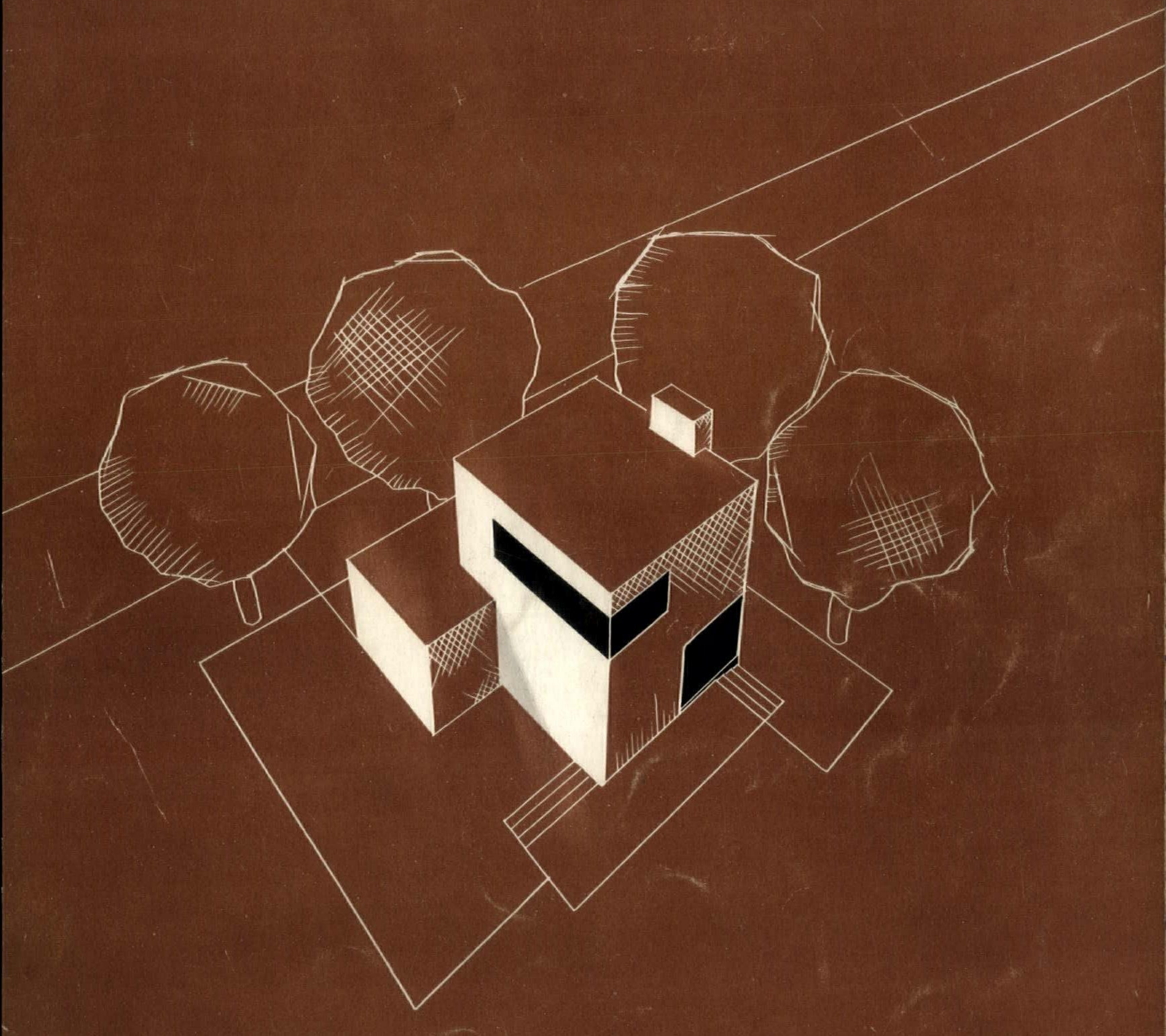
AMERICAN ARCHITECT

LEGGETT



76 SIXTIETH ANNIVERSARY · JANUARY 1936

PHOTO: F. S. LINCOLN (ABOVE)

PHOTO: CHARLES PHELPS CUSHING (LEFT)

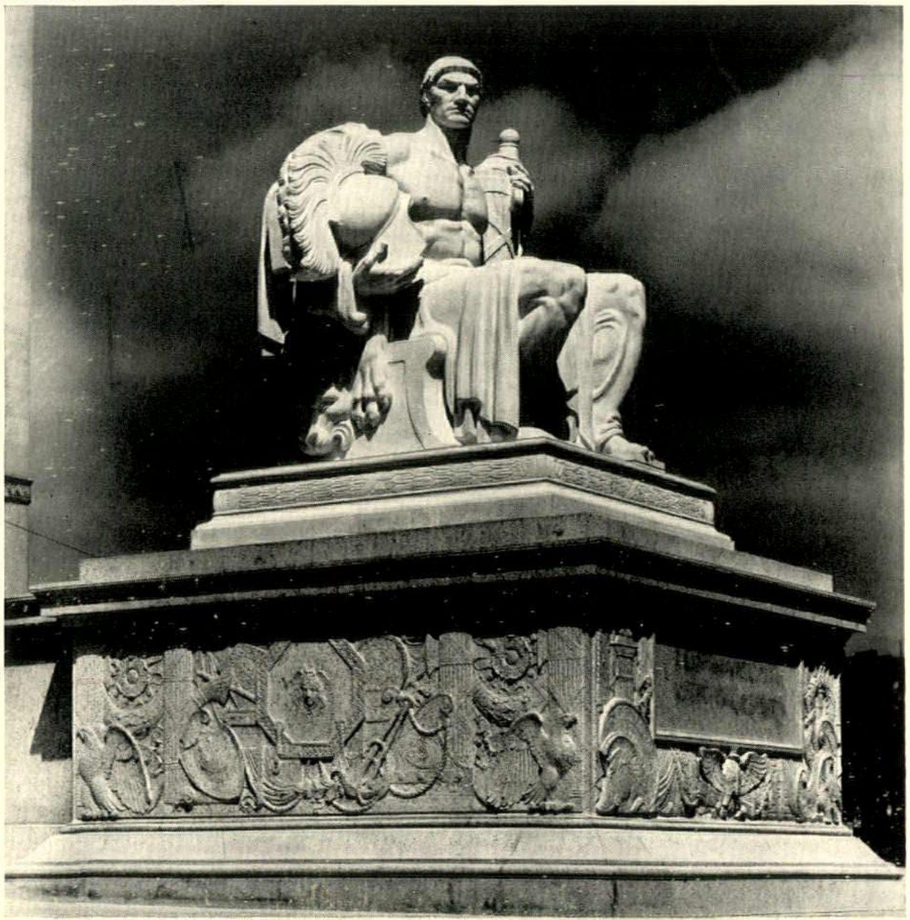
THE LINCOLN MEMORIAL

DESIGNED BY HENRY BACON

THE CAPITOL AT DAWN

PHOTO: CHARLES CUSHING (ABOVE)

PHOTO: BY HORYDOZAK



THE ARCHIVES BUILDING

OFFICE OF JOHN RUSSELL POPE, ARCHITECT

GUARDIAN OF THE ARCHIVES

JAMES E. FRASER, SCULPTOR

PHOTO: EWING GALLOWAY


ARCHIVES OF THE UNITED STATES OF AMERICA


EQUAL JUSTICE UNDER LAW

HOTOS: BY HORYDOZAK

THE FOLGER SHAKESPEARE LIBRARY (Above)

PAUL P. CRET, ARCHITECT

ALEXANDER B. TROWBRIDGE, CONSULTING ARCHITECT

THE U. S. SUPREME COURT BUILDING (Left)

CASS GILBERT, ARCHITECT

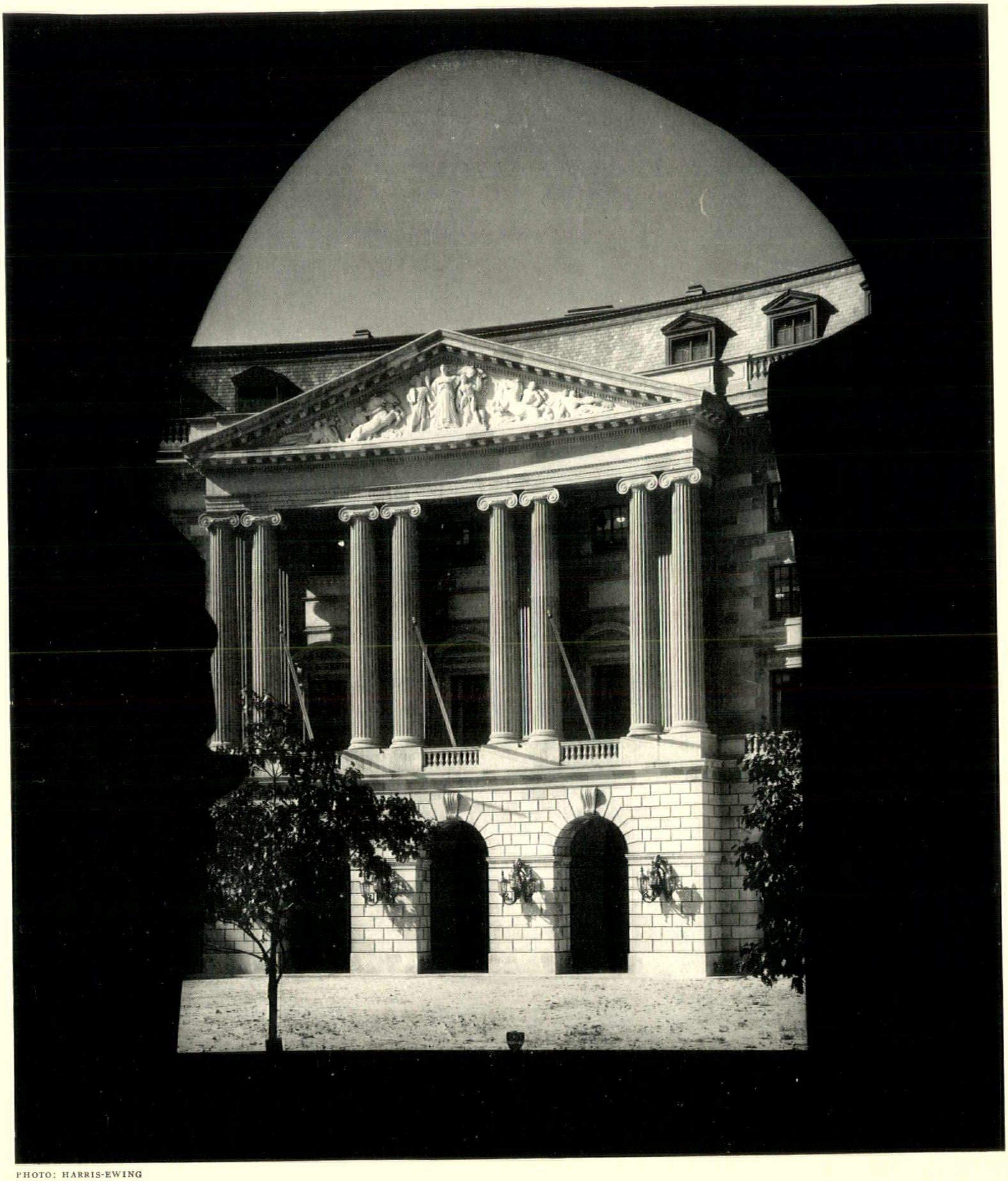


PHOTO: HARRIS-EWING

THE NEW POST OFFICE BUILDING, DELANO AND ALDRICH, ARCHITECTS

THE FAIR DESERVES THE BRAVE

Fan dancers never made a Fair! Groups gather to attack basic problems of New York's '39 Fair, searching for a real IDEA, realistic MEN, new concepts, competent design organization

TO many architects, fairs mean jobs, commissions, business, busy-ness. To some architects, fairs mean more than this. In particular the coming New York Fair can mean a real opportunity to justify the very purposes of the profession—to demonstrate the ways in which the profession is, and can be, "of ever increasing service to society." The chief concern of the profession (and of its collaborators) is,—how fully will the opportunity be forthcoming? What measure of control will be given to architects over the concept of the Fair? Of what measure of control are they capable? What members of the profession (if any) will be chosen for executive or administrative positions, and what members for general planning design? To whom will the design commissions for individual buildings be given? What will be the relationship of sculptors, painters, decorators, industrial designers and architects?

Prime Need—IDEAS

Will Ideas be sought? Will this Fair have a unified purpose? Will it be just another, bigger, Fair? Will it influence the life and culture of the next decade? Will authorities limit architectural services to making designs and specifications for this building and that?

While the business and financial organization of the Fair is rapidly taking shape, the creative element, as represented by organizations in the fine and applied arts, is gathering to discuss, on its own, this whole fair problem. Programs are being formulated, resolutions passed, recommendations made, and some have already been presented to the powers that be, to George McAneny, President of the New York World's Fair 1939, Inc. We speak now only of the organized activity, fully realizing that many who hope to participate in the design and building of the fair are pursuing their own independent paths to influence the selection of their programs or of their professional services.

Organizations consider organization

Two aspects of this early activity of organizations with respect to the Fair are significant: first, that through cooperative effort, a broad unified front is being presented (though there may be reservations behind that front), and second, that realistic thinking is coupled with idealistic conceptions. The deliberations are "getting down to brass tacks" in discussing what *should* be done and what *can* be done.

There were gathered together last month, at the suggestion of Leon V. Solon, representatives of the nine leading organizations* of architects, city planners, sculptors, mural painters, and engineers. Chief question of this conference was "What type of organization can function most effectively to produce creative collaboration conducive to the complete success of the Fair." Framing of a program for such organization is under way, results will shortly be reported to the Fair authorities. It seems possible that the program will include a provision that the Fair's chief administrator of the creative group be a well-known executive other than an architect, a man like George McAneny himself, a man of recognized cultural attainments, aesthetic discrimination, keen sympathy with the development of American Art and a clear perception of the potentialities of the Fair in the country's cultural life. Assisting the chief would be representatives of each of the following groups, collaborating on an equal footing,—architect, sculptor, mural painter, landscape architect (city planner), interior decorator, civil engineer.

Ideas of articulate thinkers

At the same time that this group of representatives of long established organizations was working, another group of professional men,—liberal, active, progressive,—met at the request of Michael Hare and I. Woodner-Silverman to discuss the character and possible organization of the '39 Fair. These men were selected without reference to the organizations to which they might belong. Their ideas are stimulating, constructive, and merit the attention of the profession as well as of the Fair directors. We can quote, all too briefly, to indicate the direction of the thoughts expressed.

A strong head, and competitions

"I think one of the things we should be very strong for is that we secure at the head of the artistic group a man of large enough ability, one who can meet the men who are talking for the business side of the Fair on their own ground. . . . This man has got to be willing to sacrifice himself for three years. He can't continue in practice. . . ." "After you get your plan, the general orderly arrangement of the functions of this Fair, then I think it should be broadened out by many competitions to get as many creative ideas as possible. . . ."

—Ralph Walker

Younger men and no nonsense

"It is time also we realized that we are grown up . . . and that the young men of this country are going to have something to say about it. . . ." "I think if we can once establish this Fair firmly on a basis of having a strong man at the head and a strong committee to stop nonsense and stop people from stopping the younger men, we can get somewhere. . . ."

—Ely Jacques Kahn

*New York Chapter, A.I.A., Brooklyn Chapter, A.I.A., Architectural League, New York Society of Architects, American Society of Civil Engineers, American Society of Landscape Architects, American Institute of Decorators, National Sculpture Society, Mural Painters.

There Must Be An Architect

"In this Fair why shouldn't there be some really broad-gauged able man, an architect, selected as chief architect, not himself to do anything personally in design or building, but to act as liaison officer between the whole designing world that will take part in this Fair and that board of directors of which he himself is a part? . . . There must be an architect on that board. . . . The scheme of the Fair should be contemporary and progressive in its architectural form. . . ."

—Harvey Wiley Corbett

Function, Dramatics, and Foot-fag

"The Fair must Function. It will be fatal if the architects delude themselves with the idea that this Fair is to be a designers' holiday, a forum for the exploitation of individual talents or the promotion of particular schools of design. . . . An exposition is in effect a vast dramatic or vaudeville show, consisting of thousands of acts. Instead of bringing these acts in succession on a stage before your audience, you arrange the acts in a spatial series and move your audience before them. The problem thus is twofold: first, to provide an adequate and effective setting for your exhibits, *dramatic* exhibits; second, to provide circulation directing the movement of crowds by subtle but effective means so as to economize leg power and reduce brain fag. It is the aimless wandering amid hundreds of wholly disconnected demands on their attention that reduces the typical World's Fair visitor to a state of perambulating coma. People do not grow weary half so fast if their interest is held and the objects of their attention have a certain amount of continuity and dramatic sequence. So far as I know, no World's Fair has been designed from this purely functional approach for the simple reason that each Fair has been planned by a group of architects who have had no experience in any of the others. . . ."

—Walter Dorwin Teague

Old Blunders, and the Real Story

"There are at least three possible *blunders* that may be made in planning for a World's Fair. . . . One of the obvious ways of making a blunder is to have no rational program for the Fair at all, and to permit it to design itself according to the bids of the highest bidder. . . . If that is the sort of Fair that is going to be offered us, there is no place for first-rate professional talent. . . .

"The second blunder . . . we may think of this memorable occasion as a proper opportunity to plant tombstones around the landscape, and we may call upon the foremost tombstone experts in the profession to give their usual funeral urns, their usual accommodating reflections upon the classics. . . . The third possible blunder is merely to respect the century-old story of the triumphs of the machine. That is no longer news; the new story centers in the biological and social sciences and the improvement of human living.

"We know perfectly well what the achievements of the mechanical civilization are. We know perfectly well how grand and glorious have been the advances of the physical sciences. We also know perfectly well that they are ready to make hell on earth and destroy our civilization unless the forces which are working in the other direction on the side of a different order of society, become victorious. . . .

"The story we have to tell, the story which we can make dramatic, the story which will have a powerful effect, and which will bring people from all over the world to New York . . . is the story of a planned environment, a planned industry, a planned civilization. . . . If we allow ourselves to think for the world at large, we may lay the foundations for a pattern of life which will have an enormous effect in times to come. . . .

"It isn't until this part (planned living) has been determined, it isn't until a general staff has come into existence which is capable of thinking out these problems and of unifying them in a program, that you have any architectural art. . . .

"The new architecture is one which will come from the younger men who think in terms of their contemporary life because they honestly cannot think in any other terms . . . we will find the new school, the new theatre, the new museum, the new playground, the new community—and if these things emerge as real elements of the Fair which are going to provide both setting and drama—then will we hope for architecture. . . ."

—Lewis Mumford

Competitions, Dollar Value

"I think we all agree that the best system to arrive at ingenious, new ideas is through competition. But competition is the chance for youth to express its ideas, and if they are valuable, which I am sure they will be, they can be looked upon by the hard business man from the point of view of dollar value. . . ."

—Caleb Hornbostel

The work of this group is also being crystallized, its ideas incorporated in a document for the consideration of those who control the Fair. A thorough and detailed questionnaire has been circulated to bring out the thoughts of the hundred or more men of the group who are thinking of the Fair in terms of its broad potentialities.

Resolved, by New York A.I.A.

The New York Chapter of the A. I. A. has, after several spirited meetings to consider the architectural organization of the Fair, adopted and, submitted to Mr. McAneny the following resolutions:

Resolved: That the New York Chapter recommend to the World's Fair Corporation that they appoint as a member of their governing board, an architect of recognized outstanding ability; a man capable of undertaking the many executive duties which he would be called upon to assume. Such a man should be in a position to relinquish practically three (3) years of his practice in order to give his whole time to the Fair. He should be a man of broad experience, capable of meeting the various types of men with whom he will come in contact.

Resolved: That it is the recommendation of the New York Chapter that there shall be an Architectural Commission in charge of the design of the Fair. This Commission to consist of the chief architect mentioned above, assisted by three (3) architects, whose duties shall be devoted to the creation of the outline plan of the Fair, and supervision over all elements of design, subject to the chief architect. It was moved the men of the Architectural Commission shall be considered *hors de concour* with regard to the actual building of the Fair. This is not to be understood, however, that they would be debarred from accepting commissions to design concessions or other private work which might be requested by their own clients.

Resolved: That the four (4) head architects act with a landscape architect, whose duty it shall be to guide the design and layout of the Fair from his point of view. It is further resolved that there shall be a mural painter and sculptor associated with the main group of architects and acting under the direction of the chief architect, and that they shall act as consultants to decide elements pertaining to their own arts.

Resolved: That it is the recommendation of the New York Chapter that the Fair Corporation and the Architectural Commission in its selection of designs for individual groups and buildings, recognize and utilize the abilities and services of as many architects and artists as possible, irrespective of age.

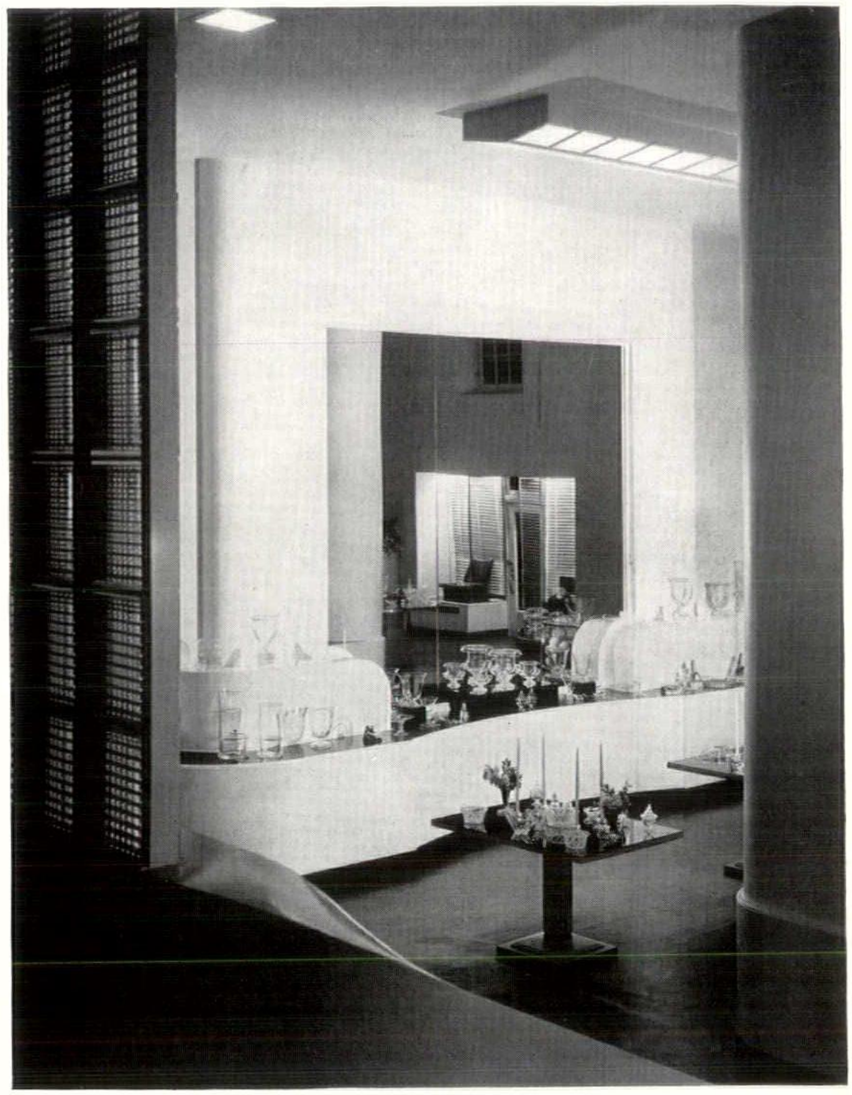
PHOTOS: BY HEDRICH-BLESSING STUDIO

1

SHOP FOR STEUBEN GLASS, INC., CHICAGO

JOHN M. GATES, ARCHITECT, PUCKEY AND JENKINS, ASSOCIATE ARCHITECTS

Planned exclusively for the effective display and merchandising of crystal glassware, the Shop for Steuben Glass, Inc., follows the modern trend of design in the simplicity of its architectural details. The shop depends largely upon a color scheme of black and white in conjunction with indirect lighting to focus attention upon the merchandise on display. The walls and ceiling are plaster in an off-white tone; floor, black linoleum, 18 inch squares, laid diagonally. The counters and display fixtures are birch plywood enameled white with base courses in black. Extensive use is made of black rubber and inlaid flashed opal glass for counter tops. Indirect lighting is used in connection with all glass top counters

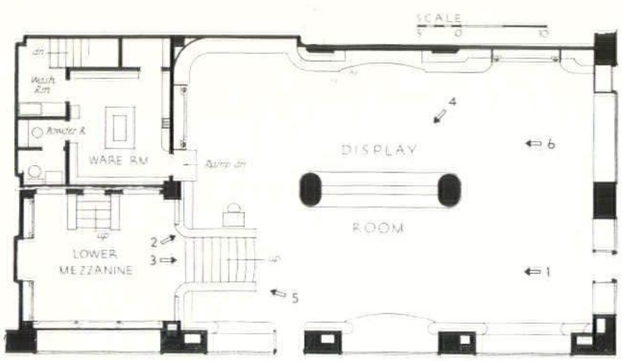


2

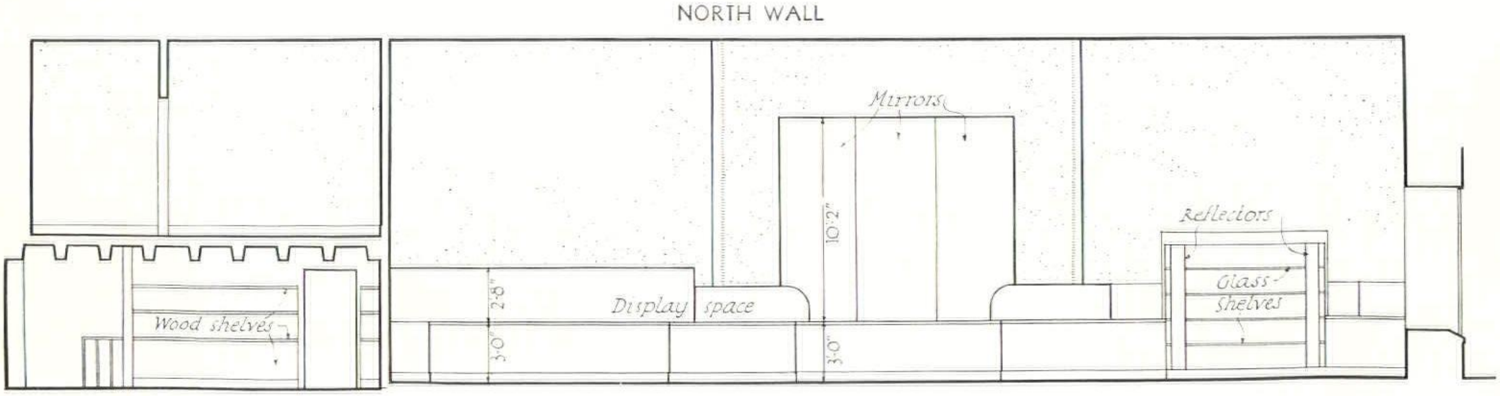
JOHN M. GATES, ARCHITECT

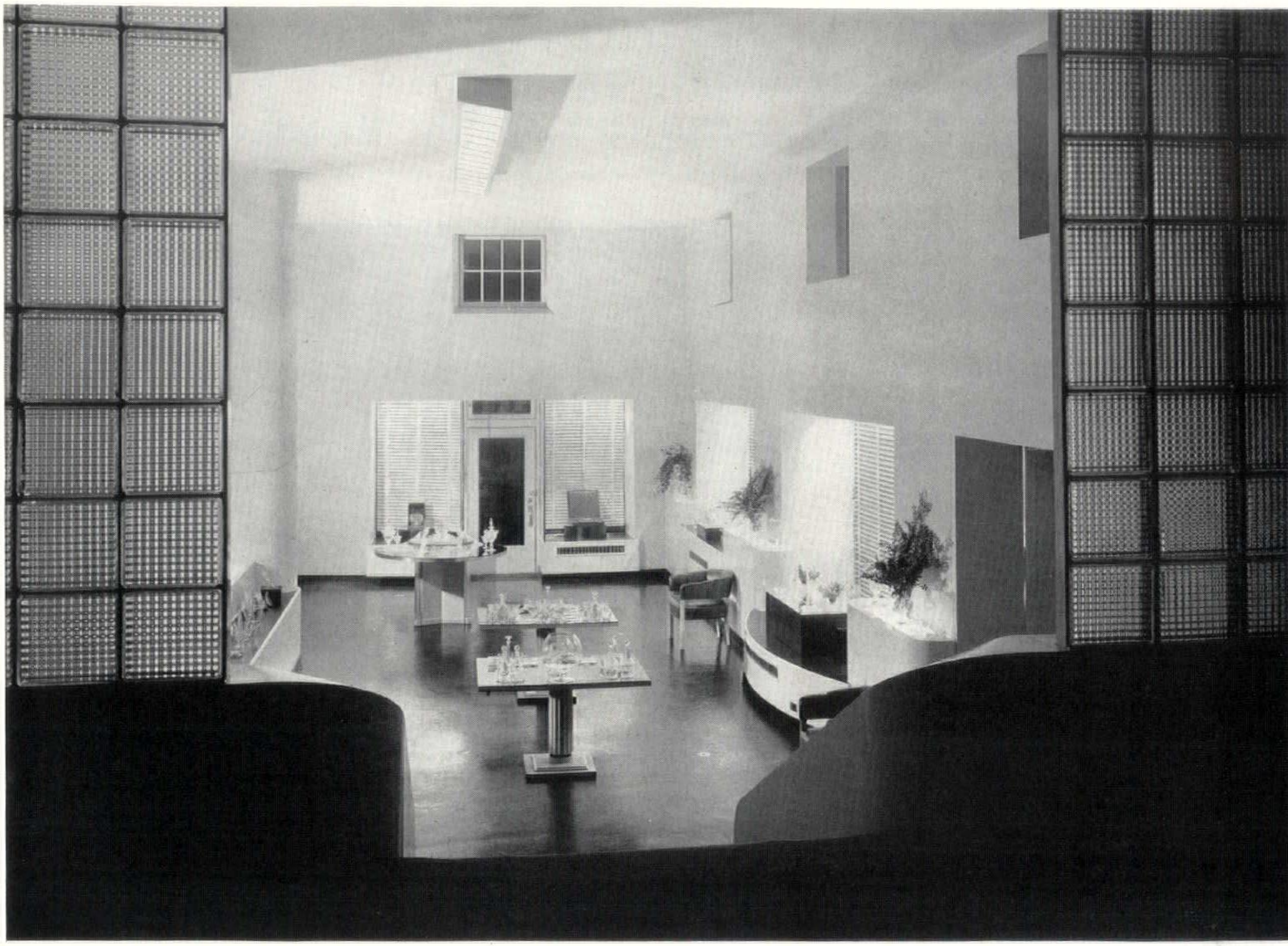
Note: The numbered arrows on the plan indicate the location and direction of the camera for the photographs correspondingly numbered

UPPER MEZZANINE



NORTH WALL

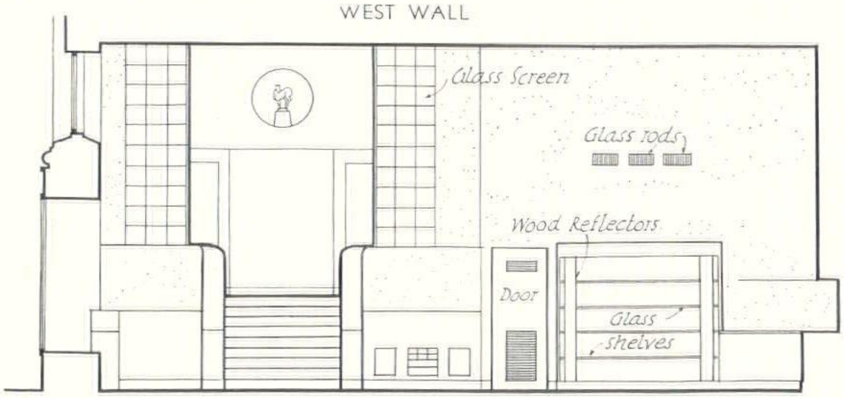


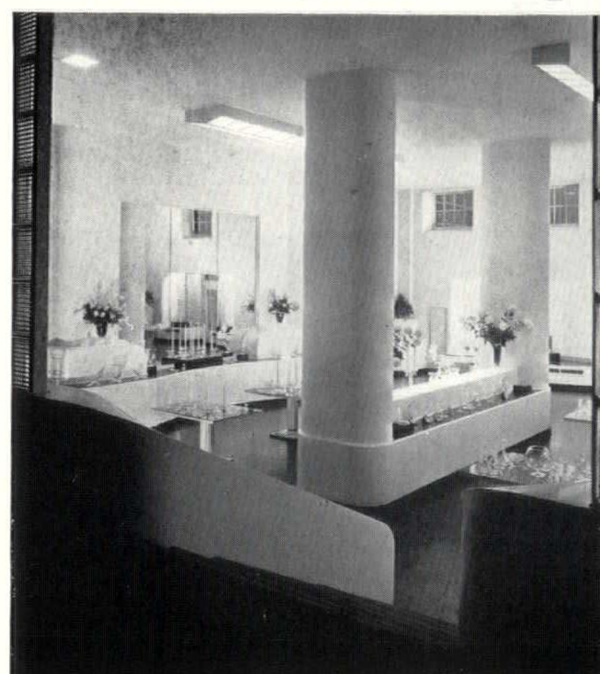


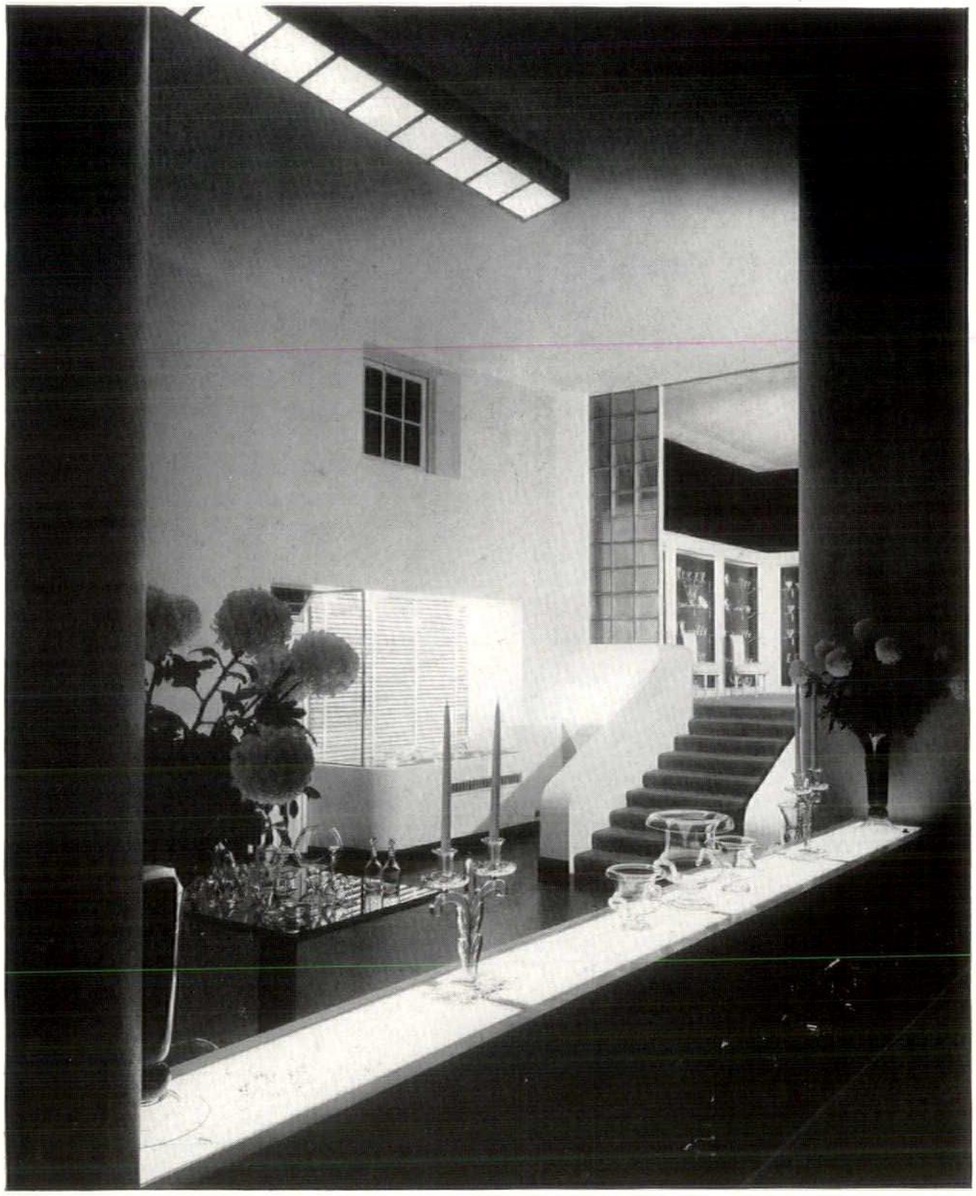
PHOTOS: BY HEDRICH-BLESSING STUDIO

3

PUCKEY AND JENKINS, ASSOCIATE ARCHITECTS







The mezzanine floor, details shown at right, is devoted exclusively to the display of stemware. The color scheme consists of matt-black for the walls, pure white enameled trim, an off-white for the plaster ceiling and stair rails, and beige for the carpet. The matt-black background of the display cases forcefully brings out the clear, crystal white of the glassware. The door is in black with glass rosette panels. Of unusual interest are the indirectly lighted display niches at either side of the doorway which are set flush with the walls. A decorative feature is the crystal glass fawn in the oval niche on the upper wall, designed by Sidney Waugh

STEUBEN GLASS SHOP

CHICAGO, ILLINOIS

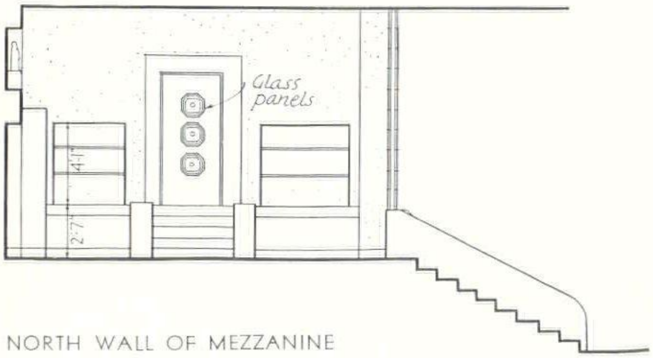
4

JOHN M. GATES, ARCHITECT

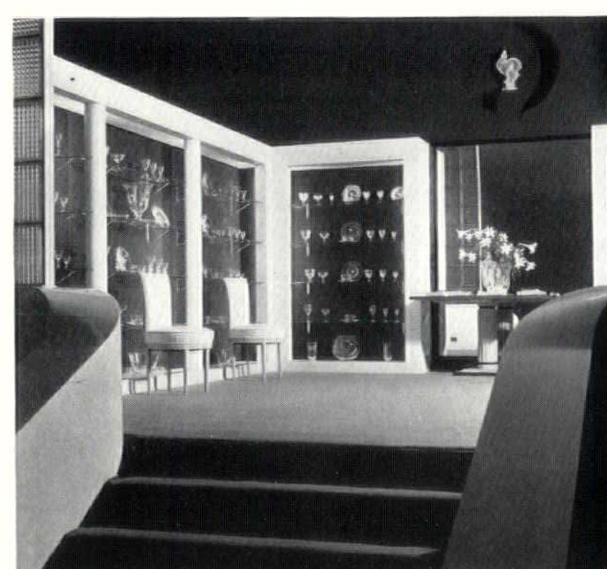
PHOTOS: HEDRICH-BLESSING STUDIO

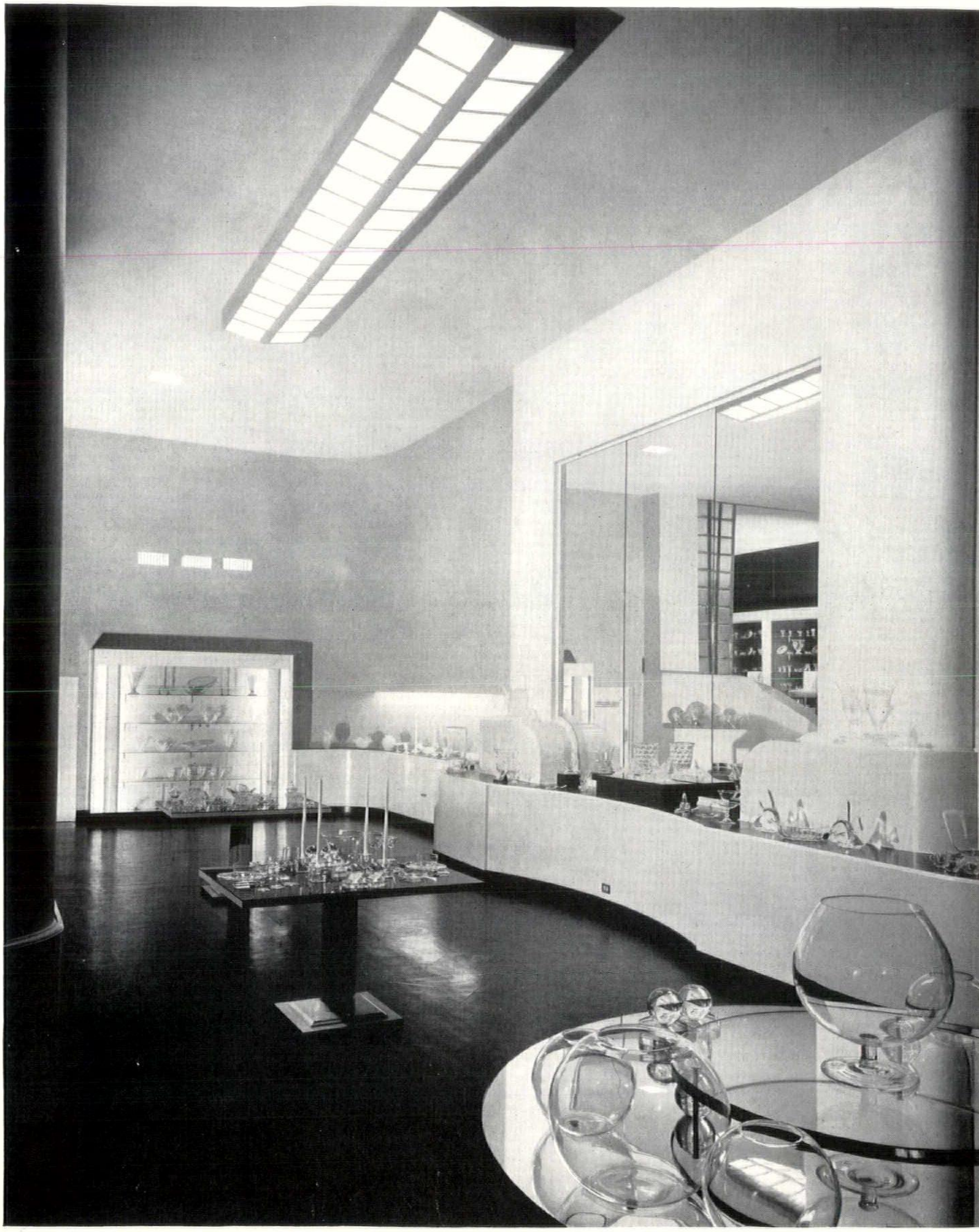
5

PUCKEY AND JENKINS, ASSOCIATE ARCHITECTS



NORTH WALL OF MEZZANINE





6 SHOP FOR STEUBEN GLASS, INC., MICH IGAN AVENUE, CHICAGO, ILLINOIS
JOHN M. GATES, ARCHITECT. PUCKEY AND JENKINS, ASSOCIATE ARCHITECTS

PHOTO: HEDRICH-BLESSING

1 (see plan)

LE PETIT CAFE AND COCKTAIL LOUNGE, CHICAGO

HOLABIRD AND ROOT, ARCHITECTS

A small cafe, previously in typical "Hotel Empire" style (with a decided oriental atmosphere) has been metamorphosed into a smart, modern cocktail room. The owners desired the new room to be so designed that it would serve the double purpose of a luncheon room at the noon hour and a cocktail room in the evening, that it be appropriate for each occasion and that the oriental character of the original room be expressed. The ceiling was low, and there was no outside light. The room was entered from the lobby of the Palmer House. . . . An unusual and interesting effect was achieved by the use of unique Venetian blinds of glass, set in the walls at window height. A hidden lighting system with dimmer control throws light through the blinds, producing the effect of sunshine, of moonlight, or almost any light desired. The dimmers work on a very low cycle which prevents any perceptible change in the different lighting effects. The new glass, "Tufflex," produced by Libbey-Owens-Ford Glass Company, is practically unbreakable and has the appearance of usual glass. This novel use of glass Venetian blinds and indirect lighting has transformed the old cafe into a sunny, tropical room at luncheon time which later changes with a most intriguing effect for the evening cocktail hour

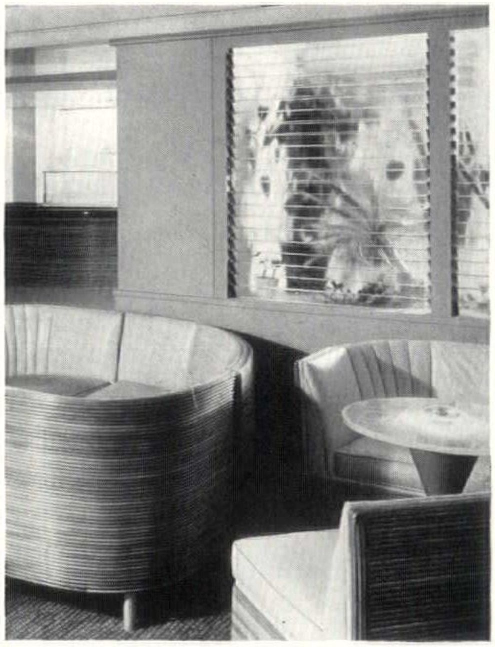


PHOTO: KAUFMANN & FABRY CO.

2

PHOTO: HEDRICH-BLESSING

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Note: The numbered arrows on the plan indicate the location and direction of the camera for the photographs correspondingly numbered

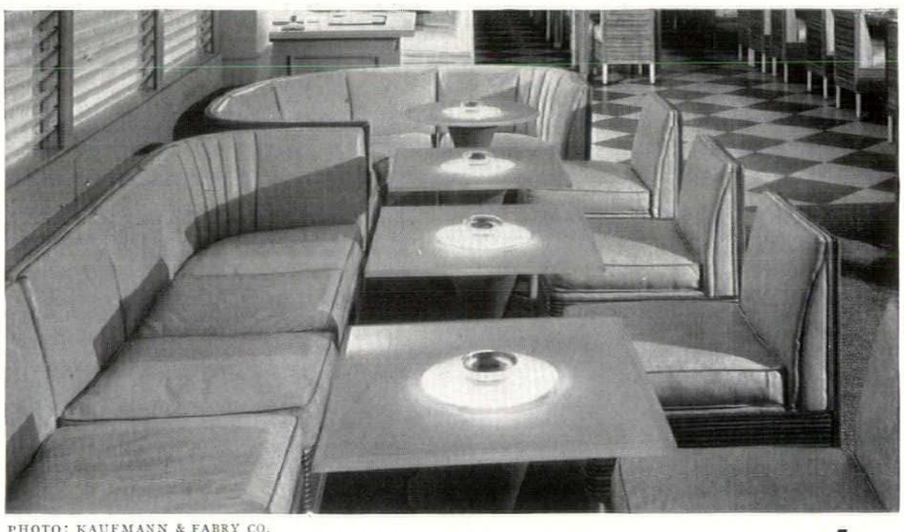

PHOTO: KAUFMANN & FABRY CO.

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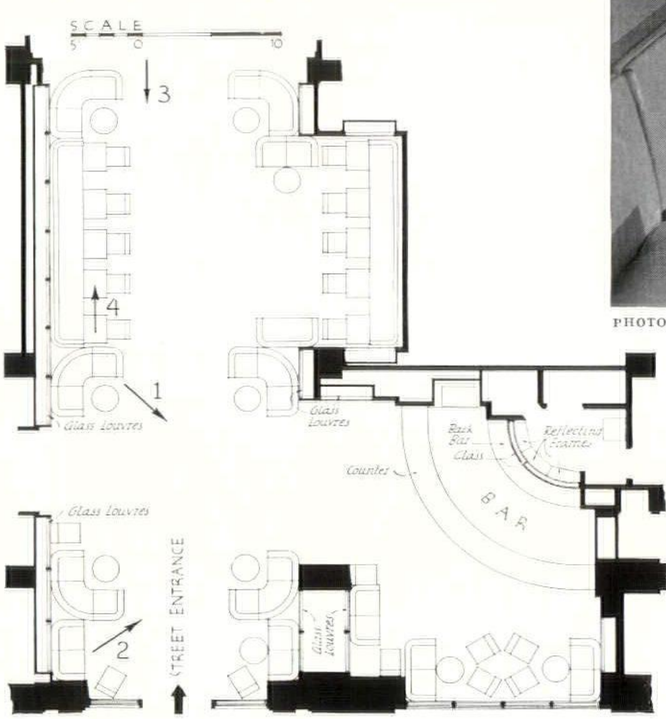


LE PETIT CAFE AND COCKTAIL LOUNGE

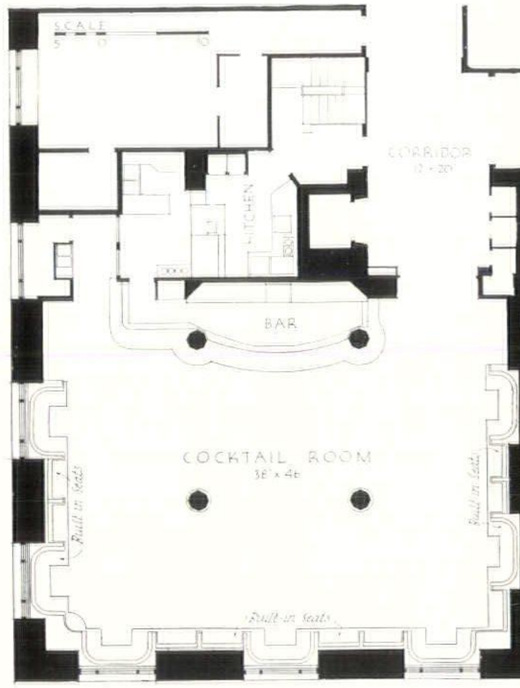
HOLABIRD AND ROOT, ARCHITECTS

A pale, neutral gray was chosen for the walls, as it harmonizes with any color which might pass through the color cycle of the lighting system. The carpet is in light and dark browns. Light tan leather and rattan have been used effectively in combination for the furniture. . . . At the back of the bar, illustrated on the preceding page, one inch glass tubes set in a vertical position have been used with a sand-blasted glass behind them. Here, too, the color can be changed, creating a variety of effects of unusual interest

THE CIRCUS BAR, FAIRMONT HOTEL, SAN FRANCISCO

MILLER AND PFLUEGER, ARCHITECTS

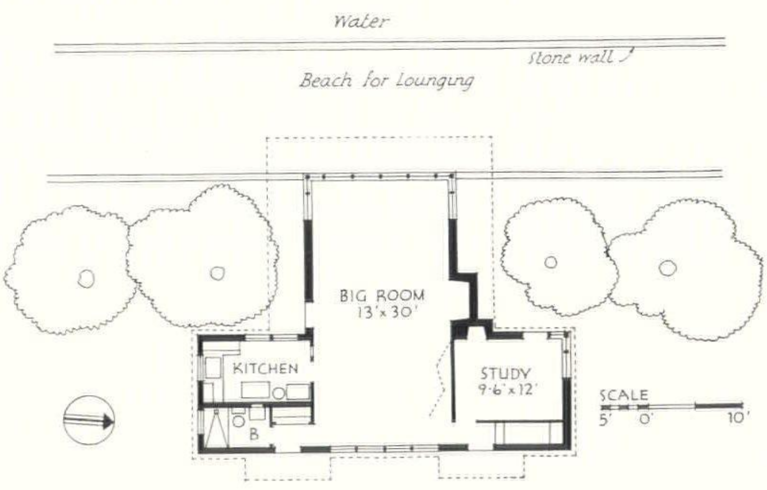
PHOTOS: BY GABRIEL MOULIN



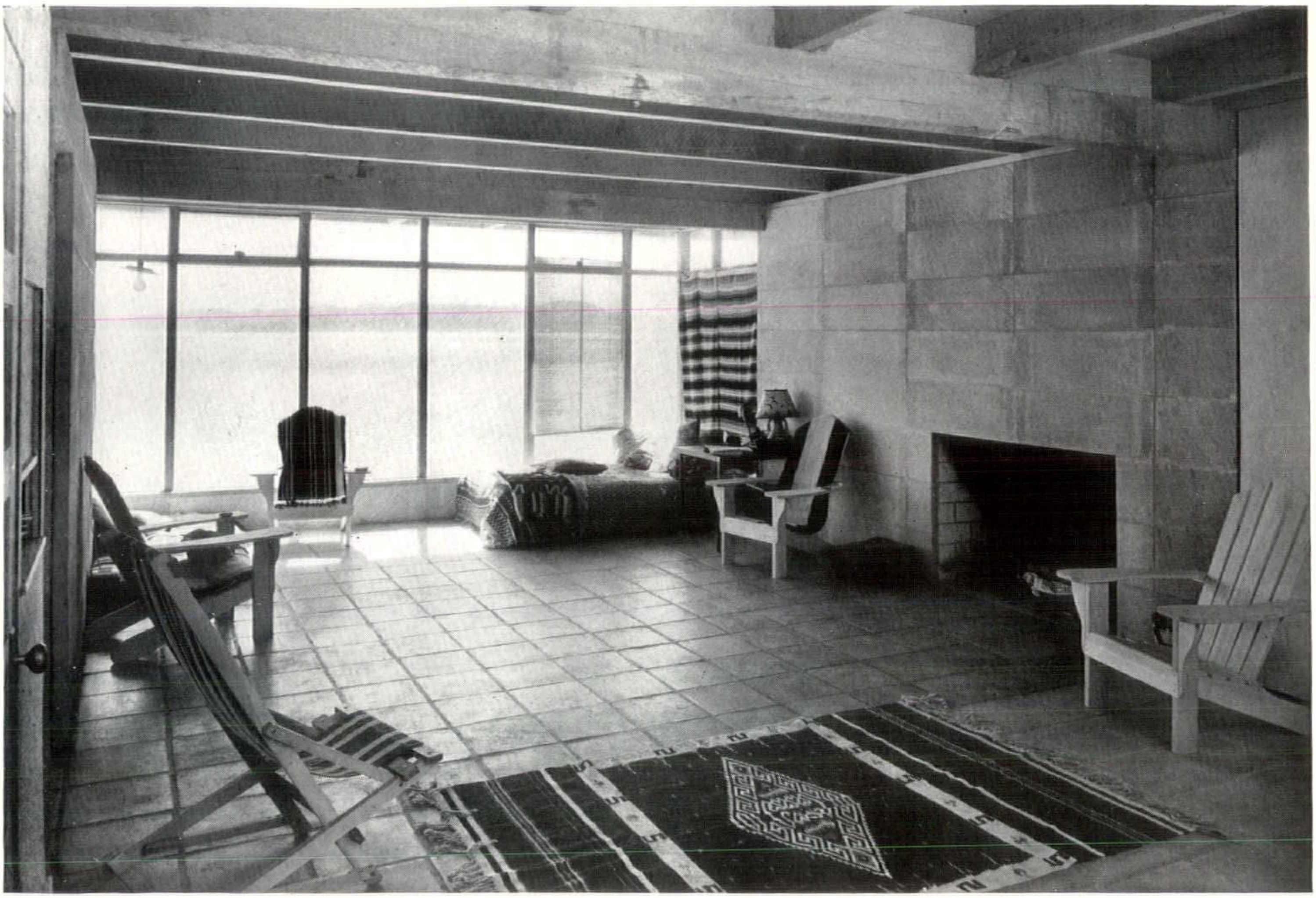
The circus murals are painted in semi-transparent oil colors on gold leaf, the work of Esther Bruton. The ceiling is silver leaf with gold bands; Venetian blinds, silver leaf; mirrors, flesh tint; carpet, jade green with vermilion Chinese pattern; entrance doors and window reveals, tiger-wood veneer; Holophane lighting

WEEK END COTTAGE OF ROBERT SHAW, RICHMOND SHORE, CALIFORNIA

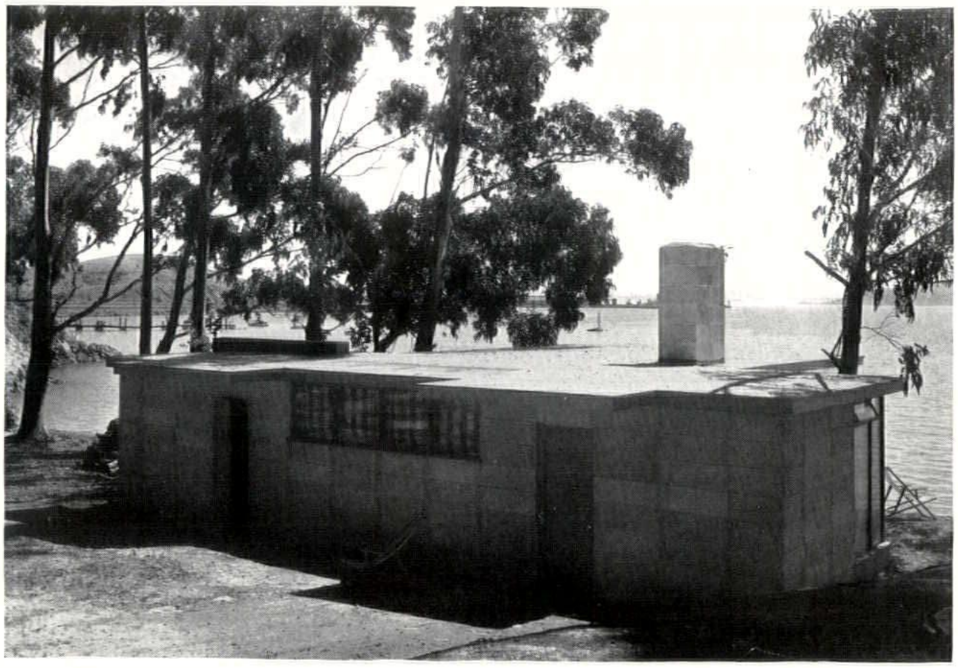
WILLIAM WILSON WURSTER, ARCHITECT



Architecture results from a plan purposeful in detail plus the straightforward use of logical materials. The house was placed forward on the retaining wall in order to make the most of the waters of San Francisco Bay which is seen from the big room as from a ship (see next page). . . . The roof cantilevers out to protect the large windows from the sun's glare. . . . The structure is fire-and-insect-proof (with exception of the roof). The cost, including the architect's fee, was approximately $2,000



WEEK END COTTAGE OF ROBERT SHAW, WILLIAM WILSON WURSTER, ARCHITECT



To withstand the strong winter winds of San Francisco Bay, the walls were constructed of Pacific Coast Aggregate Units (precast concrete blocks, 12 x 36 inches) — with reinforcing placed at the vertical joints and the space filled and poured as a column. The chimneys were built of the same materials. The floor is constructed of hollow building tile laid over a concrete slab. Crushed fire brick (the color of dried grass) and tar were used for the roof

THE LEGAL SIDE OF ARCHITECTURE

Plans and Specifications to be considered as a whole

BY CLINTON H. BLAKE

Blake and Voorhees, Counsellors-at-Law

IT is natural that uncertainties and ambiguities should creep into even the most carefully prepared plans and specifications. Specifications, especially in a job of importance, are relatively complex. It would be difficult even for one with legal training so to draw them that they would in every case be free from question or misconstruction. For this reason, questions frequently arise as to whether certain work is intended to be covered by the plans and specifications, whether a particular section of the specifications, standing alone or read in conjunction with the plans, is to be given the interpretation claimed by the owner or by the contractor and whether a particular wording is or is not ambiguous. The importance of situations of this kind lies in the fact that, where an ambiguity or uncertainty exists, the question arising is one which either of the parties may rightfully refer to a jury (or an arbitrator, if arbitration be provided) for determination. This, of course, is an invitation to a lawsuit and consequent legal expense.

A typical case illustrative of this was recently decided by the Supreme Court of Missouri (Bowman v. C. O. Jones Building Co., 58 Southwestern, 2nd Series, 718). The plumbing contractor in that case agreed in substance to do the work in accordance with the plans and specifications. The specifications, among other things, included provisions to the effect that, if anything were omitted from the drawings and specifications requisite for a clear understanding of the work, or if any error appeared therein, the contractor should be obligated to notify the architect. They further provided rather broadly that anything not shown by the drawings, but covered by the specifications or vice versa, should be considered as included in the work and that anything reasonably implied, although not expressly set forth in the specifications or in the plans, should nevertheless be included as if specifically covered by them. The typical floor plan contained a requirement for sink risers, without specifying their location. It also provided for the principal size and location of slop sinks. The reference in the specifications, however, with reference to the slop sinks described them as "stop" sinks. The contractor claimed, that because the typical floor plan was not submitted to him at the time he accepted the contract, he was not bound by its provisions; that the phrase in the specifications, referring to stop sinks, was ambiguous; that he was not called upon to provide slop sinks as a part of the contract price, and that in any event the owner had agreed to an extra for this work. On the close of the trial, the owner (defendant) asked the court to instruct the jury definitely that the contractor could not recover for the slop sink item. The instruction was refused; judgment on this item, as well as for other work, was awarded to the contractor.

CONTRACT NOT AMBIGUOUS, CONTRACTOR PUT ON NOTICE

THE Supreme Court of Missouri, in reviewing the case, held in substance that the substitution of the word "stop" for "slop" was obviously a typographical error; that the contract was not ambiguous with respect to this item; that the contractor, by agreeing to do the work in accordance with the plans and specifications, obligated himself to meet the requirements considered as a whole; that he was put on notice as to the requirement for sink risers; and that he was bound by the call for slop sinks in the typical floor plan, even if he did not see it before accepting the contract. The court said:

"Appellant's (defendant's) contention with respect to the item of 'slop sinks' arises out of the trial court's refusal to give a peremptory instruction in the nature of a special demurrer requested by defendant at the close of the whole case. The instruction is as follows: 'The court instructs you that as to plaintiff's claim for $1,362.74 for work and material in respect to the item of slop sinks mentioned in evidence the same are covered in the express written contract between plaintiff and defendant Building Company, and plaintiff is not entitled to recover therefor.'

"Counsel for appellant says that this instruction should have been given under the familiar rule that it is the court's duty to construe unambiguous written instruments and declare their legal effect. Black River Lumber Co. v. Warner, 93 Mo. 374, 384, 6 S. W. 210; Evans v. Graden, 125 Mo. 72, 79, 28 S. W. 439; Ford v. Dyer, 148 Mo. 528, 541, 41 S. W. 1091. Counsel for respondent, on the other hand, contends that this rule is not applicable because the plans and specifications were ambiguous with respect to whether or not slop sinks were required, and the question was one for the jury under all the evidence.

"Exhibit F, which plaintiff admits he had before him when his bid was prepared and submitted, contained this requirement: 'Stop sinks too shall have separate risers with cut-offs.' The architect testified at the trial that this use of the word 'stop' was a typographical error and meant 'slop.' Plaintiff and a plumber in his employ both testified that they did not know of any such thing as a 'stop' sink. Plaintiff repeatedly said that he did not know what the term meant in these specifications, but he evidently did, because, in arguing that the most this provision required was the installation of risers for slop sinks, counsel for respondent says that this 'was done by plaintiff.' It seems that the error in typing would have been obvious and the true meaning apparent to any plumbing contractor, but even if the word 'stop' be wholly disregarded as meaningless, there would still remain the requirement that 'sinks too shall have separate risers with cut-offs.' Plaintiff will be presumed to have considered this requirement in his proposal, and he could not have figured the cost even of such risers without assuming that the installation of a particular kind of sink was contemplated. There is no claim that he was misled as to the kind and number of risers required. It follows that he must have understood they were for slop sinks. It cannot be that this obvious mistake in typing the word 'slop' imported 'doubleness of meaning' into the contract thereby making its interpretation a question for the jury.

"The general specifications referred to in the above provisions and admitted in evidence as Exhibit 27 contained the following pertinent provisions: 'The drawings referred to in these specifications consist of a basement plan, a first floor plan, a typical floor plan, roof plan, four elevations, and the detail drawings.

" 'Should anything be omitted from the drawings and specifications which is necessary to a clear understanding of the work, or should any error appear either in the various instruments furnished or in the work done by other contractors affecting the work included in this specification, it shall be the duty of the contractor to notify the architect.

" 'Should any dispute arise as to the true meaning of the drawings and this specification, the decision of the architect is to be final and binding.

" 'Anything which is not shown on the drawings, but which is mentioned in the specifications or vice versa, or anything not expressly set forth in either, but which is reasonably implied, shall be furnished and performed the same as though specially shown or mentioned in both.'

"It is apparent from the foregoing that if plaintiff, with the above noted discrepancies in the plans and specifications admittedly before him, had exercised even the slight diligence and caution they suggested, he would have been fully advised before submitting his proposal that the installation of slop sinks was required. However, without doing so he sent defendant his letter of acceptance agreeing to furnish the labor and material in accordance with the plans and specifications, with changes not pertinent to the contention here made, and further stating therein that 'plumbing is to provide for the installation of the work in accordance with original specifications.' By this agreement plaintiff bound himself to meet all the requirements in all of the plans and specifications read together and considered as a whole. Kennedy v. Bowling, 319 Mo. 401, 413, 4 S. W. (2d) 438, and cases cited; 6 R. C. L. §253, p. 867; 9 C. J. p. 709; 13 C. J. pp. 528, 530. He was, therefore, bound by the call for slop sinks in the typical floor plan shown on Exhibit G even though he did not see this particular plan before sending defendant his letter of acceptance.

"From the typical floor plan shown on Exhibit G the number, size, and location of the slop sinks are easily ascertainable, and the fact that slop sinks are so shown is indisputable evidence that their installation was required. It is of no consequence that they are not expressly required in the plumbing and heating specifications. This and other omissions were supplied by the last above-quoted provision of the general specifications by which plaintiff was bound. The plans and specifications clearly called for the installation of slop sinks. No extrinsic facts were necessary or permissible to explain this unequivocal requirement, and the contract should not have been submitted to the jury for interpretation."

CLAIM FOR EXTRAS DISALLOWED

The court disposed of the contractor's contention that the defendant had agreed to treat the slop sinks as extras by finding that the testimony did not support this contention and that the "conversation in evidence does not show an agreement to pay for slop sinks as extras, and such an agreement, if made, would have been without consideration, plaintiff being already bound by the contract to furnish them." The court found, accordingly, that the instruction to the jury which the defendant had requested should have been given and that the judgment must be reversed, unless the contractor agreed to reduce it by the slop sink item.

AMERICAN ARCHITECT

CONTENTS

JANUARY, 1936

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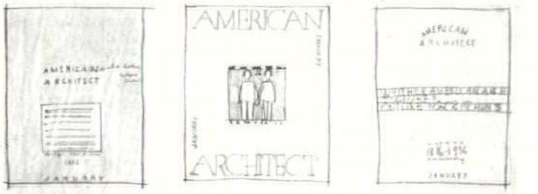
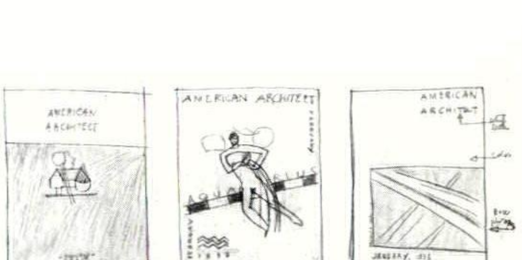


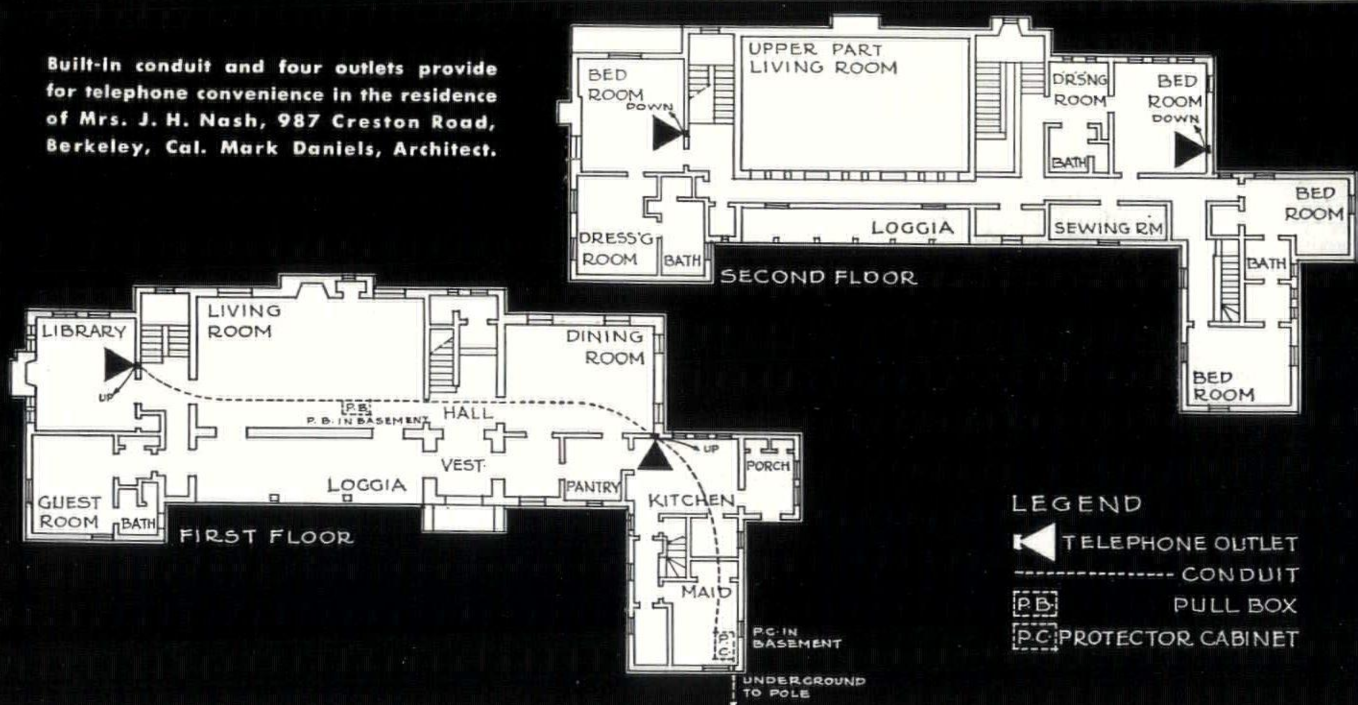
THE JANUARY COVER

"Good covers are born, not made," as an architectural wiseacre said, is true in a sense. The pun on the name of Ernest Born, who has designed AMERICAN ARCHITECT covers for the last three years, is obvious. Not so obvious, is the immense amount of thought, analysis, mental effort, involved in the conception of an expressive, meaningful, striking cover. The labor is similar in many respects to that of architectural design. Objectives are set, innumerable ideas roughed out in black and white, analyzed, developed or discarded, and finally the best are presented in more finished drawings and color. Fifteen of Ernest Born's finished preliminary studies to determine a single fixed treatment or style, are seen at the left and a few of literally hundreds of his roughed-out cover ideas are shown also. Hereafter only the hue of the color field will vary and the drawing within it. The January cover is typical of the genius of Ernest Born,—direct, clear, basic in conception, expressive of purpose, inimitable in technique and stimulating in idea.



Today's house is a machine for living

AND TELEPHONE CONVENIENCE MAKES IT MUCH MORE LIVABLE



Built-in conduit and four outlets provide for telephone convenience in the residence of Mrs. J. H. Nash, 987 Creston Road, Berkeley, Cal. Mark Daniels, Architect.

NOT NEW, but given new significance by today's push buttons and thermostats, is the concept of home as a machine-to-be-lived-in. And telephone convenience is very properly an important part of it.

Pre-planned in the blue prints, included in walls and floors during construction, telephone conduit helps make any home a smoother running machine. It permits outlets to be placed at strategic, step-saving points. It prevents exposed wiring and certain types of service interruptions.

Outlets may be installed in excess of immediate needs to provide for future requirements. Then telephones can be moved without piercing walls or woodwork—and portable instruments plugged into sickroom, guest room, game room or other "occasional" quarters.

Your telephone company will be glad to help you develop efficient, economical conduit layouts on any of your projects. Just call the Business Office and ask for "Architects' and Builders' Service." There is no charge, no obligation.

• For further information on Bell System telephone services and equipment, see Sweet's catalogue.

American Architect, published monthly by Hearst Magazines Inc., 572 Madison Avenue, New York, N. Y. $3.00 per year: Canada, $4.00; Foreign, $5.00. Entered as second class matter April 5th, 1926, at the Post Office at New York, N. Y., under the act of March 3rd, 1879. Issue 2641, dated January, 1936.

TRENDS

NEWS • EVENTS • FACTS • FACES • IDEAS • OPINIONS • COMMENTS

ACME

FHA's Administrator, Stewart McDonald, signs the loan that brought the FHA program past the half-million dollar mark. Robert M. Catherine, right, seated; standing, left to right, Abner Ferguson, Arthur Walsh and William D. Flanders

BUILDING VOLUME, 1936

• What will happen to the building industry in 1936? Will the trend be up?

Those are the questions that everyone connected with the building industry asked himself during the waning days of 1935. And, for the first time since 1927, there was no doubt about the answers. 1935 appears definitely to have been the "turning point." 1936, the industry agrees, will see the volume of building growing svelte.

Back in the first days of 1935, a construction business forced into long hibernation, roused itself, stretched, and appeared to be getting ready, at last, to go back to work. For a time the improvement was barely perceptible—only a statistical trend. But the renewed vigor persisted. By July the industry was 144% ahead of the same month the previous year. Even in November, when a seasonal lapse is anticipated, building volume declined only slightly, and was 105% ahead of the previous year.

Undoubtedly a major factor in getting building out of the doldrums was mortgage insurance. Banks were weighted down with unmarketable paper; real estate mortgages were laughing-stocks. Then the National Housing Act lit up the building recovery road.

NEW LAWS FOR HOUSING

• At least three major issues, each of interest to the building industry, will be brought before this session of Congress. They are:

1. The Wagner Bill;
2. A bill proposing a Federal mortgage discount bank;
3. The Bankhead-Jones Farm Tenant Home Bill.

Most highly publicized of the three, and also most likely to produce the greatest effect on building, is the Wagner Bill. Backed by Senator Wagner personally, and with the additional reinforcement of a similar bill proposed by the Committee of Economic Recovery, Inc., it would seem that either the Wagner Bill, or the Committee's recommendations, or a combination of the two, has an excellent chance for passage.

This legislation would set up a permanent Federal department to handle the housing problem, and would appropriate at least $800,000,000 for the purpose. It also provides for Federal subsidy and other aids to municipal housing agencies.

Although the measure advocating a Federal mortgage discount bank is less widely known than the Wagner Bill, its intent is no less admirable. Advocated by the National Association of Real Estate Boards, this bill would set up the mortgage discount bank as a means of making mortgages more liquid—to provide an outlet for such investments in time of need.

The third measure, the Bankhead-Jones Farm Tenant Home Bill, was passed by the Senate at the last session of Congress and will receive early consideration by the House.

Briefly, this measure calls for aid to the tenant farmer interested in acquiring a home of his own. It would make permanent many of the features of the resettlement administration.

DWELLING FUTURES

• With FHA as the stimulus, and aided by the insured mortgage—promising safety and a yield of 5%—residential building possibilities look promising for this year. Federal Housing Administrator McDonald has predicted 175,000 new homes for 1936, but should the proposals of either Senator Wagner or the Committee of Economic Recovery, Inc., gain favor with the President, this estimate would be bettered.

Residential building in 1935 reached an approximated total of $480,000,000. With Federal agencies continuing their stimulation, with rents up 16.4% in November over the beginning of 1934, with income better distributed among potential home owners, with more private funds seeking investment in houses, conservative opinion is that residential contract awards may aggregate fully $900,000,000 this year.

FHA Figures

• On December 10 the Federal Housing Administration announced that it had insured 646,940 modernization and repair notes totalling $234,105,461; that it had selected 62,359 home mortgages totalling $240,597,352 for appraisal; and that it had accepted mortgages on fifteen low-cost housing projects costing $27,030,234. These undertakings total $501,733,047.

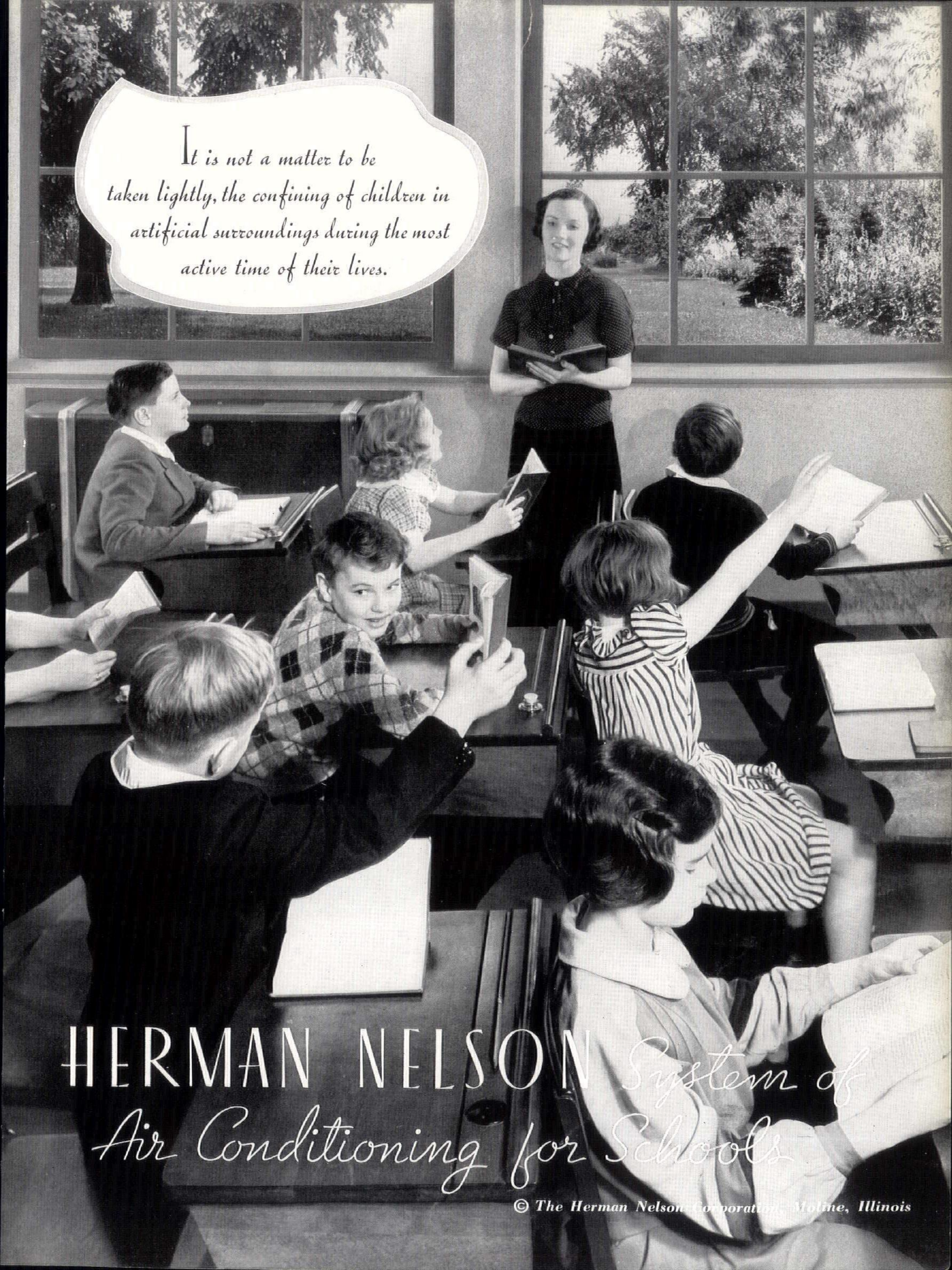
With the release of these statistics it became obvious that FHA, like its sister agency PWA, is "big business." Unlike PWA, however, FHA has taken not only the arithmetic of big business, but its methods as well.

In New York's subways, elevateds, and commuting trains FHA's promotion pieces were prominently displayed last month. "See the model home"! "Give a home for Christmas," the placards advised. And there were huge roadside billboards, too, messaged to catch the motorist's attention.

National Home Shows

• But the most important piece of promotion used by FHA is the series of National Home Shows, the first of

(Continued on page 6)


It is not a matter to be taken lightly, the confining of children in artificial surroundings during the most active time of their lives.
HERMAN NELSON System of Air Conditioning for Schools
© The Herman Nelson Corporation, Moline, Illinois

which opened in Baltimore on January 4. (See illustration) Radio broadcasts, motion picture trailers, window display cards, all are plugging for this nationwide series of exhibits, and with the additional backing of the Manufacturers' Housing Display Council—an organization composed of 170 nationally-known manufacturers and distributors of building materials and equipment—and from the reception given the home show in Baltimore it appears that this FHA-sponsored promotion may well be a stimulating factor for more building.

HOUSING DEADLINE MET

• Early last Fall President Roosevelt set December 15 as the date by which all PWA work-relief contracts should be let. Secretary Ickes has driven relentlessly toward this goal—has warned, in fact, that delay in getting work started would lead to withdrawal of allotments. But, when the deadline date rolled around, it was only too apparent that sponsors of PWA projects, as a whole, had failed to finish on time.

To Mr. A. R. Clas, Director of Housing, however, must go congratulations for completing his portion of the work on schedule. By December 15 he had contracted for 47 of the 50 PWA low-cost housing and slum clearance projects; he had pledged that the entire PWA housing program would be completed by 1937; he had provided jobs for 50,000 men for approximately one year; he had selected sites aggregating 52,000,000 square feet; and modest but comfortable modern housing for 25,000 families will be made available.

On the dark side of the picture, it appeared that less than half of the non-Federal PWA projects had been let within President Roosevelt's original schedule. No announcement was forthcoming on deadline day, but it seemed likely that where municipalities could show a valid reason for their delay, contracts might still be completed.

PWA ALLOTMENTS

• During the first six months of 1935 there was a marked decrease in PWA spending. Administrative difficulties in finding and approving public works projects on which to spend the $4,880,000,000 appropriation contributed heavily to this decline. But starting with July, the graph of PWA expenditures again rose steadily upward—but it did not approach the 1933 level.

ACME

Tugwell, Resettlement Administrator, and Dr. M. M. Alexander, Assistant, warm-up at the Berwyn, Md., project

Recent allocations of Federal funds, amounting to nearly $1,000,000,000 for projects which cannot be under way before 1936, make it seem imperative that PWA spending in 1936 will greatly exceed the 1935 total.

SAVED BY SNOOPING

• It has not been the custom of the Public Works Administration to save money, its business is to grant and lend. Consequently, the announcement by PWA that it has "saved" $64,000,000 in the last two years created something of a furore. But of that amount $35,429,380 was "saved" by the detection of fraud and collusion in contract bids and awards, misrepresentation and other irregularities, and $29,020,547 by eliminating projects lacking adequate economic soundness or financial backing.

Lest some things connected with government projects might not be on the "up and up," Louis R. Glavis, director of PWA's Division of Investigations, and his staff of 320 agents and employees have been on the job all of the time. All in all, the Division of Investigations spent $1,337,350 to do its work—approximately 2% of the amount saved.

The announcement that $35,000,000 had been saved by detecting fraud in contract bids and awards drew at least a mild howl of complaint from contractors.

In the latter part of December the *Engineering News-Record* wrote: "Violation of some unimportant PWA regulation might be classed as an irregularity by an over-zealous investigator. If the government stood to lose such large sums through fraud and collusion, why have the conspirators not been prosecuted? The construction industry is entitled to know in detail what items are on the list that make it add up to $35,429,380."

RESETTLEMENT

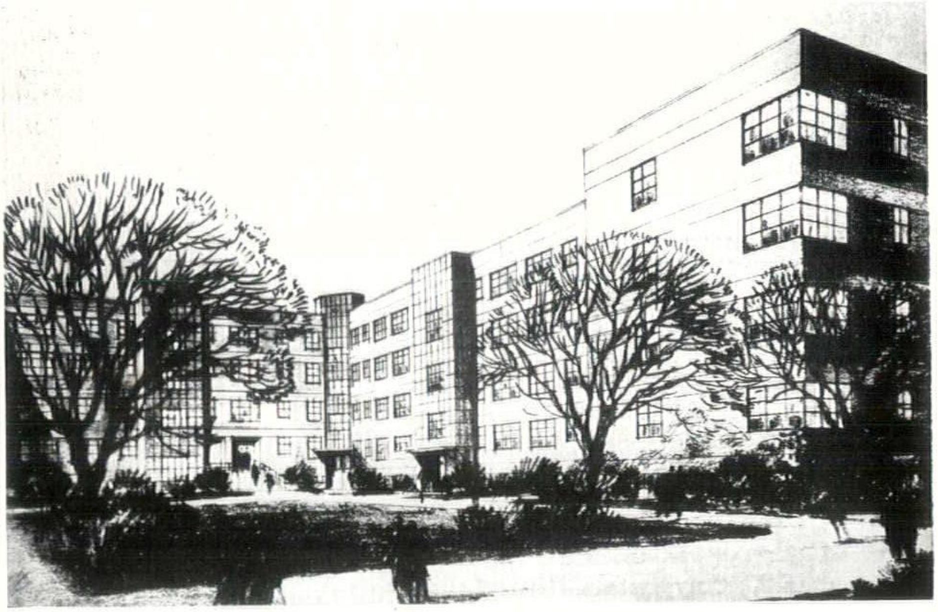
• While Administrator Ickes of the PWA has been busy removing city folks from relief rolls, Rexford G. Tugwell, head of the Resettlement Administration, has been equally concerned about putting people in rural sections back to work.

To begin with, rural families are scattered over such wide areas that developing works projects for them is much more difficult than in cities where relief workers are concentrated. But the basic problem that Mr. Tugwell faced was that temporary relief could be of little help. Industrial workers in cities will be re-employed just as soon as business creates more jobs. But the farmer? He is on relief because he has insufficient tools or unproductive land. Because of these factors, getting the 1,400,000 rural cases off relief has been a tough problem—even with $375,000,000 to spend.

Progress of the Resettlement Administration is already far beyond the planning stage. Fifty resettlement projects, which will cost $1,000,000 each and will move farm families from poor to better lands, have already been contracted for. About $60,000,000 is being invested in the purchase and improvement of land resources, for the enrichment of poor rural areas. Money is being lent to farmers to help them finance the buying of new equipment; and RA has optioned 10,000,000 acres of land from families on relief, most of which it will buy in order to give the present owners an opportunity to purchase better land.

More important from an architectural point of view are the Suburban Division projects that the Resettlement Administration is sponsoring. Construction is under way on the Berwyn Hgts., Md. project, which is the first of four such projects to be constructed at a total cost of $31,000,000. These will consist of multiple-unit homes, each housing several hundred families. All will be within easy commuting distance of some large city, and, because of their locations outside of city limits, all will be surrounded by protective "greenbelts" of land in order to prevent infringements by commercial enterprise. Each will give occupants an opportunity for gardening.

(*Continued on page 8*)



INTERNATIONAL NEWS PHOTOS, INC.

Ten Eyck Houses, the country's largest PWA financed low-rent housing project, Williamsburg, Brooklyn, N. Y., for which ground was broken on December 27

RESETTLEMENT RESENTED

• Humanitarian as Mr. Tugwell's Resettlement Administration may be, there is at least one region that wants no part of it. Just when Mr. Tugwell had completed plans for building 750 homes at $3,500 each in Franklin township, Somerset county, N. J., the township and four of its property owners applied for an injunction to stop him.

The principle reason for the township's action was that Tugwell's homes would add 3,500 people to the township's present population of 6,500 and would distort the present equitable tax rate. Besides, the residents already classify their section as a "model community" and see no reason for this "meddling."

There is no indication yet that the township's suit for an injunction will be sustained. Merritt Lane, counsel for the property owners, called the resettlement administration unconstitutional, in his suit, because "it is an illegal delegation of legislative power to the President." Judge William Clark, district Supreme Court Judge, rejected the suit on the ground that Mr. Lane had named the wrong defendant—the project manager instead of Mr. Tugwell.

The case will be heard soon in Federal Court in the District of Columbia with Mr. Tugwell as the defendant.

CONSTRUCTION COSTS

• When sizing up the possibilities for building, the two major considerations always are the demand and the availability of funds. But, in addition, the costs of labor and materials usually get some attention.

At the present time wages are about 8% below their 1926 level; prices of materials are still off approximately 15%. Therefore, with construction costs below normal, and likely to advance rather than decline from their present position, this should be an additional incentive to early building.

• A Presidential survey in 1934 set the number of unemployed in the construction industries at 2,027,000. Doubtless some decrease in this number was made during 1935. But the labor situation, as a whole, has been far from happy.

The principal deterrent to a solution of unemployment and labor problems has been the two-year-old dispute among the building craft unions of the American Federation of Labor. Carpenters', bricklayers' and electrical workers' organizations have been allied in a fight against the other 16 craft unions to determine who should have jurisdiction over what. Up one side and down the other, the 1,250,000 members have haggled and debated, while contractors and investors have borne the losses of costly delays.

So, it was with a great sigh of relief that contractors, in particular, greeted the announcement by William Green, president of the American Federation of Labor, that the scrap has been settled.

Full details of the plan for submitting disputes to a referee will not be announced until the craft unions assemble in Washington on February 6 for their convention. It is understood, however, that when a question of jurisdiction arises between two unions, the contractor is to decide which union will do work over which. Should his judgment fail to prevail, adjustment is left to a Federal judge, with the work continuing, meanwhile, as designated by the contractor.

Knickerbocker Costs

• The breakdown of costs on the Knickerbocker Village two-unit housing development (analysis made by the Bureau of Labor Statistics and published in the Monthly Labor Review) shows that construction of a modern apartment house in New York City costs 48.6 cents per cubic foot and $4.86 per square foot of floor space. This development, which was started in 1933 and completed in December 1934, was built by the Fred F. French Co. with the aid of an $8,022,000 RFC loan.

Total cost of the two twelve story red brick structures, which together contain 1,593 dwelling units (apartments) exceeded $9,500,000. Actual construction cost was $6,216,899, of which 32.4% went for labor, 42.4% for material, and 25.11% for overhead and miscellaneous items. 1,759,600 man hours at the site were required to complete construction.

The cost per unit, computed on the basis of the $6,216,899 construction cost for 1,593 apartments, was $3,903. And, carrying the analysis further, each room cost $1,165 and provided 330 man hours of employment.

Greatest fraction of the building dollar, on this project, was spent on masonry which cost 15.3 cents. Cement and concrete cost 11.64 cents of each dollar, structural steel 9.9 cents, and carpentry 6.3 cents.

The architect's fee for Knickerbocker Village totalled $109,901, 1.8 cents of the building dollar, while the builder's fee amounted to $340,098, 5.5 cents, and financial and other charges $264,-185, 4.4 cents.

These apartments were designed particularly for the white collar class, and have an average monthly rental of $12.50 per room. The building, which is of steel frame construction, is

(*Continued on page* 11)

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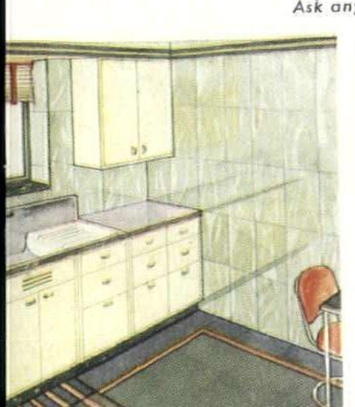

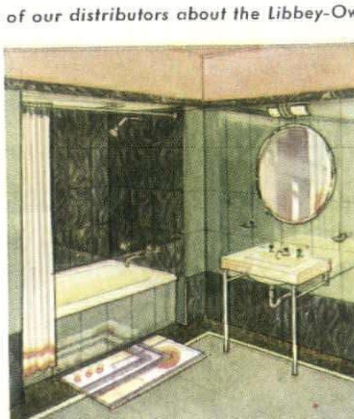

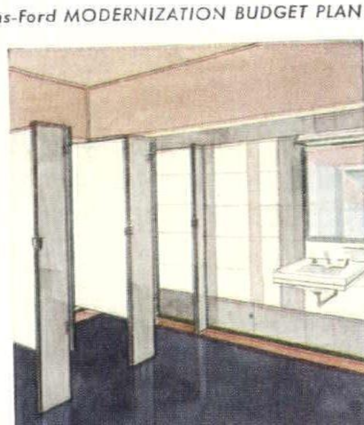

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CONSTRUCTIONS' 8 COMMANDMENTS

Declaring that one of the best means of improving industrial recovery is the immediate withdrawal of the Government from the field of private enterprise, prominent leaders of the construction industry, following the industrial conference of December 9, submitted a report to Co-ordinator George L. Berry, setting up eight principles which they believe will be most conducive to industrial recovery.

The report, signed by a temporary committee of five, expressed the opinion of more than fifty construction men attending a round table conference. The membership of the committee is as follows: Carlton Proctor (engineer) as chairman, John B. Dewar (painting contractor) Fred Rowe (highway contractor), A. E. Horst (heavy construction contractor), and S. F. Voorhees (architect). At the same time, this committee was delegated to attend any further conferences called by Berry.

The eight recommendations are:

1. That federal competition with construction industry agencies cease, and that the federal departments utilize the normal private channels of construction.

2. That a declared federal policy be established in which the construction industry will have confidence. The lack of confidence between this industry and the Administration is chargeable to such actions as governmental disregard of NRA code principles; to the fact that relief wages have in many cases equalled or exceeded those in private construction contrary to expressed intentions; and to the elimination of useful projects through destructive federal restrictions.

3. That encouragement be given to local determination of fair construction industry practices and labor relations.

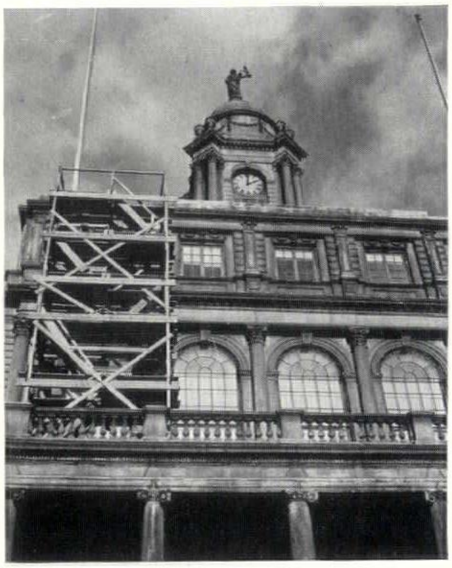
4. That the threat of pending legislation which would further undermine the construction industry, such as the proposed Black Bill, the proposed Walsh Bill, etc., be removed.

5. That the federal construction programs be co-ordinated through a single competent Federal Works Department sympathetic to private enterprise; that permanent Committees on Construction be established in the Senate and House.

6. That federal financial aid to state, county and municipal works projects be reduced as soon as communities can initiate and finance them according to normal practices.

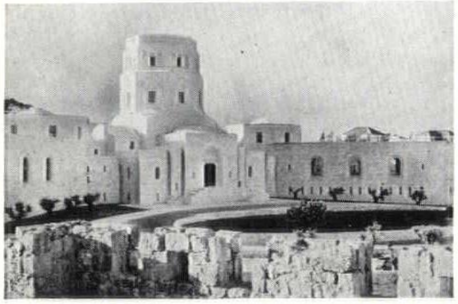
7. That investment of private capital in construction be encouraged through income tax legislation permitting deductions from gross income amounts invested in construction projects for a period of sufficient length to re-establish a normal market.

8. That in the interest of sound recovery, which involves the revival of private industry, the present government departmental policy of assuming functions, under the guise of emergency, which are normally and properly those of industry, be terminated at once.



CHARLES PHELPS CUSHING

Work begins on the $200,000 restoration of New York's City Hall



WIDE WORLD

The Rockefeller Museum in Jerusalem, built through a donation of $2,000,000 to the Palestine Government. Austen St. B. Harrison, Architect. Paul Manger and William Price, Associate Architects

CITY PLANNING, NEW YORK

• "I recognize that it is probably too late to make New York a planned city in the sense that Washington is a planned city or Canberra, the new capital of Australia, which is now in the process of development, but it is not too late to develop New York from this point on according to a master plan."

That is the opinion of Mr. John Lowry, Chairman of The Committee on Building Laws and Regulations of the Merchants' Association of New York. But it is also indicative of the sentiment of many other forward looking city planners who would take steps now to prevent further concentration of the business and residential population, and who would avert the need for endless new rapid transit lines.

The present time seems particularly apt for consideration of zoning and planning problems in Manhattan. Recent research has shown that 32% of the residential structures in this city are 36 or more years old; 24% of the family dwelling units are without central heat; 16% without running hot water; 15% without any bathtubs. One-third of the loft building space and 30% of the office building space are in buildings 41 years old or older.

It would seem that New York must rebuild at least 25% of the city in addition to construction that may be needed for a growing population. It is to this rebuilding, and to New York's 40,000 acres of land that are still untouched, that Mr. Lowry recommends:

1. That skyscrapers, in the future, will use a site commensurate in size with the structure they will carry; that they will be provided with proper surrounding open space in order to prevent robbing other buildings of sunlight and view; and that they will not be built so closely together that they will intensify congestion and produce transportation problems.

2. That tenement house and zoning laws will make greater open spaces imperative.

3. That each borough will have its own housing development so that a larger number of people may live in the vicinity of their work, thereby reducing commutation disabilities for individuals and traffic problems for the city.

"ARCHITECTS PREFERRED"

• "All architects for municipal projects in New York City, in the future,

(Continued on page 12)

TRENDS

NEWS • EVENTS • FACTS • FACES • IDEAS • OPINIONS • COMMENTS

will be chosen from a list of fifty architects and architectural firms havings offices in this City." That was the substance of an announcement that came from Mayor La Guardia's office last month, and for Manhattan's archichitects it meant a new era in municipal architecture.

Some time ago Electus D. Litchfield, president of New York's Municipal Art Society, voiced the idea that architects should be lifted out of city politics—that municipal architecture should be placed on the highest professional basis—that the City should be assured of having its municipal projects in the hands of professionals who, in the judgment of their peers, are among the most competent in the profession.

To accomplish this, Mr. Litchfield recommended that the most prominent men in the profession in New York should choose a jury of three men who, in turn, would select fifty architects from whom all architects for City projects would be chosen.

Mayor La Guardia decided on taking this step, he says, because of his aversion to the old plan whereby the same architects received most of the city commissions and others were selected because of their political influence rather than their professional standing.

Final choice of the list was made by a jury consisting of I. N. Phelps Stokes, Ralph Walker and Kenneth Murchison.

Three exceptions to the general rule of taking architects from the list of fifty were laid down:

1. No one architect or firm will be permitted more than one commission involving a cost of a million or more:

2. No one architect will be permitted two or more commissions adding up to a million dollars or more:

3. On works estimated to cost less than $100,000, architects other than those on the selected list will be eligible.

From time to time, the jury indicated, additions will be made to this list, but no provisions were made for considering new names at the present time. It is supposed, from the tone of the jury's report, that election to the list will be made on a yearly basis, and that the present list will stand in its present form during all of 1936.

To select the list the jury sent letters to some 2,000 architects. Approximately 500 replied to the questionnaire, although a few prominent names failed to bid for recognition. It is evident that some consideration was given to

General plan of the Texas Centennial Exposition which will be opened in Dallas on June 6

borough representation, and also to the problem of adding to the list a number of the younger and more active members of the profession.

The list of fifty eligibles follows:

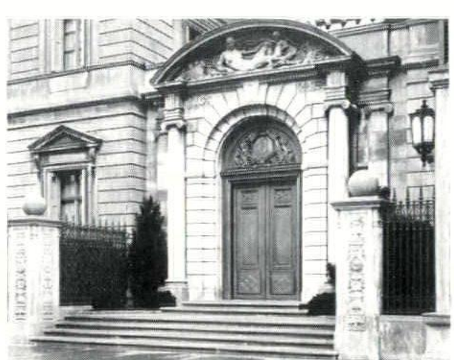
Louis Allen Abramson, Grosvenor Atterbury, Dwight James Baum, Bloch & Hesse, Archibald M. Brown, Charles Butler & Robert B. Kohn, Corbett & MacMurray, Cross & Cross; Crow, Lewis & Wick, Delano & Aldrich, Thomas H. Ellett, Aymar Embury 2d, Fellheimer & Wagner, Joseph H. Freedlander, William Gehron, Cass Gilbert, Inc.; William H. Gompert and Frederic C. Hirons, Associated; Wallace H. Harrison, Alfred Hopkins and associates, John Mead Howells.

Also Louis E. Jallade, Francis Y. Joannes, Ely Jacques Kahn, Eric Kebbon, William Welles Knowles, Electus D. Litchfield, Mayers, Murray & Phillips; McKim, Mead & White; Charles B. Myers, Morris & O'Connor, James W. O'Connor, Henry C. Pelton Associates, John Russell Pope, Lorimer Rich, James Gamble Rogers, Charles Schaefer, Jr., Shreve, Lamb & Harmon; Sibley & Fetherston, Starrett & Van Vleck, Egerton Swartwout.

Also Tachau & Vought, Thompson, Holmes & Converse; Tooker & Marsh, Trowbridge & Livingston, Hobart Upjohn, D. Everett Waid, Walker & Gillette, Ward & Kerrigan, James Whitford, York & Sawyer.

FAIRS

• At least three expositions of national significance are scheduled for 1936. Already in full swing in San Diego is the American Exposition, and, early in the summer, this attraction will be supplemented by the Great Lakes Exposition in Cleveland, and the Texas Centennial Central Exposition in Dallas. Besides, there will be any number of smaller spectacles, including, of course, the thirty-five or forty FHA sponsored National Home Shows, and New York's Building Modernization Exposition which will open January 27th in the Lincoln building.



WIDE WORLD

The Henry Clay Frick Mansion, New York, which was opened to the public as an art museum in December

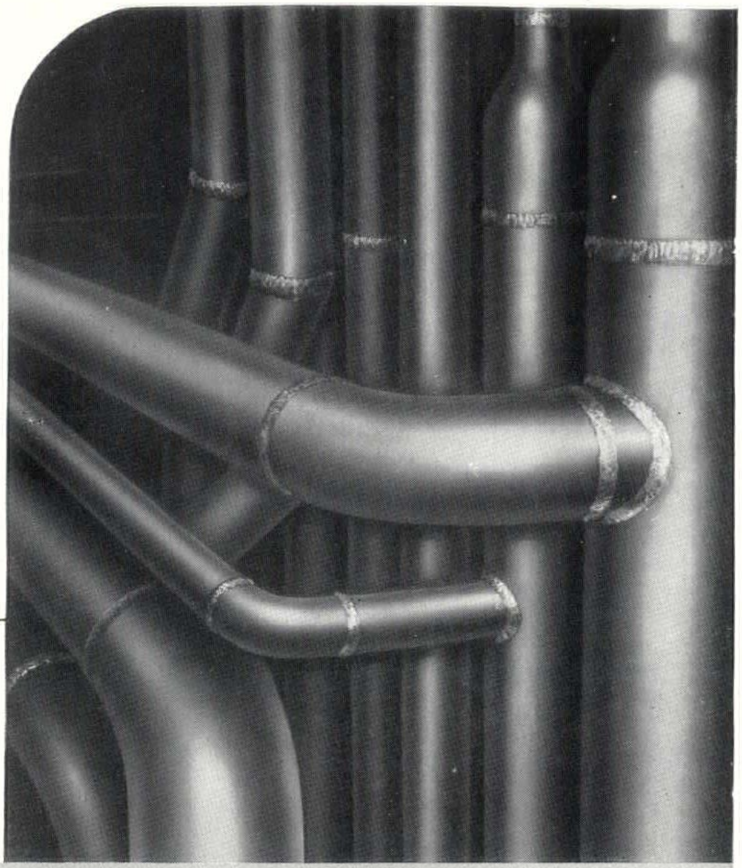
Twenty architects, under the supervision of technical director George L. Dahl, have planned the $15,000,000 building project that will be the feature of the Texas Centennial, opening in Dallas June 6. State and local funds have been augmented by a $1,250,000 Federal appropriation, for many of the buildings, including the State of Texas building and the Museum of Southwestern Natural History, will be permanent. The general architectural scheme will be classic modern, with touches of the Aztec, early Spanish, Southern Colonial, and with suitable reminder that Texas alone of the forty-eight States once was recognized as a sovereign power.

The Great Lakes Exposition will be the largest civic event in Cleveland's history. Staged on eighty acres of Cleveland's downtown lakefront, plus the additional accommodations of nearby Public Hall, the Underground Exposition Hall, and the Municipal Stadium, this exposition aims to present a cross-section of the industrial, cultural, educational and social life and progress of the Great Lakes Area.

Alexander G. Robinson III, President of the Cleveland Chapter of The American Institute of Architects, has named Abram Garfield chairman of the committee in charge of architecture for the show. Serving with Mr. Garfield are J. Byers Hays, Frank B. Meade, F. R. Walker, and Antonio di Nardo. This group will have final authority on all questions involving architecture which is now under consideration.

Important as these sectional exhibits will be, major interest even now is centering on the next World's Fair to be held in New York City in 1939. Louis K. Comstock, president of the Merchants Association has cited the need of providing suitable housing for visitors of moderate means. New York City, already housing 15,000,000 persons within a 100 mile radius, faces an even more acute problem in this respect than Chicago did when planning A Century Of Progress.

STREAMLINED.. inside and out



· OXWELDED PIPING ·

STREAMLINED . . . *smooth inside and out* . . . this installation typifies part of a large piping system made "jointless" and *leakproof forever* by oxwelding. This method of erection reduces friction and power losses—makes insulation easier to apply and less costly.

An oxwelded piping system is one permanent whole . . . just as if it were constructed from a continuous piece of pipe! It is easier to design, takes up less space, looks neater and involves no additional cost or time for construction. Welds have the strength of the original pipe and require no maintenance. Pipe of all sizes—any material—can be welded. Because these advantages cannot be obtained in any other way, oxwelded piping is being specified by architects and installed in more modern buildings each year.

Specifications for Welded Piping

Linde engineers have prepared clear and concise technical data especially for the architect interested in designing and specifying jointless piping systems that will remain leakproof forever. Ask the Linde Office in your city for complete details or write to the company at 30 East 42nd Street, New York, N. Y. The Linde Air Products Company, Unit of Union Carbide and Carbon Corporation.

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TRENDS

NEWS • EVENTS • FACTS • FACES • IDEAS • OPINIONS • COMMENTS

READER OPINION

DISAPPEARING CRAFTSMEN

Editor, AMERICAN ARCHITECT:

I ALWAYS read with a great deal of interest your editorials. Your issue for November has one editorial on which I desire to comment. The one I refer to is entitled, "Craftsmen, Where Are They?"

I have made an intensive study on the subject of the disappearing apprentice during the past year, and have developed a number of charts which illustrate the race and age distribution for the mechanics in the major building crafts. All that you have so pertinently said in your editorial is very definitely true and can be verified easily.

I do not hesitate to say that I believe the trade schools are fully aware of the problem and are definitely ready to meet it, but the question of how to get young men of suitable ages to learn a building craft is a very serious one. Trends of high school students discovered by a recent survey indicate that they are leaning very heavily towards the professions, and stay away from the mechanical fields.

The fly in the ointment, however, is that somehow, up to the present at least, we have not been able to get industry to take a more active part in the recruiting of its own apprentices. While you might say that is the definite work of the trade schools, yet it must be evident that a statement from an employer indicating that there is a need in his business for young men, and that an opportunity to work will be provided for those properly trained, is of far more value than for a trade school to make the same statement.

Again expressing my appreciation for a magazine which provides one with a vision and thrill of a large industry. I am.—*J. Douglas Wilson, Frank Wiggins Trade School, Los Angeles.*

CUBIC-FOOT-COST FALLACY

Editor, AMERICAN ARCHITECT:

IT is our opinion that the Time-Saver Standards you are publishing are a worth while and valuable contribution to the architectural profession.

As a suggestion for a field that might well be covered, we recommend that you publish information as to the proper method of measuring the cubic contents of a building for estimating the cost. Data of this kind might tend to standardize the method and keep architects from unintentionally fooling themselves and their clients in giving approximate costs. Your magazine has published some good articles on this subject in the past and the information contained therein might profitably be included in Time-Saver Standards. The subject could very well be expanded to include the items that cause the excessive variation in cubic-foot-costs, particularly as it applies to residential work.

While we realize that the locations of buildings affect this cost, we dare say that there is more variation in the methods of determining the cubic contents than in anything else. To establish a standard in this would be most helpful.—*Maher and McGrew, Architects, Evanston, Ill.*

[Turn to page 83.—Ed.]

A STEP TO HOUSING PROGRESS

Editor, AMERICAN ARCHITECT:

YOUR editorial, "A Wave To Housing," appearing in the November 1935 issue, is worth while. The FHA program is highly desirable. So far as it succeeds, it should tend to raise the average of performance of the real estate and the lending agency groups in housing for those who can pay for it.

No matter how much this program is raised by real estate men as a smoke screen, the fact remains that they have neither the desire nor the ability to provide low cost housing for the low rental groups who can't pay the required rental for adequate housing.

Public housing for those whom private industry can't and won't serve is the only alternative. The effort to get this understood by the public is a first essential step to actual accomplishment in this field of housing.—*William Stanley Parker, F. A. I. A., Boston, Mass.*

SETTING A NEW STANDARD

Editor, AMERICAN ARCHITECT:

I OFFER you my hearty congratulations upon the excellence of the "Time-Saver Standards" sheets. I feel that if this series is continued with the same thoroughness and clarity as the previous sheets, you will have given to the architects, engineers and builders a new standard, with direct knowledge of how to apply these details.—*D. T. Russillo, Architect, Providence, R. I.*

NEW CONGESTION?

Editor, AMERICAN ARCHITECT:

IN your editorial entitled, "A Curb to Congestion," on Page 59 of the November 1935 issue, there appears the statement that one of the new Lower East Side housing developments financed by the government has 750 persons per acre. This obviously refers to Knickerbocker Village. Your prior figures refer to average density per gross acre; nevertheless, without explanation the figure given for Knickerbocker Village is density per net acre.

With the buildings completely occupied, Knickerbocker Village has a population of 3800 persons. The gross acreage being 6.30, the density is 603 persons per gross acre. Contrasted to that, the buildings that were destroyed to make way for the new enterprise had 1085 apartments. Based on the Lavanburg Foundation and Hamilton House survey of 386 families previously residing on the premises, there was an average of 4.52 persons per apartment. The old buildings, therefore, had a potential density of 779 persons per gross acre.

In view of the frequency with which inaccurate reference is made to the density of population at Knickerbocker Village by people high up in housing circles, we thought you might like to have the actual facts.—*Charles M. Chuckrow, President Fred F. French Company, New York, N. Y.*

POLITICAL PRESSURE

Editor, AMERICAN ARCHITECT:

WHETHER or not PWA or FHA will actually do the most worth while job in housing, as your editorial, "A Wave to Housing" in the November issue, undertakes to fathom, may turn out to be largely a matter of terminology.

Certain it is in my mind that FHA can never reach those of our cities who cannot pay an economic rent. Equally certain is my belief that the state itself will have to provide adequate facilities for these people.

The strongest thing in your editorial is the statement that political pressure will be the best means of accomplishing the most far-reaching movement, i.e., housing for the poorest people. Probably the trade unions will turn out to be the most potent vehicle.—*C. F. Palmer, Palmer, Inc., Atlanta, Ga.*

FEATURING THE FAIR

Turning the first spade, editorially, in October '35, AMERICAN ARCHITECT broke ground for

NEW YORK'S WORLD FAIR,

showed the site, the "modern" projects of '53, and indicated the possible course of action to insure proper architectural organization.

● What the Fair should be, who should have major parts in formulating its purpose and in controlling its plan and design, are pertinent questions on which we are privileged to quote the salient ideas of

RALPH WALKER
ELY JACQUES KAHN
HARVEY WILEY CORBETT
WALTER DORWIN TEAGUE
LEWIS MUMFORD
CALEB HORNBOSTEL

in THE FAIR DESERVES THE BRAVE in this January issue, pages 35 and 36, which also reports what organizations are doing and the resolutions recently adopted by the New York Chapter of the A.I.A.

TO KEEP STEP WITH THE FAIR AMERICAN ARCHITECT

ALPHABETS and ARCHITECTS

To architects government agencies are either clients, competitors, "chiselers" or temporary job-givers — depending on their activities. Agency policies and programs for building or for encouraging building, affect the profession, establish precedents for its practice

CHIEF job-giver and chief job-maker to America's architects and architectural draftsmen is none other than the Government itself. Without this refuge in the form of commission, salary, wage or relief, many a competent designer, draftsman or firm member would have been forced to abandon the "mistress of the arts." In the last five years many have parted from their chosen work from necessity or from choice. The architectural ranks are depleted—filed away at innumerable sorts of jobs, anything that promised a competence or even subsistence. Rather than desert their calling, thousands, however, have turned to Government agencies dealing with public works,—some feeling that they could keep alive at some sort of boon-doggling, more feeling that the projects on which they were engaged were of real social and human value.

The architect has found the even tenor of his way violently interrupted, his activity turned to new channels by lack of clients or by his new boss, Uncle Sam, who also operates in devious ways his wonders to perform. Professional interest has been broadened from that of designing single buildings for individual owners to the problems of city-planning, of Federal buildings, of statistical analysis, real estate appraisal and inventory, of finance, park and playground development, traffic and congestion, slum clearance and housing, rural and urban resettlement.

But in the process how has the profession fared, what change in status, what alteration in seemingly established relationships have been brought about? How have the alphabetical agencies of the Government dealt with the architect, and what will their future policies do for or against the best interests of the profession?

What agencies have been established to create new building (and modernize the old), to sweeten sour mortgages, to encourage better financing of construction so that building might be resumed? Such agencies, in the long run, will have far greater effect on the future volume of construction, and the part in it which the architect will play than the agencies temporarily giving jobs that tide over an otherwise almost jobless profession.

TREASURY DEPARTMENT

First of the government agencies to be concerned with architects was naturally the Department of the Treasury, before the alphabetic-agencies entered the field,—and under it the Office of the Supervising Architect. Post offices, Federal buildings, Public Works were the first to be considered as ways of putting the building industry back to work. But for a time they found all commitments and contracts in abeyance, appropriations not available or transferred to other agencies.

Previous to the emergency measures of 1933, Post Office design had been well distributed among private architects. Between 1926 and 1933 a total of 350 private architects had been employed on various projects designing 42 per cent of the money value of the total of all such buildings. Generally, the employment of private architects was the policy, especially when the design did not come under a standard layout. With the emergency the picture changed.

PROCUREMENT DIVISION

In June, 1933, the Procurement Division was set up under the Treasury Department as the single permanent agency to control all Federal buildings. With speed the order of the day Post Offices, Customs Houses and other Federal buildings had to be put under contract without delay. Many of these, ordinarily, would not have been built for years to come. Since August, 1933, over 200 million dollars have been allotted for such work. Of this 75 million was secured from PWA and resulted in 442 projects. The Emergency Construction Fund in 1934 gave 65 millions for 361 projects; and, in 1935, 356 projects accounted for another 74 million dollars. Of the 1934 group, only four are not yet through the working drawing stage, and instructions have been issued to have ready for bids by the first of March 1936, at least 90 per cent of the 1935 group.

The old hard-won procedure of having private architects operating at the site location was found to be too slow. Therefore, twenty-one architects were invited to set up their offices under the roof of the Procurement Division in Washington. Top men in design, these architects were allowed to bring one or two of their own staff to assist. Within planning limits established to produce the most efficient Post Office layout, these men were free to design as in private practice. Additional draftsmen were furnished by the Government. With a program of this magnitude and a short time schedule the Division has greatly enlarged its architectural staff. Ordinarily, the permanent architectural staff would be about 200 men, all Civil Service. It is now about 500, the majority not rated in Civil Service. The average drafting salary ranged between \$2600 and \$2800. For the

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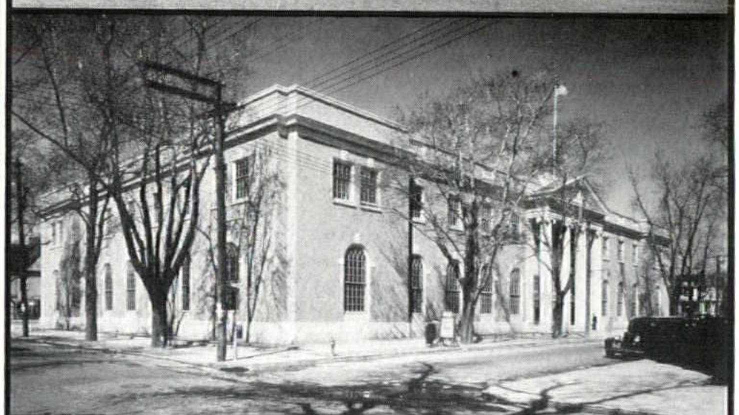

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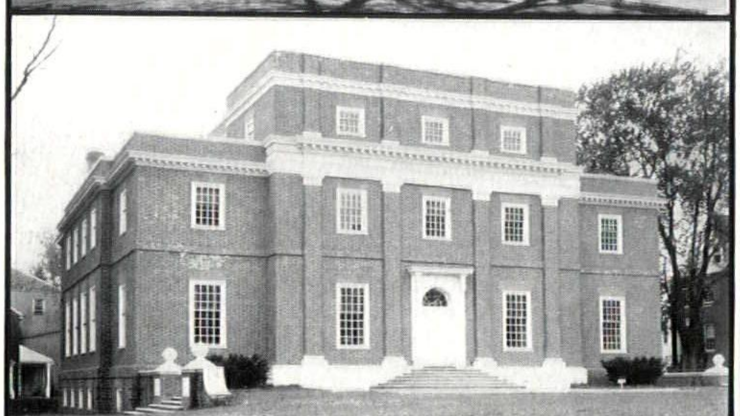

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twenty-one supervising and consulting architects, compensation is between $5600 and $9000.

Only the plea of greater speed and efficiency (through daily contact with the government experts) could excuse this uprooting of leading professional men from their home offices and business contacts. Only the future can tell the extent of their sacrifice, the loss in private practice they may sustain.

But the architects and draftsmen have measured up to the call for service in the emergency. Thirteen of the original twenty-one architects are still at work in Washington. The profession, as a whole, maintains that the government must play the part of an enlightened client, calling on architects in *private practice* for the architectural service on all Federal Buildings. Also, this emergency measure has established a precedent dangerous to the independence of the profession, for through it other government agencies, and even private corporations, may be misled into believing that an "architectural department" of salaried men is preferable to commissions to private practitioners.

Other permanent branches of government which carry on building programs are,—the Navy, War Department and Department of Interior, employing for the most part Civil Service architects. The War Department, for instance, increased its regular drafting force from a normal 50 to some 250 after their 1933 allotment of 60 million dollars. But most of this department work is of a routine or minor building nature and indications are that private architects will be commissioned for major works and for consulting service.

PUBLIC WORKS ADMINISTRATION

More exciting and more directly affecting the majority of architects, are the "alphabet agencies" created under the Recovery Act of 1933 (which empowered the administration to do almost anything in building—from acquiring land to managing finished projects). PWA took shape in July, 1933 with 3⅓ billion dollars, with its Housing Division and its Federal and non-Federal Works Divisions, all for the purpose of putting men to work on Public Works. Tacked on was Subsistence Homesteads with its 25 million. TVA (50 million dollars) was created in May, 1933.

PWA operates through the control of loans and grants, by approving Public Works projects. The Administrator was charged with preparing a "comprehensive program of public works." Naturally the approval and execution of projects outran the preparation of a comprehensive program, and such a program has not been published.

Of all PWA activity, Housing has held the center of the stage. Architects seeing commissions and land owners or promoters seeing possible profits, seized on the limited-dividend corporation provisions of the Recovery Act and by January '34 over 300 such projects had been submitted, many transferring application from the RFC of the previous administration. All but seven were rejected. Architects had spent many months and hundreds of thousands of dollars in good faith, but without knowledge of what would

New public buildings financed by the government . . . 1. U. S. Supreme Court, Washington. 2. Nurses' Dormitory, Cook County Hospital, Chicago. 3. Post Office, Jamaica, L. I., N. Y. 4. Memorial Hall of Records, Annapolis, Md. 5. Leprosonium, Corville, Louisiana.

PHOTOS 1 & 3, WURTZ BROS.

pass muster. Because of the PWA delays in establishing standards and definite procedures, architects worked in vain, their plans were useless, their loss enormous.

Then the Public Works Housing Corporation was set up in February, 1934, making action possible through Housing Authorities, and housing procedure for architects took definite form. No longer were architects to work on speculation, only to be rejected. Whereas the earlier plan had placed ownership and management in private hands, the new plan made the government agencies or Housing Authorities the sole landlords. Because of high land values and the low rentals required, private industry would not, and could not function. Under the new policy, prospective projects are investigated and recommendations made by the Branch of Initiation of the Housing Division. At first the plan was to employ one local architect, but this was soon changed to bring into the picture groups of local men in order to spread the work more rapidly. The architectural fees are low, below A. I. A. standards in most cases, and the clerical or statistical and record work is voluminous and arduous.

A survey of December 2nd showed that scattered over 35 cities there are 50 definite Federal Housing Projects, total cost $129,725,000. In designing them 263 local architects have received contracts from the government, working on commissions, maintaining their own offices. The PWA Housing Division now acts as a consulting and supervising service, putting to use the long and varied experience of the government's group of housing experts. There have been established standards, economical plans, and approved methods of substantial, low-cost construction. The PWA Housing Division now employs approximately 100 architects and draftsmen in its own offices.

The Wagner Bill, to be introduced in January, would set up a Federal body to carry on low-cost housing on a permanent basis, and asks for an appropriation of eight hundred million dollars,—but that's another story. If either this bill or the similar Ellenbogen Bill is passed, it might definitely result in establishing a group of low-cost housing experts in the government employ and housing activities will become a permanent government function—another possible bureaucracy,—or, opportunities for private architects in housing. Indications are that the present administration will not expand its housing program unless under political pressure (see AMERICAN ARCHITECT October, 1935, p. 48.)

With all of PWA funds allotted; with schools, hospitals, jails, dormitories, memorials, parks, etc., made possible only by these funds, architects are grateful that their projects could be financed. Schools alone totaled over 300 million dollars. A total of some $2,300,000,000 has been allocated to projects in the building field. In this the architect has had some share.

REFINANCING HOMES

The HOLC has been "direct-indirect" in its aid to the architect. Directly it has, through its branches, employed

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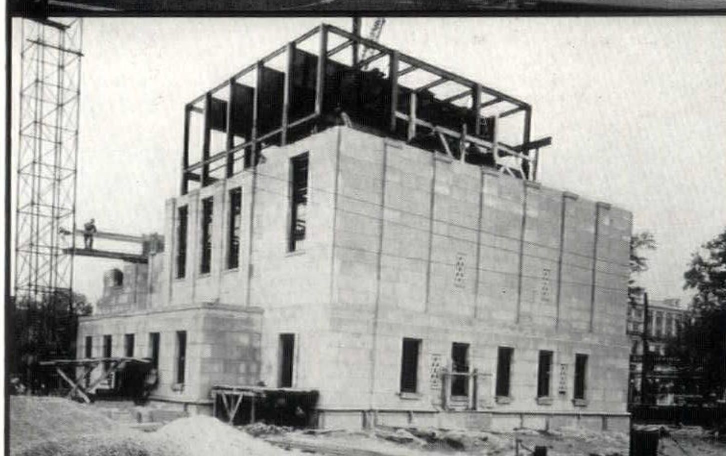

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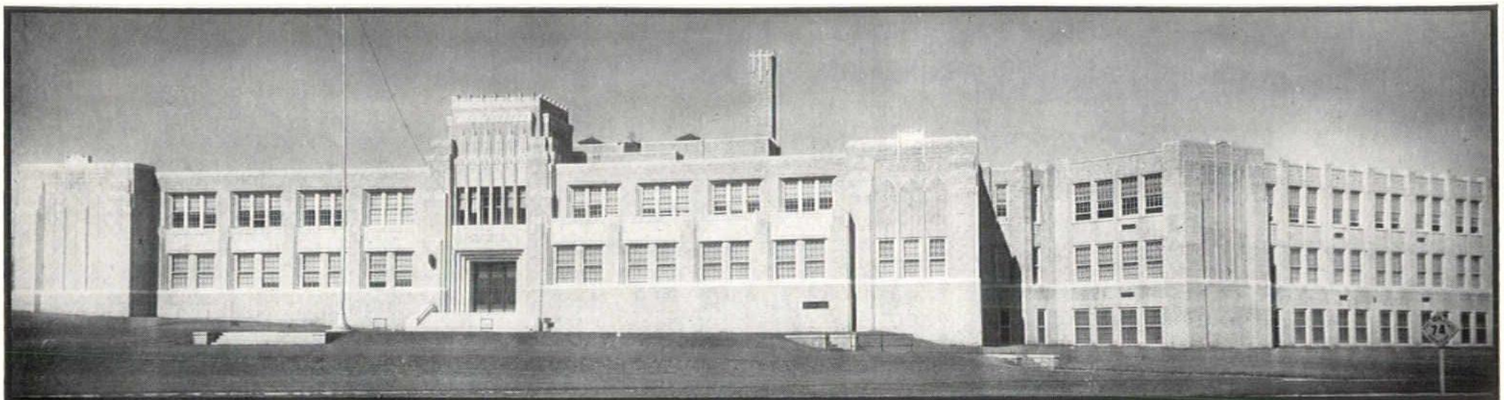
New Public buildings financed by the government . . . 6. Department of Justice, Washington. 7. Fulton County Police Station, Atlanta, Ga. 8. Post Office, East Orange, N. J. 9. New Jail for Columbia, S. C. 10. Central Park Zoo, New York.

PHOTOS 6, HORYDOZAK; 8 WURTS BROS.; 10 HIRAM MYERS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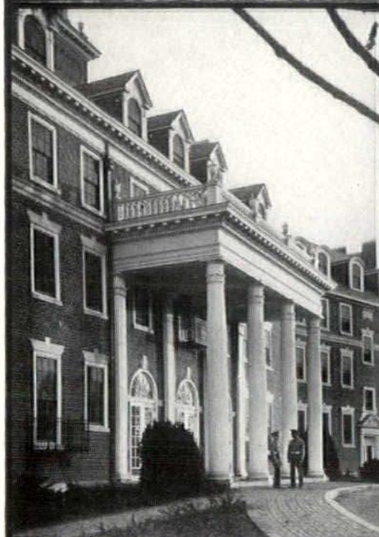
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P. W. A. Educational buildings . . . 1. William Howard Taft School, Oklahoma City. 2. Faculty Apartment, V. P. I., Blacksburg, Va. 3. Administration building, University of Tennessee, Nashville. 4. Administration building, College of William and Mary, Williamsburg, Va. 5. Administration building, V. P. I., Blacksburg, Va.

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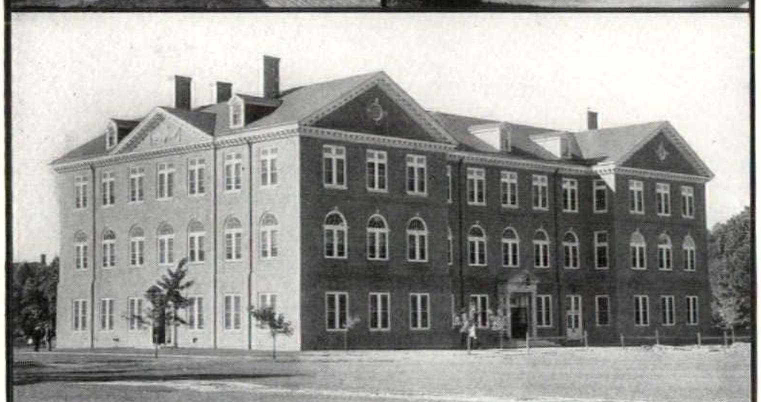
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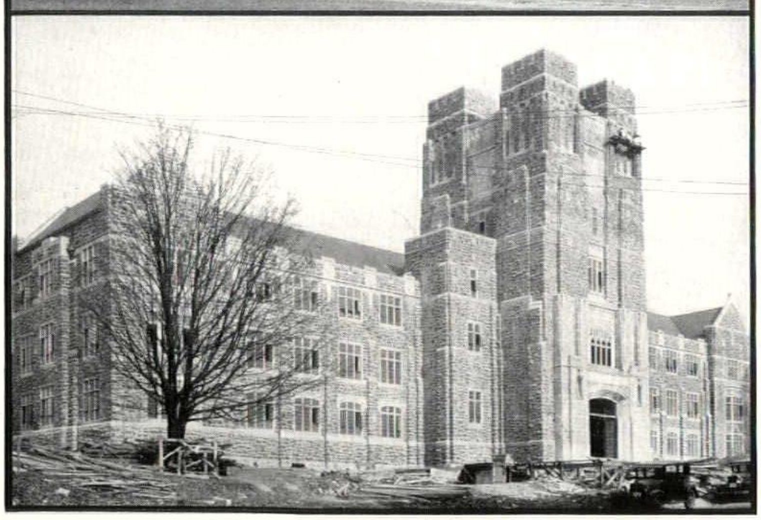
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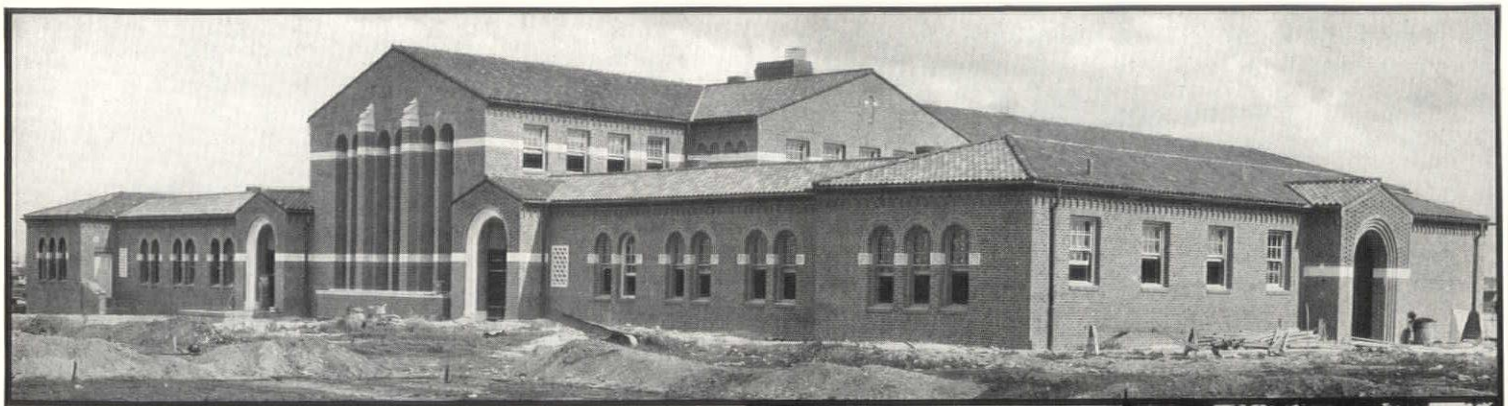
some 300 architects on a salary basis and some 2000 on a fee basis, making field inspections of houses, appraisals, etc. HOLC was instrumental in saving homes from foreclosure, stopping the number of defaulted mortgages, reestablishing confidence in mortgage securities,—thus making possible a resurgence of new home construction. Reconditioning was necessary in 316,000 HOLC cases, $60,779,000 worth of repair, replacement and modernization. Although most of such repairs were done without full architectural service, architects were in the picture as inspectors, and owners and mortgage holders were, in many cases, first made conscious of the architect through such contacts.

NEW STANDARDS OF HOME FINANCE

To prevent new mortgages from going sour by changing their kind, rather than rescuing old ones, FHA is the sponsor of a rational insured-amortized loan system, eliminating second mortgages, renewal fees and all that. FHA also sponsored the "Modernize Main Street" program (which brought work to architects) by insuring 600,000 modernization and repair notes to the extent of 234 million dollars by December 9, 1935; it had selected for appraisal over 62,000 new home mortgages having a value of 240 million.

More important to the architect were the standards FHA set for properties to be eligible for insurance of loans. These definitely showed the public, the banks and lending institutions, the advisability of architectural service. FHA publicity and standards have done architecture a lasting good aside from the encouragement of new building although architectural services, for either modernization or new construction, are not requisite for FHA insurance. However, designs so conceived have inevitably found more favor and have a better chance of acceptance. Throughout all its pub-



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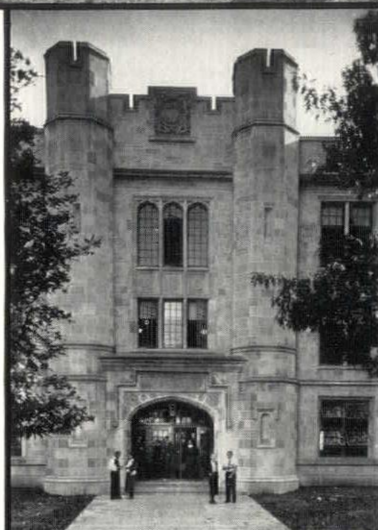
P. W. A. Educational buildings . . . 6. One of 13 schools built at Fort Worth, Texas. 7. Library, University of Arkansas, Fayetteville. 8. Chemistry building, University of Arkansas. 9. Dormitory, State Teachers College, Harrisonburg, Va. 10. School of Medicine, University of Arkansas, Fayetteville



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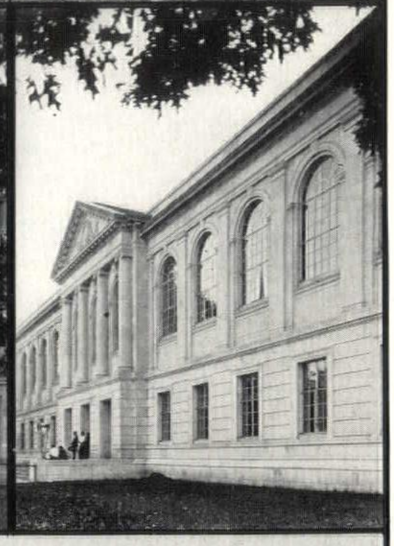

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licity, FHA has constantly stressed the importance of the architect. And this publicity has reached those of importance in the future building picture, bankers, realtors and industrial leaders who were investigating modernization of plants and equipment. From a long time point of view this service rendered to the profession should prove of immeasurable value.

Like PWA, FHA has gone into the low-cost housing field. But here, such construction is made possible by FHA's insured mortgage function, in which private capital is used rather than a government grant as in PWA. The government has nothing to say about the designing architects. Because of this mortgage insurance function many architects are carrying on work which otherwise would not be attempted. Mortgages totalling some 27 million had been accepted on fifteen low-cost housing projects.

In the Washington headquarters of FHA twelve potent executives are architects. There are about 60 field offices and each office has at least one architect and one appraiser. In more than half of the cases, the appraiser is also an architect, and thus, another 100 architects are found on the government payroll.

RESETTLEMENT

Architects have been called in to aid the government in the redistribution of "stranded populations," to create communities where people may live near work. The Resettlement Administration, established in April, 1935, had, as one of its first duties, to complete the unfinished Subsistence Homestead projects. The Rural Resettlement Division executives are proceeding to evolve a program and organization that bids fair to become a very important part of government housing activities. On December 10th announcement

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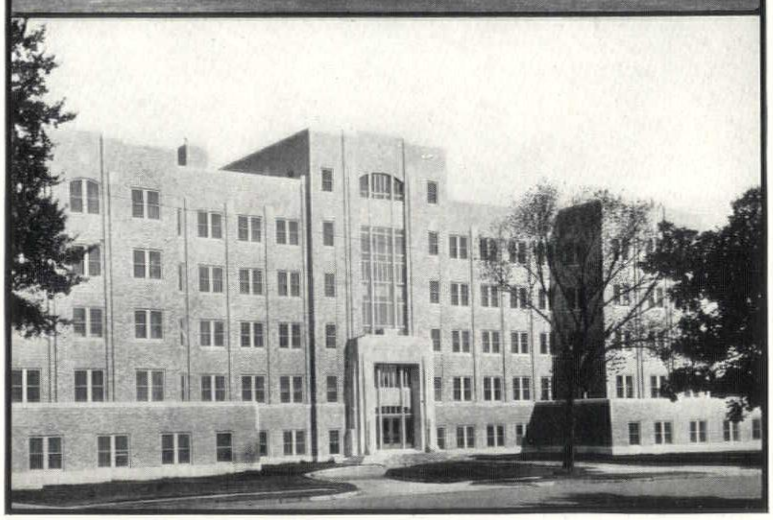

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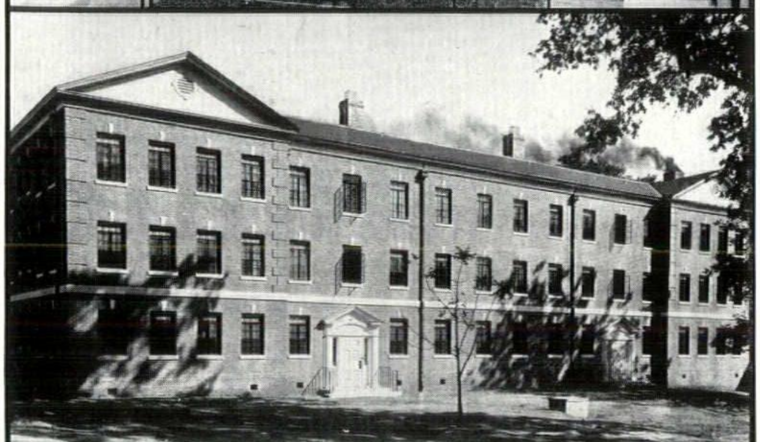

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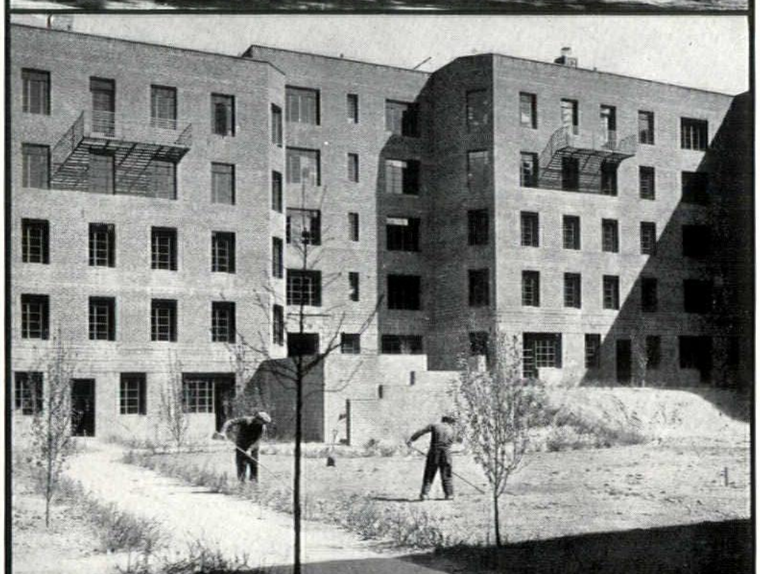

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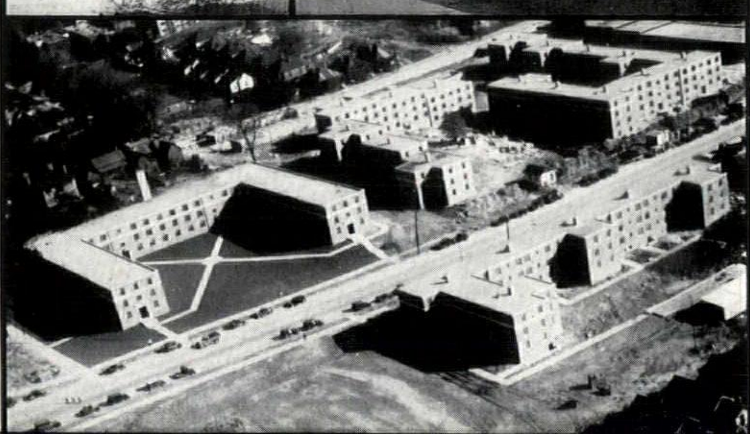

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was made that 50 projects costing approximately $50,000,000 had received approval of the Comptroller General. Thirty more are well along in the stage of drafting of plans, and with the allotting of cash for these newly approved projects and any of those in the planning stage, a further increase in the architectural personnel might be expected.

Whereas, PWA has confined most of its efforts within city limits or for dwellings only, the Resettlement Administration, in its Suburban Resettlement Division, plans complete communities outside of congested city areas. These are located so as to produce low-cost housing for industrial workers in the surrounding territory. Built entirely by government money, but title being invested in some public Housing Authority, these structures would consequently be able to pay their share of local taxes. The group of architects and planners found at this Resettlement headquarters are men with wide experience in community planning and low-cost housing. Younger architects who have devoted the past few years to an intensive study of just such problems as those being tackled here, are working for the Division, many from New York's Housing Study Guild.

To use the $31,000,000 which has been allotted to suburban Resettlement, about 150 architects are at work designing and producing drawings for the four projects which are in various stages of progress. Berwyn, Maryland was the first to get underway, and since then Bound Brook, N. J., Cincinnati and Milwaukee have followed.

RELIEF MEASURES

With emphasis on providing subsistence for the unemployed rather than employment on needed Public Works three agencies of the Federal Government have been operated, the first was the Civil Works Administration established in November, 1933, with 400 million dollars (demobilized in March, 1934). Among CWA projects which benefited the architectural profession, the Real Property Inventory stands out. Other projects, local, have contributed much in research related to housing, population, living and traffic conditions and various basic studies in city planning and construction. On the other hand, some municipalities proceeded with public works projects involving buildings. CWA workers were engaged at relief wages in designing buildings on which private architects and engineers should have been employed. This type of "chiseling," to get work done at distress wages, caused the whole building industry to raise its voice in protest.

FERA continuing the relief work of CWA had time to choose its projects more definitely from those which would not compete with private industry and which would not have been undertaken at all if relief funds had not been available. On May 6, 1935, the Works Progress Administration (WPA) was established to move men from relief rolls to employment on Public Works. WPA last fall got the bulk of $4,800,000,000 relief funds which PWA hoped to put to

P. W. A. Housing projects . . . 1. Atlanta University, Atlanta, Ga. 2. The Juniata project, Philadelphia. 3. Boylan Realty Co., housing development, Raleigh, N. C. 4. Hillside, a limited dividend housing project in the Bronx, New York City. 5. Techwood housing, Atlanta, Ga.

work on projects of permanent value, work which would have meant architectural commissions and the employment of established contractors. Instead, projects that would put the most men to work in the shortest possible time were selected by WPA, and PWA's waiting-list of worthy construction projects is still waiting. Instead of architects and draftsmen resuming more normal procedure through work in private offices, they must stay on in relief work under WPA until the current upswing in residential building and other construction carries them back into their old offices, or the new ones which they can create.

The relief agencies have not been an unmixed blessing. While they have prevented starvation, they have also run counter to the resumption of normal private practice and have cheapened professional services in the eyes of almost all city governments.

OF THE NET RESULT

It is still too early to make unqualified statements as to the total effect of the programs and policies of the emergency agencies of government. Specific benefits or detrimental actions have been mentioned under the accounts of the various agencies. Movements to correlate all government building activity under one department are being attempted, yet at the same time separate autonomous agencies are being created. In the permanent government departments, minor architectural work will probably be done by the bureaus, major work by private architects. In housing, the trend is toward more power for local Housing Authorities with governmental technical assistance. Housing has become one of the major politico-economic questions of the times and one in which architects have played, and are playing, a leading role, in bringing it to the front, in crystallizing its problems, in progressing toward solutions. The efficient working out of housing problems seems to require architects employed in a central bureau and in local authorities as well as architects in private practice. Such problems as those of Resettlement seem best solved by architects in government employ where they can work directly at every step, with economists, sociologists, statisticians, management groups and other experts. Such facilities could hardly be available in private practice.

The conflict between professional prerogatives and relief agencies are temporary and will, it is assumed, pass with the emergency. The detrimental cheapening of the professions by such agencies will require renewed effort to effect a better status for architects. The trend will be to release professional men from relief as quickly as private practice can absorb them. In the meantime, relief agencies have meant life itself to thousands formerly engaged in the private practice of architecture. Public Works will, in all probability, continue to be designed by architects in private practice. There remains the task of making the terms more satisfactory to the profession, and more efficiently expeditious.

P. W. A. Housing projects . . . . Jane Addams Houses, Chicago. 7. Langston Terrace, Washington, D. C. 8. Cedar Central, Cleveland. 9. Model for West Side slum clearance, Cleveland. 10. Model of the Thurman Street project, Montgomery, Ala. 11. Plot plan, Cedar Central project, Cleveland. 12. Community housing, Indianapolis

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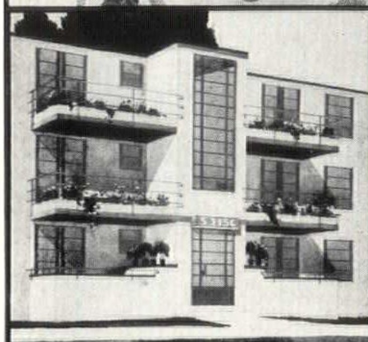

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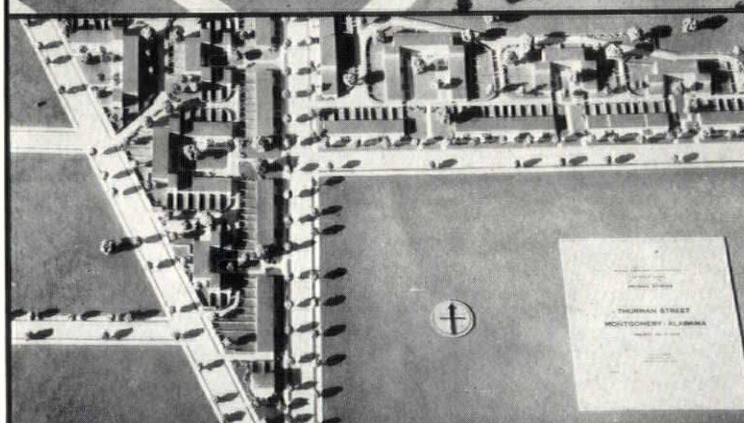

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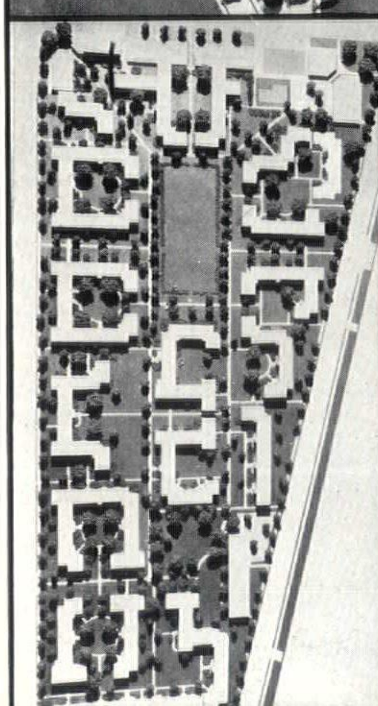

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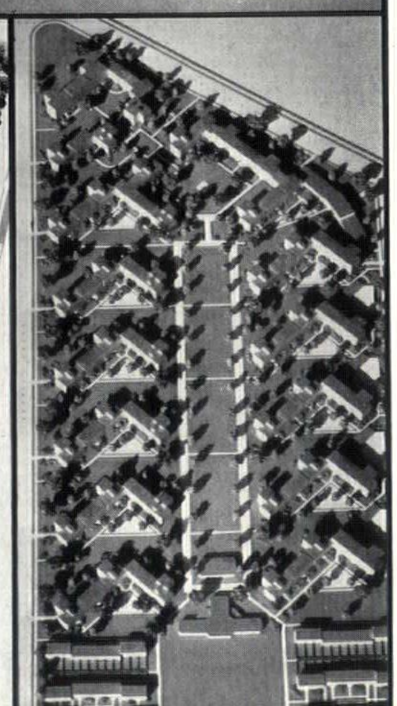

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PAGES FROM 60

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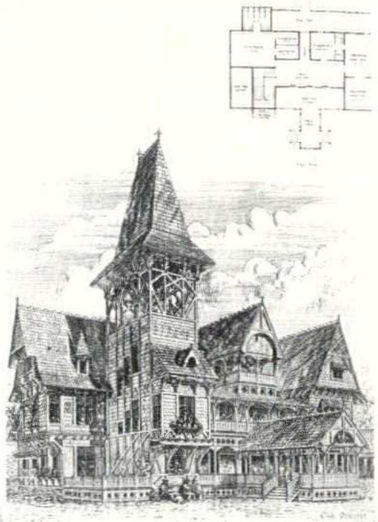


1876 New Jersey Headquarters, Centennial International Exhibition
Carl Pfeiffer, Architect

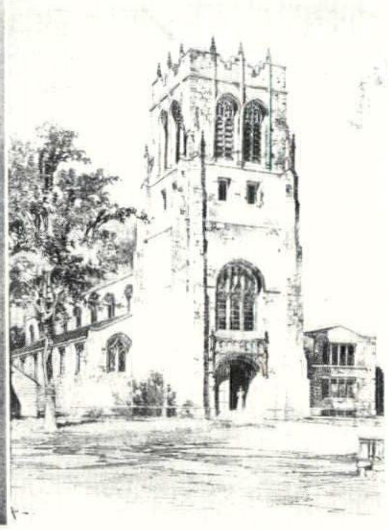
1886 House of W. K. Vanderbilt, New York
R. M. Hunt, Architect

Private Architects for Federal Buildings

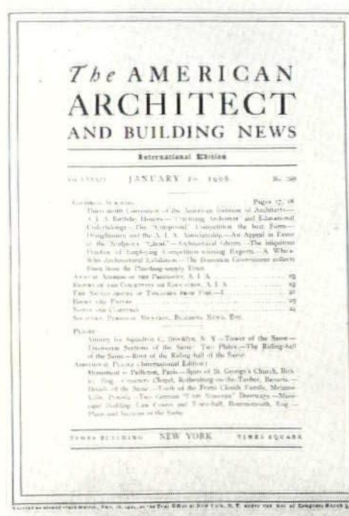
"The most important topic brought up at the A. I. A. Convention was the bill to establish a Bureau of Architecture, laid before the convention by the Board of Trustees, with reference to its presentation at the next Congress. It proposed the creation of a Bureau under the direction of a 'Government Architect,' so called, with a suitable working-staff; and its salient provisions—for selecting architects for the public buildings by competition, instead of having the designs all made by the architect at Washington, and for letting out the work by contract—were substantially in accordance with the recommendations of the Supervising Architect in his recent annual report to the Secretary of the Treasury." [AMERICAN ARCHITECT, January 1876.]

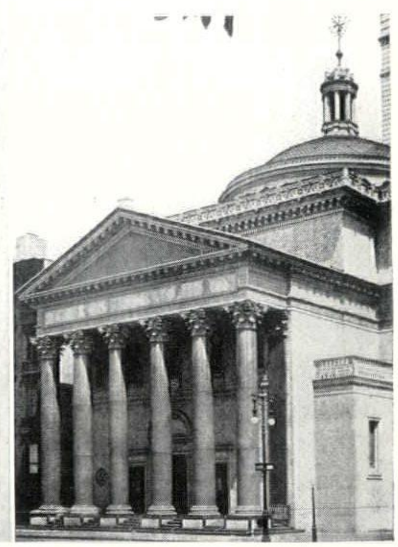
Government Architecture and Government Architects

"The approach of a nation's centennial anniversary not only suggests a review of the work of a century, and an inquiry as to whether our efforts in the various fields of human progress have been well directed or not, but it arouses a spirit of reform based upon past experience. This I conceive to be the spirit with which all well-thinking men and bodies of men are today actuated; and it is especially appropriate that we, as a representative body, [A. I. A] should carefully consider those things which pertain to the future welfare of our country from an architectural point of view. The recent agitation of the question: What is essential to the best progress of government architecture? is in accord-



1896 Goodhue's Drawing of Christ Church, Waltham, Mass.
Cram, Wentworth and Goodhue, Architects





1906 Madison-Square Presbyterian Church, New York
McKim, Mead and White, Architects

YEARS OF ARCHITECTURAL PROGRESS

proper perspective for discussions of today

ance with this spirit. If it is deemed necessary that anything should be done to that end, we shall be called upon, and shall be held responsible, for its solution.

As we read the history of the world in past ages by its monuments, just so surely will ours be read by our monuments. We are prone to think lightly of how we are to be judged by them hereafter, and are too apt to consider the architectural monuments of the present age as transitory in their nature, as most of them are. But though our country is covered with vast numbers of unsubstantial structures, scarcely able to endure for a lifetime, it yet contains many which will live with the greatest monuments of antiquity." [AMERICAN ARCHITECT, March 1876.]

Politics and Public Architecture

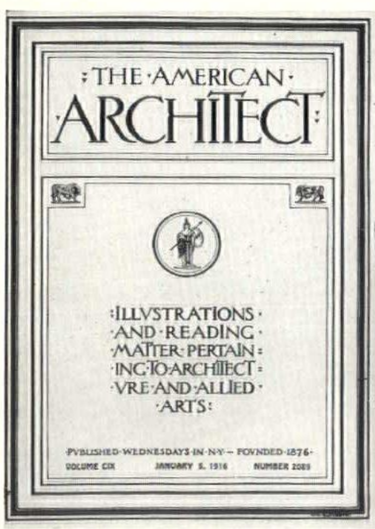
"As we have seen the greatest bane to the progress of all public architecture, national, state, and municipal, has been the creation of non-professional boards and commissions, who are not only incompetent to judge of the matters intrusted to them, but are often knavish and corrupt. Our country is covered with architectural monstrosities which are the result of this system; and it has become a notorious fact, that the greater part of our public buildings are erected from the designs of architects below mediocrity. It behooves the government of a great country to set an example in this respect. It not only has all past experience before it, but has its own painful experience to look to." [AMERICAN ARCHITECT, March 1876.]

Conservative Washington vs. Wild Vulgarity

"Our government architecture has always been somewhat conservative. New fashions have been slow in setting their mark on it. The English classic ran on well into this century. The Greek revival brought us in due time, but somewhat late, the Patent Office and the Treasury Building at Washington, and quite a brood of custom-houses here and there. This conservative tendency is, on the whole, by no means to be deplored. It has given to Washington the one characteristic that makes it outwardly interesting,—the stately and elegant unity of its public buildings; and has made it still, in spite of the wild vulgarity of much of the conspicuous private work there, one of the most interesting towns in the country, instead of probably the ugliest. Although we cannot believe in the fitness of the style adopted for the real uses or true expression of the buildings, still, since it is in possession, we should prefer to have it unbroken rather than lose the effect of artistic unity which they give to the city." [AMERICAN ARCHITECT, July 1876.]

Architects' Proper Place in the Community

"There has been lately a good deal of aspiration and effort to give the profession of architecture its proper place in the American community—or perhaps it is better to say, its deserved consideration, since its proper place can hardly, as yet, be accounted fixed. Architects have grown inventive and enterprising, instead of plodding on in the old paths. But these advantages have brought their attendant difficulties.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VOLUME CIX JANUARY 5, 1916 NUMBER 2089

1916 House of Charles A. Gould, Greenlawn, L. I., N. Y. John Russell Pope, Architect


THE
AMERICAN
ARCHITECT
FOUNDED 1876

OF ALL THE ARTS ARCHITECTURE ALONE HAS KEPT STEP WITH PROGRESS IT HAS MET THE IMPERATIVE DEMANDS OF THE INVENTIVE MASTERS OF THE AGE IT HAS BUILT TO FIT THEIR NEEDS TO THE STRUCTURES CREATED, IT HAS IMPARTED BEAUTY, DIGNITY AND COMPLETE UTILITY. COMMEMORATING A HALF CENTURY OF SERVICE TO THE PROFESSION OF ARCHITECTURE THE PUBLISHERS DEDICATE THIS GOLDEN ANNIVERSARY ISSUE TO THE MEN WHO HAVE GIVEN TO AMERICA ITS LEADERSHIP IN THE ART OF BUILDING

JANUARY FIFTH, 1926

1926 Telephone Building, San Francisco, Calif. J. R. Miller & T. L. Pflueger, A. A. Contin, Associated Architects

Enterprise tends to outrun discipline. We are overwhelmed with the abundance of precedent at our hands, and help ourselves with eagerness from all sides, grasping at new forms, and pressing them into service. For the present this confusion is inevitable; we must be content to accept and acknowledge it. Interchange of ideas and experience, the stimulus of common study and criticism, the contagion of a hearty interest in the same problems, and the advancement of a common object, will be the most powerful influence in giving character and unity to our work, as well as in establishing the taste, and insuring the support, of the public." [AMERICAN ARCHITECT, January 1876.]

Bungling the World's Fair of '76

"The art galleries in the Centennial exhibition are not models of good arrangement; nor can the collection be said to be altogether well selected and representative. Nowhere, indeed, in the whole exhibition, is hasty and inexperinced management more apparent, or the commercial spirit more obtrusive, than in the art department. We might have reasonably expected that this section of the World's Fair would have been conducted in a way to get the utmost possible good out of it; for it is universally conceded, even by the ultra-patriotic, that we have, as a nation, more to learn in art than in any other element of high civilization." [AMERICAN ARCHITECT, July 1876.]

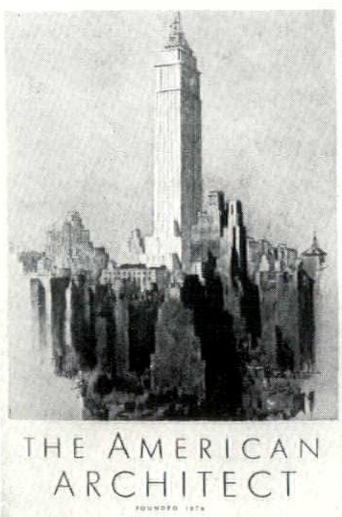
Slums Dangerous Nests of Vice

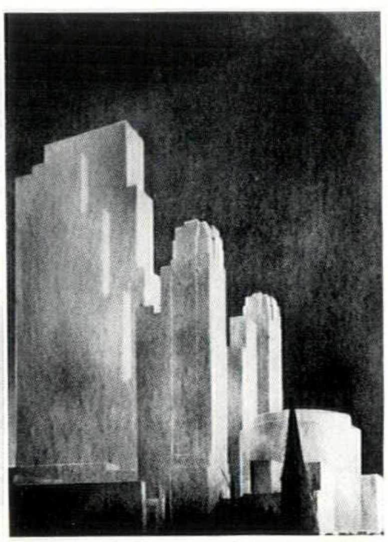
"Some of the architects hint at large projects which they hope to carry out during the coming working season; but it seems that business men and corporations are in no haste to put their capital into fine buildings. The city [New York] is now suffering under high taxes, and a falling rent-market discourages anything in the way of speculative building. The low rate at which contracts for labor and material can now be made does not seem to warrant an outlay and everywhere stagnation reigns.

"The building department have been more than usually vigilant in looking after the unsafe buildings; and many notices to repair or take down old rookeries have been served. As there is no final appeal from these orders, in many parts of the city gangs of men are seen getting old frame or brick dwellings, generally small ones, ready for a rebuilding. The city sadly needs such a pruning-out; many of the by-streets being disfigured by rows of dilapidated frame-houses, peopled by the lowest classes, and forming dangerous nests of vice. In many cases of these enforced improvements, the new buildings are architecturally of little more merit than those destroyed. Beyond being stronger and cleaner, they are but little better." [AMERICAN ARCHITECT, April 1876.]

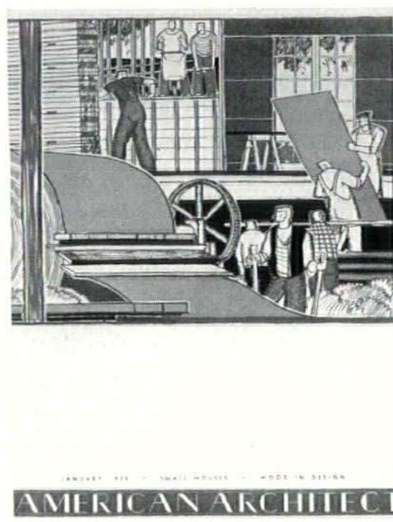
Uncivilized Fee-chiselers in 1876

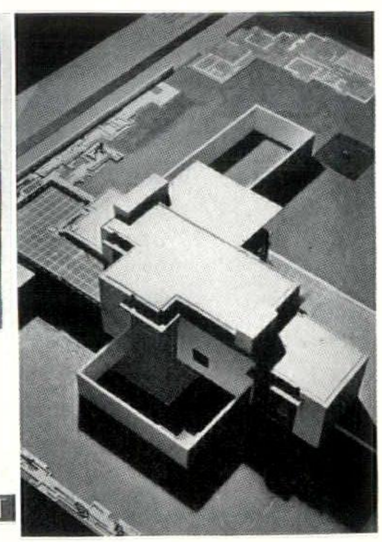
"A correspondent takes issue with us for our disapproval, expressed in a former number, of the practice of architects who regularly work for less than the established commissions. . . . The first advantage of all social union, and civil government even, is that they relieve the individual from the necessity of self-protection. This is the essential difference between a civilized and an uncivilized community; and the usages of the various professions in their charges are illustrations of it in a small way. Not only does the combined experience of the community settle the rate of compensation more fairly than that of an individual is likely to do, but the usage so established is a most essential safeguard; and to abandon it is to expose the practitioner to the necessity of constant self-defence, to the danger of endless disagreement and litigation, and the profession to a condition of discord, underbidding, and rivalry, to which the present state of things is, in comparison, tranquil and concordant. Every class of men has found it to its advantage to have a fixed rule of payment; banks have their discount-rates, dealers their market-prices, professional men their fees; and, in every class, the most respected men have been the most systematic in their adherence to it." [AMERICAN ARCHITECT, February 1876.]





1931 Study for Rockefeller Center, New York
Reinhard & Hofmeister; Corbett, Harrison & MacMurray; Raymond Hood, Godley & Fouilhoux, Architects





1935 Model of House for "Broadacre City" wherein "form ana function are one". Frank Lloyd Wright, Architect

PHOTOS: BY FRED R. DAPPRICH

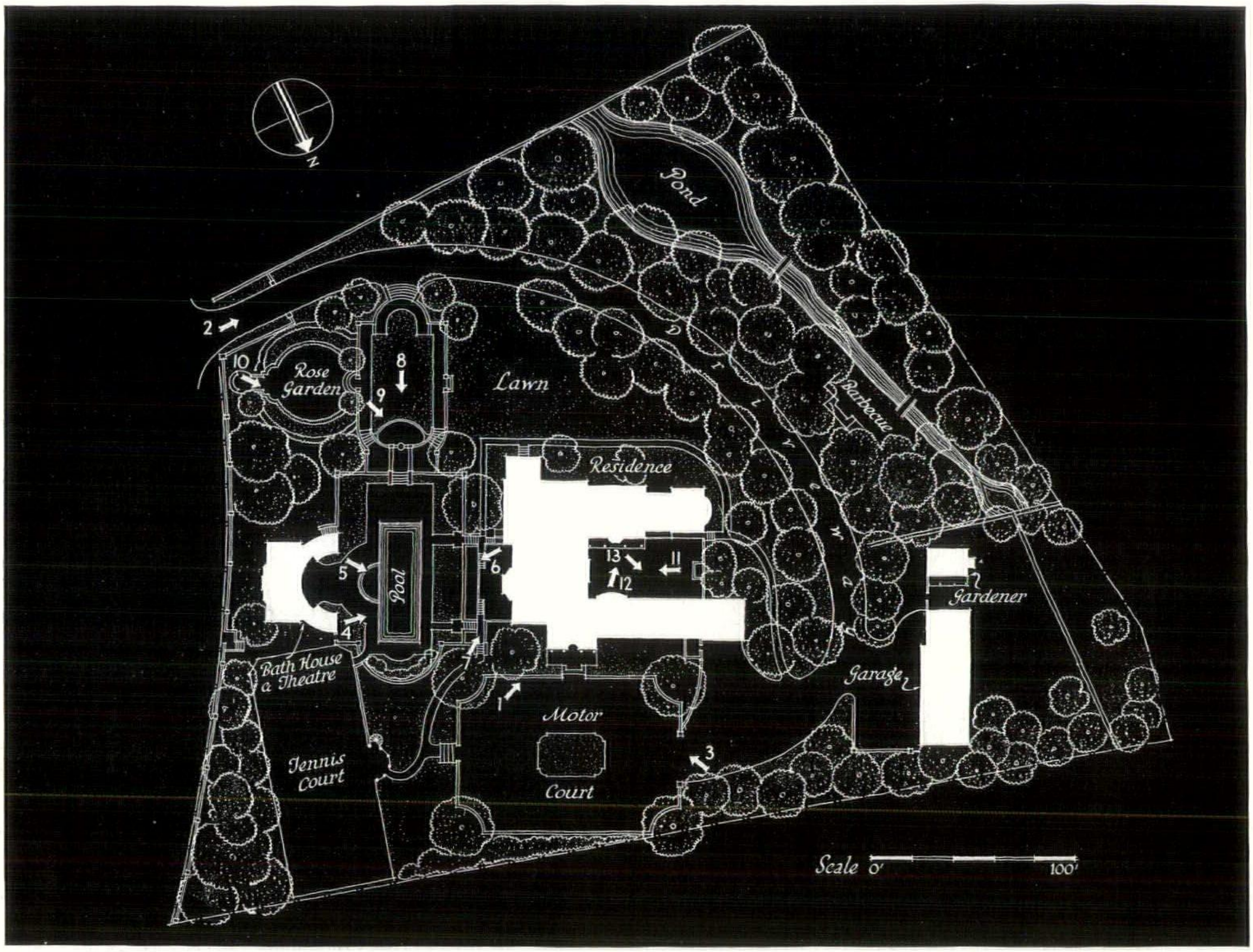
1

HOUSE OF WILLIAM POWELL, BEVERLY HILLS, CALIFORNIA

JAMES E. DOLENA, ARCHITECT

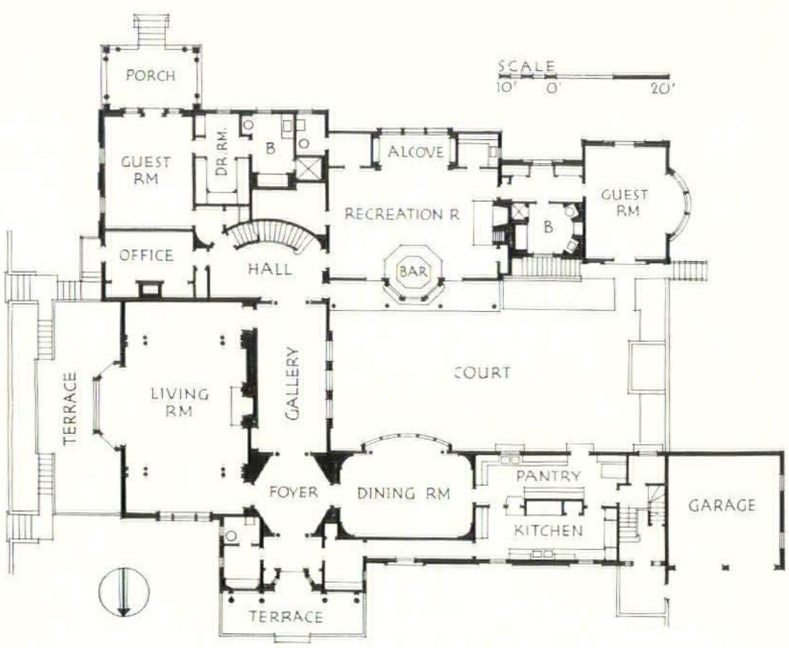
The William Powell estate of three and a half acres commands a fine view of Beverly Hills, Hollywood and Los Angeles. The buildings are all of a modern Georgian style designed with restraint, dignity and scrupulous attention to detail. The house is planned for outdoor living—to take advantage of the California sunshine for recreation and entertaining. A well-organized arrangement of space produces a happy relation between indoor and outdoor living and separates the service in one wing. The U-shaped plan with its open court makes it possible for all rooms to receive ample light and air from at least two sides. Mr. Powell's suite has a main sitting room, built-in bar, a sleeping porch and a large dressing room and bath. A second suite consists of a sitting room, boudoir, bath, dressing room and bedroom.

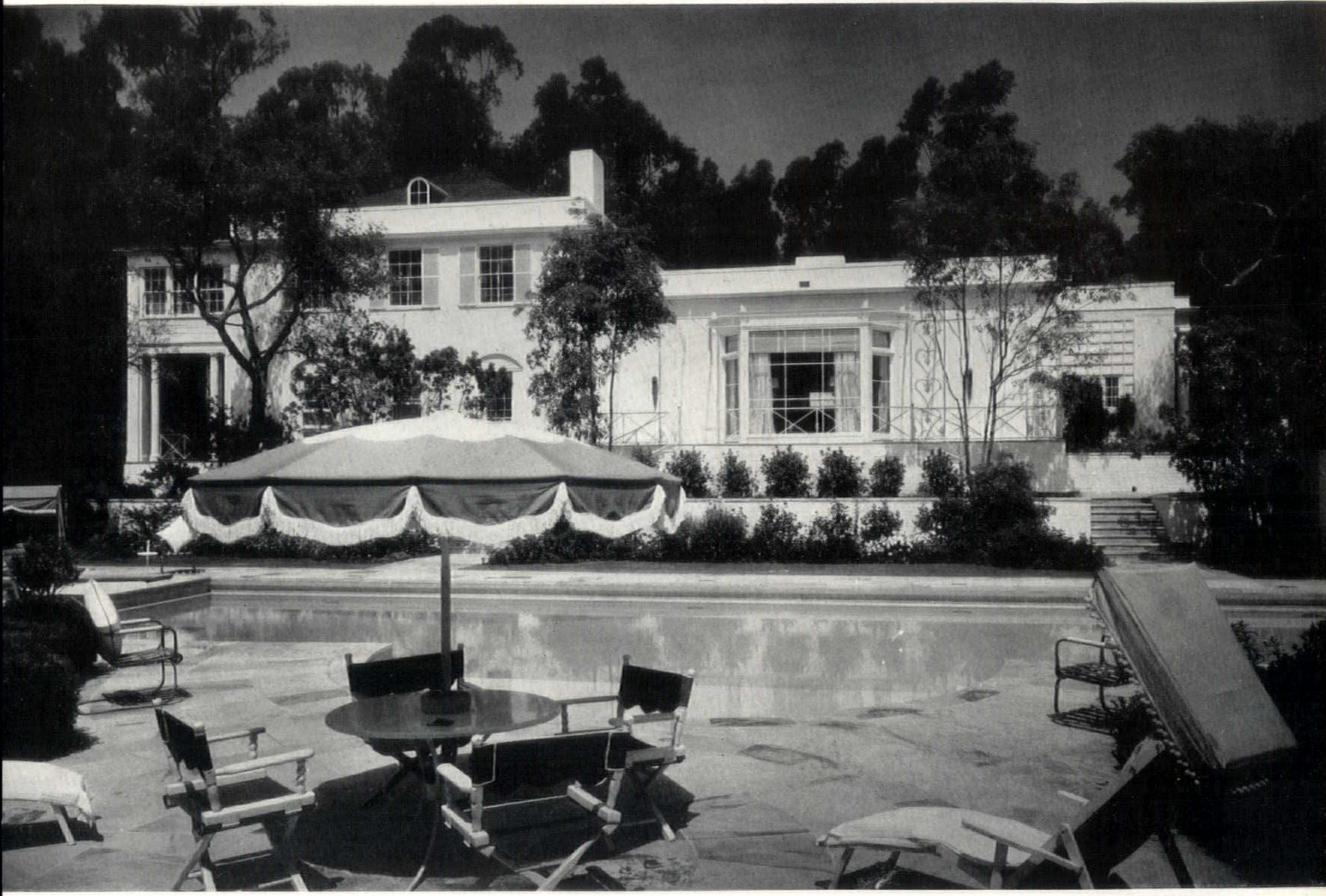
The theatre building, illustrated on page 30, serves a dual purpose of theatre and bath house; the dressing rooms are in the wings at right and left with outside entrances to both. The theatre's motion picture projection machine is in the north end of the room where a platform with seating capacity for 35 people can be raised electrically. In the opposite end of the room, the picture screen can be lowered from the ceiling automatically. When the room is not in use as a theatre, it serves as a recreation room, close to the pool, with its own bar and service room. The hardwood floor has been left uncarpeted for dancing. A radio loud speaker is built in the walls of the theatre. All exterior walls, of all buildings in the group, are plastered over insulated wood-stud frame. All of the exterior plastered surface, millwork, iron and shutters are painted white. Benjamin Morton Purdy was the landscape architect for the estate.



The numbered arrows on the plan above indicate the location and direction of the camera for the photographs correspondingly numbered

2 The Entrance Gates





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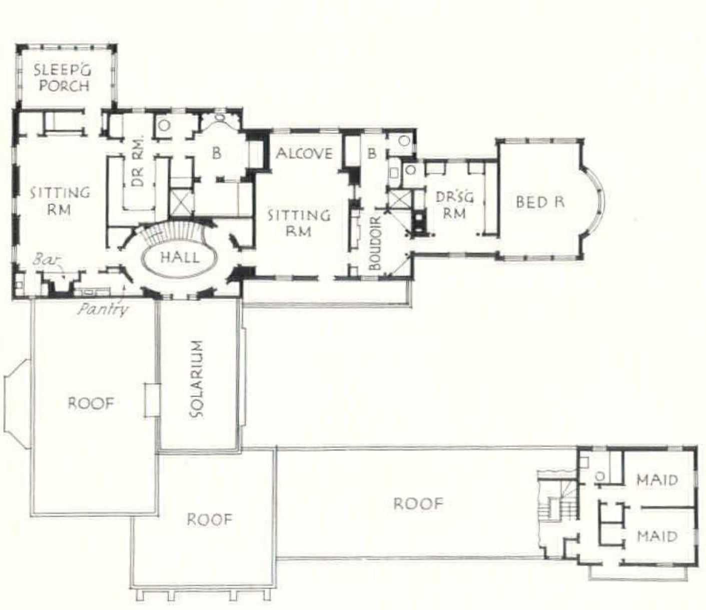
The East Side of the House Looking Across Swimming Pool



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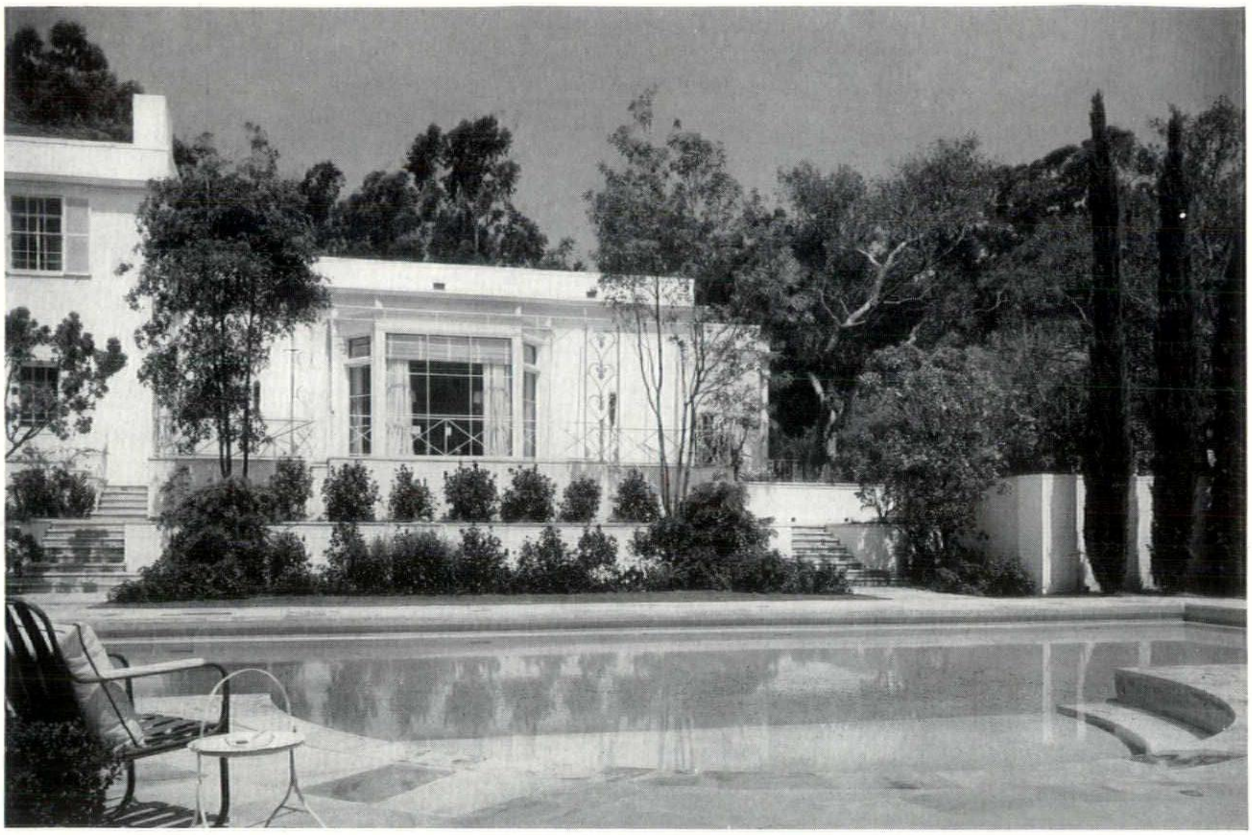
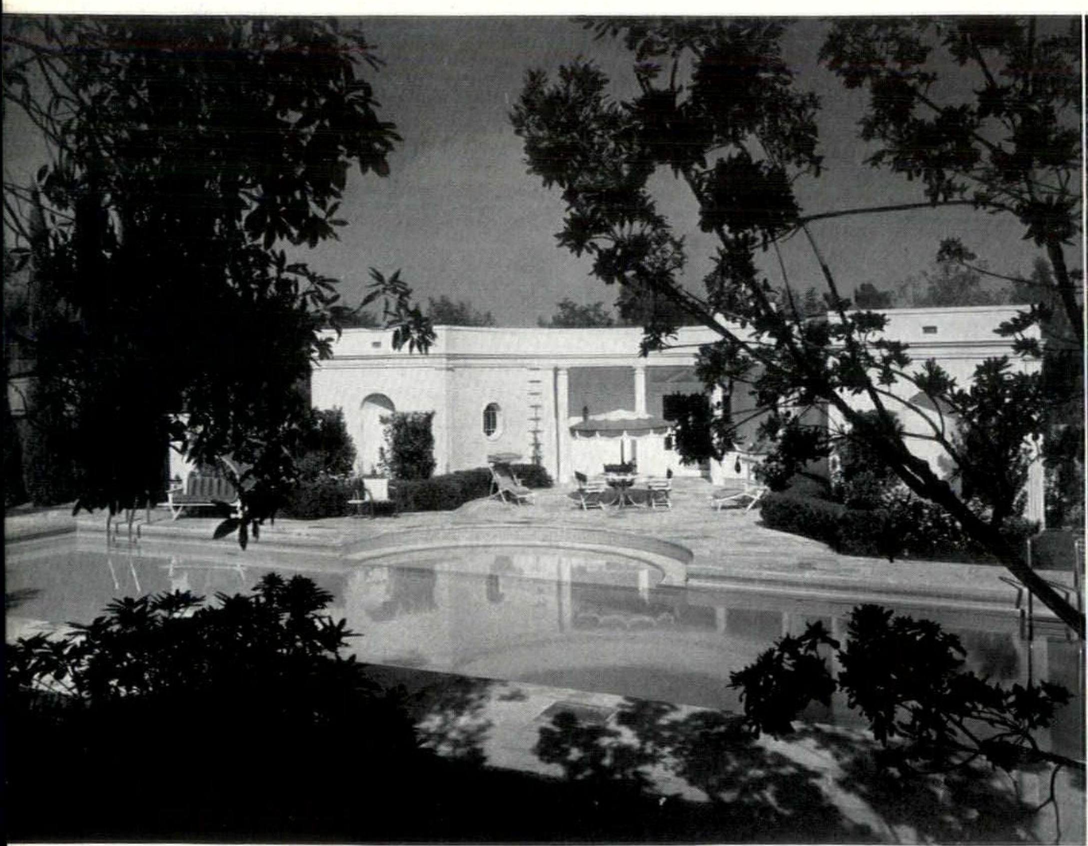
Entrance from Motor Court

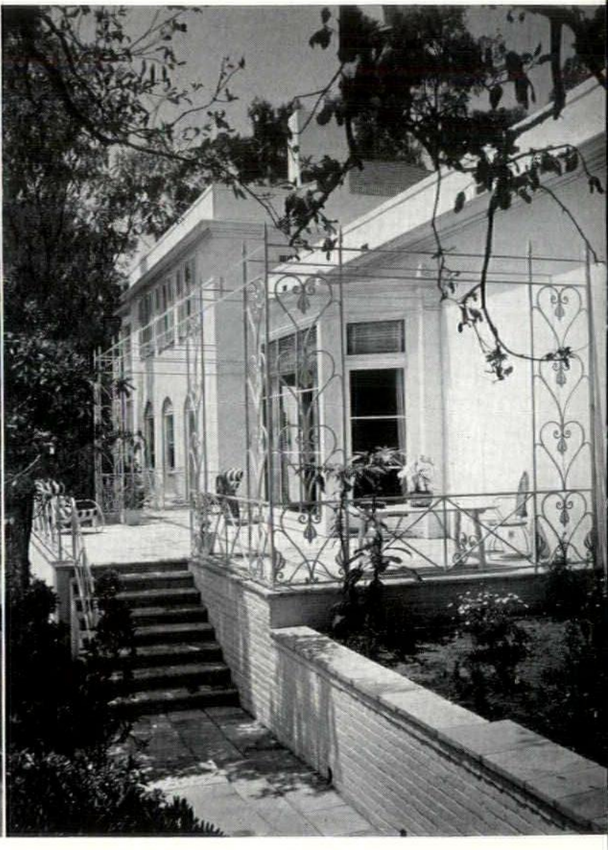


5 Living Room Bay Window Overlooking Pool

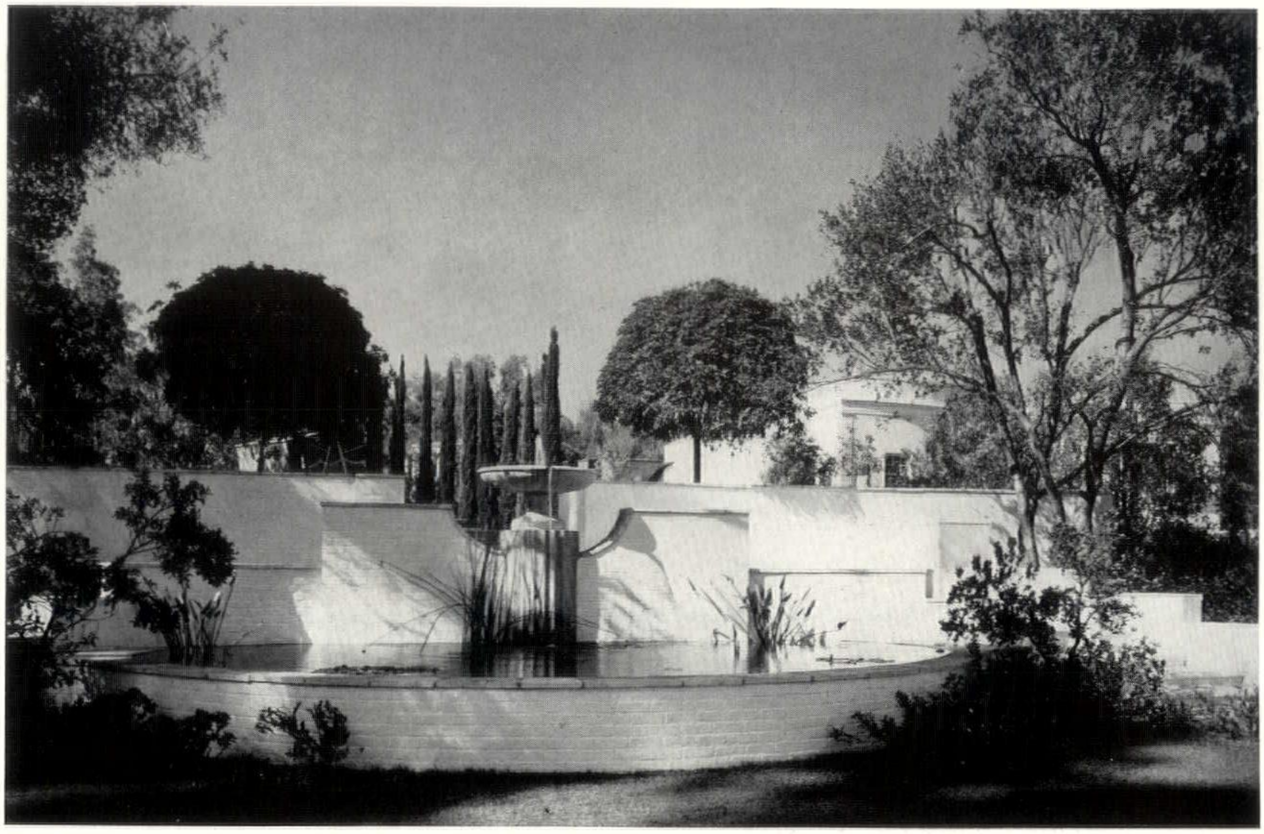
HOUSE OF WILLIAM POWELL, BEVERLY HILLS, CALIFORN



6 The Bath House and Theatre



7 Detail Along East Terr



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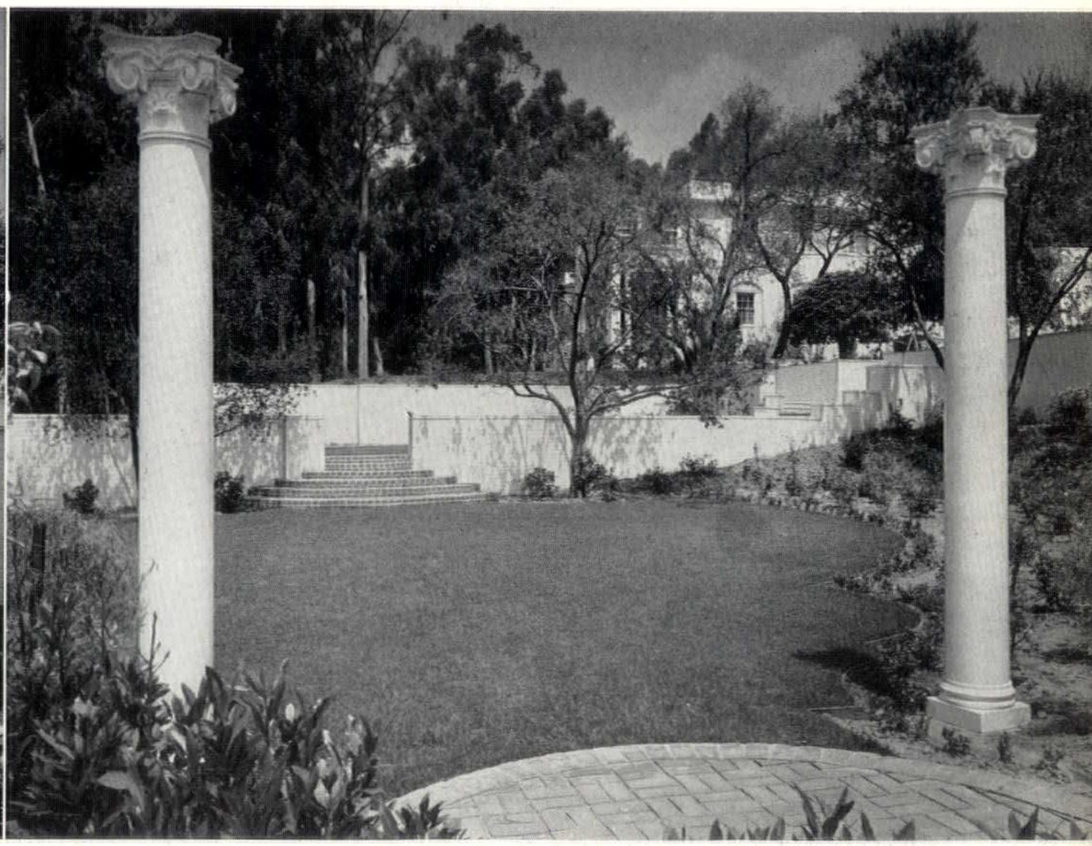
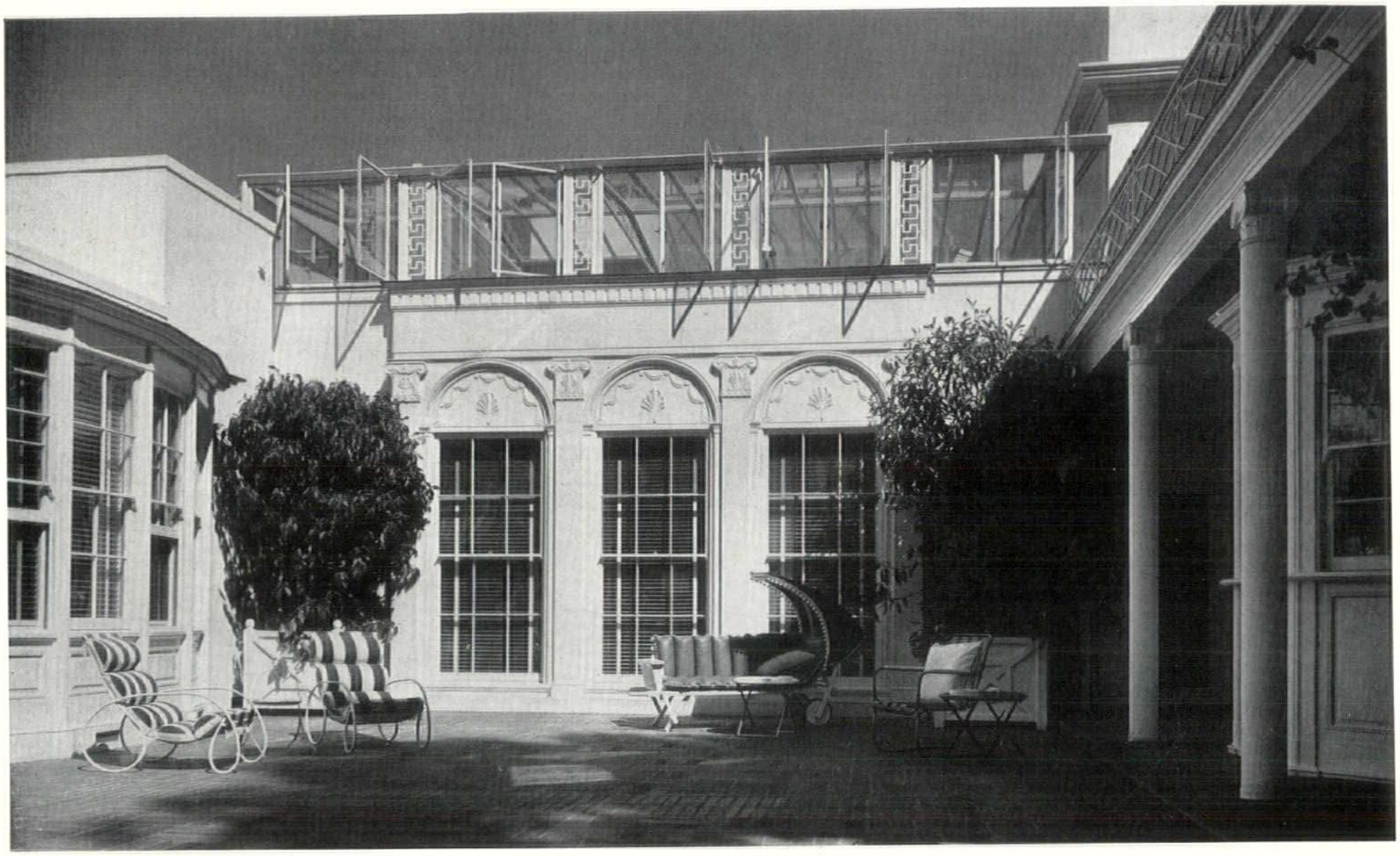
The Sunken Garden, Fountain and Lily Pool

JAMES E. DOLENA, ARCHITECT

9 Fountain in Sunken Garden

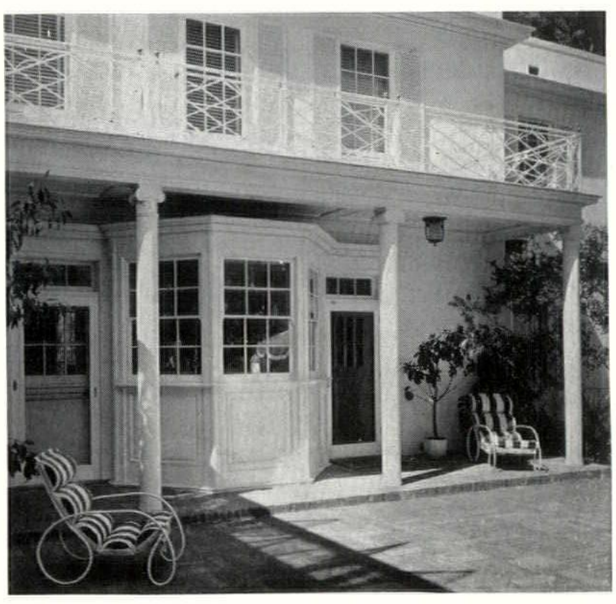


10 The House As Seen from the Circle Garden



11 The Court Showing Triple Windows of Gallery and the Second Floor Solarium

HOUSE OF WILLIAM POWELL
JAMES E. DOLENA, ARCHITECT



12 Bar Bay in Court

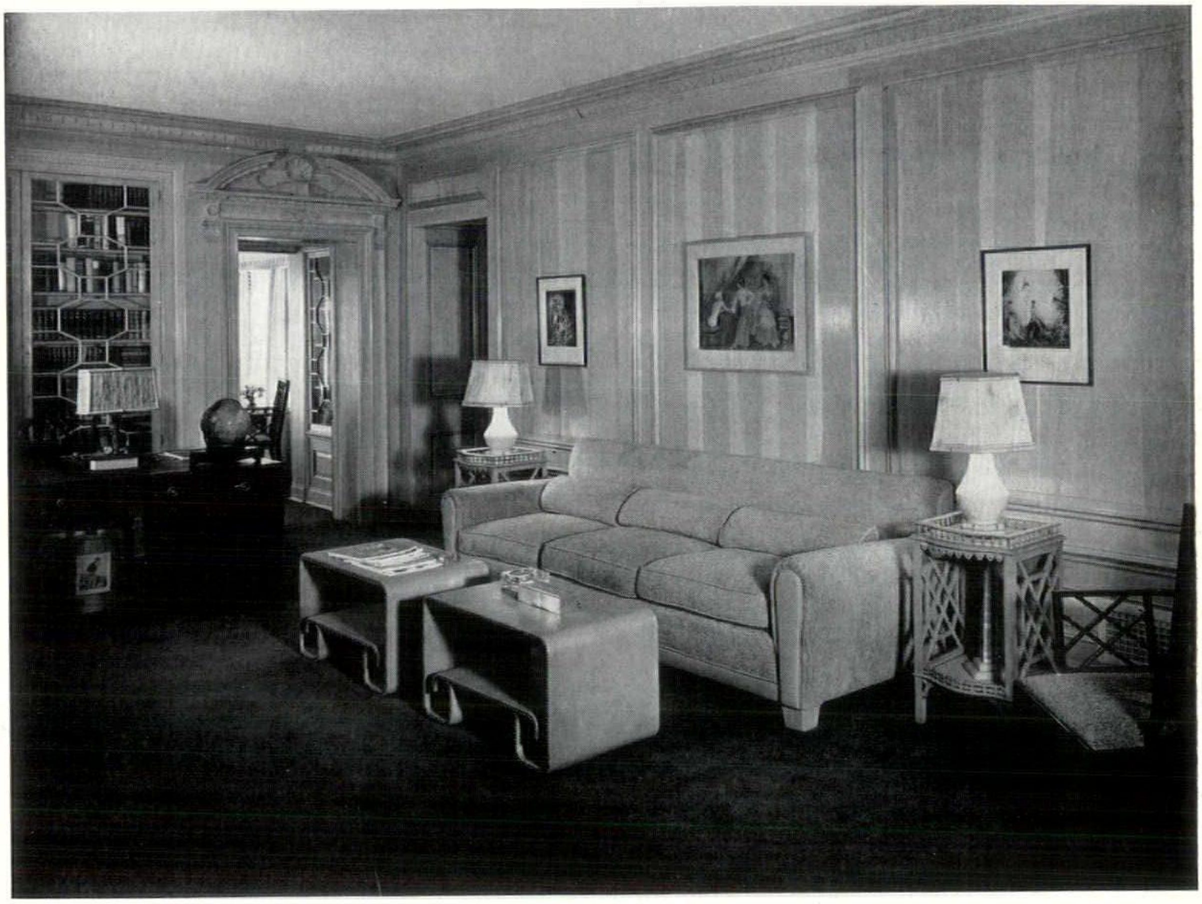
13 Entrance to Serving Pantry from Court

Mantel and Fireplace in Living Room

The Sweeping Oval Staircase

Living Room Bay Window

The mantel facing of the living room fireplace is of white marble. The living room is finished in white Lavan wood with natural rubbed finish. . . The stair rail is done in pewter and the woodwork and walls of the hall are painted



The second floor sitting room is paneled in Idaho pine with a natural rubbed finish. The ceiling is plaster

The walls and ceiling of the recreation room are old pine boards in natural finish. The fireplace facing is of imported Dutch Colonial tile, and the hearth is of stone

THE THREE PERSISTENT PROBLEMS

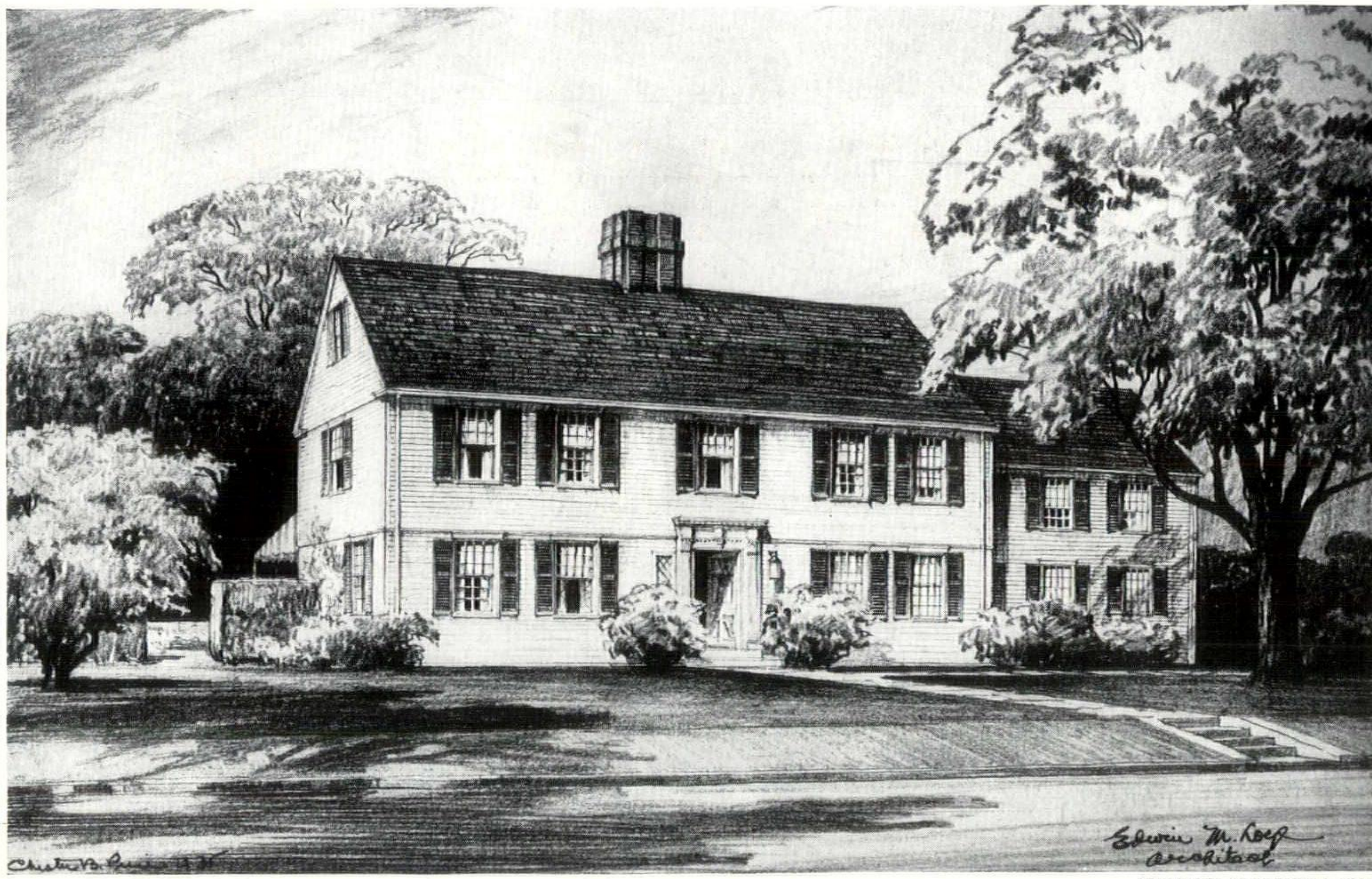
WE FACE the same three persistent problems today that occupied the thoughts of the architect of sixty years ago. As we look back through the pages of architectural history as recorded in the oldest professional magazine, AMERICAN ARCHITECT, we are struck by the constant recurrence of the same professional problems. We are prone to think of them as new to each generation, but they were paramount in the architectural mind of 1876. They are, first, the unity of the architectural profession; second, recognition and a proper place-in-the-sun for the architect; and third, an effective operating arrangement with governments, national and local.

• The unity of architects has been achieved to a large extent through the professional organizations. The plans adopted by the A. I. A. at the last convention should bring about still greater cohesion through the affiliation of local and national groups.

• Recognition of the architect, as envisioned by the profession sixty years ago, is largely accomplished, for all major buildings and a large percentage of minor structures are not now considered possible without architectural participation. In many states, the registration laws make architectural services mandatory. Architecture's "increasing service to society" is recognized if Society is spelled with a capital S,—but architects are now awakening to their opportunities for public service, to their potentialities as leaders in the creation of organically functioning communities, as creators of buildings and groups of buildings that are conducive to a fuller life. The development of environments that serve all the activities of all the people, working, playing, living, is a proper function of the architect. This responsibility, in contrast to that of merely producing single buildings for individual lot-owners, demands so much more of the profession that a re-examination of its abilities, education, practices and relationships with its collaborators is in order, even to a redefining of the architect's particular functions in what must be a better coördinated enterprise. A re-orientation is necessary in the thinking of every architect if the profession is to render to society the service for which it is theoretically fitted.

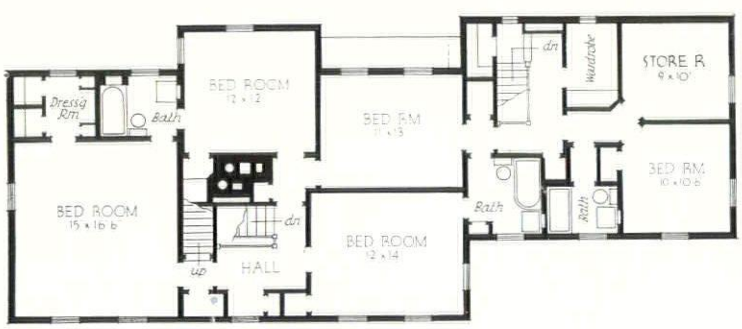
• The relationship of architecture to governmental activity is now of greater importance than that of 60 years ago when it was largely a question of how the government should hand out its building commissions. The problem involves a proper relationship with governmental programs for social progress, not just post offices, courthouses or fire stations, but the programs for planning and re-planning of cities and regions,—of providing fit living conditions through slum-elimination and housing,—of providing educational, recreational and cultural facilities. As these matters become of greater public and political interest, and governmental agencies are created or expanded, the danger of bureaucracies looms large,—bureaucracy that eventually means mediocrity.

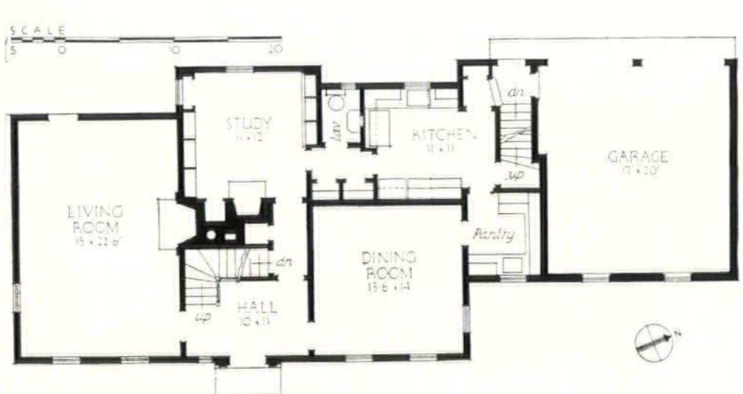
• Now, if ever, unity is needed in the profession to insist that its members can best serve the public in the capacity of private practitioners, as firms or groups, acting as consultants and as creators and controllers of projects, serving the government with adequate commissions, not as bureau employees. To gain the recognition of governments, national and local, and to do so with the backing of the construction industry, will be possible only in the measure that architects can prove their fitness for the tasks. "The scepter falls to the hand that can wield it."



RENDERING BY CHESTER B. PRICE

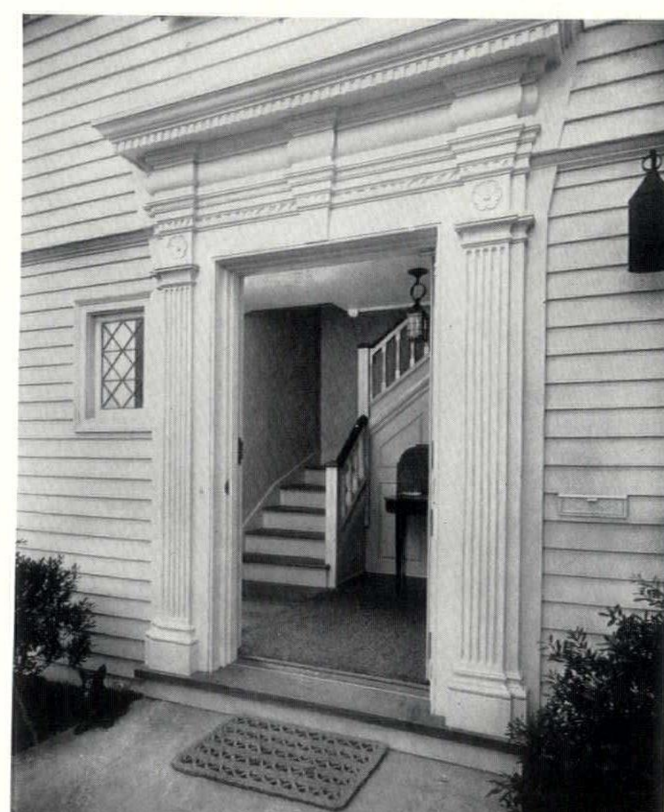
HOUSE OF R. A. MAC DONALD
SCARSDALE, NEW YORK
EDWIN MAXWELL LOYE, ARCHITECT



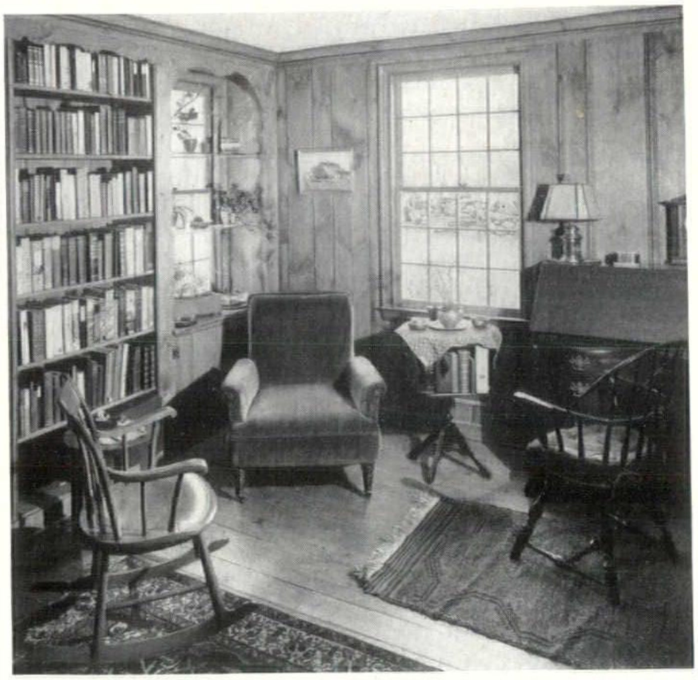


Comparison of the photograph of the finished house with the rendering made from the architect's drawings shows the accuracy possible in the visual presentation for the client

PHOTOS: BY JOHN GASS



This house was designed for a New England family of four, which was enthusiastic about this type of Connecticut architecture. It has characteristic, narrow 4½ inch clapboards, and slight overhang projections at the second floor and at the gables. Typical enrichment of the entrance is in contrast to the studied simplicity elsewhere. The stair, as seen through the entrance door, at the right, with its short balusters and early type closed stringers and paneling is in character with the exterior. The glazed door from living room and the windows of the study look out onto a flag terrace and to a hedge-enclosed garden beyond. Cost of house, built 1935, $18,600 (cubage 46,000 feet) including the architect's fee



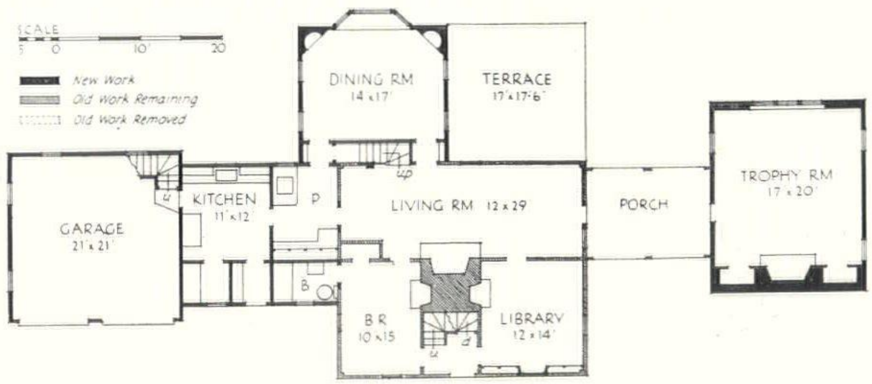
PHOTOS: BY JOHN GASS

The fireplace paneling and rail line in the living room, shown below, are derived from New England prototypes. The floor is random-width planks with pegs and butterflies. . . The study, shown at left, is finished in golden knotty pine. A four-drawer steel letter file is housed in the chimney, in the space between the living room and study fireplaces, and is concealed by a secret door in the pine paneling. The wardrobe room in the second floor service wing provides hanging, drawer, and cupboard space for summer storage when owners are away. Provision for two rooms and bath are provided in the attic space

PHOTOS: BY GLASGOW

HOUSE OF R. A. MURDOCK
WESTON, CONNECTICUT

COGGINS AND HEDLANDER, ARCHITECTS



An interesting and practical development of space arrangement is shown in the plans of this remodeled and enlarged Colonial farmhouse. The original plan was of the usual economical, almost square, box-like type. The wings at either side are in keeping with the traditional plan of many early New England houses. The simplicity of the exterior design of the old house has been maintained in the additions

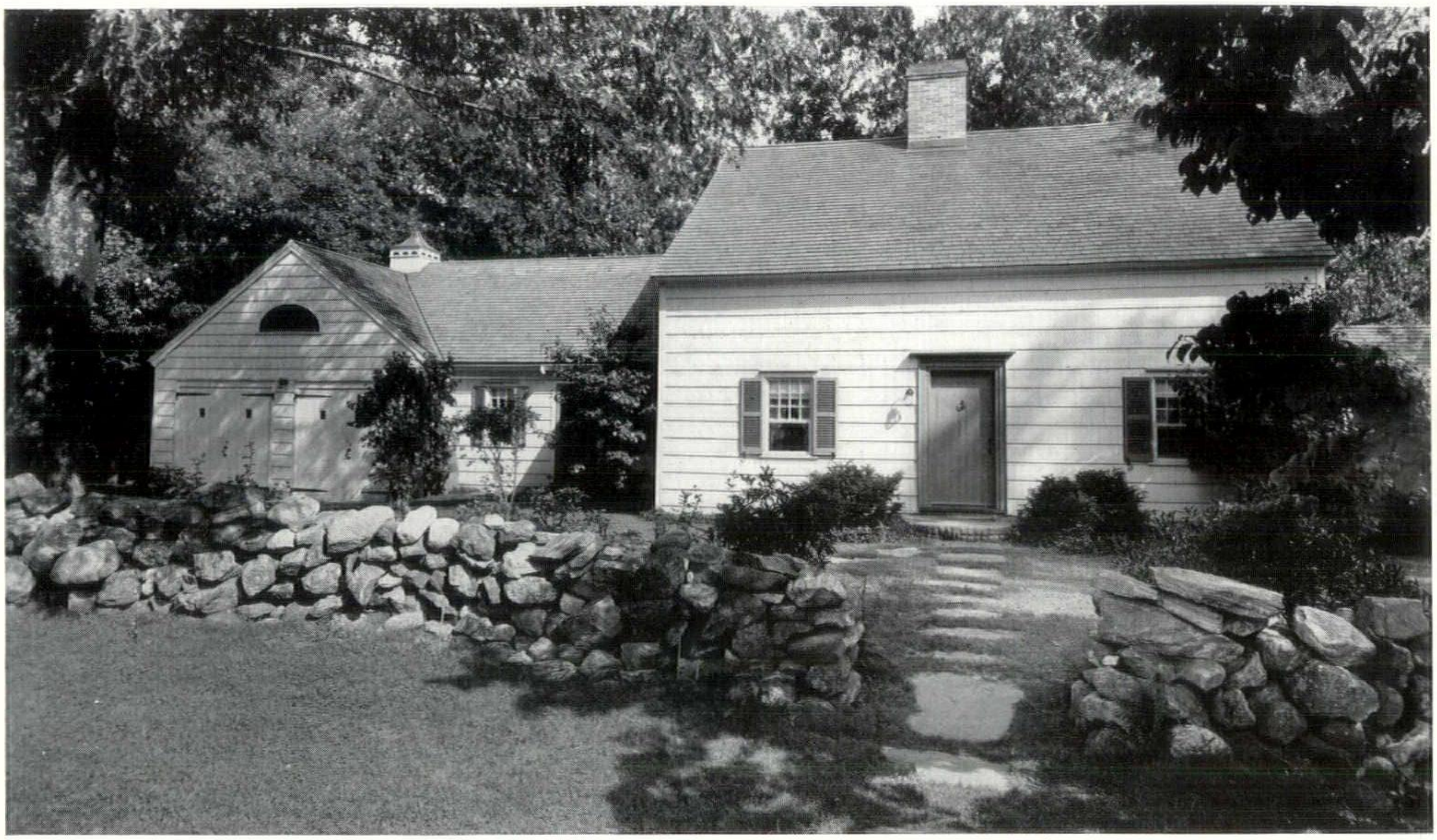
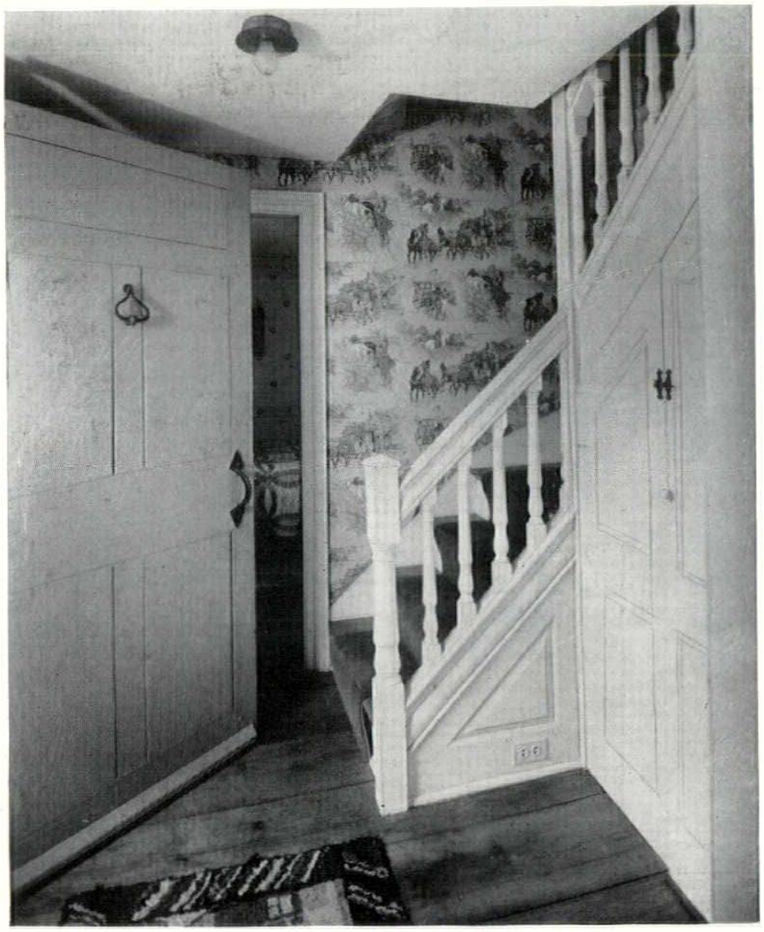


PHOTO: BY GLASGOW



HOUSE OF R. A. MURDOCK, WESTON, CONNECTICUT

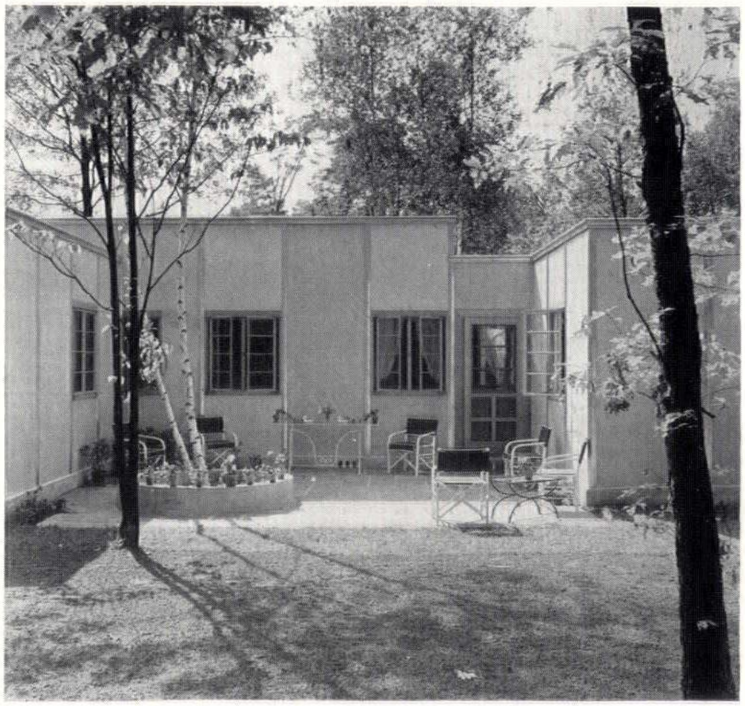
COGGINS AND HEDLANDER, ARCHITECTS

At the left, in the above illustration, is the service portion of the house: garage, kitchen, pantry, and storage room. A stair leads from the kitchen and garage to the maid's room and bath. The entry to the kitchen is from this side of the house. . . . The exterior walls are cedar shingles and flush boarding painted white

PHOTOS: BY SAMUEL H. GOTTSCHO

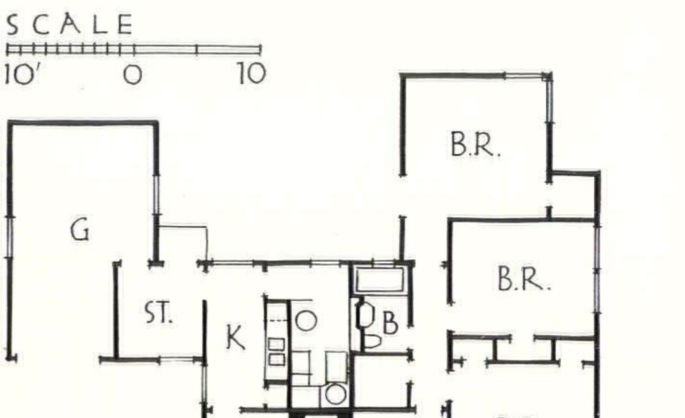
A HOUSE IN CONNECTICUT

HOLDEN, McLAUGHLIN & ASSOCIATES, ARCHITECTS



This small modern house was constructed by the Motohome system of dry fabrication. The structural elements include a rigid steel frame, securely bolted to the foundations, supporting vertical panels integrally insulated. The panels are made of laminations of fireproof and waterproof materials, and need no painting. The exterior color is a soft gray relieved by aluminum alloy battens

The prefabricated interior walls are covered with a non-fading, washable material. The floors are compressed wood-fibre placed over steel reinforced gypsum planks, which are also used to under-surface the roof. Air-conditioning is designed structurally without costly and space-consuming ducts. The living room walls and trim are finished in a subdued green



DESIGNED FOR OUTDOOR LIVING .

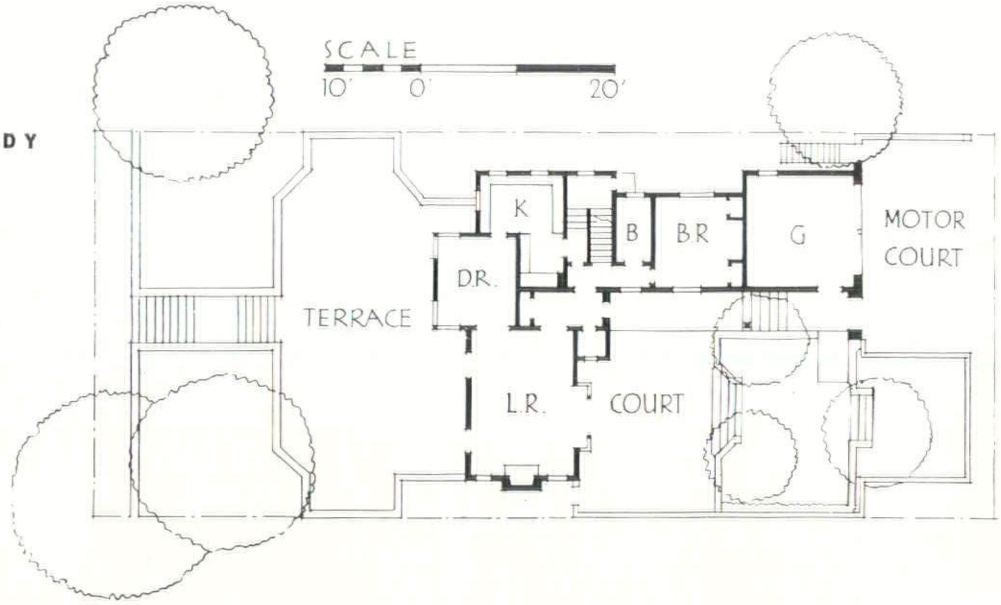
HOUSE OF DR. CAREY SNODDY, VALLEJO, CALIFORNIA. FREDERICK L. R. CONFER, ARCHITECT

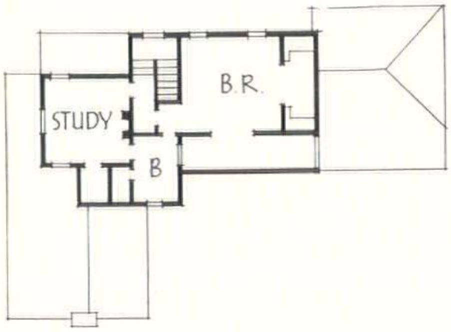
HOUSE OF DR. CAREY SNODDY

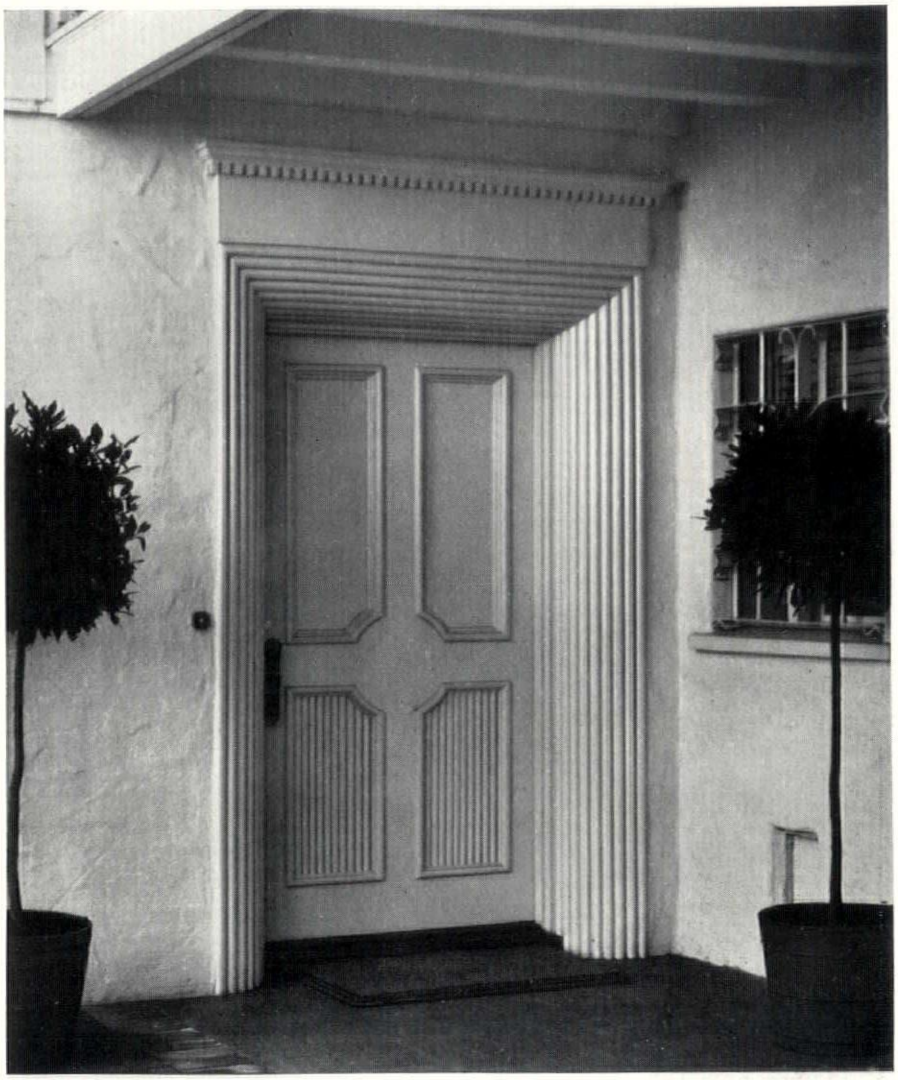
VALLEJO, CALIFORNIA

FREDERICK L. R. CONFER

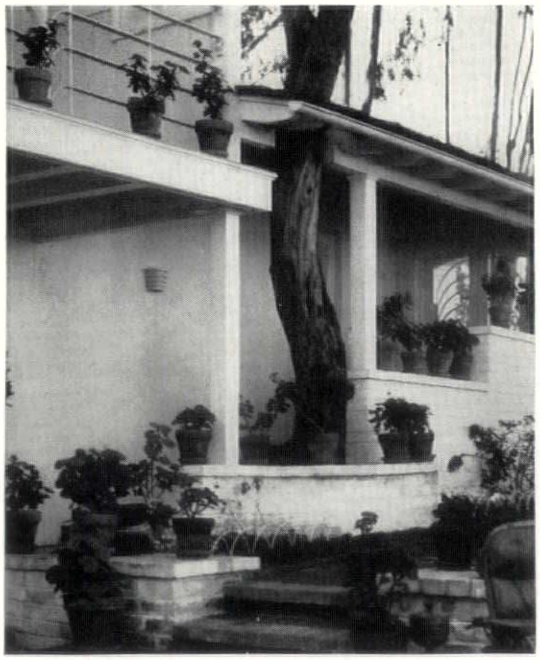
ARCHITECT

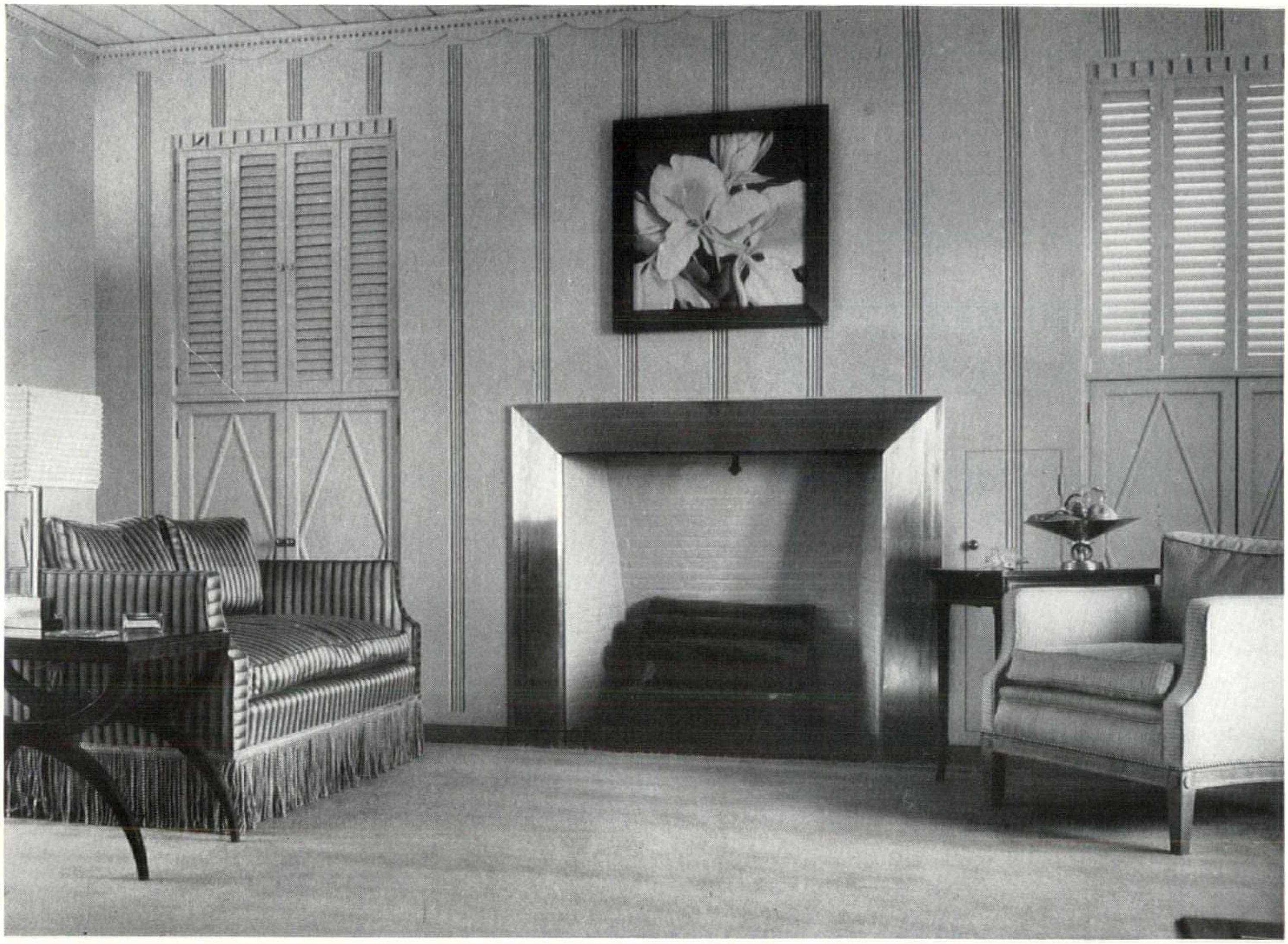




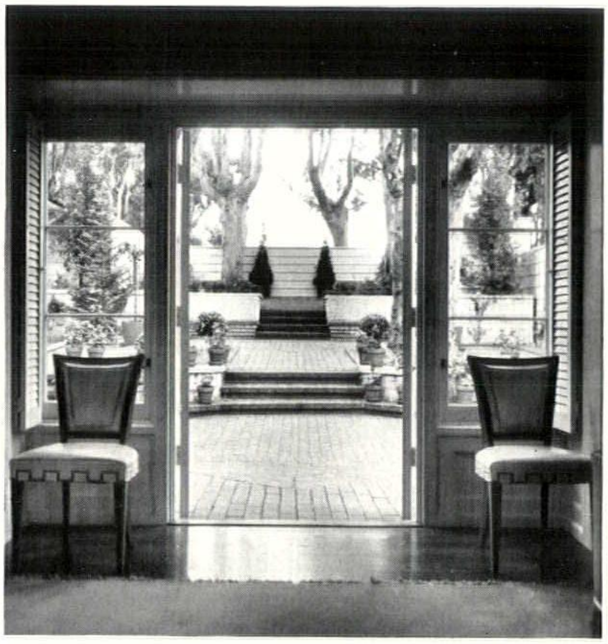


The owner's desire for a small and easily accessible garden (an outdoor room) and privacy and protection from the prevailing trade winds determined the form of the plan of this house. The roof is hand split cedar shakes stained dark gray. The walls are white in combinations of stucco, brick veneer, vertical redwood boards and battens, with trim and sash painted white to match the walls. Contract price exclusive of garden walls and paving, $8,600





HOUSE OF DR. CAREY SNODDY, VALLEJO, CALIFORNIA. FREDERICK L. R. CONFER, ARCHITECT



In the living room above, the fireplace end and the ceiling are finished with pine boards, the walls are stucco. The general color scheme of the room is an off-white. The mantel is polished aluminum; floor, dark oak; the furniture and coverings are in monotones of silver and beige. At the right, is the garden from the living room

BUILT ABOUT 1750, MOVED THIRTY MILES, RE-ERECTED IN 1935

HOUSE OF FREDERICK K. BARBOUR, NORFOLK, CONN. ROBERT M. CARRERE, ARCHITECT

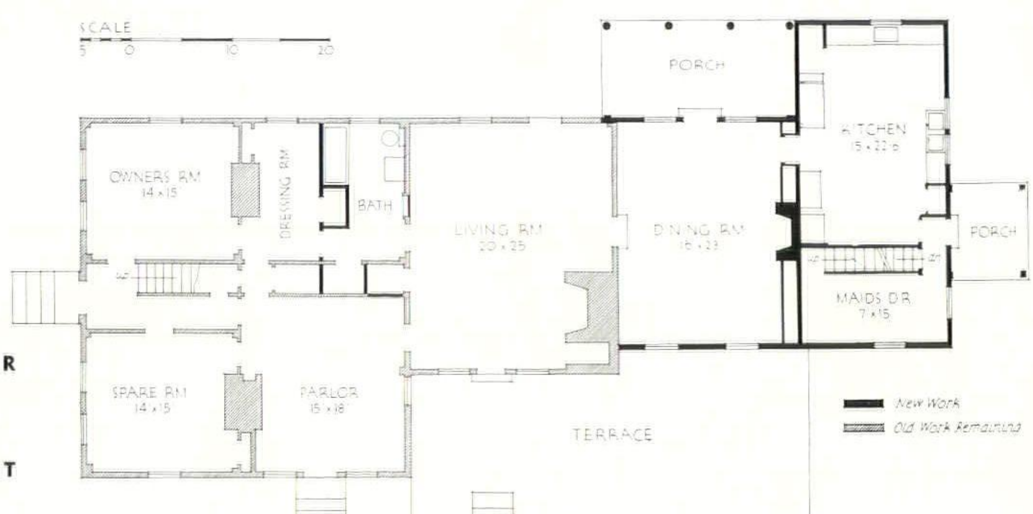
The old house originally built in Goshen, Connecticut was carefully dismembered and moved to Norfolk, Connecticut, thirty miles away. Every board, moulding, and piece of flooring, the brick of the chimneys and the stones in the foundations to a depth of six feet below grade, were moved and re-erected. Each piece of material was numbered and lettered according to a system Mr. Carrere invented to insure rapidity and accuracy in reassembly.

The old house was of frame construction throughout on a foundation of hand-hewn granite blocks, 7 feet long by 15 inches square. It was necessary to plaster all interior walls, to install a new roof of hand-split cedar shingles, to erect certain new partitions to form bath rooms, closets, etc., and to build a new wing at the rear to provide space for a dining room and kitchen.

Exterior walls and attic floor were insulated with Rock Wool, and Celotex laid under all floors over plenum space and cellar ceiling. All large pipes and ducts, were run in the new chimneys which made unnecessary any furring out of the four inch walls, and therefore the original trim was used without mutilation.

Cost of alterations, exclusive of moving the old house, but including re-plastering, plumbing, heating, air-conditioning, electric systems, roof, partitions, and all equipment, was $27,000.

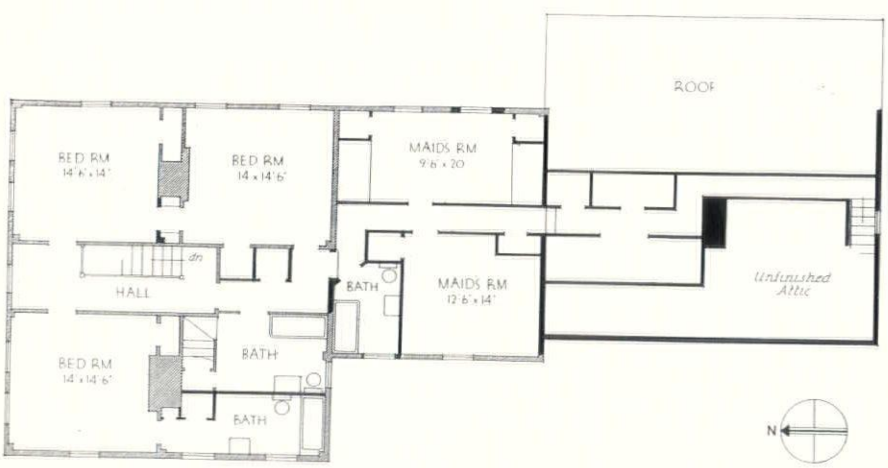
PHOTOS: BY WURTS BROS.



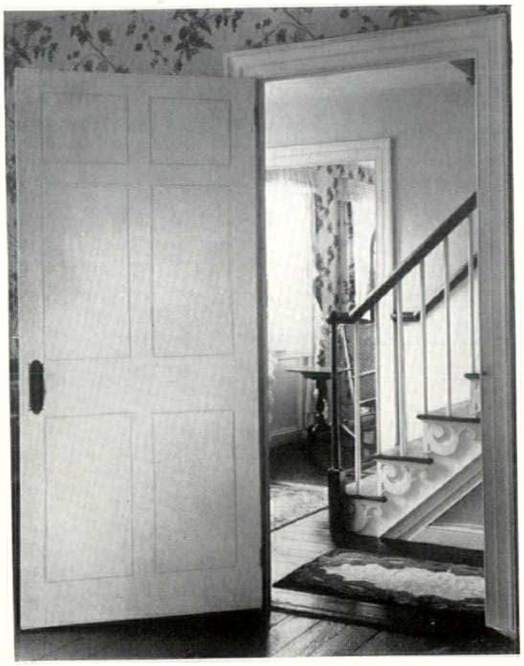
HOUSE OF FREDERICK K. BARBOUR

NORFOLK, CONNECTICUT

ROBERT M. CARRERE, ARCHITECT



All the rooms of the house have been papered except the living room and the new dining room, both of which are paneled with planks taken from the attic of the old house



HOUSE OF FREDERICK K. BARBOUR, NORFOLK, CONN.

ROBERT M. CARRERE, ARCHITECT

The parlor, shown above, is entered from the west side of the house or through the stair hall, illustrated at the left. The wallpaper is early American in design. The paneled door is of pine, painted white, and the floor is of old, wide boards. The hardware is hand-wrought iron reproduced from original patterns taken from the old house

PHOTOS: GOTTSCHO

A HOME OF MONOLITHIC CONCRETE, NEW ORLEANS, LOUISIANA

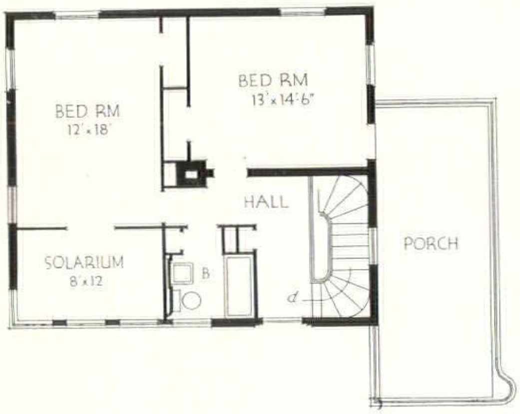
WEISS, DREYFOUS & SEIFERTH, ARCHITECTS

As a demonstration of the practicability and economy of constructing a small house of poured concrete, the architects of the Louisiana State Capitol were commissioned to design this modern home. Convenience, livability, beauty, durability and fire resistance were first among the stipulated requirements.

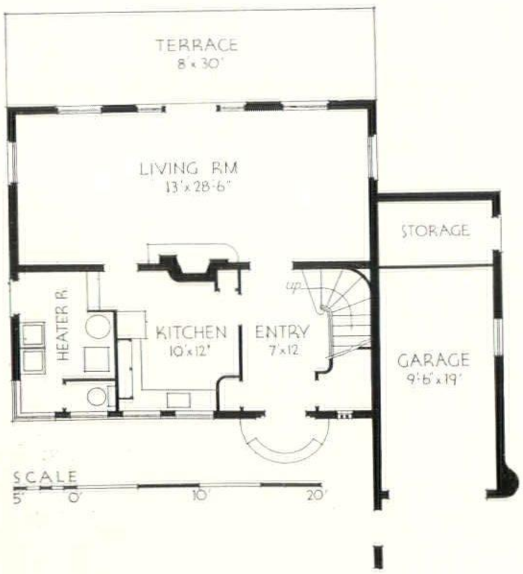
The house faces south and the deck over the garage therefore receives the desirable morning sun and is shaded in the afternoon. The living terrace and garden are on the north, the coolest location, and away from the street for privacy. Here the prevailing wind is enjoyed in the afternoon.

The large living-dining room (12 x 28 feet) opens onto this terrace. The dual-purpose room for living and dining is a means of securing simplification of plan and economy of space. When there are many dinner-guests the room permits a festive board without the crowding which a small dining room would entail. The kitchen is convenient to the dining end of the living room, opens directly on the foyer (for ease in answering the door bell) and is adjacent to the heater and laundry room.

The kitchen is a conveniently arranged work space with cabinets, cupboards, electric refrigerator, gas range and large closet. A grille-covered vent above the range carries heat and odor up the chimney-vent. Tubular lights are so arranged that all disturbing shadows are eliminated. The laundry trays are in the utility room where there is space for the washing



SECOND FLOOR



FIRST FLOOR

machine, and the furnace is here too, gas-fired, compact, simple and efficient. The hot water heater is of the constant-temperature reservoir type.

An unusually roomy and inviting foyer is graced by a sweeping staircase of fireproof concrete. The two large bedrooms with ample closets are convenient to the economical hall of the second floor. Both bedrooms have cross ventilation and the larger one has an airy solarium which can be used as a study, sewing room or child's room. The large French doors from each bedroom open onto the cantilevered balcony overlooking the garden. The bath is but a step from either bedroom door, is furnished with fixtures in a cool Copenhagen blue, and the floor is a two-tone blue linoleum with a black border. The wall is wainscoted with an ivory-tinted waterproof Linowall (wall linoleum).

The convenient two-car garage is separated from the approach by an interesting wall with its access gate. The easily operated garage door folds up and back along the ceiling. A room for storage, work bench, garden tools and what-not is thoughtfully provided at the rear of the garage.

STRUCTURAL FEATURES—Due to low bearing value of New Orleans soil, particularly at the house site, large footings of reinforced concrete were necessary. A soil bearing value of 500 lbs. per sq. ft. was used. Excavation was carried down 3 feet to soil of a constant moisture content. Before concreting, a 3-inch bed of clean white sand was spread over the floor of the excavation. Foundation walls were designed as beams 8 inches thick and 4 feet high, and were reinforced with two 1-inch bars top and bottom. The footing cost was 20 per cent of that of the bare structure, probably five times the cost of footings for the average house built elsewhere.

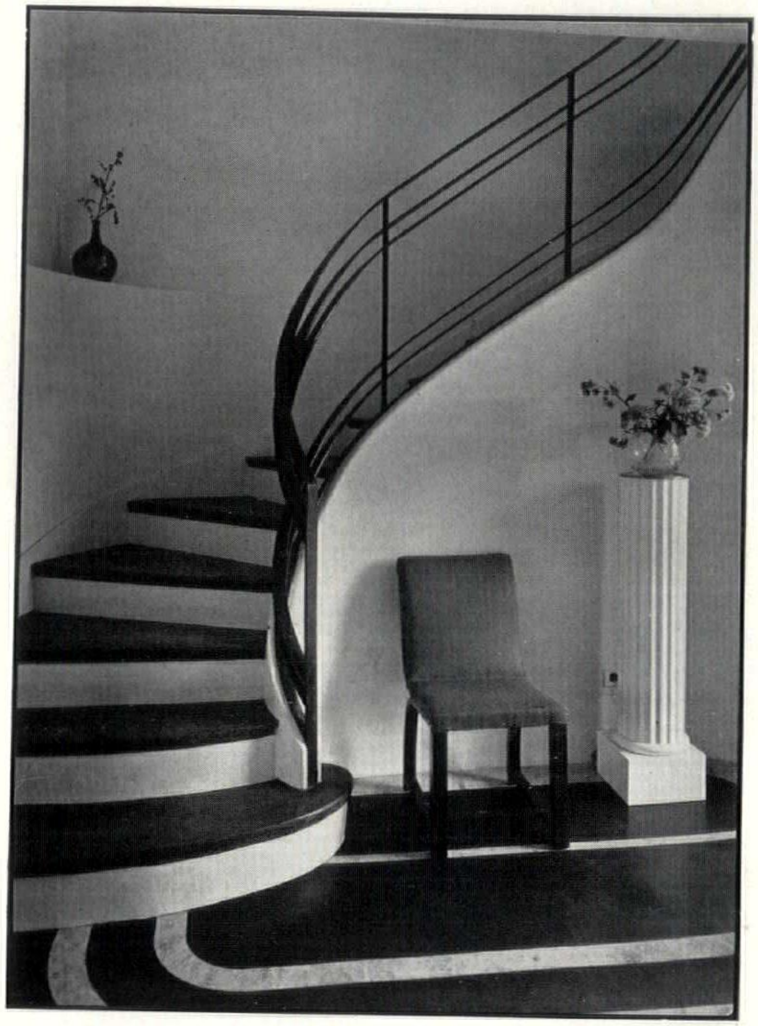
The walls are of ribbed reinforced concrete providing a rigid wall with high bearing value and transverse stability, which, at the same time, produces air space for insulation and accommodation for vertical pipes, conduits, etc., without drilling or cutting. Nailing strips cast in the rib soffits permit interior finish to be attached.

A new system of forming was used. The forms are of steel having flat exterior sections and arched interior sections so fastened together that a self-aligning wall is secured. Forming costs were from 40 per cent to 50 per cent of the estimated cost of using wooden forms. A minimum of hand work was required after forms were removed.

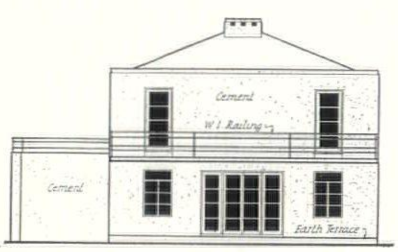
The first floor slab was placed on untamped loose earth fill. This fill in drying out will shrink away from the 4-inch reinforced concrete slab, leaving an air space. The second floor and attic slabs are 4 inches thick, r.c., and were formed in wood. "Incor" cement was used in the second floor, attic and cantilevered balcony slabs to permit twenty-four hour removal of supporting shores.

The concrete was designed for a strength of 3,000 pounds per square inch at 28 days, maximum density and workability. No waterproofing admixtures were used, reliance being placed upon good design, careful placing and thorough curing. Concrete was purchased from a central mixing plant: in the floor slabs a 5½ bag mix, approximately 1:2½:3¼ using 1½-inch maximum size aggregate; in the walls a 6 bag 1:2¼:3 mix using ½-inch maximum size aggregate.

The diagram on page 82 indicates the successive "pours" of the concrete. An interval of approximately 24 hours separated each pour. After each pour the concrete was leveled off and a 1-inch square wood strip was pressed against the outer form into the concrete, forming a groove, the bottom



Right, above, cast concrete stair with black aggregate terrazzo treads, wrought iron hand rail. Right, below, porch deck over garage



The living - dining room, illustrated at left, opens onto a terrace overlooking the garden on the north. The walls are painted slightly off-white, and the floor is oak tile in a medium dark shade. The mantel is a black polished terrazzo, with mirror above. Note the built-in book cabinet and interesting furniture arrangement in lower illustration

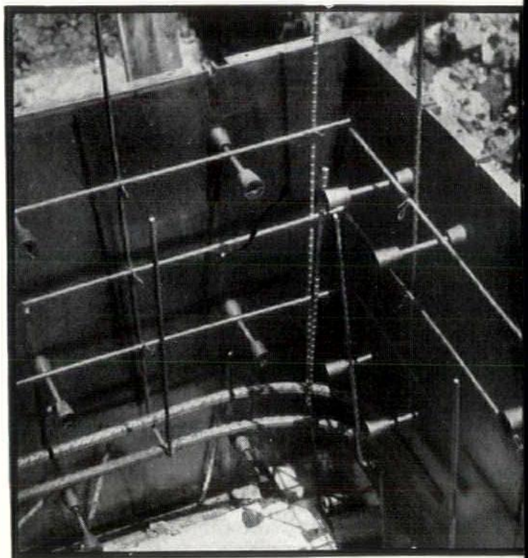
CONCRETE HOUSE

NEW ORLEANS, LA.

The bedroom, illustrated at right, adjoins the glass-enclosed solarium. The walls are painted slightly off-white, and the floor is oak tile in a medium dark shade. . . . The kitchen, shown below, is finished with a modernistic, washable wall paper in a black and gray design with a white background. The floor is marbleized green asphalt tile with a black border

WEISS, DREYFOUS AND SEIFERTH, ARCHITECTS

A.—Steel forms for foundation showing spreaders with cone knock-outs, and reinforcing bars. . . . B.—Exterior of forms showing wedges. . . . 1. Setting interior forms, showing frame for French doors. . . . 2. Simple method of pulling out spreader and cones. . . . 3. Wall before cone holes are filled with mortar; sills poured after steel form removal. . . . 4. Laying second floor, showing reinforcement and conduit



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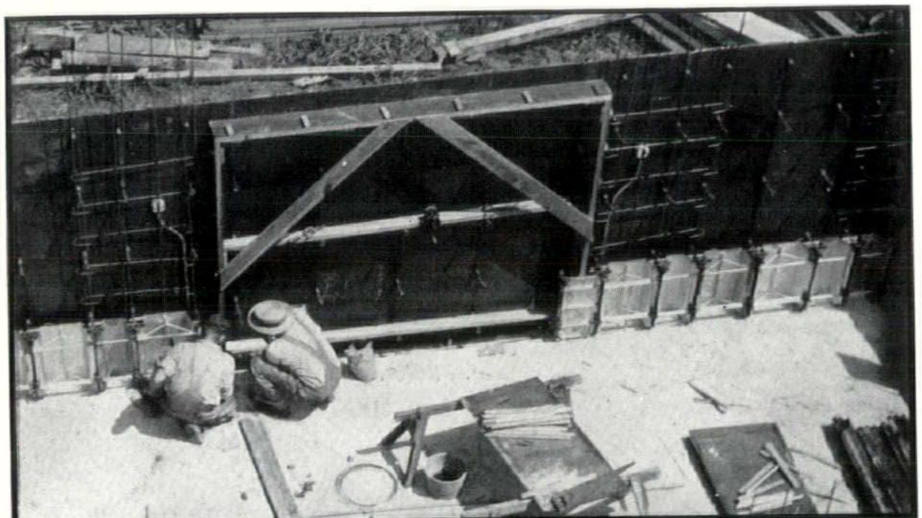

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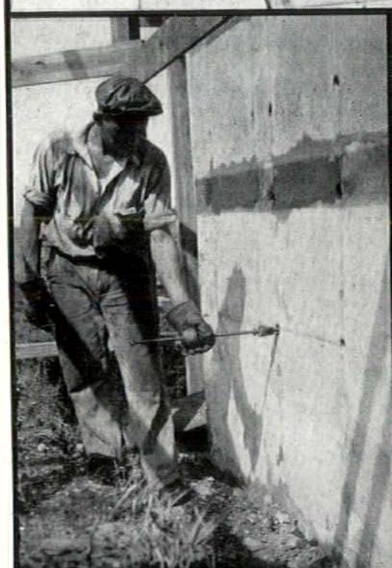

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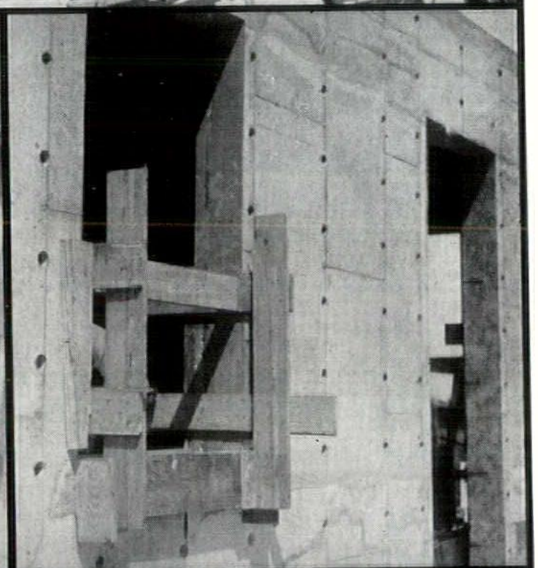

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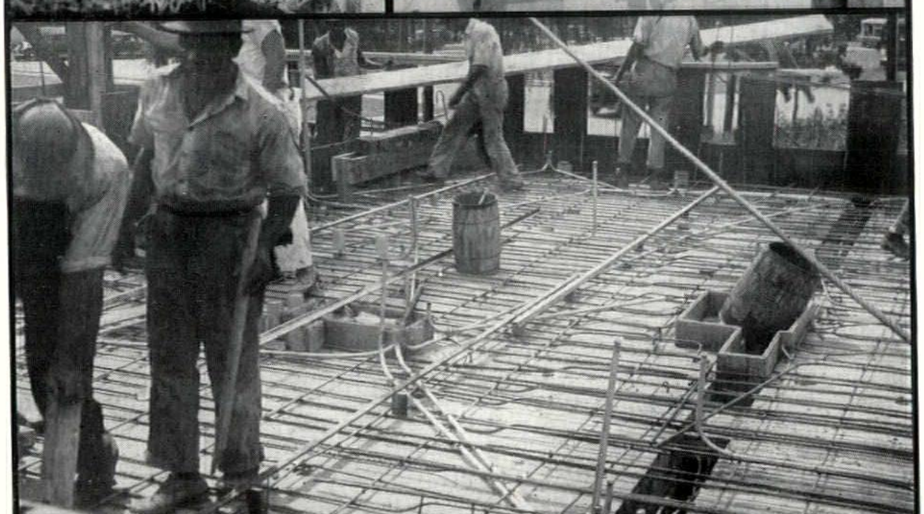


4

surface of which was square with the face o the wall and level in the direction of the wal Before the concrete hardened, this strip wa removed, permitting the next lift to b placed without feather edges and unsightl irregular joints. Before placing a lift th concrete was well cleaned and covered with thick cement grout to insure a perfect bon

OUTLI

Foundation . . . Slab—10″ reinforced concrete, fr 3′6″ to 7′0″ wide under exterior walls.

Exterior Walls . . . 8″ reinforced concrete ribb walls; ribs 12″, 18″ and 24″ centers; 3″ slab thickn with ribs 5″ deep and 4″ wide. Slab reinforced w $\frac{3}{8}$″ round bars, 12″ c. to c. horizontally, each having two $\frac{3}{8}$″ bars vertically. Wide jams and m lions have 4 bars; tie beams, four $\frac{1}{2}$″ round ba roof parapet, four $\frac{5}{8}$″ bars.

Exterior Surface . . . Natural concrete, two co "Bondex" cement paint. Polished black terrazzo in m lions and in parapet over entry motif, cast in pla

Roof . . . Pitched, over 4″ r.c. ceiling slab. R of $\frac{7}{8}$″ wood sheathing on 2″ x 6″ rafters, and 30 roofing felt under Johns-Manville Company's No. Variegated Green cement asbestos shingles, ro texture, 8″ x 16″ tapered. American method of

B

The building cost $10,200, exclusive of
ındscaping and architect's fee. Interior ecoration was by Maison Blanc, New Orеans. George L. Rice was the structural ngineer, and Perrilliat-Rickey Construction o., the general contractor. The home is wned by the Lone Star Cement Corporaon, New Orleans.

PECIFICATIONS

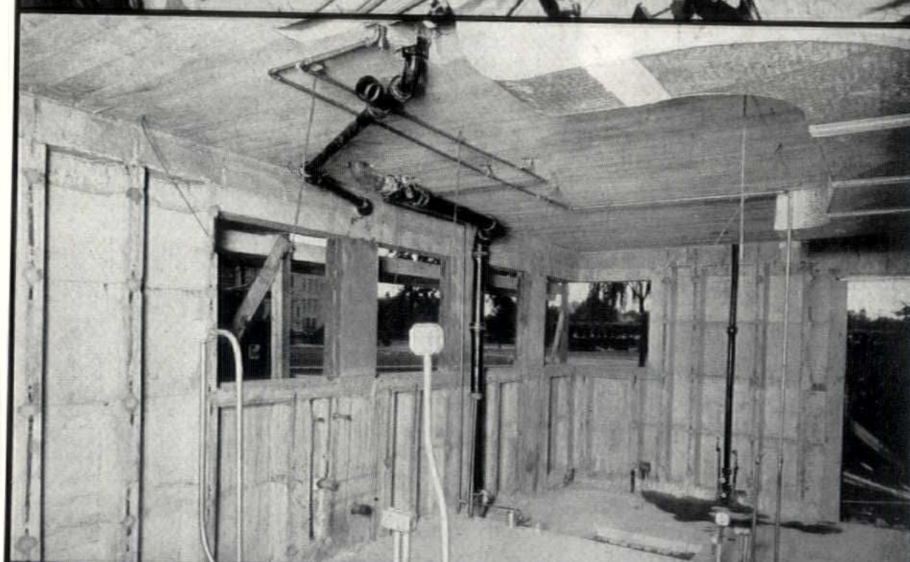
g shingles with 3" cover. Gutters, flashing and own spouts, 16 oz. copper. Garage roof, Flintkote, ver precast joists and 2" slab.

oor Slabs . . . First, second, and second-floor-ceiling, 4" r.c. First floor slab placed on loose fill. "Incor" -hour cement used in second and attic floor slabs r quick form and shore removal. Lone Star Portland ement used in first floor. Garage roof slab,—Lone ar Cement.

oors and Windows . . . Outside frames and doors, ear seasoned cypress; interior, long leaf yellow pine ncluding door trim and window sills). Fenestra nwrought Residential Steel Casements, Detroit Steel oducts Co. Worm and gear underscreen operators. arage door, wood, overhead Rol-Top, Kinnear Manucturing Company. Front entrance door, quartered wed oak. Wrought iron grille. All millwork by ational Sash and Door Company, New Orleans.

5. Placing forms for 8-inch solid reinforced concrete bearing partition. . . . **6.** Interior of kitchen and service room before plastering and partitions. Note hollow exterior wall with reinforced concrete verticals. Heating duct and soil pipe come above furred-down kitchen ceiling. . . . **7.** Looking in opposite direction from 6, showing pipes, ducts, conduit and cast concrete stair

5



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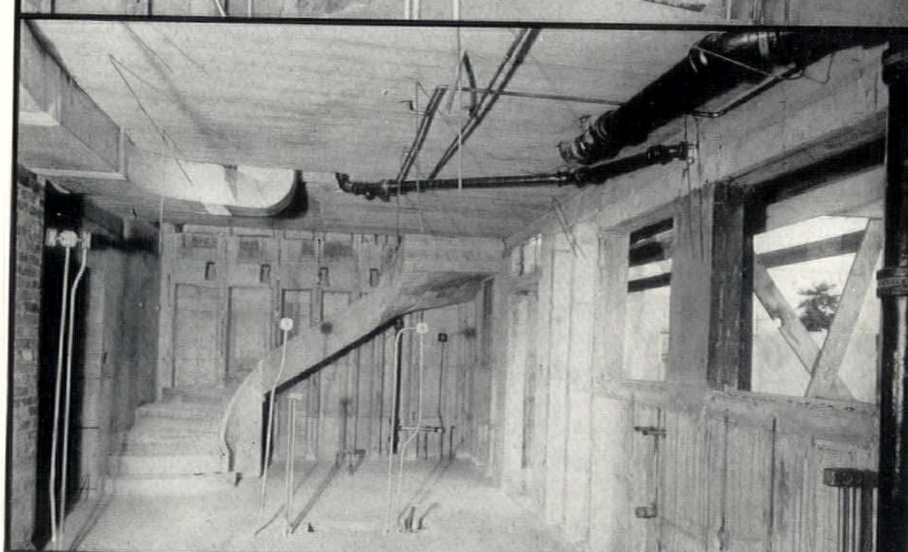

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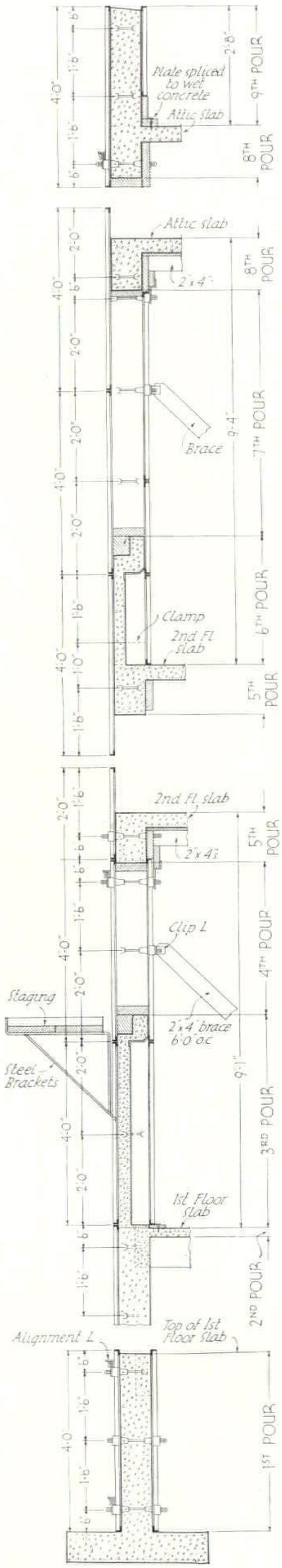

Left, structural section

Above, the house from the garden

OUTLINE SPECIFICATIONS (continued)

Rear Balcony . . . Reinforced concrete, "Incor" 24-hour cement, smooth cement finish.

Glass . . . Libbey-Owens-Ford, d.s. Grade "A."

Lathing and Plastering . . . Lathing, 1' Celotex for ribbed exterior walls, metal at interior corners; metal beads at outside corners. Metal for 2½" solid interior partitions and for suspended ceiling in kitchen. Nailing strips, cypress.
Plastering, U. S. Gypsum Company "Red Top"; finish coat, Plaster of Paris, troweled smooth. Plaster applied direct to concrete on bearing wall partitions and first floor ceiling.

Partitions . . . Load bearing, 8" solid reinforced concrete. Non-supporting, 2½" solid, metal lath and channel, back-plastered.

Interior Woodwork . . . Floors living-and-dining room, bedrooms, upstairs hall and solarium, Bruce cellized oak wood tile, second grade, plain white, factory finish, size 9" x 9", laid in Everbond Mastic. Shelving, Cabinets and Trim, long leaf yellow pine.

Insulation . . . Outside ribbed walls and second floor ceiling, 1" Celotex.

Interior Finishes . . . Walls and Ceilings, 1 coat sizing, 2 coats lead and oil. Trim and Doors, 3 coats enamel undercoat and 1 coat enamel. Sash, factory prime and 2 coats lead and oil.

Electric and Lighting . . . Galvanized rigid conduit throughout, including wiring for telephone, radio, thermostat, etc. All wiring concealed. Switches, flush toggle. Outlet boxes, galvanized. Base receptacles Duplex interchangeable type.
Electrical Fixtures, Day-Brite, Novelty, Vimlite, Ruby. Nofuse Load Center, Westinghouse. 18" Lumiline fixtures in bath and kitchen.

Plumbing . . . Fixtures, Standard Sanitary Mfg. Co. Church seats. Kitchen, Sinkabnet, 22" x 60", Hudson, with white acid-resisting enamel. Stove and refrigerator by owner. Hot water heater, Par-"X," copper, Model 20. Cement wash tray, Granatine "Shelfon," Two-Part. Handi-Ironing Cabinet, Creo-Dipt Co., Inc. Medicine cabinet, Hess. Chromium-plated brass accessories. American Radiator Company's Arco Copper Pipe and Arco Full-Flow fittings. Anniston Foundry Company's soil pipe and fittings.

Heating . . . Gas-fired, forced warm air, Payne Series "FAU," Payne Furnace & Supply Co., Beverly Hills, Cal. Ducts, 26 Gauge gal. iron. Cold air return, concrete under kitchen from entry hall. Registers, Uni-Flow. Vent pipe, Transite.

Chimney . . . From first floor to attic, brick, Lone Star Portland Cement mortar; from attic through roof, double-wall reinforced concrete construction. Flue Lining, 8" x 12" terra cotta. Mantel, black polished terrazzo concrete. Damper, Majestic.

Hardware . . . Yale, chromium finish.

Screens . . . Window, steel frame, attached to window frame, aluminum wire. Door, wood frame, aluminum wire.

Stair . . . Concrete with black exposed aggregate treads cast in place by Colfry Art Terrazzo Works, and ornamental wrought iron railing by James R Sutton, both located in New Orleans.

Steel Forms . . . "Simplex," Simplex Concrete Form Company, Los Angeles, Cal.—fabricated by Blattman & Weeser Sheet Metal Works.

Concrete . . . Designed according to water-cement ratio method with following restrictions: Maximum total water content—6½ per sack cement. Minimum 28-day Strength—3000 lbs. sq. in. Minimum cement content—5½ sacks per cu. yd. (5½ sacks used in floors, 6 sacks in walls). Ingredients combined to produce workable and plastic concrete for thin walls.

Portland Cements. Lone Star, and "Incor" 24-hour

CUBIC-FOOT-COSTS FALLACY

The old rule of thumb falls down and too often takes with it the architect's standing as an estimator. An enlightening analysis of cost factors in residential construction.

BY H. C. ATWATER *

MANY architects, prospective home builders and real estate men have come to look upon "cubic foot cost" as a reliable yardstick that may be used with a fair degree of accuracy in estimating the cost of most houses. It is true that an architect who has kept an accurate record of the cubic foot cost on his own work, should be able to estimate closely the cost of a house of similar design and specification, but the use of such a cost in estimating different types and kinds of houses is as foolish as trying to measure the value of an automobile in terms of inches of wheel base or number of cylinders.

Cubic foot costs are affected, first, by the architectural design and the plan of the house, and second, by the specification which determines the quality and cost of the construction and equipment, the mechanical plant of the house.

When one Colonial house costs more than another, the ignorant are apt to put the blame on an "expensive" architect or on an inefficient builder. Yet the cost of these two houses *per square foot* of living floor area may be identical.

Take for example, a simple house, or central part of a house, as indicated in Fig. 1. Here we have a mass 40 feet long by 30 feet deep with an average height of 30 feet giving 36,000 cubic feet. At 40 cents per cubic foot the cost would be $14,400.

In Fig. 2, the architect in order to lower the building or improve the appearance, drops the roof one foot so that the eaves are just above the top of the second floor windows. No appreciable change is effected in the total cost, but the size is reduced by 1200 cubic feet and the new bulk of 34,800 cubic feet now has a unit cost of 41.2 cents per cubic foot.

In Fig. 3, the architect, desiring to make the house even more artistic, has lowered the roof still another foot, requiring six dormers, three in the front and three in the rear. Again we have no savings in the cost. On the contrary, the dormers will cost at least $60 each, bringing the total cost to $14,760. The size has been reduced to 33,600 cubic feet with a resultant cost of 44 cents per cubic foot. Here we see a variation of ten per cent in cubic foot cost, but with the same area. Cheap attic space has been sacrificed to obtain a more pleasing exterior. Such lowering of roofs, or omissions of portions of the cellar, may result in slight savings; but many architects are apt to lose sight of the fact that it is the cheapest cubage which has been cut down and that the unit cost of the remainder may have been increased.

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Table I analyzes the percentage and the cubic foot costs of two houses illustrated, both of which were designed by the same architect, and constructed in the same locality at about the same time. House A is an up-to-date house of colonial design and treatment, 51,600 cubic feet in size, with a high class specification throughout. The first floor includes a knotty pine library, living room, stair hall, dining room, lavatory, pantry, kitchen, two maid's rooms and bath and two-car garage. The second floor comprises four master bedrooms, three master baths, dressing room, closets, etc.

House B is a large, but rather simple, story-and-a-half bungalow, 36,000 cubic feet in size. The cellar is fully excavated and contains a one-car garage. The first floor consists of living room, dining room, kitchen, two bedrooms and bath. The second floor has two bedrooms and bath.

There is a much larger percentage of cheap cubage in house B than in house A, but most of the difference in cubic foot cost is due to the specification as will be seen in the comparative outline.

To understand more fully the effect of changes in design and specification, two analyses have been made of the costs of nine houses.

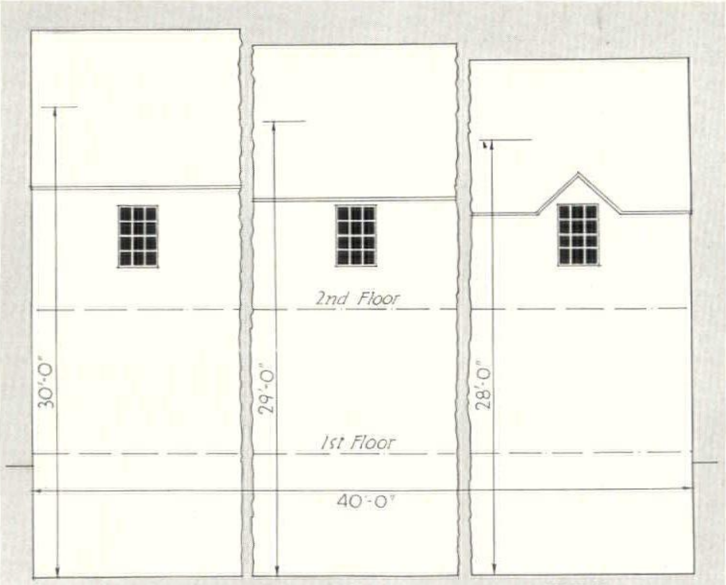
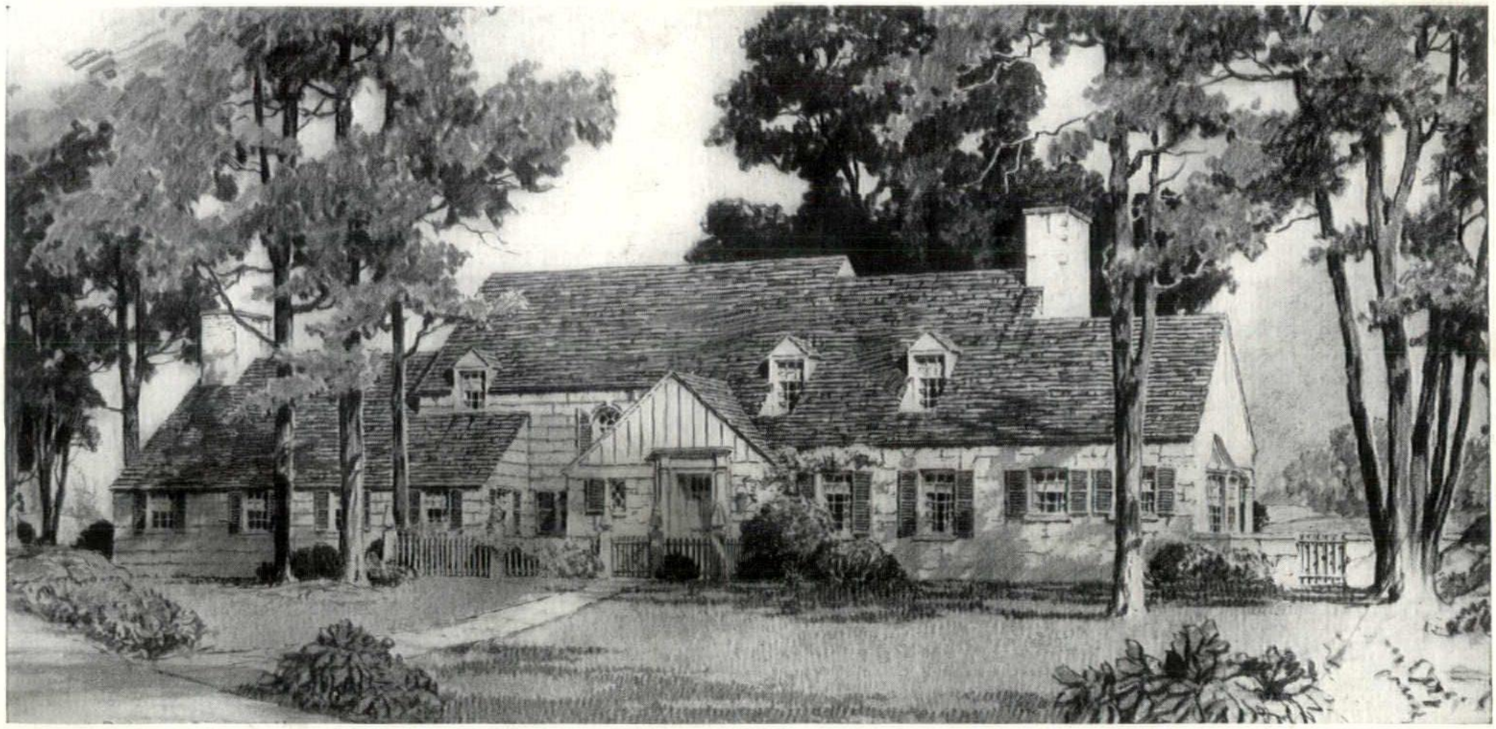
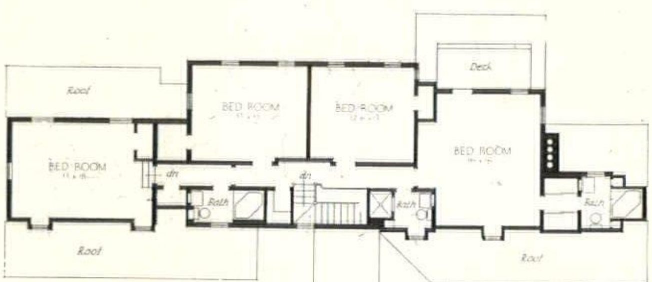


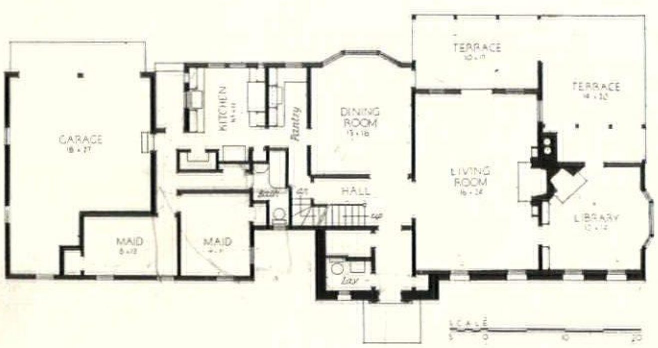
FIG. 1 FIG. 2 FIG. 3

Diagram showing reduced cubage but increased cost



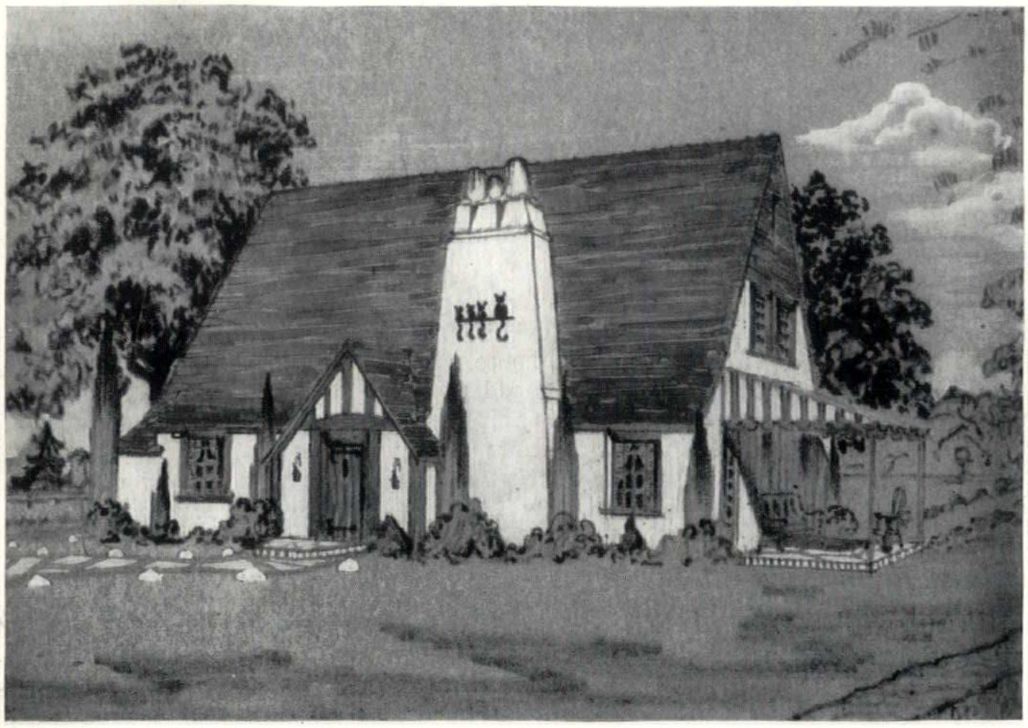
HOUSE A

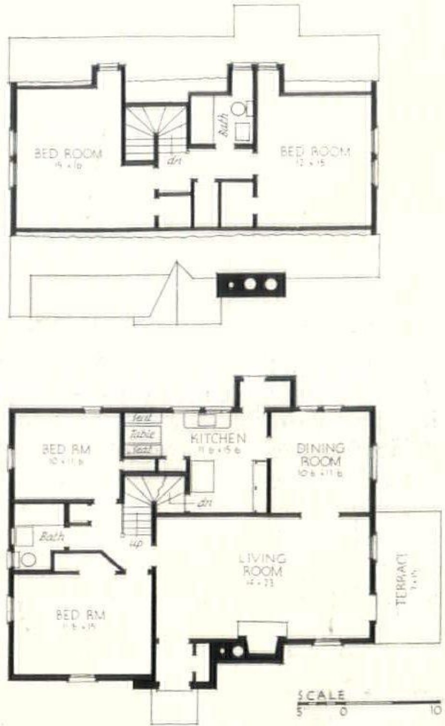




OUTLINE SPECIFICATIONS

	HOUSE A.	HOUSE B.
Cellar	Only partially excavated due to rock	Full excavation but cellar contains heating plant and laundry trays
Exterior finish	Stone veneer and hand split cypress shakes	Stucco
Misc. masonry	One chimney. Three fire-places. Flagstone porches and terraces	One chimney and one fire-place. Small entrance platform
Tile	Complete colored tile job. Tile wainscots in baths and kitchen	No tile. Linoleum floors in all baths
Millwork	Special size sash. Special trim. Trimmed arches. Knotty pine library. Wall boards in stair hall. Large number of closets	Simple stock trim through-out. Practically no spe-cialties
Stairs	Detailed colonial stairway with box string	Simple box stairway be-tween walls
Wood floors	1st grade strip flooring with some solid plank	Second grade strip flooring
Insulation	4" Rock wool in 2nd floor ceiling and metallation in outside walls	Same as in House A
Garage doors	Two pairs of overhead doors	One pair of stock doors included in millwork
Plumbing	3 Master baths. 1 Maid's bath. 1 Master lava-tory. 1 Service lava-tory. Laundry tubs. Kitchen and pantry metal sinks. Colored fixtures in master por-tion	2 Master baths. 1 kitchen sink. 1 pr. laundry trays. All fixtures white
Heating	Vacuum vapor with control specialties. High class boiler with tank saver. Concealed radiation in master portion	Simple one-pipe steam with C. I. radiation
Roofing	Vermont rough gray slate with 15% rustic freaks	Wood shingles





HOUSE B

TABLE I

A comparison of the cost of two houses designed by the same architect

ITEM	Percentage of Cost of House: House A	Percentage of Cost of House: House B	Cubic Foot Cost Distribution: House A	Cubic Foot Cost Distribution: House B
Misc. general expenses	1.0	1.4	.4	.4
Supervision	1.5	.8	.6	.3
Insurance	1.5	.9	.6	.2
Excavation, etc.	2.0	2.3	.9	.6
Drains	.5	.5	.2	.1
Footings and foundation	5.0	5.9	2.1	1.5
Misc. masonry	4.9	8.2	2.1	2.1
Plaster	6.3	7.6	2.7	1.9
Iron steel and cellar windows	.9	.5	.4	.1
Exterior wall finish	3.6	3.0	1.5	.8
Tile and marble	1.9	none	.8	none
Rough lumber	6.6	7.4	2.8	1.9
Millwork	7.8	5.1	3.3	1.3
Carpenter labor framing	4.5	5.4	1.9	1.4
Carpenter labor on millwork	5.6	4.8	2.4	1.2
Stairs erected	1.4	1.7	.6	.4
Finish wood floors	2.4	2.6	1.0	.7
Linoleum or rubber floors	.3	.9	.1	.5
Dressers and counter tops	1.5	in mill	.6	in mill
Insulation	1.2	1.1	.5	.3
Garage doors	.6	in mill	.3	in mill
Screens	1.1	1.2	.5	.3
Weatherstrip	.6	.6	.3	.1
Plumbing	9.5	12.5	4.1	3.2
Heating	6.7	6.8	2.9	1.7
Oil burner	3.0	4.1	1.3	1.0
Electric wiring	2.2	2.4	.9	.6
Roofing and sheet metal	6.6	3.8	2.8	1.0
Painting and decorating	5.6	5.3	2.4	1.4
Cash allowances for finish hardware, electric fixtures, etc.	3.7	2.2	1.5	.6
TOTAL	100.0	100.0	42.5	25.7

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BUILDERS

Table II gives the average percentage distribution of cost in nine houses designed by six different architects. It was interesting to note that in a house with brick veneer and slate roof, the cost of rough lumber, millwork and carpenter labor amounted to only twenty per cent of the total. The carpenter labor alone averaged ten per cent so that an increase of twenty five per cent in carpenter wages would only mean an increase of two and a half per cent in the cost of the house, which is not nearly as serious a matter as the average prospective home builder believes it to be.

In Table III the low, high and average cubic foot costs are given for nine houses, with the amount of such cost for each part of the house. An asterisk has been placed before those items which can be varied in material or quality, irrespective of the size of the house, which change cost per cubic foot, without changing the size of the house. Thus we may have *foundation* of block, concrete or stone; *wall covering* of common shingles, shakes, brick or stone veneer; *roof* of wood shingles, slate or tile; one or more baths; one or more chimneys; steam heat or conditioned air, etc. The cost of the millwork may vary widely irrespective of the size of the house. From a study of this table we see that items covering some eighty per cent of the total cost of the structure, can be made to vary over a surprisingly wide range without changing the cubic contents. Adding all the low values in each group together and comparing them with all the highs added together shows a possible range of from 25 cents to 52 cents in the cubic foot cost of this particular group of houses.

The cubic foot costs given above are the actual field costs exclusive of the general contractor's profit. This profit should average ten per cent, but has been running as low as five per cent during the past years, because of scarcity of work and to prices necessitated by close competition.

Comparing cubic foot costs for the past several years, we find that a house which cost 60 cents per cubic foot to build in 1929 could probably have been built in 1932 for about 30 cents. This was at a time when general contractors and sub-contractors alike were working at no profit just to keep the wheels turning, and when skilled mechanics were getting $3.00 to $4.00 per day. Today, because of higher material prices and higher wages, this same house is costing 45 cents to 47 cents per cubic foot, or about twenty-five per cent under 1929 prices. With the stiffening in wages which is bound to come next spring, a further increase in cost is to be expected.

Cubic Foot Cost Analyses of Nine Houses Costing from $10,100.00 to $33,200.00

TABLE II — Distribution of cost in terms of percentage of the whole. **TABLE III** — Cubic foot cost

ITEM	Range in Percentage Cost	Average Percentage Cost	LOW	HIGH	AVERAGE
Misc. general expenses	.7 to 2.0	1.2	$.003	$.007	$.005
Supervision	.8 " 1.9	1.5	.003	.009	.006
Insurance	.8 " 1.5	1.2	.003	.006	.005
Excavation, etc.	1.6 " 3.0	2.0	.006	.013	.008
Drains	.5 " .7	.6	.001	.003	.002
*Footings and foundation	4.2 " 5.9	5.2	.015	.022	.020
*Misc. masonry	4.9 " 8.2	5.9	.021	.026	.023
Plaster	4.7 " 7.6	6.3	.019	.028	.024
Iron steel and cellar windows	.3 " 1.4	.7	.001	.006	.003
†*Exterior wall finish	1.7 " 3.9	3.0	.008	.017	.012
*Tile and marble	.2 " 3.6	1.9	.000	.015	.008
Rough lumber and nails	5.0 " 8.6	6.7	.019	.028	.026
*Millwork	5.1 " 12.2	9.3	.013	.052	.038
Carpenter labor framing	3.6 " 5.9	4.7	.014	.022	.018
*Carpenter labor on millwork	3.7 " 6.7	5.2	.012	.024	.020
*Stairs erected	1.3 " 2.7	1.8	.004	.010	.007
*Finish wood floors	2.0 " 3.3	2.5	.007	.014	.010
*Linoleum or rubber floors	.3 " .9	.6	.001	.003	.002
*Dressers and counter tops	1.4 " 2.4	1.7	.000	.009	.007
*Insulation	.7 " 2.1	1.2	.000	.009	.004
Garage doors	.4 " .9	.7	.000	.004	.003
Screens	1.0 " 1.9	1.2	.003	.008	.005
Weatherstrip	.3 " 1.2	.6	.000	.005	.002
*Plumbing	7.0 " 12.5	9.9	.030	.046	.038
*Heating	6.6 " 9.3	7.5	.017	.040	.029
Oil burner	2.0 " 4.1	2.7	.009	.015	.010
Electric wiring	1.0 " 3.3	2.2	.005	.014	.008
*Roofing and sheet metal	2.5 " 6.7	4.7	.008	.028	.019
*Painting and decorating	3.6 " 6.2	5.2	.015	.025	.020
*Cash allowances for finish hardware, electric fixtures, etc.	2.2 " 4.0	3.1	.006	.017	.012
	TOTAL	100.00	$.244	$.525	$.394

NOTE: Costs of finish grading, walks, drive, rock excavation, etc., are not included.
* Misc. masonry covers chimneys, floors, flagstone, etc.
† Any brick or stone veneer is included under exterior wall finish, which also would include any stucco, wood shingle or siding.

Time-Saver Standards

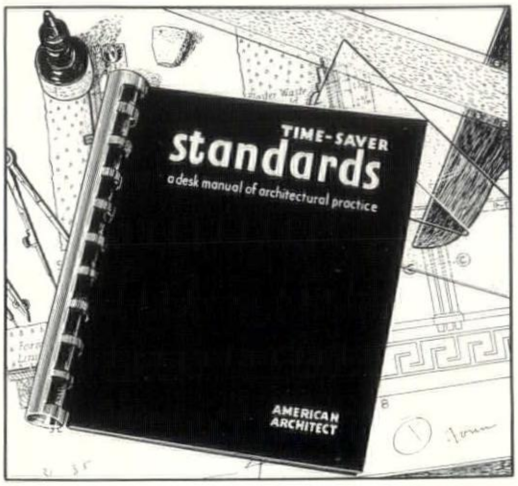
Structural Design Data—

1 • Beam Formulae

2 • Steel Beam Sizes

3 • Steel Column Sizes

4 • Beam Deflection Charts



DURING 1936 each issue of American Architect will contain a number of Time-Saver Standards, thus continuing without interruption the series begun with the July, 1935, issue. Coming subjects cover all phases of technical information presented in a simplified, convenient form. The following appeared during 1935:

JULY—1. Design Procedure for Floodlighting, 2. Design of Luminous Elements, 3. Exposed and Enclosed Lamp Signs, 4. Design of Luminous "Silhouette" Signs.

AUGUST—Preliminary Design Data on: 5. Reinforced Concrete Slabs, 6. Reinforced Concrete Beams, 7. Reinforced Concrete Columns.

SEPTEMBER—8. Household Kitchen Planning—Elements, 9. Bathroom Planning—Fixtures, 10. Bathroom Planning—Accessories.

OCTOBER—Residence Basement Data on: 11. Waterproofing, 12. Floor Surfacing, 13. Wall Surfacing, 14. Ceiling Heights—Piping, 15. Ceiling Heights — Duct Work, 16. Fuel Storage.

NOVEMBER—Data on Sewage Disposal Systems, including: 17. General Design, 18. Septic and Siphon Tanks, 19. Distribution Boxes, etc., 20. Leaching Cesspools, 21. Subsoil Disposal Beds, 22. Sand Filters.

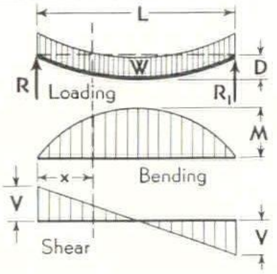
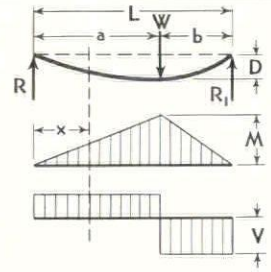
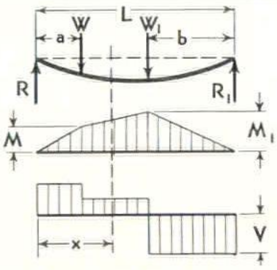
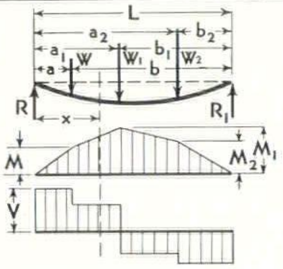
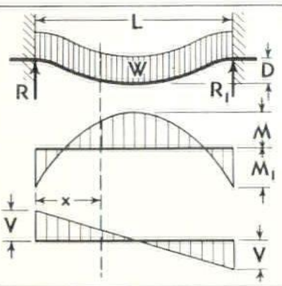
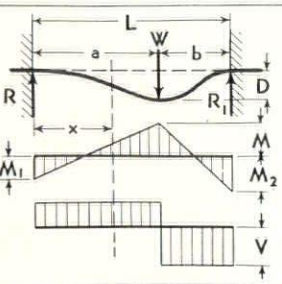
DECEMBER—23. Properties of the Circle, 24. Circular Sections, 25. Areas and Solids, 26. Trigonometric Functions, 27. Units of Measurement, 28. Weights of Materials, 29. Architectural Symbols, 30. Electrical Symbols.

AMERICAN ARCHITECT
Time-Saver Standards

JANUARY 1936 Serial No. 31

Structural Design—BEAM FORMULAE

NOMENCLATURE W = Load in lbs., L = Length in ft., R = Reaction in lbs., V = Shear in lbs., M = Bending moment in ft. lbs., D = Deflection in feet, a = Spacing, b = Spacing, x = Distance, E = Modulus of elasticity, usually 29,000,000, I = Moment of inertia, < = Less than, > = Greater than.

DIAGRAMS	REACTIONS = R SHEAR = V	BENDING MOMENT = M	DEFLECTION = D
	CASE 1. - Beam Supported Both Ends - Continuous Load, Uniformly Distributed.		
	$R = R_1 = V\ (max.) = \frac{W}{2}$ At x: $V = \frac{W}{2} - \frac{Wx}{L}$	At center: $M\ (max.) = \frac{WL}{8}$ At x: $M = \frac{Wx}{2L}(L-x)$	At center: $D\ (max.) = \frac{5}{384}\ \frac{WL^3}{EI}$ At x: $D = \frac{Wx}{24\ EIL}(L^3 - 2Lx^2 + x^3)$
	CASE 2. - Beam Supported Both Ends - Concentrated Load at Any Point.		
	$R = \frac{Wb}{L}$ $R_1 = \frac{Wa}{L}$ V (max.) = R when a<b and R_1 when a>b At x: $V = \frac{Wb}{L}$	At point of load: $M\ (max.) = \frac{Wab}{L}$ At x: when x<a $M = \frac{Wbx}{L}$	At x: when $x = \sqrt{a(a+2b) \div 3}$ and a>b $D\ (max.) = Wab\ (a+2b)\sqrt{3a\ (a+2b)} \div 27\ EIL$ At x: when x<a $D = \frac{Wbx}{6\ EIL}\left[2L(L-x) - b^2 - (L-x)^2\right]$ At x: when x>a $D = \frac{Wa\ (L-x)}{6\ EIL}\left[2Lb - b^2 - (L-x)^2\right]$
	CASE 3. - Beam Supported Both Ends - Two Unequal Concentrated Loads, Unequally Distributed.		
	$R = \frac{1}{L}\left[W\ (L-a) + W_1 b\right]$ $R_1 = \frac{1}{L}\left[Wa + W_1\ (L-b)\right]$ V (max.) = Maximum Reaction At x: when x>a and <(L−b) $V = R - W$	At point of load W: $M = \frac{a}{L}\left[W\ (L-a) + W_1 b\right]$ At point of load W_1: $M_1 = \frac{b}{L}\left[Wa + W_1\ (L-b)\right]$ At x: when x>a or <(L−b) $M = W\frac{a}{L}(L-x) + W_1\frac{bx}{L}$	
	CASE 4. - Beam Supported Both Ends - Three Unequal Concentrated Loads, Unequally Distributed.		
	$R = \frac{Wb + W_1 b_1 + W_2 b_2}{L}$ $R_1 = \frac{Wa + W_1 a_1 + W_2 a_2}{L}$ V (max.) = Maximum Reaction At x: when x>a and <a_1 $V = R - W$ At x: when x>a_1 and <a_2 $V = R - W - W_1$	At x: when x = a $M = Ra$ At x: when x = a_1 $M_1 = Ra_1 - W(a_1 - a)$ At x: when x = a_2 $M_2 = Ra_2 - W(a_2 - a) - W_1\ (a_2 - a_1)$ M (max.) = M when W = R or > R M (max.) = M_1 when $\begin{cases} W_1 + W = R \text{ or} > R \\ W_1 + W_2 = R_1 \text{ or} > R_1 \end{cases}$ M (max.) = M_2 when $W_2 = R_1$ or $> R_1$	
	CASE 5. - Beam Fixed Both Ends - Continuous Load, Uniformly Distributed.		
	$R = R_1 = V\ (max.) = \frac{W}{2}$ At x: $V = \frac{W}{2} - \frac{Wx}{L}$	At center: $M\ (max.) = \frac{WL}{24}$ At supports: $M_1\ (max.) = \frac{WL}{12}$ At x: $M = \frac{W}{2L}\left(-\frac{L^2}{6} + Lx - x^2\right)$	At center: $D\ (max.) = \frac{1}{384}\ \frac{WL^3}{EI}$ At x: $D = \frac{Wx^2}{24\ EIL}(L^2 - 2Lx + x^2)$
	CASE 6. - Beam Fixed Both Ends - Concentrated Load at Any Point.		
	$R = W\left(\frac{b^2\ (3a+b)}{L^3}\right)$ $R_1 = W\left(\frac{a^2\ (3b+a)}{L^3}\right)$ V (max.) = R when a<b = R_1 when a>b At x: when x<a $V = R$	At support R: $M_1\left(\text{max. neg. mom. when } b>a\right) = -W\frac{ab^2}{L^2}$ At support R_1: $M_2\left(\text{max. neg. mom. when } a>b\right) = -W\frac{a^2 b}{L^2}$ At point of load: $M\ (max.) = Ra + M_1 = Ra - W\frac{ab^2}{L^2}$ At x: $M = Rx - W\frac{ab^2}{L^2}$	At x: when $x = \frac{2aL}{3a+b}$ and a>b $D\ (max.) = \frac{2W\ a^3 b^2}{3EI\ (3a+b)^2}$ when x<a $D = \frac{W\ b^2 x^2}{6\ EIL^3}(3aL - 3ax - bx)$

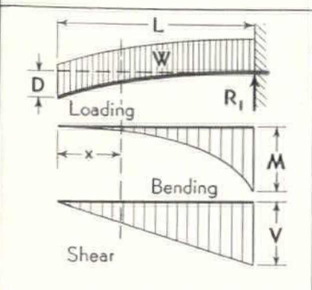
AMERICAN ARCHITECT
Time-Saver Standards

Structural Design—BEAM FORMULAE

Serial No. 31 **JANUARY 1936**

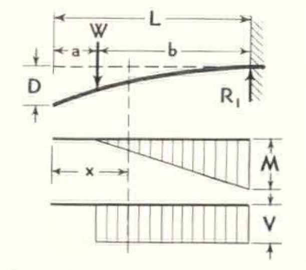
NOMENCLATURE W = Load in lbs., L = Length in ft., R = Reaction in lbs., V = Shear in lbs., M = Bending moment in ft. lbs., D = Deflection in feet, a = Spacing, b = Spacing, x = Distance, E = Modulus of elasticity, usually 29,000,000, I = Moment of inertia, < = Less than, > = Greater than.

CASE 7. - Beam Fixed at One End (Cantilever) - Continuous Load, Uniformly Distributed..



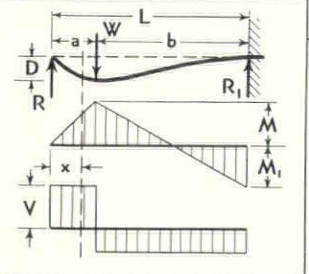
REACTIONS = R SHEAR = V	BENDING MOMENT = M	DEFLECTION = D
$R_1 = V\,(max.) = W$ At x: $V = \frac{Wx}{L}$	At fixed end: $M\,(max.) = \frac{WL}{2}$ At x: $M = \frac{Wx^2}{2L}$	At free end: $D\,(max.) = \frac{WL^3}{8EI}$ At x: $D = \frac{W}{24\,EIL}\left(x^4 - 4L^3x + 3L^4\right)$

CASE 8. - Beam Fixed at One End (Cantilever) - Concentrated Load at Any Point.



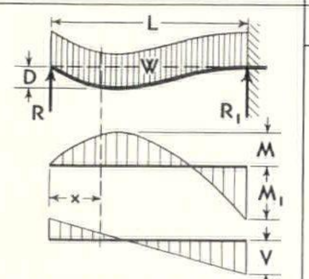
REACTIONS = R SHEAR = V	BENDING MOMENT = M	DEFLECTION = D
$R_1 = V\,(max.) = W$ At x: when $x > a$ $V = W$ At x: when $x < a$ $V = 0$	At fixed end: $M\,(max.) = Wb$ At x: when $x > a$ $M = W\,(x-a)$	At free end: $D\,(max.) = \frac{WL^3}{6EI}\left[2 - \frac{3a}{L} + \left(\frac{a}{L}\right)^3\right]$ At point of load: $D = \frac{W}{3\,EI}\left(L-a\right)^3$ At x: when $x > a$ $D = \frac{W}{6\,EI}\left(-3aL^2 + 2L^3 + x^3 - 3ax^2 - 3L^2x + 6aLx\right)$

CASE 9. - Beam Fixed at One End, Supported at Other - Concentrated Load at Any Point.



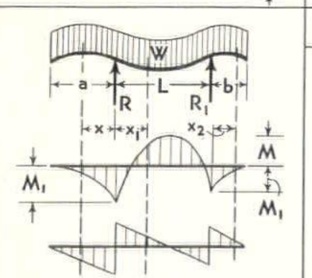
REACTIONS = R SHEAR = V	BENDING MOMENT = M	DEFLECTION = D
$R = W\left(\frac{3b^2L - b^3}{2L^3}\right)$ $R_1 = W\left(\frac{3aL^2 - a^3}{2L^3}\right)$ At x: when $x < a$ $V = R$ At x: when $x > a$ $V = R - W$	At point of load: $M\,(max.) = Wa\left(\frac{3b^2L - b^3}{2L^3}\right)$ At fixed end: $M_1\,(max.) = WL\left(\frac{3b^2L - b^3}{2L^3}\right) - W\,(L-a)$ At x: when $x < a$ $M = Wx\left(\frac{3b^2L - b^3}{2L^3}\right)$ At x: when $x > a$ $M = Wx\left(\frac{3b^2L - b^3}{2L^3}\right) - W\,(x-a)$	At x: when $x = a = .414\,L$ $D\,(max.) = .0098\,\frac{WL^3}{EI}$ At x: when $x < a$ $D = \frac{1}{6EI}\left[3RL^2x - Rx^3 - 3\,W\,(L-a)^2\,x\right]$ At x: when $x > a$ $D = \frac{1}{6EI}\left[R_1\,(2L^3 - 3L^2x + x^3) - 3\,Wa\,(L-x)^2\right]$

CASE 10. - Beam Fixed at One End, Supported at Other - Continuous Load, Uniformly Distributed.



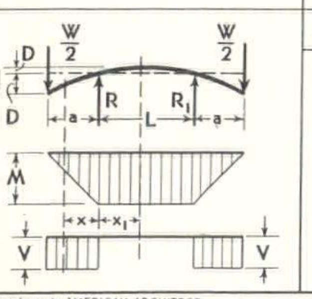
REACTIONS = R SHEAR = V	BENDING MOMENT = M	DEFLECTION = D
$R = \frac{3}{8}W$ $R_1 = V\,(max.) = \frac{5}{8}W$ At x: $V = \frac{3}{8}W - \frac{Wx}{L}$	At x: when $x = \frac{3}{8}L$ $M\,(max.) = \frac{9}{128}WL$ At fixed end: $M_1\,(max.) = \frac{1}{8}WL$ At x: $M = \frac{Wx}{L}\left(\frac{3}{8}L - \frac{1}{2}x\right)$	At x: when $x = .4215\,L$ $D\,(max.) = .0054\,\frac{WL^3}{EI}$ At x: $D = \frac{Wx}{48\,EIL}\left[-3Lx^2 + 2x^3 + L^3\right]$

CASE 11. - Beam Overhanging Both Supports, Unsymmetrically Placed - Continuous Load, Uniformly Distributed.



REACTIONS = R SHEAR = V	BENDING MOMENT = M	DEFLECTION = D
$\frac{W}{a+L+b} = w$ = load per unit of length $R = w\left[(a+L)^2 - b^2\right] \div 2L$ $R_1 = w\left[(b+L)^2 - a^2\right] \div 2L$ $V\,(max.) = wa$ or $R - wa$ At x: when $x < a$ $V = w\,(a-x)$ At x_1: when $x_1 < L$ $V = R - w\,(a + x_1)$ At x_2: when $x_2 < b$ $V = w\,(b - x_2)$	At x_1: when $x_1 = \frac{R}{w} - a$ $M\,(max.) = R\left(\frac{R}{2w} - a\right)$ At R: $M_1 = \frac{1}{2}wa^2$ At R_1: $M_1 = \frac{1}{2}wb^2$ At x: when $x < a$ $M = \frac{1}{2}w\,(a-x)^2$ At x_1: when $x_1 < L$ $M = \frac{1}{2}w\,(a+x_1)^2 - Rx_1$ At x_2: when $x_2 < b$ $M = \frac{1}{2}w\,(b - x_2)^2$	

CASE 12. - Beam Overhanging Both Supports, Symmetrically Placed - Two Equal Concentrated Loads at Ends.



REACTIONS = R SHEAR = V	BENDING MOMENT = M	DEFLECTION = D
$R = R_1 = V\,(max.) = \frac{W}{2}$ At x: when $x < a$ $V = \frac{W}{2}$	At x_1: when $x_1 < L$ $M\,(max.) = \frac{Wa}{2}$ At x: when $x < a$ $M = \frac{W}{2}\,(a - x)$	At free ends: $D = \frac{Wa^2\,(3L + 2a)}{12\,EI}$ At center: $D = \frac{WaL^2}{16\,EI}$

AMERICAN ARCHITECT
Time-Saver Standards

JANUARY, 1936 Serial No. 32

Structural Steel Design—BEAMS

PURPOSE

The accompanying chart, diagrams and factors enable the architect or designer to select the required structural steel beam for given conditions and permit the checking of designed or existing beams.

Three types of beams are indicated on the chart; Light, Standard and Wide Flange. All types have several weights and sections for each depth series. All weights are not stocked by dealers. On the chart, the beam lines are stock or minimum weight only for each depth. For special sizes consult manufacturers' handbooks or Time-Saver Standards (to be issued) on products of individual steel producers.

DESIGN PRACTICE

The proper selection of a structural steel beam under transverse loading depends upon several factors and determinations. The factors are: Loading, Span and Fiber Stress. The determinations are Reactions, Bending Moment, Section Modulus, Shear and Vertical Deflection. Lateral Deflection and Web Buckling are determinations not normally considered for simple structural beams.

Loading: The four common conditions of loading are indicated in Table 2, wherein W = total load in pounds and L = span in feet.

Fiber Stress: The chart has been prepared on the basis of an allowable working fiber stress of 18,000 pounds per square inch. The local building code or authority should be checked for possible variations. Factors or multipliers for 16,000 and 20,000 are given in Table 3.

Reactions: End Reactions are in pounds. For concentric loading the reaction, R, equals W/2. For eccentric loading the reactions are determined by the theory of moments.

Equivalent Reactions: The base for Equivalent Reactions is Uniform Loading, i.e., $1 \times R = R$. For other than Uniform Loading the Equivalent Reactions are determined by using multipliers as indicated in Table 2. Thus, the equivalent reaction for a single concentrated load is 2R and for two or three concentrated concentric equal loads is 4R/3. The equivalent reaction for single concentrated eccentric loading is indicated in Table 4. Thus, the Equivalent Reaction $4R_a$ is used with "a" as span and $4R_b$ with "b" as span. The Equivalent Reactions on the chart are given in thousands of pounds (or kips—a kip is equal to 1000 pounds).

Shear and Deflection: The *minimum* span is fixed by the safe shearing strength of a beam instead of the maximum bending stress and is indicated in structural steel literature as V = Maximum Web Shear.

The *maximum* span is fixed by the limit of allowed vertical deflection of a beam and is indicated in structural steel literature as D = Deflection. For plastered ceilings this limit is 1/360 of the span.

Where, in the selection of a beam, the intersection of the equivalent reaction and the span lines, (the abscissa and ordinate), falls beyond the limits of safe shear or safe deflection, i.e., beyond the end of the beam lines, the beam is not to be used and a stronger beam, within these limits, is to be selected.

Depth of Beam: There is a relation between the depth and span of a beam for a given fiber stress. The approximate relation of depth and span for various fiber stresses is shown in Table 1. This table also affords a rapid method of determining approximate depth of a structural member for clearance purposes.

DATA REQUIRED

For concentric loading as in Table 2 it is only necessary to establish the factors: Loading, Span and allowed Fiber Stress. For eccentric loading as in Table 4 the spacing of the eccentric loading must also be known.

SELECTION OF BEAM—Direct Method — From Span and Equivalent Reaction, as in Tables 2 and 4

Determine Equivalent Reaction according to Loading from Table 2. If fiber stress is other than 18,000 multiply by ratio of the stresses (or by multiplier in Table 3 for commonly allowed stresses) to obtain corrected Equivalent Reaction. Find Equivalent Reaction in thousands of pounds in scale at the right hand margin of the chart and the span in the scale at the bottom margin. Where the Equivalent Reaction and Span lines intersect find the required beam.

EXAMPLES: Simple Loads

Assume Load, W = 24,000, and Span, L = 12.

(1) Uniform Load: Equivalent Reaction = R = W/2 = 12,000. At intersection of 12,000 E.R. and 12 ft. span lines find 10″ I 25.4# beam required.

(2) One Concentrated Concentric Load. Equivalent Reaction = 2R = 2W/2 = W = 24,000. At intersection of 24,000 E.R. and 12 ft. span lines find 16″ WF 36# or 15″ I 42.9# beam.

(3) Two or Three Concentrated Concentric Equal Loads: Equivalent Reaction = 4R/3 = 4W/6 = 16,000. At intersection of 16,000 E. R. and 12 ft. span lines find 12″ I 31.8# beam.

(4) One Concentrated Eccentric Load (See Table 4). Assume a = 4 and b = 8 ft. Reaction is found by theory of moments, as: $R_a = W_b/L = 24{,}000 \times 8/12 = 16{,}000$ lbs. $R_b = W_a/L = 24{,}000 \times 4/12 = 8{,}000$ lbs. $R_a + R_b = 16{,}000 + 8{,}000 = 24{,}000$ lbs. = W = check. $4R_a = 4 \times 16{,}000 = 64{,}000$ . . . $4R_b = 4 \times 8{,}000 = 32{,}000$. At intersection of 64,000 E.R. and 4 ft. span (or "a") find 14″ WF 30# beam required; or, at intersection of 32,000 E.R. and 8 ft. span (or "b") find 14″ WF 30# beam required (check). Note: At the upper end of 14″ WF 30# beam line at the maximum shear limit—read right to right margin and find the safe shear is 41,000 lbs., whereas the end reaction is 16,000.

EXAMPLES: Combined Loads

Assume Uniform Load, W = 24,000, Concentrated Load, W_1 = 12,000 and Span, L = 12 ft.

(5) Uniform Load and One Concentrated Concentric Load: $R + R = 24{,}000/2 + 2 \times 12{,}000/2 = 24{,}000$ = E.R. At intersection of 24,000 E.R. and 12 ft. span lines find 16″ WF 36# or 15″ I 42.9# beam required.

(6) Uniform Load and Two or Three Concentric Equal Loads: $R = 4R_1/3 = 24{,}000/2 + 4 \times 12{,}000/2 \times 3 = 20{,}000$ = E.R. At intersection of 20,000 E.R. and 12 ft. span lines find 14″ WF 30# beam required.

SELECTION OF BEAM—Computation Method—From Bending Moment or Section Modulus, where Equivalent Reaction is not indicated in Tables 2 and 4.

Calculate the Bending Moment in foot-pounds, see T.S.S.—Structural Design—Beam Formulae—and select beam by reading into the Bending Moment line. When fiber stress is other than 18,000, divide the Bending Moment in *inch-pounds* (B.M. in ft.-lbs. × 12) by the allowed fiber stress in pounds per square inch, obtaining the Section Modulus and select the beam by reading into the Section Modulus line.

(7) EXAMPLE: Assume a Bending Moment of 36,000 ft. lbs. 36 (000) in right margin. Read left to Bending Moment line. Find a 10″ I 25.4# beam required. By reading down 10″ I 25.4# beam line to 12 ft. span line find 12 (000) lb. Equivalent Reaction, for check. Or, read down beam line to intersection of Equivalent Reaction and find 12 ft. safe span. By reading up any beam line to Bending Moment line the safe Bending Moment is found.

(8) EXAMPLE: Assume B.M. as 36,000 lbs. Fiber Stress as 18,000. Section Modulus = $36{,}000 \times 12/18{,}000 = 24$. Find 24 in right margin. Read left to S.M. line. Find 10″ I 25.4# beam required. By reading down beam line to 12 ft. span line find 12 (000) lb. equivalent reaction, for check. By reading up any beam line to S.M. line the Section Modulus of the beam is found.

Structural Steel Design—BEAMS

Serial No. 32 **JANUARY, 1936**

TABLE 1

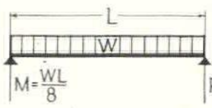
RELATION OF DEPTH TO SPAN FOR VARIOUS FIBRE STRESSES

Fibre Stress	Depth
16,000	d = L/2.00
18,000	d = L/1 76
20,000	d = L/1 61

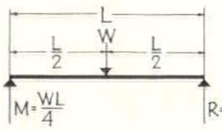
Where d = depth in Inches
Where L = span in Feet *(max)*

TABLE 2

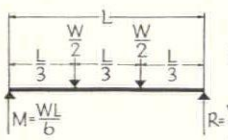
EQUIVALENT REACTIONS FOR DIFFERENT LOADINGS



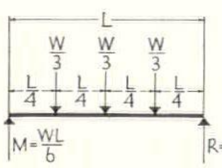
Use R



Use 2R



Use $\frac{4}{3}$R



Use $\frac{4}{3}$R

TABLE 3

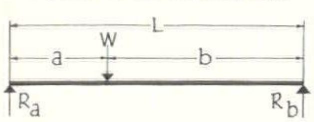
EQUIVALENT REACTIONS FOR DIFFERENT STRESSES

Fibre Stress	Multiplier
16,000	1.125
18,000	1.000
20,000	0.900

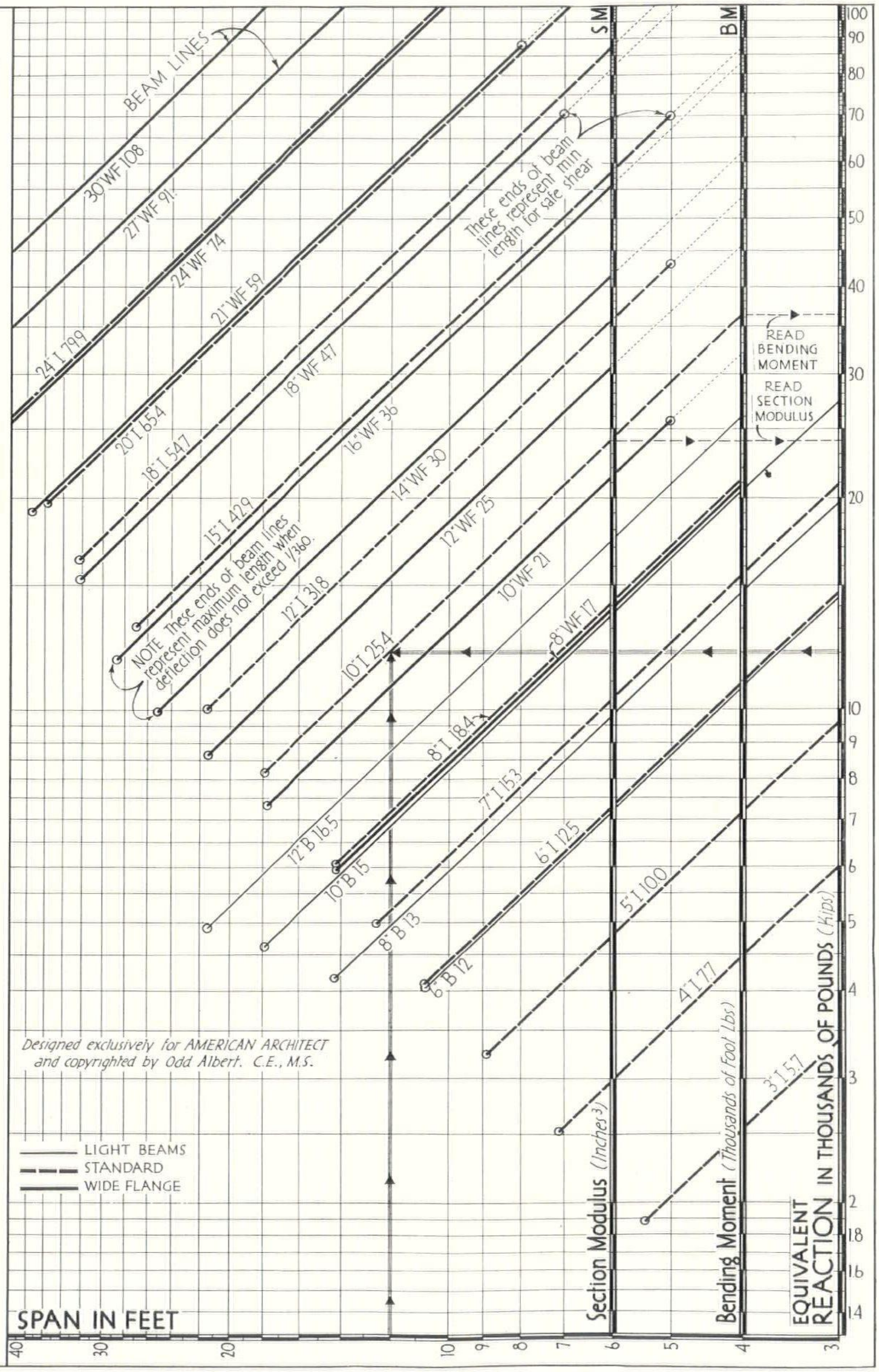
Chart is based on 18,000 fibre stress. Multiply reaction by multiplier to obtain reaction for fibre stress.

TABLE 4

EQUIVALENT REACTIONS FOR ECCENTRIC LOADINGS



Use a for span and 4 R_a for reaction
or... Use b for span and 4 R_b for reaction



AMERICAN ARCHITECT
Time-Saver Standards

JANUARY 1936 Serial No. 33

Structural Steel Design—COLUMNS

PURPOSE:

The accompanying chart, tables and diagram simplify the determination or checking of structural steel sections required as main compression members (columns, posts and struts). Secondary compression members, used for bracing, should not be selected from the data given here.

Three types of H sections rolled by the principal mills, are shown on the chart and in Table 3. Those marked "B" and "M" are light sections; "WF" indicates wide flange sections. Column lines, except the one marked 6" B 41#, represent selected sections, which prove to be economical for most conditions. The 6" B 41# section is not economical, indicating that optimum properties of a section are more important than its weight. All sizes shown are rolled in other weights but are not always carried in stock. For sections not shown, consult the American Institute of Steel Construction (A.I.S.C.) Handbook, the Shape Books of rolling mills, or Time-Saver Standards (to be issued) on products of individual steel producers.

DATA REQUIRED

To select the section required from the chart, determine the "Equivalent concentric load" and the "unbraced height" of the section, as follows:

Equivalent Concentric Load (E. C. L.) is the sum of the concentric, eccentric and bending loads. A load that is equally distributed over the area of a section, or is equally balanced on opposite sides, is concentric. A load that is unequally distributed or unequally balanced is eccentric. A bending load is the result of additional stress on the section, due to eccentric loading, and is in *addition* to the eccentric load. See Rules 1 and 2.

Eccentric loads produce a bending effect on the section which is calculated as a bending moment. The bending moment, the bending load and the unbraced height depend upon properties of column sections. (See Table 3.) Practically all sections are symmetrical about one of two axes passing through the center of gravity. The axis parallel to the web is designated Y-Y. The X-X axis is parallel to the flanges. (See diagram below Table 2.) A section is generally weaker on the Y-Y axis; for this reason an eccentric load should, when possible, be applied on the X-X, or stronger axis.

RULE 1. To find the bending load caused by an eccentric load: (a) Determine the bending moment in inch pounds by multiplying the eccentric load in pounds, by the distance in inches from the affected axis to the load.
(b) Multiply the bending moment, thus found, by the bending factor found in Table 3. This factor is designated K_x or K_y according to the axis. The result is the bending load in pounds.

RULE 2. To find the equivalent concentric load: (a) When the section carries a concentric load only, this concentric load is the equivalent concentric load.
(b) When the section carries an eccentric load only, add to this load the bending load found by Rule 1, to get the equivalent concentric load.
(c) When the section carries a concentric and an eccentric load, add to the sum of the concentric and eccentric loads, the bending load, found by Rule 1. The total is the equivalent concentric load.

Unbraced Height of a main compression member, designated "H" on the chart, is the shortest length between horizontal supports. This is usually the height between floor or spandrel beams. The chart is designed for direct reading of unbraced height when the bracing is on the Y-Y axis (the weaker axis) of the section. This Y-Y axis is always used as the basis for selecting H sections. They are then checked for the permissible unbraced height on the X-X axis, as a guide to the required bracing in this direction.

SELECTION OF SECTION

When only concentric loads are involved, direct determination is possible. Since the bending load, found in Rule 1, cannot be determined without knowing the properties of the section to be used, the process of finding the required section, where any eccentric load is imposed, involves a trial method.

RULE 3. To find the required section when only a concentric load is imposed: On the accompanying chart find the concentric load (which is also the equivalent concentric load as in Rule 2a) on the scale at the left. Read in. Find the unbraced height H on the bottom margin. Read up to the intersection with the load value. The required section is represented by the column line at, or just above, this intersection.

RULE 4. To find the required section where eccentric loads, with or without additional concentric loads, are involved: (a) Tentatively assume that the bending load is equal to or greater than the known eccentric load. With this assumption, find the equivalent concentric load as in Rule 2b or c.
(b) Using this assumed equivalent concentric load, proceed as in Rule 3 and find on the chart the apparent section required.
(c) Read from Table 3 the bending factor for the section thus selected and compute the actual bending load and then the actual equivalent concentric load. Read the chart again; if the section first assumed is found on this second trial, it is the correct section required. If the assumed section does not check, try again, starting with a larger or smaller column.

RULE 5. To find the allowed unbraced height on the X-X axis of a given section: Multiply the allowed unbraced height on the Y-Y axis by the ratio r_x/r_y from Table 3.

Example: Assume a concentric load of 60,000 lbs., an eccentric load of 29,000 lbs. at 4" from the affected (X-X) axis and an unbraced height of 12 ft. (on the Y-Y axis).

Assume that the bending load is equal to the eccentric load, or about 29,000 lbs. The assumed E.C.L. is then 60,000 + 29,000 + 29,000 or about 120,000 lbs. On the chart, read from the left hand scale at 120(000) to the right, and read up from the unbraced height scale at 12 ft. At the intersection of these lines find an 8" WF 31# section. This becomes the assumed section.

In Table 3, find the bending factor (K_x) for an 8" WF 31# section as 0.333. From Rule 1, find the bending load thus: Bending moment is 29,000 (eccentric load) multiplied by 4 (inches of eccentricity) = 116,000 in. lbs. Bending load is then 116,000 x 0.333 = 39,000 lbs. The E.C.L. (Rule 2) is then 60,000 + 29,000 + 39,000 = 128,000 lbs. On chart find that the intersection of 128,(000) on the E.C.L. scale and 12 ft. on the H scale falls on the same 8" WF 31# column line, tentatively assumed. This is therefore a safe section to use.

The ratio r_x/r_y for an 8" WF 31# section, in Table 3, is 1.73. The unbraced height allowed on the X-X axis (from Rule 5) is then, the length 12 (for the Y-Y axis) multiplied by the ratio r_x/r_y or 1.73 = 20.86 ft.

CHECKING A GIVEN SECTION

The chart and tables may be used to check a known column of H section for allowable equivalent concentric load. The safe E.C.L. is the stress (f) multiplied by the area of the section. The allowable unit stress in turn is governed by the "ratio of slenderness" which is the height (H) divided by the radius of gyration (r) for either axis, or H/r. When the ratio of slenderness (H/r) is 5 or less, the allowable unit stress is 15,000 lbs. (See Table 1.) A ratio of over 10 is never used for columns, posts, or struts.

RULE 6. To check the equivalent concentric load which is permissible for a given column of H section: (a) Find the radius of gyration (r) for the given axis from Table 3. Divide the unbraced height (H) by this radius of gyration (r) to find the ratio of slenderness (H/r). If this latter ratio exceeds 10, the column is improperly used. If less than 10, find in Table 1 the allowable unit stress (f) for the known ratio (H/r).

(b) Find in Table 3 the area of the column section in square inches and multiply by the allowable unit stress. The product is the safe E.C.L.

BASE PLATES

Sizes of steel base plates for the columns shown on this chart may be found in Table 2 when the allowed bearing pressure on the footing below is 500 lbs. per sq. inch. If the local code permits 600 lbs. bearing pressure compute size from diagram and formulae below Table 2.

AMERICAN ARCHITECT
Time-Saver Standards

Structural Steel Design—COLUMNS

Serial No. 33 **JANUARY 1936**

TABLE 1
ALLOWABLE UNIT STRESSES FOR DIRECT COMPRESSION

RATIO H/r	STRESS (f)
5 ⊙	**15,000**
6	13,980
7	12,930
8	11,910
9	10,920
10 □	**10,000**
11	9,150
12	8,360
13	7,650
14	7,010
15	6,430
16	5,910
16.67 ▽	**5,590**

⊙ H/r 5 or less, use 15,000 stress
□ Max.-Main compression members
▽ Max.-Secondary members

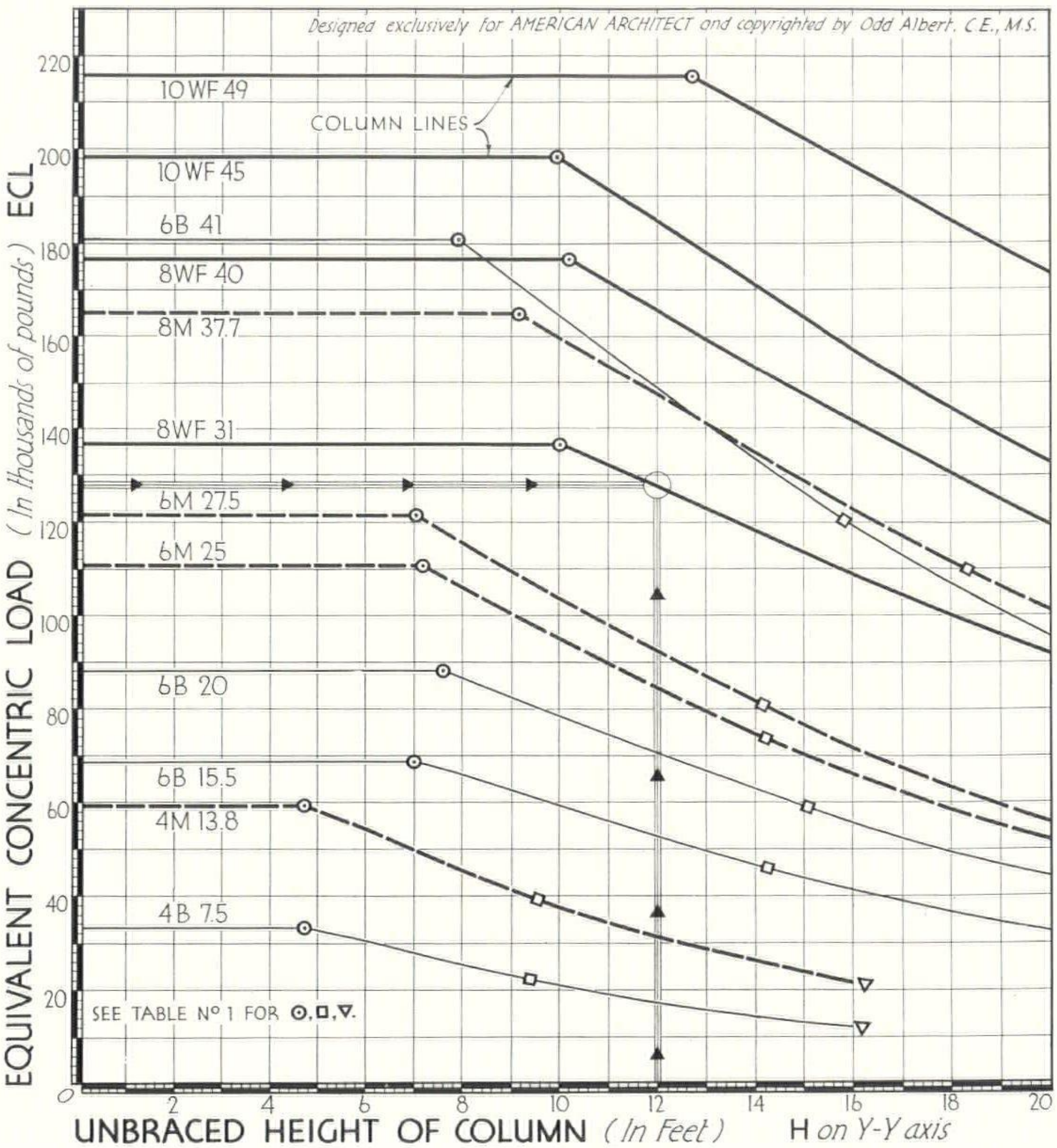
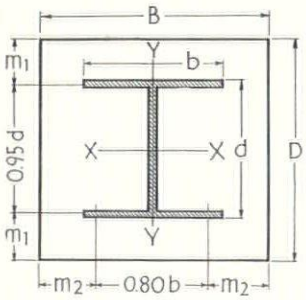


TABLE 2
BASE PLATES

COLUMN SIZE, TYPE AND WEIGHT	BASE PLATE Based on Bearing Pressure = 500 #/□"			
	B	D	t	WGT
10 WF 49	20	22	2	249
10 WF 45	20	20	2	227
6 B 41	18	20	2	207
8 WF 40	18	20	2	207
8 M 37.7	18	20	2	207
8 WF 31	16	17	1½	116
6 M 27.5	16	16	1¾	127
6 M 25	15	15	1½	96
6 B 20	13	14	1¼	64
6 B 15.5	12	12	1¼	51
4 M 13.8	10	12	1¼	43
4 B 7.5	8	9	¾	15



$$\frac{\text{Total Load } W}{\text{Bearing pressure } p} = B \times D$$

Thickness t of Plate

$t = 0.29 \times m_{max}$ For p = 500

$t = 0.32 \times m_{max}$ For p = 600

TABLE 3 PROPERTIES OF COLUMN SECTIONS

SIZE, TYPE & WEIGHT	AREA Sq. In	DEPTH d inches	WIDTH b inches	MOMENT OF INERTIA		SECTION MODULUS		RADIUS OF GYRATION		RATIO $\frac{r_x}{r_y}$	BENDING FACTORS	
				I_x	I_y	S_x	S_y	r_x	r_y		K_x	K_y
10 WF 49	14.40	10.00	10.00	272.9	93.0	54.6	18.6	4.35	2.54	1.71	0.264	0.774
10 WF 45	13.24	10.12	8.022	248.6	53.2	49.1	13.3	4.33	2.00	2.17	0.270	0.995
6 B 41	12.04	6.75	6.245	91.2	30.5	27.0	9.77	2.75	1.59	1.73	0.446	1.233
8 WF 40	11.76	8.25	8.077	146.3	49.0	35.5	12.1	3.53	2.04	1.73	0.331	0.972
8 M 37.7	11.00	8.00	8.125	120.8	36.9	30.2	9.1	3.31	1.83	1.81	0.364	1.209
8 WF 31	9.12	8.00	8.00	109.7	37.0	27.4	9.2	3.47	2.01	1.73	0.333	0.991
6 M 27.5	8.09	6.00	6.063	49.3	16.0	16.4	5.3	2.47	1.41	1.75	0.493	1.535
6 M 25	7.35	6.00	5.938	47.0	14.9	15.7	5.0	2.53	1.43	1.77	0.467	1.466
6 B 20	5.89	6.00	6.00	39.2	13.5	13.1	4.50	2.58	1.51	1.71	0.451	1.308
6 B 15.5	4.59	6.00	6.00	30.1	9.19	10.0	3.06	2.56	1.42	1.80	0.457	1.498
4 M 13.8	3.99	4.00	4.00	10.7	3.6	5.3	1.8	1.64	0.95	1.73	0.753	2.217
4 B 7.5	2.22	3.87	3.95	6.06	1.96	3.13	0.99	1.65	0.94	1.76	0.710	2.234

AMERICAN ARCHITECT
Time-Saver Standards

JANUARY 1936 Serial No. 34

Structural Steel Design—BEAM DEFLECTION

PURPOSE:

The accompanying chart and table provide a simple means for determining the deflection of a structural steel section used as a beam or girder under certain specific and commonly encountered loadings. It also permits a rapid determination of the approximate required depth of a beam for given span and specific loading when the permissible deflection is known.

DEFLECTION LIMITS

When working stresses imposed on a beam are within the allowable fibre stress, deflection is negligible so far as the steel member is concerned. But when the beam is supporting weaker or less flexible materials, such as plaster, it is important to limit the deflection of the structural member to that which the supported material will tolerate without cracking.

Permissible deflection for plaster is the span or length of the beam in *inches* divided by 360. European practice limits deflection to span in *inches* divided by 500.

DATA REQUIRED

To determine the deflection of a steel beam or girder from the chart, the following data are needed: (1) Allowed fibre stress in lbs. per sq. inch, usually prescribed in the governing building code. Consult local authorities. The stress is usually given for bending; the same stress allowed for bending must be used for determining deflection by means of this chart. (2) Depth of the section, in *inches*. (3) Length of the member, in *feet*. (4) Specific loading, i.e., the disposition of the load according to one of the diagrams in Table 1.

It is here assumed that the structural steel section to be employed as a beam has been selected from known loads and span (see T-S.S. "Structural Steel Design—Beams) and therefor the depth (h) is known. See below for procedure when depth is not known. In this chart it is assumed that the beam selected is loaded to the allowable fibre stress, hence the weight of the load is not involved.

PROCEDURE

Deflection is markedly affected by the disposition of the load, whether uniform, concentrated, or both uniform and concentrated. All loads embraced in this chart are concentric (equally spaced around the center point) as indicated by diagrams in Table 1.

RULE 1. To find the deflection of a beam under uniform loading: Compute the ratio of the length or span of the beam *in feet* to the depth *in inches* or L/h. In the upper left side of the accompanying chart find the allowed fibre stress in the scale so designated. Read right to the L/h ratio line corresponding to the ratio just found. Read down to the length (L) line. Read left to the marginal scale marked deflection and find the deflection of the beam in inches.

RULE 2. To find the deflection of a beam under any loading other than a simple uniformly distributed load: Follow procedure in Rule 1 for uniform loading to find the *apparent* deflection. In Table 1 find the character of loading under consideration and its "multiplier." Multiply the apparent deflection by the multiplier for the specific loading to find the true deflection in inches.

RULE 3. To find the deflection of a beam under both a uniform and a concentrated concentric loading: Find the deflection for the uniform load by Rule 1 and the true deflection resulting from the concentrated concentric load by Rule 2. Add these deflections to get the true deflection in inches under the combined loads.

Examples: Assume a beam 18 feet long, having a depth of section (h) of 10 inches and an allowed fibre stress of 15,000 lbs. per sq. inch.

Case 1. Assume beam to be uniformly loaded (first diagram, Table 1). Following Rule 1 find the ratio of length in feet to depth in inches: $18/10 = 1.8$. Find 15(000) on the fibre stress scale; read right to the L/h line 1.8; read down to the length (L) line of 18; read left to the margin and find the deflection of the beam when fully stressed is 0.5 inches.

Case 2. Assume the same beam to be carrying one concentrated load at its center point (second diagram, Table 1). Find the *apparent* deflection as if the load were uniformly distributed as in Case 1. In Table 1 note that the multiplier for this loading is 0.8. From Rule 2 the deflection is the product of this multiplier and the assumed deflection or $0.5 \times 0.8 = 0.4$ inches.

Case 3. Assume the same beam carries both the uniform load in Case 1 and the concentrated concentric load in Case 2. From Rule 3 the true deflection is the sum of the deflections found for each specific loading or 0.5 plus $0.4 = 0.9$ inches.

TO ESTIMATE DEPTH OF BEAM

In preliminary design it is often desirable to estimate the approximate depth required in a beam before the structural steel section has been selected. Normally it is desired to keep within a specified limit of deflection. Factors required are: span in feet; allowed fibre stress; specific type of loading (one of those indicated in Table 1); and the allowed maximum deflection.

The latter need not be computed if American or European plaster limits are followed, as the former is indicated by the vertical dotted line near the center marked L/360 and in the latter by a similar line nearer the center marked L/500.

RULE 4. To estimate depth of a beam uniformly loaded when limit of permissible deflection is known:

(a) If American practice is the guide to design find on the chart the intersection of the dotted L/360 line with the horizontal line corresponding to the allowed fibre stress. Find the L/h line at this intersecting point or immediately below. Divide the length by the L/h ratio to find the depth h in inches.

(b) European practice is followed, proceed as in (1) above, using the dotted line marked L/500.

(c) If ratio of length to deflection is other than American or European plaster limits, divide the length in *inches* by the allowed deflection ratio to get the actual permitted deflection in inches. Read on deflection scale at lower left side of chart and read right to the length line L for the beam and from this intersection read vertically to the horizontal line corresponding to the allowed fibre stress. Proceed as in (a) above.

RULE 5. To estimate depth of a beam when loading is different from a uniform load (as indicated in Table 1): Find the depth as in Rule 4. Find in Table 1 the multiplier for the specific loading. Multiply the depth by the *reciprocal* of the multiplier to find the approximate depth for the concentrated loading indicated.

RULE 6. To estimate depth of a beam carrying both a uniform and a concentrated concentric load: Find the depth for the uniform load by Rule 4 and the depth for the concentrated load by Rule 5 and add the two depths to find the required depth of the beam.

Examples: Assume a beam 18 feet long and an allowed fibre stress of 18,000 lbs. per sq. inch. A deflection of L/360 is allowed.

Case 1. Further assume the beam to be uniformly loaded. Find the intersection of the L/360 dotted line with the 18(000) fibre stress line. It falls on the L/h line marked 1.8. Since $L = 18$ feet, the depth h equals $18 \div 1.8 = 10$ inches, the approximate depth required in the beam.

Case 2. Assume the beam to be carrying one concentrated concentric load (second diagram in Table 1). From Rule 5, find the multiplier for this loading in Table 1 to be 0.8, and the depth of beam for uniform loading as in Case 1 to be 10 inches. The product of this depth and the reciprocal of the multiplier is $10 \times 1/0.8$ or $10 \times 1.25 = 12.5$ inches, the approximate depth needed.

Case 3. Assume the beam to be carrying both types of loads given in Cases 1 and 2. From Rule 6 add the depths found for each type of loading; i. e. 10″ for uniform loading and 12.5 inches for one concentrated concentric load or $10 + 12.5 = 22.5$ inches.

Case 4. If a deflection of L/400 were assumed in the foregoing examples it would first be necessary to find the deflection in inches. From Rule 4c multiply the length L in feet by 12 to get the length in inches and divide by 400. That is, $18 \times 12 = 216 \div 400 = .54$ inches actual deflection. Find this value on the deflection scale, read right to intersection of the length line $L = 18$ and read up to the horizontal line for 18(000) fibre stress. These intersect close to the L/h line marked 1.6. Proceed as above.

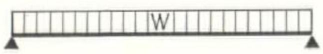
AMERICAN ARCHITECT
Time-Saver Standards

Structural Steel Design—BEAM DEFLECTION

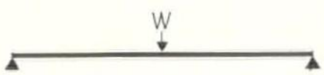
Serial No. 34 JANUARY 1936

TABLE 1

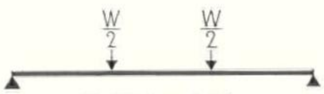
DEFLECTION MULTIPLIERS FOR DIFFERENT LOADINGS



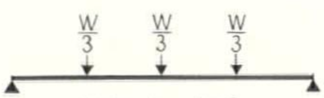
Multiplier - 1



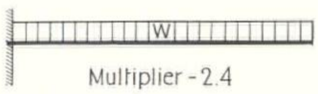
Multiplier - 0.8



Multiplier - 1.04



Multiplier - 0.78



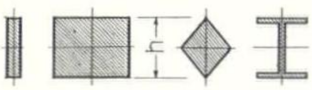
Multiplier - 2.4

Multiplier - 3.2

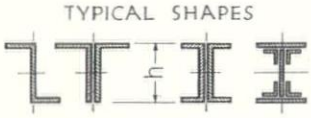
NOTE Chart at right is based on uniform loading To obtain true deflection for specific loading, multiply obtained deflection from chart by above multiplier.

TABLE 2

This chart can be used for any symmetrical shape under transverse loading The only factors necessary are the max fiber stress and the depth (h)



TYPICAL SHAPES



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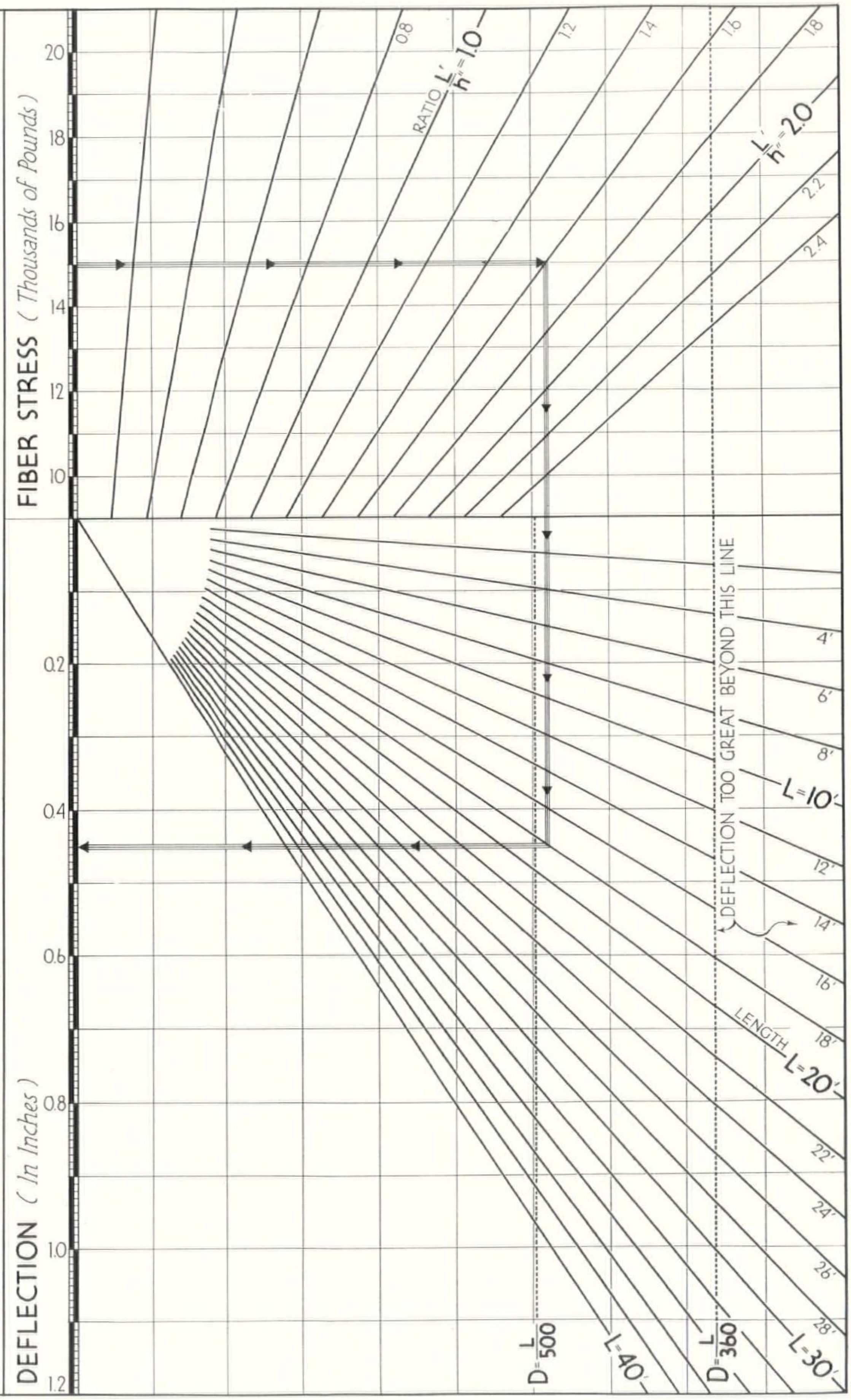


The First 3,000

COPIES OF ALL 1935 Time-Saver Standards sheets have been mailed without charge to architects, engineers, designers and specification writers in continental U. S. who have filed proper application for them.

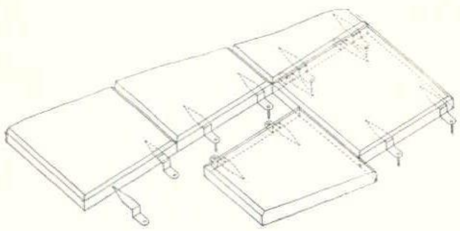
Total registration for this new, free technical service for the building professions now totals more than three thousand. The demand has already exceeded expectations. After the present supply of 1935 sheets is exhausted, prompt mailings cannot be guaranteed to new applicants, but requests for complete sets will be met as soon as necessary publication processes will allow.

In addition to sheets listed elsewhere in this issue, the first mailing included the following Time-Saver Standards of Advertised Products:

Westinghouse Floodlighting Projectors
Dimensions of Selected G-E Lampholders
G-E Radial Wiring System—Basic Design
G-E Radial Wiring System—Control Elements
G-E Radial Wiring System—Design Procedure
G-E Radial Wiring System—Specifications
Quiet May "Steam-Air-Conditioner"

If you have not already made application for American Architect's Time-Saver Standards Service, and wish to do so, address the Director of Technical Service. A registration form and full information will be promptly sent to you.

FINISHING MATERIALS



TIGER WALLBOARD CLIPS

The new Tiger Wallboard Clips afford a means of attaching fibre-board with no exposed nail heads. The first row of fibre-board is erected by nailing down the clips on both edges to the joists. The next row of board is then slipped into place. The clips on this second row slip under the nailed edge of the first row of fibre-board, holding both edges firmly to the joist. The clips on the opposite edge of the second row are then nailed and the process is repeated. This is a product of The V-W Company, Columbus, Ohio. **547M**

ACOUSTIC TELEPHONE BOOTH

A new type of telephone booth, built on the principle of absorbing extraneous sounds rather than blocking them, has recently been designed. This booth differs from wooden booths in that its interior is faced with what is known as Burgess Acoustic Treatment, a perforated metal sheet backed with balsam wool. One of the features is the absence of a door, which is made possible by the fact that the acoustic lining deadens extraneous noises, such as originate in industrial plants, producing within the booth a space of comparative silence. A shelf supports the telephone instrument and illumination is provided by an electric light in the ceiling. The booth is open around the base. This is a new development of the Acoustic Division of the Burgess Battery Company, Madison, Wisconsin. **548M**

PREFINISHED BUILDING MATERIAL

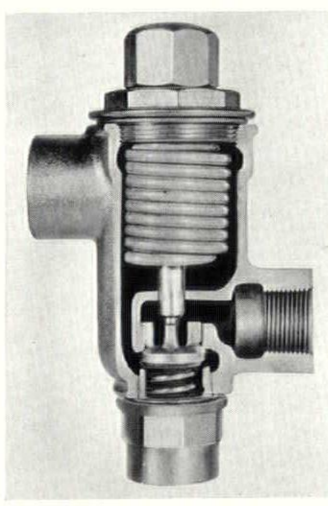
Prefinished with decorative designs, this material is hot pressed under pressure into large sheets of various thicknesses. It is said to be especially strong and has a denseness which reduces moisture absorption to the minimum. Color designs and wood patterns are moulded into the surface with a Bakelite laminating varnish. The material is adapted for modernization and for new work and may be used in most places where marble, wood paneling or structural glass is employed. Farley & Loetscher Mfg. Company, Dubuque, Iowa, have announced this new synthetic building material. **549M**

HEATING

"GAS-FIRED" UNIT HEATER

A forced-air type of automatic gas-fired heating unit, which is said to combine the features of forced-air circulation, humidification, air filtration and heating, is announced by The Cleveland Co-Operative Stove Company, Cleveland, as the "Grandaire" unit heater. In this self-contained unit, the air is filtered, humidified, forced through the heating element by a fan and directed into the room in a horizontal stream through adjustable louvers. The entire action of the heater is automatic. It has an hourly input of 50,000 Btu and a normal output of 41,500 Btu. A manual gas valve is provided so that the gas may be shut off in the summer and the fan operated alone for ventilation. **550M**

EXCELSO TEMPO MIXING VALVE



A new mixing valve of simplified construction is designed to control, within narrow limits, domestic hot water supply or process hot water temperatures. Hot water enters the top of the valve, cold water the side; and the flow of both waters is controlled by a liquid-operated thermostatic element. As the waters pass the inlet valves they are mixed in a chamber and then come in contact with the control element. This complete mixing before the water contacts the thermostatic element is said to assure accurate control. Outlet temperatures are adjustable from 120 F. to 160 F. The unit is manufactured by Excelso Products Corp., Buffalo, N. Y. **551M**

VERNIER VALVACTOR

A new accessory for air-operated control valves, the Vernier Valvactor, developed to eliminate valve sticking and to assure hair-line valve positioning, has been added to the line of control instruments manufactured by The Foxboro Company, Foxboro, Mass. This device enables throttling type air-operated control instruments to make small gradual adjustments of the control valve position regardless of friction. The unit is mounted in a cast aluminum case, is completely weatherproof, and is available also with a case of gas-tight construction for use indoors on gas supply with the vent piped to a safe spilling point. It can be readily installed on valves in the field with little interruption to service. **552M**

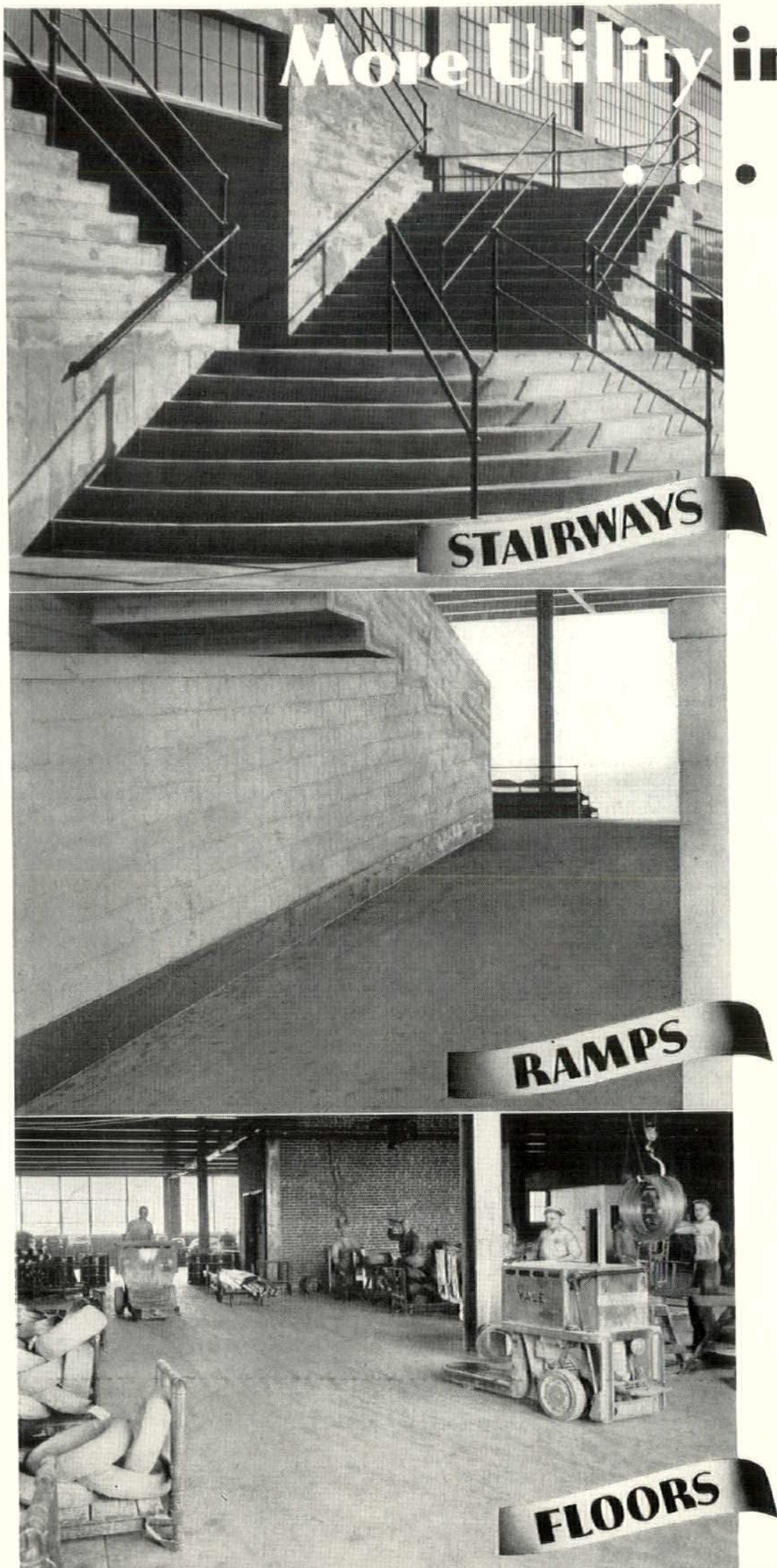
AIR CONDITIONING

NEW AIR CONDITIONING SYSTEM

A new year 'round air conditioning system, to be known as the "Air-O Matic," has recently been developed. Low pressure steam is supplied directly to a copper-finned heating coil within central air distributing unit for heating

(*Continued on page* 102)

More Utility in Cement Floors . . . at Lower Cost



ALUNDUM (C.F.) AGGREGATE can be used to advantage in cement walkways wherever there is a slipping hazard or wherever they are subjected to severe service. This includes innumerable places in industrial plants, dairies, laundries, garages, railroad stations, around outdoor swimming pools, for sidewalks, crosswalks and roadways.

CHARACTERISTICS—Because of its slightly open structure Alundum (C.F.) Aggregate remains effectively non-slip at all times—it does not glaze nor wear smooth—wet conditions do not impair its efficiency. Its open structure also insures a firm bond—the cement seeps into its irregularities and tiny pores so that it becomes a homogeneous part of the concrete. In fact, the aggregate tends to act as a reinforcement and considerably increases the durability of the concrete.

COST—In spite of its increased effectiveness over abrasive grain — both in providing safety and durability — Alundum (C.F.) Aggregate is also more economical. The aggregate has nearly twice the volume of abrasive grain of the same size for a designated weight and therefore its ***price per square foot is lower.***

The latest issue of "Norton Floors" and Catalog D give full information on Alundum (C.F.) Aggregate, including specifications. Copies on request.

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NORTON FLOORS

ALUNDUM TILES—TREADS—AGGREGATES

NEW CATALOGS . . . .

Readers of AMERICAN ARCHITECT may secure without cost any or all of the manufacturers' catalogs described on this and the following page by mailing the prepaid post card printed below after writing the numbers of the catalogs wanted. Distribution of catalogs to draftsmen and students is optional with the manufacturers

Gold Leaf

853 . . . The story of gold leaf in architecture is interestingly told in a new 16-page filing-sized brochure issued by Hastings & Company, Philadelphia. It gives a brief history of this material, describes how it is manufactured, and explains application and maintenance methods. The booklet is profusely illustrated with pictures of various installations of gold leaf.

Western Red Cedar Lumber

854 . . . Basic data on structure, physical and mechanical properties and chemical composition of Western Red Cedar are contained in a new "information series" issued by Western Red Cedar Lumber, Seattle, Wash. This factual series of loose-leaf sheets gives information on insulation, shrinkage, nailability, paintability, durability, behavior and other qualities of this type of lumber. Filing size; A. I. A. File 19-A.

Insulux Glass Building Blocks

855 . . . A complete presentation of Insulux Glass Masonry Blocks is contained in a 32-page brochure issued by the Insulux Division, Owens-Illinois Glass Co., Muncie, Indiana. Opening with a general description of the product, the brochure gives data on structural characteristics, light transmission qualities, sizes, uses, etc. Also included are typical details of Insulux construction for various types of installations, basic specifications, test data, and a simplified estimating method.

Radiator Enclosures

856 . . . Wickwire Spencer Steel Company, New York, has issued a small folder which illustrates and describes various models in its line of standard and custom-built radiator enclosures. Specifications for each type are given.

Modine Unit Heaters

857 . . . Modine Mfg. Co., Racine, Wis., has issued Catalog No. 635 which describes and illustrates its line of direct-suspension type unit heaters. Industrial applications of unit heaters for process work as well as for heating purposes are discussed. Complete dimensional diagrams and data tables accompany each description of the units. Two pages are devoted to methods of determining heat requirements, heat loss calculations, and the capacities and final air temperatures of all units at various steam pressures and entering-air temperatures.

Aire-Flo Air Conditioning

858 . . . The Aire-Flo system of air conditioning, which provides units ranging from winter heating, humidification and filtering to complete all-year air conditioning, is described and illustrated in a new 24-page filing-sized catalog issued by Lennox Furnace Company, Inc., Marshalltown, Iowa. Complete data on various models and accessory equipment available are given.

Centralized Radio for Schools

859 . . . Technical data and specifications on public address and centralized radio systems for school application are contained in a 16-page loose-leaf portfolio issued by the Giant Manufacturing Co., Council Bluffs, Iowa. The purpose of this type of system and its various components is fully described.

Sectional Header Boiler

860 . . . Combustion Engineering Company, New York, has issued a 16-page catalog (No. S-2) illustrating and describing details of its sectional-header type boiler as built for a wide range of steam pressures, capacities and different methods of fuel firing. In addition to details of design, cross-sections of numerous representative installations are included, as well as shop photographs showing the fabrication of such boilers and their inspection.

Wood Grained Sheetrock

861 . . . The United States Gypsum Company, Chicago, has issued a 16-page filing-sized catalog which gives essential data on Sheetrock gypsum wallboard in the new wood grained finishes. These finishes are obtained by photographing an actual wood panel and reproducing it on the face of sheetrock in its original color and pattern. The booklet contains 4-color reproductions of the wood finishes available—knotty pine, douglas fir, walnut and matched walnut—and shows a variety of typical installations and suggested uses.

Electric Time and Safety Equipment

862 . . . Bulletin No. 87, issued by The Standard Electric Time Co., Springfield, Mass., gives data on the electric time and safety equipment manufactured by this company. Described and illustrated are "Standard" electric time systems for schools, industrial plants, public and private buildings, fire alarm equipment, school telephone systems, laboratory current distribution systems for physics, chemistry, biology and shop departments, and school sound distribution systems.

Toncan Iron

863 . . . Condensed, up-to-date information on Toncan Copper Molybdenum Iron is contained in a 12-page folder issued by Republic Steel Corporation, Massillon, Ohio. Of particular interest are two sections giving complete physical properties and physical constants of this alloy iron.

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AMERICAN ARCHITECT, New York — January, 1936

Please have the following catalogs reviewed in this issue sent to me.

Numbers ....

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● I also desire further information about the new products described in this month's "New Materials and Equipment." . . . (See pages immediately following this insert.)

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Gas Heating Products

Security Stove & Mfg. Co., Kansas City, Mo. has issued three new catalogs:

864 . . . Catalog Section No. 3-A describes and illustrates Security gas floor furnaces and space heaters. Heating capacities, dimensions and other data are given. Filing size; 12 pages.

865 . . . Security gas conversion burners and burner heads are described in Catalog Section No. 4-A. Capacity and dimension data are given. Filing size; 16 pages.

866 . . . Various types of Security gas furnaces are described in Catalog Section 1-A. Construction and capacity details are given for each type.

Expansion Bolts

867 . . . A new booklet (Bulletin U-401) issued by The Rawlplug Co., Inc., New York, contains descriptive sketches and data showing how the Rawl-Drive, a one-piece combination holding device and anchor for use in masonry, develops its holding power, how and where it is used, its advantages, how to select the proper size, dimensions, sizes and other pertinent information.

Revolving Doors

868 . . . General Bronze Corp. (Revolving Door Division) Long Island City, has issued Catalog 9, an 8-page filing-sized booklet which describes and illustrates its line of revolving doors. Included are construction details, table of dimensions, diagrams showing position of doors, complete specifications and typical installations.

Kawneer Store Fronts

869 . . . Kawneer No. A-1 store front sash in extruded aluminum or bronze with continuous spring grip is presented in a 6-page broadside issued by The Kawneer Company, Niles, Mich. Vertical and horizontal sections are shown, with details of transom and awning bars. Filing size; A. I. A. File 26-B-1.

Detroit Stokers

870 . . . Detroit Stoker Company, Detroit, has issued a six-page broadside which illustrates various types of buildings which have used Detroit Stokers. Illustrations also show various types of Detroit Stokers used with different boilers.

Store Front Sash

871 . . . Information on the new Zouri Sash No. 1210 and accompanying members in extruded aluminum or bronze is contained in a four-page catalog issued by Zouri, Niles, Michigan. Detail drawings are included. Filing size; A. I. A. file 26-B-1.

Service Cable

872 . . . The features, description, recommended applications and illustrations of the various types of G-E service cable for installation from pole line to and into buildings are given in a 12-page catalog (GEA-1791B) issued by General Electric Company, Schenectady, N. Y. Diagrams show various typical installations and a table gives recommended fittings for use with this type of cable.

Ing-Rich Porcelain Enamel

873 . . . "Modern Building Construction with Ing-Rich Porcelain Enamel" is the title of a 4-page brochure, describing the use of vitreous enamel for store fronts and other forms of exterior and interior building construction, which has been published by Ingram Richardson Mfg. Company, Beaver Falls, Pa.

Pneumatic Tubes

874 . . . "Wings of Business," a new 32-page filing-sized catalog issued by The Lamson Company, Syracuse, New York, describes the advantages of pneumatic tubes and explains their application to a wide variety of businesses. It contains many illustrations of typical installations and gives necessary data regarding sizes and types of systems available.

Furnace Pipe and Fittings

875 . . . The Milcor Steel Company, Milwaukee, has issued a 50-page spiral-bound catalog which illustrates and describes its lines of furnace pipe and fittings, and other heating products, including air moistener, heat boosters, registers, square pipe and fittings for forced air systems, heaters, etc. Dimensions, prices and a standard warm-air heating contract form are included. Filing size; A. I. A. File 30-B-2.

Bathroom Cabinets

876 . . . A loose-leaf portfolio issued by the Cabinet Division of The F. H. Lawson Company, Cincinnati, illustrates and describes Lawco wall-hung and insert-type medicine cabinets for bathrooms. Complete dimensions and list prices are given. Data on Lawco utility kitchen cabinets, mirror, shelf and towel bar combinations, and hotel cabinets are also included. Filing size: A. I. A. File 29-i-1.

Structural Waterproofing

877 . . . The features and characteristics of the structural waterproofing method developed by Nicholson & Galloway, Inc., New York, in collaboration with Shingle-Gibb Corp., are described in a small folder just issued.

Kernerator Incineration

878 . . . The Kernerator Air-Torch principle of incineration is described in a four-page booklet issued by Kerner Incinerator Company, Milwaukee, Wis. The three sizes of hopper doors available are illustrated and described.

Cork Tile Floors

879 . . . A four-page folder issued by Armstrong Cork Products Co., Lancaster, Pa., gives data on Armstrong's cork tile floors. A table of sizes and illustrations of representative designs are included. Other illustrations show typical installations of Armstrong cork tile floors in various types of projects.

Steam Booster Compressors

880 . . . The advantages, application and general design of Pennsylvania steam booster compressors are described in Bulletin No. 163, a four-page catalog issued by Pennsylvania Pump and Compressor Company, Easton, Pa.

Frameless Steel Construction

881 . . . Prefabricated steel houses of frameless construction are described in an illustrated 4-page catalog recently issued by The Insulated Steel Construction Company, Middletown, Ohio. Details of construction and plans for eight typical designs are included.

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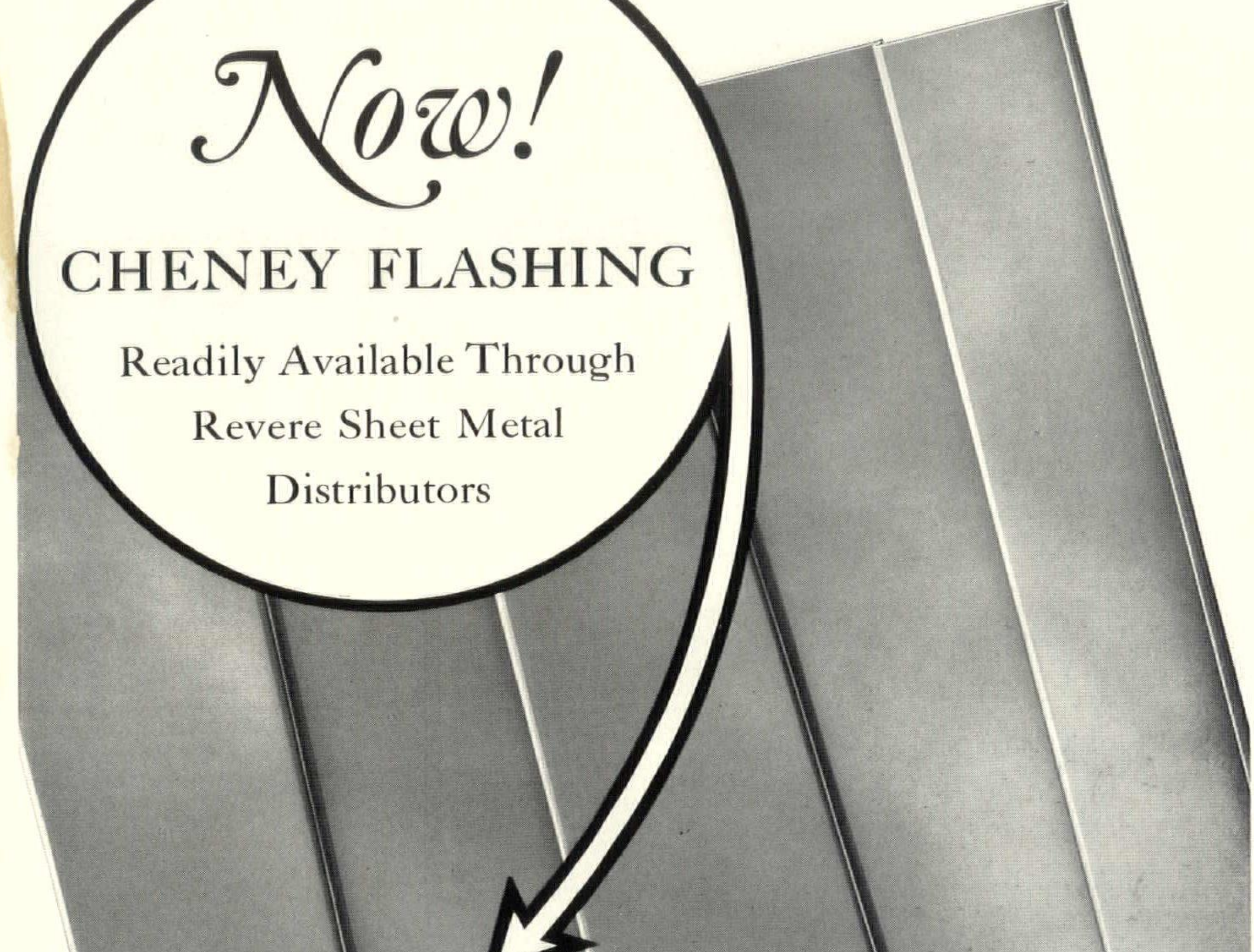

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Revere Copper *and* Brass

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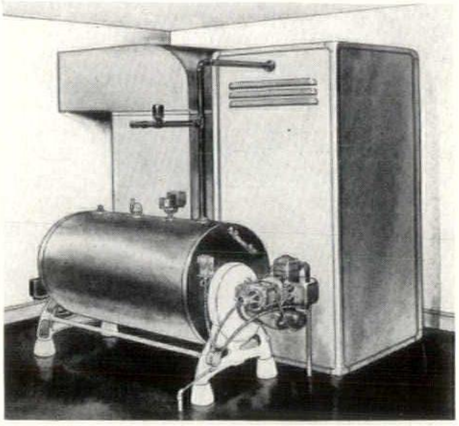
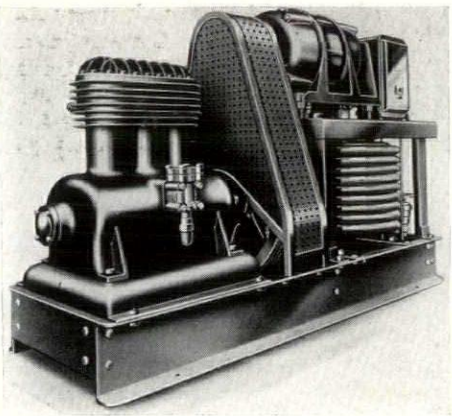


service, which can be supplemented by direct radiation if desired. Proper provision for the addition of moisture is provided for winter heating service. This same low pressure steam, through an especially developed absorption refrigeration unit, provides the proper degree of temperature and humidity reduction for summer comfort. A change from winter to summer operation can be effected by means of a master control. Williams Oil-O-Matic Corp., Bloomington, Illinois, is the manufacturer of the Air-O-Matic. **553M**

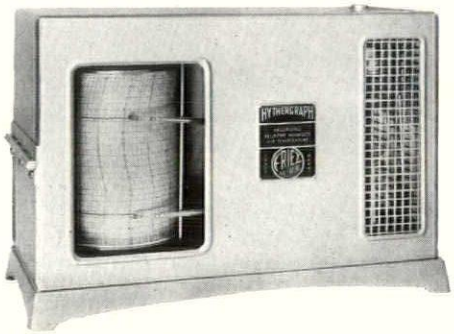
LOW PRESSURE REFRIGERATING UNITS



Two new Freon refrigerating units, of 15- and 20-ton capacity and designed especially for the needs of air conditioning and water cooling work, have been placed on the market. The units have an enclosed-type compressor, driven through V-belts by a motor mounted above the flywheel; underneath the motor base is the condenser coil. The 15-ton machine has three vertical cylinders and is driven by a 15 hp motor. The 20-ton unit has four cylinders, which are arranged in a V-pattern, and is driven by a 20 hp motor. The new type condenser nests a number of small water tubes inside a large outer tube. The charge of Freon is carried in a receiver within the base. All necessary controls for automatic operation are included. The Frick Company, Waynesboro, Pa., is the manufacturer. **554M**

HUMIDITY RECORDER

Simultaneous records of relative humidity by means of multiple human air elements, and of dry bulb temperature by means of a special bimetallic element, are given on common time lines in the new Friez Hythergraph. The instrument is available for either weekly or daily records, an 8-day clock being provided in either case. A progressive record is given on a rectangular chart.



The device is particularly suitable for use in connection with air conditioning installations in stores, hotels, theatres, or industrial work. It is a product of Julien P. Friez & Sons, Inc., Baltimore, Maryland. **555M**

SCHOOLROOM UNIT

The 1936 model of the Air-O-Lizer, a unit for schoolroom air circulating, has directional flow grilles by which heated air may be directed into a room in any desired direction so that intervening windows and bare wall spaces may be completely blanketed with a curtain of heat, eliminating cold spots. The grille is in the top of the unit and is composed of three sections, the main or central section and two smaller end sections. The end sections are turned in any desired angle to control flow of heated air. Multiple fans are used, the shafts for these being full-floating mounted. It has been introduced by The Trane Co., La Crosse, Wis. **556M**

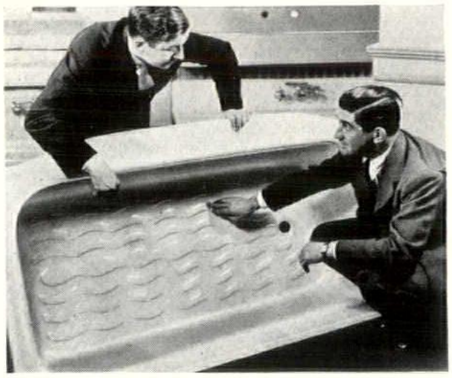
PLUMBING

NEW LAUNDRY TUB

The illustration above shows the newest thing in laundry tubs offered by

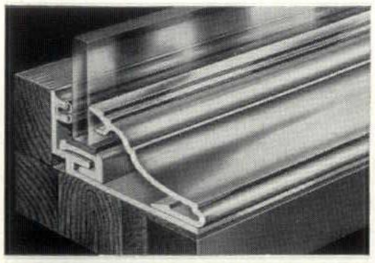
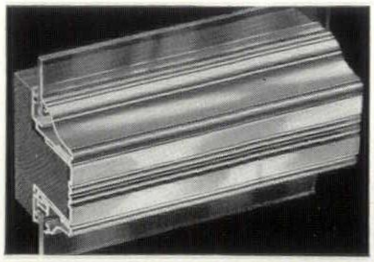
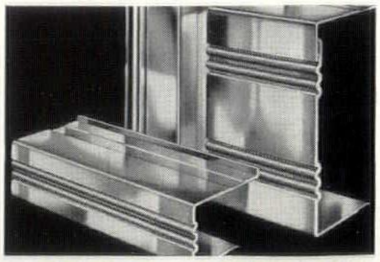
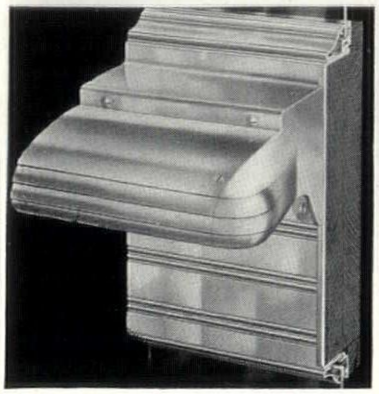
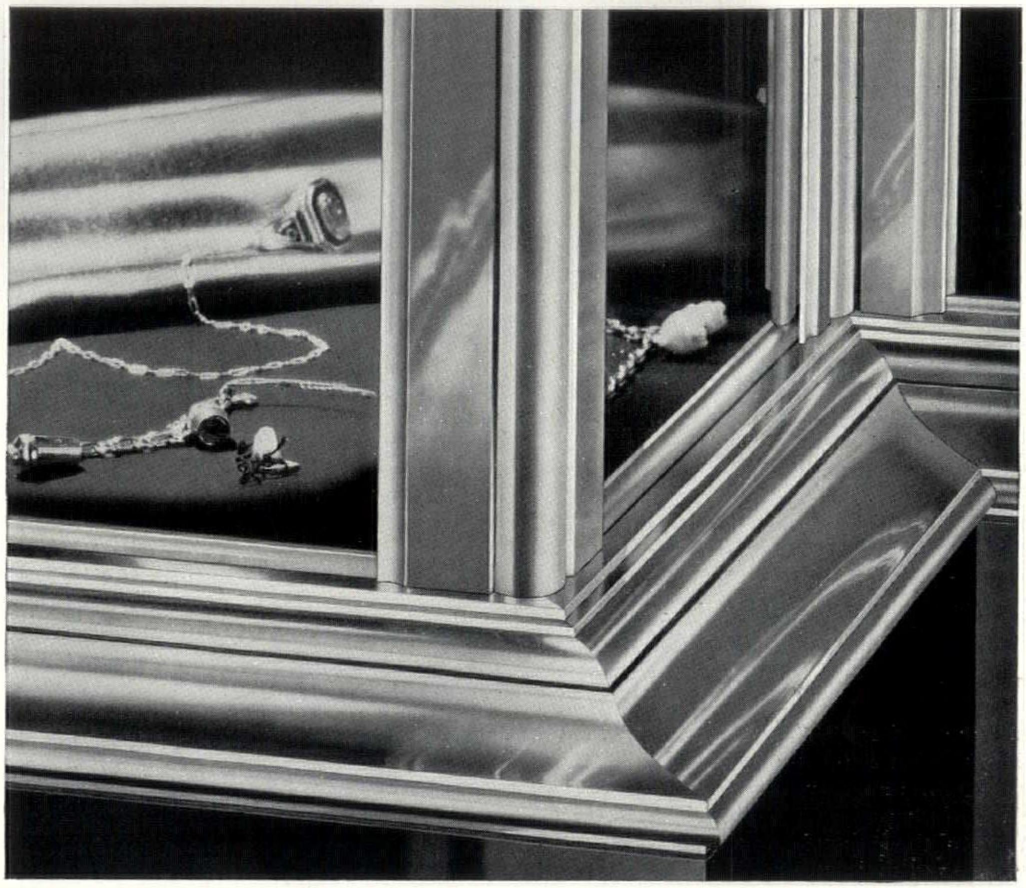
Crane Company, Chicago. It is of one-piece construction and is made of hard, durable porcelain. The corners are rounded for ease of cleaning and its glass-like surface is claimed to be unaffected by strong alkalies, dyes or acids (except hydro-fluoric). The double swinging spout faucet is installed above the rim of the tub to prevent back-siphonage. It may be had either in white or buff color and in both single and double compartments. **557M**

SAFETY BATH TUB



A new safety tub, which is made of formed metal instead of cast iron, has a bottom which is serpentine embossed. This safety feature is achieved by reducing slopes inside the tub and by the wave-like tread. In styling and general design, this safety tub is similar to other formed metal bath tubs made by its manufacturer, Briggs Manufacturing Company, Detroit. It is streamlined and finished in acid-resisting porcelain enamel in any color or combination of colors desired. The tub weighs only one-third as much as the cast iron bath tub. **558M**

(Continued on page 104)

Add new distinction to the Store Fronts you design . . .

Specify PITTCO STORE FRONT METAL

THIS new metal construction is probably the first complete line ever to be created, deliberately, all members at the same time, with a real *unity* of design. Every Pittco unit bears a harmonious, pleasing relationship in appearance to the other units. Pittco's contours are crisp, clearly defined . . . because all exposed members are formed by the extruded process. The unusually deep Pittco sash sets off a show window in a way not unlike a deep, rich frame. And the lovely finishes in which Pittco Metal is available . . . Alumilited Aluminum and Architectural Bronze, Satin or Polished finish . . . are calculated to lend brilliance and beauty to the store fronts you design.

A new, safer, double-yielding cushion grip on the glass; glass holding units adjustable to various glass thicknesses; a new type of protection for the edges of the structural glass used for facing; solid, non-ferrous metal supporting block; the convenience of being able to set all members from the outside. These are only a few of the practical advantages Pittco has to offer in addition to its beauty. Of special importance is the fact that if plate glass gets broken later on, it can be replaced from the outside without disturbing the inside of the window.

Ask our nearest warehouse to give you a demonstration of Pittco Store Front Metal. And send the coupon below for our A. I. A. File Folder containing complete information and full and quarter size details of various applications of Pittco Metal, including its use with Carrara Structural Glass.

A PRODUCT OF

Paint PITTSBURGH PLATE GLASS COMPANY *Glass*

Pittsburgh Plate Glass Company,
2373A Grant Building, Pittsburgh, Pa.
*Please send me without obligation on my part your folder containing full information on Pittco & **detail** drawings.*

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Address____________________
City__________ State__________

TECHNIQUES

METHODS • MATERIALS • RESEARCH • PRACTICES

SHOWER PANEL

A new shower panel, built of heavy gauge rustproof steel and punched to receive curtain rod, shower head, water faucets and other fittings, has been designed for converting rolled-rim, leg bath tubs into shower-tub units. The panel, measuring 5′10″ high by 3′ wide, is installed on the rim of the wall side of the tub, requiring approximately 2 inches of space from the wall. It is sealed to the tub with patented leak-proof joints and is surrounded on all sides by a special splash moulding. Stock colors of white, blue and green are available, but other colors can be had at a small additional cost. Manufactured by The Accessories Company, Inc., New York. **559M**

SHOWER HEAD

Instead of the usual round spray the new "Economy" shower head is made with an elliptical outlet which controls the spread of water. It is made of solid brass, heavily chromium plated, and is equipped with ball joint having spring loaded packing, making it adjustable to any angle. It has a removable brass spreader which causes a swirling action and breaks up the stream of water. Another feature of this new shower head is the aerator, which causes air to be drawn into the shower stream, giving a soothing effect on the bather. This device is a new product of Crane Company, Chicago. **560M**

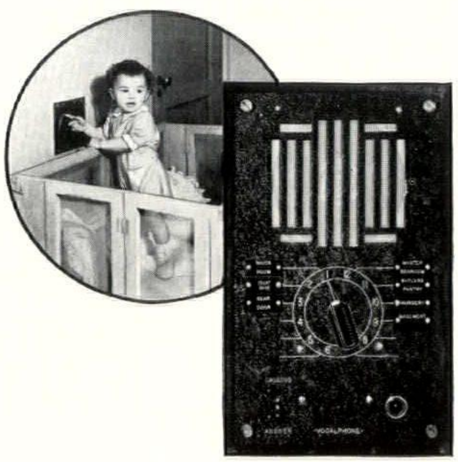
ELECTRICAL

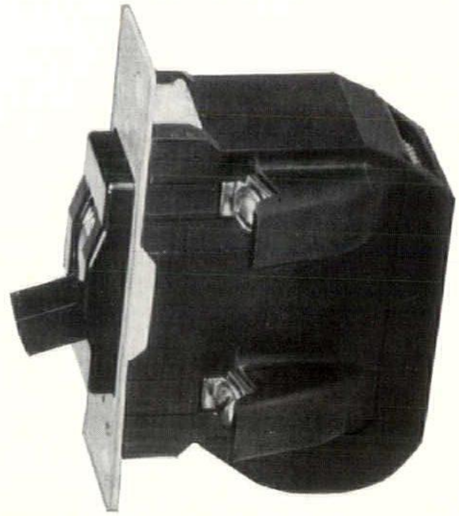
ADDHERE SURFACE WIRING

Outlets may be changed or added easily by means of a new type of surface extension wiring. The basic element in this system, which is termed AddHere Surface Wiring, is a flexible rubber moulding through which the current-carrying wires run in completely enclosed channels. This moulding is cemented to the wall. From the moulding extends an AddHere Pendant which carries the current down from the moulding through insulated wires covered by a decorative fabric. At the end of the pendant is an outlet providing three electrical connections. Outlets can be tapped into the moulding itself at any desired point. A range of colors is available to harmonize with interior decorations. AddHere Surface Wiring is manufactured by Bryant Electric Company, Bridgeport, Conn. **561M**

VOCALPHONE INTERCOMMUNICATION

"Telephoneless" telephoning between two points in homes, offices and factories, is now possible by means of a new system of audio amplification. Loud speakers take the place of telephones and four stages of amplification are used. Two-way communication is controlled by a button. Speaker and listener may communicate over any distance and in the same tone of voice as if they were in the same room. Voice quality is said to be retained. The unit operates on standard 110-115 volt alternating current and requires no batteries. It is manufactured by the Doorman Mfg. Co., Los Angeles, Calif. **562M**





G-E CIRCUIT BREAKER

A new primary circuit breaker for outlet-box mounting, which provides short circuit and overload protection for 125-volt a-c or d-c circuits and can also be used as a switch control for branch circuits, has been announced. The new breaker is intended for use in residences, apartments, or business structures where localized control and access are desired at decentralized points to reestablish circuits opened by overloads or other abnormal conditions. It has a sealed-in mechanism of the tamper-proof type. This device is manufactured by General Electric Company, Bridgeport, Connecticut. **563M**

ORNAMENTAL FLOODLIGHT

For lighting small signs in service stations and similar applications, a new ornamental sign floodlight is particularly suitable where appearance is important. It is of weatherproof cast aluminum construction, with a lens of prismatic heat-resisting glass and employs a 250-watt lamp. Mounted on the upper side of the bracket arm, there is said to be no specular reflection or shadows during daylight hours. A variety of ornamental standards and brackets are available from the Westinghouse Electric Mfg. Co. East Pittsburgh, Pennsylvania, manufacturers of this unit. **564M**

If further information is desired on any item described under "Techniques" simply use the Business Reply Card on the "New Catalogs" page, which requires no postage. For identification, please use the number and letter appearing at the bottom of the item on which you wish information.

The end of storage space problems

THE CRANE CORONADA

Lavinet

- All Steel Cabinet, For Ample Storage
- Shelf-In-Door For Toiletries
- Chromium Towel Bars

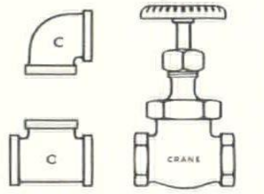
Porcelain enameled *cast-iron* lavatory with rectangular basin. Cabinet all of steel with baked enamel finish, side hinged doors, chromium towel bars, and exclusive shelf-in-door feature which provides excellent accommodation for toiletries. Similar to the LAVINET is the COLORADO CABELO cabinet lavatory — a COLORADO wall-type lavatory with a steel cabinet base. Single door with shelf-in-door feature. LAVINET 20" x 24". CABELO 17" x 21".

● The CORONADA LAVINET is Crane's answer to the perplexing lack of storage space in small bathrooms and lavatories, particularly in remodeling jobs, where space usually is at a premium.

For the architect and the building manager, the LAVINET solves many problems. Clients and tenants clamoring for lavatory and bathroom storage space can have all they want—*practically without cost.* For the LAVINET—while beautifully designed and made—is inexpensive. No walls to be opened up, no corners to be sacrificed. The result is a bathroom unmarred by cluttered-up shelves and closets, always neat and tidy.

Typical of Crane Co. ingenuity in providing plumbing fixtures specifically to fill a need, the LAVINET likewise represents the basic quality which distinguishes every bath, lavatory or closet bearing the Crane stamp. The public knows the name as the finest in plumbing. The plumbing and heating contractor knows the thoroughgoing service that backs it up. To your clients and tenants, you can offer Crane fixtures with complete assurance that regardless of their moderate cost, you can offer no better.

CRANE QUALITY IN EVERY HIDDEN FITTING



Look at a Crane bathroom through an X-Ray and you find Crane quality in every hidden fitting. No matter how fine the fixtures appear, it takes Crane quality valves, fittings and brass goods—the "working parts" behind the scenes—to assure dependable service and long life at low cost. It is important to include pipe, valves and fittings in your specifications.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVENUE, CHICAGO, ILLINOIS
NEW YORK: 23 W. 44TH STREET

Branches and Sales Offices in One Hundred and Sixty Cities

PLUMBING AND HEATING MATERIALS

INDEX TO ADVERTISERS

This index is an editorial feature, maintained for the convenience of readers. It is not a part of the Advertisers' contract and American Architect assumes no responsibility for its correctness.

ANNOUNCEMENTS

STEEDMAN FELLOWSHIP

The governing committee of the James Harrison Steedman Memorial Fellowship in Architecture announces the tenth competition for this fellowship to be held in the Spring of 1936. This fellowship consists of an award of fifteen hundred dollars to be spent in travel and study in foreign countries. Qualifications include a degree from an architectural school of the United States, American citizenship, one year's residence in the City of St. Louis, Mo., and one year's practical work in the office of an architect. Further information is available from the School of Architecture of Washington University, St. Louis, Missouri.

PLYM SCHOLARSHIP

The Board of Trustees of the University of Illinois announces the thirteenth competition for the Plym Scholarship in Architectural Engineering. The scholarship provides seven hundred dollars for six months' travel. Competition is open to graduates of the Department of Architecture of the University of Illinois. Persons wishing to compete should notify Professor L. H. Provine at the University not later than March 1st, 1936.

AMERICAN "BAUHAUS"

Mrs. Frances M. Pollak, director of the Federal Art Service Project of the Works Progress Administration, announces that a design laboratory, patterned after the once famous Bauhaus, has been opened at 10 East 30th Street, New York City. Gilbert Rohde will direct the laboratory, which is planned for those who cannot afford private art instruction.

"SURVEY METHODS" COURSE

New York University announces a course in "Survey Methods" to begin this coming term under the direction of Dr. Carol Aronovici. This course will deal with the various forms of survey making in relation to the improvement of communities.

NEW OFFICES

Don E. Hatch announces the opening of architectural offices at 42 East 50th Street, New York City. A graduate of the University of Kansas, Mr. Hatch came to New York in 1930 and was associated with the firm of Tilton and Githens, Architects. With an interest in low rental housing and the individual dwelling he conducted research in this field for J. Andre Fouilhoux and the late Raymond Hood. Recently, Mr. Hatch, in association with Mr. Fouilhoux, won first prize in the General Electric Company "Home Electric" contest.

William N. Parsons, formerly at 34 Woodcrest Avenue, Atlanta, Georgia, is now associated with A. Brian Merry, under the firm name of Merry and Parsons, Architects, at 806 Southern Finance Building, Augusta, Georgia.

Rhenisch, Wilson and Waterman, Engineers and Architects, are setting up a complete new file of modern catalogs and will appreciate all up-to-date literature from manufacturers of building materials and equipment.

F. D. Amory, Jr., registered architect, artist and renderer, formerly located at 551 Fifth Avenue, New York, has moved his office to 15 East 40th Street. Mr. Amory may be reached at Lexington 2-4058.

Raymond J. Percival, Architect, has reopened his office for the practice of architecture at 49 Pearl Street, Hartford. He was formerly located at 211 Washington Street, Forestville, Conn.

Allan Wallsworth, Architect, announces an association with Earl E. Trickler, Mechanical Engineer, in the firm of Wallsworth and Trickler, Marinette, Wisconsin.

BOOKS

ARCHITECTURE • ALLIED ARTS • ENGINEERING • BUSINESS

A typical competition drawing from "Color In Sketching and Rendering"

REVIEWS OF THE MONTH

COLOR IN SKETCHING AND RENDERING

By Arthur L. Guptill, A.I.A. Published by Reinhold Publishing Corpn., New York. Cloth binding; 346 pages; size 9" x 12"; price $10.00

THERE is no phase of either sketching or rendering in color which is not considered in helpful detail in this practical, fully illustrated treatise. From choosing materials to technical tricks, it is all there, even to "close-up" color reproductions showing how many well-known architects, renderers and artists achieve their effects. The text is largely based upon talks and demonstrations which the author has given over a long period of time in his various classes in Art, Architecture, and Interior Decoration at Pratt Institute and the Brooklyn Institute of Arts and Sciences. This class room material has been thoroughly revised and greatly amplified in order to bring it up-to-date and to fit it to the needs of an enlarged audience. There is a vast fund of information on practically every phase of representative painting in water color and related media. Step by step, the text leads through particularly complete elementary chapters to later professional considerations. Every point is fully explained and graphically illustrated. Numbered exercises are offered for the student forced to work without a teacher and practical hints are given.

In addition to an exhaustive text and scores of drawings by the author, the book is embellished with some 250 illustrations, many of them in color, by such well-known artists and renderers as Birch Burdette Long, Vernon Howe Bailey, Ernest Born, Millard Sheets, J. Floyd Yewell, John Wenrich, Schell Lewis, Chester B. Price, Carroll Bill, E. Donald Robb, H. Raymond Bishop, Francis Keally, Samuel Chamberlain, and others.

The book is divided into two parts. In Part I, "The Elements of Water Color Painting," the aim has been to give a thorough grounding in such fundamentals of the art as the beginner must master before he can hope for any real progress, plus an adequate consideration of many advanced essentials. The way is pointed to original investigation and experimentation—a way which should lead the persevering student well along towards his ultimate goal, the full growth of his individual powers of pictorial expression. In Part II, "Architectural Rendering in Color," both text and illustrations take on a decidedly architectural flavor, the primary aim being to help in the solution of such problems of color representation as are peculiar to the architect and such of his professional collaborators as the landscape architect and the interior decorator. The book is a valuable contribution to a hither-to sadly neglected subject, and should find favor with architects, professional renderers, and all students of architecture and color.

A HISTORY OF MOSAICS

By Edgar Waterman Anthony. Published Porter Sargent, Boston. Cloth binding; 496 pages; size 7" x 10"; price $7.50

THIS book brings together with due sense of proportion the heretofore scattered shreds and patches of the history and technique of Mosaics over a period of 5000 years. It is the first of its kind to appear in English. Due emphasis is placed on the periods when Mosaic was the greatest art, from Ravenna in the 5th and 6th Centuries to Sicily in the 12th. Consideration is given to the recent revival of the art, as an art, not as a craft. There is a stimulating discussion of the possibilities and future of Mosaic.

The text is concise, readable scholarly and convincing. The table of contents reveals the broad treatment of the subject from the time of the Sumerians through the varied periods—Hellenistic, Roman, Early Christian, Byzantine and Mediaeval to the most recent work. The recent and important additions to the subject by archaeologists are included. The 200 erudite footnotes give evidence of long, exhaustive research in the literature of all languages which is fully substantiated by the complete bibliography of several hundred items. The 300 illustrations have been chosen to show the best and most characteristic of all the earlier Mosaics of the great periods and selected examples of later work to give the continuity of the development of the art.

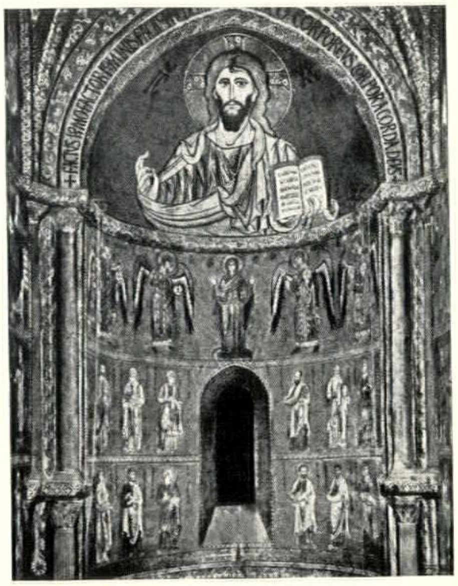
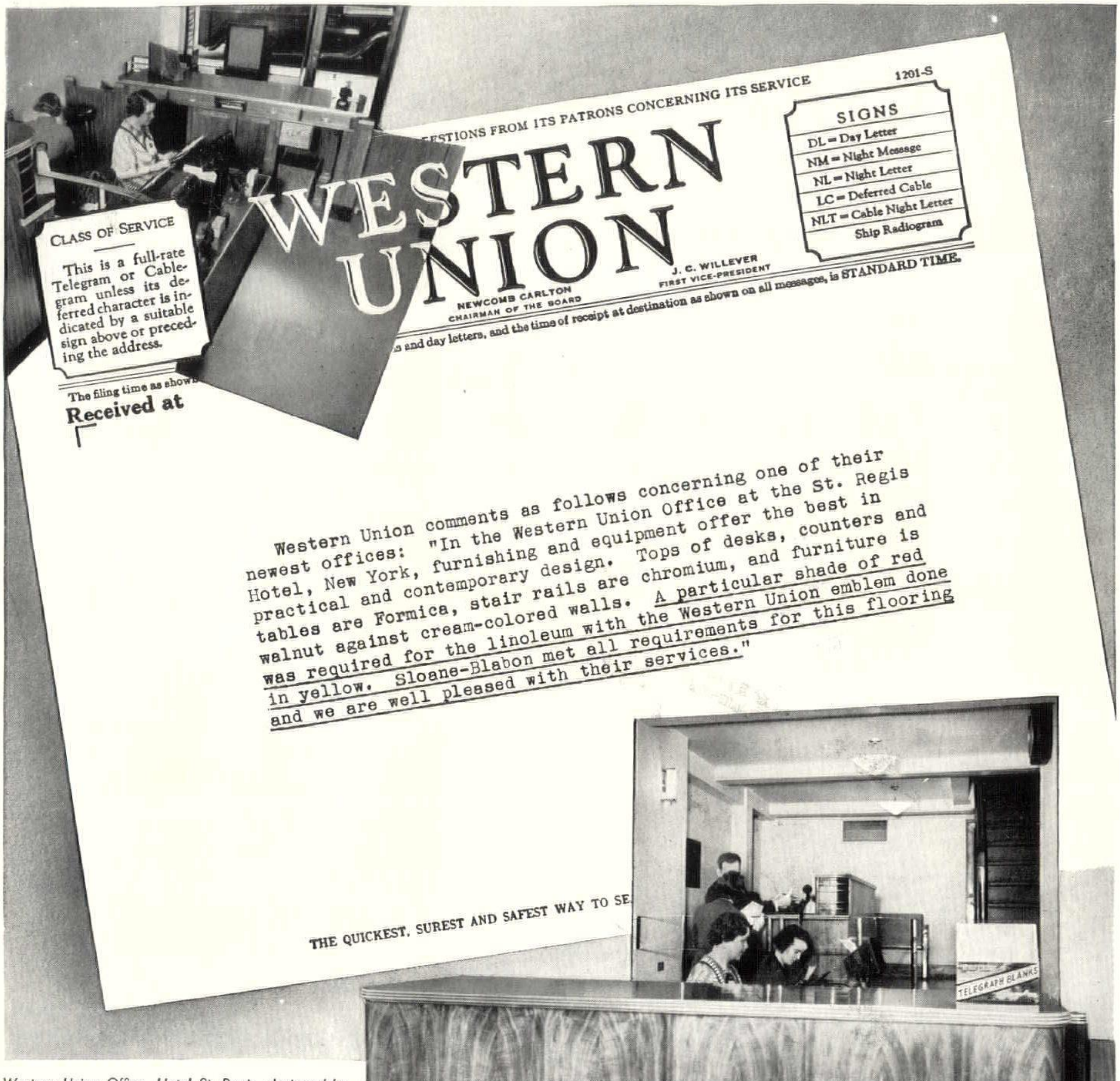
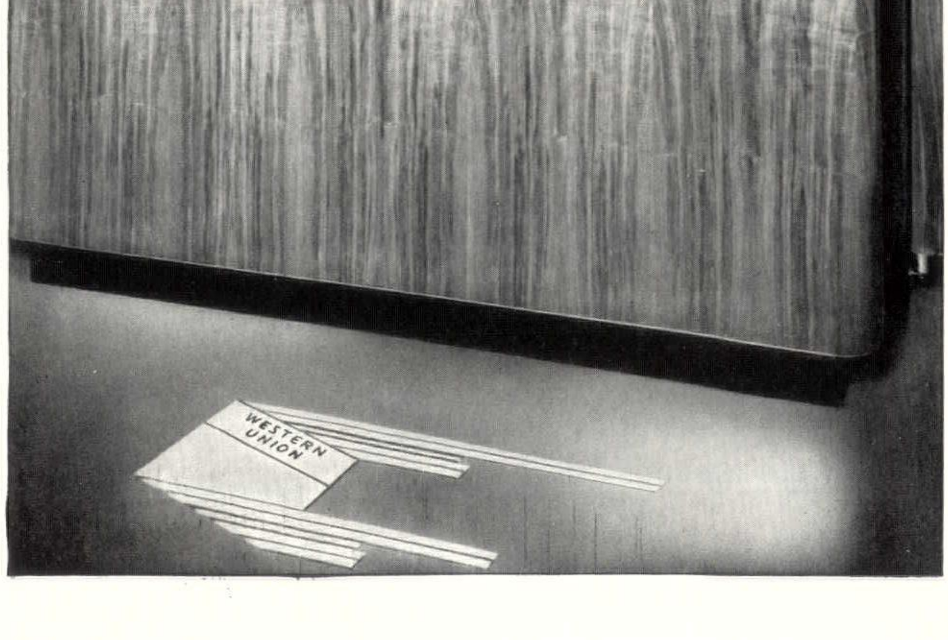


Plate illustration from "A History of Mosaics"





Western Union Office, Hotel St. Regis, designed by Western Union; Architectural Flooring Products Co., Inc., flooring contractors.

The Western Union office illustrated is but one of many recent outstanding Sloane-Blabon installations. We shall be glad to send you a list of others, together with linoleum samples and any information you may require. Write W. & J. Sloane Selling Agents, Inc., 577 Fifth Ave., N. Y

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LINOLEUM