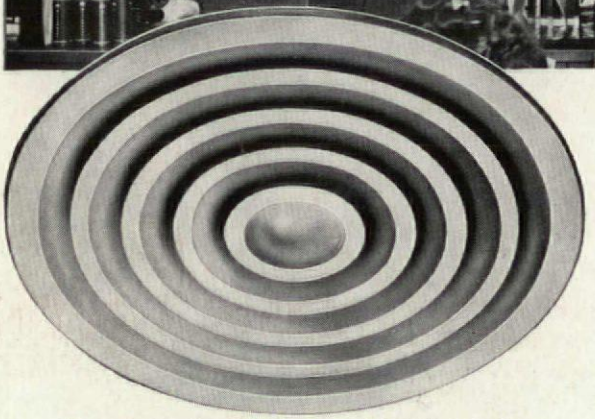
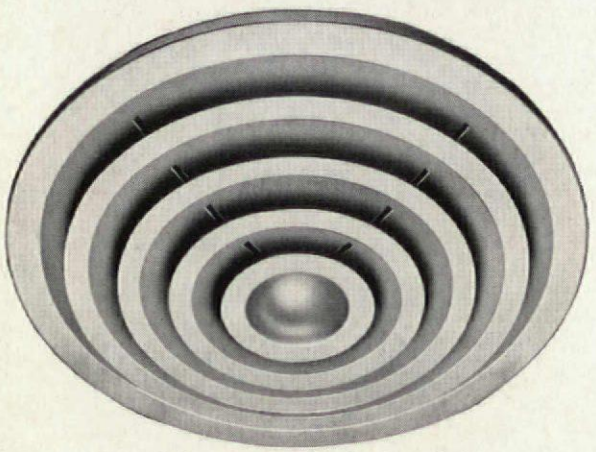
PENCIL POINTS

JANUARY
1942

Employers' Mutual Insurance Building, Wausau, Wisconsin



Type S Aerofuse Outlet for ceiling installation. The Truly flush type of ceiling diffuser.



Type E Aerofuse Outlet for installation on exposed ducts. Stepped-down construction allows use of smaller ducts and outlets.

AEROFUSE OUTLET

COMBINES SCIENTIFIC ENGINEERING AND TASTEFUL DESIGNING

THE steel Aerofuse Outlet is furnished in five basic types which meet every requirement of Air Conditioning, Heating or Ventilating installations. A new model with stepped-down rings for use on exposed ductwork make possible the use of smaller ducts and outlets thus effecting unusual savings. Scientifically built to provide 1. Rapid Air Mixture, 2. Perfect Air Distribution, 3. Maximum Temperature Equalization, 4. Total Elimination of Drafts; the Aerofuse Outlet is attractive and unobtrusive, adjusting itself admirably to any interior decorative scheme. Easily combined with lighting fixtures. Send for new catalog.

TUTTLE & BAILEY INC.

NEW BRITAIN, CONN.

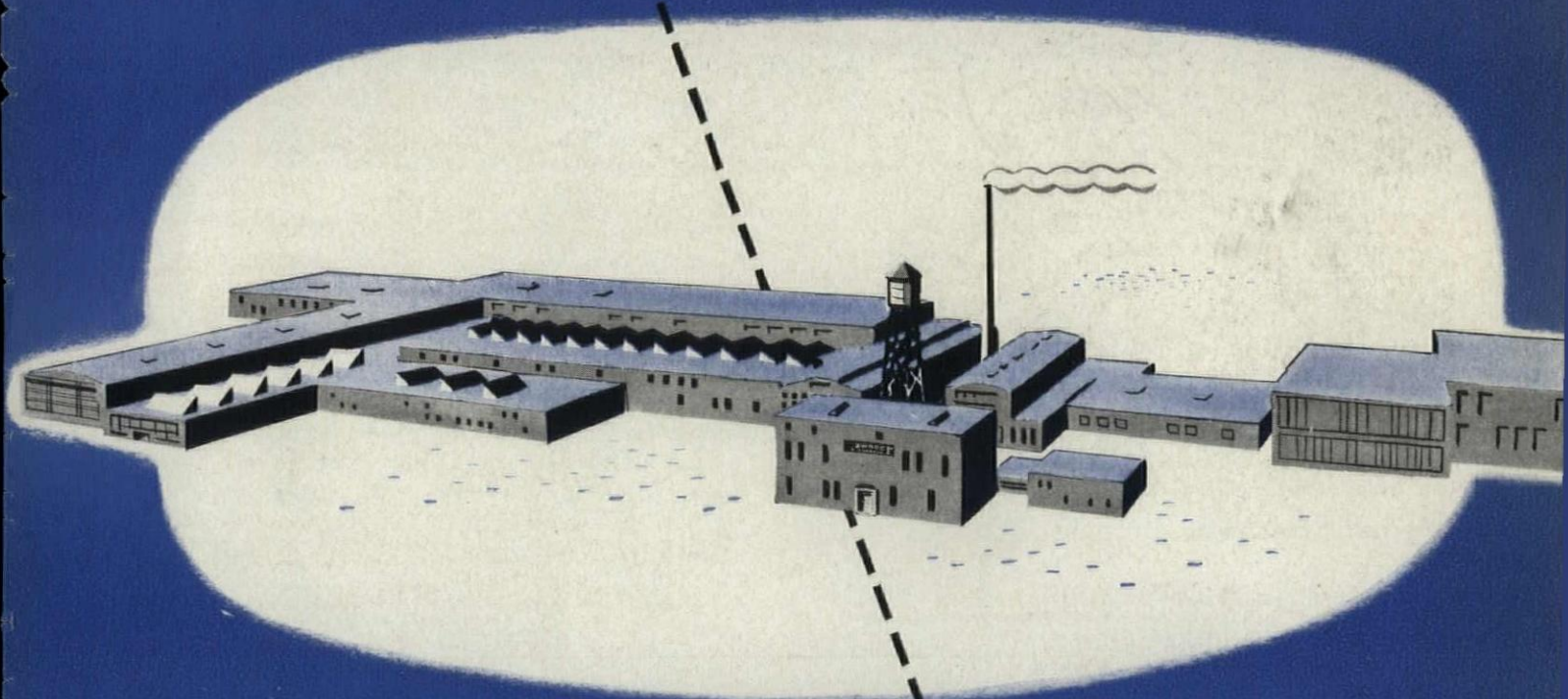
NEW YORK CHICAGO PHILADELPHIA HOUSTON

PENCIL POINTS, published monthly by Reinhold Publishing Corporation at East Stroudsburg, Pa. Publication office, East Stroudsburg, Pa. Editorial and Advertising Offices, 330 West 42nd Street, New York, N. Y. Yearly subscription $3.00, single copies 50 cents. Entered as second class matter, July 8, 1941, at the Post Office, East Stroudsburg, Pa., under the Act of March 3, 1879. Volume XXIII, No. 1, Dated January, 1942.

ORIGINATORS

OF THE RUSTLESS METAL STORE FRONT

1905



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1942

Kawneer's comprehensive experience in fabricating aluminum and other rustless metals has resulted in our selection for a vital role in the National Defense effort. Check with your local dealer for information on Kawneer Store Front Construction available in your territory.

Kawneer

The Kawneer Company, Niles, Michigan — manufacturers of Rustless Metal Store Fronts, Doors, and Aluminum Windows.

WHILE THE FIGHTING GOES ON..

A NEW ERA

Architects and engineers, civic groups, general contractors and other factors who are interested in post-war urban reconstruction are invited to cite to us the urban reconstruction opportunities which exist in their respective localities. Perhaps, your city may be the next one to be featured in a Zurn advertisement. Factual information about how you can prepare for post-war urban reconstruction will be presented in a portfolio available upon request. The policy of the Zurn organization is to help now to make jobs for the building industry that all of us will need when victory is won. While at war we should prepare for peace.

ZURN

BUILDING • PLUMBING DRAINAGE

★ *Roof to Basement*

FOR BUILDING IN MILWAUKEE IS IN THE MAKING

ZURN

Engineered Protection

for human health and modern structures is in step with it

ONE DAY, no one can tell when, we shall win through to victory. Before that day comes, every man has a specific task to perform. It would seem to be the duty of everyone engaged in the building industry to prepare for the impact that will come from the cessation of hostilities. With discerning foresight, let us look for, and detect, the great building opportunities that are in the making. For instance, in Milwaukee, Kilbourn Avenue is not the only place where a new era in building is in the making. But, it is indicative. It well may be that other areas, long since outgrown or outmoded, should be rebuilt in order to make this famous city reflect and express its true character.

There is no lack of opportunity in the building industry for men of courage and vision and action—men who know how to organize and plan and direct. First, there is the tremendous task of generating the desire among groups to *want* to rebuild portions of a city, to *want* to modernize streets and buildings. It takes months, sometimes years, to win the acceptance of new ideas—to initiate new projects. Therefore, it is not too soon for architects and engineers, civic groups, general contractors, and building money-factors to plan for post-war urban reconstruction. Indeed some studies are already being carried on by the National Resources Planning Board in Washington. We shall *want to* prepare for post-war building because we shall be preparing for the continuance of the American philosophy of life.

Zurn Engineers are already looking ahead, contemplating what new devices may be needed for the protection of human health and modern structures. With a background of almost 40 years of research and engineering, Zurn Engineer Specialists are ready to work with architects and engineers who dare to attempt the unusual—who dare to be the first to break with tradition. By originating and adapting plumbing and building drainage devices for the protection of human health, Zurn Engineers are performing a vital service. *To wait and do less is unthinkable.* All who are interested in preparation for post-war urban reconstruction are invited to utilize Zurn Engineering facilities on plumbing and building drainage problems. Architects are invited to suggest a list of individuals and organizations to whom they would like to have us send a portfolio entitled "A New Era For Building Is Only Marking Time."

J. A. ZURN MFG. CO. • *Sales Office and Factory,* **ERIE, PA.**

4/22/42

20072

Zurn Engineer Carriers afford 4- Protection for fixture installat

Zurn Roof Drain available for ever of roof constru

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Please register my name and the names of individuals and organizations attached, to receive a copy of the portfolio entitled "A New Era For Building Is Only Marking Time," of which I understand a limited number will be available when printed.

Name ..... *Position* .....

Company .....

Address .....

City and State .....

Please attach to your business letterhead. No. 1116

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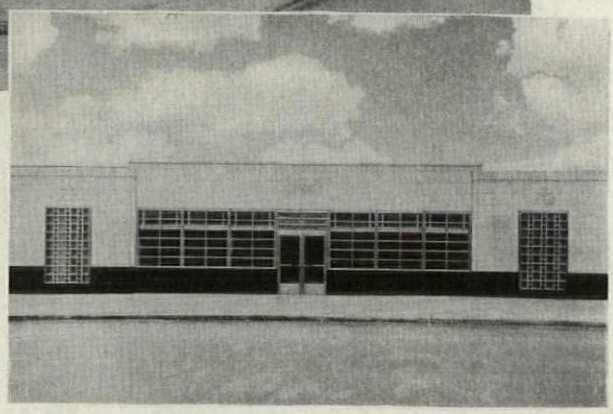

Black Serpentine base and wainscoting; Terre Haute Mutual Savings & Loan Assn., Terre Haute, Ind.; Miller & Yeager, Architects.

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Moderate in cost . . . Negligible in upkeep

RAMONA VILLAGE

(LOS ANGELES)

it's NATIONAL PIPE again...in one of the country's large housing projects

More than 100 tons of **NATIONAL PIPE** *installed in the 610 dwelling units of this new low-rent housing project.*

IT'S no accident that NATIONAL Steel Pipe has been chosen for a large majority of America's big scale housing projects. Architects and plumbing and heating contractors have long recognized the fact—that for general all-round building purposes, NATIONAL Steel Pipe gives the greatest service for the least investment. Owners can depend on the efficient, trouble-free operation of their piping systems when NATIONAL is on the job. Workmen tell us they like to work with NATIONAL Pipe because it's easy to install, profitable to use. It's clean, inside and out, strong and ductile, and uniform in every property. Bends, cuts and threads with ease.

NATIONAL quality never varies—NATIONAL Steel Pipe is always the same—no other pipe has been able to offer greater value in strength, durability and ease of installation at low cost. Write for data.

RAMONA VILLAGE HOUSING PROJECT CONTAINS 610 DWELLING UNITS... ONE OF THE COUNTRY'S FINEST!

Ramona Village is owned and operated by the Housing Authority of the city of Los Angeles, California. The 110 separate buildings are all two stories in height, and are of five different types, containing four, six and eight families each. The total number of rooms is 2679.

An administration building houses the administrative offices, maintenance shop, club and social room, and day nursery. The dwelling units contain from one to three bedrooms in addition to a living room and kitchen.

The architects for the work are known as the Housing Architects Associated, consisting of: George J. Adams, chief architect; Walter S. Davis, Ralph C. Flewelling, Eugene Weston, Jr., Lewis Eugene Wilson and Lloyd Wright. General contractor, Baruch Corporation. Mechanical engineer, Ralph E. Phillips.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* — United States Steel Export Company, New York

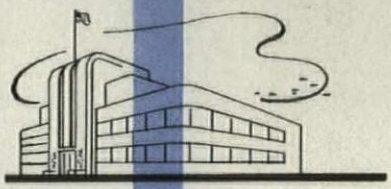
UNITED STATES STEEL

"This job has to be different!" he told me

. . . AND I HELPED HIM MAKE IT SO!

"I've got to have floors that fairly sparkle with life," said Bill Wallace. "This will be a mighty important building in the community —thousands will pass through it every day."

"That's just where Trinity White can help you," I said. "Trinity White is the whitest *of white portland cements. Put Trinity in your terrazzo specifications for personality in that floor."*



"Trinity White will produce a terrazzo in which the natural beauty of the colorful marble granules is given full play," I said. "Sounds good to me," he replied—"in it goes."

On my invitation to the grand opening, Bill wrote this note—"It was a lucky day for me when you told me about Trinity White—those floors are nothing short of being a sensation!"

A FREE SAMPLE FOR YOU

For a free sample of Trinity White, simply clip the coupon below to your letterhead, and forward it to Trinity Portland Cement Co., Republic Bank Bldg., Dallas, Texas, or 111 West Monroe St., Chicago, Illinois.

TRINITY WHITE, "the whitest white" portland cement, will produce the whitest concrete or mortar—or the clearest, sharpest colors, whether it be used for stucco, cast stone, terrazzo, architectural concrete or any of the many uses of white cement.

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When a man or an organization develops specialized equipment for the more efficient performance of certain work, that is an indication of practical experience with the problems involved. Raymond clients are often amazed at the number and variety of specialized pieces of equipment used by this organization. Yet it would be more amazing if 44 years of worldwide experience in every type and size of foundation and concrete construction work, under the greatest variety of conditions, had failed to result in efficient means of overcoming obstacles and accomplishing results.

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THE THRESHING FLOOR

"A Study in Contrasts" by Lorimer Rich in the August issue of PENCIL POINTS, *wherein he compared the National Gallery of Art with the design of the proposed Smithsonian Gallery of Art, has prompted* WALTER DABNEY BLAIR, *F.A.I.A., to write the following comment.*

Architectural design is more than a continuous window, more than assembled vertical piers. Into it enter the emotional properties of spatial relations, and of varied forms. Architecture exists both in space and in light, and is space occupied, devoted to man's use, both physical and spiritual.

Visually it is a spatial pattern in light, with horizontal and vertical elements, each having its distinctive emotional appeal; related forms and masses, each again pregnant with emotion. Architecture as light is a pattern of darks, lights, and grays—ornaments and mouldings make the grays, subdivide and enrich the spatial patterns.

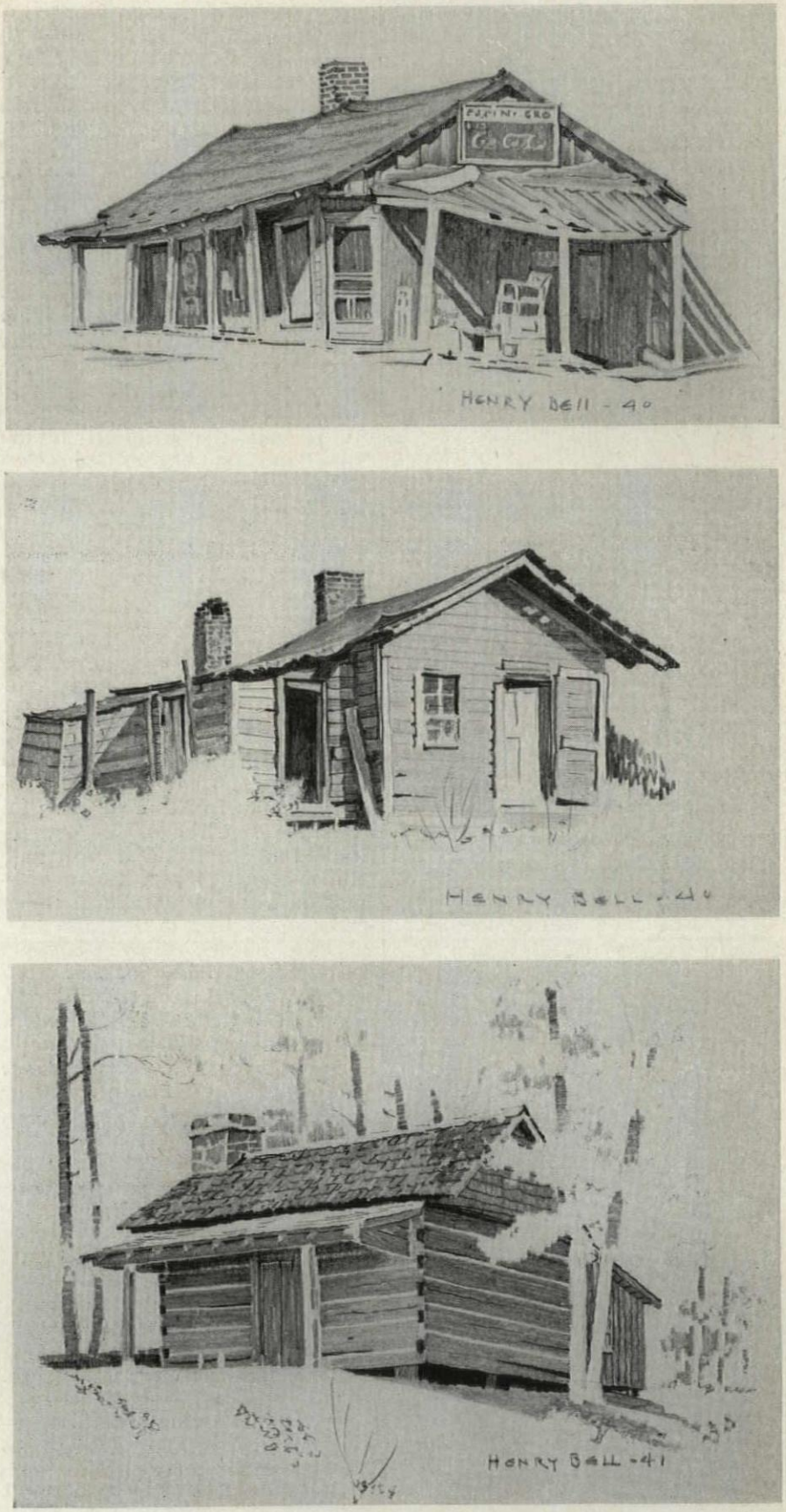
In nature and geometry man has found inspiration for his ornament, and when his grays are restricted to simple fluting and reeding, which have no associated values, there is a loss of richness, a paucity of emotional content, a withdrawal from nature into a simple mechanical abstraction.

There is a wide field of beauty over and beyond rectangularity, beyond assembled rectangular masses. There is a beauty of masses and related forms as shown in the towers of Notre Dame, in Hagia Sophia, Versailles. It is well to recall such richness of creation when one sees the starkness and bareness of the design for the new Smithsonian. Utility may be here; beauty is not.

Though participation of government and industry in building operations is desirable, ALBERT KAHN, *F.A.I.A., points out that actual work of design and construction should be delegated to private architects.*

Unnecessary competition on the part of the government with private practice works a hardship on individual architects, who would be heartened by the opportunity to share in the work carried on by the government, and thus be enabled to keep their offices open and their employees at work.

Properly equipped architectural organizations with carefully pre-



HENRY BELL, of the office of Jack B. Smith, Birmingham, Ala. architect, drew these pencil sketches representative of the town and country life of Birmingham's negro population. From top to bottom: "Commercial Building, Sixteenth St., Birmingham"; "Residence, Jasper, Ala."; and "Residence, Rockford, Ala."

pared plans and specifications will produce better results and, through competitive bidding, lower costs. Any well-organized private office should, with the efficient cooperation of officials and staffs of government agencies, produce superior results practically, artistically, as well as economically.

ROBERT D. PROCTOR, *an architectural student at Princeton University, wrote some time ago to Professor F. A. Comstock, questioning whether engineering schools were not perhaps the best for a would-be architect. The following excerpt from the professor's letter gives his distinction between the engineer's and architect's approach.*

At present the architect is too "arty" and conceited about his own judgments, which depend almost wholly on a system of æsthetic values and hardly at all on reason and common sense.

The engineer is prejudiced by experience against the architect because of the latter's disorganized and sloppy approach and method. This causes the engineer to bend more closely over his slide rule. The result is a lack of realization of implications.

Our problem is to develop a method of attack in our thinking process whereby we are thinking imaginatively, and our reasoning is always founded on and checked closely by facts and common sense. These sentiments work both ways on engineer and architect. . . . The chances are that you can best attain this goal via an architectural rather than an engineering school; the latter is apt to stifle, the former must be guarded against, however, to insure the continuous presence of reason in your judgments.

* * *

IN THIS ISSUE

The architect of the office building for Lever Brothers Company illustrated in this issue is *Donald des Granges,* who has conducted his own practice in Boston since 1932. A native of Chicago, des Granges studied architecture at Columbia University and Massachusetts Institute of Technology, also studying in Europe before, during, and after his college years. He was connected with various offices in New York and Boston including that of *Ralph Adams Cram.* He also served as Consultant Architect to Stone & Webster Engineering Corporation.

Members of the firm of *Childs & Smith,* Architects, of Chicago, whose Employers Mutuals building also is shown in this issue, are *Frank A. Childs, William Jones Smith,* and *O. H. Breidert.*

Prior to forming the existing partnership in 1912, Childs, a graduate of Armour Institute of Technology, Architectural Department, had studied in Paris, returning in 1907 to work in the office of *L. B. Dutton,* architect of San Francisco, then in the office of *Holabird & Roche* for two years. He has specialized in educational buildings having been connected with more than fifty major structures in this field. He is a member of the A.I.A.

Smith, after graduating from the University of Pennsylvania and L'Ecole des Beaux Arts, spent two years in New York with *Cass Gilbert* and three and a half years in Chicago with *Holabird & Roche,* before joining in practice with Childs. He has been connected with the design and construction of banks, office buildings, insurance buildings, college and other institutional work. He is an F.A.I.A.

Breidert, who has managed the office during its industrial, educational, and other large-scale practice went to the office of Childs & Smith from the office of *George Maher* in 1915—becoming a partner in 1919 when he returned from Army service.

Konrad F. Wittmann, A.I.A. (see pages 13-14) is instructor in City Planning and Chief of the Industrial Camouflage Program at Pratt Institute, Brooklyn. Several years ago, he came to New York from Europe where he had an extensive architectural practice, concentrating on town planning, housing, residential architecture, and factories. He also was for many years editor of an architectural magazine. Wittmann studied architecture at the Technical University in Munich, and traveled in almost all European countries to study modern architecture first-hand. In his own practice he had early experience in Air Raid Precautions.

John F. Staub, Houston architect, whose residential work is the subject of a feature presentation this month, has practiced architecture

in Houston, Texas, since 1923. He is a native of Knoxville, Tennessee, and first attended the State University in that city; later studying for two years at Massachusetts Institute of Technology, where he received the Degree of B.S. in Arch. and also a scholarship for graduate work which earned him his Master's Degree in Architecture in 1916. He spent 18 months in the Naval Air Service, winning the Naval Cross for distinguished service in the World War, then returned to New York to become an associate of *Harrie T. Lindeberg*, distinguished residential architect. It was in this capacity that he first went to Houston in 1921.

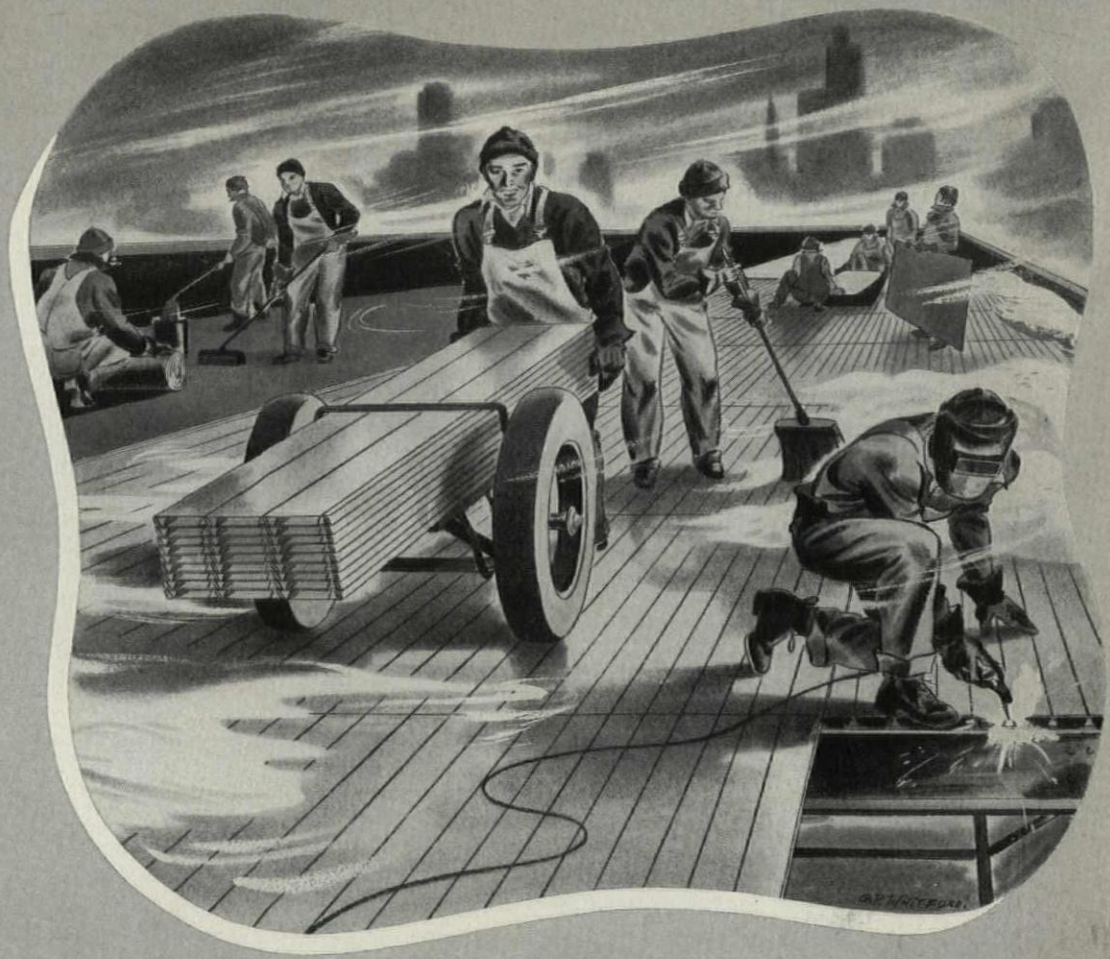
Staub's work is discussed critically by another Texan who is familiar with the examples illustrated. He is *James Chillman, Jr.*, Director of the Museum of Fine Arts in Houston, and Assistant Professor of Architecture at Rice Institute. Chillman is a graduate of the University of Pennsylvania, Department of Architecture, and won the Rome prize in 1919.

Grosvenor Atterbury, F.A.I.A., who designed the Yale Medical Library presented on pages 31-37, has received many honors during his professional career in New York as architect and community planner. A native of Detroit, Atterbury attended Yale University, where he received his B.A. in 1891, and Columbia School of Architecture and L'Ecole des Beaux Arts, Paris, before beginning his practice in 1895. He also studied painting for three years under *William M. Chase*.

He has been the architect for a notable series of industrial and low-cost dwelling projects; civic and institutional buildings; important residences in the metropolitan area and as far afield as Charleston and Tucson; also serving as Consulting Architect for several large-scale developments. In addition to his many professional honors, Atterbury is well known through his many monographs and addresses on topics of educational and professional interest.

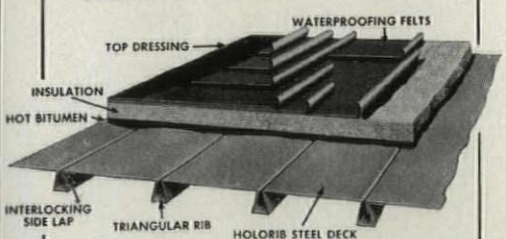
The technical article this month (continued from the December issue) was written by *Ronald Allwork*, who specializes in preparing educational copy and technical data related to the building field. Following graduation from the School of Architecture, Columbia University, he gained his practical experience from the offices of New York architects—and a knowledge of heating and air conditioning while with American Radiator Co.

WINTER BUILDING *must* GO ON!



Get under roof faster with HOLORIB

THE HOLORIB COMPLETE ROOF UNIT



Designed to give sure and economical protection against (1) Leakage of water; (2) Leakage of heat; (3) Leakage of dollars for maintenance. On the strong steel base is placed its middle stratum composed of pressure resisting insulating sheets which prevent heat loss. Its outer surface is long-lived waterproofing designed for permanent protection against leakage. These component parts are bonded together and waterproofed by moppings of roofing asphalt, and further secured by Holorib Expanding Nails. Thus united, they form a complete roof, permanent, proof against weather, fire or rot.

This Winter, of all Winters, our ALL-OUT WAR EFFORT *must go on!* "Get under roof faster" has suddenly become an absolute essential . . . *roofs,* more than any other part of a munitions plant, determine when production will start.

Holorib meets just such a crisis. Holorib speed is pictured above. There's nothing to pour, nothing to freeze, nothing to eat up time in drying. Holorib can be laid in any weather in which men can work. Its strong, light sections are laid in a jiffy and as quickly clipped or welded to the purlins. Holorib installation moves faster than the erection of structural steel. The end of one sheet telescopes into the end of the next. The sides of adjacent sheets overlap and nest. Time is saved at every step.

Holorib steel deck provides an ideal foundation for the application of insulation and waterproofing as shown at left. How the Holorib complete roof unit saves first costs of construction, saves fuel in winter, protects against summer heat, saves insurance and gives long service with a minimum of maintenance are a few of the advantages covered in the Fenestra Holorib Catalogue . . . copies sent upon request.

SEND FOR ARCHITECTURAL CATALOGUE *giving details of Fenestra Holorib Roof Deck, Complete Roof Unit, Fenestra Sunacoustic Holorib Roofs, Reinforcing Forms and important construction data.*

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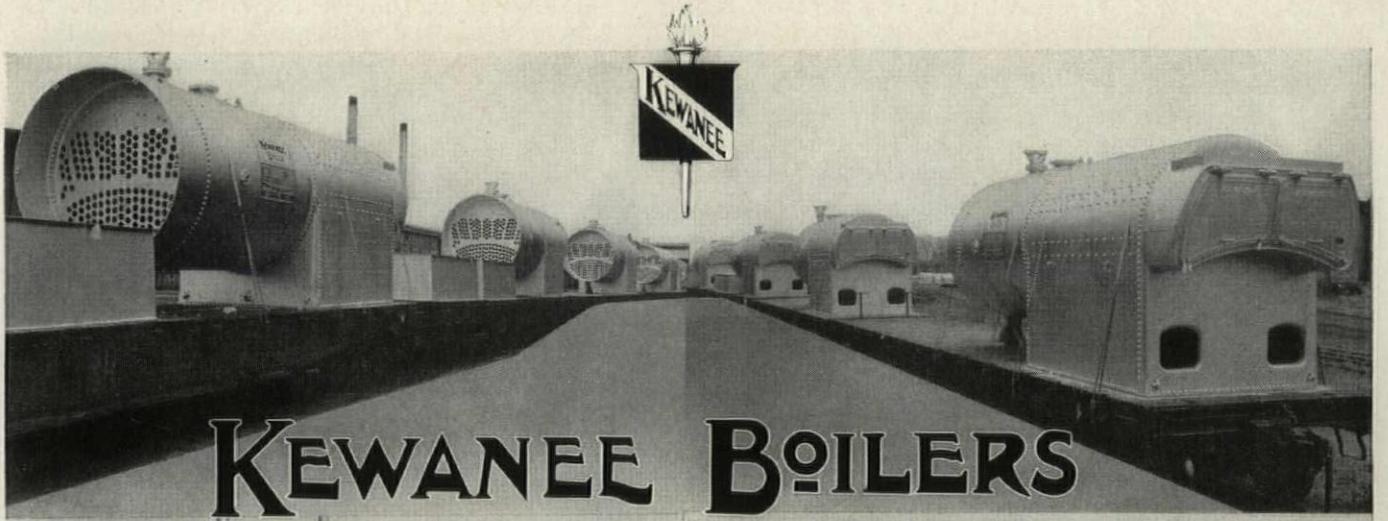
"PITTSBURGH" stands for Quality Glass



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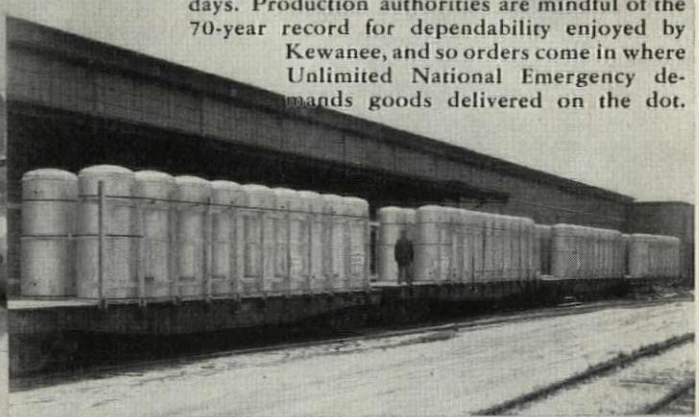
ALL OUT FOR DEFENSE

All on the way out for Defense Projects from the capacious Kewanee factory goes heating equipment by the trainload.

The shipments comprise batteries of Boilers for high pressure and low pressure steam loads and Heaters and Tanks for hot water, storage and service.

Speedy delivery has been one of the very important factors whereby Kewanee has been able to help so materially towards completing Camp construction contracts on time.

Promises are scrupulously kept and in many cases bettered by a matter of valuable days. Production authorities are mindful of the 70-year record for dependability enjoyed by Kewanee, and so orders come in where Unlimited National Emergency demands goods delivered on the dot.



BILL OF LADING

Kewanee Firebox Boilers and Tanks

Camp Ord, 1286 hp., four #590—125#, two #577—100# Riveted Boilers
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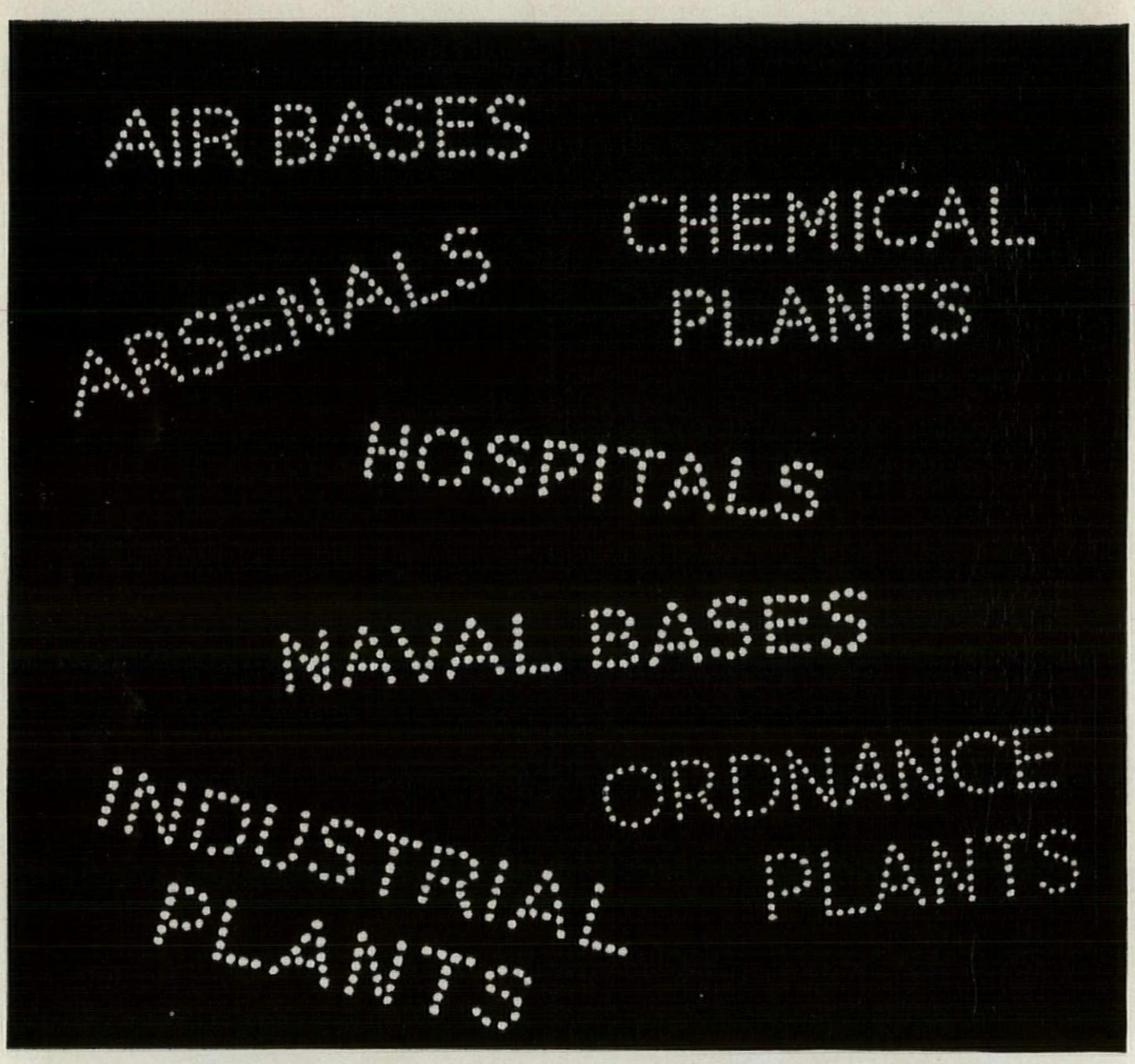

Defense against power failure . . .

EXIDE EMERGENCY BATTERIES

WITH defense industries working overtime, thousands of plants must have light all night long. And in many of these plants, essential processes must be operated continuously . . . even a temporary power failure would be disastrous.

And yet, because of storms, floods, fires and even street accidents . . . events which no utility company can possibly control . . . power failures do occur.

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Exide
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In providing for this vital protection in your plans for buildings, we can be helpful. Write us.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia
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WHO WANTS AN OLD PENTHOUSE, ANYHOW!

I'ts simply marvelous, Janie, how times have changed . . . and now that there is a war on, you know, we Americans *simply do* have to give up some things".

Right! But giving up penthouses in conjunction with elevators is no hardship. As a matter of fact it's the reverse, because Rotary Oildraulic Elevators, which push the load up instead of pulling it up, not only save you the cost of the penthouse but also the expense of heavy load-bearing sidewall columns, counterweights, their rails, etc.

And you needn't worry about Rotary Oildraulics filling the bill . . . for travel up to 40 feet they're superior in every way . . . That's because Rotary's 16 years of specialization in hydraulic lifting devices has resulted in many engineering refinements such as the Rota-Radial Pump, a smooth starting valve, a special electric lowering valve, and other control improvements. ***You'll get the whole story*** when you send the coupon for the free Bulletin RE-301.

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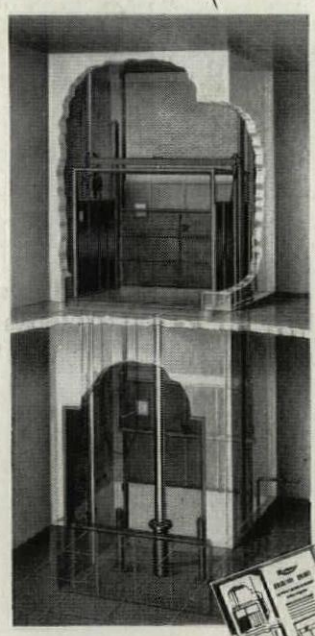

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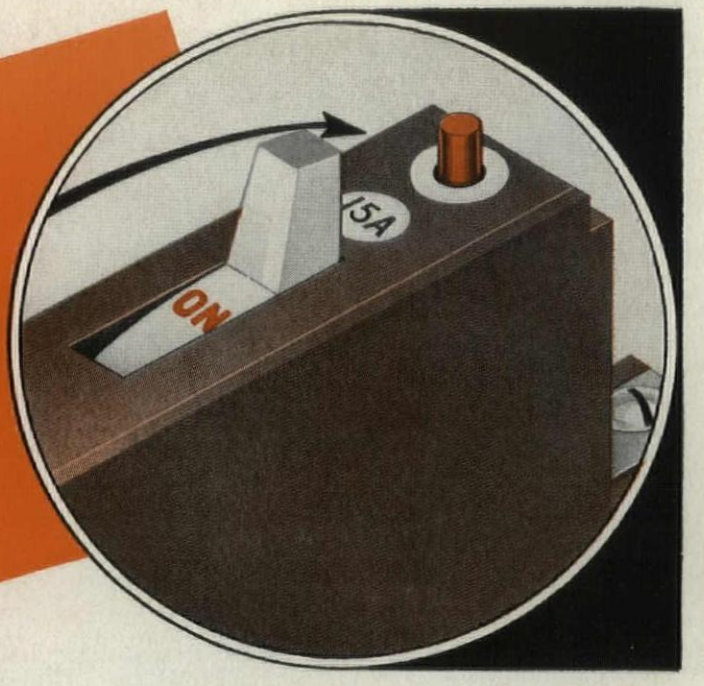

You can see at a glance which circuit has been affected. Even in the dark you can ascertain where the trouble lies — the projecting button tells the story . . . This is but one of the many features which have gained favor for

Dublbrak Circuit Breaker PANELBOARDS

Protection against harmful overloads is assured — and, due to proper time lag characteristics, annoying interruptions of service, from short circuit or momentary overloads, are prevented.

- ★ There are only two positions of the handle — ON and OFF. *There is no intermediate position.*
- ★ Contacts are double-break, to provide low arcing . . . quick make and quick break for manual action, and quick break on automatic operation from sustained overload or short circuit.
- ★ Main bus bars are made of 98% pure hard-drawn copper, and direct copper-to-copper contact is made to circuit breakers.
- ★ The binding screws cannot be removed. Corrugations in the neutral connection plate prevent wires from turning when the screws are tightened.
- ★ Each Ⓕ Dublbrak Circuit Breaker is equipped with Ⓕ wire terminal connectors of the clamp contact type. The wire is inserted into a flared opening, and fastening screw tightened. *No washers or other parts are needed.*
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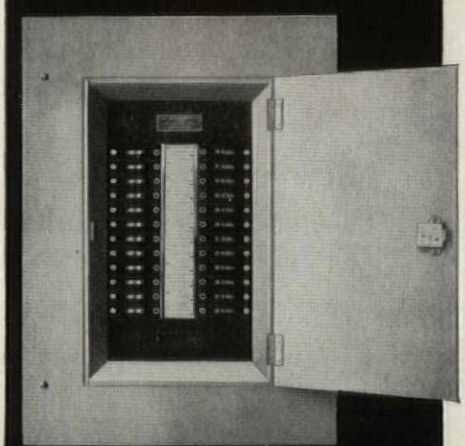
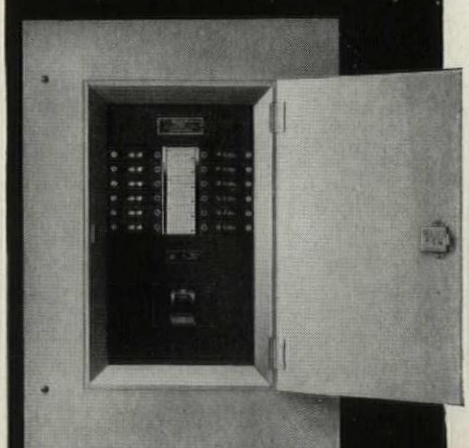
- ★ Fronts are bonderized to prevent rusting, then finished in pearl gray lacquer. They are equipped with Ⓕ front fastening device, for ease in centering and plumbing.
- ★ Panelboards from 2 to 42 circuits are assembled from *standardized units.*

Capacities: 15, 20, 25, 35 and 50 amperes, 125 volts, single pole; or 250 volts, double pole, individual trip, AC or DC.



Ⓕ Dublbrak Circuit Breaker Panelboard and Cabinet, with main lugs only. (Catalog No. NA1B24-3L100).



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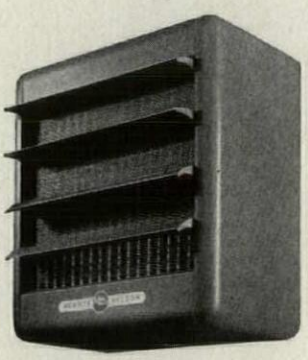

Designed for ceiling suspension, the Herman Nelson Horizontal Shaft Propeller-Fan Type hiJet Heater is widely used for heating buildings of all types.

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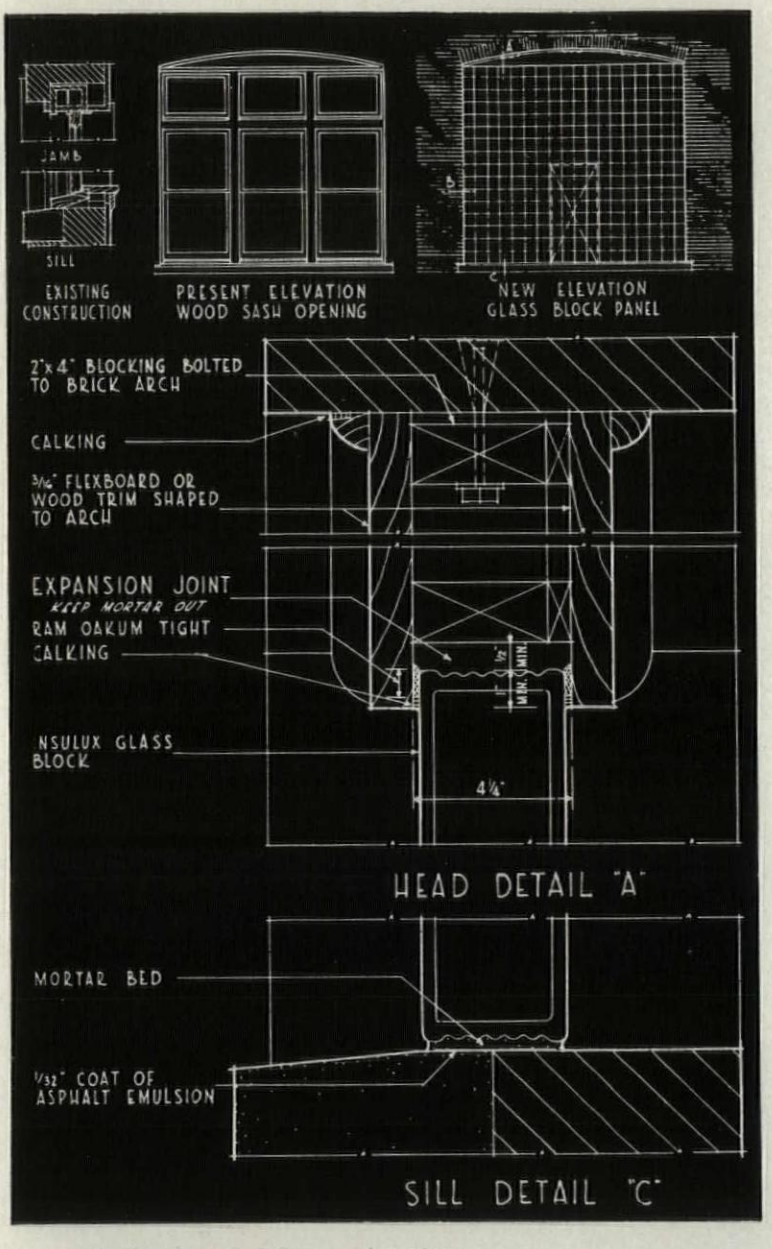
HOW TO REPLACE
WOOD WINDOWS IN 12" BRICK WALLS



Arched head wood windows may be replaced with glass block by removing the sash and altering the opening:

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For sash replacement, INSULUX Glass Block insures generous light transmission, quick construction and low maintenance cost—and releases needed priority metals for national defense.

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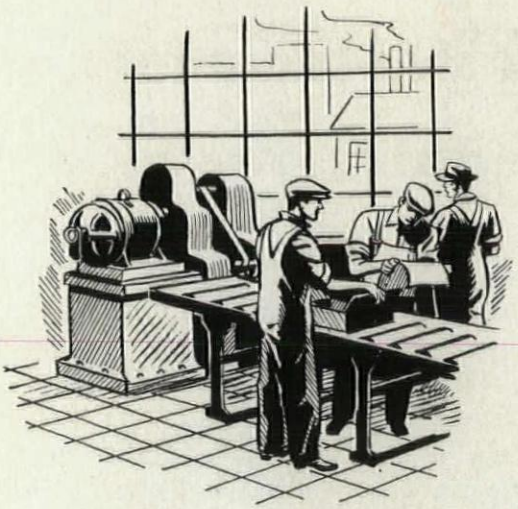

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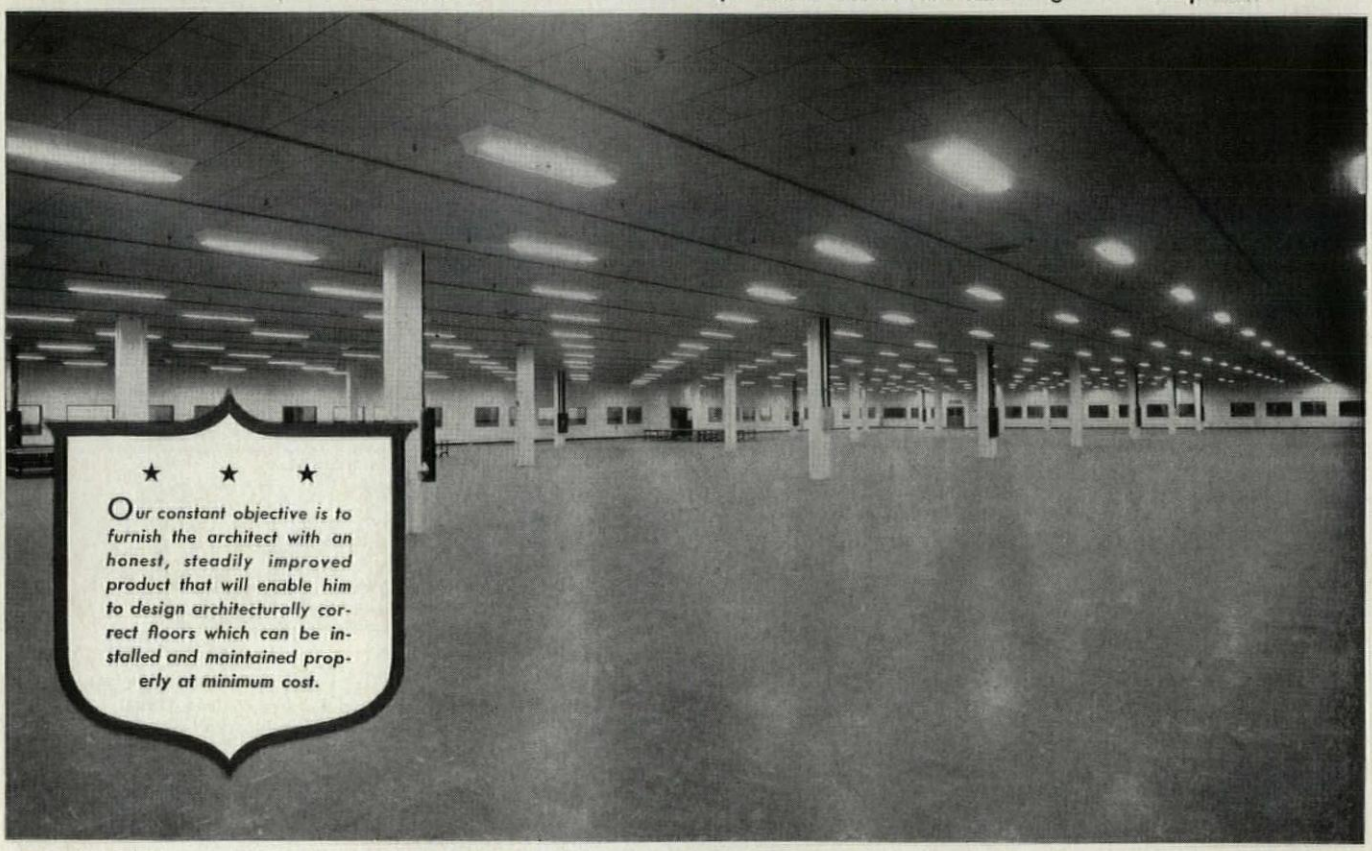
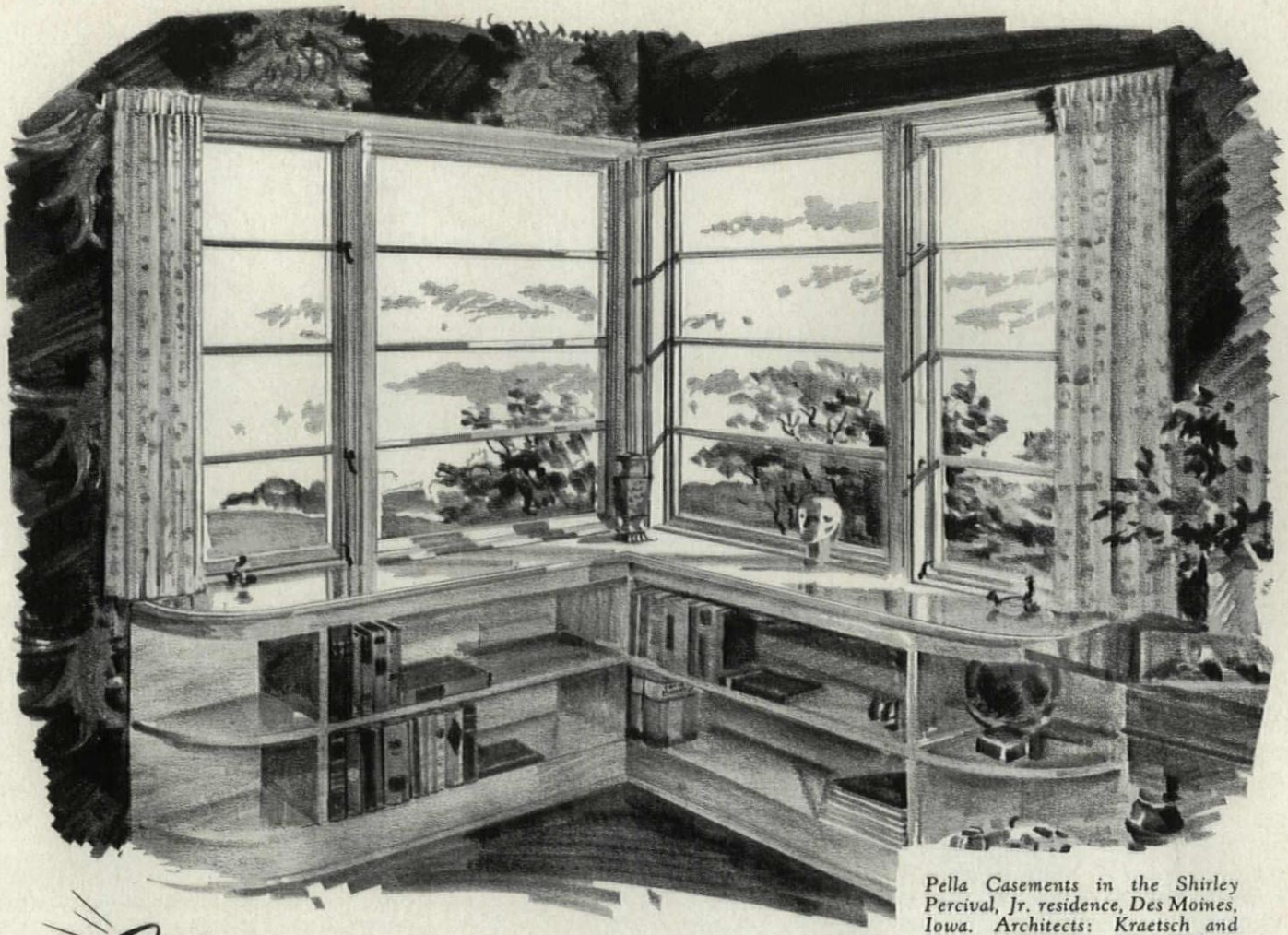


THIS IS THE FIRST OF A SERIES DEALING WITH THE PART OF TILE-TEX IN THE DEFENSE PROGRAM



Pella Casements in the Shirley Percival, Jr. residence, Des Moines, Iowa. Architects: Kraetsch and Kraetsch. Contractor: O. L. Wiltsie.

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VOLUME XXIII NUMBER 1 JANUARY, 1942

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PLATES

THRESHING FLOOR

SELECTED DETAILS

PUBLIC RELATIONS

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HERE, THERE, THIS, AND THAT

COVER DESIGN BY *GUSTAV JENSEN*

PENCIL POINTS

KENNETH REID, EDITOR, CHARLES MAGRUDER, MANAGING EDITOR
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Published monthly by REINHOLD PUBLISHING CORPORATION, East Stroudsburg, Pa., U.S.A. Ralph Reinhold, President and Treasurer: H. Burton Lowe, Vice President and Secretary; Philip H. Hubbard, Vice President; Francis M. Turner, Vice President. Executive and Editorial offices: 330 West 42nd Street, New York. 50 cents a copy. Yearly subscription $3.00, two years subscription $5.00 payable in advance, to the U. S. A. and U. S. Possessions. To Canada, Cuba, Mexico, Central and South America, $3.50 a year. To all other countries $5.00 a year. Remittances by International or American Express Money Order or by Draft on a bank in the U. S. should be payable in United States funds. Subscribers are requested to state profession or occupation. Changes of address must reach us before the 20th of the month to assure delivery of forthcoming issue. Be sure to give both your old and new addresses. To Contributors: Articles, drawings, photographs, etc., sent with a view to publication will be carefully considered, but the publisher will not be responsible for loss or damage.

Entered as second class matter, July 8, 1941, at the Post Office, East Stroudsburg, Pa., under the Act of March 3, 1879. Volume XXIII, No. 1, January, 1942. Indexed in Art Index.

YEAR OF WAR AND WORK

EDITORIAL COMMENT BY KENNETH REID

The year 1942, which has started out with such widespread dislocation of normal activities, gives promise of eventually steadying to abnormal productivity. At the moment there is still turmoil and uncertainty in the architectural profession, but every day more and more architects are making up their minds as to the course they will pursue and finding a place to pursue it. Some, located in non-active areas, have decided to close up shop and join the technical forces of Army, Navy, or O.E.M. Others have teamed up with their fellows and with engineers to go after Victory design contracts. The firms most strongly situated are already at work upon housing, industrial building, or other vital and necessary projects. An eleven and a quarter billion dollar construction year (O.P.M. estimate) will involve technical planning aplenty for those who really seek to serve.

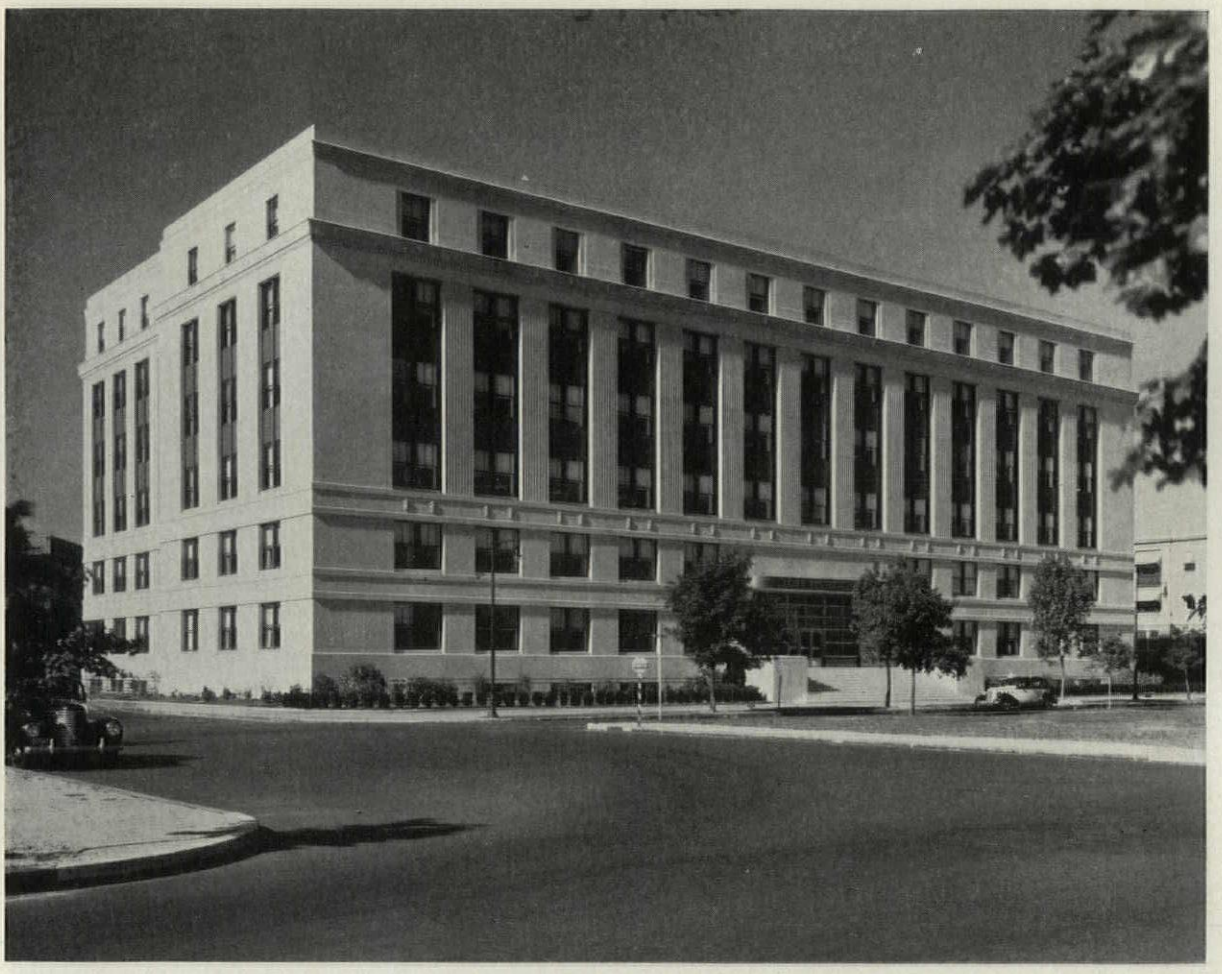
In several sections of the country, rather daring proposals are being considered for the architects of the area to band together, along with engineers, landscape architects, and other technical planners, to share cooperatively in the work that will be done for Government without losing their independent status as professional men. The most ambitious proposal of this kind is actually being put into effect, we are informed, in Southern California, where incorporation papers have been taken out for an organization whose purpose is to provide the Federal agencies with a regional all-inclusive planning service under the cooperative control of its members. Membership, expected to exceed a thousand individuals, will include licensed architects, structural and civil engineers, and members in good standing of the American Societies of Landscape Architects, Mechanical Engineers, and Electrical Engineers. Just how this will work out remains to be seen! With courage and determination to meet and conquer the difficulties as they arise the scheme offers some promise of being an effective way to cope with a difficult situation. We will report on it more fully next month.

It is to be hoped, of course, that as many architects as possible will be able to carry on in their own communities, where their services will be needed increasingly as time goes on. For one thing, there is reason to expect that funds will soon be made available by Congress to be apportioned to alert States and municipalities for the purpose of financing advance planning of a vast postwar public works program. The Public Work Reserve, under whose auspices this program is being nurtured, has been organizing the work and making preliminary studies for some months. Interested architects should keep in touch with the public works officials of their communities and State governments with a view to participating in the program. It is expected to involve schools, hospitals, parks and recreational facilities, housing, and many other socially important undertakings.

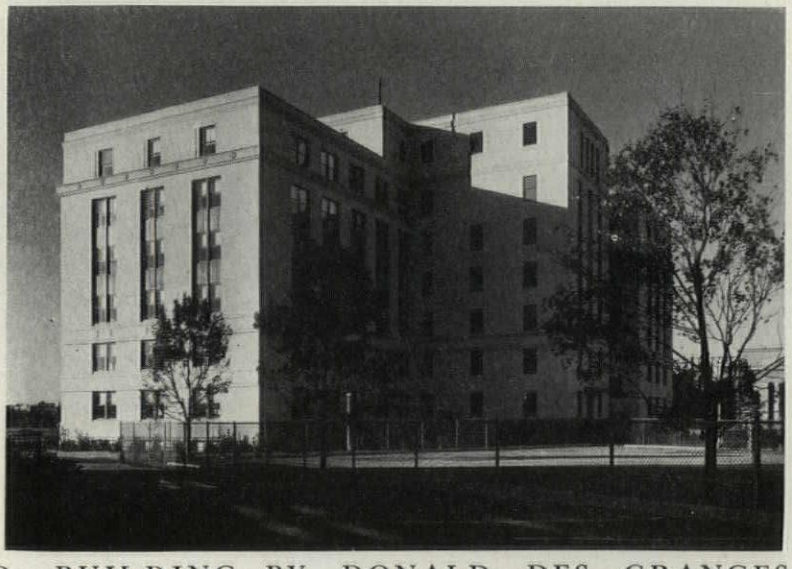
Civilian protection is another activity, just now very much to the fore, where architectural men are fitted by training and experience to perform vital service. It is to be regretted that members of the profession have been so slow in some sections of the country to jump in and take part in the planning and organization of A.R.P. work in their localities. It's not too late even now. If you are interested, contact the nearest local O.C.D. headquarters and also see that your Chapter or Society collaborates promptly and energetically with Horace W. Peaslee, National Chairman of the A.I.A. Committee on Civilian Defense, who is now organizing architectural groups throughout the country.

Outside of the war program, the ingenuity of the architect and designer is challenged to devise ways of building without any of the critical materials. Those ambitious along these lines should remember, however, that production of new substitutes on any substantial scale would require new machines and that new machines will probably be unattainable. There is apparently plenty of wood and cement and brick and glass and other basic building materials with which to experiment. To whatever extent invention can be realized there will be room for its useful application to war-purpose construction.

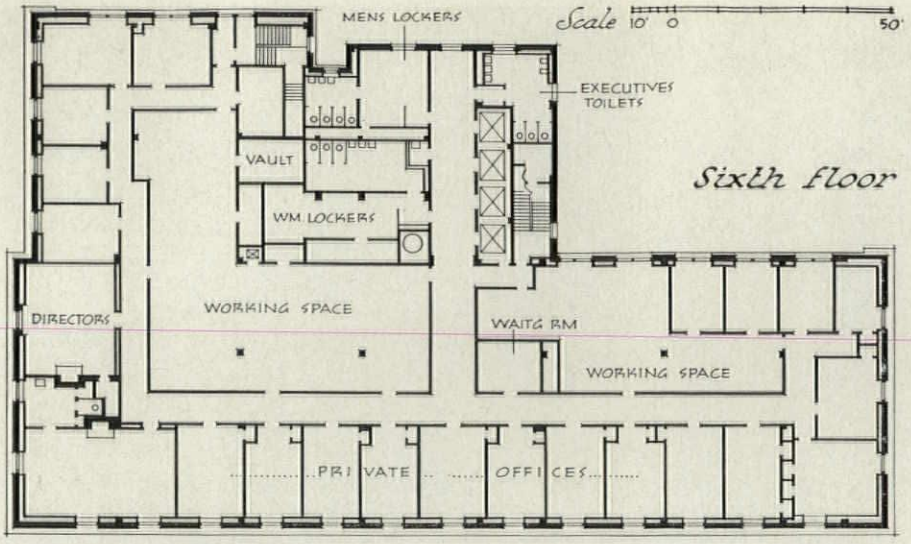
We expect, as the year moves on and the inevitable reshuffling takes place, to arrive at a condition where every available architectural man will be active at work for which he is fitted. There is no room in a total war for idle skills and the architectural profession has manifold skills that are urgently needed for both winning the war and preserving the social structure.

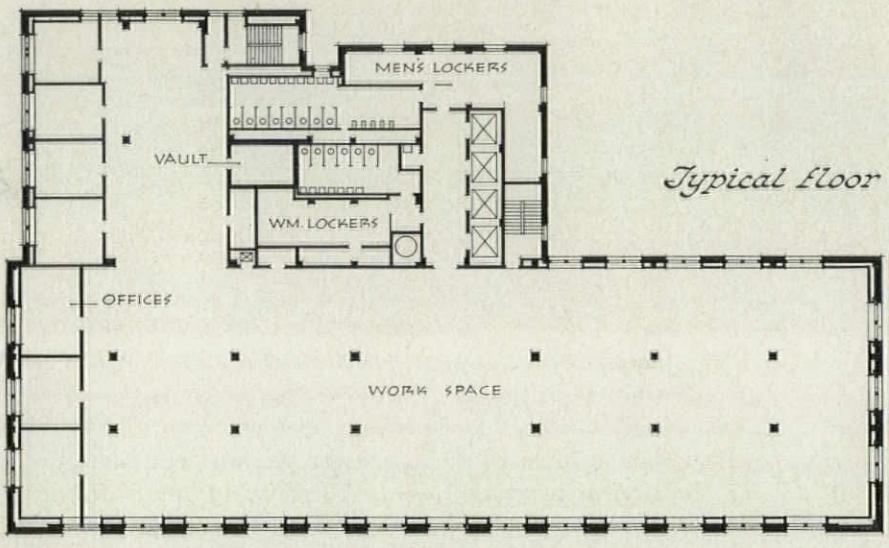


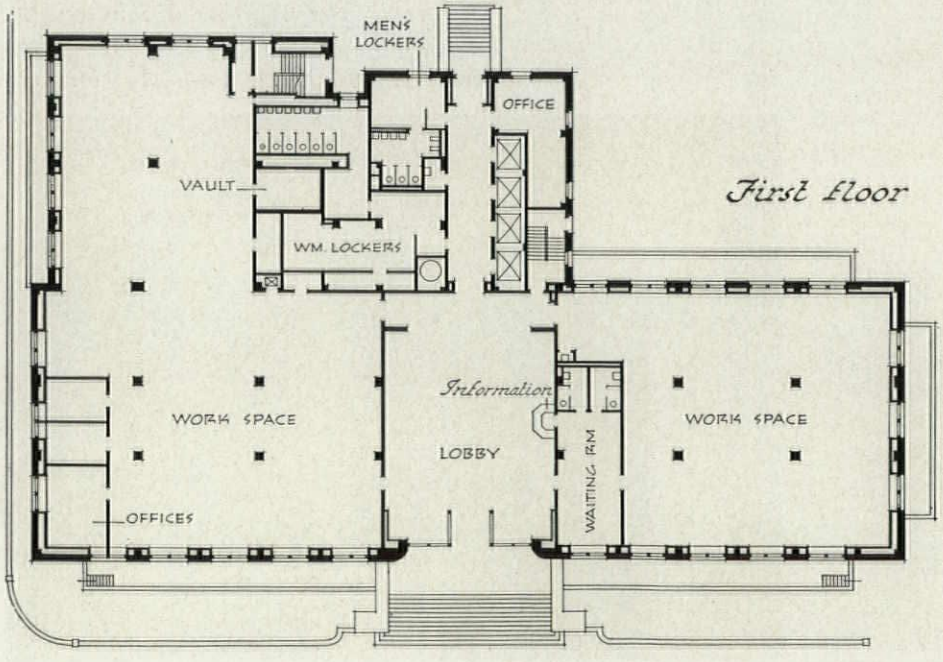
THE AIR-CONDITIONED ADMINISTRATION BUILDING for Lever Brothers Company, Cambridge., Mass., has a number of interesting features. The framing is entirely reinforced concrete, with columns so located as to least interfere with desk layouts in the clerical working spaces. The size of the building was accurately determined by the client's need for desk and aisle space. In the General Offices the lighting was designed for uniform spacing in all directions, thus providing even distribution of light. Visitors in the Waiting Room on the first floor are summoned to appointments by the receptionist through a public address system. (Photos by Haskell)



LEVER BROTHERS CO. BUILDING—BY DONALD DES GRANGES







LEVER BROTHERS CO. BUILDING—BY DONALD DES GRANGES;

Because of its important location on a boulevard, this property was carefully landscaped. The Principal Entrance overlooks the Charles River Basin, so the wide glazed panels and the entrance doors (below) offer a pleasing view of the Boston skyline across the river

WITH SHREVE, LAMB & HARMON, CONSULTING ARCHITECTS

Walls of the Lobby are of panelled teakwood, making a rich setting for the six murals by Francis Scott Bradford, who portrayed one hundred and ten Contemporary Bostonians in the series. (These mural paintings were illustrated on pages 587-590 in the September issue)

LEVER BROTHERS CO. BUILDING—BY DONALD DES GRANGES;

The President's Office (above) is panelled in English oak, and has an acoustically-treated ceiling. Pictured below is one of the many Clerical Departments in the building. All such departments have indirect lighting, asphalt tile floors, and soundproof ceiling construction

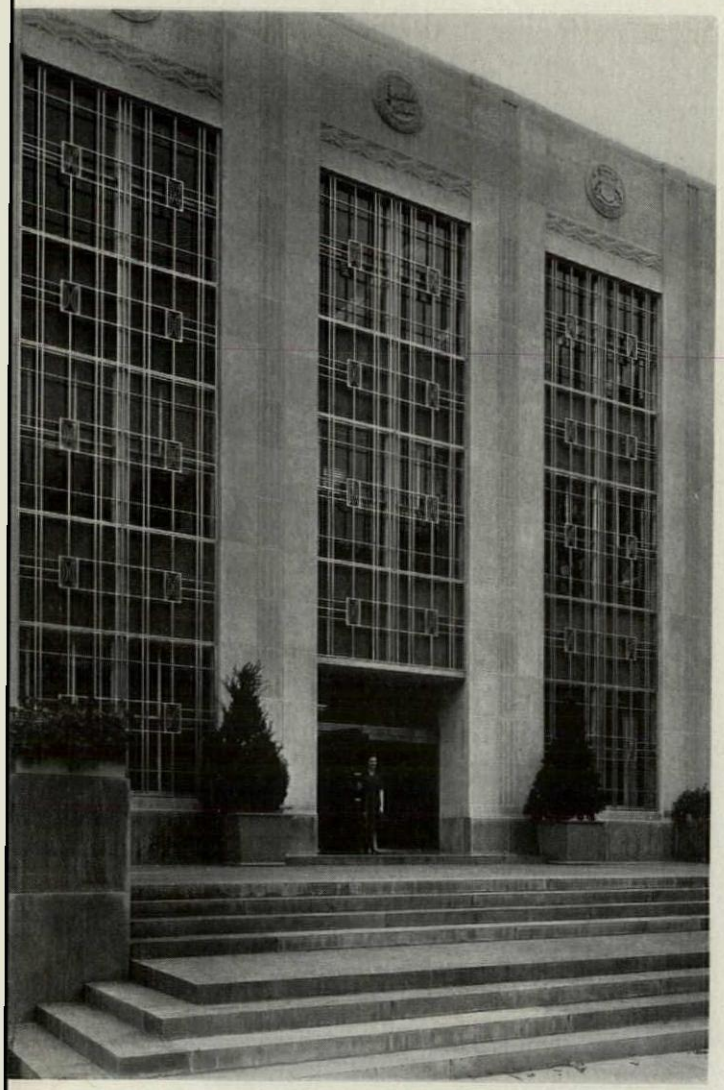
WITH SHREVE, LAMB & HARMON, CONSULTING ARCHITECTS

Office furniture, floor coverings, and panelled walls of English oak are in keeping with the dignity of the Executive Offices on the sixth floor of the building. The two views here show the Directors' Room

LEVER BROTHERS CO. BUILDING—BY DONALD DES GRANGES

THE OFFICE BUILDING designed for Employers Mutuals Insurance Companies provides ample accommodation for present departments and allows for their anticipated growth in the next ten-year period. The construction is a combination steel and reinforced concrete skeleton frame with limestone-faced exterior, designed to support a uniformly-distributed live-load of 125 pounds per square foot instead of the usual standard of 50 pounds, to permit the relocation of office equipment at any future date. (Photos by Hedrich-Blessing, of Chicago)

INSURANCE COMPANY HOME OFFICES – BY CHILDS & SMITH

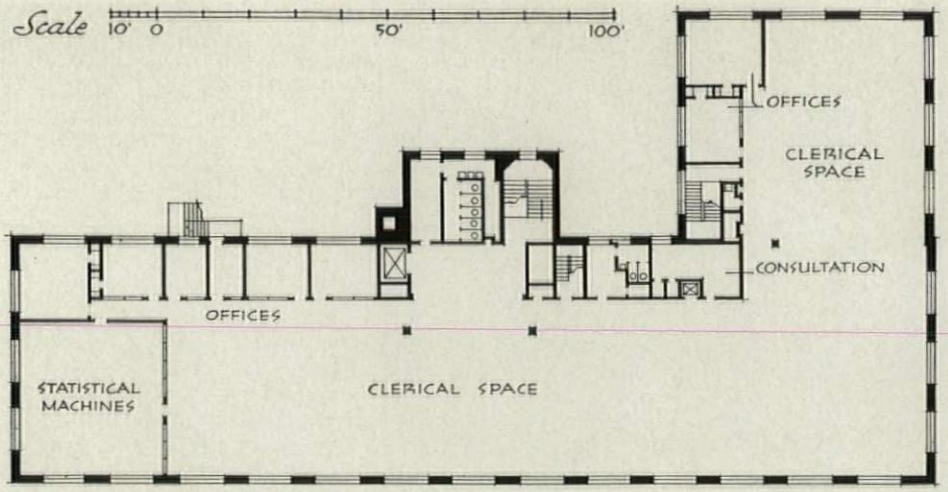


Three-story ornamental iron grilles, double-hung aluminum windows, Greenstone spandrels trimmed in extruded aluminum sections, and Herculite doors (detail below) are features of the Street Façade

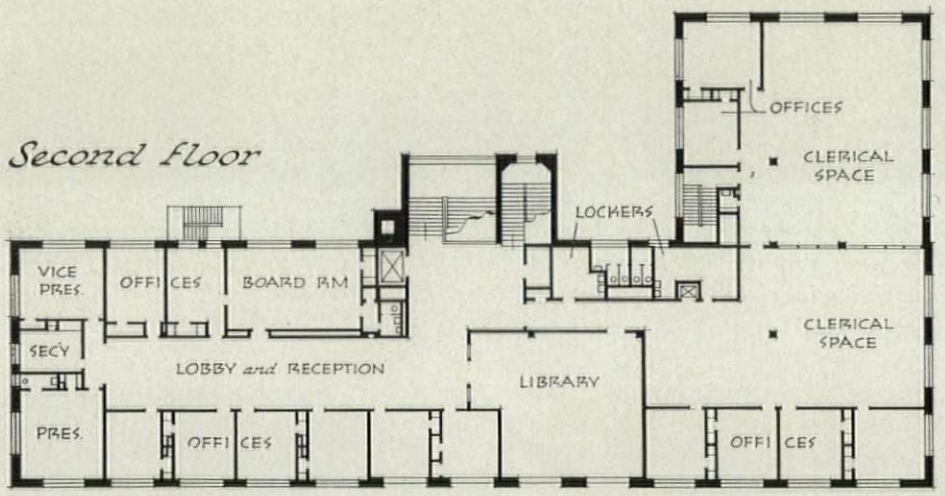
EMPLOYERS MUTUALS HOME OFFICES, WAUSAU, WISCONSIN,

These two views of the Lobby show the marble floor and walls, and acoustical tile ceilings which add to the dignity of the entrance. In the background (above) may be seen the main stairway leading to upper floors. More than 100,000 watts of fluorescent light produce an average of 40 to 50 foot candles of light intensity throughout the building

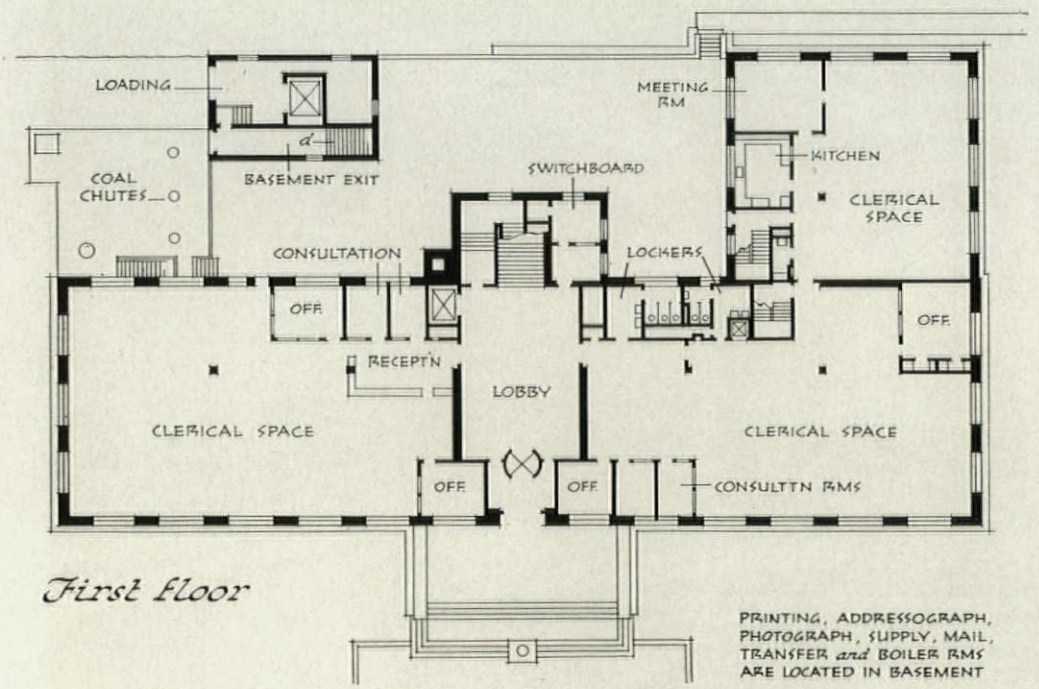
DESIGNED BY CHILDS & SMITH, ARCHITECTS, CHICAGO



Third floor



Second floor



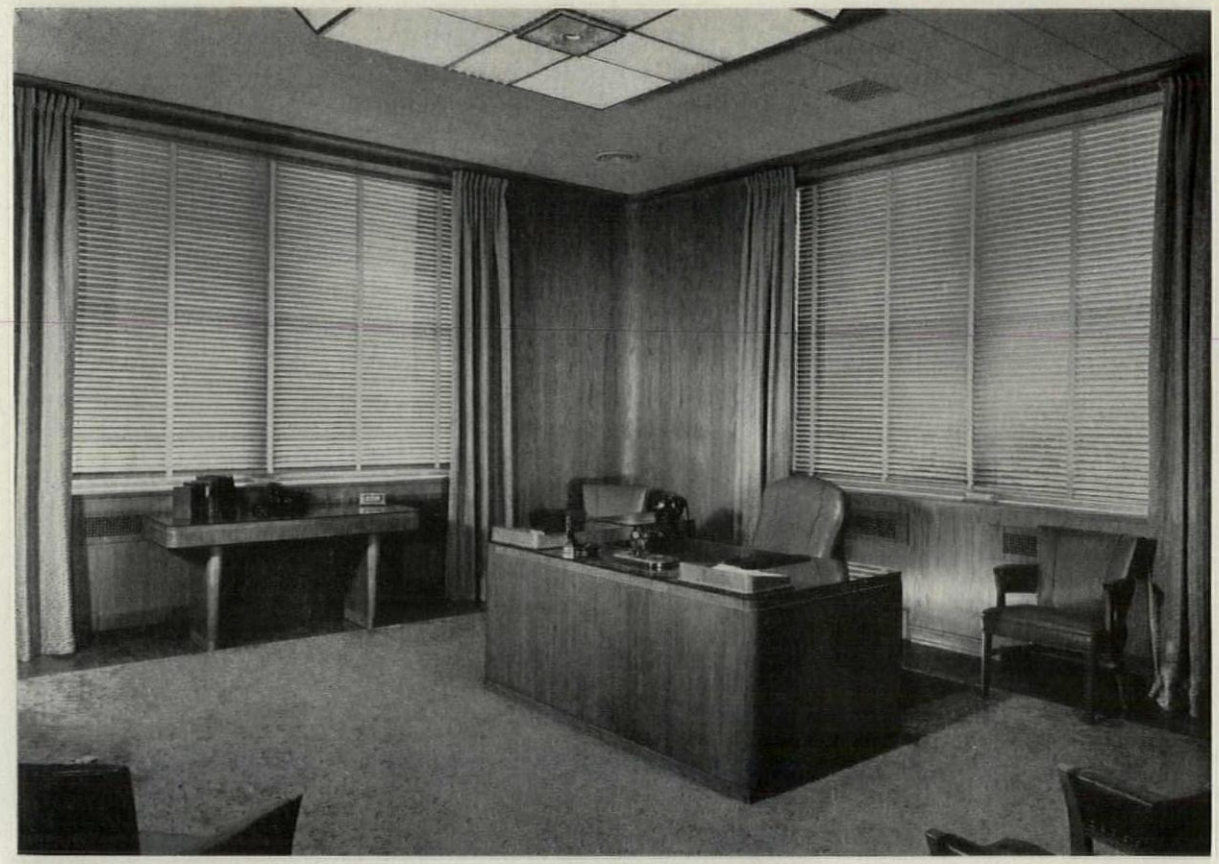
First floor

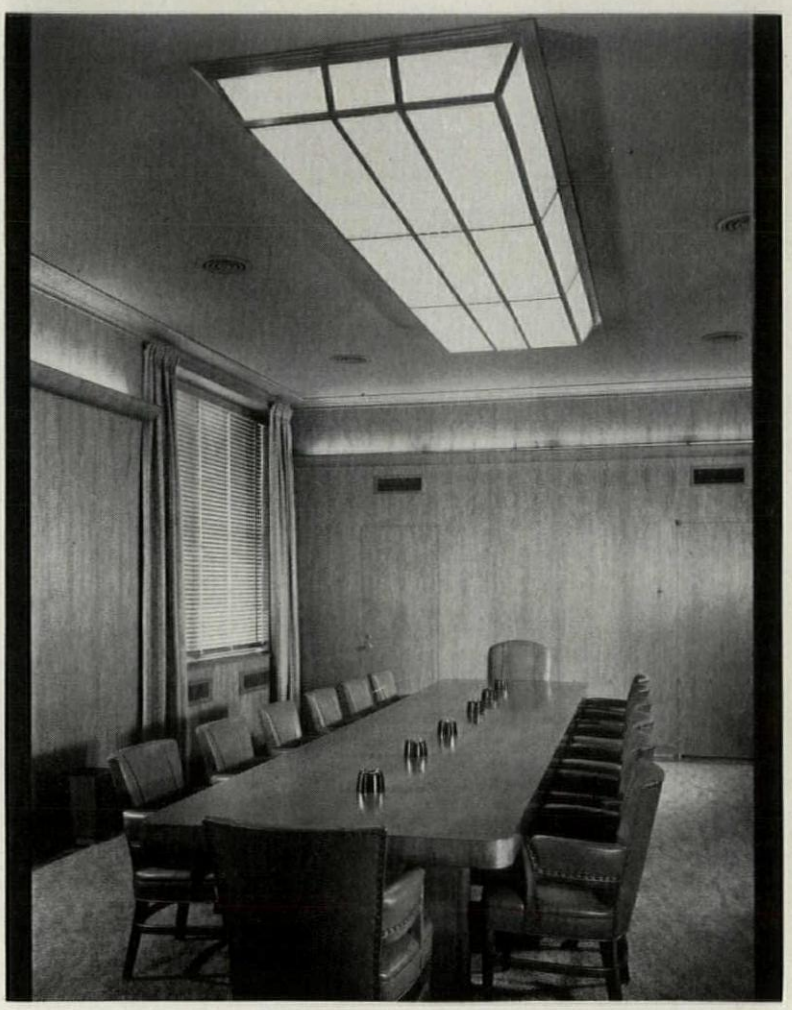
PRINTING, ADDRESSOGRAPH, PHOTOGRAPH, SUPPLY, MAIL, TRANSFER and BOILER RMS ARE LOCATED IN BASEMENT

EMPLOYERS MUTUALS HOME OFFICES, WAUSAU, WISCONSIN,

The Second Floor Lobby and Reception Room as seen above from the Library, is flanked by Executive Offices (see page 12). The interior framing requires a minimum of columns on floors above grade, permitting unobstructed floor areas for Clerical Departments (below)

DESIGNED BY CHILDS & SMITH, ARCHITECTS, CHICAGO





The richness of the furnishings in Executive Offices is reflected in the Vice-President's Office (above) and Directors' Room (below) both finished with matched plywood. The entire building is air-conditioned and equipped with soundproof ceilings. Venetian blinds (see also page 11) are aluminum-finished spring steel. Generous use was made of such materials as architectural glass, aluminum, nickel

INSURANCE COMPANY HOME OFFICES — BY CHILDS & SMITH

THE CAMOUFLAGE DILEMMA

BY KONRAD F. WITTMANN

During recent months one has heard again and again the question, "Do we need Air Raid Precautions and Camouflage at all? After all," runs the usual argument, "it is very unlikely that New York or any large center along the Atlantic Seaboard will be bombed." This arguing pro and con, wishful thinking, and fatalistic tardiness have provided a somewhat wavering basis for every discussion.

No one knows, of course, if or when Air Raid Precautions in this country are going to be proved necessary by actual test. What we definitely know is that in terms of the range of destructive weapons our globe has been for a long time shrinking and still shrinks from day to day. An attack on industrial sections in California is already more than a probability. Shall we let any more valuable time pass without urgent protective preparation? We already have air raid wardens, first-aid instructions, and roof-spotters in every city, but at the same time there appears to be much conflicting information and no effective camouflage.

Looking at the situation realistically, it is probably impossible to provide sufficient attack-proof shelter for populations in big cities where more than 90 percent of all houses are vulnerable to aerial bombardment. But every industrial area and every factory should certainly prepare adequate facilities for protection of workmen and vital machinery. These should also have, ready for use at any moment, an approved system for camouflage.

It is easy to develop plans for a house, or even for a big factory building, within a few days. Standard specifications for familiar types of construction make it easy to compile the necessary data within hours. Camouflage construction, however, is difficult. Here we have no standardized designs, no trained and experienced contractors, no materials which we can pick out confidently from a catalogue, and no assurance that untested ideas are really effective.

There are, of course, some books and pamphlets available, mostly based on British recommendations. These contain largely pages upon pages of theory compiled from other books to tell a story that could be told more simply by photographs and drawings, used with imagination. Camouflage is still considered in too many quarters a job for brush and paint pot as it was in World War I. Mistakes and entrenched misconceptions are repeated faithfully and without criticism. The stories of the frog, the moth, and the copperhead which by means of mimicry patterns blend magnificently with their surroundings of dry leaves, grass, reeds, and glittering sunspots illustrate admirably, we admit, Nature's inventiveness. But these creatures are small as compared with the trees, shrubs, and undergrowth among which they live and prey, whereas industrial plant buildings, water towers, chimney stacks, and so on are often many times bigger than any of the surrounding structures or landscape features. The problem of hiding them from aerial observation is quite difficult.

There are a few recently published books dealing with protective coloration in the animal kingdom. These represent meritorious research in their particular field, but to accept their findings as easy recipes for camouflage work today can bring only fallacious hopes and disastrous failures. These fairy tales of counter-shading and disruptive pattern may turn the imagination of mural painters towards what appears as their big

opportunity. The task seems to be so easy that the real issue of industrial protection is almost entirely neglected.

The word "camouflage" is only a handy slogan. What we mean and want when we use it is protection of vital industries to the fullest extent. This is a matter, alas, which cannot be accomplished through the study of zoology. It is a complex requiring the combined efforts of architects and technicians, industrial manufacturers, chemical experts, and town planners.

After all, protective camouflage or use of neighborhood pattern is only a small detail within the whole scheme of protective measures. The final goal of camouflage and industrial protection is a revision in principles of design. This involves making, perhaps for the first time, a search for principles in industrial building design to be used in place of those hitherto dictated by arbitrary adherence to usage, plus the desire for easy production profits.

Let us assume that the Government calls upon the industries to camouflage their factories. Are the factories prepared? Certainly not. Are the architects prepared? Certainly only a few of them. This is regrettable, for they have been warned repeatedly over the last few years by the architectural magazines and by the course of events elsewhere in the world. Now the Office of Civilian Defense has declared it to be "essential that protective organization be developed at once to guard against the disruption of normal activities and for the safety of the personnel in an emergency."

To undertake the design of protective arrangements we need aerial photographs—many of them—taken under different light conditions. Can we have these photographs at short notice? Camouflage constructions have to be planned always two or three months ahead. Have we photographs today showing how the site will look in April or July? Are materials available which we might need later on: iron rods, angles, cables, chicken wire, burlap, gypsum, fibers, texture material, paint? These things should be stored at strategic points and in adequate quantities. As we set out to develop industrial protection some of these materials are being restricted. All metals are scarce and such things as burlap have quite recently been added to the list for rationing. This means the invention, testing, and production of substitutes, entailing loss of time and uncertain results. It is easy to say, "Let us plant trees," but do we know how to plant trees for the best effects?

These are questions which can only be solved in time. But during war the factor of time is often decisive. If we want effective protection in July we must plan now.

Another difficulty we encounter is that camouflage constructions are never permanently adequate. An idea that might work well in winter is certain to be wrong two months later. The coloration appropriate to May would become conspicuous in August. Camouflage constructions, like stage scenery, are only effective in continuous transformation. And not only the coloration, but the entire structure has to follow the changing neighborhood pattern.

Camouflage of a gun position or of a few soldiers in a dugout is built to last but a few days. Industrial camouflage has to withstand changing atmospheric conditions, heat and rain, snow and storm, over an extended period. Very little about these varying conditions is mentioned in the available literature which is so confident that counter-shading and bold disruptive pattern will do the job. A certain big corporation possessing many storage tanks has made experiments in disruptive pattern painting for almost a year, only to find that the "camouflaged" tank becomes more conspicuous than before. It helps little to eliminate a minor detail on one side if a perfect shadow on the other side clearly discloses the essential roundness of the structure.

If protection through camouflage were only a paint problem it might very well be solved within a few weeks. Unfortunately, it is a structural problem, an engineering problem, a problem of factory management, a problem of industrial organization. We must admit that the outlook for speedy application of a proper solution is almost hopeless in congested industrial areas which have many conspicuous structures.

We do not have to be too discouraged if we are frank enough to recognize that we are paying the price now for our failure to plan for these things during the years when the need was obvious elsewhere and should have been obvious here. We will have to do what we can for the moment by the application of our own ingenuity to augment the techniques which have been developed in Europe. The final and correct answer will be given in the field of city and regional planning. I propose to discuss in another article the relation of city planning to defense against modern air warfare, for it is in this direction that the architect can most effectively exercise his capacity to shape the future towards safety.

Residence of Mr. and Mrs. D. J. Harrison, Houston, Texas, reflects gracious, hospitable customs

THE ARCHITECT AND HOUSE

7 — JOHN F. STAUB, OF HOUSTON, TEXAS

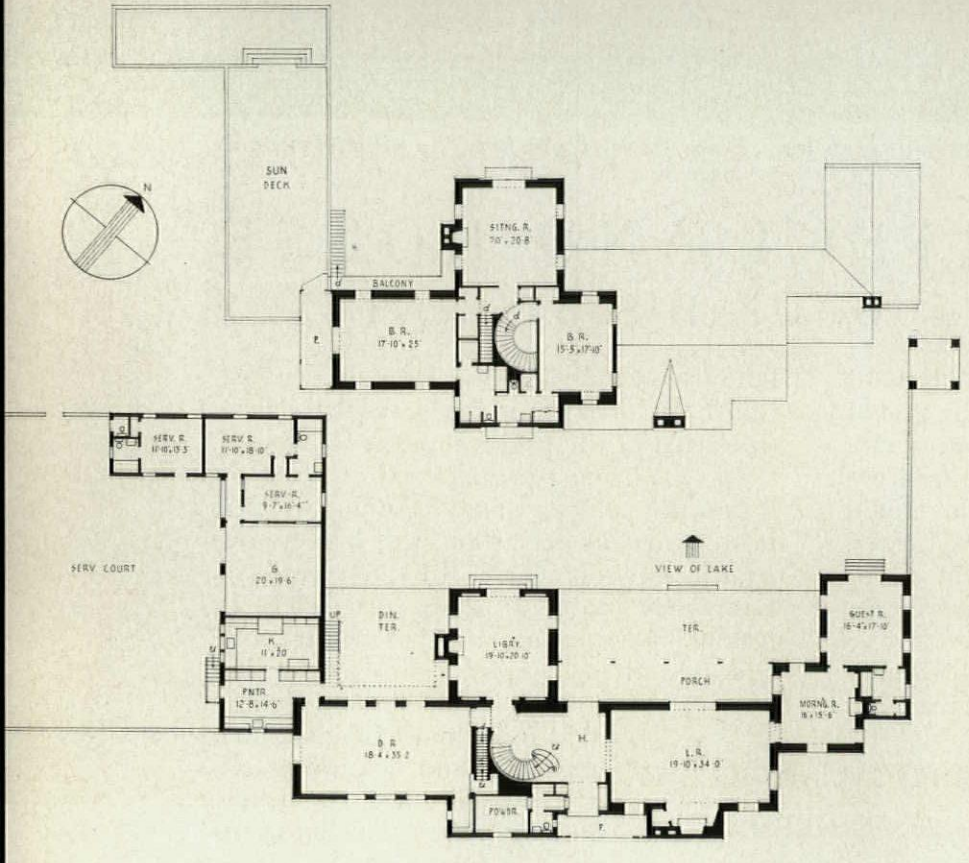
CRITICAL ARTICLE BY JAMES CHILLMAN, JR.

Sigurd Fischer Photos

Today, except for the disrupting effects of war, we live in a land made small by ease of communication and transportation, standardized by modern mechanics. We read the same magazines, listen to the same radio programs, view the same motion pictures, enjoy the same sports and live in towns where, except for small details, every main street looks alike.

It is a curious paradox that in this standardized world so much effort is made to claim and point out local characteristics. Perhaps it is the natural reaction or protest against regimentation that makes us consider and prize regionalism as one of the last bulwarks of individuality. After all, regionalism in architecture is but a respectful consideration of the limits imposed by climate, topography, and a people's way of life.

Grant this and any architectural form, no matter what its derivation, will become one with its environment, will become regional. Conversely, no form is regional solely by reasons of traditional association; for while climate and topography seem constant, the ways of living slowly but definitely change. Old forms must be given new meanings and new forms created to meet new conditions. Perhaps this is the clue to the work of John F. Staub. Superficial judgment might term



The entrance front of this suburban house, located on a wooded site sloping down to a lake, evidences a degree of sophistication and yet possesses the informal character desirable in such a setting. The plans of the house (left) exhibit Staub's ingenuity in balancing the two prime and opposing requisites of this problem. The site demands that the rooms face a splendid view over the lake to the north; comfortable living in Texas summers demands that the rooms be open to the prevailing south breezes. Regardless of the size of the openings, all the sash in this house was detailed to slide into the walls—leaving each opening entirely clear. Scale of the house is unusually generous

A RESIDENCE LOCATED AT WHITEROCK LAKE, NEAR DALLAS

An outside stair and balcony connect the Dining Terrace with the large Master Suite upstairs

A RESIDENCE LOCATED AT WHITEROCK LAKE, NEAR DALLAS

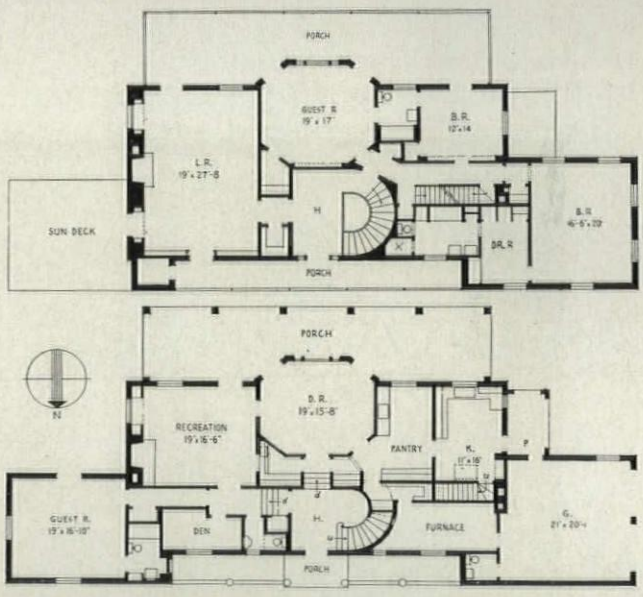
Opposite the fireplace in the Living Room, this broad opening frames a view of the lake. The warm color of the redwood ceiling shows through a semi-opaque parchment finish. The Morning Room (below) has hand-blocked wallpaper and a ceiling of bright metal-leaf

A RESIDENCE LOCATED AT WHITEROCK LAKE, NEAR DALLAS

his work traditional, but by so doing would confess a certain ignorance of modern building. Staub's work acknowledges no bond to tradition; it is never a study of history. It is eclectic only in that it recognizes in certain forms of the past complete appropriateness to modern living. Forms of architecture are like words, new ones need not be invented in order to express each new idea.

In the tradition, rather than traditional, forms are selected, used or invented but for one purpose, to create a soundly-built, appropriate setting for gracious living.

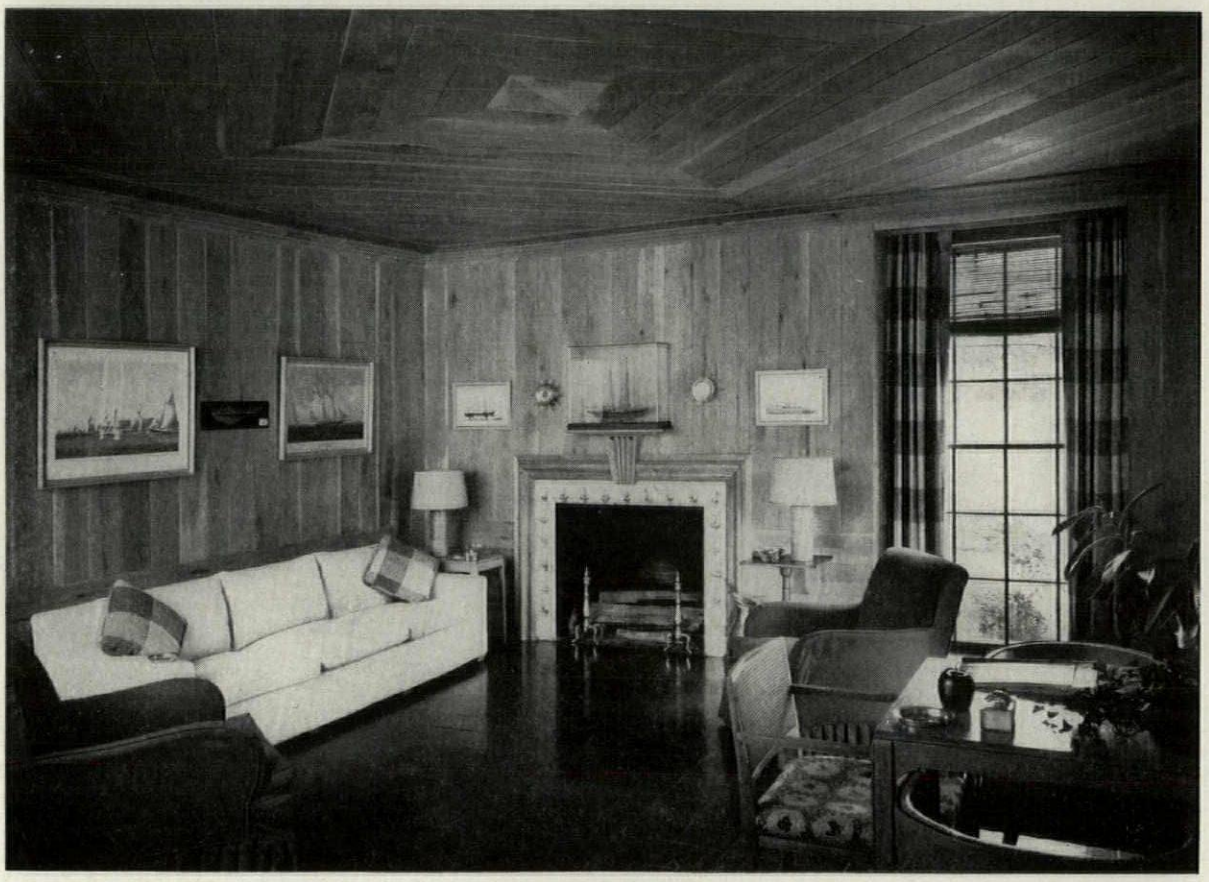
Most of the work of John Staub has been done in the South, and of this by far the greatest part in and about the City of Houston. The city lies in the coastal plain of the Gulf of Mexico. Broad, flat and open, its contours are disturbed little by the erosion of slowly-moving water in its bayous, their banks still covered with tall pines and wide-spreading live oaks. Mild in winter, except for the occasional "Norther," the climate in summer is one of continuous heat, modified by the cooler breeze from the neighboring Gulf. At any time during the year the bright sun and intense blue sky may give way to heavy clouds and torrential rains; yet the warmth and the breezes make for a life spent more in the open than indoors. As in all of the Gulf plain, there is no local stone so



Porches on the garden side of this house shade the tall windows of the principal rooms, which command a view of Buffalo Bayou. Recalling old plantation houses of this section, the spacious Living Room is found on the second floor. A Recreation Room and the principal Guest Room are on the first floor, somewhat removed from rooms used by the family. This disposition of the principal rooms insures family privacy but at the same time affords comfortable accommodations for the house guests

RESIDENCE OF MR. AND MRS. ERNEST BEL FAY, NEAR HOUSTON

The low first story on the entrance side recalls the Eighteenth Century homes of the Bayou sections of Texas and Louisiana. The view below shows the Recreation Room, sheathed in knotty oak planking; with ship model and marine prints indicating the Owner's interests

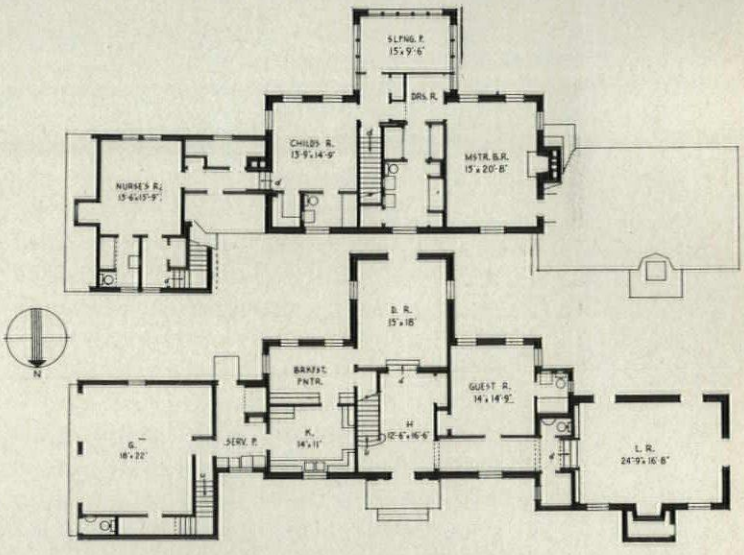


RESIDENCE OF MR. AND MRS. ERNEST BEL FAY, NEAR HOUSTON

masonry finds its material in brick and cement.

Against this background is placed a life at once expressive of the finest traditions of the Old South and the pioneer spirit of the Modern West. One of Staub's greatest strengths is his comprehension of that life and his ability to give it material expression. A native of Tennessee, he comes rightfully by his sympathetic understanding of the land and its people. Another native of the South, John Thomas Rather, Jr., has been Staub's associate in practice for twenty years. While the guiding spirit of the design is Staub, he is quick to give credit to the quiet genius of Rather as a definite aid in the fulfillment of many projects.

Brick, glass, and steel give the building form, but it is the people inhabiting it who give it meaning. Houses are but outer clothes, and should be fitted to the persons within, but this is more easy to say than to achieve. Yet John Staub makes such an achievement. Not only does it seem that his client helped plan the home so that he was a part of it before the walls were raised, but that furniture, owned or desired, was placed and arranged with the planning of each room. The result is not an artificial or arbitrary order, but a "lived with" character. Ease of internal



The same hot sun that drenches Bermuda must be considered by Architects of the Texas Coastal Region. The white stucco walls and roofs and the awning type wooden shutters favored by British Colonials are therefore comfortable here. The large bases of the chimneys are not wasted; as one contains wood storage space and the other a bathroom. The Living Room, in the one-story wing at the right, has a high ceiling. The Guest Room is on the first floor. On the second are the bedrooms for the family — a couple with two small daughters

RESIDENCE OF MR. AND MRS. ALBERT BEL FAY, NEAR HOUSTON

The somewhat severe impression conveyed by this photograph of the entrance motif really does not characterize this stone house as a whole. Warm grays and gray-browns of roof and walls suggest pleasantly informal living

arrangement, sunlight and cool breeze, the pleasant view—all these condition the plan. Wide windows, shaded porches, concessions to breeze and sun are thoughtfully arranged to extend interiors to the out-of-doors.

The feeling is sustained in the immediate surroundings. Consideration for the nature of the house, its setting and exposures, is carefully taken so that the finished structure seems to belong to the ground on which it rests. These are ideal conditions which most architects hope to accomplish. With John Staub they are accomplishments. This seems an arbitrary statement, but it is evidenced by each building and its grounds.

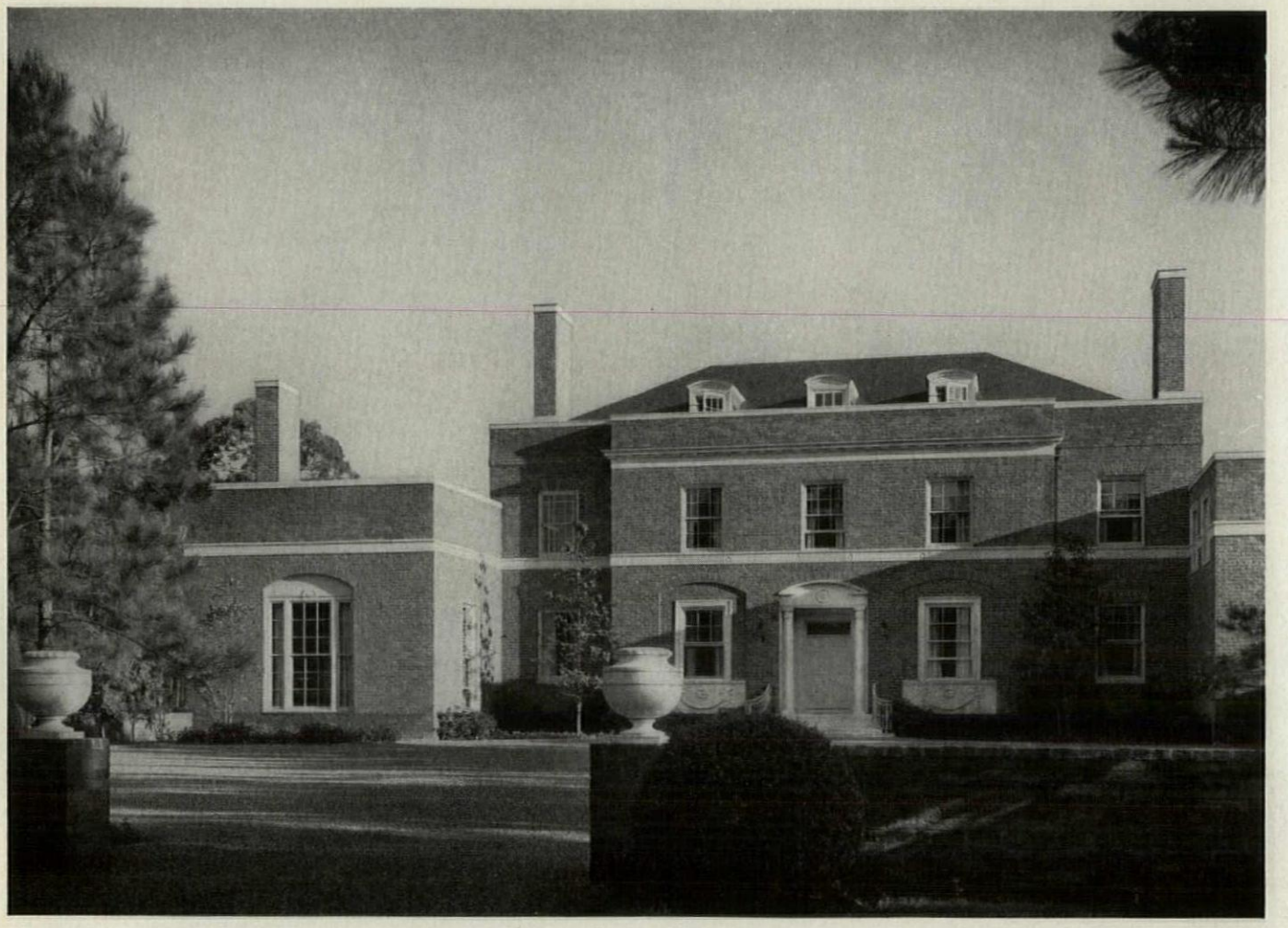
In his use of materials Staub is guided again by a sense of appropriateness; creating a fine balance between the tried and the new. Witness his use of ironwork, so typical of New Orleans and the East Gulf Coast, which he introduces in new and novel manners to the architecture of Houston. But materials are always means, not ends. The ones most fitting to the complete realization of the aims of the building are the ones to be used. This does not mean, always, the most strict economy of material or space. But if Staub is no slave to tradition, neither is he a slave to modern theory. It is a debatable question whether the functionalism which grew from an economy permitting only the minimum material is more valid than that based upon an accurate adjustment to use and adequate expression of purpose.

It is far simpler to consider the ingenuity of plan or the skilled use of materials, than that intangible quality that makes a home expressive of the culture which produces it; yet it is just this quality of expressiveness which gives John Staub's work its unquestioned distinction. Each house is more than a soundly-built shelter; it is a home, and each is a clear interpretation of the ideals of the South, not of tradition, but of today.

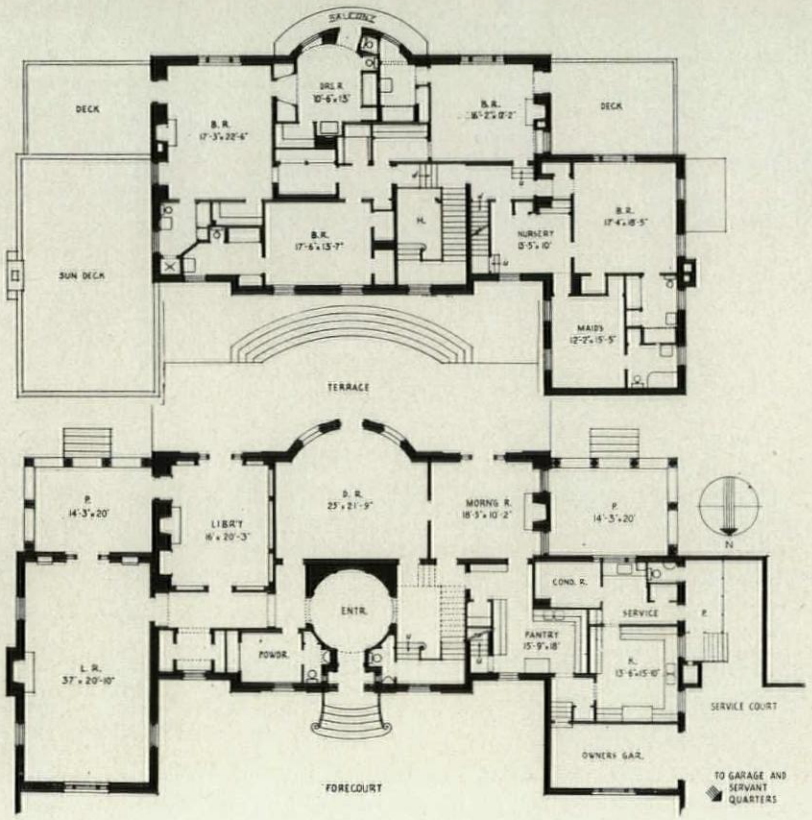
RESIDENCE OF MR. AND MRS. ARTHUR A. SEELIGSON, SAN ANTONIO

The deep porches and broad terrace on the Garden Front of this formal house face the south

RESIDENCE OF MR. AND MRS. JAMES O. WINSTON, JR., HOUSTON

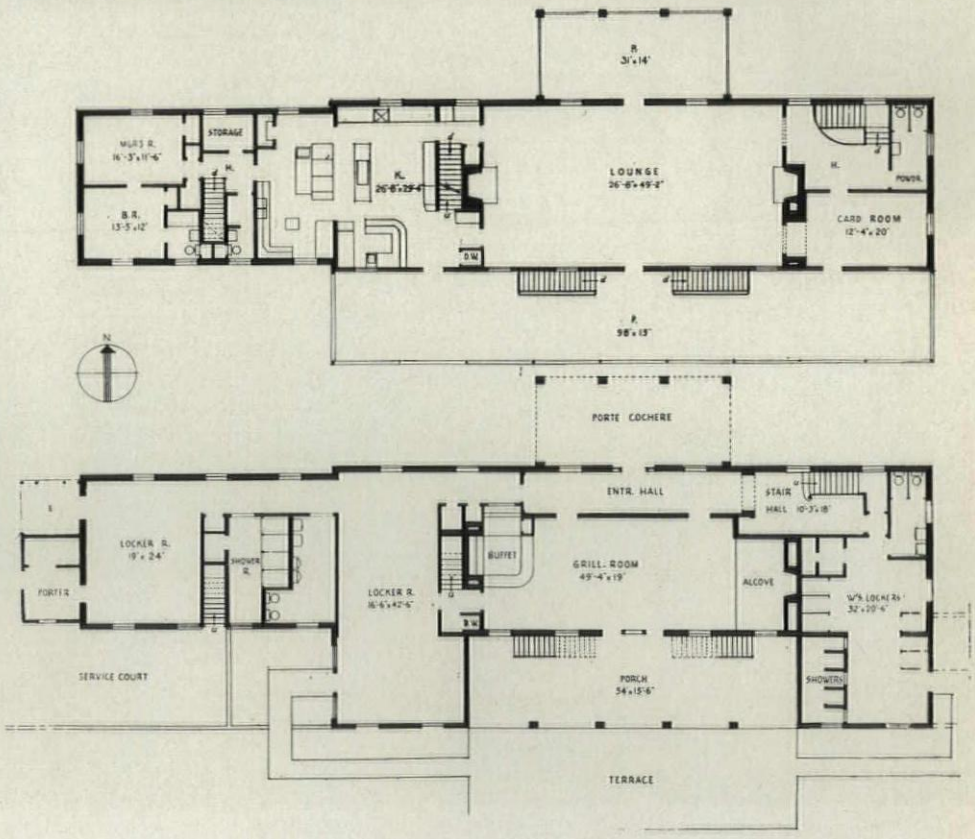


The cool perfection of those English country houses built during the reigns of the later Georges inspired this symmetrically-designed entrance front with its spacious Forecourt and formal doorway. The high-ceilinged Living Room is in the wing at the left. This is balanced at the right by a two-story Service Wing adjacent to the Motor and Service Court (see plan at left). The high parapet above the Living Room insures the privacy of the broad Sun Deck outside the Master Suite on the second floor. Hand-made brick, in tones of red softened by their sand texture, are trimmed with stone of a pale ivory color. The roof is gray

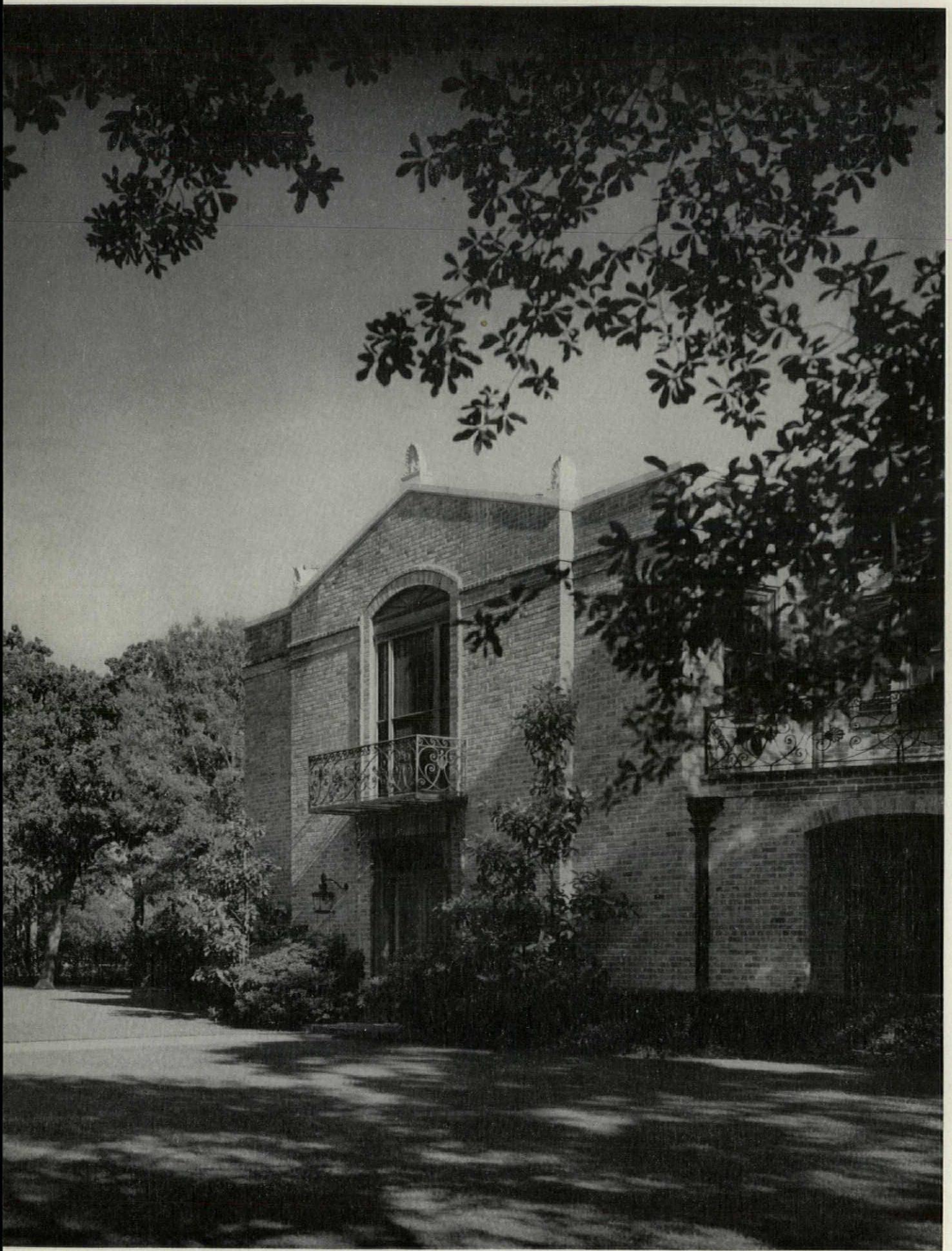


RESIDENCE OF MR. AND MRS. JAMES O. WINSTON, JR., HOUSTON

The pool side of this clubhouse shows again the shady verandas developed long ago as practical necessities in Texas and Louisiana. The Lounge is above the low first floor and, since this and the long porch overlooking the pool are used as the principal dining areas, the Kitchen is also on the second floor. Convenient access to the pool and to the adjoining terrace for dancing is provided by the double stairway from the upper porch. The mildness of the climate permits the use of these stairs and the porches during most of the year. The dumbwaiter is provided for those occasions when it is desired to extend service from the kitchen to the Grill Room or porch below



THE BAYOU CLUB, NEAR HOUSTON, TEXAS



This entrance is at the juncture of two wings making a wide angle

RESIDENCE OF MR. AND MRS. ANDREW JACKSON WRAY, HOUSTON

SAN FRANCISCO BLACKOUT

BY SERGE CHERMAYEFF

If, according to Secretary Knox, the Navy was caught napping in Hawaii, nothing adequate remains to describe the condition of the city fathers in San Francisco that Sunday night.

It was painfully obvious to everyone that the authorities had accomplished absolutely nothing in the way of organization of the community outside special and extremely efficient departments such as that of fire. What action followed this first revelation of ineptitude only served to show that, in addition to having failed organizationally, the various city fathers had also failed to acquaint themselves with elementary ARP facts.

To take one example of raid warning signals: no proper instrument with which to make any signals were available at the declaration of war. Sirens have since been ordered from Chicago and are being flown by air. (One powerful siren had been part of Ferry Building equipment for years.) Such sirens as could be commandeered on fire engines, ambulances, and police cars gave the first three alarms as they dashed through the streets of the city.

A series of warning signals were devised on the spur of the moment, announced in the papers, and countermanded in the next morning's edition. Five such changes were made before the obvious two signals were entrenched. All this not without additional complications of municipal variety. The same lack of recognition of a common need and coordinated action which has held back planning in the Bay Area became apparent as the bewildered public was asked to memorize raid signals which varied from Richmond through Berkeley, Oakland, Alameda, San Francisco, and so on down the Peninsula, in any one of which areas the most law-abiding and anxious inhabitant may find himself in the course of a normal day's work.

The actual blackout followed the same haphazard course, starting with the first try which left all neon signs blazing and finishing with a fourth which saw San Francisco efficiently blacked out once, Berkeley darkened by easy stages ten minutes later, Richmond shipyards following in some five minutes, and Alameda ten minutes later, after presenting an unforgettable silhouette of Telegraph Hill to San Francisco observers.

As the purpose of the blackout was not clearly stated, it became an end in itself with official wardens supplemented by self-appointed assistants whose zeal in some cases overran their discretion and led to some roughhousing.

All these things, however, now belong to history. Since General deWitte, commanding the Fourth Army, addressed his gentle rebuff to the Mayor and his Civilian Defense Committee, and since Mrs. Eleanor Roosevelt and Mayor LaGuardia stopped over just long enough to speak briefly and to the point, things have happened and are continuing to happen.

An Architectural Committee has sifted data on *A*- and *B*-class buildings, and has computed a schedule of these for use as shelters in the downtown districts. The Red Cross survey of similar structures (the only piece of research and coordination completed *before* the emergency) has done the same for residential areas.

These shelters will be clearly signposted and identified with standardized signs.

Other Architects are drafting recommendations and plans for shelters in connection with new and extremely combustible defense housing in places such as Vallejo.

The broad purposes of ARP are emerging. Citizens are equipping themselves with fire-fighting material, including "colored sand to go with any scheme of decoration," and will shortly know how to use them. The zeal which led to milling about in the streets is being diverted to more useful channels such as fire-spotting and fire-fighting squads on roof tops.

Most citizens have further begun to realize that the efficiency of ARP depends on the ability of the population to carry on its activities in as normal a manner as is possible under war conditions. This realization has led to the purchase of such material as is available to make blackout tolerable. In most households at least the utility rooms may now be properly lit in a blackout through the elementary devices of blackout equipment.

As yet we have heard nothing of proper equipment such as headlight shades for such vehicles as will have to remain running in an emergency – fire-fighting, first-aid, police, etc. The inefficiency of blue cellophane has been demonstrated elsewhere, but is optimistically put on by many. Apart from these special-purpose vehicles it may be found necessary to grant exemption to properly-equipped private cars so as not to disrupt seriously the life in a district which at worst is unlikely to suffer from more than occasional raids. Actually, throughout the last and most successful blackout, fire engines not only drove around with headlights and rear-end stoplights blazing, but in addition created confusion by using their sirens for traffic clearing, when these same sirens had been identified *pro tem* with air raid signals in the public's mind.

Your correspondent's impression is that to date the emphasis of the authorities in most effective measures taken has been on night raid conditions. In fact, there is nothing to support that this will be the major risk.

Anyone acquainted with San Francisco knows the chronic traffic and parking snarls from which the downtown district suffers in the middle of the day. At this time of the year Christmas shopping aggravates this condition. In the event of a surprise daytime raid it will be difficult, if not impossible, for the automobile drivers to abandon their cars and seek shelter downtown without completely blocking many streets to all such essential freedom of movement as will be required by the police, fire department, first aid, repairs.

(Continued on page 28)

Probably this has been realized and necessary restrictions on downtown traffic will be imposed.

Generally, an outside observer of the events of this last week comes to the conclusion that the actuality of war is doing the same for ARP as it is to all other activities. The common sense shown, on the whole, by the citizenry, without having received instructions, their sense of duty and capacity for action, are transforming the scene hour by hour. Action is being taken by all sorts of people; this is particularly true of professional men such as architects, whose performance is both intelligent and vigorous. Their contribution in the last few days has closed to a considerable extent the formidable gap left over months, if not years, by political appointees whom one hopes they will replace for the benefit and safety of the community.

To make the fullest use of this good will, intelligence, and energy it seems necessary to superimpose, on the existing pattern of widely-scattered authorities, a coordinated agency which will, for the purposes and period of the emergency, transcend the municipal and city boundaries. Whatever validity these may have for legislative purposes under normal conditions, their disadvantages for the purposes of war have become apparent in the light of events here in the Bay Area in the last few days.

December 15, 1941

SOME HELPFUL A. R. P. LITERATURE

Virgins with trimmed lamps—that is to say those architects who heeded the warnings repeated over and over in PENCIL POINTS and other journals since August, 1940—will have by this time provided themselves with standard reference works and pamphlets dealing with air raid precautions and protective construction. Others who have only recently become conscious of the need will wish to accumulate reliable information that will help them to solve the problems that will be put up to many of them by building owners.

There are several books to be had dealing with all or part of the general subject. General opinion seems to be that the book, *Civil Protection*, by Samuely and Hamann, published by the Architectural Press, London, and handled in this country through the Chemical Publishing Company, Inc., of 234 King Street, Brooklyn, New York, is the most comprehensive. It contains 165 pages plus a bibliography and index and sells for $3.50 a copy. It contains, with critical discussion, the text of the Air Raid Precautions Act of 1937 and the Civil Defense Act of 1939, and also the Air Raid Shelter Code which was developed to guide the application of the Acts themselves. Thereafter, the essential parts of British A.R.P. handbooks Nos. 5, 6, and 9, dealing with "Structural Defense," "Air Raid Precautions in Factories and Business Premises," and "Incendiary Bombs and Fire Precautions" respectively, are followed by sections on Basement Shelters; Domestic Surface Shelters; Lighting Restrictions; Camouflage; Shelters in Hospitals; Public Shelters; Miscellaneous Considerations of new buildings, special materials, ventilation, etc.; and, finally, all necessary data on the action and effects of bombs and construction of bomb-proof shelters.

Study of this book should be supplemented by a careful reading of the book, *Planned A.R.P.*, by Tecton, also sold by the Chemical Publishing Company, of Brooklyn, for $2.50 a copy. The group of architects who prepared *Planned A.R.P.* made a careful study of the possibilities of building really bomb-proof deep shelters for the entire population and concludes that the expense of supplying this complete protection, though very great, would eventually pay for itself in ways which they describe.

For the average architect, several of the pamphlets issued by the Office of Civilian Defense, in Washington, will provide the essential knowledge he should have. These may all be obtained from the Superintendent of Documents, Washington, D. C., at the prices stated hereafter. The most helpful pamphlets of this type so far issued are as follows:

Protective Construction — Bulletin No. 1 of the Structures Series—25c

Contains essential data for the design of protective structures including trajectory, impact velocity, penetration and blast of bombs, and a great deal of information concerning structural arrangements that can be made to resist the high explosive bomb. Details are given of approved and tested construction for splinterproof air raid shelters to accommodate anywhere from six to two hundred persons.

Blackouts—25c

An excellent and well-illustrated pamphlet discussing adequately all phases of blackout technique. Architects will be principally interested in the chapters on obscuration methods and materials in general, the applications of blackout to individual dwellings, and to stores, factories, and industrial buildings.

Glass and Glass Substitutes—Protective Construction Series No. 1—10c

This gives advice on the protection of window openings and roof lights, discusses and illustrates various methods for protection of glass from the effects of high explosives.

Report of Bomb Tests on Materials and Structures. (Just out. Price not stated.)

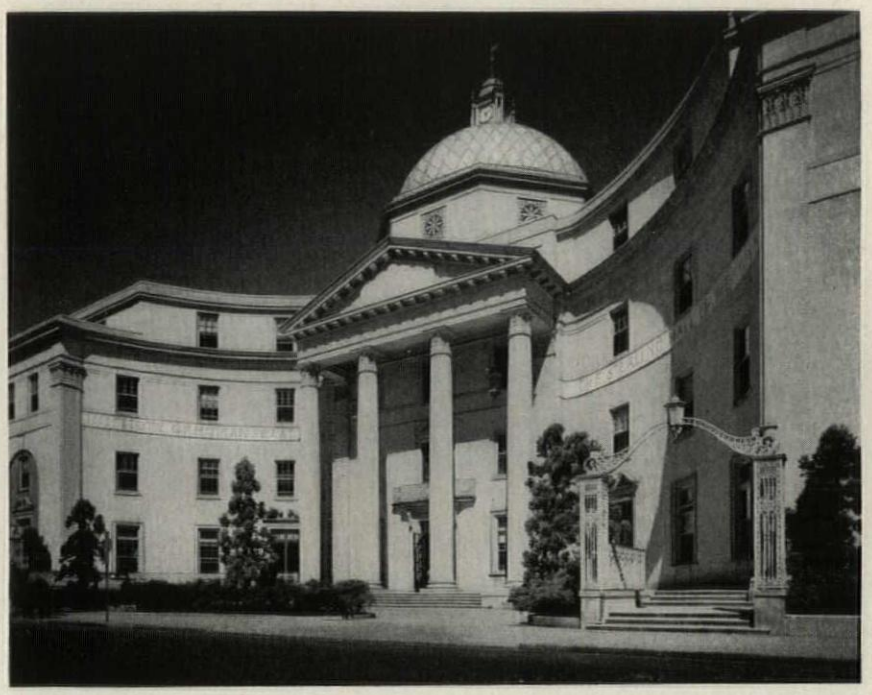
This is an illustrated report on a series of tests carried out by the War Department to discover the effect of high explosives on various types of construction. The report provided the factual basis upon which were developed the designs for air raid shelters detailed in the pamphlet, "Protective Construction," mentioned above.

A tentative list of pamphlets to be issued by the Government in future covers the following subjects:

Communal Air Raid Shelters
Bomb Resistant Shelters
Air Raid Shelters in Buildings
Small Domestic Air Raid Shelters
Measures of Defense Against Incendiary Bombs
Structural Design of Factories Involved in National Defense
Modifications in Existing Buildings to Minimize Effects of Bombs

These will be issued through the Office of Civilian Defense as rapidly as they are completed. K.R.

THE YALE MEDICAL LIBRARY



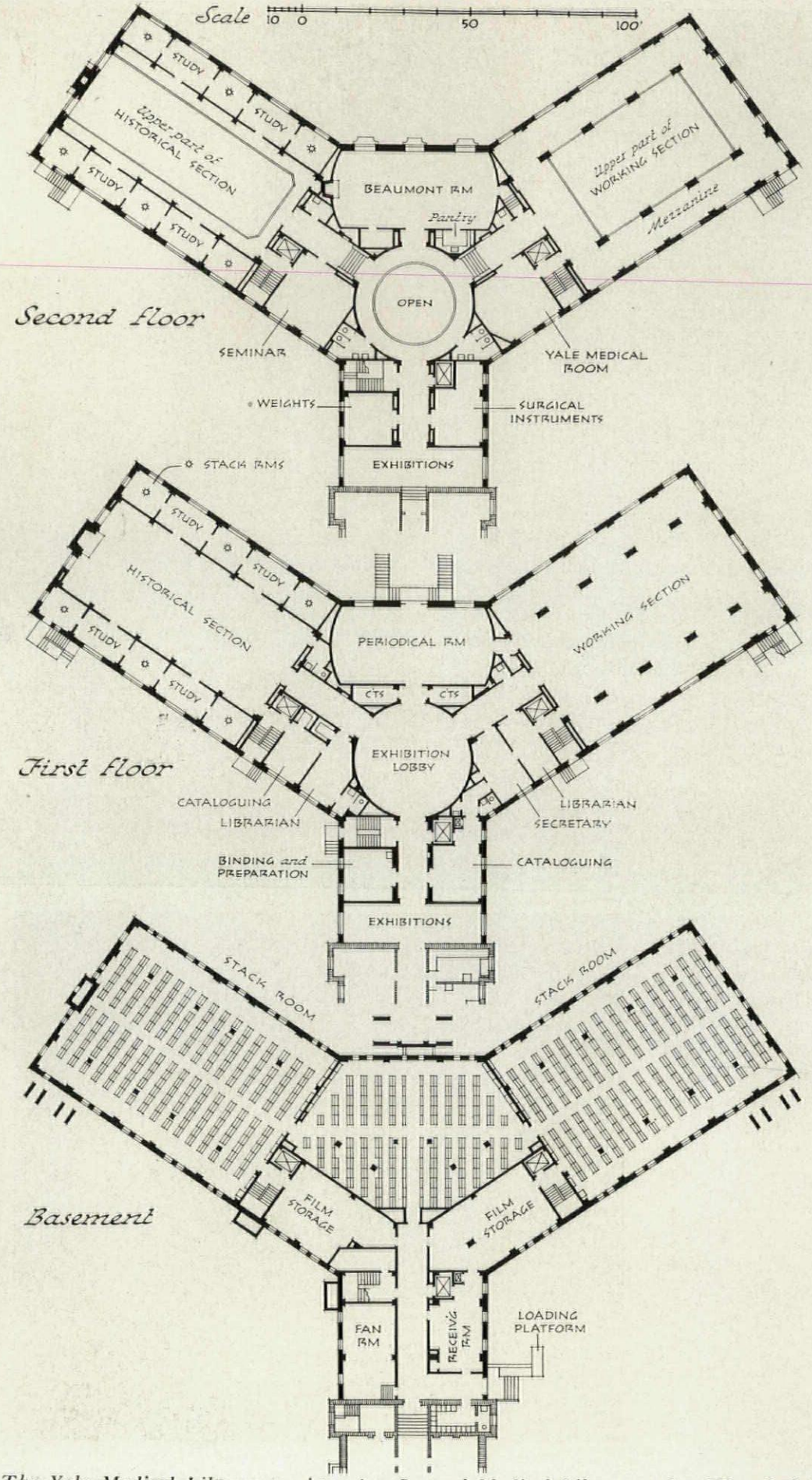
Entrance to Yale Medical Library (see campus side below, which harmonizes with adjacent academic structures) is through the Entrance Court (right) which, with the Institute of Human Relations in the wing beyond, also was designed by Atterbury—to tie in with the earlier wing (foreground) for Sterling Hall of Medicine, designed by Day & Klauder. (Photographs were made by Richard Garrison)

DESIGNED BY GROSVENOR ATTERBURY, ARCHITECT
JOHN A. TOMPKINS AND FRANK DVORAK, ASSOCIATED

Rotunda, dedicated to the famous surgeon, Harvey Cushing, by his Classmates of Yale '91. Walls grey blue sheet plastic; all trim, cornices, shields, and lettering of hand-wrought aluminum

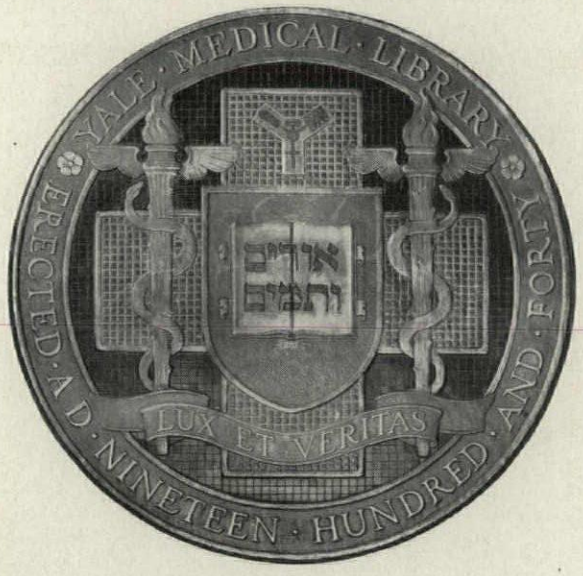
The General Medical Library (above) is strictly utilitarian, with cork tile floor and acoustical ceiling. The bottom shelf of every stack is set in at an angle so that the books tilt inward and titles are easily read by one standing before the case. Construction of building is brick and limestone on steel frame

The vaulted Corridor shown here leads from Sterling Hall to the Cushing Rotunda. Walls are grey, ceiling aluminum, and floors red and black tile. Beyond may be seen the Periodical Room



The Yale Medical Library consists of a General Medical Library and a Historical Library. The latter contains a number of valuable and rare books, primarily the Harvey Cushing Collection

The Historical Library is an appropriate repository for medieval tomes and manuscripts. Hand-planed oak and the leaded windows harmonize with the deep red, rough plaster walls

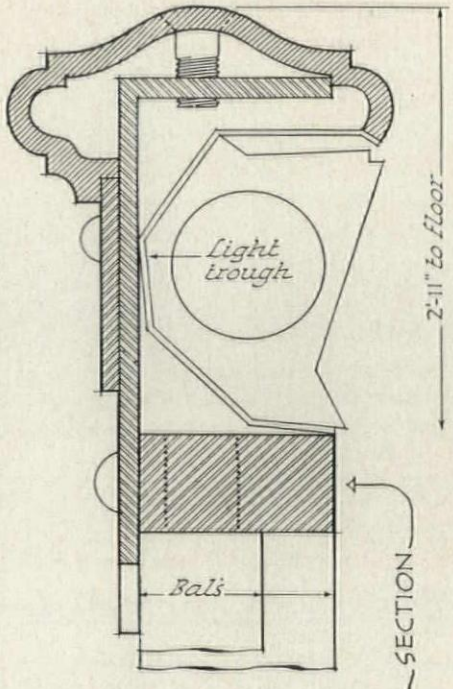


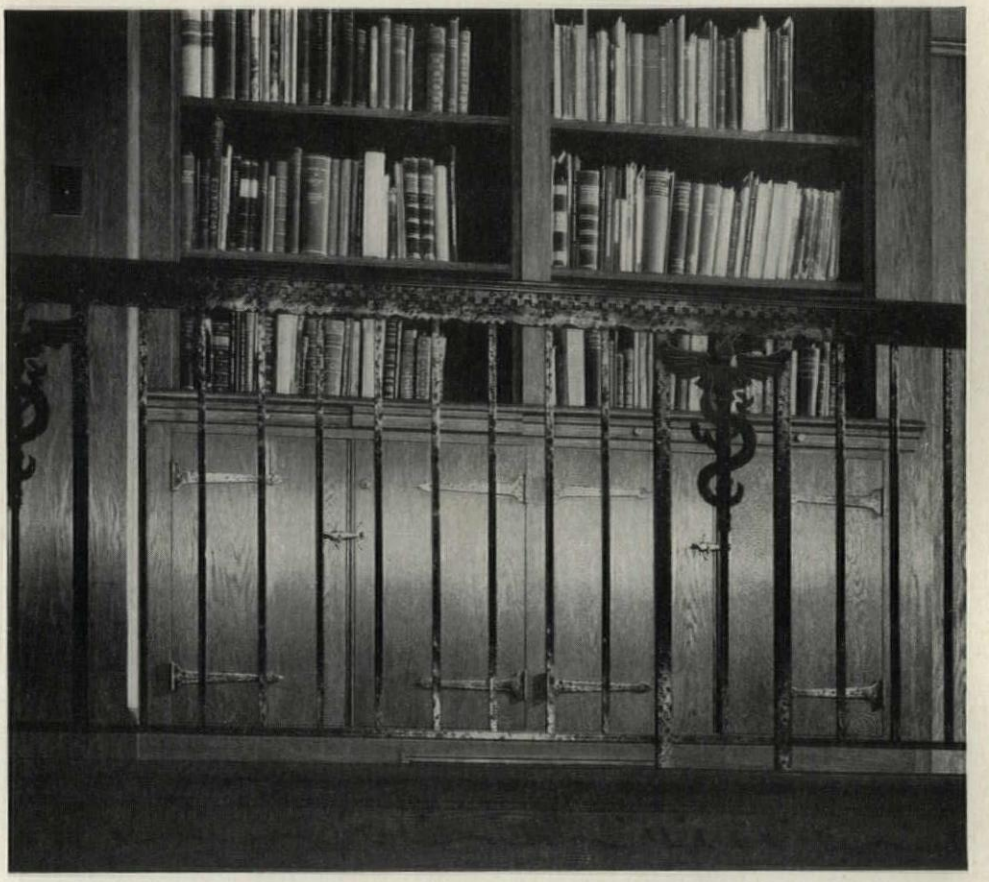
Across page is shown Atterbury's system of lighting the gallery bookcases in the historical library from the metal handrail—thus eliminating floor and overhead fixtures.

The handsome decorative details of the Yale Medical Library interiors reflect the architect's devotion in creating a fitting memorial to his Yale Classmate and friend of many years, Dr. Harvey Cushing (1869-1939), who had long cherished an ambition to provide adequate quarters for the growing library of the School of Medicine. The gift of Dr. Cushing's valuable collection of old medical books was primarily responsible for the erection of this building.

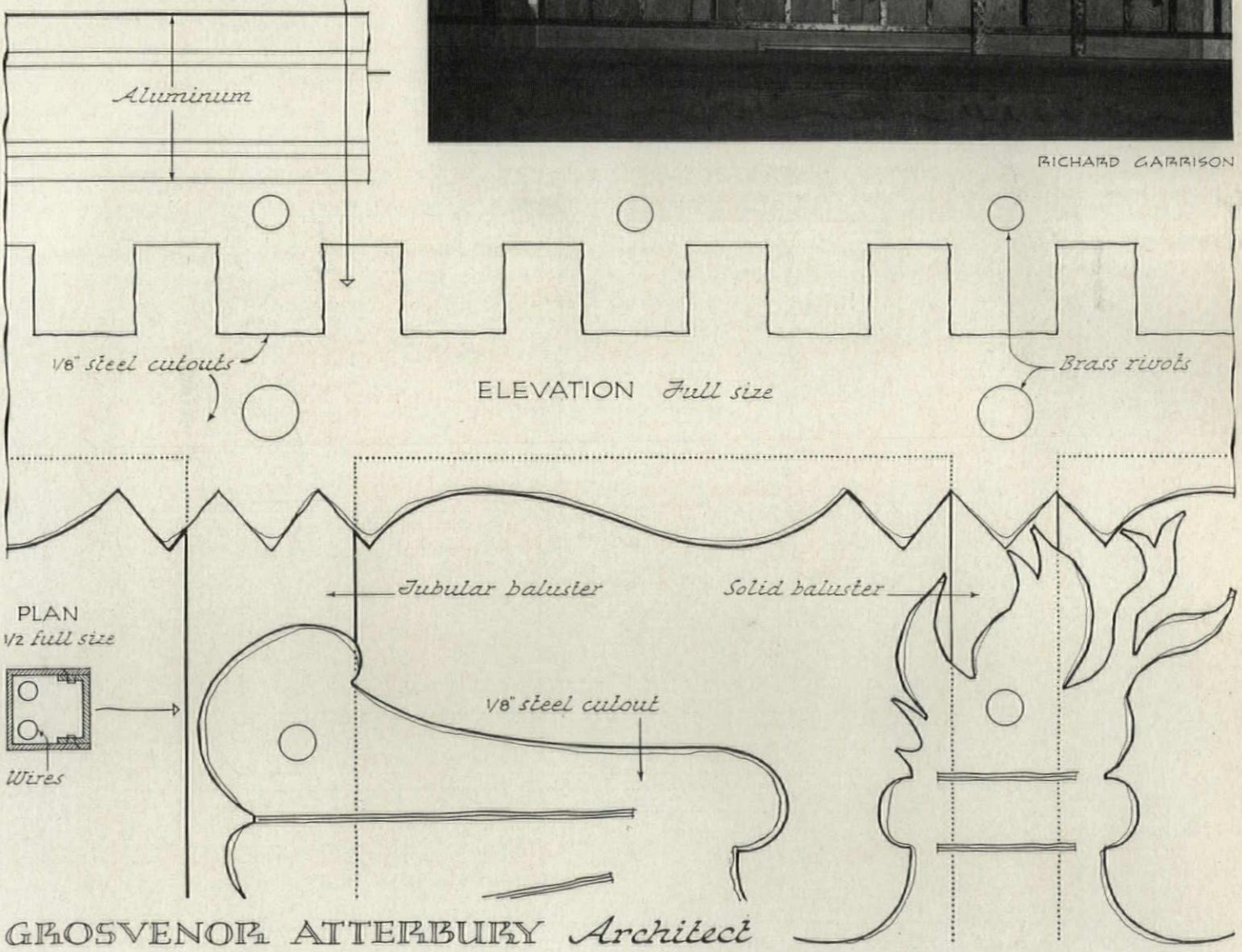
The great seal of cast aluminum (left) set in the center of the Rotunda floor also was designed by Atterbury and modeled by Rene Chambellan. The inlays are of blue and black tile mosaic. All the wrought aluminum work in the Rotunda was fabricated by the Art In Metal Company of New York. In texture and color this decorative work resembles old silver, rather than the usual bright aluminum. The fireplace (below) with its inscription sand-blasted in one slab of bluestone, also was designed in the Architect's office for the Historical Library.

The fireplace in the Historical Library is adorned with a quotation richly cut in the bluestone slab

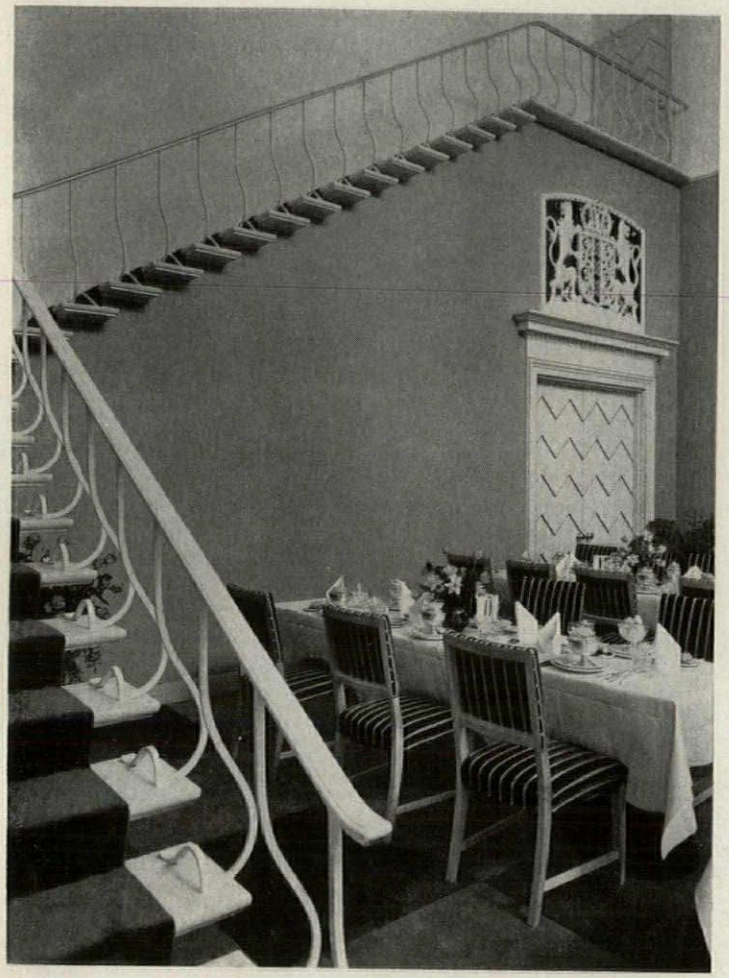




RICHARD GARRISON



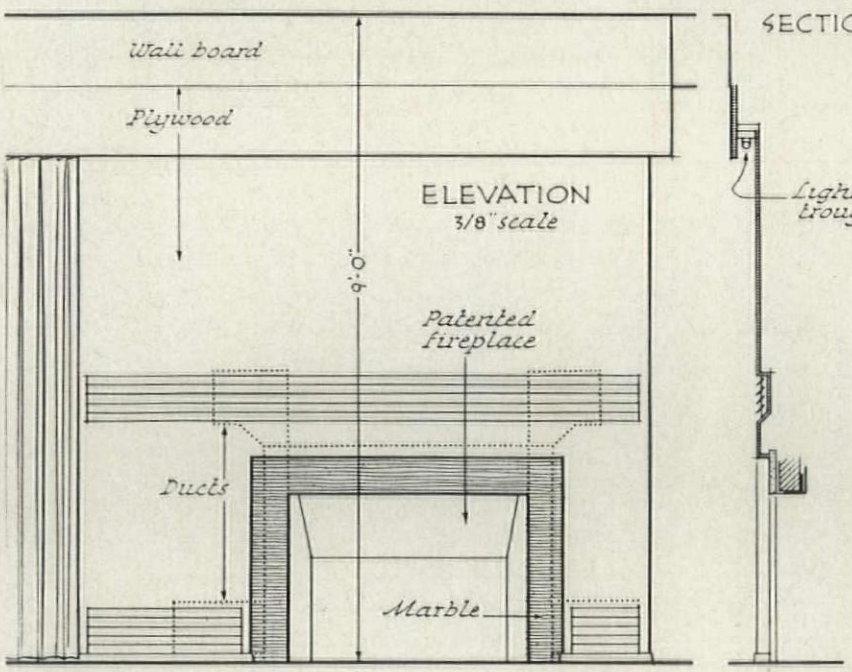
GROSVENOR ATTERBURY *Architect*

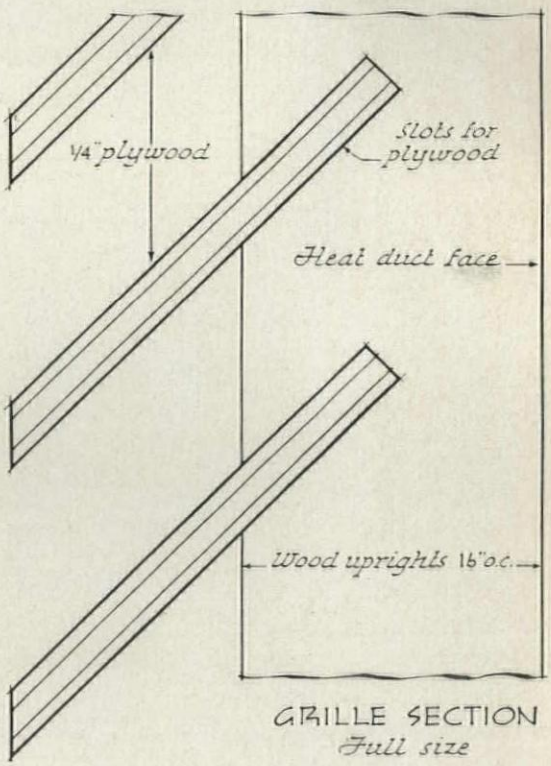


SAMUEL H GOTTSCHO

IDES VAN DER GRACHT and WALTER H. KILHAM Jr. Architects

RODNEY McCAY MORGAN

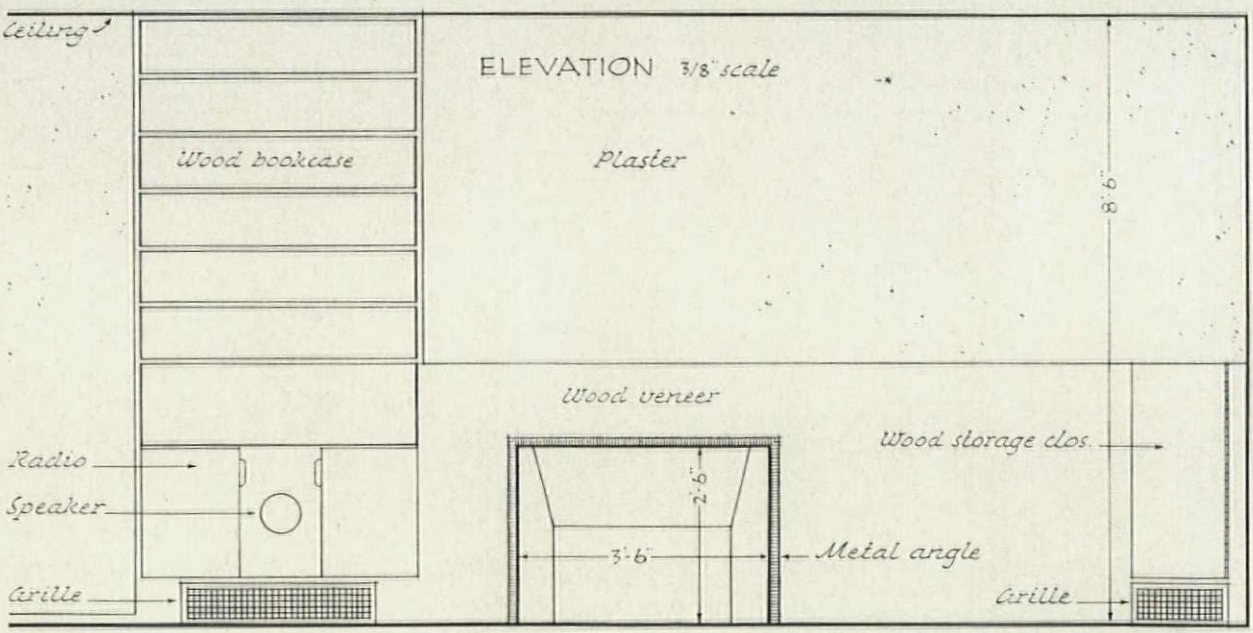




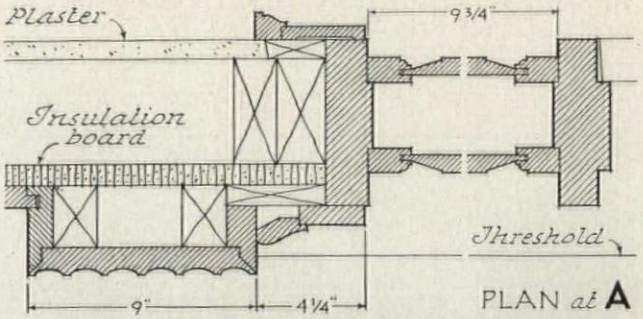
GRILLE SECTION
Full size

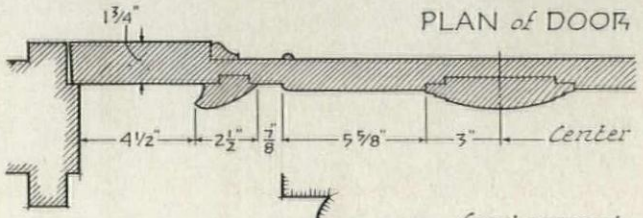
OSCAR FISHER. . . . . *Architect*

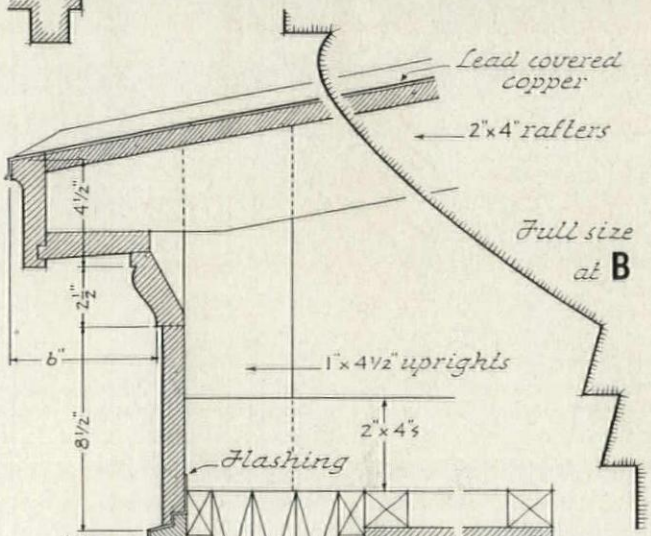
RICHARD GARRISON

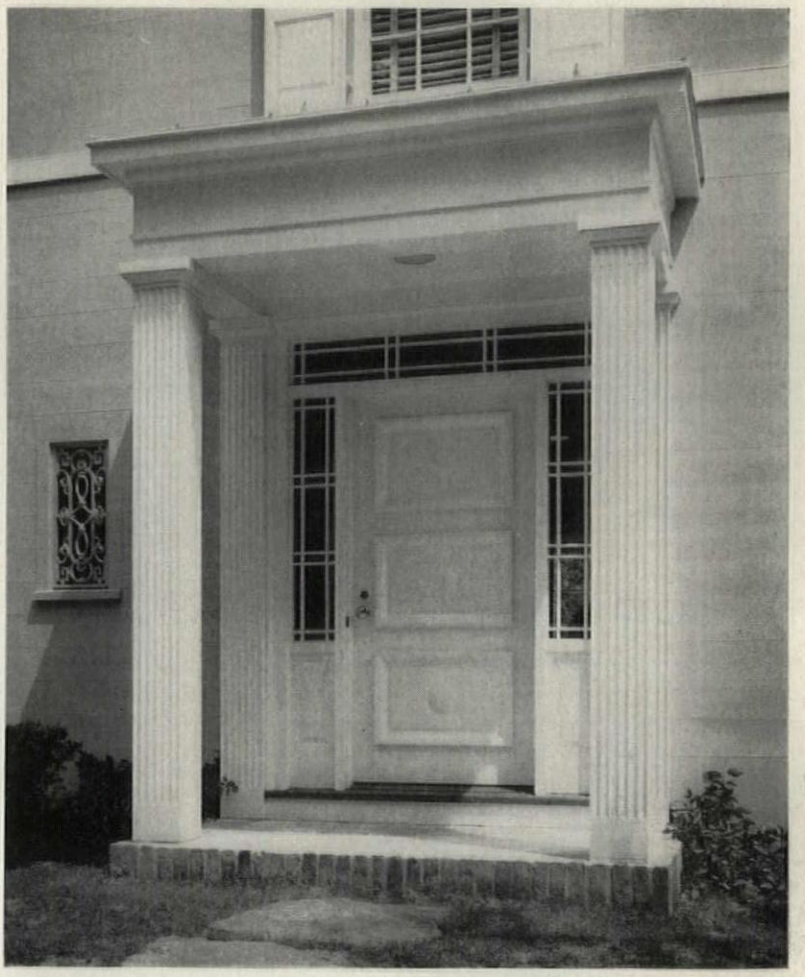


SCOTT & TEEGEN . . . . . *Architects*

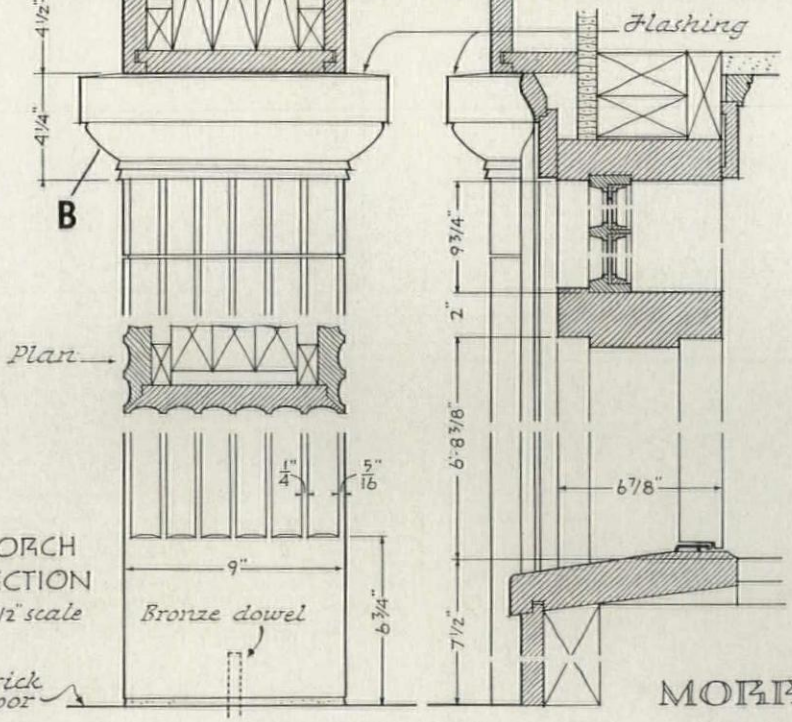


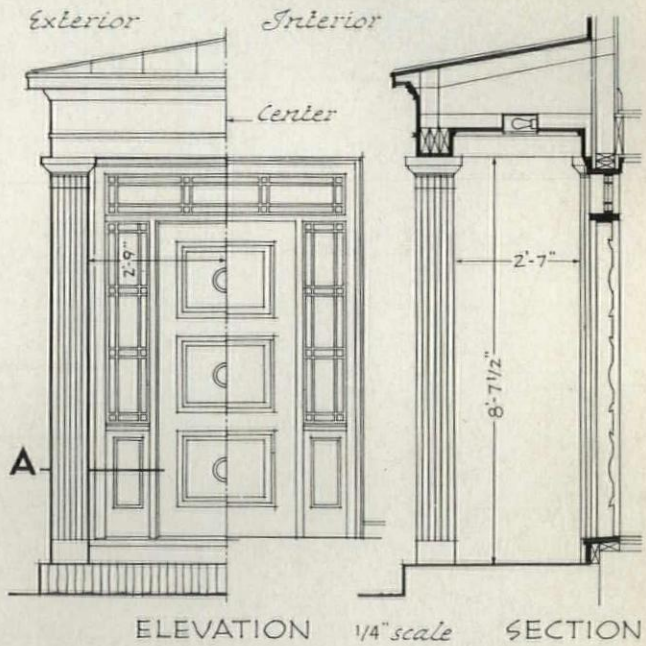




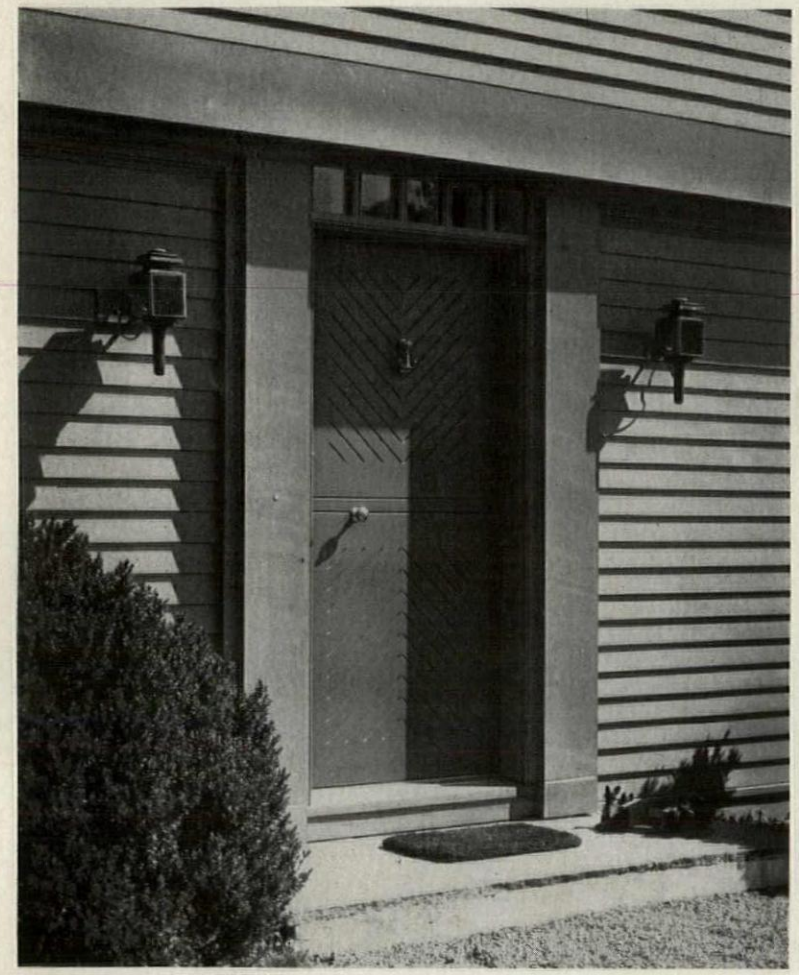


RICHARD GARRISON

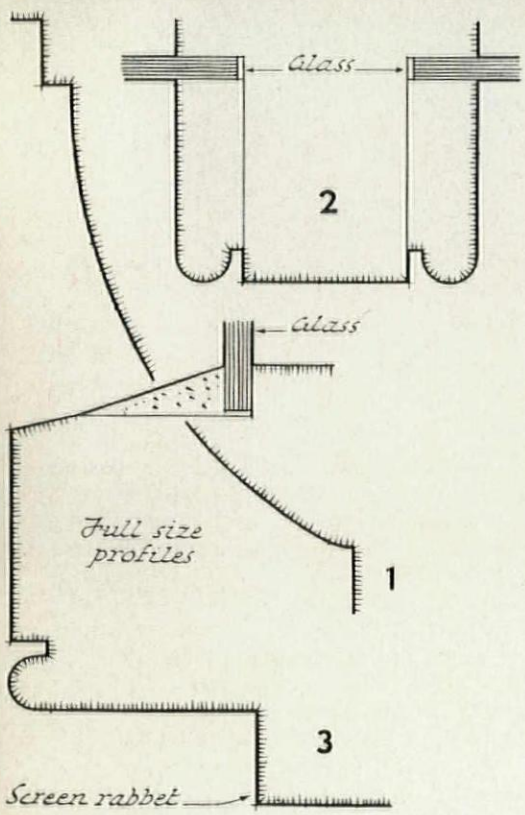


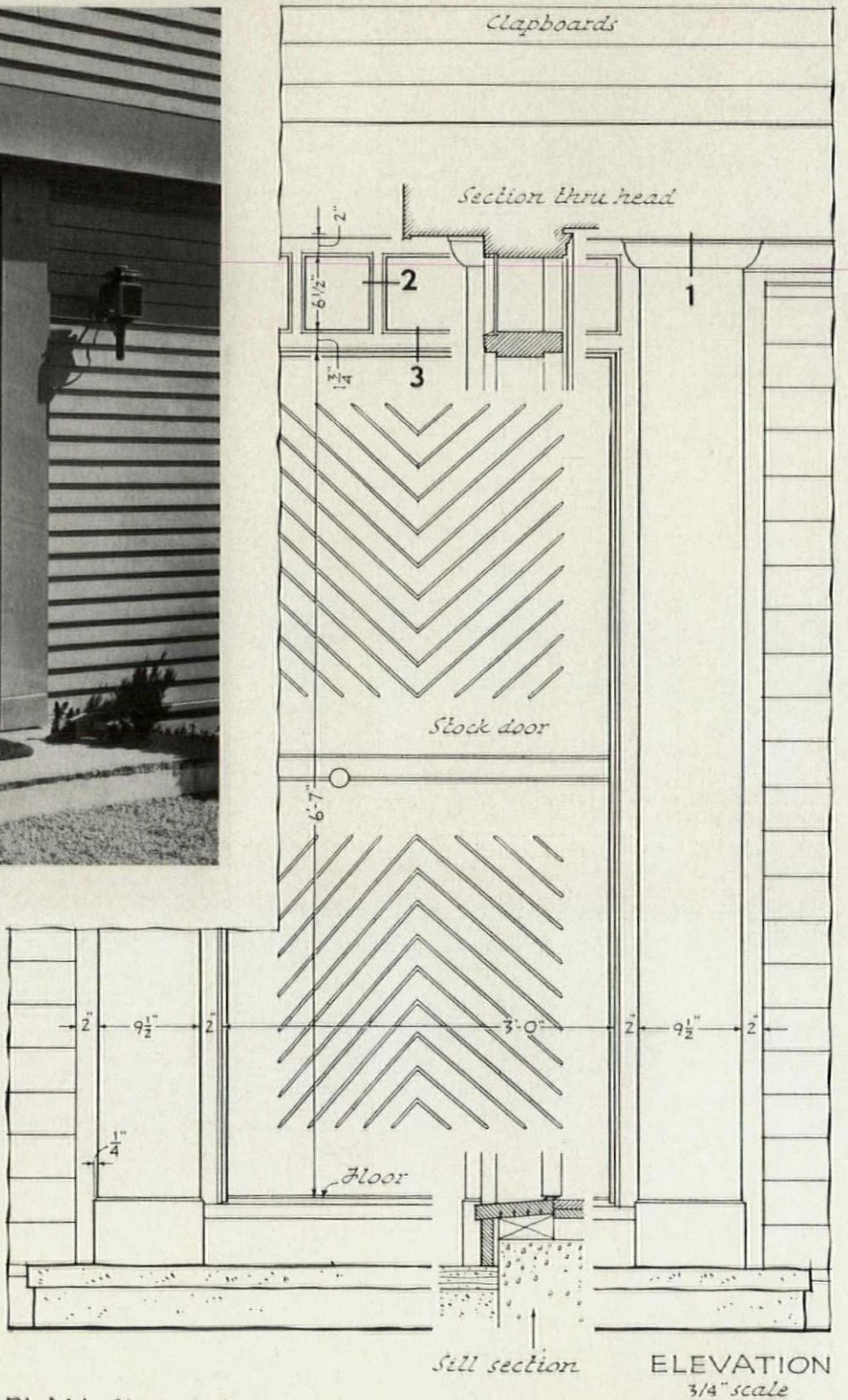


MORRIS KETCHUM Jr. *Architect*

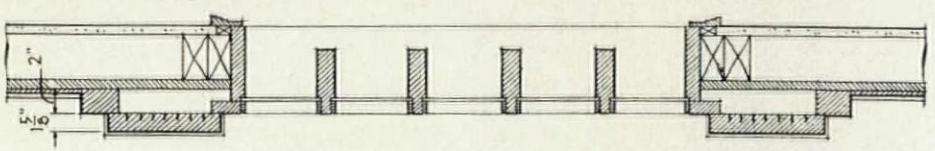


RODNEY McCAY MORGAN





PLAN *through transom*



WILL RICE AMON . . . . . *Architect*

YOSEMITE SERVICE STATION

ELDRIDGE T. SPENCER, ARCHITECT, SAN FRANCISCO

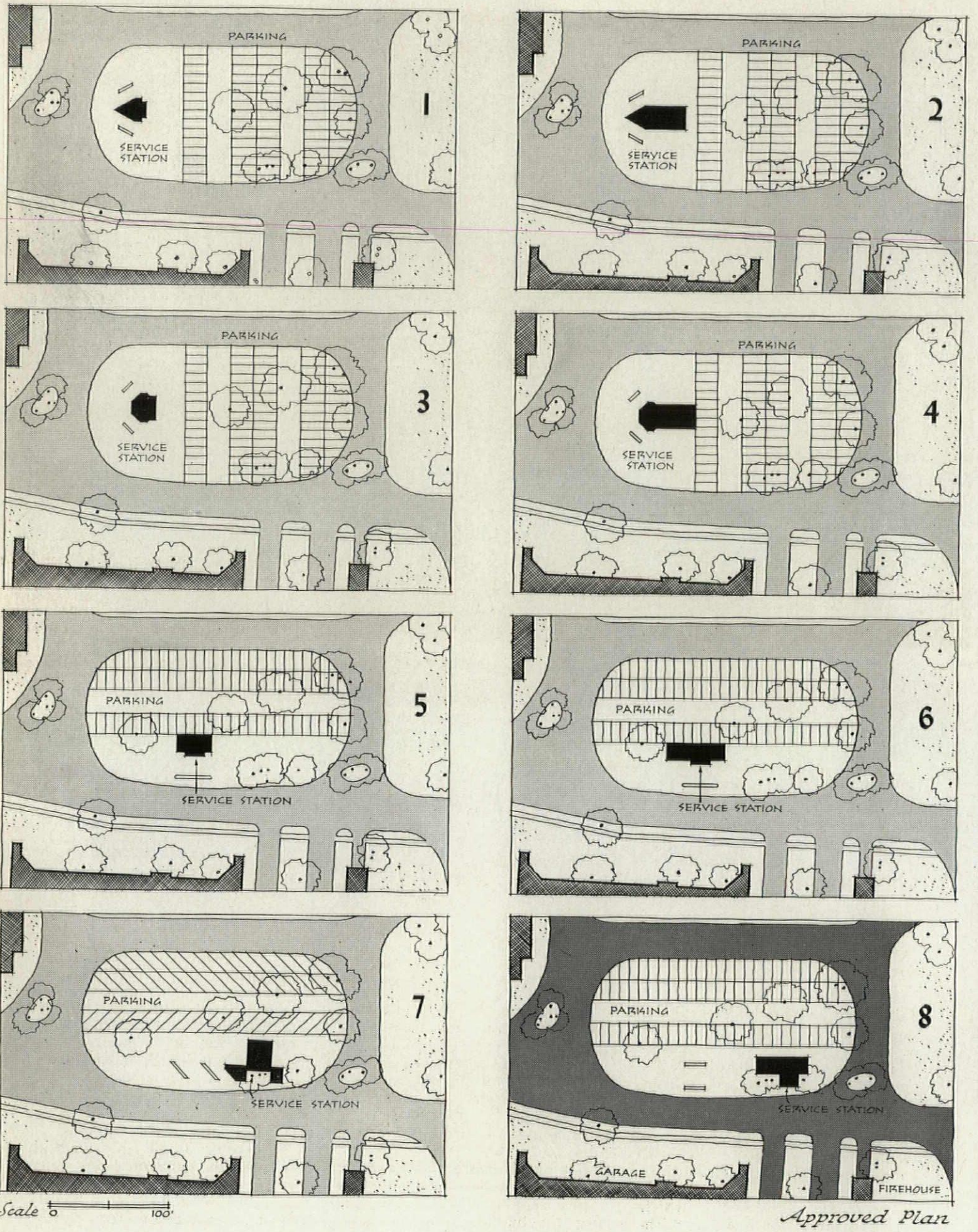
Subordination of architectural design to the exceptional scenic value of the surroundings was the problem which confronted Eldridge T. Spencer, San Francisco architect, in designing a service station for Yosemite National Park, California. A flat-roofed, "transparent" type of building was found to have the least impact on its surroundings and was used as the basis for the design of the service station which clearly expresses its function without the usual means of drawing attention.

In studying the site conditions, the architect made a number of plan and layout suggestions (see page 44). The drawings were made by Alton Lee, of the Spencer office. The approved plan (No. 8 on page 44) contains two parallel parking areas behind the service station and pumps.

The plan consists of two separate units. Pump blocks are set out free to give maximum ease in handling cars. The building proper contains the office, supplies, oils, lift for greasing, and rest rooms. In place of steep roofs often used in snow areas, the architect used flat roofs, designed for an 80-pound snow load, to decrease the impact of the building on the landscape. Construction feature is the use of an electrically-heated, circulating hot water, radiant heating system.

The color blends in well with the surrounding landscape. Exterior surfaces are of Douglas Fir plywood and B-grade redwood boards, with a sierra green mineral surface roofing.

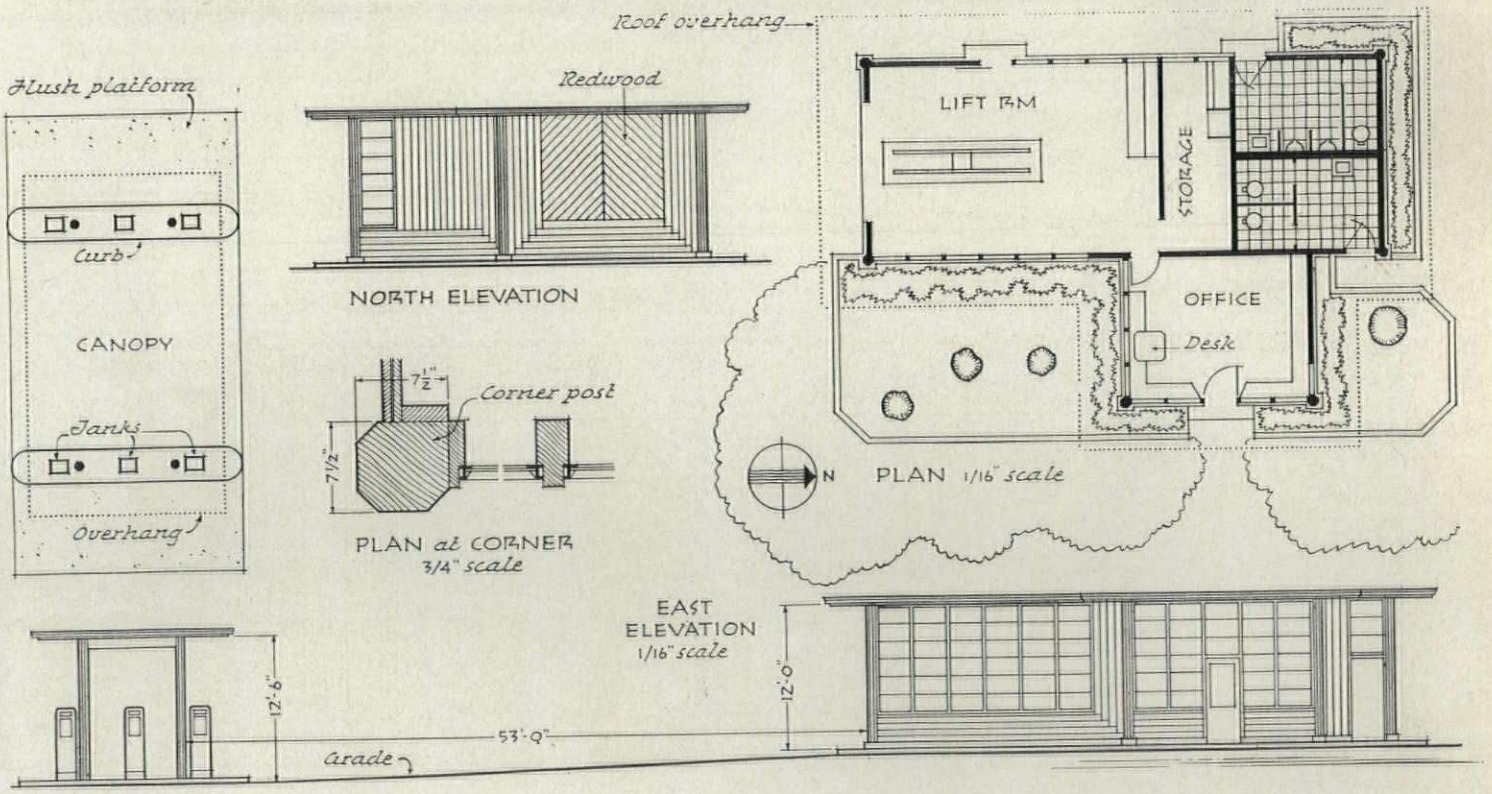
(All photos by Dan Otto.)



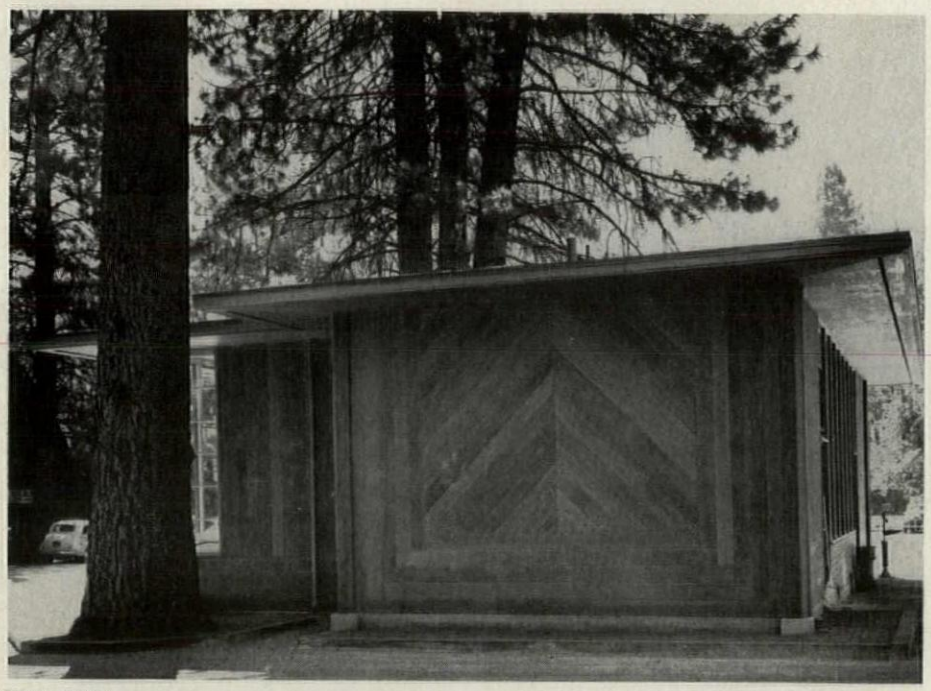
Approved Plan

SMALL SERVICE STATION IN YOSEMITE NATIONAL PARK

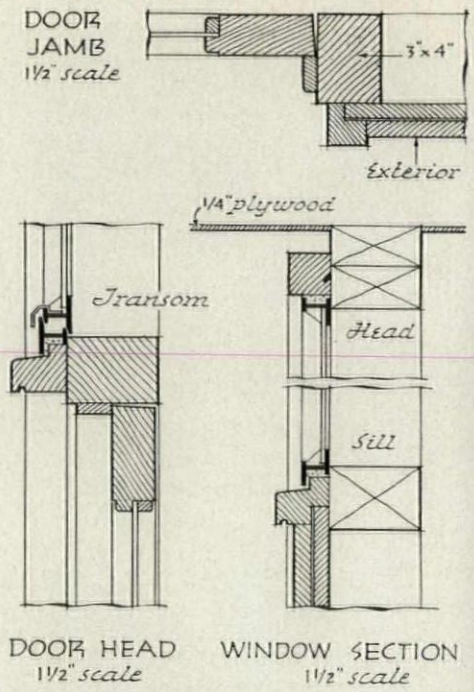
DAN OTTO

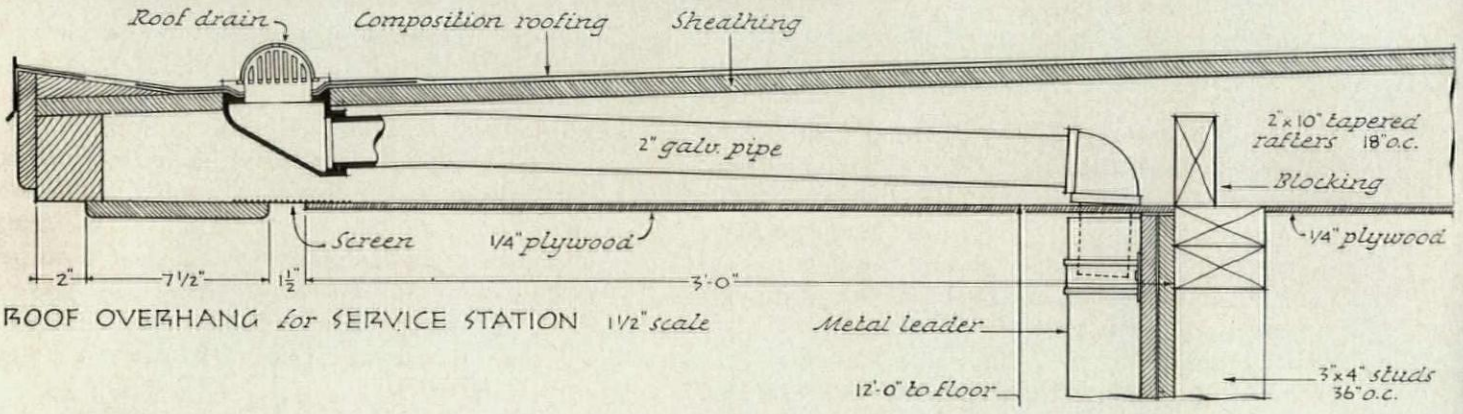


BY ELDRIDGE T. SPENCER, ARCHITECT, OF SAN FRANCISCO

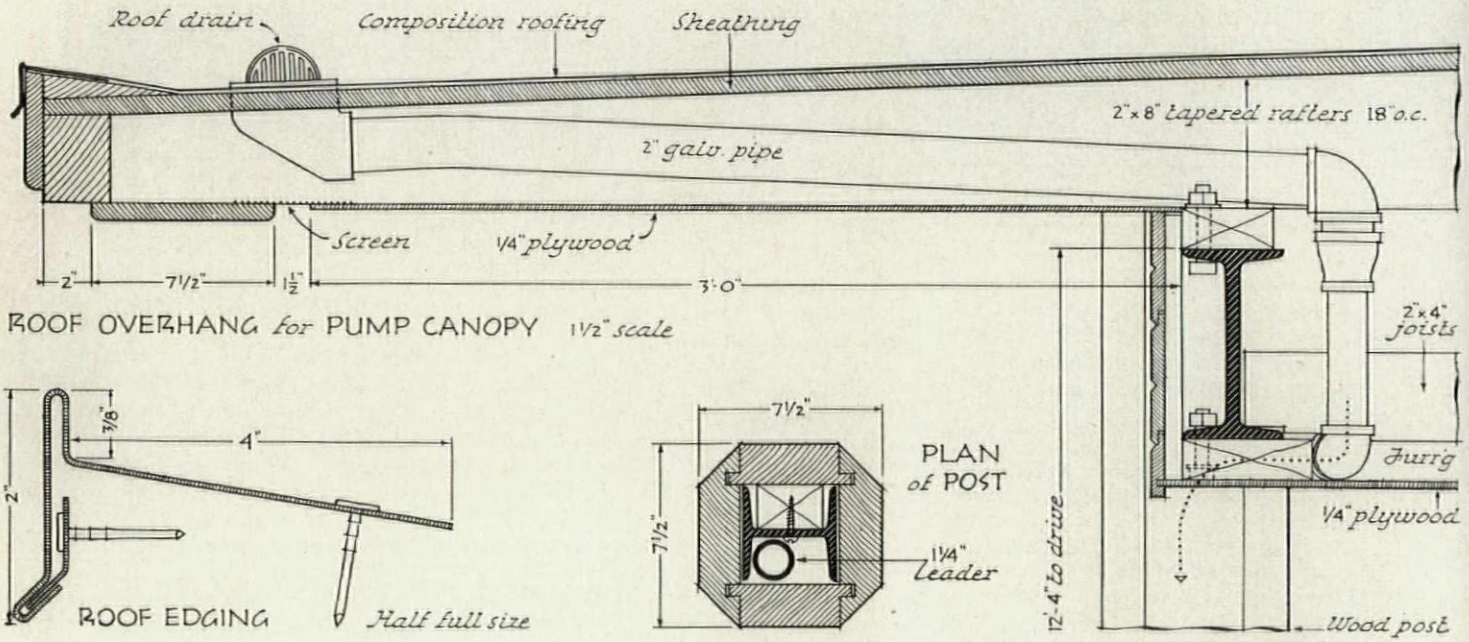


DAN OTTO





ROOF OVERHANG for SERVICE STATION 1½" scale



ROOF OVERHANG for PUMP CANOPY 1½" scale

ROOF EDGING Half full size

PLAN of POST

SERVICE STATION — DESIGNED BY ELDRIDGE T. SPENCER

PUBLIC RELATIONS

A FORUM EDITED BY D. KNICKERBACKER BOYD

Since our last comments here, sudden striking events have upset world conditions. Architects will obviously be affected along with the entire building industry. Activities previously referred to as "Defense" work, but now "Victory" work, must take precedence over all private construction. With few exceptions the whole nature of architects' services will change.

Many architects, qualified for administrative duties, will find opportunities to exercise their abilities in the interests of national Victory in compensated governmental positions. Still others, similarly experienced but possessing sufficient funds to enable them to render voluntary services, can be of inestimable value to their local communities.

They can initiate and develop programs. And they can associate themselves with local Civilian Protection Committees, City Planning and Zoning Commissions, Building Code officials, School Boards, and other civic activities. Some of these, to properly function, will require paid executive directors to take charge of the preparation of plans, maps, etc., where again the service of capable architects and draftsmen should be utilized.

Still others of us will find ourselves using our well attributed imaginative qualities and practical experience in devising ways and means of developing and using "substitutes" (or preferably interchangeable products) for "critical" war materials. Perhaps some of us will even be initiating or inventing new products and methods, to overcome shortages. Thus, and by other ingenuities, not one but many architects may still be performing architectural functions to keep fair pace with the public's revised needs in a great emergency.

All in all, we can now, in one way or another, have opportunities to increase prestige for ourselves and our profession by cultivating and performing every public relations contact possible. At the same time we will be preparing individually and collectively for that "new order" which is bound to come in place of our present civilization—but, with assured victory, it will be an order of our own making!

Therefore, instead of bemoaning our fate in advance, let us gird ourselves for the emergency, seize every opportunity for unprecedented service and become a part and parcel of our communities.

The backbone of such activities must ever consist of individual energy, ability and enthusiastic participation. But, just as the nation became really united over-night, so must we become a unified profession quickly. To do this we must have a program for public relations activities. And with this, direction and follow-up is required. Let's get going without delay.

D. KNICKERBACKER BOYD
No. 4 So. 15th Street
Philadelphia, Penna.

DEFINING THE ARCHITECT

(10) An interested Official of an Association of Building Material Manufacturers sends us these comments on the definition of an architect. They are particularly appropriate from the standpoint of Public Relations.

"To add value to the Public Relations Forum, regarding definition of *Architect,* why not approach it *Semantically?* The entire subject of what the public thinks of architects is in the hands of the Architects themselves. They can adopt a "Stand-offish," highly professional, "Holier-than-thou" attitude, in which case the matter is left to the tender mercies of whatever may please the changing whims of the public.

"Or, they can accept realities and face the sparkling truth, which is this: Let the architects decide on the *service* which they can render society better than it can be provided by any other group or in any other way—and then proceed to SELL it to everyone concerned! The former is analytical; the latter calls for *action.*

"Many architects don't like the term *selling;* for them, I suggest the same be labelled *presentation,* or *expression!* Regardless of the label used, the result is the same—and it is a result which is undoubtedly of great importance to the architectural profession.

" 'Virtue is its own reward,' so my grandmother used to say. But those of us who have had experience in marketing products and services in a competitive era know this: Emerson's advice to sit back and wait for the pathbeaters to storm your door for mousetraps doesn't fit our present economic and social conditions."

WHAT'S IN A NAME

In our issue for November, 1941, C. K. Matson stressed the desirability of possible changes in the language of architecture in relation to the public.

Here's another thought! Once upon a time any person who dealt in land was called a "Real Estate Agent." With the indiscriminate use of this title by a few unscrupulous or incompetent persons the representation of some of the most worthy men in that profession fell under the shadow of an unjust suspicion. So the National Association of Real Estate Boards coined the word "Realtor" and today no one not an active member and responsible to his local Board may

use that word. The following is quoted from a recent issue of a local Real Estate Magazine—

"Every Active Member of our Board should take full advantage of his privilege to use the word 'Realtor' in his business. He or she is urged to do this. The word has definite business value. The consistent and persistent use of it will demonstrate this. In addition, the more extensively the word is used the more widely it will become known and this will react advantageously along business lines to you and every other Realtor.

"The word, as you know, is not only a business designation but a trade mark as well, a silent reminder to all those desiring to transact real estate business of your qualifications relative to efficiency and ethics. You should use the word on your office stationery, doors, and windows, or wherever and whenever possible. In writing to your fellow Realtors you might refer in such communications to them as Realtors. It is only by stressing the word that the full significance of it will become evident to those interested in buying, selling, leasing, managing or the appraisal of real estate."

The word "Architect," should have at least as honorable connotations as the word "Realtor." We should guard against its misuse by improperly qualified persons and should build up its recognition and understanding by the public through our own high standards of behavior and service.

SHOW WINDOW DISPLAYS

The following is an extract from a letter to Talmadge Hughes printed in a recent issue of the *Michigan Society of Architects Bulletin.*

"Mr. John K. Cross, A.I.A. (President, Washington Metropolitan Section, Maryland Society of Architects) indicates an action program of his organization in the following communication.

"You are chairman of the Public Information Committee of the A.I.A., and we are a State Architectural Society, affiliated with the A.I.A., so therefore, I thought you would be interested to know that the Washington Section of the Maryland Society of Architects has decided to concentrate its efforts this year on public relations.

"I have studied all the Public Relations Sections in PENCIL POINTS and it was the inspiration for the following idea which the Washington Section is now working upon.

"A show window on a very busy thoroughfare in this city will contain a pictorial display dramatizing the EIGHT REASONS. We will very likely work in the War angle by heading it 'The Architect in Peace and in War.' I am trying to swing the Washington Chapter of the A.I.A. to work in a joint effort with us.

"Those EIGHT REASONS contain a story which must be told over and over again to the public. Tell it with pictures, for we all know a picture is worth a thousand words.

"Each of the reasons can be driven home in the minds of the public by action photographs, models, and placards to tie the ensemble together in a dramatic manner.

"The State Societies and the A.I.A. should standardize such an exhibit and have many of them shown throughout the country."

Editors Note—Mr. Cross' idea is not to print the "Eight Reasons" in full. He suggests these abbreviations in large type on a central poster with colored ribbons leading from each to the appropriate photographs, models, and placards:

1 IN ILLNESS YOU NEED A DOCTOR; IN LEGAL MATTERS A LAWYER.

2 IN BUILDING YOU NEED AN ARCHITECT.

3 YOUR ARCHITECT MAKES YOUR BUILDING A BETTER INVESTMENT.

4 FAIR BUILDING PRICES DEPEND ON COMPETITIVE BIDDING FROM COMPLETE PLANS AND SPECIFICATIONS DRAWN BY AN ARCHITECT.

5 YOUR INTERESTS ARE BEST SERVED BY AN INDEPENDENT ARCHITECT WITHOUT OBLIGATION TO A BUILDER.

6 IT COSTS ONLY A SMALL FRACTION OF YOUR BUILDING INVESTMENT TO HAVE THE PROTECTION OF AN ARCHITECT.

7 YOUR ARCHITECT OFTEN SAVES YOU MORE THAN YOU PAY HIM.

8 WHEN YOU BUILD OR BUY A BUILDING, CONSULT AN ARCHITECT.

LAY MAGAZINES

Clients Compete For Architects Judgment

(3) When *Popular Science Monthly* conducted a competition with prizes to be distributed among prospective clients for houses, 3307 "house drawings" showing the ideals of that many contestants were sent in for judgment by a group of Architects. These submissions were from the District of Columbia, Alaska, Hawaii, Porto Rico, and various foreign countries, and from every state in the Union.

"The largest number of entries (342) was submitted by readers from the State of New York; next came California with 253, and Illinois with 203.

"Unexpectedly, a young woman carried first honors. Still more remarkable was the fact that the first four prize winners lived in Illinois, and two of them in the same town. This is a coincidence, since each entry was considered on its intrinsic merits, without regard to personalities, localities, or skill in draftmanship and literary presentation.

"*** The jury of awards consisted of three nationally known architects, Ely Jaques Kahn, Cameron Clark, and Frederick J. Woodbridge, together with Charles McLendon, Editor-in-Chief of *Popular Science Monthly*, and Arthur Wakeling, editor of the Home and Workshop Department."

When it is considered that all the contestants, as well as thousands of others who read the announcements in three months' issues in this well known lay magazine, were aware that the $1000 in prizes would be awarded by a jury of Architects it may certainly be regarded as bringing about a greater public recognition and appreciation of the importance of the Architect in that sadly neglected field of small house design.

The third prize submission was illustrated, described in the Dec. 1941 number of *Popular Science Monthly*. Regarding this unusual competition of clients, Greville Rickard, Architectural Consultant to the magazine (note this fact and give due credit to P.S.M.) said:

"Perhaps no other occasion has presented itself quite like that afforded by the home-planning competition of *Popular Science* by which we are able to visualize what the average person wants when he sets out to build a house.

"Architects have definite ideas, based on countless technical studies, as to what constitutes a desirable house for the average family. Speculative builders, on their part, have never left us in doubt as to the sort of house they believe can be sold with the greatest ease and profit to Mr. and Mrs. John Smith. Now, however, Mr. and Mrs. Mrs. John Smith have come out and spoken for themselves. They really know what they want!

"One conclusion to be drawn is that most contestants, even among the first 100, would be well repaid in seeking the advice of an architect before building. They might thus save themselves from making serious mistakes. (Some of these mistakes, by the way, will be discussed in a future article.) Architectural advice would safeguard them against the innumerable hazards of building and protect their investments by insuring them of full value for every dollar spent."

We commend Greville Rickard for his part in the competition, and we urge other architects to make full use of any opportunity to advance the cause of the profession through lay publications. Editors appreciate ideas for special features of this sort. Apply your ingenuity!

PENCIL POINTS DATA SHEETS

Prepared by DON GRAF, B.S., M.Arch.

DEPTHS FOR FOUNDATIONS (1)

Index No. **F 9 g** CONSTRUCTION

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF

The depth generally considered safe in various regions is given in the table. However, it is best to check with local builders or county agricultural agents because safe depth varies to a great extent, depending usually on the depth to which frost penetrates and the effect of frost in the soil. Dry soils ordinarily do not heave when freezing, but damp clay may heave enough to cause serious damage to the building unless the footings are below frost depth.

The depths given in the table are based on recommendations made by state agricultural colleges and are considered sufficient to prevent damage by frost but are not the total depths to which frost penetrates. Note the soil conditions at these depths; if not firm or if subject to change of volume due to alternate wetting and drying, footings must be made wider, reinforced, or carried deeper than indicated in the table.

In regions having little frost set footings below the topsoil on firm ground, because if they are placed too close to the surface, rats can burrow under them and wind, rains, or floods may erode the soil from beneath, causing the building to settle. In some localities the firm soil is a relatively thin layer overlaying soft ground. If the firm soil is cut thru, a secure bearing is almost impossible. Under such conditions shallow footings may be protected from erosion by banking soil against the foundations. This fill requires sodding and protection from erosion caused by drip from the roof, which has been provided with rain gutters and downspouts.

All footings of buildings are preferably set on the same type of soil and must be level but not necessarily at the same elevation. Where the ground slopes or where there is a basement under only a portion of the building, step the footing down gradually to avoid undermining the higher portion. The ratio in which the stepping can be done safely varies with the type of soil, but for average conditions a vertical rise of not more than 2'-0" in a horizontal distance of 4'-0" is generally satisfactory.

When 1 part of the foundation rests on rock and another on soil make the footing of the portion on soil twice as wide as called for by the normal soil bearing area as calculated from *Data Sheet* Bld. Under such circumstances some building codes require the rock surface to be cut so a 6" layer of sand can be placed on top of the rock. Occasionally a relatively thin rock stratum overlays soft clay or loose sand; such a bed is unsafe for heavy buildings or concentrated pier loads. Care must be taken to see that the rock is not merely a large boulder that might be loosened by the weight of the building.

When the rock stratum slopes, the surface may be cut to form level steps to prevent the footing from sliding. Sometimes slight slopes are merely heavily chipped; at times the surfaces are doweled. Where out-croppings of rock strata have been exposed to weathering from some time and the surfaces are likely to be rotten or loose, cut the rotten layers away to solid material.

State	*Mild Areas*	*Colder Areas*	*Local Consideration*
Alabama	1'-6"	1'-6"	Reinforce footings and floor, and use piles in Blackbelt area
Arizona	1'-6"	3'-0"	Closeness of irrigation a factor
Arkansas	1'-4"	1'-4"	Continuous foundations preferred
California	0'-6"—1'-0"	1'-6"—2'-0"	—
Connecticut	2'-0"—3'-6"	2'-6"—4'-0"	—
Florida	surface	0'-6"—1'-0"	Wide footings near surface; sandy soil
Georgia	—	—	Conditions variable; seek local advice

Continued on next Data Sheet

SET 21 JAN 1942

DEPTHS FOR FOUNDATIONS (2)

Index No. **F 9 h** CONSTRUCTION

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF

State	*Mild Areas*	*Colder Areas*	*Local Consideration*
Idaho	2'-0"	3'-0"	—
Illinois	3'-6"	5'-6"	Reinforcement advised
Indiana	2'-0"—3'-0"	2'-0"—3'-0"	—
Iowa	3'-0"	3'-6"	—
Kansas	5'-0"	5'-0"	Reinforce; heavy footings needed on swelling and shrinkage soils
Kentucky	1'-6"—2'-0"	2'-6"	—
Louisiana	0'-2"—1'-0"	0'-2"—1'-0"	Wide footings on alluvial soils
Maine	4'-0"—5'-0"	5'-0"—6'-0"	Use batter on outside face of wall or use a footing; less depth is required in gravelly soils
Maryland	—	—	Conditions variable; seek local advice
Massachusetts	2'-0"—4'-0"	2'-0"—4'-0"	Soil conditions fairly uniform
Michigan	3'-0"	3'-0"	—
Minnesota	5'-0"	5'-0"	—
Mississippi	Depth to uniform soil	Depth to uniform soil	—
Missouri	1'-6"	2'-0"	—
Montana	—	—	Seek local advice
Nebraska	1'-6"	2'-0"	Guard against roof water and rooting animals
Nevada	0'-0"—0'-6"	1'-6"	—
New Hampshire	6'-0"—8'-0"	6'-0"—8'-0"	—
New Jersey	1'-4"	3'-0"	—
New Mexico	0'-9"—1'-0"	1'-0"—1'-3"	—
New York	4'-0"	4'-0"	—
North Carolina	2'-0"	2'-6"—3'-0"	—
North Dakota	1'-6"	1'-6"	Reinforce
Ohio	1'-6"	1'-6"	Reinforce
Oklahoma	1'-6"	2'-0"	—
Oregon	1'-0"	2'-0"	—
Pennsylvania	4'-0"—6'-0"	4'-0"—6'-0"	—
South Carolina	1'-2"	1'-6"	—
South Dakota	4'-6"—5'-0"	4'-6"—5'-0"	Use continuous foundations
Tennessee	2'-0"	2'-0"	Guard against termites
Texas	1'-0"	2'-6"	Guard against erosion
Utah	1'-8"	2'-6"	—
Vermont	5'-0"	5'-0"	Conditions vary widely; carry to firm soil
Virginia	2'-0"	2'-0"	—
Washington	—	—	Conditions variable; seek local advice
West Virginia	1'-6"—2'-0"	2'-0"—2'-6"	—
Wisconsin	3'-0"	4'-0"	—

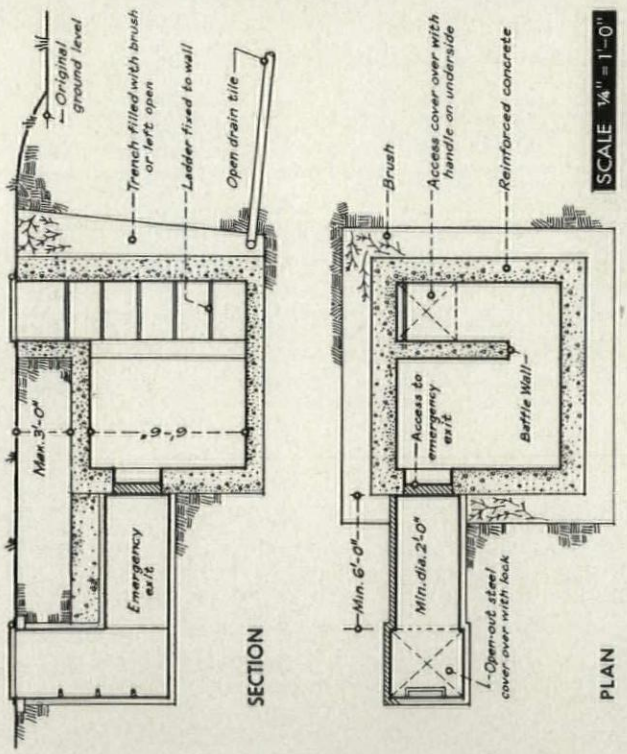
From U. S. Dept. Agri. *Farmers Bulletin* 1869

PENCIL POINTS DATA SHEETS

SPLINTERPROOF AIR RAID SHELTER (1)

Index No.
F19a
CONSTRUCTION

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF



SET 21 JAN 1942

The construction shown on this sheet has been suggested by an information sheet in the British Architect's Journal. It also agrees with the text in Bulletin No. 1, published by the Office for Emergency Management, entitled "Civilian Defense"—altho it exceeds requirements shown graphically in this same booklet.

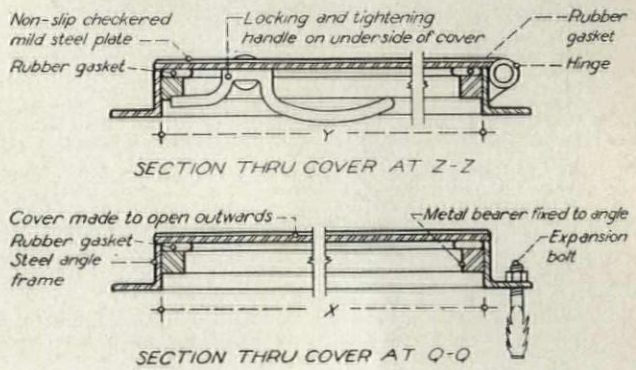
It is intended that this shelter provide protection from:

1. Blast, splinters and earth shock from a 500-pound demolition bomb exploding not nearer than 25 feet.
2. Direct hit of a light incendiary bomb.
3. Gas (if provision is made for removing respiratory moisture and CO_2, and oxygen supplied).
4. Debris from adjacent falling buildings of light construction.

SPLINTERPROOF AIR RAID SHELTER (2)

Index No.
F19d
CONSTRUCTION

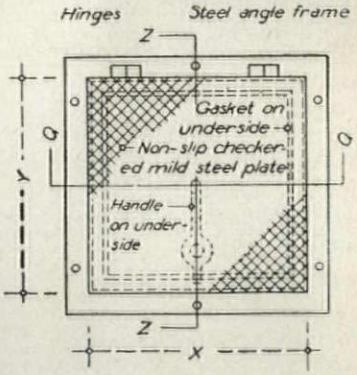
PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF



SET 21 JAN 1942

TABLE OF SIZES

LENGTH-X	WIDTH-Y
24"	18"
24"	24"
24"	30"
30"	30"



Ventilation must be provided, since all shelters should be gas-tight. The duration of any attack CANNOT BE PREDETERMINED, so a supply of dry air having proper oxygen content, and provision for removing respiratory moisture and CO_2, should be supplied for many hours confinement. An air intake located outside the shelter might be damaged during an air raid, so for small shelters an "air regenerator" apparatus which is self contained may be housed within the shelter. Equipment of proper capacity permits occupancy of the shelter for approximately 50 hours.

Lighting by electric lanterns is independent of outside destruction and is suitable for small shelters. Containers of drinking water should be provided. Chemical toilets are less expensive than regular installations. Crowbars, shovels and other tools should be in the shelter in case the exits are blocked. Gas masks and protective clothing will permit of egress when the gas is not dispelled from the surrounding ground. A telephone to the outside (public or intercommunicating) should be installed. A portable radio is desirable.

AIR CLEANING

Air cleaning commonly refers to the removing of particles from the air, previously described as dust, fumes or smoke. Unlike gasses or vapors, which are usually best removed by ventilation, these particles are solids, varying in size from those visible to the unaided eye, to ones so small as to remain invisible to the most powerful microscope. This wide range of sizes makes the efficient removal of all the particles a difficult problem.

In selecting air cleaning equipment several points should be considered: (a) The device should have a low initial resistance to air flow; (b) it should be efficient at all common air velocities; (c) its normal accumulation of dust should not impair the air flow to a point where the resistance is too great for efficient operation; (d) the cleaner should be easy to clean and maintain; (e) the materials used in the cleaning device should not give off odors which might contaminate the air.

The several methods of removing particles from the air employ the following: (1) viscous coated filters, (2) dry filters, (3) air washers, (4) centrifugal separators, and (5) electrical precipitators. These will be described briefly in the order named.

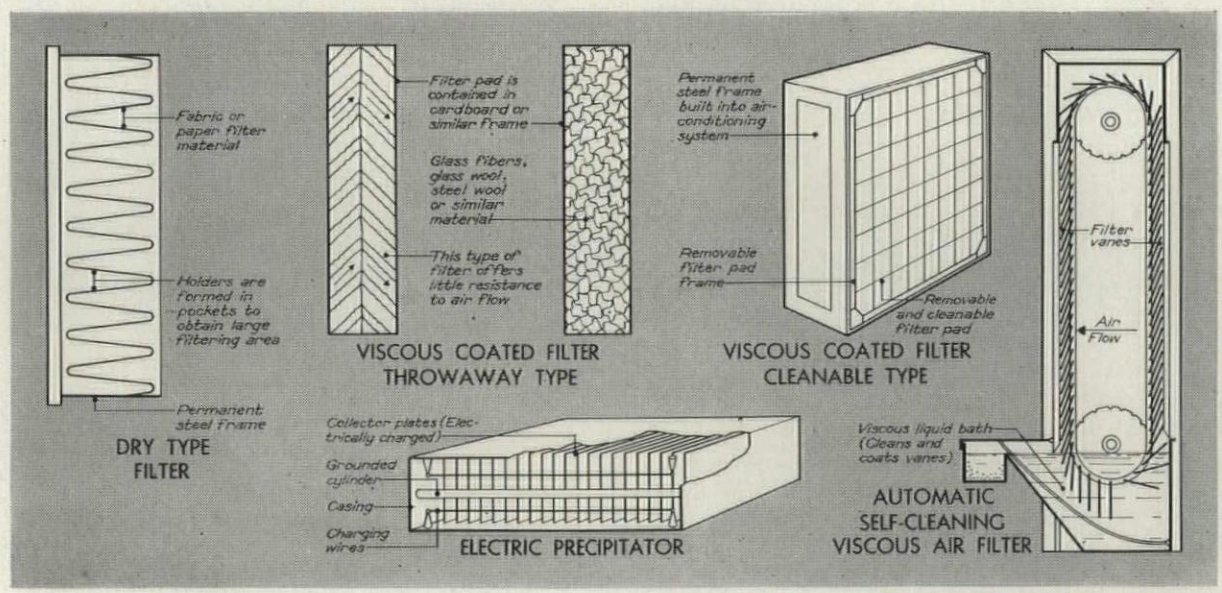
Viscous Coated Filters may be made of any one of a number of materials which are covered with a sticky oily coating and so designed as to break the air flow up into a number of small streams. As these air streams pass through the filters, the particles are impinged on or rubbed against the sticky surfaces, and remain there by adhesion. The cleaning efficiency of this type of filter is usually highest when it has accumulated a certain amount of dust, since this aids in the further catching of particles. But beyond this point the filter becomes less efficient as dust is accumulated and offers increasing resistance to air flow, so that it must be either cleaned or removed. Many viscous coated filters on the market are of the "throwaway" type, which are inexpensive and may be discarded when dirty. But another type is cleanable, requiring the washing of the filter and recoating it with oil. A type of filter which accomplishes this automatically is illustrated. The viscous coating in all these filters should be investigated for its ability to remain tacky with normal temperature changes, to cover the filter surfaces evenly and remain odorless. Fire resisting qualities are also desirable.

Dry Filters are made of such materials as felt, cloth, cellulose or other fabrics which will entrap air borne particles. These materials are not treated with a sticky substance like the viscous coated filter, but rely on the close texture of the fabric to prevent the passing of the solids. Because this type of filter requires a large area, it is usually made in the form of pockets or V's as illustrated below. These filters are cleaned by vacuum or by removing and washing. The same air resistance problem presented by viscous coated filters applies to this type also. Not only must they be cleaned at regular intervals, but the material should be of a type that permits repeated cleaning. Finally, because the presence of moisture in these fabrics will increase their resistance to air flow, they should be treated to resist water.

Air Washers are essentially humidifiers and are used principally for this purpose. They are not particularly efficient in the removal of very small particles and when used, are generally used in conjunction with other air cleaning devices, such as filters. The air washer, if the water is kept fresh, will remove some odors from the air up to a certain point, and cannot therefore be considered a satisfactory solution.

Electrical Precipitation of air-borne particles is finding increasing use in air conditioning. It boasts of a high efficiency in removing fine particles and a low resistance to the air flow. The operation principle involves the electrical charging of the particles in the air stream, which are then attracted to one of the two plates of an electrical field. An adhesive holds the particles on the plate.

Centrifugal Devices which spin the air and thereby cause particles to be thrown outward against the casing of the device and thence drop by gravity to a bin are used principally in industrial work and are only successful with large particles.



AIR MOVEMENT

Air movement is the vehicle by which all other functions of air conditioning—heating, cooling, humidification and cleaning accomplish their tasks. Briefly, the function of air movement in a system resolves itself into three phases, namely: (1) Production of air flow, (2) Distribution of air to the spaces to be conditioned and (3) Distribution of air *within* the spaces.

The first phase, that of producing an air flow, is usually accomplished by a fan or blower. The quantity to be produced is determined by the requirements of the spaces to be conditioned, which usually amounts to the supplying of sufficient conditioned air to maintain a desired temperature. Humidification, because it can be accomplished with considerably less air movement than heating or cooling, does not become a factor in the calculations, nor does air cleaning, except possibly in special cases, since the cleaning device is usually designed to meet specified air flow conditions.

Fans fall into two classifications; the propeller (axial flow) type and the centrifugal (radial flow) type. These are illustrated below. Many variations of these types will be found, each design claiming a particular advantage for a specific condition or use.

Either type of fan can be so designed as to perform a given duty, but efficiency, quietness of operation, and the power available are the governing factors in selecting.

Generally the propeller type fan is used where resistance is slight and noise is not objectionable. The centrifugal type blower will move air against high resistance and is comparatively quiet in operation. This type is used almost exclusively in duct systems, where the resistance offered by heating and cooling coils, humidifiers, air washers, filters, ducts and grilles must be overcome.

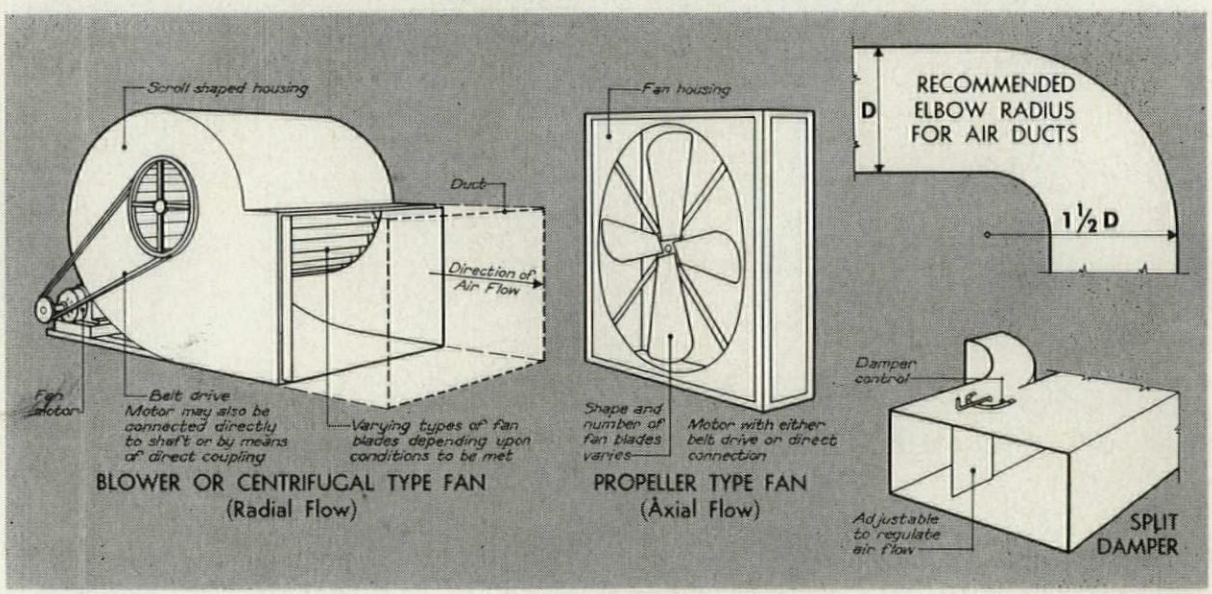
Also deserving of mention is the attic fan, a practical and inexpensive piece of equipment which will provide a fair measure of cooling effect in residences during the summer months. Installed in the attic and so arranged as to discharge to the outside, the fan is operated at night only, drawing in cool night air through open windows and expelling the warm air through the attic to the outside. In the morning the fan is turned off, the windows closed.

The second phase of air movement is that of distributing the air to the spaces to be conditioned. This is accomplished by a system of ducts, which should be so designed as to convey the air to its destination as directly as possible. The more nearly square ductwork is designed, the more efficient it will be, but in no case should the ratio between short and long side be greater than 10 to 1. Sharp elbows, bends and transitions from one shape to another increase the resistance and must therefore be avoided. Elbows should be designed with a radius of 1½ times the width of the duct (see illustration). Research reveals that very little advantage is to be gained by increasing this radius.

Branches (connections taken off a main trunk line) should be equipped with split dampers as illustrated below. These will balance the air flow to achieve good distribution.

When the quantity of air required is known, the duct sizes may be calculated on the basis of air velocity. The reader will understand that for a given quantity of moving air, the smaller the duct cross-section, area, the greater the velocity. High velocities result in vibration and buckling and, because of the resulting noise as well as increased resistance, should not be used. However, building construction, costs and other factors also limit the size of ducts, so that a compromise is the usual result. Air velocities commonly accepted as standard are: 1200 to 1600 fpm (feet per minute) in main ducts; 600 to 1000 fpm in branches; and 200 to 400 fpm in room supply outlets. This last is subject to wide variation and depends on location. Properly diffused it may be increased as much as 25%.

The distribution of air within the space, as the third phase of the air movement discussion, should be planned with the utmost care, because it represents the goal, so to speak, of the whole air conditioning system. Properly exe-



cuted, it will contribute much to the success of the installation.

Of first consideration is the location of the supply and exhaust openings. These will differ for heating and cooling if the two are considered separately, since the laws of physics still operate to cause cold air to drop and warm air to rise. Therefore to achieve an even distribution of air within a particular space, cool air should be introduced at a high level and warm air at a low level. Where outlets are to be used for both heating and cooling, the requirements for cooling are given preference, and the air is introduced at a high level. The supply outlet should be located high enough in the wall to prevent the discharge from striking the head of a person standing in the room. Its location should also take into consideration beams, columns, or other obstructions. If placed too near the ceiling, a streaking of the surface may result. There is also the possibility that the air flow might strike the ceiling at an angle that will cause rapid dissipation of its force and hence prevent good distribution.

For heating, supply openings are more efficient when placed in or near the floor. When located in the floor, however, they become a receptacle for dirt, so that the baseboard or wall is considered a better position from the practical standpoint.

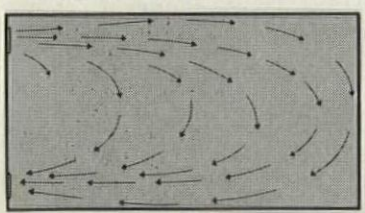
Exhaust outlets should be so located as to aid this distribution of conditioned air within the space. This usually means that for both heating and cooling installations, the exhaust outlet is placed in or near the floor (see illustrations below). If the supply outlet is high, the exhaust outlet should be placed low in the same wall. If the supply outlet is near the floor, the exhaust will also be low but located on the opposite side of the room. Structural or other considerations often make it imperative to locate supply outlets in a favored position. Sometimes for reasons of economy, it is desirable to use one supply outlet where two or even three might do a better job. In such instances, the grille and the velocity of the air supplied to the room can be designed to an advantage.

AIR MOVEMENT

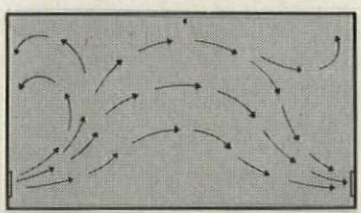
As shown in sketches below, the "throw" accomplishes a good distribution of the air. It is important that the throw be long enough to carry the full length of the room, otherwise the air will "short circuit" to the exhaust. On the other hand too long a throw will result in the air striking the wall and deflecting downward at a velocity too high for comfort.

Another consideration growing out of the function of air movement is the matter of sound control, since duct systems provide a ready vehicle for the transmission of noise. Noise may originate in the mechanical equipment of the system so that the use of a canvas duct connection between the unit housing the equipment and the main truck duct is an important precaution. But more than often noises originate at sources outside of the system, and enter through room supply and exhaust openings, or through the duct walls. Covering the duct with insulation where exposed to sound is one remedy, or once the noise has reached the air stream in the duct it can be controlled by lining the ducts on the inside with a sound absorbing material. Most important areas to insulate are elbows, and where the source of noise is known, the straight duct immediately adjacent. There is no set rule for the length of the lining, but generally if the length of the lining is equal to ten or fifteen times the diameter of the duct it will be sufficient.

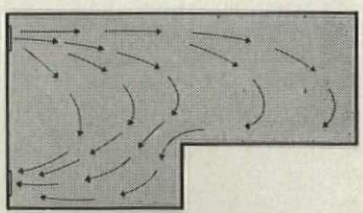
Finally, outside air should be introduced for purposes of ventilation. The amount of air required depends on conditions, but where human occupants are concerned it is recommended that not less than 10 cfm per person be provided. (See diagrams on pages 58 and 59.) Although residential air conditioning systems often are designed to admit approximately 25% fresh air, the larger systems have connections of sufficient size to introduce 100% fresh air. This quantity is used for flushing out or for natural air conditioning in spring or fall months. Actual quantities are controlled by means of volumn dampers.



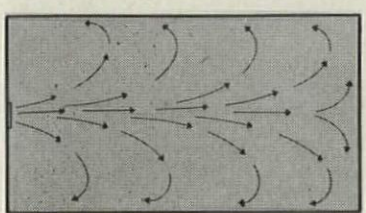
Elevation of Supply and Return Openings on Same Wall (For Heating and Cooling)



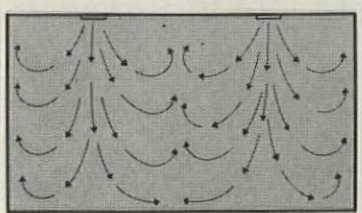
Elevation of Supply and Return Openings on Opposite Walls (For Heating Only)



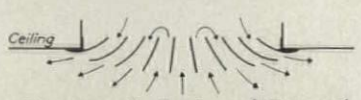
Plan of Supply and Return Opening Designed for Irregular Space



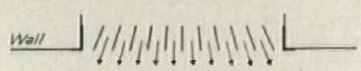
Plan of Supply Opening for Long Throw



Plan of Supply Openings for Short Throw



Diagrammatic Section of Patented Ceiling Air Diffuser



Diagrammatic Section of Wall Air Diffuser

CONTROLS

Automatic control is a vital requisite to the successful operation of an air conditioning system. It is the means by which the individual functions of air conditioning are made to perform as an engineered and coordinated unit. The selection of automatic controls should be contemplated not so much from the standpoint of first cost but as something which makes possible an economical maintenance of the proper air conditions. They should be understood not as separate items to be added or removed at will, but as an integral part of the equipment they serve.

Controls are used in air conditioning to maintain the desired conditions of temperature, humidity, air motion and distribution, gas and liquid pressures, and sometimes air cleanliness. The types of automatic controls are many and various. Some of them are a part of a pneumatic control system whose primary source of operation is compressed air. The pressure of this air is varied by the action of the controls and results in the operation of a device to obtain a desired movement, such as the opening or closing of a damper. Many controls utilize electrical energy in one way or another, but do not always possess sufficient energy to exercise direct control, but act as a pilot for a sturdier instrument which provides the force.

THERMOSTATS, which react only to dry bulb temperatures, are made in four general types: *Room, Insertion, Immersion and Surface.*

Room thermostats are used for the control of the air temperature within a space. Their operation is based on the closing or opening of an electric circuit which is accomplished by the action of a temperature sensitive element. This element may consist of a bimetal strip whose shape changes because of the difference in the expansion coefficient of the two metals of which it is made. Or the element may consist of a thin metal bellows, filled with a volatile liquid which expands and contracts with a rise and fall in the temperature.

Insertion thermostats are used for the controlling of air temperature in ducts or other confined spaces and operate on the same principle as the room thermostats.

Immersion thermostats are used principally for controlling the temperature of liquids but may also be used for gases. In this type the element is inserted direct in the liquid. If the vapor filled bellows type is used, it may consist of a bulb containing vapor and connected to the bellows by means of a fine tube. The bulb is immersed in the liquid to be controlled, and because the vapor it contains is sensitive to a temperature change it will expand or contract the bellows.

Surface thermostats are used to measure the temperature of the surface to which they are attached, or as in the case of pipes, to measure and hence control the temperature of the liquid they contain. The element is similar in principle to the other thermostats.

HUMIDITY CONTROLS react to changes in relative humidity. An element, sensitive to changes in the moisture content of the air, expands as it absorbs moisture or contracts as it dries, thus opening or closing an electric circuit. The element may be hair, wood, skin or almost any other material whose length will change at a constant rate with changes in humidity.

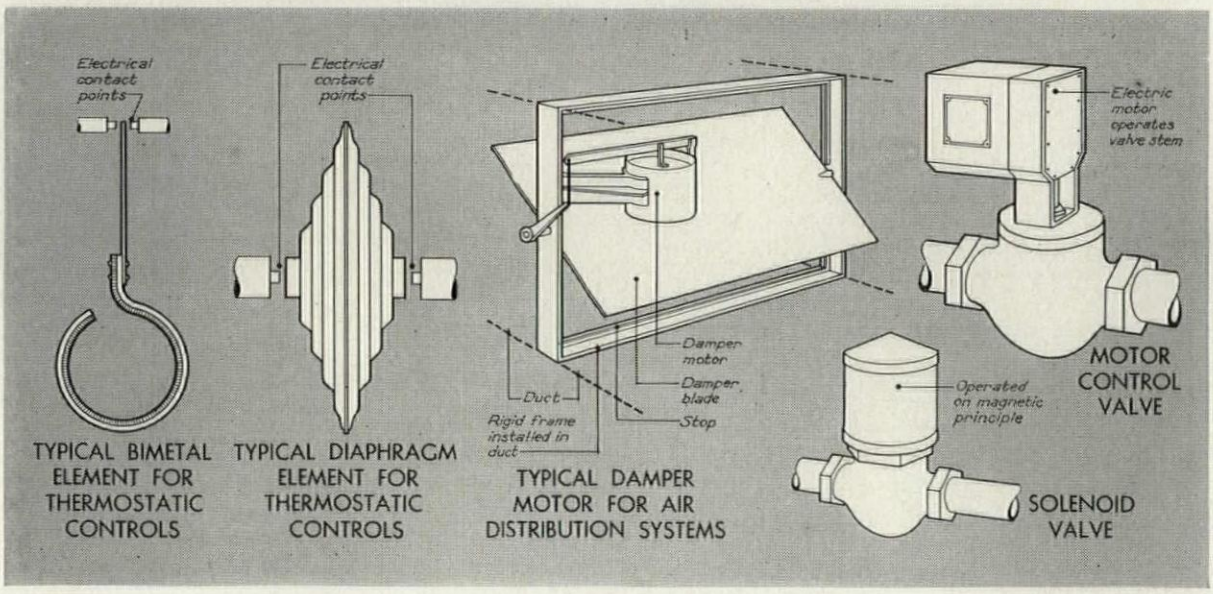
Combinations of thermostats and humidistats are available which provide a control in accordance with effective temperature requirements.

DAMPER CONTROLS are motor-operated and effect a change in damper position to control air flow in accordance with the demands of a pilot instrument, such as a thermostat or humidistat.

CONTROL VALVES are valves for the control of steam, water or air flow in piping. They may be of a complete open or shut-off type, or of a modulating type which will adjust the flow to a desired rate. An electric or pneumatic motor supplies the power for operating.

PRESSURE CONTROLS react to pressure changes. They are used in the operation of refrigerating equipment, in steam or water systems, and in duct systems.

SOLENOID VALVES are valves whose opening or closing is actuated by magnetic action, they are extensively used to control gas supplies, water to humidifier, etc.



TYPES OF SYSTEMS AND UNITS

There are many ways of designing an air conditioning system to obtain a desired result. Each system, whether it be for complete or partial air conditioning, and each unit or process will have its limitations as well as its advantages so that no one type is either adaptable to all types of buildings or to all kinds of climates. Remember, too, that it is not only the requirements that vary—appearance, cost and the physical adaptability of equipment are also considerations which more than often dictate the results finally achieved. It is this that accounts for the wide selection of equipment available. The air conditioning installation which is inadequate or incomplete because of any of these factors certainly cannot be expected to perform as efficiently or as well as that installation which is designed, without any restrictions, to perform a specified job.

Below is reproduced a chart indicating the several types of air conditioning units and systems in common use, and the functions they perform. This list does not pretend to assume an engineering character, but rather is offered as something that may serve to clear up certain questions that have hitherto puzzled the reader. The design of a system is usually a matter of co-ordinating individual equipment, although units containing most of the equipment are available and frequently used. This latter applies particularly to the residence or small building. Unit air conditioners, unit ventilators, etc., generally house all the equipment in one cabinet of a decorative design and finish for use in offices, houses, restaurants, etc. Those for industrial use, or for use with short lengths of ducts and hence placed in closets or adjoining rooms, are inexpensively finished.

TABLE OF FUNCTIONS—AIR CONDITIONING SYSTEMS AND UNITS

TYPE	HEATING	COOLING	HUMIDIFICATION	DE-HUMIDIFICATION	AIR CLEANING	OUTSIDE AIR	FAN	DUCTS	DESCRIPTION
STEAM HEATING SYSTEM	Yes	No	No	No	No	No	No	No	STEAM HEATING SYSTEM—Heating is accomplished by radiators located in various spaces, supplied with steam from boiler through a system of piping. One pipe steam system utilizes the same pipe for both the distribution of medium to the radiator and the return of condensate to boiler. Two pipe system provides one pipe for supply of medium to radiator, another for the return of condensate to boiler.
HOT WATER HEATING SYSTEM	Yes	No	No	No	No	No	No	No	HOT WATER HEATING SYSTEM—Heating is accomplished by radiators located in various spaces and supplied with hot water from boiler through a system of piping. One pipe hot water system consists of a number of radiators connected in series by a single pipe through which water flows, making a complete circuit from boiler, to radiators, and return. Two pipe hot water system provides one pipe for supplying the hot water to radiator, another for the return of the cooler water to the boiler.
GRAVITY WARM AIR SYSTEM	Yes	No	Yes	No	No	Maybe	No	Yes	GRAVITY WARM AIR HEATING—Consists of furnace that heats air as it passes over its surfaces and which then flows through ducts to various spaces. Operation is dependent on natural forces. Air is recirculated to furnace through return duct work. Furnace often includes an evaporative type of humidification.
MECHANICAL WARM AIR SYSTEM	Yes	Maybe	Yes	Maybe	Yes	Yes	Yes	Yes	MECHANICAL WARM AIR SYSTEM—System is similar to gravity warm air system in design but employs a motor-driven fan to enforce distribution of air through ducts to various spaces. This system usually includes equipment for air cleaning and humidifying. Equipment for cooling is readily adaptable.
CENTRAL SYSTEMS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	CENTRAL SYSTEM—Generally interpreted to mean an indirect system in which air conditioning equipment is located at a central point and not in the rooms served. Equipment may include boiler, heating coils, cooling coils and equipment, humidifier and filters. Combination system described above is essentially a "central system."
COMBINATION SYSTEM	Yes	Maybe For Part Of System	Yes	Maybe For Part Of System	For Part Of System	Yes	Yes	For Part Of System	COMBINATION SYSTEM—Employs both radiator and warm air heating—choice depending on the requirements of the space involved. Air for warm air heating is heated by means of steam or hot water coil connected with boiler, and it is distributed to various spaces by means of ducts. Only spaces served by ducts are supplied with humidified and filtered air.
SPLIT SYSTEM	Yes	Maybe For Part Of System	Yes	Maybe	For Part Of System	Yes	Yes	For Part Of System	SPLIT SYSTEM—Employs radiators for heating all spaces. Filtered, humidified, and sometimes cooled air is distributed through ducts to principal rooms, the equipment for this being supplementary and described in detail below.
UNIT HEATER	Yes	No	No	No	No	No	Yes	Not Usually	UNIT HEATER—Consists of a heating coil (supplied with steam or hot water from boiler) and a motor-operated fan. Used for heating space in which it is installed or space directly adjacent. Recirculates room air. Does not generally employ ducts for distribution, though this is possible.
UNIT VENTILATOR	Yes	No	No	No	No	Yes	Yes	Not Usually	UNIT VENTILATOR—Similar to unit heater in principle but unit usually draws in air from outside, by means of a duct connection, for ventilation of space. May also have provision for recirculation of room air. Duct distribution not generally employed but possible.
HUMIDIFYING UNIT	No	No	Yes	No	Maybe	Maybe	Yes	Maybe	UNIT HUMIDIFIER—Generally consists of an equipment for atomizing water and a motor-driven fan for drawing air through the humidifier. Unit sometimes includes a heating coil for "tempering" air, filters, and ducts for distribution. Used in conjunction with radiator heating systems to make the "split system" described above.
COOLING UNIT	No	Yes	No	Yes	No	No	Yes	Not Usually	COOLING UNIT—Consists of a cooling coil and motor-operated fan similar in construction to the unit heater. It is normally installed in the space to be served or immediately adjacent. It recirculates room air and does not generally require ducts for distribution.
AIR CONDITIONING UNIT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Maybe	AIR CONDITIONING UNITS—May include equipment for some or all functions of air conditioning and is therefore a very loose term. Reference to manufacturer of particular unit in question is recommended for complete details. Some units, also, are "self contained" meaning that they include all necessary equipment, others require additional equipment such as compressor, controls, etc.
COOLING AIR CONDITIONING UNIT	No	Yes	No	Yes	Yes	Yes	Yes	Maybe	COOLING AIR CONDITIONING UNIT—Generally consists of coil for cooling, motor-operated fan, and air cleaning equipment. It also provides for the introduction of outside air, as well as the recirculation of room air. Duct distribution is not generally employed but is possible.
CHEMICAL DEHUMIDIFIER or DEHYDRATER	No	No	No	Yes	No	No	Yes	Maybe	CHEMICAL DEHUMIDIFIER OR DEHYDRATER—Consists of equipment required to draw air through bed of chemicals which have either the ability to condense water vapor or take it up. This type is generally used for industrial installations and in conjunction with other air conditioning equipment.
ATTIC FANS	No	Yes	No	No	No	Yes	Yes	No	ATTIC FAN—Consists of a large motor-driven propeller type fan usually installed in the attic of a residence so as to discharge to the outside. It is operated at night with all windows open, drawing in cool air, and discharging the hot air. Windows are closed during the day.

The air conditioning system best suited to meet the requirements of a particular job is something which only a competent engineer can decide. The successful installation depends not only on painstaking engineering, but on the careful consideration of many questions. What is the purpose of the space to be conditioned—is it a residence, store, restaurant, hotel, theatre, office building or industrial establishment? Is it a new building, still on the drafting board, or does it already exist? How large is it and where is it situated? What is its period of occupancy? Is noise an important factor? What is the net air conditioning result desired? What and where are the sources of power and energy? How much conditioned air is required? The air conditioning problems of the residence differ from those of the store—the requirements of the restaurant will hardly parallel those of the hotel. Again, the best method of air conditioning the new building is frequently impractical for the old, since it is not so much a question selecting equipment as it is of finding the space to put it.

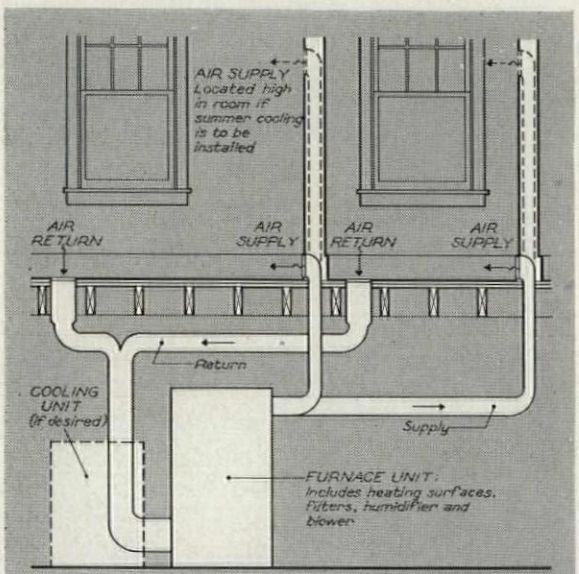


FIG. 1 FURNACE SYSTEM

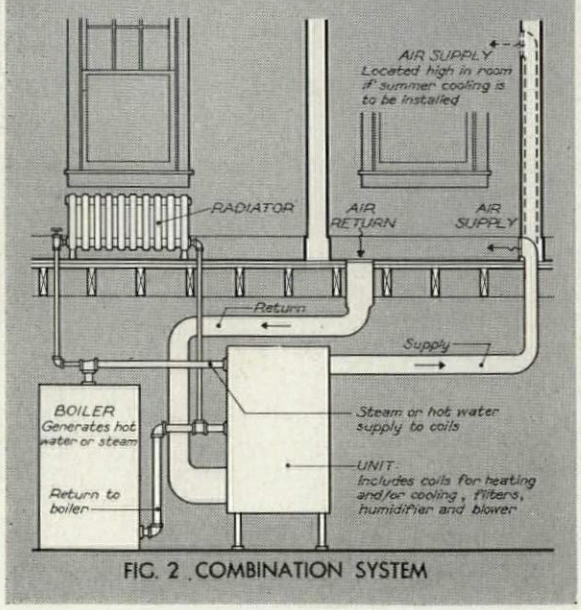


FIG. 2 COMBINATION SYSTEM

TYPICAL

There are two broad system classifications—direct and indirect. The direct system is illustrated by the furnace type shown below, and derives its name from the fact that the air is heated by direct contact with the furnace surfaces. The indirect system, into which classification the other systems below fall, is so called because the air is heated by means of a coil, supplied with steam or hot water from a boiler.

The typical systems shown here are offered not as the answers to specific conditions, but rather as the types of systems commonly used for comfort air conditioning. These particular systems are essentially for "comfort" conditioning and accomplish dehumidification by the process of cooling.

FURNACE SYSTEM is widely used for residential and the smaller commercial and institutional buildings. It generally provides for the heating, cleaning, humidification, ventilation, and recirculation of the air, with summer cooling and dehumidification being an optional addition. In this system the air is heated by direct contact with the hot surfaces of the furnace.

COMBINATION SYSTEM includes both radiator and warm air heating. Kitchens, baths, garages, servants' quarters, and other spaces where only heating is desirable are provided with radiators while other rooms are supplied with conditioned air via ducts. Summer cooling equipment, to provide air conditioning to those spaces served by ducts, can be incorporated in this system or added at a later date if the necessary design provisions in duct work and grilles are made.

SPLIT SYSTEM provides for radiator heating in all rooms. The other functions of air conditioning, such as humidification, air cleaning, and ventilation depend on a supplementary unit which supplies the conditioned air, via ducts, to the principal rooms. Summer cooling and dehumidification can also be added to the system, but operation is practical only for those rooms served by the ducts.

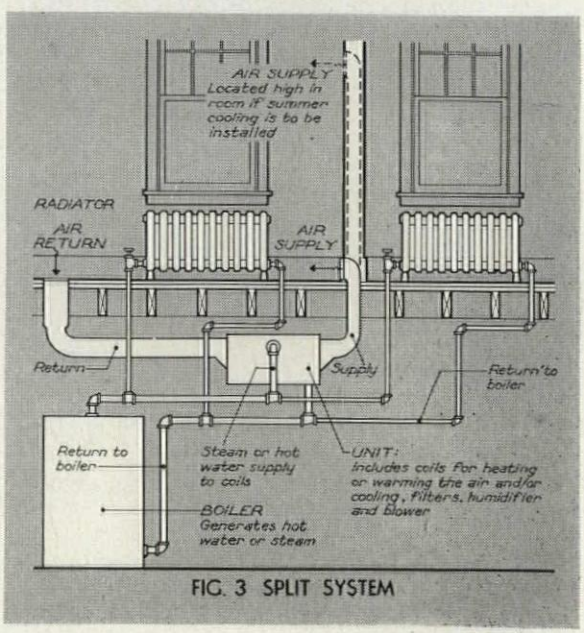


FIG. 3 SPLIT SYSTEM

SYSTEMS

CENTRAL SYSTEM is the term commonly used for an "indirect" system, the name implying that the air is heated, cooled, and otherwise treated by equipment located at a central point and distributed to the various spaces by means of ducts or piping. The central system is employed in many variations, some of which are discussed below.

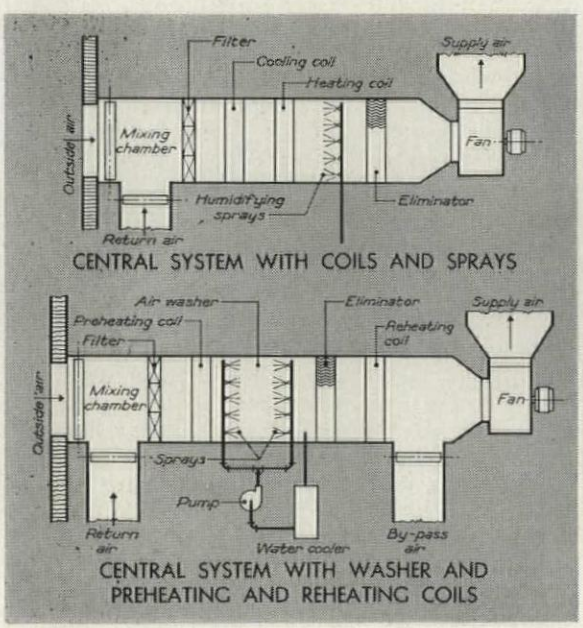
CENTRAL SYSTEM WITH COILS AND SPRAYS, a type widely used. It provides both winter and summer air conditioning. The humidifying sprays are not used in summer, cooling and dehumidification being accomplished in one operation by the cooling coils. Note that both the outside air connection and the return air connection are equipped with dampers to permit the control of the air flow and the percentage of outside air mixed with recirculated air. Such an arrangement is typical of all air conditioning systems in which outside air is used for ventilation.

CENTRAL SYSTEM WITH WASHER AND PREHEATING AND REHEATING COILS is a type used extensively for large winter air conditioning installations. The preheating coil brings the air up to a temperature high enough to assure adequate humidification. Summer cooling is achieved by the use of cold water in the washer. It should be noted that the dehumidification of air by cooling often results in a temperature lower than is required. The air must then either pass through a reheating coil, or must be mixed with warmer by-passed air, which is return air that is not treated by the equipment. The by-pass is patented.

BLOW THROUGH SYSTEM WITH COILS AND MIXING DAMPERS is used where different zones are served from one central system. The main supply is essentially divided in two, one half containing heating coils the other cooling coils. The conditioned air for each zone is obtained by mixing in varying quantities the air which has passed through these heating and cooling coils. The mixing is accomplished by mixing dampers which are usually motor-driven and actuated by a gradual acting thermostat located in the space to be conditioned.

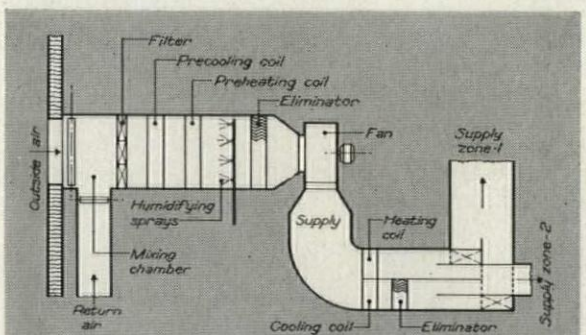
CENTRAL SYSTEM WITH RECIRCULATING CONDITIONERS is particularly adapted to installations where zones are large and require independent control to satisfy local requirements such as might occur in apartment buildings, hotels, offices, etc. In this type of system the central equipment is depended on for outside air which has been filtered and humidified in winter or dehumidified in summer. Otherwise each zone is essentially an independent system, handling its own return air which is mixed with the desired quantity of outside air obtained from the central source and then cooled or heated to the required temperature.

CENTRAL SYSTEM WITH BOOSTER COILS is used where the heating demands of the different zones vary to a considerable extent, such as may happen in exposures subject to sun, rain, wind, etc. Booster-reheating coils are installed in each zone and are controlled independently from the central system by a thermostat reacting to local requirements.

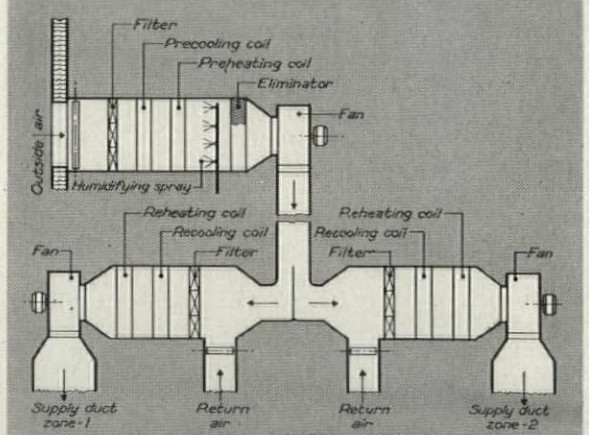


CENTRAL SYSTEM WITH COILS AND SPRAYS

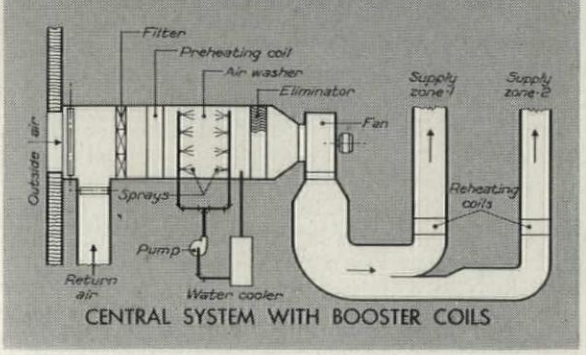
CENTRAL SYSTEM WITH WASHER AND PREHEATING AND REHEATING COILS



BLOW THRU SYSTEMS WITH COILS AND MIXING DAMPERS



CENTRAL SYSTEM WITH RECIRCULATING CONDITIONERS



CENTRAL SYSTEM WITH BOOSTER COILS

DESIGNING THE SYSTEM

Previous paragraphs showed that the human body maintained an even temperature by a fine balance between its rate of heat production and its rate of heat loss. An air conditioning system achieves its objectives in like manner. In estimating the rate required to provide the desired temperature, outside conditions, inside conditions and building construction are the several factors which must be considered. Outside conditions, which include temperature, sun effects, humidity, wind direction and velocity, are constantly changing. Inside conditions, though subject to control, also vary, since they involve a consideration of such things as the number of persons present, the type of activity they are engaged in, the number of electric lights, and other heat sources in use. Building construction affects air conditioning requirements because of the difference in rates of heat transfer through the various materials and is the one factor which remains fairly constant.

Thus in designing an air conditioning system, the sum total of all these conditions must be considered, as the following steps indicate.

Design Conditions—For winter design conditions, reports of the U. S. Weather Bureau supply the necessary information. The lowest outside temperature to be assumed for purposes of calculating heating loads is generally taken to be approximately 15° above the lowest recorded temperature of the particular vicinity involved. For example in New York City, the lowest (dry bulb) temperature ever reported was −14°F, hence heating systems are generally designed to provide for 0° weather. Wind, if of considerable velocity, increases heat transmission through walls, etc. and the infiltration of cold air through window and door cracks. Hence rooms with exposures to the prevailing winter winds must be provided with greater quantities of heat.

Summer design conditions are more involved than those for winter because of the greater number of factors which must be considered. Because extreme conditions of hot weather are encountered only during periods of short duration it is not practical to design the cooling system to take care of them, hence reference to tables such as offered by A S H and VE Guide, published by the American Society of Heating & Ventilating Engineers, is the usual procedure. These tables give both wet bulb and dry bulb design temperatures as well as data on prevailing winds. In addition to the above, other tables estimate allowances necessary to offset solar effect, heat emission of occupants, electric lights, mechanical equipment, and other sources of heat gain.

Heating Loads—Heating loads are calculated in "Btu's." This is an abbreviation of the term British Thermal Unit, a measure of heat roughly defined as the amount of heat required to raise the temperature of 1 lb. of water from 63°F to 64°F. Since it has been established that the amount of heat necessary to maintain a given temperature in a particular space is equal to its heat loss, it becomes a question of investigating how and how much heat is lost. Heat loss occurs through walls, floors, ceilings, doors, windows, and skylights,—but heat loss through walls, doors, etc. adjacent to similarly heated spaces is not considered. Tables giving coefficients of heat transmission for various types of construction are included in several engineering hand-books, and will give, when multiplied by the area of the particular material under consideration, the number of Btu's necessary to offset the heat loss. Heat loss resulting from infiltration is estimated similarly.

The number of Btu's required to evaporate moisture for humidification, and necessary to warm ventilated air must also be included, as well as allowances for surfaces which give off heat, such as a chimney wall, or a floor over an uninsulated boiler room.

Finally, the heat loss through piping and ducts must be calculated and proper provision made.

Cooling Loads—The calculating of cooling loads is done in a manner almost the reverse of that followed in establishing heating loads, since it involves heat gain. Like heating, the heat transfer through windows, walls, floors and ceilings is established and the heat gain in Btu's calculated. In addition, the sensible and latent heat given off by the occupants is estimated, as well as the heat emission of mechanical equipment, lights, stoves, etc. Included, too, are the sensible and latent heat gains resulting from infiltration or to be removed from ventilated air.

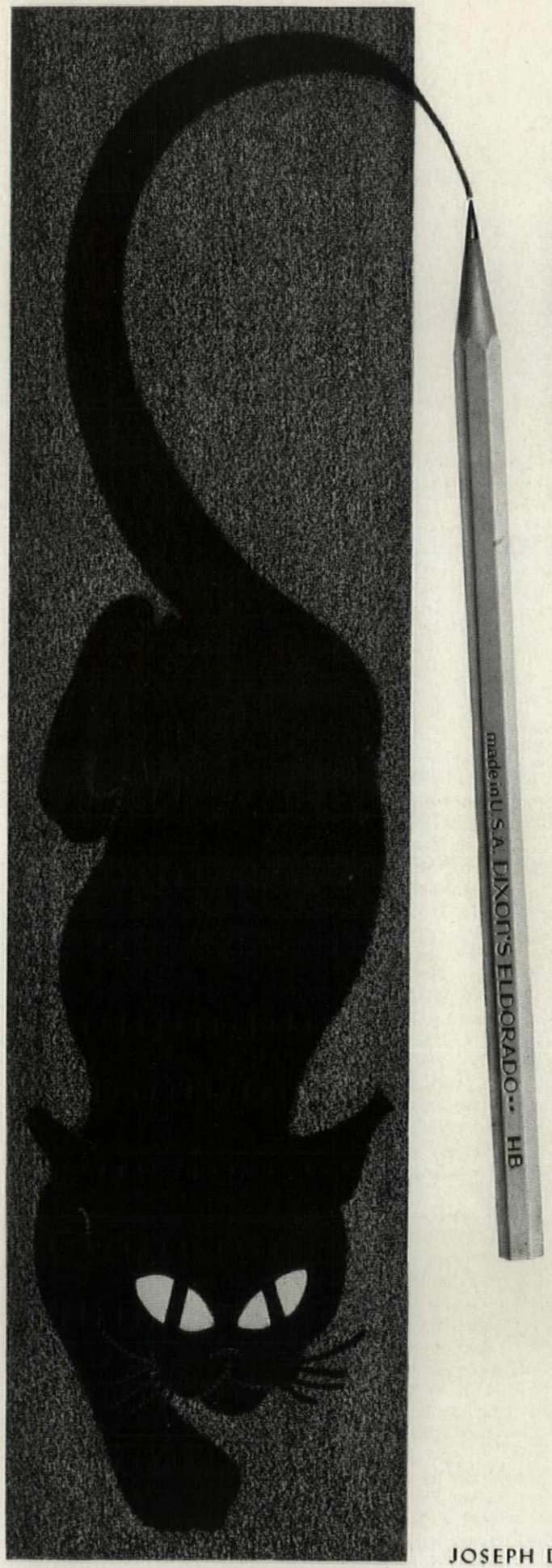
Designing The System—When the heating and cooling loads are established, the first step in designing the system is to decide on the air temperature required at the supply grilles for both summer and winter air conditioning. This is variable because of the many possibilities in grille location. For heating it is desirable to use air temperatures between 80° and 90°F so as to provide as little difference between the entering air and room temperature as possible. However, if the grille is high enough to permit adequate mixing of the air before it reaches the six foot level of the room, then temperature of 100° to 120°F may be used.

For cooling, on the other hand, the entering air should be within 10° or 15°F of the desired room temperature unless the point of introduction is well above the occupied area, when it may go as low as 30°F below the desired room temperature. But considerable care should be exercised, since cool air tends to fall rapidly without diffusing.

When these air temperatures are determined, the air quantities required for both summer and winter are calculated in terms of cfm. Usually summer cooling requires a greater quantity of air than winter heating, so a variable speed fan or volume damper must be provided to take care of the difference.

The selection of equipment comes next in order—heating and cooling coils, air washers or humidifiers, filters and fans. These all should be of a capacity sufficient to take care of the loads as calculated.

The duct distributing system and the supply and exhaust grilles are now designed. Grille areas and other data pertinent to the proper selection are found in manufacturers' catalogs.



A line as black as night!

Typhonite Eldorado Pencils make such lines! Opaque lines! Lines firm and solid, lines as black as a black feline. This is the kind of line wanted in today's drawings—because today's blueprints must be clean as the path of a bullet.

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HERE, THERE, THIS & THAT

POTOMAC PATTER

For the benefit of our non-A.I.A. members who do not get their architectural information from that body's Journal let it be reported that our profession now has a full time representative in Washington, *Edmund R. Purves,* of Philadelphia. A former director of the Institute, Mr. Purves introduces a new note in representation. Besides keeping an eagle-eye lookout for the building industry as a whole, his is a quasi-lobbying job that deals in advice to the profession. That is, assuming that any or all government agencies welcome the use of private architects to carry out their projects. Mr. Purves stands ready to advise the architect how best he may go about getting "fixed up". Write him, fellows.

"Be prepared. Your country will need you more than ever—if and when war comes". Thus spoke *Michael Rosenauer,* technical consultant for the Committee on Air Raid Protection of the Washington Chapter, A.I.A., many months ago. His words have not been in vain, for the Chapter nas been called upon to advise property owners on how to protect their buildings and themselves from air attack. This committee, at work since last spring gathering and studying information and problems concerning air raids, is at this grave hour one of the very few groups in the country trained in these highly-technical problems. The committee is setting up an organization to give consulting service to the private property owners *through the owner's architect.* As a result of this committee's work, its former chairman, *Horace Peaslee,* was appointed chairman of the Civilian Defense Committee of the A.I.A. It's gratifying to note that his successor, *Slocum Kingsbury,* is handling his job with equal fervor and acumen. In fact, the committee has gone so far as to prepare authoritative booklets for the use of civilians.

At long last, it appears that the Washington Chapter is to become Custodian of the A.I.A. Library, containing some 30,000 dollars' worth of books. It is proposed to remodel the well-built stable beside the Octagon House, A.I.A. headquarters.

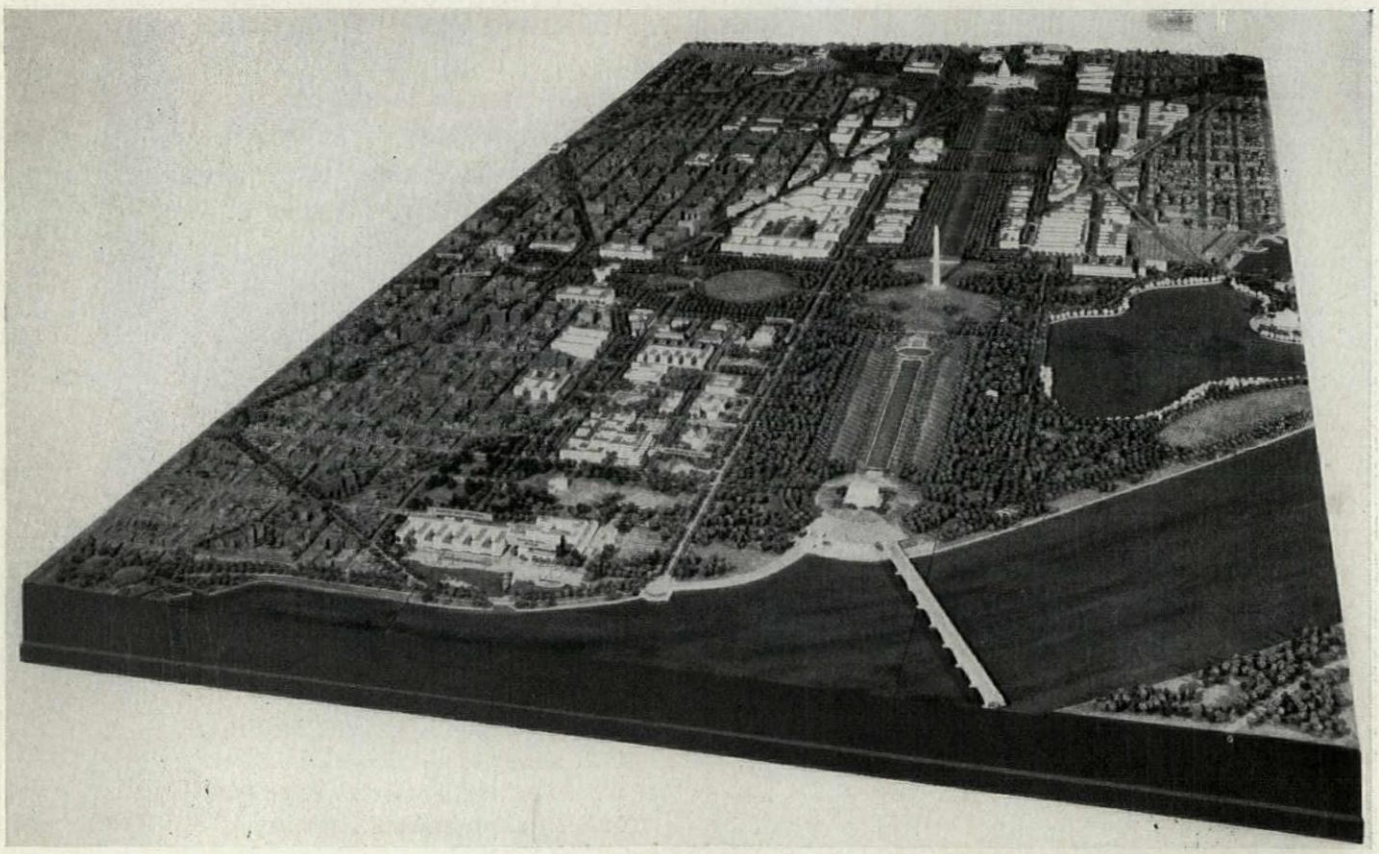
Notes on the S.P.A.B.

Architect *Charles Henry Rush,* of St. Louis, has been appointed Priorities Specialist.

The ruling of October 9 was meant to discourage the use of critical materials in private construction, but had no weapon of enforcement. The war situation will no doubt emphasize the order by following up with legislative teeth.

While civilian requirements may be given further consideration in order to keep the building industry from dying an unnatural death, it is quite conceivable that civilian construction will have to prove itself essential and indirectly connected with national defense, before S.P.A.B. will grant a priority

(Continued on page 44)



During the month of January the main gallery of The Architectural League of New York will be devoted to a comprehensive exhibition of the work of the Fine Arts Commission, and the National Capital Park and Planning Commission, both of Washington, D. C. On exhibition will be the model (illustrated) of the Mall System. This will be the first exhibition of the work being carried on in Washington that has been shown in New York in many years. Scheduled for exhibition January 12-17 are drawings and photos of landscape architecture by Marie Harbeck. Lorimer Rich heads the Exhibitions Committee

USG NEWS-FACTS

BATHROOM DESIGN EDITION

January 1942 Vol. 2 No. 1

Published by the UNITED STATES GYPSUM COMPANY, 300 West Adams Street, Chicago

Anticipated Remodeling of Buildings to Require Architects' Services

In spite of Priorities and a threatened shortage of labor in some sections of the country, an increasing amount of remodeling work is anticipated as new construction is curtailed and marginal buildings are modernized and put into usable condition. Indications are that architects who depend on civilian or non-defense building will find their professional services in demand by owners who are confused by the unsettled situation in building materials. A recent OPM interpretation of the SPAB rules means that you can build anything in any location for which materials can be obtained—whether critical or not.

Most of the materials needed for remodeling work, however, are not on the critical list. Many materials normally needed for remodeling have excellent substitutes which can be used.

The volume of remodeling and alterations in the early '30's equalled or exceeded in some years the volume of new building. This can happen again and in much greater volume because our present difficulty is not lack of money. Normally, the ever-present need for buildings of all sorts is in a great part satisfied by new building. As obsolescence, fluctuating cost of living, and wear and tear continually present the necessity for habitable and usable construction, the need in the present emergency will have to be satisfied by remodeling and alterations.

Many classes of products are available for this type of work. Clay products, cement, asbestos, gypsum, lime, asphalt and casein will be adequate from present indications, to serve all construction requirements in 1942—including all substitute applications that are possible to relieve demands for products on the critical list.

NEW NEWS-FACTS APPROACH

In 1941 we tried to give you the facts about the USG products which you would require to specify and design with these products confidently. The issue you are now reading is going into reverse and proceed from the *use* to the *product* itself. This month our subject is Bathrooms. We have tried to put in four pages, with an eye to the present building material situation, enough information so that the selection of materials and the arrangement of spaces can be accomplished easily. Do you like this idea? What other rooms or types of buildings would you like to have covered in this manner in NEWS-FACTS? Write the Editor of NEWS-FACTS, 300 West Adams Street, Chicago. Your letters will be very much appreciated and will be extremely helpful.

WESTERN GROUP SEE DANGER TO U. S. BUILDING INDUSTRY

The Building Industry Conference Board of Northern California today urged national organizations of architects, engineers, contractors and material manufacturers to take joint action with the Federal Government to maintain private building through revision of the priorities system.

The private building industry must be kept healthy, not only for the present emergency, but to function properly in the critical post-war period.

Members of the board are representative of many well-known architectural and building groups.

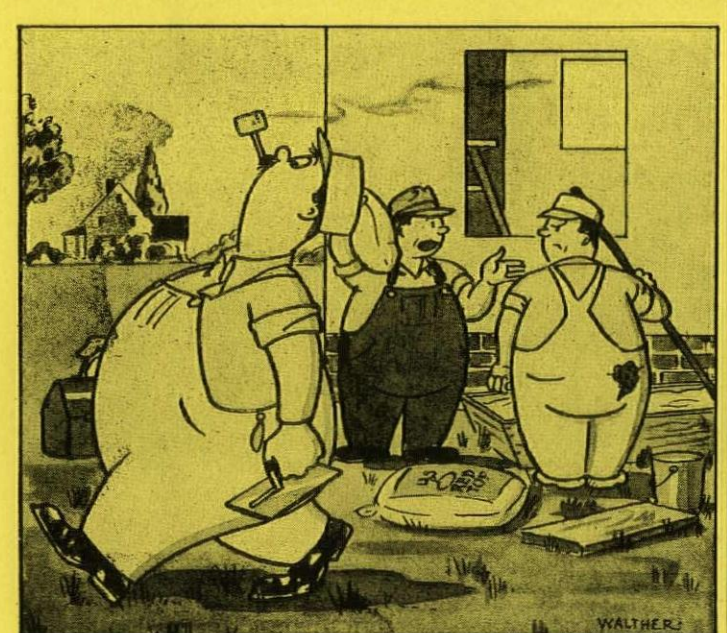
Each member group wrote its national organization urging formation of an industry-wide committee "to integrate the disorganized efforts of the industry's single bodies." This committee would:

1. Cooperate with the Government in the adoption of substitutes and other means to maintain private building.

2. Study the supply and demand of critical materials and furnish full information to permit adequate allocations of these for defense and private building needs.

3. Continue as a unifying body to aid reconstruction during the post-war period.

Local board members are also submitting the plan to OPM executives, members of the Senate Defense Investigating Committee and to organizations of architects, engineers, contractors, material manufacturers, building trades employees and real estate groups throughout the country.



He ain't no air raid warden—he's been plastering ceilings all this week!

The Hamless Ham Sandwich Has Rival

In December, the typographically errorless marathon of NEWS-FACTS was ended with this printers' gem under a perspective of Pyrofill construction, "Diagram of Pyrofill construction *without fill*"! It should have read *without purlins*.

Position of Bathrooms in House Plan

The location of bathrooms over each other, adjacent to each other, and over the kitchen and laundry plumbing, results in the greatest economy. However, it is not suggested that convenience and utility be sacrificed for the economy of piping. Usually good planning and piping economy are natural complements.

Size of Bathroom

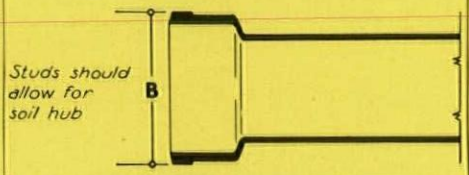
Under no circumstances should bathrooms follow the multitudinous published arrangements referred to as "minimal bathrooms." The care of children and invalids invariably requires greater space than the minimum, and convenience also dictates considerably larger areas. The number of fixtures and equipment to be accommodated, the number of people served, the character of the dwelling will influence bathroom size.

Number of Bathrooms

Where conditions allow it the ideal plan would provide a bathroom with toilet, tub and/or shower, and a lavatory for each bedroom; a toilet and lavatory in the basement and on the ground floor for guest use. Usually a completely satisfactory compromise with this ideal will result from exercise of the designer's judgment.

Waste and Vent Stacks

It is desirable to locate the bathrooms so that soil stacks do not come in partitions adjacent to rooms used for entertainment since bathroom sounds may be heard. Piping should be heavily wrapped with hair felt, using studs large enough so that the hubs of the pipe do not touch the lathing.



C. I. SOIL PIPE, MEDIUM WEIGHT

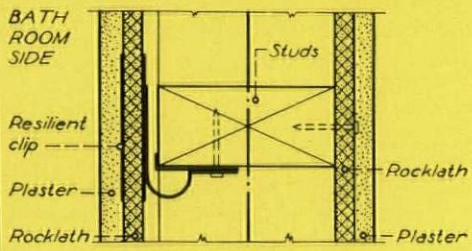
Diameter Nominal Inside	Diameter Actual Outside	Hub Dimensions B
2"	2¼"	3⅞"
3"	3¼"	4⅞"
4"	4¼"	5⅞"
5"	5¼"	6⅞"
6"	6¼"	7⅞"
8"	8⅜"	10⅛"

The unusual economy of Sheetrock Tileboard does not prevent its use in the design of permanently beautiful and luxurious bathrooms

Bathroom Sound Isolation

This is a problem which rarely receives the care which it deserves. Bathroom noises should be confined to the room in which they originate. The skilful disposition of closet and storage spaces between bathrooms and other rooms will do much to eliminate embarrassment.

USG Resilient Rocklath construction is effective in reducing the transmission of sounds through partitions. It is recommended for bathroom interior walls where Keene's cement or plaster finish is utilized. The Resilient system was described in Volume I, No. 1 of USG News-Facts appearing in January 1941; also see current Sweet's.



Wall Materials

The requirements for bathroom walls are:
Moisture Resistance
Sanitation
Appearance.

Moisture Resistance. Those parts of the room subject to direct spray should be impermeable, but over-emphasis of impermeability of other parts of the room limit the designer, without a sound functional basis, in the number of materials that can be used.

Sanitation. Freedom from cracks and open joints is important in maintaining a sanitary room. The wall materials should be readily cleanable.

Appearance. The material should provide sufficient flexibility in design so that the bathroom will not have a forbiddingly aseptic atmosphere.

USG Sheetrock

Sheetrock is fireproof, non-warping, strong, quickly erected, low in cost, extremely crack-resistant, and easily decorated.

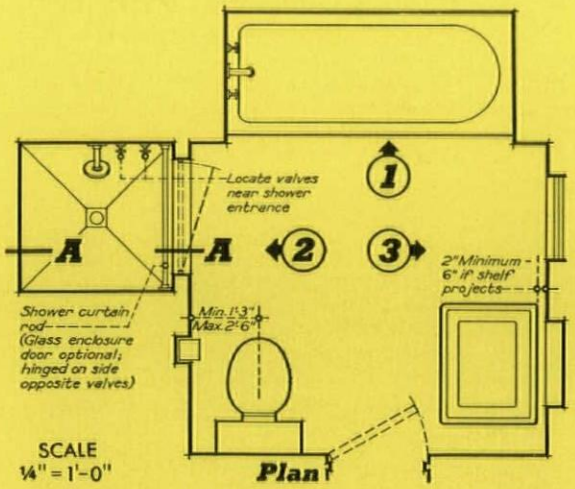
Sheetrock Tile Board is so scored that when the surface is finished with lacquer or enamel, an interesting tile-like pattern is produced. Tile joint impressions are 4¼" square. The Perf-a-Tape joint between Sheetrock panels welds the Sheetrock into a strong integral unit without visible joints. Sheetrock Tile Board is ⅜" thick, 4'-0" wide, in lengths from 6 to 10 feet in 1-foot intervals.

Plain Sheetrock is available in three thicknesses—¼", ⅜", ½"; lengths from 6 to 12 feet in 1-foot intervals; 4'-0" wide. Plain Sheetrock has all the advantages of the Tile Board Sheetrock and may be used where the tile joint markings are not desired.

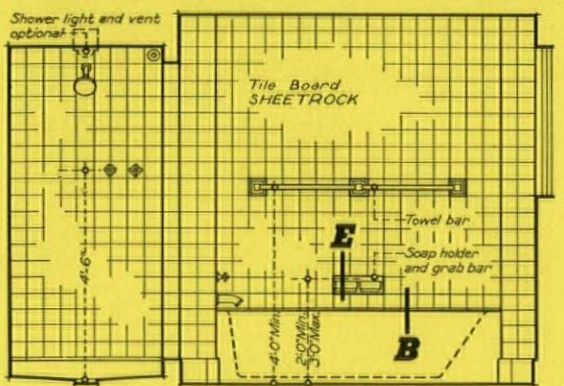
Sheetrock may be finished with lacquer or enamel, or may serve as a base for roll type water-repellant and cleanable coverings. Sheetrock was fully described in the February 1941 News-Facts; also current Sweet's.

The use of either plain or Tile Board Sheetrock for shower enclosures provides an eco-

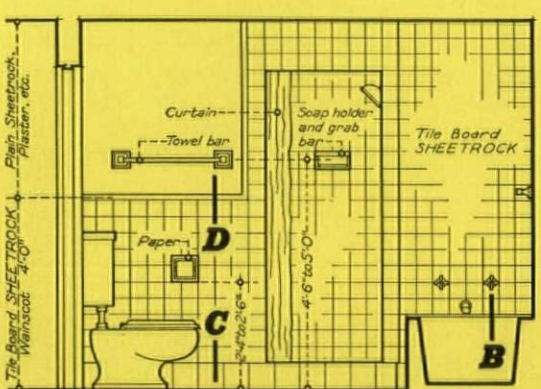
Turn to last page please



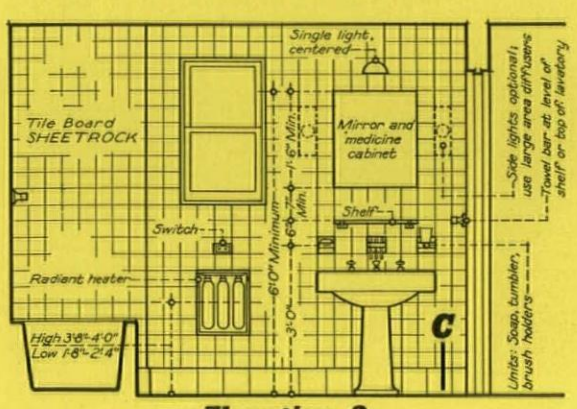
Plan



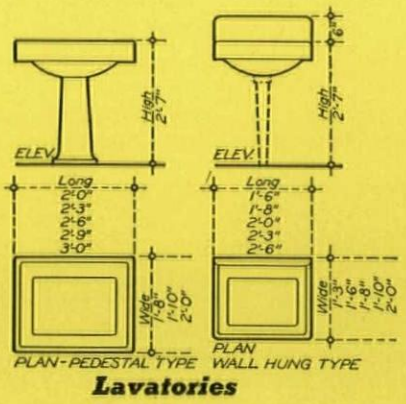
Elevation 1



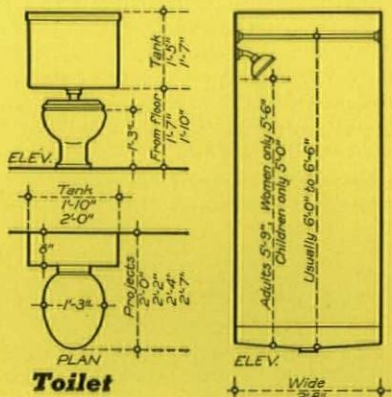
Elevation 2



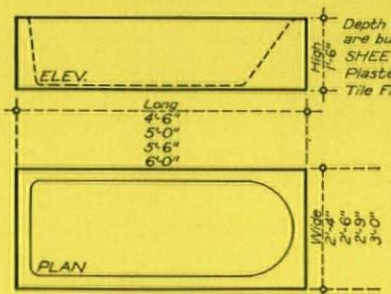
Elevation 3



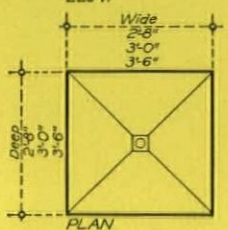
Lavatories



Toilet

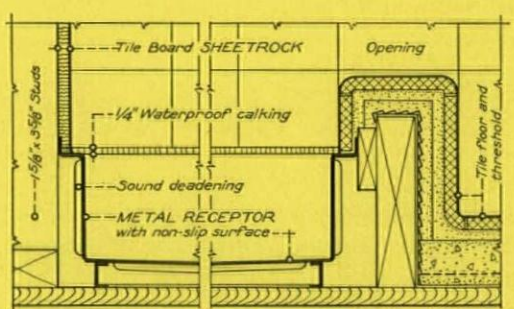


Bath Tub

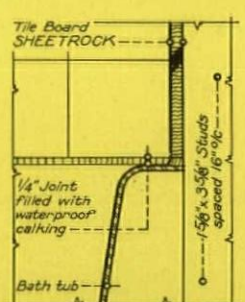


Shower Stall

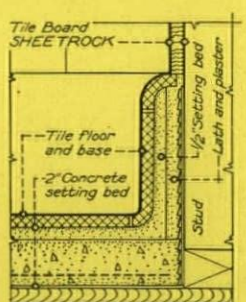
NOTE - Dimensions of fixtures given are averages in prevailing use. They are not standards
Other sizes and type fixtures than those shown are also available
The exact dimensions of individual fixtures vary with different manufacturers. For precise work reference must be made to mfgr's. catalog



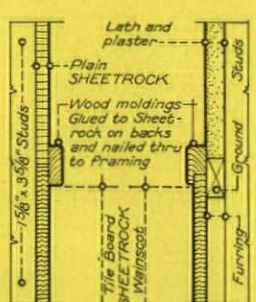
Sections A-Thru Shower Stall



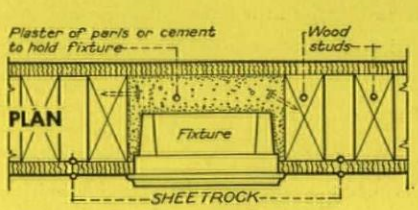
Section B Bath Tub Joint



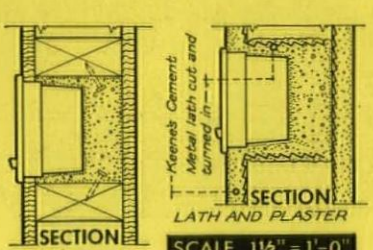
Section C Base



Section D Wainscots



Detail E - Installation of Fixtures in Walls



nomical and fully satisfactory wall material if waterproof calking is applied at the corners and where the material abuts the tub or receptor. An enamel or other water-resistant paint should be applied to the Sheetrock.

Keene's Cement

This is an hydraulic plaster providing the utmost in hardness, density and sanitation. The application of Keene's cement over Rocklath provides all the functional requirements necessary for bathroom walls. The use of Resilient Clips with Rocklath and Keene's cement minimizes sound transference and cracks. Resilient Plastering Systems were fully described in the January 1941 edition of News-Facts; Rocklath in October 1941 News-Facts; also see current Sweet's.

Radiant Bodily Heat Loss

With an air temperature of 72° F a wall surface temperature below 67° to 69° has been found by research to cause discomfort to fully clothed persons, because of radiant heat loss from the body to the cold wall surface. During bathing, the bather's skin is wet and unprotected by clothing. Three or 4 inches of Red Top Wool insulation in the outside bathroom wall will provide a satisfactory inside surface temperature in all except extremely cold sections. Where extremely low temperatures occur the exterior wall studs should be made to accommodate sufficient insulation to keep the interior wall surface temperature at 67° to 69°. Unduly large window areas should be avoided.

The overall coefficient of transmission for an outside wall which will result in a given inside surface temperature can be readily calculated. Where U is the coefficient; S represents the drop between the inside air and the wall surface temperature in degrees; t_i is the inside room air temperature; t_o equals the outside air temperature; the formula is:

$$U=1.65S/(t_i-t_o)$$

For an inside temperature of 70°, an outside temperature of 0°, and a wall surface temperature of 67°, the formula shows that U should be .071.

Bathroom Heating

Radiators should be under the window, enclosed in such a way as to eliminate any possibility of burns. The heating should be designed to take care of at least 2 air changes per hour and should be able to provide an inside dry bulb temperature of 80° F. Where mechanical ventilation can be provided, the functionalists believe that bathrooms should be in the interior of the building, without windows, for both privacy and the most satisfactory heating.

Windows and Doors

Never locate a window over a bathtub nor in a shower enclosure, nor behind the toilet. The window should be located on a clear wall so that it may be approached for opening and closing. The stool of bathroom windows should never be less than 4'-0" from the floor. Glazing should be obscure glass.

No bathroom should ever have more than one door. If it is to serve more than one bedroom, it should be entered from a common hall.

Fixtures

Porcelain. Not used as much as formerly for plumbing fixtures because it crazes, it is heavy, it remains cold to the touch for a long time.

Vitreous China. Impervious and non-absorbent, it will not stain or chip readily, not used for tubs but is best adapted to lavatories and toilets.

Enameled Cast Iron. Most economical, best adapted to bathtubs.

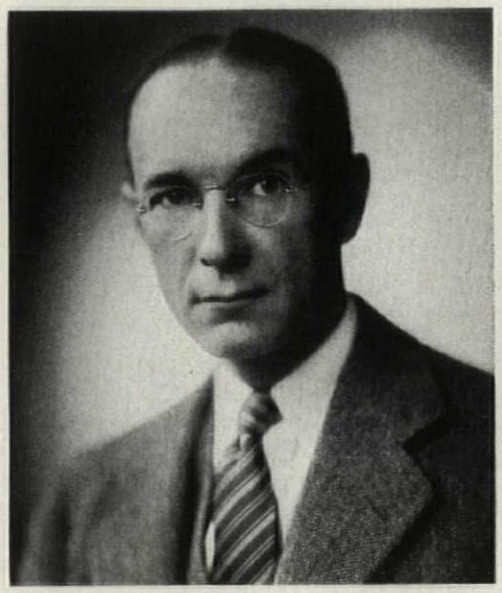
Porcelain Enameled Iron. Extremely light in weight, it has been made with acid-proof finish.

Check List of Equipment

——Dressing table
——Dental basin
——Manicure table
——Exerciser
——Sun lamp
——Sun lamp and couch
——Scale
——Medicine cabinet over lavatory
——Medicine storage cabinet
——Linen cabinet
——Towel bars
——Soap dish with draining lip
——Paper holder
——Toothbrush and glass holder
——Grab bars at tub
——Hooks for strop, douche, clothing
——Electric heater
——Clothes chute or hamper
——Full length mirror
——General illumination fixture
——Fixtures for local illumination at mirror, in shower, at dressing table
——Outlets for curling iron, electric razor, water heater, vibrator, razor blade sharpener, hair dryer, etc.
——Exhaust fan if no other means of ventilation is provided (fan may be in attic, controlled from bathroom)

An Engineer's experience with

OIL BURNING SYSTEMS



G. KENDRICK BRINGHURST is a well known Consulting Engineer of Philadelphia. Many of the large buildings of which he has been the Engineer are equipped with Petro oil burning equipment, including the Essex Hotel, Medical Arts Building, Peoples Trust Building and 1530 Locust Street Apartment Hotel, and manufacturing plants, including Pecora Paint Company and E. J. Spangler Co.

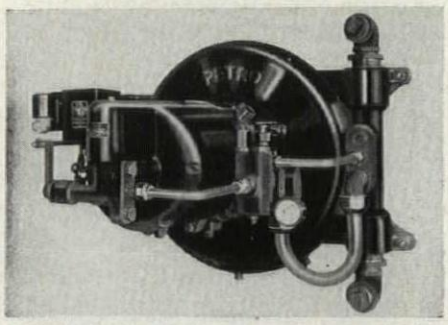
He speaks here of oil burning systems, based on actual results covering several years following installation, having kept accurate records of operating costs as a part of his service to his clients.

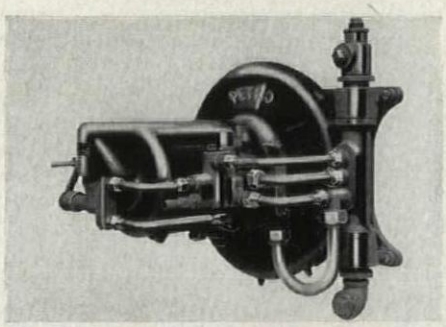
"I have found that Petro equipment, burning the heaviest and cheapest grades of oil fuel, is so designed as to meet the individual characteristics of the particular plant it is to fire, thereby resulting in the most satisfactory operation, particularly in the case of full-automatic installations. Petro equipment has in every case met my own as well as my clients' requirements for accurate performance, rugged construction, and saving in fuel and labor costs.

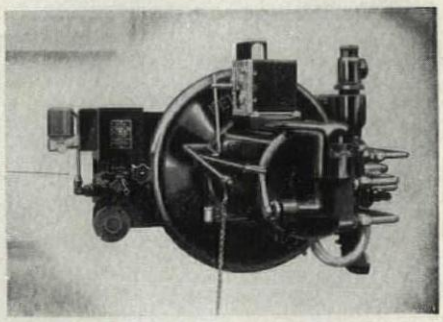
"In no case has the saving in operating cost been less than my preliminary estimate submitted to the client, in several instances these savings running as high as 30% to 40% compared to previous operation with other types of firing equipment.

"Actually there is not a great deal of difference in construction between the better makes of oil burners—but there is plenty of difference in their installations and subsequent reliability of servicing. Petro, in my experience, give more intelligent thought to installation details, in living up to the contract plans and specifications, and finally in showing a continued interest in each particular installation, whether it be a small residence or large manufacturing plant."

Mr. Bringhurst's comments lend emphasis to a basic factor in Petro's ability to "Match the job". This is the exactitude with which a Petro burner may be selected from the wide range of capacities and types of operation provided by the Model W group, without alteration of basic principle or design. This can be partly understood through the illustrations, which are: (left) an automatic burner for unheated No. 5 or lighter oils; (center) the oil circuit side of a burner for pre-heated No. 6 (Bunker "C") oil; and (right) the same burner equipped for automatic operation, including self-modulation of firing to match fluctuations of demand.







CAPACITIES: to 145 gal. per hr.—487 boiler h.p.—68,000 sq. ft. steam E.D.R.

FOR FURTHER INFORMATION SEE OUR CATALOG IN SWEET'S

Petro Industrial Burners for Automatic operation with preheated No. 6 oil, or with No. 5 or lighter oils, are available in eight sizes, Models W-2½ to W-9 inclusive. Each burner is a self contained assembly of motor, fan, pump, rotary cup atomizer and interlocked air and oil adjustments.

In the use of preheated No. 6 oil, the Petro Thermal Viscosity System is an integral part of a Petro installation, insuring reliability of operation and fuel economy.

Semi Automatic and Manually controlled Model W Burners and "Mechanical" type units are also available to meet circumstances which do not require automatic operation.

To the Architect in domestic building, Petro offers a complete line of burners for use with existing heating plants and complete oil fired boilers and winter air conditioners.

Petro's Engineering Division will gladly answer questions. The Petro Industrial Equipment Catalog will be sent promptly on request.

PETRO

Cuts Steam Costs

PETROLEUM HEAT AND POWER COMPANY

STAMFORD —*Makers of good Oil Burning Equipment since 1903*— **CONNECTICUT**

PUBLICATIONS ON MATERIALS AND EQUIPMENT

of Interest to Architects, Draftsmen and Specification Writers

Publications mentioned here are all 8½ x 11 unless otherwise noted, and will be sent free, except as indicated, upon request to readers of PENCIL POINTS *by the firm issuing them. When writing for these items please mention* PENCIL POINTS.

WALL PANELING—A new general catalog (A.I.A. File No. 23-L-2) covering the Marlite line of prefinished wall paneling, moldings, other Marsh products, may be had from Marsh Wall Products, Inc., 114 Main St., Dover, Ohio. The 12-page catalog shows the actual use of the panels in different kinds of interiors. Feature is the use of color chips to show the range of standard colors in which Marlite is available. In addition to the wood and metal moldings, the new line of Marsh extruded plastic moldings is shown in color, types, and sizes available.

Also published by the same firm: The Marlite Dealer, a newsy 4-page house organ edited for the firm's dealers, featuring sales helps for Marlite merchants.

ACOUSTICAL TREATMENT — Motif'd Acoustone, a new development in acoustical treatment, is explained in a brochure from United States Gypsum Co., 300 W. Adams St., Chicago. Instructions on how to create individual motif'd patterns are contained in the brochure, together with photographic illustrations of motif'd surfaces.

STEEL SASH—A two-page catalog sheet, 9 x 12, from Mesker Bros. Iron Co., 424 S. 7th St., St. Louis, Mo., features the "Merit-Meter," which compares the features of firm's sash with those of other manufacture. Included also are illustrations of twelve manufacturing features.

CELOTEX BOOKLETS—A number of booklets are available from The Celotex Corp., 919 N. Michigan Ave., Chicago, Ill., discussing the application of Celotex in various types of building construction. Booklets may be had on vacation retreats, various types of farm buildings, interior use of Celotex, interior finishes for offices and stores, Celotex shingles and sidings, roof insulation for apartments, hotels, and homes. Specifications and construction details are included.

TEMLOK INSULATION—Temlok insulation—what it is, how to use it for sheathing and insulating, as well as decorating—is described in a 12-page catalog from Armstrong Cork Co., Lancaster, Pa. Also described is Temlok Lath, an insulating plaster base; Temseal sheathing; and Monowall, a factory-finished, hardened wood-fibre board for use as interior finish on walls and ceilings.

STANDARDS BROCHURE—The report of the committee which worked on Project A62 for American Standards Association for the coordination of dimensions of building materials and equipment is now available in printed form. The 60-page brochure was formerly available reproduced by the Ditto process. The printed report deals with the development of the 4-inch increment with regard to certain building products. Copies may be had from Modular Service Association, 110 Arlington St., Boston, Mass.

WELDING BOOK — A 55-page book, "Welding Procedures," recently published by Air Reduction Sales Co., 60 E. 42nd St., New York, clarifies the proper welding process for a particular metal under various circumstances. The book recommends the best filler metals to be used for each process, describes specialized welding techniques not commonly known. Data are given in an appendix for the calculation of electrode and gas welding rod consumption for different types of welds. Comparative record sheets enable the user to tabulate data that help him determine the best welding method for a particular job.

WATERPROOFING MATERIAL —A new 4-page bulletin from Primoid Products Corp., 103 Park Ave., New York, describes its various rubber-base compounds designed to stop leaks or seepage through brick, concrete, stucco, other types of masonry.

(Continued on page 38)

TECHNICAL LIBRARY OF KOPPERS

THE INDUSTRY THAT SERVES ALL INDUSTRY

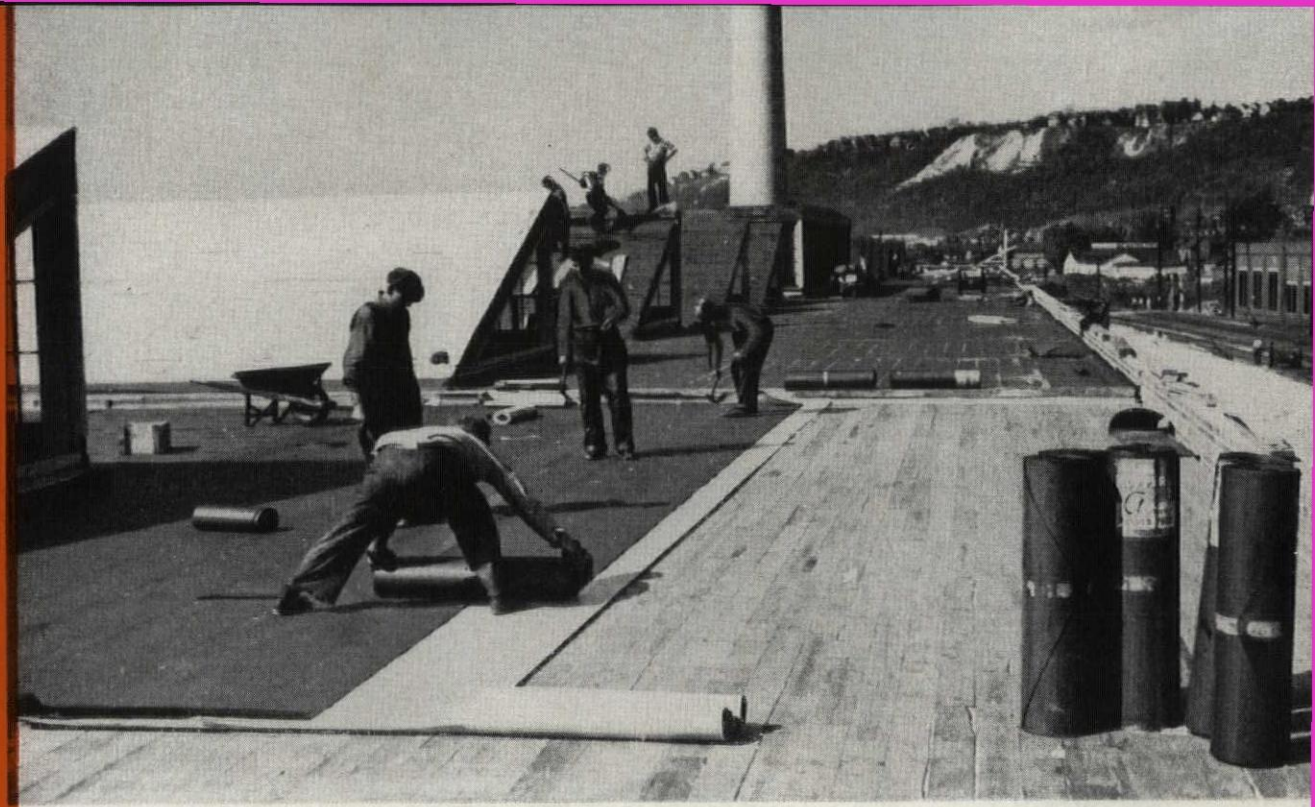
How To Specify for a "No-Headache" Roof

How Water-Cooled Roofs Control Heat and Humidity

How To Prevent Water Damage to Building Foundations

How Dampproofing Differs From Waterproofing And Where To Use It

How Pressure-treated Timber Can Solve Many Priorities Problems



This is a "No-headache" roof

. . . No headache for your client
. . . No headache for you

You may have had some experience with a "headache" roof. For every headache it gives your client, your client is apt to give you a string of headaches.

If you have had that sad experience, you will find assurance in the many old records of 20 years, 30 years or even 40 years of trouble-free service that have been given by roofs of coal tar pitch.

Coal tar pitch lasts because it can resist water. It lasts because it has the power to heal small breaks and present an unbroken surface to the elements. Coal tar pitch roofs last because their slag or gravel surface protects them from sun, hail and wind.

For your client's sake... and for your own sake . . . stick to coal tar pitch.

KOPPERS COMPANY
PITTSBURGH, PA.

KOPPERS COAL TAR PITCH ROOFING AND WATERPROOFING

use **KOPPERS** *products*

Fill out and mail

KOPPERS COMPANY
1279 Koppers Bldg., (19) Pittsburgh, Pa.

Please send me copies of these folders:

NAME.....

TITLE.....

FIRM.....

ADDRESS.....

- ☐ "Roofing Specifications"
- ☐ "Water-Cooled Roofs"
- ☐ "Steep Roofs of Coal Tar Pitch"
- ☐ "Membrane Waterproofing Specifications"
- ☐ "Dampproofing"
- ☐ "Waterproofing and Dampproofing Waterworks"
- ☐ "Waterproofing and Gasproofing Sewage Disposal Plants"
- ☐ "Where to Use Pressure-treated Timber"
- ☐ "How to Measure Depth of Penetration in Pressure-treated Timber"
- ☐ "Pressure-treated Poles"
- ☐ "Painting of Creosoted Wood"
- ☐ "Creosote"
- ☐ "Disinfectants"
- ☐ "Paving with Tarmac"

PUBLICATIONS ON MATERIALS AND EQUIPMENT

(Continued from page 36)

NORTON FLOORS – The non-slip and wear-resistant features of Alundun Aggregate, a ceramic abrasive for monolithic or pre-cast terrazzo floors, cement floors, stair and floor tiles, and ceramic mosaic tiles, are presented in an 8-page folder from Norton Co., Worcester, Mass. Specifications and typical installations are included.

ELECTRICAL HOUSEHOLD EQUIPMENT–In its new 32-page catalog, "Your New Home and Your Pocketbook," the General Electric Co. Home Bureau, 1285 Boston Ave., Bridgeport, Conn., makes a step-by-step pictorial and dollars-and-cents analysis of two homes, one of which is less expensive to buy, the other being less expensive to live in. The catalog is concerned with the operating equipment of the household and its influence on the monthly dollar outlay required to pay for and live in new houses.

ELEVATORS – The Rotary Lift Co., Memphis, Tenn., has published a new catalog, No. RE-301 (A.I.A. File No. 33) on its Oildraulic electric elevators. The 8-page catalog is presented as a file folder containing schematic drawings, specifications, layout data on Oildraulic elevators for freight and passenger use.

CONVECTORS–The new line of Modine convectors is described and illustrated in the 32-page Catalog No. 241-A recently issued by Modine Mfg. Co., Racine, Wisc. It contains information on every phase of convector heating for the architect, builder, heating contractor. Photo-diagrams are used to illustrate installation methods. Other features include practical installation tips, hot water and steam engineering data, roughing-in dimensions and instructions.

WEATHER CONTROL FOR HOT WATER HEATING–Bulletin No. 175, eight pages, (A.I.A. File No. 30-C-25), from Sarco Co. Inc., 475 Fifth Ave., New York, gives a detailed description of the operation of the Sarcotherm system of weather control for hot water heating. Installation details, wiring diagrams, capacities, rough ing-in dimensions are given.

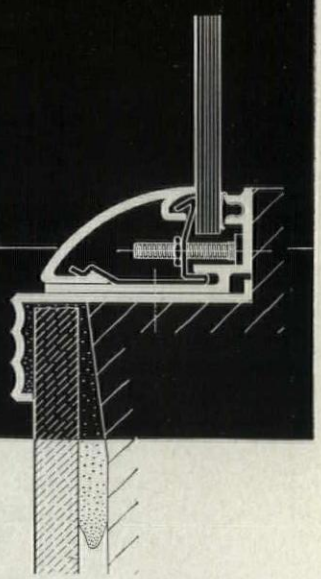
WIRING DEVICES–Catalog No. 40, 96 pages (A.I.A. File No. 31-C-7), from Bryant Electric Co., Bridgeport, Conn., presents the firm's line of wiring devices. It is arranged in groups for convenient selection, contains such products as surface switches, connecting devices, fuses and cutouts, etc. A price list is included.

WATER STOPPAGE – The story of Volclay–a natural hydrous silicate of alumina, which has the ability to absorb many times its own weight of water and to swell in the process–what it is, how it works, how to use it, what it has done, and what it costs, is presented in a 14-page catalog from American Colloid Co., 363 W. Superior St., Chicago, Ill.

TWO COAT PAINTING–A 12-page booklet, 5 x 7½, from Eagle-Picher Lead Co., Temple Bar Bldg., Cincinnati, Ohio, presents the pro's and con's of two coat painting. Included are mixing formulas, FHA specifications for two-coat painting, suggestions on applying Eagle white lead paint.

(Continued on page 40)

COMPLEMENTARY CONTOURS



THE wide variety of units composing the Pittco Store Front Metal line affords the architect an opportunity to achieve unusually pleasing combinations of members. Each unit in the line bears a definite design relationship to all other units which may be combined with it in actual store front work. The effective contrast between smooth, sweeping surfaces and adjacent surfaces which are interrupted by beading or sharp contours, is a design element provided generously by Pittco Metal. This quality is exemplified in the sash shown above. Whatever problems of metal construction may confront you in designing quality store fronts, you will find a distinguished answer to them in the varied bars, mouldings and sash of the Pittco Metal line. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pennsylvania.

DETAIL:

In the above combination, the cleun arc of the sash faceplate enhances and intensifies the fluted jamb moulding. Sash: 12-A. Jamb: PX-195.

PITTCO STORE FRONT METAL

PITTSBURGH PLATE GLASS COMPANY

"PITTSBURGH" stands for Quality Glass

PUBLICATIONS ON MATERIALS AND EQUIPMENT

(Continued from page 38)

FROZEN FOOD LOCKER PLANTS—A new 20-page catalog from Pacific Lumber Co., San Francisco, Calif., features frozen food locker plants that have been insulated with the firm's Palco Wool redwood bark insulation. Illustrations of interiors and exteriors of various plants are featured, and various phases of locker construction and operation are included.

WATER HEATERS—The Hotpoint line of automatic electric water heaters is presented on 26 loose sheets fastened into a folder, and available from Edison General Electric Appliance Co., Inc., 5600 W. Taylor St., Chicago, Ill. Construction and installation details are furnished.

Also from the same firm: booklets and folders on various Hotpoint home appliances—ranges, refrigerators, laundry equipment, kitchen sanitation equipment, and commercial equipment.

FLOOR WAX MAINTENANCE—A 4-page folder, "Legal Aspect of Floor Wax Maintenance," may be had from Franklin Research Co., 5134 Lancaster Ave., Philadelphia. It is a combination of two reprints of magazine articles, one giving a comprehensive study of law suits due to falling; the other presenting a few precautions to observe when using a water emulsion wax.

The same firm also has an 8-page booklet, "Modern Trends in Floor Finishing and Maintenance Methods," a combination of reprints from trade journals. One article reviews the history of the development of floor waxes; the other tells the history of wood finishing.

CONVECTORS—A 4-page folder (Bulletin C-451, A.I.A. File No. 30-C-4) from McQuay, Inc., 1600 Broadway, N.E., Minneapolis, Minn., illustrates the standard, all-purpose convectors for free standing, wall hung, partially or fully recessed applications. A table of convector capacities, as well as schematic drawings, are included.

Also available: Bulletin No. 751 (A.I.A. File No. 30-C-43) on radial type unit heaters. This 8-page catalog gives wiring and piping diagrams, tables showing steam capacities, hot water capacities, other data, as well as unit heater arrangements for typical installations. Bulletin No. 746 (A.I.A. File No. 30-C-43) on its downflow unit heaters is an 8-page catalog, complete with wiring and piping diagrams, and tables giving hot water capacities, dimensional data, steam capacities, and specifications.

CONDENSER UNITS — A two-page specification sheet, CR-175, from Carrier Corp., Syracuse, N. Y., describes the firm's Type 7G8 reciprocating condensing unit for use in air conditioning and product refrigeration in all types of business and industries.

FURNACE—A 4-page folder, from Fitzgibbons Boiler Co. Inc., 101 Park Ave., New York, contains specifications and complete data on the new 80FWA coal-burning, warm air furnace with blower and automatic blower control. The new furnace has been designed in accordance with specifications which meet FWA, USHA, PBA, and FSA requirements for defense housing.

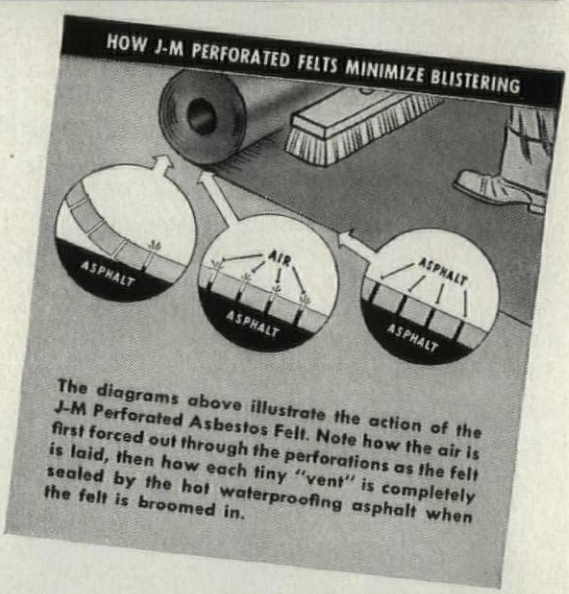
(Continued on page 42)

But these millions of tiny holes in the new J-M Perforated Asbestos Felt actually mean a better Built-up Roof... Read why:

IMAGINE making a better built-up roof by punching holes in the felts! Yet that's exactly what has been done in the J-M Perforated Asbestos Felt! And the "safety-valve" action these holes provide is sound and easy to understand. It works like this: The minute perforations permit trapped air to escape as the felts are laid, thus reducing objectionable blisters to a minimum. But once the felts are in place, the tiny holes are completely sealed by the waterproofing asphalt!

More flexible and easier to handle, J-M Perforated Felts are quickly broomed into place . . . adhere snugly to the roof deck and to each other. No wonder you get a better built-up roof!

J-M Smooth-Surfaced Asbestos Roof, built with the new Perforated Felt is rotproof, fire-resistant . . . need no protective coating to withstand the sun's drying-out action.



The diagrams above illustrate the action of the J-M Perforated Asbestos Felt. Note how the air is first forced out through the perforations as the felt is laid, then how each tiny "vent" is completely sealed by the hot waterproofing asphalt when the felt is broomed in.

Send for the free 48-page book, "Things You Should Know About Your Roof." Johns-Manville, 22 E. 40th St., New York, N. Y.

JM JOHNS-MANVILLE
Smooth-Surfaced
ASBESTOS BUILT-UP ROOFS

THE ROOF WITH THE SAFETY FACTOR

PUBLICATIONS ON MATERIALS AND EQUIPMENT

(Continued from page 40)

UNIT HEATERS—Bulletin HR-1, from L. J. Wing Mfg. Co., 154 W. 14th St., New York, gives an interesting history of the development and progress of industrial plant heating, contains valuable information to people in the heating field. In its 16 pages are typical installations, design and construction features, engineering data, installation planning diagrams, typical specifications, wiring and piping details.

DIESEL ENGINES—Worthington Pump & Machinery Corp., Harrison, N. J., has issued an 8-page catalog, Bulletin S-500-B38A, on its four-cycle, direct-injection, and totally enclosed diesel engine, Model DD. Blueprint type drawings show dimensions, principal features.

ROOFING MATERIALS — The National Bureau of Standards (U.S. Department of Commerce) has issued Report BMS75, a survey of roofing materials in the north central states. It is the third of a series of surveys of the weathering qualities and extent of use of roofing materials in different sections of the country. Included is a tabulation, by States, of the kinds of roofing materials found on various dwellings in the area covered by the survey. Copies may be had for 15 cents from the Superintendent of Documents, Washington, D. C.

STUCCO AND CONCRETE RESTORATION—The Arco Co., 7301 Bessemer Ave., Cleveland, Ohio, has available a 16-page catalog on its Dum Dum Masonoc, a protective and decorative coating for concrete, stucco, and masonry surfaces. The catalog shows before and after views of various types of buildings using the firm's product.

TUBULAR MATERIALS — A handy technical data card, TDC-102-B, listing the latest creep-stress data available on B & W Croloys and other tubular materials for high-temperature service, has been issued by Babcock & Wilcox Tube Co., Beaver Falls, Pa.

CEMENT DISPERSION — A 40-page booklet, "Economics of Cement Dispersion," (Research Paper No. 36) 6 x 9, from The Master Builders Co., 7016 Euclid Ave., Cleveland, Ohio, discusses the application of the principle of dispersion to Portland cement. The relation of dispersion to hydration, fineness of grinding, and water-cement ratio are discussed.

Also published by the same firm: Research Paper No. 35, "Application of the Principle of Dispersion to Portland Cement," 20 pages, 6 x 9, deals in detail with the principle of dispersion of cement particles. Discussed are dispersion in a liquid medium, other effects of dispersion on the properties of concrete and mortar.

Also available: 28-page catalog on Pozzolith, a cement dispersing agent. The catalog tells the "how" and "why" of the agent, pictures installations, lists users.

PLYWOOD PRODUCTS—In addition to price and size information on woods and plywood, the semi-annual catalog, 32 pages, of the United States Plywood Corp., 616 W. 46th St., New York, contains an abundance of illustrations which convert it into a manual on plywood applications. The new catalog has been re-named "The Weldwood Catalog of Plywood and Allied Products." Illustrations include applications in construction, fixtures, residences, offices, various paneling types.

HUMIDITY CONTROL — Three new folders, 6 x 8½, from Surface Combustion Corp., 2375 Dorr St., Toledo, Ohio, describe the Kathabar system of humidity control for processing atmospheres for commercial and industrial applications.

PACKAGED PLUMBING — The Kohler Co., Kohler, Wisc., has available a new book, "Matched Sets for Small Homes," in which are pictured nine different three-piece matched bathroom sets, complete with specifications and buying facts. Also pictured are sets for lavettes, a range of sinks, hints on room planning.

WATER CONDITIONING—Complete specifications and details of the various models in its line of household water conditioning equipment are contained in a 24-page catalog (A.I.A. File No. 29-D-3), available from The Permutit Co., 330 W. 42nd St., New York.

Also from the same firm: A water softener selector rule for determining the size of equipment to be installed in any house.

ALUMINUM, THE FUTURE, AND YOU

RIGHT NOW OUR FACTORIES have only one interest: to make more Defense Aluminum than the world has ever seen before. Every resource we can muster is concentrated on that job.

WHEN AMERICA HAS WON THROUGH to make the world safe for our children to live in . . . the saying is: What a lot of aluminum is going to be available for everybody.

THE REAL POINT TO PONDER is how to get set to make that deluge of light metal work for you. In the kind of world we're going to have, sure as fate, the man who fails to call, *now,* on every resource at his command is going to be left at the post.

WE'VE COINED A WORD:

IMAGINEERING. It's the fine art of deciding where you go from here. It's the act of thinking out what you are going to face, and doing something about it now. *Imagination* plus *engineering* is a formula for the future you're going to hear more about.

A MAN CAN be producing for Defense at top speed and be imagineering at one and the same time. In fact, the more he is devoted to Defense now, the more he needs imagineering for ***THE DAY WHEN.***

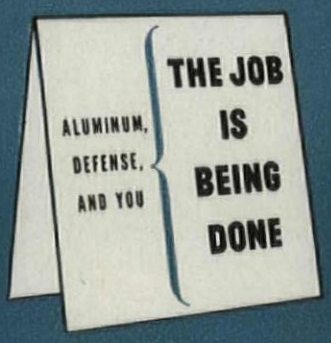
OBVIOUSLY, you can imagineer with steel, copper, glass, zinc, plastics, or what have you. We hope you will, because the world is going to need better use of all materials than it ever saw before.

THE CLOSER YOU GET TO FUNDAMENTALS the more quickly you must decide that the great need is going to be for the very things Alcoa Aluminum does best: Lightness with strength, resistance to corrosion, reflectivity, workability and all the rest of its powers all wrapped up in a low-cost package full of unlimited possibilities for you, personally, in your business.

TWO HEADS ARE BETTER THAN ONE. Already, many an industry, many a company, has called us into an imagineering session. We've seen things projected that will make news when the curtain can be lifted. Usually we've been able to help with some imagineering of our own.

DOES THIS SUGGEST ACTION? WE HOPE SO.

Aluminum Company of America, Pittsburgh, Penn.



ALCOA ALUMINUM

(Continued from page 30)

rating. However, the huge building program momentarily anticipated should provide enough nourishment to keep the industry alive.

The war effort may call for longer hours and harder work on the part of your government's architectural men, but as far as the Navy's Bureau of Yard and Docks unit is concerned, no better work will be forthcoming. In our opinion, and backed-up by *Richard E. Neutra's* observation, this group is doing a superlative job. Their work is being recognized and meritoriously awarded distinctive honors. The guiding light and, no doubt, the hardest worker in this outfit is *Howard C. Sullivan,* Chief of the Architectural Section. This namesake of another great pioneer in architecture of fifty years ago may well be considered a pioneer of a new and vital architecture in the government service. For government architecture has for many years followed the trend of archaeology, but Sully's heroic energy, plus Admiral Moreel's "go" sign, overcame the double barrier of bureaucracy and Vignola. With the greatest aggregation of talent in the history of the Bureau, with men whose intense loyalty is noteworthy for a government office, Sully has been able to produce a Federal architecture, albeit semi-industrial, and to serve the Nation's victory purpose, extremely characteristic of our age.

RED

AIR RAID CONFERENCE

As a result of the present national crisis, and because of the tremendous need for technical information in the field of civilian defense, Pratt Institute, Brooklyn, N. Y., has opened the facilities of its Architectural Clinic to experimentation on Air Raid Precautions and Defense Architecture for the duration of the war.

An Air Raid Precautions Conference was held December 22-23 at the Institute for representatives of professional, civil, and layman organizations. The meetings were conducted to correlate available information and to plan a program where all of this work may be made useful to the defense needs of the metropolitan areas.

Special contributions on detailed phases of civilian defense were made by various municipal and professional representatives. Feature of the two-day meeting was an exhibition of the work done in Defense Architecture at Pratt, included examples of air raid shelter projects, structural air raid precautions, and technical research in industrial camouflage.

"Well, I have told you the kind of defense building that will save the country. Make up the blueprints and have them ready for me in twenty minutes."

CRET DESIGNS TRAIN INTERIOR SCHEME

Interiors of the cars for the New York Central's new Empire State Express trains were arranged by *Paul Philippe Cret,* offer a pleasing variety of restful color schemes. Striking feature of the decorative scheme is a series of thirty-six murals used throughout the trains, depicting scenes typical of the route of the trains. The streamlined locomotives which haul the trains were specially styled by *Henry Dreyfus,* industrial designer.

Murals for the coach interiors were painted by *Mary Louise Lawser, Miriam Tindall Smith,* and *Leslie Ragan.*

A. I. S. C. JURY

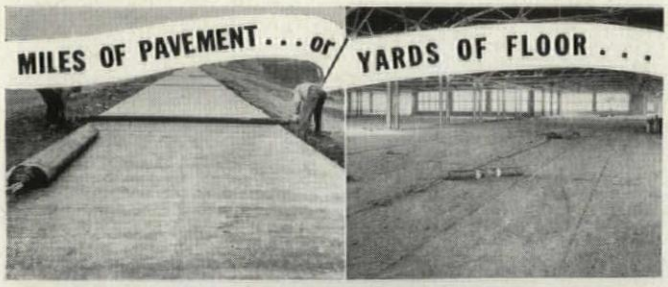
The following jury has been appointed by the American Institute of Steel Construction to select the prize-winning designs in the students' annual bridge design competition: *Lorimer Rich* and *Don E. Hatch,* Architects; *Henry C. Tammen,* of Howard, Needles, Tammen & Bergendoff, Consulting Engineers; *Roger W. Sherman,* of "Architectural Record"; and *L. G. Sumner,* Engineer of Bridges & Structures for the State of Conneticut Highway Department.

Details of the competition were announced on page 12 of the October, 1941 issue of PENCIL POINTS.

CIVILIAN POST FOR VOORHEES

Appointment of *Stephen F. Voorhees* of New York to the National Committee for Civilian Protection of the American Institute of Architects as regional representative for the states of New York, New Jersey, and Delaware, has been announced by *Horace W. Peaslee,* chairman. *Geoffrey Platt,* of New York, has been named to represent the New York Chapter in maintaining contact with the national committee.

Civilian defense committees are being organized in seventy-one chapters of the Institute. Regional representatives will function as liaison officers between the Chapter committees, the Office of Civilian Defense, and the War Department.



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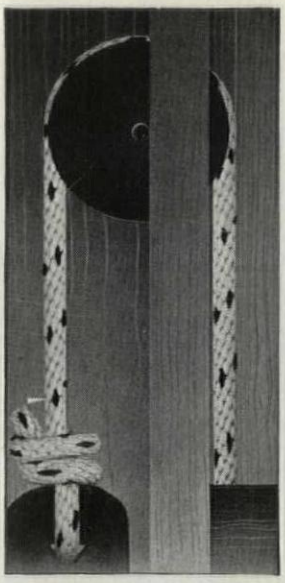

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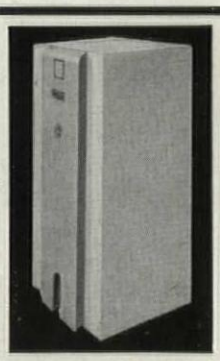

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Suppose you specify a coal burning boiler that's not adapted for oil; then the same holds true again.

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BURNHAM BOILER CORPORATION

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Burnham Boiler

SPARE THAT FINE OLD DRAWING!

Architects whose enthusiasm for the Victory Program has led them to pull all the old drawings out of their files and bundle them off to paper collecting depots should heed the recent news note from London concerning the recovery of Sir Charles Barry's original drawings of the Houses of Parliament!

These came to light after 61 years in the attic of a suburban home, when Charles J. Marshall, 82, a retired church architect, was clearing his house of old papers in response to pleas of Britain's paper salvage authorities. The drawings, on the heavy paper used by English draftsmen, came to Mr. Marshall from his architectural critic, Edward Barry, son of the architect who redesigned the Houses of Parliament after the destruction of the Government buildings by fire in 1834. When they were found in the attic, Marshall remembered that Prime Minister Churchill had publicly stated that Parliament buildings destroyed by Nazi bombs could not be rebuilt because the original plans could not be found. The drawings were, of course, turned in immediately to the Chief Architect of the Ministry of Works for copying; and they will ultimately become the property of the R.I.B.A.

In established offices of this country there are equally valuable documents which would be prized by the historical associations of local communities, or by such repositories of architectural treasures as the Library of Congress, or Avery Library, at Columbia University, and other college libraries. Surely it would not be an imposition to urge that those disposing of old drawings or other architectural material *at least inquire* of one of the above-mentioned agencies and determine whether the material might be considered valuable.

SCULPTURE MEDIUM

The work which has been done at Massachusetts Institute of Technology over the past ten or fifteen years in developing an improved ceramic body particularly for portrait sculpture is discussed in the January issue of THE TECHNOLOGY REVIEW.

The article, "Art and Science in Sculpture," describes the manifold virtues of nonshrinking terra cotta as a sculpture medium.

FERRISS DRAWINGS

Hugh Ferriss, who last year was a recipient of the first Arnold W. Brunner Award, has returned from a trip with a large collection of field sketches. He is now at work making a series of drawings of "40 Buildings Expressive of the United States During This Period" as a record of contemporary architecture, as provided for under the Brunner grant.

PENCIL POINTS will reproduce some of the Ferriss drawings when the project is completed.

ARCHITECTS MOBILIZE

Five of Chicago's architectural and engineering firms recently consolidated to form an organization for planning and supervising war construction. Known as "Five Firms, Architects and Engineers," the group includes Paul Gerhardt, Jr., Carl J. Kastrup, McFadzean & Everly, Perkins, Wheeler & Will, and W. L. Pereira. Each firm will continue to keep its identity and maintain its own offices and architectural work. By pooling their resources the five firms hope to overcome the size handicap that has prevented execution of victory construction projects by smaller firms.

SCARAB CONVENTION

Fifty delegates and members, representing chapters throughout the nation, attended the twenty-fifth annual general convention of Scarab, national professional architectural fraternity, held November 30-December 3, in Pittsburgh, Pa., where the Carnegie Institute of Technology chapter was host.

The present national officers were elected, include *R. Van Buren Livingston,* Los Angeles, president; *Verner F. Smith,* Lawrence, Kans., secretary-treasurer; *Charles Kelley,* Dothan, Ala., historian. The 1942 convention will be held at the University of Virginia, Charlottesville, Va.

STEEL LECTURES

The College of Engineering, New York University, New York, has announced a series of six lectures on steel construction to be given in cooperation with the American Institute of Steel Construction. Attendance at the lectures will be open, without charge, to students and others who are interested in the subject matter, as well as to employees of structural steel fabricators and contractors,

Three lectures have already been held. The remaining three, to be held on February 9, 17, and 24, will discuss fabrication, scheduling of structural steel, and uses of erection equipment, respectively.

KEPPEL RECEIVES ARCHITECT'S MEDAL

Frederick P. Keppel, former president of the Carnegie Corp., was awarded the medal of honor of the American Group of the Société des Architectes Diplomés par le Gouvernement at a dinner given in his honor at the Architectural League of New York, on December 12. The award, made for "distinguished service in the advancement of art and architect", was presented by *Julian C. Levi.*

SHERMAN PRIZE

Don P. Reimann, a third-year student at Columbia University, has been awarded the 1941 Sherman Prize of the Columbia University School of Architecture for his design of a recreation building in a Long Island army cantonment.

Submitted by *Ely Jacques Kahn* and *Robert Allan Jacobs,* official architects for the United Service Organizations, the problem of the contest stipulated that the building conform to U. S. O. requirements.

HOUSE BEAUTIFUL AWARDS

Winners in its Small House Competition for 1941 were announced recently by HOUSE BEAUTIFUL magazine. The following architects received awards: Class I, houses with three to six rooms — *Ross Bellah* and *Carl Anderson,* Studio City, Calif.; *Francis E. Lloyd,* San Francisco; *Royal Barry Wills,* Boston, first, second, and third respectively; Class II, houses with seven to ten rooms—First, second, and third respectively were *Allan McDowell* and *George Van Anda,* Kent, Conn.; *William Wilson Wurster,* San Francisco; *Clement J. Ford,* Atlanta.

Sectional prizes were also awarded. East — *Allan McDowell* and *George Van Anda;* South — *Harry Inge Johnstone,* Mobile, Ala.; West—*Gardner A. Dailey,* San Francisco; Midwest — *F. E.* and *Diedrich F. Rixmann,* St. Louis. Honorable mentions were given to *H. Roy Kelley,* Los Angeles; *Francis E. Lloyd,* San Francisco; *William Wilson Wurster,* San Francisco; and *Royal Barry Wills,* Boston.

AT LARGE IN THE LIBRARY

CREATIVE LITHOGRAPHY AND HOW TO DO IT, *by Grant Arnold. ($3, 202 pages, 6½" x8½", 16 lithographs, 9 working drawings, appendix and index—Harper and Brothers, New York)*

With the revival of interest in lithography and print making in general Mr. Arnold has prepared a textbook out of his wide experience as teacher and artist. The instructions are detailed sometimes to the point of childishness. For the person who is contemplating lithography as a minor pastime one look into this book will discourage him. Mr. Arnold warns that the equipment required will cost about two hundred dollars, and the pitfalls of failure are numerous. For the serious student the wealth of instruction should lead to successful prints. This is a book for beginners, yet there are helpful hints for the advanced student. The appendix gives a valuable list of material sources, and the adequate index makes for easy reference. This book can guide you from the purchase of your stone to the exhibition of your print.

Here is a fitting companion for that standard reference, "Making a Lithograph," by *Stow Wengenroth*, first published in London in 1936.

JOHN C. SEWARD

UNIT COSTS OF SCHOOL BUILDINGS, *by Henry H. Barmann, Ph.D. ($1.60, 81 pages, 6" x 9", bibliography and tables—Bureau of Publications, Teachers College, Columbia University, New York.)*

In 1931, through the Department of the Interior, a four-year National Survey of School Finance was begun. An economy-minded Congress terminated the work at the end of the first year. One finding of this survey was "the need for research directed toward the improvement of existing units of expenditure". Dr. Barmann here reports such a study confined to fifty-two buildings constructed between 1930 and 1937 in New York State. Nine units of building size or capacity are studied, and it is shown that while total cubature is the best unit for cost comparisons other units should be applied to determine the efficiency of the building.

This book is a necessary reference for all boards of education and all architects engaged in the design of school buildings. It is hoped that Dr. Barmann will have an opportunity to expand his research in this important subject.

J. C. S.

STEEL SQUARE POCKET BOOK, *by Dwight L. Stoddard ($1.00, 183 pages, 4" x 6", 185 illustrations—Scientific Book Corporation, 15 East 26th Street, New York).*

This is one of the most justly famous trade handbooks in carpentry. Architectural superintendents who take their job inspection seriously might find a brief study of this little volume would carry a generous reward. All that would be needed would be to show the carpenter foreman a few tricks with the steel square to win his awed respect. The architect who likes to dabble in carpentry as a hobby will also find the book extremely useful.

D. G