MAY 1935 • SMALL HOUSES • METALS IN DESIGN • BROADACRE CITY

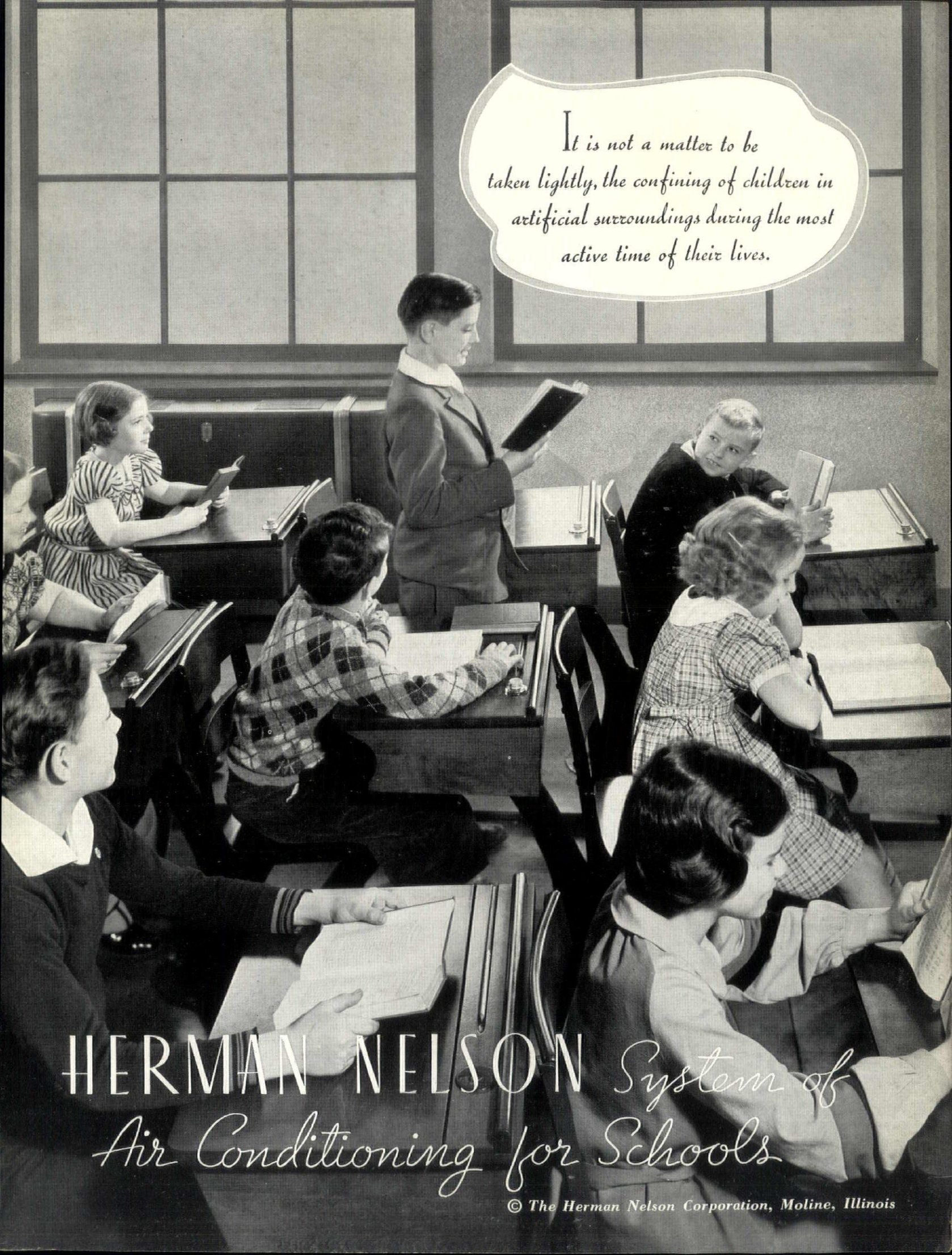
AMERICAN ARCHITECT

Matters of Architectural Importance . . .

SMALL HOUSES . . . Today they are more than ever a subject of active interest to everyone concerned with building. For architects particularly they constitute an engaging field of profitable activity. Thus, in large measure, this issue is devoted to the various aspects of small house work. Among them are . . . LOOKING AHEAD IN PLANNING. Frank J. Forster suggests planning a small house for a large future—building it sectionally as needed. To illustrate how it can be done, he developed special designs for two small houses . . . PROFITS FROM A SMALL HOUSE PRACTICE. Arnold R. Southwell explains the management system of a small office which last year profitably designed more than seventy houses . . . SHOWMANSHIP IN SMALL HOUSE EXHIBITIONS. Editorial gleanings from the experiences of others with architectural exhibitions that have been successful aids in selling professional services to the public . . . PLATE ILLUSTRATIONS OF SMALL HOUSES chosen for variety in plan, design, location and the interesting use of various materials » » » » » »

FRANK LLOYD WRIGHT'S BROADACRE CITY illustrates a strikingly new kind of community plan. In this issue are specially taken pictures of the Broadacre City models exhibited at the Industrial Art Exposition in New York » » »

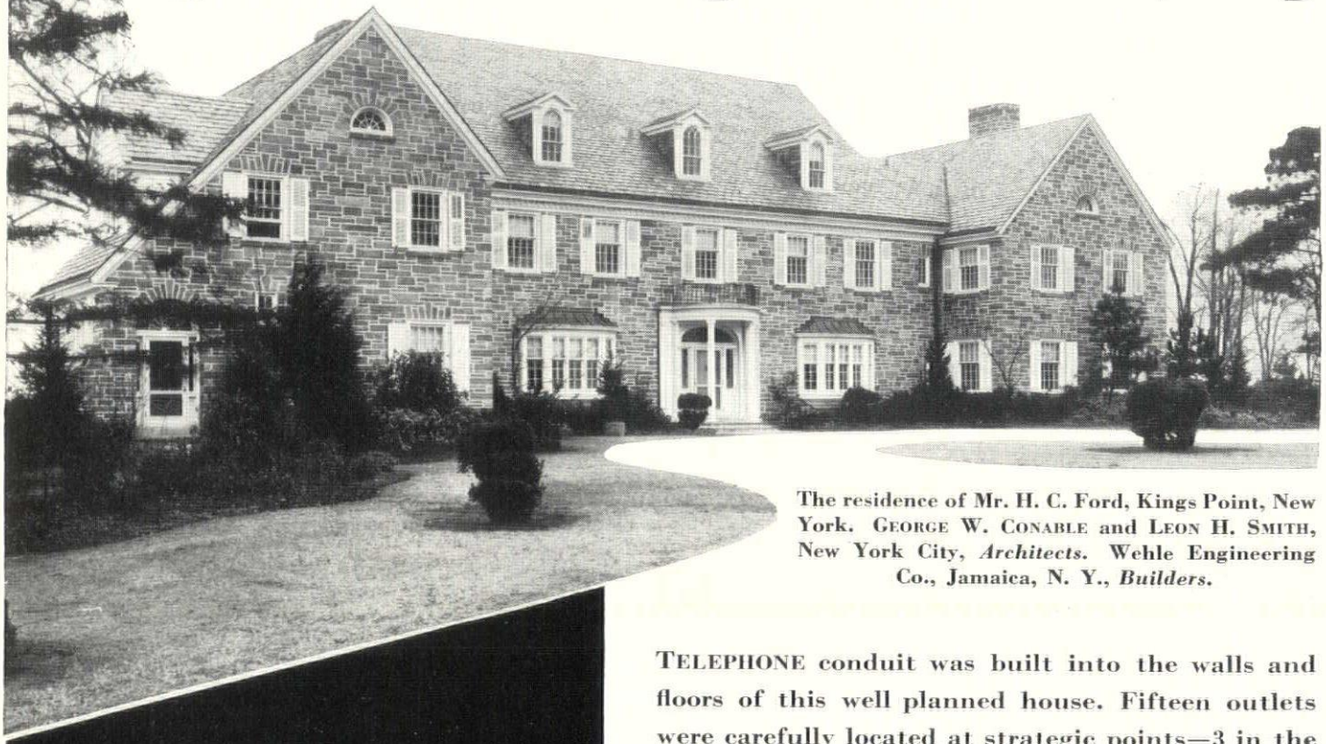
METALS IN DESIGN is the third article of American Architect's new research series. For the benefit of the architectural designer it presents important news in a field of materials which have an almost limitless application in building » » »



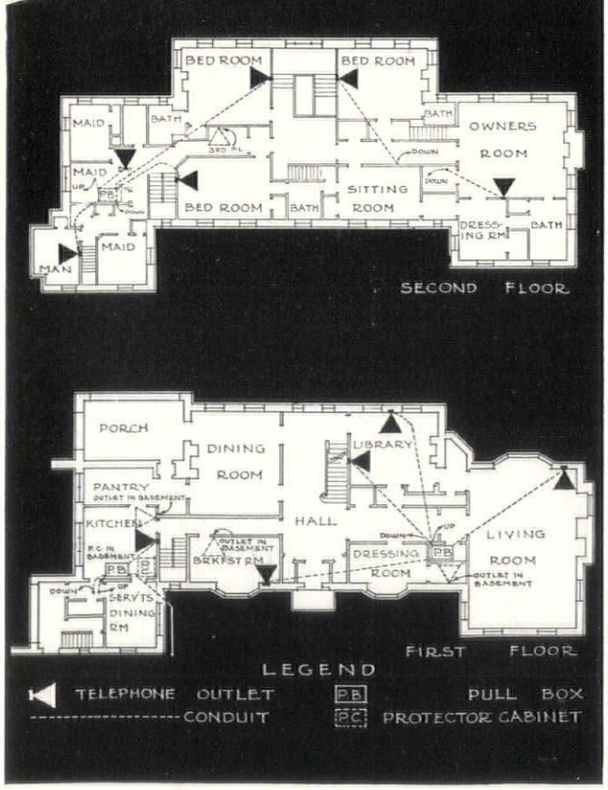
HERMAN NELSON *System of Air Conditioning for Schools*

American Architect, published monthly by International Publications, 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 2633, dated May, 1935.

15 telephone outlets planned for gracious living



The residence of Mr. H. C. Ford, Kings Point, New York. GEORGE W. CONABLE and LEON H. SMITH, New York City, *Architects.* Wehle Engineering Co., Jamaica, N. Y., *Builders.*



TELEPHONE conduit was built into the walls and floors of this well planned house. Fifteen outlets were carefully located at strategic points—3 in the basement, 5 on the first floor, 6 on the second, and 1 on the third. The cost? Surprisingly small.

Probably not all the outlets will be in use at any one time. (8 are now wired and 4 telephones are in service.) But they're there—ready. Portable telephones can be plugged into guest rooms as needed. Other instruments can be moved to meet future requirements without exposing wiring.

Above all, it is possible to make or receive calls from any part of the house at any time, quickly, comfortably, *privately*. No running up and down stairs. Steps and minutes are saved for all the household.

Adequate, built-in telephone facilities will make all your residence projects more modern, more livable. The local telephone company will be glad to help you develop efficient, economical conduit layouts. No charge, of course. Just call the Business Office and ask for "Architects' and Builders' Service."

AMERICAN TELEPHONE & TELEGRAPH CO. AND ASSOCIATED COMPANIES — BELL SYSTEM

FOR FURTHER INFORMATION ON BELL SYSTEM TELEPHONE SERVICES AND EQUIPMENT, SEE SWEET'S CATALOGUE

It must be remembered that when you talk to prospective home builders, the wiring materials—such as Rigid Conduit, BX, Boxes, Fittings, Building Wires, Convenience Outlets, Switches, Sockets and Plates—in themselves mean very little. However, home builders do know the General Electric Company and its reputation for quality products. Therefore, when you tell your prospects that the electrical convenience, comfort and safety in their homes is to be maintained by General Electric products, you assuredly will have their confidence. Every home, large or small, can be made a better place in which to live if the wiring system is adequate. Don't overlook this most necessary feature in your home planning.

The General Electric Company manufactures all the materials necessary for a complete wiring system. Take advantage of these products that are designed and engineered to be used with each other. G-E White Rigid Conduit, BX Cable, Outlet Boxes, Fittings, G-E Safecote Building Wires, G-E Convenience Outlets, Switches and Plates when installed in the homes you are planning assure your customers electrical safety, comfort and convenience . . . they build up good will for you.

In every type of building that you are planning, General Electric Wiring Materials can be economically and satisfactorily used. For further information regarding these products, see your nearest G-E Merchandise Distributor or write to Section CDW-245, Merchandise Department, General Electric Company, Bridgeport, Conn.

GENERAL ELECTRIC

WIRING MATERIALS

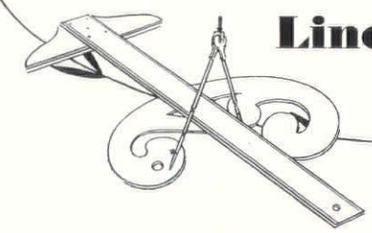
MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT

{ A simple, though highly effective, custom-built floor of Evergreen and Jade Green Armstrong's Linoleum in the Wonder Bar of the Roosevelt Hotel, St. Louis. }

The next time you
Set the Stage for Cocktails

remember Armstrong's

Linoleum Floors



Armstrong's
LINOLEUM FLOORS

THERE need be no shackle of "material limitations" when you set out to design a custom-built floor of Armstrong's Linoleum. You can give full rein to your imagination, secure in the knowledge that almost any conceivable design can be reproduced in Armstrong's Linoleum. Let the problem, not the material, dictate your design.

Besides being attractive, these floors are long-lived . . . stainless . . . easy and economical to keep in excellent condition . . . quiet and comfortable underfoot. For complete information, write to Armstrong Cork Products Company, Floor Division, 1201 State Street, Lancaster, Penna.

What is modern elevator practice for hospitals?

THROUGH our experience in designing and installing hospital elevator equipment, we have found that there are certain fundamental specifications common to all of these institutions. Installations must be rugged in construction to insure uninterrupted service, minimum cost of maintenance, ease of making replacements, and freedom from major repairs. And they must be smooth and quiet in operation. Other than these, the elevator problem varies with the needs of the institution and each installation should be designed for the building it is to serve. The following will be helpful in determining the type of equipment needed in a specific building.

SPEED varies from 100 feet per minute for the small, private institution to 800 feet and over for the large medical center. Rapid and smooth acceleration and retarding characteristics are of utmost importance, since hospital elevator service usually requires almost constant stopping and starting at the various floors.

CAPACITY varies from 2500 pounds to 4000 pounds. In general, 3000-pound capacity is ample for normal requirements. This corresponds to the requirements for elevators with platform size of 5 feet 6 inches by 8 feet as laid down by the American Standard Safety Code. This platform size is almost a necessity for the accommodation of wheel chairs, stretchers, or beds.

CONTROL—Type of control has changed considerably in recent years. Various types of automatic button control are available. In the smaller and medium sized hospitals, collective automatic control is used. And in the highest type of institution, automatic signal control gives best service. On the higher speed elevators, two-way self-leveling (Otis micro-leveling) is available—a very necessary thing in institutions where patients are transported from floor to floor.

The collective controls are arranged for service with an attendant when service demands require it—and so have that advantage as well as the merit of self-service by the passengers when traffic is such that no attendant is needed.

QUIETNESS of hospital elevators is assured by use of sound-proofing of machines and controllers, and by using rubber-tired hangers and especially designed door-operating equipment.

CARS designed to harmonize with architectural treatment of building are available. They include such special features as a sanitary coved base, ventilating fans, rubbing strips to prevent defacement of interior by wheeled vehicles, and other important refinements.

In the larger types of hospitals, there should be separate service elevators to carry food carts and laundry, and to meet other service requirements. Dumb-waiters of the automatic, push-button type are feasible for the smaller institutions.

In summing up the elevator requirements for hospitals, these points are important:

1. Dependability—to insure uninterrupted service.
2. Adaptability—the proper equipment for each institution.
3. Reliability—this can be determined beforehand by inspection of similar installations.
4. Tranquillity—freedom from undue noise.
5. Rapid but smooth service.
6. Ample-sized cars.
7. Automatic control system and self-leveling.
8. Proper maintenance by the manufacturer to insure freedom from shut-downs and needless repairs.

These items enumerated above give merely the general outline of transportation requirements for hospitals. For an expert analysis of a specific institution, either in existence or in the blue-print stage, consult the nearest Otis office. We shall be glad to submit recommendations covering your requirements. There is no obligation for this service.

OTIS ELEVATOR COMPANY

AMERICAN ARCHITECT

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A Formula for Progress

BY BENJAMIN F. BETTS, A.I.A.

THERE are encouraging signs that the building industry is once more coming into its own. Manufacturers' profits are increasing; building money is easier to obtain; "model houses" are springing up like mushrooms after a spring rain. Experts say this country is on the threshold of a new building era and that even now there exists a housing shortage in many localities. If this is the case, architects have before them an opportunity for service and achievement as alluring as any within memory of the profession's oldest member. It is the chance to provide thousands of American families with homes—homes that are better, more attractive and more economical than any that have ever been built before.

The tide of popular feeling has turned against the shabby housing product of the jerry-builder. Increasingly people are demanding that houses contain the improved materials and equipment that technical research and industry have recently made available. They are coming to realize that a good house is the result of good planning and skillful workmanship and that shoddy cheapness is expensive in the end. American families need new houses. And it is their demand for a better housing product that spells opportunuity for the alert architect.

But the field of this opportunity is not devoid of obstacles. If the public is demanding a better housing product, it is also demanding that it be made available with the least amount of trouble. In the past, small houses have generally been sold ready-built with all the latest gadgets, but without benefit of architect. And if the ambitions of the prefabricated housing companies are to be realized, the practice will continue on an even greater scale. Thus the architectural profession may face competition intensified by the application to the small house field of buying habits that are already well established in other industries.

Competition has always been one means of progress. And substantial progress can be made by the architectural profession toward capturing the approval and support of the small house building public. There is a simple, direct and workable formula for it. First, Organize. Let unification of every architectural body become an accomplished fact so that the profession may speak as one voice. Second, Publicize. Let the profession undertake a public relations campaign to make its value known to every potential home owner in the country. Third, Energize. Let every architect match the work of his competitors with energy, imagination and business foresight. Application of this formula to the opportunity at hand will assure the immediate progress that the architectural profession deserves.

To This Small Office Come . . . .

Profits from Small

BY ARNOLD R. SOUTHWELL

The Office of Carlos B. Schoeppl and Arnold R. Southwell

TO show a profit an architect's office handling residential work almost exclusively must be efficiently organized to meet today's conditions. When this office was established a few years ago we realized this fact and determined to benefit from past experiences. As a result in 1934 seventy-three complete sets of working drawings and specifications were produced for houses ranging in cost from $4,000 to $100,000. Sixty-nine houses were built. Few were built on speculation and no two were alike. This volume of work can be produced in a small office only by a capable personnel working under efficient conditions and controlled by a budget system that balances income and expenditures.

Our observation over a period of years has shown that many architectural offices in various parts of the country are poorly planned and administered. Most of these employed a fairly large staff of draftsmen. Many rented too much space for drafting, front office, private offices, library and contractors' rooms. Their accumulated fixed charges—carried regardless of the volume of work—inevitably ate up accumulated profits. As a result many jobs were handled at a production cost handicap from the day they entered the office. This seemed to be the crux of a situation that had to be met.

We sought to avoid these mistakes from the very beginning. As a starting point we rented a well located small office; furnished it with the bare necessities; carried on our own selling, drafting, supervision and bookkeeping. The office force consisted of the two firm members, a secretary and an occasional draftsman. Accurate accounts were kept of the time spent on each job, cost of blueprints, additional drafting and other essential items. From our small volume of work we produced a high percentage of profit. This proved our contention that it is possible so to manage an office that operating costs can be related to the volume of work that can be secured. Our practice has since grown. But rigid application of this principle has not altered the fundamentals of our office organization.

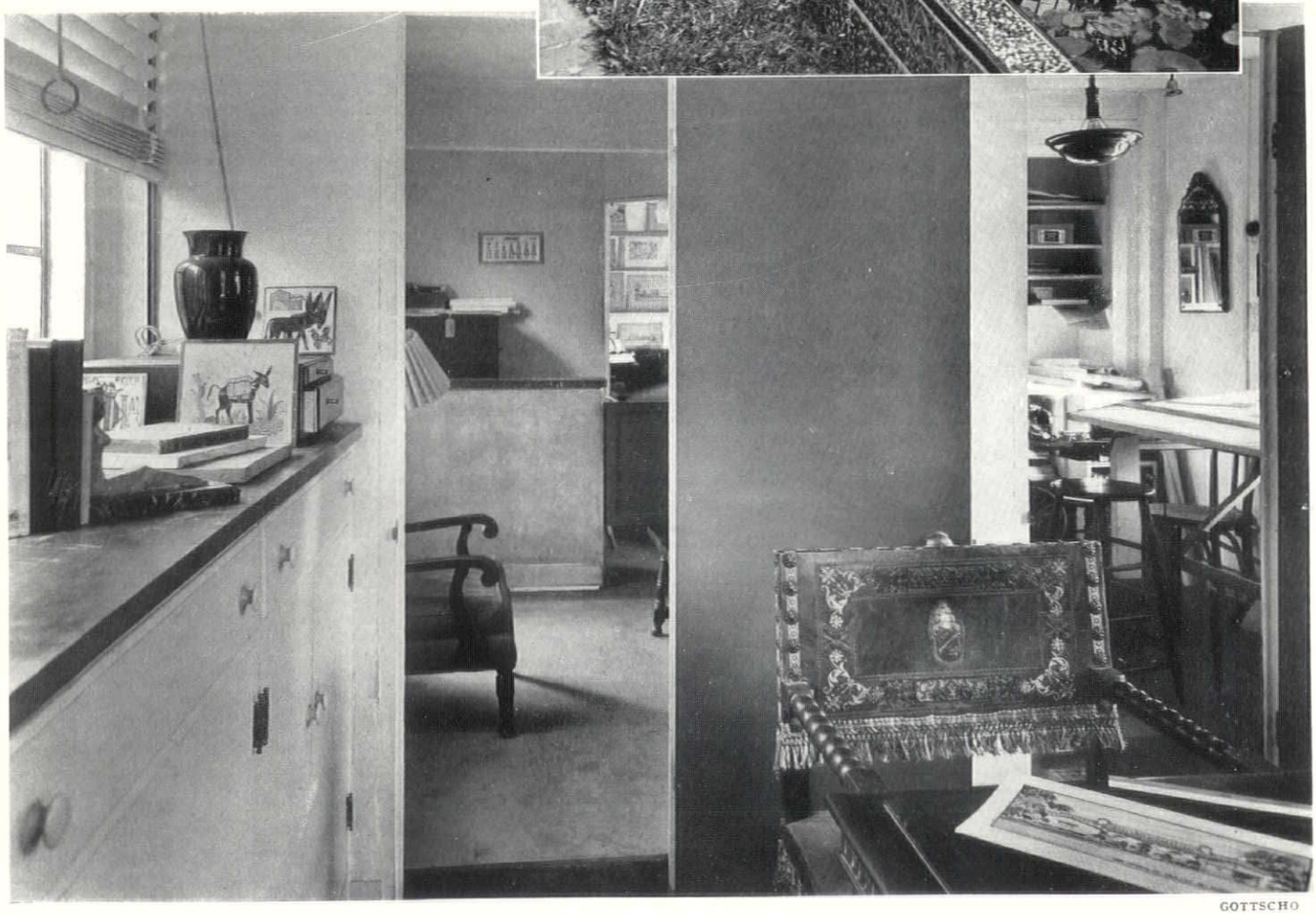
Early experience showed the importance of predetermining where the 100 pennies of every new dollar which came into the office were to go. So we analyzed our entire cost accounting, determining where the receipts of the two previous years had gone. From this we estimated a probable proportion of costs and profit per dollar of volume for the ensuing year. This set-up can be determined for any office or business through a study of past production costs and their relation to the volume of business. Our first set-up for each dollar was as follows:

RENT	3¢
DRAFTING Including all drafting and specifications from the time all preliminary sketches have been approved	28¢
SUPERVISION	5¢
MATERIALS Tracing paper, pencils, ink, crayons	2¢
NEW EQUIPMENT Typewriter, adding machine, magazines, desks, books maps, signs	2¢
MISCELLANEOUS Lights and water, telephone, telegrams, stamps	2¢
SKETCHES	11¢
PROMOTION Traveling, special phone calls, advertising, service account, donations, club dues	3¢
OFFICE SALARIES Secretary, bookkeeper, cleaning	3¢
SELLING	14¢
TOTAL	73¢
NET PROFIT (predetermined)	27¢
	$1.00

The above schedule is still used and will need but slight revision for the coming year. We call each division a budget for that particular part of the costs. The first year our present chief draftsman was the entire drafting crew (with our help), so he assumed the entire drafting budget with the exception of a portion set aside for draftsmen needed during rush periods.

Houses

A well located, compact office is fundamental in the conducting of a profitable practice in the small house field. To this must be added rigid adherence to a controlled budget system, high efficiency in operation, and satisfied clients



GOTTSCHO

The following is the drafting budget for 1935:

Head draftsman	28%	or	7.84¢
1st man	22%	"	6.16¢
2nd man	19%	"	5.32¢
3rd man	15%	"	4.20¢
Budget, extra short time help and engineers	16%	"	4.48¢
	100%		28.00¢

This division is so proportioned that with each addition to the drafting crew a former member's actual dollar income is increased, even though his percentage is reduced. This is possible because of the increased volume which has required additional draftsmen. At all times there is a portion of the budget accumulating to hire an extra draftsman should the work require him. If the volume continues so that the more permanent services of the extra draftsman are required, he is given an opportunity to join the percentage group. A complete reorganization of the proportions is then made in order to provide the budget for the next draftsman when he is needed. Each draftsman has a page in the bookkeeping system on which is credited his share each time a collection is made. A draftsman may ask the bookkeeper at any time for a statement of his "account." The salaries of the two firm members are included in the sketching budget and the selling budget respectively.

This system of budgeting has other advantages. For example, at any time we can tell whether the "new equipment" budget will permit the purchase of a new typewriter and whether the "promotion" budget will allow travel to a distant city for a possible job. Also, it enables us to see a cross-section of business volume at any time and thus to determine costs and profit in advance.

Efficient Production Program Is the First Essential

TO carry on a large volume of work in a small space and with a small crew there must be a definite production procedure. A production program for each house is generally as follows. During the first interview with the client are determined the room requirements and approximate sizes, general quality of finish and approximate price range. From this information, floor plan and main exterior sketches are prepared and discussed with the client. Much time is saved by adherence to our policy of never showing a sketch of any kind which is impractical or out of scale. A few minutes more on each sketch will solve it. Later, no time need be wasted "trying to make it work," or in re-selling a client on the way it will "really have to be."

If the sketches are generally approved and the job is to "go through," the client is taken to various completed houses in the same price range to study materials and to determine his likes and dislikes. This information is brought back to the sketch department together with notes regarding revisions to the sketches. Sketches are then revised for the drafting room and the head draftsman is given a survey and discussion of the entire problem to familiarize him with all the information at hand. If there is time, the sketch department lays out the building at final scale and makes a few freehand studies of various details. The head draftsman then proceeds with the final working drawings, the details and specifications.

The preparation of working drawings and specifications follows a definite procedure. The rule of the drafting room is: be brief, explicit and complete; avoid unnecessary notes, repetitions, pretty but useless details and fancy lettering. At the time drawings are started the necessary information regarding survey, topography and city services is secured. Any question of design is decided by the sketch department. As little as possible is left to chance or uncertainty on the part of the draftsman.

Accurate Drawings, Careful Supervision Can Prevent Costly "Extras"

TODAY when cost is "90 per cent of the battle" we have found that if a set of drawings issued for bids contains all of the details—even full-sized details—the owner will obtain closer bids and there will be less trouble during construction. Also, we feel that better design results from detailing while the conception of the building is fresh than by "indicating something" and detailing it later. Many times the spirit of a job is lost by the time the details are needed. Most every architect has been confronted with mounting drafting costs of detailing. Our program saves us both money and time. It keeps our boards clear for new work and gives us always the satisfaction of knowing that the plans are really complete.

Outside supervision, we believe, is highly important. We have one trained man in the field at all times. His job is to see that drawings and specifications are followed. He answers contractors' questions, or brings disputable questions to the office for discussion and decision. In effect he is a buffer between office and client, for he checks requisitions for payment, determines all costs of extra work, if any, etc. An outside man must be trained, naturally intelligent, pleasing in personality, an organizer, a persuader, and firm but human. Our supervision is directly under one man and his word is law. The firm members also inspect the work, but refrain from making decisions or suggestions unless they are with the supervisor. Confusion and misunderstanding are thus eliminated.

Prevention of "extras" that might occur during construction is accomplished by arming the job foreman with an "order book." Experience shows that if an owner, architect, or supervisor has to sign a request order on the job for minor changes or for things expected "gratis," the desire to "change things" is nipped in the bud. These signed orders make for a simpler final settlement upon completion

of the building by removing such things as "loss of memory" and "didn't understand that it would cost extra."

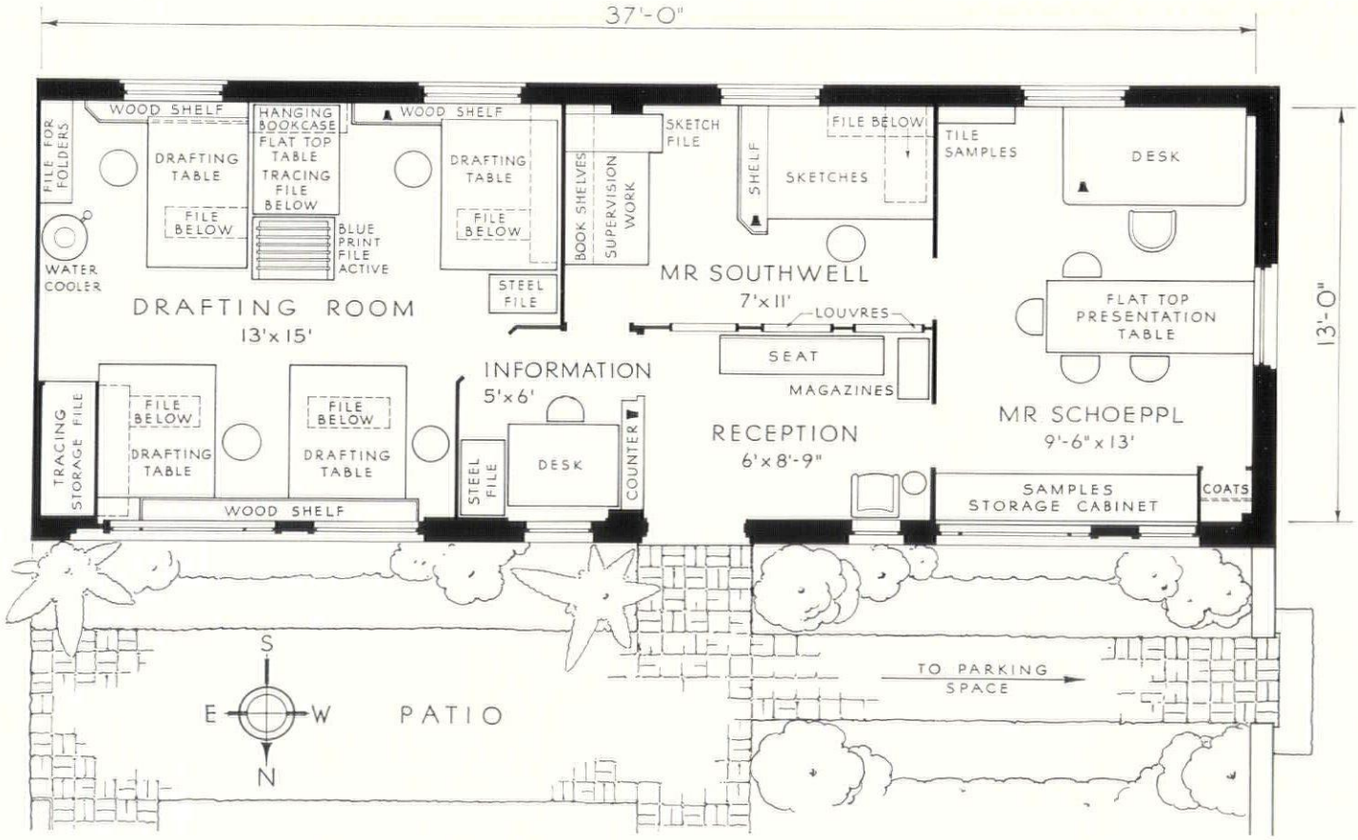
The office in which we work has no wasted areas for reception and library rooms or unutilized space. Our material samples are kept out of sight, for the most part, in built-in cupboards conveniently located in the client's conference room. The samples are frequently revised in order to avoid useless accumulation and to keep them up-to-date. Reference books, architectural plate files and catalogs are similarly weeded out and kept to a minimum, inasmuch as we believe a "working library" to be of more value to the small office than one behind glass doors under lock and key.

A system of filing original working drawings, sketches and blueprints was developed through necessity. Lack of adequate space made it imperative to devise some method other than filing drawings in the drawers of large, cumbersome cabinets. And, too, tracings must be easily and quickly located to save time. We use what we call the "tube system." Tubes made either of cardboard or wood are cut the desired length. Round labels are stuck on one end of each tube. If the tube is of cardboard, a cork is pasted in the opening to provide a surface for the label. Drawings are rolled on the tube, the number printed on the label and the tubes placed in order on shelves.

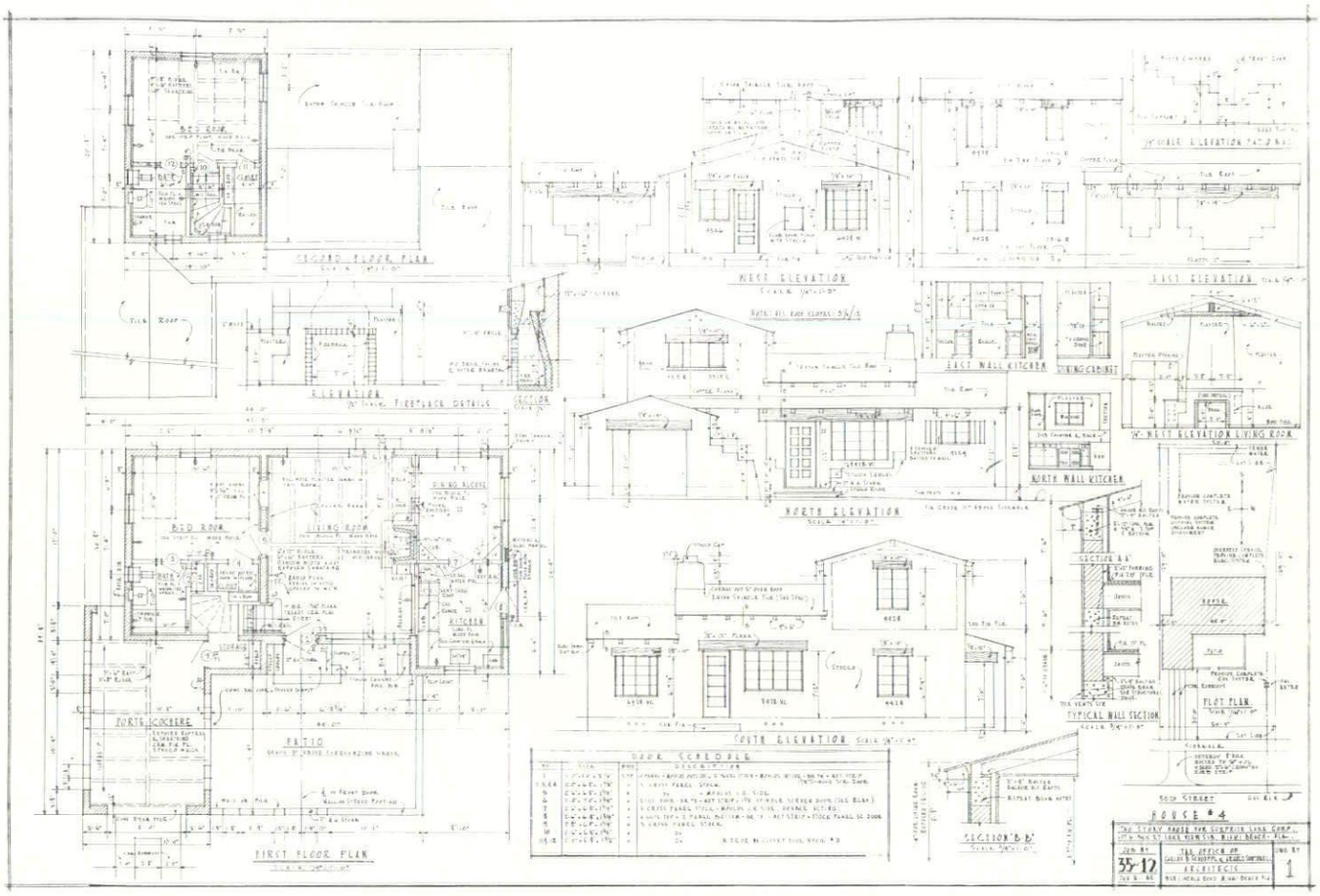
Working drawing numbers are assigned first, according to year, second according to job number; thus, drawings for the first job in 1935 are given the number 35-1. This same number is used throughout the bookkeeping system. No numbers are assigned until actual working drawings are underway. Preliminary sketches are similarly filed and are given numbers from a chart which is posted as each sketch is made.

In addition to the job sheet and sketch record, we keep an alphabetical card file. On each card is written the name of the client, the job or preliminary number, the location of the property and any additional information that may be desired. Through the use of these two records, numerical and alphabetical, drawings may be located quickly either by number or by name.

One of the first questions prospective clients wish to discuss with an architect is probable costs. They seldom want to wait until sketches are prepared and a preliminary estimate is secured. For this rea-



This office contains no waste space or elaborate areas designed to impress clients. It is designed as an office in which to conduct a business



After sketches are approved, complete working drawings including plot plan and details are immediately made. This has proven an economical procedure

son, architects must know costs in their field even better than the contractors. We have been given many jobs because we knew costs well enough to guarantee to the skeptical client that the low legitimate bid received on our completed drawings would not exceed our own estimate. Our guarantee consists of relieving the client of all obligation to pay for the drawings if our estimate is exceeded and the client decides not to proceed. Failure with this procedure is yet to be recorded. The budget system makes this procedure possible. If the estimate is faulty, the loss would be borne by the entire office and not alone by the firm members.

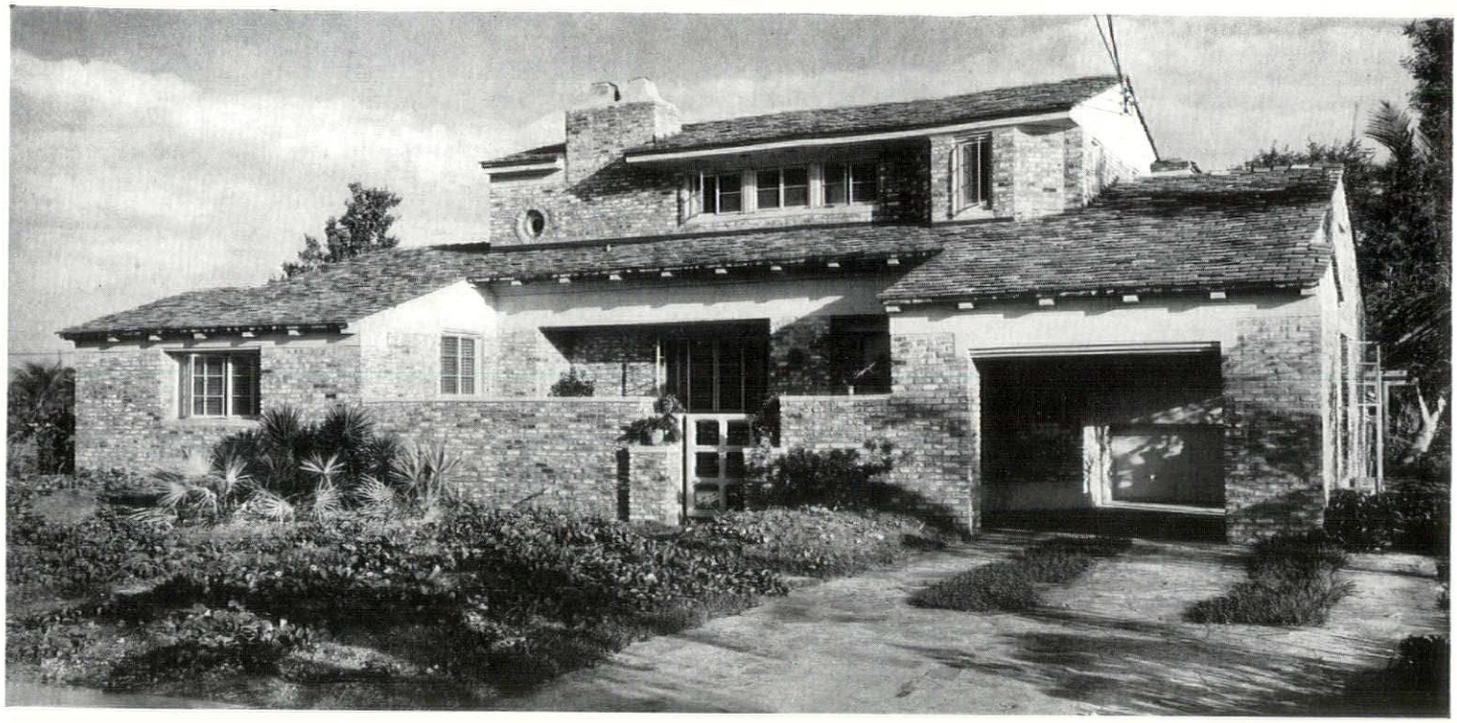
Many people are not yet educated to pay for professional service. They do not understand that they will, in the end, save money by employing an architect. Regardless of fond professional hopes, such people can never be made to understand. Therefore, we approach them from a different angle, offering them for a definite lump sum first, a sketch of plan and exterior; second, construction and quality of finish of a completed house which they can see; third, a duplicate of a landscape treatment already installed; and fourth our services. This procedure is effective and "breaks down" even the most difficult "architect evader." Before presenting the house to the client, a complete set of plans and specifications is prepared and a selected contractor submits to us a guaranteed estimate to which we add landscaping costs and our usual fee—thereby arriving at the "lump sum sale price."

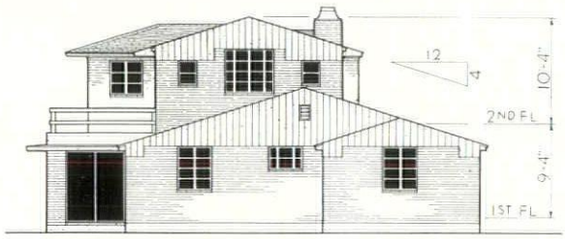
Methods to simplify production and to increase business volume, within the confines of a small office, have been developed through the complete co-operation of the entire office force. The draftsmen have confidence in the abilities of the sketching and selling departments, whose energies are expended upon maintaining the volume of business. In turn, the latter departments have faith in the output of the draftsmen. All members of the force realize the importance of satisfying all clients for—Satisfied Clients is the goal!

PHOTOGRAPHS BY SAMUEL H. GOTTSCHO

THE OFFICE OF CARLOS B. SCHOEPPL AND ARNOLD R. SOUTHWELL, ARCHITECTS

HOUSE OF MRS. ARNOLD R. SOUTHWELL
MIAMI BEACH, FLORIDA




12
4
10'-4"
2ND FL.
9'-4"
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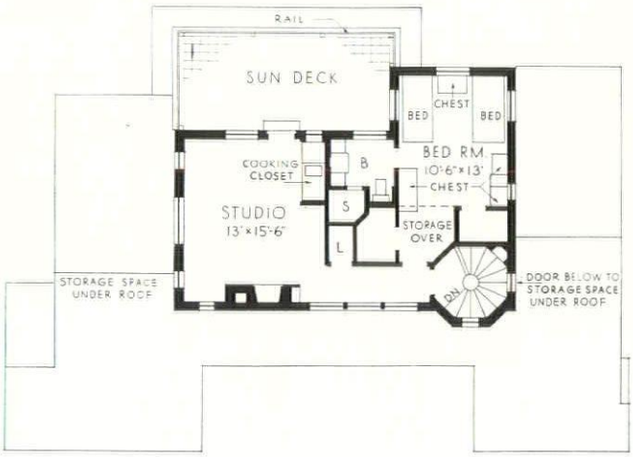
RAIL
SUN DECK
BED
CHEST
BED
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10'-6" x 13'
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COOKING CLOSET
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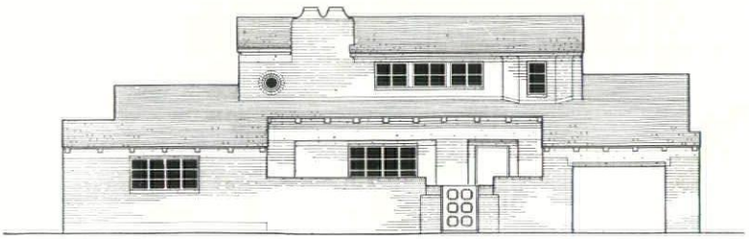
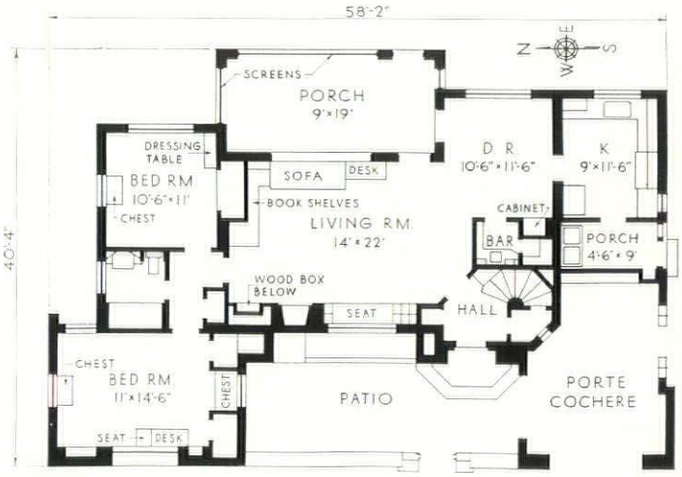
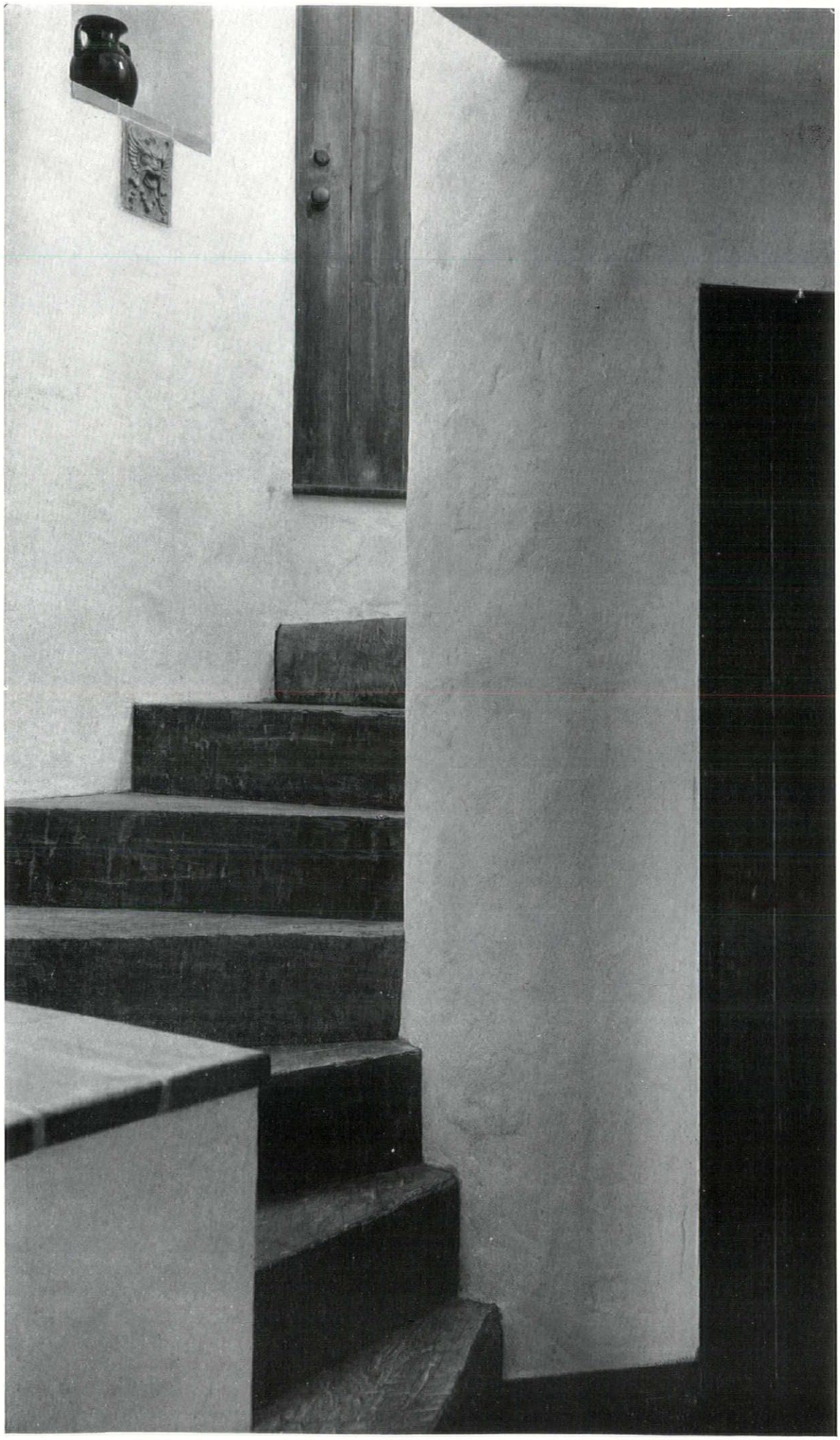
S
L
STUDIO
13' x 15'-6"
STORAGE OVER
DN
STORAGE SPACE UNDER ROOF
DOOR BELOW TO STORAGE SPACE UNDER ROOF

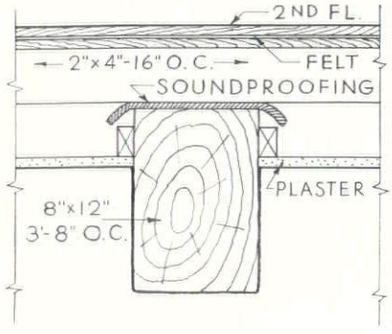



58'-2"
40'-4"
SCREENS
PORCH
9' x 19'
DRESSING TABLE
BED RM.
10'-6" x 11'
CHEST
SOFA
DESK
BOOK SHELVES
LIVING RM.
14' x 22'
D R
10'-6" x 11'-6"
K
9' x 11'-6"
CABINET
BAR
PORCH
4'-6" x 9'
WOOD BOX BELOW
SEAT
HALL
CHEST
BED RM.
11' x 14'-6"
CHEST
PATIO
PORTE COCHERE
SEAT
DESK

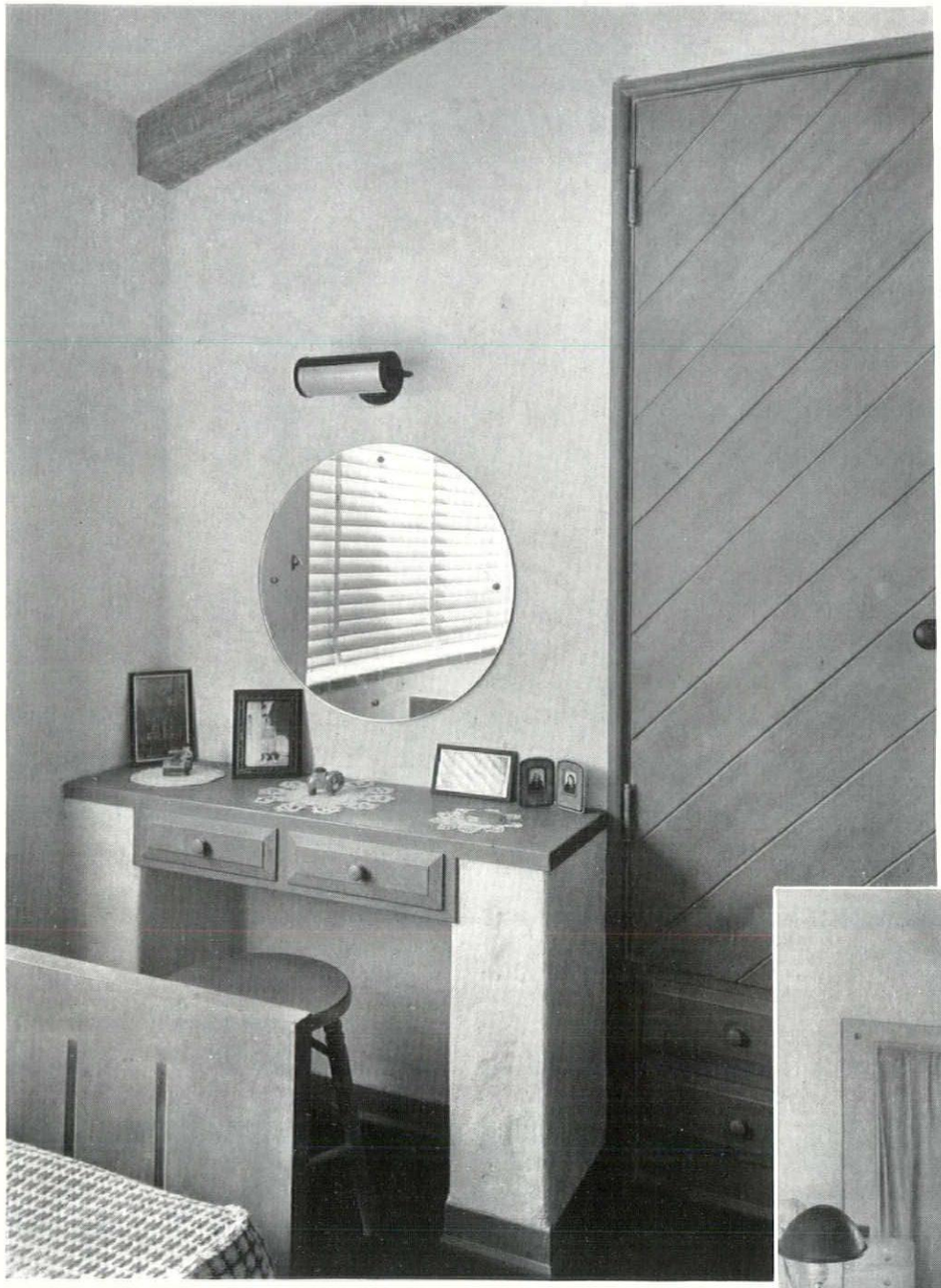
The steel elevation is shown on the facing page. A view in the patio is shown above. The roof is covered with shingle tiles. Gable ends are of concrete poured between forms faced with vertical moulded boards. Exterior walls, brick eight inches thick; door and window lintels, concrete. Floor construction and interior partitions, wood. Interior walls and ceilings, plastered; floors, oak. House of Mrs. Arnold R. Southwell, Miami Beach, Florida. The office of Carlos B. Schoeppl and Arnold R. Southwell, architects

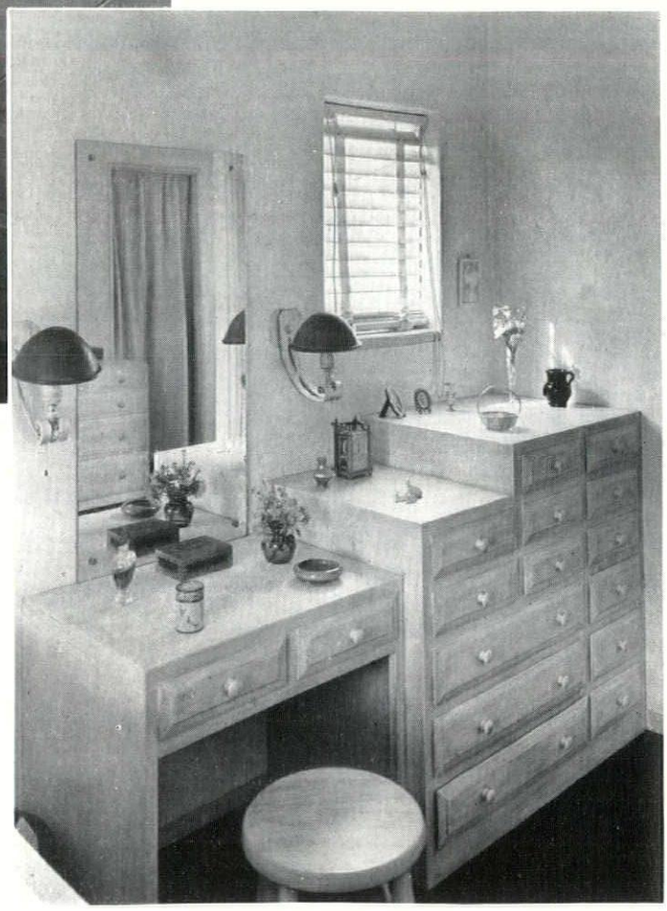
Space economy was an important consideration in the design of this house. At right, stairway from first to second floor. On facing page, two views of the living room in which built-in furniture is used as a feature





LIVING & DINING ROOM
CEILING CONSTRUCTION





Above, dressing table in first floor bedroom. At right, dressing table and chest in second floor bedroom. On facing page, general view of second floor bedroom. House of Mrs. Arnold R. Southwell, Miami Beach, Florida. Office of Carlos B. Schoeppl and Arnold R. Southwell, architects

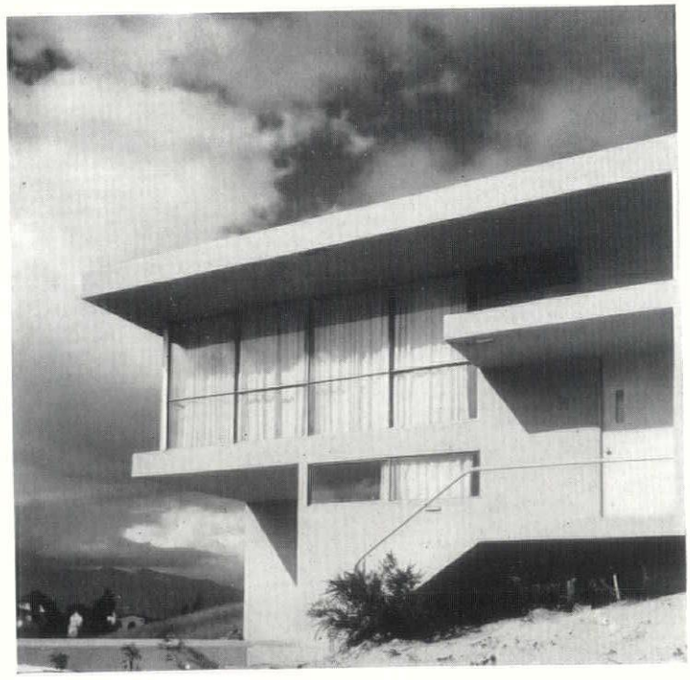
Bath room detail, House of Mrs. Arnold R. Southwell, Miami Beach, Florida.
Office of Carlos B. Schoeppl and Arnold R. Southwell, architects

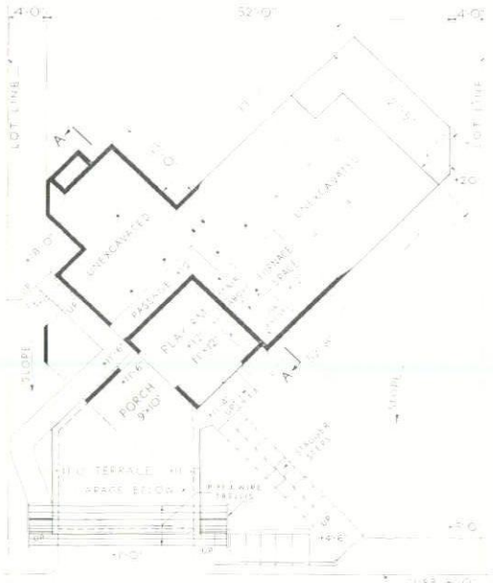
R. M. SCHINDLER, ARCHITECT

HOUSE FOR W. E. OLIVER

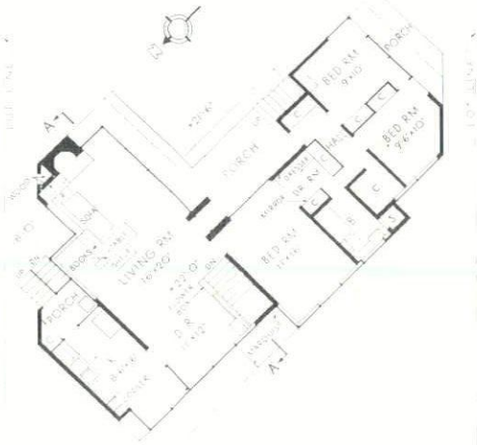
LOS ANGELES, CALIFORNIA

Photographs by Mott Studios

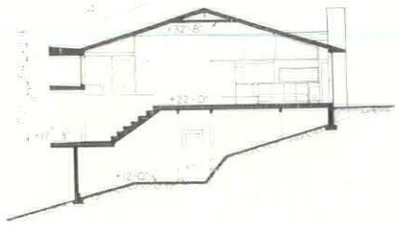




BASEMENT PLAN

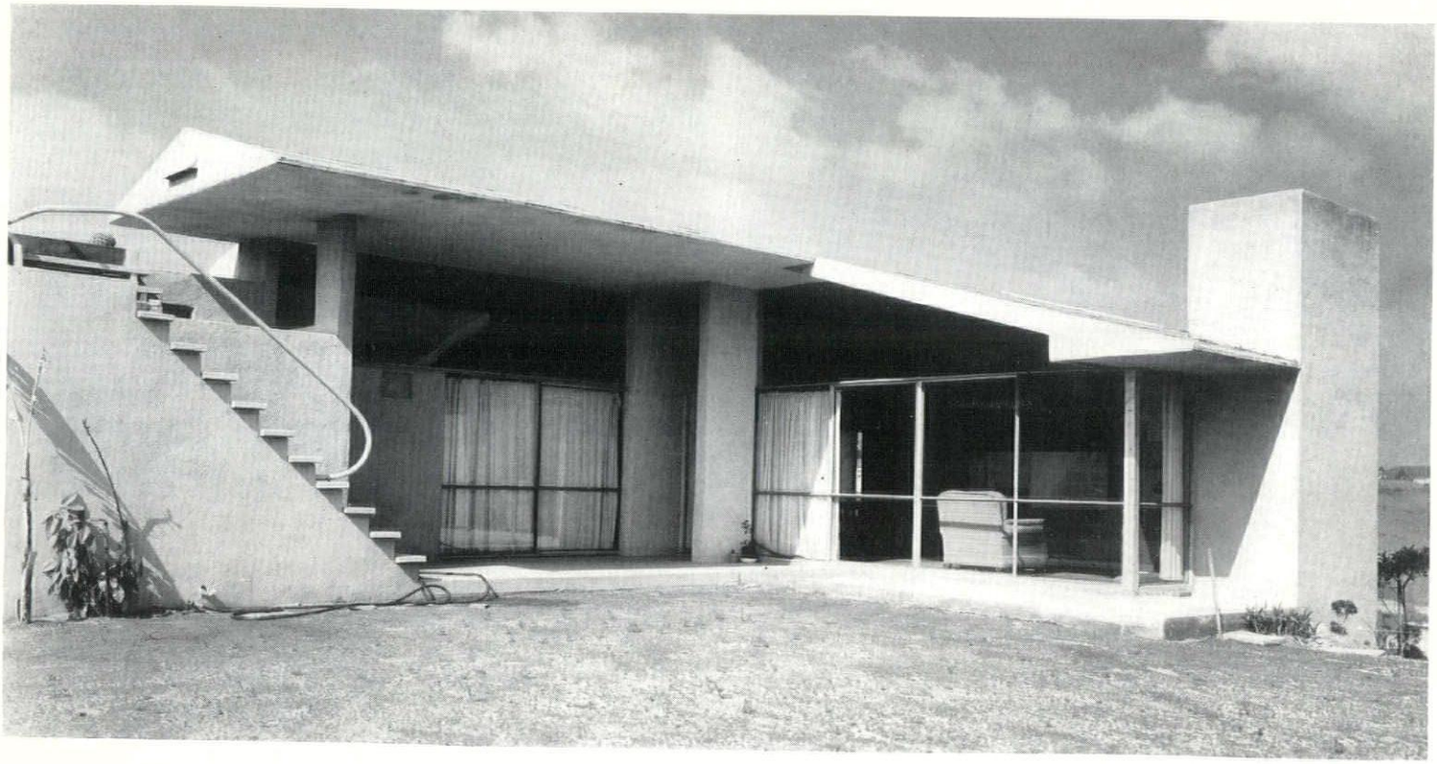


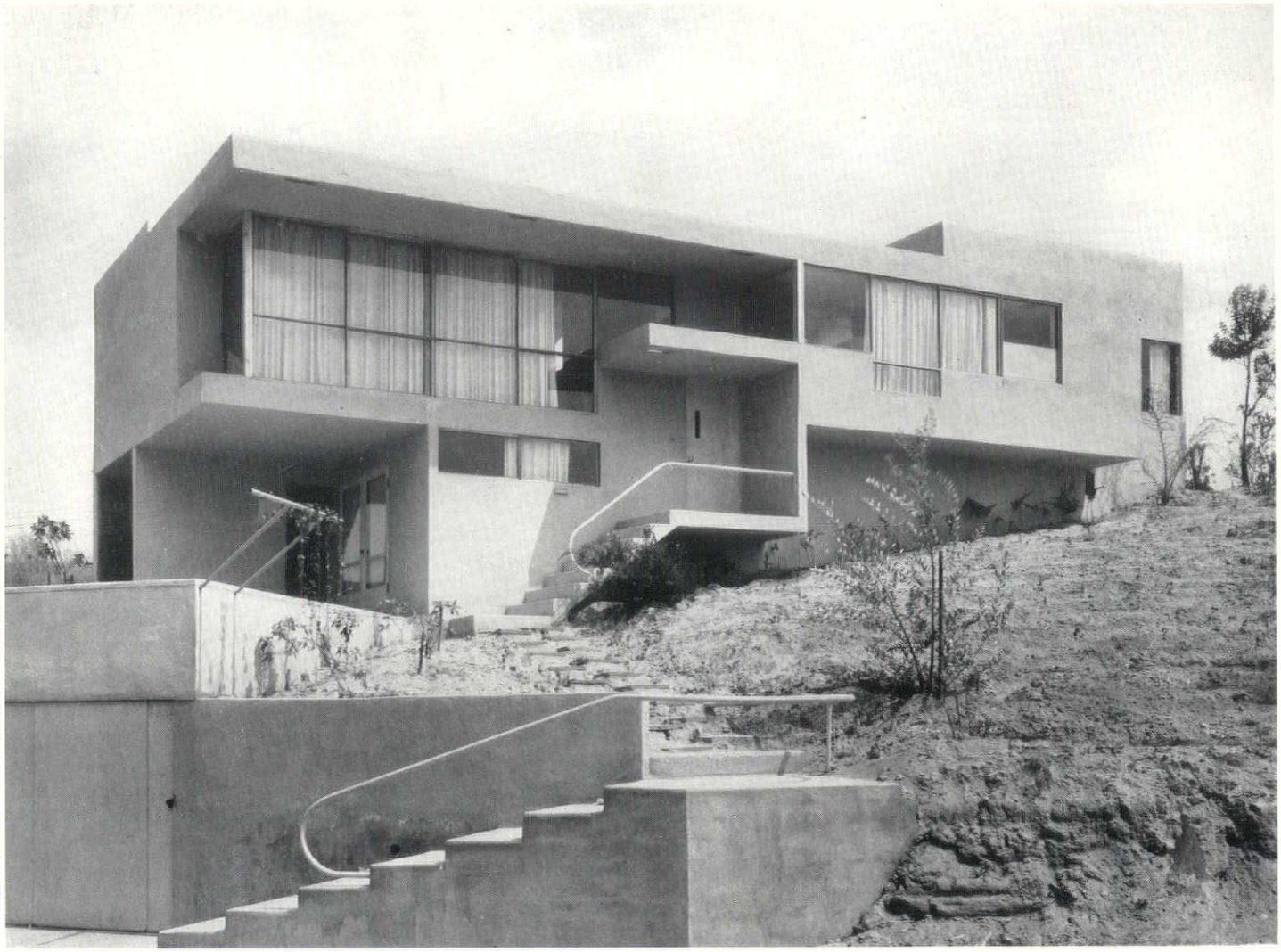
MAIN FLOOR PLAN

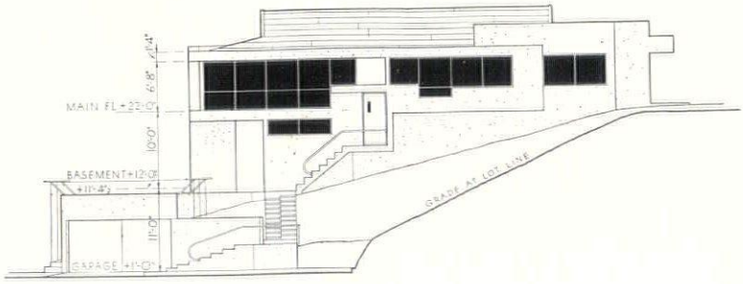


SECTION A-A

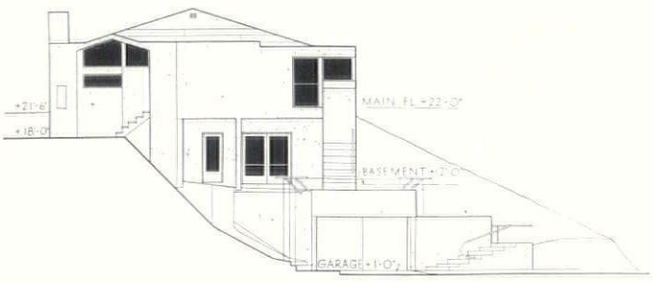
To preserve the best views and to utilize most advantageously the steep contours of the land, this house was placed at an angle with the lot lines. Construction is wood frame covered with tan and yellow stucco. Interiors and exterior are the same in color and finish. Partitions are plate glass in main portion of the house. Sash is of stamped sheet metal, cadmium plated



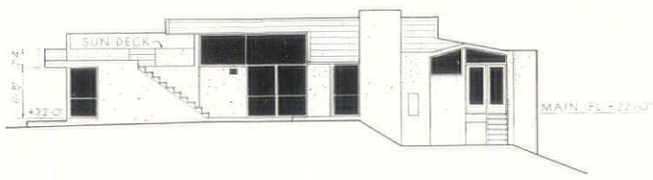




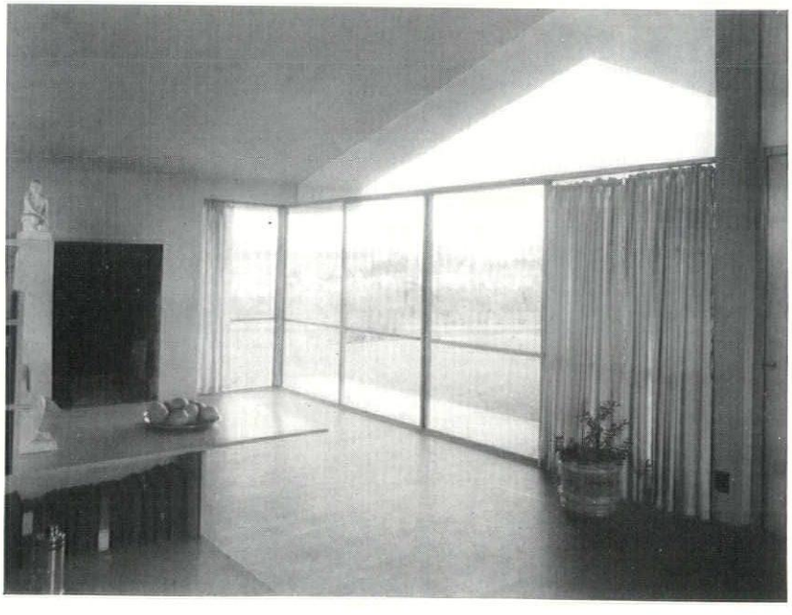
WEST ELEVATION



NORTH ELEVATION



EAST ELEVATION

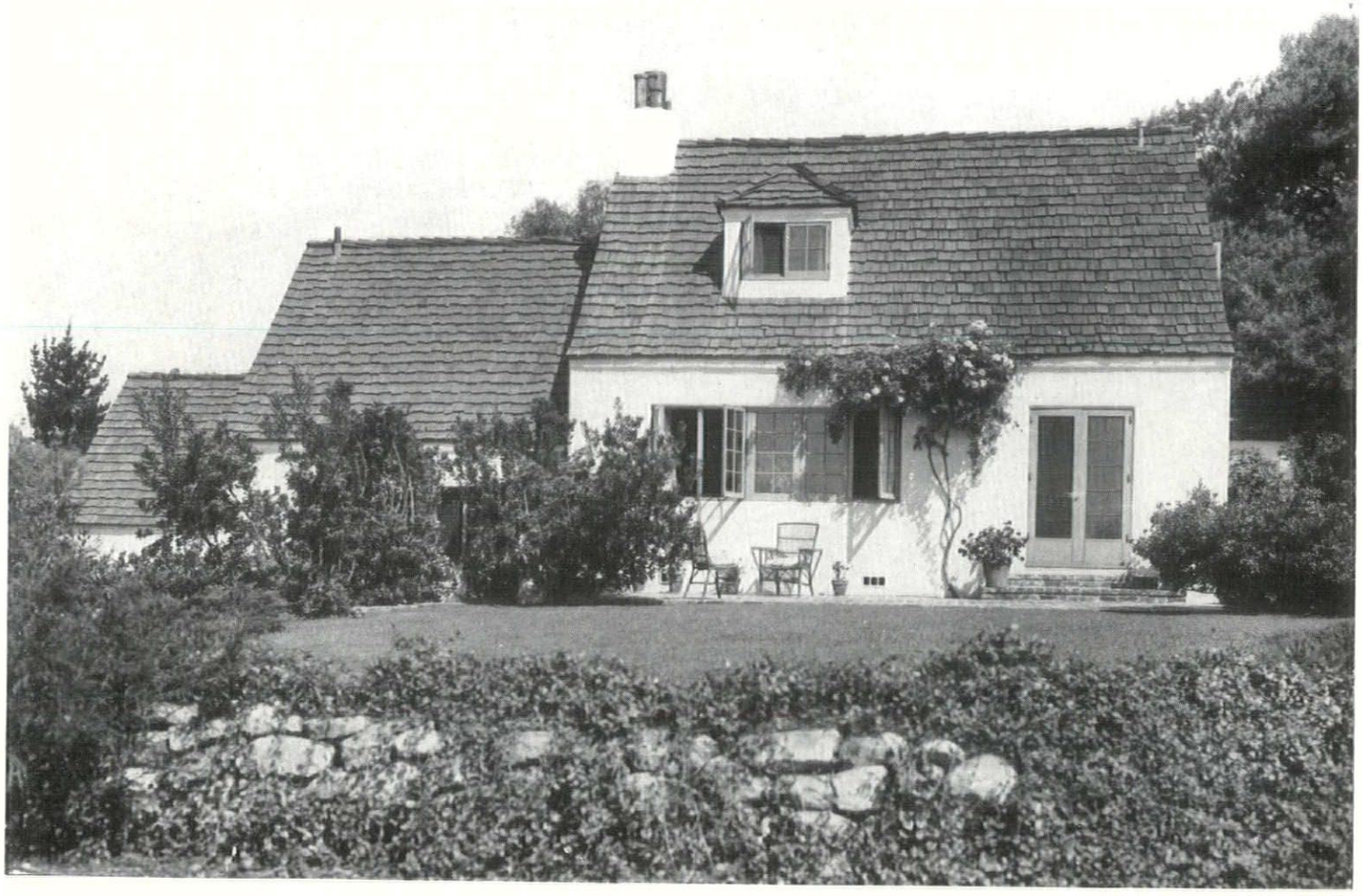


Two views of the living room. House of W. E. Oliver, Los Angeles, California. R. M. Schindler, architect

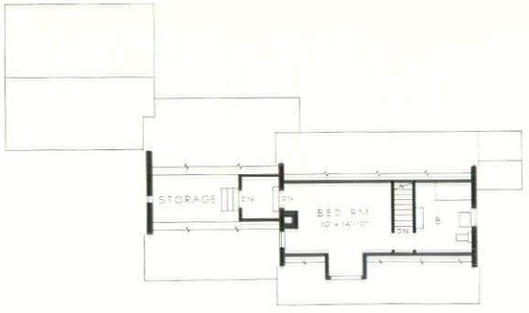
A. L. MURPHY VHAY, ARCHITECT

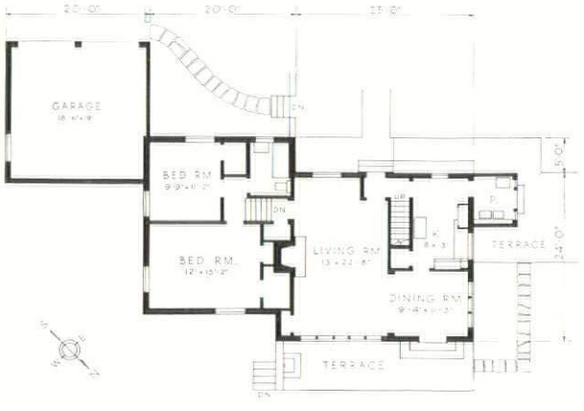
HOUSE IN SANTA BARBARA, CALIFORNIA

COLLINGE



COLLINGE

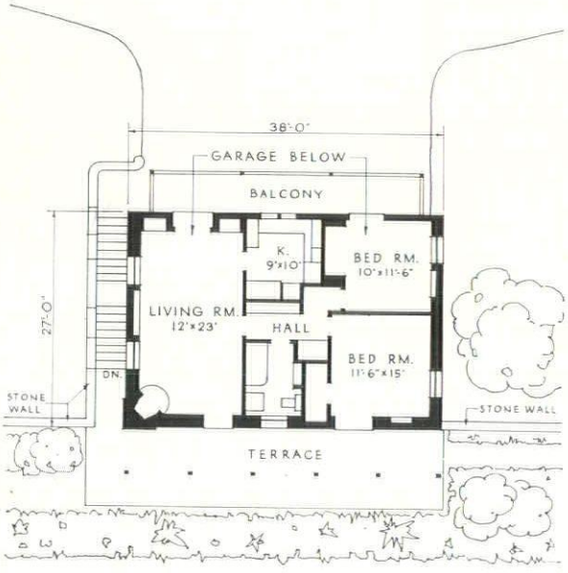

STORAGE
BED. RM.

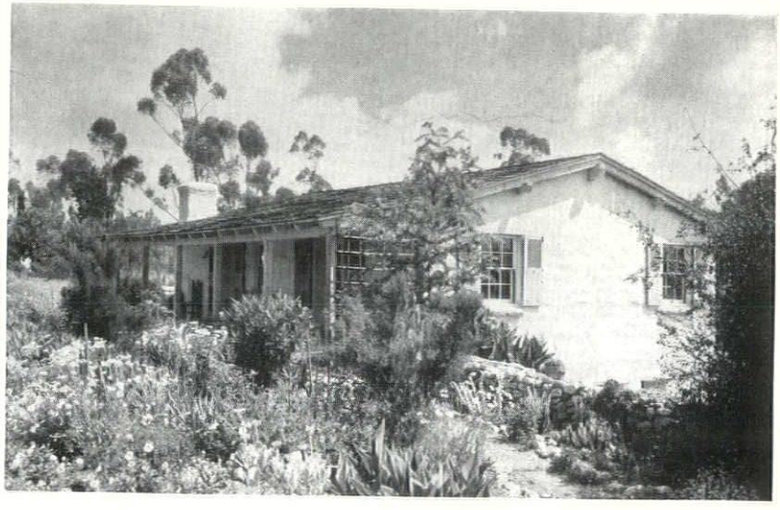

20'-0"
20'-0"
25'-0"
GARAGE
BED. RM.
BED. RM.
LIVING RM.
DINING RM.
TERRACE
TERRACE

HOUSE IN SANTA BARBARA, CALIFORNIA

A. L. MURPHY VHAY, ARCHITECT

HAIGHT





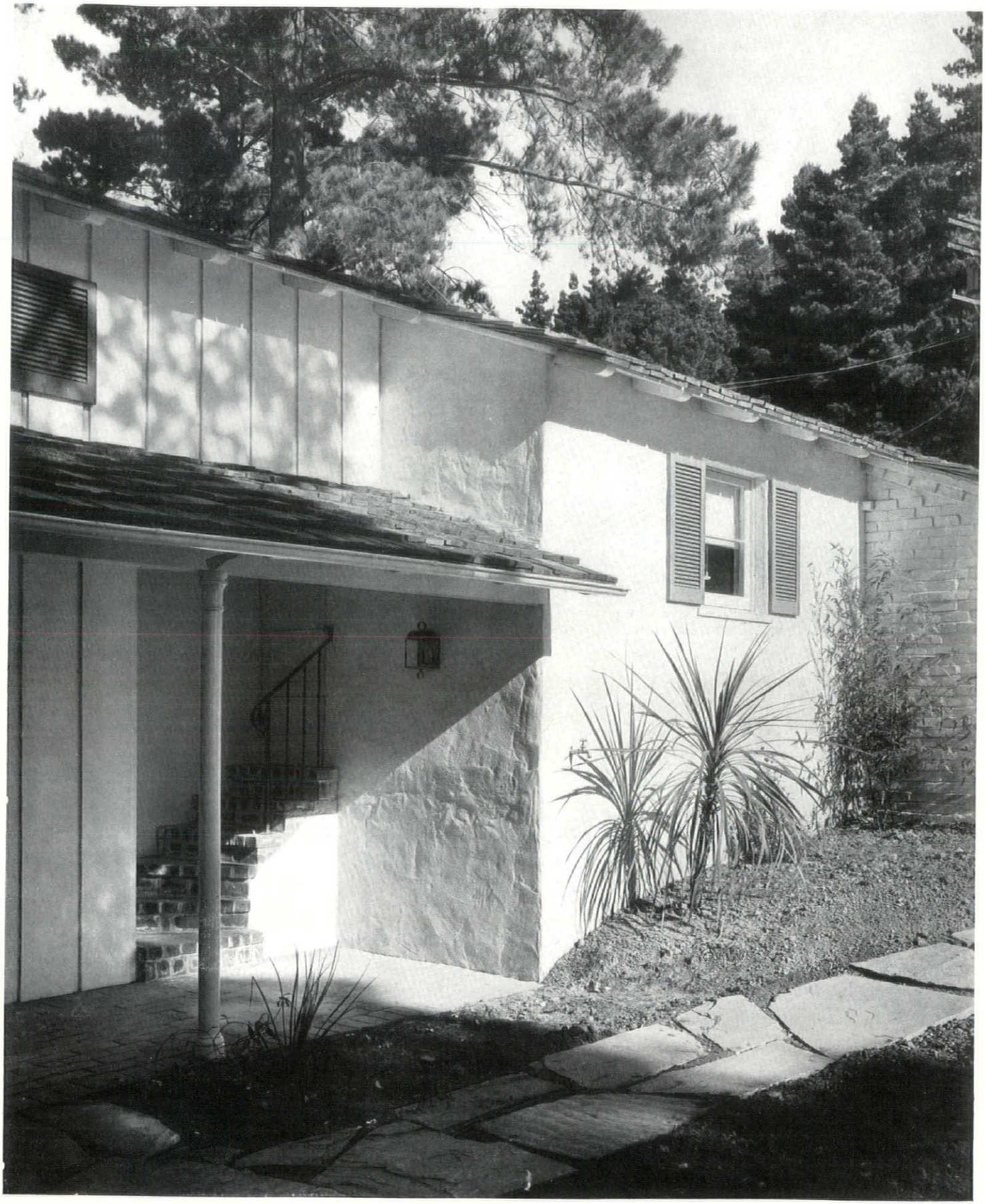
PALMER SABIN, ARCHITECT

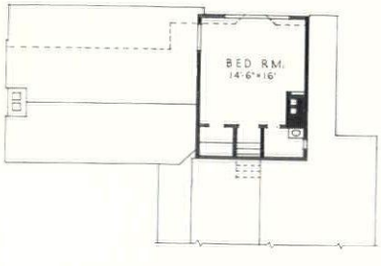
HOUSE OF MRS. MANSELL CLARK

PASADENA, CALIFORNIA

MILLER & WARNECKE, ARCHITECTS

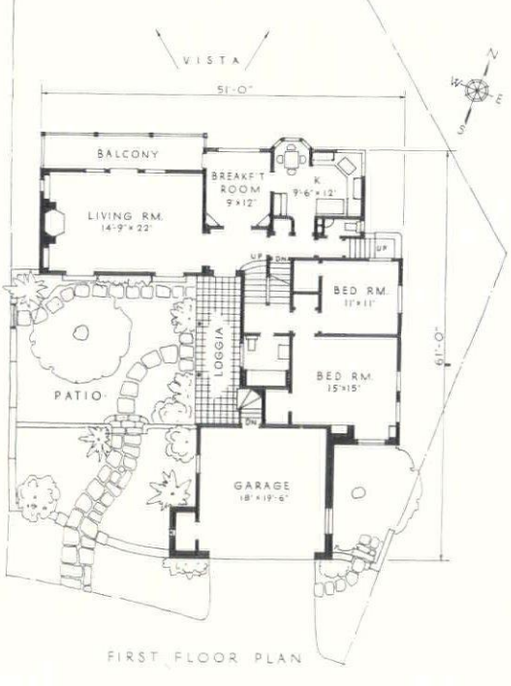
HOUSE IN OAKLAND, CALIFORNIA





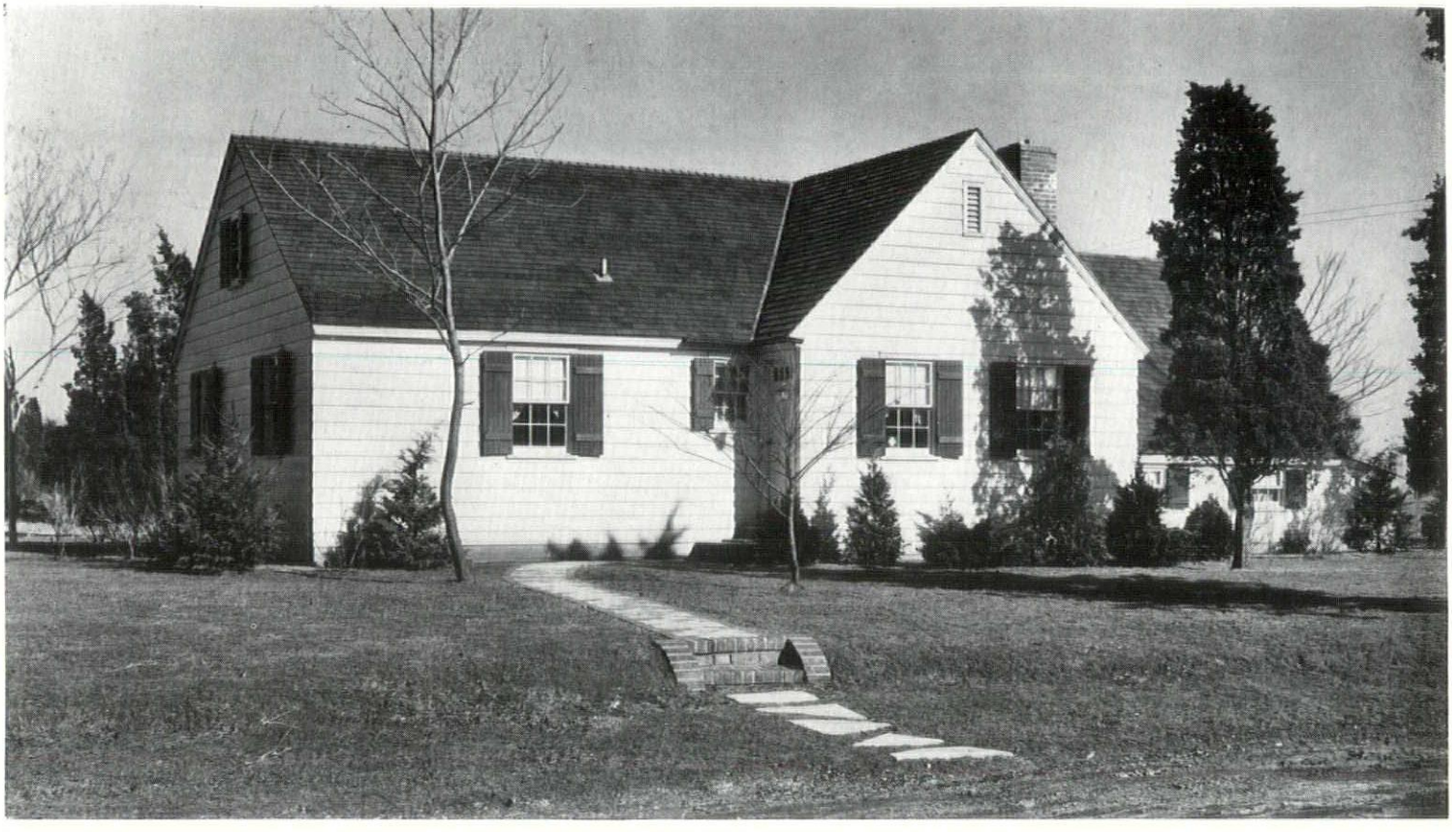
ATTIC FLOOR PLAN

BASEMENT PLAN



FIRST FLOOR PLAN

Above, attic floor bedroom. On facing page, detail from patio. House in Oakland, California. Miller & Warnecke, architects

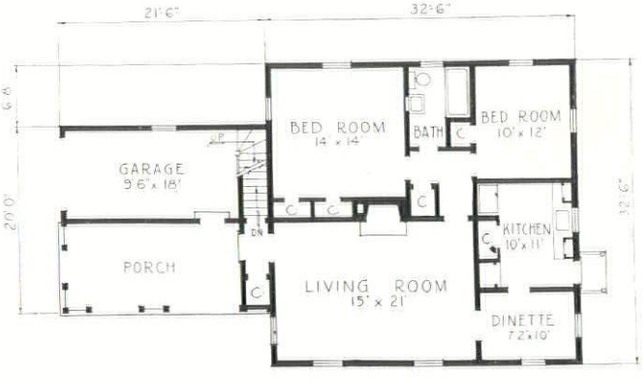


GOTTSCHO

RANDOLPH EVANS, ARCHITECT

HOUSE OF THOMAS H. WALSH

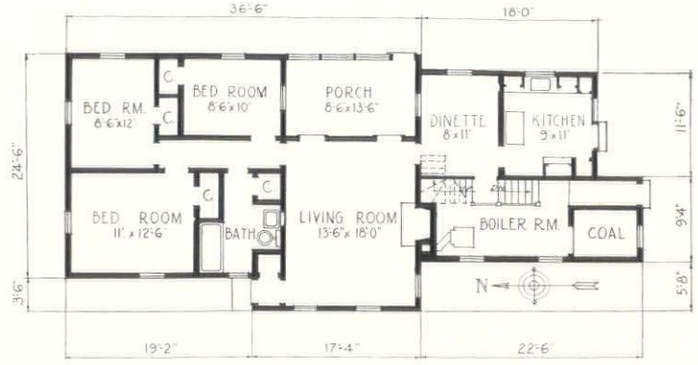
HARBOUR GREEN, LONG ISLAND, N. Y.

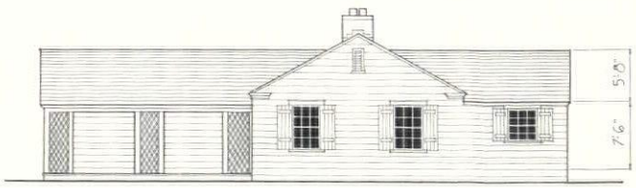


RANDOLPH EVANS, ARCHITECT

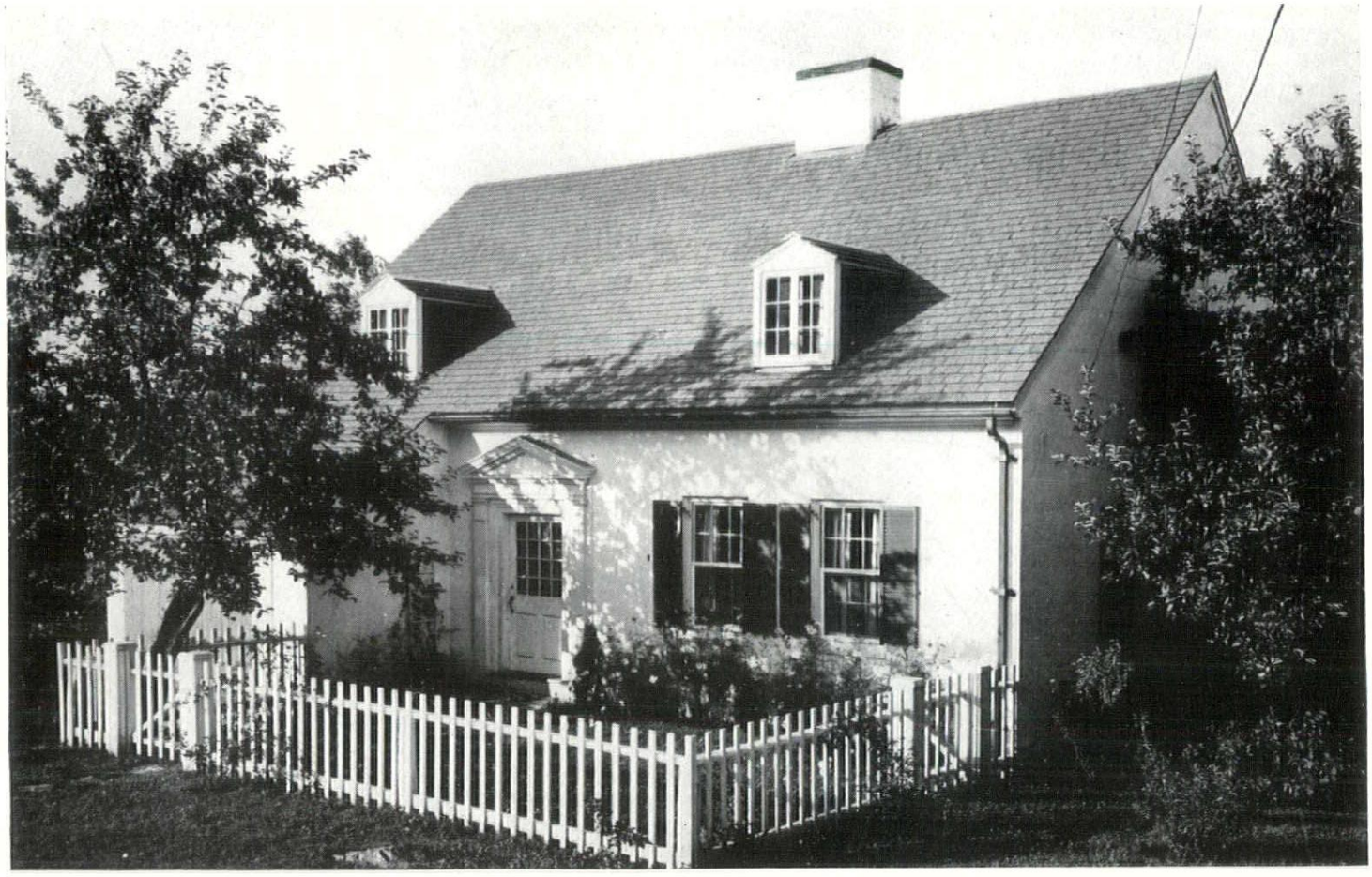
HOUSE OF SUSAN R. ERNST

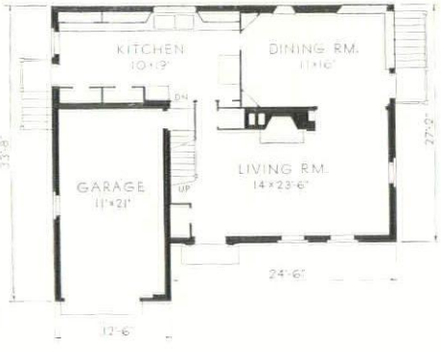
HARBOUR GREEN, LONG ISLAND, N. Y.

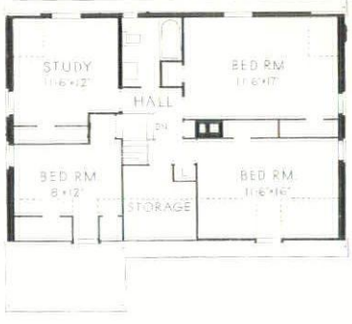


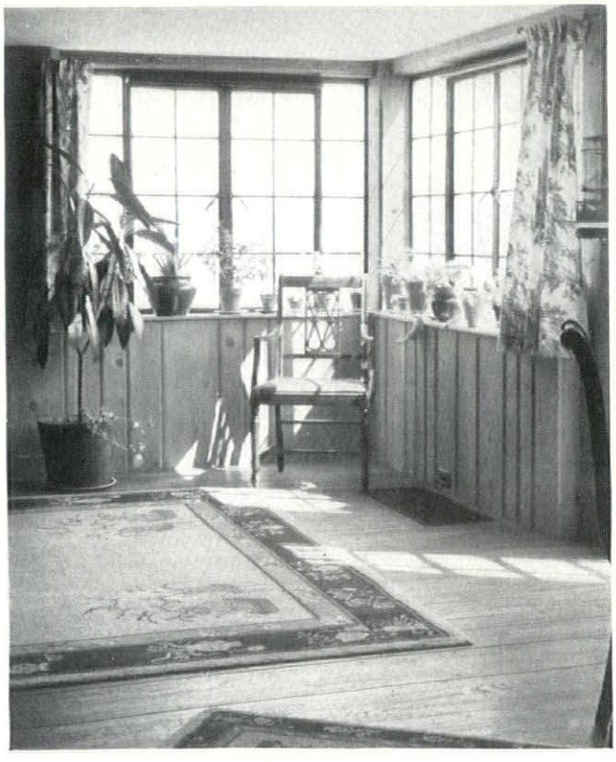


GOTTSCHO









CHARLES M. WILLIS, ARCHITECT

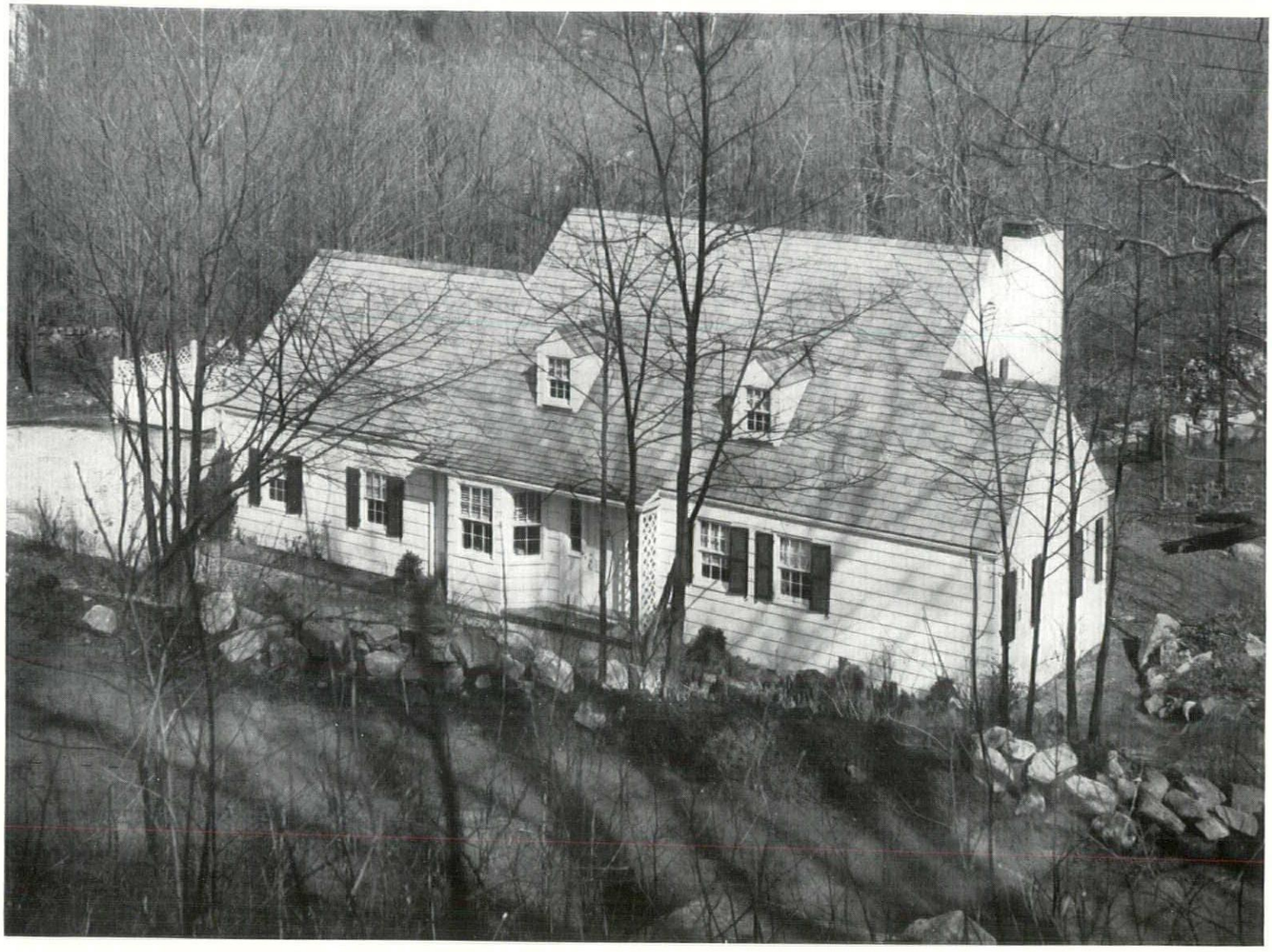
HOUSE OF ARTHUR YAKER

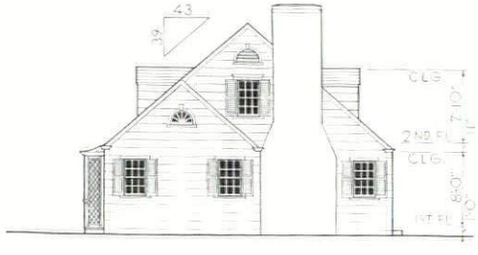
LEXINGTON, MASSACHUSETTS

ARTHUR T. REMICK, ARCHITECT

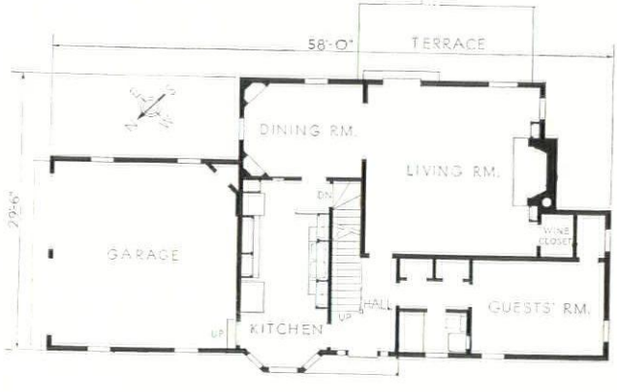
HOUSE OF JOSEF A. STEINER

CHAPPAQUA, NEW YORK




43
CLG.
2ND FL.
CLG.
(1ST FL.)


DR. RM.
STORAGE
UP
DN
MASTER'S RM.
MAID'S RM.
UP
HALL
CLOSET
STORAGE
STORAGE
STORAGE

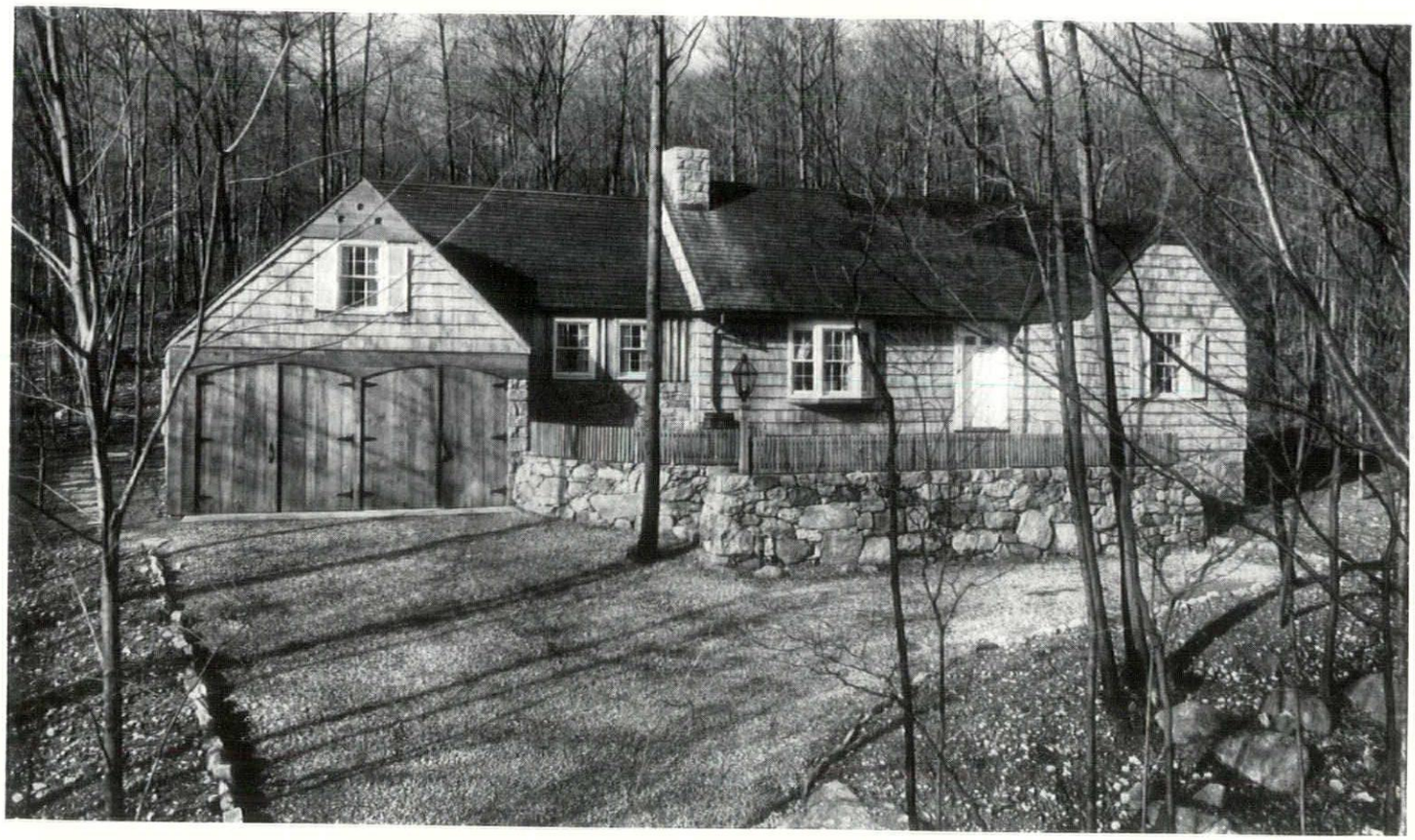

56'-0"
TERRACE
DINING RM.
LIVING RM.
DN
LIVING CLOSET
GARAGE
HALL
UP
KITCHEN
UP
GUESTS' RM.

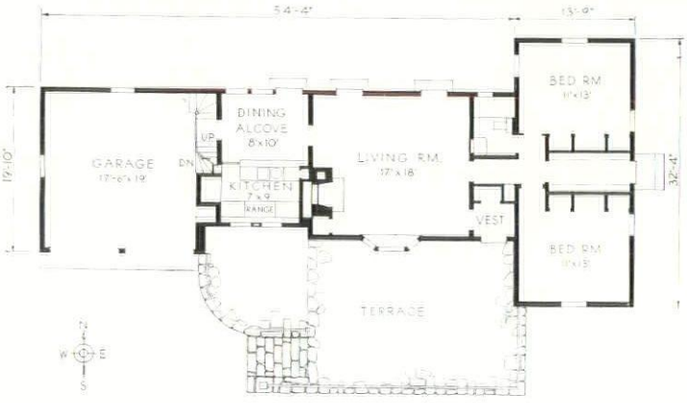
VAN ANDA

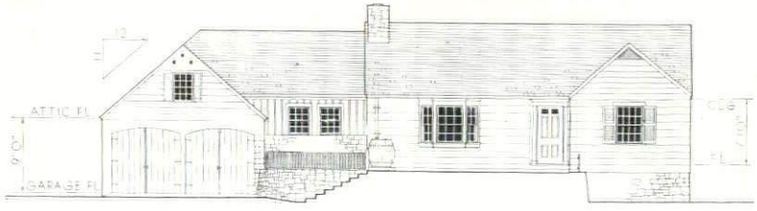
ARTHUR T. REMICK, ARCHITECT

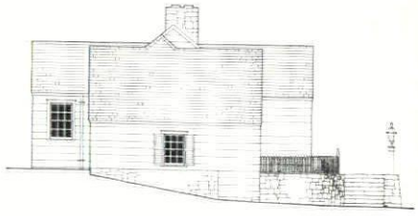
HOUSE OF JOSEF A. STEINER

CHAPPAQUA, NEW YORK









HARRISON GILL, ARCHITECT

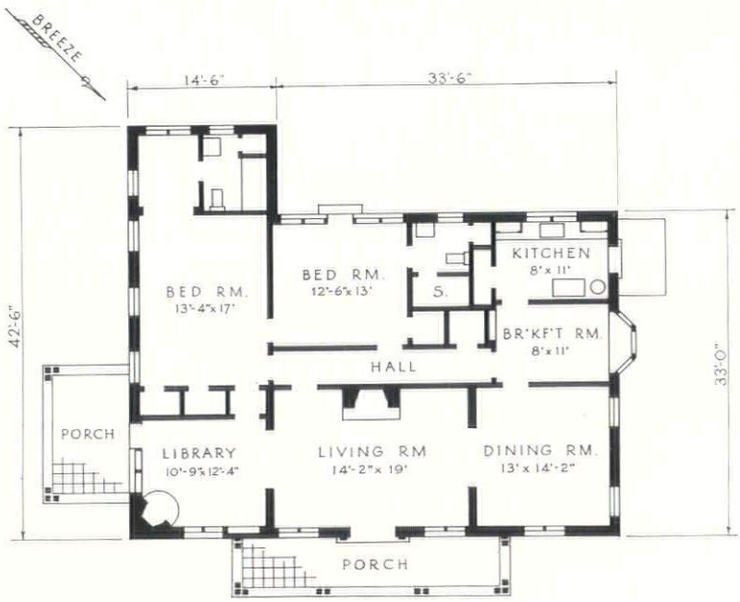
HOUSE OF HOYT CATLIN

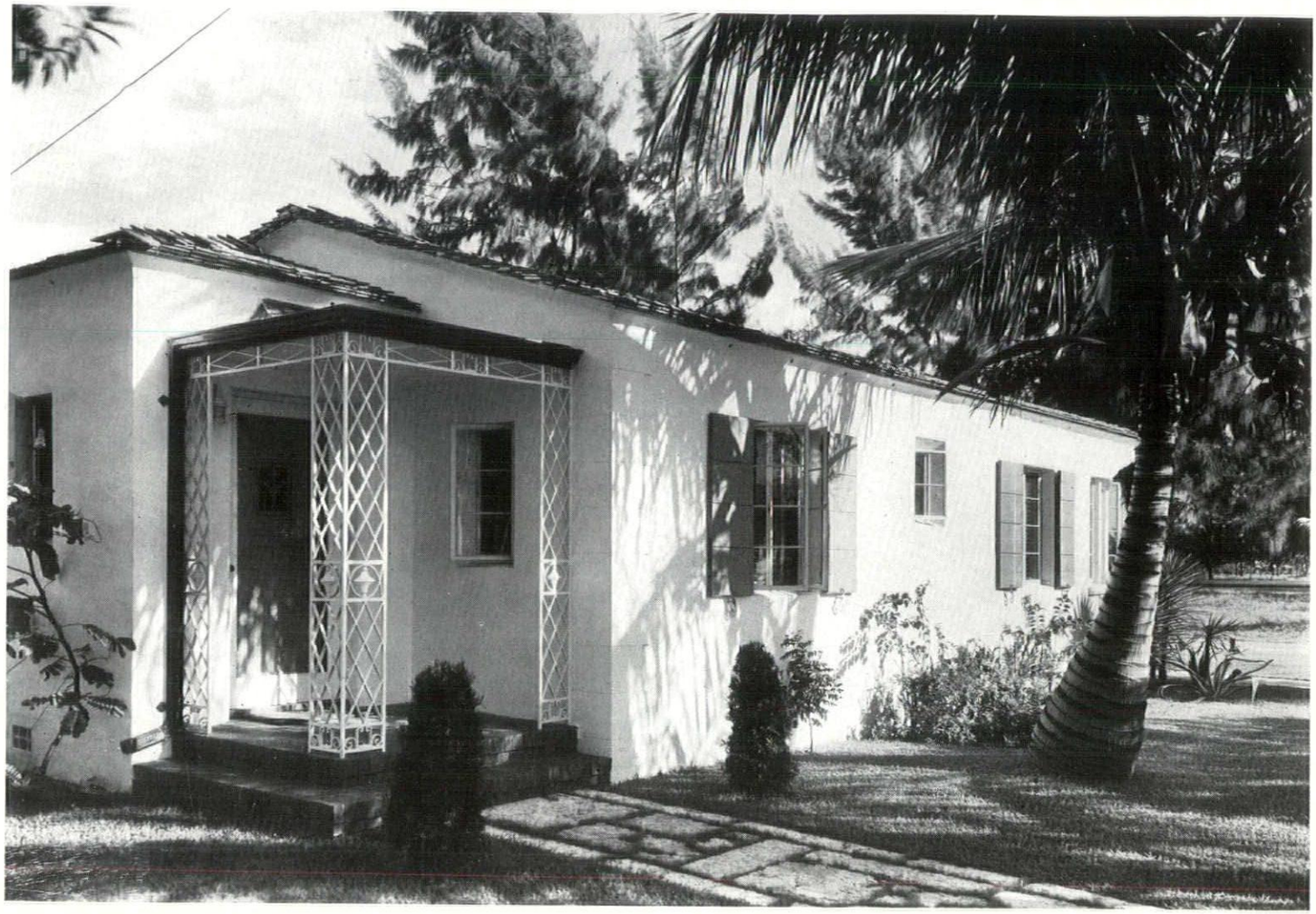
NEW CANAAN, CONNECTICUT

BARTLETT COCKE, ARCHITECT

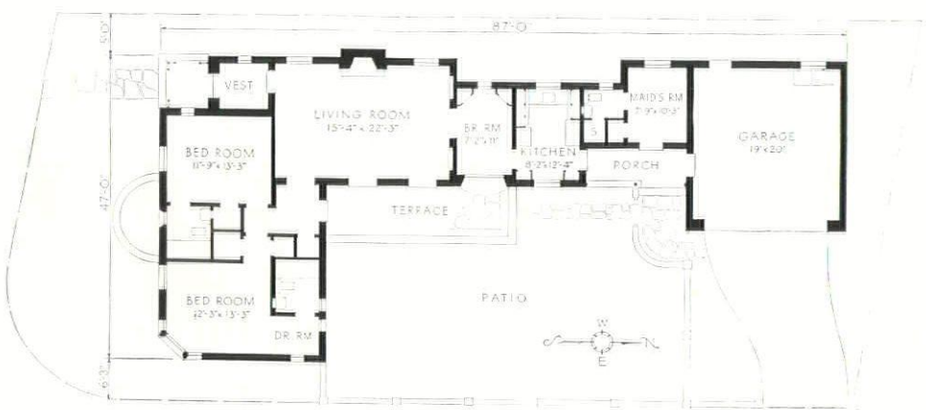
HOUSE OF MRS. EDWIN D. ALLEN

SAN ANTONIO, TEXAS





GOTTSCHO



PHINEAS E. PAIST, HAROLD D. STEWARD, ARCHITECTS

HOUSE OF MAJOR A. T. MOSSMAN

MIAMI BEACH, FLORIDA

GOTTSCHO

Looking Ahead in Planning . . .

BY FRANK J. FORSTER, A.I.A.

NO new idea is involved when a small house, originally built as a complete unit, is enlarged to provide necessary extra room for the owner's growing family. But a suggestion that these needs be anticipated—even before the lot is bought—has novelty enough to merit more than casual consideration. For the owner it can mean an orderly, planned development of building, keyed at all times to his budget and aimed at the ultimate culmination of his home-building desires. For the architect the suggestion may mean wider opportunity to exercise his professional talents. Conceivably, it can enlarge the scope of his practice; and, all other things being equal, it can produce increased income through assurance of future business.

Put in the form of a proposition, the idea is this: Instead of acting merely as a technical expert for a client, why should not an architect serve him also as a consultant in home development? Why should not the architect tell his client now what he will have as a home ten years from now? In most cases a man ready to build thinks only of the present problem. In solving this, why cannot any architect anticipate his client's building future and thus plan for him a house that grows with the years to fulfill expanding requirements and one which, at every stage of development, will be a credit to all concerned because of the completeness of its design and surroundings?

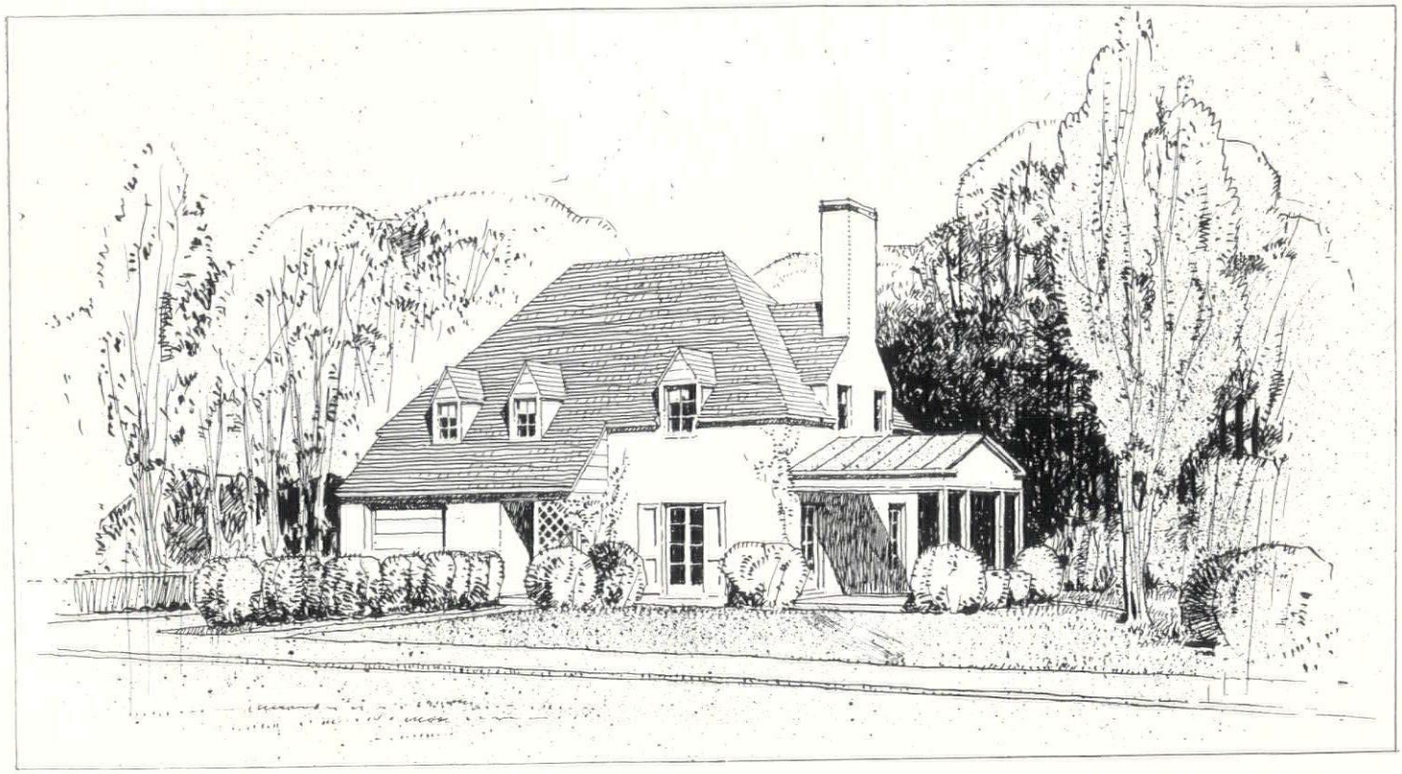
Obviously, the answer to all these questions is an affirmative one—with reservations. Important among these is what might be called a new sort of professional outlook. We architects have become somewhat prone to let the client's future building take care of itself if we can get the commission for the present one. Too often we plan for him a house of one sort without first thoroughly exploring the possibilities of his future needs which may eventually make necessary a house of quite another kind.

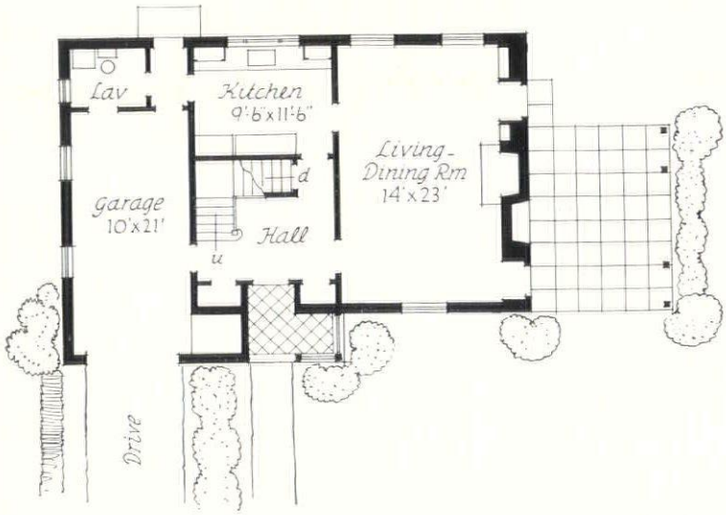
If we do not do this, others will. As the depression fades into the background, we can expect that more and more the American family of moderate means will think of its house not in present terms of living expediency, but as a permanent establishment which, by means of judicious changes and additions, can provide consistently a high degree of comfort and utility for as long as the family lives. If we are to believe leaders in the fields of economics and sociology, home ownership is a powerful factor of economic stability. Also, it is an important force toward the ultimate accomplishment of a more secure society. We, as architects, can do much—more—perhaps, than we commonly realize—to accomplish results for which, fundamentally, we are all striving.

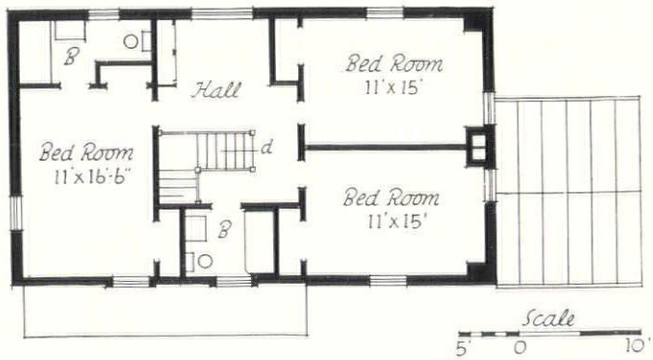
As architects we can approach our clients' building problems from the large point of view. We can plan for a man the kind of a home that ultimately he will need. From this standpoint we can advise him about the land he needs and can show him that, though one plot may suit his present needs, it will be inadequate in the future and is, therefore, a poor investment. We can show him how his home can expand structurally and map with him a program that includes his family and social interests, his property investments and his economic capabilities. With all this in mind we can then build for his family's immediate requirements, secure in the knowledge of subsequent development and confident of a practical and attractive unity of site, design and budget at every stage.

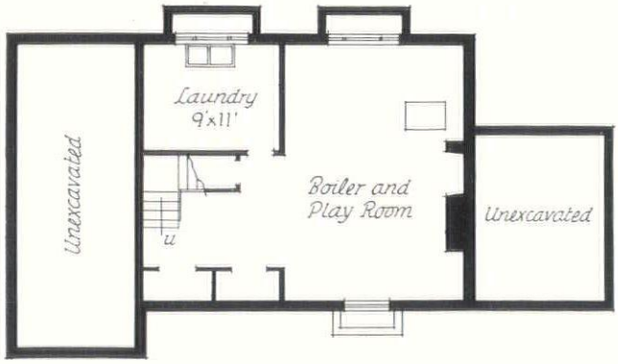
As an illustration of the opportunity suggested, sketches for two houses accompany these paragraphs. They cover the range of small house work that the average architect can expect to contact within the next five years. One is essentially a small house, even in its final stage. As completed, the other represents a residence for the family of moderate means. Each has been planned so that an immediate building operation produces a dwelling unit keyed to present economic conditions and requirements. Additions indicate successive steps toward a final solution of the owner's housing problem.

Purposely omitted from consideration have been costs or any definite supposition regarding size, location or orientation of real estate. Omission in no way stamps these as unimportant to either architect or owner. But each must necessarily be considered in view of the individual's taste and capabilities. The sketches merely show a new approach to an old problem, an improved solution of which can be detailed by any architect who does not allow his professional vision to become obscured by the temporary smoke-screen of an immediate commission.



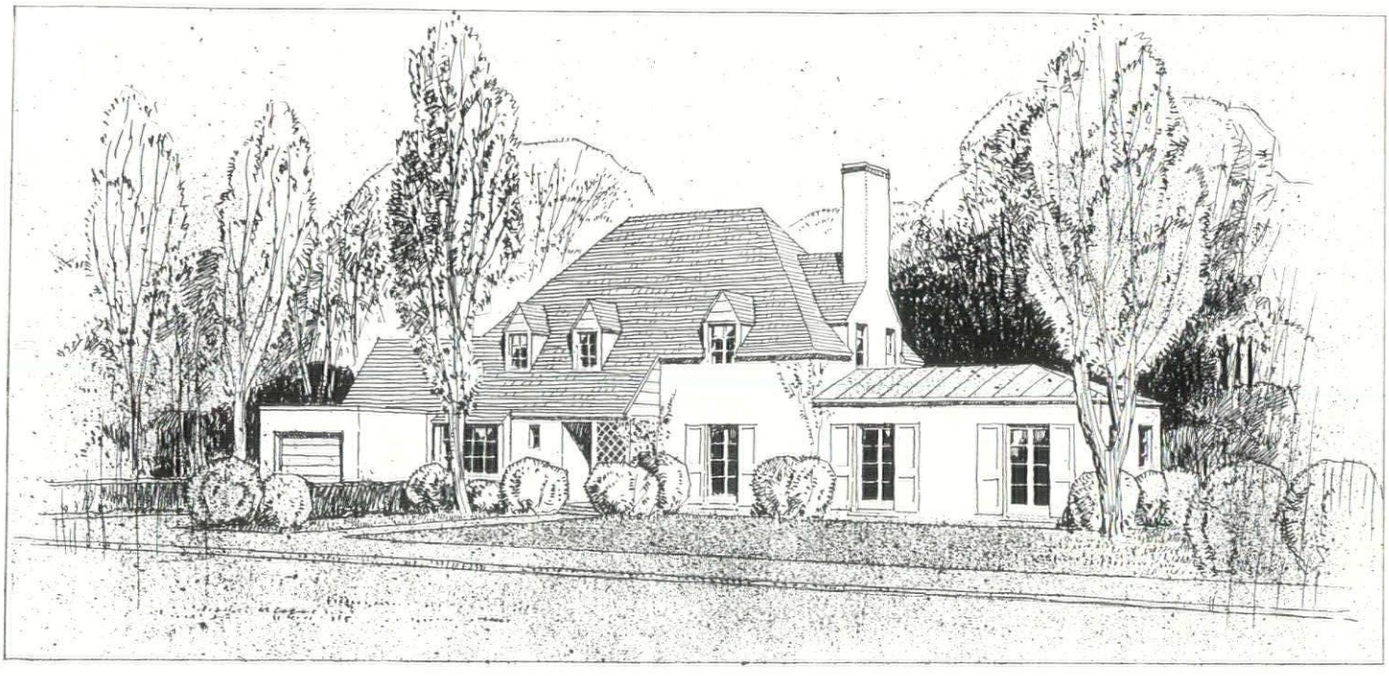






FOR THE FAMILY OF MODERATE MEANS

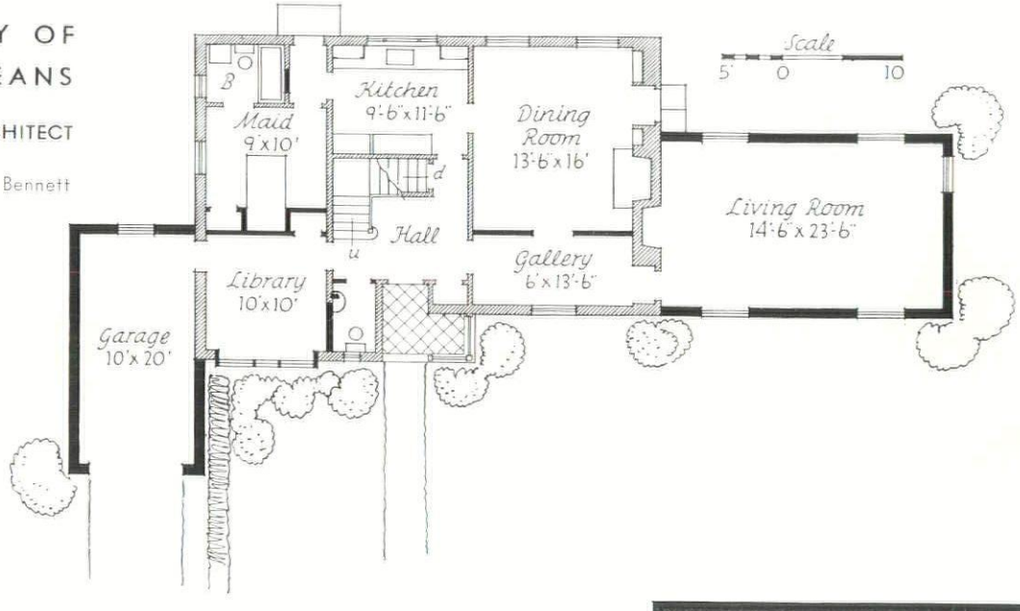
The first building operation of a country house that ultimately will contain on the first floor a living room, dining room, library, lavatory, gallery, two bedrooms with bath between, a maid's bedroom and bath, kitchen and two-car garage. On the second floor will be three bedrooms, two baths and a living hall. Most of the basement will be unexcavated, though there will be space in the first stage of building for storage, a laundry and play room. This house needs space. In both plan and design it is typical of a dwelling set in gently rolling country where sweeping lawns and a thick background of landscaping are possible. In the second and third stages of building shown on two following pages, the second floor remains unchanged. Original construction is shown hatched; new work in solid black. All plans are reproduced at 1/16 inch scale

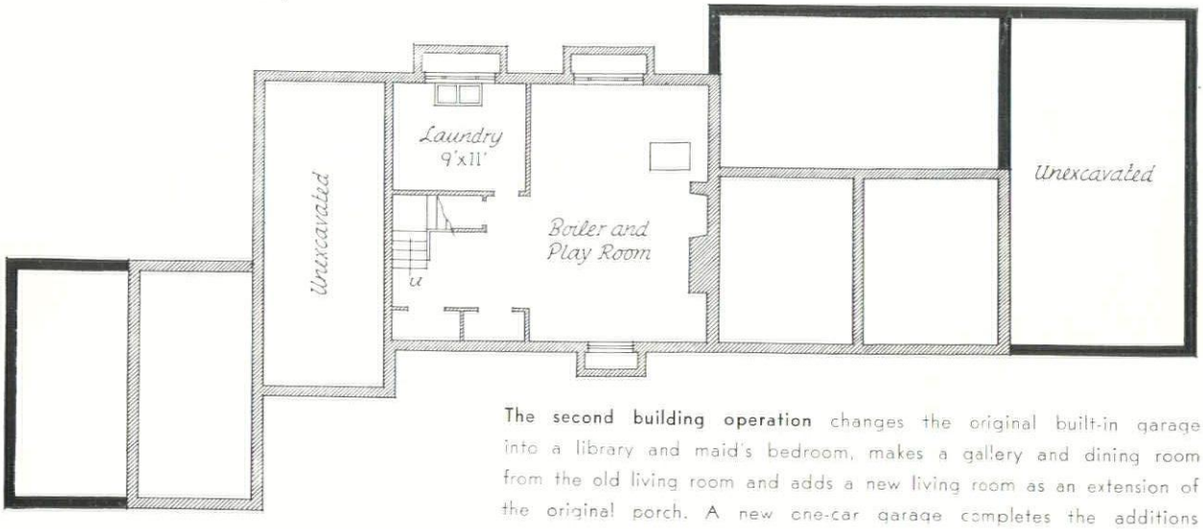


FOR A FAMILY OF MODERATE MEANS

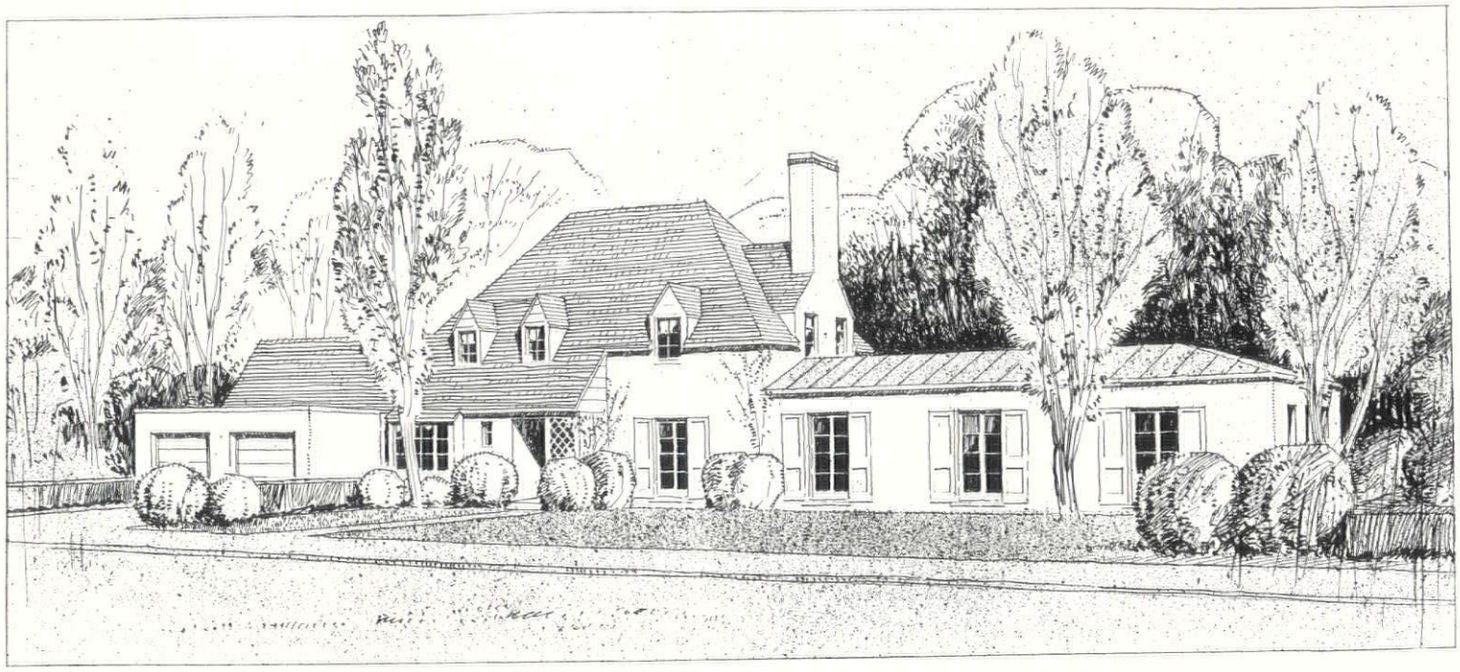
FRANK J. FORSTER, ARCHITECT

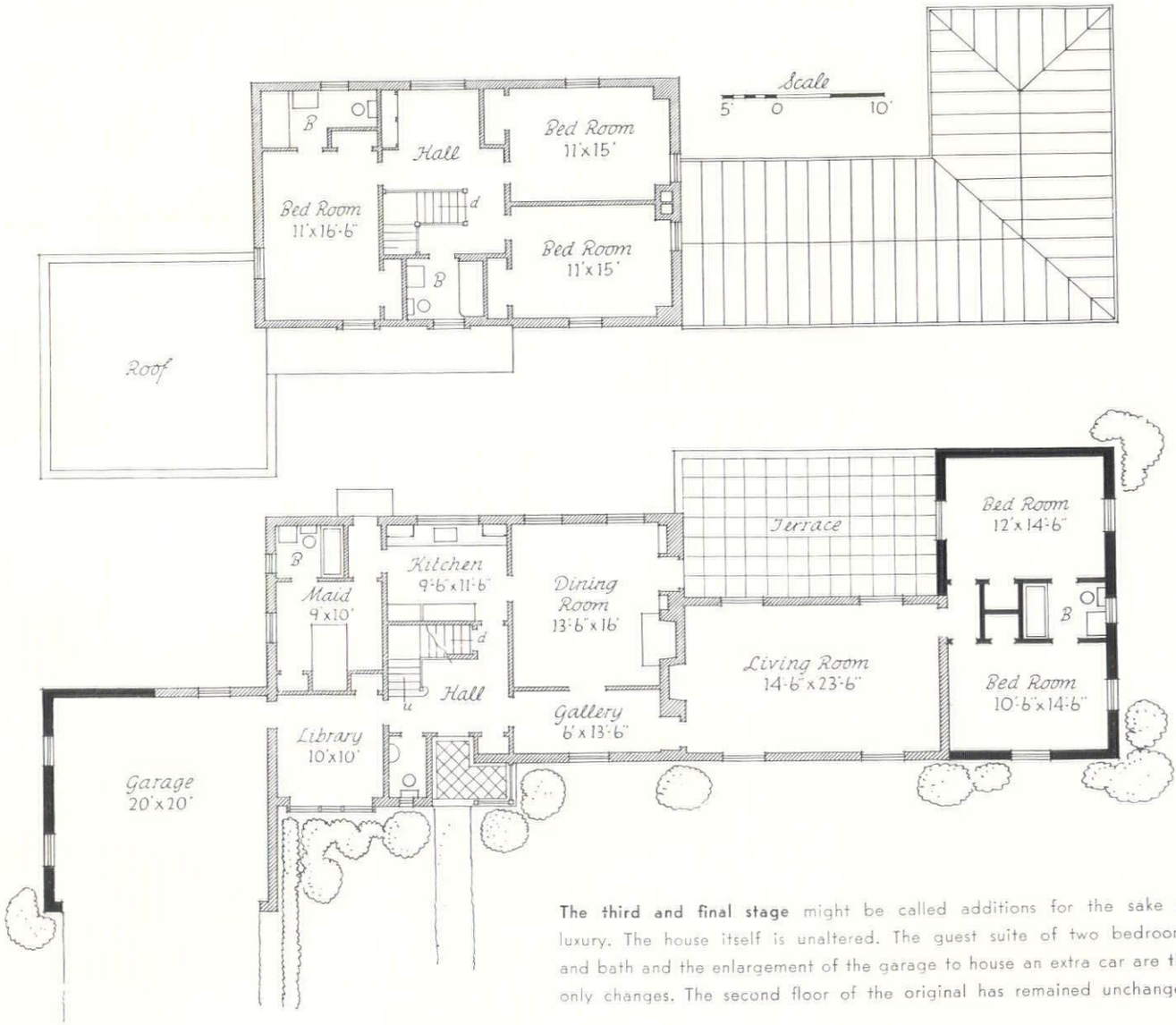
Sketches by Elmer A. Bennett



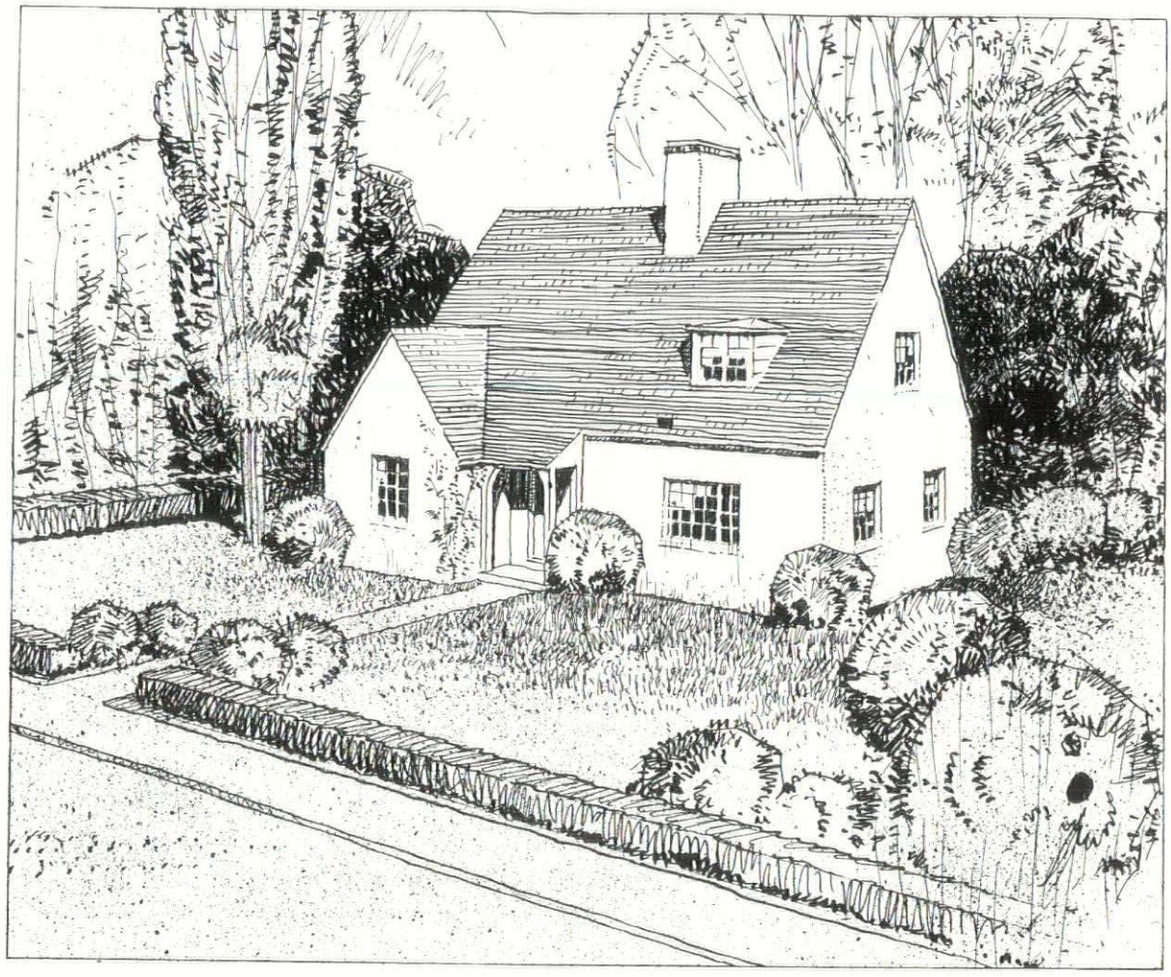


The second building operation changes the original built-in garage into a library and maid's bedroom, makes a gallery and dining room from the old living room and adds a new living room as an extension of the original porch. A new one-car garage completes the additions





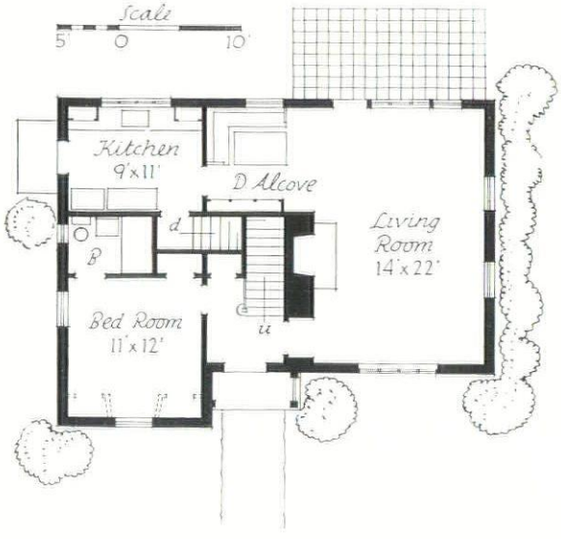
The third and final stage might be called additions for the sake of luxury. The house itself is unaltered. The guest suite of two bedrooms and bath and the enlargement of the garage to house an extra car are the only changes. The second floor of the original has remained unchanged

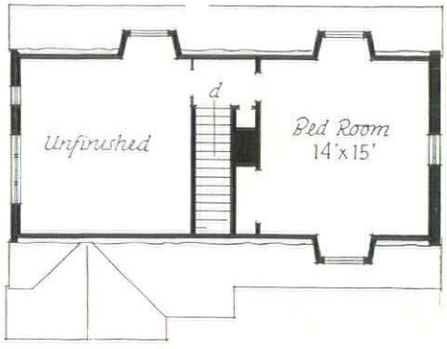


A SMALL HOUSE IN THE SUBURBS

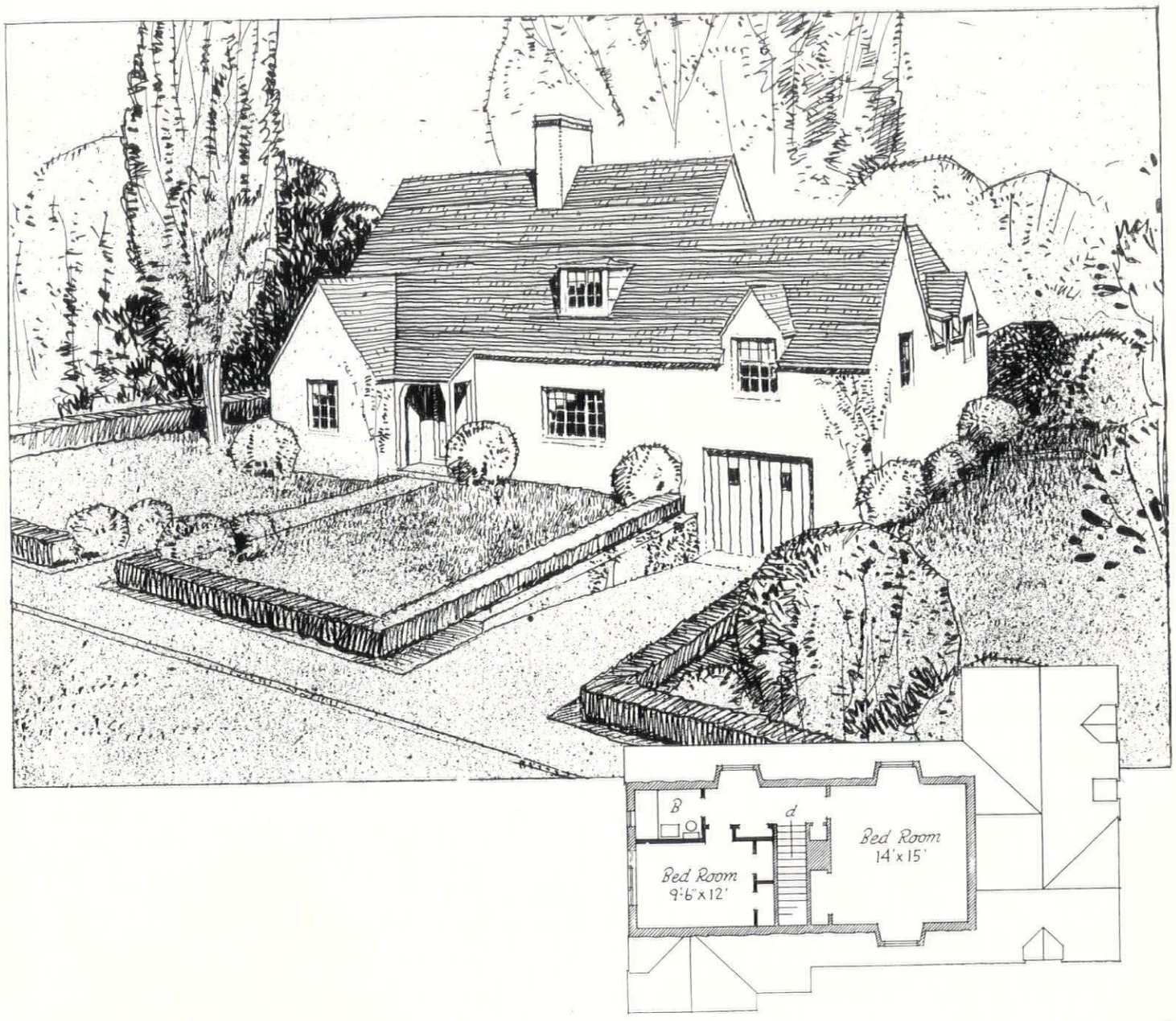
FRANK J. FORSTER, ARCHITECT

Sketches by Elmer A. Bennett

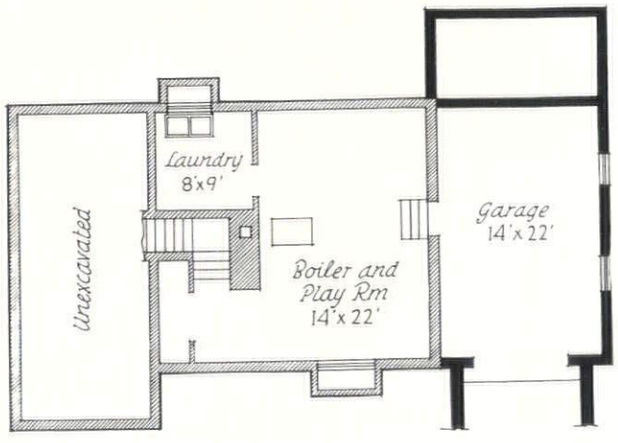


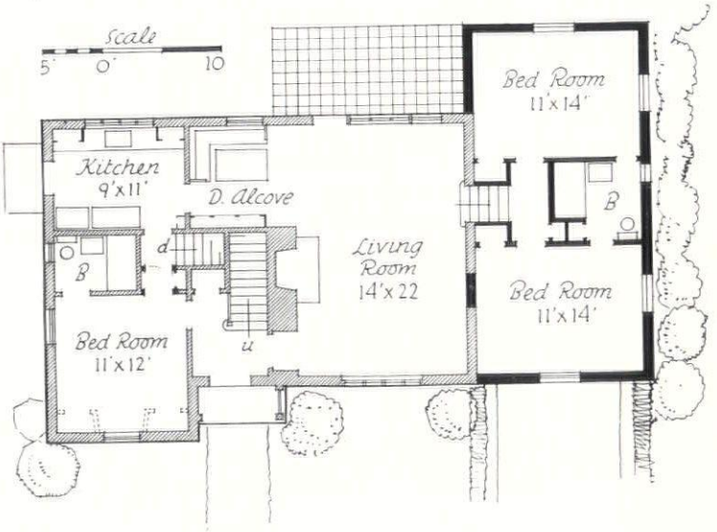


On this page is sketched the first part of a small house planned for a suburban family with a limited, average income. On the assumption that the original house will be an effort financially, only bare essentials have been provided. Even the garage has been considered unnecessary as a built-in feature and only one bedroom is finished upstairs. . . . **On the facing page** is the house as planned in its completed form. A split level wing with shallow excavation makes possible a built-in garage with two bedrooms and bath above. On the second floor another bedroom is finished and a bath installed. Alteration to this small house involve only an inexpensive addition and minor interior changes. The plans, shown here at 1/16 inch scale, could be adequately developed on an interior lot measuring about seventy-five by one hundred and twenty-five feet » » » »



B
d
Bed Room
14'x15'
Bed Room
9'6"x12'


Unexcavated
Laundry
8'x9'
Boiler and
Play Rm
14'x22'
Garage
14'x22'


Scale
5'
0'
10'
Kitchen
9'x11'
D. Alcove
B
d
u
Living
Room
14'x22
Bed Room
11'x12'
Bed Room
11'x14'
B
Bed Room
11'x14'

Selling Professional Service Through

Architectural Showmanship In Small

BY ROGER WADE SHERMAN

Managing Editor, American Architect

IT is generally conceded that if architects are ever to be really successful in the field of small house work, the public must become better acquainted with their professional function. The average man knows little about house-building. He knows even less, probably, about the part the architect plays in the operation. It is hardly reasonable, therefore, to expect the average building prospect to think about architectural service for his home unless architects themselves tell him clearly what such service is, how it can be obtained, what values can be expected from its employment.

From the broad point of view, architects, of all professional men, have the greatest need for a program of public education that will take the mystery out of the work they do. There exists ample proof that the public is ignorant about building processes in general and about the details of architectural service in particular. Education along these lines constitutes, in effect, architectural sales promotion. And from this point of view, architectural exhibitions are among the most effective local means of informing the public about the architect's place in building. Noted here are suggestions, gleaned from the experience of others, that have proved practical aids to bringing the details of architectural services within the circle of the public's understanding.

CONSIDER THE LAYMAN FIRST

Any exhibition is a waste of time, money and a great deal of work if it fails to interest the average man who goes to see it. Thus the first approach must necessarily be from the layman's point of view. From this standpoint, a display of small houses is substantially not different from displays of etchings, automobiles, toilet accessories or shoes. All are commodities of a certain kind and the public justly regards them as such. It will linger longest—and probably buy more as a result—before a display that gives information about whatever product may be exhibited. In other words, an exhibition must first of all catch the attention of the public. Then it must not fail to tell a story or clarify a point—even if the point in question refers only to the price.

Apply this principle to a small house exhibition. Many people will visit it because, primarily, they are interested in building. They go to glean ideas and to see something that they have not seen before. Generally speaking their knowledge is surface deep. Usually with no conception whatever of the intricate technicalities of building, they enter a small house show with minds open and a conscious desire to learn something new.

Cater to this desire and one of the hardest parts of selling architectural service on small houses has been accomplished. Interest has been aroused; and from that point on consummation of the use of professional services is almost a matter of routine.

The story that an architectural exhibition has to tell a layman has several chapters. The opening one probably deals with the low cost, convenience and attractiveness of small houses planned and designed and supervised by architects. It can be told briefly, effectively and interestingly by sketches, photographs, plans and suitable captions.

Another chapter can carry the story beyond the sketch into the actual building operation and can show how the house is developed from the carefully made drawings and specifications of the architect. Still another can present the importance of good equipment and furnishings to develop the greatest amount of comfort and utility within the lowest cost brackets.

House Exhibits

By dramatizing the architect's job an exhibition of small houses can give the public helpful information on building and prove the value of professional service in solving any small house problem

HOUSING EXHIBITION IN R.I.B.A. BUILDING, LONDON.
PHOTOS COURTESY OF THE ARCHITECTS' JOURNAL

"DO'S" and "DON'TS" of Exhibition Showmanship

DO . . . Plan space and location of exhibits so people walk in one direction.

Make entrance attractive by use of color, light, well-designed signs.

Keep backgrounds of interior simple, generally light in tone except where emphasis is desirable. Then use color.

Segregate exhibits and arrange them in an orderly sequence.

Make all exhibits of the same sort uniform in general appearance. Small house sketches should be presented at the small scale and on the same sized sheet.

Keep general lighting low in room, but highlight special exhibits cleverly.

Established standards for signs throughout. Cut-out wooden ones are effective if used in proper sizes, painted with dull paint in bright colors and displayed on a monotone background. Signs can help much to unify a miscellaneous exhibit.

DON'T . . . Crowd space with small exhibits that hinder comfortable progress of people.

Display the main features of the exhibit too near to the entrance door.

Use too many colors in any location. A few strong ones are better for attention getters if used sparingly.

Allow radios to operate except in separate spaces for them; and avoid loud voiced salesmen who want to lecture.

Have too many attendants.

Clutter up wall space with so many things that the visitor sees nothing.

Let any one exhibiter ruin the preconceived plan of the entire exhibit.

Kill an important exhibit with poor lighting. This is an important point.

FORCEFUL PRESENTATION IS ESSENTIAL

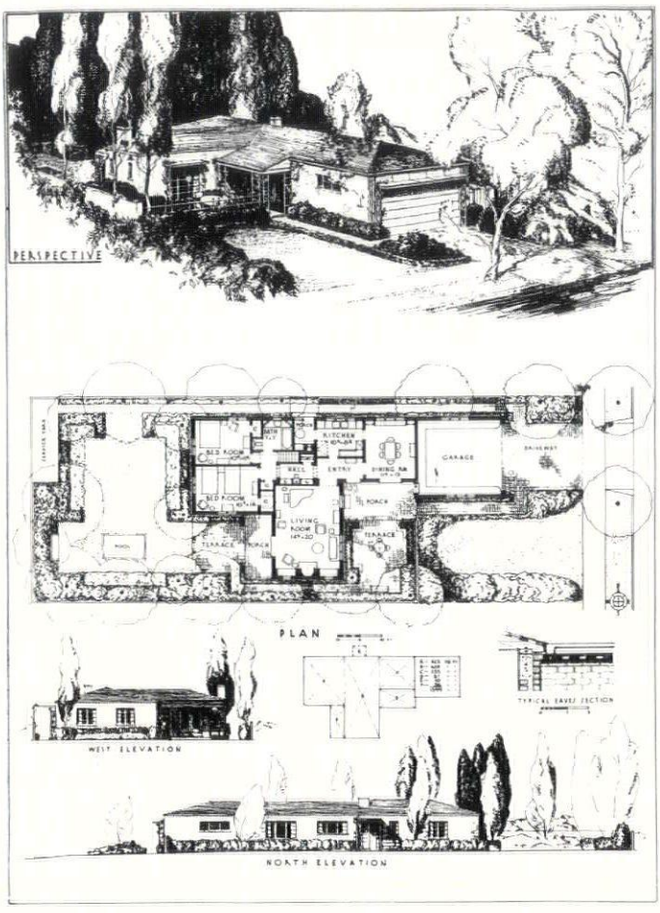
The comparison between an exhibition and a story is a particularly apt one from the standpoint of results. In publishing, every subject is dramatized so that the reader's attention will be easily aroused to read. Illustrations, especially those dealing with a technical subject, are emphasized to explain points in the text; and the entire matter is presented with simplicity and a forceful logic of sequence.

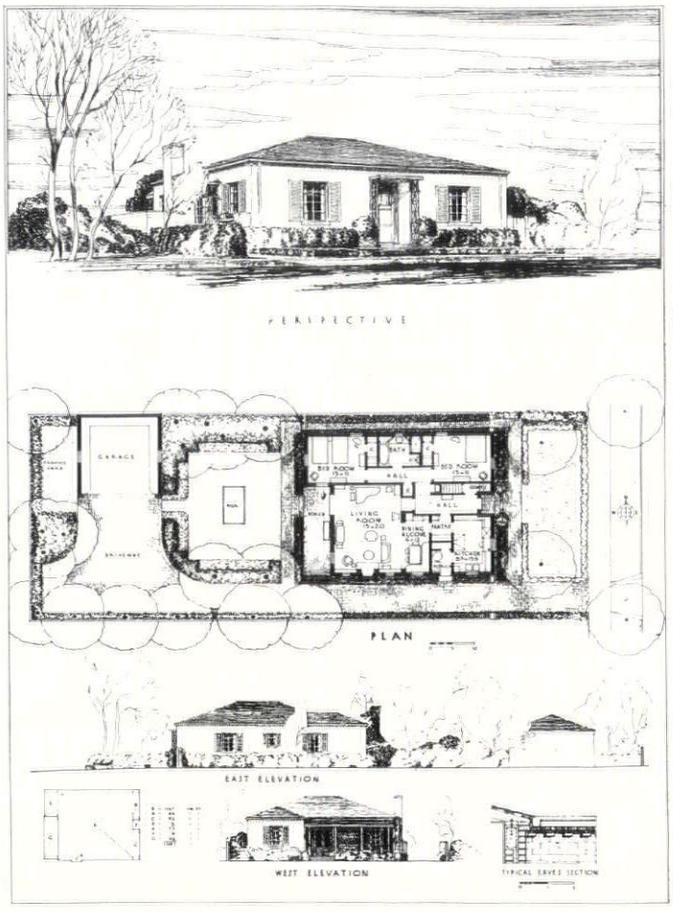
The same principle of technique can be employed in an architectural exhibition to excellent advantage. Its application requires that the entire exhibition be planned as a unit, the details executed so carefully that they combine harmoniously and the whole dramatized to emphasize the most important points involved.

Most architects would probably agree that the majority of exhibitions are dull affairs. One reason for their lack of interest lies in the fact that the exhibitions often contain too much material, or that the material is unorganized and is shown with no attempt at dramatization. The amount of material should be so large that people will return to see the things they missed on the first visit. But it should be shown so that they recognize a continuity of exhibits and thus instinctively formulate in their minds' eyes the story that the exhibition tells.

The prospective home owner is interested in many things that the architect can tell him about. One is "style"; another cost; another room arrangement. There are others, such as the location of the house upon the lot, orientation to get advantages of sunlight and air, the merits or demerits of houses without basements, possibilities for landscaping treatment. If, in the exhibition, he sees a suggested answer to one of his questions, he will inquire of some one about the rest of them. An architectural exhibition of small houses should answer many such queries—at least in terms of general practice—which the individual can adapt to his own needs.

Consider, for example, the two points of cost and style. Both can be presented in a dramatic fashion by allocating a number of booths, or spaces, for, say, "Colonial houses costing from $5,000 to $10,000," "California houses costing from $3,000 to $8,500" or any number of others similarly classified. It would be better showmanship to display in full only a few houses in each classification, rotating exhibits in each class and allowing visitors to express





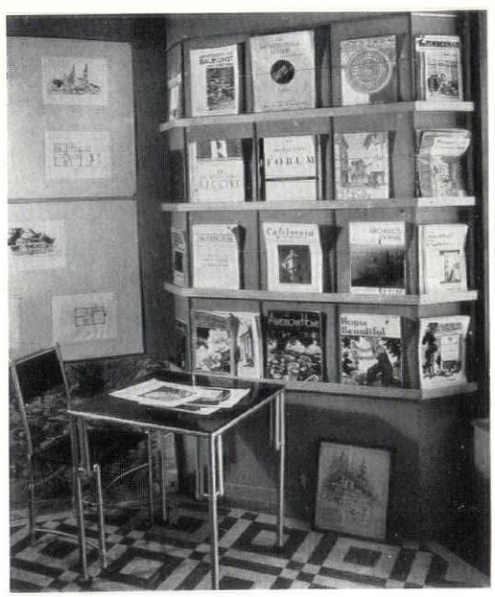
their interest in a certain type and size of house by direct inquiries to architect-attendants.

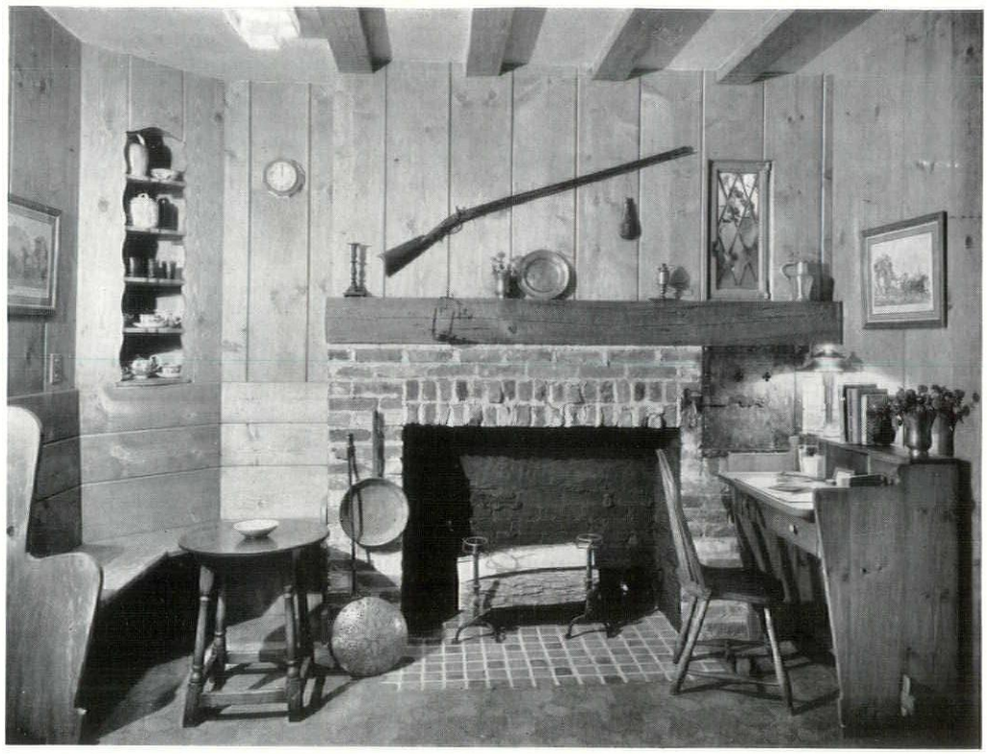
Such questions as room arrangement can be forcefully answered by an exhibit of plans alone. Let the good plans be prominently displayed at large scale. From their various parts use colored ribbons pointing to a brief caption that emphasizes the advantages. In others—the poor ones—make generous use of color to emphasize cramped living rooms, wasted hall space and inefficient kitchens.

The public will be as much attracted by a certain amount of theatricals in an exhibition of small houses as in a display of anything else. Thus, models in striking, well-lighted settings will prove of absorbing interest to the public. Everyone is interested in three-dimensional presentations and small house models are a particularly effective means of giving information regarding lots, landscaping and orientation.

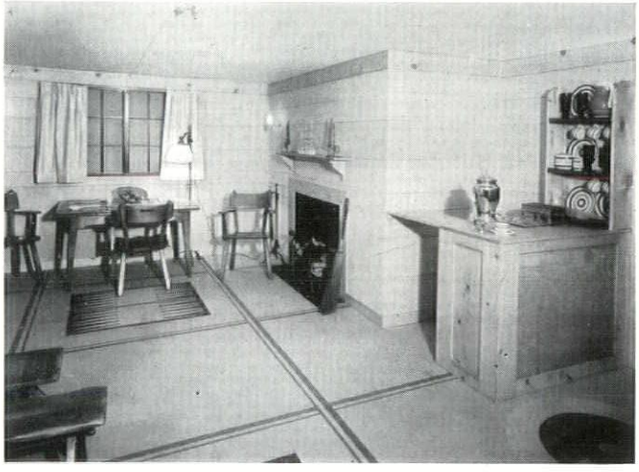
In every case, presentation of the small house in sketch or model form should be accompanied by some sort of description prominently displayed in large lettering. It should be short enough to be read almost instantly and in simple terms should express the purpose and salient features of the display.

Sketches like these are understood even by the man ignorant of building. They were prepared for the Architects' Exhibit and Advisory Bureau, Los Angeles. Below, in another Los Angeles exhibit is this corner where building magazines may be read





Rooms from small houses, developed and furnished through cooperation of local merchants and building material dealers are a forceful means of stimulating the public's interest in building. Possibilities in this kind of showmanship are almost unlimited. Illustrated are two rooms from a General Electric exhibit and, directly below, a basement playroom from the Industrial Arts Exposition in New York

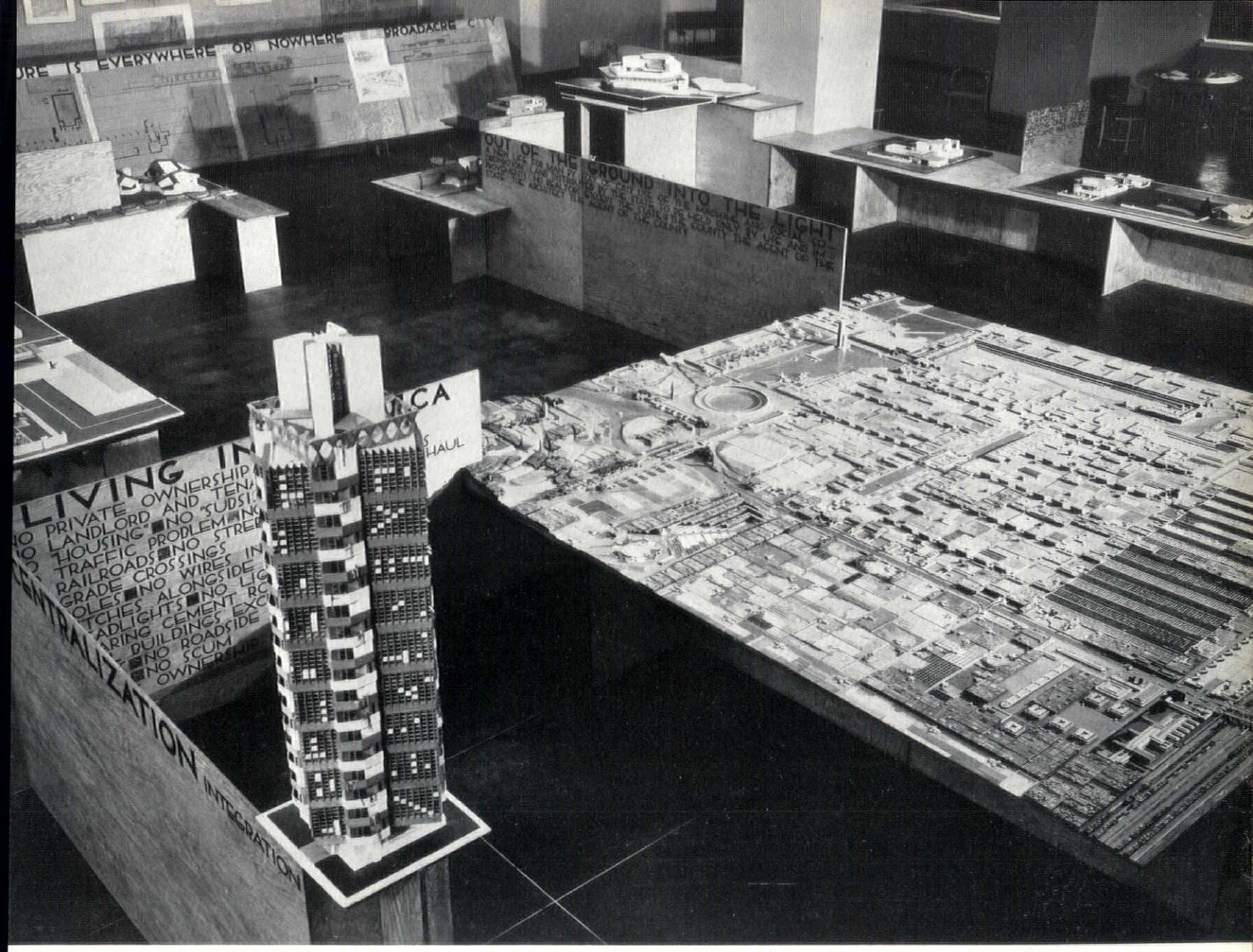


DRAMATIZING THE ARCHITECT'S JOB

Any exhibition sponsored by architects, has, of course, the primary objective of selling the architects' services. But any form of blatant salesmanship will probably defeat its own purpose. The value of the architect can best be shown by giving the public information as to what he does, how he does it, how his services can be retained.

In varying degrees several methods have proved successful. One is the word of mouth explanation. Attendants can be given a set of statements to tell to those who question them. These should be brief and in no way suggest a sales story. Again, five minute lectures on typical transactions between a small house architect and his client have been valuable to clarify the public's hazy idea of the way in which architects work. The average man has no knowledge of working drawings. His contact with specifications has probably been negligible; and in an amazing number of instances he knows nothing whatever of the various kinds of contracts under which architects can be retained.

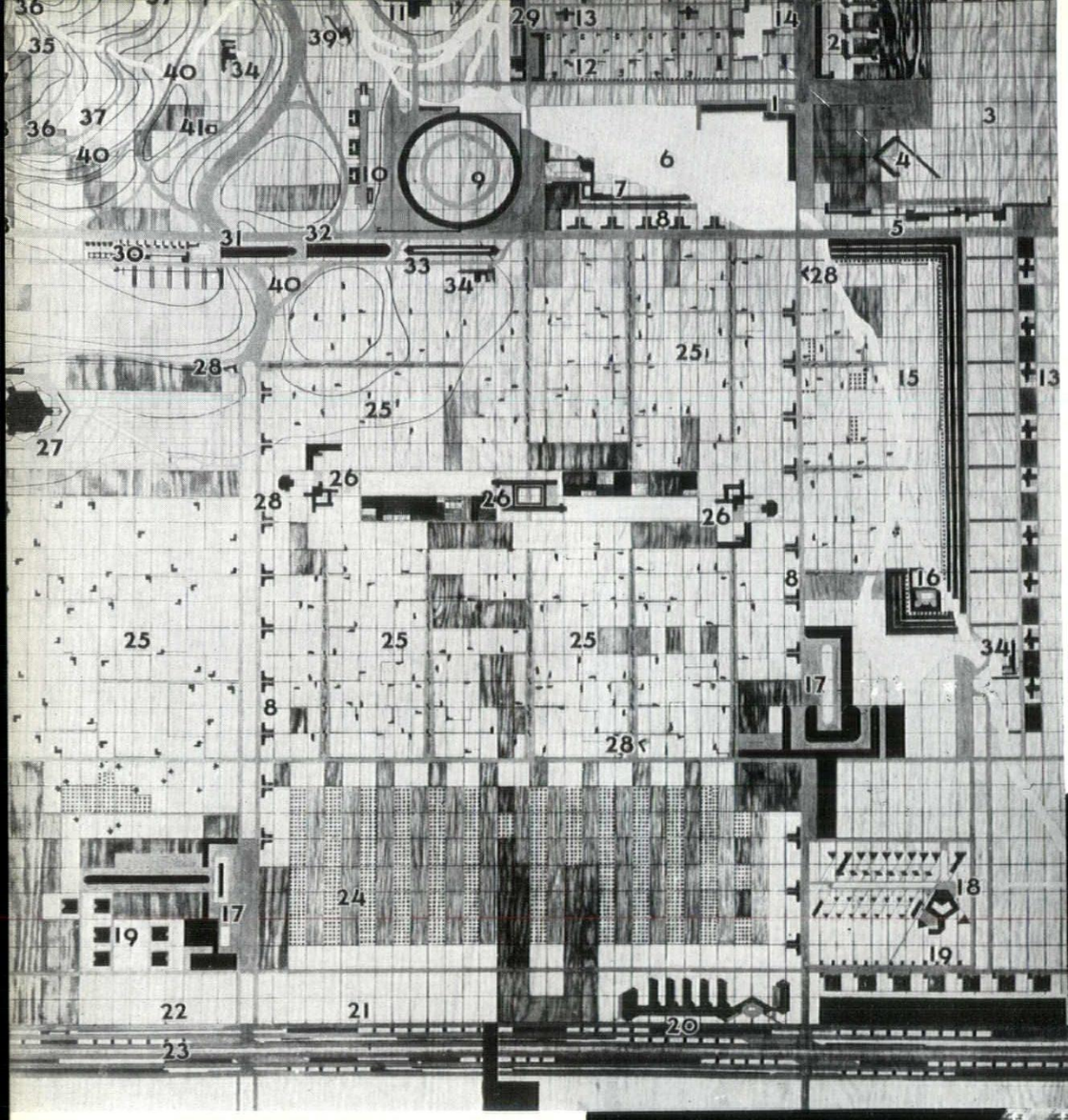
These important points should be told to visitors as a story, illustrated by posters showing the points under discussion. Let one poster deal with a contract, another with the necessity of good working drawings in contrast with the other kind, both of which can actually be displayed, at least in part, with telling effect. As a variation, it is possible to use a portable moving picture *(Continued on page* 116)



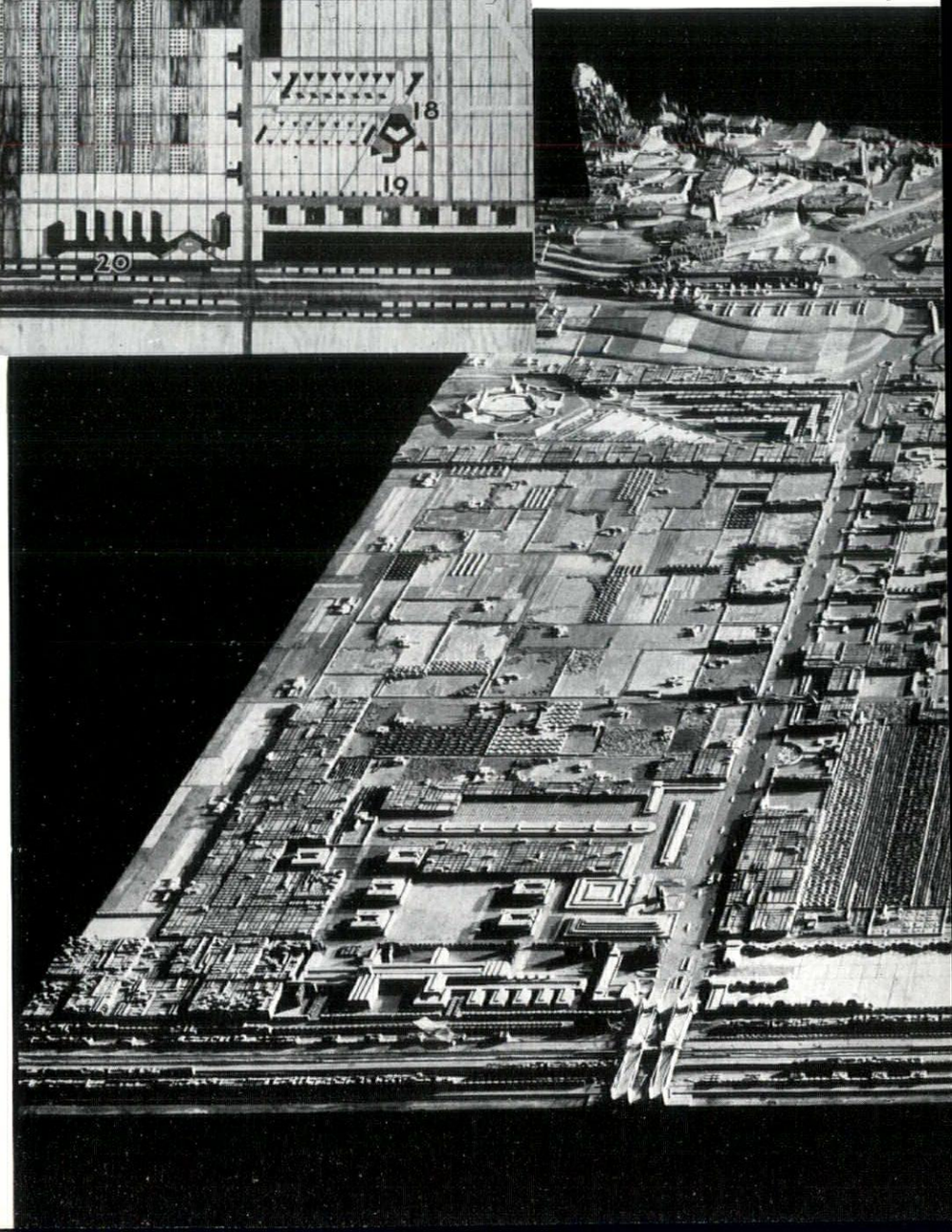
BROADACRE CITY

FRANK LLOYD WRIGHT, ARCHITECT

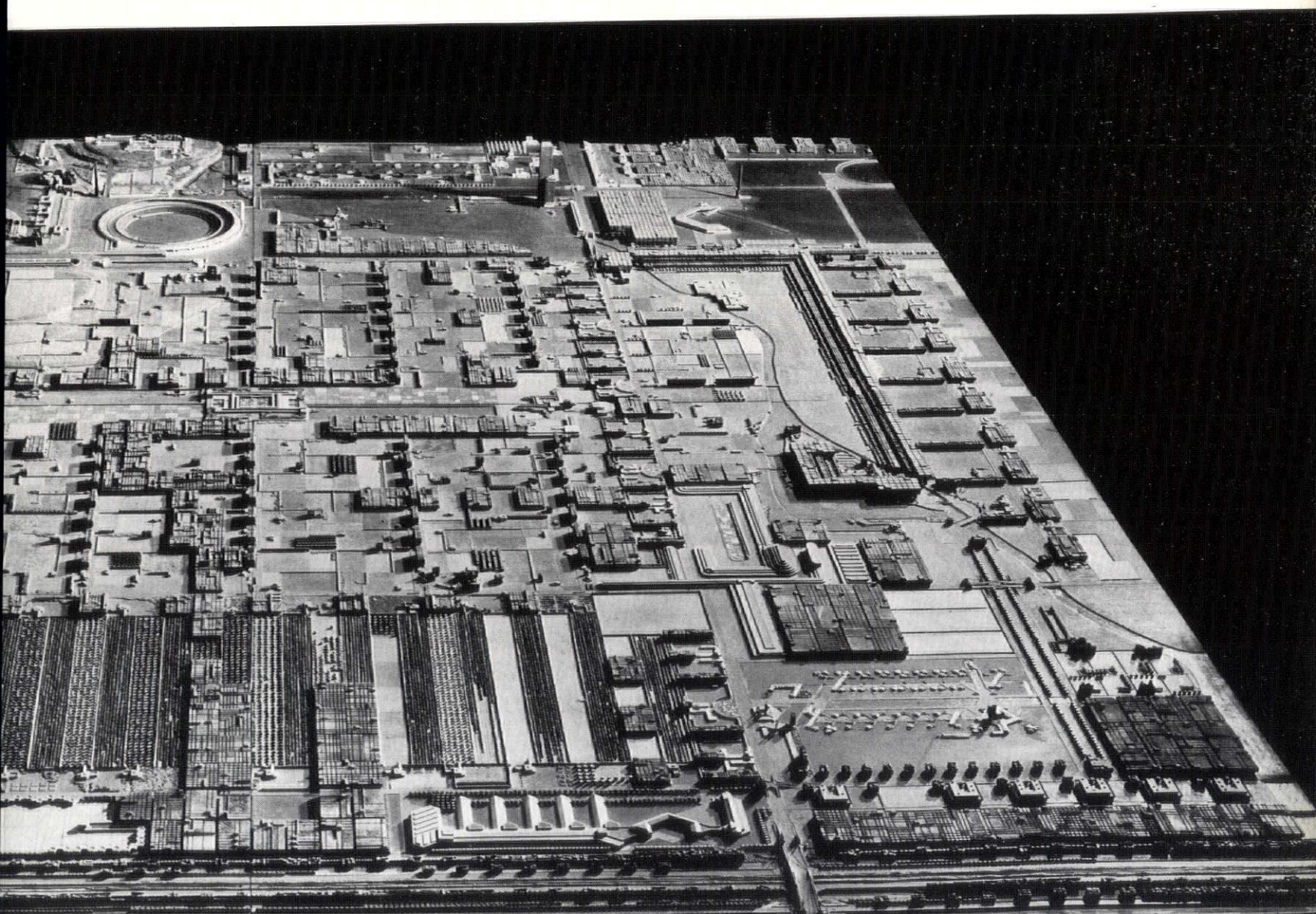
AS a conception of a new community wherein "form and function are one" and "organic character is style," Broadacre City was planned upon the basis of "general decentralization as an applied principle and architectural reintegration of all units into one fabric." Models of the community as a whole and many of its parts were shown publicly for the first time at the Industrial Arts Exposition in New York under auspices of the National Alliance of Art and Industry. Photographs of them reproduced here are copyrighted by F. S. Lincoln

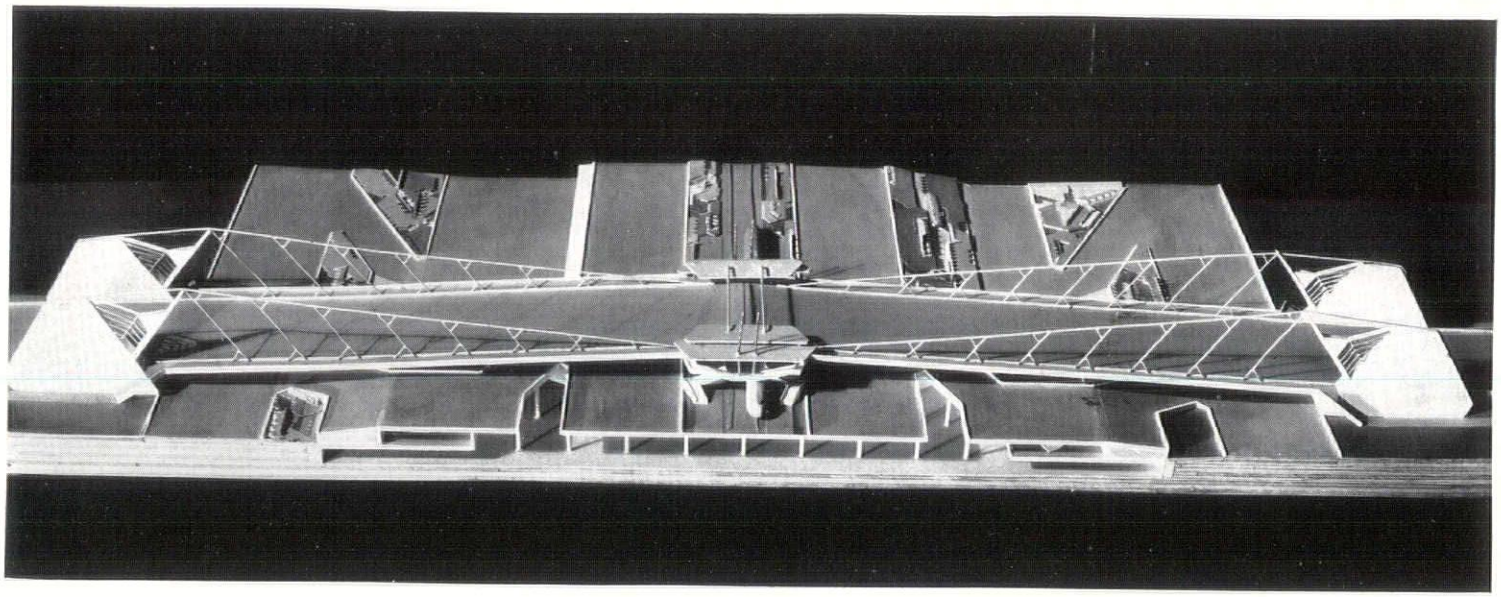


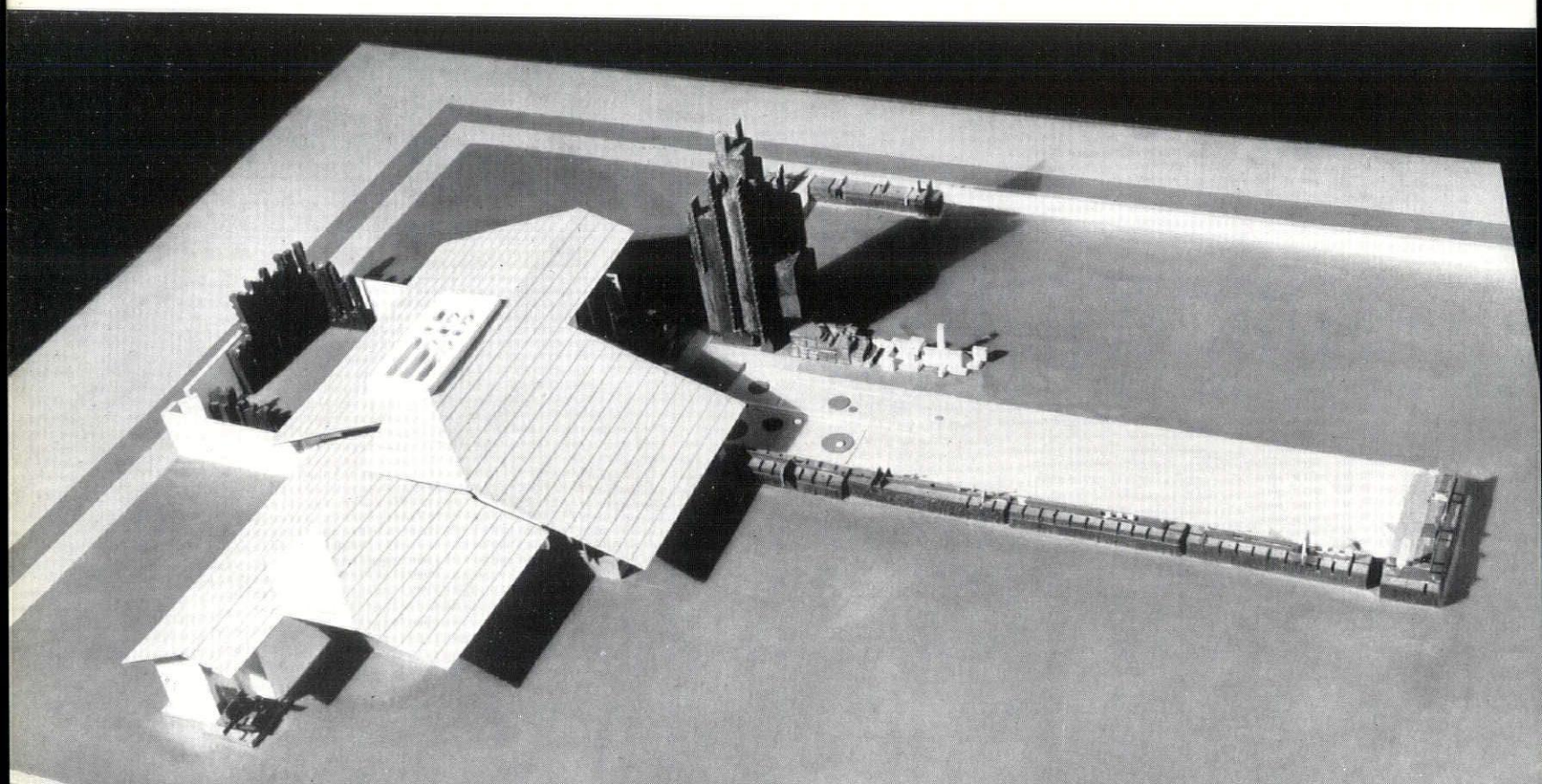
HIGHTON & JENSEN FROM F. S. LINCOLN

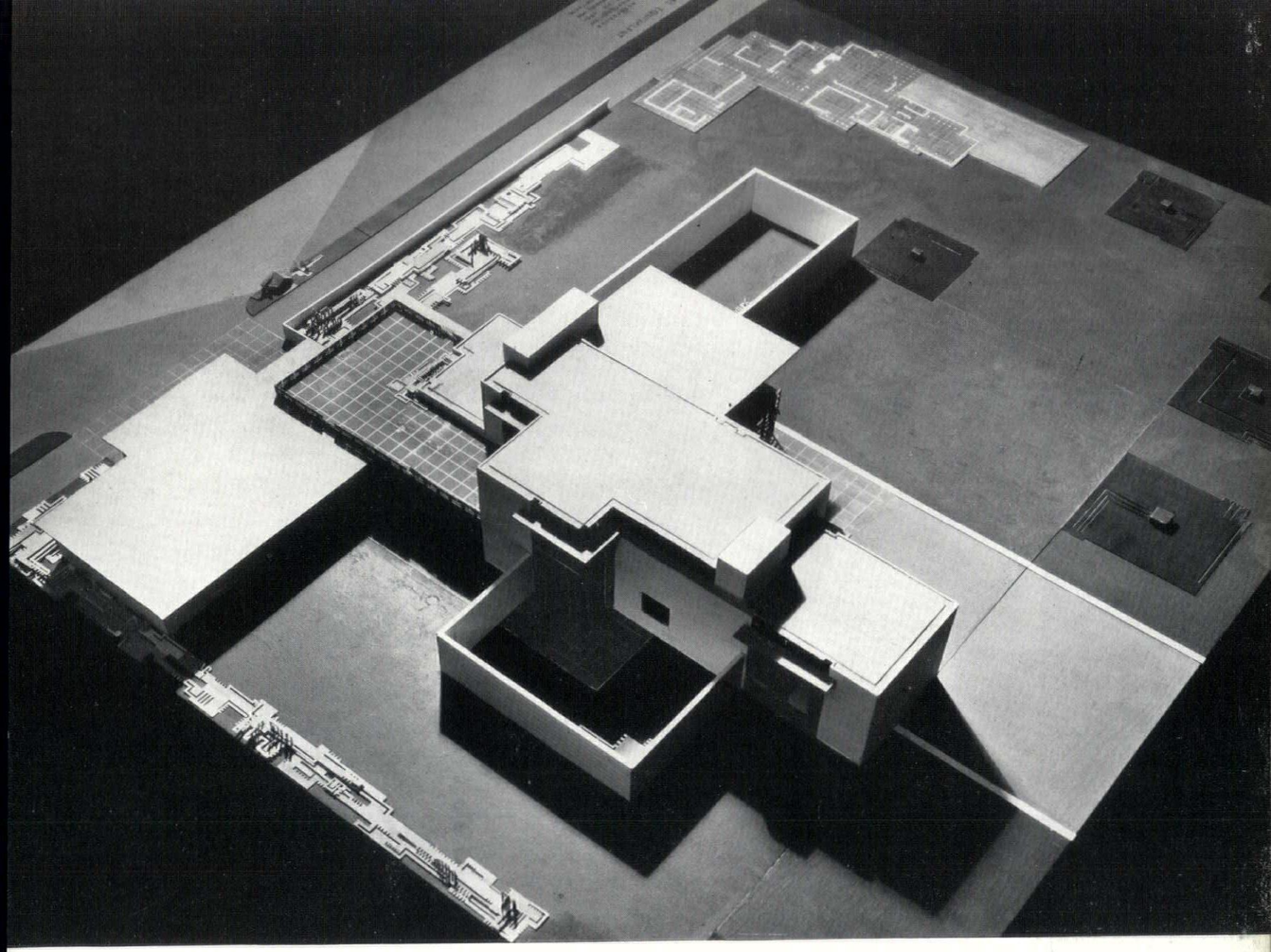


THE MODEL OF BROADACRE CITY represents a tract of four square miles and provides all types of facilities for about 1,400 families averaging five or more persons to the family. It was built not as a finality in any sense but "as an interpretation of the changes inevitable to our growth as a people and a nation" . . . **ON THE PLAN** numbers indicate: **1.** County Seat—Administration. **2.** Aerotor—Post Port and Administration. **3.** Polo. **4.** Baseball. **5.** Clubs. **6.** Lake and Stream. **7.** Crafts and County Architects. **8.** Professionals. **9.** Stadium. **10.** Hotel. **11.** Sanitarium. **12.** Small Industry. **13.** Small Farm Units. **14.** Small Apartments. **15.** Interior Park. **16.** Music Garden. **17.** Merchandising. **18.** Automobile Inn. **19.** Little Factories with Dwellings Above. **20.** Factory Assembly. **21.** Aerotor Service. **22.** Aerotor Factory. **23.** Main Arterial (the Present Railway). **24.** Vineyards and Orchards. **25.** Homes. **26.** Schools. **27.** Temple—Columbarium and Cemetery. **28.** Neighborhood Guests Houses. **29.** Baths and Dressing Rooms. **30.** Scientific and Agricultural Research. **31.** Arboretum. **32.** Zoo. **33.** Aquarium. **34.** Luxurious Dwelling (House on the Mesa). **35.** Taliesin (Equivalent). **36.** Luxurious Homes. **37.** Water Supply. **38.** Forest Cabins. **39.** Country Club. **40.** Apartment Houses. **41.** Small School for Small Children. **42.** Automobile Objective.



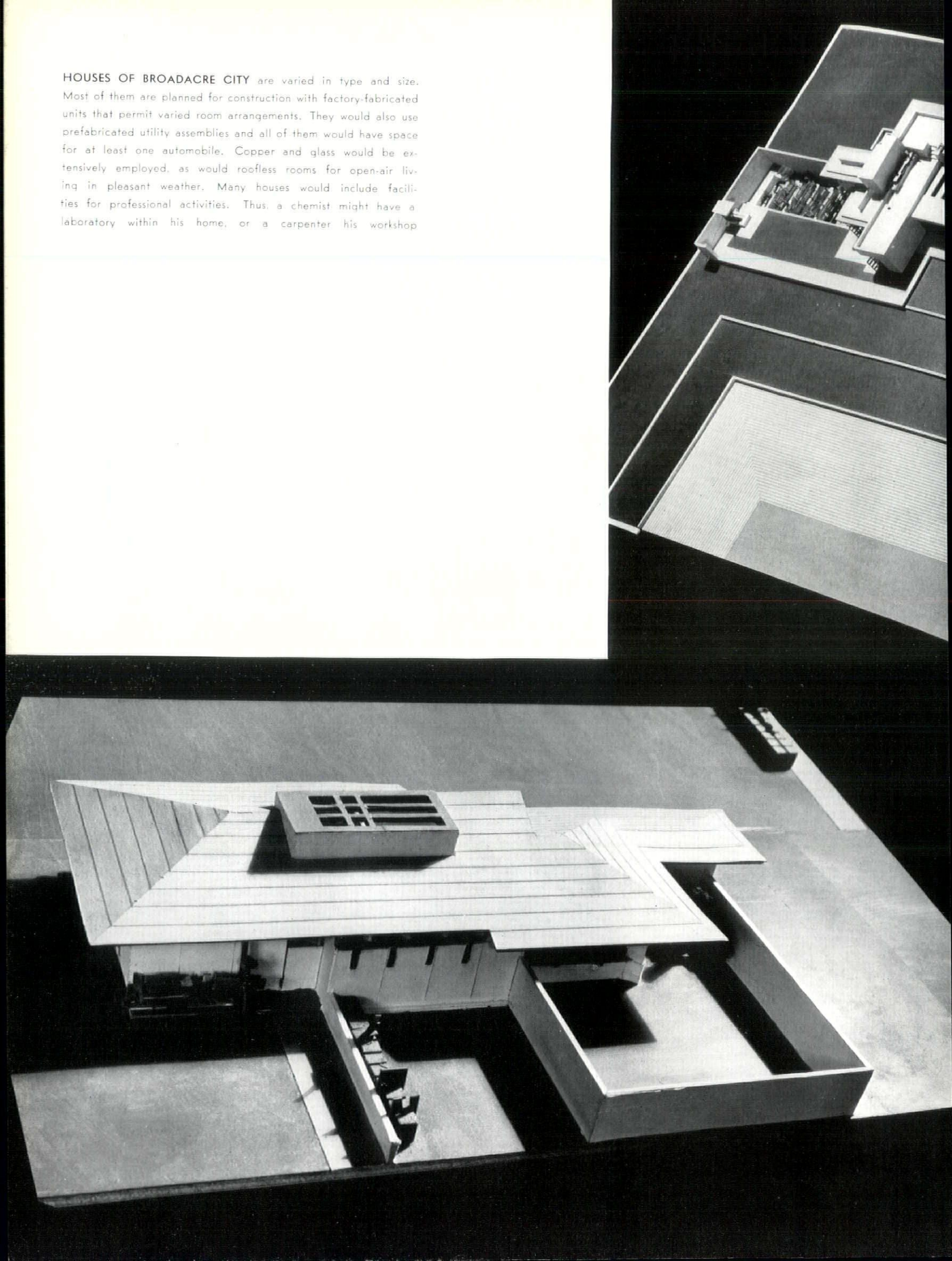


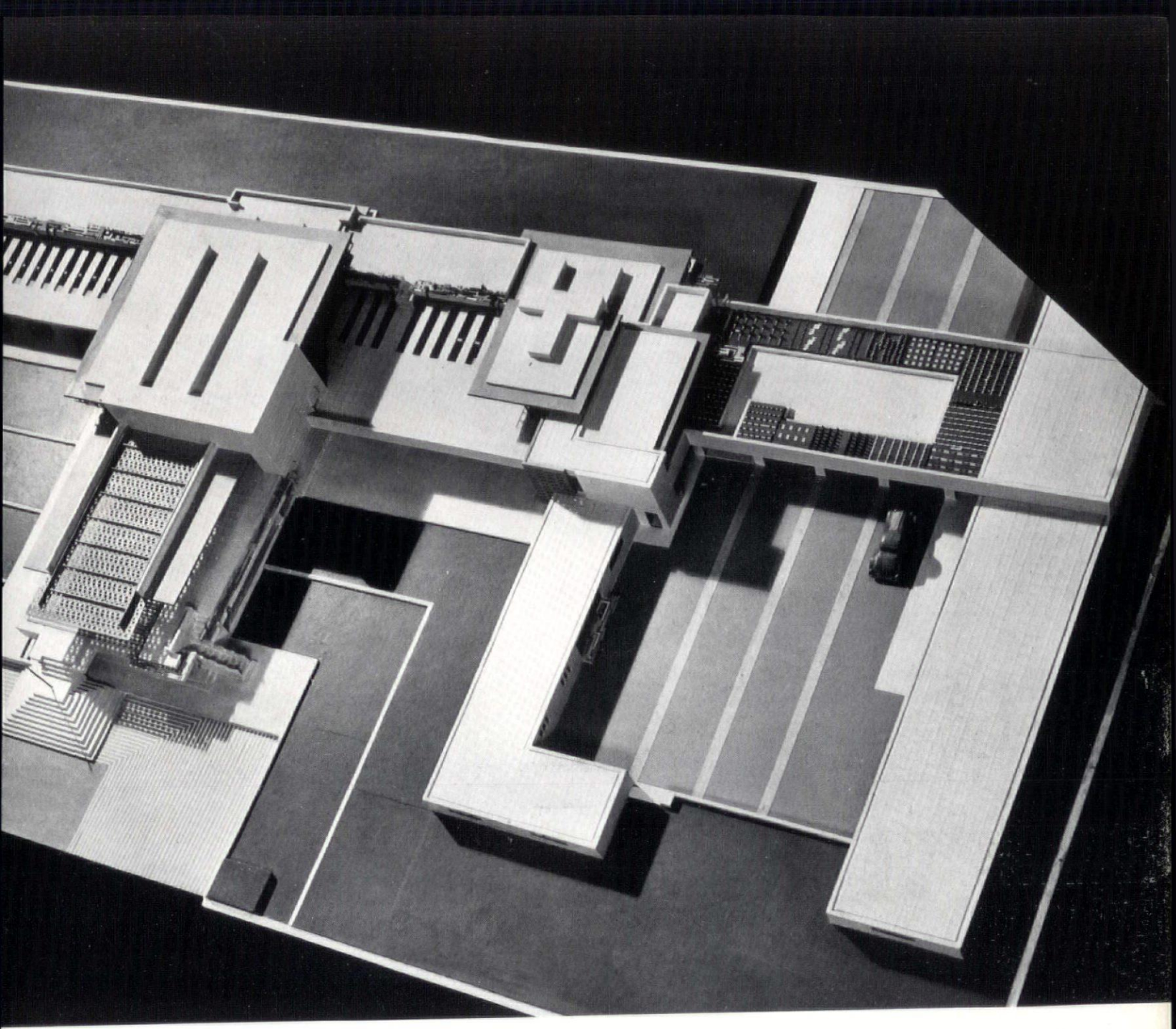




COORDINATION OF COMMON INTERESTS is one basic characteristic of the Broadacre City plan. In the great traffic artery that links this community with others, for example, are grouped many lanes of speed traffic above side lanes for trucks. High speed monorail trains are in the middle. As indicated at the top of the opposite page, the arterial right-of-way is spanned at intervals by suspension bridges, while beneath it are built storage facilities for raw materials. . . . **BUILDING FORMS** spring from requirements of use, extent and individuality, modified by climate and available means, all of which are basically controlled by the ground itself. Above is a "two-car" house, in which elements of luxury contrast with a compact, strictly utilitarian "one-car" dwelling shown on the facing page

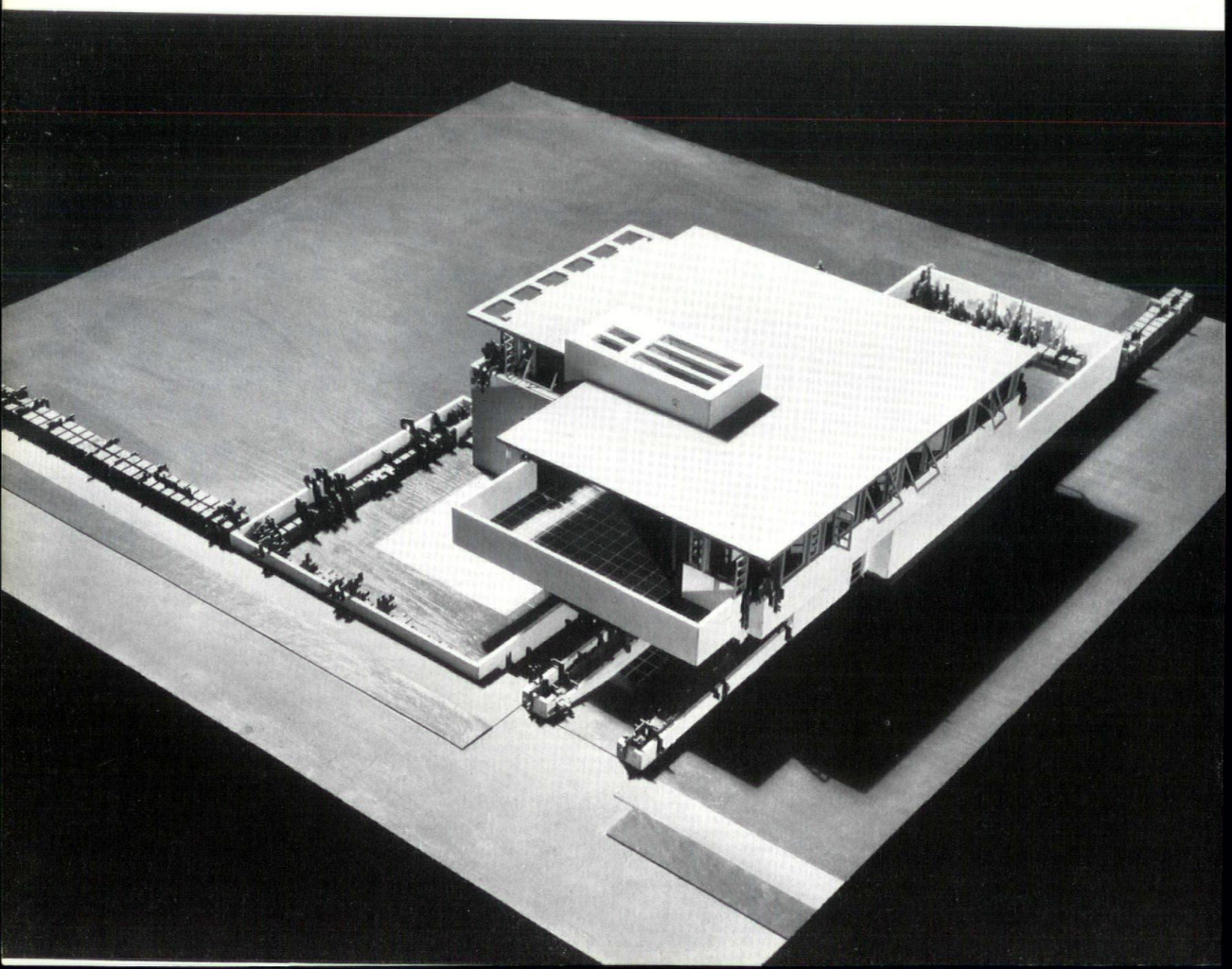
HOUSES OF BROADACRE CITY are varied in type and size. Most of them are planned for construction with factory-fabricated units that permit varied room arrangements. They would also use prefabricated utility assemblies and all of them would have space for at least one automobile. Copper and glass would be extensively employed, as would roofless rooms for open-air living in pleasant weather. Many houses would include facilities for professional activities. Thus, a chemist might have a laboratory within his home, or a carpenter his workshop





Left, a minimum, or "one-car" house. Above, a great residence for machine-age luxury. These and all other models were made by Mr. Wright and his student-apprentices of the Taliesin Fellowship in a winter session at Chandler, Arizona

AN ACRE OF LAND is the minimum building plot in Broadacre City. And in all matters affecting land allotment or improvement the architect is visioned as the agent of the state with complete control over buildings as they influence the harmonious development of the community. The house below, a model of a "two-car" dwelling, is typical of Broadacre City buildings which assume whatever architectural form seems best suited to the purpose for which the structure was erected



Clinics for Architectural Service

BALTIMORE architects have formed "The Architectural Service Corporation of Maryland" which will be operated under the auspices of the Baltimore Chapter of the American Institute of Architects. The purpose of the Corporation, a non-profit organization, is to make the services of architects available to the public at minimum cost. To accomplish this "stock" working drawings, details and specifications will be used and supervision will be included in the cost of the service. The corporation limits its service to small houses and other buildings costing not in excess of $7,500.

The Corporation is controlled by a Board of Directors, five-sevenths of which are members of the Baltimore Chapter, A. I. A. The Executive Committee consists of seven members, five being members of the Baltimore Chapter. Any member of that chapter and any architect residing in the State of Maryland and approved by four members of the Executive Committee is eligible to membership in the Corporation. The work of the Corporation is financed by a subscription fee of $25 paid by all members upon admission to membership. A sustaining fund will be obtained through members returning a percentage of the fee derived from the sale of services offered. The By-Laws limit this percentage to a maximum of 20 per cent. The percentage is determined by the Executive Committee.

Charges to be made by members to individuals or groups purchasing services of the Corporation are established by the Executive Committee. The ratio of the charge made remains constant for all buildings of equal value. Service charges are paid by the client direct to the author or sponsor of the design purchased. On group operations the scheduled charge is made for the initial building and a percentage charge made for each concurrent building used of the same design. On large operations the Executive Committee has the power of negotiating charges and determining the procedure which will secure best results for the owner.

Contracts drawn between members and purchasers for work obtained through the Corporation require that supervising service be included; that the contract be made with the author or sponsor of the design selected; and that the purchaser shall not make use of the drawings and other documents for more than one building without purchasing regular service for such other buildings.

Stock designs developed or sponsored by members become the property of the Corporation. Members submit preliminary sketches for houses and other buildings to the Executive Committee for consideration. Before preliminary designs are approved the author or sponsor must submit a detailed estimate of cost based upon the detailed cost figures of at least one reputable contractor. After approval of the design the author or sponsor submits working drawings, details and specifications. Each accepted design is identified by a number, the name of the author remaining anonymous until a purchaser has selected the design. Thereafter the author assumes all duties normally implied by the services of an architect. Designs and services are sold as many times as there are purchasers. No design can be limited to the use of any one individual.

The Corporation's contact with the public is through a business representative. After a prospective purchaser has made a tentative selection of a design, the business representative arranges a conference between purchaser and architect. If the architect approves the use of the selected design for that project, he presents it to the Executive Committee for final approval as to its suitability for the site and soundness of the investment.

Changes in designs selected by owners are limited to revisions in the foundation plan which may be demanded by site conditions. Minor interior changes not involving changes in design, construction or plan can be made by the author at an extra charge in accordance with a schedule covering this work.

THE Buffalo Chapter of the American Institute of Architects has organized a similar service known as "The Small House Bureau of Buffalo." This plan of operation is patterned closely after that of the Baltimore Chapter. Contact with the public is being made through the local office of the Federal Housing Administration and the Better Housing Campaign of the Buffalo Chamber of Commerce.

The Chapter has a representative in the FHA office who gives advice on building to the public. On modernization work, if the problem presented to him is one requiring the judgment of an architect, the name of an architect is suggested. Clients pay $5 for an office consultation and $10 for a field visit to the job. If the work involves drafting service an additional nominal amount is charged by the architect. To sustain the organization each architect who obtains alteration work involving drafting or work through the stock plan service contributes $10 for each job obtained.

As It Looks

THE BEST RECOMMENDATION

AFTER completion of his house a client wrote his architect, "In trying to plan this house, it was not easy to induce the several architects we consulted to give us what we wanted. They were chiefly interested in selling us something which they would like to build." The letter complimented the architect on the fact that he had given this client what he wanted and with a minimum of annoyance and no "extras." It is a great temptation to view a client and his problem as an opportunity to design something which the architect has long wanted to build. But it is a grave mistake to let this overshadow the fact that within reasonable limits the client is entitled to have what he wants. The best an architect can do is to solve the problem as well as he can and give the client sound advice, unbiased by what he, as an architect, would like to build. A group of well satisfied clients is the best recommendation any business man can have.

SLIDING-SCALE INTEREST RATES

THE Prudential Insurance Company has announced that it is prepared to make mortgage loans on single family houses, apartment houses and business properties on a twenty-year fixed monthly payment plan. The statement contains an interesting feature in the form of interest rates on a sliding scale. The interest rate on 40 per cent of the appraised value will be 4½ per cent; 41 to 50 per cent of appraised value, 5½ per cent; and 56 to 66 2/3 per cent of appraised value, 6 per cent. A reduction in interest rates on mortgages has long been desirable as an aid to home owners and as a stimulus to new building. The sliding scale rate should offer home owners an inducement to obtain minimum size mortgages. Lending agencies can well afford low interest rates on small mortgages since the security of these loans is greatly improved. Other lending agencies would do well to follow the example of the Prudential Insurance Company.

MODERNIZATION NEWS

PACKAGES left at the wrong door is a not infrequent occurrence. Cases in which buildings have been erected on the wrong property have occasionally been reported. Putting a new roof on the wrong house, however, comes under the head of news. A news release from FHA cites the instance of a busy lumber dealer in Oak Park, Ill., who put a new roof on the wrong house. The owner insisted on keeping it and, pleased by the appearance of the new roof, had the exterior of the house painted. The lumber company was "out" one roof; the paint supply dealer sold some paint; and a painter had a job he did not expect to have.

ENGLAND'S HOUSING PROGRESS

HOUSING activity is frequently cited as responsible for a return of prosperity in England. While Frank A. Vanderlip, banker, believes that wise management of the currency is responsible he has presented some statistics on England's housing situation. He found that decent houses could be purchased for $3200 to $4000 with an average down payment of $250 and the balance amortized weekly over a period of 15 to 30 years. Owners pay nothing for real estate commissions, title examinations or bonuses for loans; interest rates are low and construction costs for both labor and materials are lower than in America. From March, 1933 to March, 1934, England built more than a billion dollars worth of houses. These were largely financed through building societies having more than two and one-half million investors and depositors and assets of over two and one-half billion dollars. Additional money for housing came through insurance companies, private investors and the Government. Housing in England offers an object lesson that America can study with profit.

ANOTHER FIELD FOR ARCHITECTS

SEVERAL years ago when McKim, Mead & White's Madison Square Garden was demolished, it was discovered that the "Diana" which crowned the tower was in a near state of collapse due to lack of proper maintenance of its supporting structure. Demolition of that building made apparent the extent to which other maintenances had been needed. More recently the shield held by "Civic Fame" atop New York's Municipal Building crashed to a roof below. The direct cause was corrosion of the metal members. But back of that was another failure to give due regard to proper maintenance. And still more recently a portion of a stone balcony on a building in New York crashed to the street endangering the lives of passers-by. Proper maintenance could also have forestalled that.

These experiences serve to emphasize the importance of the yearly inspection of buildings by competent experts who can warn owners of exist-

to the Editors

ing hazards and call attention to needed repairs which, in the early stages, can be done economically. This field of building inspection is one in which architects are well qualified to serve. It is a field which has never been fully developed by the profession. Its opportunities are worthy of further investigation.

WHY COSTS ARE HIGH

MOST authorities are inclined to agree that building costs are out of proportion to the costs of other commodities and to incomes. The cost question is usually dismissed with the statement that the cost of labor and materials is responsible and must come down. Miles Colean, Technical Director F. H. A., has offered a more satisfactory analysis of the question. His reasons for high building costs:

1. Seasonal character of employment and the risks attendant upon employment opportunities.
2. Complicated craft organization of the industry as applied to both laborers and employers.
3. Perpetuation of archaic craft methods.
4. Waste of material due to methods of site fabrication.
5. Inappropriate use of materials and appliances.
6. Lack of skill in planning land and buildings.
7. High cost of material distribution.
8. Lack of any possibility of reasonable market forecasting.
9. Restrictive provisions of building codes.

Mr. Colean's logical analysis is a challenge to the entire building industry. If costs are to be reduced, more efficient methods in every department of the industry will have to be found.

COLUMNS WERE BLACKLISTED

A CLAUSE in the program of the competition for the Federal Reserve Board Building in Washington reads, in part "... it is suggested that the use of columns, pediments and other similar forms may be omitted." This statement, unusual in a competition program, has stimulated much speculation as to whether or not the intention was to warn competitors away from traditional classic design and forecast a trend away from columns and pediments in Washington. It is understood upon good authority that neither was the case. The clause is said to have been inserted to indicate the desirability of a simple building that would not dominate its neighbors, but rather add to the simplicity of the group of which it logically becomes a part.

STOCK PLANS FROM THE GOVERNMENT

THE Department of Agriculture issues a farmers' bulletin entitled *Farmhouse Plans*. It contains much information on the building of farmhouses and includes sketches for forty different houses many of them prepared at state agricultural colleges. As an educational bulletin intended to improve the planning, convenience and design of farmhouses it has its place. But included in the bulletin is a paragraph, "Working drawings for building the houses shown in this bulletin are available from the extension services of the State agricultural colleges. In most cases a small charge is made for the drawings." Few farm communities are today so isolated from architectural centers that professional service is not readily available to those who require it. Provision of such service should be considered as a professional obligation by executives of local architectural organizations. A practical way to meet this obligation can and should be found to make plans by the Government unnecessary.

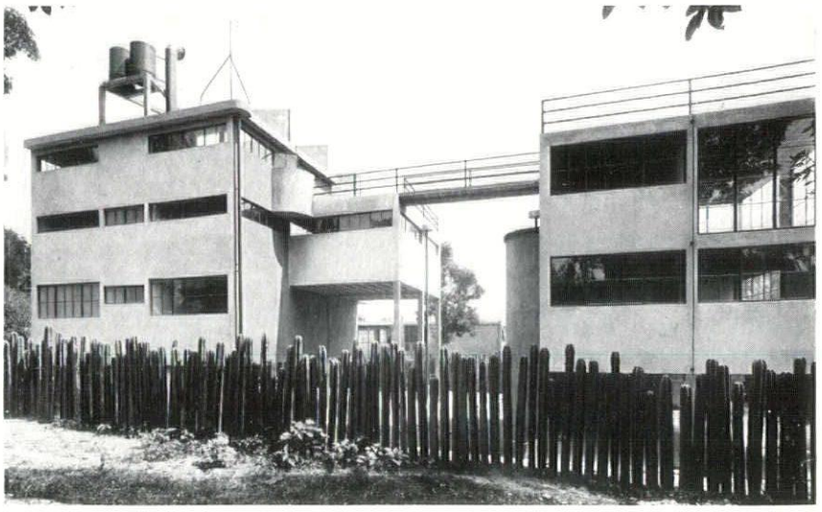
A TREND TOWARD LOWER BUILDINGS?

ONE not infrequently hears of buildings being increased in height. But instances of buildings being decreased in height are sufficiently infrequent to make them "news." An eleven-story building in New York City is having nine of its stories shaved off. It is a "fireproof" building erected in 1890. The two stories which will be left are to be modernized. The idea seems to be to reduce the overhead operating costs and taxes. Modernization will, no doubt, improve the rental situation. What is now probably a costly liability will through present procedure be made a productive asset. Perhaps it is a spectacular instance of the trend, forecast in recent years, away from high structures.

TO STIMULATE BUILDING

GORDON ALLEN, architect, Boston, is credited with the following suggestion as an incentive to encourage immediate building. The idea is to pass legislation to permit the deduction from income of all moneys spent on construction either by individuals or corporations before computing Federal Income taxes. A recommendation to this effect has been made by the Construction League of the United States. The suggestion has merit and is worthy of considered study by Federal authorities.

DIEGO RIVERA'S HOUSE and studio on the outskirts of Mexico City, follows functional and strictly utilitarian lines in its design. Juan O'Gorman was the architect. The property is surrounded by a cactus fence. Plans of the studio building are shown at the lower right. **Below:** Rene Chambellan and Lee Lawrie at work on a clay model of the panel which will be cut in stone over the entrance to the International Building, Rockefeller Center, New York. The panel, about 15 feet high and 21 feet long, symbolizes the name and purpose of the building now nearing completion in the Rockefeller Center group. It depicts the four races of mankind and the regions in which they dwell



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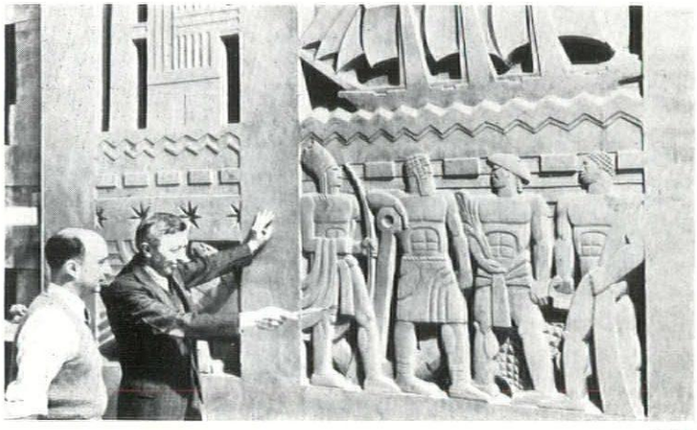

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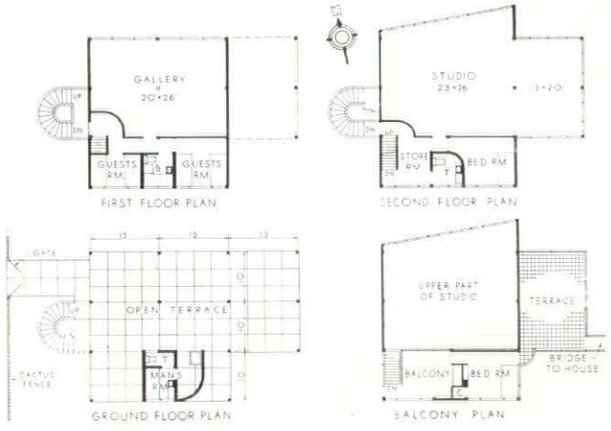


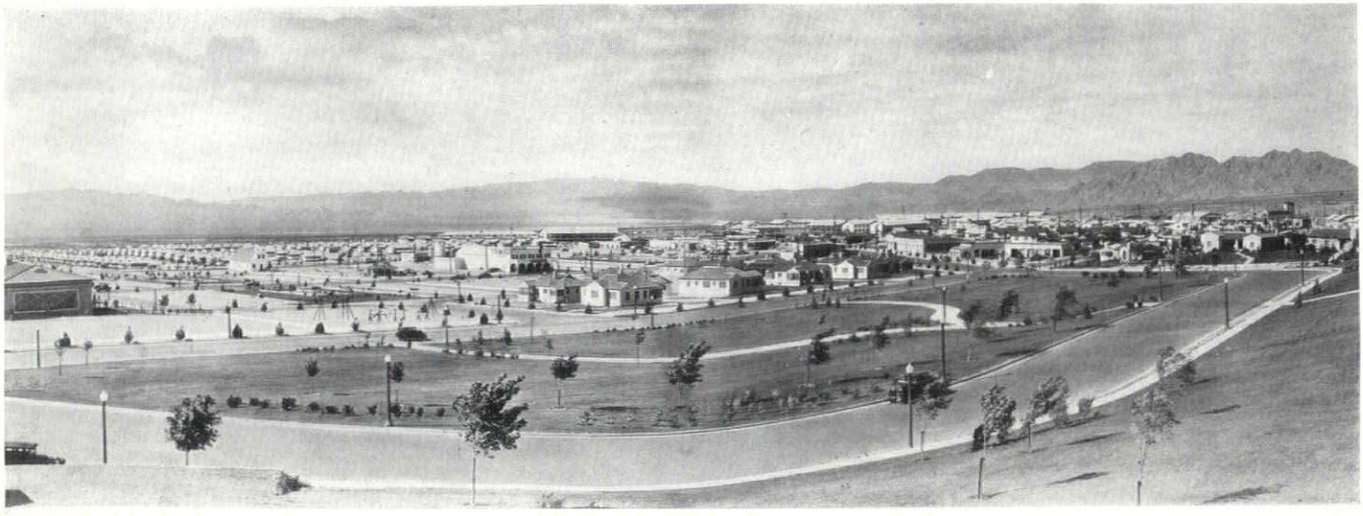
Trends and Topics of

• According to Dun and Bradstreet, Inc. the number of building permits issued in 215 cities during the month of March 1935 was the largest issued in any month since April 1932. They represent an expenditure of $45,056,822; those of February represented $27,636,367. The March increase was 63 per cent; the normal seasonal increase would be 53 per cent. The increase over the record of March 1934, was 76.7 per cent.

• "Liquid" copper, made by a new process for reducing copper to a form whereby it can be applied as a liquid to any surface, opens up new possibilities in the field of metallic paints and finishes. The material is elemental copper of extreme fineness and non-crystalline form carried in a special vehicle. It promises new decorative possibilities as well as a new type of protective coating for metals, wood and other building materials.

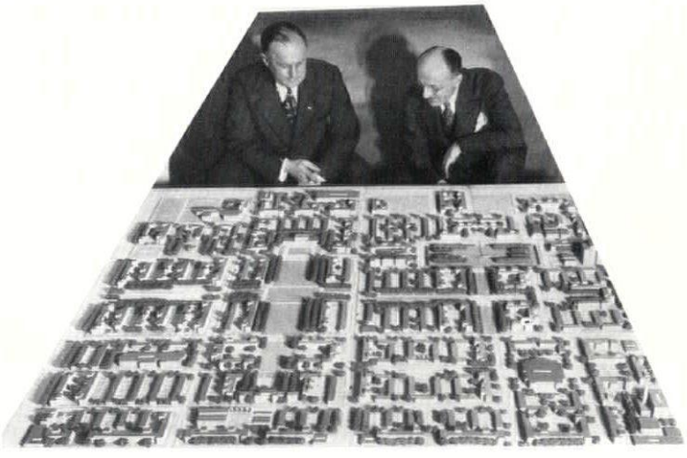
• Administrative rules covering Title II of the National Housing Act of the Federal Housing Administration have been amended and Revised Circular No. 1, dated March 15, 1935 is now available. This circular deals with Mutual Mortgage Insurance except operations under low-cost housing insurance.

• The first low-cost housing project insured under terms of the National Housing Act was started April 23rd at Colonial Village, near Clarendon, Va. The site, which contains eleven and one-half acres, is one conveniently located for Government employees in Washington. Harvey H. Warwick is the architect. The total cost of the project is estimated at $1,128,600, the insured first mortgage of $875,000 being held by the New York Life Insurance Company. Plans for the development include six groups of two-story apartments. There are forty-five buildings in all containing 276 living units of three to



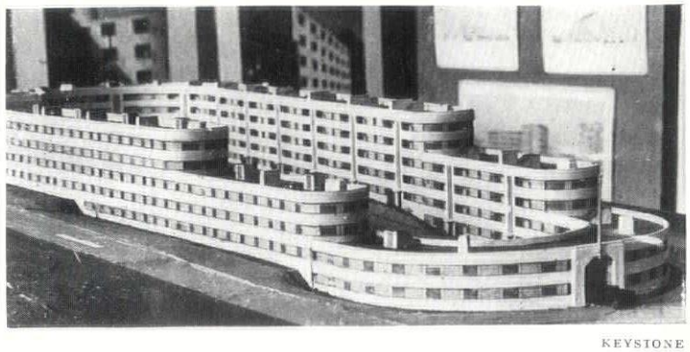
Above: Boulder City, Nevada, was designed, built and operated by the U. S. Government. **Left:** Hillside Housing, a PWA project that will house 1,388 families in the Bronx, New York, is nearing completion. **Below:** Col. H. B. Hackett, Director, and A. R. Clas, Assistant Director of PWA Housing Division, view model of the $12,500,000 Chicago project, progress of which has been balked by demands of real estate chiselers. **Bottom of page:** model of workingmen's flats for Manchester, England

the Times

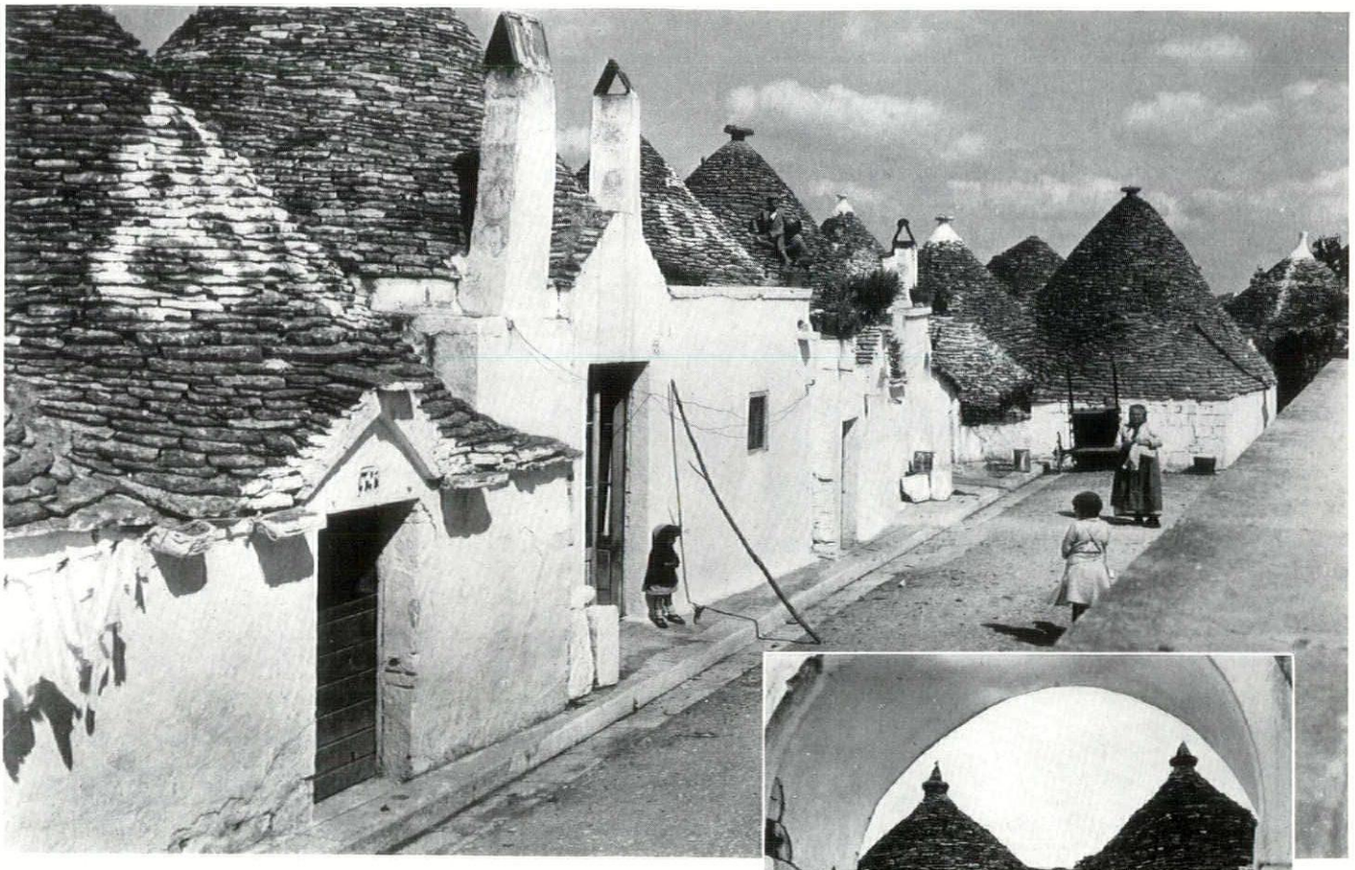


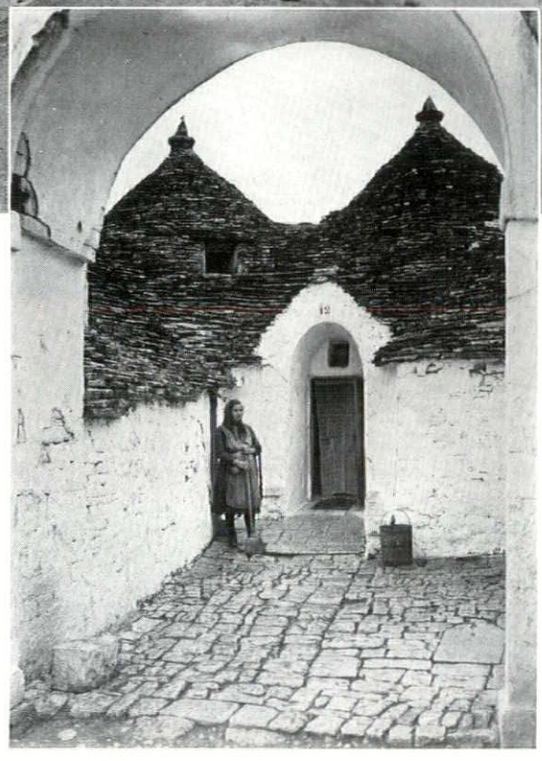
five rooms each. Rentals will range from $37.50 to $62.50 per month. The Federal Housing Administrator states that tentative commitments have been made to insure low-cost housing projects with a total value of more than nine millions of dollars. All expenditures for these projects will be made from private capital.

• A new system of house construction that employs prefabricated wall, floor and roof units made entirely of wood is viewed by the U. S. Forest Products Laboratory as a commercial possibility of the near future. An experimental house in which the new system was used, has been erected at Madison, Wisconsin. The units are designed upon principles successfully used in aircraft construction. Plywood sheets forming the panel faces are glued to both sides of the structural framing so that the entire unit becomes a part of the load-carrying system. Floor



KEYSTONE





EVEN THE ROOFS ARE STONE . . .

In Alberollo, Italy, field stone is used almost exclusively to build the natives' houses, which are called "Trulli" by the peasants. These little houses include a cone roof of stone to cover each individual room so that at one glance the traveller can tell how many rooms make up the dwelling. Formerly all parts of each building—walls, floors and roof—were fashioned from layers of uneven stones, virtually unbonded. Earthquake tremors have done much damage to this quaint type of construction, however, and in recent years concrete has been used to produce a safer and more shock-resisting structure

Trends and Topics . . .

joists can be reduced from 10″ to 6″ and wall units need not be more than 2″ thick. A variety of interchangeable panels can be provided to meet different conditions and would permit houses to be individually planned. Economy of material, ease and speed in erection, and the benefits of mass production are among the advantages which are visualized as making possible the building of individually designed houses at a considerable reduction in cost.

• Condemnation proceedings have been instituted to acquire title to a 51-acre site for a slum clearance and low-rent housing project in Detroit. The cost of the project is estimated to be $6,000,000. It will be one of the largest operations undertaken by the Public Works Administration and will be designed for negro tenancy. The first unit will provide 1,032 living units for families in the small income group. Previous to this announcement PWA also stated that action had been started to acquire title to a 22-acre site in Cleveland, Ohio where a

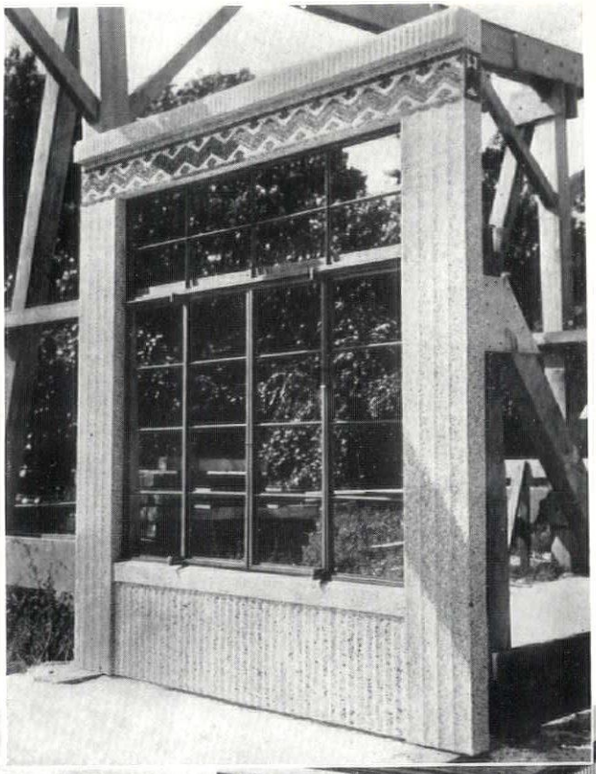
(Continued on page 100)

News of Planning and Construction

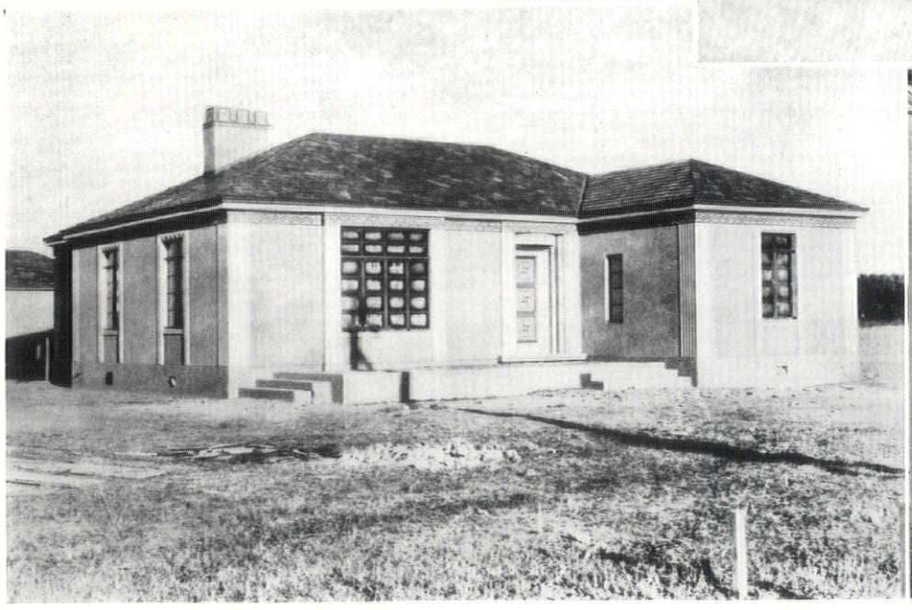
PREFABRICATION WITH CONCRETE
"SCHINDLER-SHELTERS"
PLANNING WITH ROOM UNITS

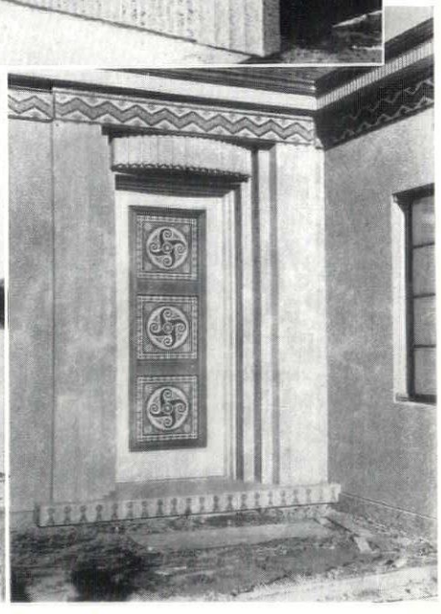
Prefabrication with Concrete

ANOTHER attempt to solve the small house problem via the prefabricated method has been made by the Earley Process Corp., Washington, D. C. Construction is by precast concrete wall units made by a special process developed by John J. Earley, Washington, D. C. The wall panels are two inches thick, about nine feet high and from four to ten feet wide, reinforced with welded steel mesh. During erection they are set against a wood or light steel frame and reinforced concrete columns poured behind the panel joints. Attachment of columns and panels is said to produce a perfect wall while allowing freedom of movement for expansion and contraction of the separate units. The house shown has been erected near Washington, D. C. It contains five rooms. The overall dimensions are about 35′ x 38′. At the right is shown a window panel and the main entrance door which is cast in one unit. The door contains three mosaic inserts which show a range of color possibilities.



WIDE WORLD PHOTOS





"Schindler-Shelters"

FROM R. M. Schindler, an architect in Los Angeles, whose house for W. E. Oliver is presented on page 23 of this issue comes another suggestion for the use of prefabricated units in small house design and construction. Below and on the facing page are outlined graphically the possibilities of a planning system that utilizes the principle of standard room sizes and a central unit to house the necessary mechanical equipment.

Originally planned to meet California conditions, both design and construction can easily be adapted to meet any conditions of location or climate, according to Mr. Schindler. The general scheme, copyrighted by its author, provides for a standard group to include kitchen, bathroom and laundry. It is apparent that in time such a combination will be available as a complete, factory made unit. The remainder of the house enclosure, including floor and roof, is a shell of hollow reinforced concrete construction. There are no interior supports, partitions being fashioned from standardized closet units which include the doors and which can be moved to satisfy changing requirements of the owner.

Windows are of a new type designed by the architect. They are stamped from sheet metal, slide horizontally and are glazed with heavy glass without muntins. Since they are placed on the outside of the wall, window sills are eliminated.

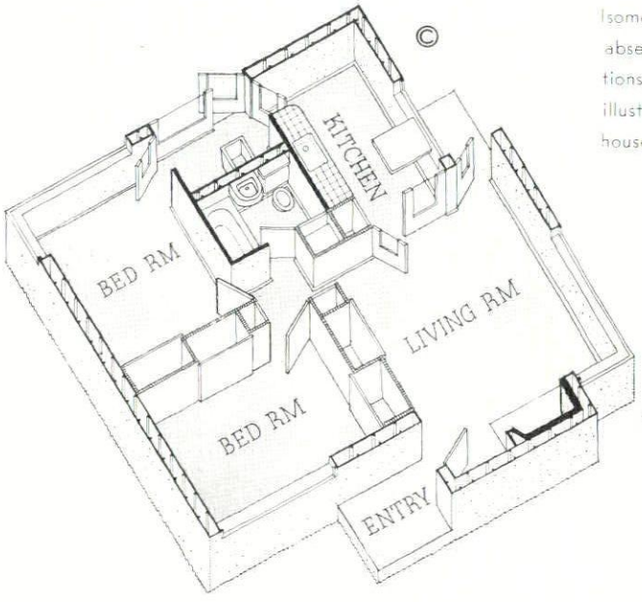
The structural shell is monolithic and is formed on the job by means of "Garrett Construction." This employs light metal forms, wiremesh and cement plaster, to produce two thin concrete slabs connected by metal braces that function as structural web members. Thus combined the slabs are strong enough for roofs and floors. The architect stresses the value of this type of construction as being proof against most of the agencies which destroy wood, points to the insulating value of air spaces in walls, floor and roofs and thus emphasizes his conviction that concrete, used in thin slabs as against heavy masses, is an ideal material with which to solve contemporary problems of small house design.

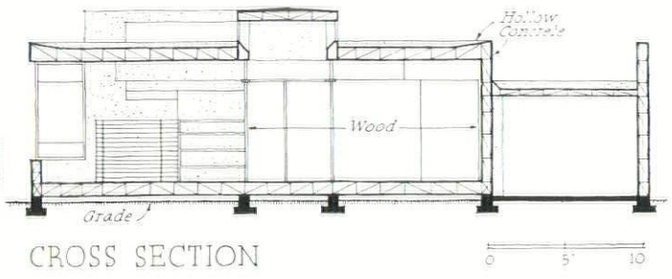
Stressed also is the fact that only in certain parts are these houses designed for prefabrication. The architect repudiates the belief of some that the complete house should be standardized thereby destroying any wide possibilities for individualism. Though the plans shown are assembled from more or less standardized room units as they develop from average living needs, the type of construction permits various arrangements without detracting from the obvious value gained through the widest reasonable use of prefabricated interior parts and equipment.

In all plans each room has at least two exposures and in most cases the living room has three. Not all houses have attached garages, though this special unit may be added wherever desirable.

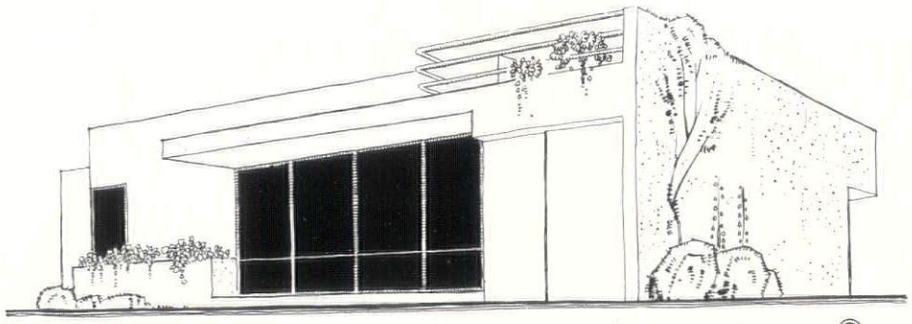
No claim is made that this convention of planning or the type of construction will produce the lowest cost possible for a dwelling of comparable size. Mr. Schindler does believe, however, that the finished product will be as economical in cost as a similar house built with wood framing would be Added to this is the advantage of fire-safe construction and the probable low maintenance expense resulting from the use of relatively more durable materials.

The Schindler-Shelter was planned particularly to solve the problem of housing in working men's colonies. Since it is designed for individual ownership, too great a standardization was purposely avoided in an effort to produce a housing unit which could be economically constructed with materials already available in the majority of locations.

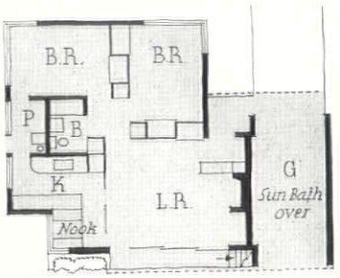




Isometric and section of a standard "Schindler-Shelter" layout. Note absence of interior supports and use of prefabricated wardrobe sections for partitions. On facing page: above, two typical designs that illustrate possibilities for variety. Below, suggested grouping of houses to avoid monotony in appearance and to assure privacy



PERSPECTIVE



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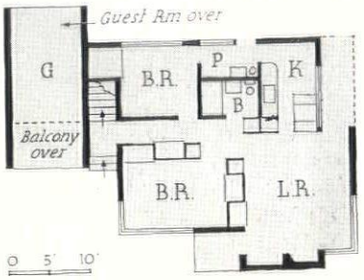
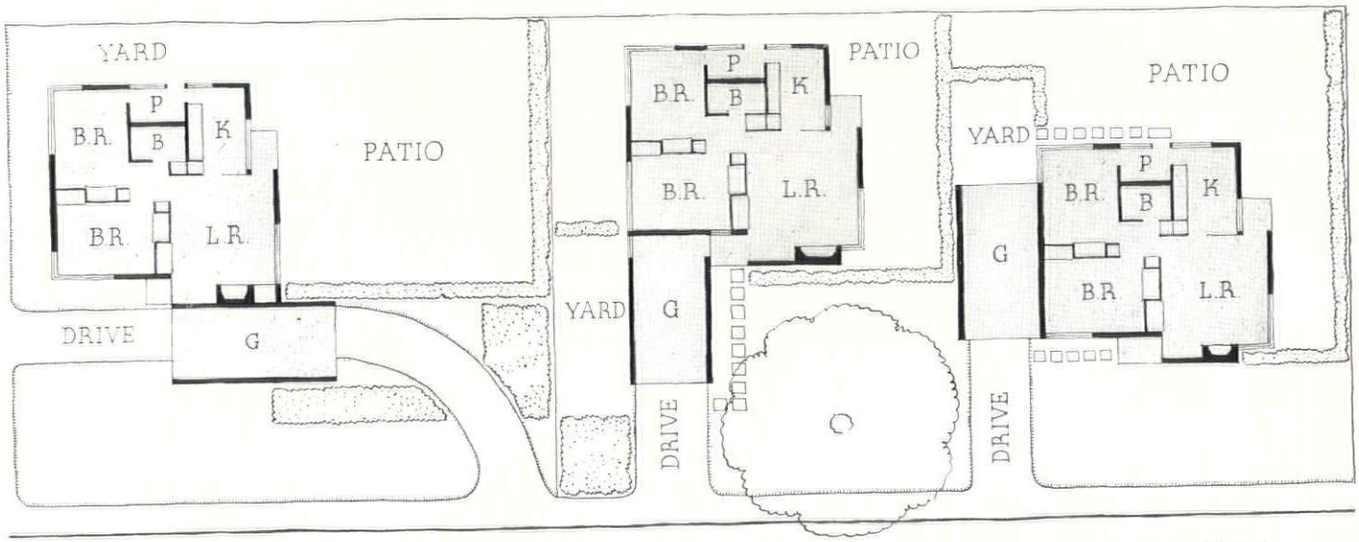
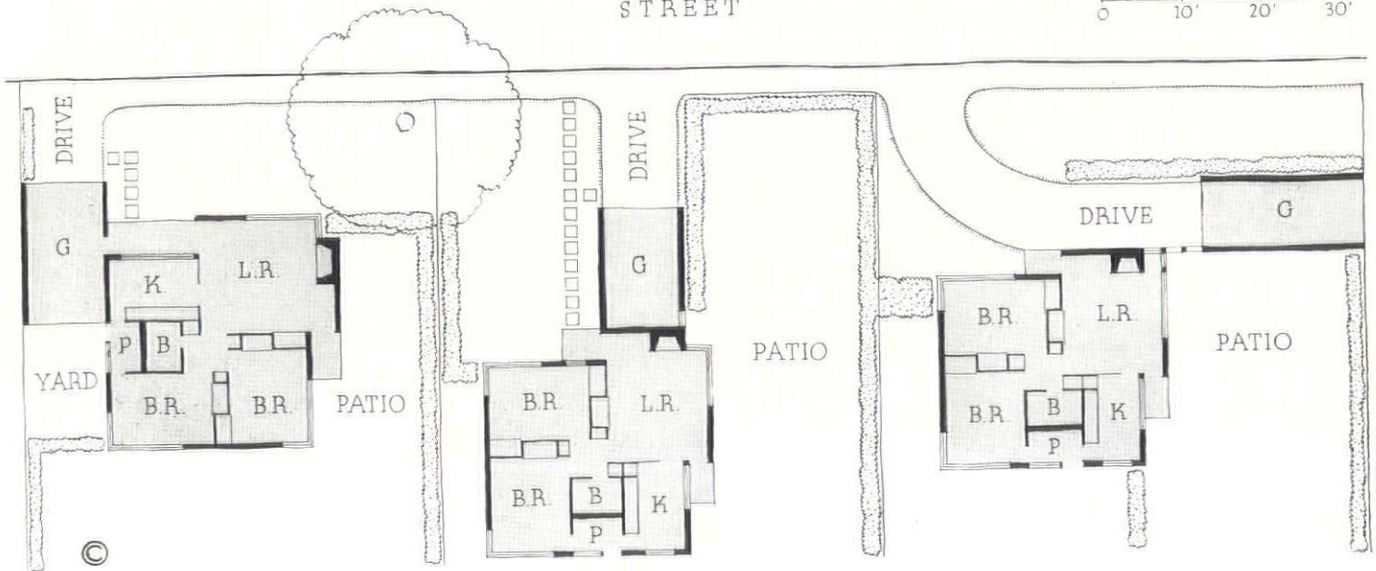
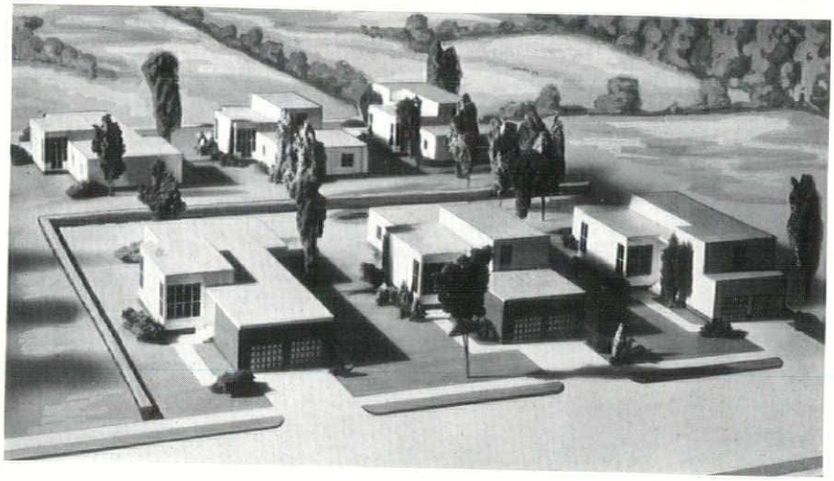
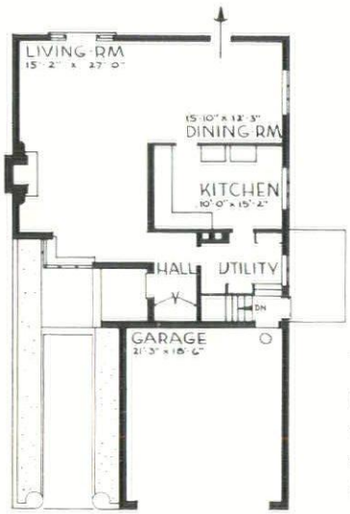
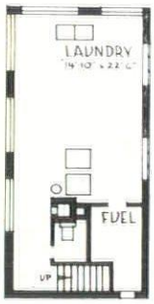


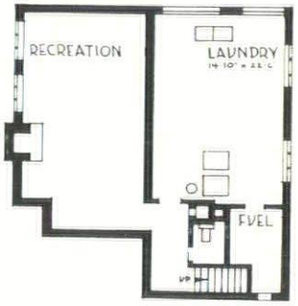


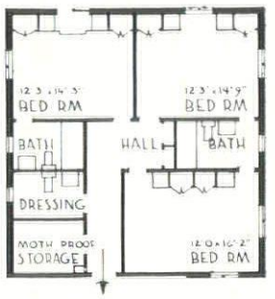


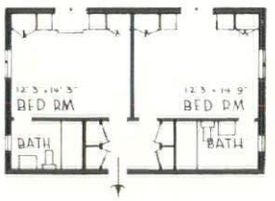












The living unit of the house is shown at the left; alternate basement plans above; and alternate two or three first floor bedroom units which can be combined with the living unit, at the right. One and two second floor bedroom units are shown at upper right. Models showing the possible variety of preplanned unit houses are shown at left above

Planning with Room Units

PREPLANNING as contrasted with prefabrication is an experiment recently studied by means of a house designed by Hays and Simpson, architects and built by the General Electric Company at Nela Park, Cleveland, Ohio. The idea is predicated upon the development of standardized room units which can be combined in a variety of ways. Standardization of closets, plumbing, heating and other equipment is visualized as a means of increasing the certainty with which comfort conditions can be predicted and the design problem simplified. It is also believed that the standardization of equipment and construction methods is important to the lowering of construction costs. Standardization of room units would in no way limit the variety of shape and form in which houses might be developed but would result in a more scientific, accurate and efficient design.

The house at Nela Park is built on a lot 60 feet wide and 150 feet deep. All rooms are located on one floor. The living room has a ceiling height of 12'-6"; the ceiling height of other rooms is 8'-0". The roof is insulated and drained by two interior leaders. The main floor is 2'6" above grade. The design of this house illustrates but one possibility of the use of standardized room units. The units are susceptible to a variety of arrangements as either a one or two story house.

The idea of designing small houses on the basis of standardized room units has interesting possibilities. For instance, the heating requirements of any room for a given locality need only be designed once. Thereafter it is always the same for the same type of construction. One need be concerned only with the arrangement of the units in plan to meet the need of different owners or site locations. Specifications need only be developed once. Where needed, a brief specification might be used in addition to provide for minor changes demanded by any particular client.

FAILE & COMPANY, ARCHITECTS

WURTS BROS. PHOTO

AMERICAN ARCHITECT

"MATERIALS IN DESIGN" SERIES

NUMBER 3 . . .

METAL

METAL

BY ARTHUR McK. STIRES

THE ever-increasing use of metals in architectural design is highly significant and appropriate. The designer who looks about for a material which will help him to express the spirit and trend of his age comes naturally and logically to metal. Here is a material which has strength, permanence and beauty—and has, besides, that imponderable quality which it derives from being intimately associated with the life, the labor, and the progress of a civilization. For metals are no longer the dull, heavy stuff which for centuries gave the brightness of gold its special prominence by contrast. Today there is a quality of vitality and liveliness in them which is doubtless due in part to their new beauty and brilliance and in part to their dominant importance in every activity which has to do with power, motion, construction and industry. Their prominence in ornamental design is the architect's tribute to this all-important element.

He finds, however, that metallurgists have been extraordinarily productive in keeping pace with contemporary problems, and he is confronted by the necessity of choosing his material from an assortment of metals and alloys, many of which are similar in appearance yet all of which have their special properties and qualities. The success of his design will depend, first, upon his shrewdness in choosing the metal which will most adequately satisfy possible functional requirements as well as afford the color and texture which he requires, and second, upon his understanding of the "personality" and character of that metal as expressed in his use of it.

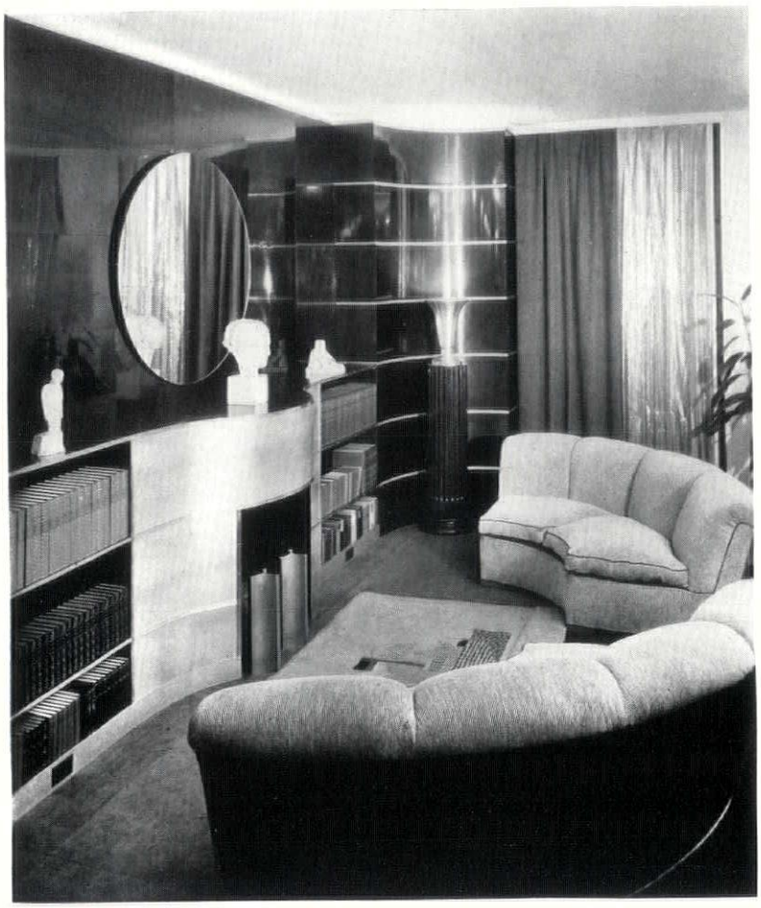
The ability of a metal to satisfy the practical demands of a given problem has to do with certain definite characteristics, such as strength, "workability," weight, and resistance to the effects of Time. These characteristics have, of course, been subject to laboratory and practical tests and can be simply stated. Likewise, color is a definite property of the various metals which may, as in the case of the white metals, show such subtle variations as to make their differences difficult to isolate with words, or be so pronounced between other metals as to afford easily described contrasts.

However, when it comes to what has been called the "personality" of a metal—which may be defined as a combination of its physical properties plus the limitations which these properties impose upon design—a proper understanding must be arrived at by a somewhat more circuitous route. Limitations, with respect to metals, are chiefly limitations in fabricating possibilities. The technic of design which will be adopted for one metal will often differ radically from that used for another because inherent properties for the two metals necessitate different technics of fabrication. Similarly, the same general technic of fabrication will not necessarily yield identical results in different metals.

Factors Influencing Design

PROPERTIES RELATED TO FABRICATION

THE relationship between the physical properties of a metal and the fabrication methods applicable to it is direct and, in its influence on design, important. Some metals are relatively soft and ductile, even when cold. Lead and copper are obvious examples of this quality, with bronze, brass, aluminum following in varying degrees. This ductility is a general measure of the ease with which the metal can be shaped, distorted, made to stretch and bend to follow a given pattern. In hot-working metals the question of its toughness at high temperatures is the factor which determines whether it can be extruded or not. In the hardest, toughest metals, such as stainless steel and Monel metal, this method of forming is not feasible. In casting metals, some of the softest and some of the hard, tough metals will not lend themselves to the delicacy of detail and crispness of line procurable in metals that flow well when molten or plastic. This is, of course, especially true in the case of lead which should never be required to conform to a very delicate pattern even in stamped or rolled forms. This is also to some



HAROLD M. SCHWARTZ, DESIGNER

Walls of "dyed" metal. Rich red-brown aluminum, colored by electrolytic oxide process, contrasts effectively with uncolored metal

extent true of monel metal and stainless steels because of their behavior when molten.

Generally speaking, soft metals lend themselves more readily than hard metals to fabricating processes which involve forcing or drawing the metal through dies, stamping, deep drawing, forging and extruding. On the other hand, the softer metals often lack the properties which give the finished product strength and rigidity sufficient for the designer's purpose. A satisfactory mean must be arrived at by the designer in choosing his metal Knowledge of the physical properties of a metal will guide him somewhat in a preliminary choice.

COLOR AND CHARACTER

THE designer's next consideration, after deciding the metal can be fabricated in the form he desires, pertains to color and to what a craftsman might call the "feel" or "character" of the metal. Has this metal the inherent character as to color and texture which his design requires? The warmth of bronze and copper may be desirable; or perhaps the cool quality of the white metals. And among the latter there are further subtle differences—blue-whites, yellow-whites, soft grays. The designer sensitive to the "feel" of materials will relate color with texture—the surface appearance which results from the inherent strength, hardness, weight and closeness of grain of the metal—and his choice will be further influenced by the fitness of the metal in this respect. He would not, for example, employ lead in a design expressive of lightness and grace, aluminum where an appearance of maximum strength was the point, or steel where a soft and malleable quality was indicated. He would at all times attempt to find the metal which seemed most harmonious in color and most appropriate in character.

PROPERTIES PLUS CHARACTER CONTROL DESIGN

SUCCESSFUL design in metal, as in other materials, evolves from choosing the metal most suitable for the design as visualized, and then working honestly within the limitations imposed by that metal. Recognition of such limitations is always an asset to the designer since it points a logical path along which his creative imagination can most effectively travel. When, for example, he has decided to use Monel metal for a railing he will undertake to evolve a design which will reveal rather than conceal the fact that this metal is a tough, strong, non-extrudible material. He may build his design up of standard sections, flat strips and rods, with or without any surface ornamentation. If so, he will probably permit this technic of fabrication to be quite evident rather than attempt to give it the appearance

METALS

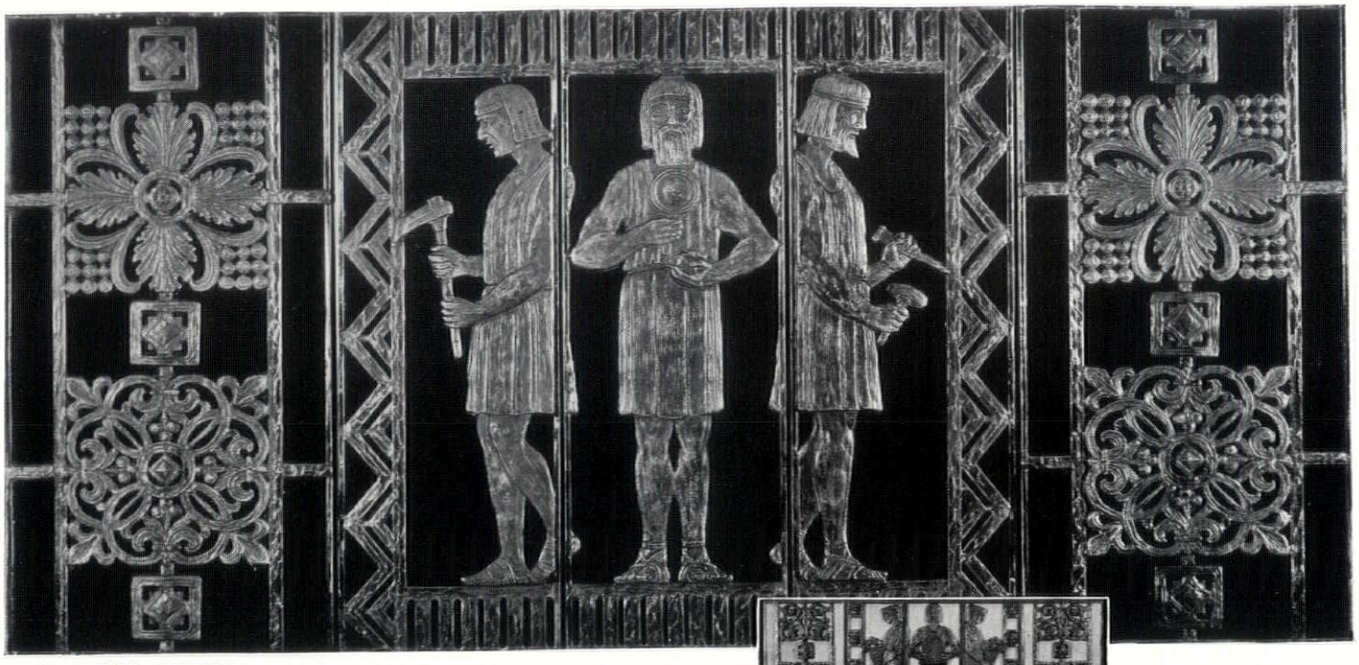
TABLE 1. PROPERTIES & LIMITATIONS AFFECTING DESIGN

AMERICAN ARCHITECT SERIES "MATERIALS IN DESIGN" No. 3 May 1935

METAL	TYPES	APPROX. COMPOSITION 1	COLOR: COLOR AS CAST	COLOR: APPLIED COLORS	COLOR: EFFECT OF EXPOSURE (untreated metal)	FABRICATION: HOT WORK: MOULD CAST	DIE CAST	FORGED	ROLLED	EXTRUDED	COLD WORK: DRAWN	SPUN	ROLLED	STAMPED	DEEP DRAWN	MACHINED	JOINING: WELDED	HAMMER WELD.	SOLDERED	BRAZED	RIVETED	SURFACE DECORTN: ETCHING	ENGRAVING	ENAMELING	FINISHES: MOULD FINISH	SAND BLAST	BRUSHED	POLISHED	DEPLATED	AVERAGE PHYSICAL PROPERTIES: MELTING POINT °F	LINEAR EXPANSION °C	MODULUS OF ELASTICITY P.S.I.	FORMS AVAILABLE 2
ALUMINUM	ALL	Aluminum 95.0 - 97.0 plus copper, silicon, etc.	Gray white	Wide range of spectrum colors by anodic treatment	Darkens to lead gray	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	930-1220	.000024	10,000,000	Commercial and various extruded shapes
STAINLESS STEEL	ALL	Iron plus Chromium 18.0 Nickel 8.0	Platinum white	None	Practically none	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓		2552	.000017	29,000,000	Commercial
MONEL METAL	ALL	Nickel 67.0 Copper 33.0	Platinum white	Durable black oxide by heat treatment	If not cleaned eventually turns black	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		2399	.000014	26,000,000	Commercial
NICKEL SILVER	CAST	Copper 56.0 Nickel 18.0 Zinc 20.0 Lead 6.0	Gray white	None	Darkens if not cleaned	✓		✓			✓		✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1700-2250	.000018	17,000,000	Commercial and various extruded and cold drawn shapes
	EXTRUDED	Copper 50.0 Nickel 12.0 Zinc 38.0	Yellowish white	None	Darkens if not cleaned		✓			✓							✓		✓	✓	✓	✓	✓			✓	✓	✓	✓				
BRONZE	CAST	Copper 85.0 Tin 5.0 Lead 5.0 Zinc 5.0	Bright gold	Antique greens and natural dark browns produced by chemical reagents and heat or by chemical oxidation. Not permanent, but last well if protected.	Darkens to deep brown, green or black dependent on atmospheric conditions.	✓											✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1800	.000017	16,000,000	Commercial and various extruded and cold drawn shapes
	EXTRUDED	Principally, Copper 58.0 Zinc 38.0	Bright gold				✓			✓						✓	✓		✓	✓	✓	✓	✓			✓	✓	✓				
	DRAWN	Copper 85.0 Zinc 15.0	Bright gold						✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			✓	✓	✓				
	FORGED ETC.	Various proportions of copper, tin, lead, zinc to suit conditions	Bright gold					✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓				
MUNTZ METAL (YELLOW METAL)	ALL	Copper 60.0 Zinc 40.0	Pale gold	Blue, black or green obtainable with chemical solutions. Not permanent.	Develops green tarnish	✓	✓	✓	✓	✓			✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1634	.0000189	13,800,000	Commercial and various extruded shapes
LEAD	HARD (ANTIMONIAL)	Soft lead 84.0 Antimony 16.0	Light gray	None	Darkens slightly	✓	✓			✓			✓	✓		✓	✓		✓				✓		✓					554	.000026	2,425,000	A variety of castings such as gutters, pipe heads, sun dials, fret panels, etc.
	SOFT	Commercially pure	Light gray	None	Darkens slightly	✓	✓			✓			✓	✓		✓	✓		✓				✓		✓					620.6	.000029	2,560,000	
IRON	WROUGHT	Iron 96.0 Iron silicate 3.0	Light gray	Black, by forging heat	Corrosion effectively retarded by presence of silicate fibres.			✓			✓	✓	✓			✓	✓	✓			✓					✓	✓	✓		1535	.000013	25,000,000	Commercial
	CAST	Commercially pure	Light gray	None		✓										✓				✓				✓	✓	✓	✓			1832-2192	.000010	12-27,000,000	Various stock ornamental details
COPPER	ALL	Unalloyed metal	Red gold	Brown, red bronze, blue black, antique green produced by chemical solutions	Darkens to brown and eventually develops green oxide coating.	Use of copper in decorative work largely confined to sheet metal; available in wide range of thicknesses from .001" upward. Also as foil and paper - thin wall covering.											✓		✓	✓	✓	✓	✓	✓		✓	✓	✓		1981.4	.000017	16,000,000	Commercial

Note 1:- The data on composition of alloys are approximate only. Components are subject to adjustment to develop character desired.

Note 2:- The term "commercial" refers to the following standard forms. See manufacturer's catalogs for weights and sizes: Rounds, Squares, Hexagons, Flats, Sheets, Plates, Strip, Forging blanks, Tubing, Angles.



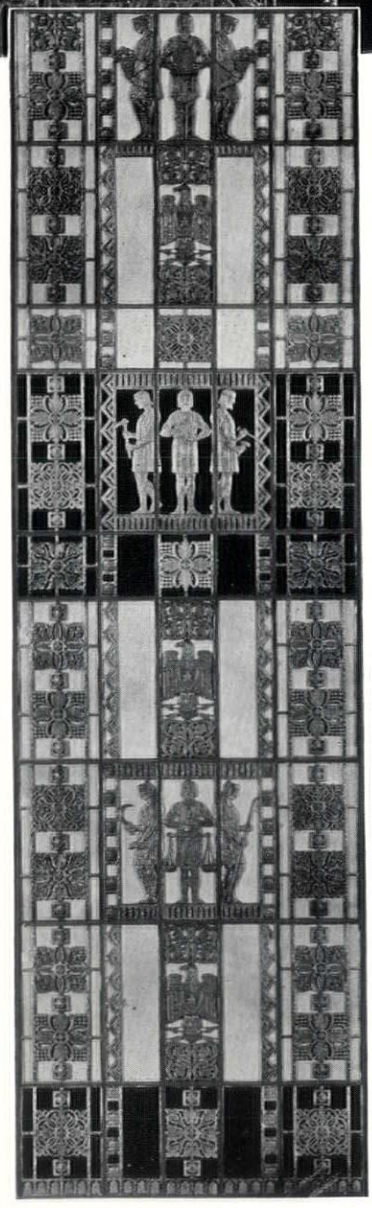
CHILDS & SMITH, ARCHITECTS

of some technic, such as extrusion, which is foreign to the metal or to the manner in which the work was actually done. In other words, he will in some degree let the metal "design itself" in accordance with its physical adaptability to fabrication methods, and in some degree he will exercise his critical ability to give the metal the form best adapted both to its own character and to the general design concept of its proposed environment.

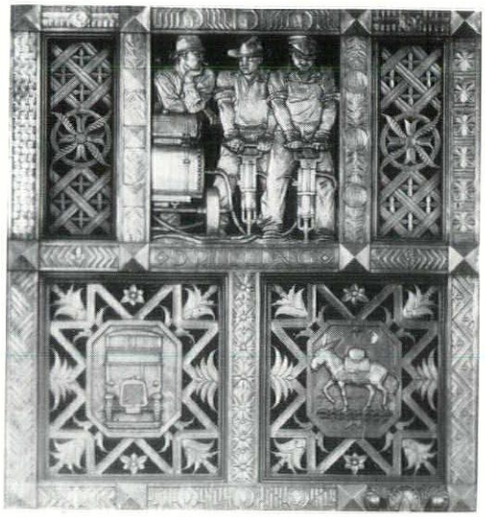
The practical importance of these relationships between properties, fabrication methods, "character" and final design lies in their influence on cost. When the right metal has been chosen for a given design, the fabricator can stay well within the workability range of the metal and avoid waste of effort or costly experimentation. It is common practice to design for one metal and ask for alternate bids on other metals. Not only may results be affected but costs may vary over a wide and misleading range. If the design favors the use of extruded sections and bids are requested on a non-extrudible metal, the fabricator is compelled to add the cost of special machining and assembly of the tougher material. The apparent final cost would be much higher for non-extrudible metals than would be the case if the design itself were modified to utilize appropriate and economical fabricating methods.

FABRICATION METHODS

WHILE it is true that the processes of forming and fabrication are the business of the manufacturer and metal craftsman rather than of the designer, it is equally true that the more designers know about the former's methods and problems the more successful will be the result of their joint effort. The following data will assist.



The character and workability of lead are well expressed in the fine design and execution of this screen



CAST

HARRIS & EWING PHOTO

EXTRUDED
with cast detail

FORGED

Forming and Shaping

MOULD CAST

Metal in a molten state is poured into a mould, the inner surface of which bears the negative of the pattern to which the metal, on cooling, will conform. Casting yields obvious economies when a standard pattern is employed or when the pattern is to be repeated often enough to offset the cost of making the original model and pattern. It is relatively economical and is adapted to all metals.

DIE CAST

Molten metal is forced into the mould under pressure. This process is used for intricate patterns where gravity filling would not result in uniform production. Because of the special equipment and cost of dies it is rarely applied to decorative work except where standard parts are to be made in large quantities.

DRAWN

Produced by drawing cold metal of the desired thickness through a series of dies which force the metal to conform to the desired profile. Economical where standard dies may be used or where the linear footage required in a given shape is sufficient to offset the cost of special dies. The sharpness of arises depends upon the thickness and ductility of the metal. See Hot Rolled.

EXTRUDED

A billet of metal, heated to a semi-plastic state is forced through a die by hydraulic pressure. By this method rods or bars of odd or irregular shape, constant in cross section, smooth and requiring little if any supplementary machining, are produced. Note that some metals, such as stainless steel and Monel metal, cannot be extruded because of their strength at high temperatures. It is an economical process, particularly where a considerable footage is required in a section of special profile. Many hundreds of extruded sections have been made available; manufacturers should be consulted and existing die patterns studied for suitable sections before designing new shapes. Special dies, however, may be had at reasonable cost.

FORGED

Metal is worked hot under the hammer, producing characteristic texture as well as form. Wrought iron is the most common type of forged work in decorative metalwork. Decorative treatments such as punching, stamping, incising and die forging add individuality. Cost is increased by the use of very tough metals such as stainless steel and Monel metal, since they require heavier hammering, but this toughness also permits production of work of great delicacy and brilliance.

ROLLED

Metal is conveyed through a series of roller dies by the action of revolving dies themselves. This process is thus in some respects similar to that used in drawn work but is adaptable to both cold metal and hot. Hot rolled forms have the advantage of a certain degree of "flow" in the plastic metal, during passage through the rolls, thus making possible the formation of sharper angles than are procurable in cold rolled or drawn work. Drawn work, however, since it is produced under tension, yields finished sections which are absolutely straight and true, whereas rolled forms are often subject to warpage and kinking and may require further processing to correct these faults.

SPUN

A sheet of metal is placed in a turning device similar to a lathe and held securely between a power-driven chuck on one side and, on the other, a wood or other model of the shape to which it must conform, the axis of the model being centered with the chuck. As sheet and model revolve a blunt tool, or roller, presses the spinning metal firmly against the model until the form of the model is accurately duplicated by the metal sheath which has been pressed around it. Confined to the production of hollow forms having a circular lateral section. A ductile metal of relatively thin section is required.

MACHINED

Has to do principally with milling, planing, turning, drilling, grinding, etc. to shape the metal to the desired pattern or size. Often employed in place of other processes where only a few pieces of like character are required, but relatively expensive on large scale production where same shapes can be produced by continuous operations such as rolling, drawing, or extruding.

Assembly

WELDING

Welding is the most durable method of uniting parts in metal fabrication. It is used between identical metals, rarely or never between different metals. Hammer welding is a branch of forging practice and consists of heating the metals almost to the flow point and joining them under the impact of the hammer.

Flame and electric welding processes are used where hammer welding is inappropriate. Oxy-hydrogen, oxy-acetylene or electric arc welding apparatus is employed to reduce the adjoining metal surfaces to a molten state so that they flow into one another. Welding rods of suitable metal supply surplus material for "filling in" the joint when the nature of the weld requires it. The choice of methods should be left to the fabricator as it is largely governed by the equipment the fabricator possesses. The high temperatures produced by welding tend to change the structure of some corrosion-resisting steels and thus may make the metal less resistant to corrosion at the weld point. If possible, therefore, design stainless steels for concealed welds.

RIVETING, BOLTING, ETC.

These familiar methods of joining metals play an important part in decorative work where dissimilar metals are used in the design inasmuch as they permit the introduction of insulating material between the dissimilar metals to minimize

the probability of electrolytic corrosion. Blind riveting, in which the rivet head is first welded to the back of an exposed piece of metal, permits the use of this technic without showing rivet heads. Threaded and screwed connections and bolts are only employed where disassembly may subsequently be required.

SOLDERING

By this method metal parts are joined by flowing molten solder between the heated metal surfaces. Combinations of lead and tin constitute the usual "hard" solders. Dissimilar metals may be joined by soldering. See data on Electrolysis.

BRAZING

Similar to soldering except that a form of bronze is employed to join the metals. Greater heat is required and greater strength results.

Surface Treatments

AN important factor in any design problem involving the use of metal is the treatment of the metal surface. This treatment may take the form of engraving, etching, enameling or otherwise applying a pattern on the surface; or it may simply be a matter of selecting the finish which from both the utilitarian and esthetic viewpoint most completely satisfies the design requirements.

Since variations resulting from different grades of finishing are often slight it is advisable for the designer to have samples of a number of finishes submitted for inspection and comparison.

ENGRAVING

The brilliant results obtainable by engraving a pattern on metal are scarcely surprising, since metal is the ideal material for this process. Except where the design calls for the most elaborate detail, engraving is done by means of a pantograph device which follows the architect's line drawing or, if a number of identical patterns are required, a master pattern made from the drawing. A "routing" tool, incorporated in the pantograph, is thus guided over the metal surface, cutting the lines to the required depth.

ETCHING

When the decorative scheme requires subtlety rather than boldness in the treatment of metal surfaces, etching is often an effective solution. Here again the material is particularly suited to the process. Acids are used for etching, the procedure being much the same as is followed in the familiar process of etching a copper-plate from which to make prints. The resulting lines are clean and crisp, having a surface similar to that left by fine sandblasting. This surface may subsequently be polished, but it is often considered more effective to let the dull lines contrast with the bright finish of the unetched metal. Etching fluids are available for carrying out designs by this process on any metal.

ENAMELING

Cloisonne and champleve are similar methods whereby the brilliance and variety of color is introduced into the surface of metals. In cloisonne enameling the outline of the design is formed by wires soldered to the metal base. The resulting spaces are then filled in with various colored enamels and the piece is fired. As the enamel melts, the colors are kept from running into each other by the intervening metal. When cooled the whole surface is usually ground and polished to a smooth finish.

Champleve enameling follows much the same procedure except that no wire is used. In this case the sections to be filled with enamel are cut into the metal base itself with acid or chisel, leaving the outline to act as separators.

Porcelain enamel, which is silica or flint similar to that used in the making of glass, is fused on sheet metal at high temperatures. Color and permanence are the two most interesting features of this process from a design point of view. Any color can be secured in enamel, or any combination of colors.

MOULD FINISH

Mould finish, as the name implies, is simply the rather coarse, uneven texture which is left on metal just as it comes from the mould. Except in the case of lead, where this finish is generally preferred, mould finish is not usually specified unless the metal is to be painted or unless the metal craftsman, rather than the manufacturer, is to apply the finish.

SANDBLASTING

Sandblasting is widely used in the finishing of metals. A variety of effects is produced by using abrasives of varying degrees of fineness. Finishes of high luster result from using the finest abrasives.

BRUSH FINISHES

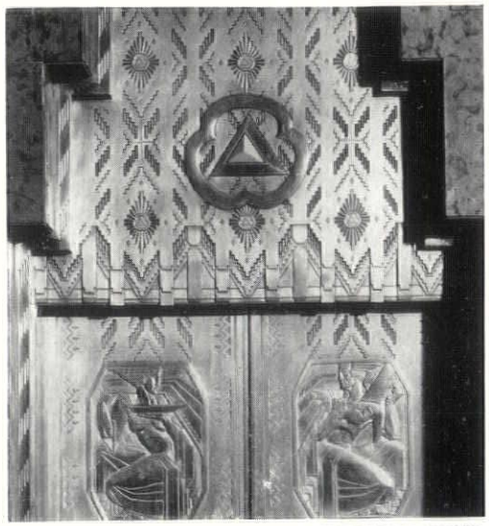
Brush finishes are readily identified by the fine parallel lines left by the action of the brush. In most cases the brush is of wire, although sometimes a Tampico fibre brush is used in conjunction with an abrasive. When a wire brush is used on corrosion-resisting metal it is important that the brush wires be similarly corrosion resisting. Otherwise small particles of the wire may become embedded in the metal surface subsequently causing rust spots to form.

POLISHING

Polishing is done with various types of buffers and, in many metals, is capable of producing a surface of almost any degree of reflectivity. When a metal is given a mirror-like surface its apparent color is of course greatly influenced by the color of its surroundings and the objects which it reflects.

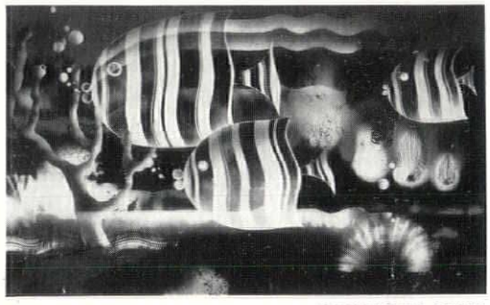
COLORING AND SPECIAL TREATMENTS

The appearance of a metal is further affected by certain special treatments which may be applied to it. Under this heading come such processes as acid washes, which are frequently used to change the color of brass, bronze and copper; oxidation, such as takes place in Monel metal after heating to forging temperatures and which yields a durable black; electrolytic oxide coatings, sometimes used in conjunction with insoluble pigments, such as are employed in the coloring of aluminum; and, of course, the application of colored enamels.



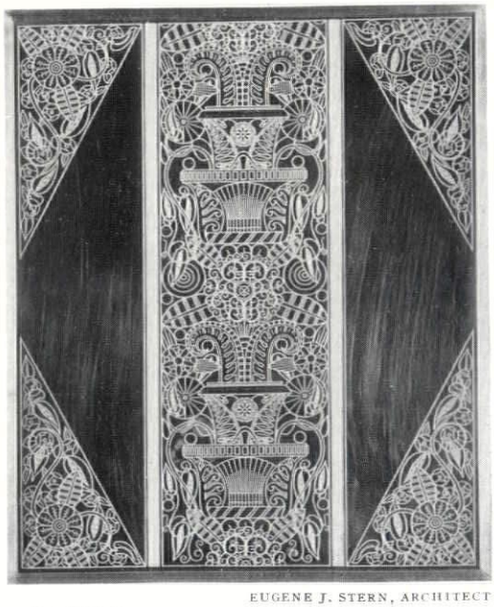
WURTS BROS. PHOTO

ENGRAVED
with cast detail



ALBERT DUVAL PHOTO

ENAMELED



EUGENE J. STERN, ARCHITECT

ETCHED

PAUL MANSHIP, DESIGNER

HAROLD HALIDAY COSTAIN PHOTO

Selection of Metals

WITH the foregoing fabrication and finishing methods broadly in mind one can proceed to a consideration of the metals themselves. In Table I the physical and appearance characteristics of the principal metals used in architecture are set forth in comparative form.

Composition of alloys largely influences physical characteristics, appearance, and fabrication. Slight differences in composition may increase workability without materially affecting color or exposure resistance, or may considerably affect color without a noticeable change in other characteristics. Data given in this table, therefore, must be considered approximate only; the designer may be guided in his general selections by the information presented, but should work to samples for color and finish and should consult manufacturer or fabricator before attempting a precise metallurgical specification should the latter be deemed necessary.

APPEARANCE FACTORS

COLOR of metal varies with composition, finish and exposure. The "true" color is best expressed as that of the metal "as cast." The colors given in Table I hardly distinguish one metal from another; word descriptions of the subtle color differences between metals of slightly varied composition are poor substitutes for actual samples.

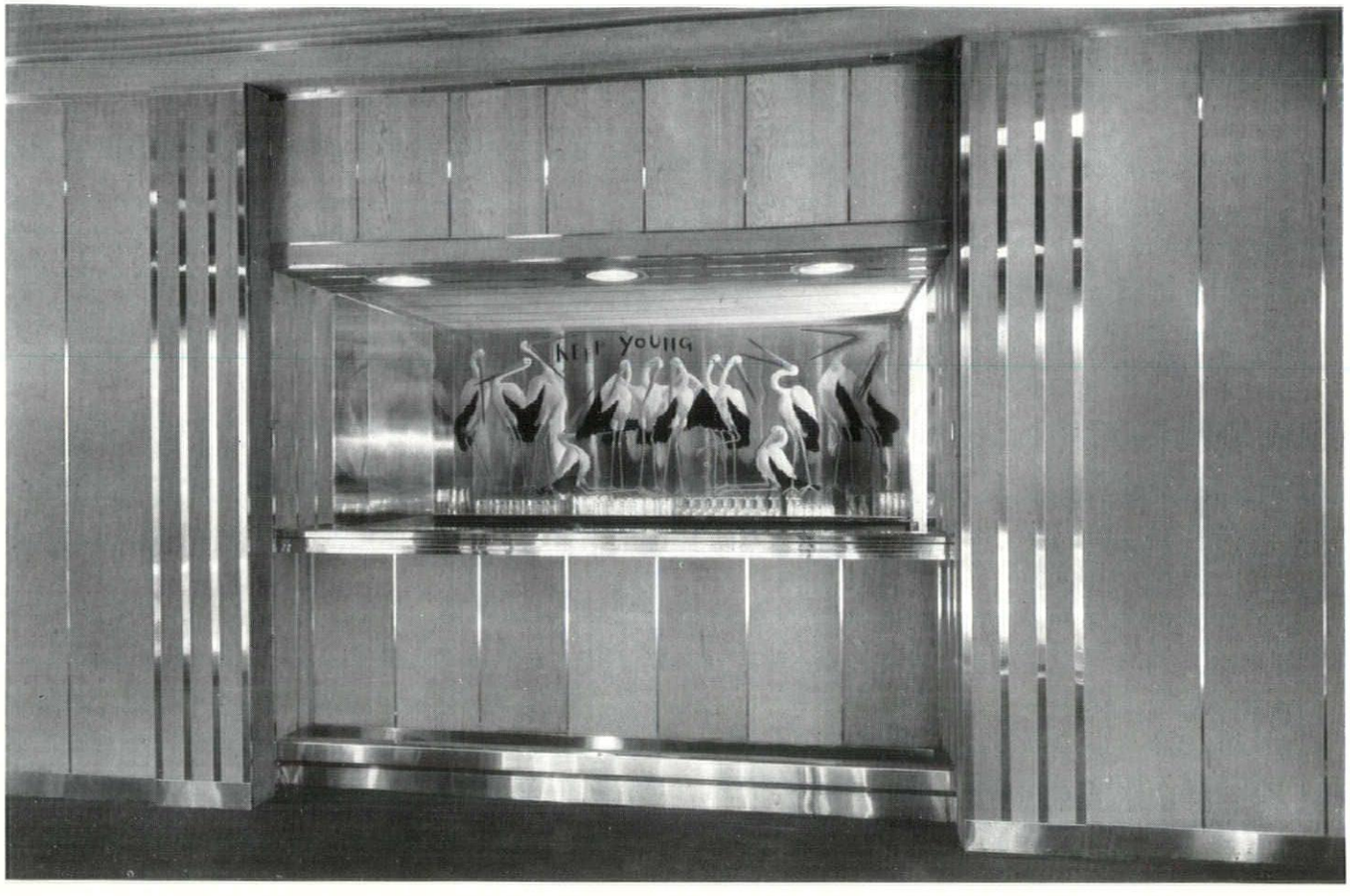
Color finishes may be applied to most metals, but the durability of these finishes is frequently disappointing if the metal is exposed to weather. Data supplementing the general information in Table I are given in the discussion of individual metals. Enameling, of course, creates a wide range of color possibilities, but it conceals the metal area to which it is applied and has a character distinctively its own.

Exposure affects all metals and their surface coloration. Atmosphere, dirt and grime soil any metal just as they do polished glass; for this reason alone no metal will retain its original finish permanently

Creative design in these silhouettes of wrought iron affords an interesting departure from the traditional grille. **On facing page:** The massive castings of these bronze gates are encrusted with bronze powder and bear designs plated with gold foil

SCHOEPPL AND SOUTHWELL, ARCHITECTS

GOTTSCHO PHOTO



The use of white metal strips to give emphasis and brilliance to interiors is exemplified in this bar, paneled in redwood and trimmed in stainless steel

unless periodically cleaned. More important, all metals oxidize or tarnish to greater or lesser extent. In some cases oxidation produces a friable oxide that falls away and may be termed rusting in the case of ferrous metals or corrosion in the case of others. But some metals develop an oxidized surface that is protective and is only detrimental to the extent that the oxide may have a color different from that which the designer seeks. Where metalwork cannot be constantly maintained by polishing and oiling or lacquering to offset this natural change, and particularly on exteriors of buildings, the designer should keep in mind the final color of the metal rather than its original color "as cast" or "as finished." General data on this important matter appear in Table I; notes on special problems are included in the section on individual metals.

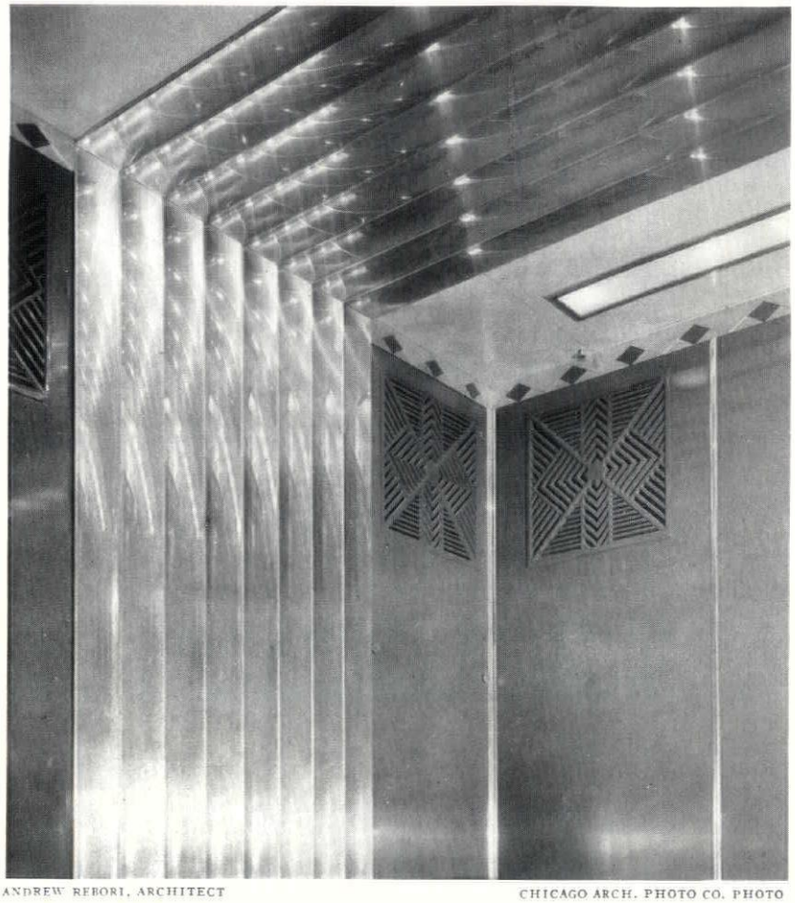
ELECTROLYSIS OF METALS

WHEN any two different metals are in contact with each other in the presence of an electrolyte, one of the metals is in a sense dissolved or corroded. In the following list the metals with the higher numbers will be attacked when in the presence of metals of lower number.

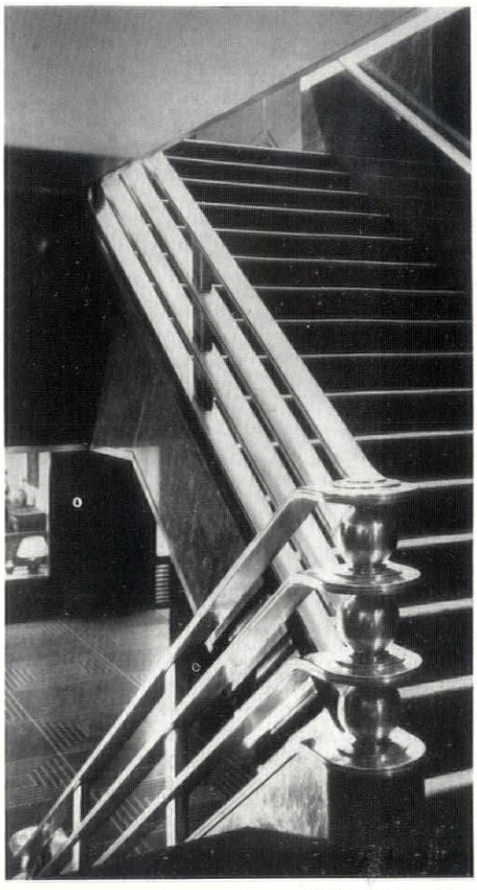
1. Gold	5. Lead	9. Iron
2. Platinum	6. Tin	10. Chromium
3. Silver	7. Nickel	11. Zinc
4. Copper	8. Cadmium	12. Aluminum

For example, if iron, No. 9 and copper, No. 4 are in contact the iron will be corroded, the copper unchanged. The rate of galvanic action increases somewhat in proportion as the metals are distant from each other in this list. That is, iron would be much more rapidly corroded in contact with copper than with cadmium.

This matter is of some importance where combinations of metals are exposed to atmospheric moisture or weather, because the acid condition frequently found in rain water produces an electrolyte. However, fabricators have for years been accustomed to assembling dissimilar metals with a protective layer of varnish, bitumen or other similar insulator where the design is such that riveting can be employed for assembly rather than soldering or brazing. On interior work the danger is minimized.



ANDREW REBORI, ARCHITECT — CHICAGO ARCH. PHOTO CO. PHOTO



WURTS BROS. PHOTO

THREE METHODS of fabrication are shown using sheet metal, formed metal, and metal plate and strip

SHREVE, LAMB & HARMON, ARCHITECTS — F. S. LINCOLN PHOTO

FABRICATION AND PHYSICAL PROPERTIES

THE preceding discussion of fabrication and finishing methods coupled with the data presented in Table I give all the essential information required in the selection of metals with respect to fabrication possibilities and limitations. However, the table goes further by supplying data on the physical properties of metals which influence their use in architecture. Some of these physical properties indicate why the fabrication methods are limited; some pertain to the use of metals in combination.

Melting point is significant when the form to be designed has a structural as well as decorative function. Where a fire hazard is involved, as in the construction of ornamental windows or metal and glass screens which should serve as a fire barrier, the choice of a low melting point metal may result in failure of the structure under high temperatures.

Linear expansion may conceivably become important when two or more metals, with different coefficients, are used together in locations involving a

wide temperature range. If a metal with low linear expansion is originally combined with metal having a high expansion coefficient, a variation in temperature such as might occur on exterior spandrels, might develop strains which would warp the unit severely. This principle is employed in the production of thermostatic elements. Difficulties can readily be avoided by providing for differences in expansion.

Modulus of elasticity indicates the degree to which a metal can withstand strains without distortion. By comparing the modulus of elasticity of unfamiliar metals with that of iron or steel, the designer may estimate the structural value of the metal for such installations as stair or balcony rails, bank cages, etc.

FORMS COMMERCIALLY AVAILABLE

THIS listing is included in Table I to assist the designer in visualizing the fabricating possibilities in a given metal. Many designs requiring sharp arises and crisp execution may be most economically produced by a simple assemblage of these standard shapes. The designer should note especially in the case of non-extrudible metals that forms, which will serve his purpose and at the same time be more characteristic of the metal than an imitation of extruded form, may be fabricated in this manner. Obviously, when economy is a necessity the ingenious designer will effect considerable savings by providing for the use of standard shapes and forms in the execution of his design.

BRONZE

BY definition bronze is a copper-tin alloy as contrasted with brass which is copper-zinc. In actual practice, however, this distinction is not retained and the exact alloy composition varies according to color, purpose and fabrication requirements. The composition of statuary, architectural cast, extruded, drawn and sheet bronzes given in Table I indicate the variations in composition which are employed for different architectural purposes.

The natural color range extends from yellow brass to a deep red-brown. Artificial colorings are either "burned on" colors or patine finishes, both of which employ heat, or "cold" colors which are oxidized finishes. The patine finishes produce in effect a pigmented film which has been induced to adhere to the surface of the metal itself by chemical reaction, and since this film is of sensible thickness, such colors act in a minor way to fill up and obscure fine casting details. They are more permanent than cold colors, particularly in the lighter tones. None of these coloring processes are as permanent as the metal itself and in all cases their durability is lessened by exposure to weather.

The cold colors or oxidized finishes are produced by chemical reagents washed on the surface of the bronze to produce various oxides and carbonates. The color range is more limited than in patine finishes. They are somewhat less durable and are more readily removed by abrasives and polishes. Some designers prefer to treat bronze work with a liquid wax coating and to let exposure gradually and uniformly darken the bronze, or else to establish maintenance procedures which will preserve the desired color by regular cleaning. Manufacturers should be consulted for detailed information on various maintenance and preservative methods, including waxing, oiling and lacquering, as the choice of method should be properly related to the type of maintenance to be expected and the exposure of the metal.

The workability of bronze rates it as one of the finest architectural metals, for it produces the finest kind of castings, it is extrudible and is amenable to all other familiar fabricating processes. Parts are usually joined by brazing.

NICKEL SILVER

THIS term is synonymous with white bronze, benedict metal, white metal and several proprietary names, all of which apply to a bronze having a nickel content. Nickel has a decolorizing power over copper which results in the white, yellow-white or pinkish color of these alloys. The nickel content influences fabrication methods to a material degree. Rolled or drawn sections may have a nickel content of from 5 to 30%, extruded sections from 8 to 15%, and cast work around 18% nickel, 20% zinc, 6% lead and the balance of copper.

The color range shows subtle variations which requires working from samples if a definite color effect is sought. Nickel silvers are rarely used in other than their natural colors which can be maintained either through the agency of lacquer or by routine cleaning with a mildly abrasive polish having a small wax content. These metals, if left unattended, gradually assume a straw color and eventually become as dark as ordinary bronze.

It is somewhat difficult to develop castings of intricate design in nickel silver. The metal is widely used in standard shapes and in extruded sections. The nickel silvers with a relatively low nickel content can be extruded through dies designed for bronze work, of which more than 20,000 shapes are already available among various fabricators.

MONEL METAL

MONEL metal is a natural alloy of about one-third copper and two-thirds nickel, making it substantially a high nickel bronze. It has approximately the strength and toughness of mild steel. It is whiter in color than nickel silver and can be wrought and fabricated by all processes used with steel which of course only excludes the extrusion process. It is somewhat difficult to obtain ornamental castings of fine detail in monel metal.

The original white color is readily maintained on indoor applications by the same maintenance processes used for nickel silver. It is seldom recom-

HOLABIRD & ROOT, ARCHITECTS

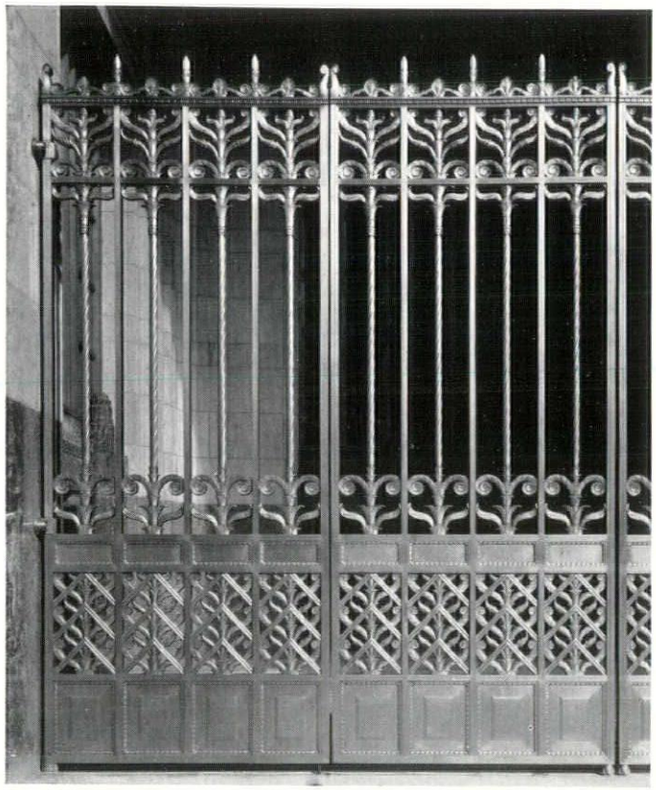
HEDRICH-BLESSING PHOTO

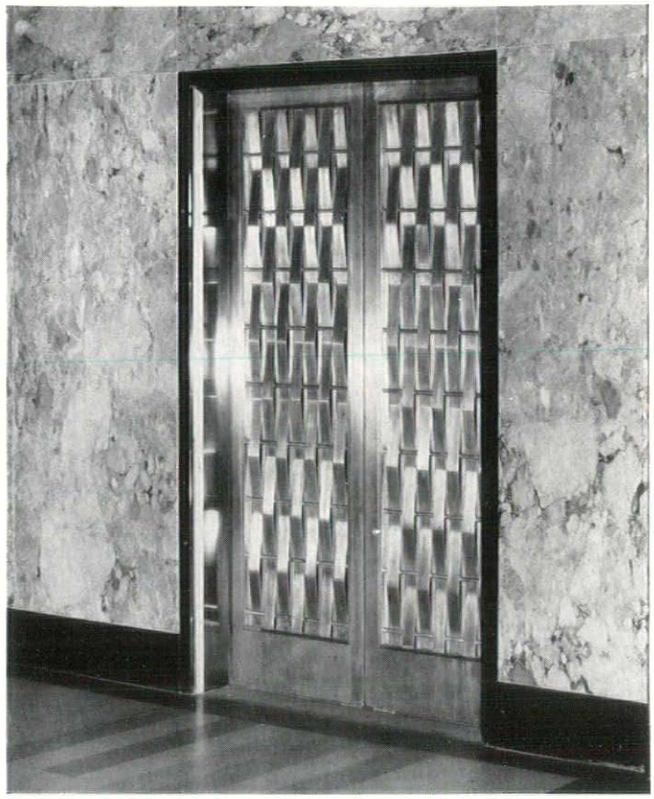
Extruded nickel silver bars ornamented with castings of the same metal compose these grilles in the Chicago Board of Trade Building. The nature of the material and the method of fabrication are perfectly apparent in this direct and effective design

TROWBRIDGE AND LIVINGSTON, ARCHITECTS

THOMAS WEST GARDNER, ARCHITECT

Forged metalwork, in such forms as this aluminum spiral staircase, is still the province of the skilled craftsman. The marks of the hammer are apparent, even on the risers, and are an important element in the result produced. On facing page: **Casting** produces panels of unrivalled richness and intricacy of detail. The silvery color of these aluminum doors strikes a distinctive note, while the comparative lightness of the metal was doubtless another factor in its selection





D. EVERETT WAID AND HARVEY WILEY CORBETT, ARCHITECTS

Left: Gates of nickel silver fabricated of sheet metal, extruded rods, and castings. Periodic cleaning of such elements is a necessity where original brilliance and color are to be maintained. Right: Strips of metal fabricated in a pattern resembling a basket weave suggest that ingenuity and imagination can produce interesting results with the simplest materials

mended for exterior applications as it develops a dark brown to black oxide coating of extreme toughness and durability. A dead black oxide can be produced by heat treatment, as during the forging process, providing interesting possibilities for highlighting the raised parts by grinding and polishing, leaving the hammer dents jet black.

Monel metal is one of the superior metals for fine craftsmanship, holding its color well in interior applications and permitting the designer to work for grace combined with strength.

STAINLESS STEEL

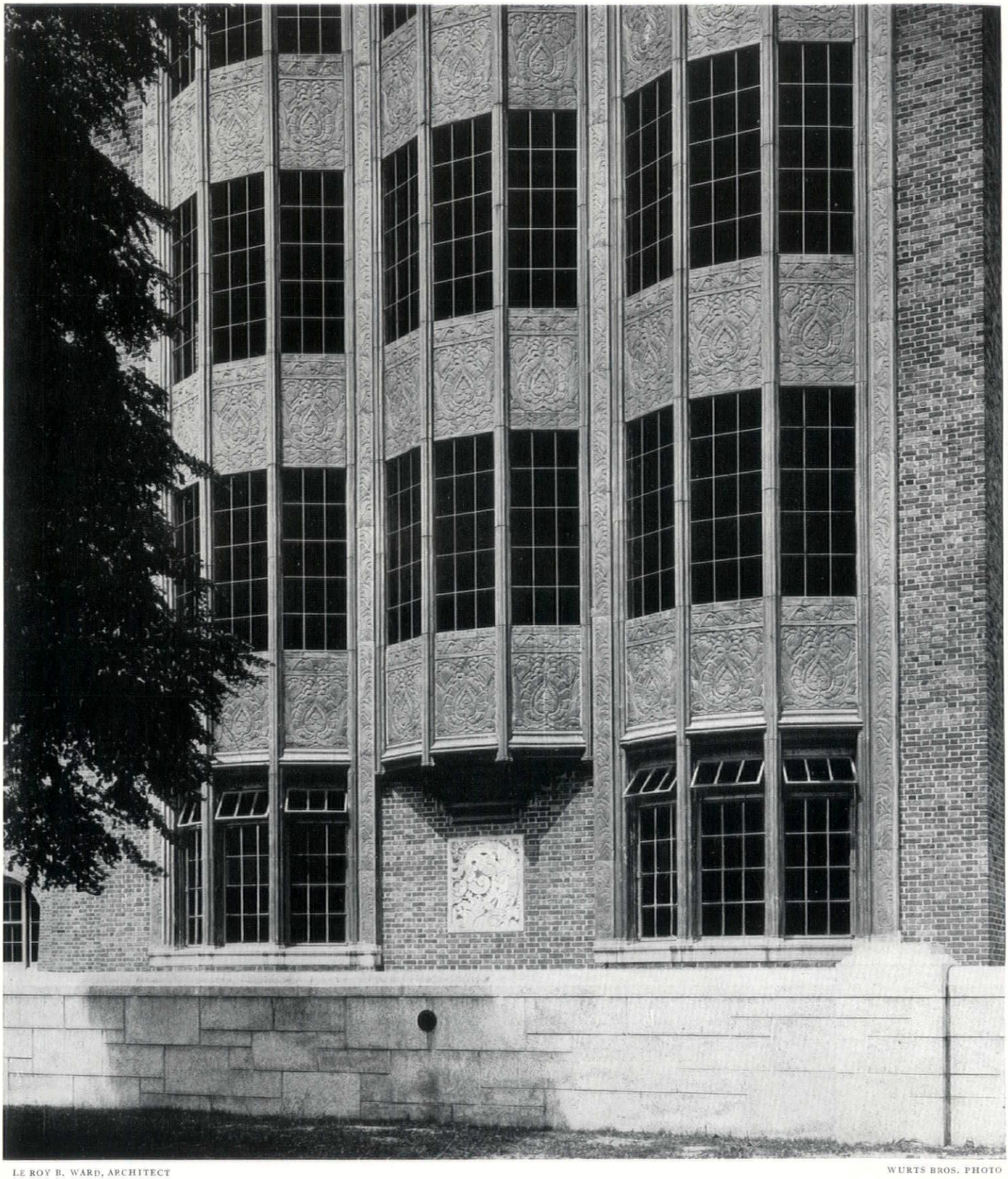
THE term stainless steel is the popular if somewhat inaccurate name applied to an alloy of iron and chromium or more often, iron, chromium and nickel with a very low carbon content. Strictly speaking, it would be more accurate to use the term stainless iron.

Various alloys are made to develop corrosion resistance, strength and workability, but the one most commonly used in architectural decoration contains approximately 18% chromium and 8% nickel, and is known to the trade as "18-8." It is the one white metal that shows least change when exposed to the elements and therefore may be used for exterior metalwork if periodically cleaned of atmospheric soot and grime. It is subject to electrolytic corrosion in contact with ordinary steel or other metals, and there is a slight tendency to rust-stain at weld points, but proper fabrication readily overcomes these minor difficulties. Normally, little maintenance is required beyond cleaning.

Assembly of stainless steel is usually accomplished by welding, soldering or riveting. Brazing is not recommended. It cannot be readily forge or hammer welded, but oxy-acetylene and electric arc welding are both applicable. The metal is not extrudible.

ALUMINUM

THIS is one of the most adaptable of decorative metals as it can be fabricated by all known processes. It has a very low melting point and therefore may not be permitted for structures exposed to severe fire hazards. Commercial pure aluminum is quite soft and ductile, but its strength may be increased by the addition of other elements, by cold working and by heat treatment. Color as cast is light gray which ages upon exposure to darker lead gray. The original light color can readily be restored by routine polishing with mild abrasives or it can be preserved with lacquer.



LE ROY B. WARD, ARCHITECT

WURTS BROS. PHOTO

Color, texture and permanence combine to make cast hard lead an ideal material as used in these casement windows. The harmony of relationship in design between this material and the surrounding brick and stone is important, as also is the added interest gained through the sand-cast ornamental pattern

These panels of stainless steel carry an etched pattern against a background of blue enamel

LANG & MITCHELL, ARCHITECTS

Stainless steel plaque executed in repousse by Oscar Bach. The design is impressed on the metal by hammering it into a mould; finished by skillful tooling on the front surface

Electrolytic and chemical processes are available for producing stable colors and color contrasts with aluminum. Of these, "deplating" is used principally on cast work to produce a grayish to black color in the background and recessed portions of ornaments. It is normally applied to the piece as a whole and is then ground or buffed from the highlights to produce color contrast. The anodic treatment, also commercially designated as "alumilite," "coloral," etc., permits the application of almost any spectrum color to either cast or wrought aluminum. These colors are extremely resistant to weather and wear, but some difficulty is experienced in matching colors on cast and wrought metal, and at weld points. The process is electrolytic; hence the size of the piece that can be anodized is limited by the fabricator's tank equipment. A wide variety of color effects and finishes may also be obtained on aluminum by sandblasting, wire brushing, satin finishing, etc.

IRON

GRAY iron castings have long played a part in architectural decoration, ranging from delicately formed cast iron work familiar in Charleston, S. C. and other southern Colonial cities, to the cast iron spandrels used on modern skyscrapers. The material is too familiar to need specific treatment here. Wrought iron is similarly familiar to the architectural profession, having developed a traditional technic and form of design that has seen little change through centuries of use.

BRASS AND MUNTZ METAL

BRASS is a variety of bronze normally containing about 65% copper, 32% zinc, and 3% lead. For architectural work Muntz metal or "yellow metal" of 60% copper, 40% zinc is more commonly used. It is fabricated in all the forms common to bronze work but because it more readily tarnishes and discolors, it is primarily used where a lacquer finish can be applied to preserve its original tone or where it may be frequently cleaned and polished. It offers a bright yellow color for contrast with other metals.

COPPER

THIS metal plays an important part in architectural decoration as a constituent of many alloys, as a base for chromium-plated sheet metalwork, and as a material for forming cornices, mouldings and other architectural details of intricate pattern, at relatively low cost. Its design possibilities as a natural metal are being explored by progressive designers, for the native color of copper is rich and the colors produced by tarnishing and oxidation may themselves be employed for interesting effects. One of the most recent adaptations is the use of very thin sheet copper as a wall or ceiling decoration.

Where form work is employed requiring rigidity and strength, cornice temper or hard copper should be specified. Soft temper copper, also known as roofing temper, is too ductile and soft for ordinary decorative applications. The natural color may be maintained by lacquering, and permanent color finishes, ranging from brown to verdigris can be produced by chemical treatments or salt baths.

LEAD

A TRADITIONAL material highly honored by the architectural profession, lead has found its place as one of the enduring metals for exterior applications. Its softness should be recognized in design and in fabricating technic. Its high thermal expansion and relatively great weight has resulted in the general use of lead coated copper in place of solid lead for most modern architectural applications. The natural medium gray color of lead as cast darkens to a dull gray which blends well with stone work. Cast details should be softly modeled as crispness of pattern is not consonant with the nature of the metal.

Design Possibilities

NEW forms, new applications, of metals are continually being devised, and it seems appropriate that the closing paragraphs of this article should be devoted to a brief glance at some of these.

The use of different metals in conjunction with one another is of considerable interest to designers who appreciate their subtle differences in color and texture, the combining of, say, a cold metal with a warm. Thus there are numbers of examples of the use of one of the white metals in conjunction with bronze. Even the slight difference existing between such white metals as stainless steel and monel metal has been successfully used to add interest to design. This harmony between metals well repays some study on the part of the architect.

Nor is the difference in color the only reason for using metals in combination. Frequently, it may be found that one part of a design unit requires a surface treatment or finish which is not particularly adapted to the metal employed in other parts. Often there exists no reason why, in such a case, the designer should not substitute, in this part, a metal which more exactly meets his requirements. Such "fluency" in the architect's vocabulary of design is generally productive of the most interesting and successful results.

Nor should he overlook the possibilities afforded by using standard fabricating methods to produce results of an unusual and original nature. Thus some designers have simply woven strips of thin metal (or contrasting metals) much as one might weave a basket and achieved thereby a surface as interesting as might have been produced by much more elaborate and costly methods. This same idea has been carried a step farther by using flat bands composed of metal wire for the weaving.

Stencils used in connection with sandblasting can be made to produce interesting effects on flat metal surfaces. In the hands of a capable craftsman this work can be accomplished by gradations in shading and similar manipulations which are highly effective.

Gold leaf, while not a material which the average architect permits himself to use very lavishly, may occasionally be indicated as the inspired solution of a design problem. This material has emerged from its long intimate association with domes, ornate mouldings, caps and bases, and is discovered as a valuable modern material. Among other characteristics of gold, such as its imperishable and almost impervious surface, is its inimitable richness and warmth. One can imagine, for example, the effect on a room, coldly illuminated from one wall by day, if the opposite wall were largely covered with this lustrous metal. The amount of metal actually involved in such a venture may be judged by the fact that the modern technic of gold-beating is able to transform one ounce of metal into more than 200 square feet of gold leaf.

Inlays afford opportunities of great interest. Here, again, the designer's knowledge of metals, finishes, and colors is a prime essential. Consider the range afforded in this type of work not only by the natural colors of the various metals such as steel, brass, bronze, etc., but by all the tones and colors that can be produced in these by oxidization and acid washes. White metals range from lead gray to platinum and silver white; bronze yields various tones of brown and green; copper oxidizes to a blue green; and monel metal can be heat treated to a permanent black. Designs composed of inlays of these and other metals may be striking in effect and still be more economical to produce than many less effective treatments.

Then there is the use of metal with other materials. The iron and brass of our Colonial architecture are intimately associated with the woodwork of that period. Today the white metals, as well, afford harmonious contrast to painted woodwork whether white, black or colored. Metal and glass seem to have a natural affinity and some of the best examples of contemporary work exhibit the architect's appreciation of this brilliant alliance. It is, in fact, needless to attempt any listing of materials with which metal might appropriately be used, since in no case would such use be generally inappropriate.

Metal foils, thin metal sheets, and wallpapers surfaced with metal are comparatively new assets to the architect. They open up new decorative possibilities involving, in many cases, no great expenditure. The creative designer will find in these easily handled materials a number of decorative possibilities. Not only may wall or ceiling areas be sheathed in chromium plated copper, silver-like aluminum, or the warm tones of copper, almost with the ease of applying wallpaper, but it may well be possible to combine various metal foils and sheets in pleasing contrast and to work out patterns having a character similar to inlay.

In fact, the contemporary designer must find himself extraordinarily at home in the use of metals. He is a product of his age, even when he reaches towards something a little beyond it, and the "feel" of metals is therefore to a degree intuitive in him. What he will evolve in this most "basic" of modern materials can scarcely be forecast. But that it will be authentic, creative design conceived in the happiest tradition of his art seems quite certain.

The author acknowledges indebtedness to many manufacturers, fabricators and technicians for basic data and to the following firms for some of the photographs used in this article: U. S. Steel Corporation, Aluminum Company of America, Revere Copper and Brass Incorporated, The Gorham Company, Lead Industries Association, International Nickel Company

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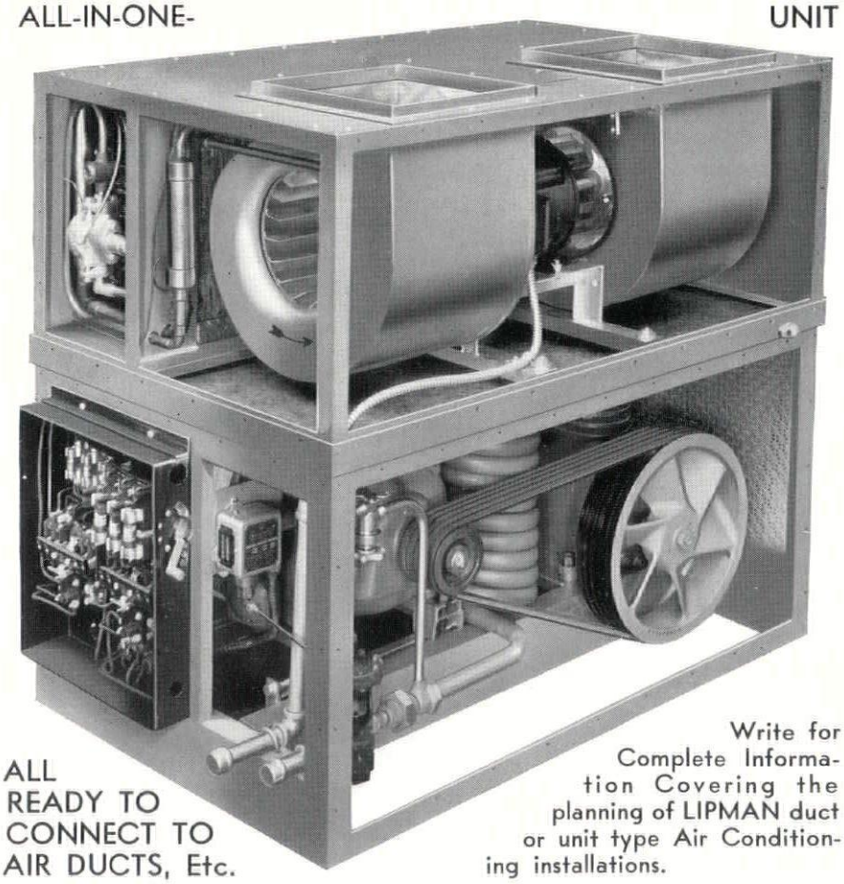

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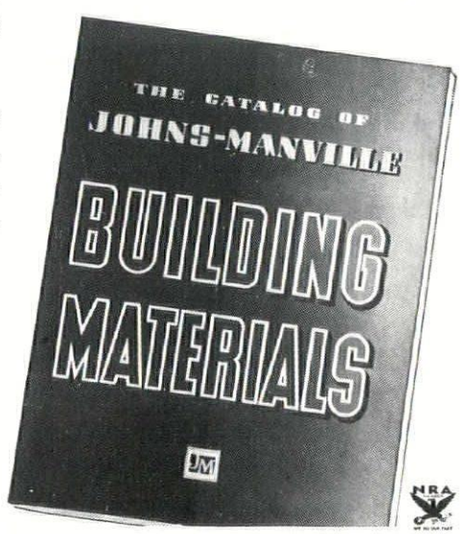

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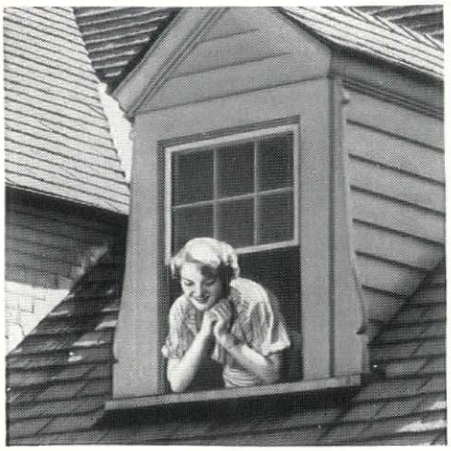

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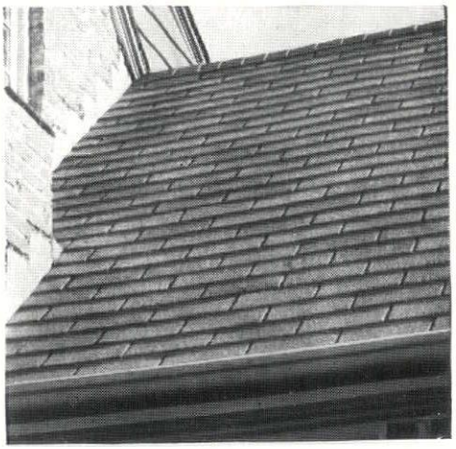
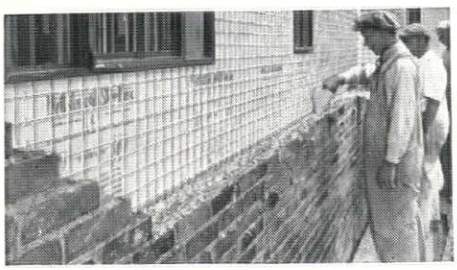


Exterior wall materials that enhance strength, comfort, appearance



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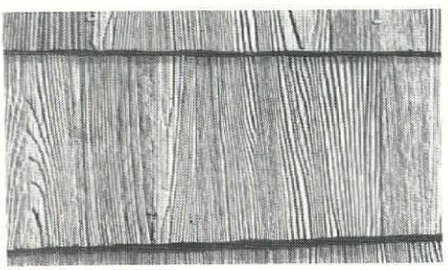

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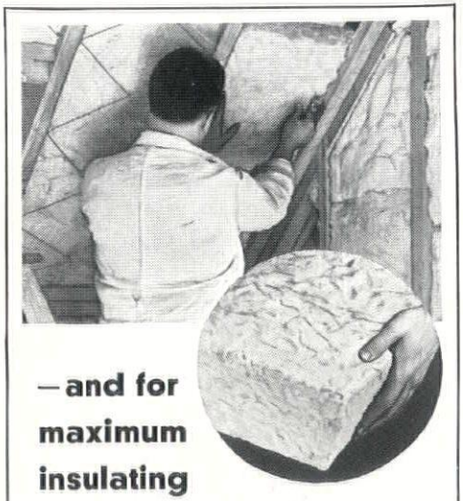

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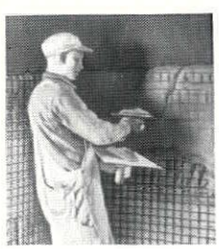

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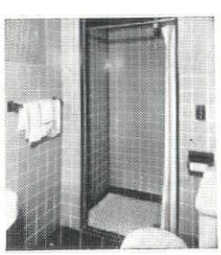

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BUILDING MATERIAL HEADQUARTERS FOR HALF A CENTURY

PERSONALS

• The firm of Myers & Shanley, architects, has been dissolved. Nathan Myers will continue the practice of architecture at the firm's present address, 24 Walnut Street, Newark, New Jersey.

• Larson & McLaren, architects, Minneapolis have moved from 308 Baker Building to new offices at 400 Roanoke Building.

• Frederick S. Cates has opened an office for the practice of architecture at 1202 Lynch Building, Jacksonville, Florida. He would like to receive manufacturers' catalogs at his new address.

• Robert Helmer, architect, has withdrawn from the firm of Halsey, McCormack & Helmer, architects, New York. He has established an independent practice with offices at 219-50 141st Avenue, Springfield Gardens, Long Island, N. Y.

• Robert W. Hunt Company, engineers announce the following organization changes: F. M. Randlett, formerly Pacific Coast Manager, becomes Vice President and General Manager at Chicago; M. H. Merrill will be Western Manager at San Francisco.

• Reinhard & Hofmeister alone were architects for the Rockefeller Center Barber Shop published in the April issue of AMERICAN ARCHITECT. Credit for the design was erroneously given to Reinhard & Hofmeister, Corbett, Harrison & MacMurray, Hood & Fouilhoux as the architects.

DEATHS

• Theodore Cuyler Visscher, of the firm of Theodore Visscher and James Burley, New York, died at Rome, N. Y., January 12, 1935. Mr. Visscher was born at Rome, N. Y., 1876. He attended Hotchkiss School, Leigh University and Columbia University where he received his degree in architecture. He was a member of the Architectural League of New York and the Union League Club. He was architect for several buildings at Leigh University and the Queens Medical Society Building, New York.

• William D. Gates, founder and president of the American Terra Cotta and Ceramic Company died January 28, 1935 at Crystal Lake, Ill. He was 82 years of age. He was a founder member of the National Brick Manufacturers' Association and the American Ceramic Society. Always interested in fine craftsmanship he was awarded a medal at the St. Louis Exposition in 1904 and the Craftsmanship Medal of the American Institute of Architects in 1928.

• Bert C. Hubbard, manager of the Chicago office of the Illinois State Architect, died March 19, 1935. He was a member of the Illinois Society of Architects. For several years he was a member of the firm of Jobson & Hubbard. He joined the State Architect's office three years ago.

VITROLITE

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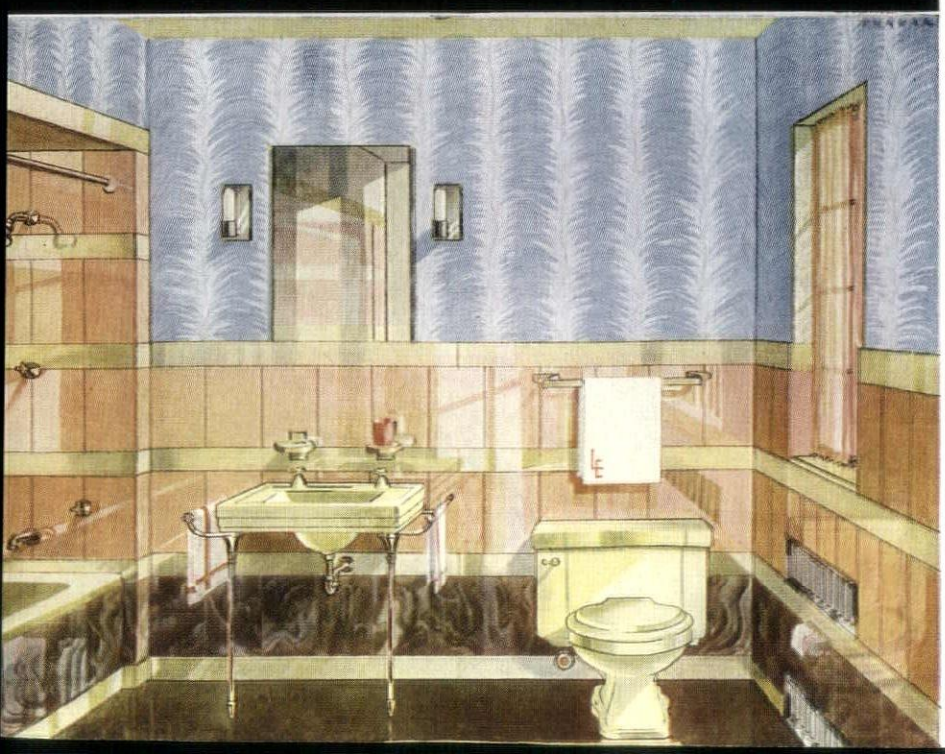

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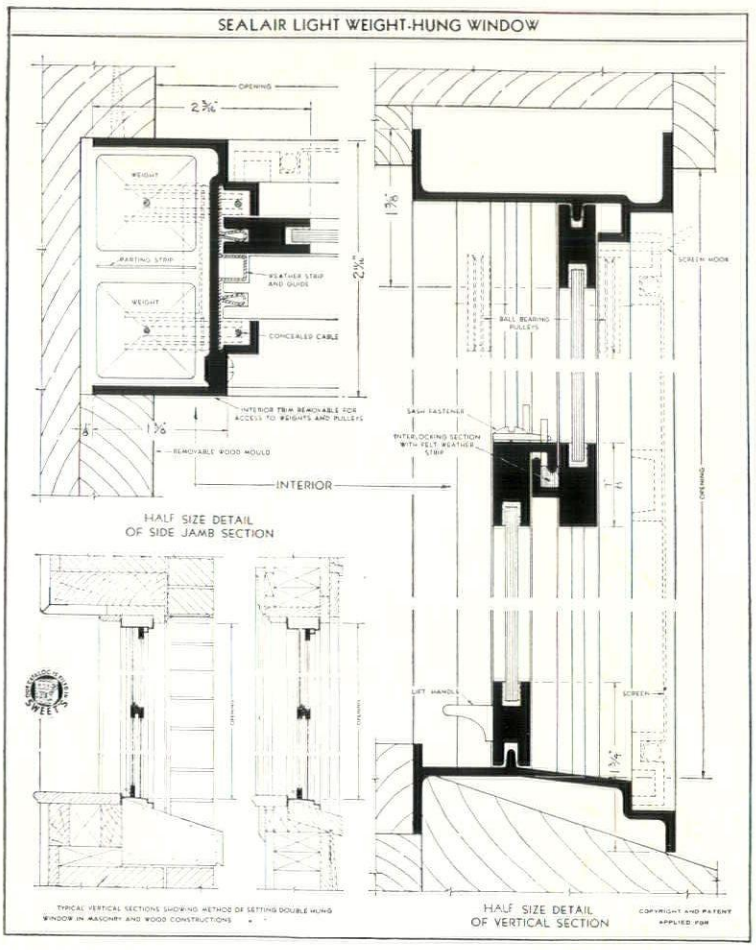

★ **COMPLETE UNIT**—with sash installed in frame, hardware attached, and weights hung—ready for one-man installation in less than an hour.

★ **NEW EASE OF OPERATION**—anyone can operate the new Sealair with "Finger-tip Sash Control" at any time. Will not stick, swell, shrink, rattle, rust, or rot out.

★ **NEW MAINTENANCE SAVINGS**—requires no painting or refitting. Integral weatherstrip guides and interlocking members are highly effective against wind and weather—and save fuel.

★ **NEW BEAUTY** of design and color. A smart, modern window yet suitable for any type of architecture since lights may be divided as desired. A companion light aluminum casement is also available.

★ **ADMITS MORE LIGHT**—narrow members and compact frame increase daylight area, reduce mullion width to 1″. Sash and muntins removeable in case of glass breakage.

★ **DURABLE AND EFFICIENT**—built right for lasting, trouble-free service in new or modernized homes. Backed by 30 years' rustless metal window experience. 15 standard sizes—moderately priced. Aluminum screens available. *Write for further details and information on this or other Kawneer products: Store Fronts, Architectural Metal Work.*

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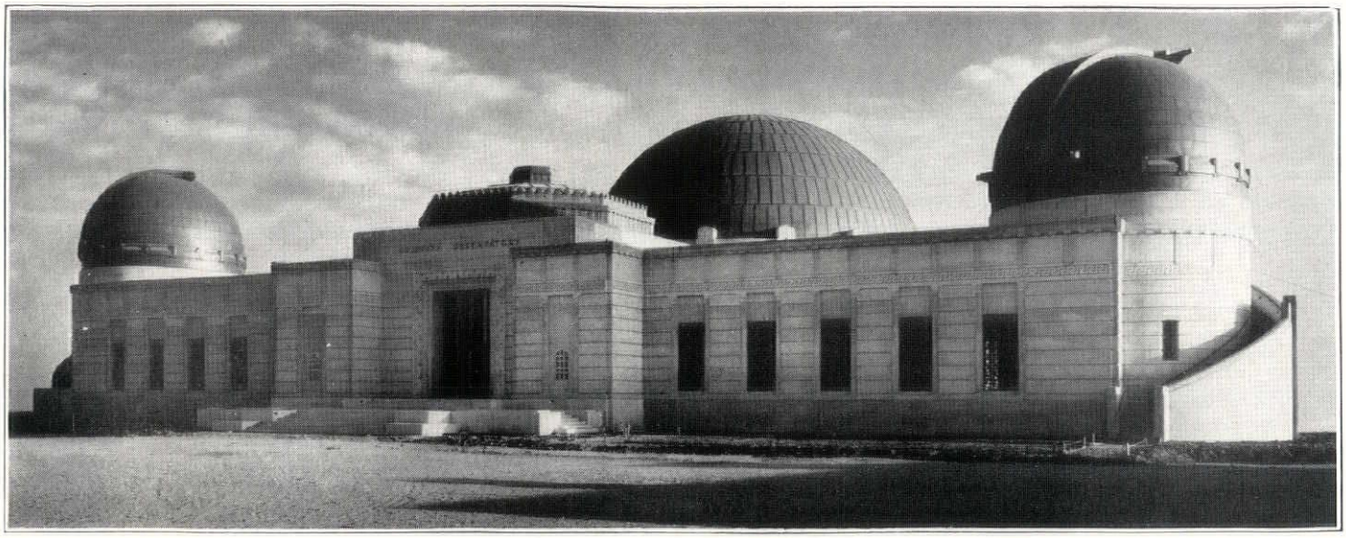
COMPANY
204 FRONT STREET
NILES • MICHIGAN

SIMPLE INSTALLATION EFFICIENT OPERATION LOW UPKEEP COST



Griffith Observatory and Hall of Science, Hollywood Mountain, Los Angeles, California. Built for the ages of monolithic concrete. Austin & Ashley, Architects, William Simpson Construction Co., Builders, Los Angeles.

Generations Yet Unborn will admire and enjoy this monument of MONOLITHIC CONCRETE

"FOREVER AND EVER" men may search the eternal stars from the Griffith Observatory and Hall of Science. All that men have learned about building since they labored on the pyramids, was available to those who planned it. They demanded a structure that would rest in distinctive beauty on the everlasting slopes of Hollywood Mountain, defying time and fire and storm and decay and even earthquakes. Monolithic concrete was chosen as the ideal means of attaining all these objectives.

Detail of Griffith Observatory. Domes over the Planetarium and the Foucault Pendulum are of concrete and copper.

Exceptional care was exercised in the selection and grading of aggregates. The proper cement-and-water ratio was rigidly adhered to. All concrete was adequately manipulated. Rustication, vertical ornaments and other architectural features made it possible to deposit concrete in masses of reasonable size. Scientific design was matched by conscientious supervision of construction.

The architectural and form details of Griffith Observatory are described in one of a series of monographs. A second monograph gives typical specifications covering all phases of monolithic concrete building construction. Others will contain standard details of windows, doorways, parapets; every part of a building will be included.

Write for your copies today. The coupon is for your convenience.

.....

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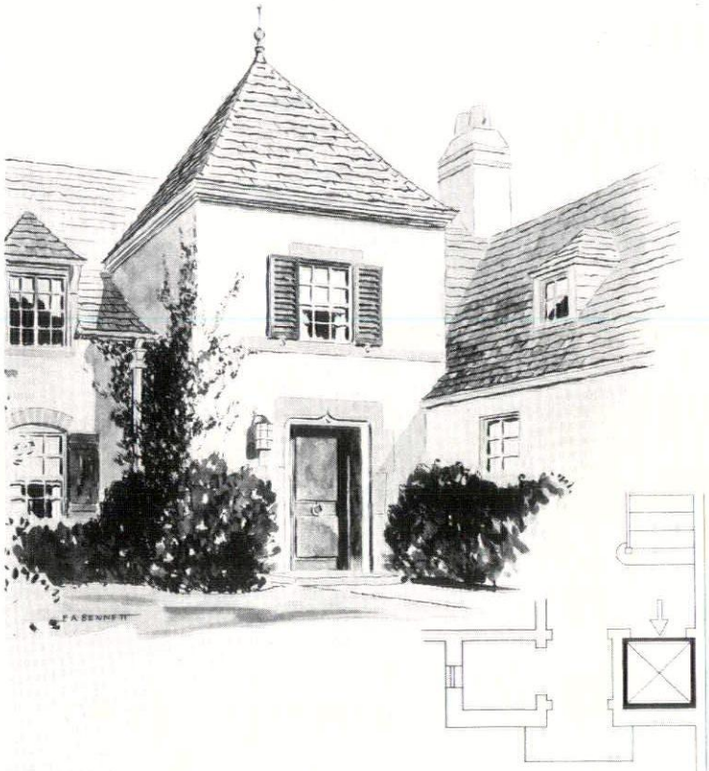
NEW POSSIBILITY FOR REMODELING

Because of wide remodeling possibilities inherent in the installation of residence elevators, architectural service is a necessity for the successful completion of every such job. And if lowered elevator costs are any criterion, this particular field of remodeling should prove a profitable source of business volume. Residence elevators now cost no more than a good automobile, according to the Otis Company who manufacture several types. Sketches show one remodeling possibility before and after installation in a typical residence



Trends and Topics

(*Continued from page 68*)

$2,800,000 housing project will be erected. This was the sixteenth Federal project to be announced by the Public Works Administration. Plans for similar developments in some thirty other cities are now under way.

• According to the New York State League of Savings and Loan Associations reports from its members throughout New York State indicate a rapidly growing demand for homes to rent. Officials of the League are convinced that the trend toward "undoubling" has set in with the result that vacancies are decreasing and state, "When vacant homes begin to be reoccupied, the result is inevitable—home building gets into motion. Every sign points to an immediate resumption of new construction. Savings and loan associations are ready with the largest reservoir of cash and credit resources that they have had in their 104 years of saving and loan history. We are prepared to meet any loan demand that may arise and are ready to finance the purchase of homes in every community, with no restrictions as to geographical location."

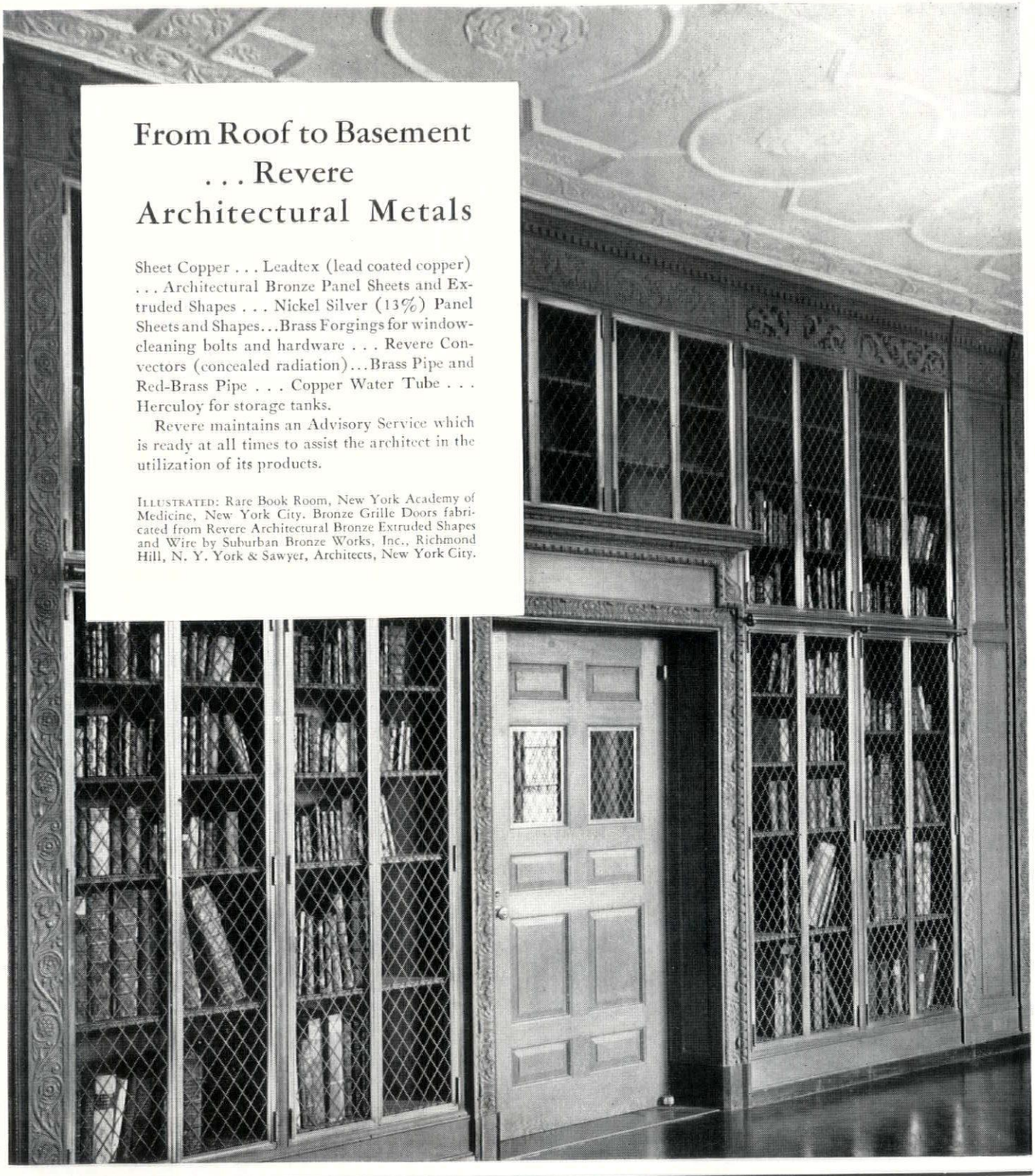
• "The Sheriff's fee is a menace, foreclosure fees, a disaster; architects' fees, builders' profits, real estate commissions a greater guarantee of peace than a policeman's night stick. The grim reality of existence is the baking of an apple pie in a smart kitchen."—*Quid Nunc, Architects League of Northern New Jersey.*

• The sixty-seventh Convention of the American Institute of Architects will be held in Milwaukee, Wisconsin, May 28, 29, 30 and 31, 1935. Headquarters will be at the Schroeder Hotel. Room reservations at the hotel should be made not later than May 20th to assure the accommodations desired. All architects, irrespective of Institute membership, are invited to be present at all meetings.

Meetings of other organizations to be held at the same hotel include: May 27, The State Societies of Architects; May 26 and 27, The Association of Collegiate Schools of Architecture; May 27, the National Council of Architectural Registration Boards; and May 28, 29 and 30, The Producers' Council.

On May 29 those attending the Convention will be the guests of the Kohler Company. Arrangements have been made to visit the Kohler factories and Kohler Village. The Institute Dinner will be held at the University Club on the evening of May 31. The speakers will be Glenn Frank, President, University of Wisconsin, and Hon. Philip F. LaFollette, Governor of Wisconsin.

• The General Electric Company plans to have built one house for each 100,000 of population by September 1, 1935. Selected builders throughout the country will be offered new ideas, discounts and terms on electrical equipment, and advertising support as an incentive to build demonstration houses from prize-winning (*Continued on page 108*)



From Roof to Basement . . . Revere Architectural Metals

Sheet Copper . . . Leadtex (lead coated copper) . . . Architectural Bronze Panel Sheets and Extruded Shapes . . . Nickel Silver (13%) Panel Sheets and Shapes...Brass Forgings for window-cleaning bolts and hardware . . . Revere Convectors (concealed radiation)...Brass Pipe and Red-Brass Pipe . . . Copper Water Tube . . . Herculoy for storage tanks.

Revere maintains an Advisory Service which is ready at all times to assist the architect in the utilization of its products.

ILLUSTRATED: Rare Book Room, New York Academy of Medicine, New York City. Bronze Grille Doors fabricated from Revere Architectural Bronze Extruded Shapes and Wire by Suburban Bronze Works, Inc., Richmond Hill, N. Y. York & Sawyer, Architects, New York City.

Revere Copper *and* Brass

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For the interior that requires a custom-built floor

Sealex Treadlite Tile

For the full range of colorings and design effects available in Sealex Treadlite Tile and other Sealex Linoleum Floorings, see Sweet's for 1935, Section 15, Catalog No. 36. Included are the latest linoleum decorative treatments which may be quickly and inexpensively installed in new construction or remodeling work.

WITH Sealex Treadlite Linoleum Tile, custom floor designs perfectly suited to the individual decorative requirements of any interior may be executed at moderate cost. Above are shown custom floors of Sealex Treadlite Linoleum Tile specially designed to harmonize with the decorative plan of each interior photographed.

Like all Sealex materials, Treadlite Linoleum Tile is quickly installed (directly over the old floor, if desired) and is long-lasting and inexpensive to maintain.

Your specifications for Sealex Linoleum or Wall-Covering (the permanent linoleum-type decorative material which is applied in appropriate patterns over the walls of the interiors above) will be carried out by authorized Bonded contractors. Such installations are backed by Guaranty Bonds covering the full value of workmanship and materials. Write for information. CONGOLEUM-NAIRN INC., KEARNY, N. J.

SEALEX REG. U. S. PAT. OFF. *Linoleum Floors and Wall-Covering*

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

LIPMAN AIR CONDITIONING

633. . . . A technical manual which seeks to outline the fundamental principles of air conditioning practice has been issued by General Refrigeration Sales Company, Beloit, Wis. First, a partial list of applications for Lipman Air Conditioners is given, with definitions of air conditioning terms. This is followed by chapters on air conditioning, its purpose and function; analyses of typical problems; control equipment; duct design; grilles and registers; layouts and applications; and finally, tables, charts and engineering data. Filing size; A. I. A. File 30.

S-W PAINT PRODUCTS

634. . . . Sherwin-Williams Company, Cleveland, Ohio, has issued a spiral-bound manual which seeks to show how unit costs can be lowered by the proper utilization of paint in plant conditioning. This "Guide to Profit Through Paint" discusses the part paint plays in lighting, protection, personnel satisfaction, heat reflection, sanitation, etc. It contains a graphic painting maintenance guide and lists and describes the S-W paints available for this purpose. Of particular interest is an article reprinted from Modern Packaging which summarizes the value of color in industry.

JOINTITE CORK PRODUCTS

635. . . . Mundet Cork Corporation, New York, has issued a manual which gives factual information on the use of Jointite cork products for refrigeration, soundproofing, heat prevention and conservation, vibration deadening, and condensation prevention. Specifications and details are given for a variety of installations, including floors, ceilings, columns, roofs, etc. Jointite Cork Tile Flooring and Jointite Cork Bulletin Boards are also briefly described.

FERRO PORCELAIN ENAMELS

636. . . . The services rendered by Ferro Enamel Corporation, Cleveland, Ohio, on any porcelain enameling problem are briefly outlined in a new 24-page brochure. This service begins in the control laboratory where Ferro enamels are rigidly checked for quality and uniformity, and extends through the plant to the field engineers. Included with the book are four sheets of colored Cellophane which, when slipped under the die-cut lettering of the cover, help to visualize a variety of enamel color combinations.

PERSONAL SERVICE ELEVATOR

637. . . . An illustrated eight-page booklet issued by Otis Elevator Company, New York, discusses the advantages and convenience of the Otis Personal-Service Elevator for residences. Sketches and text suggest a variety of locations where this elevator may be installed. Filing size; A. I. A. File 33-B-12.

J-M HOME MODERNIZATION PRODUCTS

638. . . . A new booklet which lists a number of practical suggestions for home improvements has been issued by Johns-Manville, New York. It takes the reader through every part of the house, from roof to basement, describes the improvements that can be made, and gives the J-M products which can be used for the purpose. While obviously designed for the consumer, this booklet will be of interest to architects in that it shows what one manufacturer is doing to stimulate home modernization projects.

PYRAMID MOULDINGS

639 . . . Pyramid Metals Company, Chicago, has issued a four-page catalog which describes the features of stainless steel chromium "snap-on" mouldings for a variety of decorative purposes. A group of special and kalamein mouldings are also illustrated.

HOPE'S WINDOWS AND LEADWORK

Two booklets are offered by Hope's Windows, Inc., Jamestown, N. Y.

640. . . . Publication No. 33—"Leadwork." Illustrates a variety of leaders, gutters, and leader heads and straps made of cast lead and lead coated copper. Dimensions and prices are given. Four pages; filing size; A. I. A. File 16-E-1.

641. . . . Publication No. 34—"Cotswold Casements with improved Hardware & Screen." Gives standard types and sizes of screened Cotswolds in intermediate section, with cutting sizes of glass. Full sized details and complete specifications are included. Four pages; filing size; 16-E-1.

MILCOR DUCTS AND FITTINGS

642. . . . Milcor galvanized square pipe and fittings for forced air systems are illustrated and described in a new six-page, filing-sized broadside issued by Milcor Steel Company, Milwaukee, Wis. Prices, dimensions and a phantom view showing the relation of these units to a forced air system are included.

HOUSEHOLD WATER TREATMENT

643. . . . The softening, filtration and purification of household water supply by means of Permutit equipment is discussed in a new 16-page catalog issued by The Permutit Company, New York. Various models of water softeners and filters are illustrated, and their functions and advantages fully described. Capacities, dimensions and specification data are included. Filing size; A. I. A. file 29-D-3.

NO POSTAGE REQUIRED ON THIS CARD

AMERICAN ARCHITECT May, 1935
New York City

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

Numbers .....

.....

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

Numbers .....

• I would like to have catalogs and information concerning the following products advertised in this issue. (Write page number or name.)

.....

Name .....

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City .....

Occupation .....

These NEW Catalogs may be obtained through AMERICAN ARCHITECT

Barber Asphalt Products

The following specification booklets have been issued by Barber Asphalt Company, Philadelphia:

644. . . . Specifications for Applying Genasco Trinidad Asbestos Built-up Roofings. 32 pages, filing size; A. I. A. File 12-B-1.

645. . . . Specifications for Applying Genasco Standard Trinidad Built-up Roofings, 16 pages, filing size; A. I. A. File 12-B-11-B.

646. . . . Specifications for Applying Genasco Trinidad Bonded Roofings. 24 pages, filing size; A. I. A. File 12-B-11.

647. . . . Specifications for Applying Genasco Asphalt Mastic. 16 pages, filing size; A. I. A. File 24-B.

Unipak Wood Casements

648. . . . Farley & Loetscher Mfg. Co., Dubuque, Iowa, presents its line of Unipak wood casements in Catalog 35 just issued. Installation details and instructions, schedule of sizes, interior trim details, and specifications are given. The Unipak Unique double hung window is also briefly described and illustrated. Filing size; A. I. A. File 16-B-2.

Summer Air Conditioning

649. . . . Treating with the problems of humidity and its control, an illustrated 16-page booklet issued by The Bryant Heater Company, Cleveland, Ohio, tells the story of the new principle in summer air conditioning practice—dehumidifying and cooling by separate and independent operations—describes Bryant Silica Gel Dehumidifying equipment, and shows its application for industrial, commercial and residential needs.

Cooling and Dehumidifying Coils

650. . . . Fedders Manufacturing Company, Buffalo, N. Y., has issued Bulletin 91, a 28-page booklet pertaining to cooling and dehumidifying coils for air conditioning. Rating tables, based on a selected group of typical conditions which have been taken as standard, are given for each size of coil. Brief descriptions of Fedders high capacity thermostatic expansion valve, Forcedraft unit coolers, and Series 3 unit heaters, are also included.

Minwax Wood Finishes

651. . . . Methods of wood finishing with Minwax flat finish and Minwax quick drying flat finish are described in a six-page folder issued by Minwax Company, Inc., New York. Actual swatches of Flexwood show the colors in which these materials are available.

Spando Waterproofing

652. . . . Spando waterproofing membrane, which consists of a continuous layer of copper bonded to canvas which is saturated and coated with asphalt and surfaced with crushed mineral, is described and illustrated in a new 4-page catalog issued by The Cheney Company, Winchester, Mass. Specification data and several detail drawings are included. Filing size; A. I. A. File 7-A.

Sirocco Conditioner

653. . . . American Blower Corporation, Detroit, Mich. has issued Bulletin 3527 which contains engineering data and tables covering the Sirocco Unit Conditioner Series "B". Design data, application diagrams, and tables showing dimensions, cooling and dehumidifying capacities, and fan capacities are given. A discussion of steam vacuum refrigeration by the use of the Ross Decalorator is also included.

Bennett Fireplace

654. . . . Specifications, general information, and directions for the installation and operation of the Bennett Model F and Model M Fireplace are given in a four-page booklet issued by Bennett Fireplace Corp., Norwich, N. Y. Filing size; A. I. A. File 14-E-2.

Porcelain Enameled Metals

655. . . . The features and characteristics of porcelain enameled metals as media of decoration for building modernization, including store fronts, spandrels, wainscots, and similar uses, are discussed in an eight-page catalog issued by Porcelain Metals, Inc., Brooklyn, N. Y. Typical installations, specifications, and detail drawings showing methods of fastening porcelain metal work are given. Filing size; A. I. A. File No. 15.

Laminex Plyform

656. . . . The advantages and physical characteristics of Laminex Plyform, a special plywood for concrete form construction, are enumerated in a new 12-page booklet issued by Wheeler Osgood Sales Corp., Chicago. Illustrations include a cross section and isometric view of Laminex Plyform wall form for mass concrete, form plans for various concrete constructions, and deflection charts. Complete specifications are also given. Filing size; A. I. A. File 4-D-2.

Bathroom Cabinets

657. . . . The various models included in the line of Corcoran one-piece steel bathroom cabinets are illustrated and described in a 16-page, filing-sized catalog published by The Fries & Son Steel Construction & Engineering Co., Covington, Ky. Dimensions, weights, prices, specifications and other pertinent information are given.

Safety Tread

658. . . . The seven features which are characteristic of alundum rubber bonded safety treads are enumerated in a 12-page booklet issued by Norton Company, Worcester, Mass. Installation data and details, range of colors, sizes and illustrations of typical applications are presented. A. I. A. File 14-D-1.

Furblo Air Conditioning Units

659. . . . Data on the new Furblo Package air conditioning units for use as part of warm air heating systems are given in a 4-page booklet issued by Furblo Company, Hermansville, Mich. Dimension and capacity tables, and a quick method for estimating requirements, are included. Filing size; A. I. A. File 30-B.

Harbord Super Plywood

660. . . . Harbor Plywood Corporation, Hoquiam, Wash., has issued a 12-page, filing-sized catalog (Bulletin 3) which describes the advantages and physical characteristics of Harbord Super Plywood for an infinite variety of indoor and outdoor application, including concrete form work. Suggestions are also given for finishing this form of plywood.

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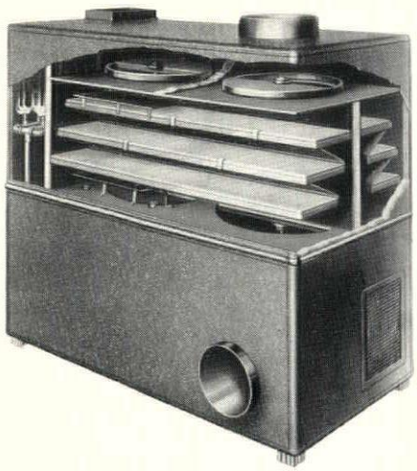
BRIEF REVIEWS OF MANUFACTURERS' ANNOUNCEMENTS TO KEEP THE ARCHITECT INFORMED OF NEW PRODUCTS

New Materials and Equipment

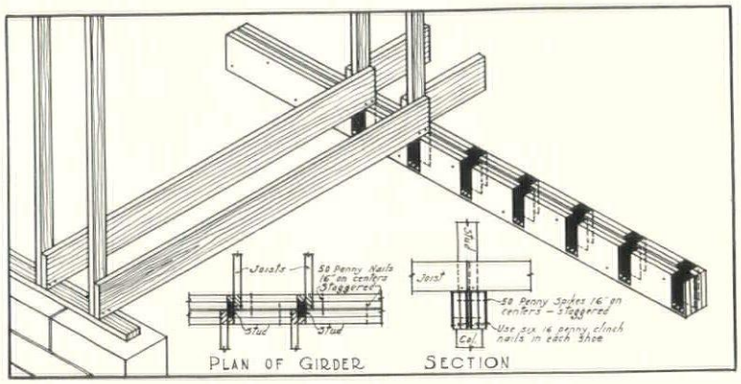
S-N Air Conditioner

440M An all-year air conditioning unit for warm air heating systems has been developed by Scott-Newcomb, Inc., St. Louis. Products of combustion flow upward and pass over the rear wall of the combustion chamber and downward and out into the bottom of the economizer sections, of which there are six. Hot gases pass upward in these sections to the top and back where they enter a header connected to flue or chimney. Air filters are located just above the economizer sections. Cooling coils are provided in the intake compartment. The water spray for dehumidification is located just under the lower part of the combustion chamber. Either an oil or gas burner may be used with this unit.



Bryant Silica Gel Dehumidifier

441M A Silica Gel Dehumidifier which employs the adsorption method of dehumidification has been introduced by The Bryant Heater Co., Cleveland. Air to be dehumidified enters the unit through a large duct in the base, is carried to a compartment and forced through Silica Gel beds. When the dehumidifying operation is complete, the air is conducted into the cooler. At the same time, activating air heated to a high temperature is being drawn through another compartment where it evaporates moisture which has been absorbed in the Silica Gel during a previous dehumidifying operation and discharges it outdoors, along with the products of combustion. The processes of adsorption and activation are continuous.



Shrink-Proof Wood Construction

442M A new construction method for wood houses and apartments which is said to overcome damage caused by lumber shrinkage, has been developed by Frank R. Walker Company, Chicago. In this construction, all floor and ceiling joists above the first floor are supported by pressed steel joist supports and stud wall bracing which maintain the bottom of the joists at their original height and permit all shrinkage action to take place at the top of the joists. All first story dividing partitions and all second story partitions are set on metal partition shoes which are placed over the joist and secured at the bottom. Any shrinkage of the joists is from the top and does not affect the partition studs resting on the metal shoes.

Dudley 4-in-1 Lock

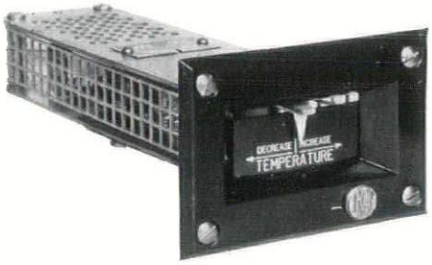
443M A new pick-proof lock which is said to afford absolute burglary protection has been developed by Dudley Lock Company, Chicago. This Dudley 4-in-1 Lock has four sets of pin tumblers in its core, operated by a four-edge key. The construction provides an infinite number of changes so that no two combinations are alike. The key itself is said to be copy-proof. The unit also has an armorsteel cylinder which is counter-sunk in a grip-proof ring.

Thatched Asbestos-Cement Siding

444M The Ruberoid Company, New York has announced the development of Eternit Timbertex Asbestos-Cement Thatched Siding for re-siding Colonial homes, Cape Cod cottages, etc. or for new construction. This new siding has a wood textured surface and irregular butt line which reproduces the effect of weathered cypress shingles applied in the "thatch" method. It comes in sizes 12 by 24 inches and colors available are silver green and silver gray.

Oil Burning Cooking Range

445M A new addition to the field of oil burning cooking equipment is the Duo-Therm Oil Burning Cooking Range recently introduced by the Heater Division of Motor Wheel Corp., Lansing, Mich. The entire unit is built of steel and has acid- and rust-proof porcelain flue and oven linings, double-wall construction and polished full French type cooking tops. The burner mechanism is a patented Dual-Chamber burner which, it is claimed, possesses the advantages of two burners in one. A reservoir section in the range may be used for a hot water tank, as a storage or warming closet, as a circulating heater or for auxiliary gas burners to afford a combination gas and oil range.

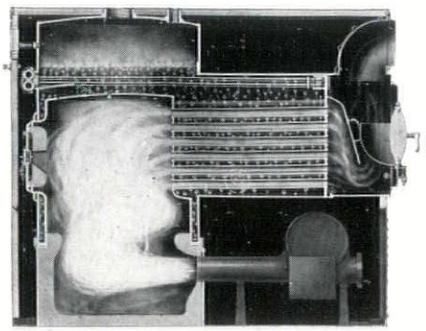


Insertion Humidistats and Thermostats

446M A new line of humidity and temperature controls for insertion into walls of ducts, air conditioning cabinets, test chambers, etc., or through the walls of special processing rooms, has been introduced by Julien P. Friez & Sons, Inc., Baltimore, Md. The instruments are available either closely graduated in per cent of relative humidity from 10 to 100% or in a variety of temperature ranges. They are said to provide accurate control of humidity to within plus or minus 1% R.H., or temperatures to within plus or minus ½° F.

Protexall Waterproofing Compound

447M A new colorless transparent liquid waterproofing compound, composed of preoxidized oils and waterproofing material reduced to a thin liquid state, has been developed by the Protexall Company, Philadelphia. The manufacturers claim that the new product will prevent such conditions as efflorescence in brick, uneven stains on stone, disintegration of stucco and concrete, and act as a dampproofing for exterior and basement walls. It is for use as a sizing for plaster, as an undercoat for paint or over paint as a protective coat. It can be applied on wood, brick, stucco, cement, concrete, stone or iron, either sprayed on or brushed.

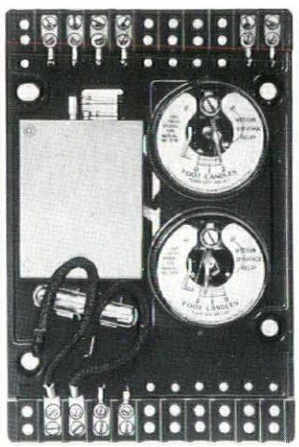


Fitzgibbons Oil-Eighty Automatic

448M Precision and design in the arrangement of their Oil-Eighty Automatic gun-type oil burner boiler has been perfected by Fitzgibbons Boiler Co., Inc., New York. Features of this boiler include an instantaneous hot water coil which eliminates the storage tank; a large combustion chamber; a refractory door with shielded peephole; a mass of small diameter tubes which break the flow of hot gases into small streams; and a Thermalizer baffle-plate which apportions the flow of gases through these tubes.

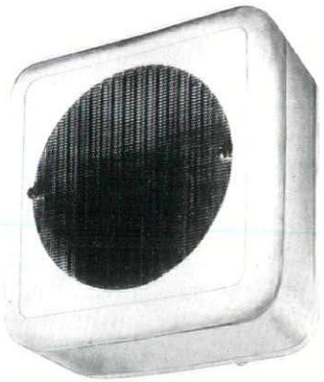
Automatic Multiple-Operating Window

449M A new triple-sash, all-wood window, particularly adaptable to school buildings, has been developed by Dalmo Sales Corp., San Francisco, Calif. Sash may be opened collectively to any desired degree by motion of the lower sash. Automatic disconnection at predetermined position fixes two upper sash in that position and permits independent setting of lower sash at closed or any open position. Reconnection is automatic when lower sash is returned to fixed position of upper sash. As the sash are completely reversible, various combinations of positions are possible. All hand-operated clutches have been eliminated.



Photronic Illumination Control

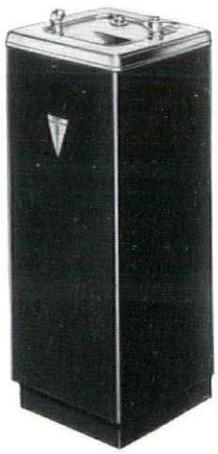
450M A new Photronic "electric eye" control for exterior and interior applications where a predetermined level of illumination is to be automatically maintained, has been announced by the Weston Electrical Instrument Corp., Newark, N. J. For indoor use, the light collector containing the "electric eye" is directed at the location where illumination is to be maintained, and wired to a conveniently located panel box. The desired "turn on" and "turn off" illumination values are set in advance on two independent foot-candle scales on the panel. At these values the Photronic cell actuates a relay controlling the light circuit through a mercury switch. For show windows, electric signs, etc. the Model 709 control can be placed in the same circuit with the ordinary clock control.



Ilg Ceiling-Type Unit Coolers

451M Four sizes of compact units, ranging from one ton of cooling capacity to four tons, comprise the 1935 line of ceiling-type unit coolers announced by Ilg Electric Ventilating Co., Chicago. These coolers, suitable for stores, restaurants, offices, etc., have a circular adjustable grille which permits concentration of cooled air in any direction. All connections are made in the back of the units where the drain and refrigerant lines are grouped at the base of the fan support. Units are intended for use singly or in multiple with a remotely located compressor. Freon, Methyl Chloride or cold water can be used as refrigerants.

Westinghouse Water Coolers



452M Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa. has introduced three new "Streamline" water coolers, to be known as Model SP-4, Model FWP-8 and Model FWP-14. All are housed in a sheet steel cabinet, finished in multi-coat black Dulux and are provided with a recessed sub-base to prevent scarring of the panel. The top of each unit is made of one-piece stainless steel, and the bubbler and hand valve are of brass, chrome plated. All coolers have an outlet at the top for a glass filler. Dimensions are 15 5/16 inches wide by 15 9/32 inches deep by 42 15/32 inches high overall. An improved type of cooling is employed for Models FWP-8 and FWP-14.

Tip-Top Door Hardware

453M A new garage door hardware set for converting a standard garage door of the swinging, folding and sliding type into a one-piece, upward-acting door, has been announced by Kinnear Mfg. Company, Columbus, Ohio. Counterbalance is obtained very much as a scale is balanced. A balance lever placed at each side of the door on the jamb is fitted with weights. These weights are interchangeable, and can be adjusted for any weight door. Weather-tightness is assured by the fact that when the door is closed to a vertical position a slight pressure of the foot causes the door to move vertically about 1½ inches, bringing it snugly against the weather-strips furnished with the hardware.

Automatic Gas Water Heater

454M Premier Division of Crane Co., La Porte, Indiana, announces the development of the Royal Booster automatic gas water heater. Three distinct types of heating surface are incorporated in this unit: main combustion chamber; five individual flues with integral heat conductors; and a heating dome which gives heat under, through and on top of the water. The main burner requires no air or gas adjustment and is made up of a multitude of thin sheets of flame. The heater is especially built for heavy duty direct water heating requirements up to 140 gals. per hour. Insulation on all sides and top is 1½ inches thick.

Static Pressure Controls

455M Minneapolis-Honeywell Regulator Company, Minneapolis, has introduced static pressure regulators designed for applications requiring accurate control of low pressures normally not in excess of one inch of water above or below atmospheric pressure. They are especially adapted to maintaining constant static head in air distribution systems, and may be used as a positive or static pressure controller, as a sub-atmospheric or "draft" controller, or as a differential controller.

Universal Copper Tube Boiler

456M Bryan Steam Corporation, Peru, Indiana, announces that its Universal copper tube boiler for steam or hot water systems is now available for coal stoker firing, in addition to oil and gas burning. Several other improvements have also been incorporated. These include a water jacketed combustion chamber, greater heating surface and water capacity, larger tubes, heavier gauge copper, and a fume-proof, airtight jacket.

Trends and Topics

(*Continued from page* 100)

drawings submitted in the recent "Home Electric" competition. Plans will be made available to the builders at $25 each. The company recommends the employment of local architects in a supervisory capacity. These demonstration houses will be open to the public during the months of September and October with representatives of the General Electric Company in charge.

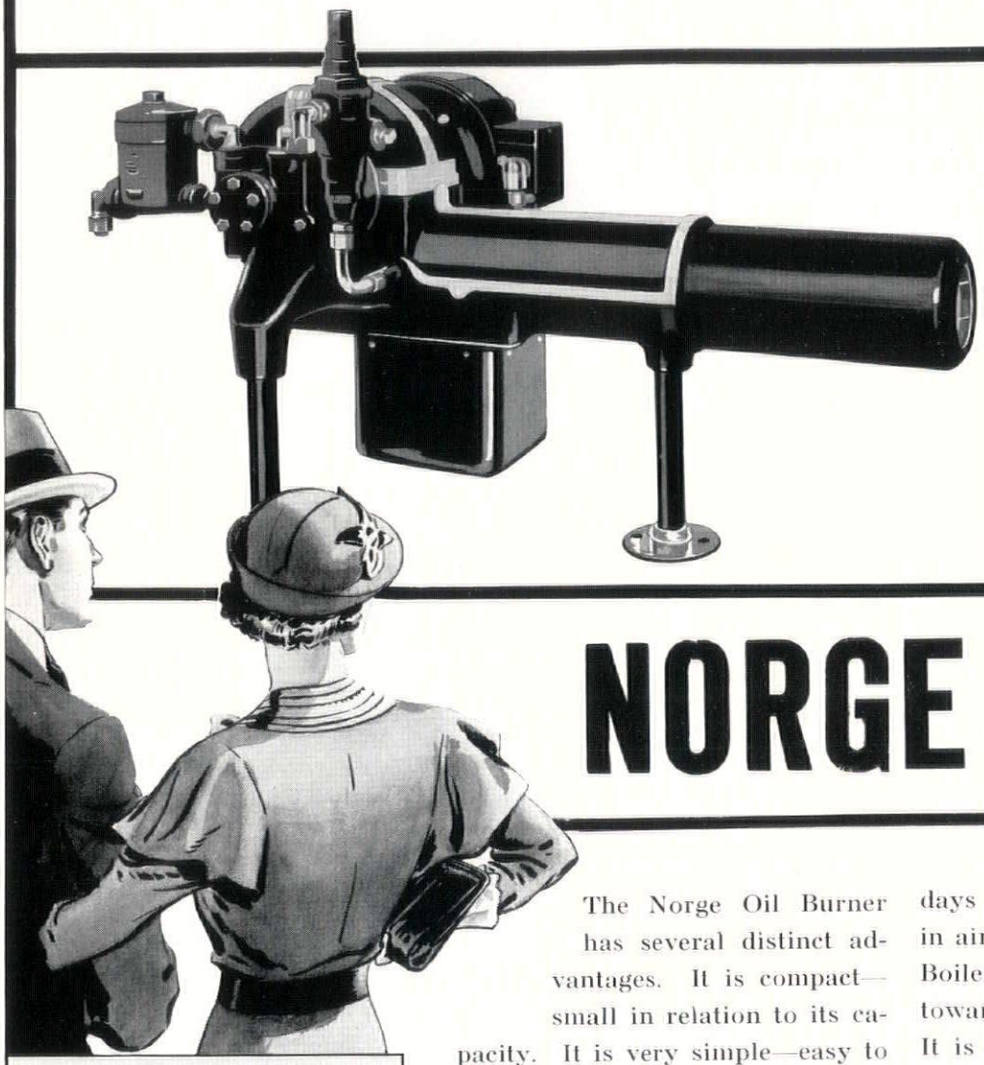
• The Architects' Emergency Committee, New York, will undertake a survey of the City's needs for zoning classifications. Architects on the unemployed list of the Committee will be given work for an indefinite period analyzing living and commercial conditions throughout New York as a means of determining how the present zoning regulations can be made to meet present day conditions.

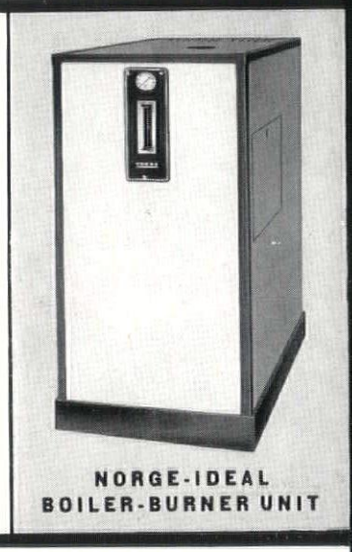
• The Board of Education, Detroit, Mich., has proposed having the plans for the new Western High School made by architectural designers, draftsmen and engineers hired by the Board and augmented by assistants furnished by the local Emergency Welfare Relief Administration. The Michigan Society of Architects has vigorously protested against the proposed action of the Board of Education and has urged that the work be done in the usual manner under the direction of a practicing architect. The Mayor of Detroit has stated that he would oppose the request that the City Council appropriate $25,000 for architects' fees, on the ground that the plans could be drawn with FERA funds for about $4,000.

• Figures released by the Home Owners' Loan Corporation indicate that more than $51,000,000 has been spent or awarded in contracts for repairs to houses threatened with foreclosure and refinanced through the Corporation. Over two hundred thousand individual repair jobs having a value of more than thirty-two million dollars have been completed. There are one hundred eighty thousand cases pending which it is estimated will bring the total repair disbursements to approximately $81,000,000.

• An hydraulic structural testing machine 40 feet high, weighing 45 tons and occupying four stories, is being set up in the engineering laboratories at Columbia University, according to Dean Joseph W. Barker, of the Engineering Schools. The machine can accommodate specimens 20 feet in height and up to 6 feet in breadth, including structures and assemblages in all sorts of odd shapes. It can test by either tension or compression, and has a power of almost one million lbs. This contrasts with the smaller machine formerly used having a maximum capacity of 400,000 lbs. pressure and a limit in size of test pieces to 7 feet long and 2 inches thick. With this new equipment the laboratory can undertake scientific research and commercial testing work on structural and building materials commensurate in scale with the vast engineering problems of today.

FOR HOMES LARGE OR SMALL REMODELED OR NEW





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BOILER-BURNER UNIT

NORGE OIL HEAT

THE WHIRLATOR PRINCIPLE

An exclusive method of giving the oil and air mixture a whirling motion as it enters the combustion chamber. The result is smoother, cleaner, more thorough combustion — better performance with lower fuel consumption.

The Norge Oil Burner has several distinct advantages. It is compact—small in relation to its capacity. It is very simple—easy to install and to inspect. It is adaptable to any type of existing heating plant. It burns low grade oil efficiently. And, most important of all, it has the Whirlator.

Norge Oil Burners are available in capacities from 800 to 8800 square feet of steam radiation or its equivalent in hot water, vapor or warm air. Norge-Ideal Boiler-burner units are available in five models with capacities from 500 to 1350 square feet of radiation.

Anyone who builds a home nowadays is interested to some extent in air conditioning. A Norge-Ideal Boiler-burner unit is the first step toward complete air conditioning. It is a comparatively simple matter to install conditioning equipment at any time after the Norge heating plant is in use.

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ANNOUNCEMENTS

• An international competition for the planning and design of a stock exchange building has been announced by the Consulate General of Czechoslovakia. The building, which will be erected in Iran, Czechoslovakia, by the National Bank of Iran, should provide space and all facilities for an exchange with a membership of 500. Plans must be susceptible to future expansion and should include central heating equipment. Required drawings include basement, first floor and second floor plans and the design of the facade. With the plans should be listed information regarding cubage and surface areas expressed in terms of meters. Entries must be submitted to the National Bank of Iran before June 1st. An award of 750 pounds sterling will be given the scheme judged most applicable to the problem, on condition that subsequent working drawings will be furnished. Further details regarding the competition can be obtained from the Czechoslovak Consulate General, 1440 Broadway, New York.

• A course relating to the development of the modern school building will be given during the summer session at Columbia University under the supervision of Professor N. L. Engelhardt of Teachers College. School building planning will be discussed with relationship to changes which are occurring in educational programs and in the demands of educational curriculum. The course to be given during July and August 1935 will follow a similar procedure to that of the course given in 1934.

• The Lowthorpe School of Landscape Architecture for Women announces for the scholastic year 1935-1936 a scholarship amounting to the cost of tuition which will be given to a student who wishes to study landscape architecture. Candidates must be over twenty-one years of age and must have their bachelor's degree from an accredited institution, or experience which has fitted them to undertake professional training in this field. Scholarship applications should be sent to John A. Parker, Director, Groton, Massachusetts.

• The F. Paul Anderson Gold Medal awarded to a member of the American Society of Heating and Ventilating Engineers for outstanding work or services in the field of heating, ventilating or air conditioning will be awarded at the 42nd annual meeting of the Society to be held in Chicago January 27th to 31st, 1936. Nominations for the medal award must be presented to the committee in care of the Secretary of the Society, 51 Madison Avenue, New York, before July 1, 1935.

• Harry A. Gnerre, Mount Vernon, N. Y., has been awarded the LeBrun Traveling Scholarship of $1,000 for 1935, according to an announcement made by William F. Lamb, chairman of the Scholarship Committee of the New York Chapter, A. I. A. Mr. Gnerre, a pupil of Prof. Lloyd Morgan of the Beaux Arts Institute of Design for eight years, placed third

in the Paris Prize of 1933 and fourth in 1934. He has studied at the Ecole des Beaux Arts, and has had eight years of professional experience in New York architectural offices. The scholarship entitles the winner to a European trip of not less than six months for further study and practice. It was established by Pierre L. LeBrun to promote the artistic, scientific and practical efficiency of the architectural profession.

• The School of Architecture and Allied Arts of New York University announces a competition for a Master's Degree Scholarship for the year 1935-36. The competition, open to any graduate of an approved school of architecture who is between twenty-two and thirty years of age, will consist of a design problem involving a reasonable knowledge of construction. Competitors must work under supervision of a member of the American Institute of Architects. Application forms, which must be filed on or before June 8th, 1935, and further information regarding details of the competition can be obtained from Dean E. R. Bossange, School of Architecture and Allied Arts, 1071 Sixth Avenue, New York. Programs will be mailed to reach contestants on June 15, 1935. Drawings must be mailed to the school before noon, June 24th.

• An exhibition of cast stone will be held May 15, 16 and 17 in Washington, D. C., at the U. S. Chamber of Commerce Building. The exhibition, sponsored by the Cast Stone Institute, will include samples, models and other exhibits from cast stone manufacturers throughout the country.

• A competition for the design of a house for a family of five is being conducted by *Pencil Points*. Sponsored by the Iron Fireman Manufacturing Company and approved by the A. I. A. Committee on Competitions, the competition carries twenty-nine prizes which total $3,100. Details and entry blanks may be obtained from the professional advisor, Russell F. Whitehead, A. I. A., Editor of *Pencil Points*. Entries must be submitted not later than June 3, 1935.

• Up to April 19th, FHA canvassers for the Better Housing Campaign had secured pledges for modernization and repair totalling $351,274,822. Funds advanced for similar building work under the FHA modernization credit plan totaled $56,507,872.

• The housing congress to be held in Prague, June 23 to 26, 1935, under the auspices of the International Housing Association, will cover three major problems in housing. These are: slum clearance and reconditioning of insanitary dwellings, equipment and fittings for small dwellings and the "back to the land" movement as it has been experienced in various countries. Slum clearance reports are being submitted from Boston and Chicago. The Pittsburgh Housing Association will send a report on equipment and fittings for the small house. Coleman Woodbury of the National Association of Housing Officials will make a report on special measures for transference of unemployed and part-time workers.

• Reports issued by the press regarding the resignation of Federal Housing Administrator James A. Moffett were contradicted by a recent statement issued by Mr. Moffett himself. Mr. Moffett has been granted a leave of absence from the Federal Housing Administration and has designated Stewart MacDonald, formerly his assistant, as Acting Administrator. Mr. Moffett expects to resume his duties as Administrator about August 1st.

This is to certify that the average circulation per issue of American Architect for the six months' period, July 1st to and including December 31, 1934, was as follows:

Copies sold	9,002
Copies distributed free	1,519
Total	10,521

Subscribed to and sworn before me on this . . . 13th . . . day of . . . February . . . 1935.

R. F. GARDNER
General Manager

ESTELLE D. BURDETT

NOTARY SEAL

Notary Public, Westchester County. Certificate filed in N. Y. Co. No. 352, Reg. No. 6-8-202. Commission expires March 30, 1936.

SENSATIONAL PAINT TEST

• One of Indiana community homes painted with Eagle Pure White Lead. Two years later, when other paints had cracked and peeled badly, Eagle White Lead showed almost no signs of wear.

Shows architects how to avoid premature paint failures

[Mail coupon for complete picture story.]

● Architects can heave a big sigh of relief and forget about paint troubles. A remarkable paint test made on a whole community settles the question once and for all. It proves what house paint will stand up best under all conditions.

The test was made in a northern Indiana mill town. The 100 homes in the community were divided into 3 sections. Each section was painted with a leading kind of paint. In a short time, two of the paints used had cracked, peeled or discolored badly. They had to be touched up within two years. During the same period, the third paint — 100% Eagle Pure White Lead—showed little sign of wear. The houses in this section did not need repainting until 5 years later!

The initial cost of Eagle Pure White Lead was approximately the same as the other paints, but its final cost was much less. It went on giving good service 3 years after the other two paints had failed.

There is a definite swing to quality paints everywhere. Save yourself the embarrassment of premature paint failures by specifying Eagle Pure White Lead for exterior work on all your houses.

Remarkable paint test was made here

• There are 100 homes in this northern Indiana community. Bothered with costly paint failures, the real estate management determined to find out once and for all what paint was most durable, most economical. Of the 3 paints tested, Eagle Pure White Lead was the only one that gave satisfactory service. Mail coupon for complete story.

EAGLE *pure* WHITE LEAD

Boost the Better Housing Program in your community

BETTER HOUSING PROGRAM

MAIL THIS COUPON ● The Eagle-Picher Lead Company, Dept. AA5, Cincinnati, Ohio. Please send me a copy of the folder that tells the complete story of the Indiana Community Paint Test.

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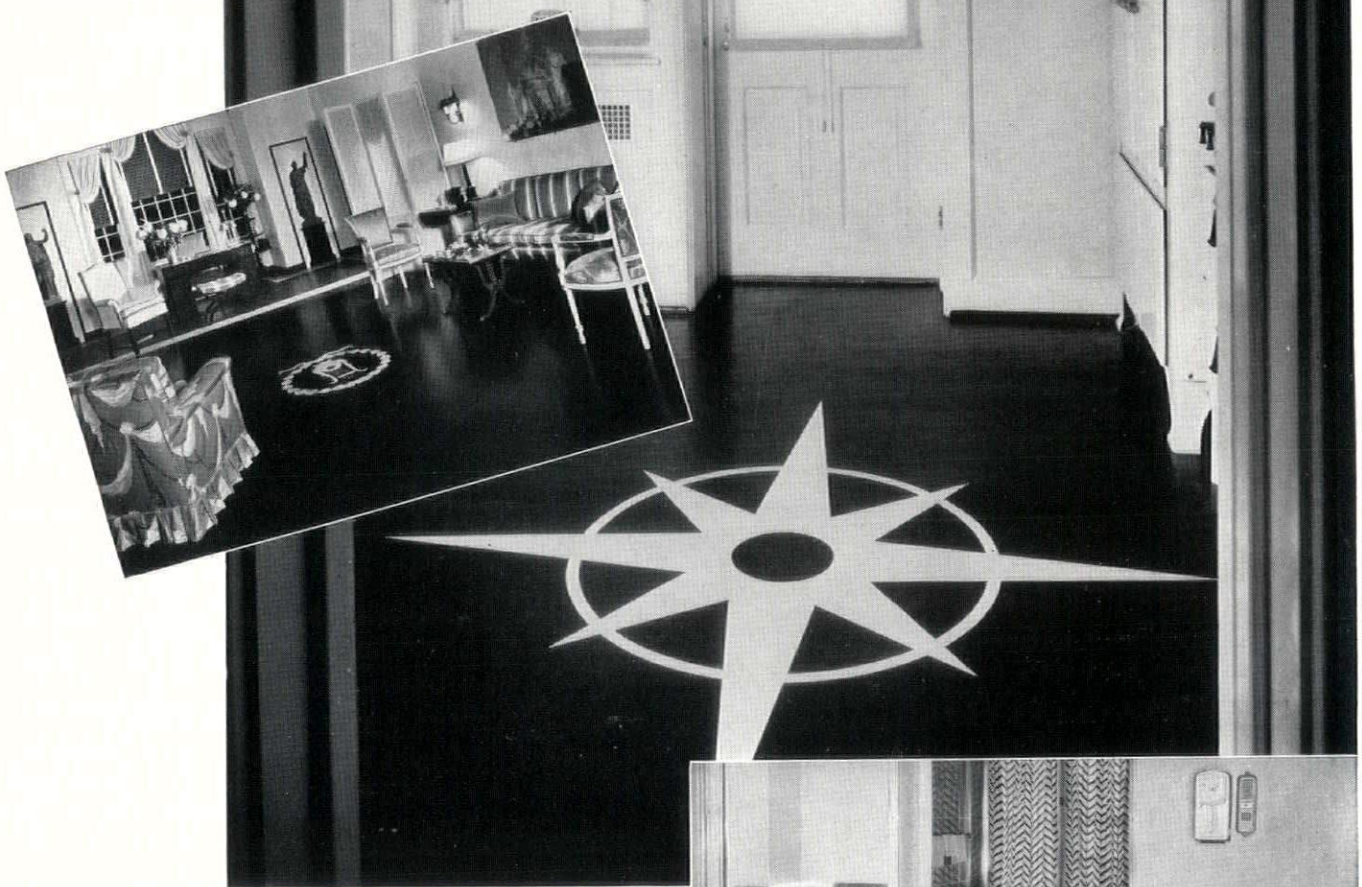
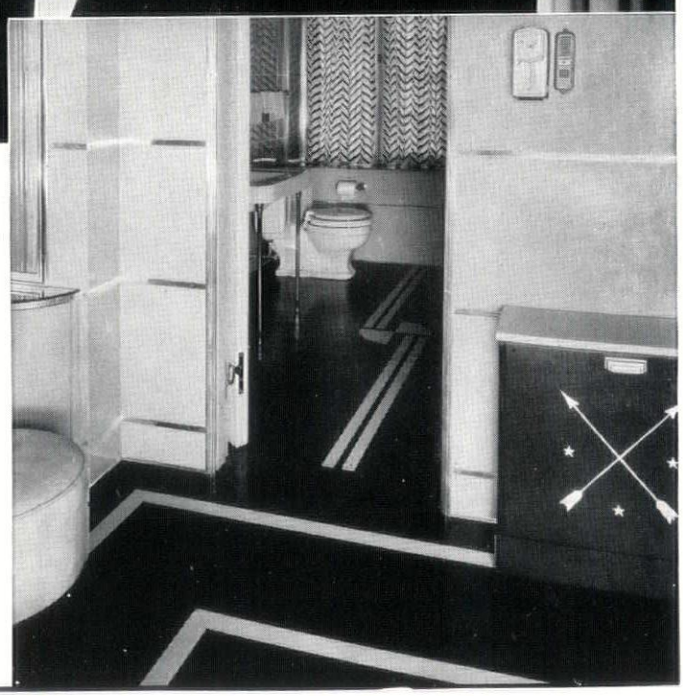
SLOANE-BLABON LINOLEUM

for small homes

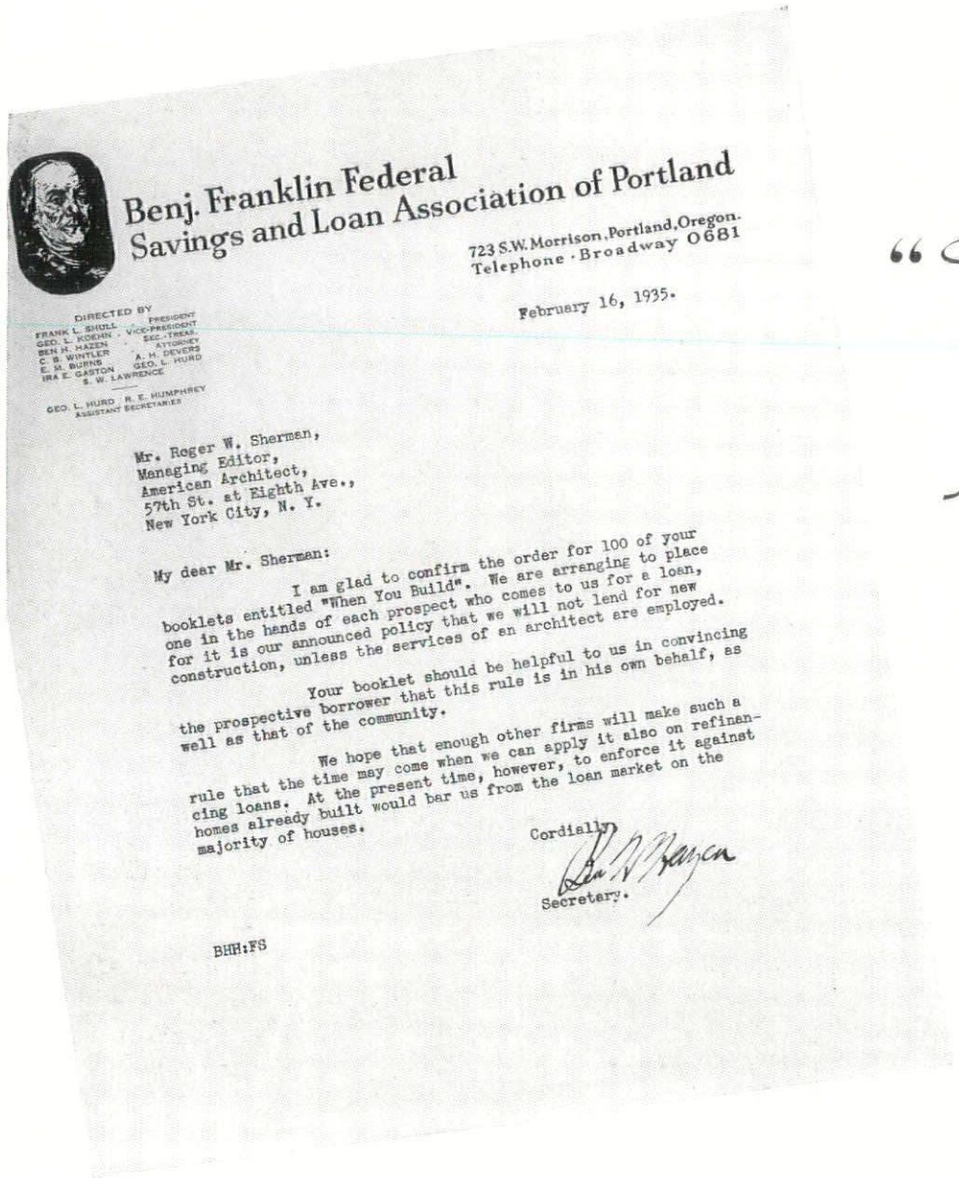




ABOVE: *Kitchen.* INSET: *Living-room*

RIGHT: *Hall and bathroom*

The variety of patterns, colors and qualities available in Sloane-Blabon Linoleum gives you an opportunity to create a really distinctive floor, no matter how small the room. Illustrated are a few small-home rooms which owe their distinctiveness in large part to the use of Sloane-Blabon Linoleum. For pattern reproductions, samples, etc., write Sloane-Blabon Corporation, 577 Fifth Ave., N. Y.



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Assistant Secretaries

February 16, 1935.

Mr. Roger W. Sherman,
Managing Editor,
American Architect,
57th St. at Eighth Ave.,
New York City, N. Y.

My dear Mr. Sherman:

I am glad to confirm the order for 100 of your booklets entitled "When You Build". We are arranging to place one in the hands of each prospect who comes to us for a loan, for it is our announced policy that we will not lend for new construction, unless the services of an architect are employed.

Your booklet should be helpful to us in convincing the prospective borrower that this rule is in his own behalf, as well as that of the community.

We hope that enough other firms will make such a rule that the time may come when we can apply it also on refinancing loans. At the present time, however, to enforce it against homes already built would bar us from the loan market on the majority of houses.

Cordially,

Secretary.

BHH:FS

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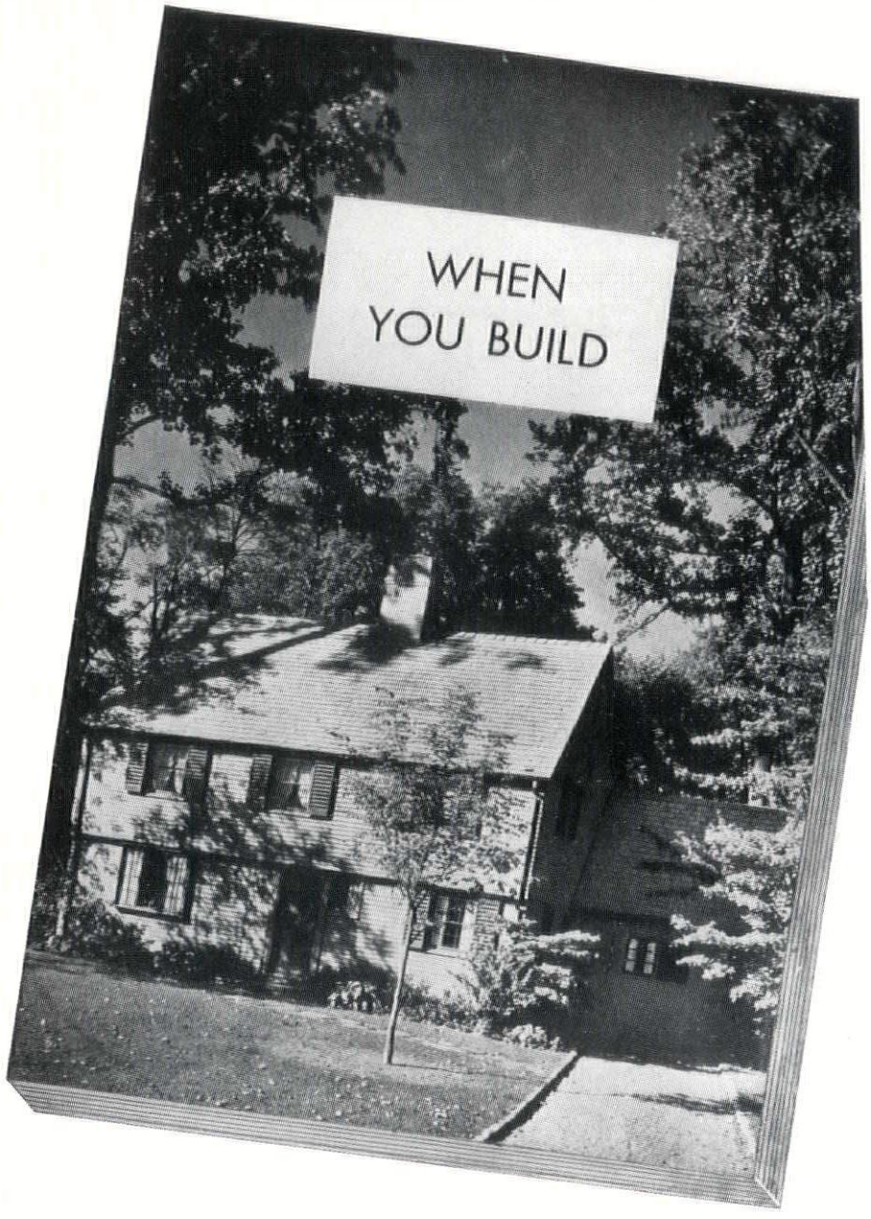
Over 20,000 Copies of "WHEN YOU BUILD" (prepared by American Architect and sponsored by the Stuyvesant Building Group) have already been distributed and are doing their part to bring business to architects. If you haven't already done so, order your FREE copy today, or additional copies at actual cost of printing and mailing.

SAVINGS and Loan Associations, Advertising Agencies, Manufacturers and Merchant Associations are joining AMERICAN ARCHITECT'S campaign to help architects by ordering and distributing thousands of these "WHEN YOU BUILD" booklets.



Order Your Supply at Cost

"WHEN YOU BUILD" helps architects secure new clients. It is one of the most effective pieces of literature ever prepared to help laymen understand architects and the value of their services.

Chapters of the A. I. A. are ordering copies by the thousands, and hundreds of architects are ordering the booklets to promote business for themselves. Below are two representative comments. . . .

William Orr Ludlow, F.A.I.A., New York City—"You could not have made a finer contribution to the cause of good architecture, and the welfare of the architect, than you have done in issuing 'When You Build.' Your messages carried in the popular magazines are the best possible way to educate the public as to what the architect is."

Theodore L. Eschweiler, Pres., The State Ass'n of Wisconsin Architects — "This is by far the finest thing of its kind ever brought to my attention."

Order your supply of these business-boosting booklets TODAY!

Architectural Showmanship in Small House Exhibits

(*Continued from page* 54)

with slides to emphasize the points that are being made by the speaker.

As a tangible reminder of the story of architectural service, let each visitor carry away with him a booklet which will contain a summation of what he has heard and seen. Listed in it should be every registered architect in the locality. Equally important are illustrations that carry in visual terms the value of the architect as related to the planning, design, specification, and construction of small houses.

CO-ORDINATE IDEA AND EXECUTION

If a small house exhibit is definitely planned with the idea of giving the public real information rather than merely a display of technical skill, its execution should be as direct and simple as the idea behind it. Again as in publishing, make it as easy as possible for the public to get what you want it to have. Plan the exhibition so that a person's attention can be focussed upon one thing at a time. But plan the sequence of those things so that the message of the exhibition as a whole will be apparent at the finish.

Here, specifically, are some suggestions. If the exhibit is in a small store, dress the windows with an attractively finished model, blanking the background so that the display will become a focal point for observers. Arrange the entrance so that visitors are led in on one side, out on the other. Mark everything simply, but clearly. Partition various classes of presentation sketches so that each can be studied without interruption. This can be easily done with simple framing, inexpensive wall board or plywood and dull paint. Arrange the sketch classes in such a way that at least one typical drawing and the sign is instantly seen. This can be accomplished by overhead spotlighting or by placing the sketch on the face of a booth containing the announced class of designs.

Allow only a few of the most attractive sketches to be so displayed. Choose these for variation in plan, rendering techniques, coloring and indication of numerous materials. Provide space for as many others as possible in another location fitted with chairs and a table or two where visitors may discuss their ideas or thumb through portfolios of sketches. Announce this space as a sketch library by signs throughout the exhibit and be sure that it contains at all times plenty of portfolios and a number of informed, competent architect-attendants to explain the sketches.

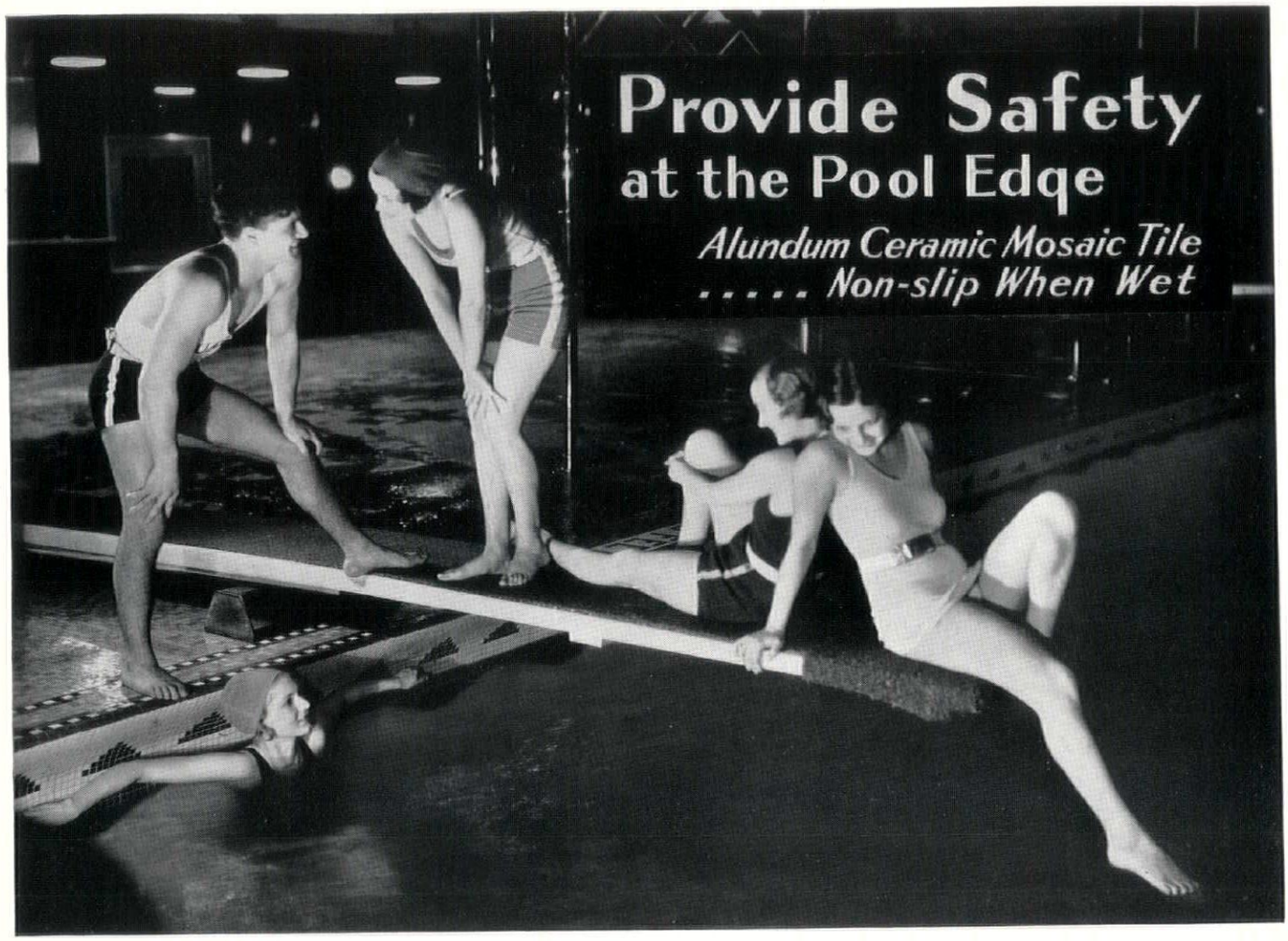
At the end of the sketch displays place the information table. It is better as a counter holding home-planning magazines, professional periodicals and pamphlets issued by local material and equipment organizations. If possible, arrange the adjoining space to accommodate two or three small tables and several chairs.

From this information center lead to the most dramatic of all exhibits—that which explains what architectural service is and how it can be obtained. Here is the place to use colors and special lighting, to display messages regarding contracts, sketches, working drawings, supervision. This is the focal point of the entire exhibition; and the entire design scheme should emphasize this fact.

MERCHANTS CO-OPERATION ESSENTIAL

In co-operation with local merchants, utility companies, and manufacturers of building material and equipment develop, if possible, displays that might be duplicates of small house interiors. But be sure that all of them are adaptable in every detail to the small house. The effectiveness of such displays can easily be lost through the occasional unwillingness of merchants to subordinate an individual interest to the success of the whole. In this event the displays are better omitted.

Next to the exit place one more information table. Let no one leave the exhibit without a booklet explaining how architects help him to build his house.



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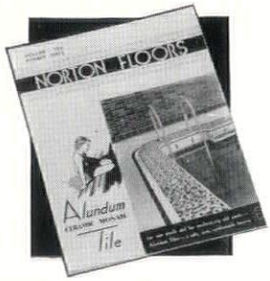
But the slipping hazard can be avoided. Architects today are specifying Alundum Ceramic Mosaic Tile—the tile that is *guaranteed* non-slip. Not only are they using it for new pools but to modernize the edge of old pools . . . and in showers, locker rooms and other places where there is a wet floor slipping hazard.

NORTON COMPANY, WORCESTER, MASS.



Send for a Copy

The latest issue of "Norton Floors" illustrates Alundum Mosaics in colors and shows some of the design possibilities.

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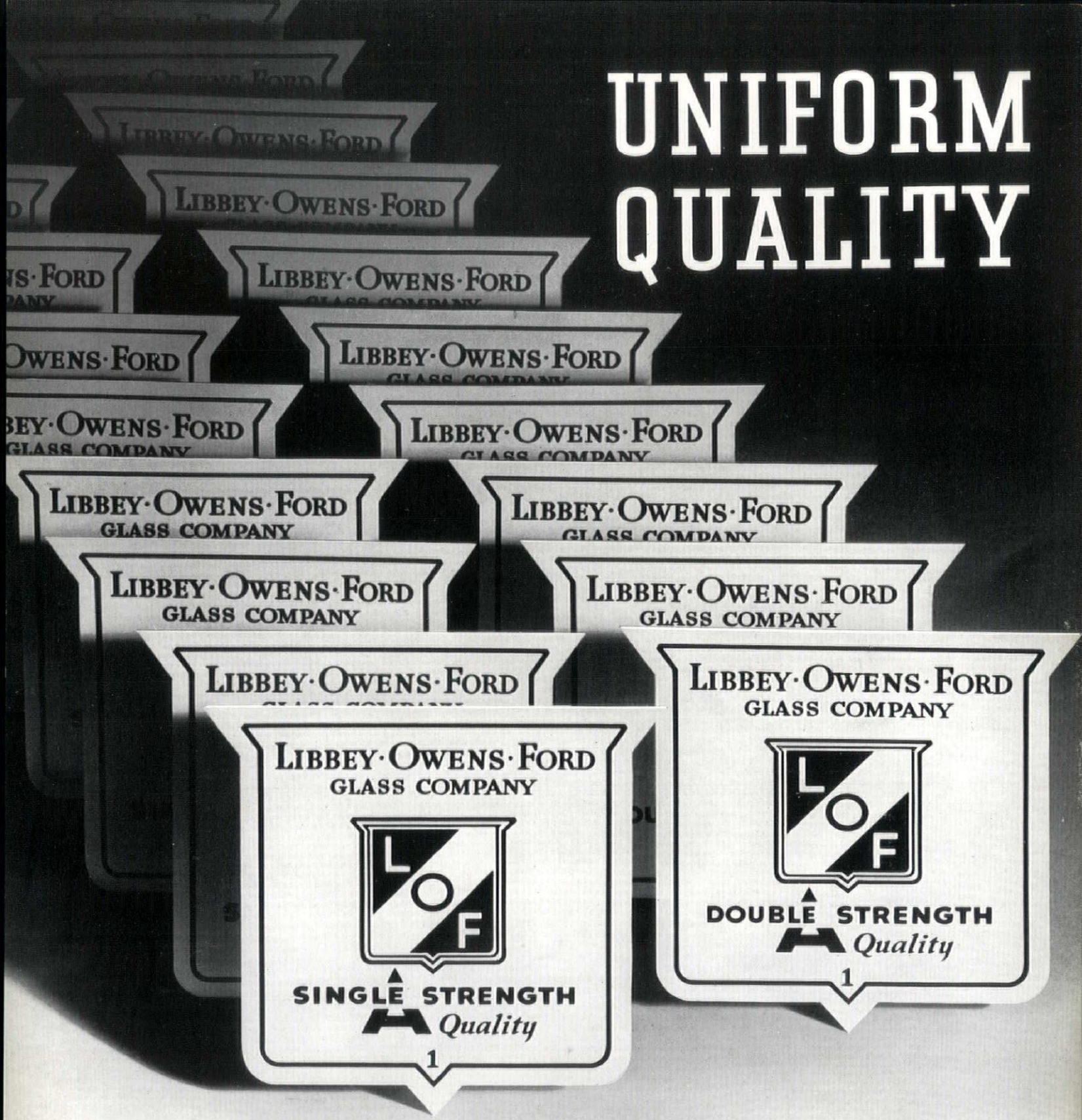

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