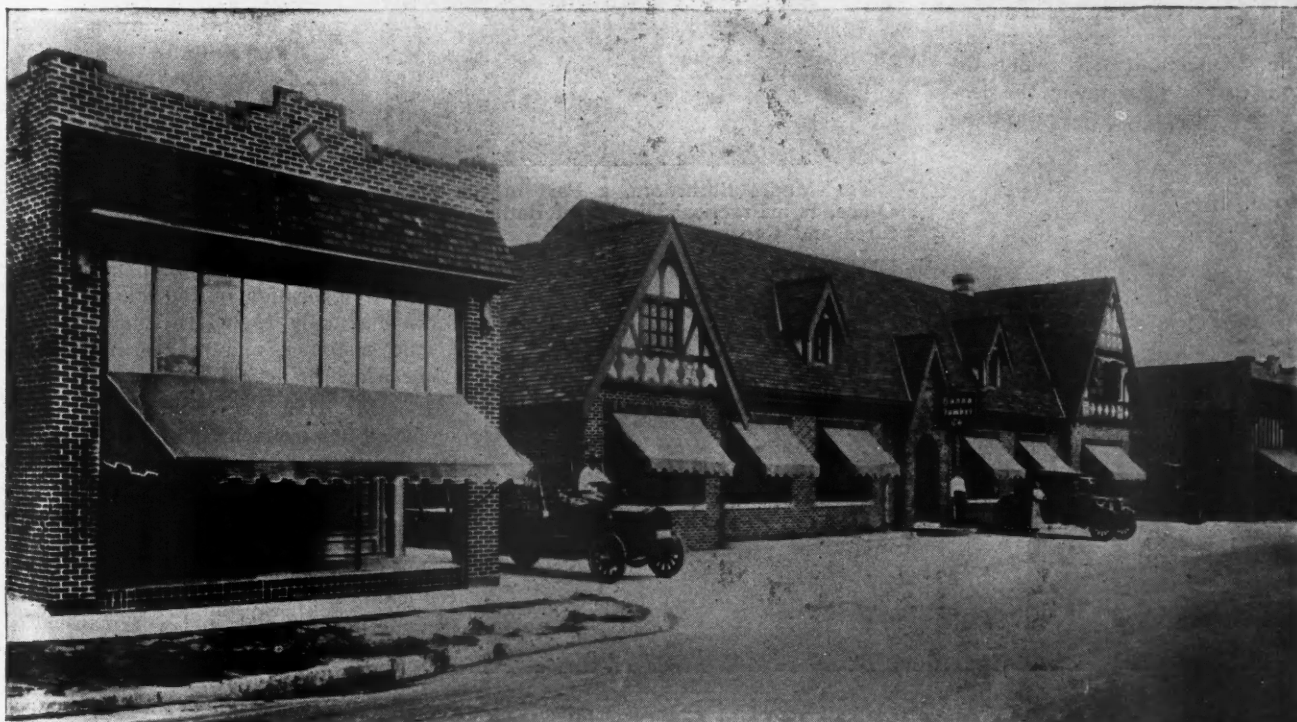
H. E. Hanna, of Tulsa, Okla., Has Built Up a Strikingly Successful Business on the Basis of Responsibility to the Public.

ing materials and the building business and in the language of the day, "he knows this stuff."

In the lumber mill at Kirbyville, Texas, where young Hanna began his career, he learned to grade and classify lumber and soon went on the road selling lumber.

After working for several years with the Kirbyville people he moved to Dallas, Texas, where he went into partnership with a practical contractor, putting in a small stock of lumber and building houses. During the years of this partnership Mr. Hanna was learning, just as he had learned in the lumber business, everything he could about the actual building, and it was at that time that it became his fixed resolution to build whatever he might build, substantially and enduringly.

A few years passed, Mr. Hanna bought out his partner and in 1918 came to Tulsa, with a modest capital which he had earned and saved, and a large amount of knowledge about the building business.



The Offices of the Hanna Lumber Company Are Housed in an English Residence Style Structure Flanked on Either Side by Attractive Buildings Where Stock and Supplies Are Displayed to Prospective Customers.



Mr. Hanna's Private Office Is Quite a Contrast to the Box Car Office in Which He Started Business Seven Years Ago.

Putting in a small stock of lumber, with a box car office, employing only three men—a bookkeeper, yard man and general helper, with only one truck and one wagon, he began his business.

Today his offices are housed in a beautiful residence type structure, of English design, flanked on each side by attractive buildings where his stock and supplies are displayed. He regularly employs thirty people in his offices and yard, irrespective of carpenters, painters, bricklayers, decorators, etc., and has six trucks in constant use.

The H. E. Hanna Company has seven complete departments—the retail lumber department, the architectural department, the construction department, the decorative department (paint and



Customers Are Received in This Model Living Room, Where the First Talk Relative to Building the New Home Is Held.

wall paper), the electrical department, the planing mill, and the financial department, and each of these seven departments has a competent man at the head of it. Indeed one of the chief aids to Mr. Hanna's success is his ability to select the right man for the right place.

In his main office buildings he has installed, aside from the necessary offices and rooms for carrying on the business, a model living room, a model kitchen and a model bathroom.

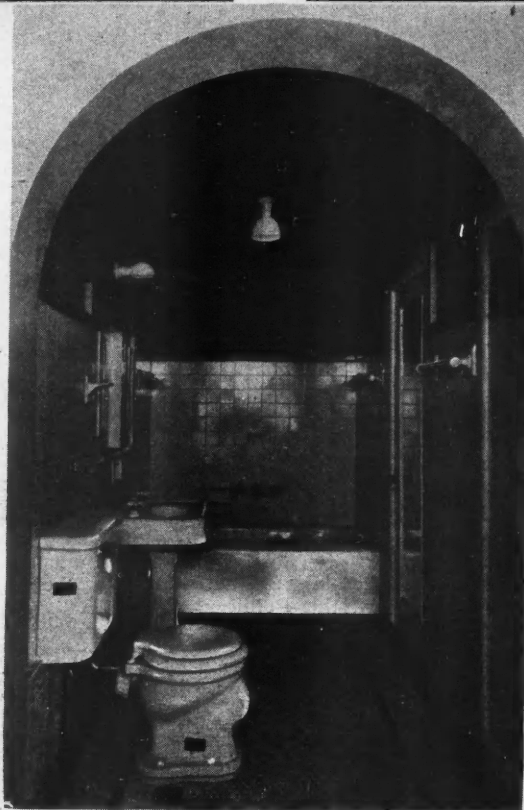
The prospective home owner is received in the model living room, which is sunny and cheerful, with a few beautifully tinted and framed photographs of Hanna-built homes on the walls. Instead of being shown a book of collected designs, which Mr. Hanna feels is confusing to the layman, his needs and wishes are talked over first. In this talk

the endeavor is made to find out, in addition to the location of the lot, how much room is actually needed, the financial status of the customer, and the general type of home which he desires.

It is Mr. Hanna's sincere aim to neither undersell nor oversell, and in this very first talk the customer is introduced to the fundamental Hanna policy—not to build more expensively than one can afford but to build what one does build substantially and enduringly; to have beauty and every modern luxury if possible, but not at the expense of enduring materials and workmanship.

Not the high cost of building but the high cost of wanting, Mr. Hanna thinks, is responsible for making the building of homes so expensive. He urges the cus-

(Continued to page 116.)



The Model Bathroom, a Part of the Main Office, Is a Practical Display of Bathroom Fixtures and Construction.



The Main Lobby of the Office Building Is Light and Cheerful. Here show cases display paints, varnish and samples of the various materials used in the building of houses.

California Spanish Mission Villa Is Distinctly Individual

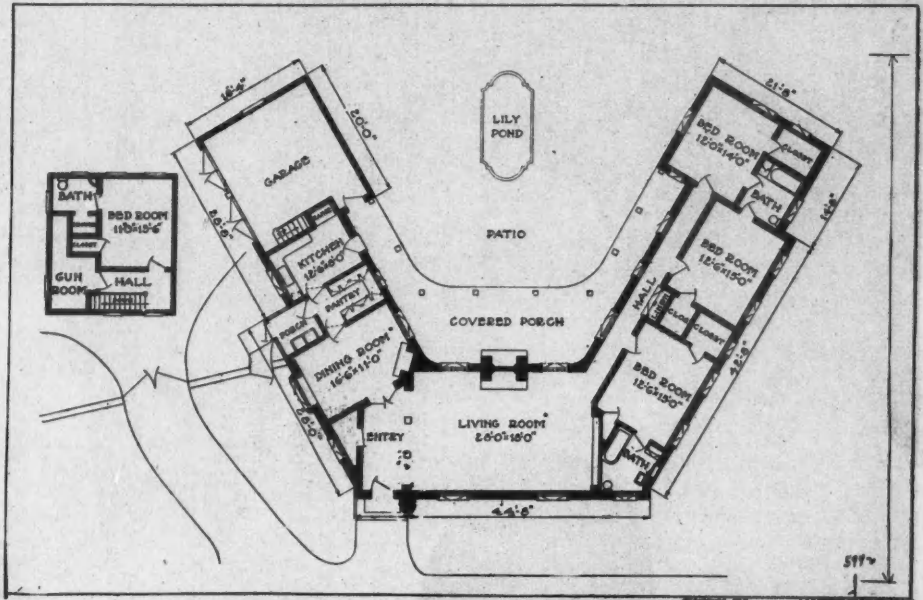
By G. R. GRAHAM

THE charming suburban districts of sunny southern California have long furnished the background for picturesque old Spanish villas of rare architectural distinction. Their quaintness, the simple charm of the Spanish-Mission mode, the spirit of restfulness always to be found, have been pointed out often as particularly appropriate to the bright sunlight, the hills and mountains and the semi-tropical foliage.

Accompanying illustrations, showing the beautiful villa of Dr. W. G. Tedford in Beverly Hills, near Los Angeles, present an example of domestic Spanish-Mission architecture at its best. As one may easily imagine, the villa seems to fit its surroundings perfectly—a low, rakish pile snuggled among the hills and beneath the great eucalypti. Let us look over the floor plan.

In very few residences, indeed, has the "V" floor plan been successfully used, probably because of the difficulty in injecting domestic warmth and in preventing the building from suggesting commercial uses or tenanted occu-

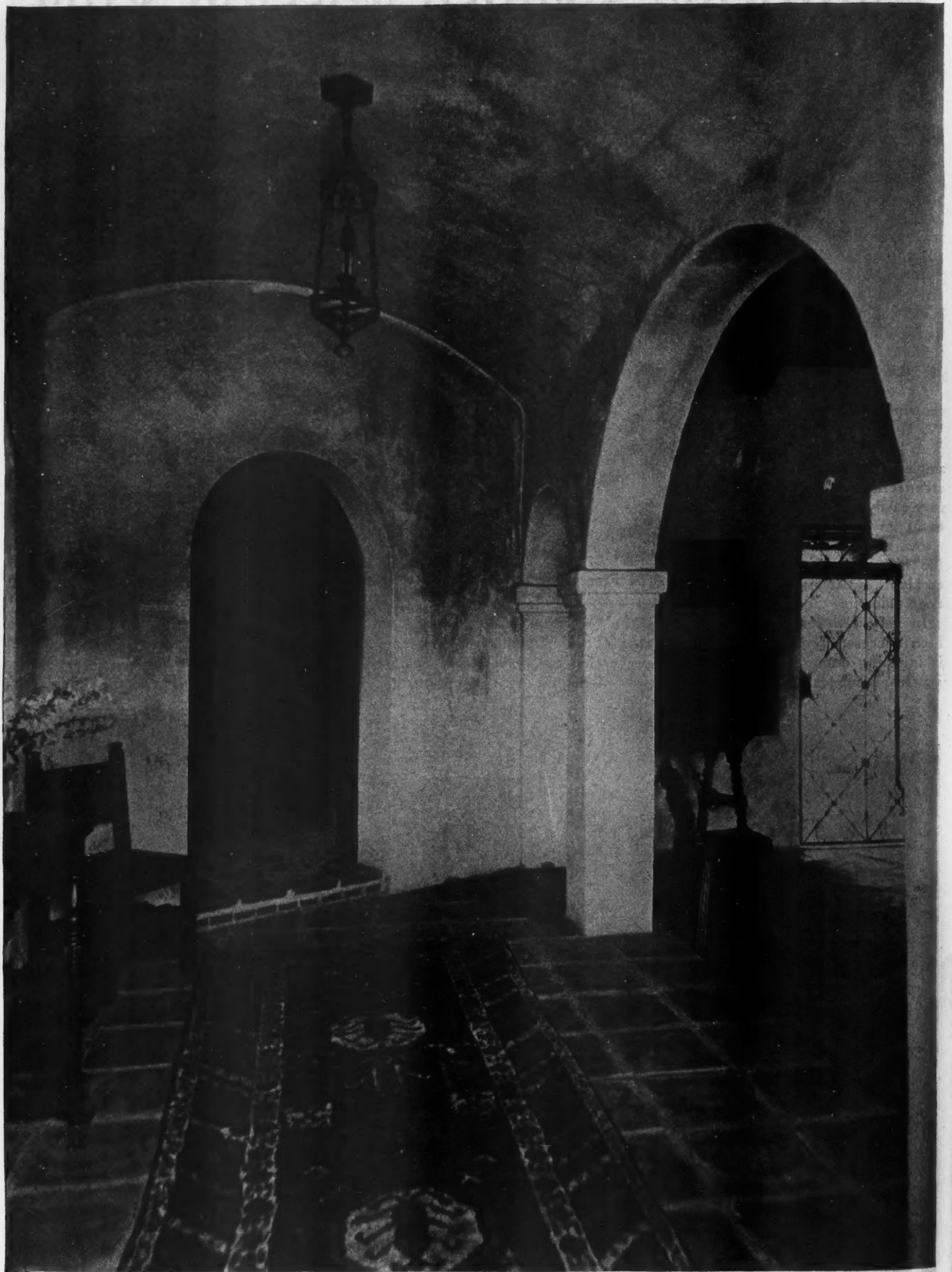
pancy. But in Dr. Tedford's home the "V" plan has been expanded until it is truly representative of the powerful old Spanish-Mission influence and it has given very pleasing results. In addition to a large living room, dining room



The Floor Plan of the Tedford Residence Shows a Rarely Successful Carrying Out of the "V" Type of Construction in This Beautiful California Home.



One of the Most Attractive Spanish Mission Villas of Southern California Is the Residence of Dr. W. G. Tedford, at Beverly Hills, near Los Angeles. It was designed by C. P. Tedford, architect, of Glendale, who is a distinguished exponent of Spanish Mission architecture.



The Reception Hall of the Tedford Residence at Beverly Hills, Near Los Angeles, Shows the Charming Use of Arched Doorways and Ceilings, Tiled Floors, Textured Wall Finish and Ornamental Iron Fixtures. The furnishings are in harmony with the architectural style throughout the house.

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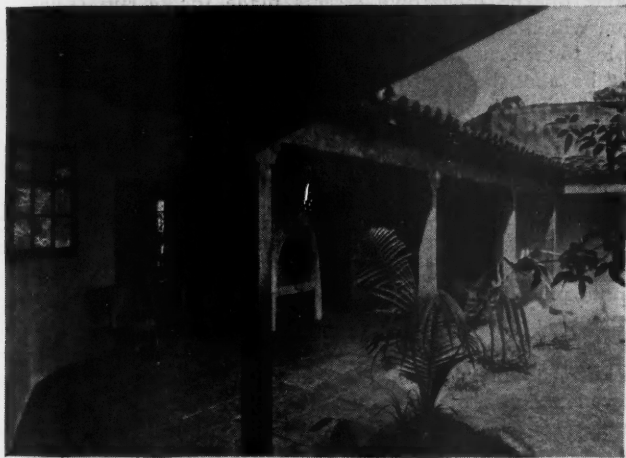
and necessary service rooms, there are three large bed chambers, servants' quarters and double garage. Three baths are provided.

By means of this arrangement almost every room gets the south sun. Every important room shares the delights of the great covered porch, with its flagged pavement, great fireplace and quaint timbering. Here is a house which has on one floor the prime advantage of the two-story residential arrangement, which is achieved by locating the living room centrally with sleeping quarters extending to one end.

In regard to sturdiness and permanence of construction the Tedford residence is as eminent as it is picturesque. The walls are entirely of concrete masonry, using a local concrete building tile manufactured by the Coast Concrete Products Company of Los



As Seen from the Patio Side the House Is Even More Individual and Inviting than from the Street. Here one might feel far removed from any suggestion of the bustling city.



The Curving Porch with Its Novel Fireplace and Oven Is a Fascinating Spot. It looks out over a charming lawn with an old well and the foot bridge in the background.

Angeles. This construction was chosen for its stability and fire-resistant qualities as well as the excellent base it affords for stuccoed exterior. The roof is of heavy timber framing covered with selected Spanish tile. Lighting fixtures, window gratings and other metal work are of hand wrought iron.



The Living Room, with Its High Beamed Ceiling, Is Truly Spacious Yet Preserves an Atmosphere of Cozy, Homelike Comfort. Here especially is apparent the remarkably complete carrying out of the Spanish Mission style in design and in furnishing.

The interior is in keeping with the Spanish tone without. The floors are paved mostly with square floor tiles and covered with rugs. Open archways are used wherever appropriate. Rough-cast plaster and beamed ceiling complete the period effect.

Approaching Dr. Tedford's home one is attracted by the period-textured and tinted stucco, harmonious and in mellow contrast with the light green foliage, heavy shadows and low lines of the structure. The texture used is known today as "Spanish" because it so nearly simulates the seventeenth century Spanish exterior plaster work of which California cherishes so many interesting and colorful examples. The patio with its ancient well and bucket, its lily-pond, rustic bridge, clinging vines and other ornamental features contributes atmosphere and attracts bird life, adding to the charm and restfulness for which the Tedford home has become almost a synonym in the neighborhood.

The structure and landscaping were designed by and built under the supervision of C. P. Tedford of Glendale, California, who is a distinguished local exponent of Spanish-Mission architecture. The Tedford-Stadt Construction Company of Los Angeles erected the building and constructed various surrounding features.

Appoint S. P. A. Field Engineer

SECRETARY-MANAGER H. C. Berckes, of the Southern Pine Association, has announced that Leo. Kraemer, who since 1919 has been building code engineer for the National Lumber Manufacturers' Association, has been appointed field engineer of the Southern Pine Association of hardwoods.

Mr. Kraemer is widely known among the lumbermen and building trades and professions of the United States. While with the National Association he assisted in changing and revising building codes for many cities of the country and in the marketing of hardwoods.

THE beautiful home illustrated on the AMERICAN BUILDER front cover for May was designed by T. H. Maenner Co., Omaha, Neb.

Allied Architects Prepare Plan for Los Angeles Civic Center

STABILIZATION of land values in the Los Angeles business district, and in certain residence sections bordering on this area would be accomplished if the Civic Center plans of the Allied Architects' Association which were recently submitted to the city and county officials are accepted. Business interests, instead of aimlessly drifting as at present, would be permanently anchored by the development of such a center, which would serve as a fixation point in the heart of the city.

The history of the land involved dates back nearly a hundred and fifty years to the time when the old pueblo was laid out around a small plaza, as were all pueblos and cities founded by the Spaniards in the New World, with an orderly streeting and building arrangement, entirely adequate for the needs of the town in those days. Later years, however, brought an ever-increasing population which was forced to gradually move away from the plaza, until in the middle of the '80s the business section of town was grouped about the east side of the earth mass, known as Bunker Hill. At this time Los Angeles was a town of some ten thousand. The exclusive residence section of Los Angeles was situated on the crest of Bunker Hill, the houses being referred to as "Mansions" in the local papers of that day.

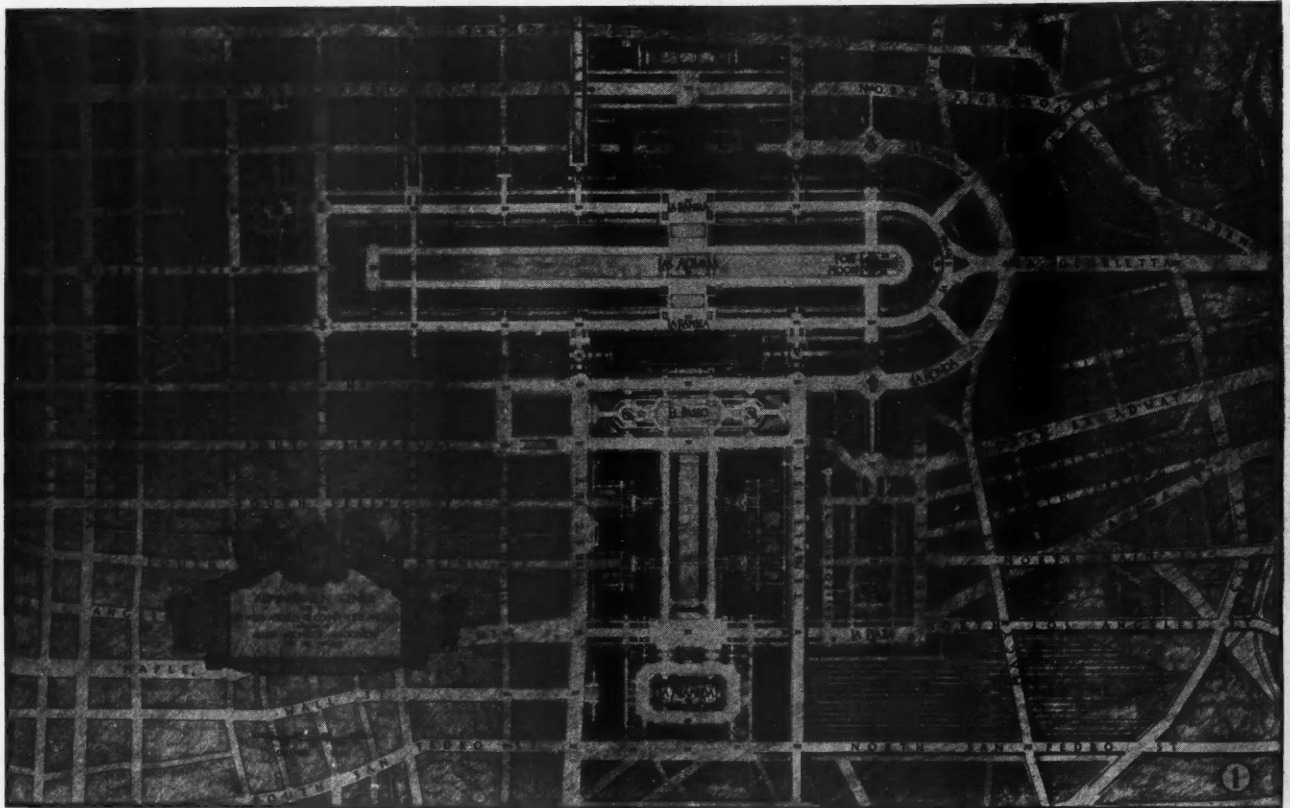
But as time went on and the population increased, business needing expansion and following the line of least resistance, moved further east and south. The Hill, deserted by business, was in turn abandoned as the exclusive residence district which moved west, and a period of stagnation and depreciation set in. As the city grew by leaps

and bounds the hill became a formidable traffic barrier. Land values fell rapidly in the district on the hill, the property becoming a potential slum area and a consequent fire hazard. The buildings today are forlorn relics of their former grandeur as the pride of Los Angeles.

Perhaps no other city has been confronted with the same problem as Los Angeles. Spread as the city is over some four hundred square miles, its population being at the present day in excess of one million people, most of whom have come during the past fifteen or twenty years, it has been necessarily a case of sacrificing any idea of a city plan to the immediate needs of the business section. Heavy traffic on the downtown streets made for fearful congestion, which seemed incapable of alleviation. It was impossible to widen these streets; the street car lines could not be abolished, subways required years of development before becoming a service factor. There seemed no solution for the immediate future. The public structures for the city, county, state and national governments have been necessarily distributed without definite plan.

To remedy this condition the City Council and County Board of Supervisors authorized the Allied Architects' Association to design a civic center within a specified area which would provide ample space for a proper grouping of public buildings. Under this contract the Allied Architects were to receive the nominal sum of one dollar for their work.

The completed plans of the association, representing eleven months of intensive study and consultation, have been recently placed before the public officials, of city and county for adoption. Under these plans Los Angeles would



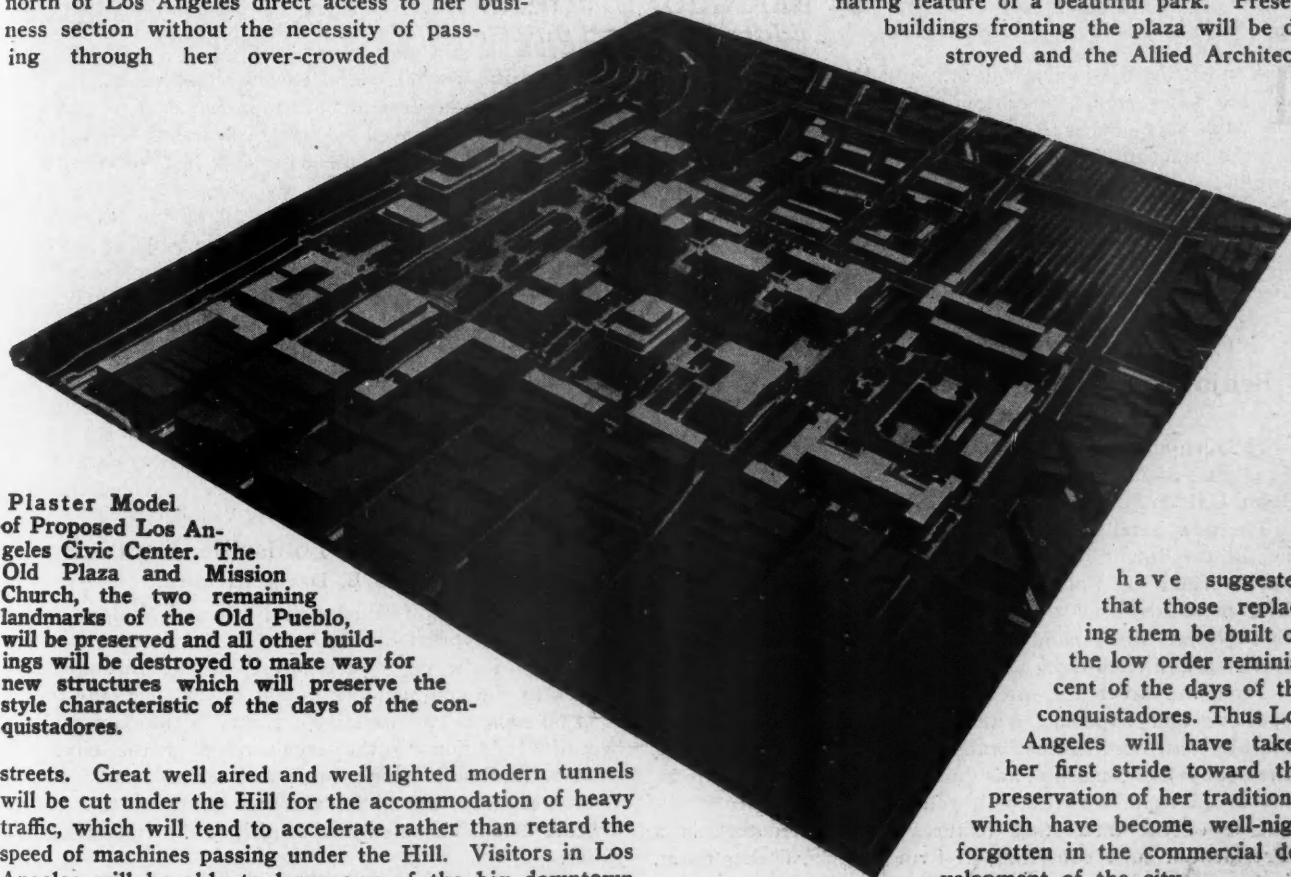
The Los Angeles Civic Center Plan, Prepared by the Allied Architects' Association at the Request of the City Council and County Board of Supervisors, Will Relieve Downtown Traffic Congestion, Provide for Public Buildings and Make Permanently Beautiful the Original Plaza with Its Traditions Grounded in the Early Spanish Settlement.

become possessed of one of the finest specimens of civic architecture, either here or abroad, a civic center which would enchant the aesthetic sense of the beholder, while serving the utilitarian purposes of relieving traffic congestion and increasing the efficiency of governmental employes.

All this will be accomplished at but little expense, the problems being comparatively simple. The boulevards will give the densely populated section lying east and north of Los Angeles direct access to her business section without the necessity of passing through her over-crowded

and south, which have been noted for the congestion prevalent within them. The depression of these streets, the transformation of Bunker Hill will serve to alleviate this congestion as nothing else could.

The two remaining landmarks of the old Pueblo de Nuestra Senora La Reine de Los Angeles, namely, the old Plaza and the Mission Church, will remain unchanged on the plans, the latter becoming the dominating feature of a beautiful park. Present buildings fronting the plaza will be destroyed and the Allied Architects



Plaster Model of Proposed Los Angeles Civic Center. The Old Plaza and Mission Church, the two remaining landmarks of the Old Pueblo, will be preserved and all other buildings will be destroyed to make way for new structures which will preserve the style characteristic of the days of the conquistadores.

streets. Great well aired and well lighted modern tunnels will be cut under the Hill for the accommodation of heavy traffic, which will tend to accelerate rather than retard the speed of machines passing under the Hill. Visitors in Los Angeles will be able to leave any of the big downtown hotels, motor through this great park, connecting with Mulholland Drive and reach the beaches or countryside in ease and comfort over a scenic route instead of driving through congested streets of drab houses, as is the case at the present time.

Big cities need many and large parkways in all sections. Los Angeles has been woefully lacking in this respect. Today Pershing Square is her only park in the center of town, and it is grievously small. Bunker Hill, transformed under the plans of the Allied Architects, would rectify this condition. Las Alturas, as Bunker Hill Park is called on the plans, would be a charm spot within the heart of Los Angeles with the business section but a block or two away.

The administration center proper would be situated within an area bounded on the east and west by Los Angeles Street and Las Alturas, and on the north and south by Temple and First streets. Here the national, state, county, and municipal governmental buildings would be grouped about a great plaza, surrounded by greenery in a setting well worthy of their dignity.

The streets running through this area would be depressed under the Administration Plaza, an easy and inexpensive task owing to the location of the plaza on a natural ridge of earth. In reality it is more a case of a raised plaza than of street tunneling. These street passages beneath the plaza would be of much the same type as those running beneath the Hill, having the additional advantage of affording parking space for motors both above and below ground. The streets to be depressed, Broadway, Spring, and Main, constitute the three main arteries of traffic running north

have suggested that those replacing them be built on the low order reminiscent of the days of the conquistadores. Thus Los Angeles will have taken her first stride toward the preservation of her traditions, which have become well-nigh forgotten in the commercial development of the city.

East of the administration center of San Pedro Street, confined within the same north and south boundaries, a tentative unit has been set aside as the site of the Union Terminal and the Terminal Plaza, in case such Union Station idea should ever become reality. If, however, the railroad authorities should decide to abandon this project, the civic center would be closed on this side by the erection of a large building at Los Angeles Street.

One of the important features of this plan lies in the fact that the entire group is composed of separate units, each capable of independent and gradual development. Thus the work of carrying out the civic center, which would require many years, could be undertaken gradually as the funds became available for this purpose, each unit on completion, tying in with the whole. Accomplished in this manner the development of the civic center would never become a burden on the shoulders of the taxpayers of the community.

The Allied Architects Association, fathering this magnificent civic center plan, is a group comprising seventy of the most eminent Southern California architects who, early in the summer of 1921, banded together for the avowed purpose of affording public governments the best in civic architecture at a moderate cost. Exponents of the idea of using highly specialized professional talent for the public benefit without personal profit, the association after deducting the bare costs of its work on public buildings, devotes the remainder of its earnings to the cultural development of the community.

Chimes to be 370 Feet Above Street In New Masonic Temple Building

Four Striking Perspectives Presented in Duotone

By **BERNARD L. JOHNSON**,
Editor, American Builder

IT must be like having a tooth pulled for an architect to see a ten-story tower lopped off his design. That's what happened with the new Chicago Masonic Temple, for the beautiful 100-foot tower which was a part of the original design was not included in the general contract. The tower increased the cost of the building to a figure beyond the willingness of the promoters to finance, especially as it is space which will add no direct revenue. So the tower, if built, will have to be erected from special funds for which a drive is now being made. Let us hope it will be successful.

Benjamin Franklin Hotel, Philadelphia, Pa. **Horace Trumbauer, Architect**

Philadelphia's newest and largest hotel—the Benjamin Franklin—is 20 stories high and cost \$13,000,000 to build, John Gill & Sons, of Cleveland, being the builders.

The new hotel is the most elaborate and beautiful building of the downtown section. The exterior plan is based on Georgian or Colonial precedent of the Adam period. The materials used are granite and lime stone for the three lower stories and red brick above. The crowning stories are in terra-cotta and brick.

From the street one enters into the main lobby which is spacious and imposing with its columns of rich Benou marble contrasted against walls of Roman Travertine. For the lobby floor, marble was brought from Belgium to be set in alternate squares with yellow Verona.

One of the interesting features of the structure is a Presidential suite consisting of living rooms, dining room, bed room, reception rooms and baths. This suite is specially decorated and paneled in Colonial design.

Among the particularly notable features is the Green Room, which is to be a lounge exclusively for men and women of the stage; an entire floor also for theatrical people where there is no maid service or other activity until after the noon hour; a nursery for children; a beauty salon for women; a fully equipped laundry; the Poor Richard Grill; an enormous ballroom and foyer; a smoking room and lounge for men, and a quaint bookshop modeled after Benjamin Franklin's original printing shop.

The United Masonic Temple, Chicago **C. W. and Geo. L. Rapp, Architects**

While the architecture of this splendid building takes its inspiration from the Gothic, it is more graceful than the usual Gothic, which is often somewhat heavy. The main building, of granite and Bedford limestone, is to rise 29 stories above the street level and will be a worthy monument to Freemasonry.

Primarily designed to provide adequate and commodious lodge halls for the use of many of the Masonic bodies in Chicago, provision has also been made for office space and for a theatre seating 3,200 persons. This theatre, to be operated by the Balaban & Katz Corporation, is to contain many novel and unique features in addition to being as luxurious and beautiful as any in the country.

The main building entrance, separated entirely from the theatre entrance, will be of distinctive character outlined with delicate stone traceries and carvings. Handsome ornamental bronze doors in ornamental iron frames will

open into the vestibule and elevator lobbies will be thoroughly Gothic in design and character even to the flagstone floor. High speed passenger elevators behind bronze enclosures will furnish adequate and fast service for all floors.

Engineering and architectural skill of the highest type has been employed in the design of the building by C. W. and Geo. L. Rapp in order to provide floor space in the various lodge halls and in the drill hall absolutely unobstructed by columns. A conception of the difficulties presented by this problem may be had when one considers the height and area of the building and the enormous loads which must be properly transmitted to the foundations. Suffice it to say that this problem has been solved in a most satisfactory manner and in this building sixteen large halls and one large assembly hall are provided in which not a single supporting column is visible.

Hotel Kentucky, Louisville, Kentucky **Brinton B. Davis, Architect**

The new Hotel Kentucky at Fifth and Walnut Streets, now nearing completion, is one of the largest and most imposing of the city's structures. Rising through its 18 stories to the commanding height of 200 feet, this newest of Louisville's big buildings forms a monumental and beautiful addition to the architecture of the city. The exterior is done in stone, brick and terra cotta in pleasing shades of gray and buffs, accented at points by flat and delicate details executed in the spirit of the Italian Renaissance.

On the first floor level two monumental and inviting entrances lead direct to the main lobby, which rises through two stories to a height of 30 feet. Off the first floor lead entries to stores, coffee shop, rest rooms and the main dining room, while opening off the mezzanine lounge above are waiting rooms, lounges for men and women, private banquet and reception rooms and others of semi-public character.

Hospital for the Security Benefit Association, Topeka, Kansas

Richard E. Schmidt, Garden & Martin, Architects

This hospital is for a fraternal insurance organization now numbering close to 250,000 members. A monthly assessment of five cents per member during the last fifteen years has raised a fund of astonishing proportions, with which has been acquired a large tract of land and buildings five miles from the city of Topeka.

This beautiful site consists of 400 acres of rolling land overlooking the Kansas River, on which the Association has already erected six fireproof buildings, representing with the land and necessary farm buildings an investment of over a million dollars. The building development is intended ultimately to care for a population of 250 children, 250 aged—50 to 100 in the hospital and the necessary personnel.

The hospital was dedicated early in the present year but the tower shown in the architects' perspective is a future development. This memorial tower and the entire group is a very free adaptation of Independence Hall, both in material and composition.

ART SUPPLEMENT *of* NOTABLE ARCHITECTURE

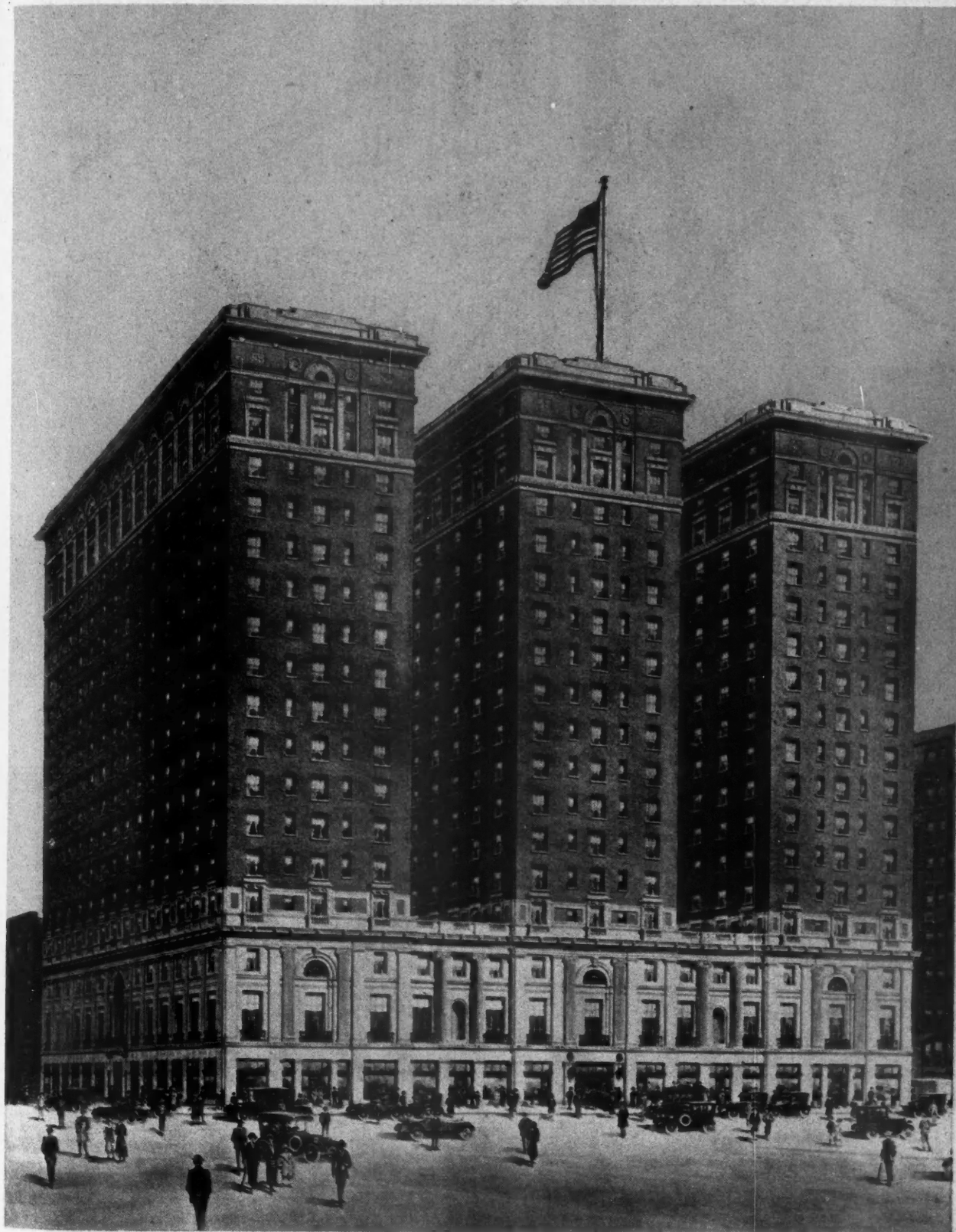


PLATE XXXXI

The BENJAMIN FRANKLIN HOTEL, Philadelphia; Horace Trumbauer,
of Philadelphia, Architect. Cost was \$13,000,000.

The AMERICAN BUILDER, July, 1925



PLATE XXXXII

The NEW UNITED MASONIC TEMPLE, Chicago; C. W. and George L. Rapp, of Chicago, Architects. Now building on Randolph Street near State, on the site of the old Colonial Theatre.



PLATE XXXXIII

*The KENTUCKY HOTEL, Louisville, Ky.; Brinton B. Davis, of Louisville, Architect.
An ultra-modern 600-room Hotel.*

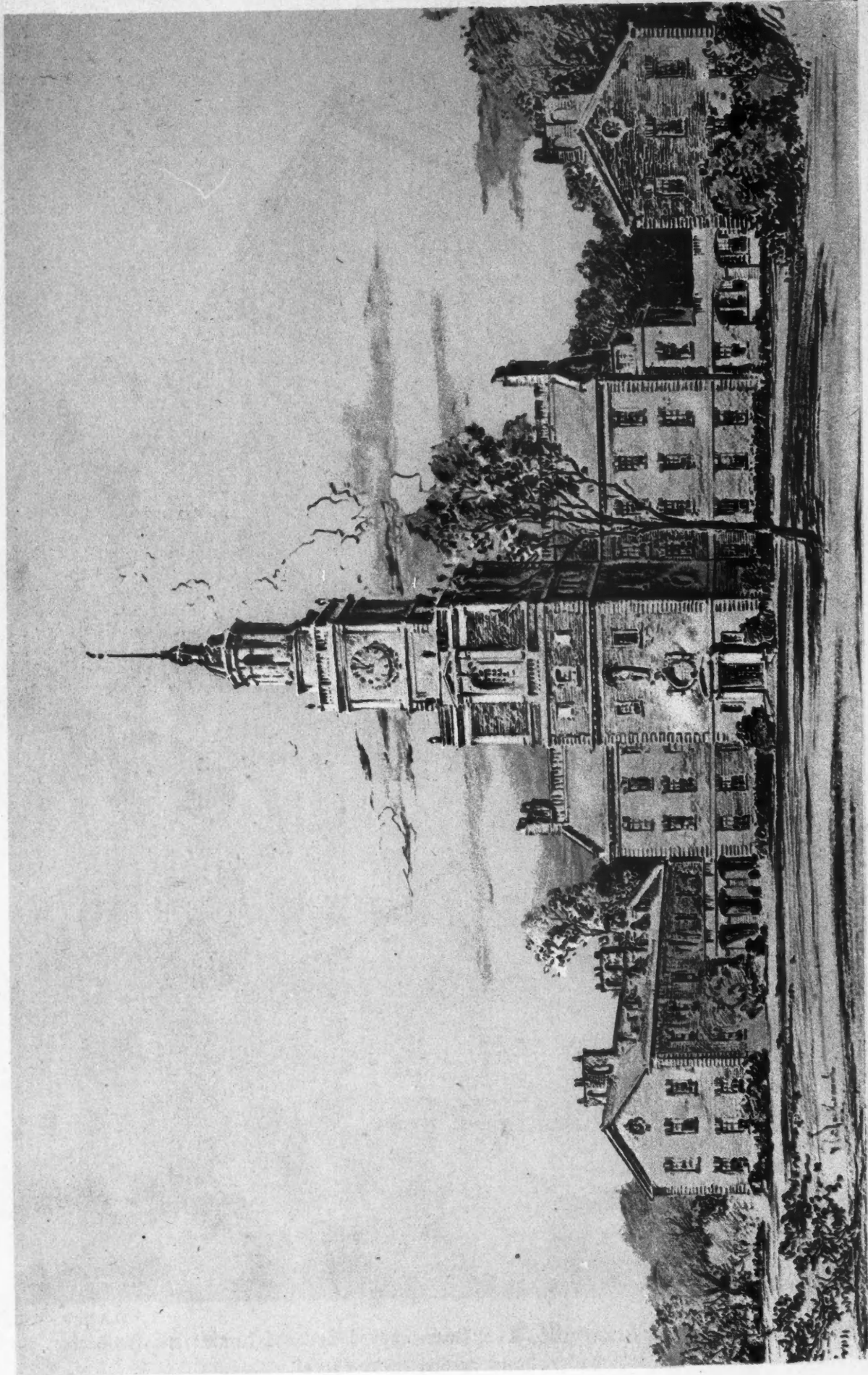


PLATE XXXXIV

The HOSPITAL FOR THE SECURITY BENEFIT ASSOCIATION, Topeka, Kansas;
Richard E. Schmidt, Garden & Martin, of Chicago, Architects.



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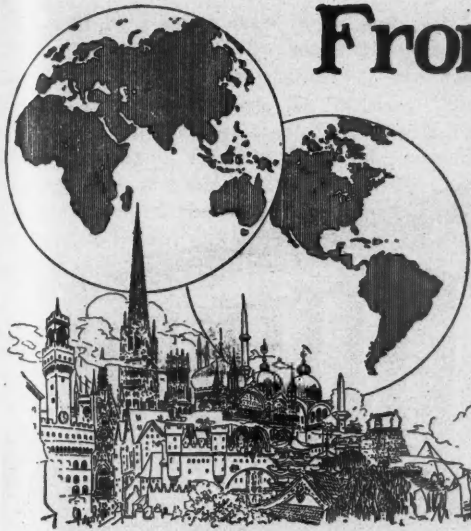
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From Our Daily FOREIGN MAIL

Conducted by Wm A. Radford, Jr.



William A. Radford, Jr., Vice-President of the Radford Publications, in a two-year investigation, has personally visited forty-nine foreign countries in the interest of the American Builder and World Trade for our advertisers.

THE United States has become the foremost manufacturing country in the world and it is generally conceded that its industrial plant in many lines is well in excess of home consumption. But there is strong competition for the foreign markets and our American manufacturers will have to bestir themselves. The situation abroad is well covered by the National Bank of Commerce of New York in their recent survey.

Modern Japan has developed on the basis of support of a population in excess of the food supply by means of exports of manufactures, and the war accelerated its industrial expansion.

France has undergone a great industrial development and, what is of equal significance, the national philosophy seems to be the fostering of industry and the maintenance of the country by exports of manufactures. Part of the French gain is at the expense of Germany, but there is no doubt that the investment in physical plant in Ger-

many has been very great since 1914, so that much progress has been made toward readjustments necessary as a result of the terms of peace. The Germans face the world with a highly efficient, modern industrial plant.

Belgium always has been important as an exporter of manufactures. Italy is forging to the front in cotton and wool textiles and in other important lines of industry and is making itself increasingly felt in export markets. There is a definite trend toward an accentuation of manufacturing industries in the Netherlands. The Dutch shipyards especially are making themselves felt in shipbuilding.

The war gave a great impetus to the development of manufactures in many non-European countries. Australia, Canada, India, South Africa and the countries of South America are energetically protecting their growing industries by means of tariffs.

American firms should look abroad in order to maintain our prosperity at home.

FROM IRELAND

Belfast, Ireland.

AMERICAN BUILDER:

I want to thank you for your very courteous reply to my letter. If your publication continues to be as good as it looks, I should be very pleased to continue as a subscriber.

(Signed) ALFRED W. BROWN,
Consulting Industrial Engineer,
Mill, Factory and Works Architect.

FROM THE HOLY LAND

Jaffa, Palestine.

AMERICAN BUILDER:

We are interested in white portland cement for use in a flooring tile factory. We have the honor to address ourselves to your Expert Service Bureau and request you to bring our inquiry to manufacturers producing such material.

(Signed) DAVID ISMOJIK and ISAAC ZISLING.

FROM VENEZUELA

(Translated from the Spanish)

Caracas, Venezuela.

AMERICAN BUILDER:

We have the pleasure to acknowledge receipt of your letter, the contents of which have had our very best attention.

We have also received the list which you were good enough to send us and which we are returning herewith. We have marked all those branches in which we are interested and should be greatly obliged to you if you will kindly send us catalogs for each line indicated, so that we may study them thoroughly and decide what items we will be able to import from your country.

(Signed) GUINAND FRERES.

[Forty-five items were checked, including the entire range of contractors' equipment, also portland cement, structural steel, asbestos shingles and associated building materials.—EDITOR.]

FROM SCOTLAND

Dunfermline, Scotland.

AMERICAN BUILDER:

I want to say that I am certainly interested in the AMERICAN BUILDER, particularly in the advertisements which I expect to find very useful in the near future.

(Signed) WALTER W. REID, Architect.

REPORTS INQUIRY FROM SAMOA

Algoma, Wisconsin.

AMERICAN BUILDER:

The pulling power of our advertisements in your estimable paper have been demonstrated a long time ago and very frequently since; however, you may be interested to know that we have just received an inquiry from the Administrative Department of the Island of Samoa in response to an advertisement which appeared in one of your recent issues.

We are not in the habit of handing out bouquets but we nevertheless are glad to recognize service well rendered.

(Signed) W. E. PERRY,
Gen. Mgr., Algoma Panel Co.

PLEASED WITH INQUIRY FROM ROUMANIA

Chicago, Ill.

AMERICAN BUILDER:

We are enclosing herewith a post card received from Mr. Miko Albert of Timisoara, Roumania, in reply to our advertisement in your magazine.

I thought you might be interested in knowing that this "ad" is pulling inquiries as far from home as the post-mark would indicate. We consider this quite unusual and believe it deserves recognition.

(Signed) GEO. D. HAINES,
Vaughan & Bushnell Mfg. Co.

(This Roumanian firm asks for a copy of the Vaughan & Bushnell General Catalog and adds "We hope to be a good customer of yours in the future.")

FROM A MASSACHUSETTS TECH. MAN IN SYRIA

Beirut, Syria.

AMERICAN BUILDER:

I desire information and price quotations on each of the items checked. (Extensive list of building materials, plumbing and heating supplies, equipment for large buildings and contractors' plant.) You may enter my name as a regular subscriber to the AMERICAN BUILDER.

(Signed) BAHJAT ABDULNOUR,
(M. I. T. Boston, 1915)

FROM BRAZIL

Sao Paulo, Brazil.

AMERICAN BUILDER:

Please send the AMERICAN BUILDER to me at Asdrubal do Nascimento street, 36; Sao Paulo, Brasil.

Please accept my best thanks in anticipation and I remain, gentlemen,

Yours very truly,

(Signed) ALFREDO FIGLIO, Architect.

FROM CANADA

Montreal, Canada.

AMERICAN BUILDER:

We have your letter advising that you have received through the American Consul General our name as one who might be interested in receiving a copy of the AMERICAN BUILDER.

We are very glad indeed to receive a copy of your interesting paper for we are large purchasers of contractors' equipment. No doubt through the advertising channels in your paper we might be able to do some business with your advertisers.

(Signed) H. R. HARMER,
Manager, The A. R. Williams Mach'y & Supply Co., Ltd.

APPRECIATES PERSONAL SERVICE

Berlin, Germany.

AMERICAN BUILDER:

We regularly get your review which we read with great attention, and also the advertising part. We suppose, gentlemen, that you also get regularly the "Bauwelt." We beg to inform you that on account of the reports concerning the American building matters we already have a number of demands for the manufacturers of the building ingredients.

The undersigned was delighted to make the acquaintance of Mr. Radford, Sr., and Mr. Radford, Jr., in November last year when visiting Chicago. You assigned one of your editorial staff who speaks German fluently to the task of assisting me in several important interviews with Chicago architects and builders, which fact the undersigned bears in mind with many thanks.

(Signed) F. PAULSEN,
Editor, "Bauwelt,"
Zeitschrift für Das Gesamte Bauwesen.



Architecturally an Exact Reproduction of the Ancient Greek Parthenon, This Replica, Which Has Been Built at Nashville, Tenn., Is a Permanent Example of the Skill of Present-Day Architects, Artists and Craftsmen.

A Permanent Replica of Ancient Greek Parthenon

By MABEL CLARKE SIMMONS

NASHVILLE, Tennessee, has recently built the only exact reproduction of the Parthenon in existence. The great Athenian temple, conceived by the Grecian statesman, Pericles, and erected by Ictinus, the architect, and Phidias, the sculptor, has been constructed in replica for the first time, nearly 2,500 years later in a world unknown at the time the original was erected. When the interior of the building is completed, it will have cost more than a half million dollars.

Architecturally, the new Parthenon is an exact reproduction so far as the skilled workmen of today can make it. Perhaps a few fractional variation in measurement could be found, but certainly no change discernible to the most critical observer. However, materials have been substituted that seem more practical and economical than the marble of the original. Perhaps they will be equally as permanent as the original.

As for the sculpture, every effort has been made to follow minutely the original figures. Casts from pieces saved after the explosion of 1687, which destroyed many of the figures, have been obtained from the British Museum to help the sculptors in the restoration.

Nashville's reproduction of the Parthenon resulted from the celebration 27 years ago of Tennessee's hundredth anniversary of statehood. As one of the centennial buildings to house the art exhibit, a stucco of the Parthenon, with plaster casts of the sculpture, was erected on a site centrally located on the exposition grounds. Credit for the original idea belongs to Major E. C. Lewis, a citizen of Nashville. The architect was Colonel W. C. Smith and Robert T. Creighton was the engineer in charge. The present structure is based on the work done by these men. When the celebration ended, even this hastily-built model

of the Parthenon had stirred the imagination of the people who demanded that it be kept.

Gradually, the temporary building crumbled; the plaster casts disintegrated and the exterior lost its attractive appearance. It was repaired repeatedly until about six years ago, when it was ordered closed. Popular interest in a proposal to build a permanent replica, copying as accurately as possible every detail of the Parthenon increased until the board of park commissioners decided to reproduce the masterpiece from funds available for park development and improvement.



There Has Been Much Talk of Restoring the Original Parthenon, but It Still Remains the Ruin Shown Here.

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Russell E. Hart, a New York architect living in Nashville, was named by the board to pattern the work of Ictinus and his Grecian assistants. He has been assisted by his associate, George D. Nevins. Belle Kinney, a native of Nashville who studied in New York several years, and her husband, Leopold F. Scholz, reproduced the pediment groups of sculpture. George Julian Zolnay, of New York, completed the sculptured panels called metopes, on the outside frieze. Freeland, Roberts and Co. were the consulting engineers.

Copying the original in marble first suggested itself to the board, but when the cost and time required were considered, this idea was abandoned. Carving the figures of the two pediments, the metopes and the inner frieze in marble, would have required several years, even with as many assistants as the sculptors could direct, and the cost would have run into the millions.

Use of marble seemed impractical, also, because of the color effect desired. Archaeologists agree almost unanimously that the original Parthenon was polychrome. The problem, then, was to find a material that would retain its color and original surface, and reflect the light in such a way as to equal the brilliancy of the old Parthenon.

Mr. Hart's research finally led to his recommendation of a mosaic concrete surface material developed by John J. Earley of Washington, D. C., a contractor, who has experimented in this field for years. The material is composed of cement, sand and Potomac pebbles crushed to a uniform size of one-eighth to one-fourth inch. In the process used by Mr. Earley, the translucency of the crushed stone is brought out fully.

After the mixture of cement and pebbles has been poured, the outer cement is removed with acid and steel brushes, until the stone fragments stand out clearly while firmly imbedded in the concrete. This leaves a permanent surface with the desired color. It is non-absorbent and at the same time reflects light far better than ordinary concrete. The effect is more desirable than many kinds of marble would produce.

All the sculptural figures in the round, placed in the two pediments, and the columns and other stone work of the Parthenon are finished in this mosaic surface.

The general symmetry of the Parthenon is reproduced faithfully in the new structure. There are eight columns at each end and seventeen at the sides, making 46 in all, since the corner columns must be counted only once. Inside the encircling row, the so-called double chamber, has six columns at each end, giving the effect of a structure within a structure.

Above each of the outer columns a swelling capital called the echinus, or sea-urchin, supports a square slab which,

in turn, supports the massive plain beam that runs around the entire temple. This beam is known as the architrave. Just above it the sculptured panels in low relief, alternating with sets of vertical bands and grooves called triglyphs, adorn the outer structure. The panels, or metopes, comprise a large part of the sculpture and lend to the beauty of the entire structure.

The cornice projects over the metopes and at each end runs under the gables, or pediments. The new Parthenon's pediments, as the old, are decorated with groups of sculpture in the round. On these figures, used for adorning the old Parthenon, and probably quite incidental in its general construction as the Greeks saw it, center much of the interest in the modern reproduction.

Tile with a surface similar to that of the columns ultimately will be used for the permanent roof, although temporarily, an asbestos covering has been laid. If the board of park commissioners finally decides, as the Nashville Art Association wishes, that the Parthenon be made a Fine Arts Building, a skylight probably will be provided, in this case, the architect expects to obtain a special kind of glass stained to harmonize with the polychrome but not too dark to let in sufficient light.

It has been said that "there is not a straight line in the Parthenon." The architect would not make that bald statement, but he admitted that it was virtually correct. Between the ends, the structure rises $4\frac{1}{2}$ inches from the horizontal, this curve, like the others, being designed to correct a natural optical illusion by which straight line in a building seems curved. The Greeks discovered this fault in natural visualization and attempted to correct it



This View Between the Outer Columns and Inner Temple of the Parthenon Gives but a Faint Suggestion of the Stately Beauty of This Remarkable Reproduction.

through the structure.

The apex of the curve from side to side of the building 101 feet wide is 2 inches above the horizontal. The entasis of the columns amounts to about $\frac{3}{8}$ inch on each side halfway, giving the grooves and edges an arched appearance when inspected at close range. The diameter of the columns diminishes from 6 feet 4 inches at the base to 5 feet at the top. The sides almost describe an hyperbola.

The columns lean inward at such an angle that if lines through their centers were extended they would meet a mile above the edifice.

Considered as a whole, the artistic symmetry, balance and correct inter-relation of parts in the Parthenon afford a masterpiece of Doric architecture worthy of careful perusal by modern students; deserving the praise lavished by all who see it.

However much the Parthenon may mean to student architect, it means even more to the developing sculptor. Virtually everything in sculpture handed down by the

Egyptian, Persian and older civilizations has come through the Greeks, archaeologists say. Modern sculpture finds its best models in the Grecian figures, thus indicating the importance of the pieces that adorned the Parthenon.

Intricately perfect and fascinating, the Athenian designs are regarded as superior to the best that has been produced since the Age of Pericles.

By restoring this classic work Nashville expects not merely to build a shrine to attract visitors but to create a permanent school of sculpture while educating a much larger group of art-lovers as to the value of the heritage from ancient Greece.

The sculptural reproductions required untiring research as well as accuracy in casting. Because the most important figures were destroyed when a powder magazine exploded in the temple in 1687, it was necessary to create these pieces from drawing that have been left and from stories bearing on them.

For nine centuries after it was built, the Parthenon was known as the temple of Athena. Later, it was used for a Christian church, first by the Greeks and then by the Romans. When Athens was captured by the Turks in 1458, the temple became a Mohammedan mosque and was used as such until more than two centuries later.

In 1687, a Turkish garrison on the Acropolis was besieged by a Venetian army under Gen. Francesco Morosini, and the Turks converted the Parthenon into a supply house where they stored powder. This was set off by one of the besieger's shells which destroyed much of the pediment sculpture.

Fortunately, sketches of the pediment groups, many of the metopes and a large portion of the figures from the inner frieze were made by Jacques Carrey, a Frenchman, in 1674. These form an authentic guide as to many of the more valuable pieces of sculpture which otherwise would have been lost. These drawings were preserved in the French National Library at Paris.

Lord Elgin, British Ambassador at the Porte, at the beginning of the nineteenth century, when Greece still was an outlying province of the Turkish Empire, obtained permission and had removed to London the remaining marbles from the Parthenon, 1800 to 1812. This collection, known as the Elgin marbles, was sold to the British government and placed in the British Museum.

The purchase price was about \$60,000, and the collection, if sold today probably would bring 20 to 30 million dollars. It was from the Elgin marbles that 20 or more casts were made by the British government and sent to the sculptors at Nashville to be used in restoring the pediment groups.



Quality Basis of Success

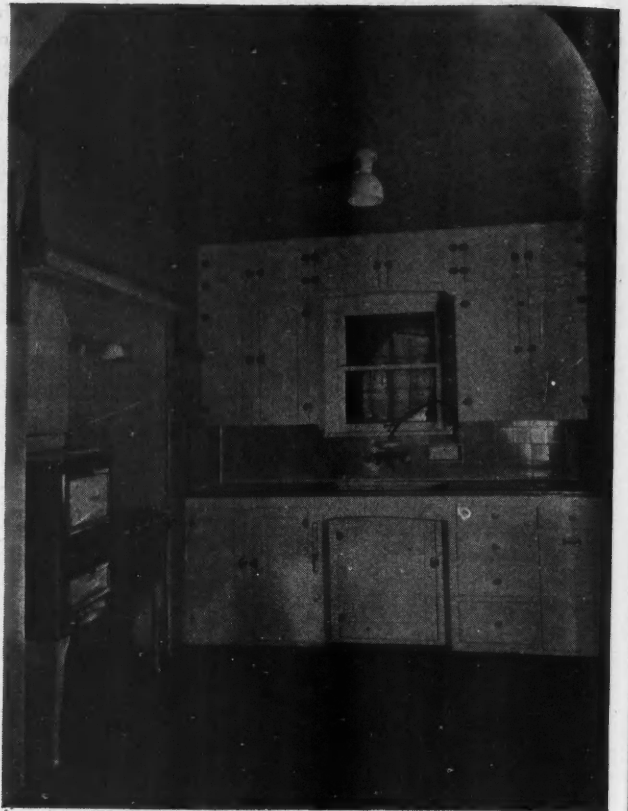
(Continued from page 102.)

to sacrifice some of the things which he can, perhaps, afford in a rented house in order to have a home of his own.

During this first discussion the architect draws a pencil sketch and floor plan of the house suggested and with this as a basis the final design and floor plan is decided upon.

Practically every Hanna-built house and every house in which his advice is followed has a good foundation, a roof of edge grain shingles put on with rust-proof nails, and the walls equipped with storm sheathing and outside boxing.

The majority of Mr. Hanna's houses are the medium sized and medium priced ones. He builds these to order (even buying the lot in some instances) to sell, and has recently developed a complete community just outside of Tulsa, of which he bought the acreage, built and has placed for sale thirty houses ranging in price around \$6,500.



A Model Kitchen in the Hanna Sales Office Gives the Prospective Home Builder a Chance to See How the Equipment Will Appear When Actually Installed in His New Home.

A very popular feature of the H. E. Hanna Company is the Fix-it service offered especially to the woman of the house. If her roof leaks she can call the department and a man is sent out to repair it. If her door sags, if her windows won't raise, the Fix-it department can send her someone to fix them. In fact the department takes care of all the small needs that come up in every home, and which, as they are so small, are sometimes difficult to get a competent person to take care of.



Housing Intellectual Workers

A MOVEMENT for the better housing of intellectual workers in the United States was recently inaugurated by Willard Reed Messenger, of New York. This is a part of a world wide movement which is based upon the fact in the solution of the problem of housing the workingman, the special needs of intellectual workers such as teachers, artists, musicians, writers, journalists, lawyers and medical men, has been neglected. A striking example of this occurred in France when a number of professors called to the Sorbonne, an appointment usually eagerly sought, were compelled to decline because of the lack of suitable housing facilities for themselves and their families.

The subject was primarily considered at the Fourth International Housing Conference, June 15 to 19, in Paris. It has also been announced that the Federation Internationale Du Batiment et Des Travaux Publics has accepted Mr. Messenger's offer of \$1,000 for three prizes to the winners of an international essay contest on the subject. Mr. Messenger suggests that these essays be limited to about 5,000 words and deal with a broad range of architectural, economic and social phases of the project.

The project in this country, which is backed by large financial resources, will first be undertaken in New York City and later will probably be extended to other cities.

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Automobile Oiling Trestle of Reinforced Concrete

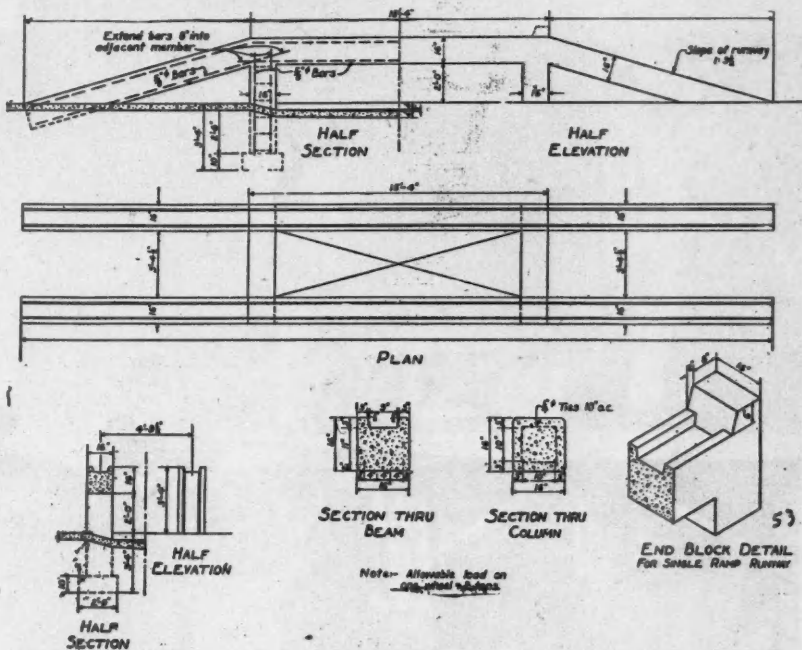
By A. J. R. CURTIS

SINCE the lubrication of automobiles has been reduced to something of a fine science, oiling and greasing stations have opened up at short intervals to take advantage of the popular demand for lubrication service. Many trestles or runways for these stations are what might be called emergency construction, often bordering on the makeshift.

Accompanying illustrations show a very good and inexpensive runway of reinforced concrete, which is neat in appearance and designed to withstand maximum wear and tear. It will safely carry any motor vehicle up to 16,000 pounds gross weight. The grades are easy and the treads slip-proof and flanged to prevent running off. The structure remains rigid under all circumstances and is so sturdy that it will withstand almost any kind of abuse and is neat in appearance.

The four supporting columns rest on footings 24 inches square, 10 inches deep, placed below frost penetration. Vertical reinforcing, consisting of four 5/8-inch round bars, is imbedded in the footing so as to form the four corners of a 10-inch square centrally located. One-quarter inch round bars securely wired around the vertical bars at intervals of 10 inches keep the latter in position and compose the horizontal reinforcing. For the columns there are required one or more square box forms 4 feet 6 inches long.

A 4-inch concrete floor slab is placed under the entire structure, being sloped up to grade at both ends to facilitate cleaning it out. The entire construction is quite simple and the sketches here given show all of the detail required. Simple box and trough forms ample for the purpose may be made from a few pieces of second-hand lumber. A 1-2 3/4-4 mixture of cement, sand and pebbles or stone is recommended, being mixed wet enough so that it will fill the molds compactly under light tamping.



The Drawings Show All the Detail Required for Building a Permanent Concrete Trestle for the Automobile Oiling and Greasing Station.

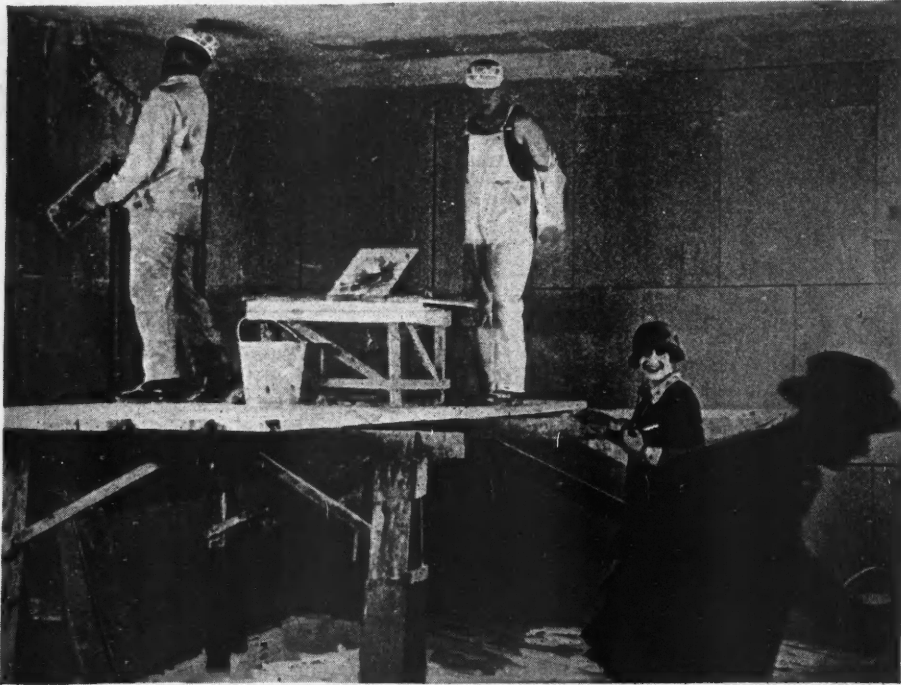


A Concrete Oiling Trestle Is Neat and Permanent. It will safely carry any weight up to 16,000 pounds, the grades are easy and protected from slipping. It is more easily kept clean than the ordinary type of trestle.

Plaster and Stucco in the Movies

Good Plaster Work Dramatized

An Interesting Promotion of Plaster and Stucco in These Pictures Which Show the Awkward Apprentice "Red" and His Adventures in Becoming a Master Plasterer



"Red" Chases a Rival: "You 'Snipe,' Get Off the Job!" He gets. "Red" has become a capable plaster worker.

EVERY step in the manufacture and application of plaster—from the mining and milling to the finished wall—is shown in the new motion picture film, "The Making of a Master Plasterer," which has been prepared by a large company producing gypsum products.

The film had its first showing at Plasterers' Hall, Chicago, recently, for the benefit of plaster contractors and their men. This hall, which is used for meetings of the Plasterers' Union, is a fine, modern hall, embellished with beautiful decorative plaster work and some views of it appear in the film itself.

The picture was prepared under the direction of Mr. C. O. Powell by the Rothacker Film Corporation and is very instructive and interesting from start to finish. Even a heart interest is worked into the story concerning "Red," a youth who becomes a plasterer's apprentice, finding a big-hearted plastering contractor who teaches him painstakingly the art of good plaster work. Eventually he becomes proficient, secures the contract to plaster a big "skyline" building and marries the boss's daughter.

Mr. Duncan Payne, expert plasterer of Chicago, plays the part of "Dad" Henderson with considerable skill and Mr. Theodore Humphrey, plasterer, of Philipsburg, Pa., dis-

sembles his skill in the part of "Red," the apprentice.

The picture shows how lath should be spaced, nailed and joints broken and how to test sand for cleanness and mix it with plaster. The audience gets some laughs from "Red's" first awkward attempts to apply the plaster and a chance to admire the expertness of his boss. Incidentally every defect of a plastered wall, its cause and prevention is pictured and its correction explained.

Here the pictures produce some clever effects. "Dry-outs" are shown and cured. Improperly applied lath are pictured and then, before the eyes of the audience, the plastered wall bulges and breaks out in places from the buckling lath. Blisters and pitting, dry-outs, sweat-outs, over-sanding, stains and every other plaster defect is shown and its cause and prevention carefully explained. "Red" is also taken on a trip through the plaster mill,

starting with the mining of the gypsum rock. Every stage of manufacture and test is shown until the plaster is automatically weighed, sacked, tested and shipped.

The scene shifts to the big ornamental plastering shop of McNulty Brothers, Chicago. "Red" is taken through this shop and shown the artists at work modeling the designs in clay; then how the plaster casts are made in gela-



"Red" Realizes His Ambition and Wins the Girl. This scene was enacted in a large building actually under construction.

tine molds and the fine ornamental ceilings, pilasters, friezes and cornices prepared.

At the first showing of the film in Chicago, Mr. Edward O'Rourke, president of Plasterers' Local No. 5, introduced Mr. H. A. Simons, who emphasized, in an effective speech, three ways to secure greater volume and more profitable plaster work; promoting the home-owning idea and securing a bigger volume by providing home owners with better plastered homes—easier to heat and lower in maintenance cost; to secure more profitable prices by better looking jobs—new texture and tint effects, some of which require no painting or decorating; and by a more extensive use of stucco on both old and new buildings, applied in a way that will provide attractive and durable exterior walls.

The picture is intended to show that good plaster work is not merely "mud slinging" but requires brain and skill as well as brawn. It is hoped to imbue plaster workers with a proper sense of the dignity and importance of their work, which dates back to the master plasterers



"Dad" Henderson, Played by Duncan Payne, in Real Life an Expert Plasterer, Is Introducing to His Family a New Apprentice—"Red"—Also Played by a Plasterer, Theodore Humphrey, of Philipsburg, Pa.



"Red's" Muscle Impresses the Daughter. She gives him her preference over the rival who has fled.

of classic history.

The beautiful specimens of decorative plaster which have come down to us from ancient civilizations show that plaster workers were sculptors and artists—probably also the real designers or architects of their time. Modern plasterers should realize the dignity of their calling and the importance of good plaster work in almost every type of building. In fact, the comfort of modern buildings is largely dependent upon good plaster work.

The speaker told of a young couple of his acquaintance who experimented in home ownership. The young husband was a newspaper writer on a modest salary, but, by denying themselves all luxuries and probably some necessities, the newlyweds finally saved enough to make the first payment on a home in the suburbs so that their baby could grow up amid the healthful surroundings of fresh air and sunshine.

The new home was bought and they moved in, but, before the first winter, the

stucco and plaster were badly cracked and, in spite of a high heating and maintenance cost, they suffered in the extreme weather. In fact, their experience was so discouraging that they sold out and moved back to rented apartments. Good plaster, a warm house and a low maintenance cost would have made them "busters" instead of "knockers" for the "own-your-own-home" idea. Today, whenever the subject of home ownership is mentioned around that newspaper office there is a "howl" from the young man who had this unfortunate experience.

Arrangements can be made through AMERICAN BUILDER to secure this film without charge and "live" dealers and builders will find it a great benefit and promotion of their plaster business to arrange a showing. It "holds" the audience from start to finish and is a great object lesson in the value of good plaster properly applied. Simply address Editor AMERICAN BUILDER, who will see that your letter reaches the company who prepared the film. We advise making your application at once, as there will be many calls for these entertaining pictures.



Re-Grinding Machines in a Plaster Mill. The gypsum comes to these machines for grinding after the water of crystallization has been boiled off. The film shows the interesting process of mining and processing the gypsum.

Installation of Magnesium Oxide Chloride Flooring

By LEROY C. STEWART

EACH year, more and more magnesite composition flooring is used in new and remodeled buildings. Its sanitary and fireproof properties, coupled with the beautiful color effects which can be obtained, account for this growing popularity. It should be remembered, however, that composition flooring is not a fool-proof product. Care must be taken in preparation of the sub-flooring, and caution must be observed in the application if best results are to be obtained. The installation of composition flooring is more than a cement finisher's job and requires workmen of experience to give maximum satisfaction. It is only the purpose of this article to call to the attention of architects, contractors, and builders the chief factors which make for the success of an installation in order that they may inspect the jobs in which they are interested and insist upon proper procedure.

Before considering the rules of good practice concerning composition flooring, it might be well to mention briefly the nature of the material. The active cementing ingredients are magnesia, which is obtained by calcining and grinding the natural magnesite ore, and magnesium chloride, which is obtained from natural salt and brine deposits. The magnesia is mixed with other inert ingredients which give to the floor its desirable wearing and resilient properties,

and the magnesium chloride is dissolved in water and this solution used for gauging the dry mix to the desired plasticity just before it is applied. The hardening of the mix is due to a chemical reaction between the magnesia and the magnesium chloride. This is the reason for sometimes calling the material magnesium oxychloride cement flooring.

Foundations for Composite Flooring

In order to obtain the best results, it is necessary that the sub-flooring or base be prepared with much care. When concrete is used it is recommended that it be composed of one part portland cement, three parts sharp sand, and not more than five parts broken stone or gravel. It is also advisable that this foundation be at least three inches thick and that it be carefully brought up to within one-half inch of the finished floor level in one operation. The surface of the concrete should be roughened by giving it a raked or broomed finish.

If the concrete sub-base is placed directly over the ground or on earth fill, or in any place where it will come in contact with moisture from the bottom, it is necessary that it be adequately drained and thoroughly waterproofed. Magnesite composition flooring should never be applied



Sanitary and Fireproof Properties, Coupled with Beautiful Color Effects, Which Are Obtained in Magnesite Composition Floorings Are Making Them Ever More Popular for Hotels, Clubs and Public Buildings Where These Characteristics Are Desired in Combination with Wearing Quality to Resist the Constant Hard Use to Which They Are Subjected.

over concrete foundations on which has been placed a thin screed or leveled coat of sand and cement. Neither should it be applied directly over wooden sleepers imbedded in concrete.

Wherever water, gas, steam, or conduit pipes are imbedded in the concrete foundations, they should be securely wrapped with painted or galvanized metal lath and covered with at least two inches of concrete. All pipes passing vertically through the concrete foundations should be surrounded by metal sleeves of about one inch greater diameter than the pipes. These sleeves should extend through the concrete foundation to a height of about one inch above the finish level of the composition flooring. All hot water and steam pipes should be covered with asbestos or other suitable heat insulating material at least one inch thick.

If the foundation is a smooth finished cement floor, it should be roughened by chipping to a depth of at least one-eighth inch every two inches, in order to provide a sufficiently rough surface to which the composition flooring will bond.

If there are hot water and steam pipes passing in trenches or tunnels immediately under concrete foundations, these pipes should be properly insulated with high pressure covering not less than one inch thick.

It is very important that all concrete foundations shall have been thoroughly cleaned to remove all dust, lime, plaster, or grease from their surfaces and they must be thoroughly dry before the flooring composition is applied.

When composition flooring is to be applied over wooden foundations, it is advisable that the latter shall be seasoned lumber and not less than seven-eighths inch thick and securely nailed to joists which are amply strong so as to carry the intended flooring load without sagging. All wooden foundations should first be covered with waterproof paper over which expanded metal lath, either painted or galvanized, or galvanized wire, is securely nailed every six inches in all directions to the wooden foundations. The same precautions should be taken for hot pipes as directed above.

Occasionally oxychloride composition flooring is applied directly on iron or steel foundations. In this case they should be thoroughly cleaned, rough finished, left uniform, and provided with suitable keys or anchors. Where steel tread pan construction is provided, it is not necessary keys or anchors be present.

When the oxychloride cement mixture is also to be used in a sanitary base or wainscot, it is necessary that the backing be composed of a strong portland cement mixture which has been roughened, or a wooden backing of rough seasoned boards nailed to the studding of the walls or partitions may be substituted. It is very necessary that the plaster shall be stopped at a ground or parting bead set at the height of the plastic magnesia cement base.

In order to obtain best results in the application of com-

posite flooring, it is advisable that wooden guide strips dressed four sides, with clean cut sharp edges, be used. For a half-inch floor of two coats, these strips should be three-sixteenths inch thick by one inch wide. Where the floor is to be applied in a half-inch coat, strips three-eighths inch thick may be used. It might be added here that, except for very small areas, it is the best policy to lay floors in two one-quarter inch coats rather than on one one-half inch layer.

The wooden guide strips should be placed at suitable distances apart so that when the plastic base coat is dumped on the floor the mix can be easily brought to a desired level with a straight edge worked over them.

It might be well here to consider the actual preparation of the base coat. First, of course, it is necessary that the magnesium chloride solution be prepared. In doing this, the salt-like compound should be placed in a clean water barrel and covered with water and stirred until a complete solution is obtained. Most flooring manufacturers supply hydrometers which should be used for determining the strength of the solution.

In the first barrel, it is most convenient to make up a saturated solution and transfer some of this heavy liquid to another barrel and add water until the mixture, after stirring, reaches 22 degrees Baumé. Although different flooring manufacturers may vary in their opinion as to the exact density of the solution to be used with the base coat, it is an established fact that it should never be less than 18 degrees Baumé and preferably 20 to 22 degrees. The

top coat should always be made with the 22 degrees Baumé solution.

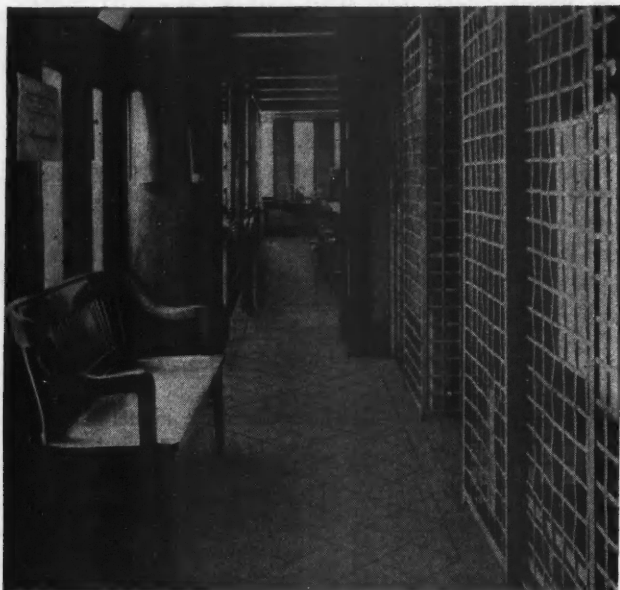
When mixing up the dry flooring material, care should be taken that a clean box is used, and especially that no lime has been recently mixed in it. The dry material should be thoroughly mixed with the chloride solution until a fairly thin mortar has been obtained.

Before the base coat is applied, concrete foundations should be wetted with some of the chloride solution. This prevents the sub-base from absorbing chloride solution from the composition flooring. It should be observed, however, whether any small pools of magnesium chloride solutions have collected on the concrete base due to slight hollows. If this is the case, a broom should be used to spread the solution over the floor so that a uniformly damp base is obtained.

When the composition mixture is placed on the prepared under-floor, it is very desirable that the material be rubbed well into the surface of the sub-base with a trowel and then spread evenly with a straight edge, drawing the same forward with a zig-zag motion, using the wooden guide strips as previously described for establishing the correct level. In this way the base coat surface should be brought within one-quarter inch of the desired



One of the Most Severe Tests to Which a Flooring Material Can Be Put Is in the Halls of a School Building Where Hundreds of Children Tramp Back and Forth Over Its Surface Every Day.



Here Is an Installation of a Magnesite Composition Over an Old Wood Office Floor Which Gave Complete Satisfaction After Other Materials Had Failed on Other Floors of This Office Building.

finished surface. The base coat should be left with an ordinary float finish and permitted to set up hard before the finish coat is applied.

Finish Coat

When two or more colors are to be used in a room, guide strips should be carefully set and leveled to provide for the field and border, or inlay border, as the case may be.

The border should be laid first and troweled as described below for the main section of the floor. Usually, a cove base which is integral with the floor is desired. In this case special shaped tools should be used for troweling. It is good practice to give the border a coat of a mixture of equal volumes of boiled linseed oil and turpentine at the end of about twenty-four hours, when it has set hard. By doing this before installing the field, the color of the border is preserved and it prevents the field material from adhering to the border.

The mixing of the finish coat is the same as that of the base coat. Care must be taken that the batches should be small enough so that there is no danger of the material stiffening or setting up in the mortar box. It might be added here that at warm temperatures the setting of the cement mix takes place more rapidly than at cooler temperatures.

If the base coat has become dry, it should be dampened with the chloride solution before the top coat is applied. In the application of the latter, care should again be taken to rub the plastic material well into the surface of the base coat with the trowel.

In laying the field, guide strips and straight edge should again be used, since they help materially to give a level surface to the floor. After it has been applied, it should be smoothed off with a darby, using a sweeping circular motion which eliminates high and low spots not taken out by the straight edge. When this is being done, and for further treatment of the floor, the mechanic should use kneeling boards which are specially prepared for the purpose.

When the finish coat has started to set, but while still in a plastic condition, the surface should be troweled, keeping the face of the instrument flat on the cement. After the material has nearly reached its final set, at which time a slight impression of the thumb can be observed if it is

strongly pressed into the surface, the finish troweling is given to the floor. In this case, the surface of the trowel is held at an angle of 45 degrees with the floor. It is this troweling which imparts to the floor its glazed appearance.

Light colored flooring should be given as small an amount of troweling as possible and still close all the pores. Also, the trowel should be frequently cleaned with a rag when working on light colors.

On all areas of more than 400 square feet, paneling or scoring of the floor surface is recommended. It is advisable that this be planned so as to come at all points where probable stress or strain may be expected, such as the junction of old and new buildings, along supporting beams, etc. This is done after final set of the cement takes place.

When the floor is thoroughly dried out, not less than twenty-four hours after installation, it is advisable to go over the surface lightly with a handful of No. 2 steel wool, and remove all trowel marks or other slight imperfections. After this is done and the floor has been swept with a soft brush, it should be treated with the linseed oil-turpentine mixture previously mentioned. Later, an application of good floor wax will give the floor an excellent gloss.

Additional Factors of Importance

In conclusion, it will be advisable to mention a number of other points which should be carefully observed in the installation of magnesite composition flooring. For example, the practice of retempering mixed-up material should never be permitted. By this is meant the practice of adding additional chloride solution to a partially set mixture to bring it back to a workable plastic condition.

If the dry mix as obtained from the bags is lumpy, these should be discarded and not broken up and used. In mixing up the dry material, care should be observed to make each batch in the mortar box up to the same consistency.

It is very important that composition flooring be not applied over lime plaster or any mixture containing lime. Also, no lime or gypsum compounds should ever be added to a flooring mix. The material is always mixed complete at the manufacturer's factory.

The rooms in which flooring is being laid should be kept fairly warm, not less than 60 degrees Fahrenheit. Drafts over localized sections of the floor should be avoided. Also, it is not advisable to have small but very bright patches of sunlight appearing on the finish coat previous to its final set.

The flooring should be installed as far as possible after all other work is finished. The plastering should have been done, the plumbing roughed in, floors of other material adjoining the composition floor spaces installed, the trim set, glazing completed, and all fittings that can be set should be in place before the magnesia flooring work is commenced.

When the work is completed, the floor should be protected by being covered with sawdust or shavings while other workmen are about the building. Any materials such as lime, gypsum, or cement mortar or plaster may cause damage to newly installed floors. Also nails and tobacco juice are sometimes causes of unsightly mars and stains on flooring only a few days old.

The points brought out in the above paragraphs may seem numerous, and give the impression that the laying of composition flooring is a complicated proposition. This is not the case. It is true that experience in handling of the trowel on this type of floor is necessary, but the intelligent and conscientious workman has no difficulty in following the rules of good procedure, which, if observed on installations where the product of a reliable manufacturer is used, will certainly result in a most attractive floor.

The author wishes to acknowledge his thanks to the National Association of Oxychloride Cement Manufacturers, through the courtesy of whom the above illustrations were supplied.

Driving Home the Message

By THEODORE MAISCH

A MOST effective method of advertising has been adopted by John H. McClatchy, probably the largest operative builder of Philadelphia.

Not content with newspaper copy, Mr. McClatchy has placed scores of artistic signs along well-traveled streets near his operation in the Sixty-ninth street section. They are planted from fifty to one hundred feet apart and look for all the world like squads in single file.

On Marshall Road, which in that section is an extension of Spruce Street, the rectangular signs, several feet in width and about five feet high, are placed in groups of from five to ten. Marshall Road is a fine automobile road and machines are continually passing. For several blocks in either direction, before approaching the operation, motorists are attracted by the signs.

The lettering is large enough so that the speeding motorist can read as he runs. The monotony is broken by having the groups of signs separated by varying distances.

The smaller signs, measuring about two feet each way, are placed at regular intervals along Long Lane, running at right angles to Marshall Road. Long Lane is now in course of construction. The signs will be removed when this operation has been sold.

In addition to these smaller signs large painted bill-boards are placed at strategic points where they can be viewed from a distance without intervening obstruction. One can't enter the seventy restricted blocks of the McClatchy operations without being apprised by some signs that this is a monument to John H. McClatchy. Though his efforts this section has

become a veritable city in itself, a community within a big city. Traffic has been created by placing the business center near the junction of the elevated line, the Philadelphia and Western line, the four divisions of the Philadelphia and West Chester line, the three bus lines, and a Philadelphia surface line.

Intensive sales efforts are needed for McClatchy regularly employs 1,000 men in the construction of about 500 homes annually.

The signs carry terse messages such as: "Convenient to Schools, Churches"; "Highest Elevation in This Locality"; "Homes \$6,750 with Heated Garages"; "Cheaper Than Renting"; "We Invite Your Inspection"; "Five Sample Homes for Your Inspection, \$6,750 to \$11,500"; "Homes \$36 a Month"; "70 Restricted Blocks"; "Modern in Every Detail" "3 Bus Lines"; "1,000 Men Are Building McClatchy Homes." The name John H. McClatchy appears at the bottom of each sign.

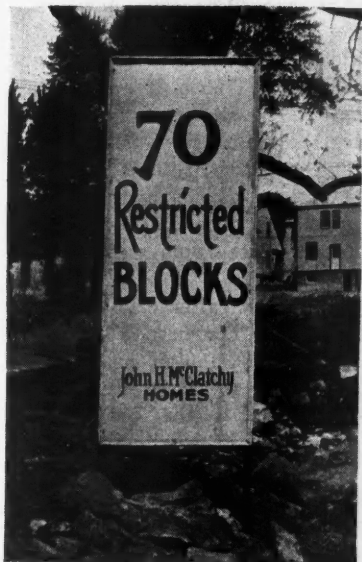
The advantage of having scores of such signs placed at well-traveled spots is immediately apparent. Repetition is one of the essentials of effective advertising. While the messages carried by the signs are brief, so brief indeed that they become mere labels, their very omnipresence accomplishes what all advertisers seek—to arrest the eye, prod attention and drive home the message.

Lumber Manufacturers' Meeting

THE midsummer meeting of the board of directors of the National Lumber Manufacturers' Association will be held the last week in July in Portland, Ore., probably July 30 and 31.



A Close-Up of One of the McClatchy Signs on Marshall Road. These are placed in groups of from five to ten for several blocks along each approach to the operation.



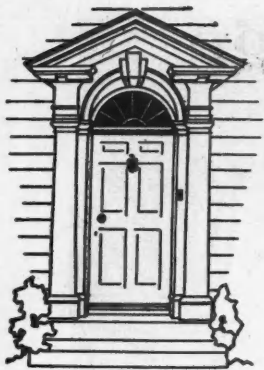
Each of These Signs Is About 5 Feet High and 2 Feet Wide. The large lettering is easily read by every passing motorist, and the signs are neat and attractive.



Here Is a Row of the Smaller Signs Used Along Long Lane, Which Was in Course of Construction at the Time This Picture Was Taken.



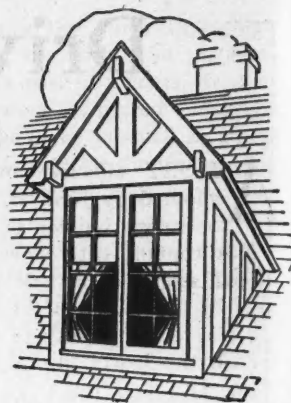
This Is a Typical Row of the Signs Along Marshall Road. Only a blind motorist could fail to see them and read the clear and pointed message.



DETAILS of HOME BUILDING

by V. L. SHERMAN

Lewis Institute of Technology



Detail 4—Roof Lines

TO come within the space allowed for it, this article must be brief. Structure, aside from cornices, will not be taken up except on one point; that is the use of toe nails. The prevailing increase of roof lines in small homes has led some to this habit in extending roof lines along walls. Rafter tails and lookouts should not be merely toenailed to the sheathing. It is a bad habit and its ease engenders promiscuous use, which is probably worse.

In contrast, let me mention a small stucco cottage of extreme plainness which daily catches my eye as the train passes. Withal the cost of the property is probably less than six thousand. There is an unusual mark about it. A row of Lombardy poplars put before the hedgerow would transport the whole three thousand miles from its nearest neighbor. Just a small house with a wonderful roof.

Elsewhere in this magazine you will find plenty of information on roof framing in different forms. Here we will stick to gable and hip with a hope to dip into gambrels later. To begin with the gable, or fork, or inverted ship's frame, build from the ground. Improvement in material and method gives the house-part wall height and the line at the eaves becomes prominent. But still the roof is the main portion and only later is the frame under-drawn, forming a ceiling below the joists.

Still later in the hurry, we forget the roof is more than a water-shed and we deal in lines for expediency only. Hence the characterless flat hip roof with the pipy chimney. These houses furnished dwelling space, and nowadays furnish contrast for their better-built associates, but the necessity is gone and ignorance of better stuff is inexcusable.

There is one type of hip besides that of the attractive western bungalow which has always appeared worth while. As a roof this flat overhung type shown in Fig. 6 is not easy to handle. Like the Swiss chateau the house must have a setting and a unity with it. Generous proportions and a solid chimney, with a yard and trees and a perspective from the road, make it look anything you wish to make it, either neat or burly. But the rafters must show weight.

Anticipating these is the Colonial roof with its carefully turned eaves. The roof surmounts the house but seems a part of it. Note in Fig. 3 the care taken to fit the profile to the wall, and how it is carried down the wall in Fig. 4. The old aristocrats knew more of Grecian mouldings than they did of mythology. Their importation of architects left its impress and the care of the old times lends us the copy plates for today.

One of the failings in such an eave line is carelessness in hanging gutters. To eliminate poor chance some eaves

are set in near the return as shown in Fig. 5, the molded box gutter carrying the line along the length of the roof. As a rule most gutters are larger than is necessary and pitched too steep. Such gutters will of course intercept the lines and throw them out of kilter just as much as a slanting down-spout will throw a house out of plumb. Water will run best in a "V" gutter and a pitch of 1/16 inch per foot should be plenty. A large gutter is prone to clog with snow and ice, and its capacity means slow melting in a thaw.

One more point: On wide eaves ice sometimes coats the shingles up to the house wall. Unless it melts away during the thaws an accumulation will force the surface water or rain back up under the shingles. Guard against this by running the lining high under the shingles. Simple hanging gutters and V edge-gutters can be made to blend easily with the roof. They should carry both color and line. Steep composition or real slate roofs will take an edge gutter with very good grace.

Figures 1 and 2 show the exposed rafter eave which is common and often very attractive. The first is simple, if cheap, and on small dwellings adds enough in detail to give lightness in outline. The one to the right is more elaborate or decorative, and parallels the old country thatch edge in tendency. Overhang is usually more than Fig. 2 shows and for this reason care should be taken to fit the show rafters for their job. The matched lining gives the necessary thickness and is parallel with the projected under-edge of the shown rafter. The sheathing is blocked above this rafter for a fair curve only. Don't exaggerate. Open timber cornices may be used on frame or masonry.

A simple roof has special attraction. The sketch opposite is of a house designed by Mr. Frank Venning, architect, for his father. This place is near enough and old enough to have come under a critical eye from every point of the compass. Invariably the critical stage passes. From one direction you may approach from the top of a hill and first see the roof over the trees. Then your eye becomes covetous.

According to tradition the ridge parallels the street. The architect balanced the height and breadth to a nicety and then threw in long slope to the south for contrast, breaking that again with a sun room. The chimney rises past the slope and you have a home. When the architect and the builder had these chores done, the owner began operations, and if he hasn't outdone both his predecessors by providing a fitting local landscape, he has at least run them a close race.

This leads to a point that cannot be too strongly emphasized. A roof should be simple but not stupid. The lines should be artless and unstudied, even if you have to study them again and again. Build the roof to the house.

NOTE:—SCALE 3/4 IN.=1 FT. IN FIGS. 1, 2, 3 & 6.

SIMPLE AND DECORATIVE
EXPOSED RAFTER
TYPES
SHOW RAFTERS"

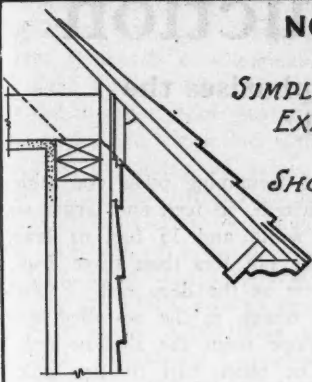


FIG. 1

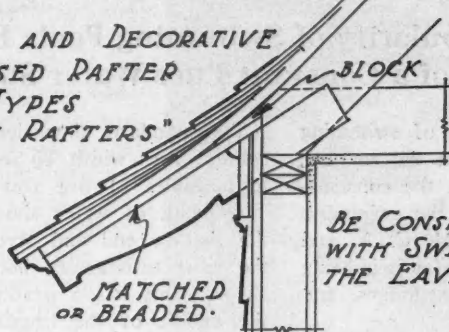
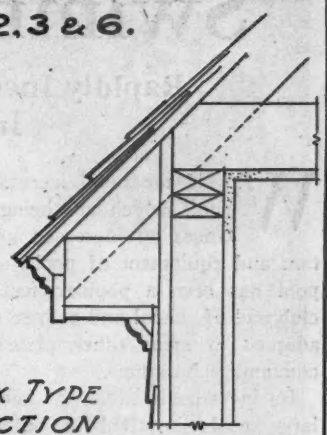


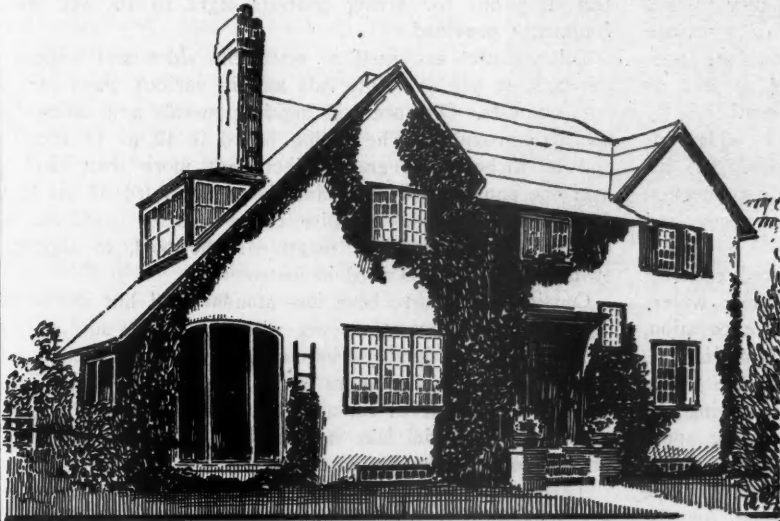
FIG. 2

BE CONSIDERATE
WITH SWEEP AT
THE EAVES.

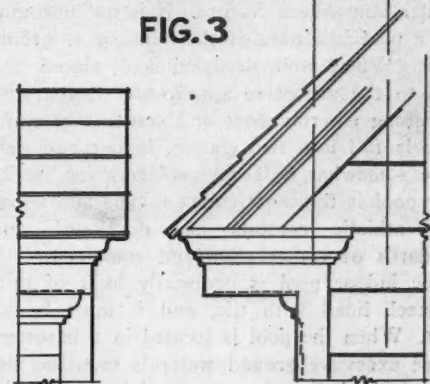


BOX TYPE
SECTION

FIG. 3



MR. VENNING BUILDS HIS ROOF WITH ALL OF THE
VIRTUES OF UTILITARIANISM AND NONE OF ITS VICES.



BOX TYPE CONSTRUCTION
ELEVATIONS.

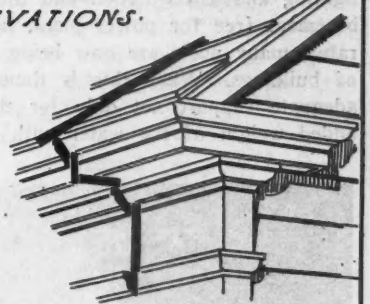


FIG. 4

A MORE PRETENTIOUS
FORM OF THE TYPE
SHOWN IN FIG. 3.



FIG. 8

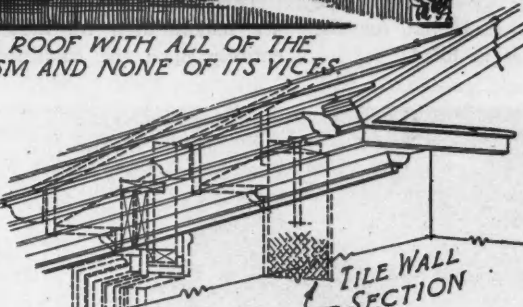
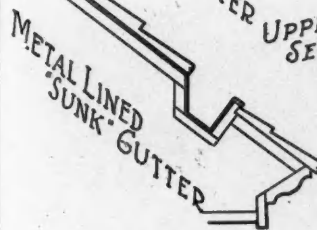


FIG. 5

TILE WALL AND STUCCO WITH
RECESSED EAVES AND
MOULD-FORMED GUTTER.

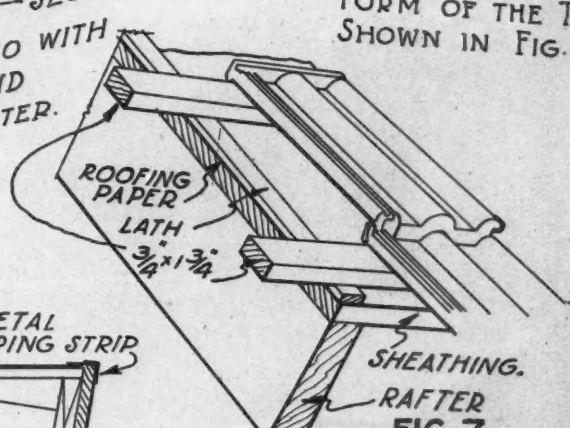
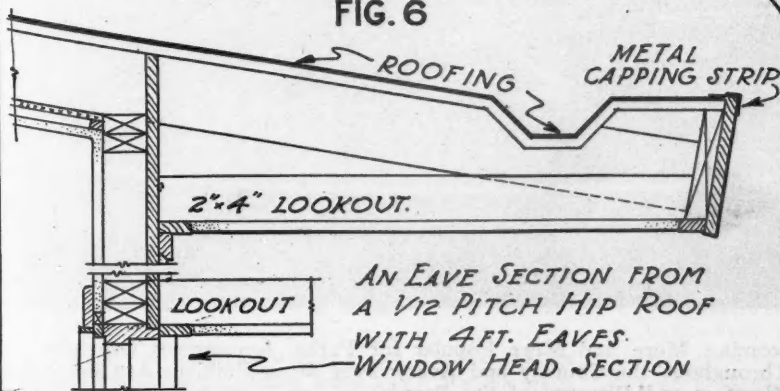


FIG. 7

CONSTRUCTION FOR
CEMENT TILE ROOFING.
RAFTER FRAME SHOULD
HAVE AMPLE STRENGTH
WHEN TILE IS USED.

O.P. Sherman 6-8-25



AN EAVE SECTION FROM
A 1/2 PITCH HIP ROOF
WITH 4 FT. EAVES.
WINDOW HEAD SECTION

Swimming Pool Construction

Rapidly Increasing Popularity of Swimming Pools Emphasises the Importance of a Constant Pure Water Supply

WITH the rapid increase in the number of swimming pools which are being built throughout the country, comes an increased general interest in the construction and equipment of pools. For many years the swimming pool has been a popular feature of the Y. M. C. A. and club and of school and college gymnasiums. Today it is being adopted in many other places, such as hotels, lodges, and community buildings.

Its investment value has been recognized by promoters and large pools installed in public parks are often the most popular amusement feature. It is not uncommon now to find that a pool is a part of the building or grounds of a private home. When well designed and placed the outdoor pool adds to the attractive appearance of the ground as well as furnishing entertainment and comfort in warm weather.

Pools fall into two classes, indoor and outdoor, which involve somewhat different problems for the builder. The indoor pool is the most common type and its use in connection with athletic contests has developed certain recognized standards of construction and equipment.

The indoor pool is ordinarily built of reinforced concrete or steel, lined with tile, and it must be absolutely watertight. When the pool is located in a basement or excavation, where excessive ground water is met, the steel tank is used. The steel shell serves as a lining. Because of the better lighting and a ventilation and the advantage of leaving the basement free for power plant, heating and purifying apparatus, many pools are now being placed in the upper floors of buildings. When this is done the design must provide adequate support not only for the tank itself but for the added weight of the water with which it is filled.

The standard dimensions of swimming pools for athletic contests are: width, 20 feet; length, 60 feet, and larger sizes in multiples of five feet of width and 15 feet of length. The depth of water should be not less than three feet at the shallow end and seven feet at the deep end. Probably the most satisfactory bottom design is the so-called spoon shape. This has a gradual slope from the shallow end to the middle of the length. The other half of the tank is sloped both ways to give the greatest depth at a point about 15 feet from the deep end. Most pools are not over 7½ feet deep but for diving contests eight to 10 feet feet is frequently provided.

Colored tiles are used to mark the sides and bottom of the tank at five foot intervals and in various ways for athletic contests. Distance and depth numerals and safety lines are also provided. The diving board is 12 to 13 feet long and 20 inches wide and projects not more than two feet over the pool with its fulcrum placed one-third of the length from the free end. A wire cable is often anchored into the walls, extending the length of the pool, to support a swimming belt to be used in instruction.

Outside pools have been less standardized but are attracting considerable attention even where there are surf or other natural bathing facilities because the danger of contamination can be controlled more easily. Outside pools are usually built of waterproofed concrete but where natural topography permits an artificial lake is sometime formed. Sand is generally used for the bottoms of the latter type.

There are no standard markings for outside pools as they are seldom used for athletic contests and the size depends entirely upon the conditions and the desire of the owner.



Swimming and Wading Pools Are Becoming More and More Popular for Parks, Amusement Grounds, Clubs, Schools, Hotels and Community Centers Throughout the Country and Every Year More Builders Are Being Called Upon to Construct These Additions to the Comfort and Pleasure of the People.

A capacity of from $\frac{1}{2}$ to three million gallons of water is generally provided. The depth from $2\frac{1}{2}$ to $10\frac{1}{2}$ feet. From 30 to 50 per cent of area is usually of a wadeable depth and the rest deep enough for swimming.

While in some pools water is introduced by inlets under the water line, some designers consider the psychological value of allowing the public to see the continuous purification of the water. This is done by allowing the water to enter cascades or aerating towers about eight feet high, producing a natural waterfall. Such cascades are often located near the center of the pool in an attractively designed pagoda structure. Sometimes a small display pump, in addition to the circulating pump, is installed to produce a continuous fountain of water at different points in the pool.

The equipment required to keep the water of a swimming pool thoroughly clean and disinfected is determined by the size of the pool, the number and sort of people by whom it is used and the nature of the original water supply. Filters of a type and of capacities specially adapted to this purpose have been developed. Where these filters are used they are usually of a capacity to completely change the water in a period of ten hours. With a pool 20 feet wide, 60 feet long and with an average depth of $5\frac{1}{2}$ feet, this requires a rate of 5,000 gallons an hour. For good results a filtration rate of three gallons per minute, per square foot of filtering area is about correct.

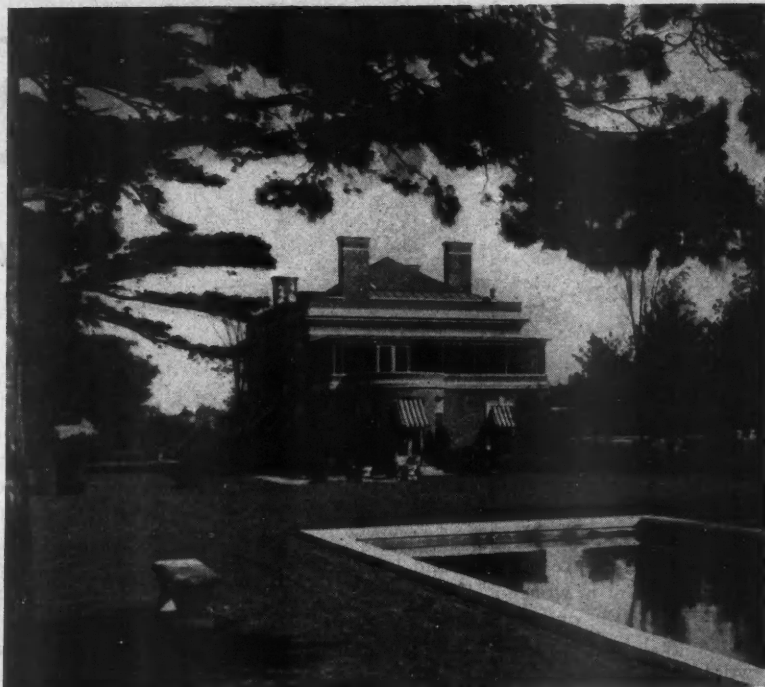
In addition to the filter a coagulant tank may be used. This introduces a regulated flow of alum into the water. The alum reacts with the chemical salts in the water forming a bulky, gelatinous precipitate which forms a "mat" over the top of the filter bed so that the most minute particles of suspended matter are removed and the water delivered is clear and wholesome. Where fairly soft water is used a second tank holding soda ash is used for the purpose of increasing the alkalinity of the water and securing better coagulation. A similar tank can be placed on the outlet line of the filter for use with hypochlorite of lime, which is an effective sterilizing agent.

For enabling an operator to observe the condition of the wash water an open sump may be used or a sight wash glass can be placed in the water pipe. Two single registering gauges, above and below the filtering medium, show the resistance of the filter, excessive loss of pressure indicating that the filter needs to be cut out and washed.

Six methods have been used for heating the water of pools but all but two are now considered practically obsolete. These are by the injection of live steam into the water, and by means of a live or exhaust steam water heater. Because of the fact that the introduction of steam at high pressure into a pool causes noise and turbulence and forms a protruding object in the wall of the pool the second method is considered the better.

Sterilization is accomplished by any of three methods. This treatment, to destroy bacterial life, is commonly used but is not always insisted upon. The three methods make use of chlorine, ozone and ultra violet light. The chlorine method is probably the cheapest and simplest and is the same as that commonly used for sterilizing water supplies of municipalities. The apparatus usually consists of a small cabinet, for mounting on the wall, containing a tank of compressed gas which is applied to the water in measured quantities. About six pound of chlorine are required for each million gallons of water.

Ozone is produced by the passage of an electric current through air. The ozone apparatus consists of a steel tower



Outdoor Pools Are Not an Uncommon Feature of Homes Having Large Grounds Today and When Properly Planned Add an Attractive Feature to the Landscaping. Some of the larger homes even include an indoor pool as well.

through which the water is passed and mixed with the ozone produced or generated by an ozonator. The ultra violet ray method involves a fused quartz mercury vapor lamp in a water tight protecting glass tube. This is held within a few inches of the arc in such a way as to permit action of the ray sufficient to destroy the bacteria. Its efficiency is dependent on the freedom of the water from turbidity and dissolved color.

For circulating the water a horizontal centrifugal pump is most commonly used. The motor should not be too small or it will operate under an overload part of the time. Hair, cuticle and other organic matter which accumulates in pools, has a tendency to clog the pump and to form a mass in the filter which is difficult to remove by washing. This is overcome by means of a hair and lint catcher which removes all solids before the water reaches the pump. It is cleaned by removing a plug, allowing the collected matter to flow out.

Solid matter which settles on the bottom and sides of a tank was formerly removed by draining the tank and scrubbing the walls. This involved considerable expense in labor, water and heating. A less expensive means is now available in the form of a suction tube with a stiff bristle brush within the suction nozzle. The device is connected to the suction side of the regular recirculating pump and the foreign matter by-passed directly into the sewer.



To Stabilize Construction

A MOST significant action was taken by the American Construction Councils' national conferences held in New York City recently. This was the formation of a national joint committee of the American Construction Council and the American Railway Association to be composed of representatives from all branches of the construction industry and the railroads for the purpose of conducting in a co-ordinated and unified manner a publicity campaign throughout the country on the elimination of construction peaks and depressions.

Speakers at this meeting laid much emphasis on the need of eliminating present undesirable conditions in housing, both as construction and financing, eliminating of improper and unsubstantial houses and buildings of all kinds.



Homes in COLORS

Sold Before Finished

By WILLIAM A. RADFORD,
*President and Editor-in-Chief
of American Builder*

THERE is an old saying to the effect that the job well begun is half done. I will adapt this to home building by declaring that the home well designed is half sold. And every house that is built should be planned and built with the idea in mind that it will sooner or later be on the market for sale.

Many homes are planned and built for individual owners and into them is worked all of the special requirements and the ideas of the owner. Some of these ideas perhaps would not appeal to the majority of folks. In other words, they would not add to the sales value of the property if it should later on be placed on the market. Individuality is a good thing, but where as much money is involved as in the present-day, fully equipped home, it is perhaps just as well to tone down one's peculiar individual ideas and conform to quite an extent with conservative, popular opinion—with what the majority of home builders of any given class would favor.

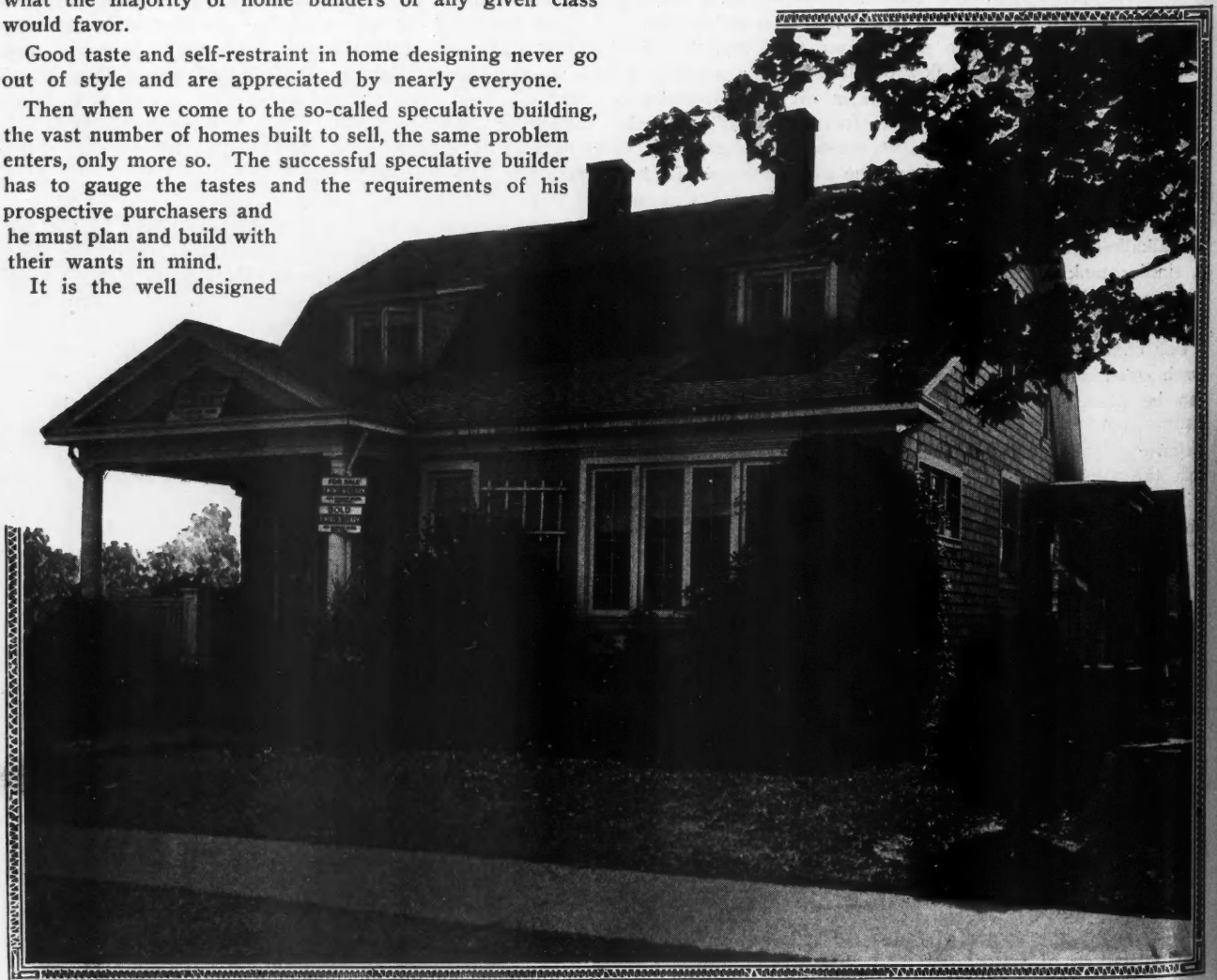
Good taste and self-restraint in home designing never go out of style and are appreciated by nearly everyone.

Then when we come to the so-called speculative building, the vast number of homes built to sell, the same problem enters, only more so. The successful speculative builder has to gauge the tastes and the requirements of his prospective purchasers and he must plan and build with their wants in mind.

It is the well designed

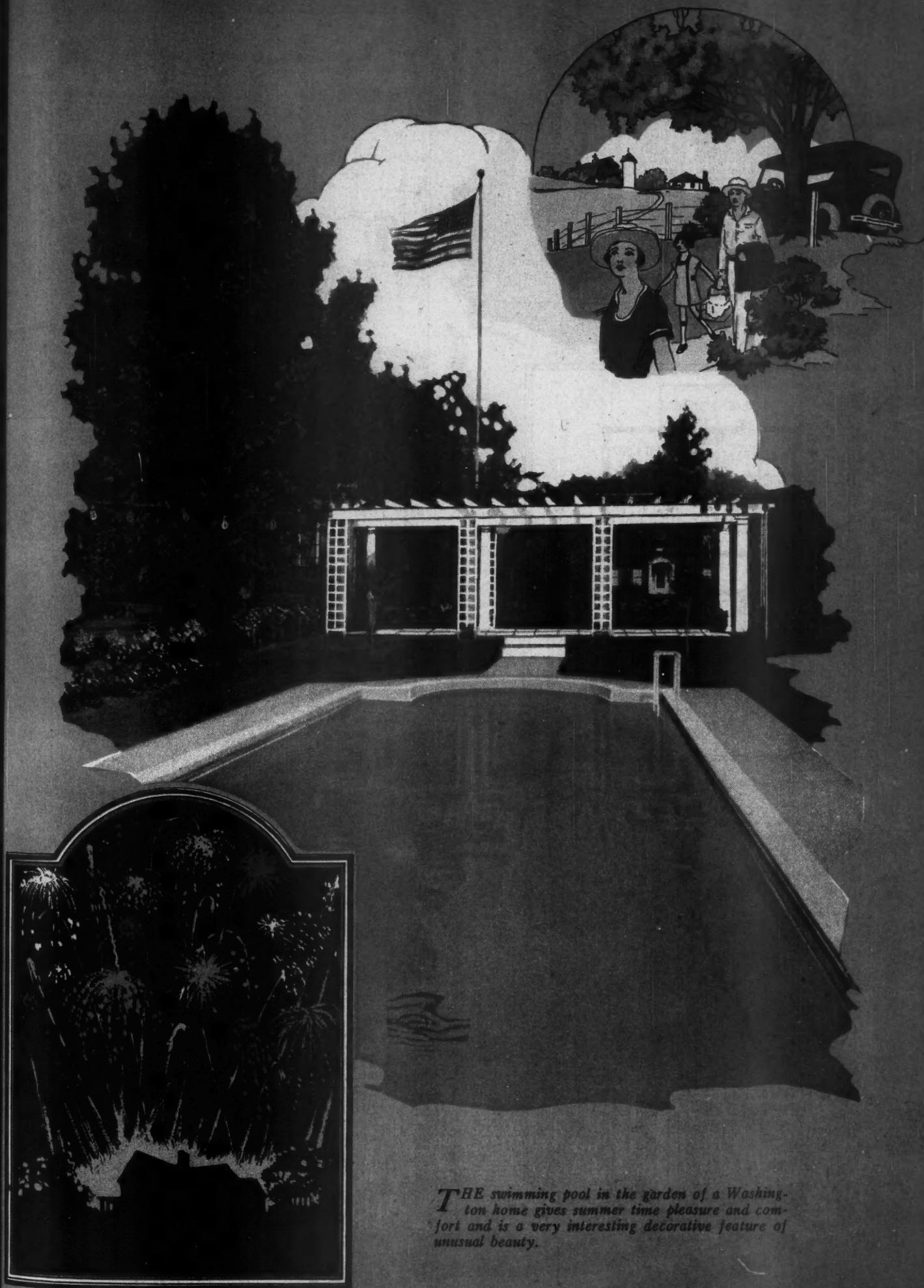
house that sells quickly. Where a number of houses are being put up in a row, the additional problem comes in of making each design different to get away from the look of monotony and sameness. This is a real test for the designing ability of the architect or builder; and it is very encouraging to observe the wonderful improvement in the design of these home building operations during the past five or ten years. We have inspected thousands of homes built by AMERICAN BUILDER readers and offered for sale, and we are proud to say that the average for good looks and sound construction is very high indeed.

"This house was sold before finished," is an expression we very often hear; and the builder has a right to be proud of his success when there is enough public appreciation of his work so that the buyer is there and ready even before the house is completed.

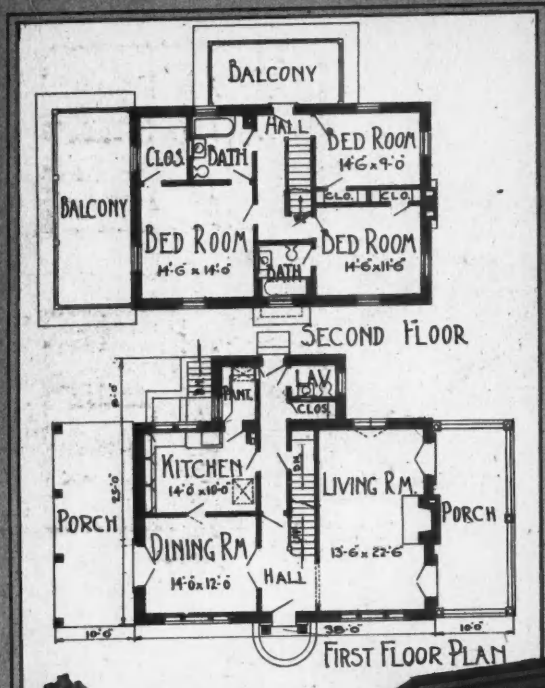
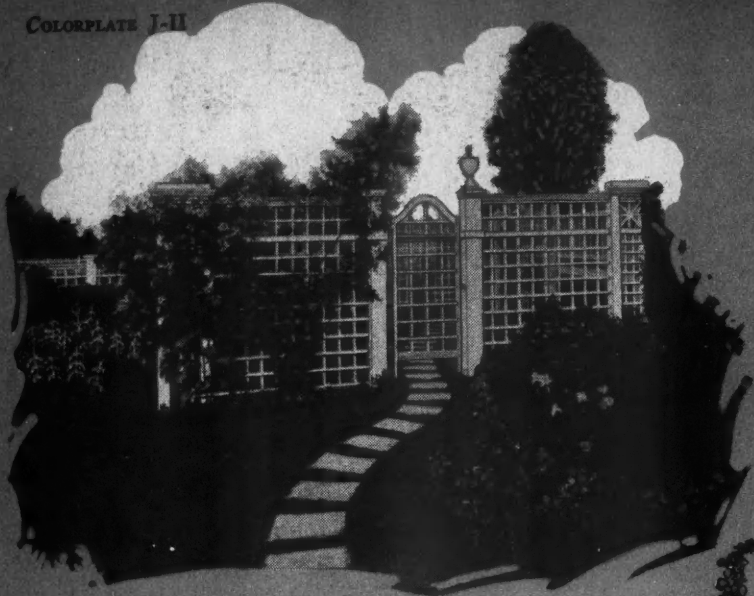


This Pretty Little Home Quickly Found a Buyer. Already it carries the real estate builder's favorite sign, "Sold."

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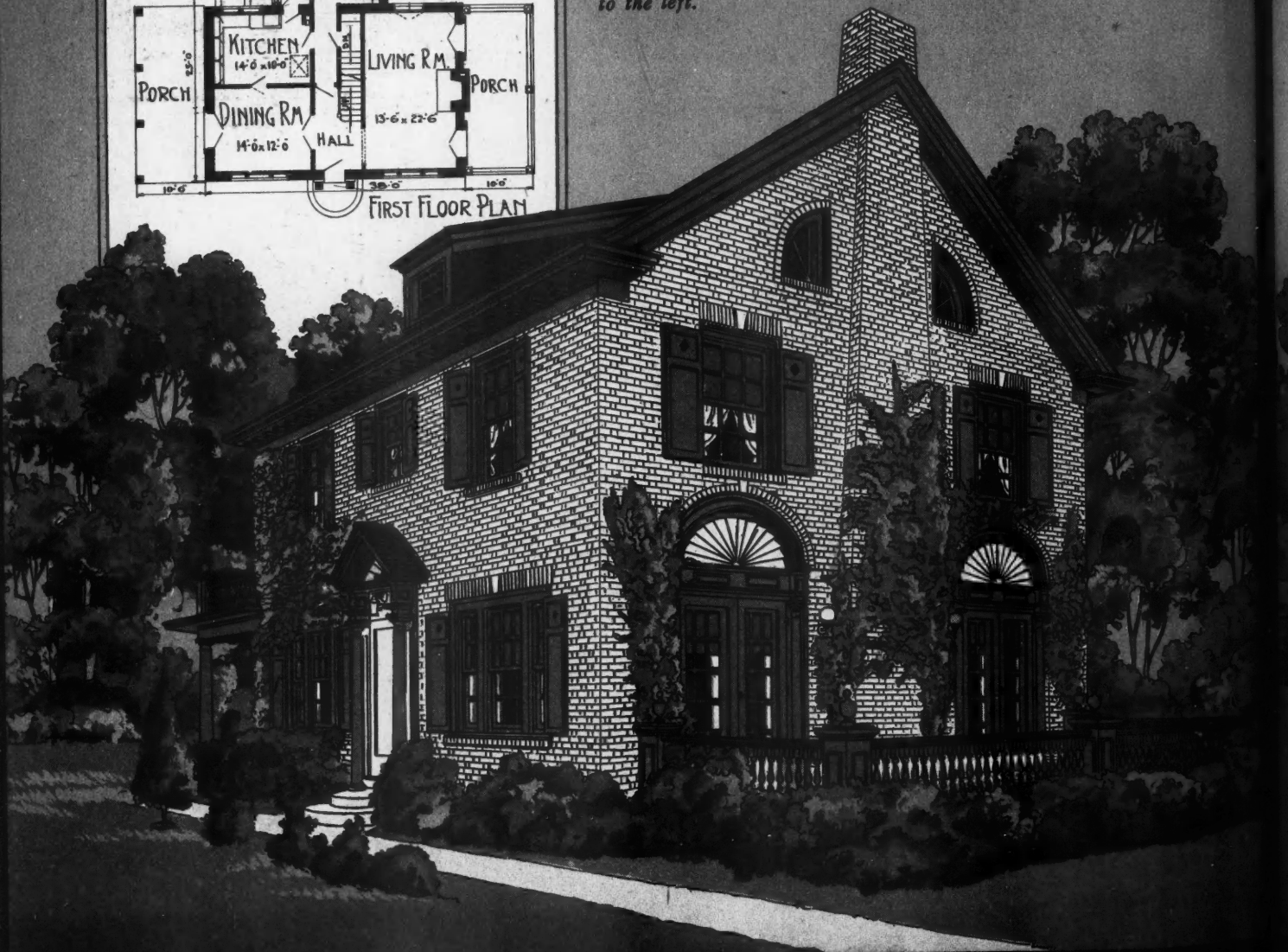


THE swimming pool in the garden of a Washington home gives summer time pleasure and comfort and is a very interesting decorative feature of unusual beauty.



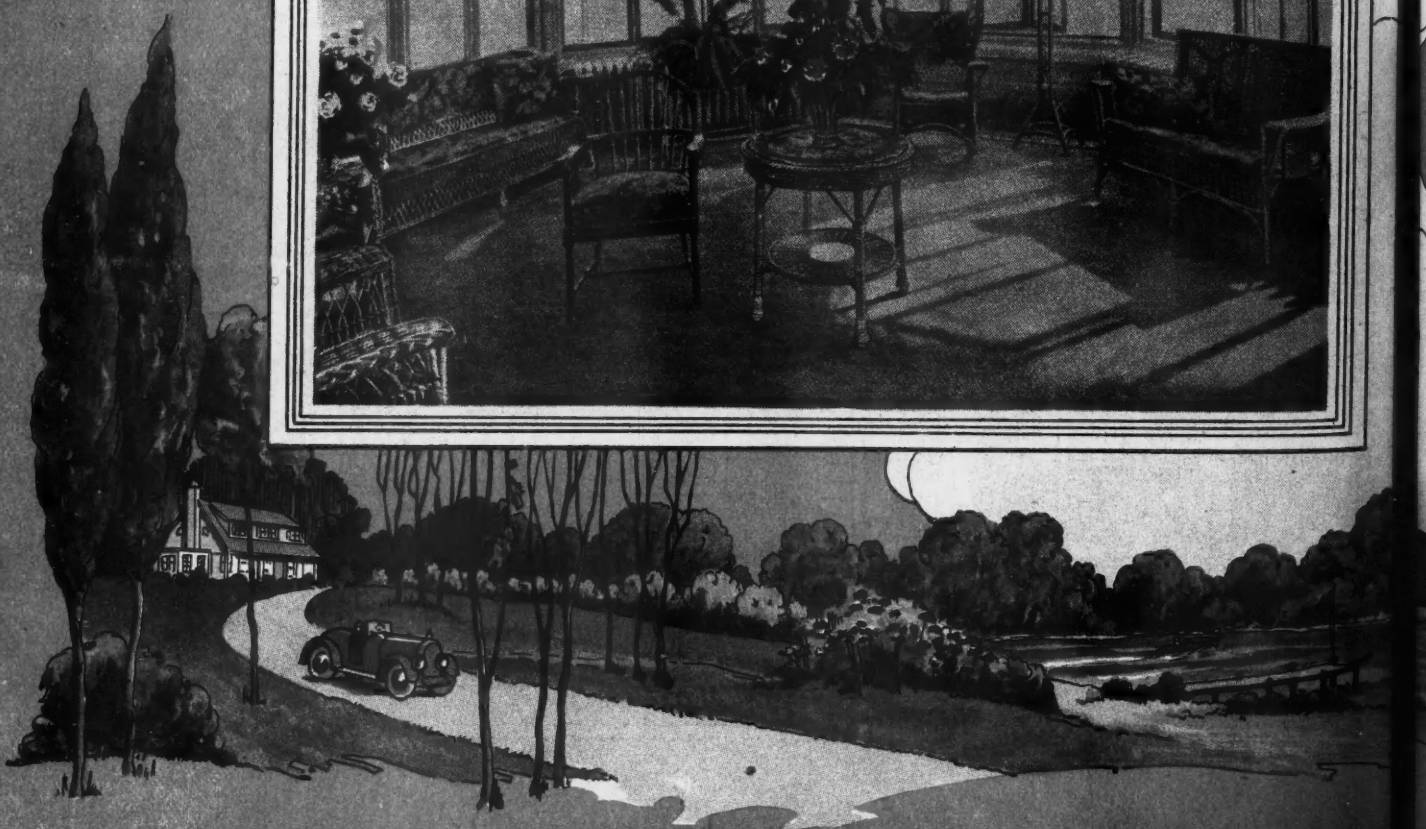
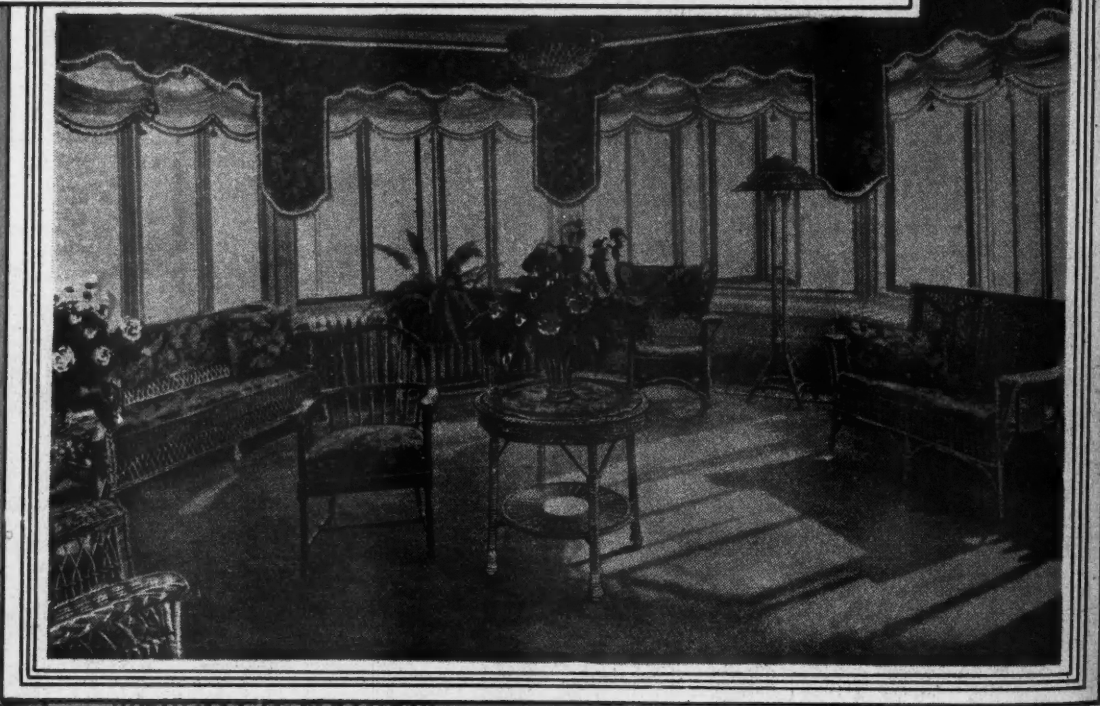
The Judson

A BRICK house of Georgian design containing six fine rooms and two baths on the two principal floors with space on the third floor for maid's rooms. Color sketch above suggests attractive furnishings for the dining room of this house, and appropriate lattice screen for the garden is suggested in the photograph to the left.





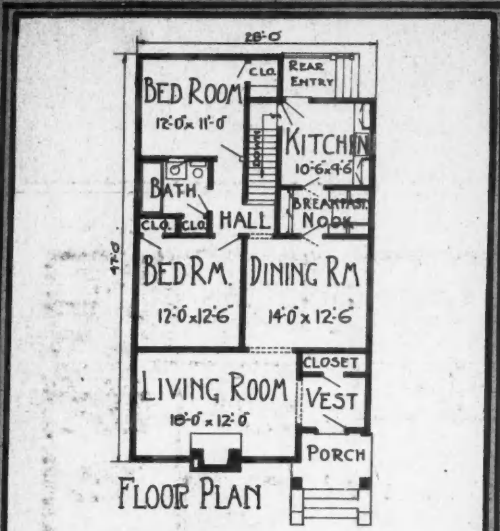
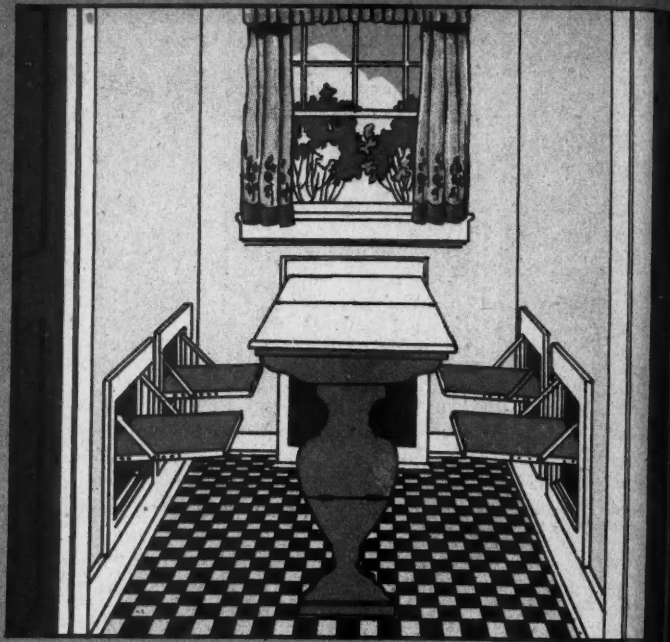
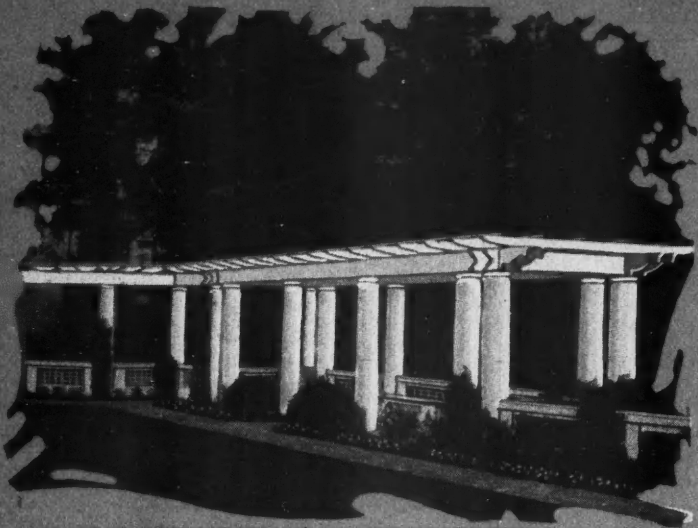
The sun porch or solarium is the most popular room in the modern home.





Glassed-in living rooms and elaborate sleeping porches are appreciated adjuncts to the best homes today.

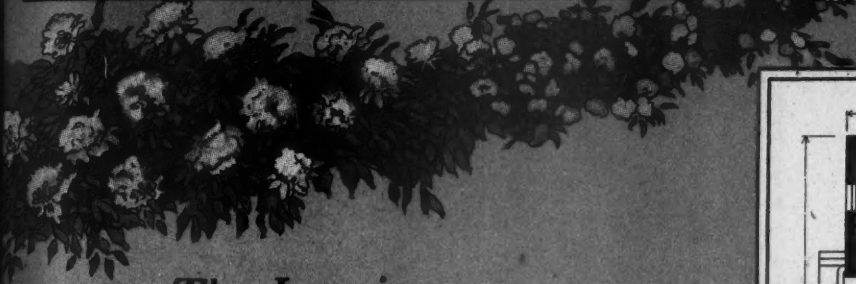
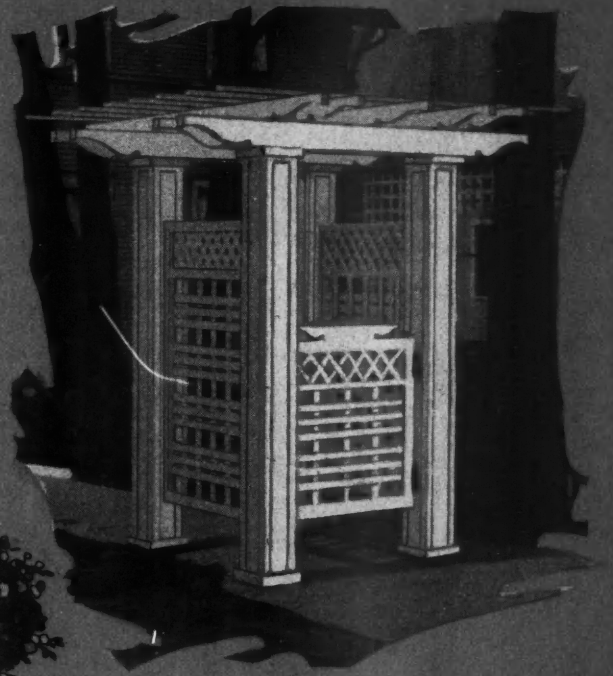
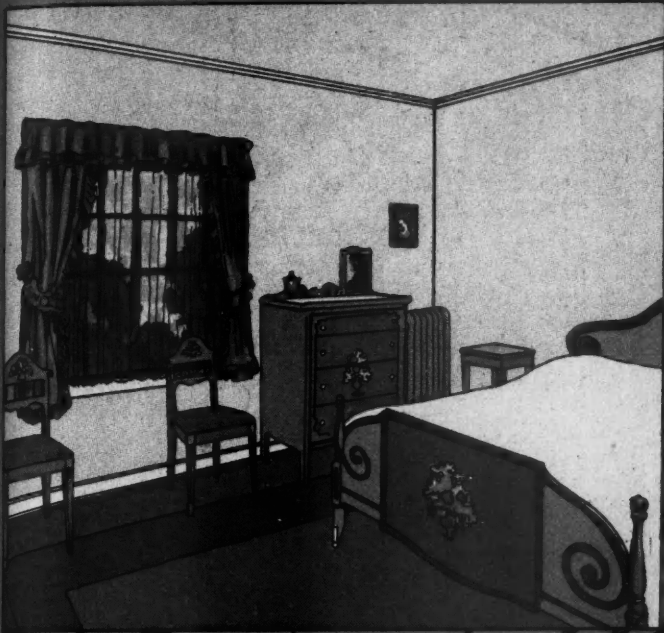




The Joyce

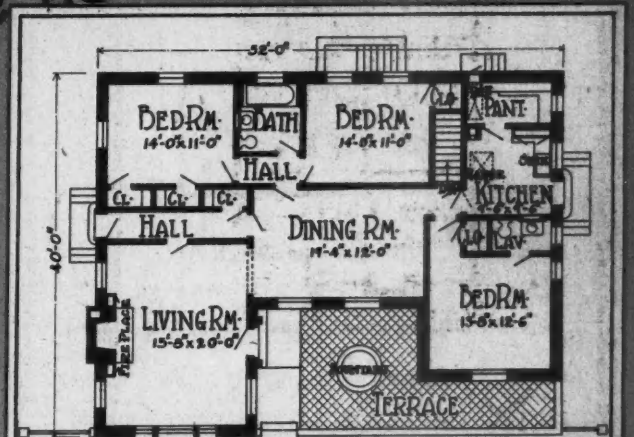
A DELIGHTFUL shingled cottage with an English accent containing five rooms, breakfast nook and bath. The efficiency breakfast nook with fold away furniture is illustrated in color sketch above.



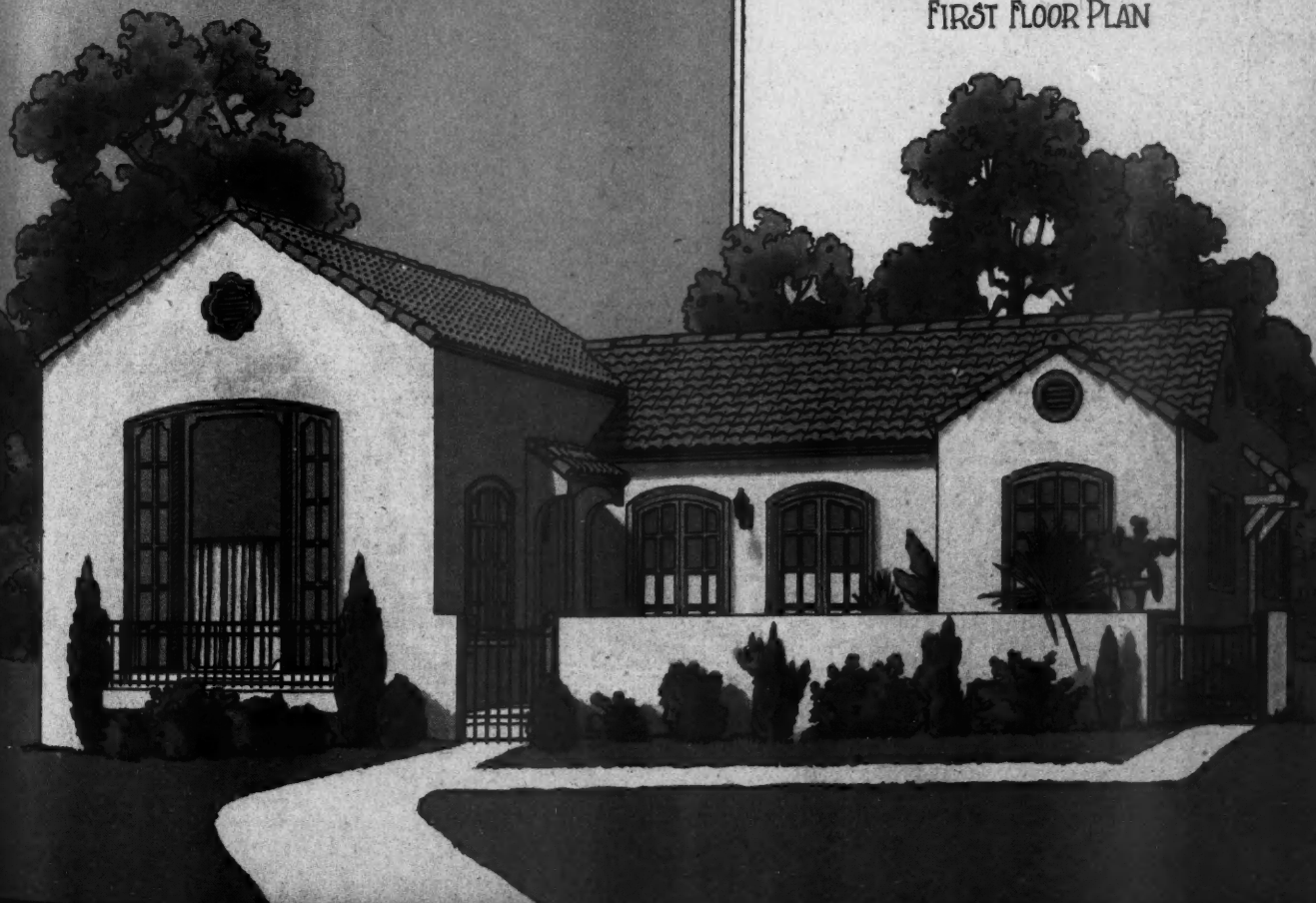


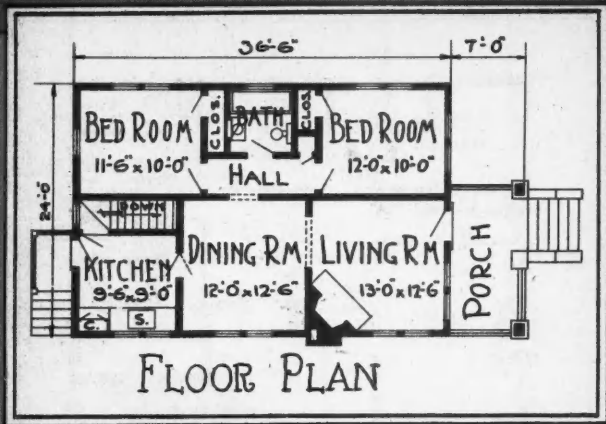
The Jamaica

A SPANISH design with walled in terrace and fountain. Six large rooms are provided. Color sketch suggests appropriate furnishings for the front bedroom.

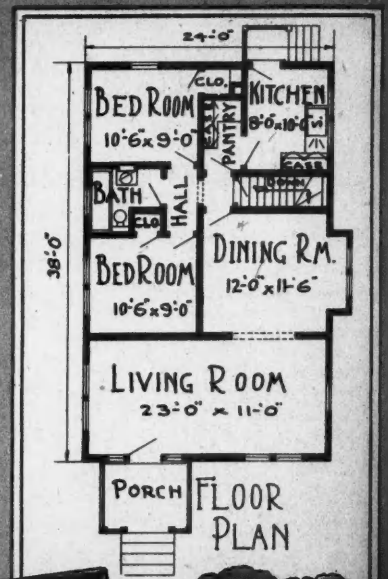


FIRST FLOOR PLAN





The Julian
 A GOOD-LOOKING small home, size 24x36 feet 6 inches containing five rooms. Floor plan to the left shows how conveniently this little house is arranged.



The Juniper

A PRETTY five room cottage with a Colonial entrance is illustrated below. The large living room extends across the front 11x23 feet. See floor plan to right.



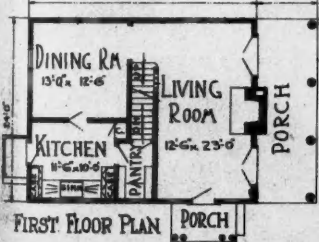
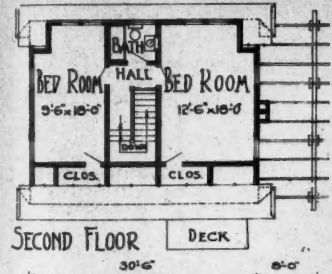


The Joliet

A CLEVER efficiency cottage only 22x24 feet, but look at that big living room 23x12! This whole scheme illustrated in floor plan to the right, is modeled after the latest high-priced hotel apartments.

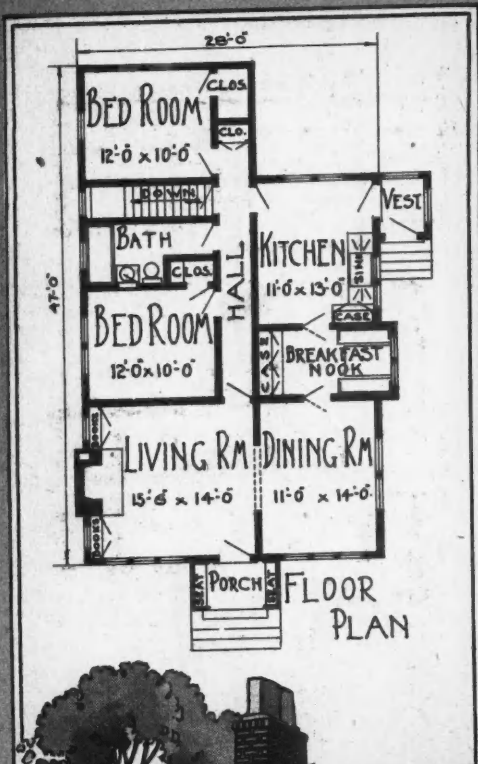
The Jordan

THE little shingled Colonial home below is ideal for a small corner lot. Five good rooms are provided arranged as shown to the left.



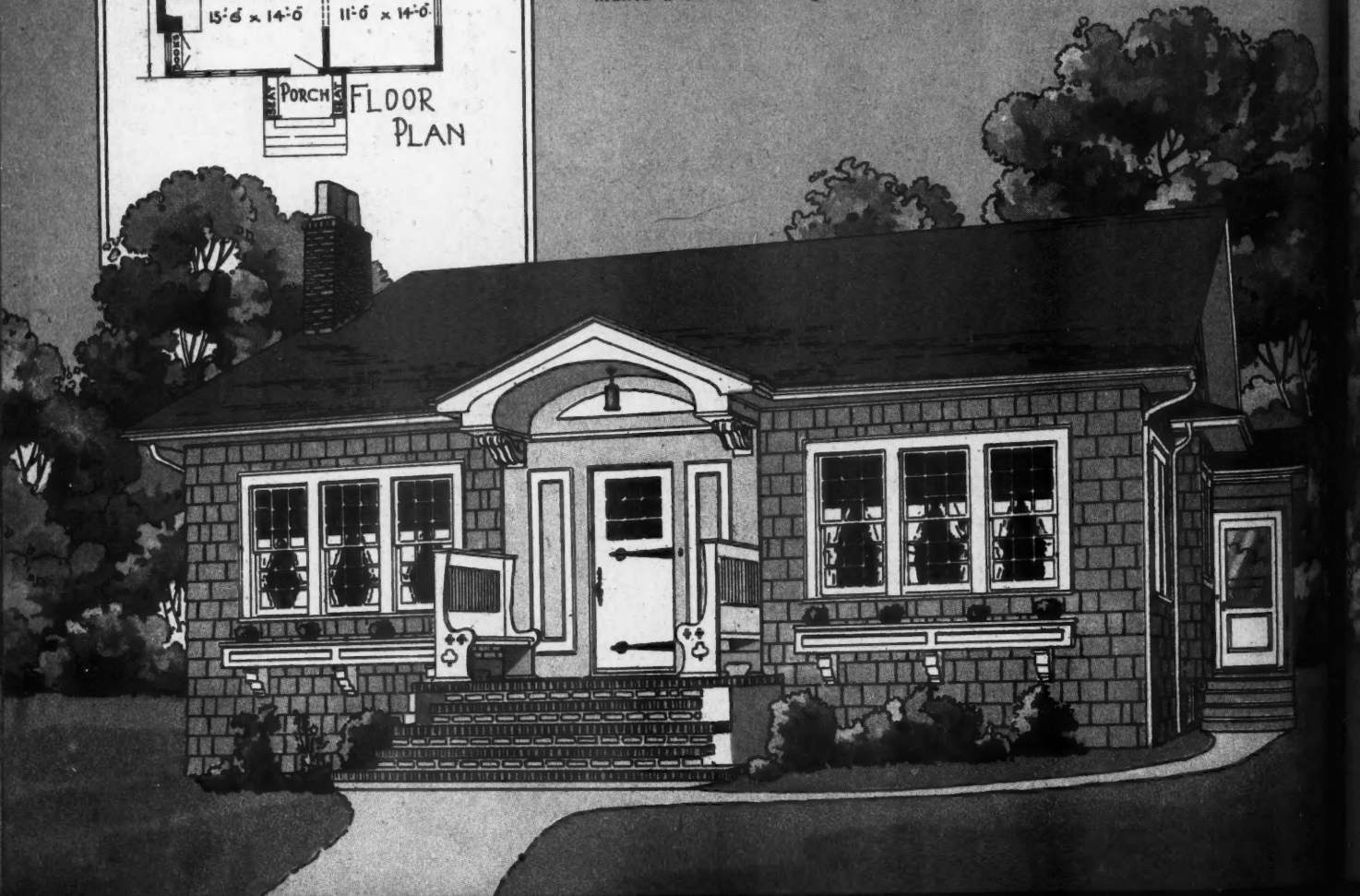
FIRST FLOOR PLAN

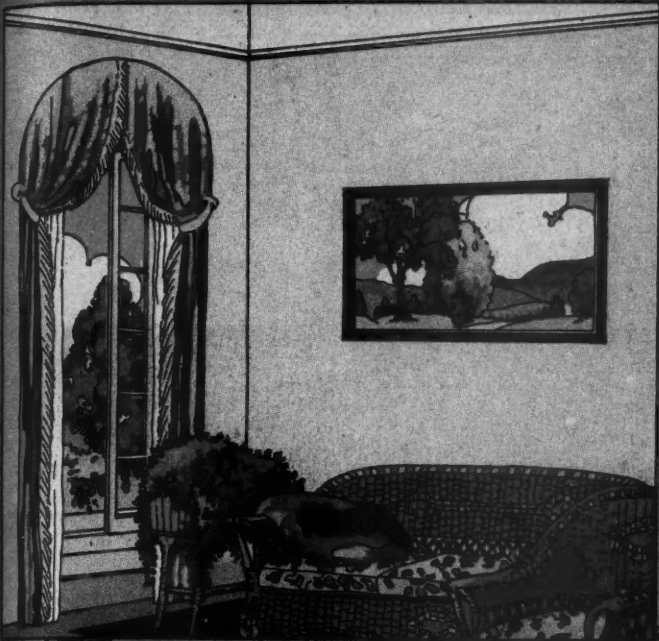




The Jewel

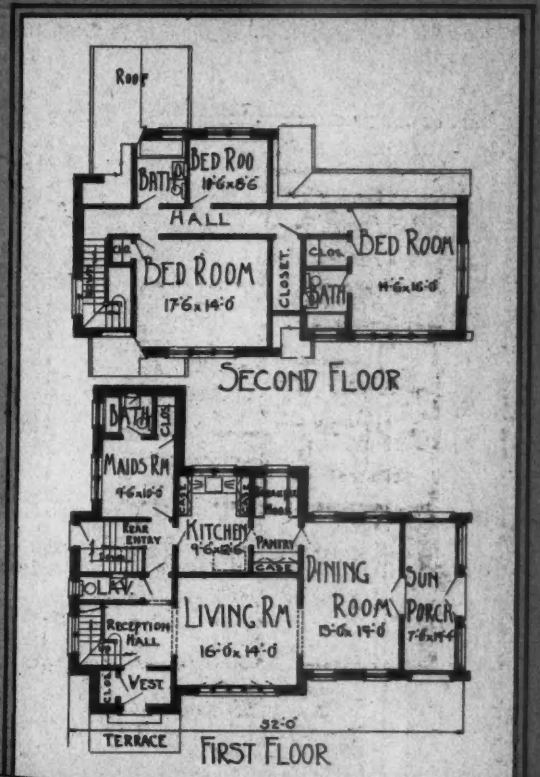
HERE is a prize winner for beauty and comfort. Five rooms, breakfast nook and bath are arranged in 28x47 feet. Color sketch above shows the cozy fireplace end of the living room. Attractive garden furniture, as shown to the left, makes a summer living room of the rear yard.

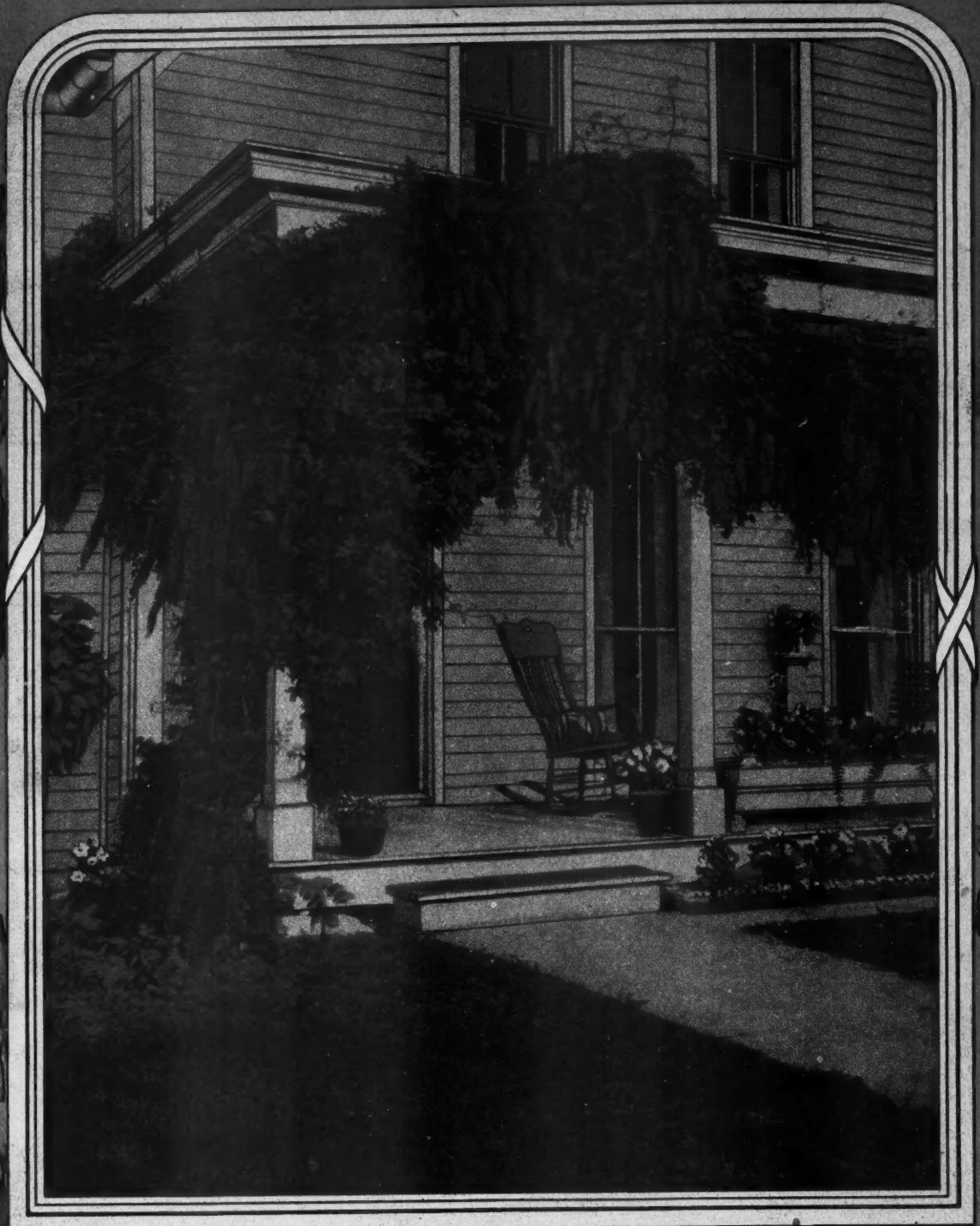




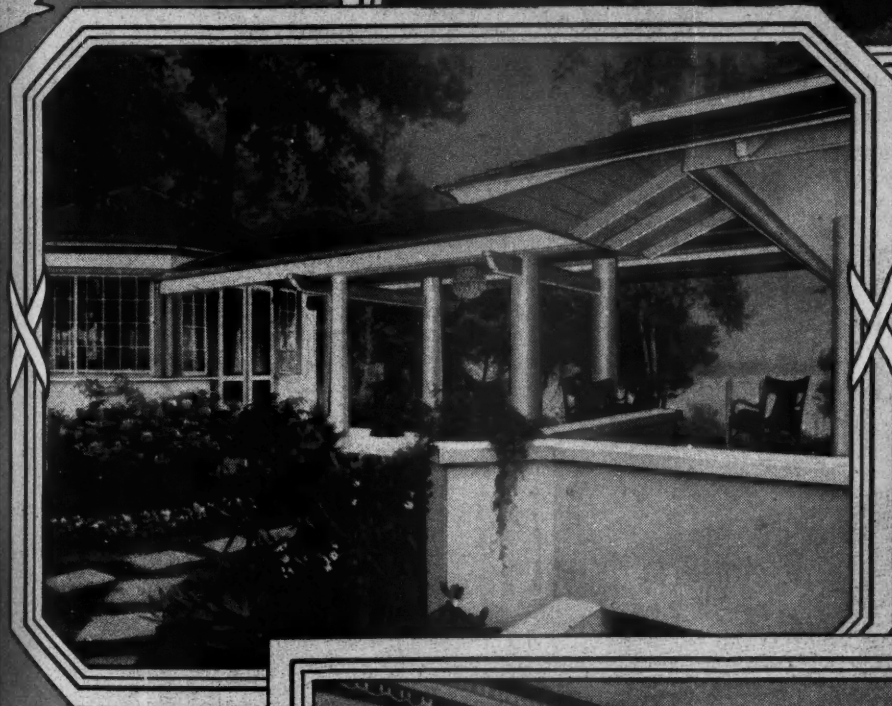
The Jonesboro

AN English design of distinction containing seven fine rooms besides the sun porch. Room and bath for the maid are on the first floor; three rooms with two baths on the second floor. The vestibule and reception hall are of proper size and well laid out. Color sketch gives a glimpse of a corner of the sun porch.

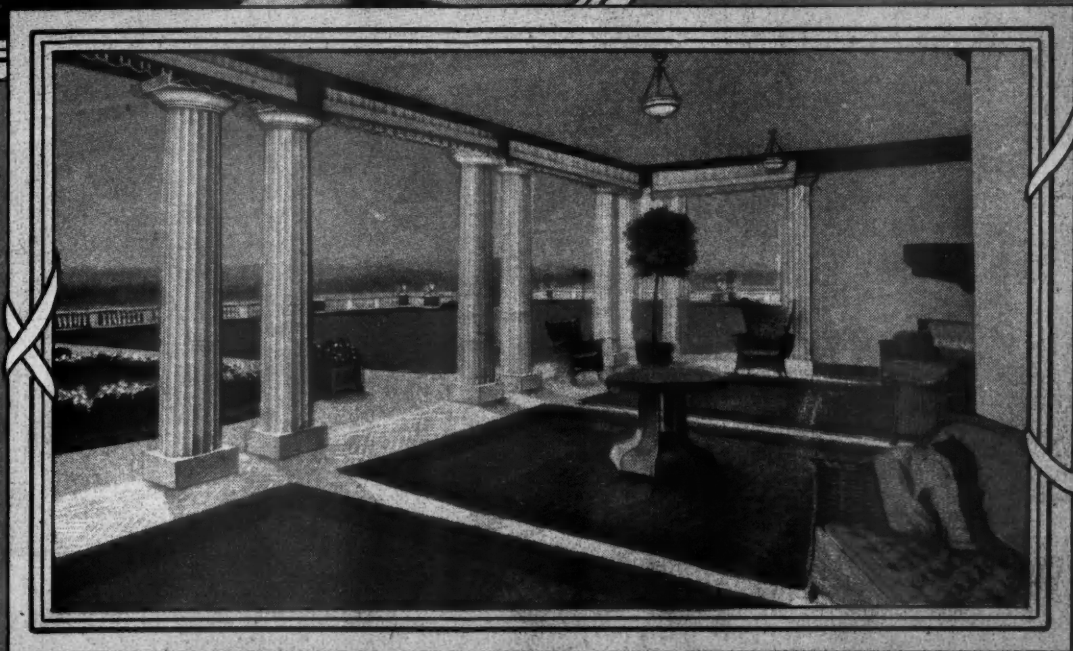




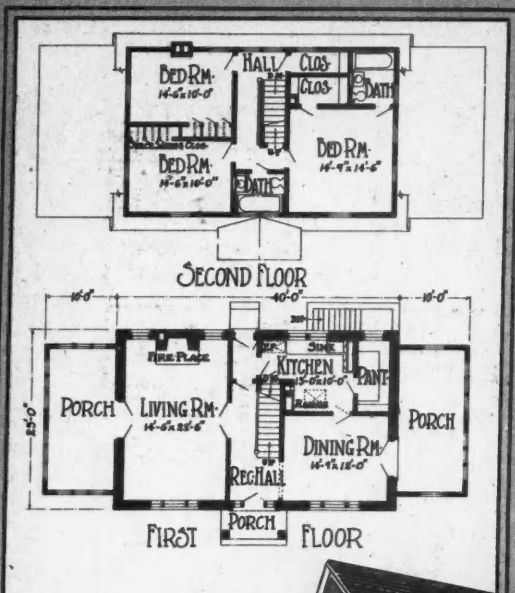
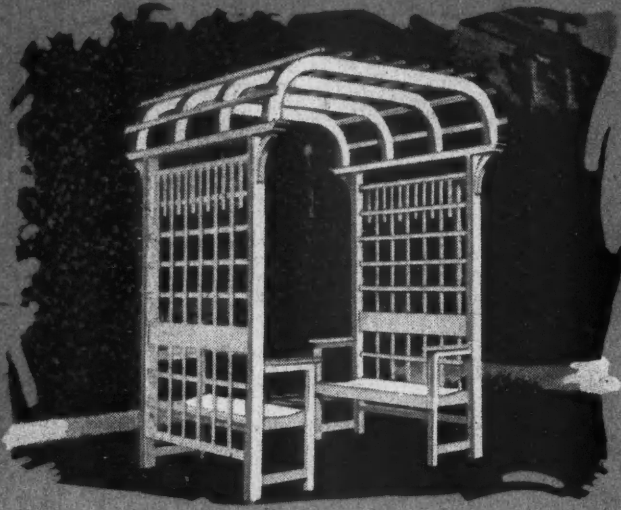
THE old porch at home with its purple wistaria is cherished in memory and a strong magnet drawing one back to the place. Contrast this with some of the modern porch ideas pictured on the opposite page. They, too, have their own appeal for comfort and convenience.



THREE modern porches well-furnished, screened and awninged for summer comfort either in town, in the country or at a resort cottage. The well-furnished porch is apt to be the most popular and most used room in the house.

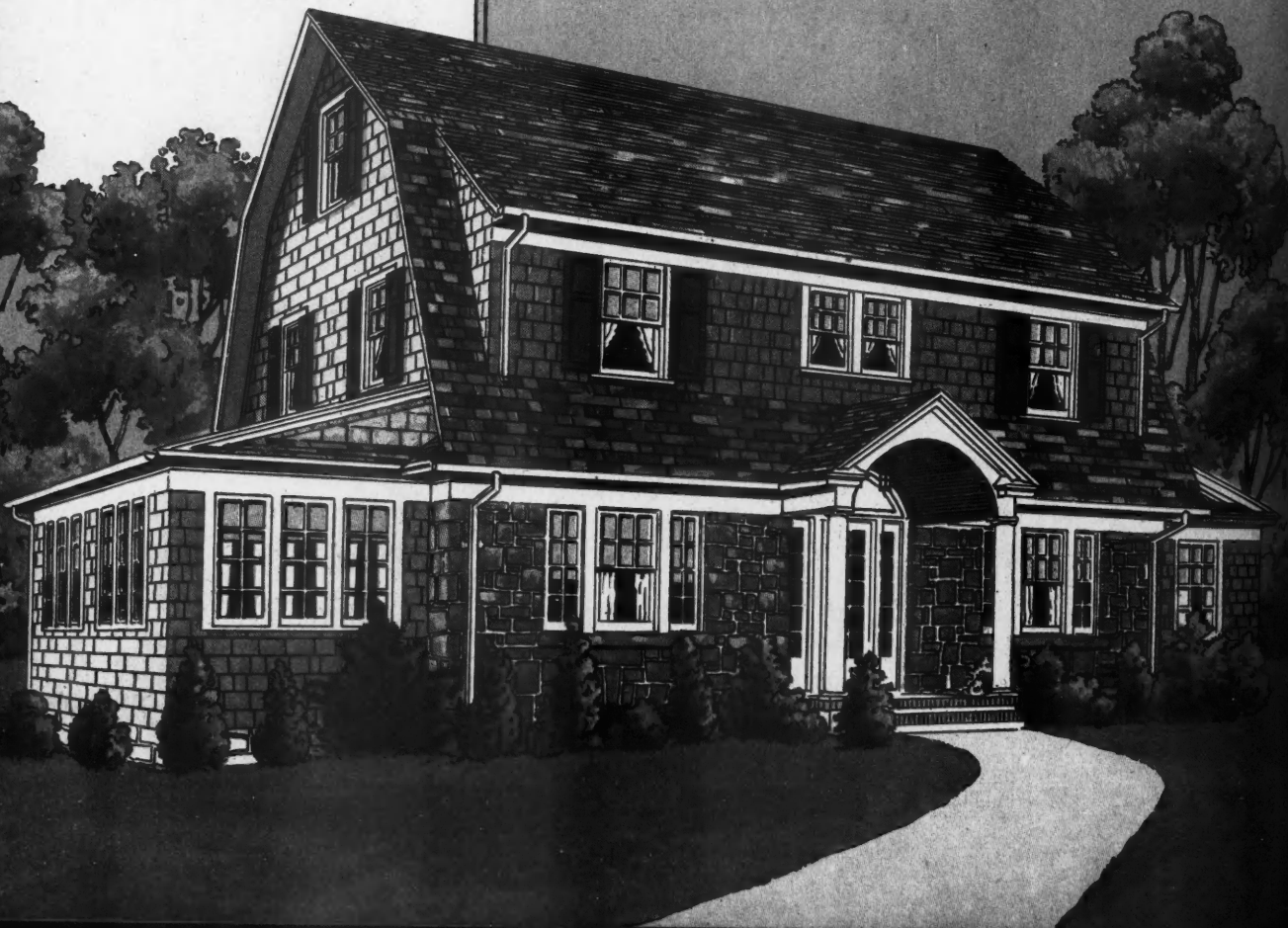


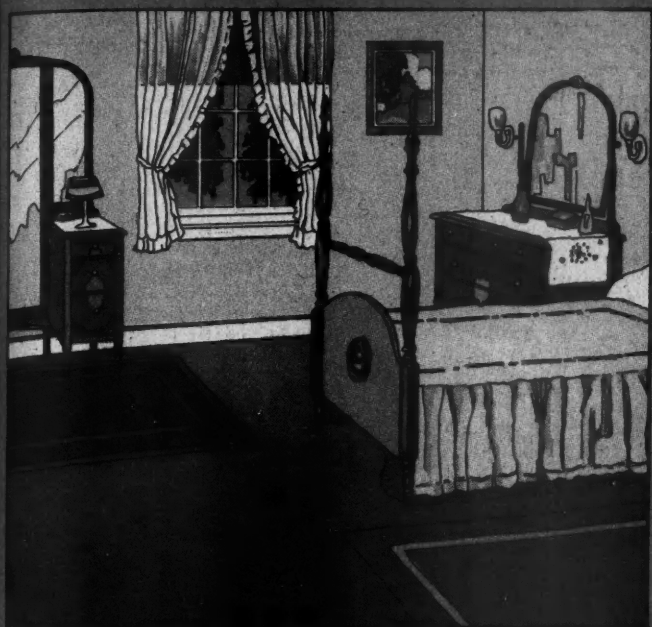
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The Janesville

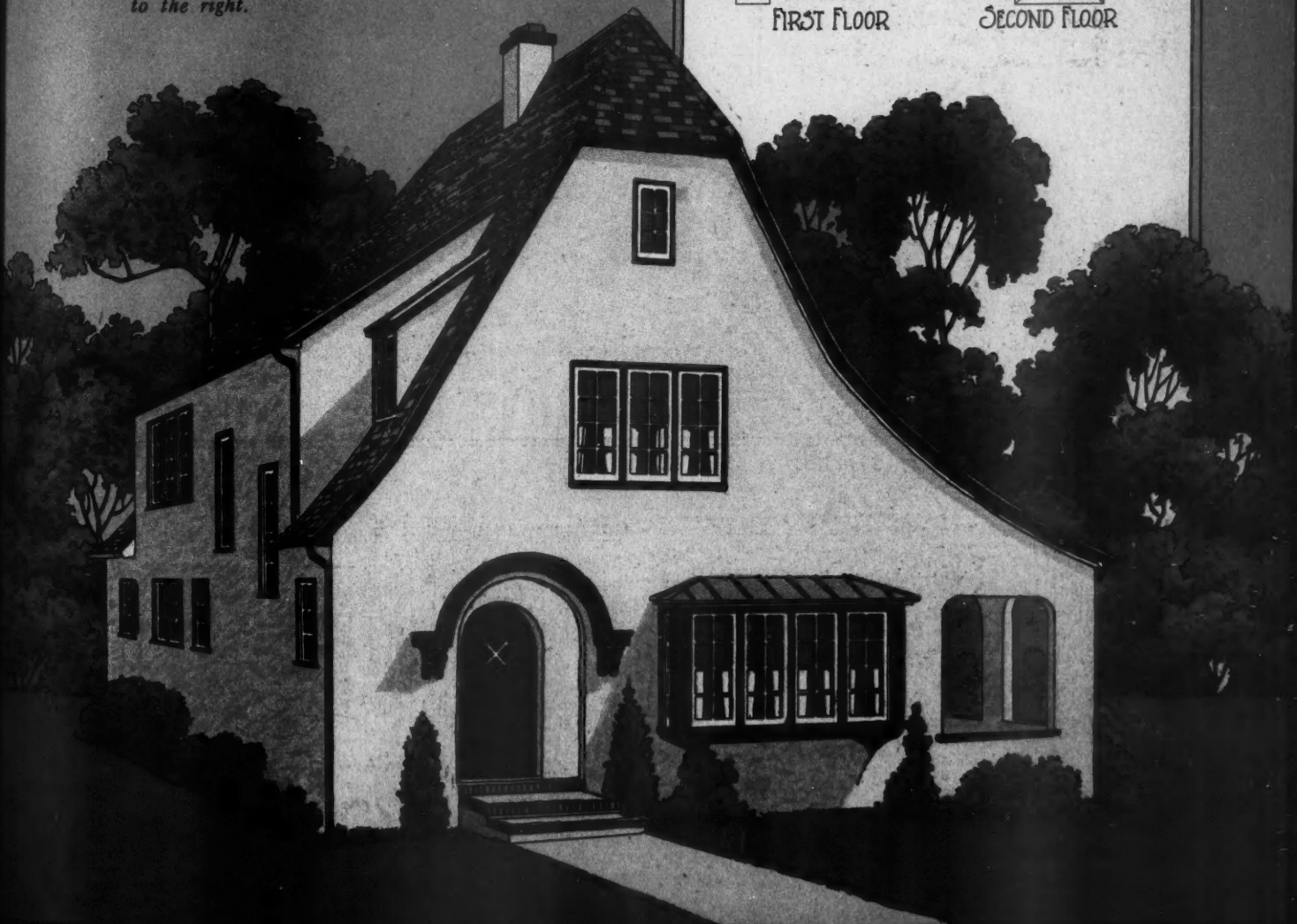
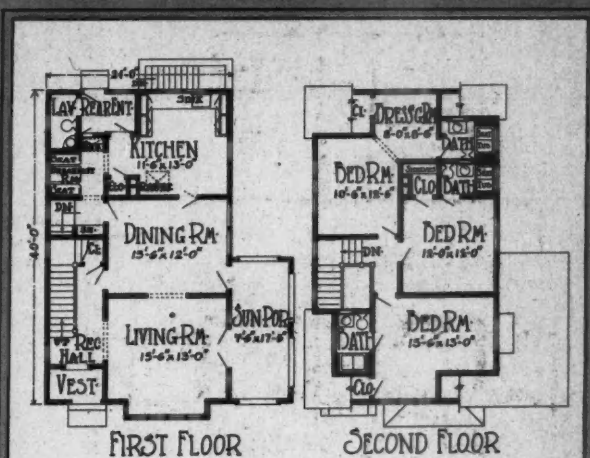
A SUBSTANTIAL home of stone with Dutch Colonial gambrel roof of shingles. Six good rooms are provided in the main house and two immense enclosed porches extend the ends. Color sketch above shows the well-furnished dining room and a graceful arbor seat for the garden is pictured to the left.

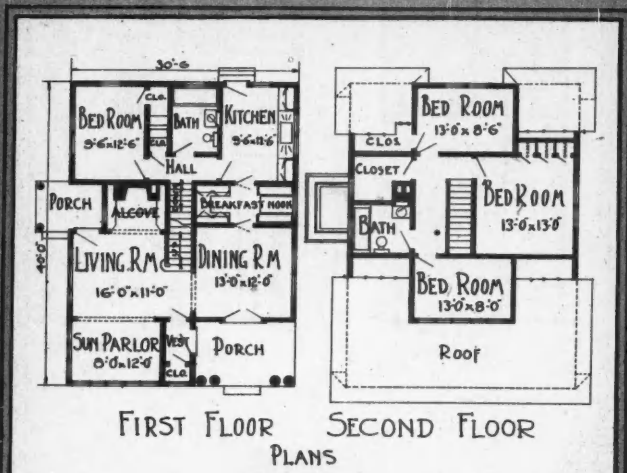




The Justin

AN English cottage in stucco containing six rooms and two baths. The graceful, rather unusual lines of this design are much favored by the best architects and builders today. Color sketch above shows how one of the bedrooms is furnished, and some comfortable garden furniture is pictured to the right.



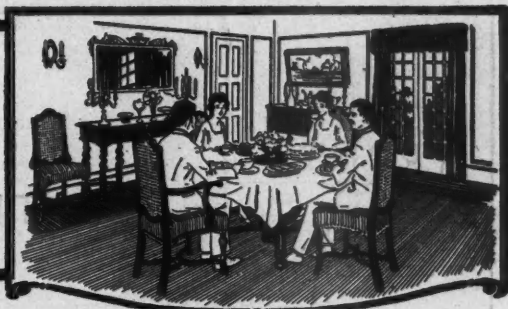


The Jerome

A WELL-DESIGNED story and a half bungalow with bedroom and bath on the first floor and three bedrooms upstairs. Color sketch above shows tiled bathroom and an interesting latticed arbor for the garden is pictured to the left.



OUR FRONT COVER HOME



Six Room English Cottage with the Comfort and Convenience of a Larger More Pretentious House and a Charm that is All Its Own

AN English cottage, charming in every detail and radiating a cozy, homelike atmosphere is offered as Our Front Cover Home for this month. This house and plan are the sort that grow on one as they are studied and the many features which make for comfort and convenience are realized.

The exterior possesses a satisfying simplicity well set off by the brick terrace, roofed gateway, leaded windows, heavy entrance door and the ornamental ship which spreads its sails so gallantly near the peak of the gale. Rough stucco lends itself admirably to a house of this type and even the lawn and shrubbery leave little to be desired by the family seeking a real home of character.

Nor is one disappointed on entering this house for every hope raised by the promising exterior is more than justified by interior design and finish. The plan gives one the feeling that it is the creation of someone who labored to design a home which would fulfill all his own desires and dreams of the ideal home.

This six room house gives all the room and convenience of a much larger dwelling because of painstaking attention to such matters as many large closets, two bath rooms on the second floor, a sun parlor which is really an extension of the living room, and a breakfast nook which is equally convenient to the kitchen and dining room, but which gives the effect of being entirely separated, a room by itself.

From the brick terrace one enters a reception hall with a coat closet and the stairway to the upper floor. At the rear of this hall is also the stairway

to the basement and beside it a door which gives access to the garage, just a step across the walk.

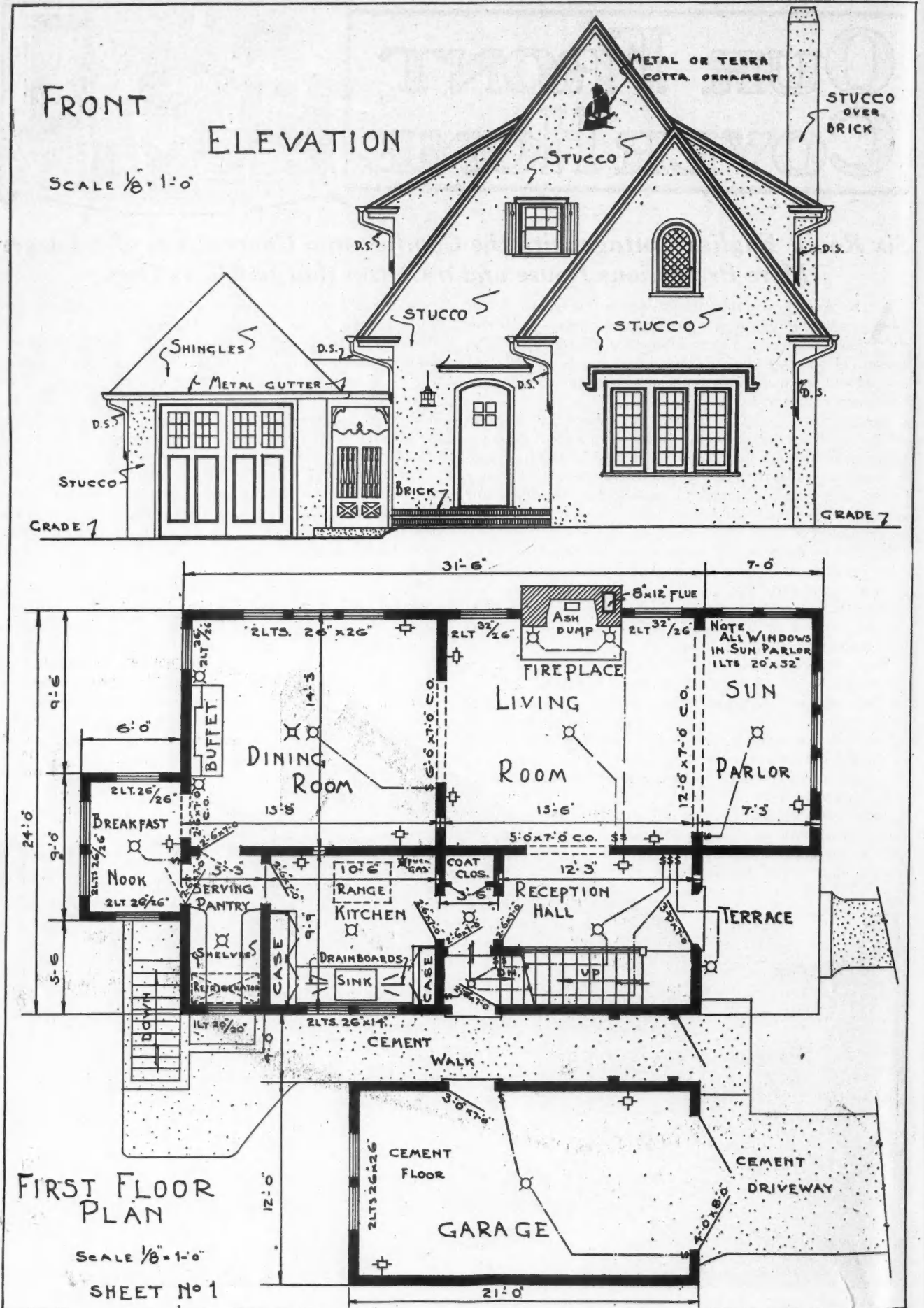
Back of this is a kitchen, the last word in compact, modern design, adjacent to the kitchen is a serving pantry from which a door leads to the breakfast nook. The latter, set into a projection from the house is cheerfully lighted by windows on three sides. Equally cheerful is the dining room into which it also opens and which is provided with built-in buffet.

The balance of this side of the house is occupied by the living room and sun parlor forming practically one big room about 22 by 14 feet. Returning to the reception hall from the living room, we ascend the stairs to the second floor where we find three ample bed rooms grouped about the central hall.

The two rear bed rooms are of equal size but one is provided with two closets while the other has but one closet. It is a large one, however. Off of the hall is a bathroom and a second bath is provided for the large front bedroom. This room also has a broad dressing alcove at one end and an unusually large closet at the other. All of these rooms are arranged with ample space for all necessary furniture.

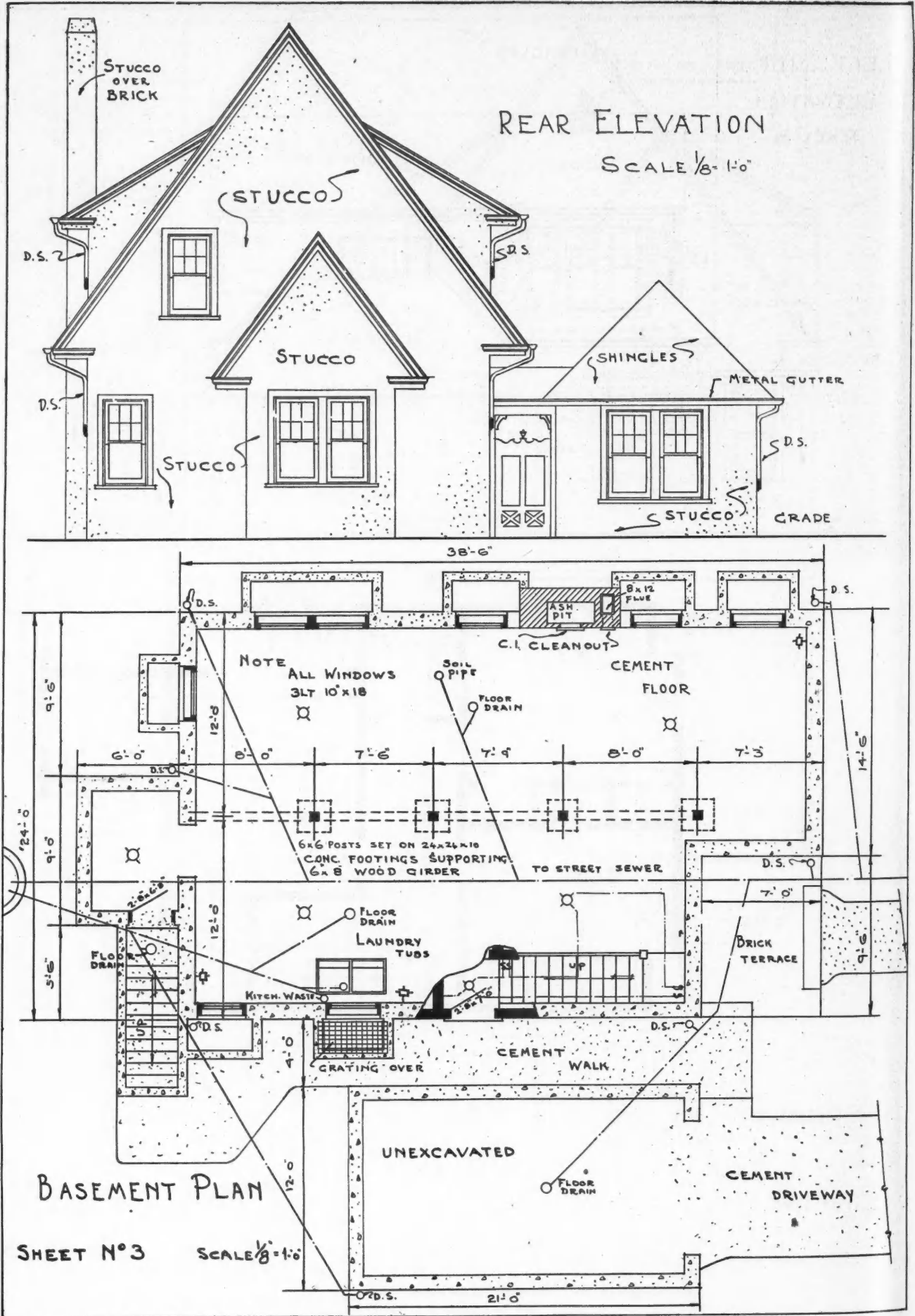


A Most Charming Example of the English Cottage Home Is To Be Seen in Our Front Cover Home and the Promise of the Attractive Exterior Is Fully Borne Out By the Equally Charming and Exceptionally Convenient Interior, As Displayed in the Drawings on the Next Four Pages.



The First Floor of Our Front Cover Home Is Cozy and Convenient with the Garage Placed Where It Is Most Accessible and Blended With the Design of the House. Above is the front elevation while on the opposite page will be seen the second floor plan, and left elevation.

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The Entire Space Under Our Front Cover Home Is Excavated to Form a Concrete Basement With a Handy Laundry Space at the Foot of the Basement Stairs. The rear elevation shown the placing of the breakfast nook which is a feature of the first floor.

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	<p>LANDSCAPE ARCHITECTURE AND THE HOME</p> <p>A DEPARTMENT CONDUCTED BY</p> <p>F. A. CUSHING SMITH LANDSCAPE ARCHITECT CHICAGO</p>	
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Shrubs for Various Special Uses

This is NUMBER FIVE of a Series of Articles

By F. A. CUSHING SMITH, Landscape Architect

SHRUBS to be worthy of a place in the sun and in the list of the small house owner should have a particular use in the scheme or plan for the home grounds. If there be no beauty about them, if they have no special distinguishing characteristics, they become but "brush" in the eyes of the world, and may well be relegated to the fate which used to await the hedge-rows along the old rail fences of early America. Then the shrub was but a remnant of the early standing forest and its undergrowth, which for economic reasons was left when with great labor the land was cleared for farm cultivation. Then the shrubs which persisted, which were carefully transplanted, nourished, pruned and encouraged, were those bearing fruit for the family table, and for the inevitable canning season which soon followed their maturity. These were the so-called bush-fruits, and included the wild raspberry, wild currant,

wild grape, the gooseberries, the elderberry, the mulberries, the cherries, plums and blackberries. All of these shrubs have through careful cultivation and improvement become indispensable in the average home vegetable and fruit garden.

Later as the country became more thickly settled, it was discovered that species of shrubs found in various parts of the country differed, and the settlers introduced the old, well-known varieties into the communities whither they went. The horticulturists and the nurserymen now began the collection of shrubs for commercial purposes, and through their catalogs described by word and picture the distinguishing features and individual beauties of each variety. This method of advertising caused certain widely heralded plants and shrubs to become the fashion, and to be without, shall we say, the blue spruce, or the weeping



Along a Water Course the Tamarix with Its Delicately Arched Pink Flowered Branches Gives a Charming Effect with Its Satisfying Color Against the Background of Green and, in Combination with Pin Oak, This Shrub Also Makes an Excellent Parkway Plant.

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willow, was to be placed outside the inner social circle.

The blooms of the shrubs, their color, their time of opening, their cutting value for decorative purposes, their fragrance—these are the elements which make the varieties ornamental as well as useful in our daily life.

In each section of the country the blossom-time comes at different periods, depending upon the season, and upon the climatic conditions of the locality, the severity of the spring and winter months. In the north central portion of the United States, in late April and early May, the shad-bush with its white butterfly petals opens before the leaves have started, and the red-bud, forsythia or golden bell also follows soon after. Plums and cherries, the magnolias, which are not so hardy, and the flowering currants usually blossom in the early months of spring.

In May and the early part of June begins the greatest profusion of bloom, and in the previous article we mentioned some of these varieties. The hawthorn, barberries, many dogwoods, the weigelias, honeysuckles, whose fragrance invites the darting humming-bird and enchants you from the roadside, the mock orange, some of the early roses, the budding lilacs, the snowy spireas, and the viburnum family, among whose numbers is the snowball, are a few of the shrubs which are valuable for their bloom.

It is June, the month of happiness, of weddings, commencements, birthdays and lawn-fetes in which shrubs, trees and perennials vie with one another in attracting attention to each other. In addition to the above mentioned May blossoms, many of which persist through June, there are the catalpas, the deutzias, the hydrangea, the syringa, the rare and elusive fragrance of roses, both bush and climbing, the sumac and the wistaria vine; these are but a few of the long list of our favorites.

In the dryer months of July and August, shrubs seem to bloom well only when given an abundance of moisture. The strawberry shrub, New Jersey tea, prairie and Japanese roses, the wichuriana rose with its trailing habit, Gordon's syringa, snowberry, the St. John's wort with its yellow blooms and a few of the dwarf spireas complete the list.



Here Again the Tamarix Is Seen Beautifying the Shore Line of a Quiet Stream Which Winds About the Grounds of the Country Home.

In September and October we find but few shrubs in bloom, though the rose of Sharon, the paniced hydrangea, the trumpet honeysuckle, and at times the second bloom of the Japanese rose will persist.

Space permits but few other suggestions for lists of shrubs, but it should be remembered that for each particular problem there will be found a shrub best suited for that purpose. Do you have an orchard or a favorite cherry tree to protect, a small boy will climb through a buckthorn hedge but once to steal the luscious fruit. Do you have a thrill of pleasure from the frost-colored woodland foliage and would fain reproduce its wealth of color—plant sumac, Thunberg's barberry, dogwoods, and some of the viburnums. Do you care for red twigs against a deep green background, plant red osier dogwood in front of some evergreens.

There are naturally certain shrubs and trees which look best together, and combinations for various effects constitute a fascinating life study. Many disappointments come to those who casually undertake such work, and it is well to intrust it to the hands of those whose training and experience best fits them to be of real service to you. A few shrubs well selected and correctly planted will bring truly satisfactory returns in their abundance of continued bloom, their ever-changing lights and shadows, and their breath of the outdoors, brought to your threshold.

Plants for use along water courses are well illustrated in the photograph of the tamarix with its delicately arched pink flowered branches, and in combination with the pin oak this shrub makes an excellent parkway plant. The other photograph shows the dogwood or cornus, with Thunberg's barberry and the tall aralia or Hercules club. The latter with its spiny branches, makes in time an impenetrable thicket with which the barberry soon cooperates in making more impassable.



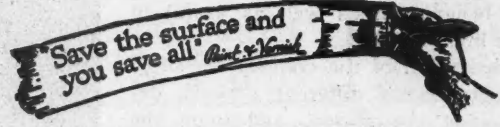
To Recommend Building Code

AT the last board meeting of the Associated General Contractors of America a report was presented calling attention to the disposition of the various states to adopt building codes and outlining the necessity for the drafting of a comprehensive code to serve as a guide for legislation of this character.



Dogwood and Thunberg's Barberry Combine Well with the Tall Hercules Club and the Spiny Branches of the Latter Form an Impenetrable Thicket.

SAVE THE SURFACE DEPARTMENT



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

Where Paint Comes From

The Contents of the Paint Pot Hail from All Four Corners of the Earth

EACH material which goes into modern dwellings has a background and history as extensive as that of the human race itself. Paint, especially, has a unique family tree and a history which takes it into the hazy margin defining our knowledge of the earliest human life. The ingredients of paint come from all four corners of the earth.

Dr. W. T. Pearce, head of the School of Chemistry, North Dakota Agricultural College, recently outlined the history and sources of paint, to the great interest and edification of those who enjoy obtaining curious information. In rehearsing the antecedents of paint, however, Dr. Pearce also contributed many valuable facts in which

everyone concerned in the building or painting trades is interested.

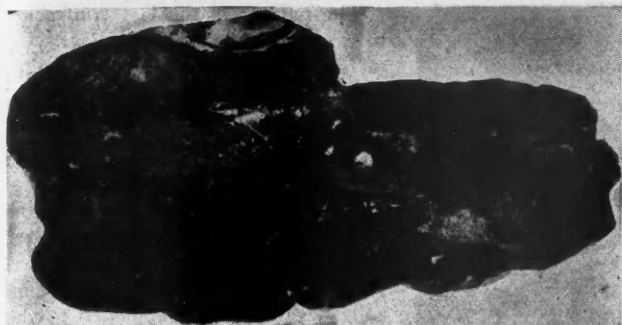
"People painted their homes in ancient times," he pointed out. "We read in Jeremiah, twenty-second chapter and fourteenth verse, 'I will build me a wide house . . . and it is ceiled with cedar and painted with vermilion.'"

The building and painting trades are deeply rooted in history.

"White lead and vermilion were used several hundred years before the Christian era," he went on, "and ochres, whiting and charcoal are referred to in the writings of the Roman historian, Pliny. Zinc oxide, Prussian blue and chrome-yellows are gifts of the eighteenth century.



One Step in the Process of Converting Raw Materials Into Varnish and Paint. The varnish gums are melted in copper kettles and cooled under constant agitation and heat control.



Among the Most Interesting of the Raw Materials for Varnish and Other Important Paint Products Are the Fossil Resins Found in Africa, New Zealand, Australia and Other Remote Parts of the World.

"In this country we find that in 1639 a Massachusetts clergyman was arraigned in court for having paint in his dwelling. The Puritans thought paint was used to beautify only, even as many good people do today. The first white lead plants were built two centuries ago, and in 1811 we find a company listing some twenty-two colors. From that time on the industry has made rapid advances. Today we find an industry producing products selling for over half a billion dollars, ranking as one of our country's great industries. We also find products whose manufacture is scientifically controlled, from the source of the raw material to the shipping of the finished product."

Dr. Pearce outlined the contents of various familiar paints. Our outside white paint, for instance, contains white lead, zinc oxide, sometimes barytes, linseed oil, turpentine, mineral spirits, and a lead and manganese drier. Lead ores are mined in large quantities in our country. From them is obtained pig lead, which is used to manufacture white lead. In New Jersey and elsewhere zinc ores are mined and converted into zinc oxide. Barytes is dug out of the ground in Missouri, Tennessee and elsewhere and ground and purified.

Linseed oil comes from the flax fields of our northwestern states. The seeds, threshed from the plant, are shipped to crushers located in Minneapolis, Buffalo and other cities, where they are cleaned, ground, heated and the oil pressed out. Turpentine comes from the pine forests of the South and our mineral thinners from the petroleum oil wells in Oklahoma, Texas and California. The manganese in the drier is sent to us from mines in the Caucasus mountains and Brazil.

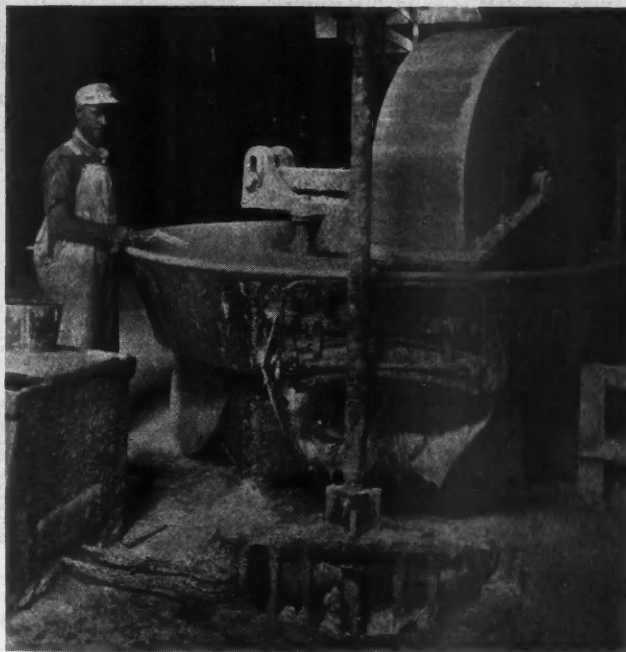
"Green paint for trim contains chrome yellow and Prussian blue, which are made by complicated processes from the iron ores of Minnesota, from the chromium ores of New Caledonia and the lead ores of Missouri. Paint manufacture is complicated.

"The beautiful white enamel on the front door," said Dr. Pearce, "contains a large number of substances. To make it, the best efforts of the paint manufacturer and the varnish manufacturer were united. The pigment or solid part is usually zinc oxide. The vehicle, or liquid part, is a varnish made from the fossil resins of New Zealand and Africa, the rosin from our southern pine trees, tung oil

from China, linseed oil, turpentine and lead and manganese drier.

"Distillates from coal-tar—creosote oil and solvent naphtha—blended with paraffin oils and incorporated with asbestos and chrome green give us our shingle stain.

"Now look at the paints in the average sitting room," continued Dr. Pearce. "The ivory white ceiling and the cream and ivory walls require lithopone, zinc oxide and a very carefully determined amount of chrome yellow and ochre, with a vehicle containing oil and varnish. The lithopone is a fine, white, light-resistant pigment. Our



"Chaser" Used in the Manufacture of Paint. Its invention was one of the landmarks of the paint industry. It has been in use 65 years.

southern states contribute the barytes and New Jersey and Missouri the zinc ores. The barytes is converted to barium sulphide by the use of charcoal, and the zinc ores to zinc sulphate by the use of sulphuric acid. When these two substances react chemically, they form substances that by several devices are converted into the composite pigment, lithopone. The ochre is a yellow oxide of iron.

"The materials used for painting and decorating are made from a great variety of materials by many complex processes. You may think of the conundrum you learned when a child, 'Flour of England, fruit of Spain, met together in a shower of rain.' You doubtless thought more of the good product resulting from the meeting. Remember that, when resins of Africa, oils of China and North Dakota, lead of Missouri, zinc of New Jersey, turpentine of North Carolina, mineral spirits of Texas, manganese of Russia, and titanium of Florida meet together in the proper conditions, materials for preserving and beautifying our buildings and homes result."

Don't Skimp on Paint

IN an exclusive suburban section of a large eastern city a speculative builder had been carrying on extensive operations for several years. He built dwellings by the mile and sold them by the inch. His reputation, slowly but surely, was going down as his houses went up.

A family moved into one of his houses. A few days later a new piano was delivered. It had hardly been placed

in the living room when the floor gave way and catapulted piano, furniture and family into the cellar. The expense of damage suits and repairs was nothing to the loss of confidence the builder suffered as a result of the mouth-to-ear advertising and the newspaper publicity which were given to the incident.

Another family, about to drink the morning orange juice

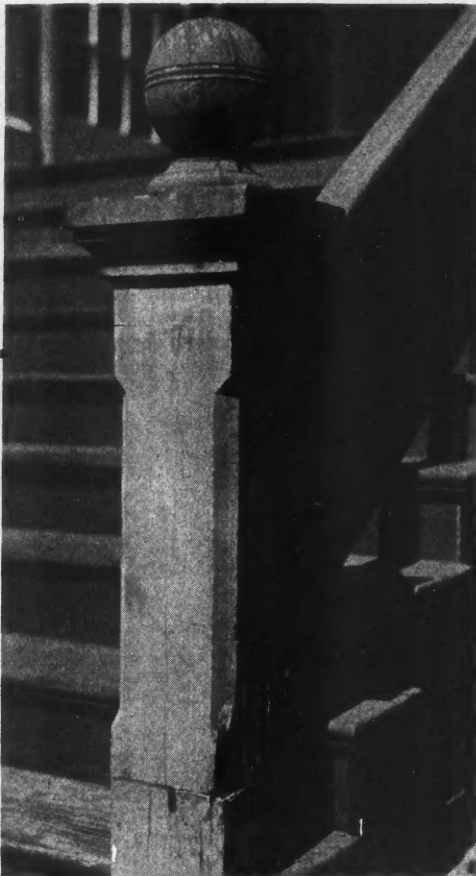
and eat its eggs in the breakfast nook of its three-day-old home, was treated to a shower of plaster. Again the damage to reputation was worse than the damage to dishes.

In a third house the stairway collapsed the day the new owners moved in. Fortunately no one was injured. The builder said to the owner, "you bought the house, it is your funeral; I'll not repair the damage." The owner is a woman of very modest means. Upon returning to the house after her unsatisfactory interview, she prepared a sign and placed it in a conspicuous location. It read "Sample House; Inspection Invited." Many prospective buyers took the sign at its face value during the single week-end it stood on the lawn. They came, they saw, they listened and they bought elsewhere. Also, they talked, and news reporters wrote many columns on the unique sample house. The builder quickly repaired the stairs but he will never be able to repair the damage done to his good name.

This builder has ridden the flood tide of housing shortage; he has cashed in on the greatly expanded interest in and desire for homes. He has "made his pile." But pride in the builder's craft he has not. He cares not what people think of speculative builders. It is nothing to him if the practices he follows

work hardship on the man who is just getting established in the business or the fellow who desires to give an honest dollar's worth of house for each one hundred cents.

The instances cited are extreme. Nothing is ever heard of much flimsy construction—it gets by. Perhaps home building corners are most frequently cut when buildings reach the painting stage. Skimping on paint is a mistake practiced by many builders who would scorn the practices of the contractor mentioned above. That it is a mistake, both from the standpoint of selling and the prestige of the builder, is easily demonstrated.



After Two or Three Years of Exposure the Owner of This House Finds That Inadequate Painting Has Resulted in Repair Bills for Him.

buyer is impressed with tasteful color schemes, well-painted woodwork and smooth varnished floors.

Economizing on paint is a costly practice which reduces the salability of a house and undermines the builder's prestige. A house which has obviously been skimped of its proper share of paint makes a poor appearance, does not stand up well under wear and tear, and arouses doubts as to the solidity of the less visible parts of the structure.



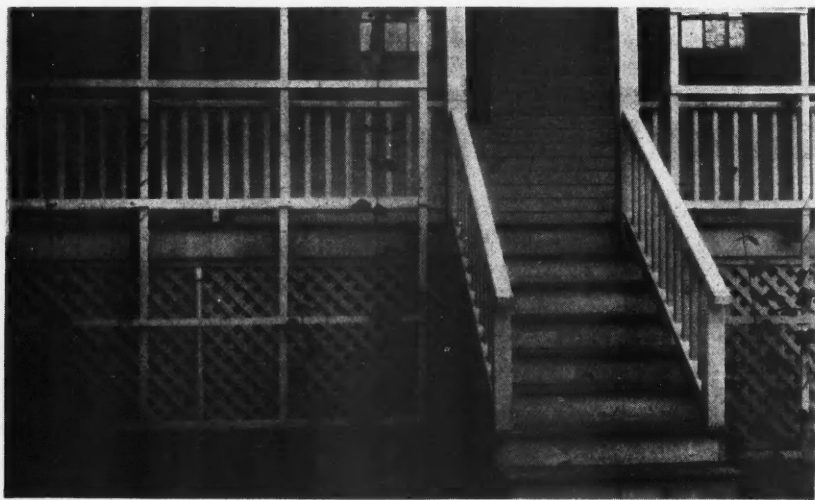
Rapid Increase in Paint Industry

"IT is with a great deal of interest and satisfaction that I have examined the final figures on the painting industry for 1924, which have just come to my desk," says a recent statement by Ernest T. Trigg, chairman of the executive committee of the Save the Surface Campaign.

"The figures from the United States Department of Commerce giving the volume of the paint and varnish industry for last year indicate that we are over 71 per cent ahead of where we were at the end of 1921. This figure is conservative, I believe.

"In the convention in 1921 the trade associations adopted the objective suggested by the Save the Surface Campaign to 'Double the Industry in Five Years.' 1922 showed a gain of 39 per cent; 1923 a gain of 52 per cent; and 1924 a total gain, in three years, of 71 per cent."

The remaining 29 per cent can be achieved by the present spirit of co-operation.



Well Painted from the Beginning, These Porch Steps Have Weathered Many a Stormy Season. The soundness of the whole structure bears witness to the reliability of the builder who started the home on its successful career.

The Re-creation of the Kitchen

"Man works from sun to sun
But woman's work is never done."

THE rhymster who thus defined the lot of the fair sex probably was inspired by the sight of a housewife toiling and moiling in one of the dark, dismal inconvenient kitchens of former days.

Today sees the re-creation of the kitchen. Everyone from the architect to the housewife herself is thinking up new ways for saving steps, new devices for lessening labor, and new conveniences for the kitchen.

Lately a new impetus has been given to the decoration of the kitchen which has become a sanitary white place with scarcely a note of color in it. Colored walls and bright curtains have helped bring it out of the slough of the uninteresting.

Two houses were put up recently on an attractive suburban street. Each had the latest improved devices for making home life comfortable and convenient, but both had certain individual characteristics.

Then along came Mr. and Mrs. Newlywed in search of a new nest. House No. 1 was received with approbation. Its shining white kitchen with its step-saving devices pleased Mrs. Newlywed but aroused no particular enthusiasm. They went next door to House No. 2.

"See, a lovely kitchen," cried Mrs. Newlywed. "I'm so tired of dead white. It makes me think of that awful operating room at the hospital."

Suffice it to say that the unusual kitchen color scheme sold House No. 2 to the young pair.

Sanitary finish and appearance of the kitchen is a prime essential. That does not necessarily require that everything be painted dead white, like a hospital. Sunshine is a germicide—one of the best. The kitchen ought to have plenty of windows with cross ventilation, if it is at all possible. The matter of making the kitchen attractive and cheerful while making it sanitary is very well stated by Mary Robinson Thomas, writing about kitchen details as decorative features:

"A color scheme is usually a starting point in making an attractive kitchen. The choice is largely dependent on the proper blending. Blue and white, green and white, and brown and yellow are pleasing. The gray and dreary should never be chosen for the kitchen."

Walls, floors, woodwork and accessories all furnish opportunities for the use of color. The walls may be painted with a flat or semi-flat waterproof finish that permits frequent washing. Closed shelves with doors painted in harmony or contrast with walls, and perhaps with a stenciled line or motif, lend distinction and interest to any kitchen. A gay bit of color here and there makes the kitchen a cheery place and catches the eye of the woman, who is more attracted by a pleasant kitchen than by all the living room innovations the enterprising builder can think of.

The kitchen is woman's vulnerable spot. Make a convenient and attractive kitchen and women prospects find their interest in the house doubled. Unusual color schemes often create more desire than a wall full of the most elaborate "improvements."

The finish in the kitchen has to stand hard wear, harder, perhaps, than any other room in the house. It is economy



Light Colored Walls Lend Distinction to the Kitchen. The wood and "built-ins" may be painted in contrasting or darker shades of the same colors to further add to the charm of the "engine room."

to use the best quality of paint and enamel and it makes a good selling point to have everything of the best in adequate amounts. Canny prospects recognize that if the builder has skimmed on finishes, for instance, future bills are being stored up for them.

In a recent house-planning contest in which 6,000 "ideal" plans were submitted, the judges were unanimous in their report that the kitchen is the most carefully studied part of each plan. The average housewife spends 76 per cent of her waking hours each day in the "engine-room" of the home. No wonder women look first at the kitchen when buying a house.

Ideally the kitchen would have a central location in the house, for easy access to all other parts. And in order to save miles of walking during the preparation of the thousand meals each year, it must be as small as is consistent with the equipment which must be placed there—a maximum of about 100 square feet for the average home.

Built-ins, attractively painted, and other labor-saving equipment help to "sell" the kitchen to the woman prospect, and on the kitchen frequently hinges the entire sale.



Code Approves Rail Steel Bars

ARCHITECTS and engineers everywhere are interested in the announcement that the Louisville, Ky., Building Commission has just completed revision of the city's building code, one of the most important changes being the approval of rail steel reinforcing bars.

The commission, which held extended hearings, adopted the recommendations of the joint committee on concrete and reinforced concrete and placed rail steel and hard grade new billet bars on an equal basis, making the working stress for both 18,000 pounds per square inch.

It was also determined by the commission that the word "rerolled" should not be used in connection with rail steel bars.

Louisville is the latest city to take this forward step. Detroit and Buffalo recently made the same revision in their building codes. Very few cities, according to the Rail Steel Products Association, now make any discrimination between rail steel and hard grade new billet material.

Sheet Metal Details

Sheet 9—Flashings, Tile Roofs and Brickwork

EDITOR'S NOTE: This is the ninth 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. This 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. 47. When a clay tile roof is surmounted by a flat deck covered by metal roofing there are two ways of flashing the junction, both of which are shown in Fig. 47. The method shown on the left is used when the clay tile finishes below the metal roof level and the roofing laps over the edge of the tile. In this case a clay-tile deck mold is secured to the roof sheathing by copper nails just above a special clay tile piece which is called a "top-fixture."

The flashing is turned down over the deck-mold far enough to lap the deck-mold four inches, the lower edge having first been turned back on itself a distance of $\frac{1}{2}$ inch for stiffness. The upper or roof edge of the flashing is connected to the roofing metal by a soldered lock seam securely held to the roof sheathing by copper cleats nailed to the roof.

The method indicated on the right of Fig. 47 shows the way the flashing is to be placed when the clay tile ends above the roof instead of below it. When this occurs the flashing is carried up at an angle on a cant strip and over a ridge board and down and out on the clay roof tile lapping the tile about four inches.

The clay ridge-roll is then placed down over the flashing, the weight of the roll holding the flashing in place. The flashing is also secured to the metal roofing of the main deck roof by copper cleats. In laying both types of flashing shown in Fig. 47 care should be taken to avoid sharp angles. The ends of the flashing sheets horizontally should be joined by a soldered lap seam or by a 2-inch lap if not soldered.

Fig. 48. When a clay tile roof abuts a brick wall at the top of the tile roof the junction is flashed as indicated in Fig. 48. Each end of the cap flashing is turned back on itself, the built-in end to act as a dam, and the lower end for stiffness. The flashing is built into the brick work as the wall progresses. The cap flashing should lap the base flashing four inches. The base flashing should extend out on the roof tile as far as the edge of the clay tile "top fixture," and before being placed the lower edge should be turned back on itself one-half inch for stiffness.

After placing the base flashing in position the upper edge should be secured to the brick work by copper nails driven into the joints of the brick work. To complete the job the cap flashing is then turned down over the base flashing in the usual way. The sheets forming both base flashing and cap flashing should lap horizontally at least two inches if the lap is not to be soldered.

Fig. 49. When a clay tile roof abuts a brick wall at the sides of the roof the method of flashing to be used is indicated in Fig. 49. The base flashing should extend out on the roof just far enough to avoid puncture by the nails used in securing the clay tile to the roof, and then be turned up at a right angle to the roof one-quarter inch and also turned up against the brick wall. The flashing should always be carried up high enough on the brick wall so that the cap flashing when in place will lap the base flashing at least 4 inches.

The cap flashing should be laid in the brick joints as the wall is built and stepped as required by the slope of

the roof. Before being placed in position each end of the cap flashing should be turned back on itself one-half inch. Each sheet of the cap flashing should lap outside the next lower sheet at least two inches.

Fig. 50. The process of flashing a roof covered with concrete tile is explained in Figs. 50, 51 and 52. Fig. 50 shows the method to be used when the tile work is penetrated by a vent-pipe. The important points to be taken care of in this instance are as follows:

First, the careful bedding in cement mortar of the particular tile or tiles which the pipe penetrates. This is necessary because the mechanical bond between this tile and its neighbors will probably be broken by the pipe.

Second, the flashing should be carried down to and over the edge of the tile just below the pipe and also up under the next tile above the pipe, as far as the wood batten, to which it should be secured by copper nails.

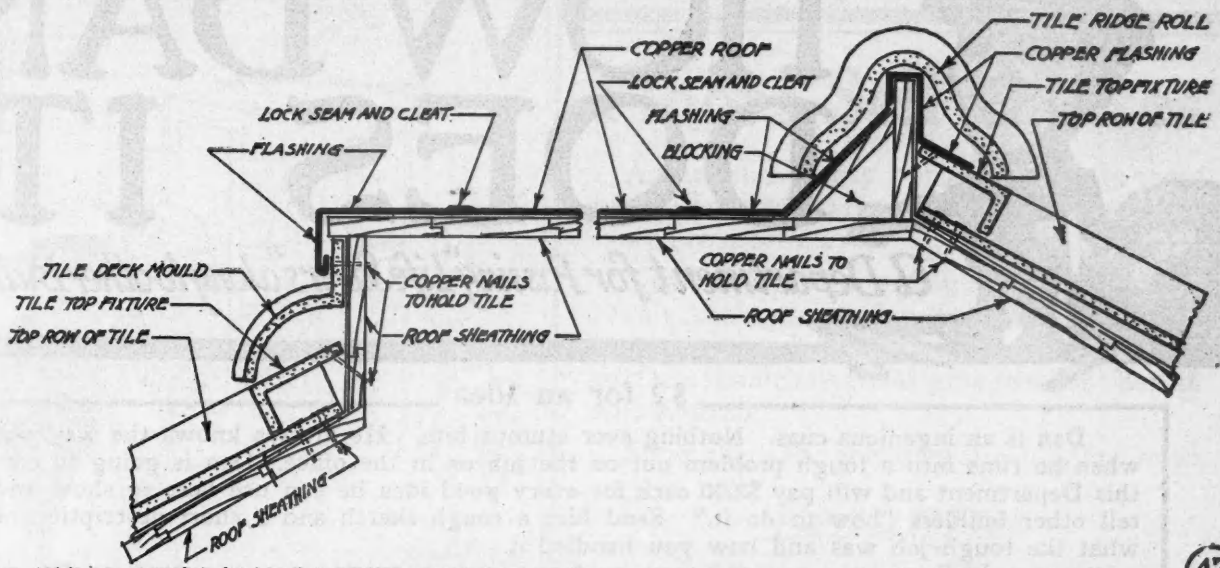
Third, the flashing should be wide enough so that the edges will terminate in a depression of the tile and be turned down into it, as shown in Fig. 51, and not terminate on top of a projection. The flashing is carried up around the pipe and terminated as described in detail in Figs. 29 or 30.

Fig. 51. This drawing indicates the method to be used for flashing a concrete-tile roof ending against a brick wall or chimney, the upper drawing showing the method when the side of the tile roof adjoins the brick work, and the lower showing the method used when the brick work is at the top of the tile roof. For clearness the cap flashing is shown with a straight lower edge. It is, in every instance, to be turned on itself one-half inch for stiffness.

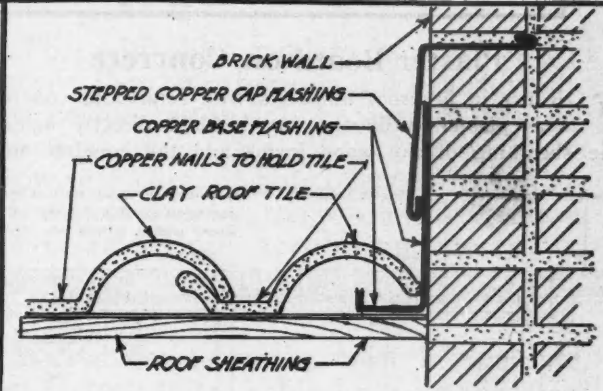
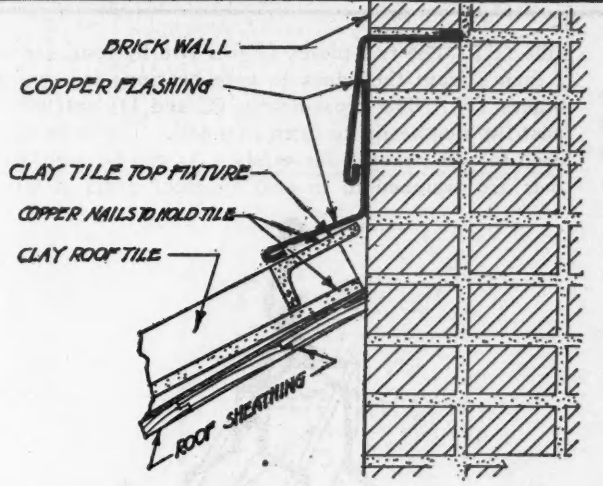
Attention is called to the method of terminating the base flashing which, in the case of the side wall, should be carried out to a depression in the tile and turned down into it. In the case of the front wall the flashing should be carried down on the roof at least four inches and over the edge of the tile next to the brick work. In each case, of course, the cap flashing should lap the base flashing at least four inches and be stepped as required by the slope of the roof and also lap the adjoining sheet two inches.

Fig. 52. When a dormer window or other vertical structure occurs on a concrete-tile roof the method of flashing is shown in Fig. 52. The upper part of the drawing shows the flashing against the side wall and the lower part the flashing against the front wall. For the side wall construction the flashing is carried out on the roof and turned up against a cleat supporting the concrete tile and also up on the vertical wall as far as necessary, but in no case less than four inches. This flashing is then nailed to the vertical sheathing about every eight inches with copper nails.

The concrete tile is kept a little distance away from the vertical wall so that the flashing becomes a small gutter. Some provision must be made at the lowest point for connecting this flashing with the main gutter by continuing it under the tile to the eaves, or else it must be run out on top of the lowest row of tile. Against the front wall the flashing is placed against the sheathing and carried up at least four inches.

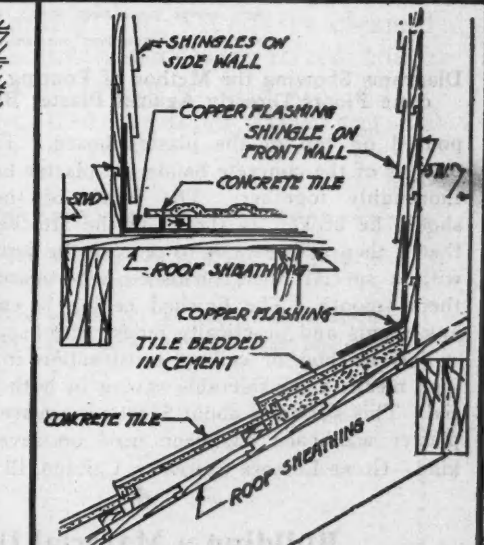
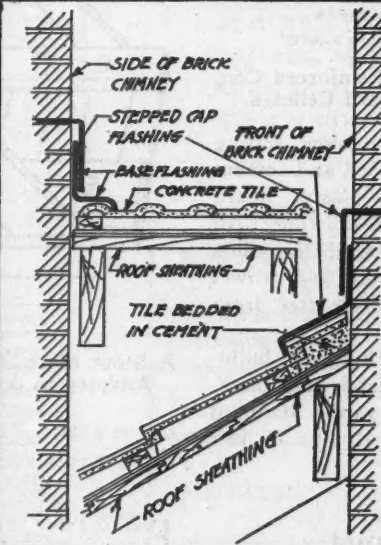
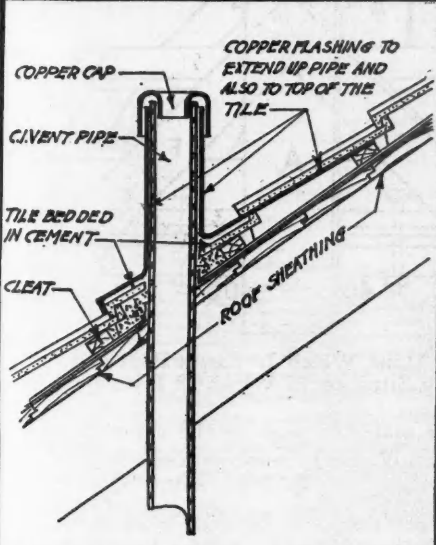


TWO WAYS OF FLASHING THE EDGE OF A FLAT DECK ABOVE A SLOPING TILE ROOF (47)



FLASHING FOR THE TOP OF A CLAY TILE ROOF AGAINST A BRICK WALL (48)

FLASHING FOR THE SIDE OF A CLAY TILE ROOF AGAINST A BRICK WALL (49)



FLASHING FOR C.I. VENT THROUGH CONCRETE TILE (50)

FLASHING FOR CHIMNEY THRU CONCRETE TILE ROOF (51)

FLASHING FOR VERTICAL WALL OVER CONCRETE TILE ROOF (52)



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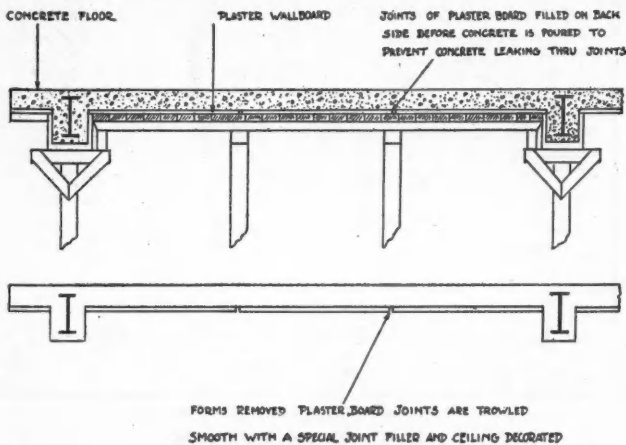
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Dan is an ingenious cuss. Nothing ever stumps him. He always knows the way out when he runs into a tough problem out on the job or in the office. Dan is going to edit this Department and will pay \$2.00 each for every good idea he can use here to show and tell other builders "how to do it." Send him a rough sketch and a short description of what the tough job was and how you handled it.

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Plaster Board on Concrete

FOR use in fireproof buildings with reinforced concrete floors plaster wallboard can be laid directly against the sheathing of the wood forms and the concrete then



Diagrams Showing the Method of Pouring Reinforced Concrete Floors Directly Against Plaster Board Ceilings.

poured on top of the plaster board. The slow setting process of the concrete bands the plaster board and cement thoroughly together. The joints of the plaster board should be broken as shown in the attached drawing. All that is then necessary is to remove the forms, fill the joints with a special filler, furnished with material, and trowel them smooth. The finished ceiling is entirely free from any seams and practically indestructible.

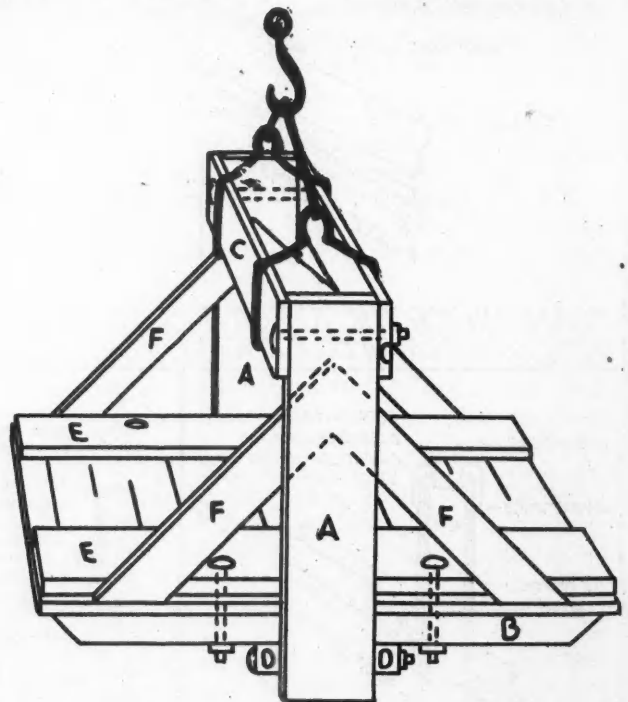
This method of ceiling construction in fireproof buildings means a considerable saving in both labor and material. This saving is about \$1.00 per square yard. Standard plaster wallboard has been used on several jobs of this kind.—GLOBE LUMBER COMPANY, Chicago, Ill.



Building a Material Hoist

A VERY serviceable material hoist can be made as shown in the accompanying sketch. As shown, the side beams are proportionately short, but can be made any desired length. For the side beams (A) two by eight material is used, and these are recessed into the four by four

sills (B). The two pieces (E) of two by four, are set back 2 inches from the edges to give bearings for two by four braces (F). The cross-beams (C and D) extend 2 inches past the side beams to form channels. The bolts shown are used to add strength for safety. As can be seen, the channels are designed to fit two by eight posts at either side



A Stout Material Hoist Which Is Easily Built and Can Be Adapted to Any Situation in Which It Is to Be Used.

of the shaft. The materials used can be varied to suit the requirements.—BERT W. CULBERTSON, Jackson, Mich.



PAINTED lumber that is to be used again when doing repair work is often spoiled by driving back nails which have been puttied in and painted over. This will always chip out some of the wood instead of breaking the putty out clean. A better way is to break off the nails with a pair of pliers and then use the same as new lumber.—ADOLPH RIETER, Marinette, Wis.



Floors Sell Houses

A new and empty house—Floors in their unaccustomed bareness literally fascinate your prospect's eyes.

Nothing makes a stronger impression. Don't show them dull and lifeless floors. Nor don't lead them over a glossy brittle surface that they tread gingerly for fear it will scratch.

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The only finish modern housewives will accept. Not only because it is beautiful and distinctive, but mainly because of its many practical advantages. Waxed floors do not show scratches, do not collect dust, and are the easiest floors in the world to keep clean. Never any sloppy scrubbing, never any expensive refinishing. Spots of heavy traffic can easily be retouched just as needed.

Waxed floors are the most inexpensive, satisfactory and saleable floors for all classes of construction.

Linoleum and similar composition floors literally demand wax as soon as they are laid. Wax, in addition to bringing out all their beauty of color and pattern and giving an easily cleaned surface, is absolutely necessary to seal them against the penetration of dirt and water which soon cause them to disintegrate and rot.

The New Easy Way

The New Johnson Electric Polishing Machine used with Johnson's Liquid Wax and Johnson's Wax Applying Mop has taken all the labor out of floor waxing.

You do not have to buy it. It is available to all users of Johnson's Wax at a very nominal rental at any Johnson Branch or any store maintaining a Johnson Service Department.

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A Severe Test of Plastering

ANYONE who has traveled on a big boat can recall how the huge beams creak and groan under the strains and stresses set up by rolling swells of water and by the slashing waves. You will recall, too, how the whole ship seems to shudder under the driving force of its great engines.

Because of these abnormal stresses and strains it has been considered impracticable to attempt the use of real plaster for boat interiors. But when Frank E. Kirby, nationally known naval architect, planned the two finest steamships on the Great Lakes—The Greater Detroit and The Greater Buffalo, for the D. & C. Navigation Company—he investigated the possibility of using ornamental plastering to secure the most artistic architectural effects ever attempted in any naval construction. Davy Company, Engineers, Detroit, recommended metal-lath-channel-suspended ceilings because of the widespread success of such construction on land.

The ceilings of the main salons of these magnificent boats are done in Italian Renaissance with specially prepared, elastic, fibrous plaster applied on metal lath, with precast structural relief and ornaments applied to attain the desired architectural effects. The metal lath and channels are suspended from the ceiling-carlings on unique fastenings that permit the ceilings to be practically free and independent from deck movements and extraordinary vibrations.

The ceilings are constructed as follows: Stapled to the 3x6 carlings or joists, curved and running the width of the ceiling, are the 3/4-inch cold-rolled steel channels on which the metal lath is fastened. The channels are stapled on 12-inch centers with 2-inch galvanized staples. The staples are not driven all the way into the carlings—about 1/4 inch of play was allowed.

Opposite the staples, on each side of the carlings, a spike was driven and then by wrapping soft galvanized wire around the channel iron, tying up to the spikes, rigidity of the ceiling itself was accomplished. Three-pound expanded metal lath was then laced to the channels in the usual manner. As extra precaution against corrosion and to insure a still more permanent bond between lath and plaster, the metal lath and channels were treated with a coat of orange shellac.

These 550-foot giants of the Great Lakes are bigger than most ocean liners. They were built at a total cost of about \$7,500,000. Their maiden trips were made in the fall of 1924 and they

are now plying regularly in service between Detroit, Cleveland and Buffalo. The ornamental plastering on metal lath has been reported as a complete success in spite of the unusually severe conditions encountered.



New U. S. Gypsum Lime Plant

THE United States Gypsum Company on June 5 put into full operation a new lime plant located one mile south of Cordova, Ill. It consists of eight steel-jacketed kilns of 12-foot shaft with a daily capacity of 12 tons each, two Clyde (batch-type) hydrators of 60 tons apiece daily capacity, with kiln-house, hydrator-building and warehouse of permanent ferro-concrete construction.

Property was purchased in 1923 after it was found that a large supply of high-quality dolomitic limestone adaptable to the manufacture of mason's hydrate was available.

Its output will be about 125 tons a day of mason's hydrate. It will be distributed in the central and north-western states, where the acceptance of hydrate instead of lump lime is well established in the building trades. Opening of these kilns will mean lower freight rates on mason's hydrate for dealers in the western states who previously have been served from the Ohio lime field.



New Plant for Mueller Co.

THE Mueller Company, of Decatur, Ill., now has under construction a new plant which will be devoted to the manufacture of vitreous ware, a new line supplementing this firm's line of plumbing fixtures. The new plant is the first step in the development of a complete manufacturing plant and model town for employees on a considerable area of land which has been acquired at the south of the city.

Though the ultimate plan contemplates a concentration at this point, for the present there is no intention of moving the present units which are now located in Decatur. A recreation and athletic field will be constructed on this site for the use of employes as well as a club house for their social activities. The model houses which are a part of the future plans will be constructed by the company and sold to employes at actual cost.



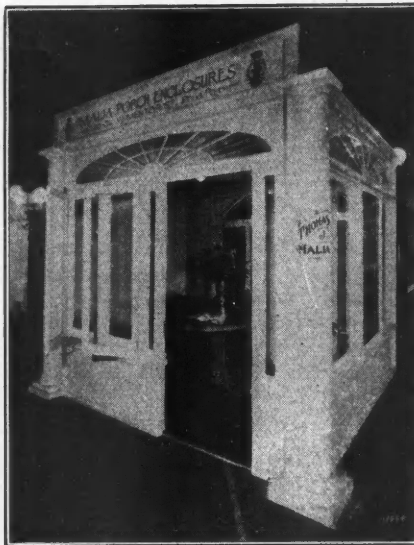
Mac-Stone Expands Plant

THE Mac-Stone Stucco Co., Inc., 1552-1562 Troy Ave., Brooklyn, N. Y., reports that its business has increased so rapidly that it has been forced to expand its plant to meet the demand for its products. New silica bins, equipped with power unloaders, have been erected, more than tripling the former capacity. An additional warehouse is now in the course of construction which will be devoted to the handling of stocks of dash.

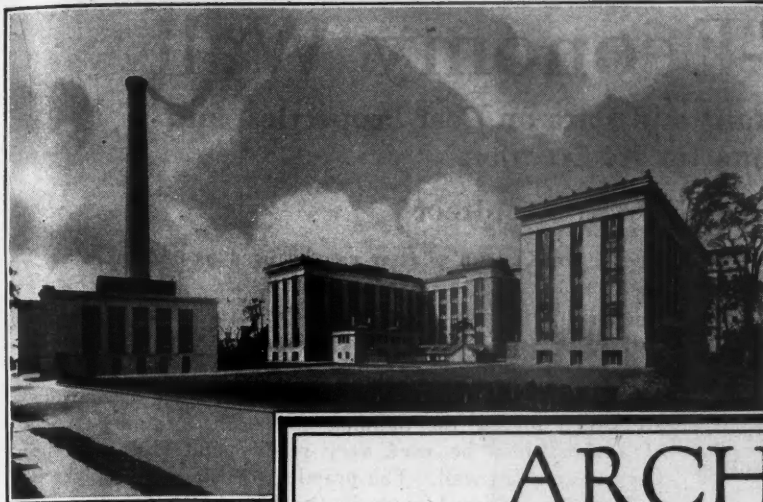


A Prize Exhibit

AT the recent Philadelphia Building Show, the exhibit of Thomas J. Malia, 226 W. Mentor St., Philadelphia, was awarded the cup for the best practical display. Mr. Malia is a successful and well-known builder who has been engaged in this business for the past fifteen years. The Malia Exhibit, which attracted much attention, displayed a model living room enclosed in a most attractively designed booth, in the style of a fine home exterior.



Malia Exhibit at the Philadelphia Building Show, Winner of the Prize Cup.



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CONCRETE WALLS	S-W Concrete Wall Finish	Old Dutch Enamel, Gloss		
CEMENT FLOORS	S-W Concrete Floor Paint	S-W Concrete Floor Paint		
EXTERIOR WOOD SURFACES	SWP (Sherwin-Williams Prepared Paint)	Old Dutch Enamel, Gloss	S-W Preservative Shingle Stain S-W Acid or Oil Stain	Rexpar Varnish
EXTERIOR METAL SURFACES	Kromik Structural Steel Primer Metalastic (for finishing coats)	Old Dutch Enamel, Gloss		
FACTORY WALLS (Interior)	S-W Eg-Shel Mill White S-W Flame Resisting White	Old Dutch Enamel or Enameloid		
FLOORS (Interior Wood)	S-W Inside Floor Paint (the enamel-like finish)	S-W Inside Floor Paint (the enamel-like finish)	Oil Stain or Floorlac Varnish Stain	Mar-Not Floor Varnish
GALVANIZED IRON SURFACES	S-W Galvanized Iron Primer (Finish with any Paint)	S-W Galvanized Iron Primer and Old Dutch Enamel		
INTERIOR WALLS AND CEILINGS	Flat-Tone Wall Finish S-W Eg-Shel Mill White	Old Dutch Enamel or Enameloid		
INTERIOR WOOD TRIM	SWP (Sherwin-Williams Prepared Paint)	Old Dutch Enamel or Enameloid	S-W Acid Stain S-W Handcraft Stain S-W Oil Stain	Scar-Not Varnish Velvet Finish Varnish (for imitation rubbed effect)
PORCH FLOORS AND DECKS	S-W Porch and Deck Paint			
RADIATORS AND PIPES	Flat-Tone Wall Finish or S-W Gold Paint S-W Aluminum Paint	For White—S-W Snow White Enamel For colors—Enameloid		
ROOFS—Metal	SWP or Metalastic (if Galvanized, prime with S-W Galvanized Iron Primer)			
ROOFS—Wood Shingle	SWP		S-W Preservative Shingle Stain	
STACKS AND HOT SURFACES	Salamander Smoke-Stack Black			
STRUCTURAL STEEL	Kromik Structural Steel Primer Metalastic (for finishing coats)			
TO DAMP-PROOF FOUNDATIONS	S-W Antydamp			
TO DAMP-PROOF INTERIOR WALLS ABOVE GRADE	S-W Plaster Bond			
WOOD PRESERVATIVE			S-W Carbolic-ol	

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The Carver-Economy Wall

Part 4—Full Preliminary Details and Data on Cost Properties, and Instructions for Its Erection

By WILLIAM CARVER, Architect

Detail at Ceiling of One-Story Bungalows and Second Floor of Two-Story

26. The floor support feature described in paragraphs 24 and 25 is not necessary at the ceiling line of the second floor or at the ceiling line of one-story bungalows. In these cases the 2-inch by 6-inch piece (a piece of 2 inches by 4 inches would not be desirable here) is placed immediately below and directly supporting the ceiling joists. See detail at roof line (Fig. 6.)

Floor Joists:

27. The laying of the floor joists is a very simple operation. They are simply spaced 16 inches or any other desired dimension on center without reference to the location of the pilasters. (Fig. 8.)

28. It is obvious that fire cutting the joists is not necessary with this construction. In fact it should not be done as there is much advantage in running the rough floor to the wall.

29. In case a joist should come in the center of one of the pilasters, a 4-inch course of bats may be built on each side of the joists, and the regular pilaster started upon this support above the level of the top of the joist. (Fig. 8.) A pilaster can be shifted slightly to one side to a distance of one or two inches for the height of the floor joists where necessary for the proper spacing of the latter. Above the level of the joists the pilaster can be shifted back to its normal position.

Support of Joists Carrying Excessive Loads:

30. Where a joist bearing an excessive load (such as when the joists are doubled or trebled to take care of a framed opening in the floor) does not come nearly over a pilaster, a header formed of a joist with a 4-inch bearing

at each end over a pilaster can be used as shown in Fig. 14 to transfer the load to the pilasters.

Anchors:

31. Where it is the local custom to use a positive tie between the floor or roof timbers and the masonry walls of any kind of construction, or where such ties or anchors are called for by the building codes, the ordinary types of anchors may be used very readily and easily in the Carver-economy wall. The practice of using such anchors is, however, honored more in the breach than in the observance, and the necessity for anchors is no greater with this wall than with any other kind of masonry construction.

32. Wherever a pilaster occurs there is at that point a thickness of eight inches of masonry which can be anchored into.

33. If it is desired to anchor the ends of the joists at a point where their location does not coincide with the position of a pilaster, spike a piece of 2-inch by 4-inch between two of the joists outside the face of the pilaster and anchor to the 2-inch by 4-inch. (See Fig. 8.)

Fire and Draft Stopping:

34. In line with other organizations, the Common Brick Manufacturers' Association has been devoting a great deal of study to this detail in connection with all types of walls. The object of fire and draft stopping is to prevent the upward movement of air from one story to another (and flame, if a fire has started) from a the vertical spaces between furring strips, b from the spaces between the joists (in other words between the plaster ceiling and the wood floor above), and c from the inside of the house to the exterior between the rafters at the point where they intersect the wall. Not only does fire and draft stopping tend to confine a possible fire to the room of its origin, but it makes a house easier to heat by retarding the flowing away of the warmed air.

35. In common with other types of construction ordinarily used, the Carver-economy wall lends itself admirably to this modern detail of residence construction.

36. For firestopping the floor where the ends of the joists rest upon the wall (second floor joists and second floor ceiling joists adjacent to a gable), place a piece of furring horizontally below the joists, to which it is to be nailed. This cuts off the vertical spaces between furring strips. Above the joist line, the rough floor may be run almost to the inside line of the 4-inch brick

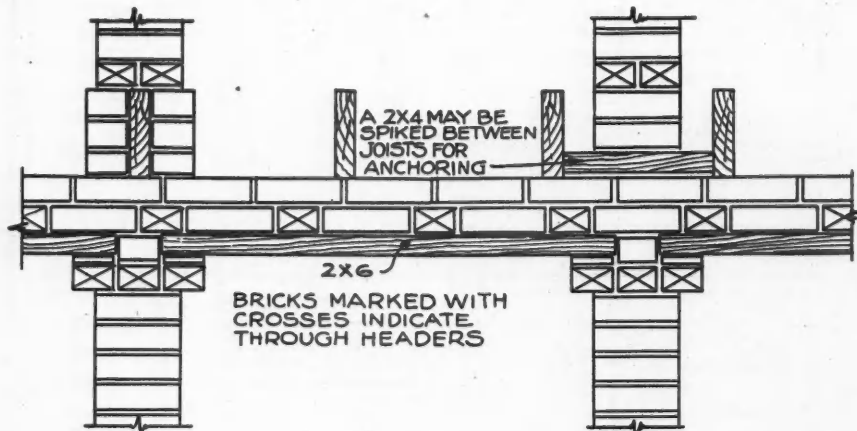
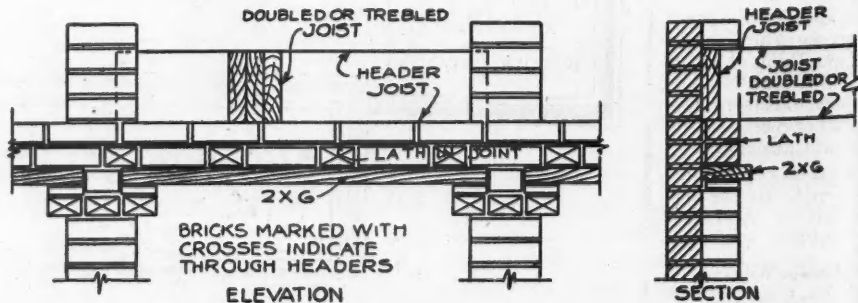


Fig. 8. Above: Joists Are Spaced Irrespective of Location of Pilasters.

Fig. 9, Right: Special Framing for Joists Carrying Concentrated Loads.



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Brick has again proven its economy, not only in first cost but in long, satisfactory service.

The following letter from Hubbard & Hubbard, Builders and Contractors, Detroit, tells the story:

"In reference to the Ideal Wall recently installed on Coyle Avenue, we are more than pleased with this type of brick basement so much so that we

will, without doubt, construct more of them in the future.

"We have found that the cost of Ideal Wall basement is no more than cement block, and the finished job so much superior, that we do not hesitate to say that there could be little or no comparison as to which type will be used. We also believe that as our mason becomes more familiar with the Ideal Wall, its cost will be materially less."

In Detroit a test wall laid up to determine cost of laying the Ideal Wall indicated a production of 1150 brick per man per day. The Detroit Union has officially approved 1000 brick per day per man as easily possible.

Write for details of Ideal wall rolok-bak construction—the lowest cost hollow wall. Or call at the nearest office.

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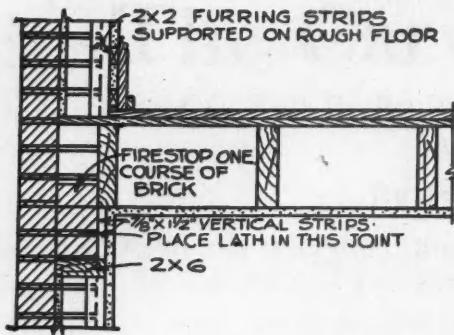


Fig. 10. Section at Second Floor Joist Level. Joists parallel to wall.

37. For firestopping the floor where the joists run parallel to the wall (where the first joist is naturally placed close to the brickwork), it is necessary only to run one additional course of brick to fill the space between joist and wall. The joist itself forms sufficient firestopping for the space within the floor. (Fig. 10.)

38. For firestopping at the roof line, simply run the exterior 4-inch thickness of brickwork up to the underside of the roof boards. (Fig. 6.)

Locating Pilasters at the Second Story:

39. The pilasters at the second story are simply run up vertically over those at the floor below. Naturally, there will be some variation in location and spacing of the windows, and these will require in most cases special pilasters to form the jambs.

Furring:

40. The furring strips for the support of the plastering laths are placed vertically 16 inches o. c. Between pilasters these strips consist of pieces of 2 inches by 2 inches which span from the floor to the under side of the 2-inch by 4-inch or 2-inch by 6-inch piece. (Fig. 4.) Where strips must come in front of pilasters the strips are naturally thinner and the ordinary size $\frac{7}{8}$ -inch by $1\frac{1}{2}$ -inch strips may be used. Seven-eighths inch by $1\frac{1}{2}$ -inch strips are also employed above window and door openings and below the window sills. The bottom of the furring strips is secured either to the rough flooring or to a piece of 1-inch by 4-inch laid flat on the joists with its front edge flush with the face of the strips. (Figs. 6 and 10.) Above the 2-inch by 6-inch or 2-inch by 4-inch member of the detail forming the floor support, $\frac{7}{8}$ -inch by $1\frac{1}{2}$ -inch vertical strips are also used nailed at the bottom to the top of the 2-inch by 6-inch or 2-inch by 4-inch, and at a point part way up, nailed also to the lath placed in the joint on top of the Flemish header course. (Fig. 6.) As stated before, to form a fire stop at this point a $\frac{7}{8}$ -inch by $1\frac{1}{2}$ -inch piece of furring should be run horizontally close under the joists to which it must be nailed.

Relation of Face of Plaster to Wall:

41. In the construction of any masonry wall it is the common custom to locate the inside face of the window and door frames flush with the plaster finish inside the house. This makes easy the application of trim. Stock door and window frames are so detailed that, when placed with a 4-inch outside brick reveal, they have the proper relation to the inside plaster face of an 8-inch furred wall. The same result is accomplished with this wall.

42. When a piece of 2-inch by 6-inch is used as the wood member of the floor support (as shown on all the details) the projection of its edge naturally controls the location of the face of the furring strips and of the finished plaster. The nominal width—6 inches—of this piece is in reality only $5\frac{1}{2}$ inches. This allows a projection of about $1\frac{1}{4}$ inches beyond the inside line of the brick pilasters, bringing the plaster face to the desired point. As usual, some wedging is necessary behind the $\frac{7}{8}$ -inch

wall and on this flooring a single course of brick may be placed between the pilasters, well slushed to thoroughly fill the space between the masonry and the plaster. This cuts off the spaces between the joists and the plaster line. (Fig. 6.)

by $1\frac{1}{2}$ -inch strips when these are placed on the brick pilasters.

43. When a piece of 2-inch by 4-inch is used as the wood member of the floor support, its front edge is set out to the proper distance beyond the face of the pilaster.



Hardwood Marketing Developments

"TWO of the most interesting phases of the recent meeting of the Hardwood Manufacturers' Institute was the discussion there of two comparatively new ideas in the marketing of hardwood," says J. H. Townshend, executive vice-president of the Institute: "the production and sale of hardwood trim at the mills and the selling of hardwoods in specified stock widths to the retail yard trade.

"A talk on the former subject was made by a hardwood manufacturer who has been making and selling such trim; and a discussion of the stock widths matter was led by an experienced Ohio retail lumber dealer, who stated most emphatically that there is a good market among the retailers for hardwood lumber made in the specified widths.

"It is pleasing to see these developments in the art of marketing hardwood lumber. Twenty years ago the selling of hardwoods was largely a rough-and-tumble catch-as-catch-can proposition. The saw mill man cut up his logs and sold them the best way he could. Soon some pioneer conceived the idea of making hardwood flooring at the sawmills and now this has developed into a sizable industry of itself. Now comes the discussion of making hardwood trim at the mills, an activity that will help the manufacturers to sell profitably lots of low-grade lumber now hard to move. Apparently the trend is steadily in the direction of a greater refinement of the product at the point of production and the mills who profit most in the next few years will be those who take advantage of the improved merchandising opportunities presented by the making of hardwood trim, the separation and stocks into specified widths and other progressive movements."

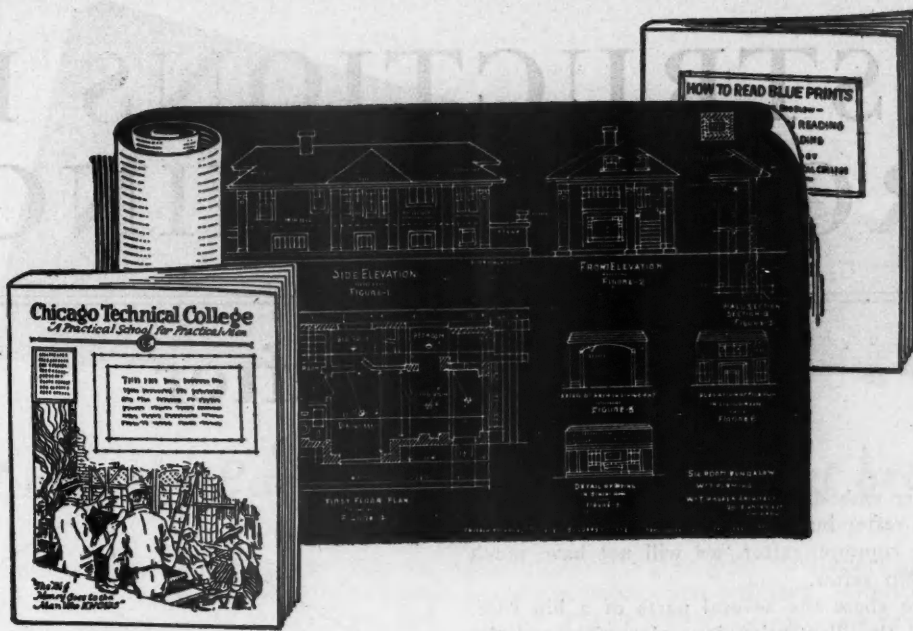


Correcting an Error

THE illustration shown below recently appeared in an advertisement published in this magazine by the California White and Sugar Pine Manufacturers' Association. Through a regrettable error in preparing this advertisement, the name of Mr. Phillips did not appear in connection with the picture, but in its place was the name of a firm of Los Angeles architects who had no connection whatever with the designing or building of this residence. Mr. Phillips is entitled to full credit for his excellent work in designing and building this home.



Porch of the Residence of Mr. Mattison B. Jones, of Glendale, Calif. Lucius A. Phillips, of Los Angeles was the designer and builder.



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can expect to be a first rate foreman or superintendent until he knows what every line on a plan means and how to lay out and direct work from the architect's plans. By the Chicago Tech. Method you quickly learn to read any plan as easily as you read these words.

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Never before have there been such opportunities as there are right now for men with expert knowledge of building. You can get ready for these big opportunities if you will use some of your spare time to study at home under the direction of the Chicago Tech. experts. No time taken from your present work. All this will be explained when we send you the free books and blue prints.

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INSTRUCTIONS IN ROOF FRAMING

The Hip Rafter

By JOHN T. NEUFELD

THE hip rafter embodies more difficult problems than the common rafter but, if we will review the instructions on the common rafter, we will not have much trouble with the hip rafter.

In Figure 20 we show the several parts of a hip roof. The lower part of the illustration is a plan view and the upper part is an isometric or as might be called a sort of perspective. The plan view when drawn to scale will give the run of the different rafters but not the lengths.

Finding the length of a hip rafter may be compared to finding the diagonal of a box.

In Figure 21 we show a box with a width and lengths of 6 feet and a height of 2 feet 6 inches.

A school boy would find it easy to get the lengths of the different diagonals. He would first find the length of the diagonal of the bottom of the box from A to B and then he would find the diagonal of the box from A to C. He might also find the diagonal of the side of the box from C to D. He would use "square root." However, we are sometimes afraid to use square root too much for fear of being called down. We will start with a simpler method.

If we compare a part of a hip roof with this box we will have the following comparisons:

- A is the corner of the building.
- B to C is the total rise of the roof.
- D to B is the run of the common rafter.
- D to C is the length of the common rafter.

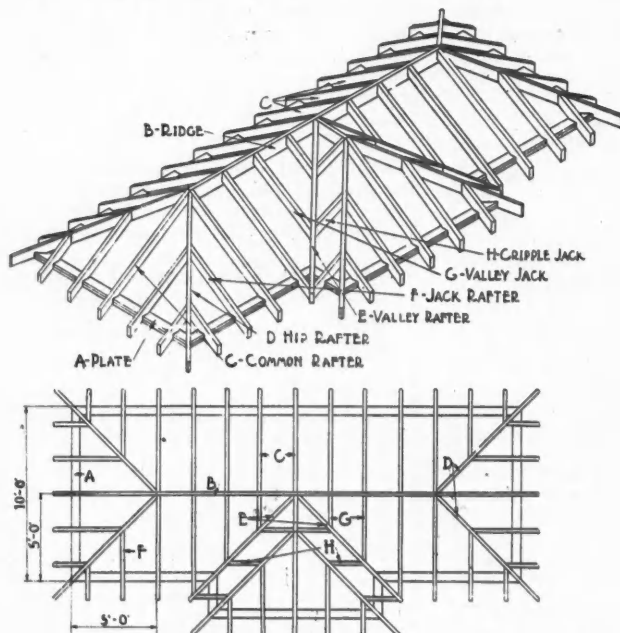


Fig. 20. Showing the Different Parts of a Hip Roof.

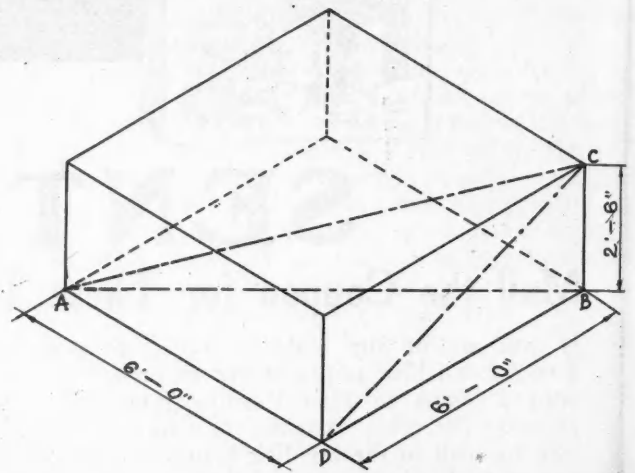


Fig. 21. Finding the Length of a Hip Rafter May Be Compared to Finding the Diagonal of a Box.

A to B is the run of the hip rafter.
A to C is the length of the hip rafter.
Compare Figure 22 with Figure 23.

With the help of the steel square we may now find the length of the hip rafter without any calculations.

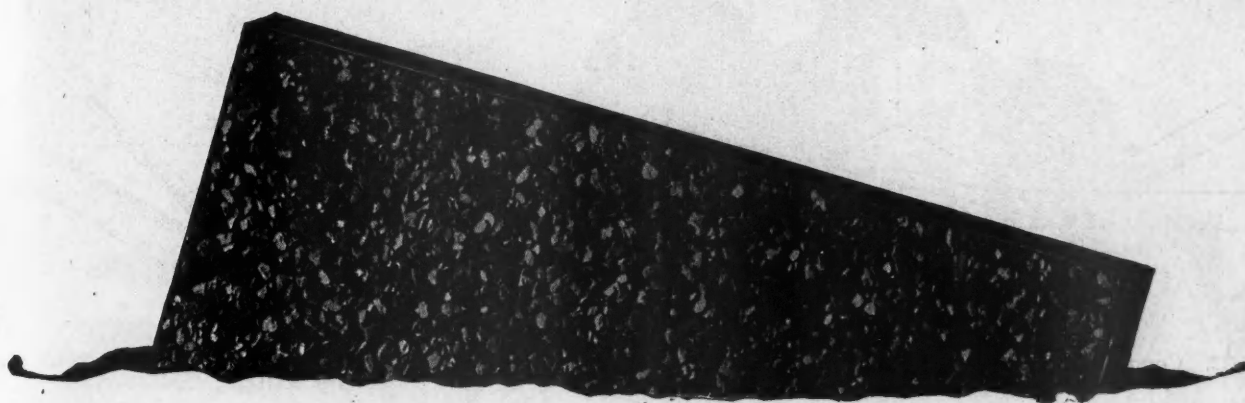
Lay the first square flat on the bottom of the box as shown. Each edge of the bottom is 6 feet 0 inches. If we measure across between the six on the tongue and the six on the blade, we find the length from A to B which is the run of the hip rafter. This is nearly $8 \frac{6}{12}$ or $8 \frac{1}{2}$ inches. Therefore the run is $8 \frac{6}{12}$ feet or 8 feet 6 inches.

Another square may be placed with the blade along the run of the hip, and the tongue along the rise. The run is $8 \frac{1}{2}$ feet and the rise is $2 \frac{1}{2}$ feet. We measure between the points $8 \frac{1}{2}$ on the blade and $2 \frac{1}{2}$ on the tongue and find the length of the diagonal that stands for the length of the hip rafter. This distance is $8 \frac{10}{12}$ inches. Therefore the length of the hip rafter is $8 \frac{10}{12}$ feet or 8 feet 10 inches. By this method of measuring across the square we may find the length of rafters to a fair degree of accuracy. However, care should be taken in measuring. Steel squares usually have one side graduated into twelfths of an inch. If we take inches for feet, twelfths of inches on the square represent inches on the rafter.

Another method that is more commonly used for finding the lengths of hip rafters is the length per foot run method. In this method we use the foot run of the common rafter as a basis.

The hypotenuse of a right triangle whose sides are each 12 inches is 16.97 inches long.

We see from the illustration (Fig. 21 and 23) that the



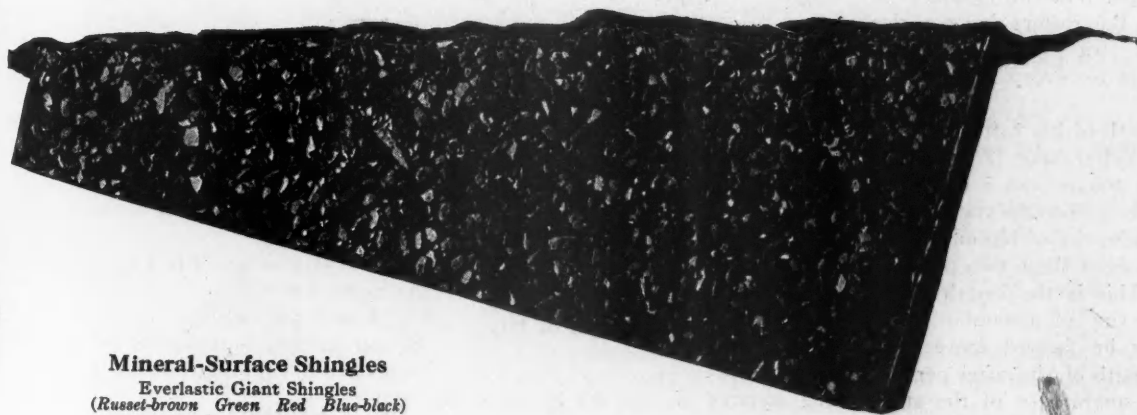
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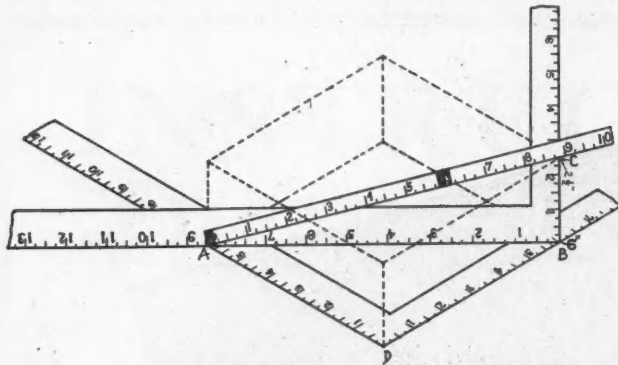


Fig. 22. Compare This Box Figure with the Illustration of a Hip Roof in Fig. 23.

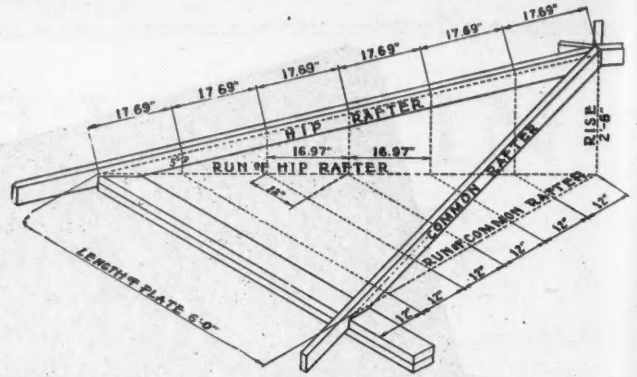


Fig. 23. Illustrating the "Length Per Foot Run" of a Hip Rafter.

run of hip rafter forms the hypotenuse of a triangle whose sides are the run of common rafter and the length of plate. (In the illustration this is the length of the plate from corner of building to first common rafter.)

If we take only 1 foot of run and 1 foot length of plate, we have a right triangle whose sides are each 12 inches long and whose hypotenuse is 17 inches or, more accurately, 16.97 inches.

The long side, or hypotenuse in this case, is a portion of the run of hip rafter corresponding to 1 foot run of common rafter. Therefore, we can say that the "run of hip" is always 16.97 inches for every foot (12 inches) run of common rafter, if the roof is of even pitch.

The hip rafter always has the same rise as the common rafter, therefore the rise for each 17 inches of run of hip is the same as the rise per foot run of common. In this problem the rafters have a rise of 5 inches per foot "run of common rafter" or 5 inches for every 17 inches of "run of hip."

To get the length of hip rafter per foot run of common rafter take 17 inches on the blade of the square and 5 inches on the tongue. This is usually stated thus: run of hip on blade, rise of hip on tongue. The distance between these two points is $17\frac{2}{3}$ inches. This is the length of hip rafter per foot run of common rafter. This length can be figured more accurately thus: Length of hip rafter per foot run equals the square root of the sum of the squares of 16.97 and $5 = 17.69$ inches.

In actual work we usually take this length per foot run from tables in handbooks or on the steel square.

The common rafter in this problem has a 6-foot run and therefore there are also six such lengths for the hip rafter, as can be seen in the illustration. The total length of hip rafter, therefore, is 6×17.69 inches = 106.14 inches = 8 feet $10\frac{1}{8}$ inches.

In Fig. 24 we show a small framing detail at the point where the hip rafter meets the ridge. This is a view in plan and shows the upper ends of the rafters as seen from above.

The length of hip just found is to the center point 0. As the hip rafter does not extend to this point we must deduct a small amount from the length. On a horizontal plane this is $17/32$ inches and is deducted as shown in the lower part of the illustration.

The table below gives the length of hip per foot run.

Pitch of Roof	Length of Hip per foot run
1/6	1-5-6
1/4	1-6-0

1/3	1-6-10
5/12	1-7-9
1/2	1-8-10
5/8	1-10-8
3/4	2-0-9

This table is in the same form as found on steel squares. In the column headed "Length of Hip per foot run," the first

figure represents feet, the second inches, and the third twelfths of inches. Thus 1-5-6 = one foot, five and six twelfths inches (1 foot $5\frac{6}{12}$ inches).

When figuring from a table like this it is best to use duo-decimals. Example: A roof is 16 feet wide and the pitch is 1/3. The length of the hip per foot run is given as 1-6-10. The run is 8 feet. The length is found thus:

$$\begin{array}{r} 1-6-10 \\ 8 \\ \hline 6-8 \\ 4-0 \\ 8- \\ \hline 12-6-8 \end{array}$$

$12-6-8 = 12$ feet $8/12$ inches.

The operation is as follows: $8 \times 10 = 80$, which = 6 feet 8 inches and is put down 6-8.

$8 \times 6 = 48$ which = 4 feet 0 inches and is put down 4-0.

$8 \times 1 = 8$ and is put down as 8.

Adding up we have $12-6-8 = 12$ feet 6 inches and $8/12$; or 12 feet $6\frac{8}{12}$ inches as the length of hip rafter.

PROBLEMS

1. From the table find the length of hip per foot run for a 1/4 pitch; for a 5/12 pitch; for a 3/4 pitch.
2. If the roof in Figure 20 is 5/8 pitch what is the length of the hip rafter?
3. A roof has a 10-inch rise per foot run. The span is 28 feet. What is the length of the hip rafter?

ANSWERS

1. The length of hip per foot run for a 1/4 pitch is 1 foot 6 inches; for a 5/12 pitch is 1 foot $7\frac{9}{12}$ inches; for a 3/4 pitch is 2 feet $0\frac{9}{12}$ inches.
2. For a 5/8 pitch roof the length of hip per foot run is 1 foot $10\frac{8}{12}$ inches. The run is 5 feet 0 inches. The length is 5×1 foot $10\frac{8}{12}$ inches. $5 \times (1-10-8) = 5-50-40 = 9$ feet $5\frac{4}{12}$ inches.
3. A roof has a rise per foot run of 10 inches. If the rise is 10 inches per foot run then it is 10 inches for every 2 feet in span, or 10/24 pitch ($10/24 = 5/12$). The length of hip for a 5/12 pitch is 1-7-9 = 1 foot $7\frac{9}{12}$ inches. The run of roof = 1/2 of 28 = 14 feet. The length of hip is $14 \times (1-7-9)$. This may be worked thus: $14 \times (1-7-9) = 14-98-126 = 23-0-6 = 23$ feet $0\frac{6}{12}$ inches.

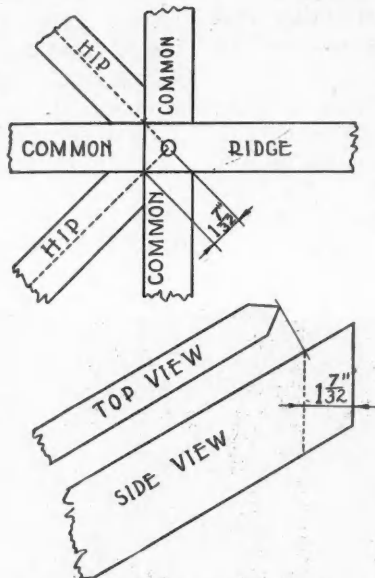
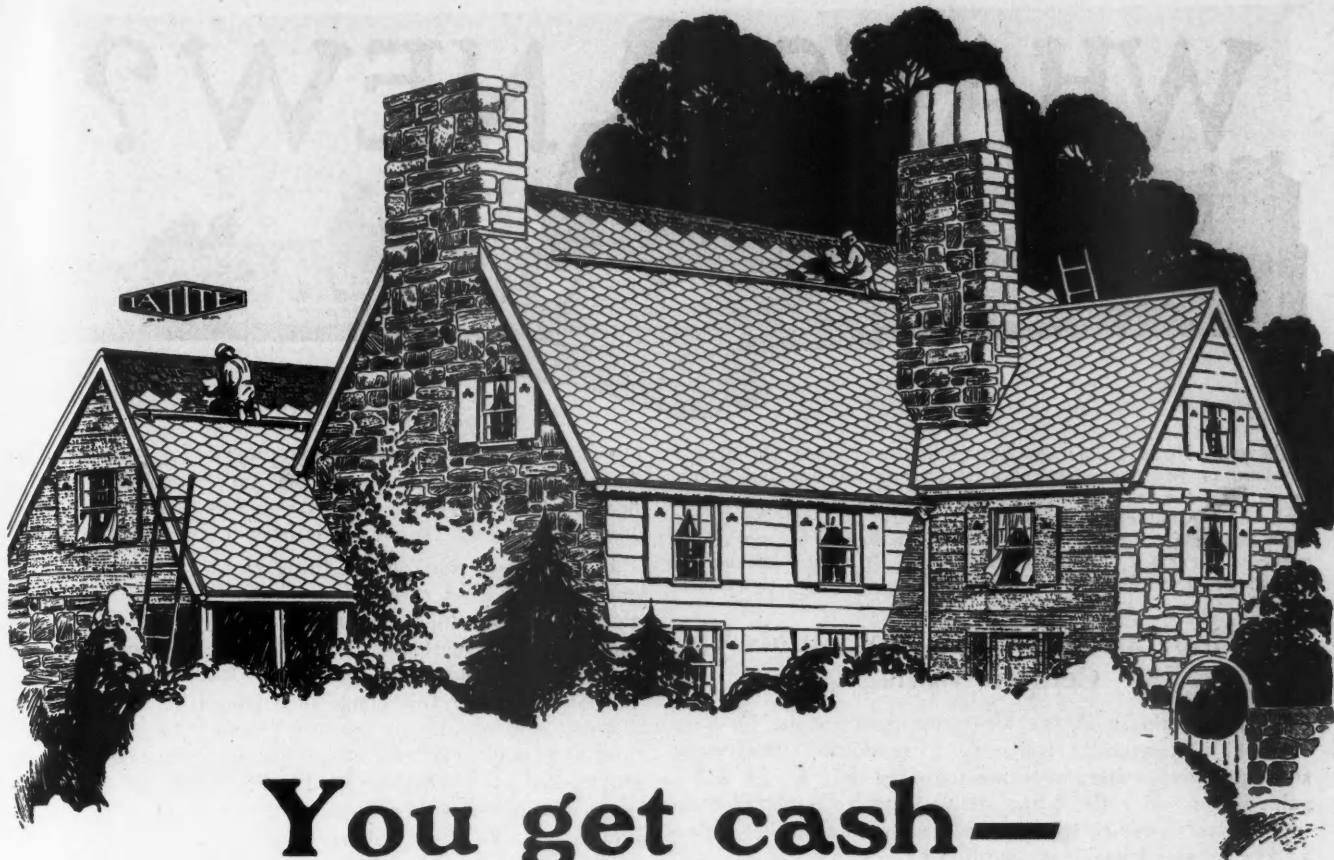
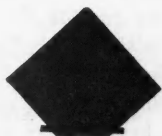


Fig. 24. How to Deduct for Ridgeboard from Length of Hip Rafter.

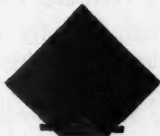


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Front view of a Genasco Latite Shingle. Made in three natural, unfading colors—red, green and blue-black.



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WHAT'S NEW?



EDITOR'S NOTE: *The AMERICAN BUILDER does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address AMERICAN BUILDER Information Exchange, 1827 Prairie Ave., Chicago.*

New Mortar Gun Plasters or Builds Up Cement Walls

THE usefulness of the air compressor in the building field is constantly widening. In addition to riveting steel, pumping water, wrecking masonry or concrete walls, paint is sprayed with it, fine, dense concrete is placed with it and now a device has been placed on the market called a "mortar gun," which is operated by compressed air.

The illustration which accompanies this article shows one of these guns in use building up mortar on wire fabric which is backed by waterproof paper. The mortar is thoroughly mixed before it is brought to the gun. An ordinary laborer can handle the gun, although it is recom-



With One Man to Handle the Mortar Gun, One Man to Serve It with Material and a Third to Follow Up, Smoothing and Floating by Hand, From Three to Five Times as Much Work Can Be Done as by the Same Men Using the Usual Hand Method.

mended that a plasterer be employed for this purpose. Another plasterer follows up the gun, to smooth up and float by hand. A third man is required to run the mortar mixer and deliver the mixed mortar to the gun.

It is claimed that one of these crews, with this mortar gun, will do from three to five times as much plastering work as can be done with a similar payroll investment by the usual hand methods. Unloaded, the gun weighs seven pounds; loaded normally, 18 pounds; loaded flush with top, 32 pounds. The following materials, it is claimed, can be used successfully in this gun: cement, lime and sand; lime and sand; plaster, lime and sand; magnesite stucco; soft mixed clay; cement, sand and cinders; or any other materials mixed with a solution that will cause the mixed materials to flow. It will spray any of these materials on backgrounds of brick, hollow tile, plaster block, stonework, wood lath, sheet metal lath, paper backed lath, or any surface that will ordinarily take plastering. It is claimed that both walls and partitions can be built up by this method, which will be solid and durable and at no greater cost than for ordinary construction with lighter and less durable materials.

The mortar gun is useful for encasing steel members, for plastic waterproofing, for brattices in coal mines and for curtain wall construction.



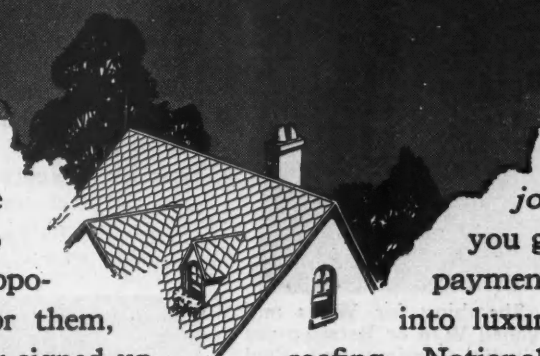
New Permanent Shade Cloth

A NEW type of shade cloth, recently placed on the market, embodies a number of qualities which are a distinct advantage. This cloth is made on a base of cotton fabric of special weave, using selected long-fibred cotton thread which gives the cloth great tensile strength and edge strength. The finished cloth strongly suggests linen. It is given a rigid inspection to insure its freedom from knots, misplaced threads or other blemishes, and is then bleached and passed through various preparatory operations before the actual finishing process.

The finishing process consists of the application of pyroxlin on both sides. Since pyroxlin is cotton, chemically changed into an adhesive jelly, it can be forced into the fabric and so saturates and anchors itself into the surface that its tough, flexible film becomes a very part of the fabric, when dry. It is crackproof and is unaffected by anything with which a shade is likely to come into contact.

The pyrolin is colored by means of mineral pigments which are permanent colors, unaffected by sunlight. The pyrolin is insoluble in water and, therefore, the shade may be washed with soap and water and a bristle brush until it is absolutely clean. This cloth is furnished in twenty-one different colors, sixteen of which are plain colors and the other five are duo-tone. The light colors are translucent, the dark colors semi-opaque and the duo-tones are practically opaque.

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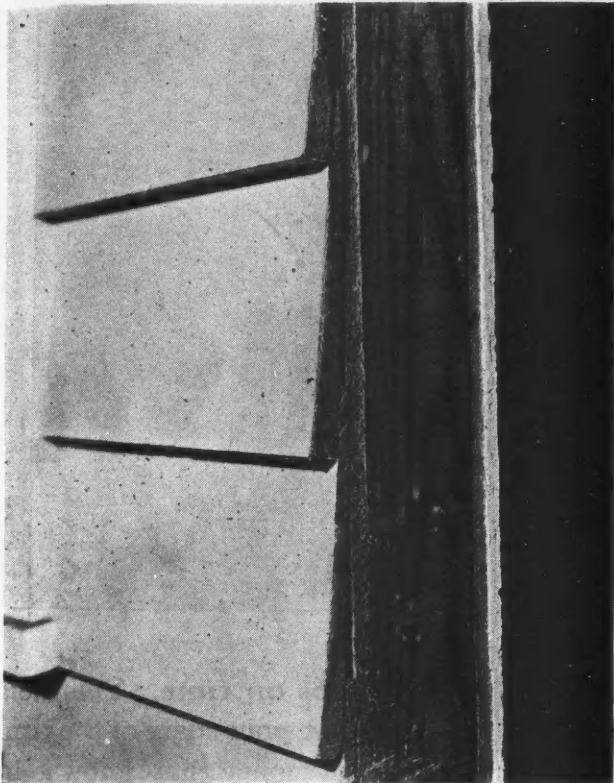
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Insulating Lumber Makes Better Homes

EVEN though wide publicity has been given to advanced methods of building construction, especially insulation, comparatively few people yet know and really understand that one can build to save fuel. A still greater number do not know how to accomplish it. Architects and builders are constantly advocating the construction of walls of houses so as to eliminate unnecessary materials—yet obtain comfort and permanence. The solution to this problem today is to build with insulating lumber. That is, lumber



Insulating Lumber, Used as Sheathing for Walls and Roof, as a Plaster Base or a Finished Wall or Between the Rough and Finished Floors, Spells Comfort and Fuel Economy.

that will keep out the heat in summer and the cold in winter. Down in Louisiana giant mills each day turn out enough insulating lumber to insulate hundreds of homes.

Let this insulating lumber replace one or more materials in the construction of your home. Nail it directly to the outside studs, replacing the ordinary sheathing, and adding insulation without extra cost. When this insulating lumber has been applied to outside walls, nail on the finished wall of siding direct or bring up the course of brick veneer in the usual way. You have a wall which has been proved scientifically to have six times the racking strength of ordinary walls.

On the roof use your insulating lumber again for roof sheathing. Nail your shingle lath directly over it and shingle in the usual way. Thus you have an insulated roof.

For inside walls apply insulating lumber directly to the studs and either plaster directly to it, thus obtaining a double wall of insulation and effecting a saving in the amount of plaster consumed or leave the big broad sheets of insulating lumber in their natural light tan condition and stencil or panel them. Really marvelous stencil effects have been developed by artists and decorators for use on insulating lumber.

Many builders have eliminated the basement for the immensely popular basementless house. They plan a simple

room hardly larger than the old fashioned closet in which to house a furnace that heats every room in an insulated house comfortably and at less cost than the old-fashioned basement and uninsulated house. You may say that a house thus built is too near the ground to be sanitary and healthful, but the modern builder will immediately counter with "Why, I have a layer of insulating lumber between my rough and finished floors which keeps the dampness from coming through."

Insulated homes are built for permanence. They are not built for a day. They not only cost less than the kind we used to build, but they pay yearly dividends in dollars by cutting the cost of fuel and adding a degree of comfort at no extra cost, which is not obtainable in the uninsulated house. Insulated homes make far healthier, happier families.



A Portable Drum Sander

A NEW drum sander with all-steel frame is of convenient size for portable machine, being 36 inches wide by 44 inches long and 36 inches high.

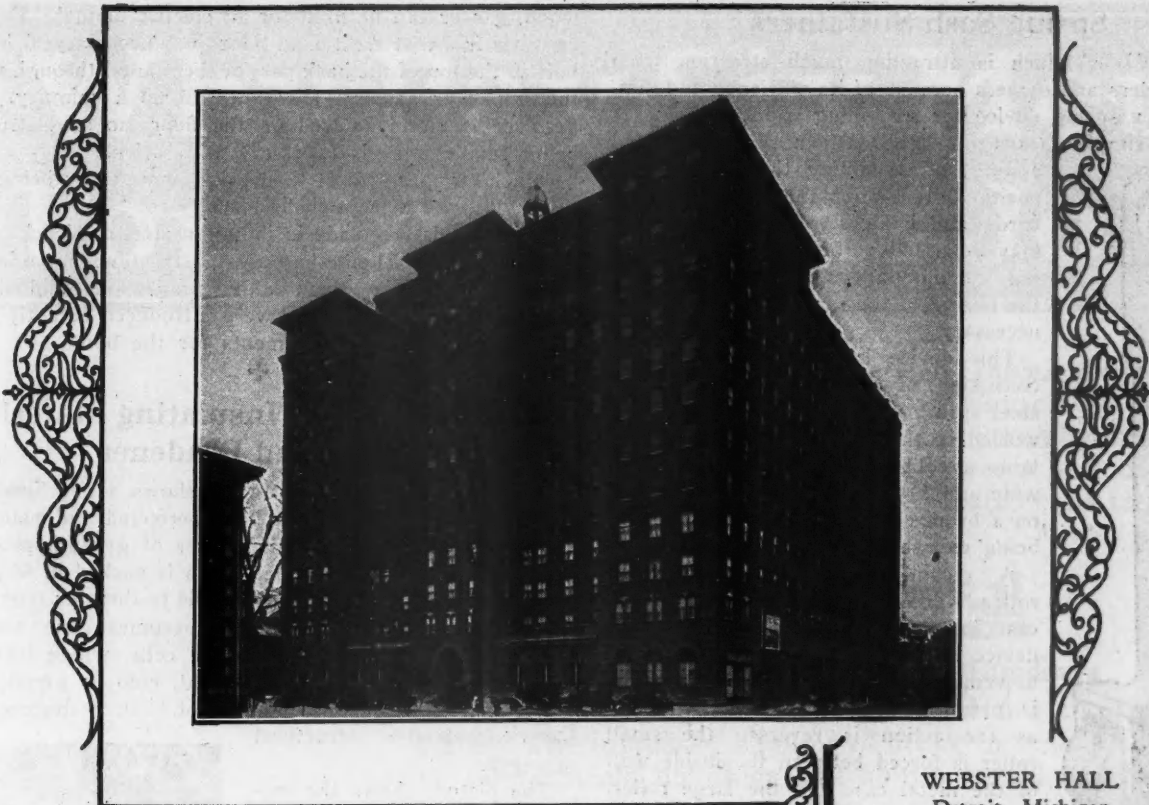
The sand drum is 13 inches in diameter by 25 inches long and takes paper 24 inches wide. The drum revolves at a speed of 400 r.p.m. on a heavy steel shaft mounted in adjustable babbitted bearings. The drum is covered with a resilient felt cushion against which the sandpaper is locked by means of a simple, effective device.

The table top is hinged at the rear and is adjustable by handwheels to regulate depth of cut taken by sandpaper. The drive pulley is outside of the machine so that it can be belted in any direction. A 1½ H. P. electric motor mounted on the rear of the sander provides sufficient power to sand stock 24 inches wide. This machine can be furnished either with or without a motor.

This drum sander is portable and economical. In operation it cleans and smooths as much hard or soft wood as can six or eight men with hand scrapers and planes. It leaves the stock smooth and free from grooves and ridges. For use on building jobs, cabinet shops and factories it is a valuable piece of equipment.



This Portable Power Operated Drum Sander Will Do the Work of Six or Eight Men with Hand Scrapers and Planes.



WEBSTER HALL
Detroit, Michigan

HALPIN & JEWELL, Architects,
Detroit, Michigan.
EVERITT WINTERS CO., Contractors,
Detroit, Michigan.

Put this Question to any Architect

PUT this question to any architect who has ever used Carney—ask him why he continues to specify Carney for his brick, tile, and terra cotta mortar. Invariably he'll tell you, "I specify Carney, first, because it forms the hardest, most lasting bond I have ever seen; and, secondly, wherever Carney is used on a job, I know the mortar can't go wrong. The

inherent qualities of Carney make mixing errors impossible."

Ask the contractor the same question. He'll tell you that in addition to its quality, Carney shows an unusual saving in labor costs—it comes ready to use, no lime is added. Its smooth working quality enables the men to show a decided increase in bricks laid per hour.

Carney is the perfected cement for brick and tile mortar.

THE CARNEY COMPANY

Cement Makers Since 1883
MANKATO, MINNESOTA

Mills at [Mankato,] Minn.
Carney,

DISTRICT SALES OFFICES: Leader News Building, Cleveland; Chamber of Commerce Building, Chicago; Omaha National Bank Building, Omaha; Syndicate Trust Building, St. Louis; Book Building, Detroit; Builders' Exchange, Minneapolis.

Specifications: 1 part Carney to 4 parts sand.

CARNEY

for Brick and Tile Mortar

Spring Sash Sustainers

A DEVICE which is attracting much attention from builders and owners because of its efficiency and simplicity is a spring device for sustaining window sash. It offers a simple means on light sash not exceeding 18 pounds, of sustaining the sash in any position, eliminating the use of weights, cords and pulleys. The stock frame may be used but of course the mortising for the pulleys in the frames and the boring of the sash for cords are not necessary.



This device is strong and compact, consisting of a special tempered, flat, steel spring with a stamped metal case welded to the free end. The case contains a cold-rolled steel roller 1/2 inch wide and 3/4 inch in diameter, revolving on a bronze pin, a portion of the roller being exposed.

A second and smaller corrugated roller is confined in the back of the case in such a manner that when the device is in operation with the upward movement of the sash the large roller is permitted to run freely. As soon as the action is reversed the small roller is forced between the inside wall of the metal case and the large roller, automatically locking the latter. The friction produced is sufficient to sustain the sash in any position but it can be lowered by exerting a slight pressure.

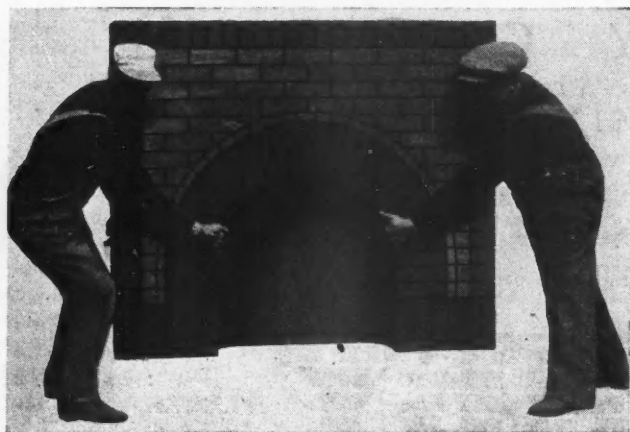
A Simple Device for Supporting Window Sash Which Eliminates the Use of Cords, Weights and Pulleys.

The advantages obtained by the adoption of this device, as pointed out by the manufacturers, are: Its cost is only two-thirds that of weights, cords and pulleys for the average window, a full set consists of four sustainers contained in a cardboard box six by three by one inch and weighs only 12 ounces; the cost of applying is only half that of applying cord weights and pulleys. The ordinary weight box may be entirely eliminated as only a plank frame is required.



Portable Ready-built Fireplace

DANCING flames and glowing embers may be watched in any room not specially equipped with a fireplace, due to the recent invention of a portable mantel of concrete. The fireplace, made of reinforced concrete, very light in weight and inexpensive, can be placed in space readily by putting it near a chimney flue. It will burn coal,



This Light, Ready-Built Fireplace Does Not Require Any Special Construction and Can Be Installed Anywhere Near a Chimney Flue.

wood, gas or can be used for an electric mantel. For gas or other fuel that creates an odor, it is necessary to have a hole in the top of the back part of the mantel through which the smoke or gas can pass out and up a chimney. The fireplace is merely placed on the floor, no superstructure being required, as is necessary with brick. It is said to be much cheaper in cost than brick, some types being one-third the price of a brick fireplace.

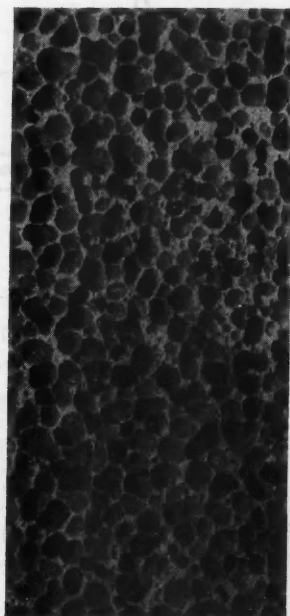
The mantels are made in imitation steel cut brick and in various colors. About the only construction that might be necessary in placing them is the inexpensive building of a chimney to the flue. They were introduced recently at an exhibition of new improvements for the home.



A New Fireproof Insulating Material and Sound Deadener

THE accompanying illustration shows a new insulating material which has just been perfected and placed on the market by a large manufacturer of gypsum products. It is a finely ground material which is packed in 80-pound bags. When water is added, it swells to three or four times its original bulk and, as it sets, becomes honey-combed. This provides myriads of dead-air cells, which form the best possible insulation against heat, cold or sound. The material itself is a non-conductor of heat, is fireproof and has considerable structural strength.

The picture shows the material after it has been poured and has set. As a sound deadener or as an insulation against heat or cold, it can be poured between floor, ceiling or roof joists, between studs or into insulation spaces in wood, stone, brick or tile walls or it may be poured into moulds and the resulting blocks laid up like tile and joints sealed by wiping with the wet composition.



As an Insulation Against Cold, Heat and Sound, This Material, Honeycombed with Dead Air Cells, Is Effective and Inexpensive.

It is also useful as a floor fill in fireproof construction, being quickly and easily poured and leveled up with the wood screeds or nailing strips. Another point of application is for fills on concrete roofs and for roof insulation. It is also said to be effective and economical for use in insulating boilers, hot water tanks, steam or hot water pipes, water towers and underground heating mains. It is recommended for insulating tunnels of coke ovens, roofs of clay plants, bake ovens and for pipe chases in large buildings.

An interesting feature of this new product is that, by a variation of the chemical formula at the mill, both the density and structural strength of the composition when set can be controlled. It is furnished in four weights: 12 to 18 pounds per cubic foot, for insulating purposes only; 24 pounds per cubic foot, for floor fill, and 30 pounds per cubic foot, for roof insulation.

The economy of this fireproof insulating material is not only in first cost but in the ease of application and low labor cost. The only mixing to be done is with water, and, when mixed, it pours like thick cream. Very little water is required per cubic foot. This material will make an effective heat stop and sound deadener in private dwellings as well as in large buildings. Full details on request.

Why Pay Six Men For One Man's Job

Every contractor without an American Universal Floor Surfacing Machine is increasing his payroll by six men every day that he pays for scraping floors by hand. Think what it means to your payroll over a period of a year, and what it would mean in profits over the same year, if you owned an

American Universal FLOOR SURFACING MACHINE

Not Only New Buildings But Old Buildings

must have their floors resurfaced and put in good shape. The increased amount of work in resurfacing old floors in old buildings and homes would add big, extra profits to your contracting business.

YOU ARE THE LOGICAL MAN TO HANDLE THIS BUSINESS

Contractors and builders find the "American Universal" method of floor surfacing a profitable side line to keep the money rolling in the year 'round, besides saving the wages of six men on all of their own work. Send a postal card, write or fill out coupon today and ask for particulars and other valuable information which we will furnish without any obligation on your part whatever.

The American Floor Surfacing Machine Co.
515 So. St. Clair Street, TOLEDO, OHIO



CUT OUT AND MAIL THIS COUPON TODAY

The American Floor Surfacing Machine Co.,
515 South St. Clair Street, Toledo, Ohio

Please send me without any obligation on my part full information about the "American Universal" Floor Surfacing Machine.

- I am a building contractor.
- I am interested in becoming a floor surfacing contractor.

Name.....

Street.....

City.....

State.....

ONE MAN ON HIS FEET IS WORTH SIX ON THEIR KNEES

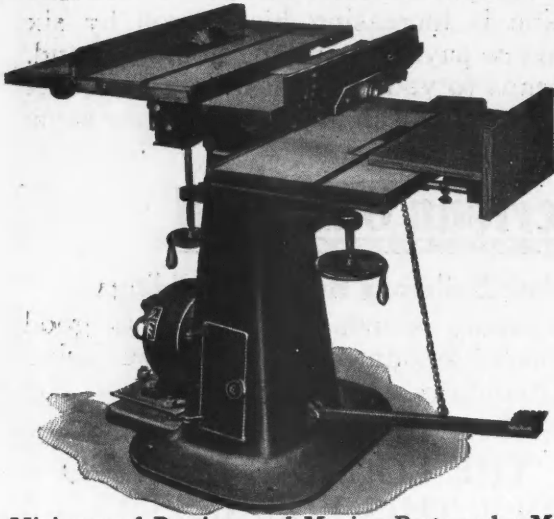


WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Simple, Combination Woodworker

THE manufacturers of a certain combination woodworker claim it has fewer bearings and moving parts, and performs more different and practical operations than other machines in its class. There are only three bearings in the entire machine, two of which are ball bearings.

Space in these columns would not permit listing all the operations possible with this machine for variations of the same operation such, for instance, as dadoing and plowing, jointing and planing, were listed. The makers content themselves with the statement that the machine will do all the work of any saw table, any jointer, any thickness planer, any boring table and any speed spindle within certain limits



A Minimum of Bearings and Moving Parts and a Maximum Range of Different, Practical Operations Are Claimed for This Woodworker.

of size. Their folder illustrates twenty entirely different and practical operations, and there are many other special operations possible according to the needs of the user.

The thickness planer on this machine is a particular feature. It planes any number of pieces to the same exact thickness anywhere between 4 inches and 3/16 inch.

This machine is mounted on a heavy base with a low center of gravity which makes for stability. The high-speed saw and cutters are all enclosed and guarded to prevent accidents, and work is done in the usual ways which the ordinary machine-hand understands. Changes in set-up are quickly and easily made; in fact, four operations on different parts of the machine may be ready for use at the same time. One operator may be using the saw table while another is using the jointer, thickness planer, boring table or any of the various operations on the end of the speed spindle. The saw is operated without muscular effort on the smallest pieces and yet full-sized stock is cut in the ordinary and usual ways.

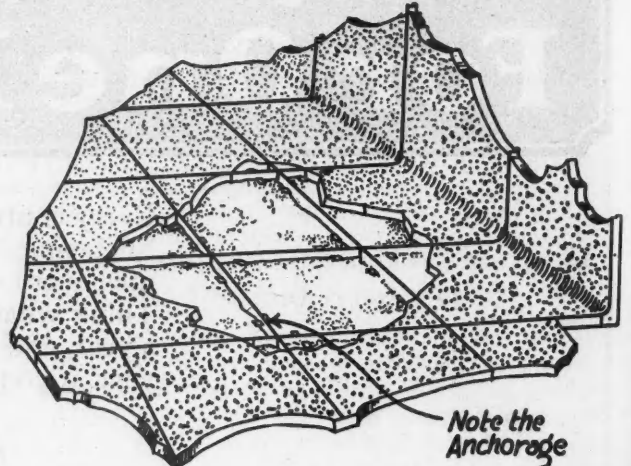
It is evident that the capacity of any machine depends on the power of the motor with deduction for bearing friction. This machine has a minimum of bearing friction and, therefore, a 1 horsepower motor is sufficient for most users; but a larger motor is easily substituted, where desired, at a slight difference in cost.

Anchored Brass Dividing Strips

FOR terrazzo floors and other plastic work anchored brass dividing strips are available which not only add to the beauty of the floors but are an aid in laying and actually effect a saving in time and labor. These strips are of a special half-hard brass made in various gauges and lengths and are anchored by means of pairs of tabs which are bent at right angles from the strip. They are said to eliminate cracking, warping and curling of floors

and walls by taking up expansion and, being flexible, may be bent in various curved formations and unusual designs.

Their use enables the production of superior work by permitting all the coating to be laid at one time and eliminates the necessity of laying different colors separately



Here Can Be Seen the Method of Applying Brass Dividing Strips, Including the Special Pieces Supplied for the Cove Base.

or in batches. Thus, when ready for finishing, the grinding can be done at exactly the right time and none of the parts will be either too soft or too hard to make an even, perfect surface.

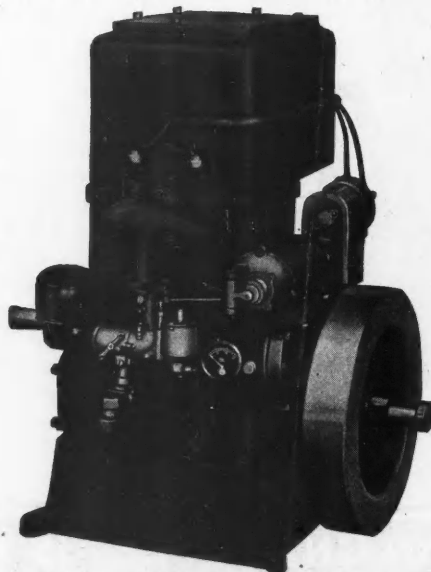


Two Cylinder Industrial Engine

A WELL-KNOWN engine manufacturing company has announced a new two-cylinder engine, built especially for the industrial field. It is the result of several years of development to perfect an engine which could be relied upon for continuous, economical and dependable performance in the field.

This engine is designed to operate in either direction. This feature, together with the fact that all parts are on one side, makes it highly accessible. It can be mounted on a base, on channels or with a special three-point suspension. Power may be taken either from the crankshaft or from a separate low-speed shaft with gear reductions of 2 to 1 (which is standard), 2½ to 1 or 3 to 1. It will

pull the rated brake horsepower (5 to 9 H. P., according to speed) continuously. Speeds are 900 to 1,200 R. P. M. at the main shaft and 300 to 600 R. P. M. at the gear shaft. A special fly ball governor insures close speed regulation and economical operation.



This Two-Cylinder Engine Has Been Especially Designed to Furnish Power for the Industrial Field and Is the Result of Several Years of Development.

Other features are a high tension rotary magneto with or without impulse, option of one or two fly-wheels, simple pull oil level gauge, crankcase inspection plates.



Reducing Non-Productive Costs

Time wasted in between jobs—when men must be moved from one place to another—creates expenditures which eat into the profits of the company. The problem then becomes one of securing a speedy, reliable means of transferring materials and equipment.

In searching for a solution to such a case, the firm of G. L. Cousins & Co., Contractors, of St. Louis, Mo., found the answer in Ford One Ton Trucks. G. L. Cousins, President, says: "We now save practically the entire whole day's expense of running a Ford when we drive three of our men from one job to another."

He further adds, "Six years ago we replaced our heavy trucks with Ford Ton Trucks because they cost less than half to buy and to operate."

These same economies are available for your business. An authorized Ford Dealer will show you how to make the change and what your net savings will amount to.

Ford One-Ton Chassis—\$365—f. o. b. Detroit

Ford

CARS • TRUCKS • TRACTORS

July 13th to 18th is FORD TRUCK DISPLAY WEEK

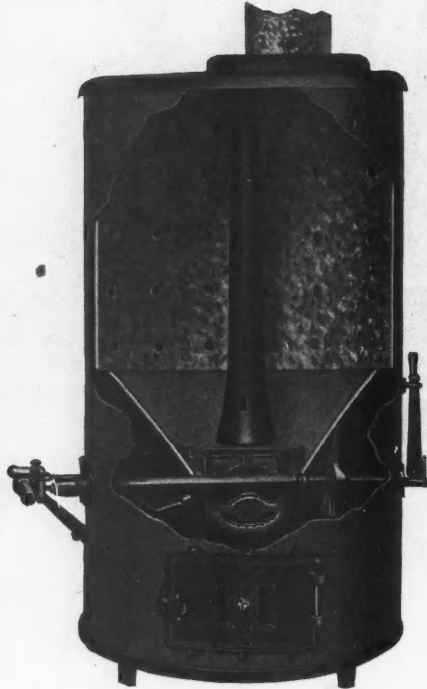
This week Authorized Ford Dealers everywhere throughout the United States will have on display and be prepared to give demonstrations of all types of Ford-built truck bodies. It is an exceptional opportunity to learn how Ford equipment can bring a new economy into your business. You are invited to take advantage of it.

A Portable Incinerator

CERTAINLY the basement of the home is the last place anyone would want to harbor a dangerous fire menace and the back yard the last place they would want to keep an active health menace, yet the inflammable old rubbish barrel in the basement and the fly-breeding garbage can come under these heads. But the remedy for these two evils is easily found. An efficient and inexpensive incinerator installed in the basement of any home solves these problems completely.

The home incinerator is rapidly becoming an essential modern convenience and the portable type is much in demand. This type is equally available for home owners or for renters as it is easily and quickly installed, detached and reinstalled in other premises. This crematory for garbage and other refuse reduces these substances to ashes without smoke, odor or dirt. It is 39 inches high, 23 inches in diameter and 31 inches over all. Its inner drum, of 16-gauge galvanized iron, holds about three bushels of refuse.

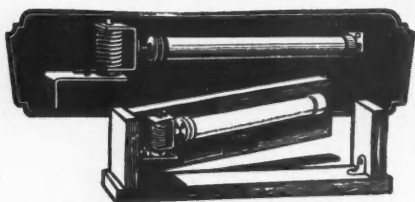
The drum in which the actual burning takes place is mounted on a heavy cone-shaped hopper, the lower end of which is directly over an ingeniously constructed gas burner which supplies the original source of combustion. Directly over the burner and running up through the center of the inner drum is a combustion chimney which increases the efficiency of the burner and acts as a drier pipe to the contents of the incinerator. The heat of this combustion pipe drives the moisture out of the garbage and up the chimney in vapor form and the dry contents then burn easily and completely. Gas is only required until the contents are dry and ignited after which they burn without expense for gas.



Cut Away View Showing the Design of a Portable Incinerator Which Makes Clean, Odorless, Sanitary and Convenient Garbage Disposal Possible for Every Family.

New Screen Door Check and Closer

A LOW priced screen door check and closer of excellent design has recently been placed on the market. This device makes the high grades of performance, such as is



A Low Priced Screen Door Check and Closer with the Performance of a Heavy Door Check.

associated with the higher priced checks for heavy doors available at a price sufficiently low for screen door installation. Its faultless operation and low price have already made

this check popular both among dealers and users. The operation is smooth and noiseless under all conditions. The check is handsomely finished in gold Duco.

New Colored Concrete Hardener

IT is no longer necessary to make two operations, with added expense, of coloring and hardening concrete floors, according to the manufacturers of a new integral colored hardener. This product combines the advantages of a coloring material with a hardening, densifying medium which also possesses waterproofing properties. It is sold in a paste form.

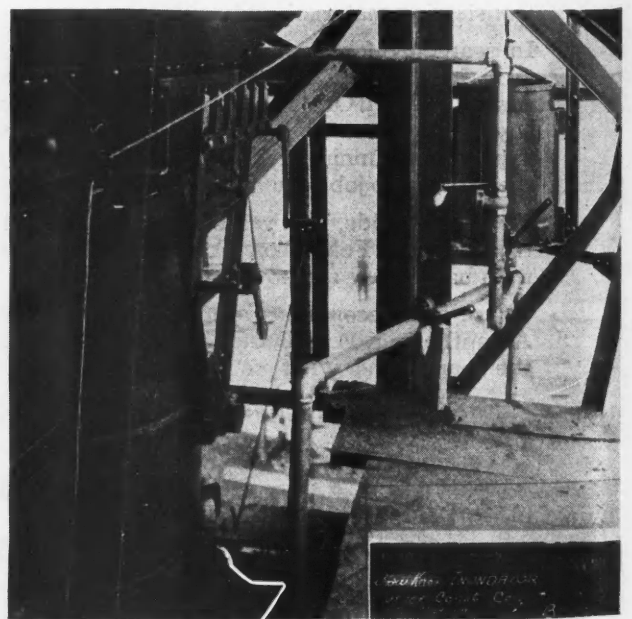
Although not designed especially for dustproofing concrete floors, this hardener improves the wearing qualities of such floors by reason of its hardening and densifying action. It does not affect the tensile or compressive strength of the cement topping in which it is incorporated and may be used to advantage in hospitals, solariums, churches, schools, office buildings, residences, swimming pools and other construction.

This product is furnished in terra cotta, red, brown, willow green, sea green, dark slate, and other alkali-proof shades. Special shades are made to order.

Constant Concrete System

THE subject of better concrete is of vital importance to everyone connected with the construction industry and constant concrete, that is concrete the properties of which are so uniform that it may be considered to have all the good attributes of an unvarying material has been the object of much research. Lack of uniformity in the past has not been due to materials, specifications or the fulfillment of specifications but to the lack of a method to automatically equalize inconsistencies in the bulking of sand and the amount of water in each batch.

Such a method has been perfected and the mechanical equipment is available which removes the variables and enables the formation of a constant concrete. It is evident that the successful application of such a method makes it possible to forecast the strength of concrete within fairly close limits and reduces the factors of safety which must be used to safeguard against low strength.



Here the Mechanical Equipment, Which Makes Possible Constant Concrete, Is Shown in Use on a Big Job Where It Has Proved Its Merit.



Progress

Two recent developments have focused public attention on Graham Brothers Trucks as never before.

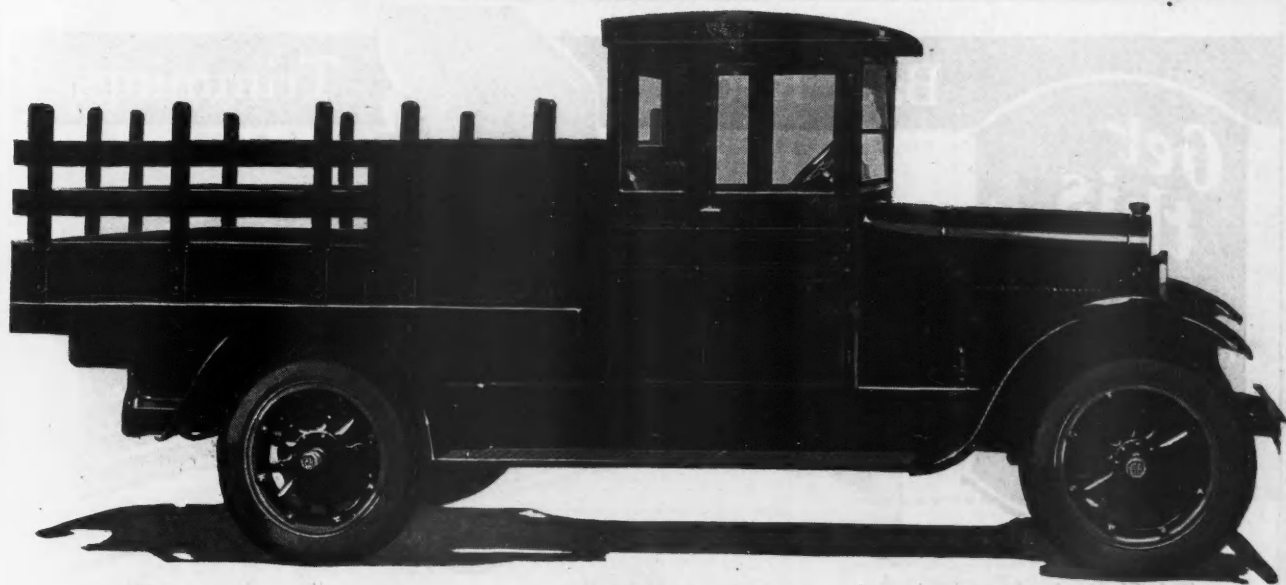
One was the sweeping price reductions of May 15th, ranging from \$80 to \$160.

The other was Graham Brothers ascendancy to leadership by building more 1½ ton trucks than any other manufacturer in the world, during the first quarter of 1925, and by achieving second position in the 1 ton and 1½ ton fields combined.

Progress such as this *deserves* public attention—and eliminates all doubt as to the logical truck to buy!

1 Ton Chassis, \$1095; 1½ Ton, \$1280; f. o. b. Detroit

GRAHAM BROTHERS
 Detroit — Evansville — Stockton
 A DIVISION OF DODGE BROTHERS, INC.
 GRAHAM BROTHERS (CANADA) LIMITED - TORONTO, ONTARIO

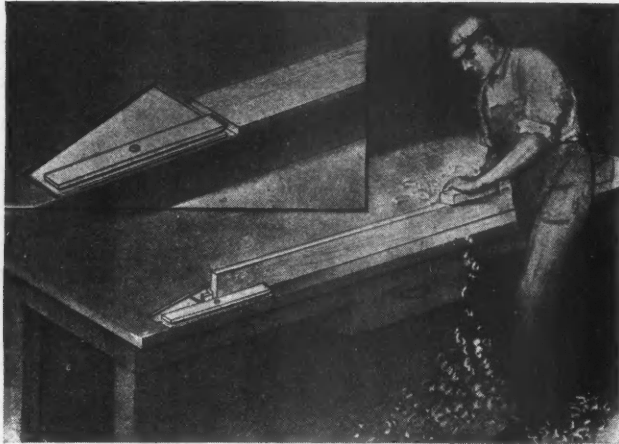


GRAHAM BROTHERS TRUCKS

*SOLD BY DODGE BROTHERS
 DEALERS EVERYWHERE*

An Improved Bench Stop

A NEW device for the use of a carpenter to speed and simplify planing has recently been invented and is now being marketed. The invention is made to hold a board on edge or side and the patented slide for holding the board on edge is regarded by the inventor to be the most important feature of the device. This slide makes it possible immediately to grip any board up to 1½ inches in thickness and hold this board in position, so that, as it is being planed, it cannot go forward or sideways or slip. A flat board may be planed by simply placing one end of the board up against the saw edge of the base. This part of the base can then be raised or lowered according to the



A Simple Device Made of Two Pieces of Steel Which Simplifies the Work of Planing. Boards are held firmly either flat or on edge and cannot slip either forward or sideways.

thickness of the board. To plane a board on edge is an equally simple operation. This device is made of steel and consists of only two parts: a base, which can be screwed to the bench in a few minutes, and the slide which engages a diagonal flange on the right hand side of the base.

Two New Tools

A NEW hacksaw frame is of interest to plumbers, steam-fitters, electricians, automobile repairmen or any mechanic whose work calls for the use of a hand hacksaw in cramped quarters or strained positions. This frame will take any length blade from 8 to 12 inches and has a handle which may be adjusted to no less than thirteen positive locking positions to suit working conditions. In addition the saw may be quickly set to cut in any one of four directions.



An Eight Leaf Thickness or Feeler Gauge, the Leaves of Which Can Be Replaced When They Become Damaged.

Another new tool made by the same company is a long leaf, thickness or feeler gauge with eight leaves in thickness of .002, .003, .004, .005, .006, .008, .010 and .015 inch. The leaves are of half-inch width and nine inches long. In case one becomes damaged in any way it is easily replaced.

Get this Booklet Free!

Bath Room Trimmings

This 24-page booklet with its illustrations will help you select the proper bath room trimmings for either the humble bungalow or mansion. Our "SNO-WITE" products, numbering more than 200 items, include both surface and recessed type trimmings, medicine cabinets and mirrors.

The most important room in the home can also be the most beautiful by equipping with "SNO-WITE" Bath Room Trimmings.

"SNO-WITE" trimmings are made of enameled iron, finished in glistening, vitreous porcelain enamel under a special process originated by us.

Originators of Porcelain Enameled Bathroom Trimmings

AMERICAN ENAMELED

2101 INDIANA AVENUE

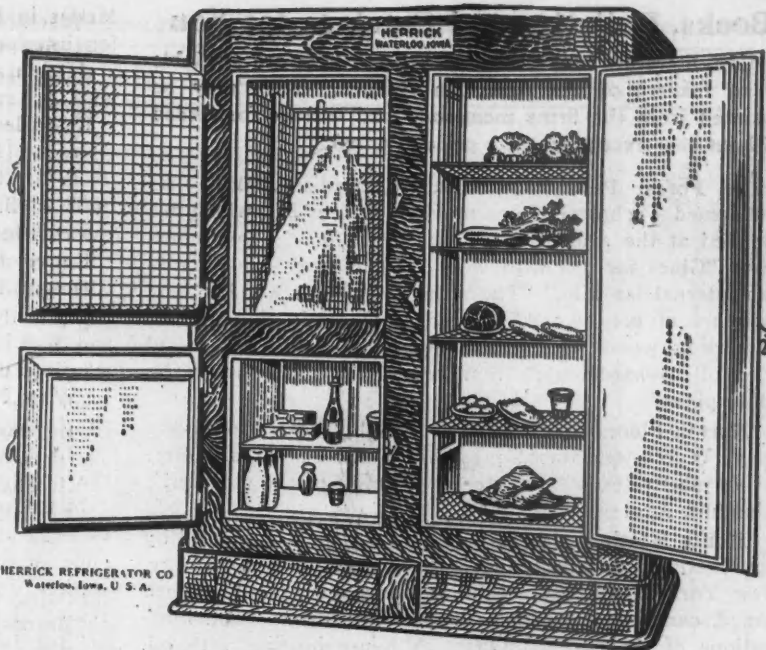
PRODUCTS COMPANY

CHICAGO, ILLINOIS

HERRICK

THE ARISTOCRAT OF REFRIGERATORS

You Can Build Better Homes



HERRICK REFRIGERATOR CO
Waterloo, Iowa, U. S. A.

BY INSTALLING HERRICK OUTSIDE ICING REFRIGERATORS

Every year thousands of Herrick Outside Icing Refrigerators are being installed in homes and apartments throughout the country and every year these thousands of homes are made more comfortable. Muddy feet and dripping ice no longer enter the kitchen, and the housewife no longer is inconvenienced by waiting for the arrival of the iceman.

Herrick Refrigerators are built on a quality basis and on sound refrigerating engineering principles. They are guaranteed to serve efficiently and economically wherever installed.

To equip your house, large or small, with a Herrick outside icer costs less than one per cent of the total cost of the house and it invariably pays for itself in increased selling or renting value. The wise builder realizes that a comfort like outside icing added just serves to increase the salability of his investment.

For the convenience of those who design and plan residences and institutions we have prepared a set of blue prints in handy vest pocket size showing dimensions and various openings required for Herrick Outside Icing. We would be pleased to send you a set Free.

Send the coupon today

HERRICK REFRIGERATOR CO.

WATERLOO, IOWA



*"Mothers
Prize
the
HERRICK"*



The
HERRICK
Made in Waterloo, Iowa
Is Always Dry
Sweet and Clean



The HERRICK - Waterloo Iowa - Outside Icing

REQUEST FOR BLUE PRINTS

Herrick Refrigerator Co.,
105 River Street, Waterloo, Iowa

Please send me Free set of Blue Prints in the handy vest pocket size, showing dimensions and various openings necessary for Herrick Outside Icing.

Architect Contractor Carpenter Owner Building Co.
Please check above.

Name

Street and No

City State

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.

The Forest Products Laboratory, Madison, Wis., has just issued Technical Notes numbers 207 to 215 which are supplied at the rate of \$1.00 per 100 copies. These notes cover "Glues for use with wood," "The reversible circulation internal fan kiln," "The structure of soft wood," "The structure of hard wood," "Strong and weak glue joints," "American woods for paper making," "The detection and relief of casehardening," "Southern yellow pine," and "The white pines."

"Norton Floors," published monthly by the Norton Company, Worcester, Mass., presents in each issue an interesting, illustrated story of the application of the company's Alundum Aggregate.

"House Heating with Fuel Oil" is a manual published by the Heating and Ventilating Magazine Co., 1123 Broadway, New York City. The second edition, which has just been issued, contains a complete discussion with data and illustrations of the various phases of house heating with oil. It sells for one dollar.

"Industrial Buildings of Concrete Masonry," Portland Cement Association, 111 W. Washington Street, Chicago, Ill., is a pamphlet describing and illustrating the use of cement masonry construction in buildings of this type.

The Solvay Process Company, 40 Rector Street, New York City, has prepared an attractively illustrated booklet covering the uses and advantages of calcium chloride in concrete building construction.

Milwaukee Corrugating Co., 36th Ave. and Burnham St., Milwaukee, Wis., announces a new booklet. "Modern

Modes in Better Plastering" features the modern textures for interior and exterior plastering effects; showing how architectural effects may be secured which would otherwise be excessively expensive.

Beardslee Chandelier Co., 216-220 S. Jefferson Ave., Chicago, Ill., has just issued a new catalog, D-8, in which its great variety of types and sizes of commercial lighting units is illustrated and described. It reflects the tendency toward the use of the ornamental type of fixture.

Conveyors Corporation of America, 326 W. Madison St., Chicago, Ill., has just issued a booklet, fully illustrated with halftones and diagrams, describing the system of "Ash and Soot Disposal at the Milwaukee Sewerage Plant" which was installed by this company.

"Who Pays for Free Service" is the title of a booklet from the Universal Portland Cement Co., Chicago, Ill., on the cost of cement sacks. It points out the fairness of the present method of charging for sacks.

Miscellaneous Circular No. 39 of the U. S. Department of Agriculture is a report of the recent National Conference on the Utilization of Forest Products and the organization of a National Committee on Wood Utilization, representing manufacturers, distributors and consumers.

"Beardslee Talks," the monthly publication of the Beardslee Chandelier Mfg. Co., 216-20 S. Jefferson St., Chicago, Ill., has been reduced to the popular pocket size and the number of pages increased from 16 to 24.

Curtis Lighting, Inc., Chicago, Ill., has prepared a booklet entitled "The Opportunity in Illumination," which sets forth the advantages of this field as a life work for college graduates and post graduate students.

"Fire Prevention in Public Institutions" is bulletin No. 18 of the Insurance Department of the Chamber of Commerce of the United States. It covers the requirements for making various types of public buildings fire safe.



DeVilbiss Spray-painting System

[Complete, Practical, Reliable Equipment
for Every Painting Requirement]

The DeVilbiss Mfg. Co.

DeVilbiss spray gun applies any kind of paint at the lowest practicable air pressure, and is easy and non-tiring to operate.

The adaptable DeVilbiss Spray-painting System will unfailingly serve you to advantage and with profit—we should like to tell you about this more in detail. Address—

238 Phillips Ave.

Toledo, Ohio

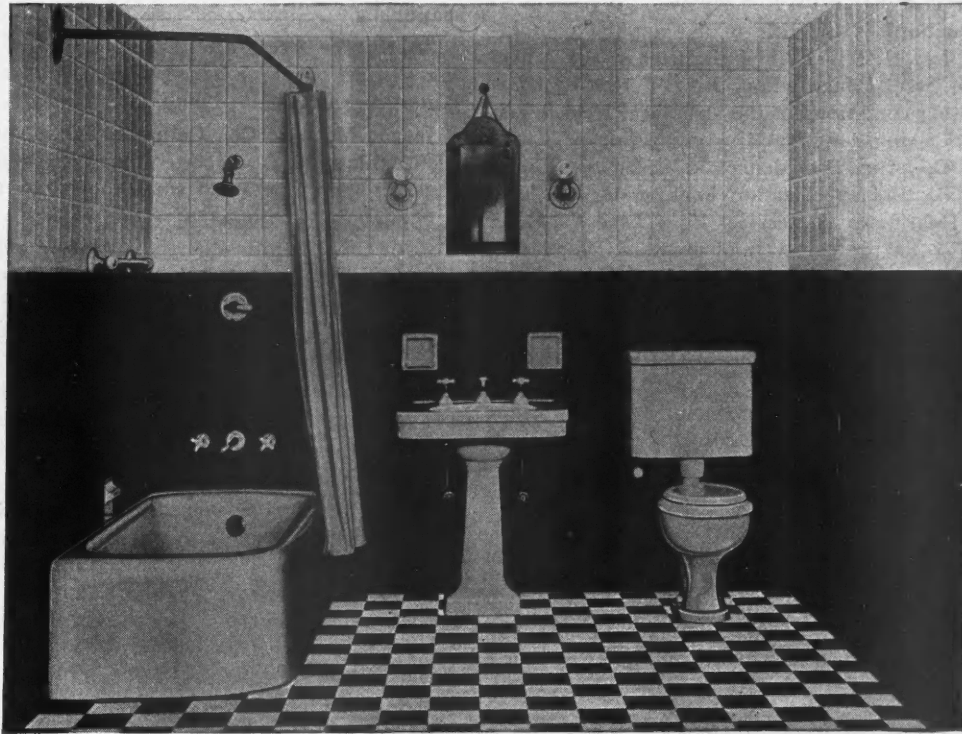
An Outstanding Feature

A long performance record of making good in every field of painting, emphasizes ADAPTABILITY as one of the outstanding features of the DeVilbiss Spray-painting System.

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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.

"Steel Construction" is the title of a pamphlet containing a speech by Lee H. Miller, chief engineer of the American Institute of Steel Construction, New York City, presenting the existing conditions in the structural steel industry and the work being done by his organization.

The Grinnell Co., Inc. Providence, R. I., has published an architects' data and specification book under the title "Safeguarding Heating and Service Pipe Lines," which contains a treatise on the correct and practical installation of piping and radiation by the use of adjustable hangers and sixteen data sheets divided according to structural bases.

"Beautiful Clothes Closets" is the title of a folder prepared by the Knappe & Vogt Mfg. Co., Grand Rapids, Mich., presenting its fixtures for convenient modern clothes closets. A blue print folder of plans is also furnished with this folder.

The Art Lantern Importing Co., 43-45 Wooster St., New York City, offers a new folder illustrating its line of hand-hammered lanterns for outdoor and indoor installation, and containing prices.

"American Renderers" is the title of a series of twelve folders being published by The American Pin Co., Waterbury, Conn., presenting examples of the art of architectural rendering. The first of the series has just been completed.

David Lupton's Sons Co., Allegheny Ave. and Tulip St., Philadelphia, Pa., has just issued a new catalog of its pivoted sash, operating devices and standard steel doors. This catalog, No. 12-A, contains complete specifications and diagrams.

The Portland Cement Association, 111 W. Washington St., Chicago, Ill., has just published a revised edition of its recommended building code for cities with population from 25,000 to 150,000. Cities or individuals interested in building code revision can obtain copies from the association.

"Aetotype Accessories" is a beautifully illustrated catalog of the tile bath room fixtures manufactured by the American Encaustic Tiling Co., New York City.

Jaeger Machine Co., Columbus, Ohio, has issued a complete catalog of concrete mixers manufactured by it, together with a series of small folders on the various sizes.

"Stainless in Industry," the American Stainless Steel Co., Commonwealth Bldg., Pittsburgh, Pa., is an interesting publication devoted to the broad possibilities of stainless steel and iron.

The Mac-Stone Stucco Co., Inc., 1552-1562 Troy Ave., Brooklyn, N. Y., has just issued a new booklet of specifications for the laying of its composition flooring.

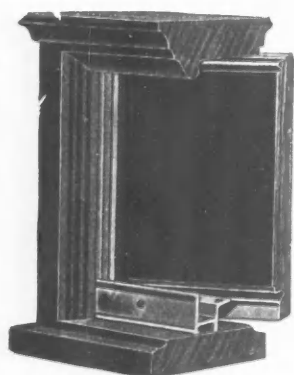
"Walls of Wood" is a booklet of drawings of paneling suggestions which has been prepared by the Algoma Panel Co., Algoma, Wis.

The Bureau of Standards of the U. S. Department of Commerce has issued two more reports in the elimination of waste series. They are, "Recommended Minimum Requirements for Masonry Wall Construction" and "Minimum Live Loads Allowable for Use in Design of Buildings." They are intended to aid in writing or revising building codes. Price, 10 cents per copy.

The Hydraulic Society, 90 West St., New York City, has published a third edition of its recommended standards.

The American Enameled Products Co., 21st St. and Indiana Ave., Chicago, Ill., catalogs its complete line of bath room fixtures in a booklet called "Bath Room Beautifiers."

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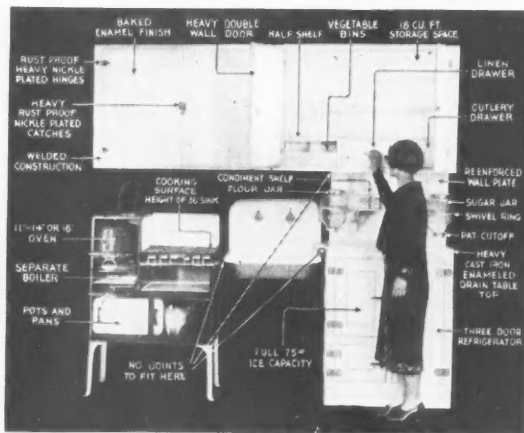
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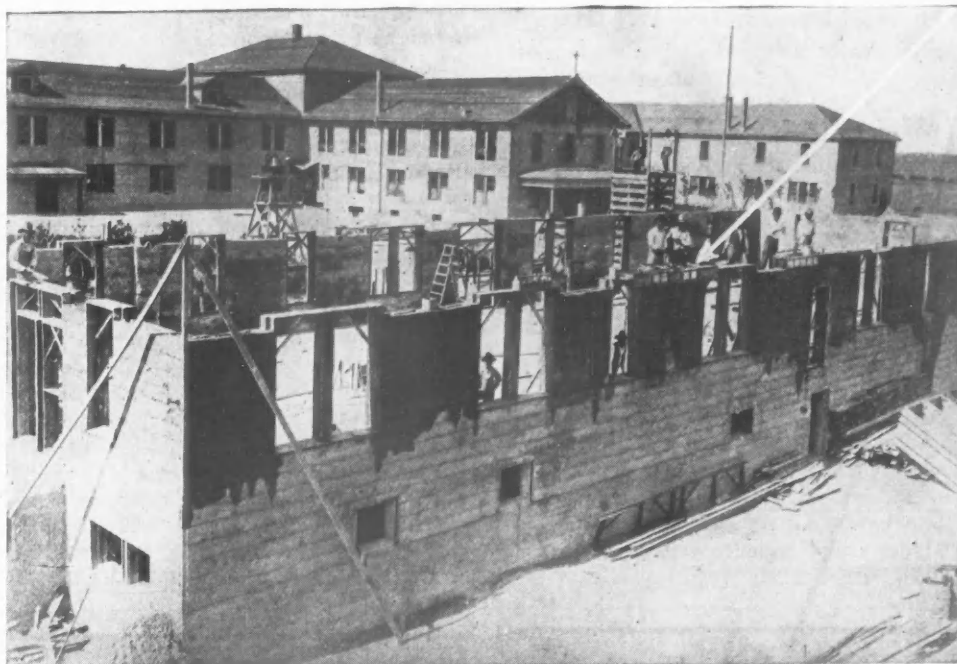
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Books, Bulletins and Catalogs for You

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.

The Pittsburgh Plate Glass Co., Milwaukee, Wis., is the publisher of a most attractive leather-bound booklet under the title "What to Do and How to Do It" which contains much useful information as a "Guide to Better Homes."

The National Electric Light Association, 29 W. 39th St., New York City, has just issued the report of the Electric Cooking and Heating Committee for 1924-1925.

"Your Kitchen As It Should Be" is the latest catalog of kitchen cabinets, tables and utility closets manufactured by G. I. Sellers & Sons Co., Elwood, Ind.

"The Book of Beds" issued by the Concealed Bed Corporation, 58 E. Washington St., Chicago, Ill., sole distributors for Marshall & Sterns Co.-Holmes Disappearing Bed Co., covers this line in a form designed for convenient filing.

The Western Amiesite Asphalt Co., 310 S. Michigan Ave., Chicago, Ill., offers two booklets covering the complete story of its asphalt paving material.

"The Home of a Hundred Comforts," the third edition of which has just been published by the General Electric Co., Bridgeport, Conn., describes a complete wiring system and includes specifications for the wiring of each room.

"Superheat Engineering Data" is a new handbook prepared by the Superheater Co., 17 E. 42nd St., New York City. It covers the generation and use of superheated steam and related subjects and includes considerable data never before published. Price \$1.00.

The Chamberlain Metal Weather Strip Co., Detroit, Mich., has issued a booklet, suitably bound for filing, which completely covers all details of Chamberlain metal weather strips and is fully illustrated with drawings. A small pamphlet is also being distributed telling the story of "Excluding Cold and Dust with Chamberlain for Thirty-two Years."

The Radiant Heat Corporation of America, 126 Eleventh Ave., New York City, has issued a new catalog containing complete information on the gas heater which is manufactured by this company.

The Rawlplug Company, Inc., 66 W. Broadway, New York City, offers a folder, designed for convenient filing, which contains information on its screw anchors and drawings suggesting their application to various uses.

The Truscon Laboratories, Detroit, Mich., has just published a new and revised Specification Book "A" on all its waterproofings which will be sent free on request to architects, engineers and contractors.

Roddis Lumber & Veneer Company, Marshfield, Wis., presents in booklet form the advantages of Roddis "Fourteen-Seventy-Five" flush doors, of genuine African mahogany.

A. I. A. Annual Meeting

THE annual dinner and meeting of the Philadelphia Chapter of the American Institute of Architects was held on May 15, following the opening of the Twenty-eighth Annual Exhibition of Architecture and City Planning, held jointly with the T-Square Club. The medal, awarded annually for the best designed, executed work shown at the Architectural Exhibition, was presented to the firm of Ritter & Shay for its skillful solution of a bank and office building problem, The Packard Building, Fifteenth and Chestnut Street, Philadelphia.



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