

LEAD-OFF FEATURE in September's News and Trends will be the story of how Architects Nimmons, Carr, and Wright, under widely diversified sets of local conditions, met the design and construction requirements of modern mass merchandising with five new retail outlets for Sears-Roebuck. The prospectus, at present writing, for presentation of the new stores at Glendale, Calif., Highland Park, Mich., Baltimore, Chicago, and Houston, Tex., calls for an article by one of the architects, in addition to full illustrations, plans, and expository text.

Right at present, with the mercury standing ten hands high in the glass, the subject of new developments in radiant heating may seem a trifle superfluous. Experts say, however, that recent experiments indicate the possibility of cooling as well as heating buildings by radiant means—and there, we say, they've got something! In September, the RECORD will ride with the van in this field, and present a definitive, comparative, and case-illustrative analysis of new angles, here and abroad, on this question of radiant heating and cooling.

Other items under News and Trends will include a Florida movie theater brought from "opry-house obsolescence" up to date, a new cosmetics factory in Connecticut, and four new houses, large and small. The residential-details section on "Double-Purpose Rooms" will feature an article by Virginia Conner, New York interior designer.

September Building Types will consider "Health Centers," a species of increasing importance to the architect because of widely stepped-up activity in community health-education programs and social-service work. The projected scope of the RECORD's study runs from regular large-hospital out-patient dispensaries to small community hospitals. Time-Saver Standards will give data on space and equipment requirements for public, work, and administration areas, and a variety of case studies have been chosen to illustrate the points involved.

AUGUST 1940

| | |
|--|--------|
| NEW BUILDINGS | 33-47 |
| Animal Hospital | 33-36 |
| Saks' Miami Beach Store | 37-41 |
| California County Building | 42-45 |
| Washington, D. C., Warehouse | 46, 47 |
| WHAT'S NEW IN MATERIALS AND EQUIPMENT | 48 |
| NEW HOUSES | 49-60 |
| Piedmont, Calif. | 49-52 |
| Ft. Lauderdale, Fla. | 53-55 |
| Portland, Oreg. | 56, 57 |
| Burlington, Iowa | 58-60 |
| RESIDENTIAL DETAILS: Storage | 61-64 |
| TOMORROW AND THE WORLD'S FAIR | 65-72 |
| REVIEWS OF NEW BOOKS | 73 |
| NEW STRUCTURAL SYSTEM WITHOUT NAILS | 74, 75 |
| TRENDS IN BRIEF: New FHA Program Spurs Modernization . . . | |
| Defense Housing Plans Still Indefinite . . . Metal-Tied Cavity | |
| Walls Approved for USHA Construction . . . Survey Shows | |
| Public Knows Its Building Materials . . . Fugard Sees New | |
| Trend in Cities | 76 |
| TRENDS IN BUILDING COSTS | 77, 78 |

BUILDING TYPES

| | |
|---|--------|
| URBAN APARTMENTS | 79-100 |
| New Ideas Essential to Urban Apartment Built for Investment, by Jule Robert Von Sternberg | 80-85 |
| New Apartments Planned as Safe Profitable Investments, by Emery Roth | 86, 87 |
| Time-Saver Standards | 88-90 |
| Case Studies | 91-100 |

| | |
|-------------------------|-----|
| Behind the Record | 7 |
| With Record Readers | 10 |
| Record Poll | 16 |
| Index to Advertisements | 126 |

Copyright, 1940, by F. W. Dodge Corp. All rights reserved.

Editorial Director: Thomas S. Holden. Editorial Consultant: Michael A. Mikkelsen. Editors: Roger Wade Sherman (Managing), James M. Fitch, Jr. Associate Editors: Elisabeth Kendall, Frank G. Lopez, Jr., George A. Sanderson. Art Director: Gene Hawley. Desk Editor: John W. Ragsdale.

Architectural RECORD (combined with *American Architect and Architecture*) is published monthly by F. W. DODGE CORPORATION, 115-119 West 40th Street, New York. Truman S. Morgan, Pres.; Howard J. Barringer, Vice Pres. and Treas.; Irving W. Hadsell, Vice Pres.; Thomas S. Holden, Vice Pres.; Michael A. Mikkelsen, Vice Pres.; H. Judd Payne, Vice Pres.; Chauncey L. Williams, Vice Pres.; John M. Williams, Vice Pres.; Sanford D. Stockton, Jr., Secy.; Walter F. De Saix, Asst. Treas.; Edwin H. Freed, Asst. Treas. Member Audit Bureau of Circulations and Associated Business Papers, Inc. Architectural RECORD is indexed in Reader's Guide, Art Index, and Industrial Arts Index.

Subscription Rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, \$3 the year, \$5 for two years, \$6 for three years; Elsewhere, \$5 the year; Single copy, \$1. Circulation Manager: Robert C. MacDougall.

Manuscripts, photographs, and drawings which conform to RECORD'S editorial aims are welcomed. Every effort will be made to return material (if accompanied by stamped, addressed envelopes); but the editors will not be responsible for losses.

Other Dodge Services: REAL ESTATE RECORD, SWEET'S CATALOG FILES, HOME OWNERS' CATALOGS, DODGE REPORTS, and DODGE STATISTICAL RESEARCH SERVICE.

SERVEL SILENCE

SAY BUILDERS WHO'VE USED OTHER MAKES

Tenants agree Gas Refrigeration's
freezing with
NO MOVING PARTS is best!



TENANT: "Having used several kinds of refrigeration in apartment houses, I feel that my present Servel Electrolux is the perfect refrigerator, due to its silence, sturdy beauty, fast freezing and absolute dependability." *Mrs. A. C. Ford, 742 S. W. Vista, Portland, Ore.*

BUILDER: "I am an apartment house owner and builder, and our experience with another type of refrigerator decided us on Servel Electrolux. Freezing with no moving parts seems almost too good to be true." *Mr. Herman Johnson, 2301 N. Beechwood Drive, Hollywood, Calif.*



*Different from
all others!*

- ▶ NO MOVING PARTS in its freezing system
- ▶ PERMANENT SILENCE
- ▶ CONTINUED LOW OPERATING COST
- ▶ SAVINGS THAT PAY FOR IT
- ▶ MORE YEARS OF SATISFACTORY SERVICE



SPECIFY THE REFRIGERATOR THEY HEAR ABOUT • BUT NEVER HEAR

WITH RECORD READERS

AT LEAST ONE ARCHITECT in this country has a commission in the offing for a bombproof shelter. The following letter comes to us from the Gulf-States region:

"Have just seen a review of 'Planned A.R.P.' by Tecton in your May issue. Could you have a copy sent me, or could I have the loan of your copy, as I have someone in Natchez who wants to build a shelter and what I have proposed is not new enough for him. Perhaps he has seen something from this book."

May the siren's whine on these shores forever portend no more than the approach of old hook-and-ladder No. 3, but such a letter as this adds weight to something that has lately been much on our minds. Have any other readers been receiving clients who scour the skies with apprehension? Have there, perhaps, been a considerable number of consultations on this subject of air-raid shelters? A few more letters in the vein of the above might well warrant a RECORD study on the latest and most bomb-repellent in A.R.P. devices. We'd very much like to hear what you think.

Are small houses really architecture?

HAVING LAST MONTH with Salt Lake City rounded out 12 months of polling lay citizens on their ideas of outstanding contemporary architecture, we thought it timely to take some account of cumulative results shown during the first year's run. On the basis of points for first through seventh place, churches came up with 55, as the building type whose individual representatives in various cities drew most nominations as outstanding examples of recent work by the profession. School and college buildings were second with 50. Strung along in the following order were: office buildings with 44; government buildings with 36; department stores with 34; large houses, 32 (small houses received a total of 8); factories and warehouses, 25.

Just what this may reveal about the lay public's understanding and appreciation of contemporary architectural performance is not too conclusive, but certainly some fairly positive inferences are present. It may simply be that these building types received nominations in proportion to the number of times they were seen, entered, or otherwise noted by varying numbers of people. Again,

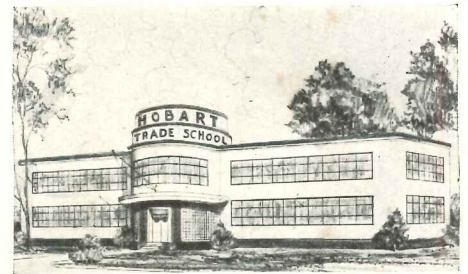
the first two types being what they are suggests that the quality of their function might have influenced popular evaluation of the quality of their architecture.

If, however, we take small houses with 8 points as a base line and travel up through the other types, one thing seems pretty definite. Nominations graduate with the degree of monumentality or opportunity for stylistic splurge, qualities most popularly constituting "architecture." Apparently work still remains to be done in impressing the public with the fact that small houses—and, for that matter, factories and warehouses—are really architecture, too.

* * *

READERS MAY RECALL the Urban Rehabilitation Corporations Bill (AR, 5/40, pp. 86, 87) introduced in the State Legislature by the Merchants' Association of New York, and the plan it suggested, of potential applicability in all parts of the country, for giving private enterprise a chance at slum clearance. The bill, although passed by both Houses of the Legislature, was vetoed by Governor Lehman.

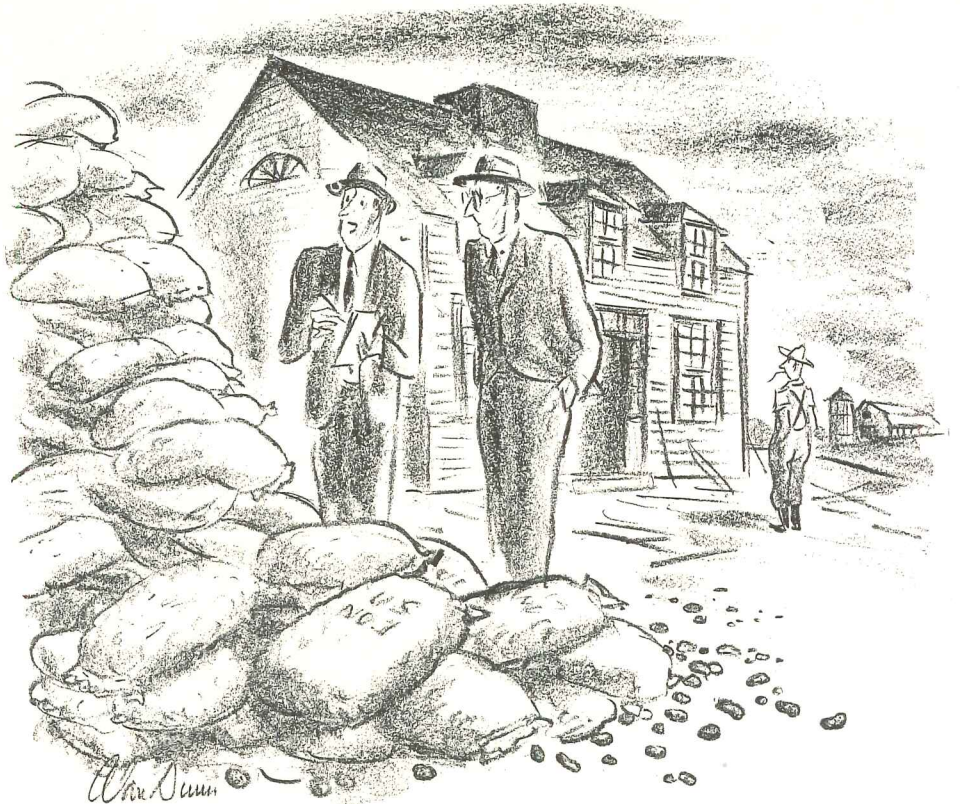
For those of you who may be wondering what has happened to the bill since, we quote from a recent issue of *Greater New York*, bulletin of the Merchants' Association: "Steps have already been



Construction is reported underway by Hobart Bros., Troy, Ohio, on their new trade school pictured in sketch above. The building, to be constructed of all welded steel, was designed by the Hobart Architectural and Engineering Department, W. R. Turner in charge.

initiated to unite all interests in a drive to pass the Redevelopment Corporations Bill again at the next session of the Legislature. . . .

"John Lowry, President of The Association, and Thomas S. Holden, chairman of the committee which drafted the bill, have made arrangements for a preliminary conference to discuss methods of procedure. The proponents of the bill are disposed to make any changes which may be necessary to meet legitimate criticisms, but there is a firm determination to work persistently for legislation which will give private enterprise an incentive to operate."



"And 6% for you, the architect—he's paying for his new farm in potatoes."

—Drawn for the RECORD by Alan Dunn

Compare
them all

THESE 8 PLUS ADVANTAGES will assist you in determining the right pneumatic system to control your heating installation. We have asked you to make a comparison of these features with those offered by other pneumatic control systems. Our frank purpose has been to separate so-called sales talk from actual engineering information on design, construction, and performance. Summing it all up, we are certain from our experience, that the

Gradutrol System, over and above the individual efficiency of its various units, offers 8 PLUS advantages. To prove the truth of this statement, we ask you to make a point by point comparison. We are confident the Gradutrol System will provide efficient control on any installation. Minneapolis-Honeywell Regulator Co., 2804 Fourth Ave. S., Minneapolis, Minnesota. Canadian Plant: Toronto, Ontario. European Plant: London, England. Company owned branches in 49 other cities.

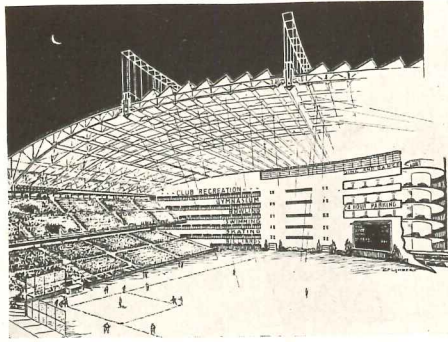
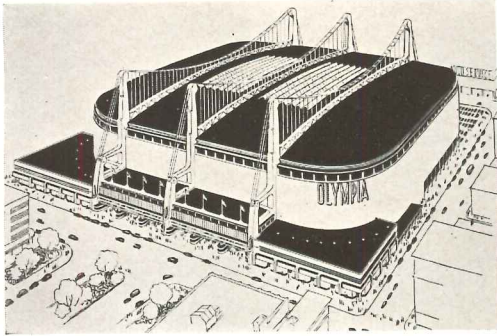
MINNEAPOLIS HONEYWELL

*Check
these*

8 PLUS ADVANTAGES

- ✓ 1. SIMPLICITY OF DESIGN
- ✓ 2. LONG LIFE
- ✓ 3. LOW MAINTENANCE COST
- ✓ 4. APPEARANCE
- ✓ 5. UNDIVIDED RESPONSIBILITY
- ✓ 6. UNBIASED ENGINEERING ADVICE
- ✓ 7. NATIONWIDE SERVICE
- ✓ 8. UNIVERSAL APPLICATION

Gradutrol System
OF PNEUMATIC CONTROL



Rain checks are probably on their way to extinction; big-league ball games of the future may be played inside huge stadia like the one above, designed by General Electric engineers R. J. Swankhamer and E. F. Lumber. The plan provides artificial sunlight and controlled "spring showers" to keep grass perennially green. Floodlights, mounted beneath the rim of the catenary-supported roof and focused on ceiling reflectors, would spread light evenly on field and seating area. Also included are facilities for other sports, a garage, and a night club on the top floor.

AIA SETS UP DEFENSE-AID PROGRAM

AS A MEANS OF enabling architects to share most effectively in the advancement of U. S. defense, *Edwin Bergstrom*, national AIA president, has announced the setting up of an Institute preparedness program. Believing that exigencies of defense will spur much in the way of immediate new construction (see AR, 7/40, p. 80), Mr. Bergstrom declares in a recent statement to the profession at large:

"New plants must be created to provide new facilities and new communities built to shelter those who are to operate the new plants and facilities. Construction of all types is contemplated under the defense measures, and that construction must be completed in the shortest possible time if the program is to be successful.

"To carry on an emergency construction program of the magnitude of the one contemplated will require the intensified efforts of all the construction and production industries of our nation and the complete co-operation of all its factors. . . .

"The American Institute of Architects has committed the profession of architecture to the nation and to the Federal Government for this emergency. It has guaranteed the full co-operation of the profession as a whole and individually."

To direct the furtherance of these aims, the AIA has formed a national committee on preparedness headed by *Stephen F. Voorhees* of New York. Already questionnaires have been sent to approximately 14,000 architectural firms and offices, requesting each to indicate the extent and character of its practice, its personnel, equipment, and facilities, and the type of work it considers it can best perform. This infor-

mation is being received at Institute headquarters in Washington, classified, and made available to the Federal Government.

Assisting Mr. Voorhees on the preparedness committee are three vice-chairmen: *Richmond H. Shreve* of New York, *C. Herrick Hammond* of Chicago, and *Frederick H. Meyer* of San Francisco. Other committee members are: *John T. Whitmore*, Boston; *George I. Lovatt*, Philadelphia; *Franklin O. Adams*, Tampa; *Frederick W. Garber*, Cincinnati; *Henry F. Hoit*, Kansas City, Mo.; *Ralph H. Cameron*, San Antonio; and *Raymond J. Ashton*, Salt Lake City.

* * *

ACCORDING TO A REPORT from Columbia University, *William Lescaze*, AIA, designer of the Aviation Building and Swiss Pavilion at the New York World's Fair, urged organization of all architects, engineers, and contractors into self-reliant units to prepare for the construction of plants, shops, factories, garages, hospitals, barracks, administration buildings, air ports, and workers' houses necessary for national defense. Commenting on the mobilization of all experts in the building industry, Mr. Lescaze declared, in lecturing before University summer sessions:

" . . . Only sheer folly or stupidity would suggest that we continue thinking and building today in the architectural terms of the nineteenth century. In many places—official, political, and military circles, in the minds of a large part of the public—the functions and services of architecture are not understood. Many people still hold to a nineteenth-century notion. They still think that one should not bother calling an architect unless it is a

matter of looks, or decoration; unless it is a building of marble and granite. And now they say that what we need are purely useful structures, purely temporary. So really we cannot afford to have architects.

"I say we cannot afford not to enlist all of our experts. We cannot afford not to ensure that in each field, in each area, the right people be put to do the right job. As a matter of fact, some architects have not waited until 1940 to rediscover and restate what their true functions, their real services are. During the last 20 years, these men have perfected a technique, a method, which is ready now to serve their fellow men intelligently and economically. That method for planned and efficient construction is modern architecture."

Mr. Lescaze emphatically concluded, according to the report, that just as qualified experts advise on expenditures for mass production of engines, guns, and planes, so should experts in the building field be called upon in connection with new building and construction programs demanded by national defense.

RECOGNITIONS OF MERIT OFFERED TO SMALL-HOUSE DESIGNERS

DESIGNERS OF SMALL HOUSES within an approximate 50-mile radius of New York City are eligible to receive on November 1, 1940, a certificate of merit from a group of 11 architectural societies in the metropolitan area, headed by the New York Chapter AIA. The awards will be made not only for the purpose of applauding good design, planning, construction, and site planning, but also to publicize the importance of the architect in this sphere of the building industry. Awarding of duplicate certificates to the client for whom each premiated house was designed, the sponsors hope, will stimulate the layman's pride and lead to elevated standards of good taste.

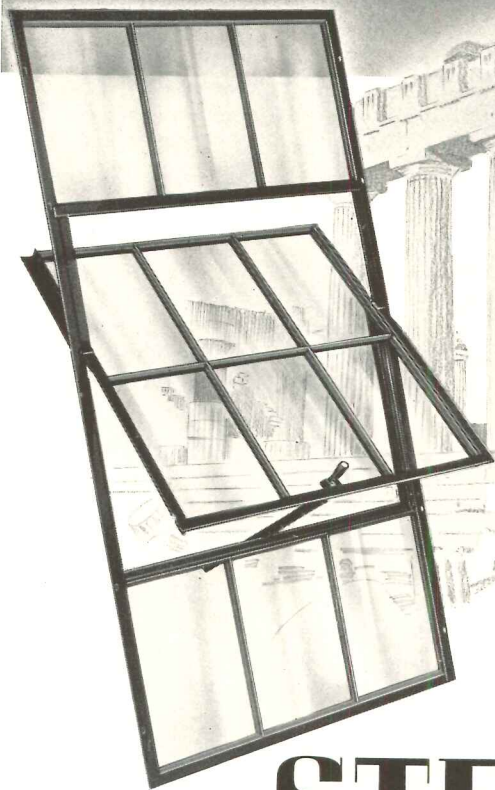
Any registered architect is eligible

(Continued on page 12)

CALENDAR OF EVENTS

- August 15 — Final date, receipt of entries, Fifth Modern Plastics Competition. Entry blanks obtainable from Modern Plastics Magazine, 122 E. 42 St., New York City.
- September 26-28 — Convention of New York State Association of Architects, Rochester, N. Y.
- October 2-4 — Exposition of Building Industry and Services, sponsored by Mortgage Bankers' Association of America, Drake Hotel, Chicago, Ill.
- October 14-15 — Fall meeting, American Society of Heating and Ventilating Engineers, Rice Hotel, Houston, Tex.

Built to Last!



MESKER STEEL WINDOWS

HERE'S WHY MESKER HEAVY DUTY STEEL SASH LAST LONGER . . . ARE MORE WEATHERTIGHT AND ALWAYS WORK EASIER:

- Mesker pivoted sash are made of sturdy heavy duty steel sections a full 1½ in. deep from front to back. All joints are welded throughout assuring greater strength.
- More weathertight because . . . All of Mesker's weathering members are made of hot-rolled angles a full ⅜ in. thick . . . no thin sheet metal sections used anywhere.
- Always work easier because . . . Mesker master engineering has resulted in a solid bronze cup pivot that will never rust, wear to pieces, or fall out.

Like the historic Parthenon, MESKER STEEL WINDOWS are built to last. The scientific engineering, sturdy construction and years of skilled craftsmanship embodied in MESKER STEEL WINDOWS are your guarantee of durability, perfect ventilation, adequate lighting and attractive appearance. If your plans call for windows built to last a lifetime, and to add charm and dignity to modern offices and homes, do as thousands of architects do . . . specify MESKER STEEL WINDOWS and make sure your clients get more in quality, more in convenience, and the ultimate in appearance.

See the 24 page Mesker catalog in Sweet's architectural files, Section 15/15

- MESKER CUSTOM CASEMENTS
- MESKER METROPOLITAN CASEMENTS
- MESKER MASTER CASEMENTS
- MESKER GUILDHALL CASEMENTS
- MESKER METAL SUB-FRAMES
- MESKER PIVOTED WINDOWS
- MESKER PROJECTED WINDOWS
- MESKER DETENTION WINDOWS
- MESKER INDUSTRIAL WINDOWS
- MESKER METAL SCREENS
- MESKER BASEMENT WINDOWS
- MESKER UTILITY WINDOWS



MESKER BROTHERS • ST. LOUIS, MO.

NO MORE ON-AND-OFF HEATING FOR LARGE APARTMENT BUILDING

Webster Moderator System Gives 10-Story Baltimore Apartment Continuous, Even Heating

SAVES \$339 IN FIVE MONTHS

Modernized System Delivers the Amount of Heat Required in Each Individual Apartment

NOTHING FOR TENANTS TO DO

Baltimore, Md.—Practically new as apartment buildings go, the fine residential apartment at 100 W. University Parkway was "behind the times" only in its steam heating control.

There were frequent complaints of noise caused by the on-and-off action of the heating system as well as complaints of overheating and underheating and overheating.

In 1938, the owners of 100 W. University Parkway installed a Webster Moderator System of Steam Heating. The result was an immediate improvement in heat distribution and the elimination of all noise.

Because steam is circulated more efficiently, heating costs have been substantially reduced. In the first five months after heating modernization, coal savings amounted to \$339.87.

W. Douglas Riley, Treasurer of the 100 University Parkway Apartment Co., says:

"The nice thing about the Webster Moderator System is that there is nothing for tenants to do except to enjoy the comfortable warmth. Each radiator receives exactly the amount of steam required."

The modernization program included the installation of 21 Webster Drip Traps, heavy duty traps for low pressure service, as well as a new condensation pump.

William P. Rauch, of Baltimore, was the modernization heating contractor.



100 W. University Parkway Apartments, Baltimore, Md.



LOW HEATING COST

GET THIS BOOK... Read the fact stories about economy and comfort in the heating of 144 buildings. No exaggerated claims. No promises. Just 64 pages of heating results. Ask for "Performance Facts."

WARREN WEBSTER & CO., Camden, N. J. Pioneers of the Vacuum System of Steam Heating Representatives in 65 principal U. S. Cities—Est. 1888

WITH RECORD READERS

(Continued from page 10)

who has designed a small house built within the stipulated region. Houses must have been completed between January 1, 1938, and September 30, 1940, must have no more than six rooms, and must have cost the first occupant no more than \$7,000.

Closing date for entries is September 30, 1940. Full particulars may be secured from the New York Chapter AIA, 115 E. 40th St., N. Y. C., or any other of the participating local societies: Brooklyn, New Jersey, Westchester and Connecticut Chapters of AIA; New York, Brooklyn, New Jersey, Queens, Bronx, and Staten Island Societies of Architects.

NYU OFFERS ARCHITECTURAL COURSE TO LAYMEN

BEGINNING NEXT SEPTEMBER 23, New York University will offer an elementary course in residential architecture to laymen, Dean *E. Raymond Bossange* of the N. Y. U. School of Architecture and Allied Arts announced recently. Members of the faculty who will participate include *DeWitt Clinton Pond*, *Edward D. Stone*, *Simon Bernhard Zelnik*, and *Albert C. Schweizer*. Guest lecturers will include *George Licht* and *Aymar Embury, 2nd*.

In outlining reasons for establishing the course, Professor *Louis Menk*, assistant to the dean, has been quoted as saying: "Ninety percent of our faculty are in actual practice of architecture. Any problem that arises in the field is brought into the school. Many of them felt that clients had to be educated before architects could start designing houses for them. Rudimentary knowledge of building keeps prospective home owners from asking the impossible."

Subjects to be treated during the four months of sessions will include: types of houses to fit certain sites; traditional house styles; general plot plans; planning of individual rooms and service facilities. Working drawings, budget estimates, and relations with contractors and subcontractors will be explained. Heating, plumbing, and other types of equipment will be discussed, as well as the various types of building materials used in foundations, roofs, etc., as indicated in the various types of specifications.

Individual lectures will be devoted to such topics as: making over of country

houses, alterations of apartments and old houses in the city, and the redesign of offices and small shops.

ROLL OF HONOR FOR AUGUST: FELLOWSHIPS, SCHOLARSHIPS

WALTER O. CAIN of Lakewood, Ohio, has been judged winner of the 1940 Rome Prize in Architecture. After a final competition, five weeks in duration, with 10 other survivors from the original field of 72, Mr. Cain's solution to "A Sports Building for a University of 6000 Students" was considered most meritorious by the jury. First honorable mention went to *Alexander Kouzmanoff*, Bensenville, Ill.; second honorable mention was awarded to *Seymour R. Joseph* of New York City.

Members of the jury were *Henry R. Shepley*, chairman, *Thomas E. Ellett*, *William F. Lamb*, *Eero Saarinen*, and *Lawrence Grant White*.

The Fellowship, with an estimated value of \$4,000, is ordinarily devoted to two years of architectural study in Italy. If conditions continue to render this impossible, Mr. Cain may have the option either of deferring his study or fulfilling the fellowship in America.

* * *

THE PERKINS AND BORING TRAVELING FELLOWSHIP, valued at \$1,350 and considered by Columbia University one of the highest honors it can confer upon an architectural alumnus, was awarded to *Daniel Brenner*, 23, of New York City. The competition, given once every three years, called this time for the design of a recreation center and boat house on Long Island Sound.

Mr. Brenner plans to use his scholarship for a year's study of architecture in Mexico and South America.

* * *

DEAN GEORGE SIMPSON KOYL, School of Fine Arts, University of Pennsylvania, announces the appointment of *David Alexander Wallace* and *Arthur Bloise White* both of Philadelphia and graduate students of the Department of Architecture, University of Pennsylvania, and *J. Lee Thorne* (AR, 5/40, p. 12), graduate student and graduate of the Department of Architecture, Pennsylvania State College, to Theophilus Parsons Chandler Fellowships for the year 1940-41.

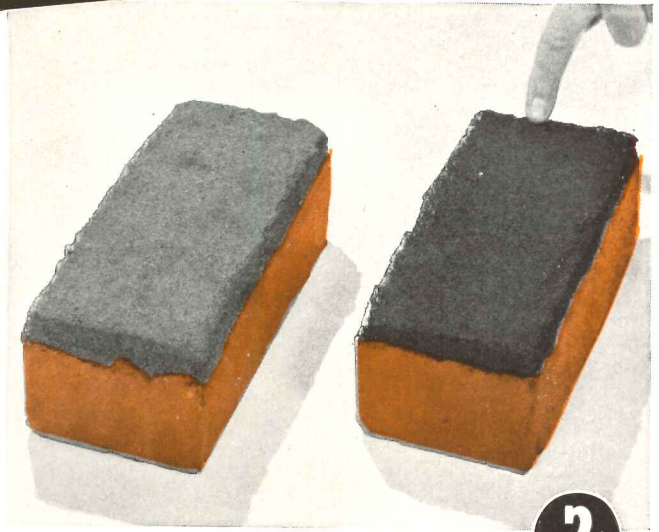
Henry Louis Mikolajczyk, graduate of the Department of Architecture, Armour Institute of Technology, Chicago, and Master of Architecture,

(Continued on page 14)

MAKE THIS TEST -
Prove **BRIXMENT** *is* **BEST!**



1 Butter one brick with Brixment mortar, colored with any good black mortar color. Then butter another brick with mortar made from lime and cement, and the *same* mortar color.



2 Set both brick aside for a couple of weeks. You'll find that the sample made with Brixment mortar retains its full, rich color, while the other turns dull or pale.

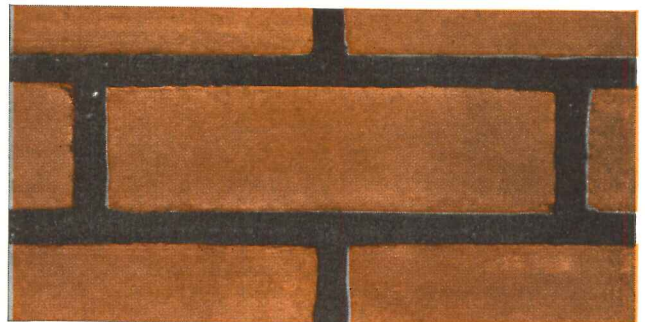
BRIXMENT Mortar Does Not Fade Mortar Colors!

FADING of mortar colors is ordinarily caused by the action of aggressive chemical compounds (usually tri-calcium compounds) present in lime and cement mortars. If sufficiently strong, such chemicals may burn or bleach the pigment.

Brixment mortar, however, is practically free from such compounds. *Brixment mortar therefore cannot fade mortar colors.*

Furthermore, the waterproofing material incorporated in Brixment during manufacture, gives added protection—helps prevent the color from being leached out of the mortar joint by rain . . . For these reasons, Brixment is endorsed by *manufacturers* of mortar colors, for use with their products.

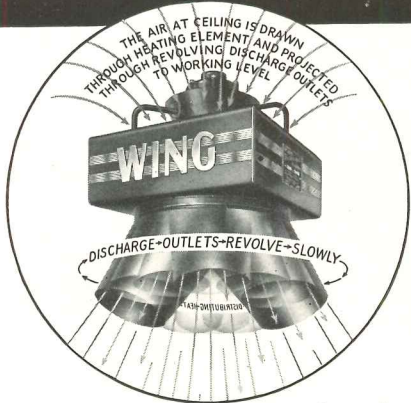
If *you* have a mortar color job, get a bag of Brixment and try it with your favorite mortar color. Sack for sack, we believe you will find that the mortar color goes further and *looks better* with Brixment than with any other mortar you have ever tried.



BRIXMENT

For Mortar and Stucco

THE NEW SYSTEM OF PLANT HEATING for TODAY'S Factory Needs



Slowly revolving outlets . . . an innovation which assures THOROUGH heat distribution . . . a heating comfort never before attained . . . a sensation of fresh, live, invigorating air!



GREAT INDUSTRIAL PLANTS Internationally known plants using WING UNIT HEATERS:

Canada Dry Ginger Ale Co.
Chrysler Corporation
Frigidaire Corporation
General Electric Co.
General Motors Corp.
International Harvester Co.
Pittsburgh Crucible Steel Co.
E. R. Squibb & Sons
Standard Oil Co.
Studebaker Corporation
and many others

Architects now planning extensions and modernization of plants in line with National Defense Programs will want to know the details which produce the unprecedented efficiency of Wing Revolving Discharge Heaters. Wing Bulletin H-8 has this valuable information. Write today for your copy.

L. J. WING MFG. CO.
151 W. 14th Street New York



WING REVOLVING DISCHARGE UNIT HEATERS

WITH RECORD READERS

(Continued from page 12)

University of Pennsylvania, has been awarded the Joseph V. Horn Fellowship.

John C. Wheeler, Bachelor of Architecture, Georgia School of Technology, and *Joseph Geligisser*, Bachelor of Architecture from New York University, have been awarded Graduate Scholarships in the University of Pennsylvania Department of Architecture.

SIR RAYMOND UNWIN DIES

AFTER AN ILLNESS of two months, *Sir Raymond Unwin*, 77, internationally known English town planner and housing expert, died on June 28 at the home of his daughter in Lyme, Conn.

Sir Raymond graduated from Magdalen College, Oxford, where his chief interest is reported to have been engineering. In 1896, however, he devoted himself to architecture and achieved national recognition as designer of the First Garden City, Letchworth, and, later of the Hampstead Garden Suburb. By 1914 he was chief town-planning inspector on the Local Government Board.

During the world war of 1914-18, he served as technical director of the Housing Branch of the Ministry of Munitions, and after the war continued until 1928 as chief architect in England's peacetime housing program. From 1929 to 1933 he was chief advisor to the Greater London Regional Town Planning Committee, and a member of the Executive Committee of the League of Nations Union.

Sir Raymond spent part of each of the last four years lecturing at Columbia University, MIT, Cornell, and other American Institutions, and was consultant in this country on numerous projects of housing and town planning. In 1937 he received an honorary doctorate from Harvard. Among his other distinctions were: Presidency of the Royal Institute of British Architects, 1931-33; knighthood in 1932; honorary degrees from the Universities of Manchester, Prague, Toronto, and Trondheim. His many writings include "Town Planning in Practice," a basic text in this field which has been translated into several languages.

* * *

ON JULY 8, WILLIAM STONE POST, 75, a member of the architectural firm of George B. Post & Sons, died at his home in Bernardsville, N. J.

Mr. Post was a graduate of Columbia University. The principal works for which he was known include the New York Stock Exchange Building, the College of the City of New York, and the Roosevelt Hotel in New York City. He also designed the Wisconsin State Capitol, Prudential and Mutual Benefit Life Insurance buildings of Newark, N. J., Mt. Sinai Hospital in Cleveland, the Olympic Hotel in Seattle, and numerous Statler Hotels in various cities of the country. He was a Fellow of the AIA, and a member of the Architectural League of New York.

New Addresses

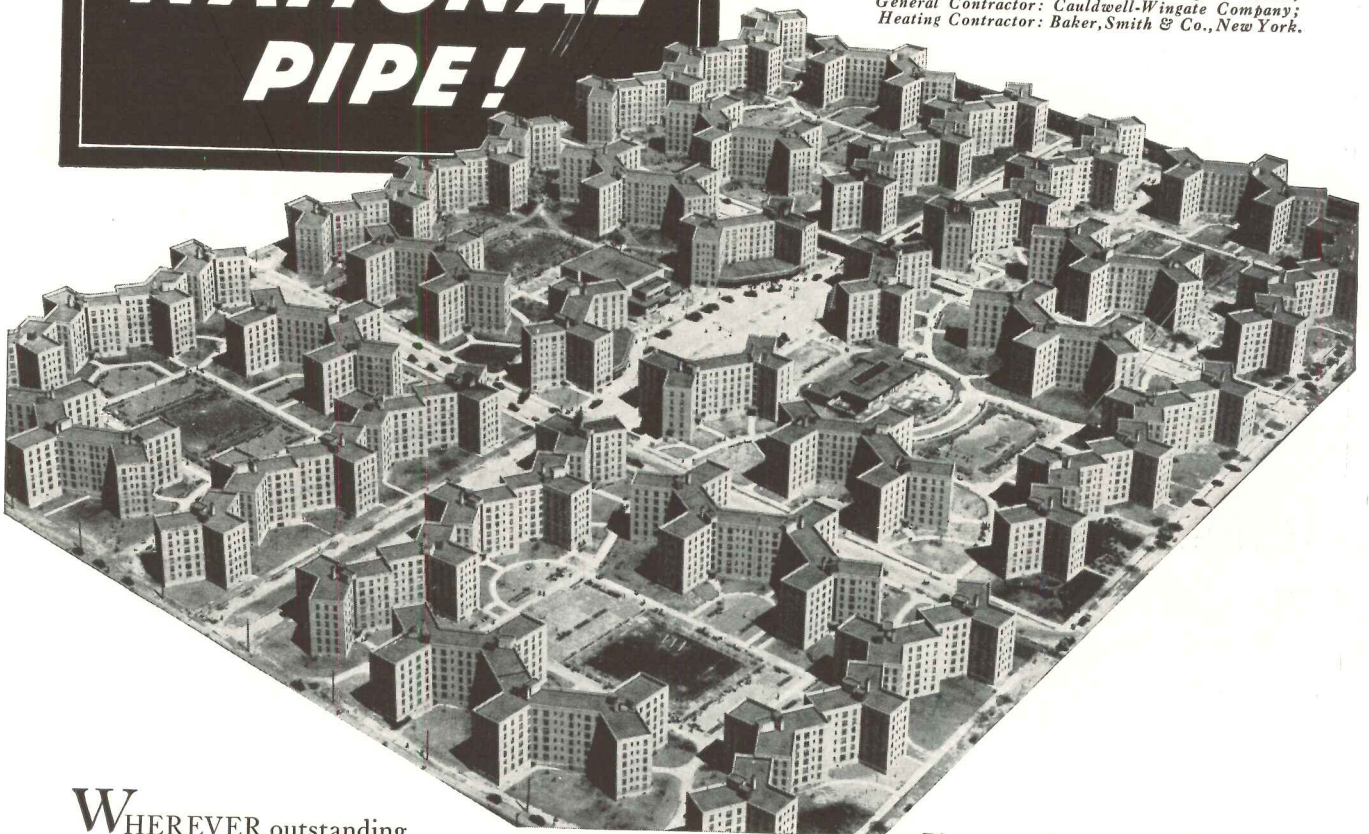
THE RECORD publishes changed and new addresses only on submission, making no attempt to keep a day-by-day account. The only organization in the country with facilities for doing this is *Sweet's Catalog Service*, whose painstakingly maintained list undergoes an average revision of 23 changes for every working day in the year. Below are the new addresses recently brought to our attention:

ALVAR AND AINO AALTO, Finnish architects, announce the formation of a new company, *Artek-Pascoe, Inc.*, 640 Madison Ave., New York City, for the manufacture and distribution of Aalto furniture in the Americas. *Clifford N. Pascoe* of New York is the American partner of the firm and its director . . . *Allmon Fordyce*, Architect, announces the removal of his practice to new offices at 127 E. 55th Street, New York City . . . The new offices of *Milo S. Holdstein*, Architect, are at 721 Hickox Building, 9th and Euclid Avenues, Cleveland, Ohio . . . *Maynard Lyndon*, AIA, and *Eberle Smith*, AIA, announce that with *Otis Winn*, AIA, they have formed a professional group to be known as *Lyndon, Smith, and Winn*, Architects and Engineers, with offices at 500 Murphey Building, 13700 Woodward Avenue, Detroit, Mich. . . . *Francis R. MacLeay*, Consulting Engineer, formerly associated with *Geo. E. Strehan*, will continue general engineering practice at 415 Lexington Avenue, New York City . . . *George Nemeny* has moved his offices to 515 Madison Avenue, New York City . . . The offices of *Edward I. Shire*, Architect, are now located at 18 E. 41st Street, New York City, where he will continue his practice in association with *Bloch & Hesse* . . . The new address of *John J. Trich* is 333 Ridge Road, Ruthersford, N. J. . . . *Clyde F. Trudell*, Architect, announces the opening of his office at 251 Kearny Street, San Francisco, Calif.

IN AMERICA'S LARGEST PUBLIC HOUSING PROJECT

It's
**NATIONAL
PIPE!**

QUEENSBRIDGE HOUSES, America's largest public housing development, erected by New York City Housing Authority, in Long Island City. Provides homes for 3,149 families, or 11,400 persons. Overall cost: \$13,936,686; area: 61.92 acres. Includes Children's Center, Community Building, gymnasium, public library, and facilities for 24 stores. Each apartment is completely fire-proof and thoroughly modern. NATIONAL Pipe was used extensively throughout the 26 apartment buildings. Architect: William F. R. Ballard; Associate Architects: Henry S. Churchill—Frederick G. Frost & Burnett C. Turner; Structural Engineer: Elwyn E. Seelye & Co.; Plumbing, Heating and Ventilating Engineer: Meyer, Strong & Jones; General Contractor: Cauldwell-Wingate Company; Heating Contractor: Baker, Smith & Co., New York.



WHEREVER outstanding buildings are erected, it's almost axiomatic that you'll find NATIONAL Pipe figuring prominently in the job. Public and private, commercial, industrial, and residential—it's generally the same—"the major tonnage of pipe is NATIONAL."

This doesn't just happen, nor is it the result of over-zealous salesmanship. It is the result of a profound conviction on the part of

architects and builders — that for general all-round building purposes, NATIONAL Pipe gives the greatest service for the least investment.

This famous Queensbridge Project, America's largest venture in public housing, helps bear witness to the widespread acceptance of this product. Here, again, the major tonnage is NATIONAL. Here, again, NATIONAL

Pipe was first choice, because it's uniform and ductile, easy to bend and coil, readily installed. It takes sharp, accurate threads, is clean and free of scale, and has a smooth surface for paints and decorative coatings.

Because NATIONAL Pipe offers the safest, surest, long-term investment, it is the world's largest-selling pipe. Use it for all standard piping applications. Write for complete data.

NATIONAL TUBE COMPANY

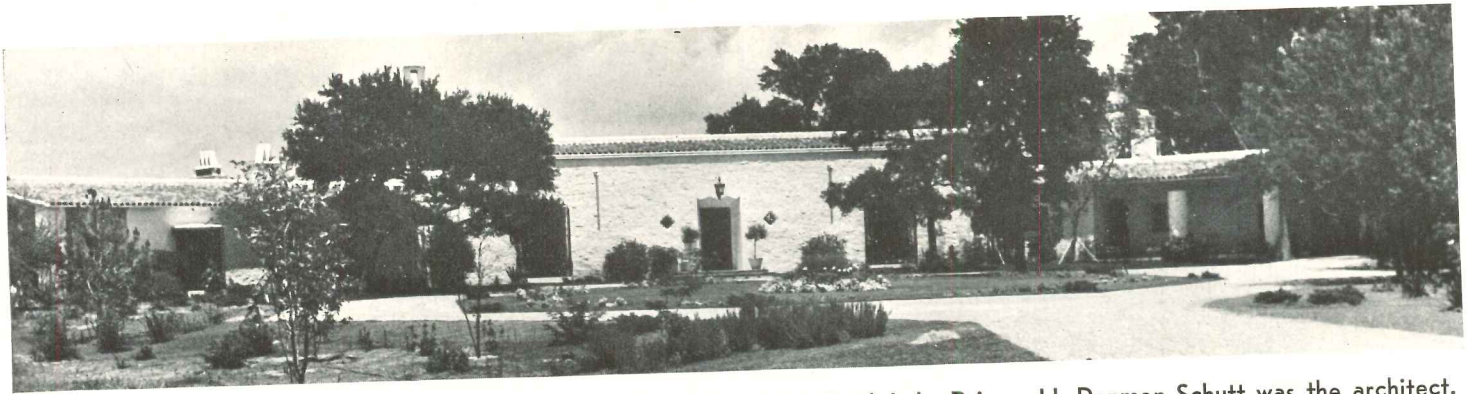


PITTSBURGH, PA.

Columbia Steel Company. San Francisco. Pacific Coast Distributors • United States Steel Export Company. New York

UNITED STATES STEEL

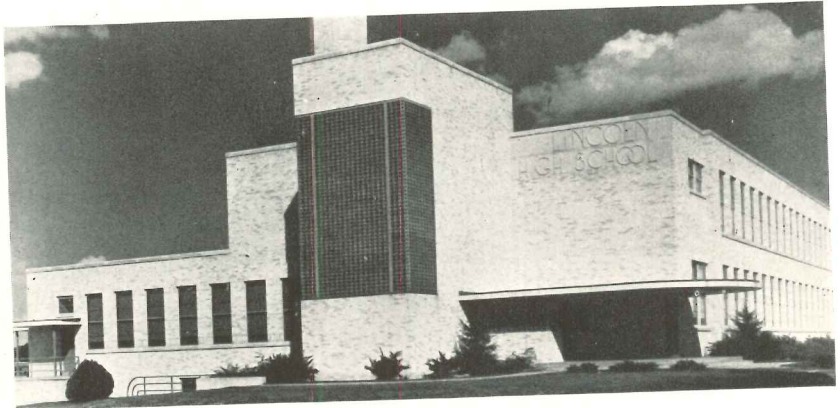
WITH RECORD READERS (Dallas Poll, continued)



SEVEN VOTES: Ranch-house type residence of E. L. DeGolyer, White Rock Lake Drive. H. Denman Schutt was the architect.



SIX VOTES: Fondren Library, South. Meth. U. Paul P. Cret, Phila., DeWitt & Washburn, Dallas, arch'ts.



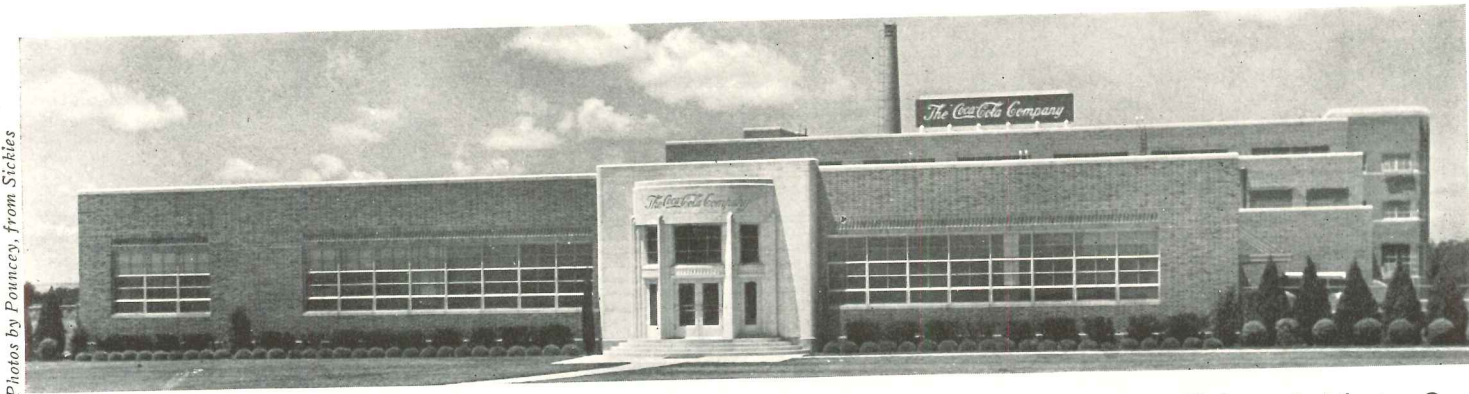
FIVE VOTES: The new Lincoln High School for Negroes. Walter C. Sharp was the architect for this building.



FIVE VOTES: Dallas Museum of Natural History. Architects: Mark Lemmon, C. H. Griesenbeck, F. D. Kean, J. B. Danna.



FOUR VOTES: Hillcrest State Bank Building. The architects for this project were the firm of LaRoche and Dahl.



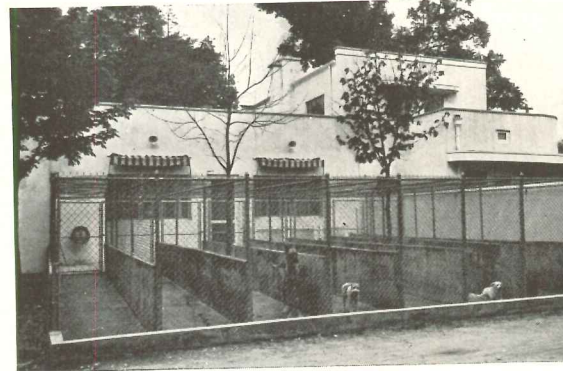
FOUR VOTES: The new plant of the Coca-Cola Company at Dallas. The architect was Jesse M. Shelton of Atlanta, Ga.

Photos by Pouncey, from Sichtiges



Alfred Cook

NEWS AND TRENDS



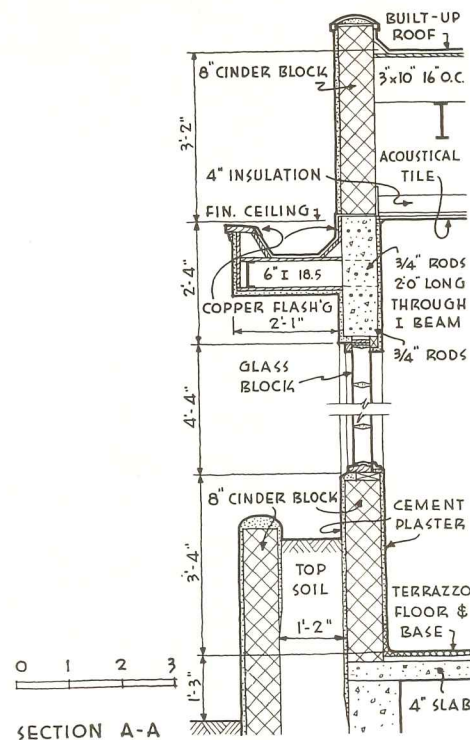
A MEDICAL CENTER FOR FAMILY PETS

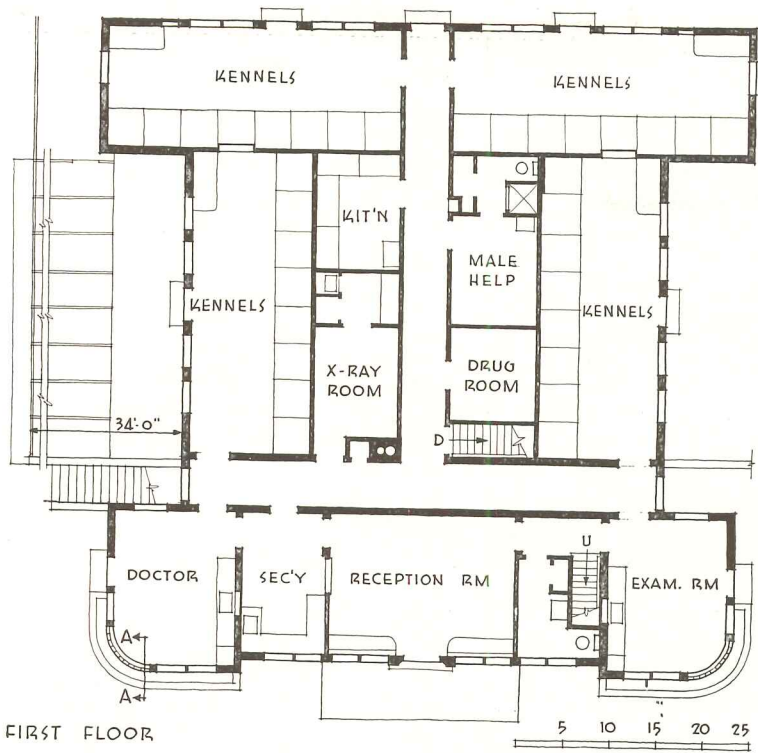
Architect **ARTHUR W. COOTE** planned this complete modern animal hospital at Manhasset, Long Island, for Dr. L. W. Goodman, owner and directing head of the institution. Facilities for the treatment of patients range from examination and diagnosis rooms to an operating room and segregated isolation ward.

AMONG THE DESIGN PROBLEMS involved in planning this structure were provision of maximum light and air in the kennel-wards; centralized control of wards and their isolation from public space; provision for specialized rooms which modern therapy and hospitalization demand.

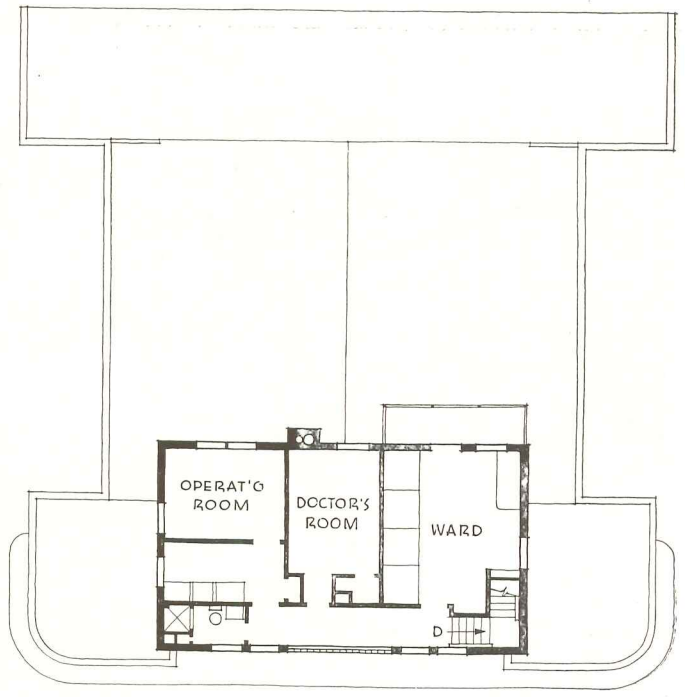
Inside the front door is a reception room where patients and their escorts await their appointments. Diagnosis and examination rooms and private offices line the rest of the front of the building. Each of four wards is adjoined by a series of 6 by 30-ft. outdoor runs where convalescents exercise.

Of semifireproof construction, exterior walls and main partitions are of nailable, lightweight concrete block. Sash are steel casements. Exterior and interior walls are finished in three-coat cement plaster. All floors on the ground level are terrazzo; on the second floor, linoleum over wood subfloor. Ceilings throughout the building are of acoustical tile. The building is air conditioned and cooled for summer. Temperature within each of the wards is independently controlled by thermostat. Wool acoustical treatment in partitions noise-isolates the various wards from each other as well as from the public space.

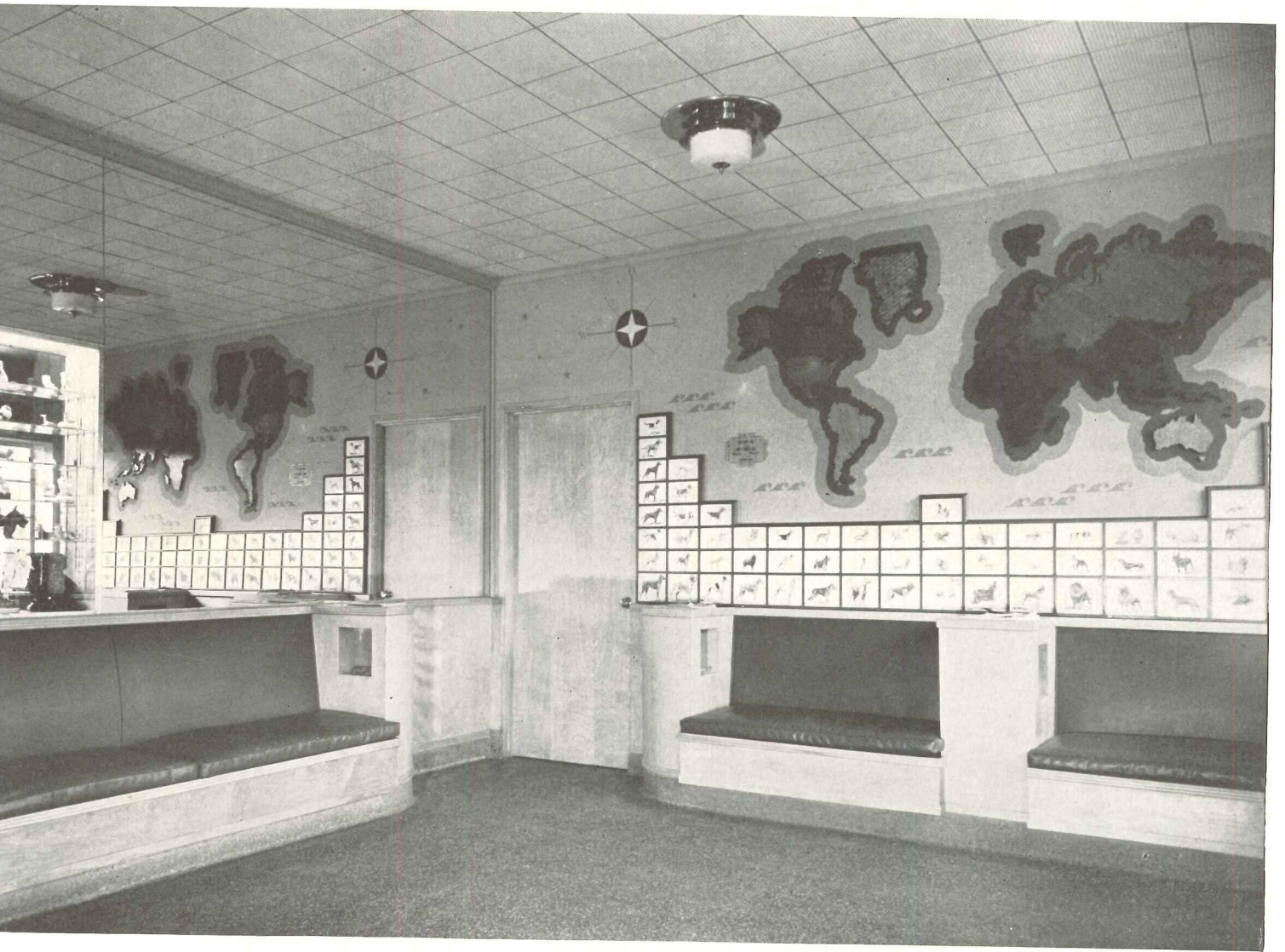




FIRST FLOOR

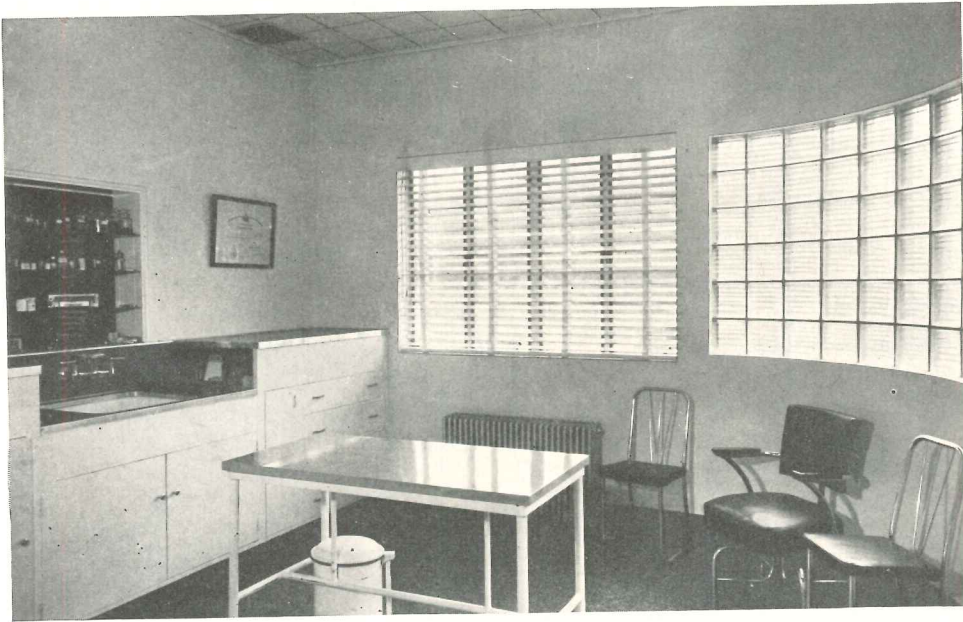


SECOND FLOOR



The hospital reception room for patients and their escorts. Map mural by Hans Foy shows original habitats of patients' families.

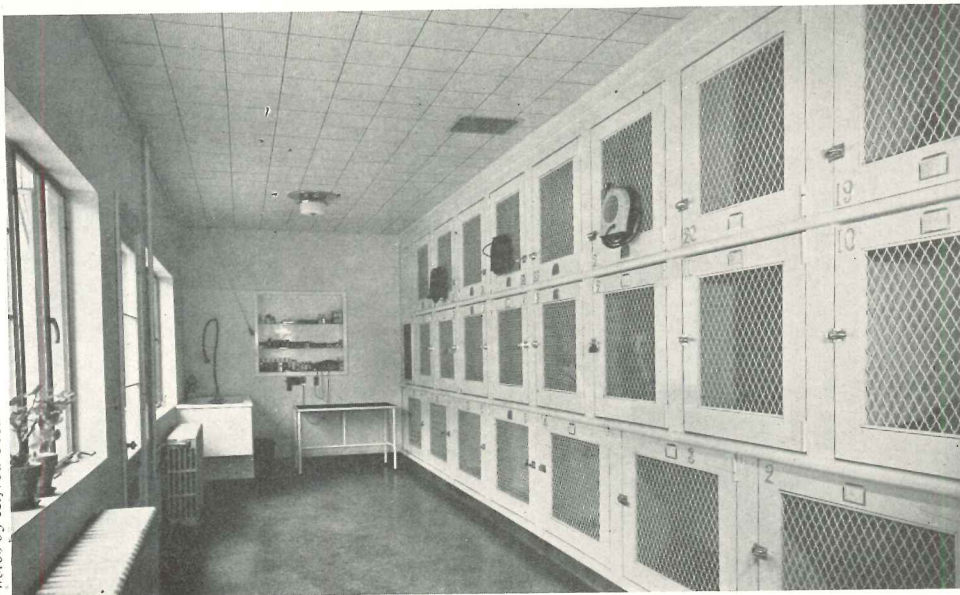
AUGUST 1940



The head doctor's office is fully equipped as an examination room.



The secretary's office is combined with the technician's laboratory.



Each of the light and airy wards is fitted out with a private bath.

Photos by Alfred Cook



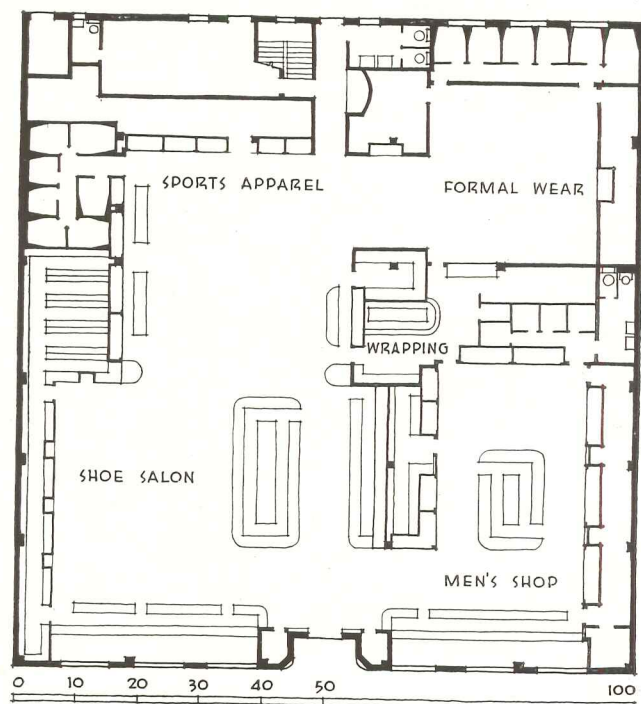
Gottischo

FLORIDA STORE HAS 4 SHOPS IN 1

For their Miami Beach branch, Saks basically wanted four adjacent specialty shops rather than a department store. Architects POLEVITZKY & RUSSELL not only solved this requirement but contributed a dignified modern commercial structure.

THE STORE IS DIVIDED into four main parts—the main salon for gloves, shoes, accessories, and the like; the sportswear shop at the rear of this area; the formal-wear room and the men's shop, to the right of the entrance door. Although connected in plan and all readily accessible from the main entrance, for all practical purposes the departments function as separate specialty shops. The wrapping room, placed centrally, serves all departments.

The display and sales technique follows the current trend of display of only a small amount of merchandise, with a sizable stock near at hand in cases, drawers, or stock rooms. The building rests on reinforced-concrete piling. Walls are made up of a reinforced-concrete skeleton and concrete block as filler. Interior surfaces are furred and plastered. On the exterior, warm-buff slabs of Florida keystone, 2 by 3 ft. by 2 in., are used as veneer. These are set in standard aluminum channel sections, applied vertically on 2-ft. centers. The wood roof construction, surfaced with built-up roofing, is supported on a pair of steel girders.





Main display area looking from the entrance door; sportswear shop in background. To left is the vista shown in the photo below.

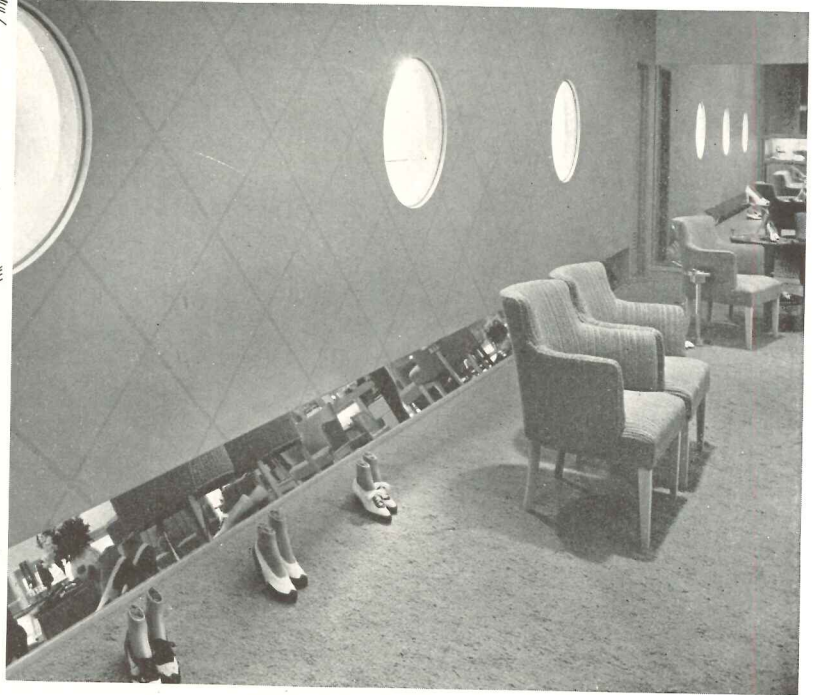
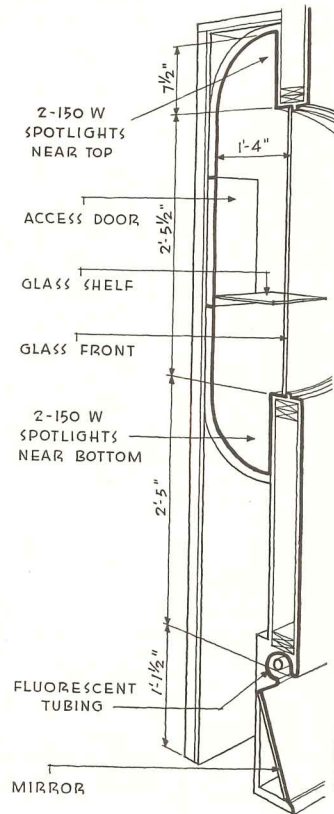


Photo by Gottscho

Walls of main area, pale gray; ceiling, pale lavender; rug, rose beige. In the background is the shoe salon detailed opposite.

SAKS' MIAMI BEACH STORE

POLEVITZKY and RUSSELL, Architects



Detail of shoe-salon display case and illuminated foot mirror



Wall of shoe-salon area is dark gray blue, striped in royal blue. Interiors of cases detailed above are very light blue green.

AUGUST 1940

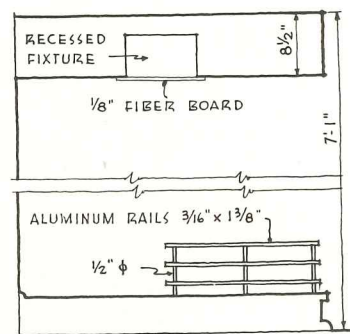


FORMAL-WEAR ROOM: All-over carpet is magenta; walls are rose and the ceiling is off white. Dark accents are in deep magenta.

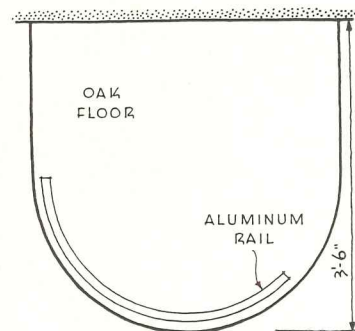


Photos by Gottscho

SPORTSWEAR SHOP: Lemon-yellow walls; ceiling, carpet, gray; case interiors, turquoise

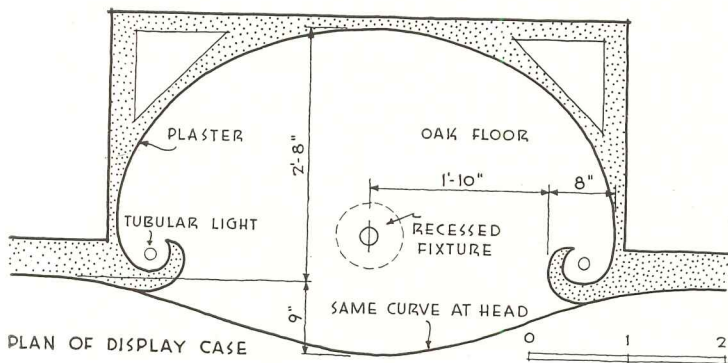
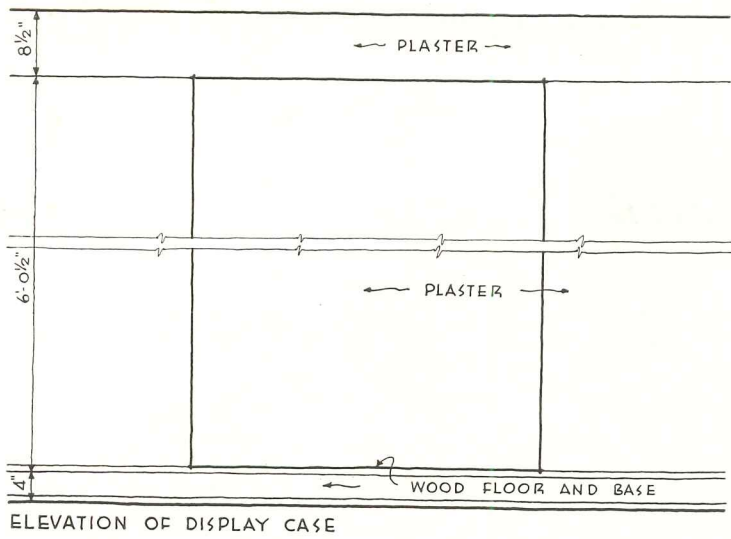


SECTION THROUGH DISPLAY CASES



PLAN OF DISPLAY CASES

Detail: Display platform at left



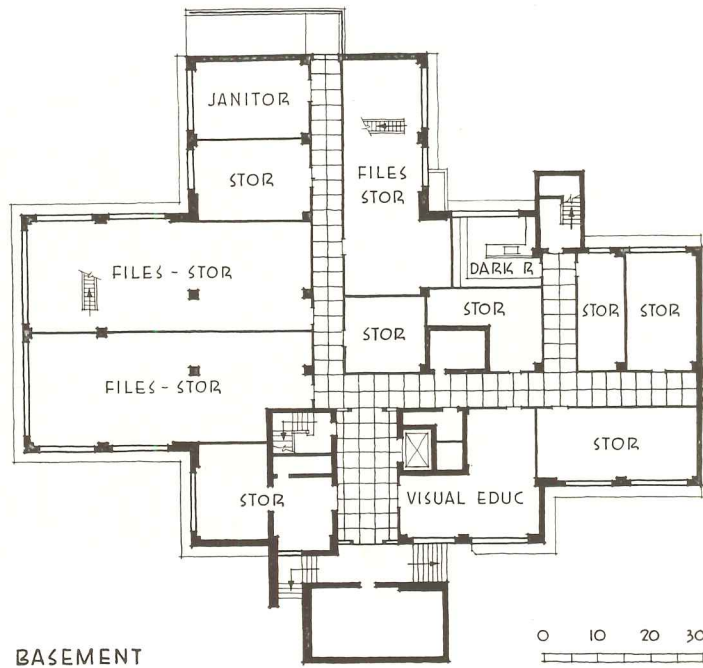
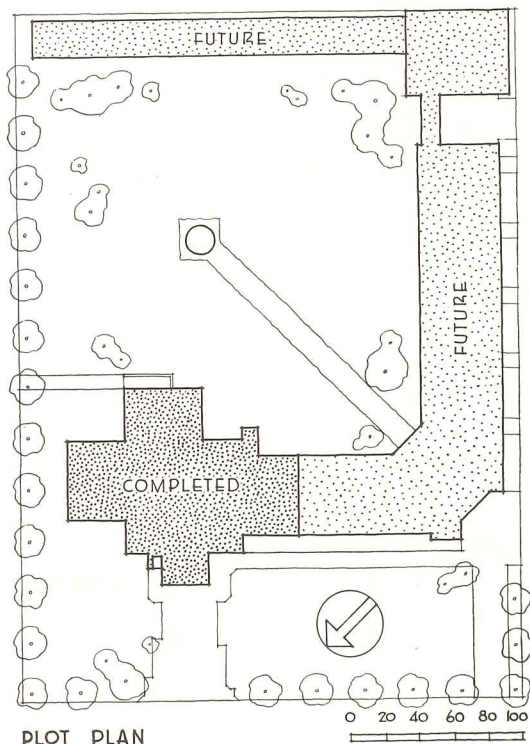
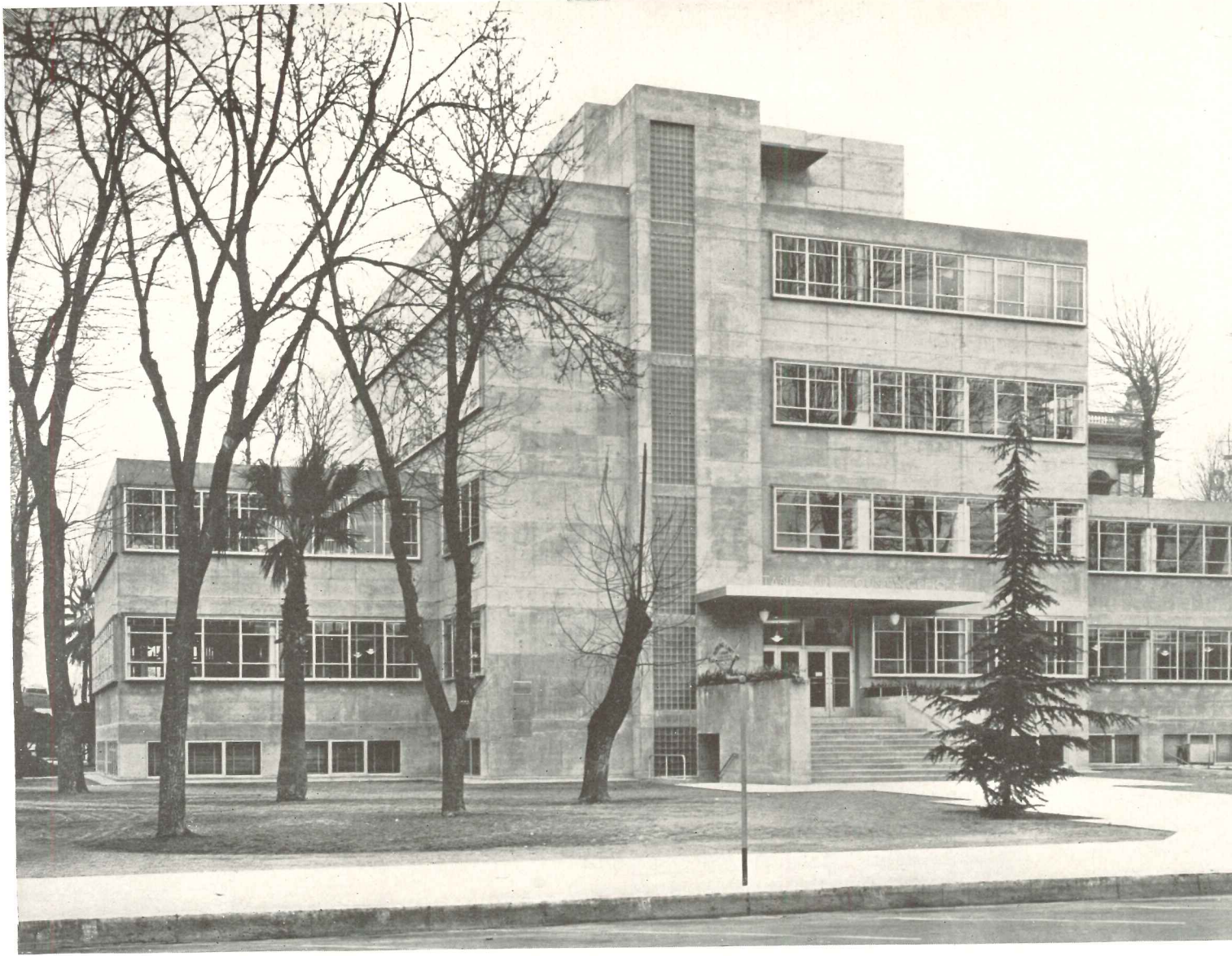
Detail of niches in formal-wear room

THE INTERIORS are both simple and dignified, with color schemes carried out in restful pastel and neutral tones. Furniture throughout was specially made to the architects' design. Casework is of either bleached mahogany or maple. In the various illuminated cases, fluorescent lighting is used.

The architects have created a sense of spaciousness by keeping display cabinets and cases either segregated or minimal. In the formal-wear room, the latter technique is particularly evident. Display is held to just two dramatic recessed niches, although large stocks of merchandise are immediately at hand at the back of three sides of the room. At the fourth side, as well as on one side of the sportswear department, are a series of unusually spacious dressing rooms. In effect, these serve as secondary sales rooms.



MEN'S SHOP: The walls are painted peach beige. Interiors of natural-finish cases are a deeper shade of peach beige and gray.



ARCHITECTURAL RECORD

A COUNTY PLANS FOR ITS FUTURE

First unit of a project that will eventually command an entire block, the Stanislaus County Offices, Modesto, Calif., were designed by Architect RUSSELL GUERNE de LAPPE. Flexible lighting and partition systems provide for changing departmental needs.

IN WORKING OUT THE DESIGN of this new structure, the architect was guided by two main factors—economy and provision for flexibility and future change. The former is reflected in the minimum amount of circulation and hallway areas and maximum of occupied work space. The latter is evident in the design of the continuous sash whereby sectional partitioning may easily be erected at multiples of 3 ft. 9 in.

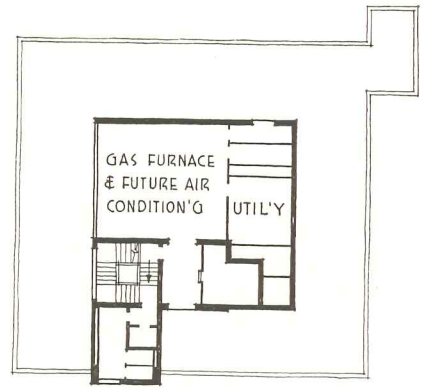
Each department consists of a public space with counter, a large general work space, and private offices. Storage and dead files are relegated to the basement.

Provision for future expansion was an important factor in the placement of the separate departments. In both the clerk's and the recorder's quarters, for instance, on-file records are constantly increasing and expansion is inevitable. The architect has located these departments, one above the other, in such a way that they may be extended to the rear, over the existing first floor, at minimum cost.

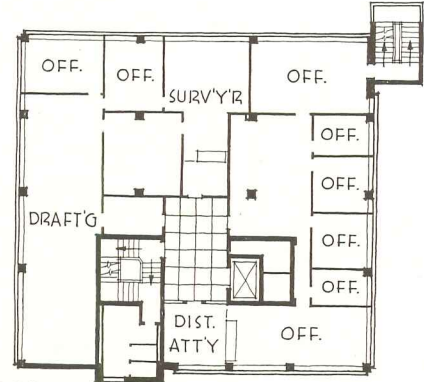
An unusual feature of the plan is the placement of the heating plant (and space for future air-conditioning equipment) in the penthouse. This was made possible by the use of natural-gas fuel which requires no storage space.

The heating plant consists of a pair of boilers each of 2,000,000 Btu capacity. Either heating or cooling is obtained by forcing air over one set of coils, at the penthouse level, into the central supply shaft. At each floor level within the shaft are other coils which keep the temperature at a constant point until it is delivered through plenum chambers between the floors and furred ceilings to the ceiling anemostat outlets. Return grilles occur at floor levels.

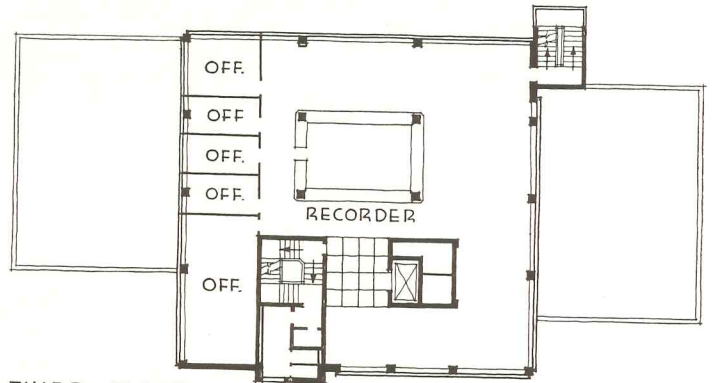
As an aid to summer comfort, water is pumped onto the level roofs to form shallow ponds. These reflect radiant heat that would otherwise enter the building.



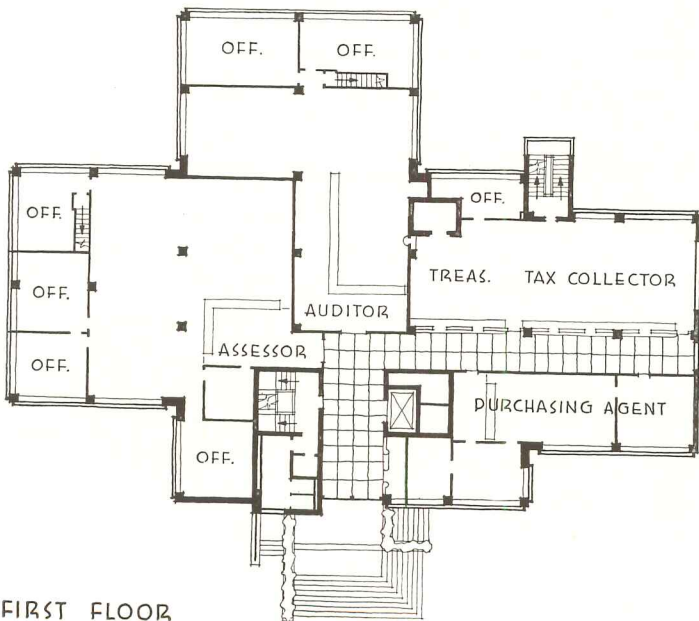
PENTHOUSE



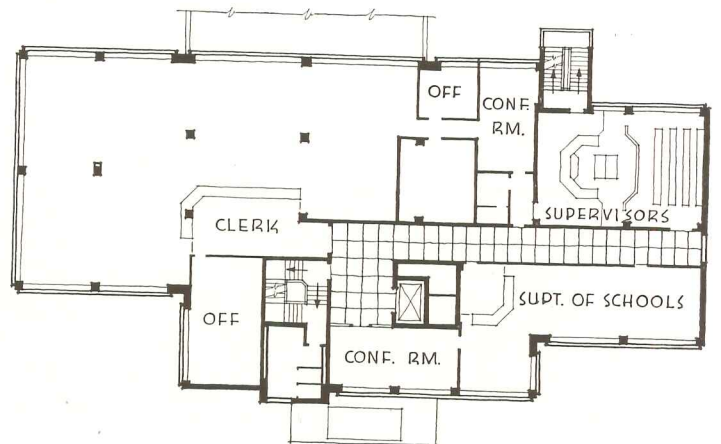
FOURTH FLOOR



THIRD FLOOR



FIRST FLOOR



SECOND FLOOR



NEW WAREHOUSE HAS UNIQUE SAWTOOTH-WINDOW SYSTEM

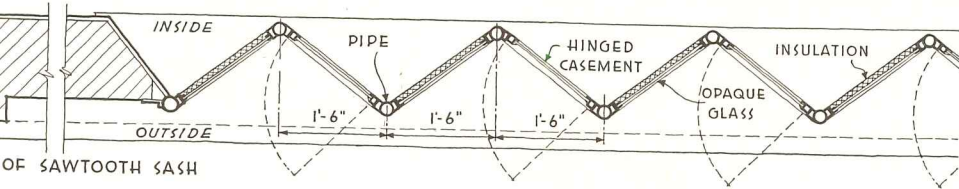
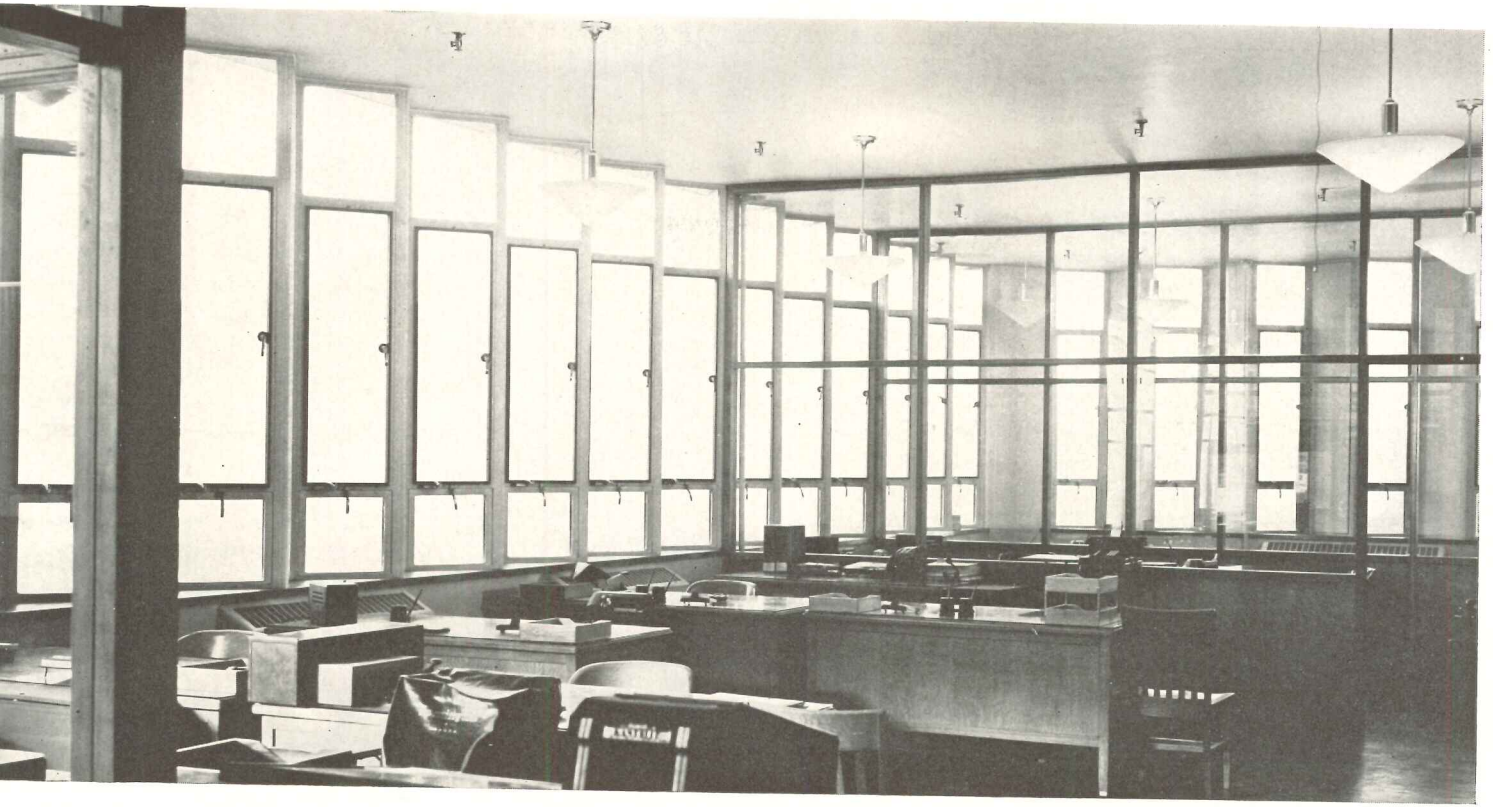
In Pittsburgh Plate Glass Co.'s warehouse and offices, Washington, D. C., Architects MAURICE S. MAY and RHEES E. BURKET have devised an efficient plant for straight-line delivery. Most newsworthy feature is the window treatment, used in the office area, that admits only north light.

ACCORDING TO THE ARCHITECTS, the problem in the office portion, at the northeast corner of the building, was "to provide uniform daylighting of the entire space, eliminating direct sunlight on desks, etc., at the same time providing adequate natural ventilation." The detail on the facing page explains the ingenious solution. The glazed area is arranged in a sawtooth plan, with fixed, opaque-glass panels alternating with sash of clear glass, in which are insets of inswinging sash. The angle of the "teeth" is figured in such a way that only north light enters the room through the clear-glass sash.

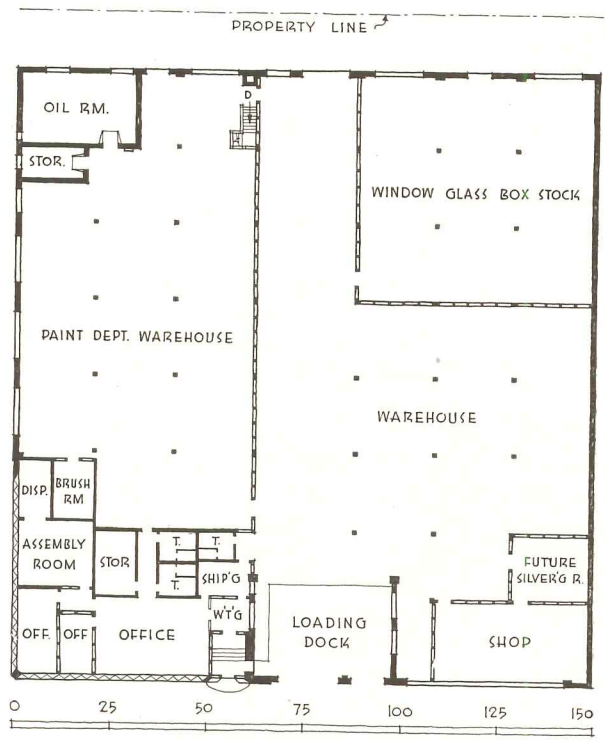
The straight-line delivery scheme is notable. Goods arrive on a freight siding at the rear of the building, and are distributed by monorail conveyor to the various warehouses. Shipping from the warehouse continues from the separate departments to the central concourse to the truck-loading dock at the front of the structure.



Photos by Joseph W. Molitor



Detail of sawtooth window. Photo on opposite page shows the opaque panels as they appear from the exterior. View above shows the clear panels, with in-swinging casements, that face the north.



WHAT'S NEW IN MATERIALS AND EQUIPMENT

Photo by Voss

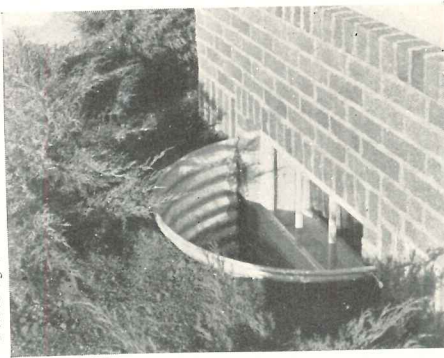


Figure 1: "Lux-Right" window-well wall

Walls for Window Wells

"LUX-RIGHT" AREA WALLS are described as sturdy, long-wearing retaining walls for basement window wells made from heavy-gauge, copper-bearing, corrugated steel. They are one-piece units which are hot-dip galvanized after formation. Also, they are designed to help beautify the foundation line and to admit a maximum of light. The area walls (Fig. 1) are manufactured in two shapes, oblong and semicircular, and are available in 12 different sizes. Saint Paul Corrugating Co., Saint Paul, Minn.

continuous insulation without heat leaking joints, has been introduced. It is made $1\frac{1}{4}$ in. wide to fit snugly between wall studs, joists, and rafters, and is furnished in rolls so that single pieces can be cut to extend the full length of the spaces being insulated. Nailing flanges along the edges overlap the adjacent framing members. Moreover, it is furnished in single, double, and triple thicknesses. The single thickness comes in rolls 103 ft. long, the double thick in rolls 62 ft. long, and the triple thick in rolls 41 ft. long. The Celotex Corp., 919 North Michigan Ave., Chicago, Ill.

Kitchen Ventilator

"VENT-A-HOOD" (Fig. 2) is a new kitchen ventilator which fits over the range and removes cooking odors through a centrifugal exhaust unit built into the top of the hood; it revolves at high speed (1525 r.p.m.). The capacity of air displacement is said to be 325 cubic feet per minute, which is the equivalent of 15 to 18 times the cubic feet between the range and ventilation hood. In addition, it has a patented, built-in grease trap which is removable for easy cleaning and prevents greasy deposits from accumulating on walls and woodwork. A built-in cooking light gives illumination on top of range. Vent-A-Hood Manufacturing Co., Dallas, Tex.

Glass Awnings

GLASS AWNINGS, woven from the new glass-fiber yarn, have been placed on the market. The material is rot-proof, mildew-proof, and is said to be twice as strong as standard cotton awnings. Also, they may be easily cleaned with soap and water, thereby doing away with streaked awnings so commonly seen. They are available in all the standard awning shades. Owens-Corning Fiberglass Corp., Nicholas Bldg., Toledo, Ohio.

Ceramic Bathtub

A BATHTUB MADE of a new clay product known as "Duraclay" has been announced. It is described as being made from a genuine ceramic material and as having all the easy cleansing properties of vitreous china because the surface is composed of glass. Also, this tub is priced to compete with cast-iron tubs and is equal to them in weight. Crane Co., 836 South Michigan Ave., Chicago, Ill.

Fan-Type Oil Heaters

RECENTLY ANNOUNCED are two new oil-burning space heaters with specially designed built-in rotors. Known as "Driven Air," they are said to provide forced air circulation throughout several rooms. If desired the fan unit may be turned off entirely while the heater is in action. They are finished in brown porcelain enamel and require a flue connection. William B. Remington, Inc., Springfield, Mass.

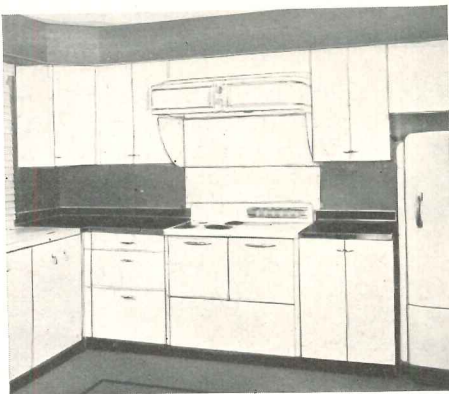


Fig. 2: "Vent-A-Hood" kitchen ventilator

Rolling-Door Safety Device

AN AUTOMATIC safety control for motor-operated rolling garage doors, as well as other types of upward-action doors, has been announced. It works as follows: a compressible, pneumatic weatherstrip is placed along the bottom edge of the door. If the door contacts an obstruction while closing (Fig. 3), it compresses the weatherstrip and causes the compressed air to reverse the motion of the door. The device is designed especially for the door made by its manufacturer. Kinnear Mfg. Co., Fields Ave., Columbus, Ohio.

New Rock-Wool Blanket

A ROCK-WOOL BLANKET, designed to provide walls and roofs of homes with a

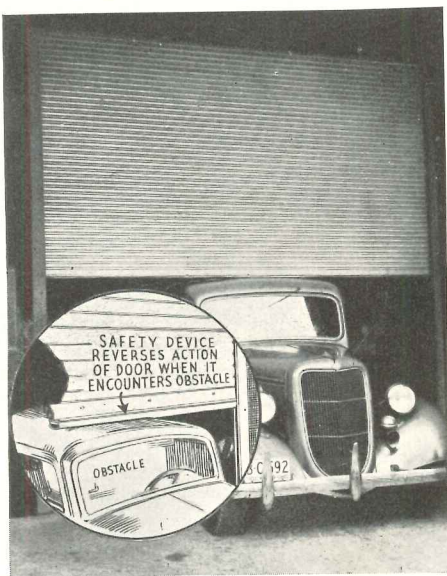
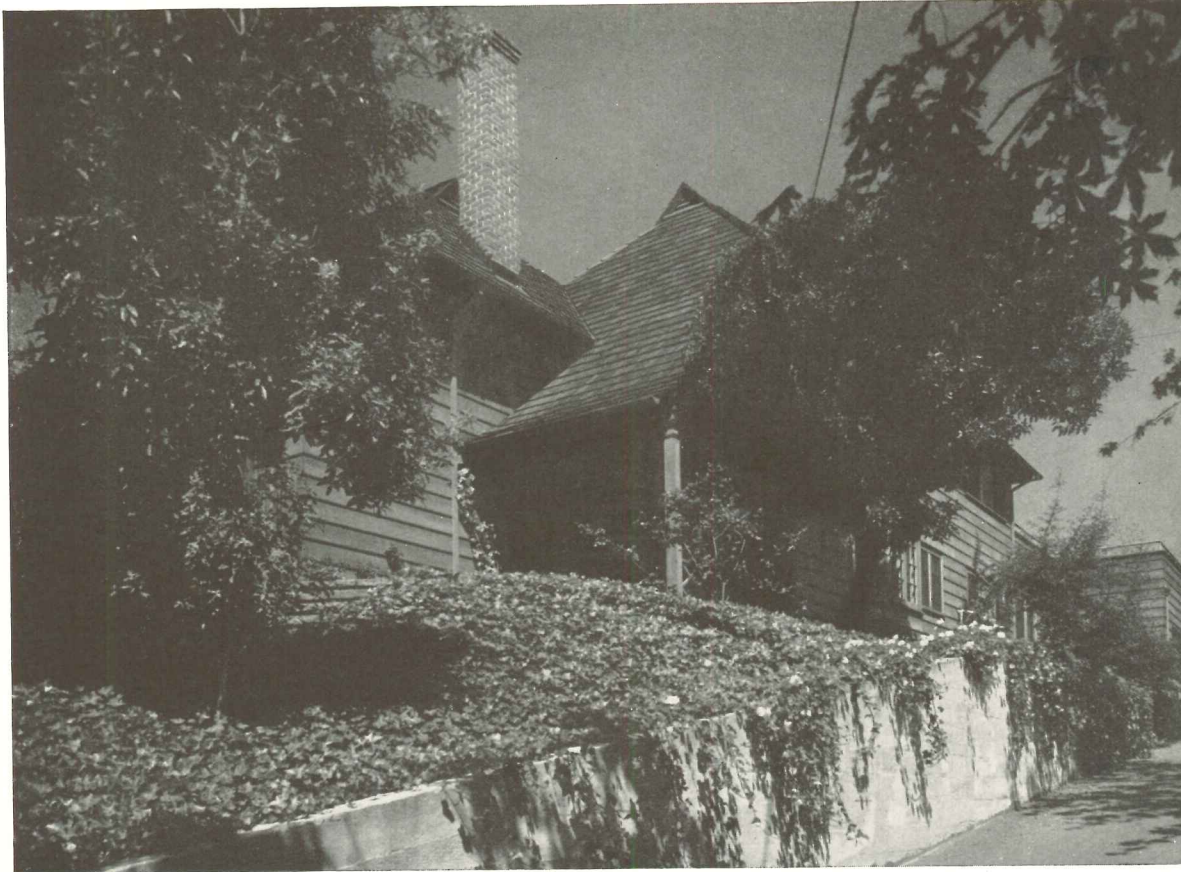
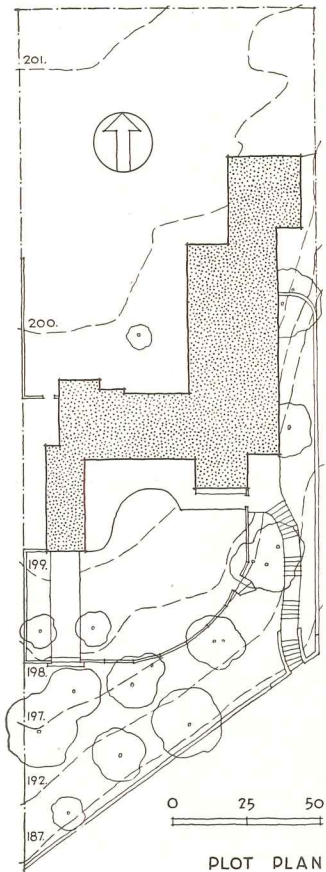


Figure 3: Rolling-door safety device

HOUSES

First in this month's collection of houses is a residence in Piedmont, Calif.; below is a view of the loggia which opens onto garden.
Roger Sturtevant

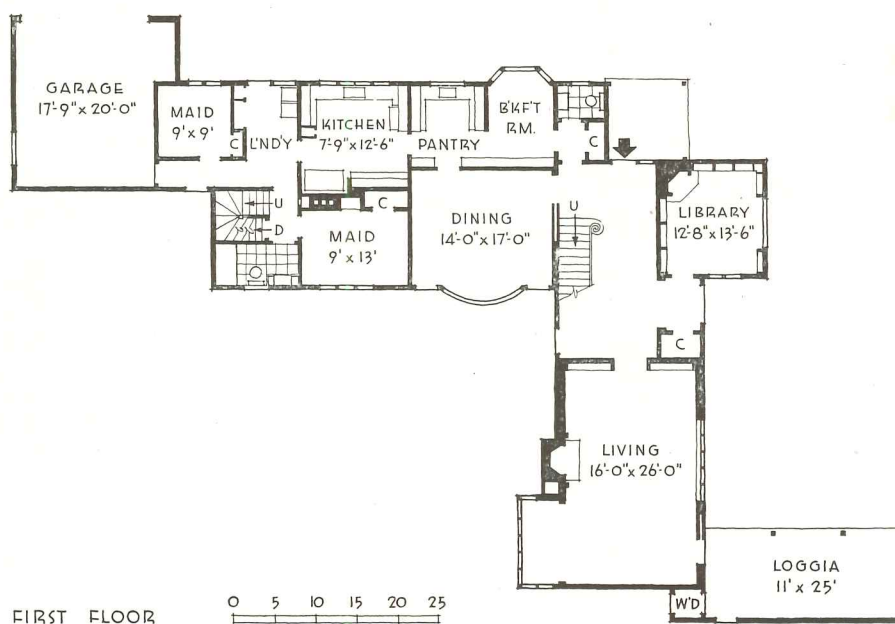




PLAN GIVES PRIVACY TO HOUSE AND GARDENS

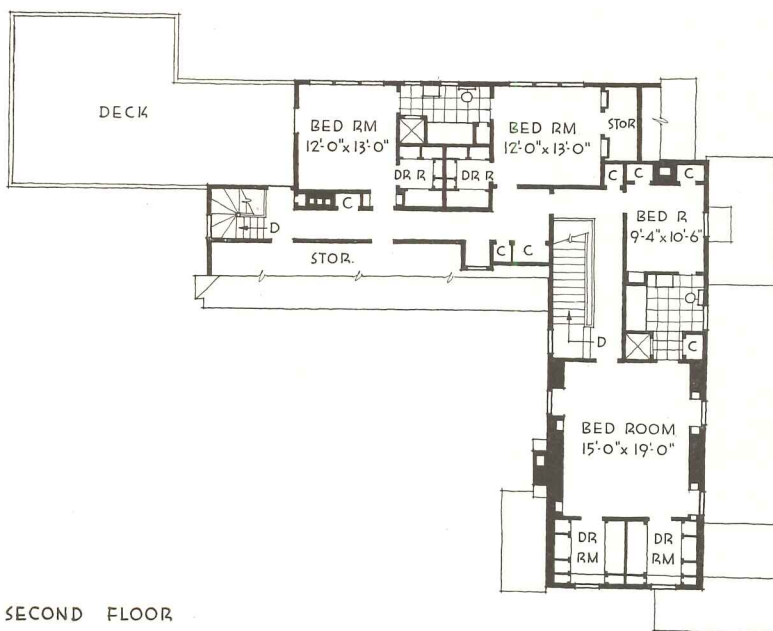
In planning this Piedmont, Calif., residence, Architect CLARENCE W. W. MAYHEW located the entrance at the side of the main elevation, thus reserving for private use the greatest portion of the southern garden. A 6-ft. redwood grape-stake fence encloses the garden.

TRADITION PLAYED a big part in the design of this house, but did not inhibit the architect. For instance, it was function, not tradition, that dictated the location of the windows. The plan follows no particular style or pattern but evolved from the client's needs and from the exigencies of the site. The clients wanted the house to face the street, which is to the south. Consequently, in order to meet this requirement and still give the main rooms the advantage of a southern exposure, the architect placed the entrance at the extreme eastern end of the front. This not only permits the living room and library to have excellent orientation, but makes possible a private garden, completely shielded from even the entrance walk. Principal rooms are independent of each other, since all open onto the hall. The dining room faces the rear garden and has a western exposure; breakfast room and kitchen get only morning sun.



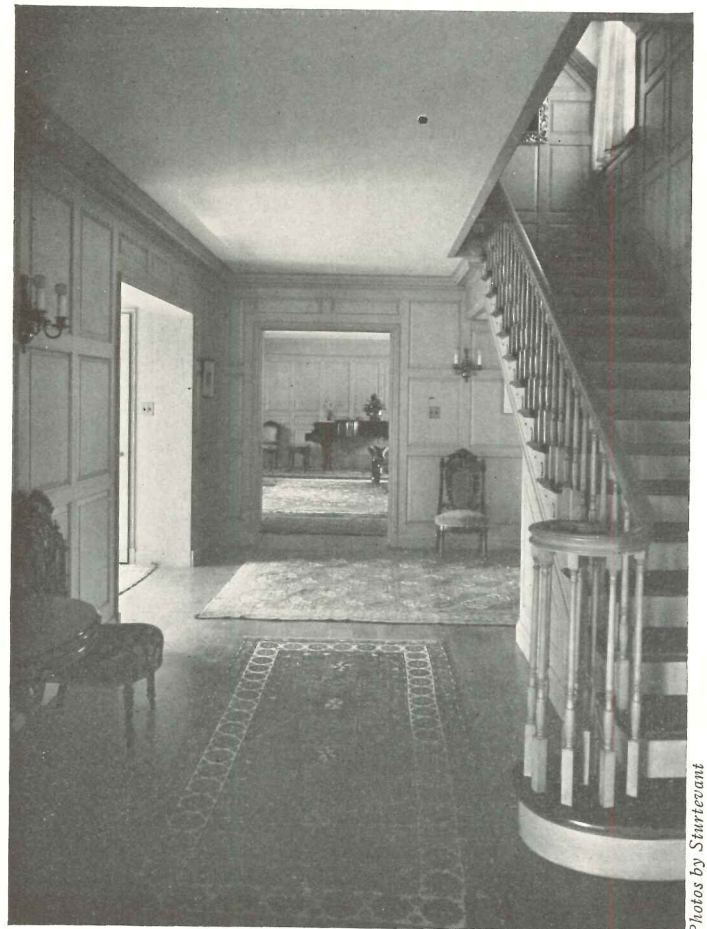


At left, the entrance and private driveway; above, rear court looking toward the dining room with its curved bay window



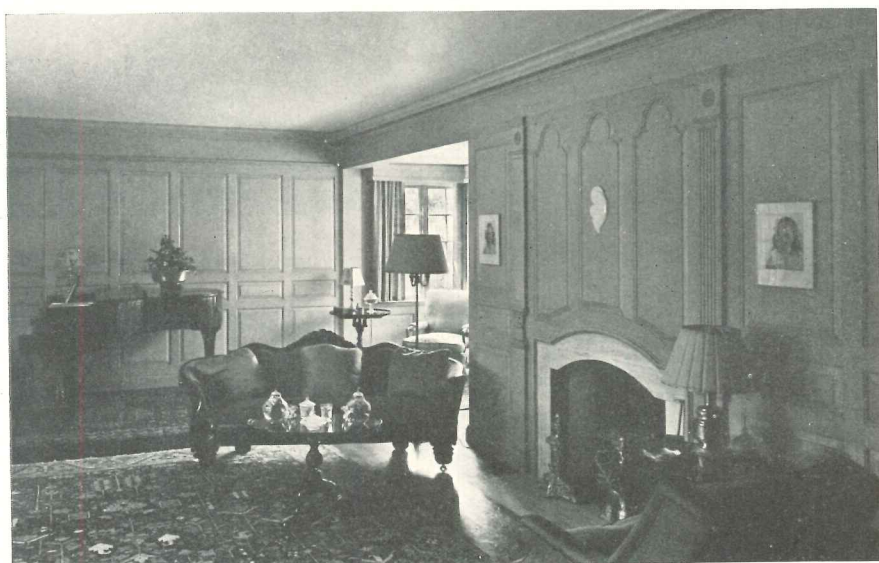
SECOND FLOOR

AUGUST 1940



The spacious stair hall offers access to all the main rooms.

Photos by Sturtevant



One wall in the master bedroom (top) is paneled in wood, with built-in shelves and cupboards flanking the Victorian marble fireplace. Opening off this room are two dressing rooms, one of which is visible in this picture. The living room (center) is paneled in white pine; the fireplace detail is interesting for its simplicity. Main feature of the dining room (bottom) is its curved bay window, with doors on each side to the front garden.

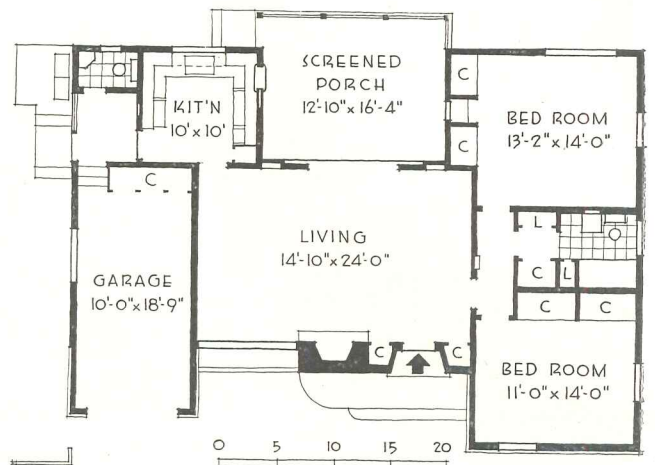


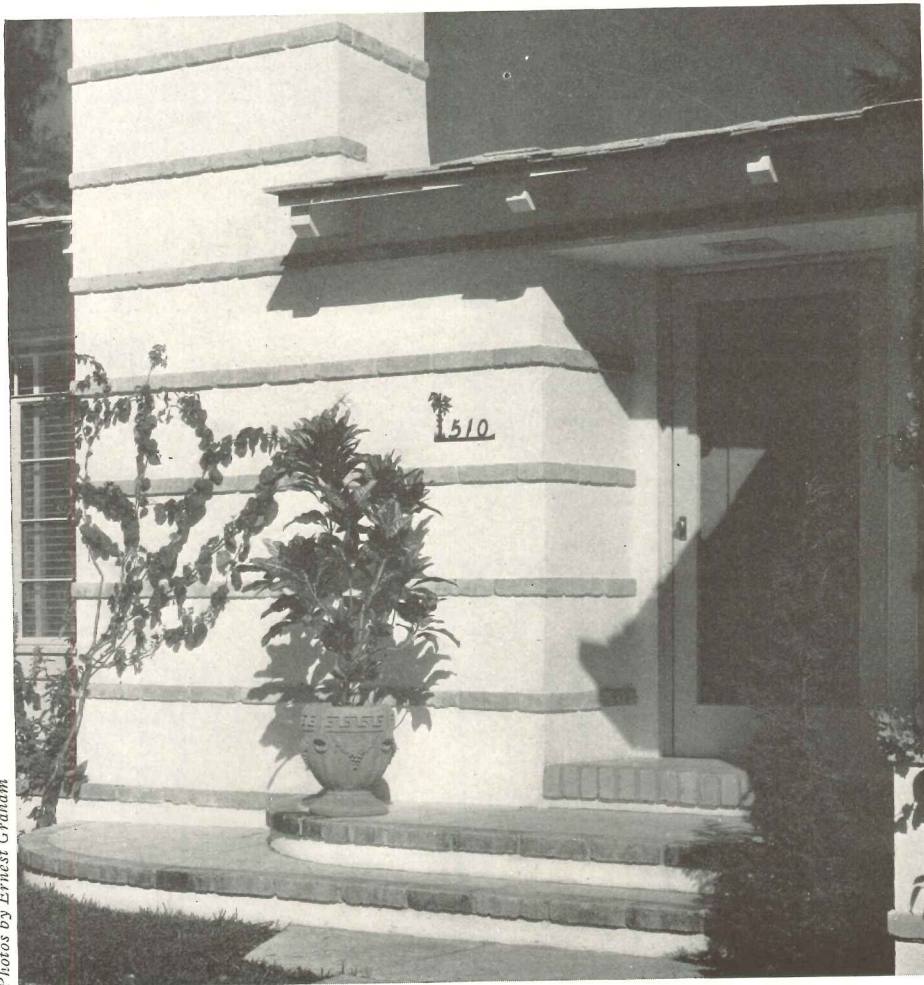
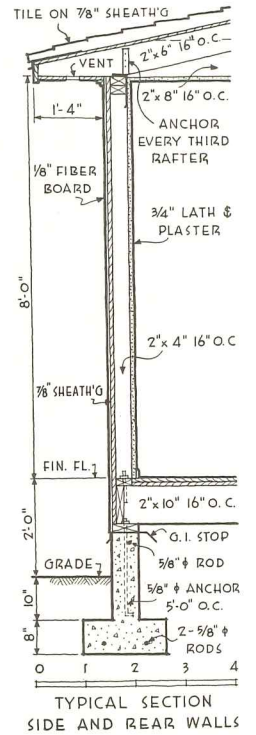
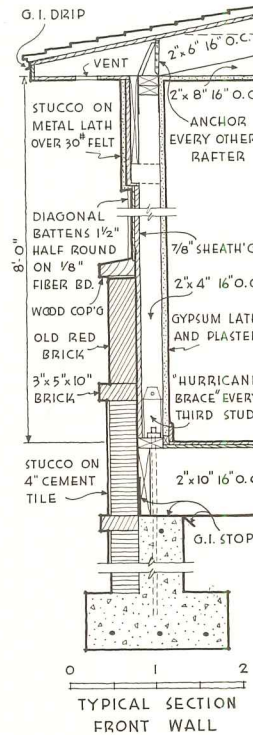
Ernest Graham

DESIGNED FOR ECONOMY OF MAINTENANCE

Architect **ROBERT M. LITTLE** and his associate, **ROBERT E. HANSEN**, designed this residence in Ft. Lauderdale, Fla., for Mr. and Mrs. Henry Bieberson, Jr. The lot runs from the street down to a canal. Use of a variety of surface textures contributes to the informal character desired by the clients. Also required was a plan that would minimize maintenance.

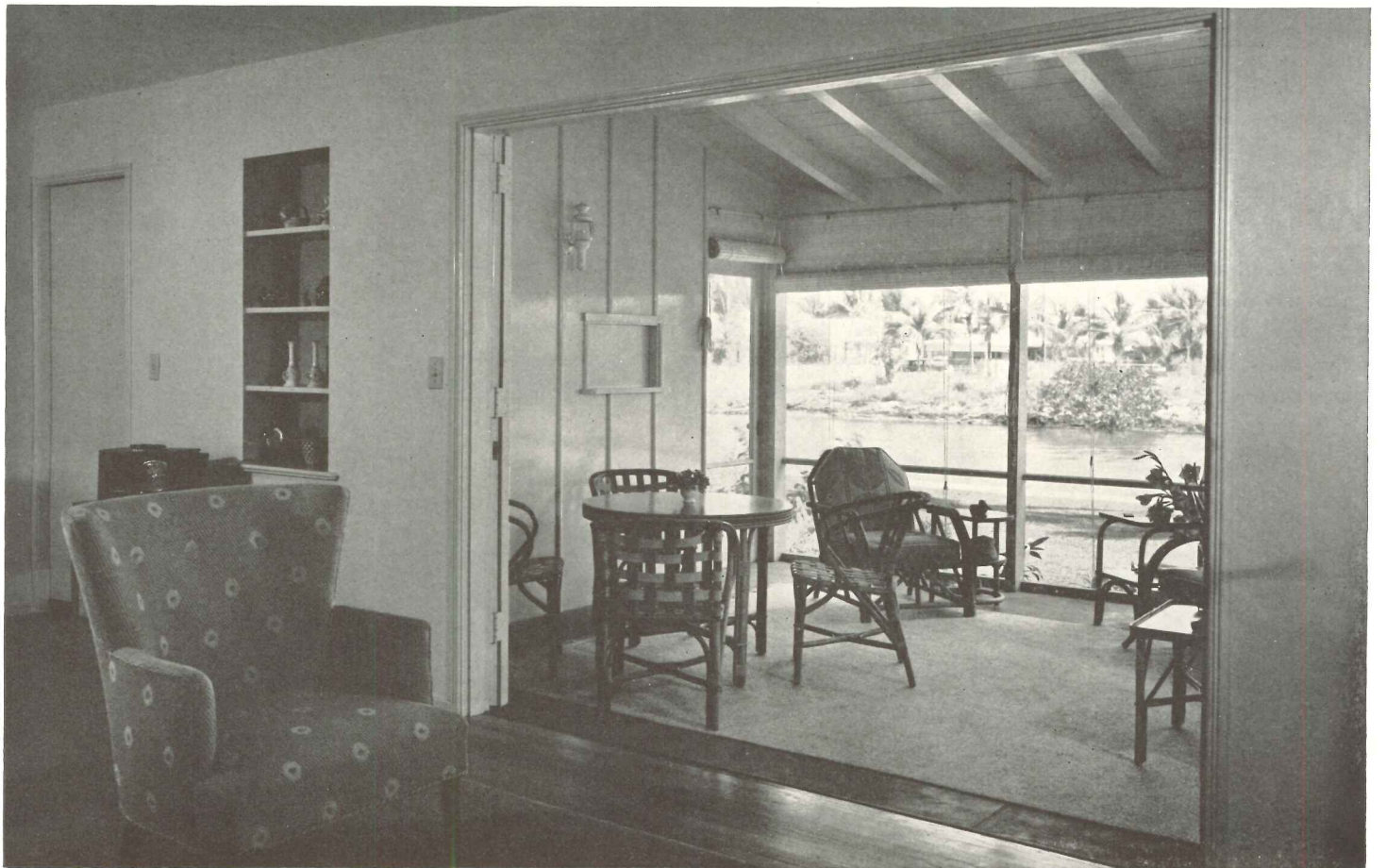
"THE GENERAL PLAN arrangement is familiar," says Mr. Little, "but it was used because it solves many problems in a very simple way." Living areas are on the rear side of the house, facing a canal. A dining room was considered superfluous, hence the size of the living room which doubles for a dining unit, and the screened porch, used on warm, sunny days. This arrangement gives the principal rooms a good exposure to the prevailing southeast breeze. The house is of frame construction. Buff tile shingles, laid at random and stacked, give color and texture to the roof; they also tie in with the color of the exterior walls which are painted cream with a tinge of pink. The house cost \$6,000 exclusive of architects' fee and landscaping.





Photos by Ernest Graham

THE HOUSE DERIVES much of its character from the variety of its exterior surface textures. The expedients used to obtain this variety are simple: brick and stucco-covered tile (left, bottom) laid in alternate rows; half-round battens laid diagonally on the front elevation (top) and vertically on side and rear walls. Except for the entrance detail and chimney, exterior walls are of tempered fiberboard, chosen because it allowed a wider spacing of battens. Above are shown a section through the front wall (left) giving details for construction of fiberboard wall and brick-and-stucco used also on front entrance. Just visible in the picture at top is part of the side wall, a section through which is shown in detail above at right.



Above is the living room which opens onto the porch (below) where meals are served during summer. Note kitchen service hatch.

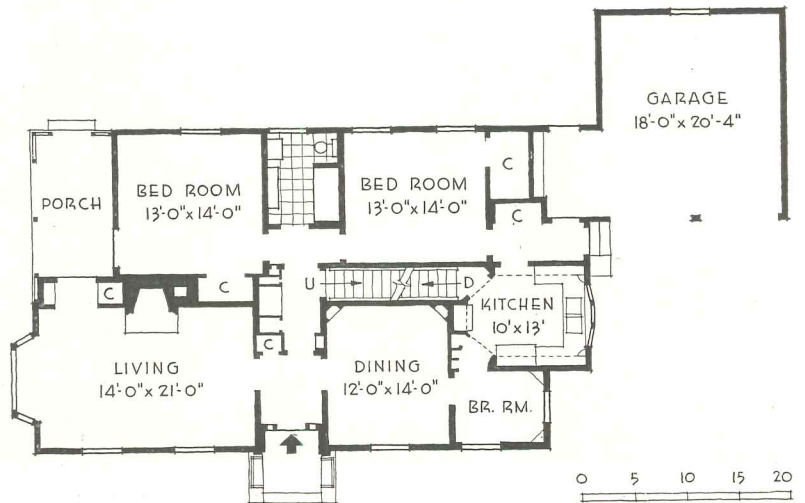
AUGUST 1940



OREGON HOUSE PLANNED TO ALLOW STREET VIEW

Architect **HOLLIS JOHNSTON** used the corner lot to advantage in fulfilling the rather unusual requirement of placing all main rooms so that they would overlook the street. The house is located in Portland, Oreg., and was designed for Mrs. M. J. Sammons and her daughter, Miss Rita Sammons. The room arrangement makes it possible for Mrs. Sammons, an elderly lady, to enjoy the activity on the street from within the house.

BY SETTING the house back from the street, main rooms obtain privacy without impairing the required outlook toward the street. As built, the house uses only one floor, but a second floor could be developed by the addition of dormer windows. The single floor plan was obviously desirable, and since the two ladies live alone, there is an inside connection between garage and house. Another convenience is the coal access door in the garage which provides for dumping coal directly into the hopper below. Traditional in character, the house does not depend on any one style. The exterior walls and trim are of fir, painted white; roof and shutters are dark green.





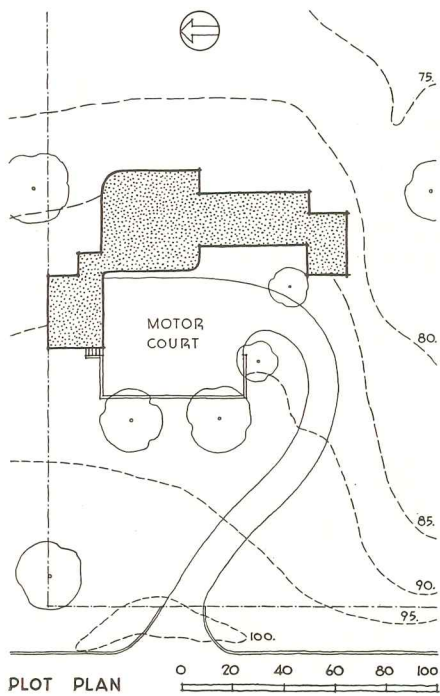
Above, left, is an exterior detail of the dining room and kitchen side; the garage is in the wing at right. The living room (right, top) has windows along the front wall, and a bay window opening onto the side street. The walls of this room and the dining room (right, bottom) are papered; trim is cream. The hall between living and dining rooms, and the breakfast room just beyond the dining room, are finished in natural pine. Floors are oak.



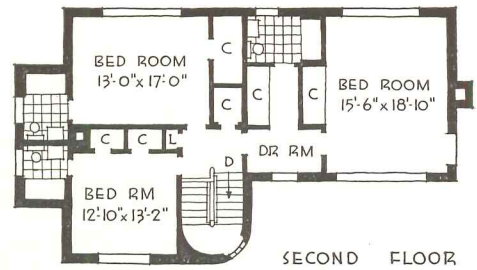


LOCATED TO EXPLOIT VIEW, CATCH SUMMER WINDS

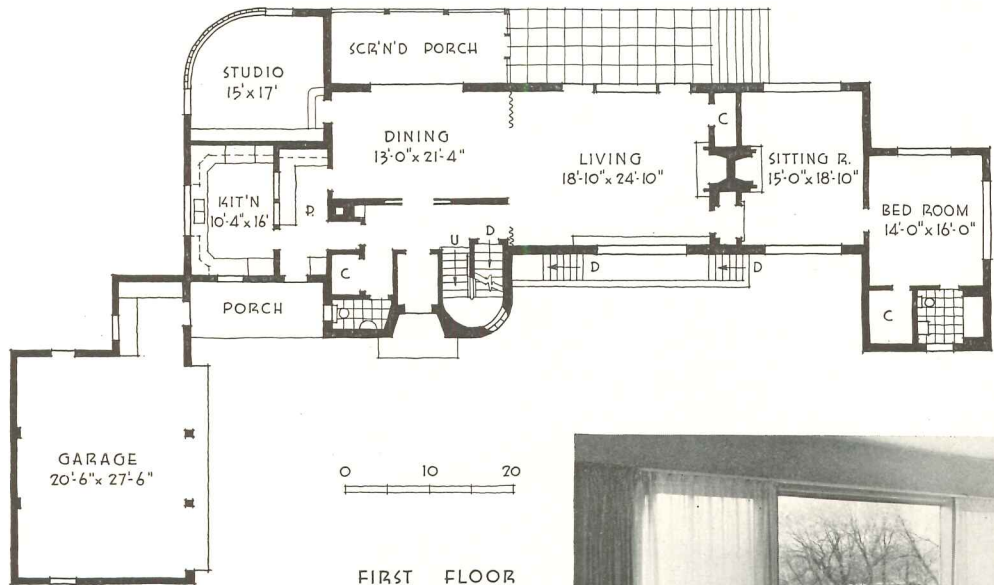
On a bluff high above the Mississippi River at Burlington, Iowa, is the residence of Mr. and Mrs. James S. Schramm, designed by the Chicago firm of HOLABIRD and ROOT, Architects. The site slopes gently for about 200 ft., then drops suddenly for about 100 ft. The view over the river is superb, and the house is planned and oriented to take advantage of it.



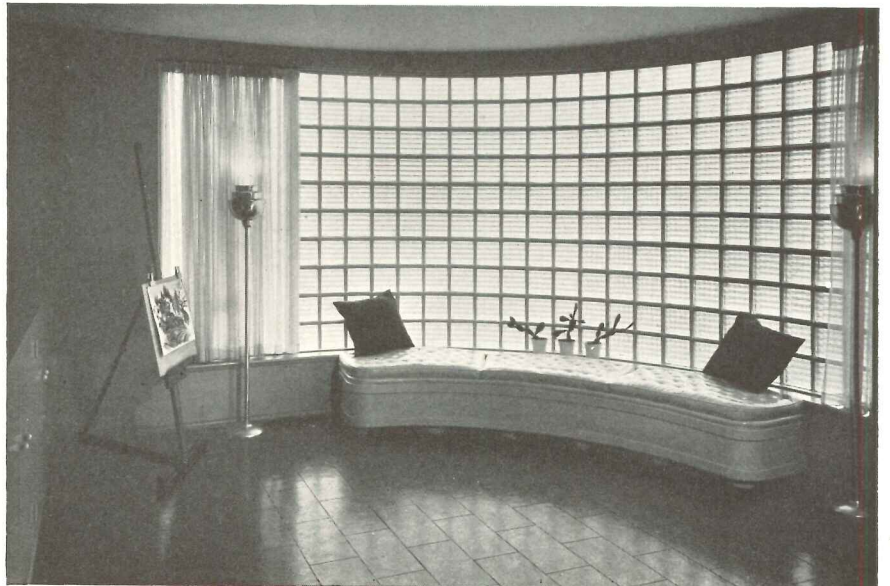
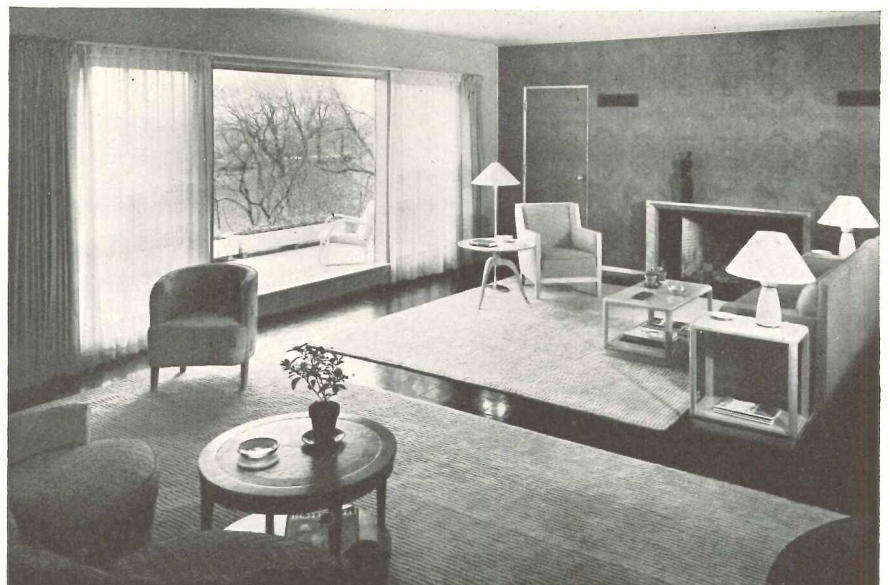
The rear elevation faces river, hence large windows, screen porch, and terrace.



SECOND FLOOR

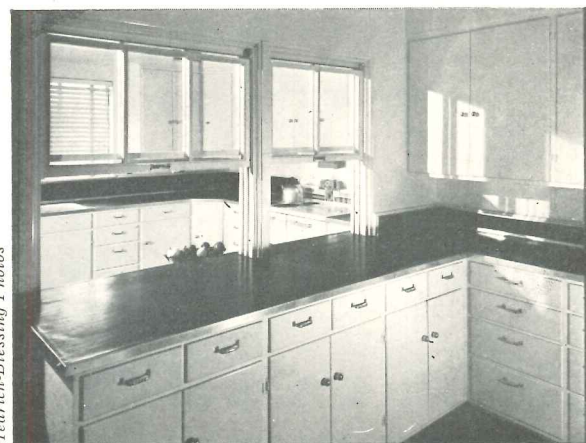
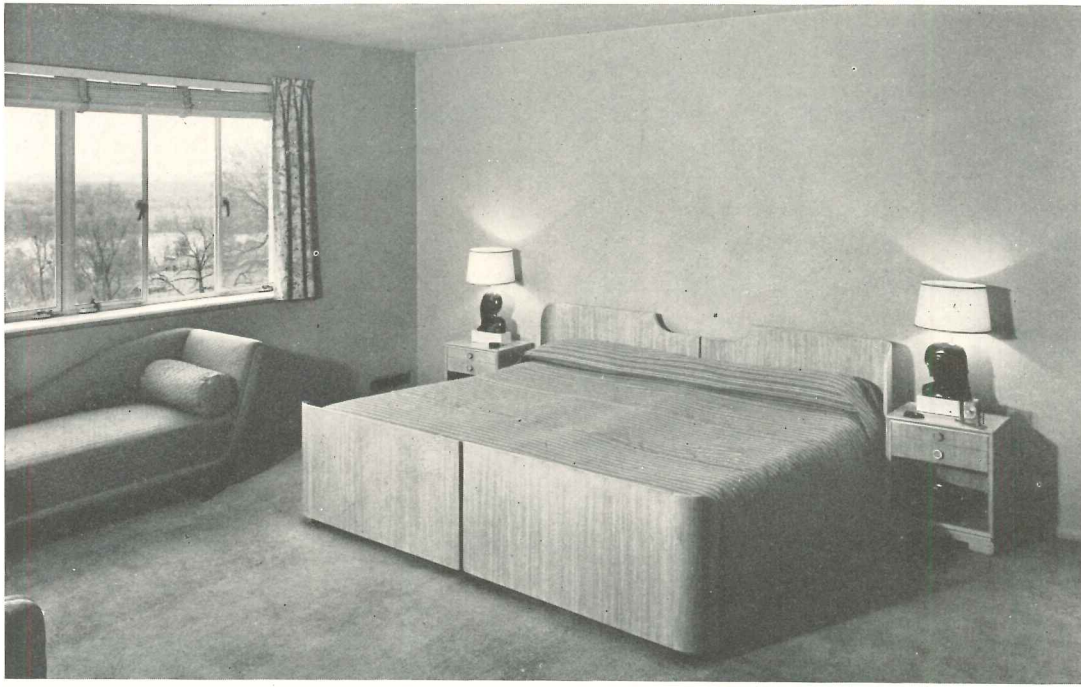


FIRST FLOOR



Living room (top) overlooks river; studio (bottom) faces to the northeast.

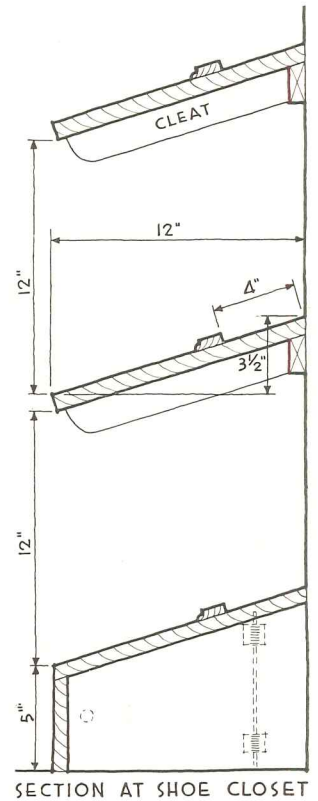
THE PROBLEM was to design a house for a family in which there are two small children, and to provide accommodations as well for an elderly couple in a separate part of the first floor. These special accommodations constitute a complete apartment with a private sitting room. Another requirement was the studio, appropriately located on the north and east sides of the house; flanking the glass-block panel are plate-glass casement windows which permit a view of the river. Summers are intensely hot in this locality and any breeze is exceedingly welcome. Advantage is taken of prevailing breezes in this case by elongating the house so that it spreads along the top of the hill. The structure of the house is brick veneer over wood frame; the exterior walls are whitewashed. Floors throughout are of asphalt tile, except in the bathrooms where ceramic tile was used. Sash are metal. Accordion doors make the dining room accessible to the porch.



Hedrich-Blessing Photos

The simplicity of the interior design provides a good background for the different furniture styles used. Top is the master bedroom, where furnishings are of modern design. In the dining room (center) the furniture is Chippendale. Note the windows between kitchen and pantry (bottom) for easy serving.

STORAGE

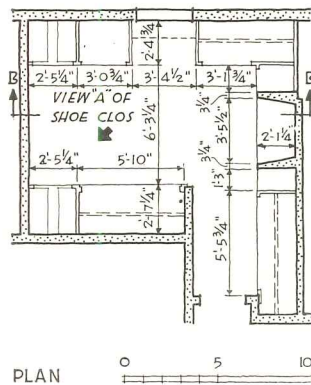


Daniel Reynolds Merrill

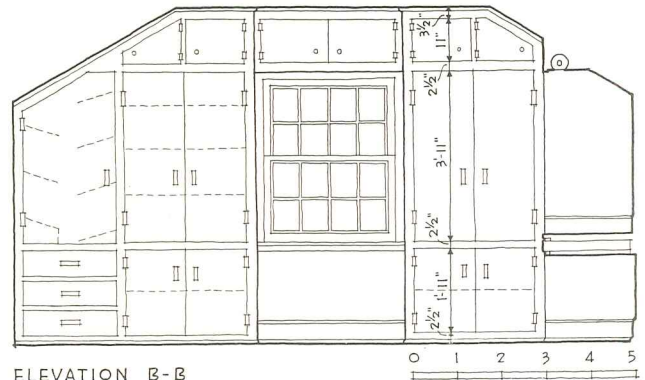
View A

1. HOOTON and TIMPSON, Architects

THIS SPECIAL CLOSET for shoe storage is part of a bank of clothes closets in a dressing room. Below are drawers, and to the left are full-length closets. On the opposite side of the room are cupboards of various sizes; all are built of birch frames, with 3/4-in. rabbeted birch-plywood doors and drawer fronts. These are stained and finished with a light varnish. At the right is a wall paneled in mirror. The hardware is brass.



PLAN



ELEVATION B-B

STORAGE

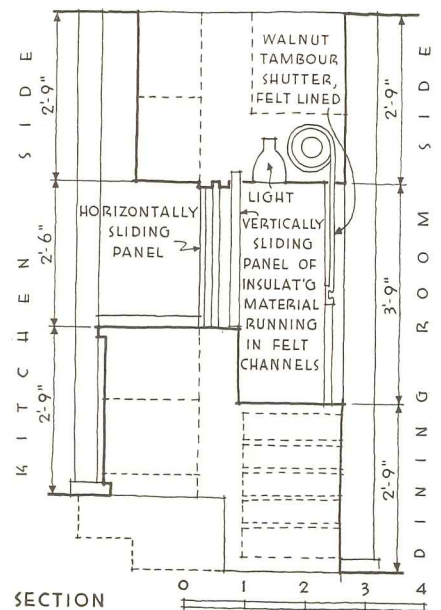
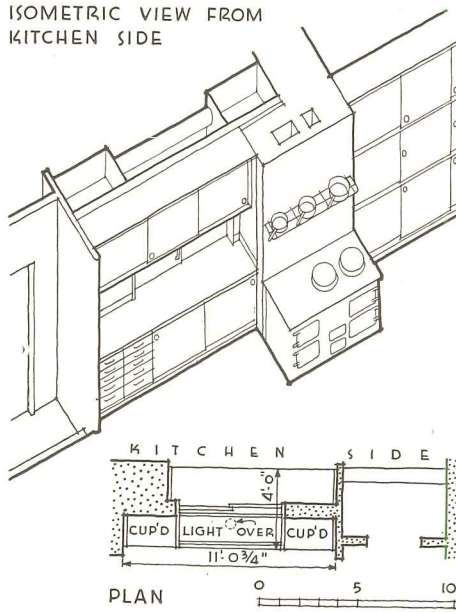


Dell and Wainwright

2. SERGE CHERMAYEFF, Architect

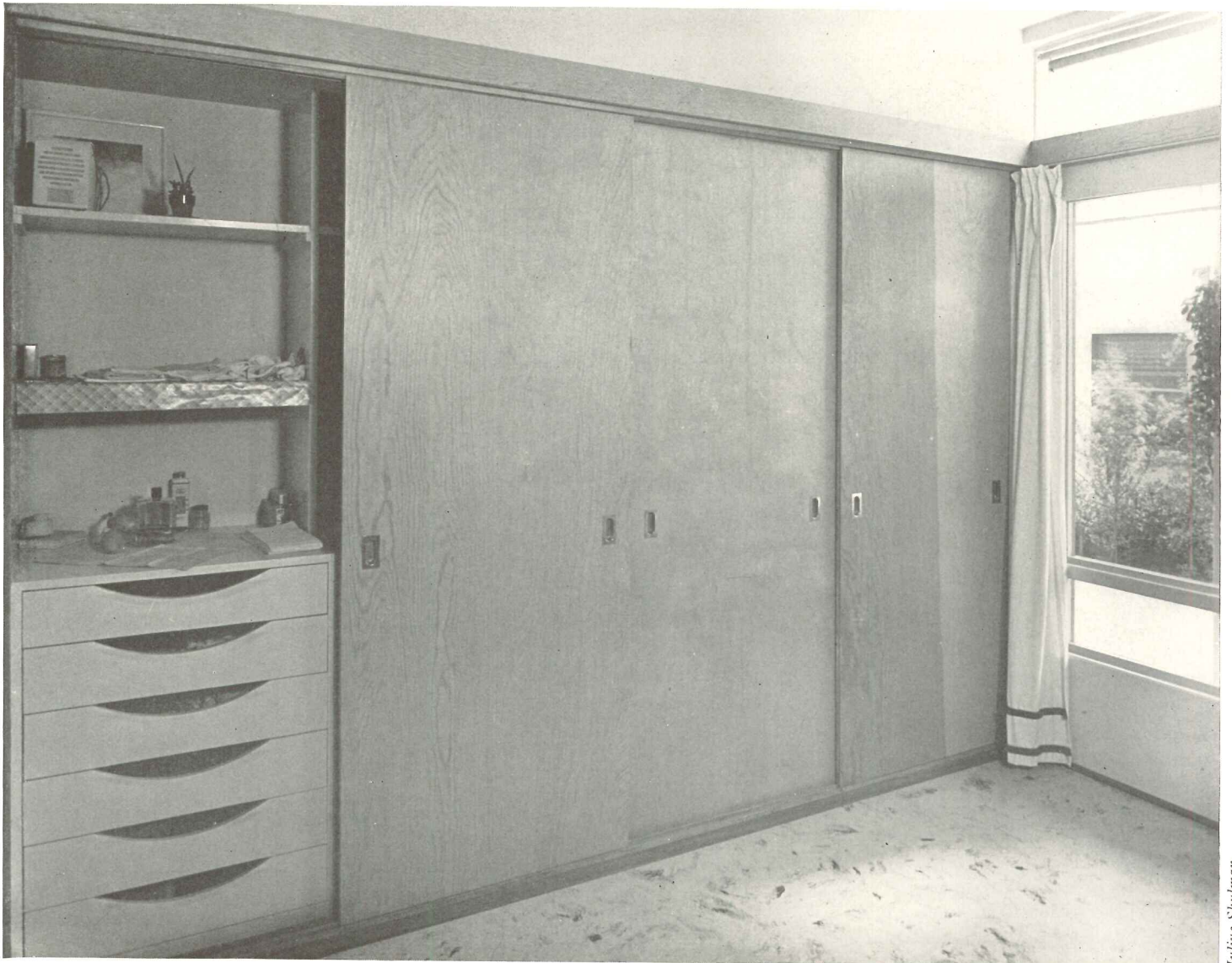
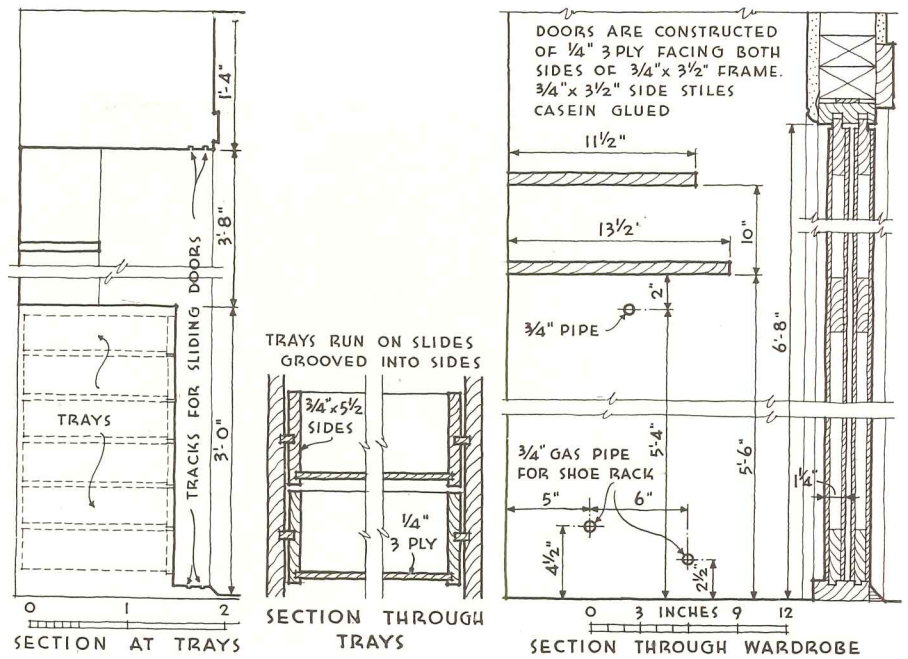
BUILT AROUND a central service space, this sideboard has cupboards for silver and china storage, and drawers for flat silver and linen. Connecting the dining room and adjacent kitchen is a service hatch in the center of the open space. On the kitchen side are ample provisions for storing all kinds of kitchen equipment as well as comestibles (see isometric). For protection against noise and cooking smells, the hatch is insulated and enclosed by horizontally and vertically sliding panels. A tambour shutter closes off the entire service space.

ISOMETRIC VIEW FROM KITCHEN SIDE



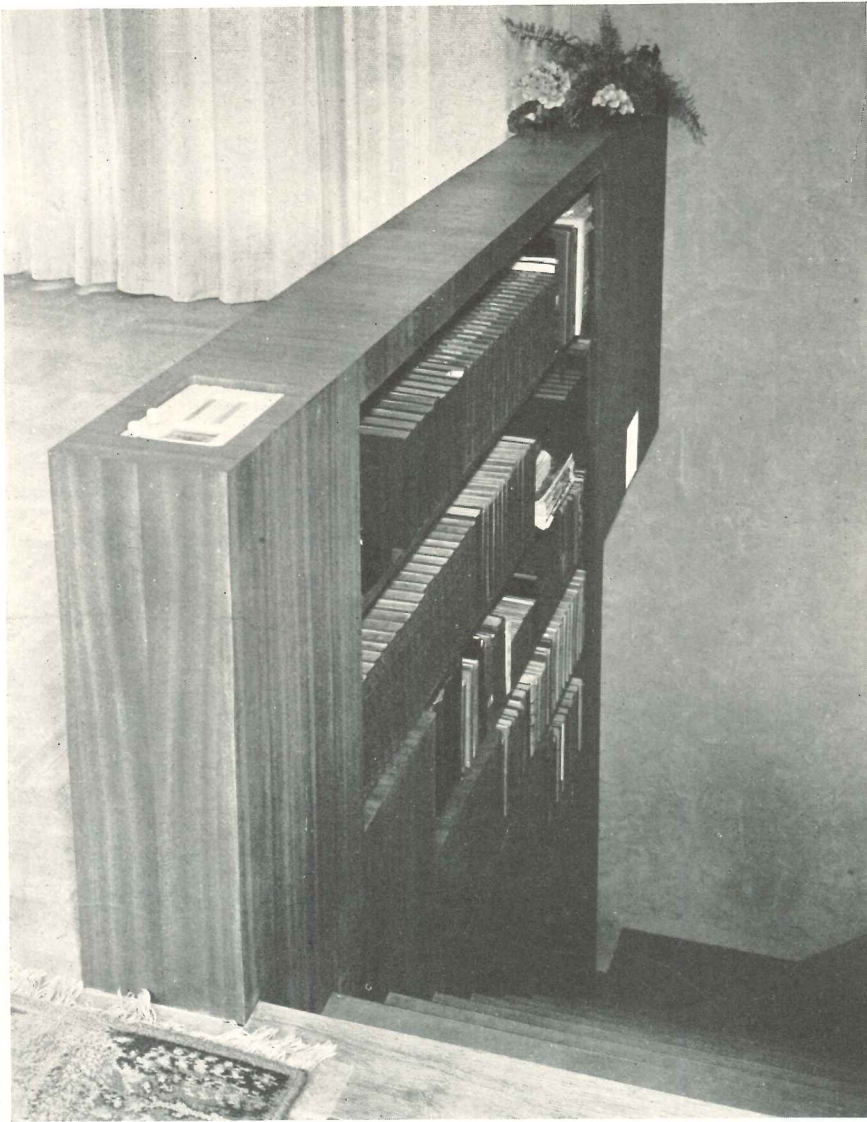
3. GREGORY AIN, Architect
VISSCHER BOYD, Associate

THREE OF THE FOUR sections of this built-in wardrobe are designed for hanging; the fourth combines drawers, dresser, and shelves. Sliding doors, of plywood panels glued to wood frames, enclose the entire unit. The trays are also of plywood and run on slides grooved into the sides.



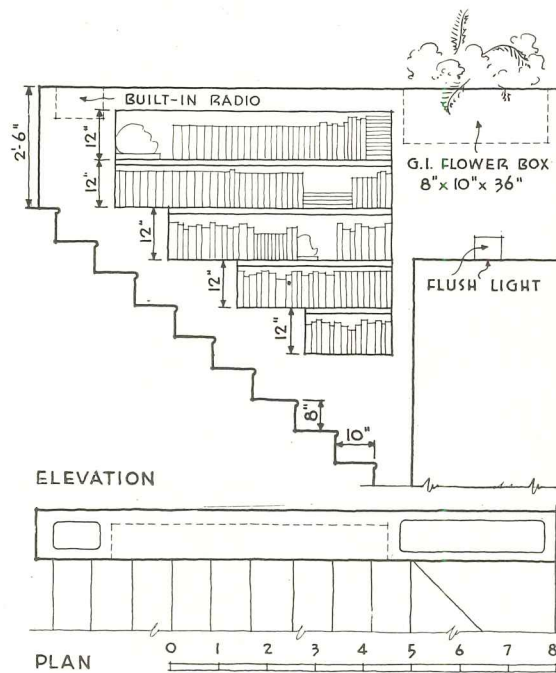
Julius Schulman

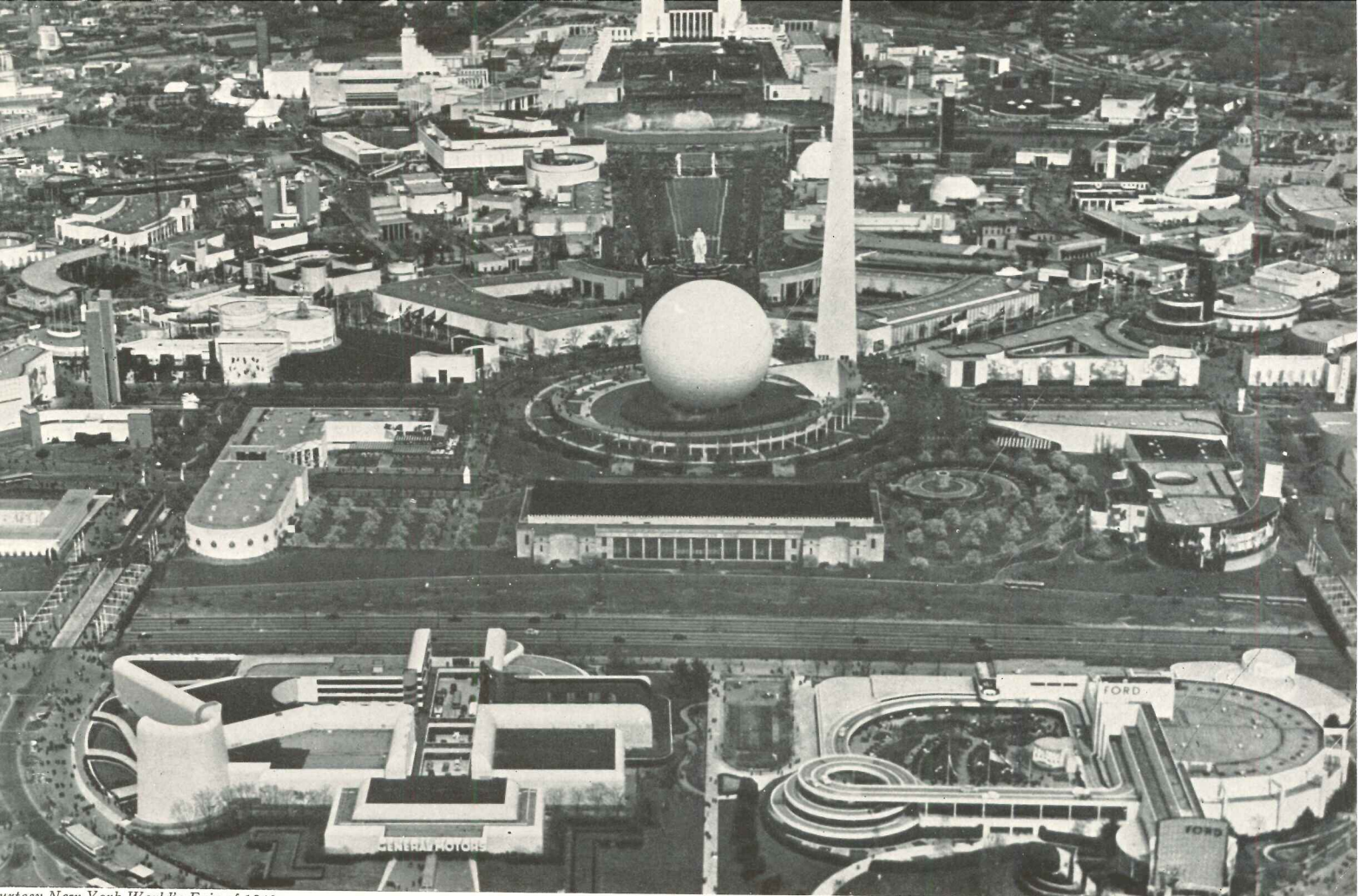
STORAGE



4. QUINCY HILL, Designer

BOOKSHELVES in the wall of this stairway not only make practical use of what would otherwise be lost space, but are of decorative interest as well. Shelves are arranged for easy accessibility from various points on the stairway. A flower box is built into one end of the parapet and at the other end is a recess containing a radio.





Courtesy New York World's Fair of 1940

TO-MORROW AND THE WORLD'S FAIR

by DOUGLAS HASKELL

The notes that follow are not an architectural criticism of the World's Fair. They are an inquiry into the Fair's "potential"—its possible contribution to our architecture in general in the future.

The two exhibitions, one in New York and one in San Francisco, seem to have played paradoxical roles. It was the West that produced the rounded and harmonious achievement; it was the East that played the pioneer.

Although New York's experimentalism sometimes went wide of producing a finished harmony, it did bring forth a wealth of new material. This new material, in the nature of guiding ideas, schemes, and attitudes, is the subject of these notes.

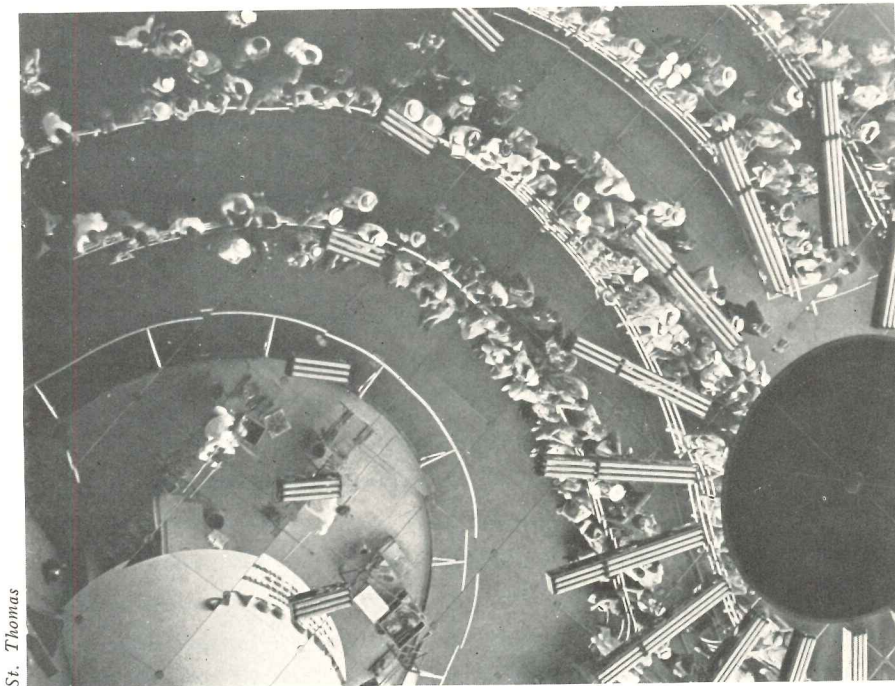
No attempt is made here to touch more than a few high points. The Fair supplies some remarkable instances of dramatization and even suggests a new point of departure in using the crowd itself as the chief dramatic source. The structures reached an entirely new degree of fluidity; they have greatly extended our possible vocabulary of shapes and spaces. Again, in the Fair the vogue for "controlled conditions" seems to have turned a corner, to have entered a new phase important to all concerned with such elements as illumination. The tests made upon new materials under operating conditions are worth separate treatment; but even a short survey can show that fine methods of correlation are demonstrated between the qualities of the newest materials and the beauties of Nature. And, finally, with its unconventional structures and its efforts at correlation, the Fair illuminates some of the problems of contemporary large-scale planning.

DRAMA AND

Courtesy New York World's Fair of 1940



"An influence toward democracy more powerful than many a columned public building." Above: The people themselves could well be the chief drama and decoration of a public architecture that learnt from such innovations as the Helicline. Below: The decorative pattern given to the crowd by curved guard rails is reflected in a huge mirror ceiling (Glass).



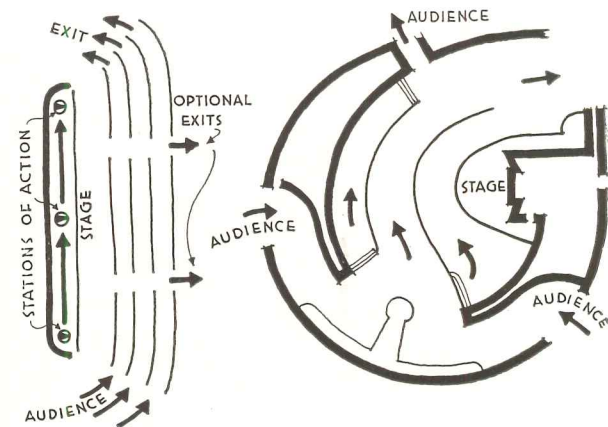
St. Thomas

LIKE A GREAT CITY the Fair set out to dramatize two things, the "sights" and the crowds; by far its most original and decisive innovation lay in what it did with the crowds.

This is not to say that the contribution to dramatization in display was not important too. Styles change greatly. In the 19th-century era of invention the mere presence of a Corliss engine or an Edison light was dramatic enough. Chicago in 1933 advanced the technique of the diorama, a kind of still stage set. New York reflects more recent influences: people are interested in *processes* rather than machines; the process has to be explained in terms of what it means to the average man (hence the "theme"); again, radio has set a precedent for the wide use of spoken drama.

New York's most typical contribution to current architectural types was made by developing what might be called the "ambulatory" stage and auditorium. In the basic type the process is carried step by step across the stage, and the crowd moves laterally with it but is supplied with optional exits along the way.

Numerous studies have already been published of such "flow lines." One kind that has still escaped attention is the glorified sidewalk show. In this the crowd is outside looking in. Especially clever where the product is sanitary (Swift sausages, Borden milking), and with the added advantage of giving



The Fair's most typical contribution to modern architecture: the "ambulatory" stage and auditorium. At left, above, diagram for moving action on stage and moving crowd, adapted from Firestone. Crowd has optional exits. Such plans were often bent into horse-shoes. Danger: faulty acoustics. At right, a fixed stage around which the moving crowd flows in tiers (Glass).

CROWDS—direct sources of and materials for design

complete control over sound and smell, this technique has great possibilities for routine use both by merchants in future stores somewhat withdrawn from the street, and by manufacturers. With the second season, incidentally, the Fair moved several displays out of doors. RCA even moved its telecasting equipment outside as a lure for indoor reception. But the out-of-doors was tough on comedians!

Yet the greatest discovery in New York was the discovery of the crowd, both as actor and as decoration of great power. The designers found out that the crowd's greatest pleasure is in the crowd.

The most consummate use of this fact was made by the Telephone Company in those long-distance calls, by everybody out of the crowd, listened to with avid pleasure by the rest. Perhaps no other display on the grounds made a service or product seem so immediate and so human. The sight of the crowd was an integral part of the effect and was managed by the use of a large balcony. Elsewhere, too, the crowd's self-interest was stimulated by splitting audiences into several levels (Westinghouse and France). The auditorium of Glass was dropped a few feet below sidewalk height to give a glimpse of the listening crowd through a window from the outside. In this and other instances the crowd took on a positive

decorative pattern behind the recurrent curved guard rails.

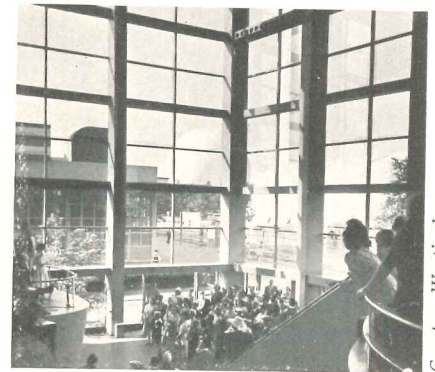
At General Motors the crowd was decoratively the making of the building, giving life, brilliant color, and motion to the snaked ramps against the blank cliff-like wall. The curiosity-arousing technique was, however, the opposite of that just described. Nothing of the inside was shown ahead of time; mysteriously the crowd moved into the blank "future" through a deep narrow cleft; the conception was one of immense power.

Of course mirrors entertained the crowd; and mirrors were handled with fresh brilliance. Thus the great success of the huge overhead mirror in Glass was followed by the *slanted* overhead mirror in America at Home. This second mirror was really intended (AR, 6/40, p. 93) to reflect a floor plan; but what the crowd looked for was itself.

What of applications?

In recent literature much has been made of the way in which the medieval town squares were planned so as to be at their best during those processions when all the ordinary citizens, actors for the day, created their own drama and most beautiful spectacle. Such opportunities still occur daily, unnoticed except by dictators, who have their own spectacular uses to make of crowds. Yet in democratic architecture *par ex-*

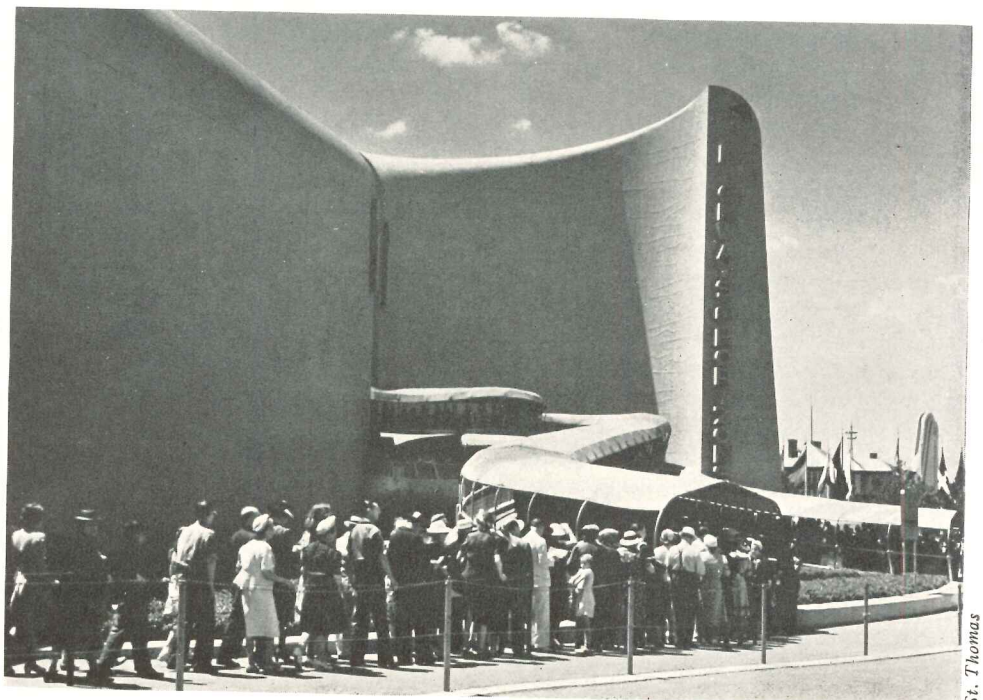
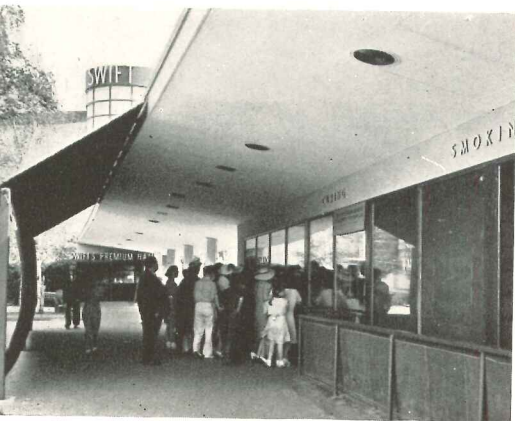
cellence the opportunity exists wherever crowds congregate in places made by architects. Even in public architecture, a large open place of assembly, with people at many levels, the crowd entertaining itself by watching the parts where it moves and the parts where it collects, a crowd held always loose and fluid and not in the rigid platoons of the dictators—such a place could exert an influence toward democracy more powerful than many a columned and porticoed public building. Was not the finest element in the World's Fair "theme center" the "helipline," with that long line of *people* held confidently against the sky?



Courtesy Westinghouse

A shrewd use of the crowd itself as decorative element (Westinghouse)

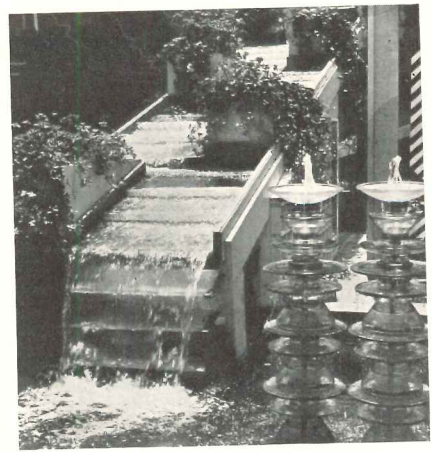
At General Motors (right) the procession of people was the decoration, the action, and the drama; the great curved walls, setting for the mystery. Below: Merchants could well adapt this enclosed-island type of sublimated sidewalk show; crowd outside looking in (Swift).



St. Thomas



Photos by St. Thomas



The newest in steel is enhanced by the old beauty of trees (left). In its second season, the glass-and-steel staircase of the Glass exhibit, above, was turned into a charming cascade, rippling over glass baffles, with flowers and lights to complete the magic.

“CONTROLLED CONDITIONS”—a broader, less mechanistic definition

UNDER THIS AND OTHER similar slogans the architects of this Fair went further than architects had ever gone before in the direction of taking care of the visitor's every requirement, actual or fancied, not to mention his guidance.

The notion of architecture as environmental control represents a great advance over older concepts built around the mere enclosing of space. Yet within this new notion the Fair seems to mark a certain turning point. Like beginning riders, the early enthusiasts have often tried to do the work of the horse. With growing experience they are beginning, instead, to move with him.

The question of lighting gives an excellent example. In the interest of “control” the first idea was to shut out all sunlight with solid walls and then put electricity to its wondrous work. Unhappily the walls made too many exteriors look like gigantic shoe boxes and the insides seemed like dark caves punctuated with hard, monotonously steady or monotonously changing spots.

More thoughtful designers seem to have learned that although “natural” sunlight cannot be so fully controlled, its very changeableness and unpredictability is a blessing to mankind. Making use of it comes under the heading

of “working with conditions instead of against them.” With the second season an increasing number of designers seemed to have capitalized natural light and shade indoors and out.

Interestingly, some of the best performances combining electric light and daylight are found in the exhibits of some of the big electrical companies themselves. The Westinghouse exhibit in particular is a splendid study in a rich range of light modulation. No structure at the Fair makes more cheerful use of bright daylight than Westinghouse in its twin big halls; but this is not all. A walk around the building at either level carries the visitor through a subtle progression of light and dark, so modulated to a purpose that only a professional observer is aware of the subtleties. Moreover, these changes correlate with alternations of glass and solid screen in the exterior which give the building its lively architectural character. (See diagram, facing page.)

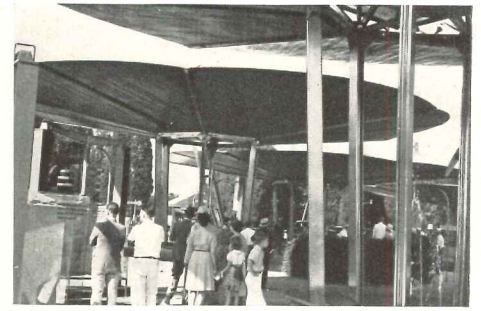
Paralleling the control indoors the Fair designers set up an unprecedented range of devices for shade outdoors. Apart from the shade trees there were: the close thicket of pines (Telephone); the various isolated shelters such as cloth umbrellas; an outdoor shelter like

an overhead table (Children's World); large stainless steel shelters in novel mushroom form (Budd); discs cantilevered from posts; then the many awnings, usually canvas (Aviation, Sweden), sometimes shredded for a change (Fair Corporation bridges), steel awning suspended under novel steel posts and arms (U. S. Steel), the vertical shades in the form of spur walls (Brazil) or trellises, including the curious cellular “sun breaker,” adapted in the Brazil pavilion from Le Corbusier; shade provided by various editions of the porch—deeply recessed entrances (Steel), the open porch large enough for birch trees to grow under (Coca Cola), shelter under overhead passages, or stilted building blocks.

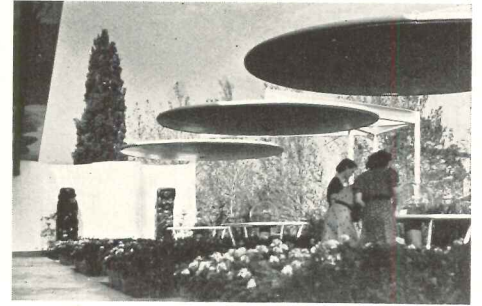
It is worth noting, also, that even where the greatest dependence has been placed on straight artificial theater illumination, as in the Futurama, daylight played a subtle part at the start and finish: the sudden entrance into the pitch-black, eye-dilating hall at the start, the gradual brightening at the end, and the effect of seeing the final model of the sequence repeated full-size and true to Nature in daylight, an effect with great influence in making the drama seem “real.”



Fair's version of Nature's pine thicket—new and old, formal yet easy (Telephone)

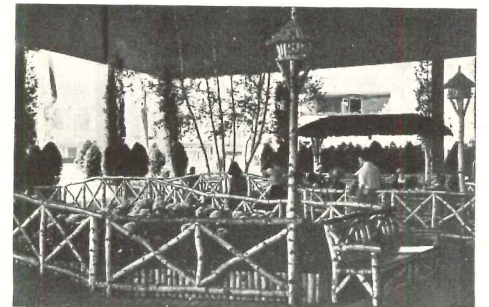


Protection without oppression (Budd)



Sophisticated and effective (Venezuela)

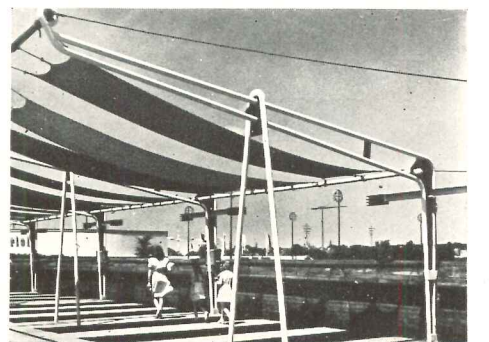
SHADE—by architect, not illuminating engineer



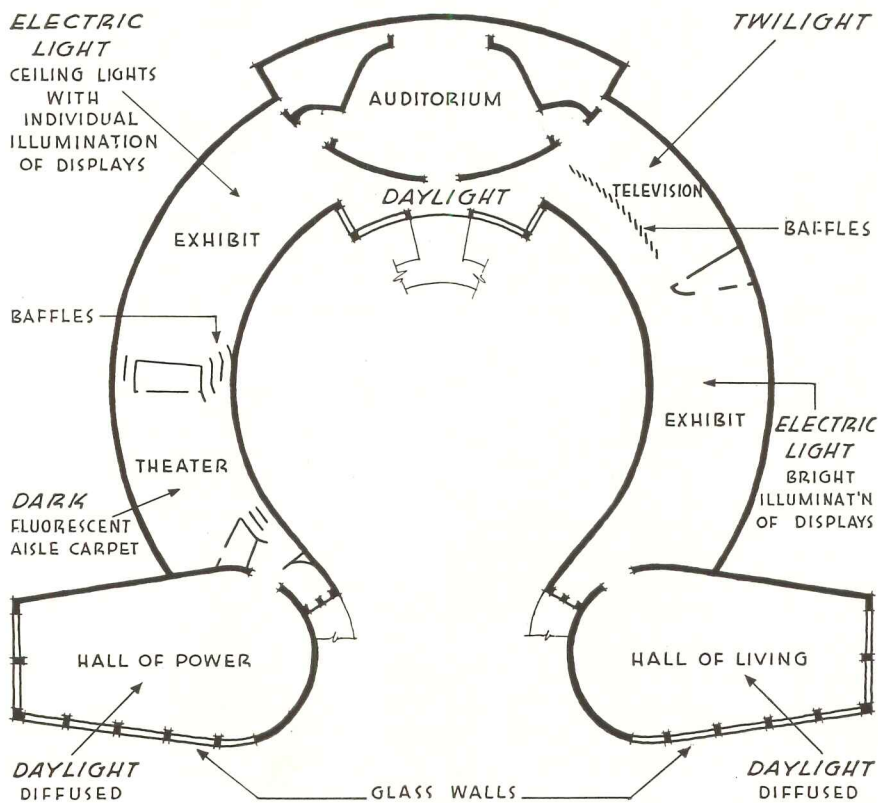
The old-fashioned porch (Coca Cola)



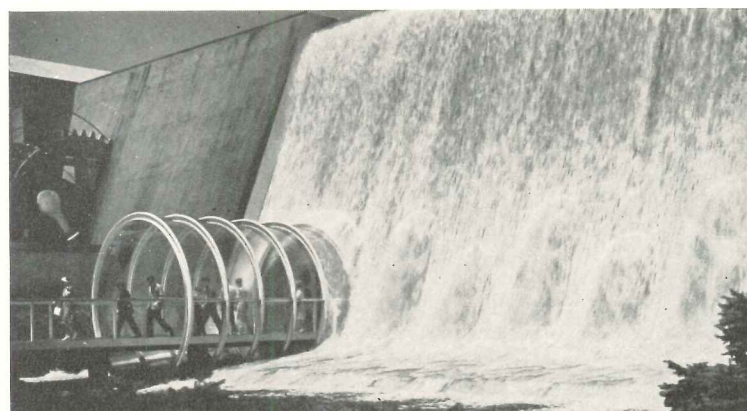
Triple gradation of shade (U. S. Steel)



Awning stops sun, lets in the breeze.



In contradistinction to use of purely artificial illumination, Westinghouse makes a brilliant use of natural and artificial light in a wide variety of intensities.



Photos by St. Thomas

WATER The increasing imagination and confidence with which water has been used as an integral part of building design represents a spectacular advance over previous expositions. In addition to the fountains in the Lagoon of Nations, there are many interesting applications: the wall of vertical jets in Consolidated Edison (top); the waterfall in Associated Utilities (bottom, right); the cascade in the Italian Pavilion (bottom, left); and the reflecting pool in Chrysler's entrance (right, center).

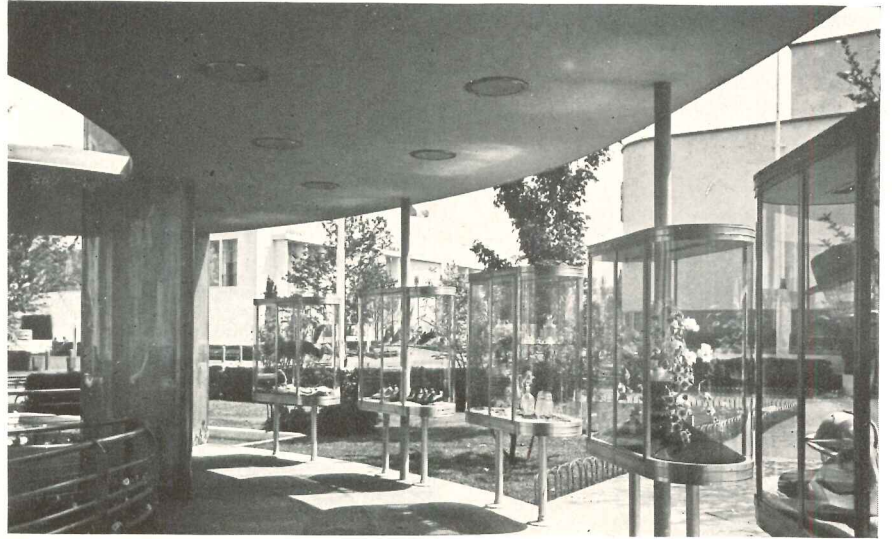
Not even BUILDINGS!

"THEY ARE NOT even buildings" remarked many a visitor of the odd curvaceous shapes, and so dismissed them from serious consideration as architecture.

Yet architecture today already embraces many shapes that are "not buildings"—all the functional ones of dams, bridges, orchestra shells, and what not else. Apparently the same freedom that has been accorded to "function" is now to be extended to the services of dramatization.

Of course, the less said about some of the literal-minded mimicries at the Fair, the better. Among these, only Ireland's shamrock was a success, perhaps because on the ground it did not look like a shamrock. The mere mimicries are a real danger to the American landscape in view of what they may encourage in the way of bizarre roadside creations.

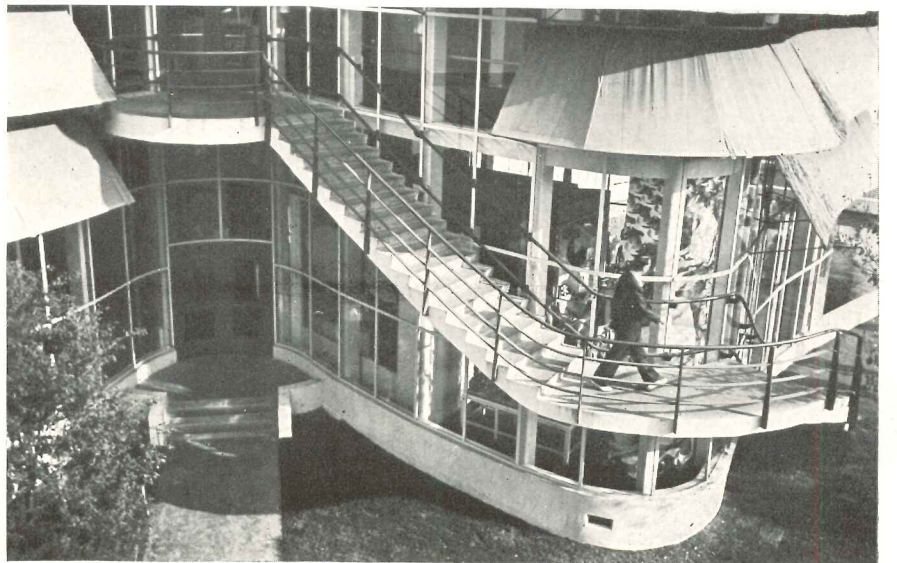
Yet, democratic fashion, we have to tolerate the sinner in order to preserve the saint. Along with the mimicries, the carnival freedom of the Fair produced the most stunning creations. Tastes vary, and some may have been struck by the great open double grandstand of France, while others were ecstatic over the strange power of the streamlined complex of General Motors, so like some vast carburetor, sucking in the crowd by fascination into its feeding tubes, carrying the people through the prescribed route, and finally whirling them out, at the very center of the display, so they might drift outward in free dispersion. But whether found in the quiet charming courtyard of Sweden, or in the magnificently stately and quiet hall of Belgium, or the spectacular oppositions of Venezuela, the variety of space and spaciousness at the Fair was unprecedented in scope in America.



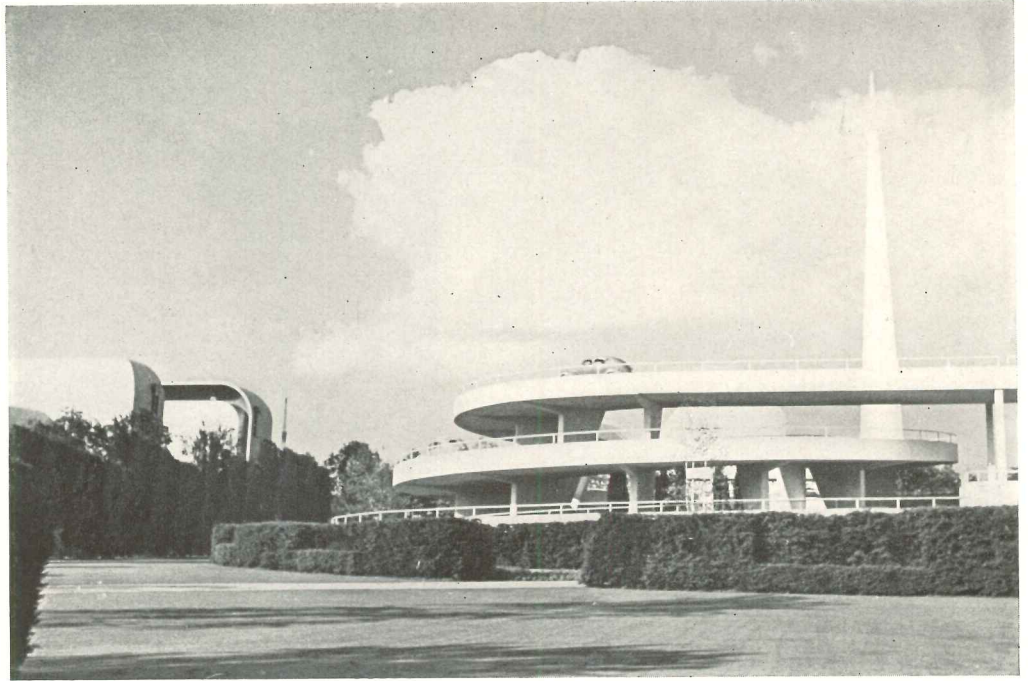
Brazil: Open planning actually destroys line between inside and outside.



France: A semienclosed "grandstand" forms the pivot for the entire plan.



Ireland: A "symbolic" shamrock plan offers surprisingly pleasant elevations.



Even fluid forms "not like buildings" can be made to harmonize. If the harmony is to be more than merely accidental, uncontrolled, and hence unarchitectural, any one "place" seen by the eye must be strictly supervised by a single leader (General Motors and Ford).

Nuclear ZONING

THE IDEA of a "theme" caused the Fair long birth pangs but the result was worth it. In effect what the theme did was to compel every exhibitor not only to show what he was doing but why, in terms of basic needs.

The exact classification which was adopted of mankind's basic needs is less important to us than the fact that such a classification brought functional coherence into the plan. Each need was given its zone. And the zone center was tentatively marked with a "focal exhibit" (top right).

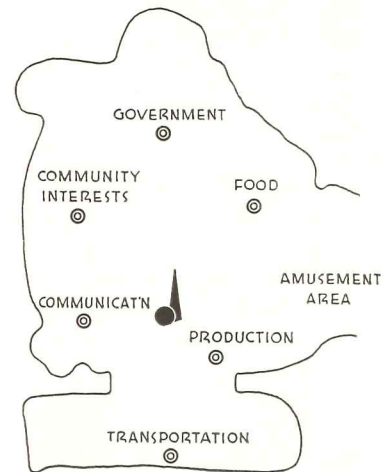
The procedure is of interest because there are parallel problems in the laying out of new towns that will be needed for our defense and other industry. A town, too, has its characteristic functional zones. Like the Fair, a town cannot tell in advance precisely how large any one such zone will grow to be. Hence the wisdom of spotting a minimal nucleus around which the area in question can then expand or contract. The Fair's final zone shapes became irregular (bottom, right).

It is here that the experience of the

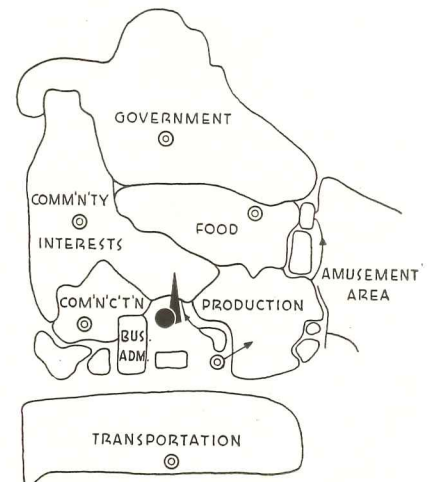
Fair begins to have somewhat negative value. A formalistic street plan interfered with the free and flexible growth of zone areas, and also deprived them of the chance to be isolated by means of a surrounding cushion of green.

Towns badly need coherence and it seems advisable that the cushioning parks or open areas be maintained at all costs. For the sake of coherence in any one functional area of a big plan it also appears necessary, on the basis of the Fair's results, to put under one man's leadership the control over everything that the eye conceives as "one place." Especially where individual buildings are free, vigorous, and individual, there is need for special attention to problems of dominance, continuity, order.

At the Fair such areas of unity as did exist seemed to have shaped themselves more or less by accident; and yet the handsome effect of such areas as the one around the Circle of Light or the one immediately adjoining General Motors and Ford shows how well a picture can be composed even out of structures that are "not buildings"!

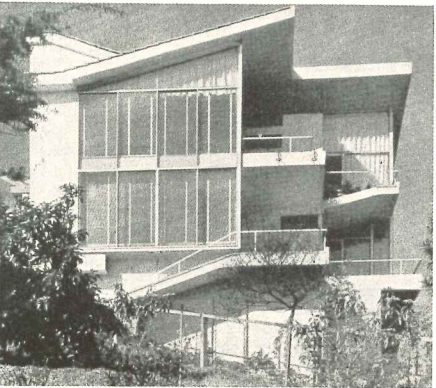
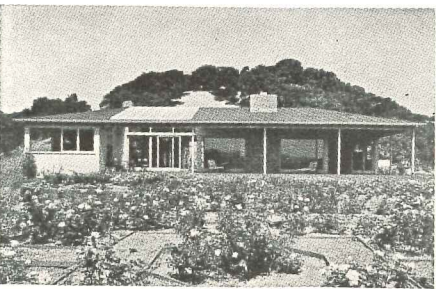
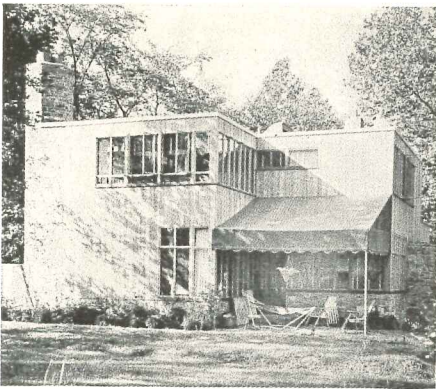
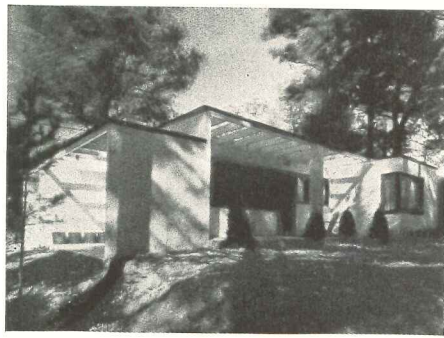


As planned



As developed

REVIEWS OF CURRENT BOOKS



HOUSES FOR GOOD LIVING, by Royal Barry Wills. Architectural Book Publishing Co., N. Y. C., 1940. 104 pp., 9 by 12 $\frac{1}{4}$ in.; 102 illustrations; plans. Price, \$4.00.

THE MODERN HOUSE IN AMERICA, by James Ford and Katherine Morrow Ford. Architectural Book Publishing Co., N. Y. C., 1940. 134 pp., 8 $\frac{1}{2}$ by 11 in.; 193 illustrations; drawings, plans. Price, \$5.00.

MR. WILLS' BOOK, illustrated exclusively with houses from his own office, is a genial dissertation on the elements that contribute toward the design and construction of a successful house.

The first part of the volume consists of a series of chapters on needs, styles, budgeting, saving money, and the value of the architect's services. The many elements discussed, written by Mr. Wills in just such an informal vein as he might use in talking things over with a client, would serve as a helpful check list and set of cautions for any potential home owner, and any house architect will find it a refreshing review of many typical problems of practice.

The photographs are handsomely presented at a gratifyingly large scale. Most of the houses are the charming contemporary translations of Colonial and early American for which Mr. Wills is justly famous. Also included, however, are a few of the successful modern houses on the design and planning of which Hugh Stubbins, Jr., collaborated with the architect.

The Modern House in America is a notable interpretation of the modernist's thesis and a comprehensive collection of houses in the United States that were designed on the basis of "functional serviceability" without reference to any academic documentation. Noting that an increasing number of such challenging modern houses is appearing from coast to coast—particularly in the region of large population centers—Professor and Mrs. Ford include representatives from every region—from Maine to California, from Florida to Oregon. The brief text follows the thread of revolt which occurred and is occurring against the self-imposed restraints of traditional form. It defines the goal of the modern house designer as planning

based on the organic life of the family to be housed and making logical use of the products of invention. Decrying the term "machine for living," they argue that a successful modern house rather utilizes machine products "to ease, facilitate, and even inspire each process of daily living for each member of the family."

In the presentation of houses and plans, ranging in cost from \$2,000 to \$150,000, each is accompanied by a statement of family composition, and requirements, site, construction, exterior and interior finishes, cost, and any noteworthy special features.

The two books are really not comparable in many important respects. Each is a notable publication in its particular field. But it is interesting to observe that both Mr. Wills and the Fords argue with much the same sort of logic and thinking in indicating the proper approach to the planning of a successful house. Both note the influence of new materials. Both contend that careful study of the family to be housed and its way of life, the site and its advantages, are fundamental to any design approach. Both pay tribute to the "form follows function" theory.

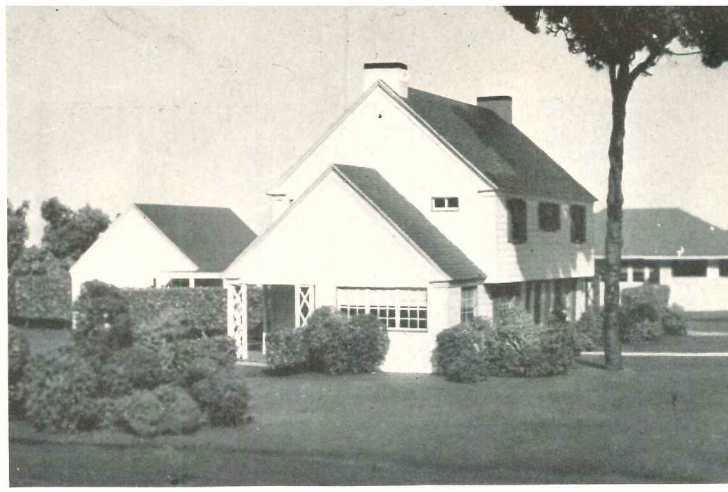
It seems to this reviewer that the dividing of the ways is at the point where sentiment enters the picture. The Fords see the needs and operations of a family as definable and analyzable, and, in this purely rational approach, find no justification for the emergence of a sentimental or traditional aspect. Mr. Wills, on the other hand, would probably retort: "Yes, I agree with you up to the point of as complete a family-need analysis as possible. But people being what they are (and architects being what they are), they do have sentimental associations (some of them do, anyway) and they feel reinforced and happier—more at home, if you will—in a home of traditional mien, even though it may not stand up in the light of pure reason. To some people, at any rate, it is a psychological desideratum at this time."

As proof, however, that Mr. Wills is no protagonist for "style," as such, are the few thoroughly modern houses that

(Continued on page 122)

From "Houses For Good Living"

From "The Modern House in America"



NEW STRUCTURAL SYSTEM EMPLOYS NO NAILS

After a 10-year development by Architects HARVEY WILEY CORBETT and HENRY HASENBURGER, the PHC Housing Corporation's system has gone into mass production as a series of standard units adaptable to a wide variety of low-cost house designs.

LAST MONTH the reopening of a wood-working plant in Jackson, Miss., by the PHC Housing Corporation marked a climax in the 10-year development of a noteworthy and unique system of house construction. Designed and engineered in every detail for industrial mass production, the system combined light-gauge steel stampings of various types with plywood and sections of machine-cut, kiln-dried lumber in a series of standardized structural units that can be adapted to the construction of single or multistory dwellings and small commercial structures. Units are quickly assembled in the field with a small amount of labor and can as easily be disassembled and re-erected with nearly complete salvageability of all parts.

This system differs from other methods of prefabrication in that it does not employ panels of standardized dimensions as the basic unit of design and structure. Essentially it is a beam-joist-and-stud system of an improved type, erected on a modular grid of 20 in. This feature permits development of a wide variety of standard and special designs; and, in addition, allows for the alteration or expansion of a building with a minimum of effort and time.

This last is emphasized as a particularly noteworthy characteristic of the construction and is made practical by the fact that no nails are used in the entire assembly. Structural units are

erected and secured by an ingenious and simple system of bolts, angle-braces, and wedge-locks; exterior enclosing units—an integral combination of insulation and finish—are hooked to one another and to the studs and secured near the roof plate; and interior surfacing—panels of various types and materials—are fastened to studs and joists with a series of concealed clips.

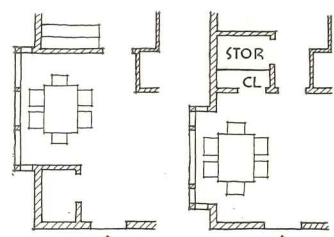
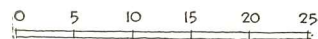
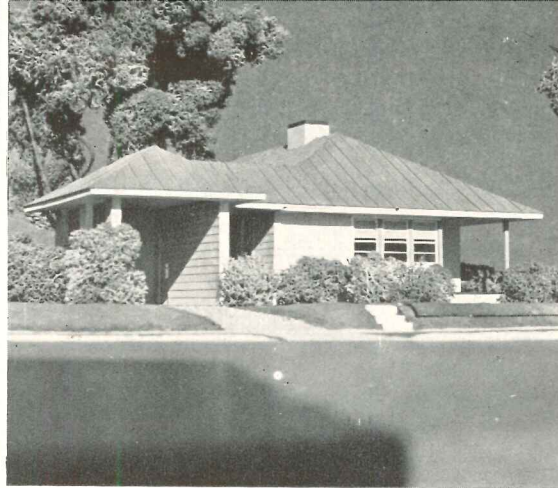
As suggested by the pictures at the top of these pages, the PHC structural system can be employed in the development of almost any type of architectural design. It is particularly adapted to the progressive construction of "expansible houses" which, as indicated in the accompanying plans, can start with inexpensive essentials and can grow with additions as the need arises. Characteristics of the system make it possible, according to Corporation spokesmen, to remove a large section of wall and attach an additional room, completely finished and ready for occupancy, in less than five hours.

The Jackson factory has gone into production to fill its first big order of small house "assemblies" which represent the collaborative efforts of the three individuals who head the PHC Housing Corporation. They are Ernest W. Pavey, former automobile executive and Midwest realty operator; Henry Hasenburger, Austrian-born engineer and architect; and Harvey Wiley Corbett,

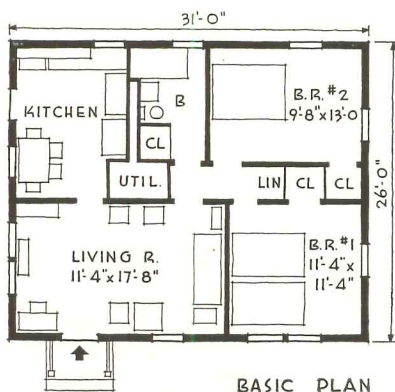
architect, author, and long an outspoken advocate of prefabricated houses.

The Corporation was formed in 1933—though its organizers had started development of their structural system some four years previously. Since its formation it has made haste slowly, experimented constantly with improvements to a basic structural idea, has avoided publicity, researched materials and studied factory production methods, has surveyed market possibilities, and has erected, torn down, and rebuilt houses until experience has proved the workability of its operating scheme.

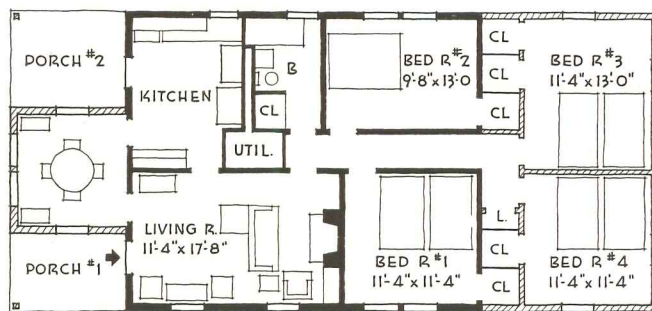
This scheme is fundamentally a simple one. It is based upon the idea that the collaborative efforts of architects and engineers on design; automotive executives on factory production; specialists in plumbing, heating, and lighting, and experts in the field of merchandising and sales promotion can not only make available a series of standardized, low-cost houses on a mass-production basis, but can also produce standardized units of a structural system which will permit development of individual dwelling designs. Furthermore, PHC Housing Corporation's activities reflect the conviction of its officers that such standardized houses and structural assemblies can be manufactured and distributed throughout the country in such a way that their application to a broad range of housing problems will prove feasible



DINING ALCOVE DINING BAY



BASIC PLAN

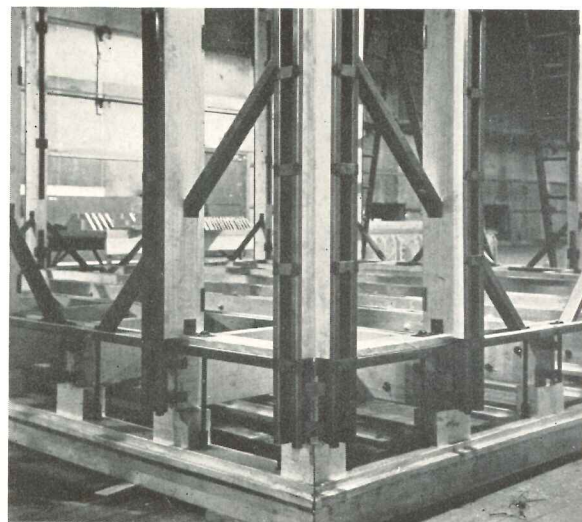


BASIC PLAN (BLACK) SHOWING POSSIBLE ADDITIONS (HATCHED)

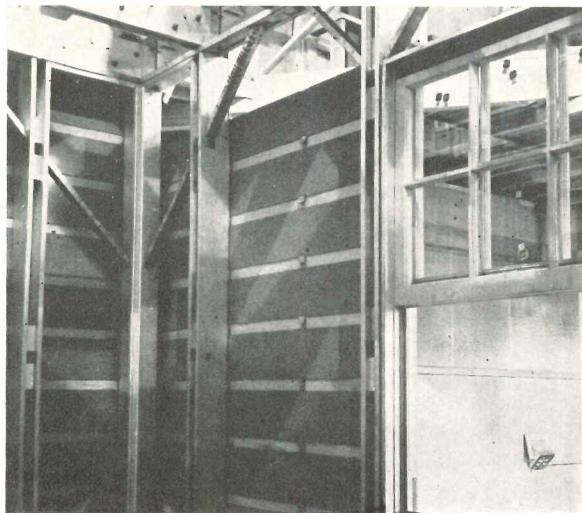
under a wide variety of economic and technical circumstances.

Houses produced as standardized designs are in the true sense of the word "prefabricated," and their field erection becomes merely an assembly operation with cutting and fitting eliminated. Every portion of them, from foundation to finish, is either fabricated at a mill or provided for in the mill's production facilities. This includes closets and cabinets manufactured as standardized parts, the heating unit and fireplace, the electrical equipment, plumbing connections, and all bathroom and kitchen units. These last are placed back-to-back in most instances and utilize a common system of supply tubing and drain pipes, thus producing an integrated mechanical core. Assembled on a factory line, sanitary equipment arrives on the job as a single unit and is quickly fastened into place.

Prices of these standardized models range from about \$750 for a 1-room enclosure with no mechanical equipment to a 5-room, fully equipped house for about \$3,000. As concerns costs of using the PHC structural assemblies for development of individual designs, the company estimates that savings over current types of construction will run between 15 and 25%, depending partly on the size and complexity of the design and partly upon the location relative to a manufacturing plant.



Above: Exterior corner of a typical PHC house. Thin-gauge steel stampings are used as stud facings, for angle braces, and as one means of securing floor joists to studs. Studs and joists are centered on a 20-in. module. Right: Interior corner showing how studs are braced to plate. Windows, of a special type that provides 100% ventilation when desired, are installed as a complete assembly including frames and sash. Siding combined with insulation hooks onto studs.



NEW FHA PROGRAM SPURS MODERNIZATION

Revised appraisal methods, 80% mortgage insurance adapted to large-scale rehabilitation of rental dwellings

WITH AN EYE TOWARD stimulating insured modernization loans, which now add up to an impressive \$1,100,000,000, the Federal Housing Administration has released a campaign designed to increase Fall business.

It concerns a new program for the rehabilitation of rental dwellings. Operated by FHA's Rental Housing Division, under authority of Section 207 of the National Housing Act, it provides for mortgage insurance up to 80% of the value of the property after the proposed improvements are completed.

Basic feature of this lending activity is a new method of appraisal. Taken into consideration is the aggregate of the Administrator's estimates of (a) the cost of the modernization work, (b) fair market price of the property before the contemplated improvements, and (c) carrying charges and incidental expenses during reconstruction.

This means that an estimate of the amount of the mortgage available on

any rehabilitation project can take into account the salvage value of the buildings used as part of the rehabilitation. For example, the mortgage on a hypothetical project would be:

- (a) The market value of the property "as is": assume \$8,000.
- (b) The rehabilitation cost: assume \$31,500.
- (c) The carrying charges and incidental expenses: assume \$1,500.
- (d) Total assumed value after completion of the project, \$41,000.

The mortgage, then, would be 80% of this figure, or \$32,800.

Most important of the limitations put upon this FHA plan are that no project of less than 16 dwelling units will be accepted, and each project must effect substantial advance in the housing standards and conditions of the neighborhood; the cost of modernization must equal at least 50% of the mortgage of the mortgage; and proposed rents must be less than those charged

for equivalent facilities in new construction.

In all other respects requirements of FHA's Rental Housing Division must apply, including those affecting dividends; that is, a maximum rate of 6% on the equity is allowed. The equity in this case includes the salvage value of existing property as well as the cash equity. An increase in dividends up to 8% is allowable after a sum equivalent to one-half of the annual amortization requirements has been earned and set aside as a reserve.

This program offers an excellent opportunity for improvement of structurally sound but obsolete apartment houses, as well as groups of row houses which might be converted into apartments. Also, it opens the way for complete block rehabilitation and makes it possible to capitalize possibilities of a class of construction that has heretofore been retarded because of the lack of capital.

DEFENSE HOUSING PLANS ARE STILL INDEFINITE

Harrison, Voorhees, and Palmer named to spur construction; USHA seeks broader powers, additional money

THE FOG OF RUMOR, surmise, and counteropinion that has thus far enveloped activities of the national defense program has nowhere hung more heavily than over the entire question of "defense construction." A conviction appears to be widely current, both in and out of official circles, that a large volume of industrial plant expansion and housing is immediately necessary if a bottleneck is to be avoided in the nation's general progress toward emergency preparedness.

But this conviction has so far not been documented—at least publicly—by any facts and figures that might reliably expose either the extent or character of such construction. Furthermore, even such primary questions as how much it will cost, how it is to be financed, and who will pay for it, all appear at the present writing to be merely notations under the heading of "matters pending" on the agenda of the Defense Advisory Commission.

Particularly is this true with respect to housing—industrial and otherwise. If housing policies and procedures were tangled before initiation of a prepared-

ness program, they have suddenly become immeasurably more complicated by extraordinary requirements that involve industrial and military affairs. It seems certain that a vast number of living units—how many is anyone's guess—must be quickly supplied to house the influx of war workers to industrial zones and military bases. But *how* they are to be supplied and what action will be necessary to fill the demand and to coordinate the social, technical, and economic matters involved are knotty questions to which it is not now possible to set down any definite answers.

Two general trends of action, however, are gradually becoming discernible to clarify the present murky situation—to which political undercurrents have recently added a penetrating humidity. One concerns the outlook for "private-enterprise housing" and the other involves the possible expansion of the USHA as a major factor in development of defense housing plans.

W. H. Harrison Named Construction Chief

That the double-barreled nature of

the problem is recognized is evidenced by the recent appointment, by William S. Knudsen, of W. H. Harrison, vice-president and chief engineer of American Telephone and Telegraph, as director of the Defense Advisory Commission's construction division. Mr. Harrison has selected Stephen F. Voorhees, FAIA, as his consulting assistant. Mr. Voorhees, of the New York architectural firm of Voorhees, Walker, Foley, and Smith, is a former chairman of the Construction Code Authority. In the appointment of such able engineers and executive organizers, Washington observers see a tacit promise by the Commission that all construction involved in the defense program—housing or otherwise—will be provided through existing channels. (See AR, 7/40, pp. 80, 81. "New Demands for Immediate Construction," by Thomas S. Holden.)

In charge of defense housing activities, the Commission has just named Charles F. Palmer, Atlanta, Ga., realty operator and President of the National Association of Housing Officials. His job will probably be to prevent a tangle

(Continued on page 106)

CURRENT TRENDS OF BUILDING COSTS

Compiled by Clyde Shute, Manager, Statistical and Research Division, F. W. Dodge Corporation, from data collected by E. H. Boeckh & Associates, Inc.

CURVES INDICATE trend of the combined material and labor costs in the field of residential frame construction. The base line, 100, represents the U. S. average for 1926-1929 for residential frame construction.

Tabular information gives cost index numbers for the nine common classes of construction. The base, 100, in each of the nine classes represents the U. S. average for 1926-1929 for each particular group. The tables show the index numbers for the month for

both this year and last.

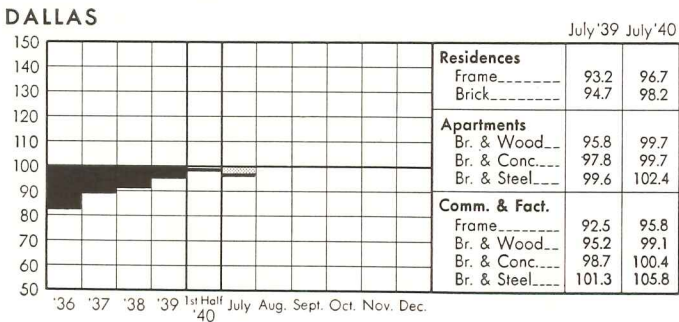
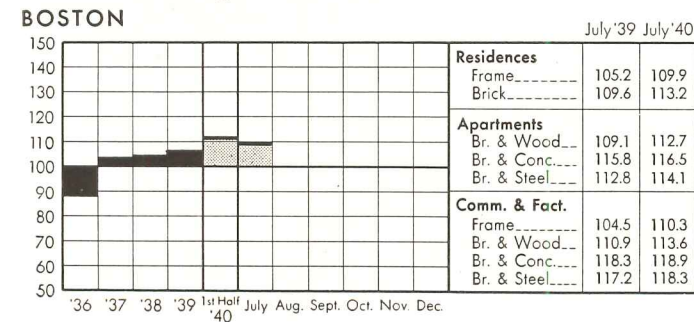
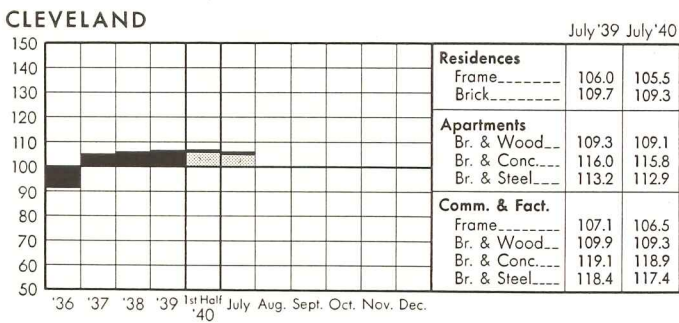
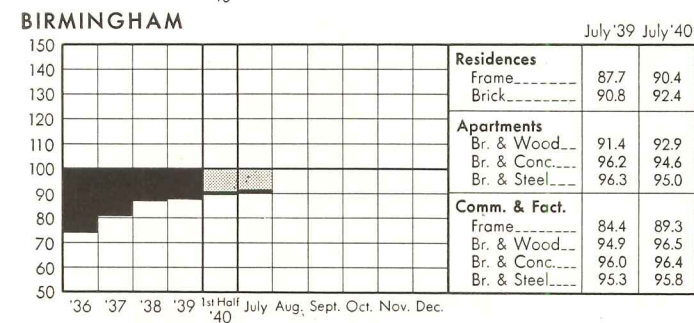
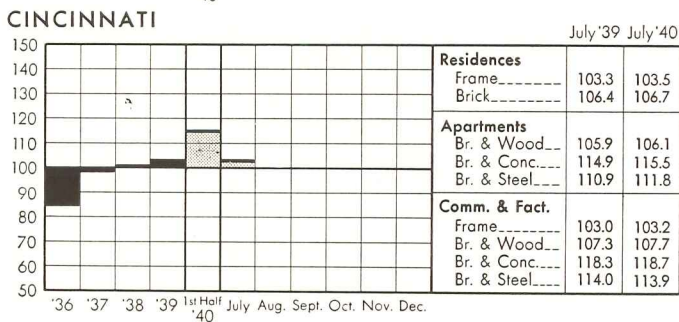
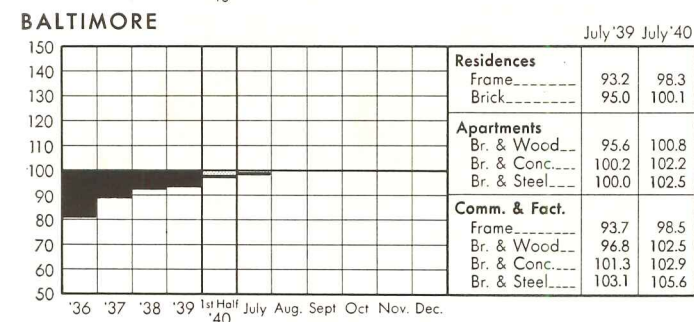
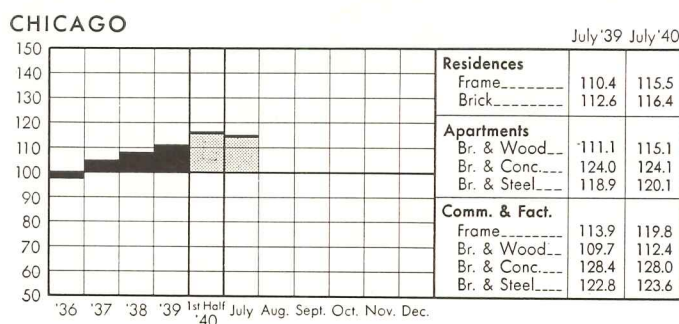
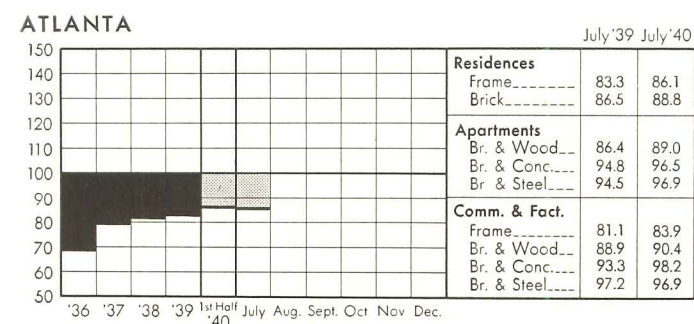
Cost comparisons, as percentage differences for any particular class of construction, are possible between localities or periods within the same city by a simple process of dividing the difference between the two index numbers by one of them. For example: if index for city A is 110 and index for city B is 95 (both indexes for A and B must be for the same class of construction), then costs in A are approximately 16% higher than in

$B \left(\frac{110-95}{95} = 0.158. \right)$ Conversely it may be said that costs in B are approximately 14% lower than in

$A \left(\frac{100-95}{110} = 0.136. \right)$

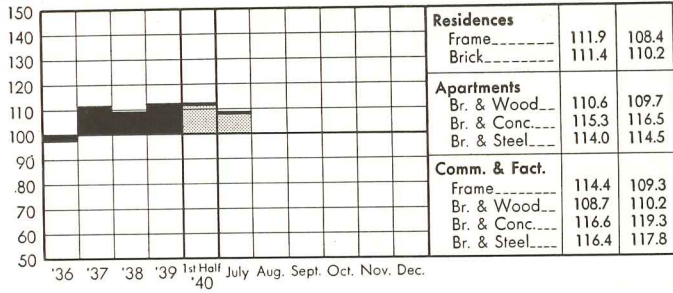
Similar cost comparisons, however, cannot be made between different classes of construction since the index numbers for each class of construction relate to a different U. S. average for 1926-1929.

CONSTRUCTION COST INDEX U. S. average, including materials and labor, for 1926-1929 equals 100.



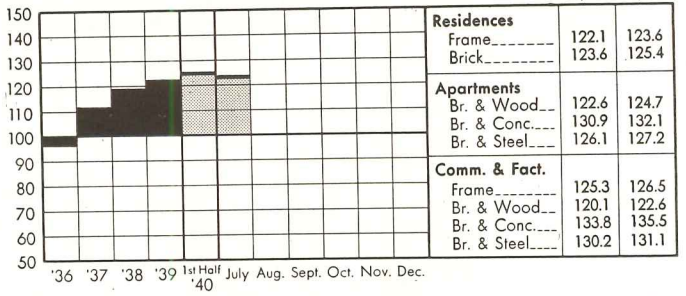
DENVER

July '39 July '40



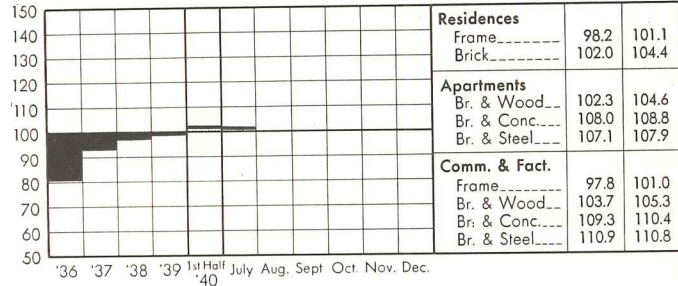
NEW YORK

July '39 July '40



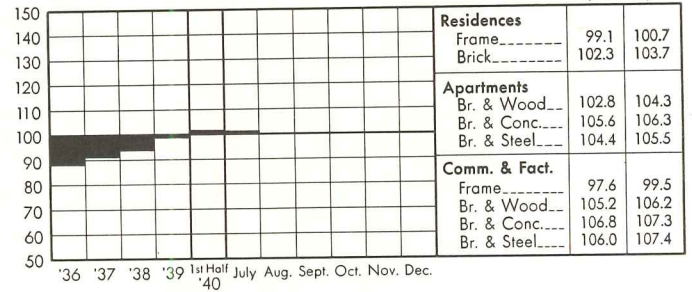
DETROIT

July '39 July '40



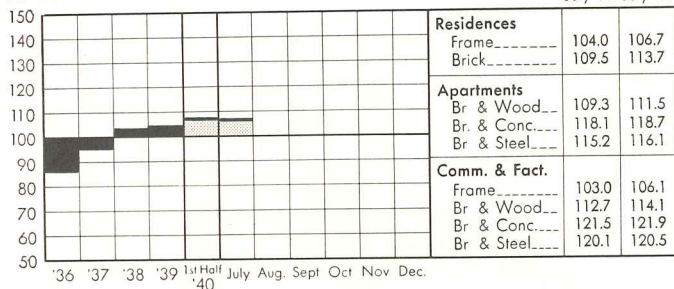
PHILADELPHIA

July '39 July '40



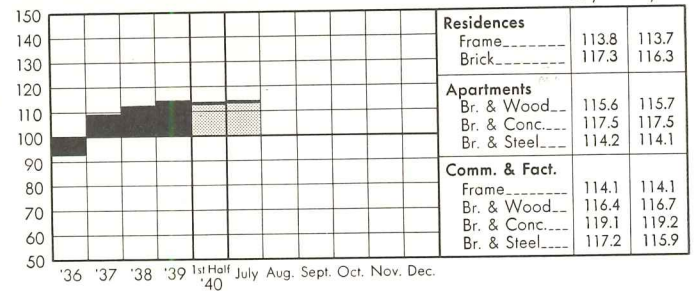
KANSAS CITY

July '39 July '40



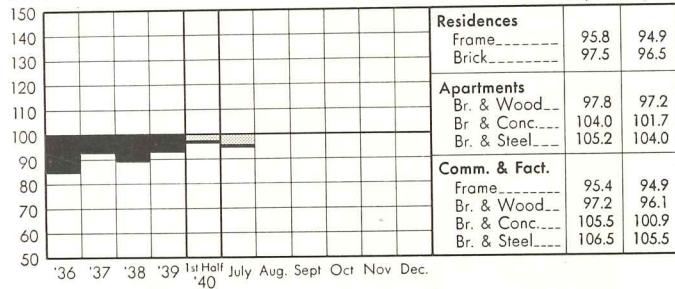
PITTSBURGH

July '39 July '40



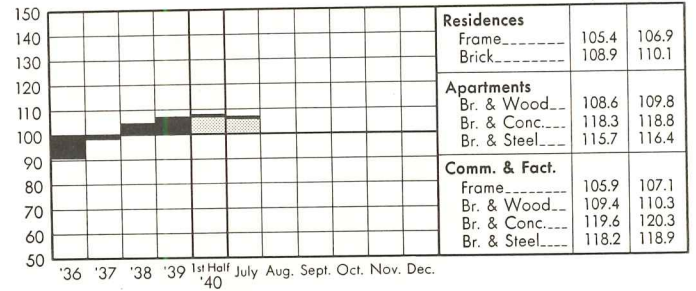
LOS ANGELES

July '39 July '40



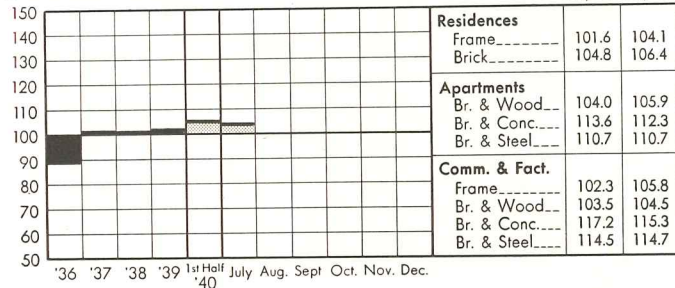
ST. LOUIS

July '39 July '40



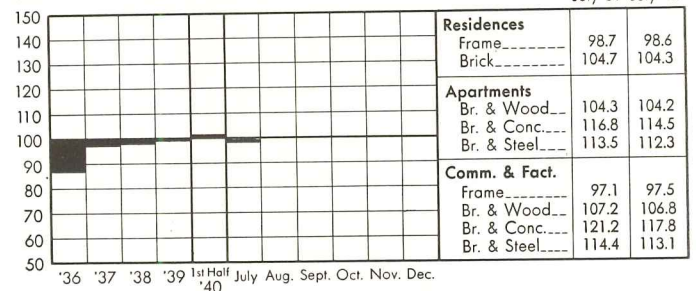
MINNEAPOLIS

July '39 July '40



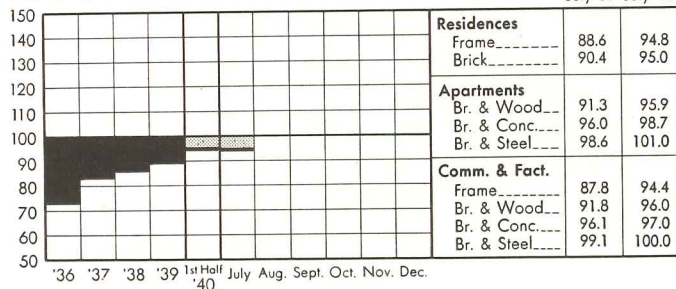
SAN FRANCISCO

July '39 July '40



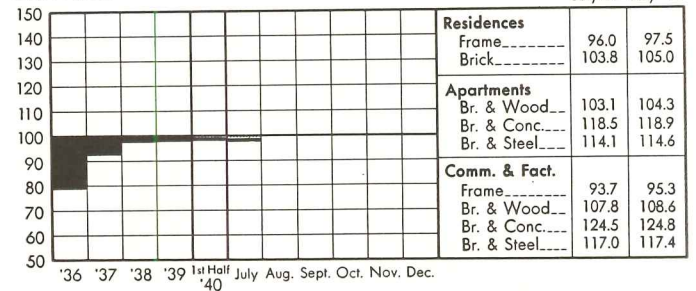
NEW ORLEANS

July '39 July '40



SEATTLE

July '39 July '40



URBAN APARTMENTS

In the first six months of 1940, the number of apartment projects for which contracts were awarded increased by approximately 11% over the similar period in 1939. For some time, the apartment house as a building type has been exceeded in importance only by private residences and commercial buildings.*

The architect, faced with designing an urban apartment for private investment, has a two-fold job: to insure maximum tenant appeal, and to safeguard an investment which has a life expectancy of from 40 to 50 years. Three cautions seem to be the rule: (1) avoidance of short-lived fads; (2) anticipation of trends; (3) design to effect low rental schedules, for low rent remains a powerful aid to 100% occupancies in even the most deluxe of apartments.

*Dodge Statistical Research Service.



In this study of the urban apartment house built for investment, factors which apply only to subsidized and speculative housing have been eliminated insofar as such a procedure is possible today. . . . Included in the following pages are a report on advances in design, a description of an approach to the economic side of apartment-house design, Time-Saver Standards on apartment rooms, and case studies of successful new buildings.

BUILDING TYPES



New Ideas Are Essential To URBAN APARTMENTS BUILT FOR INVESTMENT

This report, by **JULE ROBERT VON STERNBERG**, Architect, treats primarily the advances in design which are found important in apartments built for investment, as distinguished from both subsidized and speculative projects. Statements are based on replies from all over the country to direct questions posed to architects, engineers, and building operators.

Among those who have contributed to the completeness of this study are the following architects: George Fred Pelham, Emory Roth, Richard T. Heart, DeYoung and Moskowitz, Goldhammer and Stillman, Louis Justement, Leo Stillman, Witmer & Watson, Burge & Stevens, George Fred Keck, H. I. Feldman, W. F. Ruck, Gregory Ain, H. W. Tullgren, Weiss, Dreyfous & Seiferth; Edwin G. Kingsley, consulting engineer; Wallace B. Hart, laundry specialist; George A. Nelson, elevator specialist; Herbert Eyars, Fred F. French Management Co.; William J. Demorest; W. A. White and Sons; Rudolph Engel, J. H. Taylor Management Corp.; and the Rental Housing Division of FHA.

MARKET

THE URBAN APARTMENT comprises both the individual building and the low-coverage, multi-building development. The market for both types has been stimulated in many areas, principally by a combination of circumstances that has "forced" construction. Banks, for example, holding large blocks of property through default, have in some cases sought to improve them and at the same time reduce their tax drain by building. Individual land owners have also sought relief from high city taxes and the failure of obsolete or inadequate buildings to provide necessary revenue.

In New York, as in every large city, building has so far been confined to preferred sites: comparatively small, costly plots in or near the city center, and larger, less expensive property on the outskirts. In some areas, the war has tended to slow up demand for space, although the defense program may change the situation.

Building costs are a decisive factor. A rise in building costs within a few months' period in New York lifted the typical apartment construction cost as much as 25%. Apartment activity is seasonal, with most new buildings aimed at completion by the lease-renewal date—usually October 1st.

SITE PLANNING

The trend toward lower plot coverages is evident even in centrally located individual buildings. Low cost of outlying land permits plot coverages of from 14 to 20%. Urban low-coverage developments usually occupy a minimum of 45 to 50% of the available property.

Several factors have made reduced coverages possible and profitable without curtailing proportionate rent increases. *First* of these is site: High-speed parkways and other transportation have opened up large suburban areas. Wholesale razing of city slum buildings has permitted use of medium-cost land. Default and financial distress have lowered the cost of some mid-city property. Some urban buildings have achieved reduced coverage benefits partly by means of setbacks.

Second factor is plan: Improved planning has resulted in shorter public hallways and more compact kitchens. In the highest rent groups, other room sizes have also been reduced. Living rooms, once 18 by 30 ft., are now 15 by 25 ft. In fireproof "skyscraper" buildings, reduced coverage, obtained by limiting the area of typical floors to that of the smallest setback floor, has resulted in substantial economies, including reduced

cost of steel and reduced cost of plumbing and heating lines (due to straighter runs).

Third factor is bulk: Larger developments, achieved by taller buildings or a greater number of buildings, have also created mass economies in construction and maintenance.

The economical minimum size for low-coverage developments is large—usually 100 apartments, renting for a minimum of \$15 a room. Practice, however, favors 150- to 350-apartment units, renting from \$18 to \$25 a room.

Such a development, when on the outskirts, must provide its own roads and parking space; and also children's playgrounds, located convenient to, but not distressingly close to, central groups of buildings, which have to be reached without crossing traffic. A wading pool is also desirable, but expensive to maintain.

It may also have adult playgrounds, swimming pool, tenant gardens, picnic grounds, and tennis courts, depending on its size, rentals, available property, and custom or competition.

Site improvement of the mid-city low-coverage structure is less ambitious. Usually, the free area is given over to landscaping and footpaths. Where such buildings are set back from the street, driveways may be provided to entrances. Wherever possible, however, these are omitted.

Provisions for automobiles: The transfer from car to apartment doorway still involves a 10 to 200-ft. sprint across open ground. In outlying developments, it is considered too costly to construct roadways direct to every door. Tenants do not object to walking distances up to 200 ft. between house and road. In mid-city buildings, a 10-ft. unprotected sidewalk must often be crossed. Private parking space is a luxury that only city-edge developments can ordinarily afford. It is usually provided by widening the roadway in front of each building, or by means of cul-de-sacs serving compact groups of buildings.

Garages: In city-edge, medium-rent walk-up developments, these are usually grouped at convenient points throughout the property. To minimize supervision, one-car garages are most used. Elevator-type, city-edge developments often provide common garages, centrally located.

The large urban development may also provide garage space. Its location—in the apartment building, or in a separate building—is determined by several factors, including available land and local codes. Basement garages may prove costly because of the additional excavation and construction involved, especially in rocky ground.

Because of easy access and low cost, basement garages built into sloping sites are frequently used, however. In all basement garages, multiple entrances are to be avoided.

No definite rules indicate how large garages should be. Safe ratio seems to run: two cars to every five apartment units in mid-city; three to four cars to every five apartments on the outskirts. Development garages may prove a profitable rent source, particularly when they are individual garages requiring little supervision. Mid-city garages often prove costly to operate, but are provided as tenant conveniences.

Deliveries and mail: Latest solution to the problem of moving freight and furniture in and out of the mid-city apartment building is the truck drive-in, consisting of a ramp from the street to a covered loading platform in the basement. This platform, large enough to accommodate furnishings of several families, expedites moving and eliminates serious congestion at sidewalks. Costly to build, cutting into valuable first-floor and basement space, such drive-ins are practicable only in high-rental buildings facing heavily trafficked streets.

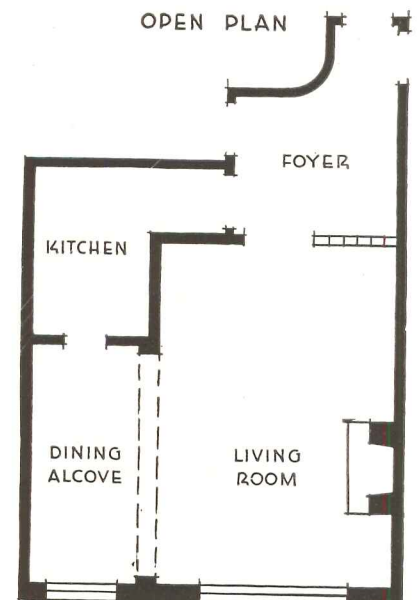
High-rental, and an increasing number of medium-rental buildings meet the problem by providing a package clerk and desk near a service entrance at which all deliveries to tenants are received. These package rooms should include refrigerators to store food deliveries and open shelving for other packages. The whole space should be enclosed and supervised.

In addition to a package room, door-manned buildings also may include a mail-sorting room adjoining the entrance vestibule. This room should be too small to encourage its use as a clubroom by employees (approximately 80 sq. ft.). Where no package-receiving desk is provided, deliveries are often made directly to the tenant, thus complicating the policing problem of the building. In manually operated elevators, control is exercised by the operators. In push-button systems, however, cars are usually so controlled that they automatically stop at the first-floor level.

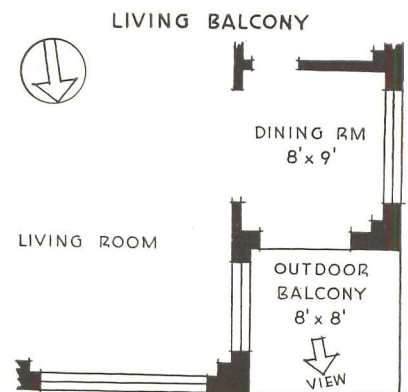
BUILDING PLANNING

Apartment units: Recent development shows a distinct trend toward smaller apartment units of one to four rooms. Rare in medium-rental buildings, but popular in mid-city high-rental buildings, is the one-room apartment. Recently revived suite is the "maisonette," a small duplex with its own entrance from the street. Such suites usually have service entries from the building. Their chief advantage is that they make

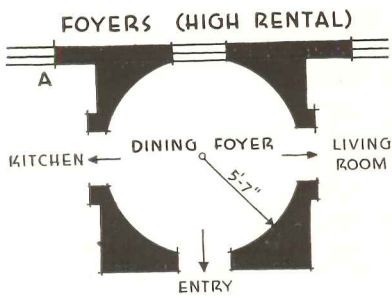
| ROOM SIZES — Range in Feet | | | | |
|----------------------------|---------|---------|---------|----------|
| Rent Level | MEDIUM | | HIGH | |
| | Width | Length | Width | Length |
| Foyer | 4 to 7 | 5 to 12 | 6 to 9 | 10 to 16 |
| Kitchen | 6 - 8 | 10 - 12 | 7 - 9 | 11 - 15 |
| Bath | 5 - 6 | 7 - 8 | 5 - 6 | 7 - 10 |
| Living room | 12 - 13 | 17 - 20 | 14 - 16 | 19 - 24 |
| Dining alcove | 5 - 7 | 9 - 11 | 6 - 10 | 10 - 16 |
| Dining room | 10 - 13 | 11 - 16 | 11 - 14 | 12 - 20 |
| Main bedroom | 10 - 13 | 14 - 18 | 11 - 13 | 15 - 22 |
| Other bedroom | 9½ - 11 | 11 - 16 | 10 - 12 | 12 - 18 |
| Maid's room | 7 - 8 | 9 - 10 | 7 - 9 | 9 - 12 |
| Internal hall | 3 - 3½ | | 3 - 4 | |



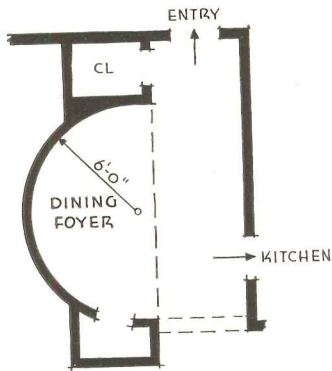
Open planning increases rentability.



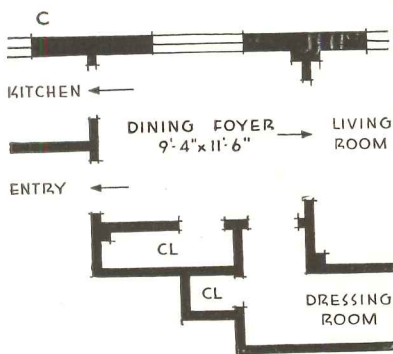
Balconies enhance rentability.



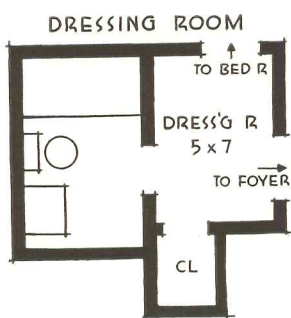
A circular arrangement wastes space and increases cost of trim.



This is a better arrangement, but placement of furniture is difficult.



Rectangular foyers are the type which usually can most easily be converted into dual-purpose rooms.



The internal bedroom-bath hall, slightly increased in area, may become a dressing room upon which the renting agent can capitalize.

first-floor space attract higher rentals. Another innovation is the three-room duplex, in which living room, kitchen, foyer, and lavatory are on one floor, with bedroom and bath on the floor above. This arrangement—confined to high-rental buildings—grew out of tenant demands for duplex privacy with small-suite economy and convenience.

The half room—unmentioned but present in high-rental buildings—becomes increasingly attractive to medium-rental tenants because it adds much-needed space, and to owners, because of its productive use of tight corners.

A dining alcove having at least one exterior wall and lighted by its own window (not borrowed light) and containing a minimum area of 45 sq. ft. may be counted as a half room. A kitchen having at least one exterior wall and lighted by its own window (not borrowed light) and containing a minimum of 50 sq. ft. may also be counted as a half room (FHA practice).

There is no true measure of what size and number of suites should be included in a new apartment building to insure occupancy. Only safe rule is the following: that in medium-rental buildings, the bulk of apartment units usually runs to 1½, 2, 2½, 3, and 3½-room suites. In high-rental buildings, one-room suites are also used.

Generally, the distribution of suites is determined by the neighborhood, size of property, orientation, and rental level. Most apartment specialists believe that a business revival will create demands for larger suites.

Room sizes: Prime distinction between medium- and high-rental apartments is the difference in room sizes, although recent enlarging of medium-rental rooms, and the trend to decreased size of high-rental rooms modifies this discrepancy. Despite these factors, high-rental living and bedrooms are about 25% larger than medium-rental rooms.

High-rental suites usually include more rooms than do medium-rental suites of apparently the same number; guest lavatory, powder room, several more closets (including a dressing closet), and a service hall are often included without being called whole or half rooms. Tendency has been to adopt features found in high-rental apartments to medium-rental apartments. Typical are the second bathroom (now much used in medium-rental suites of two or more bedrooms) and the foyer.

Built-in furniture: One of the least popular provisions in modern apartments has been built-in furniture. Except for the bathroom and kitchen, few tenants want it; many frankly dislike it. As a result, many architects avoid its use except in fitted closets.

Sole stronghold of built-in furniture remains the one-room bachelor apartment with hotel conveniences. In addition to built-in door-bed, this type may feature fitted closets, built-in chests of drawers, built-in table, bookcases, china, glass and silver chest, and bar.

New trend in kitchens is to combine and build in as much kitchen equipment as possible, to preserve space and to economize on trim, wall and floor construction. New kitchen equipment recently made available includes the whole kitchen in one compact fixture.

In bathrooms a built-in clothes hamper has been added. Just beginning to be used in medium-rental suites is the bathroom utility closet. In one-bath apartments, tub and overhead shower are favored. With higher rentals, the tub is often enclosed to make a combination tub and stall shower.

Closets continue to grow in size and number. Medium-rental suites usually contain: coat closet near entry, linen closet, two closets in the main bedroom, one closet in others, kitchen broom closet, and utility hall closet. High-rental apartments, in addition, usually have: guest closet near entry, large storage closet, bathroom closet, dressing closet, occasionally a cedar closet. Closets with wardrobe doors are little used, due principally to high cost.

PLAN FEATURES THAT INCREASE RENTABILITY

Apartments in every rental group are constantly being made more appealing by addition of new plan features. Recent innovations which are increasing in popularity are:

- (1) dining alcove, convertible into extra bedroom or study;
- (2) living balcony, large enough for tables and chairs;
- (3) dropped living room (Most favored by young people; families with children and older people think it dangerous);
- (4) glass or glass-block partitions between inside and outside rooms for "borrowing" light or increasing spaciousness;
- (5) extra w.c. for maid or guests;
- (6) private bath for main bedroom;
- (7) dining space in kitchens—essential when no other dining space is provided.

Fenestration: Public preference has swung away from small, many-paned windows to large glass areas with venting units, and toward "cleaning" hinges, hinged casements, strip windows, narrow trim, and fewer muntin strips. Combined with this has been an acceptance by even conservative tenants of the "radical" corner window, which by evolution has become less a corner window and more a corner bay.

At the same time, many apartments are now equipping windows with Venetian

blinds, instead of shades and awnings. Occasionally, an American architect attempts to adapt European and South American exterior window blinds, but with little popular success.

Apartment arrangement: Through-apartment ventilation is almost universally essential. Exposure is also important. Prevailing breezes, southern exposure (in less southerly parts of the country), quietness, and outlook are sought today by many renters. Apartments that are rapidly losing their appeal are: those with northern exposure only; those on narrow courts; apartments with one-wall exposures.

Because of available land, the city-edge walk-up development today exhibits the most open room arrangements—adaptations of strip, cross, tee, and zee floor plans. Elevator apartments usually have less leeway in this respect because of the need for grouping suites around vertical circulation. One satisfactory (to the operator) floor plan developed for this category of building has been the cruciform type, which assures cross ventilation in every apartment.

The "boom-time" duplex is occasionally used to round out the variety of suites in a high-rental building. However, its waste space has lessened its popularity. Closely related to the duplex is the "staggered-floor" plan of European origin. This method, designed to reduce total cubage by employing a public hall at intermediate levels to serve two floors, is not at present considered here due to high costs, and the average apartment-dwelling American's unwillingness to climb even half a flight of stairs.

Growing in importance is the "open" apartment plan, in which, to effect greater spaciousness and better circulation, are combined in one irregular space such areas as foyer, living room, and dining alcove.

Public spaces: The apartment-house lobby is not designed to accommodate the full tenancy of the building at one time. Chief requisite of a lobby is its appearance. Most tenants prefer a building with an attractive lobby. Size is secondary. Present trend is toward intimate lobbies, away from monumental approaches. Practical size for a typical lobby serving one or two elevators is from 300 to 400 sq. ft. Vestibules from 100 to 150 sq. ft. in area are also essential.

Elevator lobbies on upper floors have to be from 7 to 8 ft. wide; corridors, from 5 to 8 ft. wide.

ELEVATORS

Once confined to uppercrust buildings, elevators are now used in apartment build-

ings in every rental group. Choice of elevator type must be based on size of building, height, rental group, population, neighborhood, and floor layout.

Though required in buildings over three stories high, economy of operation, except in high-rental buildings, requires that elevator buildings be not less than six stories in height. Zee and cross plans are generally used to achieve maximum number of apartments per floor (usually four to five) per elevator. A larger number of units (as many as six or seven) usually results in "buried" rooms at interior corners.

In addition to the accompanying tabulations (see page 84), elevator engineers recommend the following rules of thumb:

- (1) use push-button control cars for from 3 to 8 stories;
- (2) use car-switch type for heights in excess of 8 stories;
- (3) employ a 2,000-lb. car for buildings of 3 to 26 floors;
- (4) in better-class buildings, use a 2,500-lb. car;
- (5) avoid two-entrance cars as they add considerably to the cost of installation;
- (6) if two-entrance cars must be used, confine doors to front and rear, rather than front and side;
- (7) use solid doors—no gates—on cars;
- (8) to protect tenants, make push-button type car operate from basement by key switch only (If this is not practicable, employ self-stopping cars at first floor);
- (9) provide service elevator in all high-rental apartments.

STAIRS

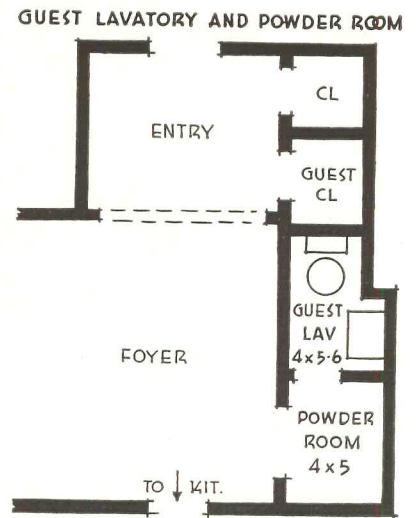
The number of apartments per stair is determined by layout and codes. Strip units permit two apartments per stair per floor. Ell and tee units permit three apartments per stair per floor. Zee and cross units permit four and five per stair per floor. In some localities custom requires service stairs to kitchens; local codes frequently require two exits for buildings over two stories high.

A recent development in fire escapes is one built into an exterior wall with self-opening windows operated by fusible links to keep the shaft smoke-free in case of fire. This does away with hazardous, exposed fire escapes.

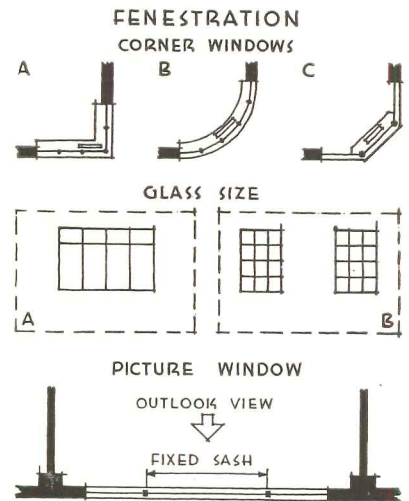
STRUCTURE

Conventional construction, unchanged for years, is now challenged by new construction methods featuring added fire safety and greater economy. One of these, a light steel construction recently developed in New York, may threaten to terminate the long reign of the six-story nonfireproof apartment building as the most profitable type of local development.

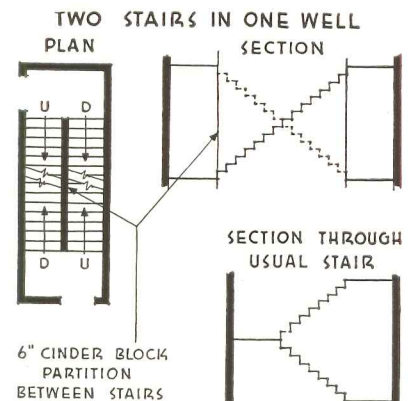
This system employs light steel angles, singly and in pairs, as vertical supports for



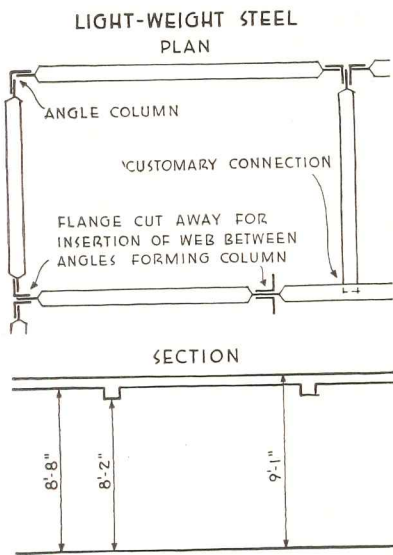
Guest lavatory and powder room, desirable in high-rent apartments



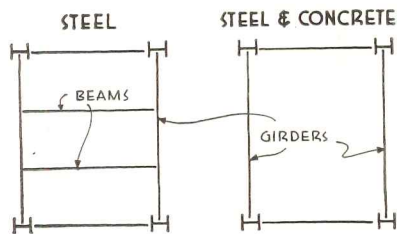
Corner window C is least expensive to construct and trim, easiest to decorate. Large glass sizes, A, preferred to multiple small panes, B



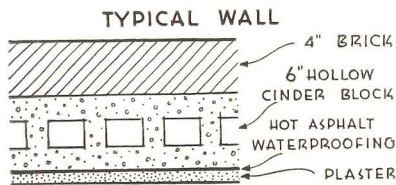
By using a fire wall, two independent fire stairs can be put into space usually occupied by one.



Light frame construction made possible by the revision of the New York building code



The use of steel verticals and of reinforced-concrete floors may eliminate intermediate beams.



Wall construction also made possible by revised building codes.

a conventional floor construction of I beams and cinder-concrete slabs. Use of angles, weighing only half as much as the usual H-columns, eliminates bulky corner breaks in rooms and speeds construction. Cost of such construction is approximately 42c per cu. ft. in New York at present—a greater cost by 25% than nonfireproof work, but considerably less than fireproof construction. The new system's chief advantage, however, is that it makes inexpensive fireproof construction possible. Limited by weight and load-carrying capacity of stock angles to eight stories, the system in effect adds two stories to those available in conventional six-story nonfireproof types. These two added top floors help compensate for the 25% additional cost over nonfireproof work.

Another American innovation is the use of reinforced-concrete floor slabs with steel vertical supports. This combination eliminates the frequent dropped beams in ceilings of fireproof buildings, and reduces over-all floor thickness. Vertical steel columns are employed instead of concrete because of their comparative lightness and easy handling.

BUILDING EQUIPMENT

Heating systems: Selection of heating system depends on local custom, fuel obtainable, climate, and whether or not heat is included in rent. Sections experiencing mild winter weather show greatest diversity in type of heating provisions, ranging from space heaters to forced warm air.

In prolonged winter heating zones, however, steam and hot-water systems with concealed convectors or radiators are most widely used. One desirable type for good construction and applicable to all rental groups is a two-pipe, zoned vacuum system, with orifices on radiators and risers (FHA). This system requires no return traps; it provides quick, even heat in all parts and is economical to operate.

Most recent and least used, but a highly effective system, employs conventional hot-water radiators, recessed to improve their efficiency. The system, consisting of a supply loop running to the top of the building

and feeding into radiators on the down run, maintains a fixed temperature in the loop by means of a valve which admits hot water from the boiler only as needed.

Multi-building developments are usually best heated by central systems. On the other hand, in a very large project with comparatively low density, and with buildings farther apart than 100 ft., a central system is usually not feasible, as necessary excavation for trenches and tunnels adds much to the cost. One-pipe systems do not lend themselves to central distribution.

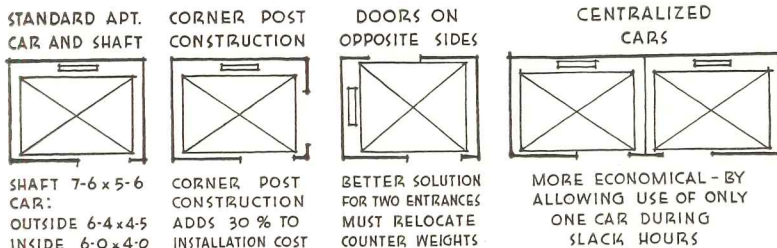
Where normal coverage and distribution of buildings prevail, however, a central plant is usually more efficient. Central heating plants have been satisfactorily used in developments covering over a hundred acres, comprising several dozen buildings. To be most efficient, any central system must be zoned and orificed so that all buildings receive even distribution of heat.

Air conditioning: Air conditioning is still rarely used and is confined to high-rental developments. For this reason, although it may permit lower ceiling heights, custom acts against the change. Usually, only a waste line, electric outlet, and water outlet are provided in each living room to which the tenant's own air-conditioning unit may be connected. Such buildings, however, frequently air condition first-floor professional offices.

Where the entire building is air conditioned, each apartment must have its individual system, as recirculation of air from one apartment to another is undesirable—often not permitted. Central refrigeration and heating lines to individual apartment blowers and duct systems effect both summer and winter air conditioning in this type of installation.

Power: Many apartment-development owners are also in the power business, selling house-generated electric current to their tenants. The method consists of producing current with steam or diesel turbines and electric generators, often for as little as 7 mills per kw hour.

At present, at least 50 families are required to make such an installation profitable, although it is forecast that small diesel



ELEVATOR SELECTION: Sizes shown are average

NUMBER OF PERSONS PER APARTMENT-HOUSE ELEVATOR

(Based on 1½ persons per bedroom, ¾ person per door-bed)

| Number of floors | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|----------------------|-----|----|-----|----|----|-----|----|----|----|-----|----|----|
| No. persons per car: | | | | | | | | | | | | |
| 100 F.P.M. | 100 | 87 | 73* | 65 | 50 | | | | | | | |
| 200 F.P.M. | | | 100 | 92 | 84 | 78* | 71 | 65 | | | | |
| 300 F.P.M. | | | | | | 100 | 95 | 90 | 85 | 81* | 77 | 73 |

*To right of asterisks, consult specialist regarding higher speeds. Data from Westinghouse Elec. Elev. Co.

units, capable of serving from 20 to 50 families, will soon be available. Naturally, there is no rental limitation on the system. Local current costs, codes, and development size determine its practicability.

Large power installations usually combine diesel and steam-driven generators, with the steam turbines employing surplus boiler steam. In the case of diesel-operated generators, their water jackets are often productive enough to provide hot water for the entire building.

Few structural provisions are necessary to accommodate a central power system. Slightly larger boilers, oil tanks, or fuel bins are necessary, together with sufficient flue area to vent the diesel-driven generators.

Domestic hot water: The typical hot-water system employs instantaneous heaters with storage tanks. Heat may also be provided by diesel generators. General rule is to provide a tank capacity of 12 to 30 gallons per apartment. Complete hot-water scheduling tables are available from the American Gas Association and similar organizations.

Laundry: The house laundry, once a nuisance and expense to the owner, is rapidly becoming a source of revenue. This is due to the recent development of new time-saving laundry equipment and coin-operated laundry machines. Such laundries are applicable to all apartment buildings.

Usual equipment includes washing machines, centrifugal or tumbler dryers, ironing boards, and laundry stoves. Toilets and lockers are also provided. Specific laundry design, however, is greatly influenced by local conditions and customs.

Incinerators: Incinerators are a tenant "must" in elevator apartments. Walk-up low-coverage developments usually provide a central incinerator plant with management collection, or where city collection is available, management collection to central garbage refrigeration rooms.

Electric system: Various systems of metering electric current are practiced throughout the country. In some instances, a combination of project master meter and tenant sub-

meters has been employed. This practice is not always profitable, and is sometimes prohibited by local conditions.

Wiring consists of either BX cable or rigid conduit. For FHA approval, apartments may employ BX only in frame construction; rigid conduit must be used in all masonry construction.

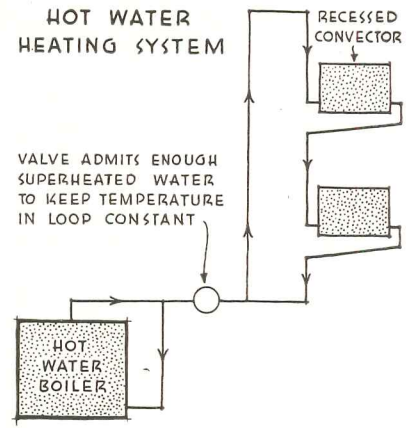
A number of electrical improvements are being provided in new multiple dwellings. Most popular of these are the following:

- (1) provision for built-in antennas;
- (2) provision for "wired music" (In high-rental apartments in metropolitan area only);
- (3) telephone outlets in each apartment;
- (4) two-way intercommunicating phones to lobby and service;
- (5) kitchen exhaust fan;
- (6) shaving lights, shaver outlet in bathrooms.

Heat insulation: Comparatively new is the use of heat insulation. Today, thermal insulation is employed to keep heat in incinerator flues, in heating risers, chimneys, and chases. It is used in top-floor ceilings (where FHA recommends a heat-transfer coefficient not in excess of .15) and in increasing amounts in side walls as well. Moving air is also enlisted to help cool overheated surfaces: roof ventilation is often employed where practicable, and coming into wider practice is the custom of venting inside kitchens through ducts to roof fans.

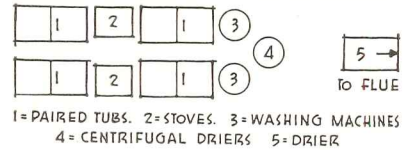
Sound control: Sound control is finding wider acceptance in new apartments. Various means are employed: double walls, masonry walls, grouped "dead" spaces—such as closets—between apartments, and carpeted public floors. One of the most successful soundproof walls is the diaphragm type, consisting of a fixed wall with a spring-mounted plaster and metal-lath membrane hung close to it. The membrane acts as a blanket, checking noise waves that impinge on it.

Fire protection: Despite added fire safety of construction, most apartments are lax in fire-detecting and fire-fighting systems. Chief recommended fire-protective equipment includes protection by sprinklers, alarm systems, and satisfactory extinguishers in store-rooms and paint rooms in particular, and possibly automatic alarm systems.



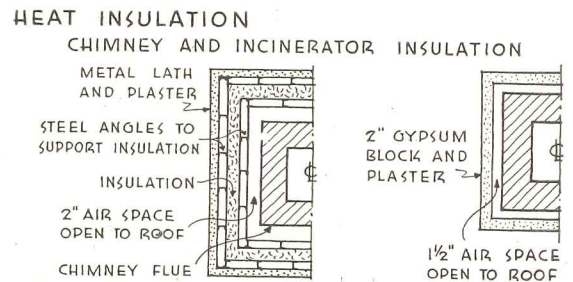
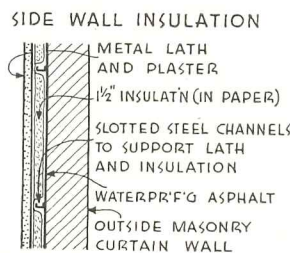
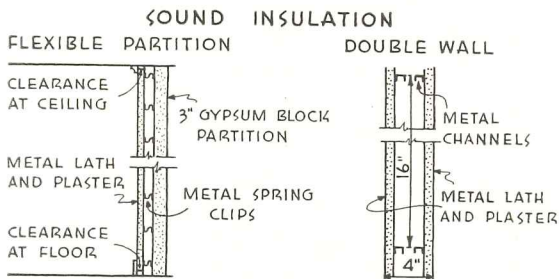
An addition to types of steam heating systems commonly used is the hot-water system illustrated above. Though it is little used at present, high efficiency is claimed. See also accompanying text.

TYPICAL LAUNDRY EQUIPMENT



To determine laundry area, assume 70% of tenants will use laundry, and that use will be spread over five-day week. Allow 16½ sq. ft. per person using laundry to obtain gross laundry area. Example: for 100 tenants, $100 \times 70\% \div 5 \times 16.5 = 231$ sq. ft.

Laundry equipment required for 100 families: 2 single laundry trays; 2 electric washing machines (coin-operated); 1 centrifugal drier (coin-operated); 2 laundry stoves; 1 tumbler drier; 6 ironing boards. Data are from Wallace B. Hart.



Sound-isolated apartment units and heat insulation have been found profitable in numerous high-rental apartment-house projects.

New Apartment Buildings

PLANNED AS SAFE, PROFITABLE INVESTMENTS

In this brief discussion, EMERY ROTH, of the architectural firm of Emery Roth and Sons, outlines his approach to the economic side of planning the Normandy Apartments in New York City, a building where rentals are high. His approach might easily be adapted to the needs of any job.

THE FOLLOWING FIGURES are taken from the case history of a recently completed building which is now fully rented and operating.

The building in question is an 18-story typical apartment house, covering a plot area of approximately 28,000 sq. ft. It contains just 1,000 rooms, divided into 250 apartments. Its cubical contents are 4,000,000 cu. ft.; 4,000 cu. ft. (gross) were required to create a room.

The cost of the building exclusive of all carrying charges and architects' fees was \$2,200,000, or approximately 55c per cubic foot, and the cost per room was \$2,200.

Typical fireproof buildings have been built as low as \$2,000 per room, exclusive of carrying charges; the building described is somewhat more elaborate than such costs would imply.

The carrying charges on a building—which include architects' fees, financing fees, interest during construction, taxes, legal fees, surveys, etc.—normally add 12% or approximately 6c per cubic foot to the cost of the building.

In this connection it may also be noted that a plan on a plot greater than 10,000 sq. ft. (or 100 by 100 ft.) produces proportionately more rentable area at a lower cost per room than a building on a plot of less than 10,000 sq. ft. This is because, in the latter case, necessary unrentable areas such as public halls, stairways, elevators, etc., are greater in proportion to rentable area. Hence, in the opinion of the writer, a plot of less than 6,000 sq. ft. is entirely uneconomical to build on.

Annual carrying charges of the building in question are approximately \$400,000, roughly divided into \$200,000 for servicing, interest charges, and amortization; \$100,000 for taxes; and \$100,000 for maintenance.

Maintenance includes salaries, heating, electric light and power, and repairs. In other words, the case mentioned requires about \$100 per room (annually) for maintenance. Frequent changes of tenants and consequent redecorating add to maintenance costs.

In a building smaller than this one, maintenance charges increase in proportion to its smallness. In the case of buildings as small as 75 by 100 ft. they may reach as much as \$140 per room annually.

From this it will be seen that a modern apartment building situated on an expensive plot has to rent on an average of over \$400 per room per year in order to bring a return on the investment.

To be a good investment, a new apartment building must be economically laid out, and that means that the proportion of rentable area to the gross area of the building should be approximately 340 sq. ft. per room. On this basis it should

produce living rooms approximately 14 by 24 ft., master bedrooms 12 by 18 ft., secondary bedrooms 11 ft. 6 in. by 17 ft., large foyers, and ample closet space.

In making a preliminary sketch if this result is not obtained, the scheme should be laid aside as probably not being economical.

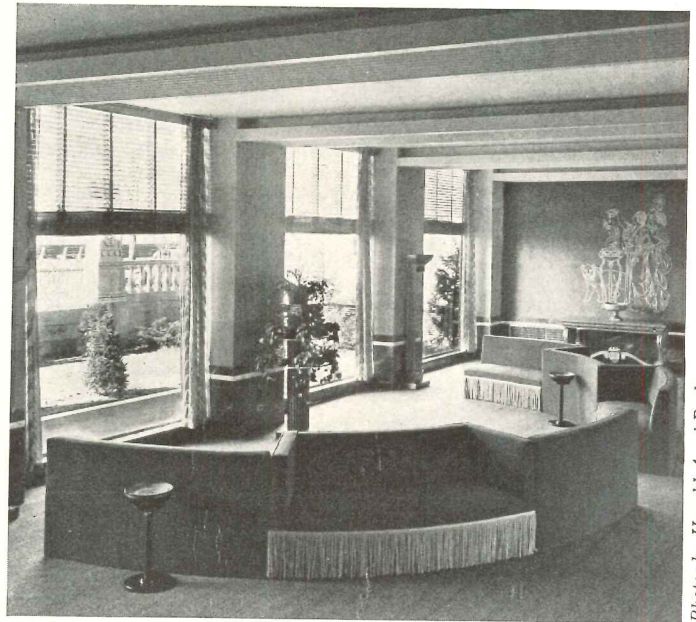
In designing a new building the general trend is now toward small apartments. These, however, should include ample living space in order to compete with older apartments. Particularly there should be provided in every apartment a dining space separate from either the kitchen or the foyer.



In other words, apartments must be so laid out that they attract the tenants from older buildings, because the older apartment buildings do not contain these features.

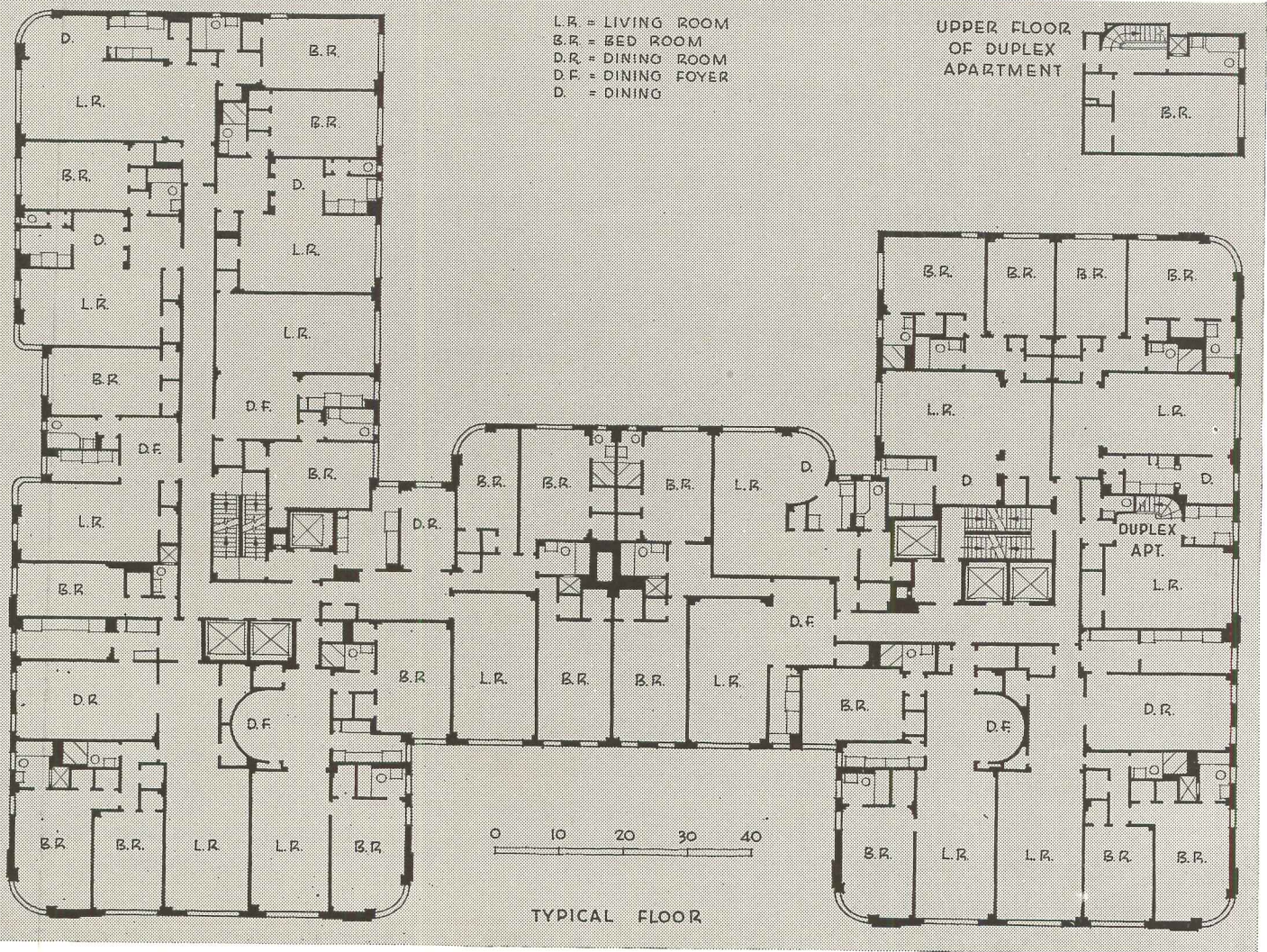
The life expectancy of the older apartment buildings was about 50 years. In other words, an amortization of 2% per year would have covered its obsolescence. I believe that the well laid out modern building (barring radical changes in neighborhoods) has a longer life expectancy.

The strictness of present zoning laws and their extensions usually prevents undesirable neighborhood changes which have heretofore harmed residential buildings.



Photos by Harold Amst Berla

Interior of lobby, above, demonstrates the restraint typical of even the most deluxe apartment houses.



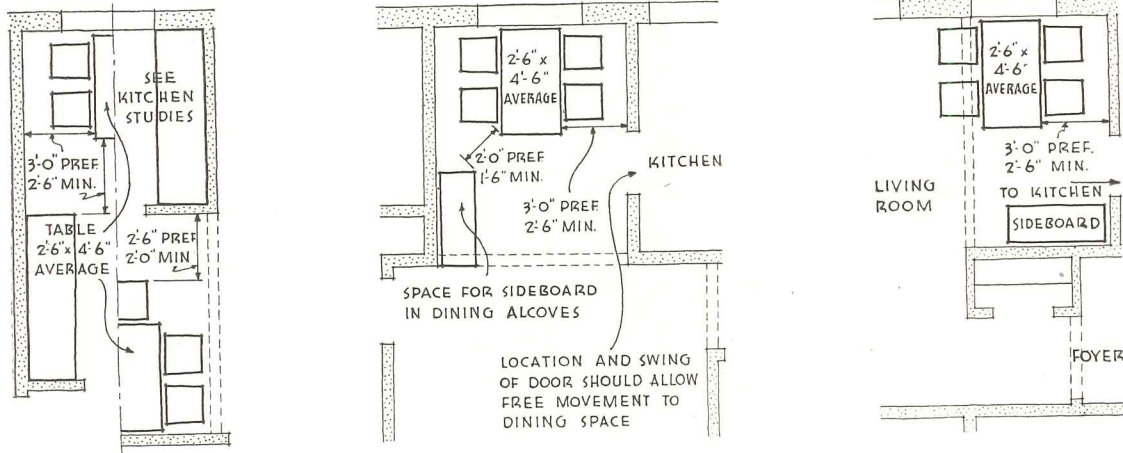
APARTMENT PLANNING PROVISIONS

1—DINING SPACES, KITCHENS

APARTMENT ROOM SIZES and arrangements shown on this and the following two pages are the result of exhaustive studies made by the Rental Housing Division of the Federal Housing Authority. Diagrams presented have been selected from the complete series as being particularly appropriate to the medium-rent and high-rent apartment—both categories which are important to the urban apartment house field. Attention is directed by the FHA to the fact that these studies

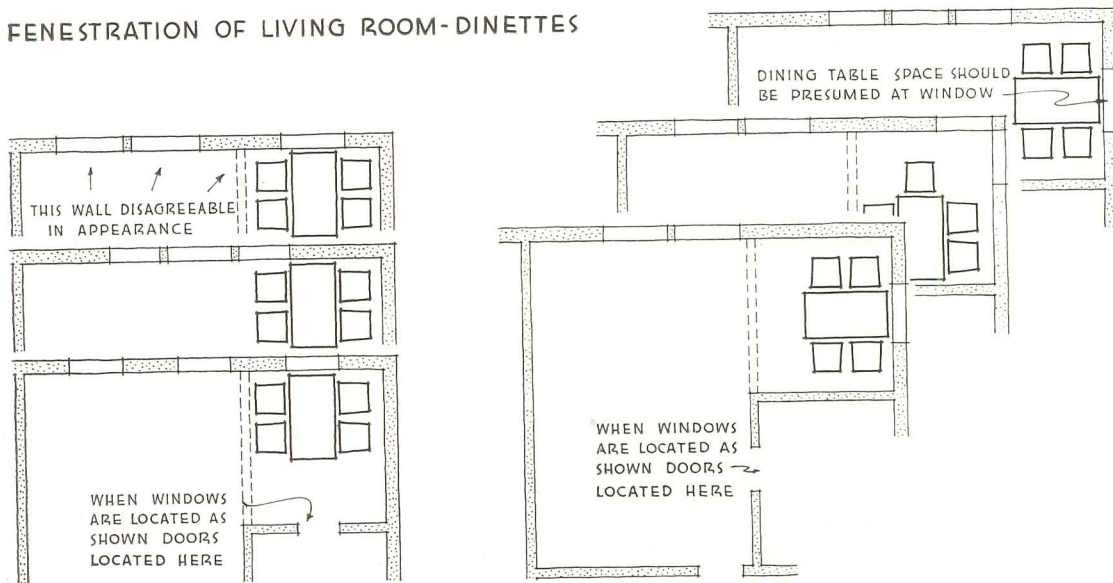
are not intended for use as "stock" plans, but rather to indicate clearly those critical dimensions, clearances, and door and window locations which determine the adequacy of room sizes; and those planning provisions which have to be made for furniture and other equipment. Dimensions given are usually minima desirable for various rental levels. Such factors as costs, financing, site, etc., will inevitably affect the application of this data to a particular job.

DINING SPACE



Dining-space adequacy depends on availability of wall space and ease of circulation. Left, common alcove-kitchenette arrangements. Center and right, alcoves off living rooms

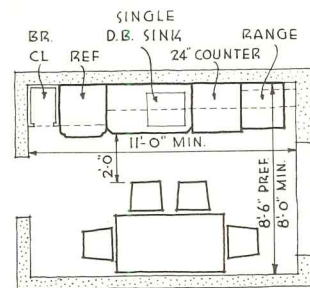
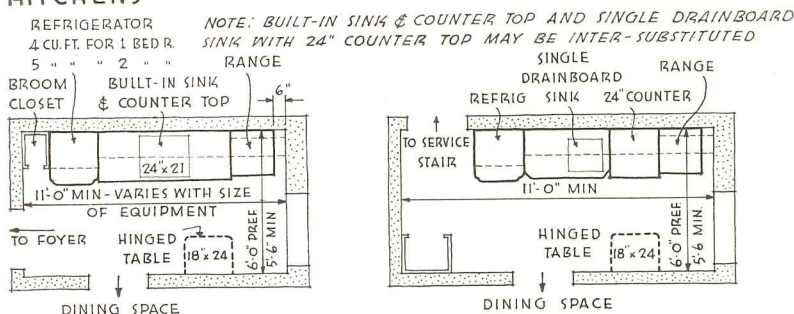
FENESTRATION OF LIVING ROOM-DINETTES



Scale, 1/8" = 1'-0"

Effects of various methods of fenestration and door location on appearance and ease of circulation

KITCHENS



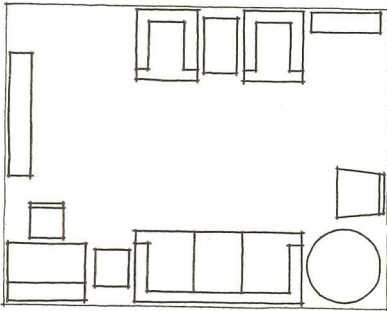
Kitchen plans indicate, besides minimum dimensions, acceptable minimum equipment.

ARCHITECTURAL RECORD TIME-SAVER STANDARDS

2—MINIMUM LIVING-ROOM SIZES FOR VARYING RENT LEVELS, VARYING PURPOSES

MEDIUM RENTAL

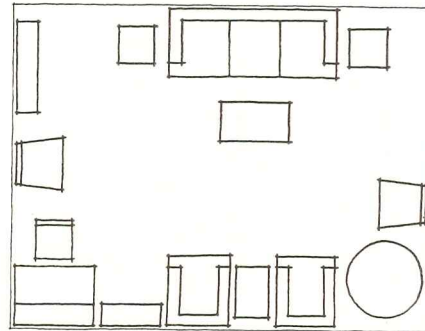
All drawings on this page are intended to indicate that living-room dimensions, area, and door and window locations have to accommodate certain commonly-used furniture arrangements. Below, living room without dining facilities



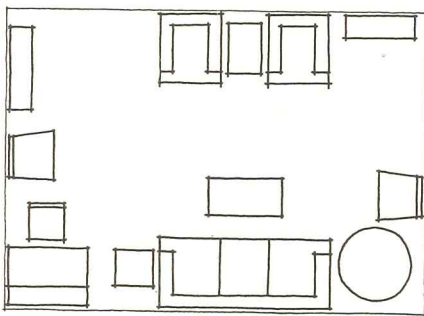
FOR 1 & 2 BED RM APTS
12'-6" x 16'-0"
200 ϕ

HIGH RENTAL

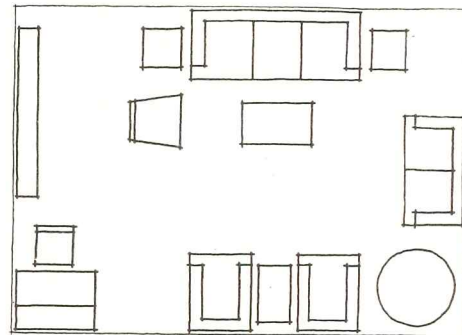
In high-rental apartments, living rooms, even without dining facilities (below), require space for more furniture and for greater ease of circulation. In all cases, dimensions and areas are minima. Scale is one-eighth inch to the foot.



FOR 1 & 2 BED RM APTS
13'-6" x 17'-6"
236.25 ϕ



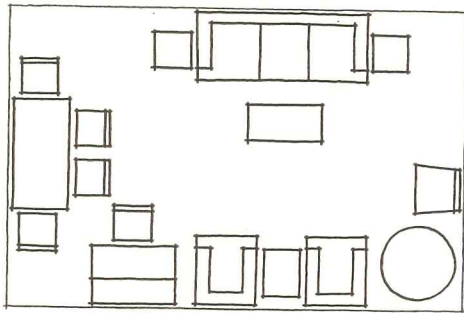
FOR 3 BED RM APTS
12'-6" x 17'-6"
218.76 ϕ



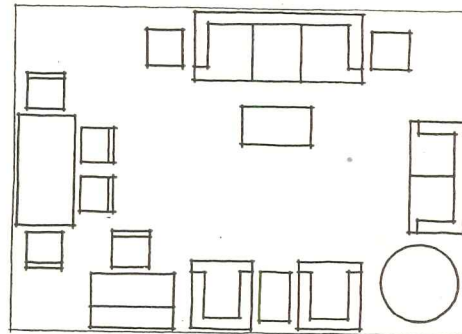
FOR 3 BED RM APTS
13'-6" x 19'-0"
256.5 ϕ

When dining space is added, an economical means of providing additional area consists of merely increasing room length. In some plans, this may permit standardized column spacings; in others, a different method may be indicated.

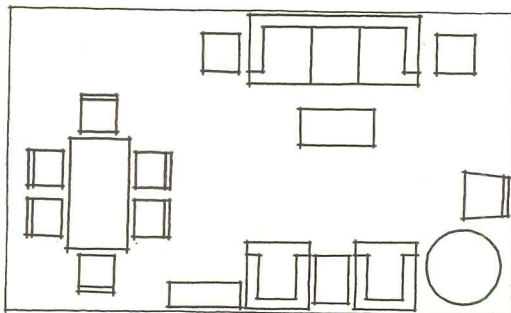
Furniture arrangements for high-rental plans below, and others on this page, are not intended as "standard" groupings. Their purpose is to show what furniture is ordinarily used. Typical groups are used throughout to simplify presentation.



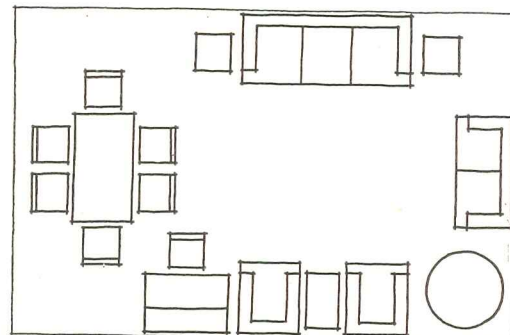
FOR 1 & 2 B.R. APTS
12'-6" x 19'-0"
237.5 ϕ



FOR 1 & 2 B.R. APTS
13'-6" x 19'-0"
256.5 ϕ



FOR 3 B.R. APTS
12'-6" x 21'-0"
262.5 ϕ

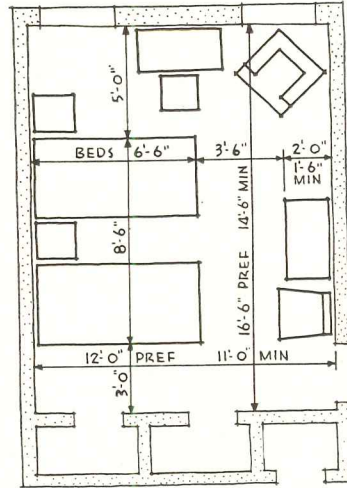
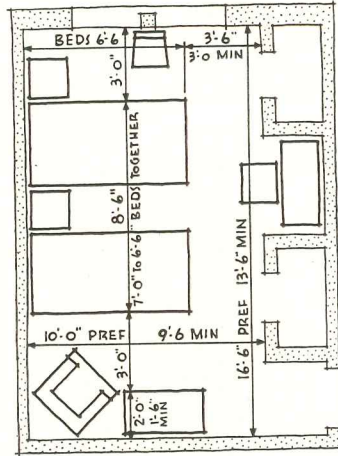
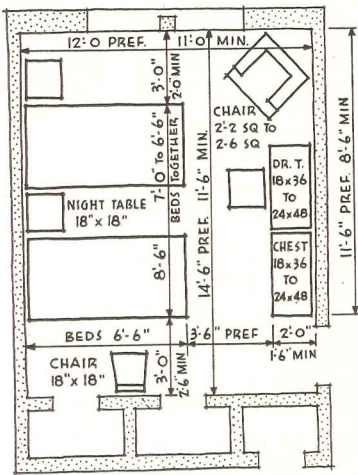


FOR 3 B.R. APTS
13'-6" x 21'-0"
283.5 ϕ

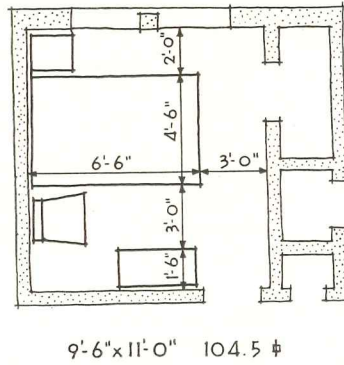
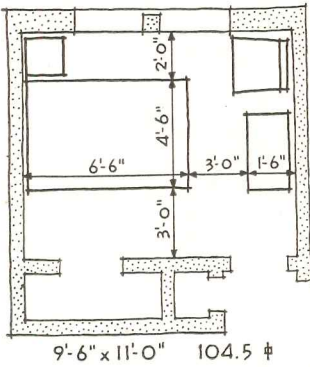
PLANNING PROVISIONS:

3-BEDROOMS, BATHS, CLOSETS

MAIN BED ROOMS



SECONDARY BED ROOMS

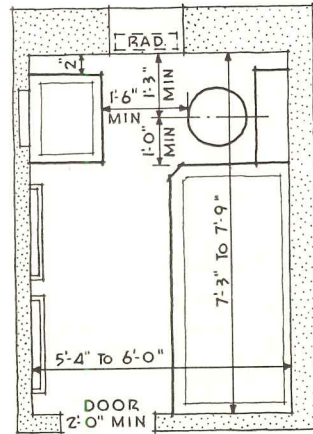
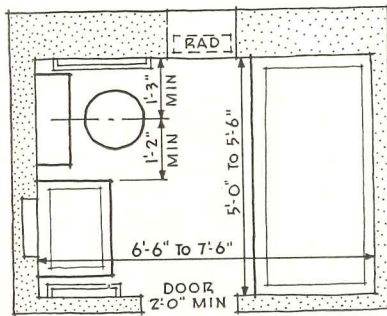
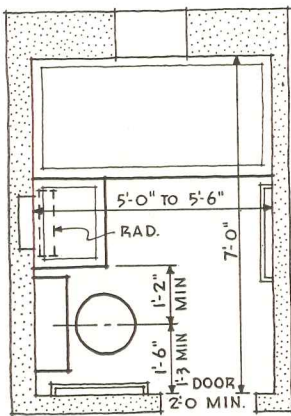


MAIN-BEDROOM plans above (left and center) are minima; greater spaciousness is provided in plan at right. The presumption is that twin beds will always be used.

SECONDARY BEDROOMS are usually planned for double beds. Location of closets affects desirable minimum size of both main and secondary bedrooms. Scale, $\frac{1}{8}'' = 1'-0''$.

BATHROOMS, below, are drawn at scale of $\frac{1}{4}'' = 1'-0''$.

BATH ROOMS



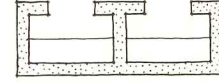
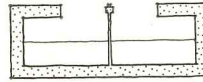
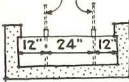
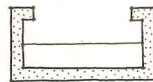
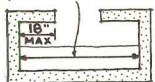
CLOSETS

5'-0" - DOUBLE B.R.
3'-0" - SINGLE B.R.

DOUBLE DOORS
NO MULLION

SLIDING
HANGER ROD

DESIRABLE FOR
DOUBLE BED ROOMS



Clothes closets shallower than 22" preferably accommodate two pull-out hanger rods. Scale, $\frac{1}{8}'' = 1'-0''$.

ARCHITECTURAL RECORD TIME-SAVER STANDARDS

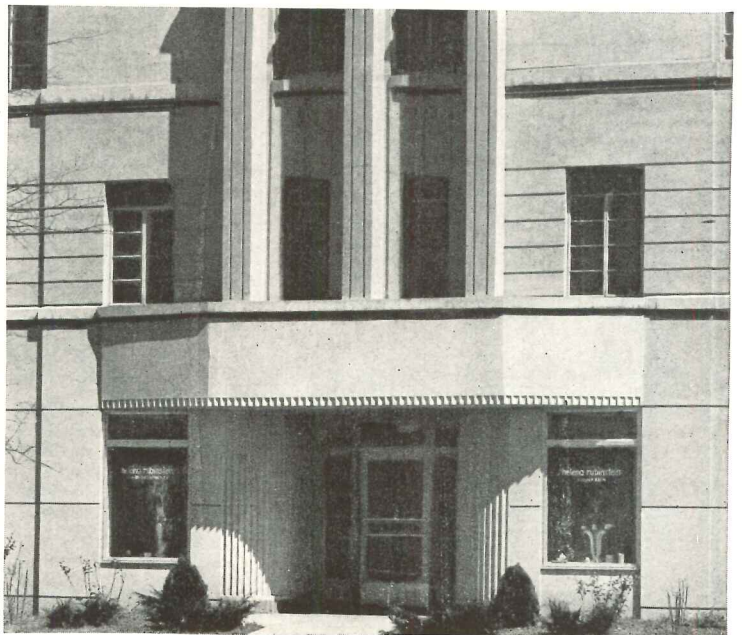


PRIVATE CAPITAL CONSTRUCTS AIR-CONDITIONED APARTMENTS

KIMBROUGH TOWERS, largest multifamily building erected in Memphis, Tenn., since 1929, was designed by **H. M. BURNHAM**, Architect; **H. B. HULSEY**, Associate. **Gardner and Howe**, Engineers.

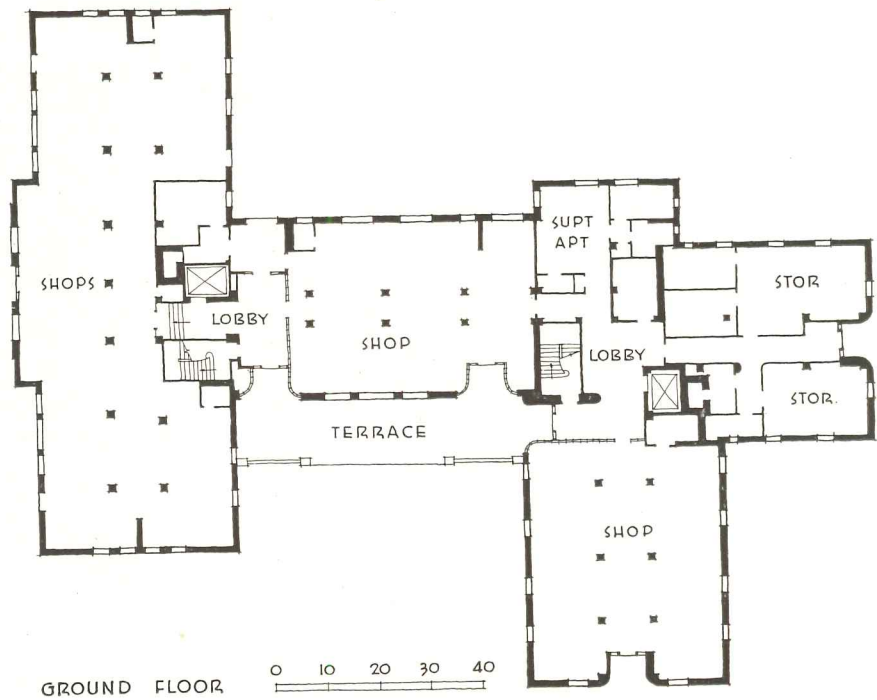
A GROUP OF MEMPHIS MEN decided that there is always demand for dwellings at moderate rentals and that such accommodations could be provided at most reasonable cost in a single, centrally located building. Further, they believed that a building expressly designed for families in the middle income brackets could be expected to maintain high occupancy at stable rentals for a long period.

To substantiate their belief, they built Kimbrough Towers, one of the largest monolithic concrete apartment buildings in the country. To add to the building's safety as an investment, precautions were taken to insure low operating costs, and the ground floor is rented to shops.





Interior of typical living room with dining space



KIMBROUGH TOWERS

H. M. BURNHAM, Architect

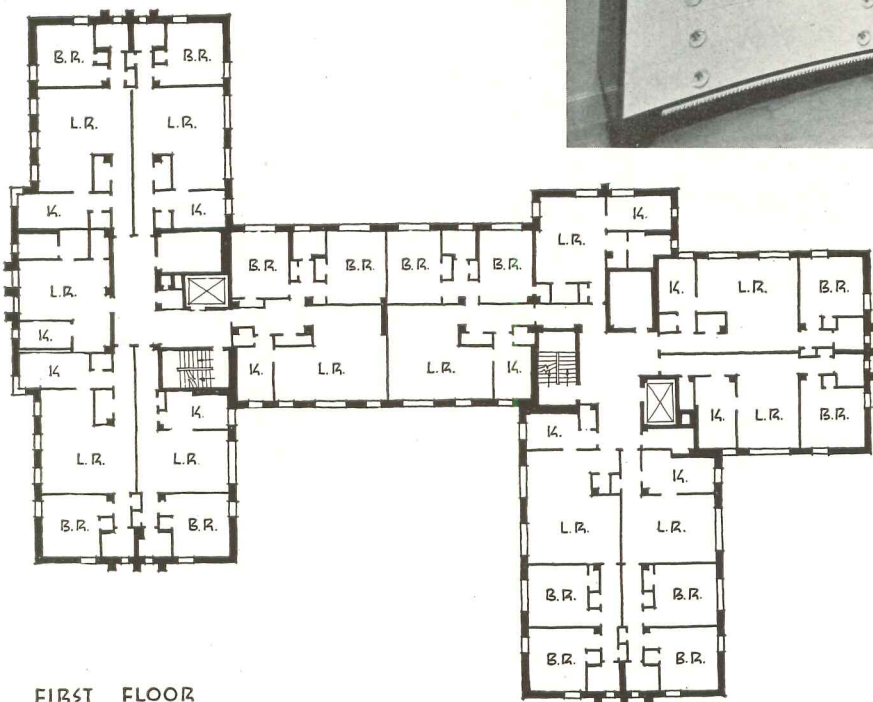
H. B. HULSEY, Associate Architect

AMONG THE FEATURES which contribute to low operating costs is the planning scheme employed. Floors above the ground floor are divided into two sections, each of which contains six apartments grouped around common services: elevator, stairs, incinerator, and heater room. There is a single gas-fired, hot-water-heated air-conditioning unit for each group of six apartments; i e., two units per floor. Thus, boiler capacity is never used for unoccupied space. Corridor ceilings are furred down to form supply ducts, and air returns through louvers in corridor doors back to blowers in heater rooms.

Of the 9 stories, 8 contain 96 apartments, divided into 2, 3, 3½, 4, and 4½-room units. Rentals are \$42.50, \$50.00, \$60.00, \$67.50, and \$75.00 monthly, respectively. All utilities are furnished except for cooking gas, individual lights, and telephone. General construction cost was \$302,394.00; plumbing, \$29,434.00; heating, \$20,000.00; wiring and fixtures, \$14,300.00; elevators, \$16,830.00; Venetian blinds, stoves, and refrigerators, \$16,456.00; total cost, \$399,414.00.



Top, living room for a two-bedroom apartment. Lower, typical corner bedroom above second floor.



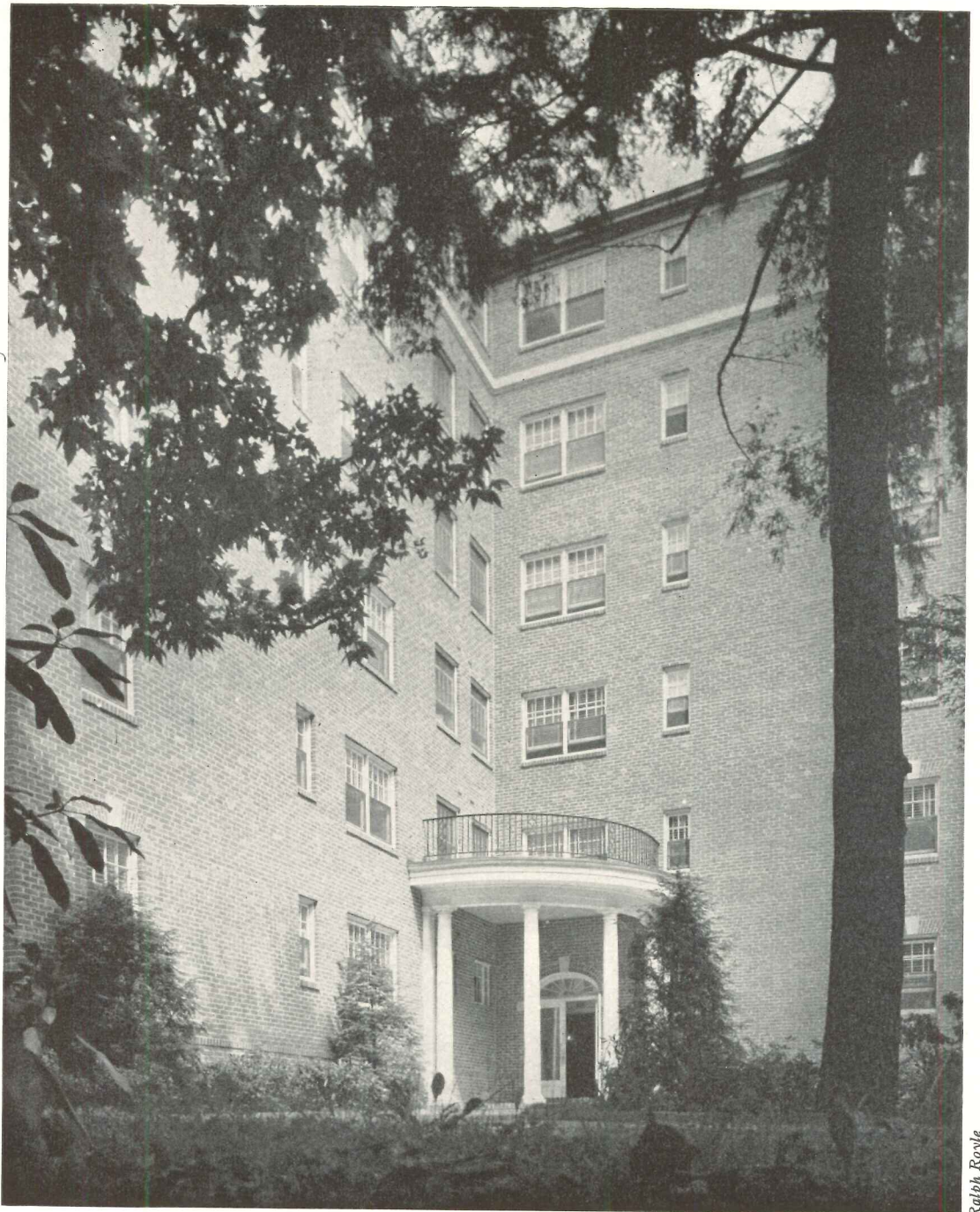
FIRST FLOOR



Top, elevator lobby; below, interior of ground-floor shop

USE OF MONOLITHIC CONCRETE made it imperative to locate continuous expansion joints between the two wings and the connecting block of the building. Floors throughout, and the roof, are 4½-in. solid slabs. Roof is insulated. Exterior walls are furred on their inside faces. Interior partitions are of hollow tile between apartments; 2-in. solid plaster between rooms in the same apart-

ment. Steel studs, gypsum lath, and gypsum plaster are used for furring and solid partitions. Floors are oak block laid in mastic, except that corridors have asphalt-tile floors, and kitchens and baths have linoleum. Plumbing fixtures are of stamped steel, and water piping is copper tubing. Interior doors, base, and cabinets are of wood. The elevators are automatic in operation.

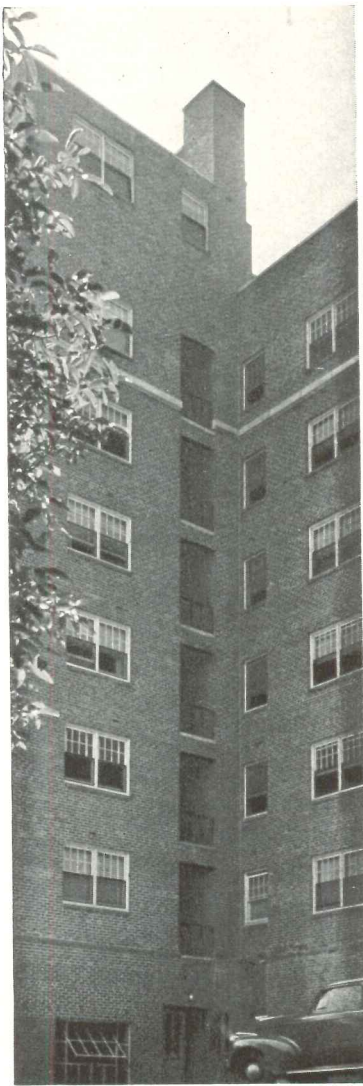


Ralph Royle

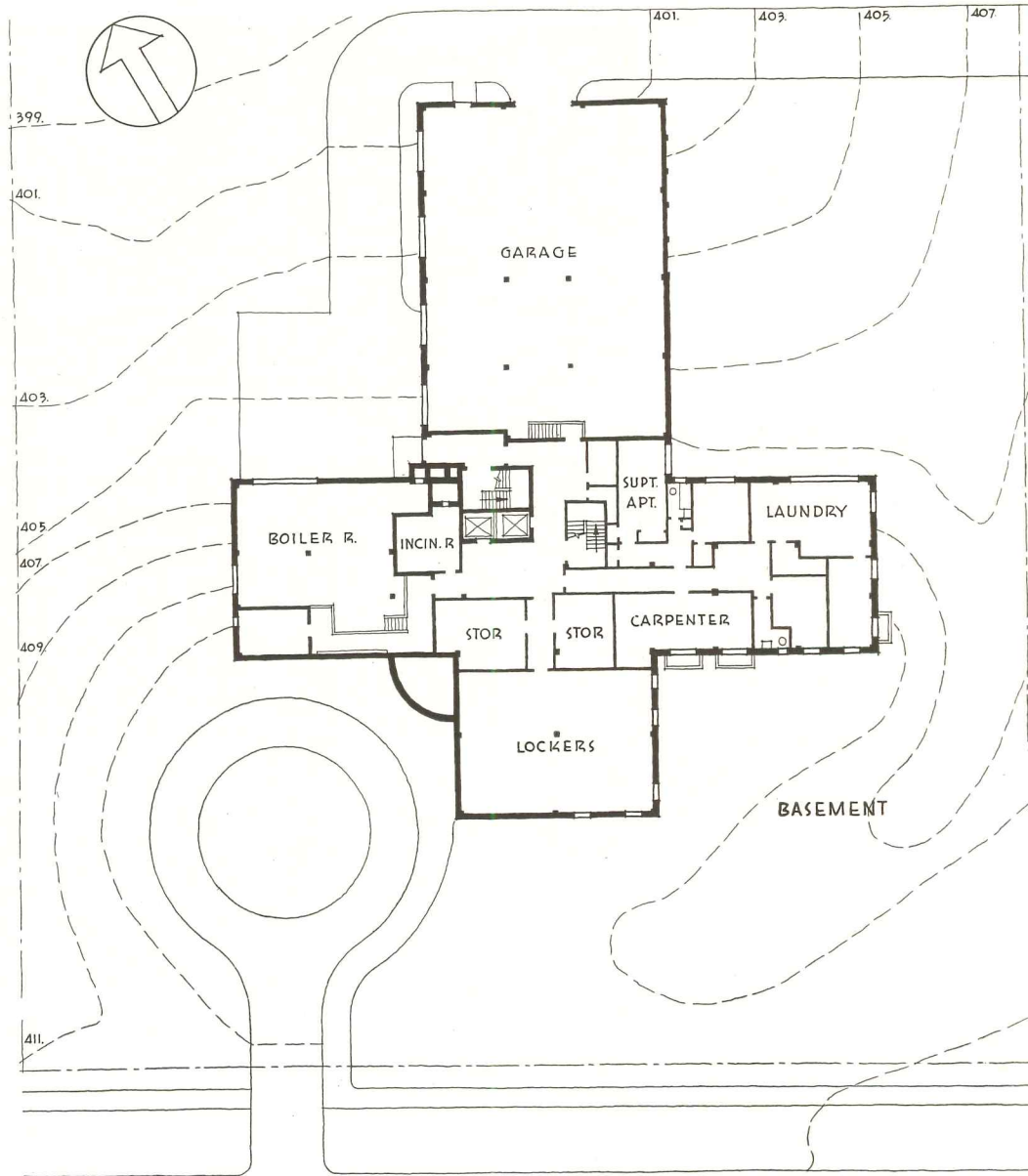


PLAN KEYED TO NEIGHBORHOOD NEED

Apartments in **MERMONT PLAZA**, Bryn Mawr, Pa., were laid out by **AARON COLISH**, Architect, on the basis of furniture space requirements. Templets, in scale, of all necessary pieces of furniture aided the work of planning. Units were sized to fill a neighborhood want.

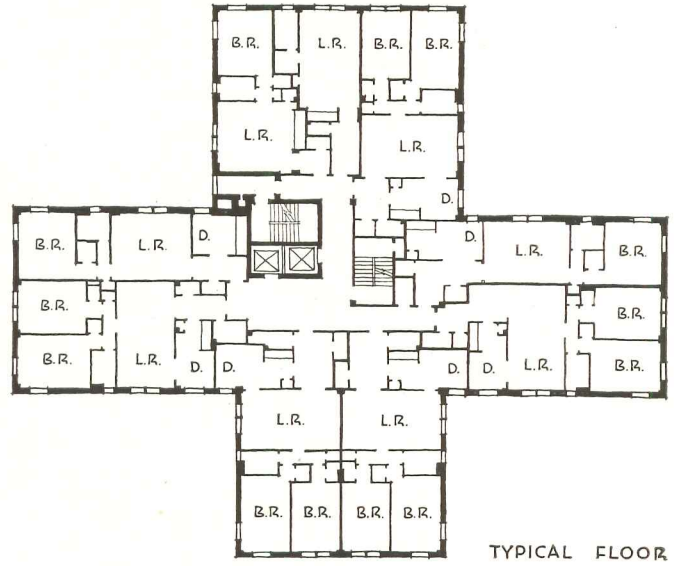
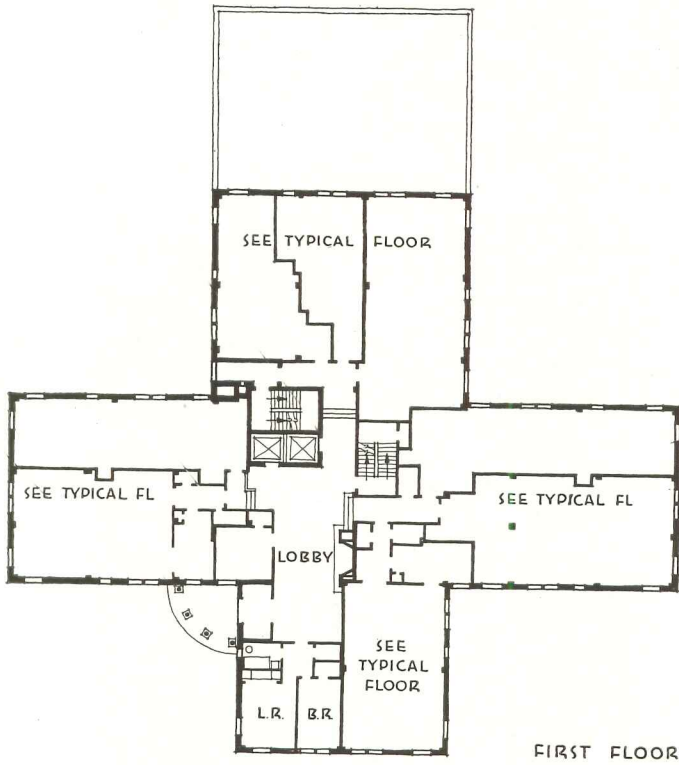


Above, recessed fire tower; below, left, main lobby; below, right, typical living room, looking towards the dinette



Photos by Ralph Royle

0 20 40 60 80 100



MERMONT PLAZA

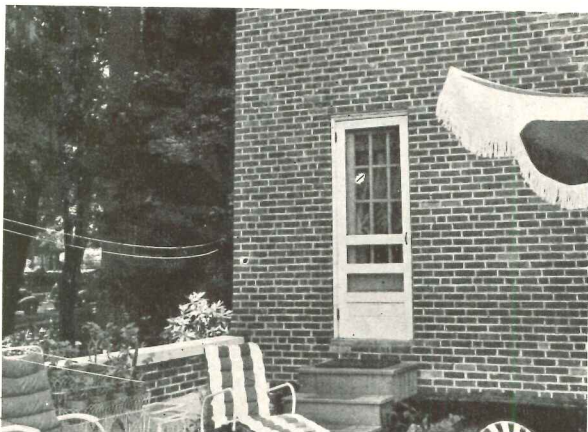
AARON COLISH, Architect

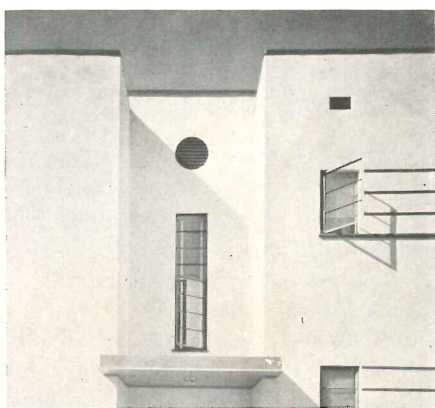
THE PROPORTION OF two-bedroom apartments to smaller units in Mermont Plaza was intentionally kept rather high in order to fill a definite demand which had been neglected by other apartment buildings in the neighborhood. Rooms were laid out with furniture templets to assure maximum efficiency.

Due to a 16-ft. drop in grade, it was possible to include a garage for tenant use in the rear of the basement; garage is entered from a side street. The roof of the garage has been converted into a tenants' living terrace.

Construction is of steel frame, with 9-in. brick curtain walls. Floors are 2½-in. concrete slabs poured on expanded metal lath supported by bar joists. Floor finish is 13/16-in. oak parquetry laid in mastic plied directly to the concrete.

Partitions between apartments are gypsum block; between rooms withments, 2-in. gypsum block.





PLAN WITHOUT HALLS FOR NARROW LOT

By the simple expedient of employing a pair of side entrances—that is, by placing the building's end toward the street—W. F. RUCK, Architect, and ZARA WITKIN, C.E., eliminated most public space in the BACHELOR APARTMENTS, Beverly Hills, Calif.

APARTMENTS are grouped around two stair wells, and garages open on a rear alley. The lot is 50 ft. wide by 121 ft. deep.

“front” apartments have kitchenettes and dining alcoves. Construction is wood frame, with stucco, waterproofed exterior walls, and concrete floors.



Typical living-room - kitchen - dining - alcove - bath unit

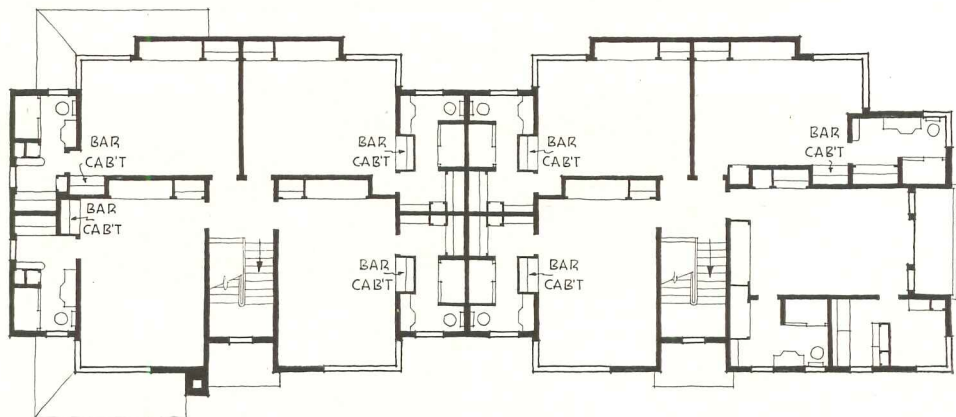
| No. of Apts. | Monthly Rental |
|---------------------------|----------------|
| 2 | \$ 47.50 |
| 8 | 50.00 |
| 2 | 52.50 |
| 2 | 60.00 |
| 14 Apts., total rent..... | \$720.16 |

Costs

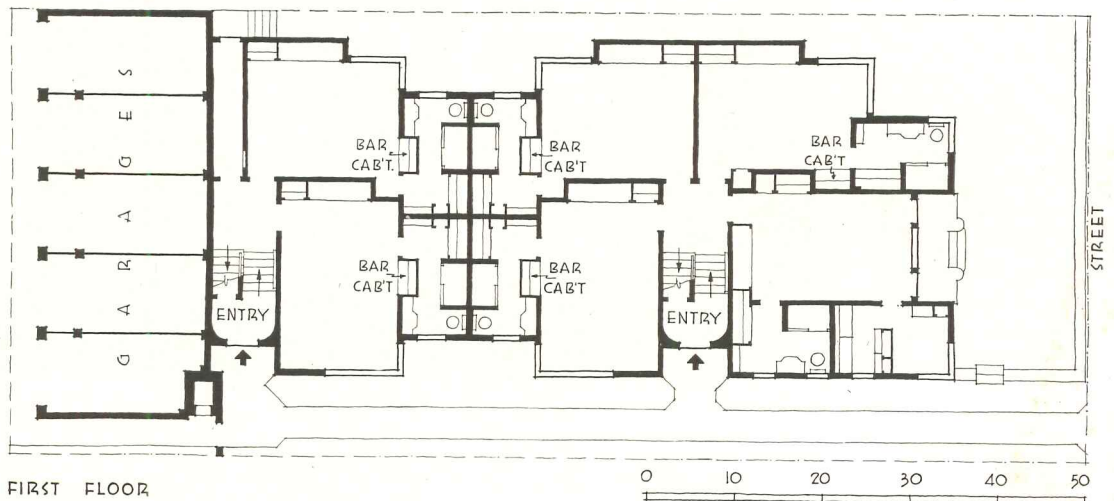
| | |
|--|--------------------|
| Construction, including building equipment, landscaping, etc. | \$25,210.12 |
| Furniture and furnishings | 6,210.16 |
| Total | \$31,420.28 |

Cost per apartment:

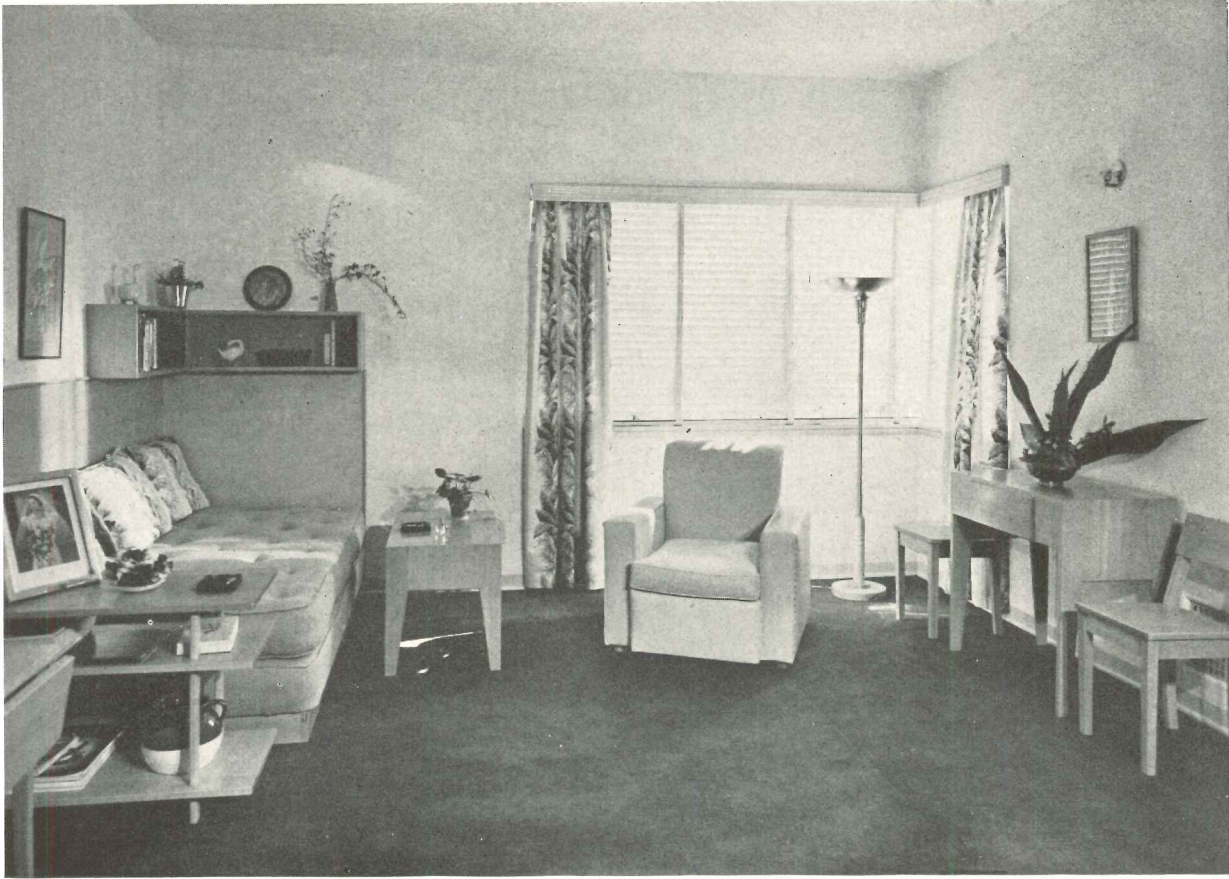
| | |
|--------------------------------------|-----------|
| Furniture, furnishings | \$ 445.49 |
| Construction | 1,800.72 |
| Heating (incl. in construction) ... | 71.25 |
| Plumbing (incl. in construction) ... | 229.07 |



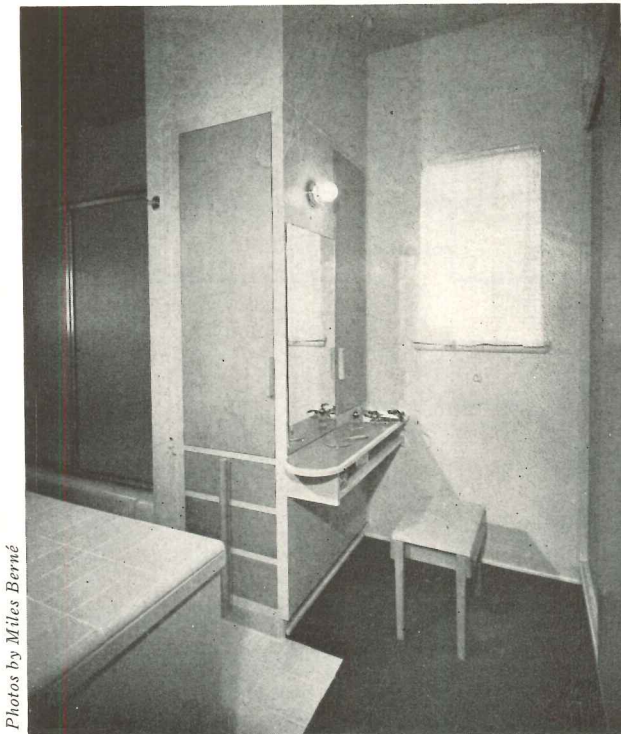
SECOND FLOOR



FIRST FLOOR



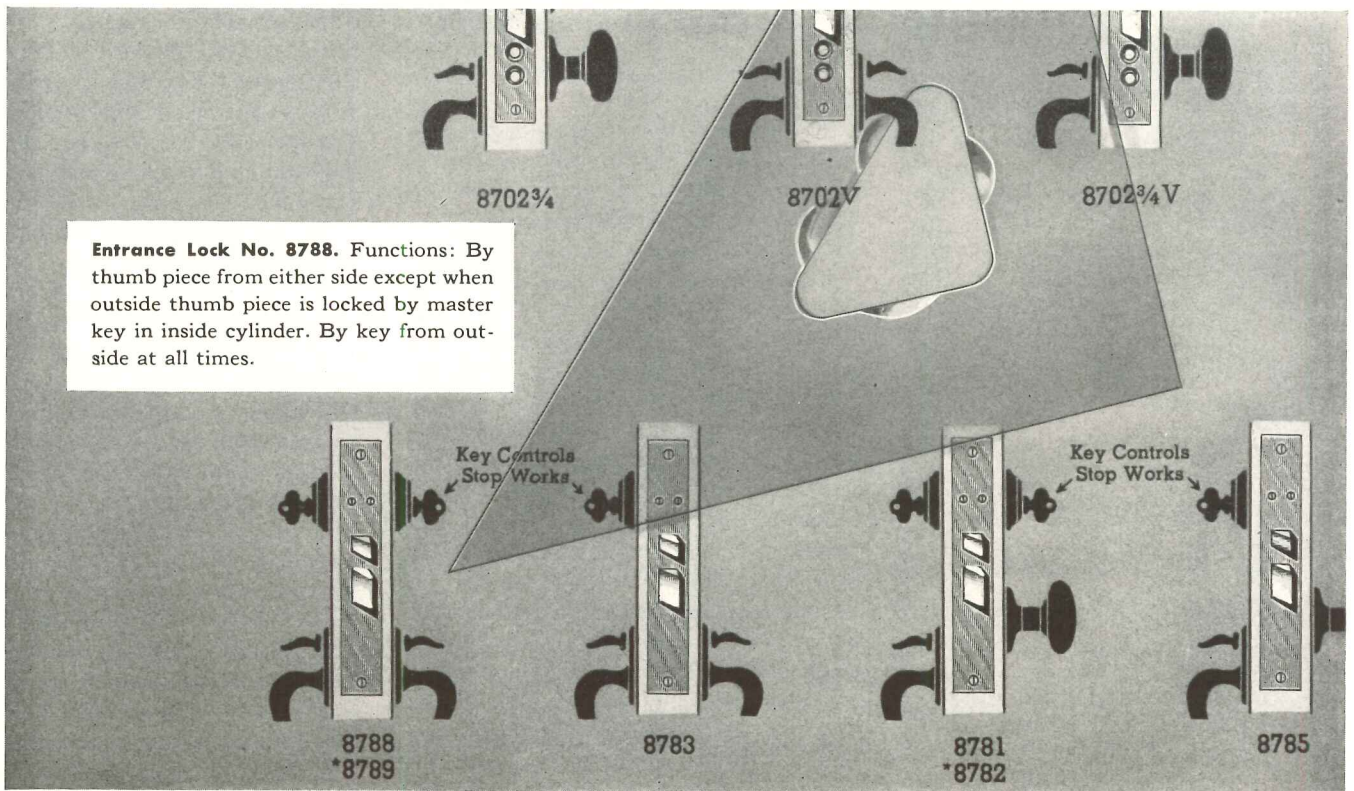
Interior of typical one-room apartment shows built-in couch and other furniture designed by the architect.



Photos by Miles Berné



At left, typical bath, with dressing table and linen cabinet; enclosed, shower-equipped tub at far left. Right, typical stair hall from which apartments open in groups of four. Public corridors are entirely eliminated.



Entrance Lock No. 8788. Functions: By thumb piece from either side except when outside thumb piece is locked by master key in inside cylinder. By key from outside at all times.

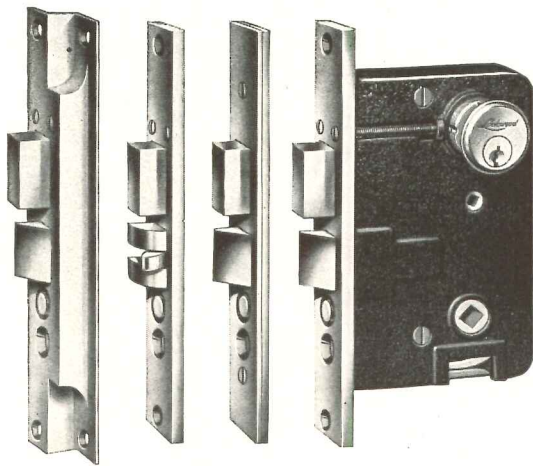
An Angle on Apartment House Entrance Locks

For Apartment House Entrance Doors, we offer you No. 8788 in the Lockwood Modernized Line of Cylinder Locks. The functions of this lock are fitted especially to this service. During busy hours, or when an attendant is on duty, the bolt is operated by the

thumb piece of the handle. At other times, the attendant's master key locks the outside thumb piece and entrance is by key only. An auxiliary bolt prevents jimmying of the latch bolt when the door is closed.

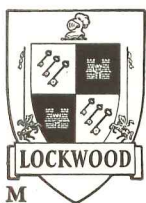
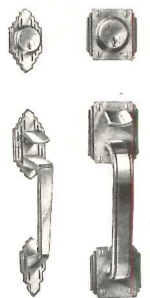
The demands of apartment house service are severe, and Lockwood has built long life into this lock. It is *extra* heavy in construction. It is also built with extreme precision and accuracy, to assure smooth, easy operation.

We would like to send you the new Lockwood Catalog. It illustrates, in an easy-to-read panorama style, more than 300 different Cylinder Mortise Locks. It will save you hours of reference time in making cylinder lock specifications. Write for your free copy today.



Plain front, plain latch bolt regularly furnished. Rabbeted front, anti-friction latch bolt, armored front—all are available when so ordered.

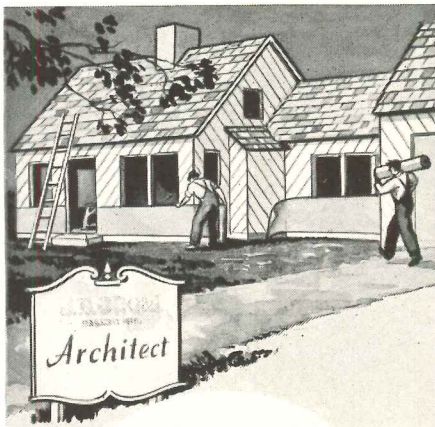
The breadth of choice in the standard handle sets applicable to these locks allows you to match any architectural motif — classic or modern. The patterns shown are: Azex and Hollywood.



Lockwood Hardware Mfg. Co.

Division of Independent Lock Co.

Fitchburg, Massachusetts



**Your Architect's
SIGN stands for the
Best in Design and
Construction**

Home owners turn to you for the "better" homes — for individuality in design — for experience and unbiased judgment in matters of construction, and choice of materials.

SISALKRAFT
REG. U. S. PAT. OFF.

**THE ONE Best
BUILDING PAPER**

Specify it over sheathing, under floors and for curing concrete.

SISALKRAFT is reinforced with miles of tough, interlacing sisal fibres bonded with two layers of kraft. It provides an impervious barrier to air and moisture infiltration. It will not disintegrate within the wall.

Its applied cost is little, if any, greater than even the flimsiest of building papers.

The SISALKRAFT Co.
205 W. Wacker Dr., Chicago, Ill.
New York San Francisco



Write for the Complete
SISALKRAFT File



Defense Plans are Still Indefinite

(Continued from page 76)

of governmental red tape, to make sure that a housing supply will quickly be made available to fill various demands and to act as a coordinating go-between for industry, financial sources, and various housing agencies of bureaucratic or quasi-social character.

Such appointments indicate the importance which Commission chiefs attach to construction operations as part of defense activities. Equally significant is the fact that the new appointees will necessarily have close contact with Sidney Hillman, labor member of the Commission, who has recently named a consulting and advisory committee of labor leaders selected from the ranks of both the CIO and A.F. of L. This is emphasized as indicating the importance of labor's co-operation in every phase of the potential construction program; and, depending upon its size and the manner in which the program develops, might conceivably forecast a healthy, less arbitrary, and vastly more efficient realignment of labor interests throughout the entire building and industrial fields.

Viewing the present situation analytically, observers say the outlook for "private enterprise" housing for industry is fair. But until needs of industries become more definite and until technical matters relating to housing types and costs have been more completely explored, little more can be said.

New Powers Urged for USHA

Relative to housing for portions of military personnel and for civilians associated with both military and industrial operations, current developments point to the USHA as the most obvious agency through which an adequate supply of living units can be made quickly available. With an adjunct of 450 local authorities and with a number of its former operating restrictions eliminated, USHA appears to have both the experience and personnel adequate to the present technical emergency.

One former restriction to USHA operations concerned basic policy: Formerly the agency was legally oriented towards subsidy housing designed for relief of slum dwellers. This barrier was partially hurdled by pushing through Congress an amendment to H.R. 9822. Under this Act, the Authority is reoriented towards defense housing and may now

build projects for defense workers as designated by the War and Navy Departments. Moreover, it may do this directly as well as lend money to local authorities for the purpose. It can also condemn land and lend 100% (formerly it was 90%) of a project's cost. Equivalent slum elimination may be deferred until after the emergency.

These new USHA powers are limited by a provision that the President must determine, first, that an acute housing shortage in the involved community exists which might impede the defense program and, second, that the necessary housing could not otherwise be satisfactorily provided. Therefore, the determining factor in the amount of housing to be supplied by Federal agencies appears to depend upon whether or not private enterprise can meet the demand.

The opinion held by most informed observers is that some Federally sponsored housing will probably be required. Volume estimates are unavailable; but some form of subsidy is regarded as necessary in order for private industry to produce dwelling units of temporary character for rentals too low to permit adequate financial return within a short period of time. This is another way of saying that the high costs of commonly accepted construction methods cannot ordinarily be met with low annual returns except over an extended period—currently set at 20 years. The statement is not universally accepted. The National Association of Real Estate Boards has announced its conviction that with adequate co-operation of all factors, private industry could meet housing requirements of any nature. And should a technique of low-cost prefabrication suddenly emerge from its chrysalis of experimentation, the need for all subsidies might conceivably disappear. (See pages 74 and 75.)

Prime stumbling block in the Authority's path is a current lack of funds. At the time when Congress gave it power to cope with defense housing, it had either spent or earmarked every dollar in its treasury. It is now making efforts to get a new appropriation.

As a background for these efforts the National Executive Committee of Housing Authorities has issued to the Defense Advisory Commission a terse "warning of a possible danger that the entire defense program will bog down because of delays and inefficiency in filling defense orders unless housing accommodations are built immediately for thousands of

(Continued on page 110)



You work with a wider

"Palette" when you specify a Crane Kitchen

DESIGNING kitchens for greater livability... increased usefulness... is an art as well as a science. And architects have found that they work with a wider "palette" when they specify CRANE.

Because Crane offers a *complete* line of kitchen sinks and cabinets, you have greater scope in choosing exactly the right kitchen arrangement to fit the needs and desires of your clients. Because Crane-Equipment

provides high quality within every price range... for any size of building budget... you can be sure that even the most modestly priced Crane kitchen will embody the highest standards.

And when you specify Crane-Equipment, you can be confident that your clients will be well satisfied for 83%* of the people recognize Crane as a manufacturer of fine plumbing. You can also be confident that you are giv-

ing your clients every worth-while improvement... every convenience that helps to make kitchen work easier, and kitchen living more enjoyable. Use your Crane Architects' Catalog—and Crane kitchen planning service—when you next plan a kitchen!

**83% of the people, asked by an independent research organization to name a brand of plumbing, mentioned Crane. This was 25% more than mentioned any other manufacturer.*



CRANE

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

IF AN Architect DESIGNED FURNACES



He'd think first—last—always—of L.C.S.—the sole gauge of an architect's reputation and success. L.C.S.—LASTING CLIENT SATISFACTION—in a furnace means its ability to serve year after year . . . reliably, efficiently, and economically. PAYNE'S advanced engineering—relentless testing—ceaseless inspection—assures you of furnaces with L.C.S. For any heating problem—Cottage or Mansion—PAYNEHEAT is first choice of your most discriminating clients.

Floor Furnaces Gravity Furnaces
Forced Air Units Console Heaters
Duplex Furnaces Zoneair Units

See your PAYNE Dealer or Gas Company. Or write for a convenient file of information.

PAYNEHEAT
Payne FURNACE & SUPPLY CO., INC.
— BEVERLY HILLS • CALIFORNIA —

Defense Plans Are Still Indefinite

(Continued from page 106)

workers in key industrial cities." This was followed by a summary of the situation, plus a twelve-point program asking for additional housing funds and showing how the USHA could be streamlined to meet the housing need.

Paralleling a request for an appropriation, USHA has set out to give an actual demonstration of this suggested streamlining by rescinding \$13,500,000 formerly earmarked for slum-clearance projects and diverting it into eight defense housing projects. Whether they are designed to do so or not, such actions will undoubtedly present a powerful argument to Congress on behalf of broadening the scope of the USHA, and assuring its financial adequacy to deal with a particularly important factor of the preparedness emergency.

AS A SIDELIGHT COMMENT on present housing policy, the architectural profession is suggesting in official releases that its members take a more active part in public housing. Howard Dwight Smith of the Columbus, Ohio, Chapter of the AIA proposed that an educational program be projected to make the layman, especially the slum dweller, more appreciative of the architect's work. This, he says, would be a great step toward eliminating the spirit of the slum as well as its actual physical blight.

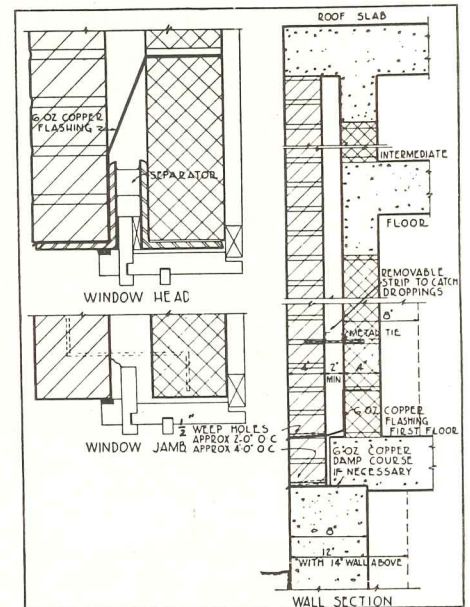
He suggests establishment of architectural bureaus by local housing authorities to work on the site where problems—social and technical—can be solved close to the grass roots. In his estimation such bureaus would offer opportunities for "career" men in public service without undue encroachment on private architectural practices.

METAL-TIED CAVITY WALLS APPROVED FOR USHA CONSTRUCTION

Bureau of Standards tests substantiate claims for strength, economy, resistance to leakage

MASONRY CAVITY WALLS with metal ties, reported to be the most commonly used type for housing purposes in England and Australia during the past 15 years, have recently been approved by the Technical Division of the USHA and recommended to local authorities for general use in this country. On the basis of performance tests conducted by the National Bureau of Standards, superior rain-and-moisture resistance is claimed for this type of construction, and it is estimated that savings over the conventional wall (8 in. of brick facing, clay-tile backup, furring, and plaster) may go as high as 10%.

According to Bureau of Standards' tests, reported in a recent issue of USHA's *Public Housing*, metal-tied cavity walls of commonly available masonry materials variously combined and built under ordinary commercial practices, but with high-strength mortars, show load-bearing properties suited to low-rent house and apartment con-



Detail: Metal-tied masonry cavity wall

struction. Test results compared "very favorably" with tests made on six types of conventional 8-in. walls. Deficiency in only one respect—resistance to wind pressure—"is satisfactorily corrected by using high-strength mortars."

Permeability tests were conducted but results have not yet been made public. "However," the USHA report states, "the Bureau of Standards has confirmed, in advance of publication, that the cavity air space prevents water leakage through the facing from penetrating

(Continued on page 114)

THIS
ARGUMENT
HOLDS
WATER

GOOD design, good workmanship, good materials—that is the essence of sound construction, as typified by Wellesley College's new Recreational Building and Swimming Pool. Architect: William T. Aldrich, Boston. Contractor: Aberthaw Company, Boston. Cement: Lone Star.

Quality workmanship and quality cement are doubly important in structures which must keep water in or out. Use the right amount of water per bag of cement; proportion carefully; mix thoroughly; place without separation; then, and most important, keep the concrete wet until thoroughly cured. That kind of concrete, made with Lone Star Cement or 'Incor' 24-Hour Cement, gives watertight service through the years.

Where job conditions make it impossible to keep concrete wet for 6 days or longer, 'Incor' gives you watertight curing in 24 to 48 hours. Where time-saving and the added certainty of thorough curing offset the slight extra cost of 'Incor'* , that is the cement to use; otherwise, use Lone Star. You gain either way, because better cement makes better concrete.

Write for copy of "Watertight Concrete." Lone Star Cement Corporation, Room 2243, 342 Madison Avenue, New York.

*Reg. U. S. Pat. Off.



LONE STAR CEMENT CORPORATION

MAKERS OF LONE STAR CEMENT . . . 'INCOR' 24-HOUR CEMENT

AUGUST 1940

Cavity Walls Approved By USHA

(Continued from page 110)

the inner section of the wall when adequate flashing and weep holes are provided to deflect and drain the water."

The cavity wall (see cut) recommended for use on USHA-aided projects consists of two masonry sections—an outer and an inner—connected by metal ties over a continuous air space which, for maximum drainage efficiency, should not be less than 2 in. wide. Further to obviate drainage obstructions, floors bear on the inner section only. While the outer-wall width

is usually constant at 4 in., the width of the inner section varies from 4 in., normally sufficient for two-story structures, to 6 or 8 in. for the first story of three-story buildings.

Masonry units are those used ordinarily, determined by exposure and loading conditions. Mortars are of at least 2,500-lb. strength, with good plasticity and water-retention properties. Metal ties can be of steel, coated with portland cement grout, or of noncorroding metal; copper ties of sufficient stiffness are considered satisfactory. For each 3 sq. ft. of wall surface, a 1/4-in. steel rod or its equivalent is required.

Over all openings in the wall sections, flashings are used to deflect water outward through weep holes or sideways into the cavity on each side of the opening. Under particularly moist conditions, it is advisable to install a damp course.

Since the air space between wall sections gives insulation value higher than that for equivalent solid walls, furring and lathing are not considered necessary except under extreme temperature and high fuel-cost conditions. Insulating materials in the cavity space are inadvisable because moisture penetration of the outer section causes deterioration, high conductivity, and the formation of fungi.

The USHA particularly emphasizes that good workmanship "is as essential for cavity walls as for other masonry walls," and that failure in any one of the essential features outlined above will nullify the advantages of this type of construction.

SURVEY SHOWS PUBLIC IS UP ON ITS MATERIALS

U. S. Gypsum Co. finds building public knows what it wants, is willing to try new methods

THE UNITED STATES GYPSUM COMPANY, delving into the minds of that part of the public which is about to build or modernize, has come up with a set of statistics containing facts of import for the entire building industry.

The research, based upon personal interviews with people requesting the Company's booklets on home building and modernization, was conducted under the direction of the Ross Federal Research Corporation. It covered 32 cities in 11 states, ranging in population from 20,000 and up.

First discovered was that a surprisingly high percentage of people planning to build know definitely the types of construction they want. For 70% had decided on the outside wall finish, 73% on the interior wall finish, 69% on the roofing, and 51% on insulation.

However, these percentages increase even more as the time nears for construction to begin. Among those who planned to build in three months, or less, 98% had decided on the type of exterior wall finish, 93% on the interior wall finish, 95% on the roofing, and 75% on the type of insulation.

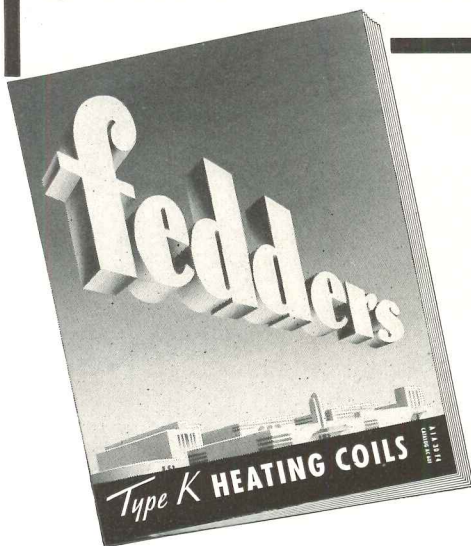
A noteworthy sidelight on this section

(Continued on page 118)



Every Man Responsible for
Designing Heating Systems

is INVITED TO SEND FOR THIS BOOK



*Gives Helpful Data
on Latest Type K
Heating Coils*

Complete facts on the advanced design of Fedders Type K Heating Coils are given in this new 52-page catalog.

In addition, full working data covering a wide range of conditions makes this book one of the most useful in the industry.

NEW TIME SAVER CHARTS

Save Time for Busy Engineers

A special feature for busy engineers is a series of TIME SAVER CHARTS developed to eliminate involved computations and reduce engineering effort and time to minutes instead of hours.

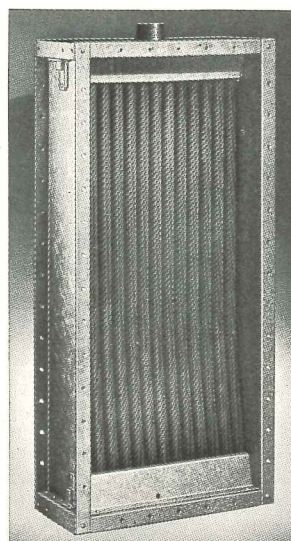
Busy men responsible for designing heating and air-conditioning systems are invited to write for a personal copy or ask your Fedders representative.

fedders MANUFACTURING CO., Inc.

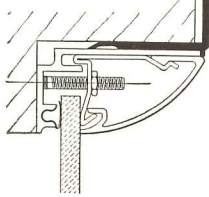
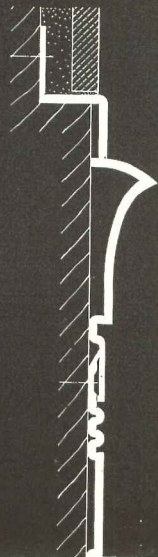
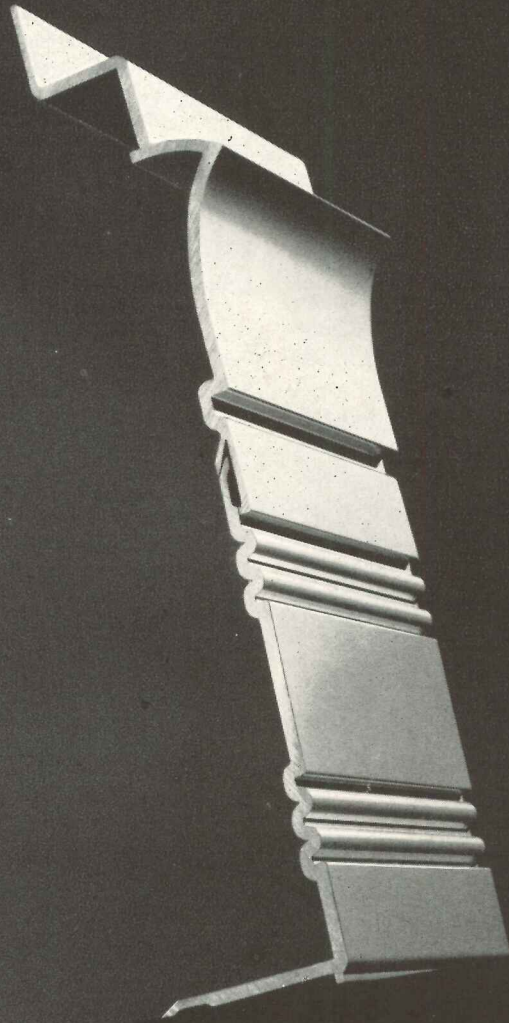
Air Conditioning Division - 47 Tonawanda Street
BUFFALO, N. Y.

Representatives in All Principal Cities

Fedders Type K Heating Coils are built in a complete range of sizes.



CLEAN, SHARP PROFILES



DETAIL:

Cross-section showing how interlocking Pittco mouldings, repeated, permit easy adjustment in size, plus or minus, without exposed screws and fastenings.

At the New York World's Fair, visit the Glass Center Building and the Pittsburgh House of Glass.

● PITTCO Store Front Metal is *extruded* metal. This fact has an important bearing upon the uniform high quality of Pittco construction. For the extrusion process endows Pittco Metal members with clean, sharp profiles. Not only the metal itself, but the entire Pittco Store Front of which the metal is but a part, achieves greater distinction, refinement and beauty because of these pure contours. And Pittco Metal also benefits in strength and durability because its members are extruded. The architect will find Pittco Store Front Metal a versatile tool to work with in his store front planning. There are Pittco bars, mouldings and sash to meet practically every need. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pa.

PITTCO STORE FRONT METAL
PITTSBURGH PLATE GLASS COMPANY

"PITTSBURGH" stands for Quality Glass

Public Up On Building Materials

(Continued from page 114)

of the research is that nearly a third of the persons interviewed were willing to try a new form of construction insofar as it is constituted by dry walls. As far as costs are concerned, it has been proven once more that the building industry's backbone is the great middle class. 66% of the homes erected will cost \$7,500, or under, while a mere 2% will cost more than \$15,000.

High rents (28%) and the desire for a home designed especially for themselves (25%) are the two most important reasons why people build their own homes.

An analysis of the types of remodeling contemplated by the interviewees showed the largest number, 37%, intended to refinish interiors, while 32% were going to reclaim basements or attics, and 22% planned to rearrange their rooms. The average cost will be \$560.65, which will be paid in cash by 45% of the home owners.

About one-third of the people who modernize do so through a desire for more convenient living quarters, a fact which is further borne out by the 40%

who already have had their rooms rearranged in past operations.

In ending, the report noted that 37% of the persons contemplating remodeling were either skilled laborers or clerical workers. Also, a vast proportion of the modernization jobs, 88%, will come from the middle income brackets.

JOHN R. FUGARD SEES NEW TREND IN CITIES

**Urges rezoning of marginal areas;
revision of restrictive codes**

AN IMPORTANT SHIFT of population back to urban areas, which will offer a stiff challenge to city planners, is predicted by John R. Fugard, AIA treasurer.

He pointed out that decentralization has been in progress for more than 20 years. Also, that the refusal of financial institutions to look beyond the present and lend aid in overcoming slum blights hastened the process.

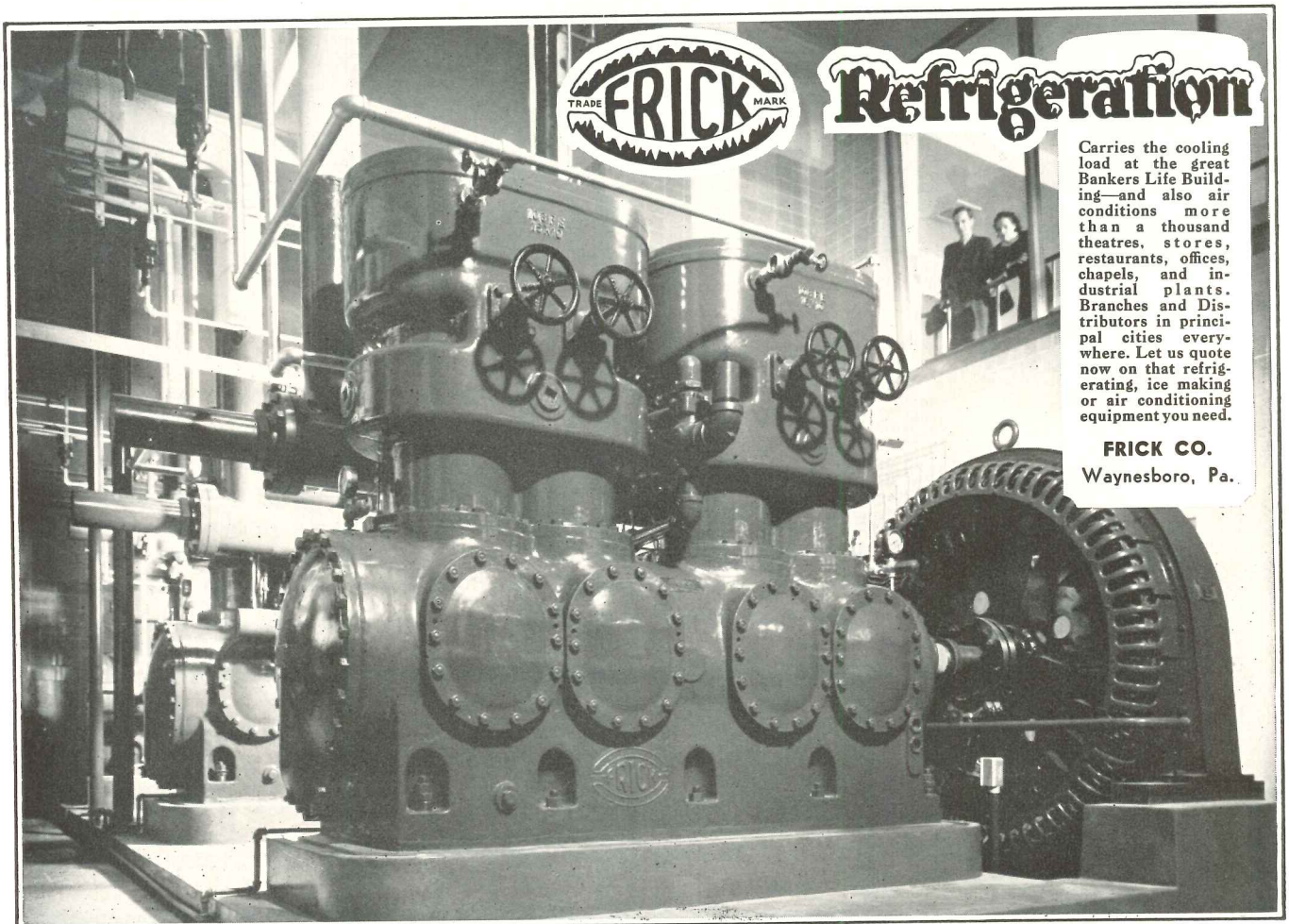
Now, however, powerful counterforces are coming into play. Higher taxes, an increasing demand for public services, and a tendency toward social security, coupled with a rise in median

age, smaller family size, and the accompanying demand for compact, economical living units, will bring an ever-increasing number back to the cities.

Thus, we may expect to see dismal marginal areas of downtown business districts again producers of financial return through rehabilitation for well-planned residential needs.

To facilitate this process, Mr. Fugard suggests that restrictions retarding modernization of the marginal districts be removed. Tax assessors should base their assessments on earning power rather than a fictitious brick and mortar value. A reappraisal of land costs from terms of wishful commercial expansion to terms of realistic residential-location establishment is also necessary. Most important is the removal of the restrictive measures now controlling financing of construction projects in these areas.

As far as the physical rehabilitation is concerned, Mr. Fugard advises the city planners and architects completely to rezone the marginal districts, work out park systems, parking space, and safe streets. In short, rebuild these slums into permanent contributions to the city's health and prosperity.

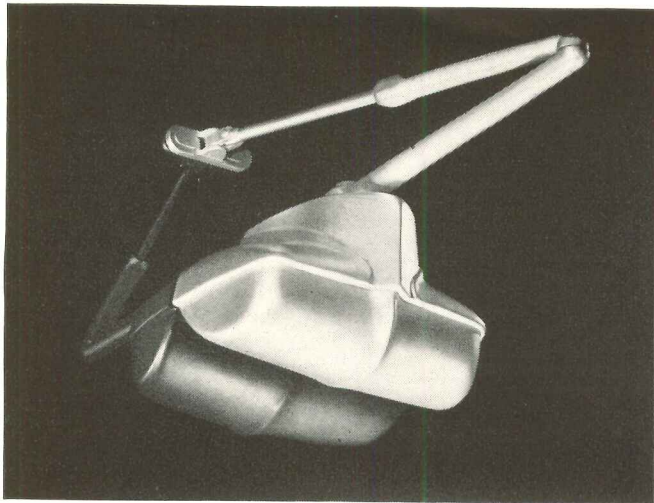


FRICK TRADE MARK

Refrigeration

Carries the cooling load at the great Bankers Life Building—and also air conditions more than a thousand theatres, stores, restaurants, offices, chapels, and industrial plants. Branches and Distributors in principal cities everywhere. Let us quote now on that refrigerating, ice making or air conditioning equipment you need.

FRICK CO.
Waynesboro, Pa.



Every Advantage Except Concealment

This standard LCN Door Closer with a streamlined housing and arm gives you every advantage short of concealment, that is: (1) superior control of the door, as easily demonstrated; (2) long life; (3) low cost, first and for upkeep; (4) protection; (5) ease of keeping clean; (6) modern, pleasing form; and (7) any finish you desire, simply and inexpensively applied to the smooth metal housing, either to contrast, as shown, or to match and "blend in." Most popular is the plan of finishing on the job, with the trim, making closers inconspicuous, yet good-looking. Sizes C and D. Send for details. Norton Lasier Co., 466 West Superior Street, Chicago.

The LCN "Miracle" TRADE MARK STREAMLINED DOOR CLOSER

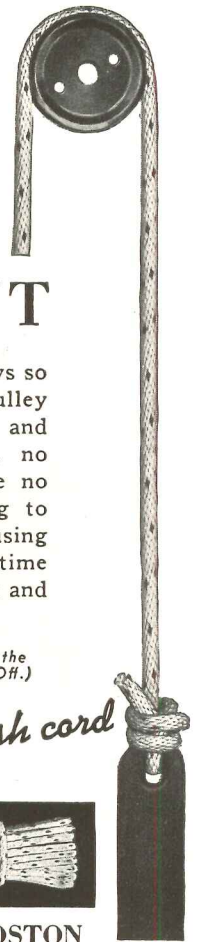
DEFINITE ASSURANCE OF UNFAILING SERVICE

YOU buy more than a mere fountain when you buy Halsey Taylor Drinking Fountains. You buy definite assurance of trouble-free service, positive health-safety, maximum convenience, *built-in patented features exclusive with Halsey Taylor!* Have you our latest catalogue?

The Halsey W. Taylor Co.
Warren, Ohio

HALSEY TAYLOR
Drinking Fountains

AUTOMATIC STREAM CONTROL
PROJECTOR



PERMANENT

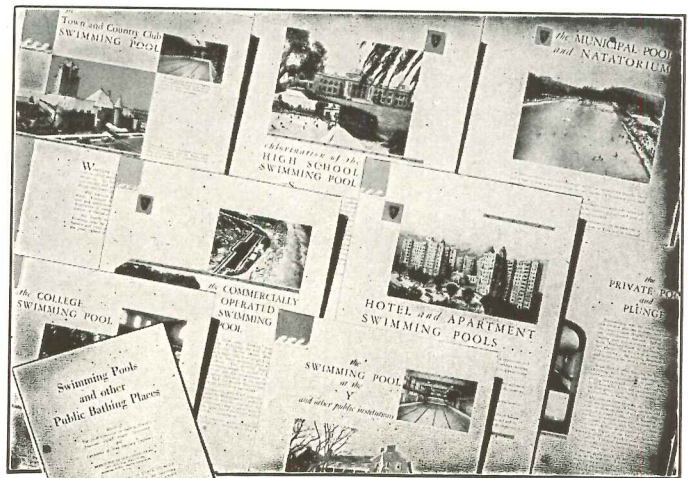
There is no method of hanging windows so trouble-free as the cord, weight and pulley method — it has been time tested and proven in service. No adjustments, no metal to metal contacts — therefore no noise, no early replacements, nothing to get out of order. Proper installation using Samson Spot Sash Cord means a lifetime of service, reasonable installation cost and avoidance of expensive replacement.

Specify Samson Spot Sash Cord — identified by the colored spots, our trademark (Reg. U. S. Pat. Off.)

SAMSON SPOT sash cord



SAMSON CORDAGE WORKS • BOSTON



SWIMMING POOL STERILIZATION

Complete information on swimming pool sterilization for eight different classes of pools—also a fifty-page report of the Joint Committee on Bathing Places of the American Public Health Association and Conferences of State Sanitary Engineers, embodying a summary of State Health Department Regulations. Copies of any or all Free on request.

When writing kindly specify the type of building construction in which you specialize.

"SWIM IN DRINKING WATER"

WALLACE & TIERNAN CO., INC.

Manufacturers of Chlorine and Ammonia Control Apparatus
Newark, New Jersey Branches in Principal Cities



BOOK REVIEWS (Continued from page 73)

appear among his works. And his text applauds the modernist approach, so long as it is sincere and not a desire to be different or—worse yet—the copyist's banal "moderne." In fact the conflict (if it exists) is completely resolved when it is noted that three modern houses from Mr. Wills' office are included in the Fords' book as illustrations in support of their thesis.

ARCHITECTURE THROUGH THE AGES: The Story of Building in Relation to Man's Progress, by Talbot Hamlin. G. P. Putnam's Sons, N. Y. C. 649 pp., 6¼ in. Price, \$6.00.

MR. HAMLIN'S NEW ARCHITECTURAL HISTORY is like its predecessors in that it is organized chronologically—from pre-history to the present; unlike them in that it has more of a "world view" of man's building—giving, for example, an extensive and intelligent coverage of the architectures of the Far East and pre-Columbian America. It is like its predecessors in that its simple chronological perspective inevitably distorts the present and magnifies the past (we are not finally through with Roman architecture

until page 224, while today's building gets only the last 20 pages). Yet in the chapters on nineteenth-century Romanticism and Eclecticism, it explores an important period in the development of American building—a period usually skimmed over by historians because of its treacherous esthetic currents and ubiquitous "bad taste." Most important of all, Mr. Hamlin has a more than average appreciation of the relation between a given architecture and the society of which it is but one expression.

Thus, he points out that "as an architecture of a great, highly organized, and complicated world civilization, Roman architecture necessarily developed a differentiation of building types greater than any which had preceded it. . . . In other words . . . the Romans developed the science and art of planning—that is, the organization of interior spaces, not only for practical but also for purely artistic reasons—to a degree that had never been reached before. It is in these buildings that the great triumph of Roman architecture as an architecture primarily of space can best be realized."

Mr. Hamlin brings to this history an encyclopedic knowledge which nonetheless manages to dodge cumbersome foot-

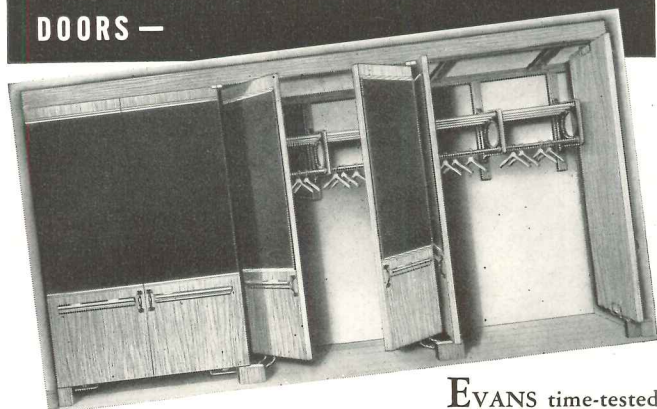
notes. In addition, he writes well—even eloquently—and steers a remarkably steady course through the esthetic tangles with which the histories of art and architecture are strewn.

AN AIR-CONDITIONING PRIMER, by William Hull Stangle. McGraw-Hill, N. Y. C. 236 pp., illus., 6 by 9¼ in. Price, \$2.50.

MR. STANGLE'S BOOK succeeds in reducing a whole complex of scientific fact and data to a simple and (easily) readable form. From various sources, it brings under one cover enough information to make both the theory and practice of air conditioning readily intelligible. Moreover, by the organization of his material, the author succeeds in making it interesting. Authors of technical books too often fail to establish the relationship between their special field and progress generally. In four especially good chapters—Heat, Air, People, Enclosures—Mr. Stangle analyzes the basic atmospheric factors controlling human comfort: only then does he proceed to a discussion of current applications and apparatus.

An Air-Conditioning Primer will constitute a valuable addition to any architectural library.

Evans SCHOOL WARDROBES FEATURE SPACE SAVING VANISHING DOORS —



EVANS time-tested wood wardrobes save space. Their low cost saves money, too.

Less floor space is required with Evans for two reasons. First, these wardrobes are made to set in a recess flush with wall (minimum depth only 24"). Second, they feature the Evans Vanishing Door that swings back flush with sides in a way that keeps the aisles clear of interference at all times. The patented, trouble-free hardware gives silent, carefree operation for the life of the building.

Evans Wardrobes come in a full range of sizes and types. Easy to install. Simple. Practical. Low priced. Specify Evans for school wardrobe satisfaction and economy.

SEE SWEETS CATALOG OR WRITE FOR FULL INFORMATION

Evans VANISHING DOOR WARDROBES
W. L. EVANS COMPANY • WASHINGTON, INDIANA

A SHORT CUT TO YOUR Construction • Cost • Problems FOR PRELIMINARY ESTIMATES



Boeckh's Manual contains cubic and square foot costs on approximately 500 types of buildings with a total of over 7,000 specific base cost figures and in addition, thousands of specific cost variations.

All costs are keyed to local construction cost conditions through exclusive index conversion formulas—Boeckh's Manual never gets out of date if used with the conversion Index.

Boeckh's Manual of Appraisal is now used by over 8,500 firms among which are hundreds of architects and builders. This Manual is nationally recognized by Fire Insurance Companies and Mortgage Loan Agencies as a standard of building Construction Costs.

Boeckh's Manual of Appraisals and Pad of Work Sheets. Price shipping prepaid. **\$6**

Local Current Index Conversion Factors (each location). Price shipping prepaid **\$1**

Order now, examine it for 10 days, then if you are not completely satisfied return the Manual and your money will be refunded.

E. H. BOECKH & ASSOCIATES
Consulting Valuation Engineers

AMERICAN BLDG.

CINCINNATI, OHIO