

PROGRESSIVE ARCHITECTURE

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newsletter

October 1949

- Construction costs appear to be stabilized at about 10% below the peak postwar point. Associated General Contractors report that "competition has become keen" among bidders.
- Interesting commentary on building economics is provided in figures showing that although construction costs and real estate prices have dropped in last year, assessed valuation of urban property rose. Latest totals are an average of 4.3% higher than a year ago.
- HHFA has a handbook of information on new Housing Act available for distribution. It can be gotten from Supt. of Documents, Gov't. Printing Office, Washington 25, D.C., at 15 cents a copy.
- Public housing projects have been allocated to 26 cities in the form of "program reservations" under Title III of the 1949 Housing Act. These allocations total over 100,000 of the 810,000 authorized by the Act over a six-year period. Applications for such allocation can be filed only by local housing authorities, of which about 700 exist at present.
- Economic Cooperation Administration has announced recently a number of projects involving construction abroad with ECA funds or counterpart funds supplied by the home country. For instance, Italy is to have two steel plants modernized; Belgium will get a new cement plant; France will have several oil refineries improved. Two of Turkey's salt plants will be remodeled with technical assistance from Morris & Van Wormer, N.Y., engineers.
- George Howe, Philadelphia architect, at present advisor to the American Academy in Rome, has been named Chairman of the Department of Architecture at Yale. Howe is now designing the new American Consulate building in Naples, will return to the U.S. and join Yale faculty in January. He replaces Harold D. Hauf, new editor of "Architectural Record."
- General Panel Corp., manufacturing and marketing a wall-panel house construction system devised by Wachsmann and Gropius, has received a new RFC loan which puts it back in active business.
- U.S. Steel is introducing through its subsidiary, Gunnison Homes, a 4-room factory built house planned to cost no more than \$6300 with lot.
- U.S. Rubber compound known as Surfa-Sealz is being tested on N.Y. City street paving, blended with asphalt to produce a blacktop which it is hoped will be more resilient and more durable.
- A.I.A. has moved into newer building at east end of Octagon property. Octagon, designed by Thornton in 1798, will be refurbished for use as reception house.

(Continued on page 2)

- A competition for a wood-frame suburban apartment is currently being sponsored by Timber Engineering Co. Entry blank can be had from Contest Secretary of that company. Closing date is January 15.
- H. Th. Wijdeveld, Dutch architect and teacher, will be a visiting professor at N.C. State this fall. Albert Roth, Swiss architect and editor, will teach at Washington U. in St. Louis.
- A number of architects in the east have recently met a visiting British building industry delegation, including Michael T. Waterhouse, R.I.B.A. president, and Robert H. Matthew, London County Council architect.
- Seventh Pan-American architectural conference will be held in Havana, Cuba, Dec. 8 to 14. Exhibit sponsored by A.I.A. promises to be excellent; will be exhibited at Washington convention in May and then will travel under State Dept. auspices.
- West Va. A.I.A. Chapter is arranging a meeting at White Sulphur Springs, Nov. 4 and 5, that promises to be worth attending. National Institute board will be on hand, and speakers include Belluschi and Chermayeff.
- 250,000 new schoolrooms will be needed in next ten years, according to Council of State Governments. An additional 100,000 will be required as replacements. Cost will total more than \$9 billion.
- It is significant that although educational costs have more than doubled in last decade, and strides have been made toward meeting school district standards, many one-teacher schools still exist. Illinois, for instance, has 6,778.
- Tourist business is big business in some areas, and provides interesting commissions for some architects. Tourist take last year was \$9.5 billion. New England states alone reported \$538 million in vacation income for 1948.
- Revere Quality House Institute, which has sponsored well-designed houses in nine cities, has now become a division of Southwest Research Institute, at San Antonio, Texas. Studies in house design, construction, marketing, and financing will be carried on with funds supplied by Revere Copper and Brass.
- 350,000 sq. ft. of louverall ceiling has been installed in a Grand Rapids dept. store by Sylvania.
- BOCA basic building code, which has been under preparation for some years, will be completed this month and submitted to Conference's annual meeting Oct. 31.
- Structural steel specification of A.I.S.C. has been revised, principally in respect to minimum thickness of members subject to corrosion.
- A loophole in registration laws: Only 14 states require a person holding the title of city engineer to be registered or even a trained engineer.
- A new N.Y. State law requires that architectural license be issued to disabled World War II veterans completing approved rehabilitation course, on oral exam.

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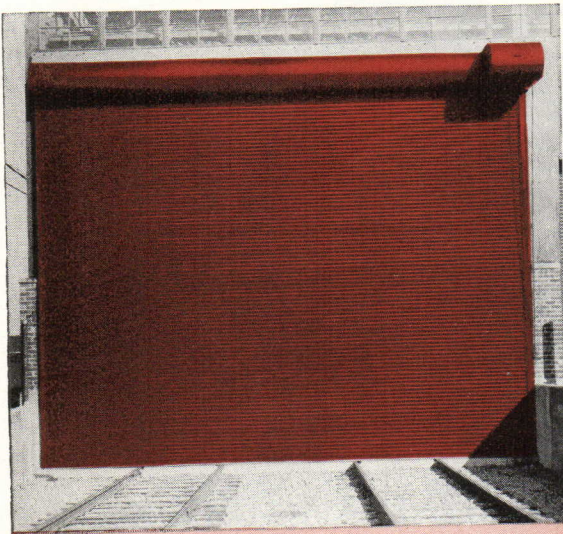
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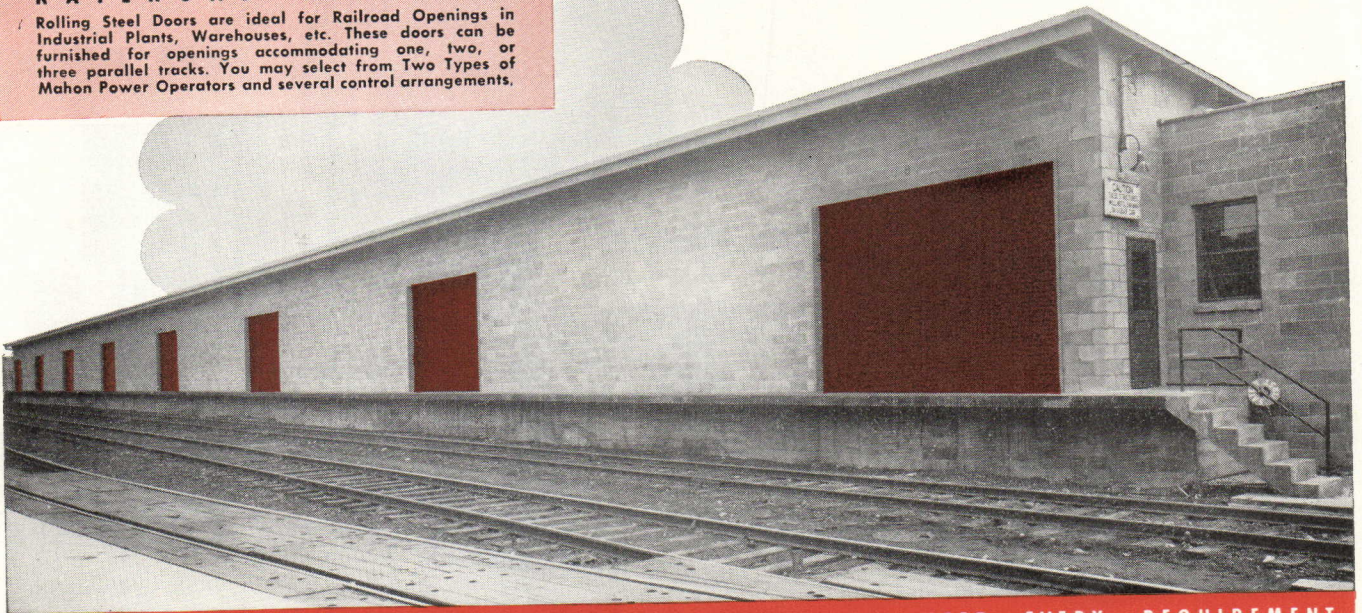
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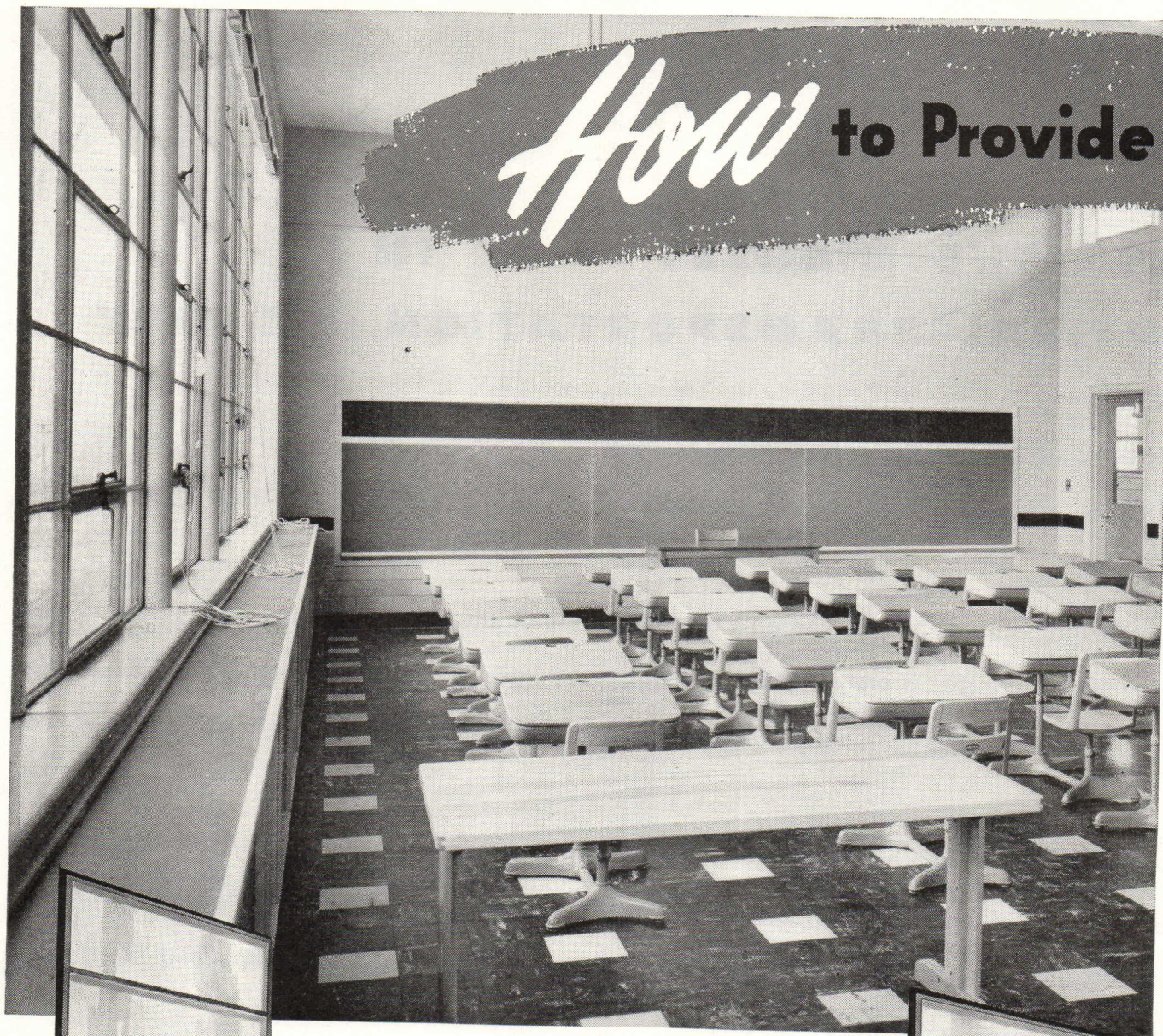
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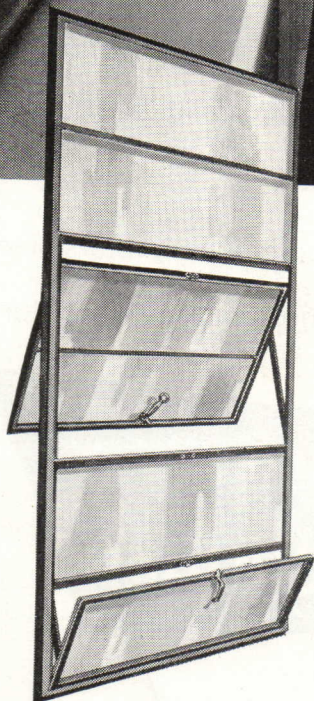
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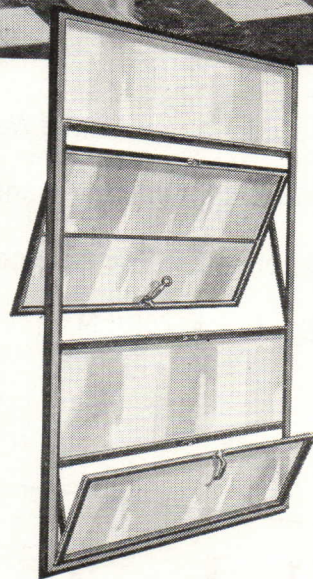


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Investigate the availability of daylight in your area . . . It is important to know the amount of available daylight so you can plan for adequate illumination. The United States Weather Bureau records provide information showing the average number of clear days anywhere in the United States. For complete information, consult the United States Weather Bureau.



Explore the importance of distant vision . . . Medical science recognizes the importance of distant vision. Strain on the body, eyes and the mind is relieved through looking at distant views. Consult medical authorities for additional information on this important point.



Find out what type of window lets in the most daylight—assures distant vision . . . As a preliminary aid, consider these facts . . . steel windows admit more daylight than any other type of window design since they employ clear glass. Full height steel windows also provide more distant vision than any other window opening. There is less obstruction since frames and muntins are slender.



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THE NEW COLUMN ON EDUCATION OF ARCHITECTS (SEE PAGE 118)

Dear Editor: The newly inaugurated monthly column in P/A by Carl Feiss first of all, offers wonderful possibilities for both teachers and practitioners to air their views on a very controversial subject. I believe that the schools have always been anxious to turn out the best product possible and I am equally certain that the profession is genuinely concerned over the present day preparation of our graduates for practice. We in the schools may even have been a bit overzealous in our efforts to fit our graduates into the routine of office practice. I believe that it is an open secret that we have been spending a great deal of time trying to decide where we are going. It would be fine if Dr. Feiss' column would establish that for us definitely. I hope he can find agreement on what an architectural education should include. I believe Dean Wurster mentioned 164 subjects that had been listed as "musts" for the educated architect, and that this column will be a forum for an enlightened discussion of the problem.

Some subjects that I would like to see discussed are: What are the "cultural" subjects? What should the schools include in their courses in professional practice? Is a foreign language necessary in an architect's training? How much instruction is necessary? and many other topics.

I congratulate P/A on a most important new venture in architectural education and wish Dr. Feiss the best of luck in a project he is eminently well qualified to handle.

MILTON S. OSBORNE, Head
Department of Architecture
Pennsylvania State College
State College, Pa.

In 1950 one of the most popular regular features of P/A is to be improved and expanded. Caleb Hornbostel, New York architect and architectural teacher at Cooper Union, Pratt Institute, and Design Institute, has been engaged by Reinhold Publishing Corporation to collaborate with Elmer Bennett, P/A draftsman, in preparation of a Selected Details book scheduled for publication in 1951. Four of these details, chosen as representative of best contemporary practice in the United States, will be presented in each issue of P/A, beginning with our February issue. Architects who have perfected structural details that they feel would be of general professional interest are invited to submit them to Hornbostel and Bennett for inclusion in this new series—and the Selected Details book.

Dear Editor: Your new column by Carl Feiss I have read with a great deal of interest. I am sure this new venture will bring out a large amount of comment which will be healthy for all concerned.

PROF. L. C. DILLENBACK, Director
School of Architecture
Syracuse University
Syracuse 10, N.Y.

THOROUGH VENTILATION

Dear Editor: I think Mr. Feiss' column opens for discussion an area in architecture which certainly needs a thorough ventilation and I think his first column an excellent one. I wish Mr. Feiss success and hope that his column proves valuable and provocative.

PROF. ESMOND SHAW,
Assistant to the Dean
Cooper Union, New York 3, N.Y.

PROMISING BEGINNING

Dear Editor: I think your September Carl Feiss column shows a very promising beginning—and have so written to Carl. Good luck.

KENNETH KASSLER
Princeton, N.J.

IDEAS AND COURAGE

Dear Editor: I believe the column by Carl Feiss will be a valuable addition to your publication. Carl has lots of ideas; he is energetic, has courage, and an easy facility of expression, but more important than this is the lack of understanding between the older members of the profession and the schools. If his column can help the profession understand our aims and our difficulties, a great deal will have been accomplished.

PROF. LINUS BURR SMITH, Chairman
Department of Architecture
University of Nebraska
Lincoln 8, Nebr.

WILL COOPERATE

Dear Editor: We think you have chosen wisely in the selection of an author. Director Carl Feiss has a rich background which will well equip him to bring to the public those things which vitally interest all of us in architectural education.

We will certainly cooperate as best we can to make this endeavor a success.

PROF. HARLAN MCCLURE
School of Architecture
University of Minnesota
Minneapolis 14, Minn.

NOT IMPRESSED

Dear Editor: Thanks for sending me the opening discussion of Carl Feiss. I regret to see that he, as many others, takes a crack at the Beaux Arts' atelier system, however, it seems useless to reply to those who think the Beaux Arts system was one that imposed or maintained classical architecture into this century. Perhaps it did. If so, what of it? The fact that the Beaux Arts for centuries after initiating the study of planning and the study of its theory as distinguished from practice and the apprentice system of the time of Louis XVI and still continues to be one of the best places to study planning is merely history of course.

Dean Hudnut at the Regional Conference of Architectural Schools held in Boston in March took occasion to say in his welcoming address that, in spite of his own importation of non-Beaux Arts teaching talent, when he conducted a competition or attended a judgment of architecture, academic ones I think not being referred to, that he was amazed at the knowledge of architecture of those who had attended the Beaux Arts in Paris as compared with the knowledge of his own and others who had not had that privilege.

In general, I am not impressed with Feiss' opening article. Jefferson is an example of a very "gadget minded" person as evidenced by Monticello and yet he produced many broad scale plans. One of them would have prevented the Civil War, and one would have meant we would have had a decimal system complete besides our money.

EDMUND S. CAMPBELL,
Professor of Architecture
McIntire School of Fine Arts
University of Virginia
Charlottesville, Va.

ARCHITECTS EMBARRASSED

Dear Editor: As consulting architects for the Air Reduction Laboratories, presented in the September issue of P/A, we noted with surprise and chagrin that this building has been published in the August number of the *Forum*. In addition to showing the building in a barely finished state, the *Forum* has listed erroneously the consulting architect as a certain "George Smith."

In view of the months of painstaking preparation by your staff and our office for your coming presentation of Air

(Continued on page 10)



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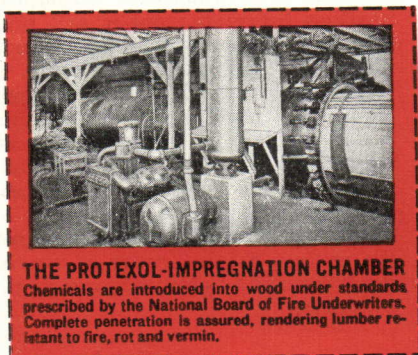
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(Continued from page 8)

Reduction Laboratories, we would like to clarify the record. We did not know that the *Forum* was contemplating their article; we were never approached by that magazine at any time for authorization or information for their presentation, and neither the Air Reduction Corporation, as Owner; Wigton-Abbott, as Engineers; or ourselves, as Consulting Architects, ever heard of "George Smith." From all the information available to us, his identity is

known only to the staff of the *Forum*.

The *Forum* has admitted their error to us, and will make a correction in their forthcoming issue. It is unfortunate that this kind of correction can never make due reparation either to P/A or to the consulting architects for the embarrassing, not to say damaging, consequences of the original mistake.

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Hoistway width, in.....	33"	39"	45"
Hoistway depth, clear in.....	27"	33"	39"
Hoistway depth, including doors, in.....	29"	35"	41"

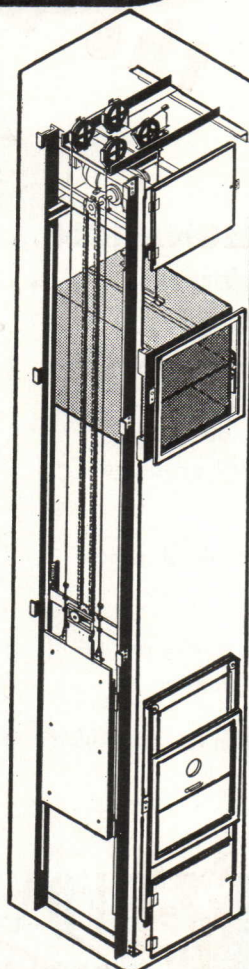
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ADVERTISING: YES OR NO?

Dear Editor: Your August number of P/A contained an excellent article by Bernard Tomson, entitled "Its the Law." I regret this article did not receive a more prominent setting in the above issue, since Mr. Tomson has not only cleared up some complicated legal matters of interest to the profession, but has also written clearly on another subject, which, for numerous reasons, has been evaded or shirked by some Architects, Chapters, and, to some extent The American Institute of Architects.

Under our code of Standards of Professional Practice we are prohibited from advertising, particularly in the form of paid advertising. The meaning of this prohibition is quite clear and should not require debatable interpretations. Instead, a good many Architects have chosen to find ways to circumvent this article or ignore it completely. Their honesty of purpose must be questioned when they can secure a definite advantage over other Architects, who (a) desire abiding by the Professional Practice Code, or (b) are not able to finance the cost of advertising as it is done today by a few of the larger firms of Architects.

There are many ways of securing "paid advertising." Heading the list is the employment of Public Relations Counsel on a part time or annual retainer basis. Another method is in paying commissions or fees to others, namely politicians or "five percenters" who are able to bring architectural projects into the offices of an Architect who indulges in these practices. Without mincing words, this is all paid advertising, which is generally enjoyed by some of the larger firms of Architects.

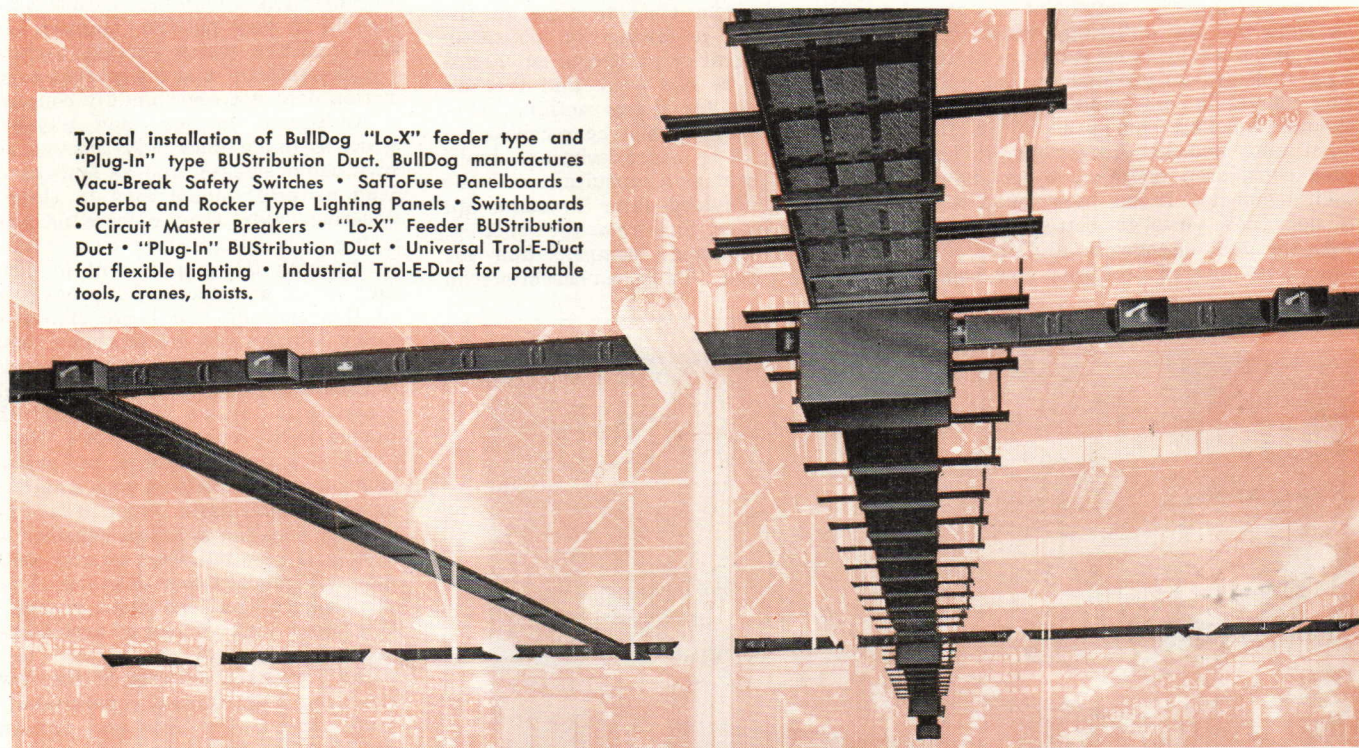
It has been argued that the employment of Public Relations Counsel is an ethical practice, since this gentleman may advise on important correspondence; he can advise on preliminary sketches and accompanying documents; and in general advise and guide the Architect so that the Architect may present himself to his clientele to his best advantage. I may be naive, but I believe sincerely no architect would consult a Public Relations Counsel for the purposes mentioned above, but would rely instead on good legal advice. His employment of the Public Relations Counsel would be for one definite purpose, i.e., to advertise his name and firm and to keep his work through publications before the public and profession in a manner which he could not do himself. *This is paid advertising.*

The architect who can reach politicians, "five percenters," or other influential people who, for a consideration will ease the way, or secure valuable architectural commissions for the architect, regardless of the fact that he may, or may not be qualified to carry through the project, is also guilty of unethical practices and is also securing *paid advertising*.

(Continued on page 12)

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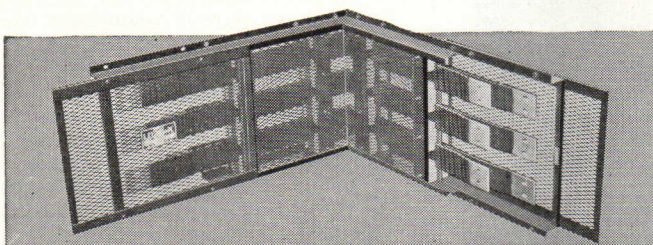
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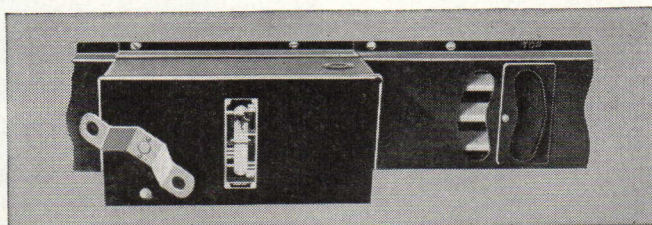


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Section of "Plug-In" Duct, showing Vacu-Break Bus Plug for tap-off purposes. Crescent-shaped openings make it impossible to insert plugs incorrectly. Each ten-foot section of "Plug-In" Duct has ten such openings. Capacities: 200 Amps. to 1350 Amps., 600 Volts or less.

(Continued from page 10)

For fear that this may be passed over as innocent fee splitting, which has been practiced by some members of the legal and medical professions, fee splitting should be discussed further. Although we find this practice in the legal and medical professions, it has been considered unethical by many of their members. It has been found that it does not serve to better relations with the public generally, and may also contribute towards reforms now being

mentioned from time to time in the press. When a lawyer or physician passes his client or patient to one better qualified to do the work and receives compensation for doing nothing, that is fee splitting. When he receives aid and guidance by others who are qualified to help him as a consultant with the fees being divided later in some approved manner, this is not fee splitting. Both are receiving compensation for their services. Thus, an architect in

association with another architect on some project would not be guilty of fee splitting. Were the lawyer or physician to pay laymen to bring work into their offices, I am certain that their parent organizations would deal with this practice in a very positive manner. It is this practice which certain architects consider ethical and our parent organization does not seem unduly concerned.

Architects, lawyers and physicians grow in importance only through their own achievements, and as long as they lead as professional men in their respective fields, they require no advertising secured on their own initiative or through the employment of others. Our great architects of the early part of this century had large offices with many worthwhile commissions, and it would not be wrong to state that they did not use Public Relations Counsel or other paid means to promote their names or to secure their work. Nor did these architects indulge in practices that placed competition with small firms on an unequal basis. Only in this present day does the architect consider himself in a new building activity with a new self-imposed code of ethics. I actually believe that the main reason for this new way of some architects is because they feel so inferior to the many famous architects of the "twenties," and I am further convinced of the truth since a few able and prominent architects today continue their successful ways abiding by the letter and spirit of our Code of Professional Practice.

The question of advertising has come up in convention from time to time and a firm and clear attitude has never been taken on the subject. It was a matter of discussion at the last convention which produced the revision which may be noted in Par. 8 of Section II, Mandatory Rules of The Institute, A.I.A., Doc. No. 330, Rev. 3/18/49. The intent was to prohibit paid advertising, but there still remains the loop holes for our unethical "ethical" architects.

Let us have advertising or let us put down this practice in all its insidious forms. The New York Chapter Register which was approved approximately a year ago after a bitter debate by attending members at a regular Chapter meeting, is another type of advertising glorifying the larger architectural offices. I believe firmly that this register containing the names of Chapter members, principals of their offices of a professional and non-professional character, and a spread of work they have supposedly done over the years, could never have passed when submitted to the entire membership for a vote. Instead, the matter was voted upon by only the few members that could attend the meeting. Copies of this register can now be distributed to prospective clients by themselves or others, and the importance of the firm may be suggested by the spread given the firm. The Chapter Register should contain only a list of the architect members, their firm names and their addresses.

ELLIOTT L. CHISLING
New York, N. Y.



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The Sturdy Quality of Real Clay Tile

For hospitals, clinics and public institutions in general, ROMANY offers an exceptionally desirable wall surface. For ROMANY is real clay tile. Its hard glazed surface assures extra durability. Its colors are everlasting. And, no surface is easier to clean, more completely sanitary than ROMANY. For corridors, for rest rooms, for kitchens and dining rooms, wherever color and wear and ease of cleaning are wanted, there's no tile like real clay tile, and ROMANY is real clay tile.

Write for Color Folder

UNITED STATES QUARRY TILE CO

Member: Tile Council of America
733 RENKERT BUILDING
CANTON 2, OHIO

These buildings were stuccoed with Brixment nearly 20 years ago. They are still in perfect condition.

YOU'LL GREATLY PREFER BRIXMENT STUCCO, TOO!

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Brixment makes better, more economical *stucco*, too. It is more plastic and easier to apply. It is used in leaner mixes, hence

reduces hair-checking and crazing. It is stronger, more weatherproof and more permanent than "workable mixes" of portland cement and lime.

Brixment can cut your costs and give you *better stucco jobs*. For proof, please ask your dealer (or write us) for a copy of the handbook "Brixment for Stucco and Plaster."

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TOWARD BETTER STANDARDS OF CITY LIVING

Continuing pressure for more units of housing within average family means—and disclosure of current large-scale plans to provide such housing in major urban centers of the country—lend weight to critical evaluations of projects already completed in this field.

Two such evaluations in the New York metropolitan area, made by independent architectural committees, have recently come to public attention. The housing committee of The Municipal Art Society toured large-scale projects, reported some design progress, and is continuing

to study the field. More recently, the housing committee of New York Chapter, A.I.A., used a special grant from the Arnold W. Brunner Scholarship Fund to publish an illustrated report of a two-year study and appraisal of accomplishments of the New York City Housing Authority toward "better standards of living which may be furnished through the design of communities."



Projects of New York City Housing Authority won high praise from two independent committees of architects (see report). Among these, the chapter committee found Brownsville (above) is "an outstanding example of the charm and sense of domesticity which can be obtained on an uninteresting, flat site, through the intelligent placing of buildings of varied height, with a plan which is definitely in harmony with human scale." Likewise praised by both committees is Fresh Meadows, designed by Voorhees, Walker, Foley & Smith, New York architects, for New York Life Insurance Company. This is a varied community, with both garden apartments and apartment buildings, as shown in the picture below.



The Chapter committee, headed by Arthur C. Holden, made a series of tours of all housing projects of the New York area to compare standards and results before deciding to center attention on the work of the New York City Housing Authority, in the belief that "a report which aims to give a dispassionate technical appraisal of the results of public housing will be of far-reaching interest to technicians, to all who are interested in better housing of every kind, and to the public in general." The 30 projects initiated by the Authority since its creation in 1934 were pronounced a "record of outstanding achievement."

Contrast of the Authority's work with projects initiated by private investors, principally insurance companies, is the topic of an important section of the report; which goes on to describe public prejudice against improved living standards for low-rent projects, evidently a deterrent to rapid improvement until the public can be educated.

In this comparative section of the report, the committee states:

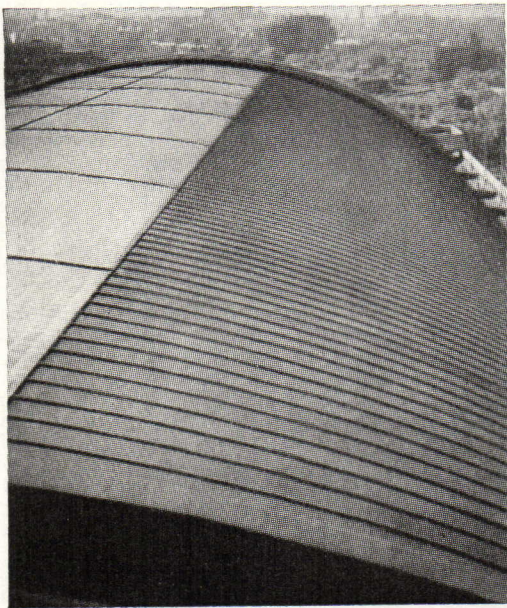
"To evaluate the work of the Authority one must consider the projects of the Authority as part of a long-range movement for the improvement of urban housing conditions.

"1. *Antecedents:* Following the close of World War I, large-scale investment housing was given impetus under the leadership of Walter Stabler, of the Metropolitan Life Insurance Company, under legislation permitting direct investment in housing by the insurance societies. The State Housing Law of 1926 offered state supervised corporations the advantage of low interest money and taxation limited to land value only, in return for agreements to limit both profits and rents. A third step was taken in 1933 as a depression measure, when state-supervised housing corporations were made eligible for federal loans and grants. In 1934 public housing corporations were authorized and made similarly eligible.

"The New York City Housing Authority became heir to the techniques of design and construction tried under the

(Continued on page 16)

It's a two-acre roof ...and it's copper!



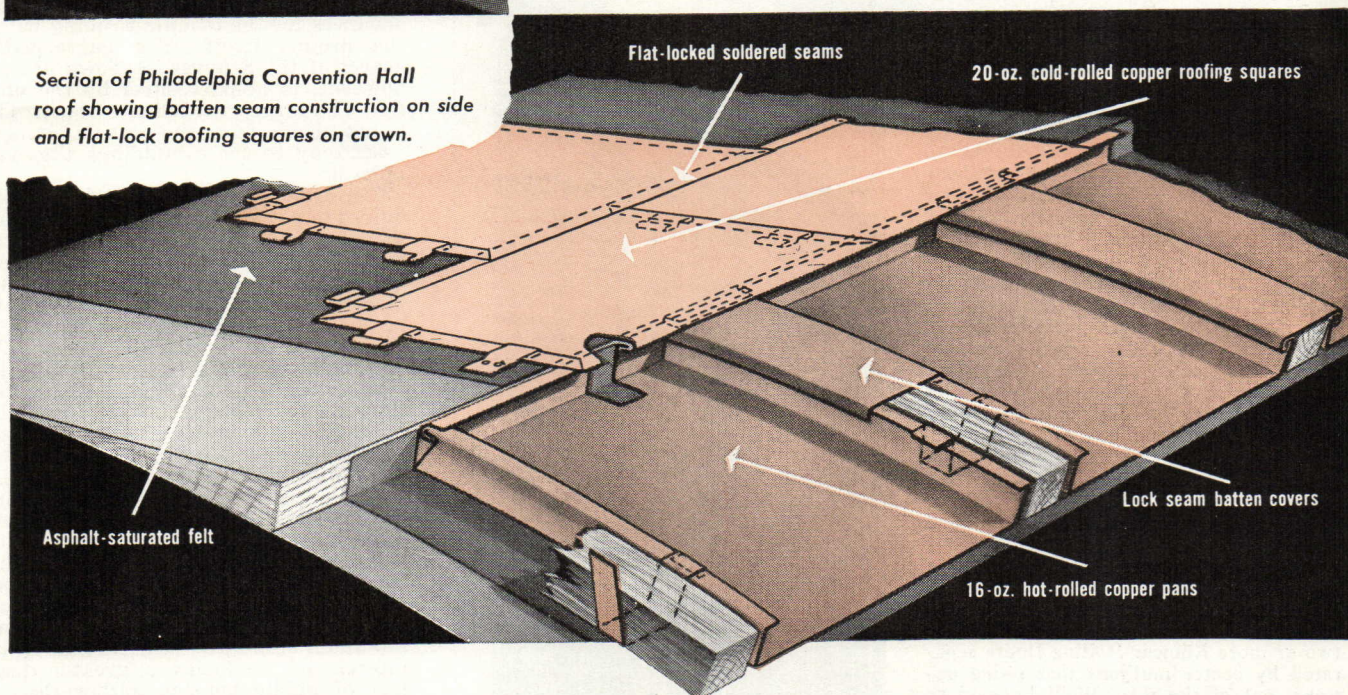
It's a roof worthy of Philadelphia's famous Convention Hall. It's made of 90,000 square feet of ANACONDA Sheet Copper.

Its design for the first time incorporated the new principle of using cold-rolled copper for all soldered work—in gages and forms appropriate to the nature and scale of the job. For cold-rolled copper provides greater stiffness to resist buckling and thus can transfer stresses to the expansion battens and slip joints.

ANACONDA Sheet Copper has stood the test of time. It's the roofing metal of first choice for appearance, low maintenance and resistance to corrosion. Let our Technical Department help you with any roofing or sheet metal problems involving copper or its alloys. Just write to The American Brass Company, Waterbury 88, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

4934-A

Section of Philadelphia Convention Hall roof showing batten seam construction on side and flat-lock roofing squares on crown.



You can build it better
with *Anaconda Copper*

Progress Report

(Continued from page 14)

supervision of the New York State Board of Housing. The two most influential projects were probably Hillside Gardens and the Grand Street Houses of the Amalgamated Garment Workers.

"2. *Early Types*: The first projects of the Authority were low walk-up buildings designed around garden courts, in which the influence of Hillside Gardens was definitely apparent. Here the first large-scale demonstration was made of the economy of concrete frame, fireproof construction and low build-

ings, with the use of concrete slab without the application of plaster for ceilings. There followed six-story projects at Queensbridge and Red Hook, which depended upon the type of self-service elevators that had been utilized at the Amalgamated project.

"The Metropolitan Life Insurance Company had already begun the designs for its huge project at Parkchester when the Housing Authority took a further step in advance at East River Houses by utilizing ten and eleven-story buildings in combination with six-story units. This was an important demonstration in managerial economies as well as a demonstration of effective construction of tall units of reinforced concrete frame. Further im-

provement in technique demonstrated that concrete could be poured successfully for 14-story structures.

"3. *Achievements in Large-Scale Housing—Public and Private Contrasted*: By the clearance of a large blighted section for Fort Greene Houses in Brooklyn, the Authority presented a challenge to private industry. The huge Stuyvesant Town and Peter Cooper Village projects of the Metropolitan Life Insurance Company may be recognized as the answer to this challenge. A comparison is possible with Riis Houses, a project by the Authority, which virtually adjoins Stuyvesant Town on the south. Both the Metropolitan and the Housing Authority had the advantage of the use of eminent domain in the assembly of sites. Both had the advantage of tax limitation on the basis of existing assessments. But the Housing Authority enjoyed the additional advantage of government subsidies sufficient to effect interest charges and amortization. Without this additional advantage, the Metropolitan Life Insurance Company felt the need for densities of population sufficient to increase the total rent roll beyond the indicated carrying charges.

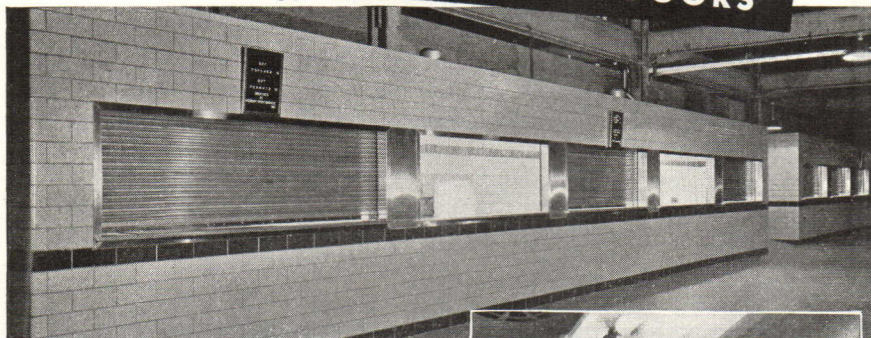
"Elsewhere in this report it has been pointed out that high required densities militate against optimum standards of livability. The neighboring projects of Stuyvesant Town and Riis Houses present an interesting contrast. Stuyvesant Town presents an aspect of solid brick walls and an impression of land overcrowded with high buildings. Riis Houses opens up both from within and without and presents an aspect of well-planned environment which seems to improve the character of surrounding properties as well as provide superior openness for the tenants residing within the project itself. The barracks-like aspect of the Stuyvesant Town project, however, is in part offset by the creation of a large oval interior court. This is not visible from the outside. It is an asset only to those buildings that face upon it.

"In order to attract the clientele required to pay the higher rents necessary to defer carrying charges, the Metropolitan Life has provided Stuyvesant Town with individual dwelling units planned for better livability and with larger rooms than those provided by the Authority at Riis Houses. The Authority has been handicapped by the assumption on the part of the public that public housing means minimum housing, and therefore, that its tenants should be made slightly uncomfortable. The implication is that public housing tenants ought to be influenced to seek "better" housing at an economic rent as soon as they find it possible. It is for this reason that so much attention has been given to defining minimum standards of livability. Even when established, there is public pressure to reduce minimum standards still further in the interest of producing a greater quantity of public housing rather than to maintain its quality. The Authority is limited by statute as to the cost of individual dwelling units which may enjoy the benefit of subsidies.

"At Riis Houses the Authority exercised its discretion to maintain openness and combined 6-story with 13-story buildings in the design to enhance this quality of openness. The Authority appears to have shown better discretion

Another
Practical way
to use

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ROLLING DOORS

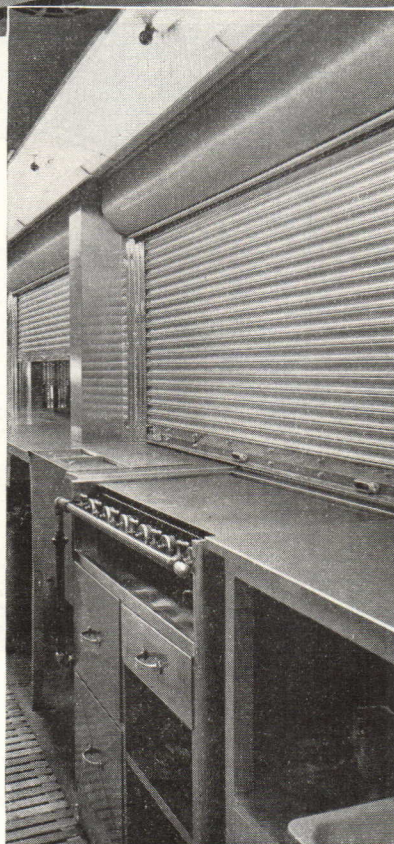


Concession booths at the new Cincinnati Arena protected with Kinnear ALUMINUM Rolling Doors

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In addition, the all-metal construction of Kinnear Rolling Doors provides extra protection against intrusion, vandalism, storm damage, and fire. These combined advantages have made Kinnear Rolling Doors the logical choice for a wide range of special opening needs, such as the concession-booth installation above. Large removable partitions may be formed by two or more Kinnear Rolling Doors separated by center mullions that swing upward, out of the way. We'll be glad to supply full information on Kinnear solutions to any such problems you may encounter.

Built of aluminum, steel, or other metals, in several slat styles, they are available in any size, for old or new construction.



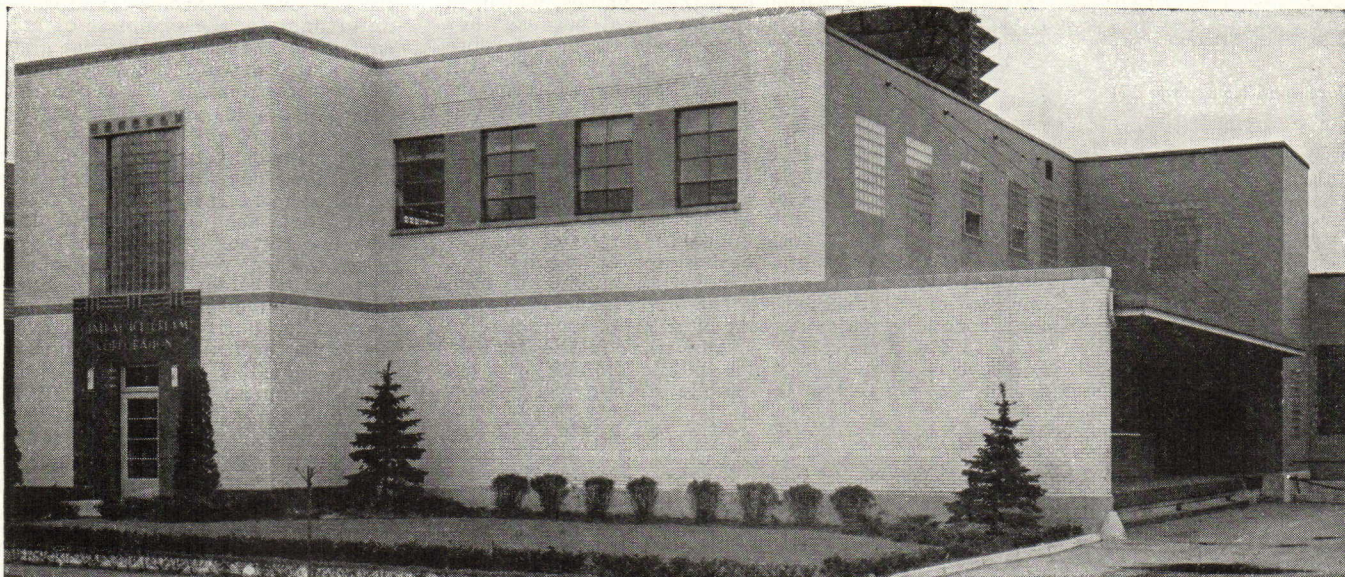
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(Continued on page 18)



B & G *Hydro-Flo** HEATING

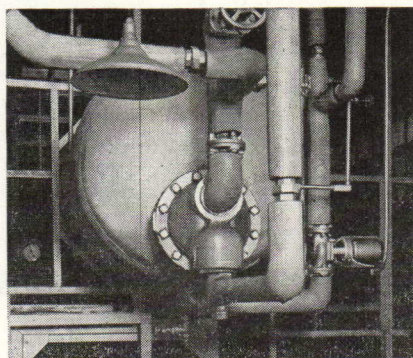
performs three distinct duties in this modern plant

GROWING use of B & G *Hydro-Flo* Forced Hot Water Heating for industrial applications is well illustrated in the plant of the General Ice Cream Corporation, Schenectady, N. Y.

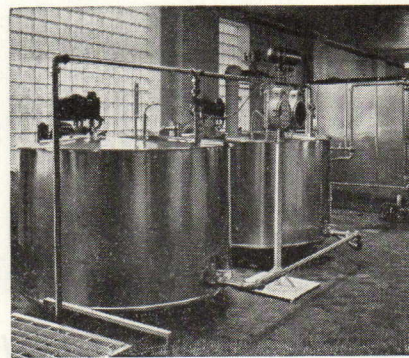
The system is ingeniously designed to perform three distinct duties. It heats the building . . . supplies hot water for pasteurizing cream and milk . . . and heats the service water. The service water load is very heavy, being used for general sterilization and for heating chocolate-melting kettles.

A hot water conditioning unit furnishes heat to the main office, located directly above the sub-zero hardening room. Locker rooms, loading docks and other departments are kept at a temperature best suited to occupational activity by individually controlled heating zones.

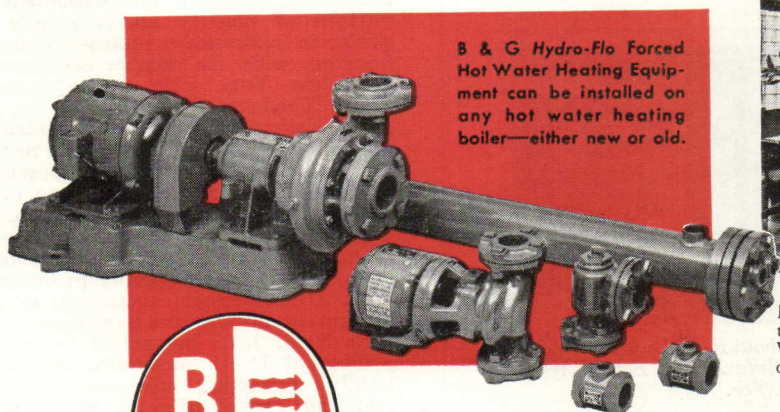
The operating versatility of B & G *Hydro-Flo* Heating is matched by its fuel economy . . . because water as a heating medium can be accurately controlled to avoid the usual causes of fuel waste.



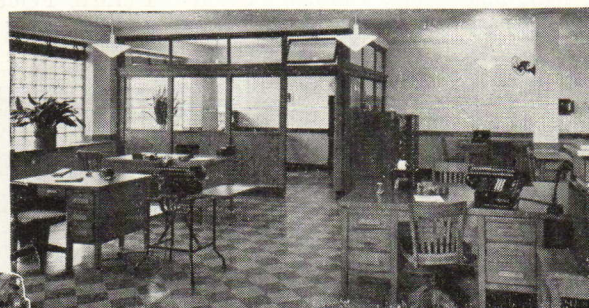
B & G Indirect Water Heater with B & G Booster Pump for circulating hot water from the boiler to the Heater. This arrangement provides large volumes of hot water at minimum cost.



The pasteurizing vats are heated with water pumped directly from the boiler. Vats must be heated from 45° F. to 165° F. in approximately 30 minutes.



B & G *Hydro-Flo* Forced Hot Water Heating Equipment can be installed on any hot water heating boiler—either new or old.



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*Hydro-Flo** Heating

BELL & GOSSETT COMPANY
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*Reg. U. S. Pat. Off.

Progress Report

(Continued from page 16)

in design within statutory and economic limits than has been shown by the Metropolitan Life project of Stuyvesant Town.

"4. *Esthetics and Amenities*: Unquestionably, the Authority has pointed the way to the building of large-scale developments and better standards of living which may be furnished through the design of communities. It is to be deplored, however, that there are certain psychological obstacles to the

realization of esthetic values, which, in general, are avoided not because they add to costs so much as in deference to hostile public opinion, which still thinks of public housing in terms of minimum provision for the amenities of living. . . .

"It is clear that the Authority has been instrumental in introducing a new concept of city living, and through its large-scale approach to design has long since outstripped the orthodox idea of designing one building on one lot. The danger now is that the public has been educated to the acceptance of large-scale projects of a grim, barracks-like character because that is the type of project which public opinion has expected the public authorities to con-

struct for low-income families—and, unfortunately, the grimness of a large part of public housing has set a standard which private industry seems to follow in estimating the needs and desires of families capable of paying an economic rent.

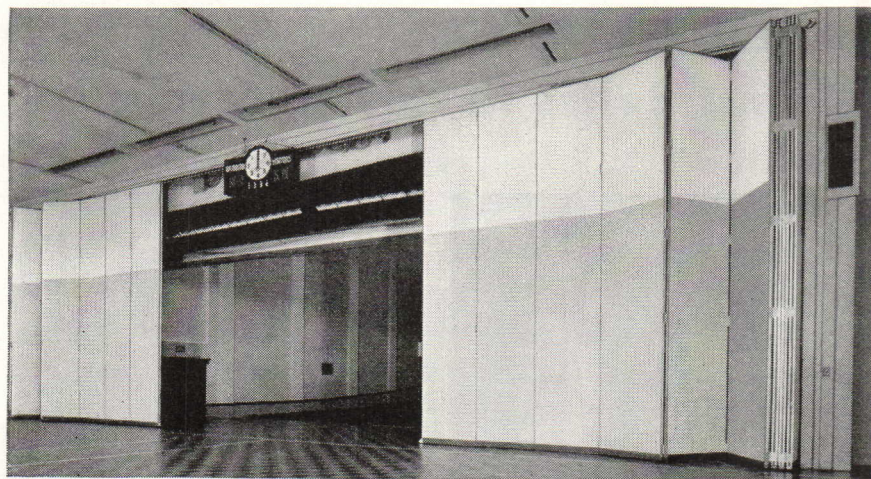
"The public can demand only what it has been educated to expect through visual demonstration. A part of the trust that has been reposed in the Housing Authority is that it serve to point toward realization of the best that is possible in group housing, within a given economic framework. Had the Authority been free to exercise the same originality and courage in design that has been demonstrated in Sweden's public housing, the American public by this time would have had the benefit of far more worthy examples upon which to base its judgment and demands for similar efforts from private industry. . . .

"In connection with activities in large-scale housing by private enterprise groups, it is only fair to point out that the New York Life Insurance Company has avoided the temptation to overcrowd and build up solidly with barracks-like structures. Its great Fresh Meadows community is planned for the required density by the use of two large 13-story buildings, making it possible to construct the majority of the dwelling units in attractively designed two and three-story apartment buildings set about spacious, sunny, and beautifully planted courts."

Other findings of the committee are reported in sections on "Standards of Livability," on "Amenities and Community Facilities," on "Method of Operation," and on "Cooperation With Government Agencies." Each section is ably organized to discuss in detail the component factors of each topic.



Space Savers... FOR SCHOOLS LARGE OR SMALL



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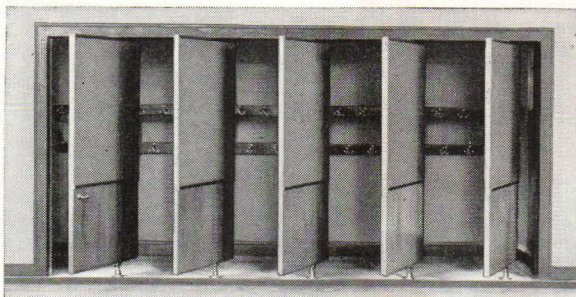
Specifically designed for school gymnasiums, auditoriums, stages, and other high or wide openings which must be closed against both light and sound, DeLuxe FoldeR-Way partitions by Richards-Wilcox

are completely automatic and cost less than many manually operated partitions. To economize in space and expenditures, consider R-W DeLuxe FoldeR-Way partitions in your building or remodeling plans.

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Multiple Action School Wardrobe

An outstanding feature of Richards-Wilcox Classroom Wardrobes is that the entire unit is designed to avoid overcrowding. The hat and coat racks accommodate eight or ten pupils for each door. Note slate blackboards mounted on wood doors.



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1949

OVER 69 YEARS

In a more general way, the housing committee of The Municipal Art Society, headed by William F. R. Ballard, brought back from its tours of the New York housing projects a comparable evaluation. Its principal findings included:

"1. The New York City Housing Authority program has established a pattern of density and coverage superior to insurance company investment housing, with the notable exception of the New York Life development at Fresh Meadows, Queens.

"2. Federal Housing Administration guaranteed projects suffer from narrow and stereotyped controls imposed by the administrator and, in some cases, represent a quality of conception, design, and execution shockingly inferior to either public subsidized projects or private insurance company projects.

"3. The over-all exceptional quality of density, design, and execution of the New York Life Insurance Company's project at Fresh Meadows, now practically completed, has made an outstanding contribution to the field of large-scale housing in the New York area. The Committee cannot help but feel that the unusual success demonstrated at Fresh Meadows is due to the wise balance of architectural, civic, and financial factors not heretofore so happily achieved in similar institutional housing."

A *New* ARCHITECTURAL COMPETITION

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for the Most Interesting and Practical
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**Eight-Family Wood Garden-Type
APARTMENT BUILDING
of Wood Frame Construction**

Open to:

Architects, Designers, Draftsmen and Senior Students.
Opens October 1, 1949—closes January 15, 1950. Prizes
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The Problem:

The expanding popularity of the suburban or garden-type of apartment offers a broad and interesting new architectural challenge.

This competition is intended as a source of inspiration to architectural designers, and to builders, developers and investors in communities which have need for increased rental facilities, and who may be encouraged through examples of improved design and economy, to undertake more construction of this type.

It is the sponsor's belief that a well-integrated combination of the fundamentally low-cost garden-type of structure with traditionally low-cost wood construction can provide an economical satisfactory answer to many existing housing problems.

It is believed that this competition will serve to demonstrate how well architectural grace, beauty and originality can be expressed in a multi-family dwelling designed in wood.

The Prizes:

Major Awards

First Prize\$1,500
Second Prize\$750
Third Prize\$500

Honorable Mention
10 Awards at \$100 each.

Student Awards

First Prize\$500
Second Prize\$250
Third Prize\$150

Honorable Mention
7 Awards at \$50 each.

The Jury of Awards:

MR. GEORGE W. PETTICORD, JR., A.I.A. Washington, D. C.
MR. JOHN M. WALTON, A.I.A. Washington, D. C.
MR. EDWARD R. CARR, *Builder* Washington, D. C.
Professional Advisor: LAWRENCE M. STEVENS, *Architect*, Washington, D. C.

How to Enter:

To enter this competition, secure an entrance application form and contest rules from the Contest Secretary, Wood Garden Apartment Design Contest, c/o Timber Engineering Company, 1319 18th Street, N. W., Washington 6, D. C. Upon receipt of the application form properly filled out, the company will send you a file of informational data on the use of its products as specified in the contest conditions.

The Sponsor:

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● Pittco Awning Bars are the best that modern engineering skill, artistic taste and quality material can produce. They can be used with all types of awnings, and are adaptable to a wide variety of store front designs.

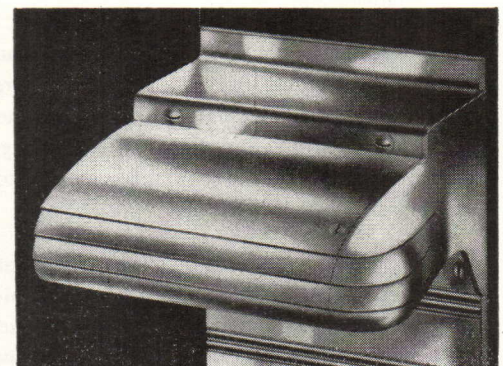
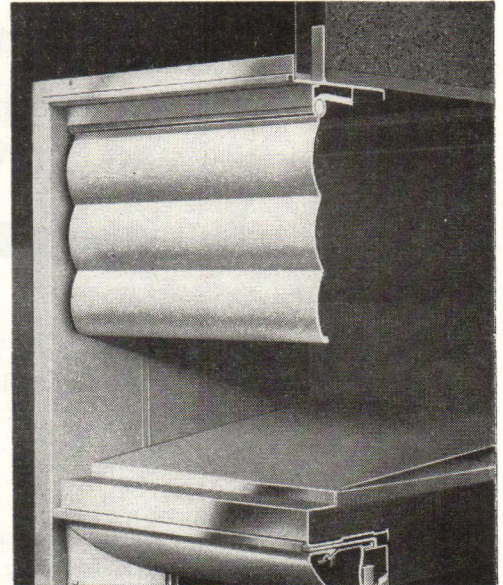
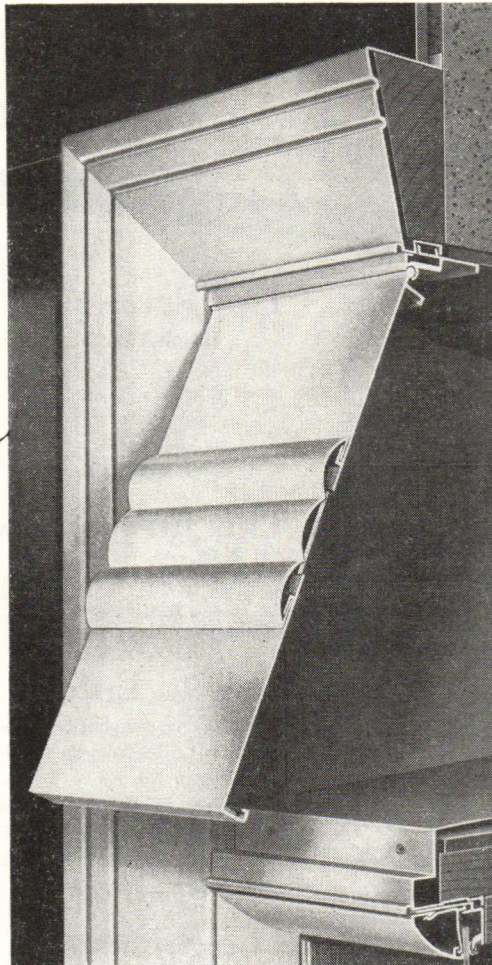
The extrusion method of producing Pittco Awning Bars assures utmost rigidity, clear, sharp profiles, and the rich, satin-smooth finish that indicates top quality.

Pittco Store Front Metal is available through all Pittsburgh branches and through leading glass jobbers from coast to coast. They will gladly advise you on the selection and installation of the proper Pittco Metal members for any application. Behind every Pittsburgh product and service, Pittsburgh research is constantly striving to help you solve architectural and building problems encountered in the field.

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• Sturdy construction

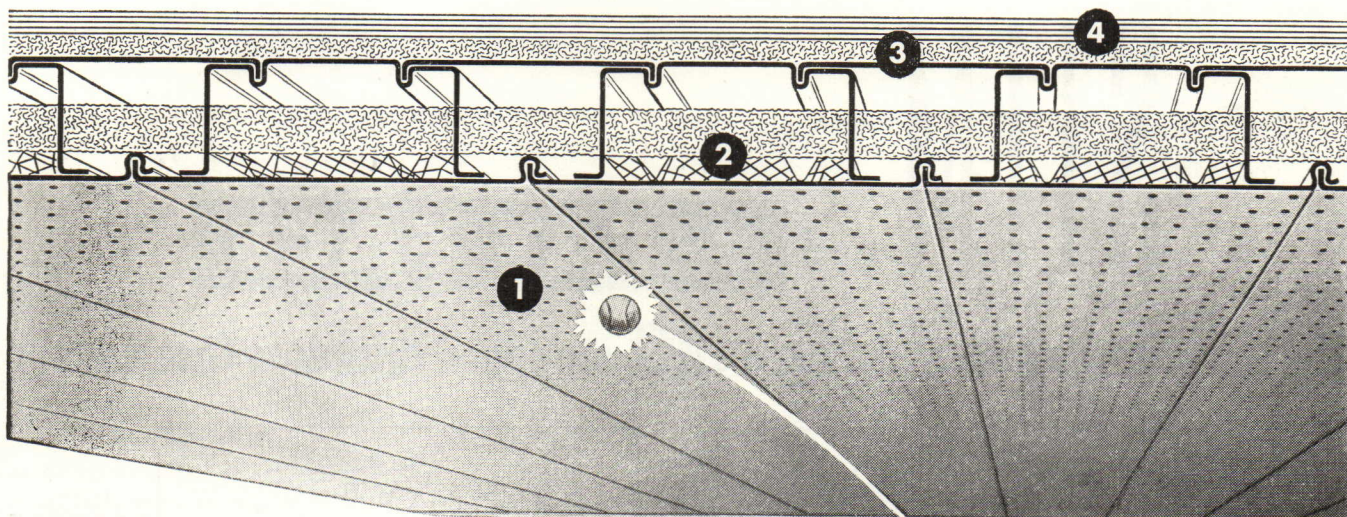
• Smooth operation



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How to combine a silent ceiling with a strong roof ...and save money

Now you may have a two-in-one, moneysaving combination of a beautiful, sound-absorbing ceiling, and a strong roof (or floor).

As illustrated above, supporting beams are minimized by the use of sturdy, long-span, Fenestra* AD Panels, enhancing the ceiling's appearance and durability (flying baseballs won't dent it). Note that the Panels are steel box beams with perforated under-surface, backed by a sound-absorbing element, to provide both a strong roof (or floor) and a noise-blotting ceiling, all furnished by Fenestra.

Important savings obviously result from this unique structural combination, in time, in materials and in labor. For example, the ceiling is fully completed merely by the application of a finish coat of paint.

How the moneysaving Fenestra Ceiling and Roof (or Floor) Combination is installed:



- 1 Acoustically-treated AD Panels supplied by Fenestra are laid directly on supporting beams, and are interlocked into a flat ceiling. Ends of Panels are welded to the supporting steel structure.
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- 3 The installer covers the Panels with roof insulation (or, if a floor, with concrete).
- 4 Roof waterproofing (or finished flooring) is applied by the installer, completing the installation.

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Result: A modern, sound-absorbing ceiling and a strong, durable roof for gymnasiums, auditoriums and other schoolrooms, at surprisingly low cost... Ask a local Fenestra engineering representative about this new method and for other information on Fenestra Panels and Holorib Steel Roof Deck, or see Sweet's—Section 3c/3. Or mail coupon.

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SLIM and the FAT FACE

The adventures of a Roddiscraft standard thickness face veneer



1

Two plywood characters prepare to compete for your buying favors. Roddiscraft's Slim, with his standard thickness face veneer, pitted against a confident fat-faced number.



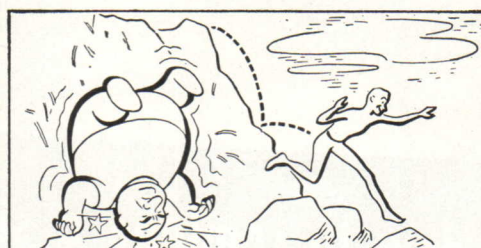
2

They're off—through the damp, sweating heat of the jungle. Roddiscraft's Slim isn't bothered. He exposes only a little moisture-absorbing wood outside his waterproof glue line. Fat Face, however, is beginning to bloat.



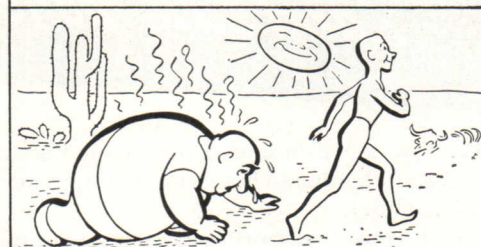
3

Now, a river to swim! Standard thickness Slim takes it in stride. His glue line is near the surface, and moisture penetration is held to a minimum. Fat Face gets across, but his thick veneer is moisture swollen and checking.



4

And down the cliff they tumble. Slim bounces easily from rock to snag. Roddiscraft's hot press bonding permanently binds his face veneer to his tough hardwood crossbanding. Fat Face barely makes it—and in a shower of splinters.



5

The final test—an arid desert to cross. Slim's in fine shape. Because his veneer face is thin and tight, there's no chance for shrinking or swelling. Fat Face, with his thick veneer, is dried out and warped.



6

The winner—Slim and Roddiscraft's standard thickness face veneers. These veneers, 1/28" thick before sanding for most woods, stand up better to hard use, heat, humidity and dryness.

For better construction in doors and plywood, Roddiscraft makes use of standard thickness face veneers (as opposed to 1/8" and thicker veneers). Exposure tests made by independent laboratories on all types of plywood construction, with face veneers varying in thickness, prove that the check-

ing pattern on the exposed faces becomes coarser and more conspicuous as the thickness increases. That's why it pays to specify Roddiscraft standard thickness face veneers every time. See Sweet's Architectural File 15C-8 and Sweet's Builders File 36-3A for construction details.

NATIONWIDE Roddiscraft WAREHOUSE SERVICE

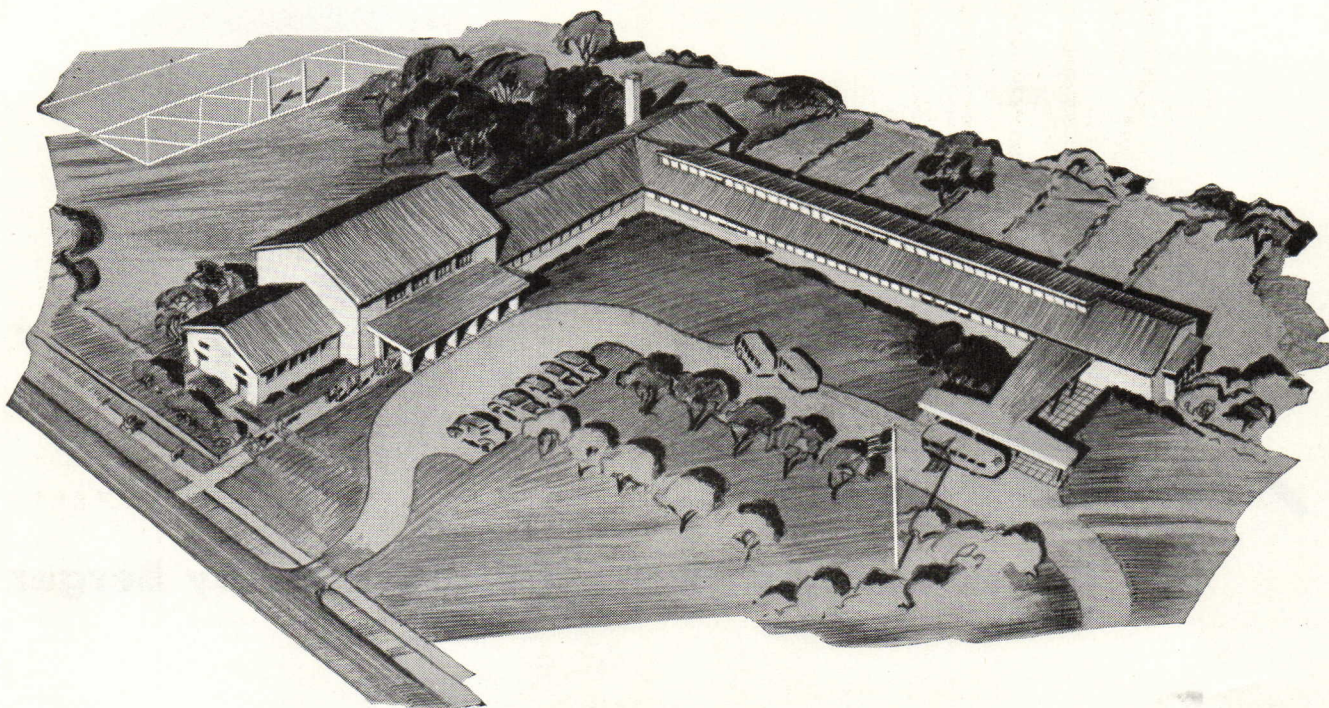
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L. I. City, N. Y. Review & Greenpoint Ave.
Los Angeles 11, Calif. . 2860 E. 54th St.

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Milwaukee 8, Wis... 4601 W. State St.
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Roddiscraft

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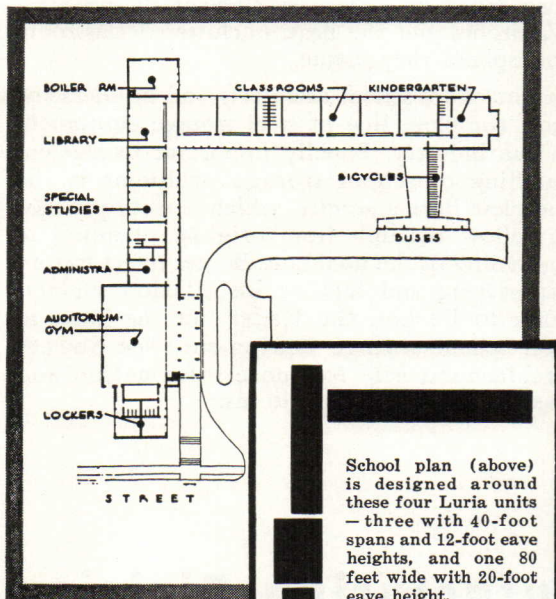
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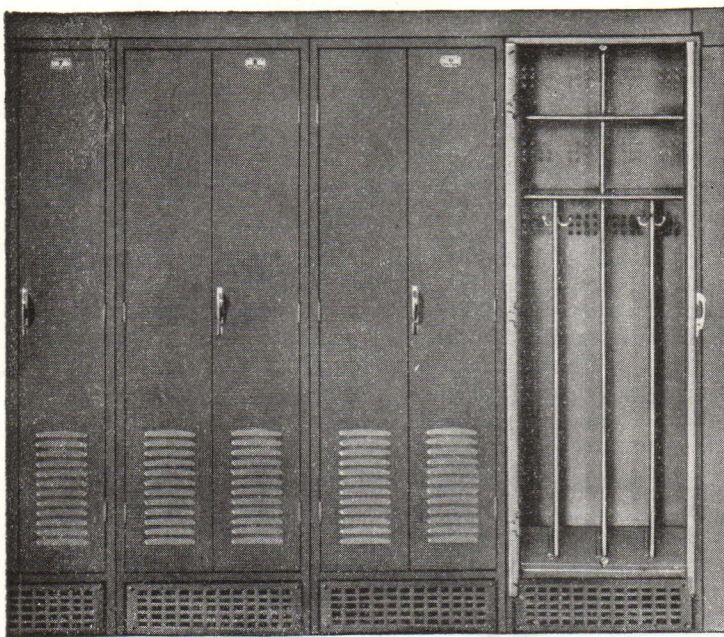
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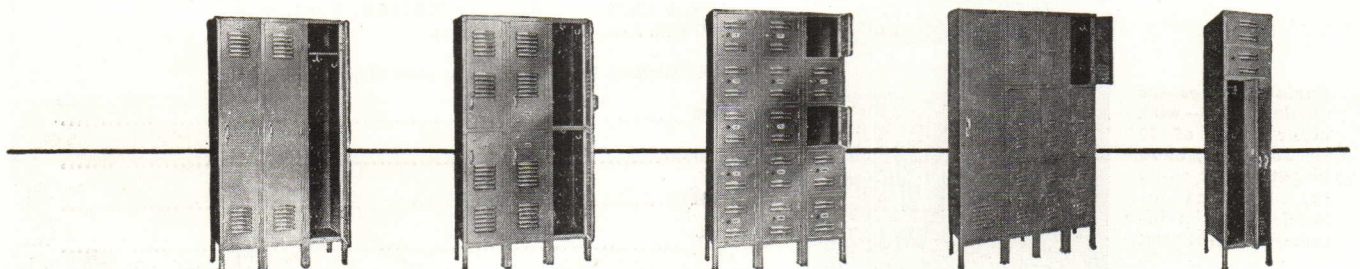
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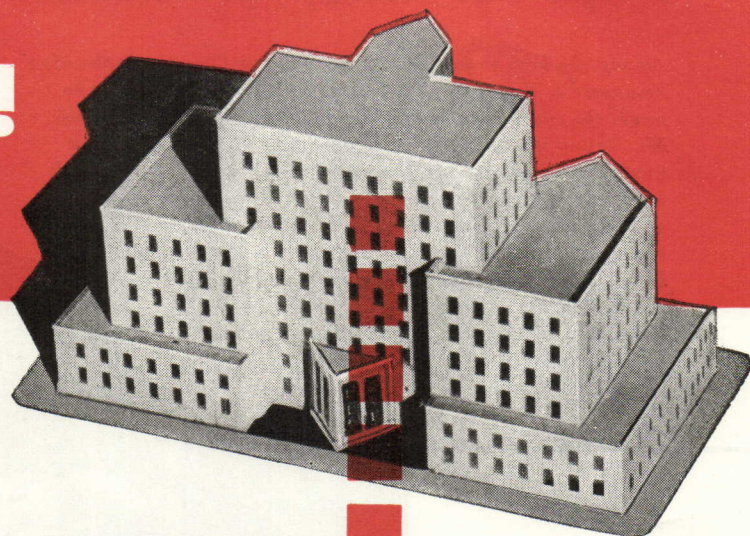


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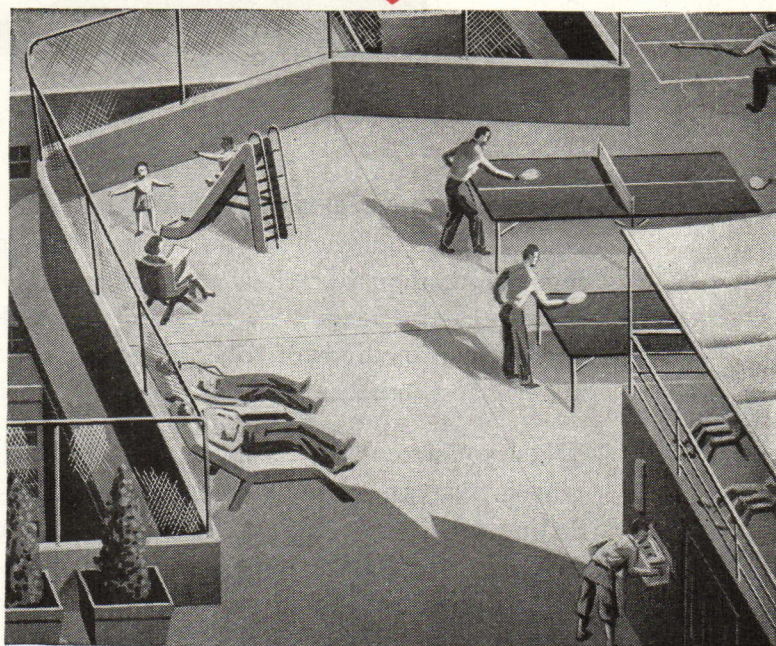
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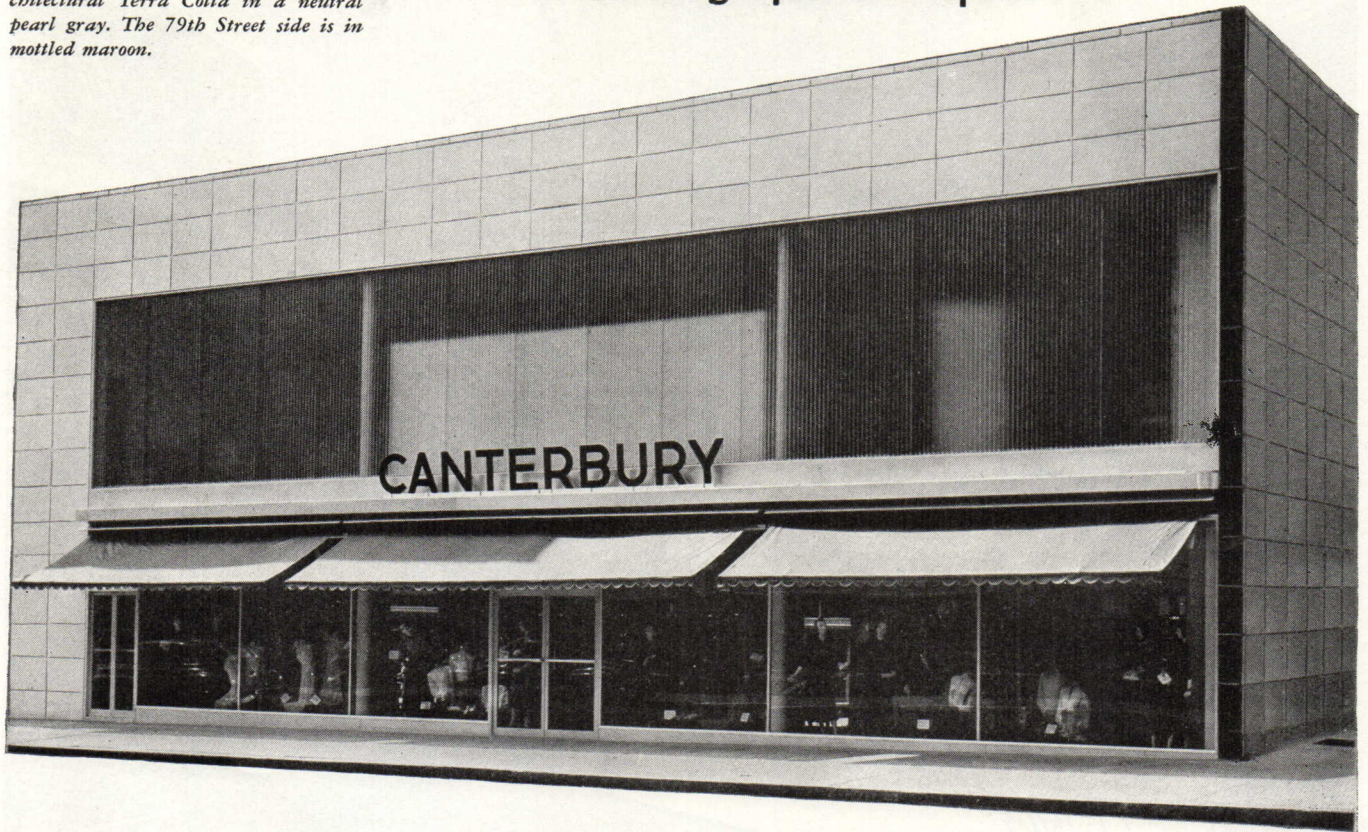
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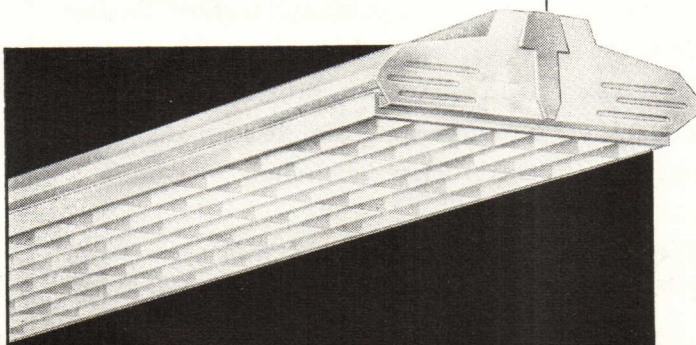
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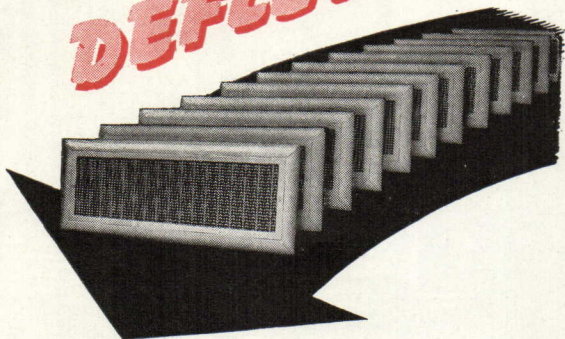


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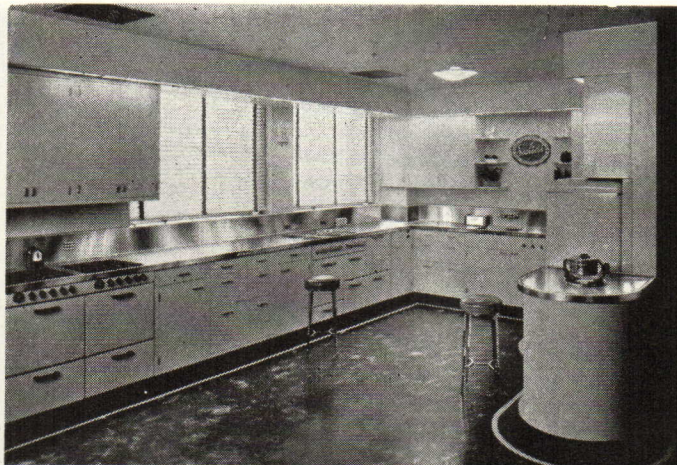
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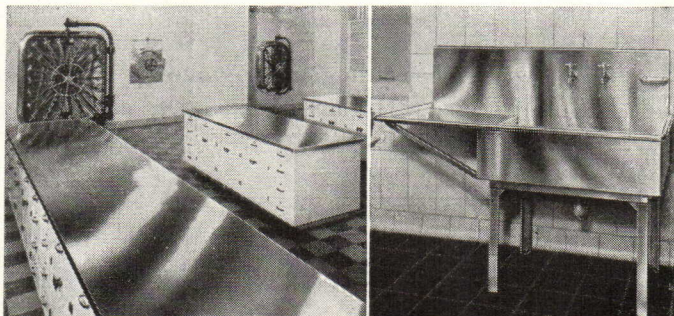
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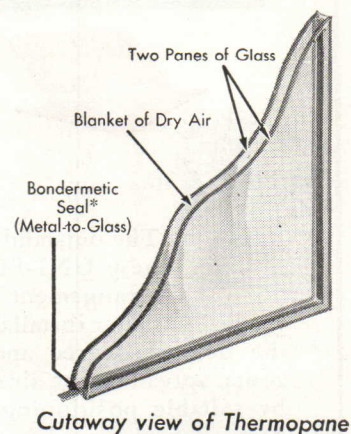
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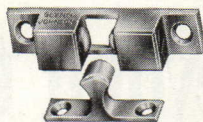
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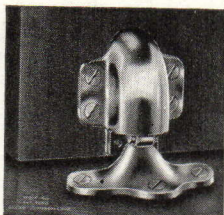


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Concealed Transom Adjuster



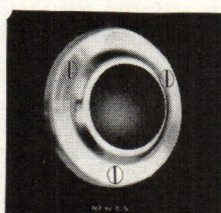
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G-J FB-13
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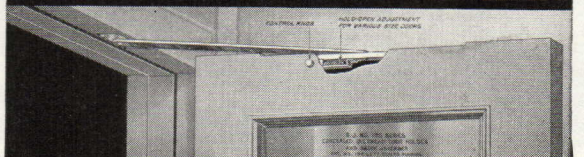
G-J F-20
Door Holder
and Bumper



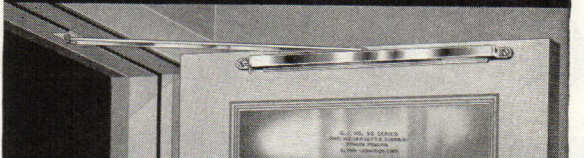
G-J F-9
Door Holder
and Bumper



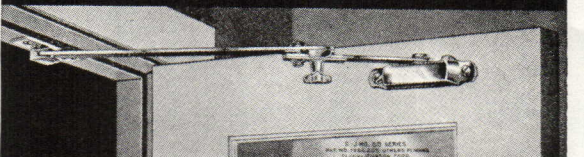
G-J No. 4
Hercules Door Holder



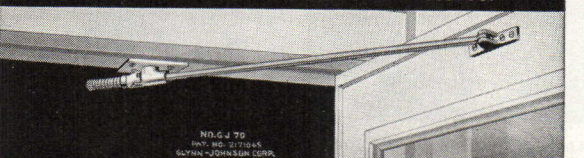
G-J 100
Concealed Overhead Door Holder



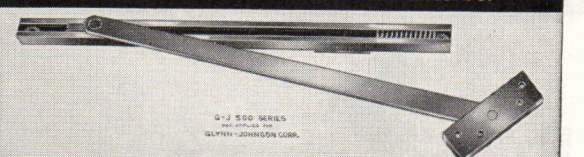
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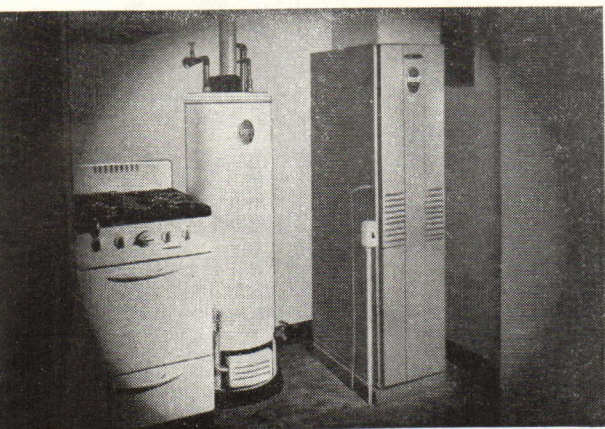
Chicago 40, Illinois

IT'S A CASE OF
Quality...



View of Lewis Gardens Apartments, Henrico County, Va.; Architect, W. H. Pringle, Richmond, Va.; Builder, Franklin A. Trice, Richmond, Va.

...of GAS ADVANTAGES beyond the city mains



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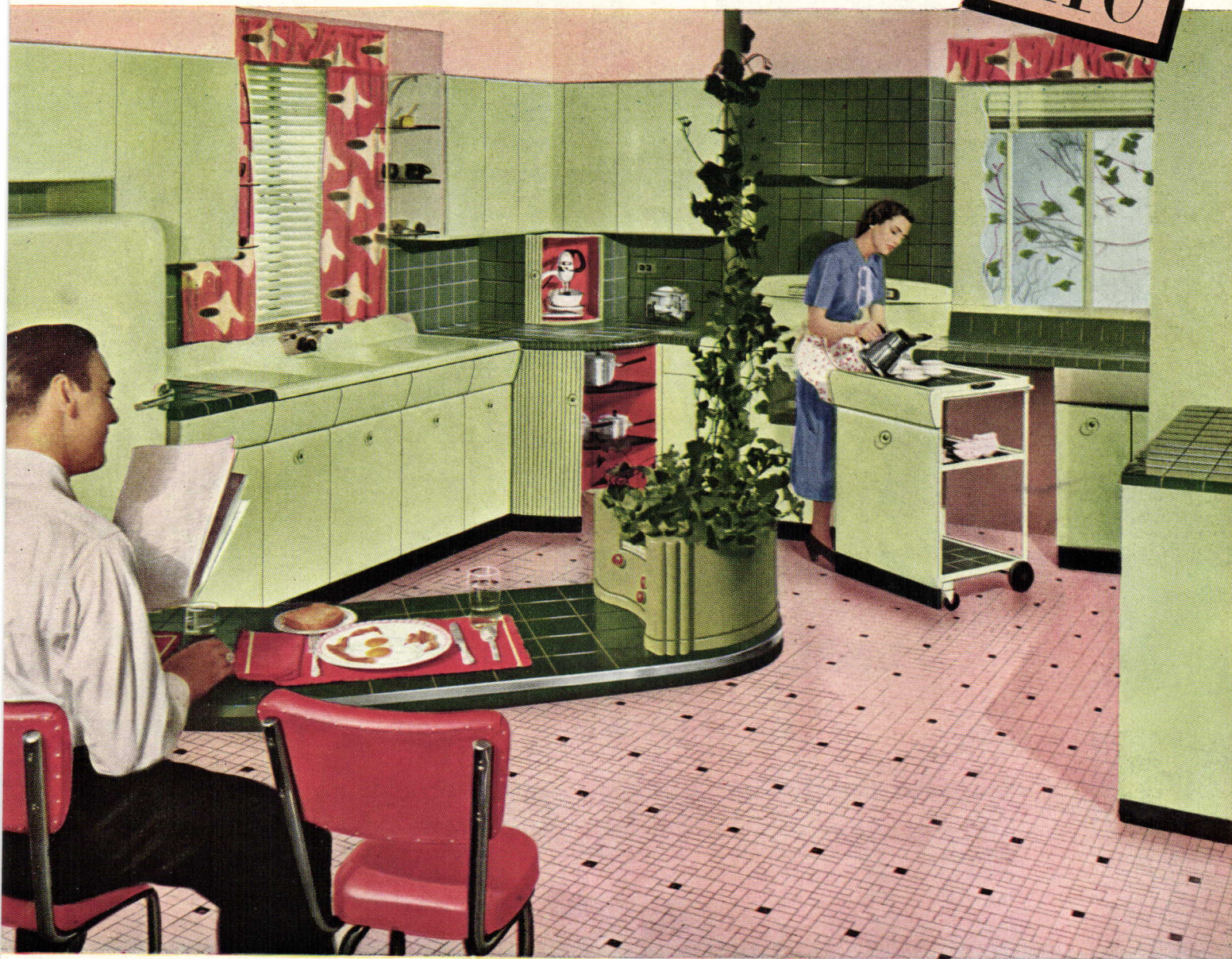


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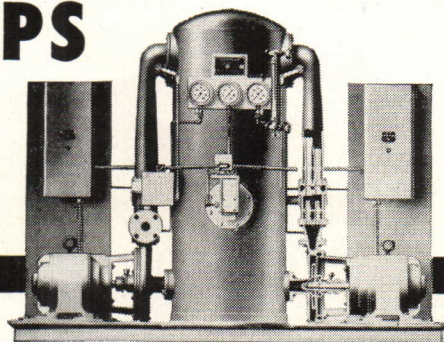
For specific information regarding types, sizes and colors, see *Sweets Architectural* or *A-E-C File*. THE TILE COUNCIL OF AMERICA, Room 3401: 10 East 40th Street, New York 16, New York. Room 433: 727 West Seventh Street, Los Angeles, California

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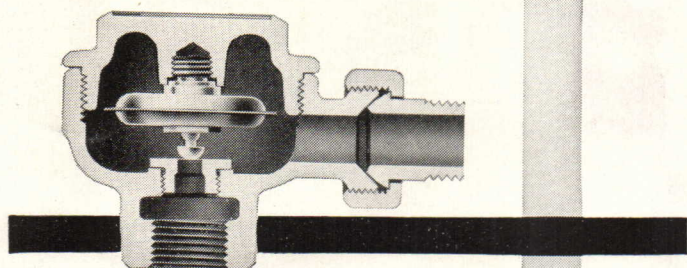
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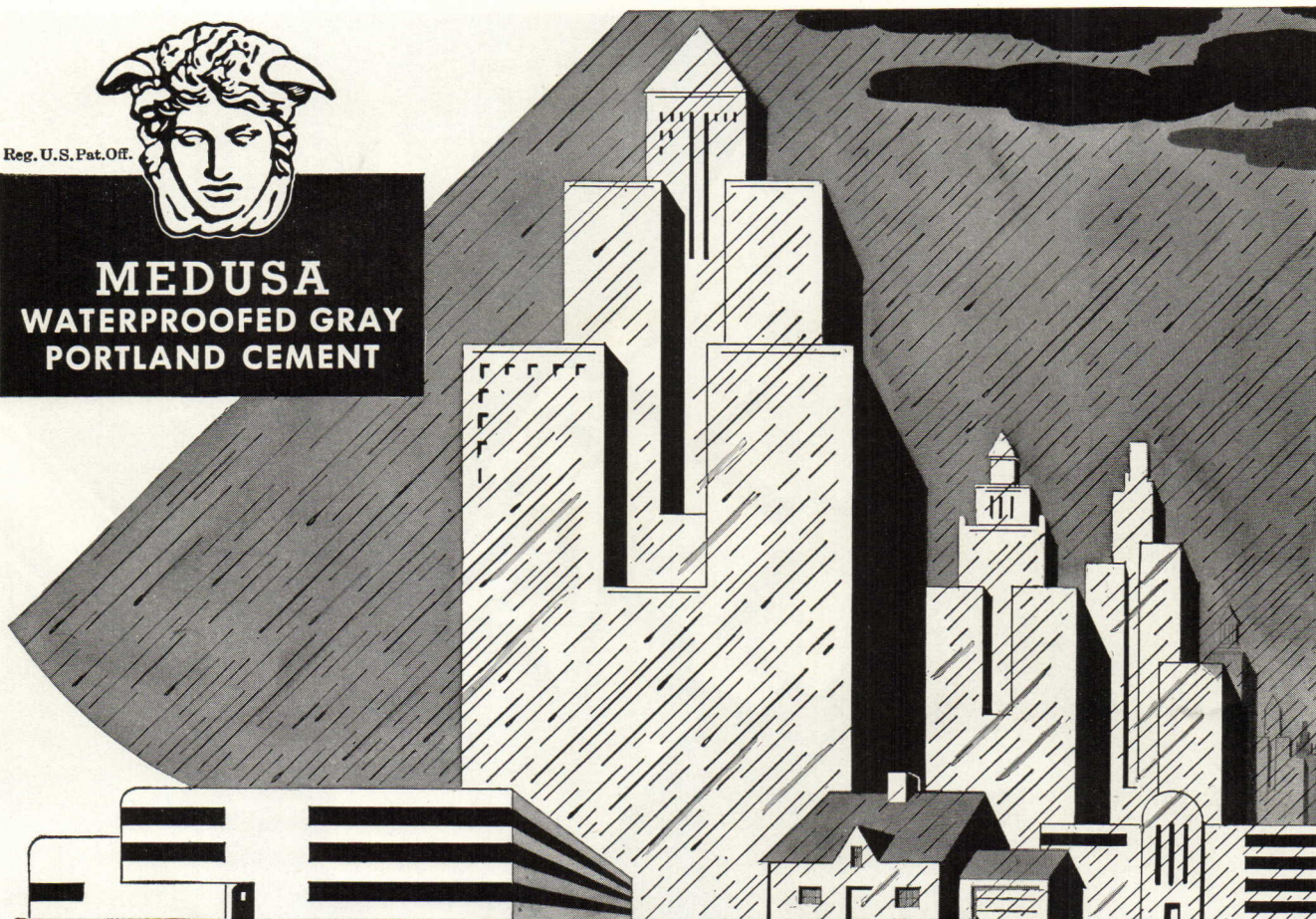
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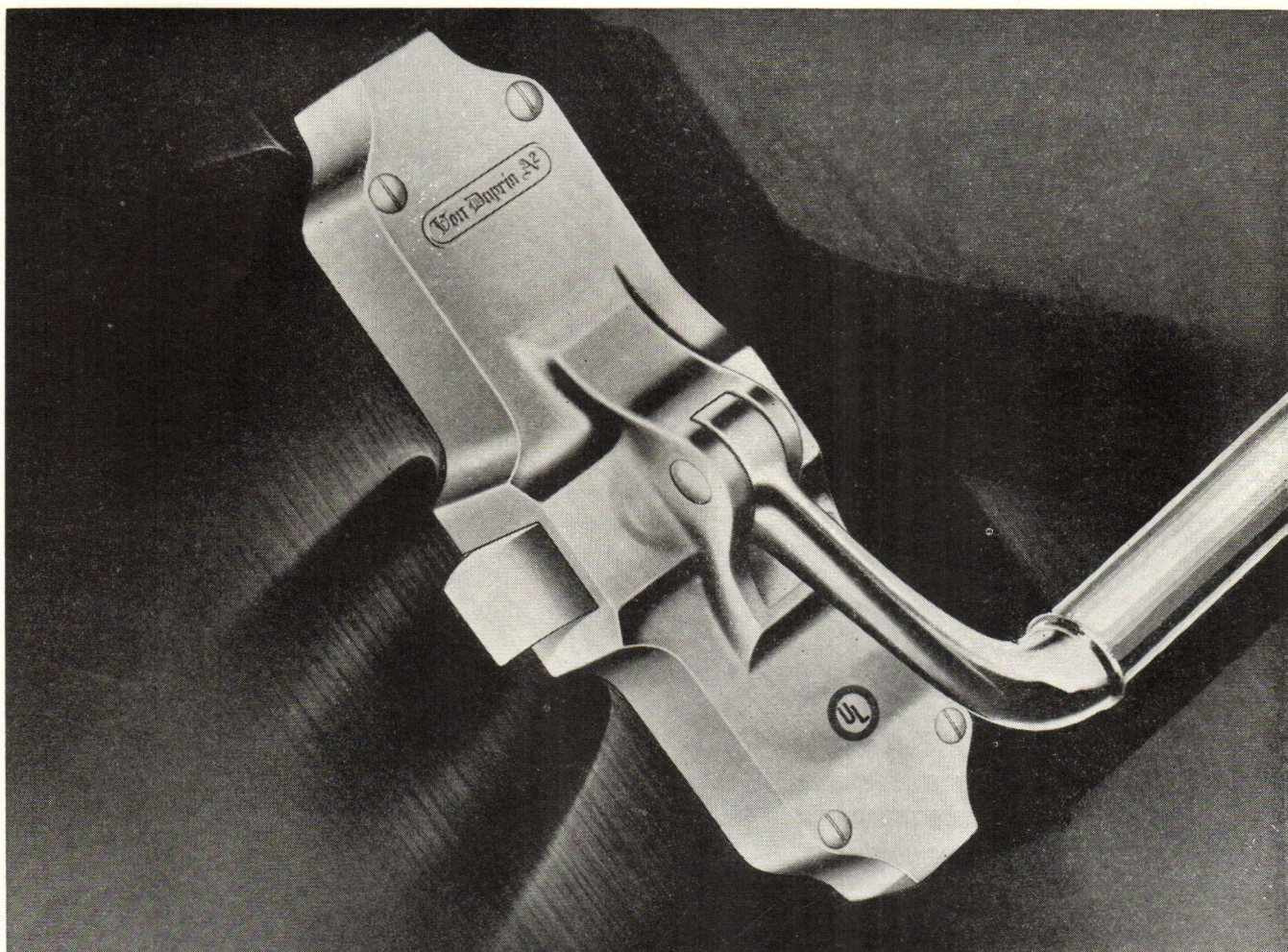
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Royal Barry Wills, Boston, Mass., Architect

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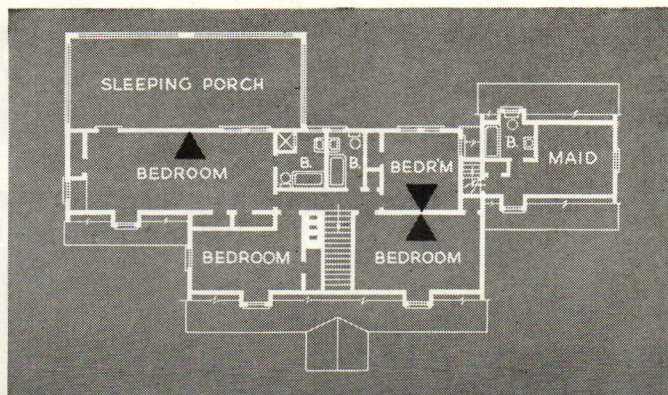
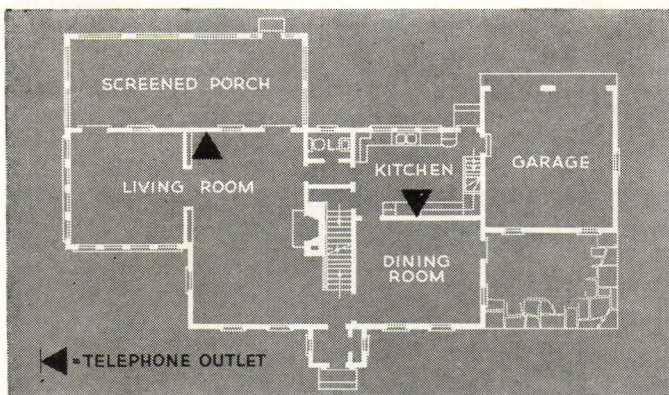
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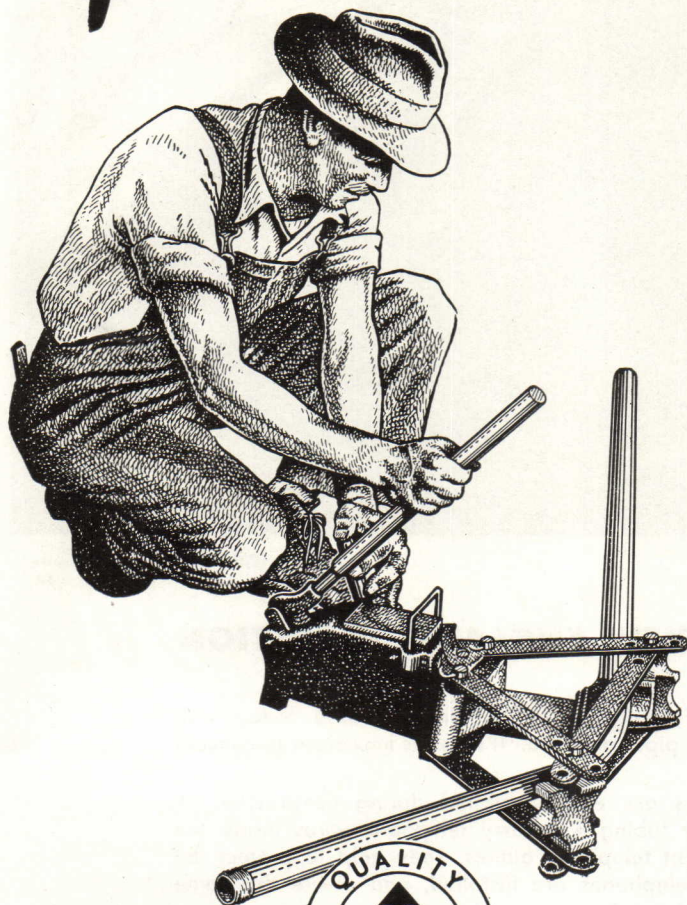
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Youngstown

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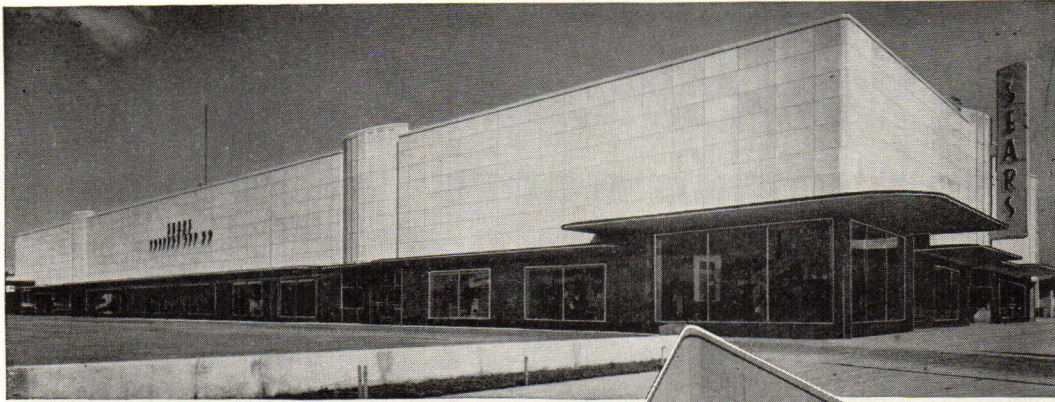
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there's



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FOR HARD WORKING FLOORS



A typical illustration of the use of Tuff-Tex in a cafeteria area

TUFF-TEX* is a Greaseproof Plastic-Asbestos Tile that combines Beauty and Design-ability with Rugged Durability under severe service.

Pick out a flooring requirement where the going is tough...where grease abuse is severe...where traffic is heavy...where easy, inexpensive maintenance is a must...where appearance and design are important.

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For this modern, plastic-asbestos tile is *truly* greaseproof. Spilled foods, factory lubricants, lathe coolants and the like roll off its satiny surface like water off a duck's back.

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GREASEPROOF PLASTIC-ASBESTOS TILE



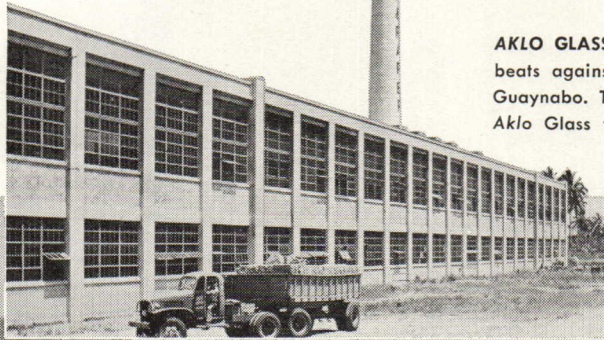
Sumner Spaulding & John Rex
Architects

DOOR CLOSERS BY *LCN*

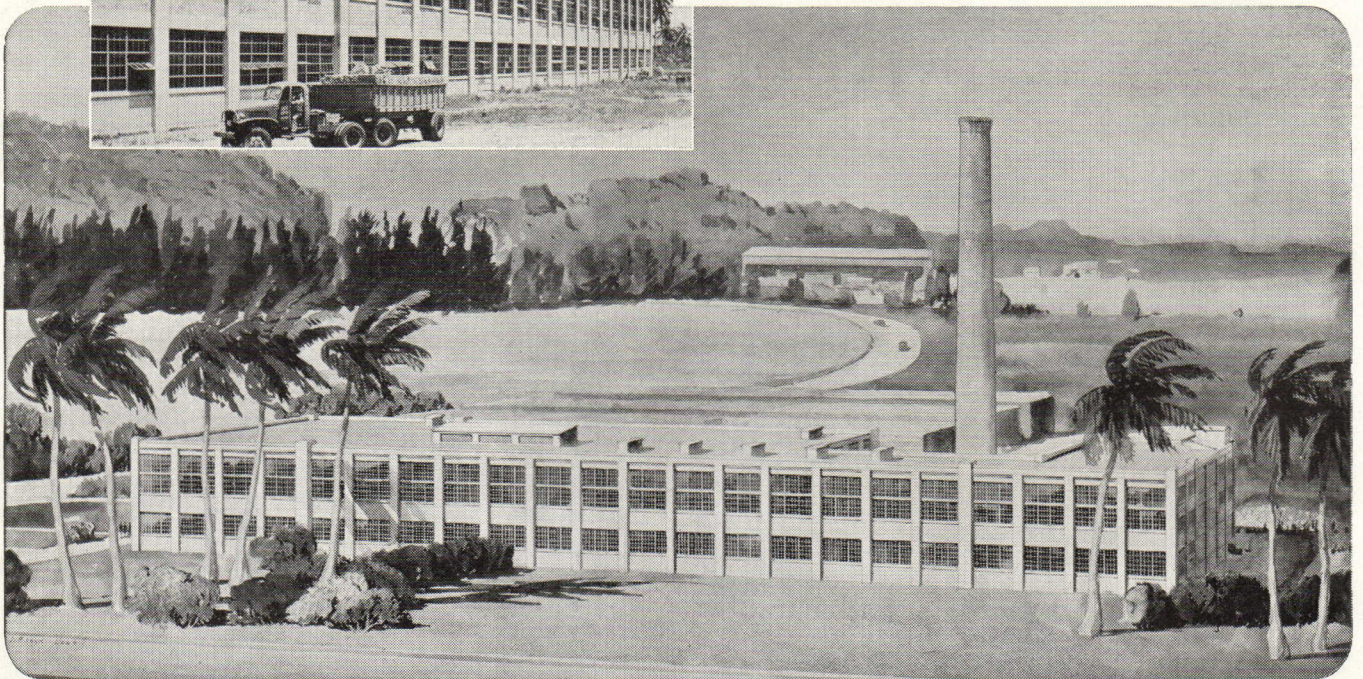
CLOSERS CONCEALED IN FLOOR • SHOWROOM OF LUCIEN LELONG, INC., LOS ANGELES

LCN CATALOG II-E ON REQUEST • LCN CLOSERS, INC., 466 WEST SUPERIOR STREET, CHICAGO 10

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AKLO GLASS FILTERS THE TROPICAL SUN—You can be sure that a lot of sun beats against the plant of the Puerto Rico Pulp and Paper Corporation in Guaynabo. To reduce solar heat inside the building, 30,000 square feet of Aklo Glass was used.



more comfort for seeing...more comfort for working

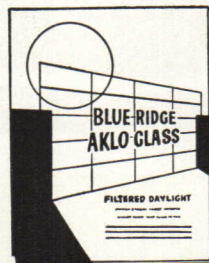
That's what you provide in buildings glazed with Frosted Aklo* Glass. You can bring in an abundance of daylight, without annoying glare or excessive solar heat. *Aklo* Glass broadens your opportunities to use the greater window areas so desired in buildings today.

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Aklo is made by the Blue Ridge Glass Corporation, Kingsport, Tenn., and sold by Libbey-Owens-Ford glass distributors. See for yourself how Frosted Aklo Glass reduces glare and sun heat. Ask your distributor for a Radiometer demonstration.

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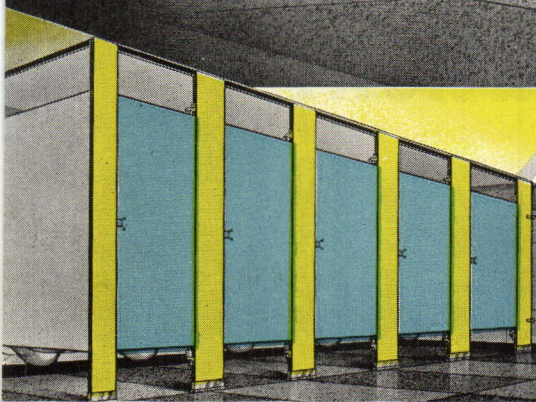
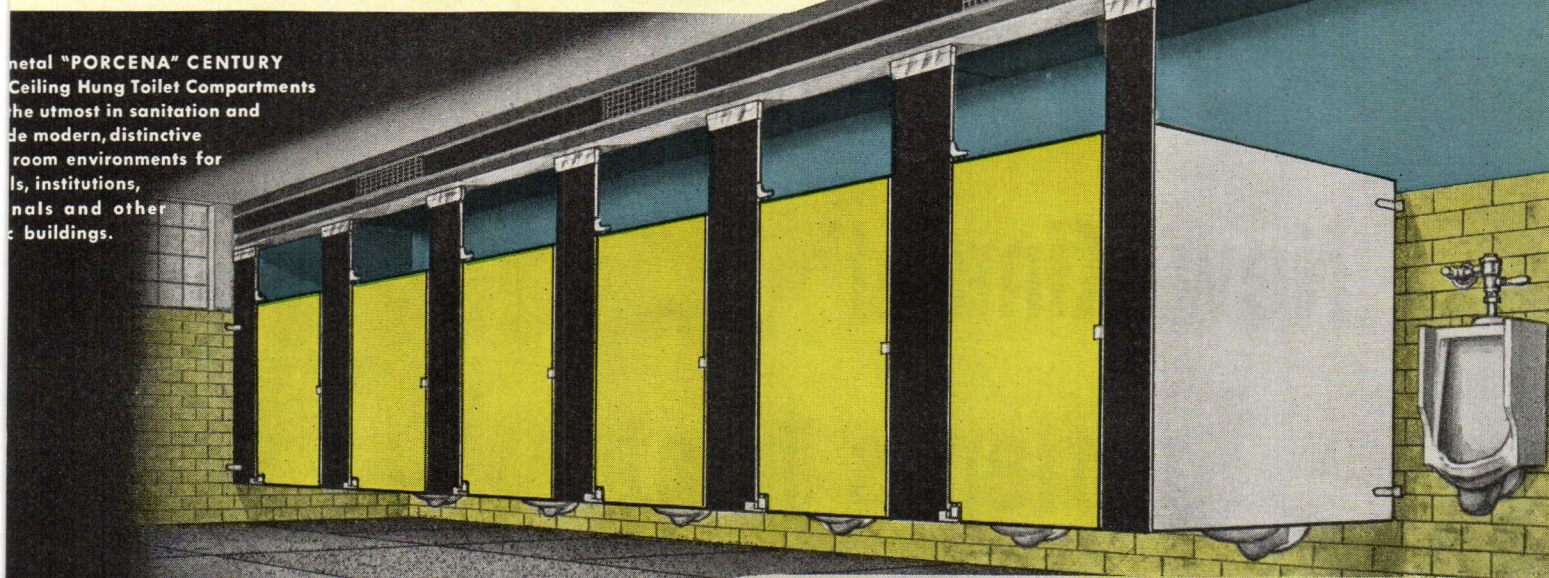
Sanymetal* "PORCENA"

*Trade Mark Reg. U. S. Pat. Off.

(Porcelain on Steel)

TOILET COMPARTMENTS

Sanymetal "PORCENA" CENTURY Ceiling Hung Toilet Compartments provide the utmost in sanitation and modern, distinctive toilet room environments for schools, institutions, hotels, hospitals and other public buildings.



Sanymetal "PORCENA" ACADEMY Type Toilet Compartments are suitable for modern toilet room environments.

How to Protect a Toilet Room Environment Against Premature Obsolescence

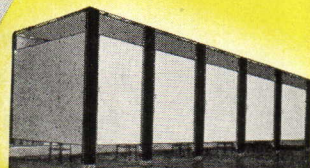
● There is one environment you can protect against premature obsolescence—the toilet room environment.

Toilet room compartments usually dominate a toilet room, influencing the toilet room environment. Sanymetal "PORCENA" (Porcelain on Steel) Toilet Compartments provide a generous measure of protection because of these features. Sanymetal "PORCENA"

(Porcelain on Steel) Toilet Compartments always look new, do not absorb odors, are moisture and rust proof and resist the corrosion of ordinary acids. The glistening, glass-hard, "PORCENA" (Porcelain on Steel) finish can be wiped clean as easily as a porcelain table top, and greatly reduces sanitation and maintenance costs.

Sanymetal "PORCENA" (Porcelain on Steel) Toilet Compartments combine the results of over 35 years of specialized skill and experience in making over 100,000 toilet room installations. Ask the Sanymetal Representative in your vicinity (see "Partitions" in your phone book for local representative) for helpful suggestions about planning suitable toilet room environments . . . Refer to Sanymetal Catalog 21B in Sweet's Architectural File for 1949.

THE SANYMETAL PRODUCTS CO., INC.
1683 URBANA ROAD • CLEVELAND 12, OHIO



Sanymetal "PORCENA" ACADEMY Type Shower Stalls and Dressing Room Compartments provide the utmost in sanitation for tourist camps, gymnasiums, clubs, Y.M.C.A.'s, etc.

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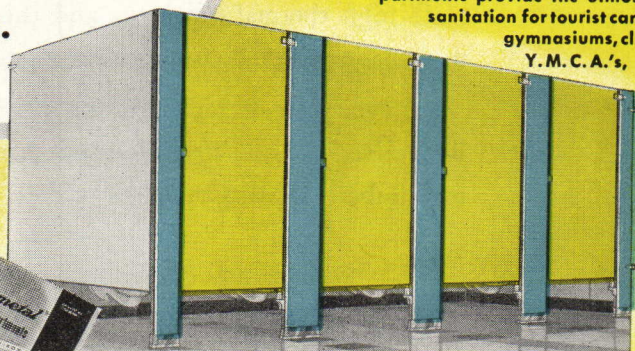
"PORCENA" (Porcelain on Steel)

TOILET COMPARTMENTS, SHOWER STALLS AND DRESSING ROOMS



Write for Sanymetal Catalog 86 which illustrates modern toilet room environments suitable for all types of buildings. Several attractive designs in a wide range of colors available. This catalog is also contained in Sweet's 21b Architectural File for 1949.

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Kimberly-Clark announces a great new insulation!

New Kimsul* reflects heat... shuts out condensation!

Now—from the research laboratories of Kimberly-Clark Corporation—comes a great new KIMSUL*.

An insulation combining the principles of heat-reflection and heat-resistance—the most effective barrier to heat loss ever devised. An insulation made far easier to handle . . . far easier to install. An insulation with *reflective vaporseal cover* . . . meeting all FHA requirements.

We sincerely believe this new KIMSUL to be the finest insulation ever made. And you'll agree . . . when you see the handsome aluminum foil cover . . . many-layer stitched blanket . . . the tough reflective tacking flanges . . . the smaller package and lighter weight . . . of this great new KIMSUL. For it also provides the same high thermal efficiency and the many original advantages that made KIMSUL America's fastest-selling blanket insulation.

Contact your dealer today for full information about the new Reflective KIMSUL. If he does not handle KIMSUL, write directly to Kimberly-Clark Corporation.



Look at all these features!

- Reflective aluminum vaporseal
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Now two types of Kimsul



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Send me complete information about KIMSUL Insulation with Reflective Vaporseal.

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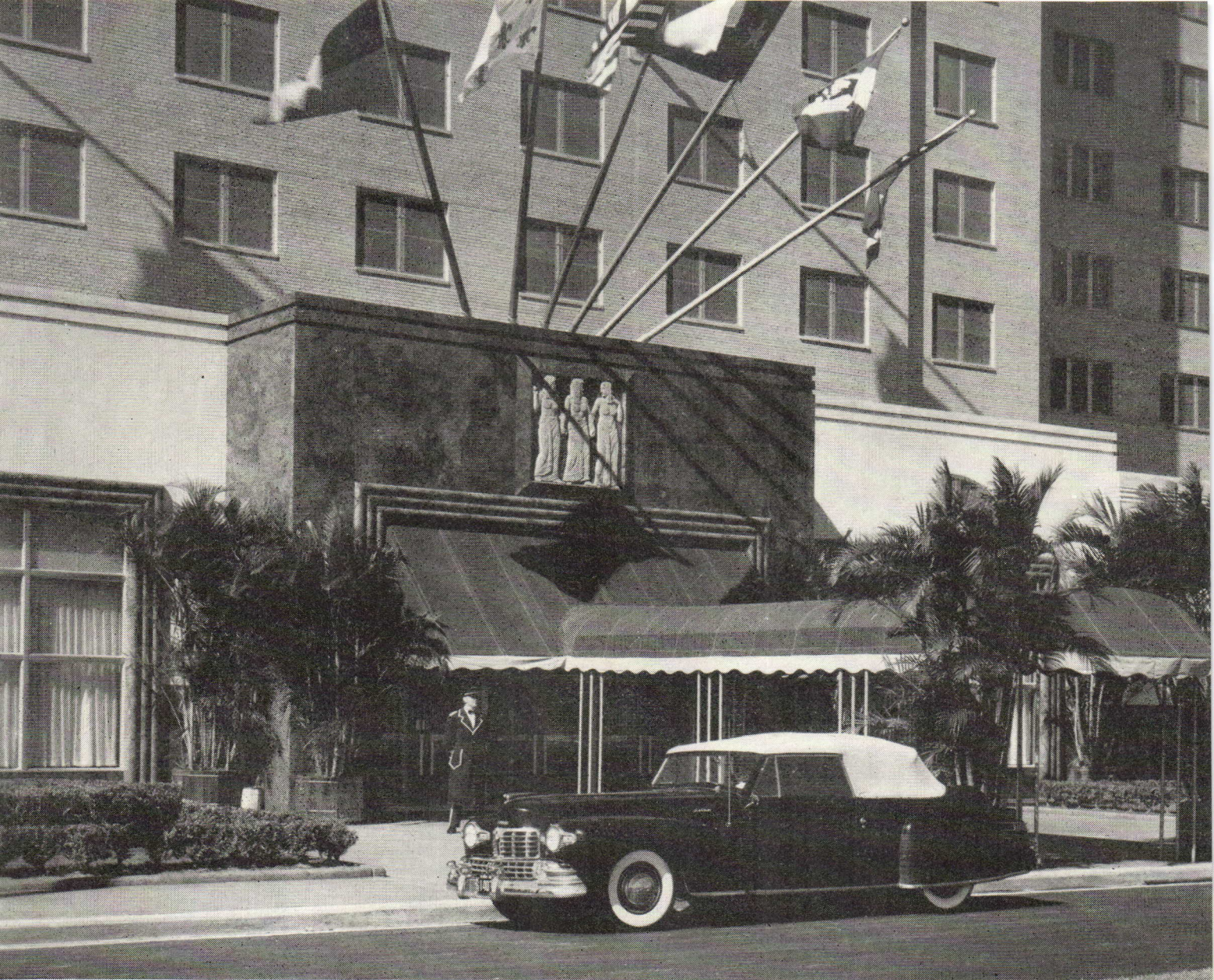
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A COOL \$20,000,000

Glenn McCarthy's fabulous hotel, "The Shamrock"—new \$20,000,000 Aladdin's palace in Houston—has given rise to hundreds of exciting stories.

Especially exciting are the 18 completely air conditioned stories that make this wonderful new hotel a miracle of comfort from lobby to penthouse.

That was because equipment—Trane-built to engineers' rigid specifications—came into the picture. Making possible the world's most completely individualized air conditioning system. It heats, cools, dehumidifies every floor of "The Shamrock".

Here's what it took to do the job. Over 1200 Trane-built

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You may not want to cool a hotel: but if you have an air problem, remember that Trane engineers know air. How to warm it, cool it, dry it, humidify it, clean it or move it. Your local Trane representative will be glad to work with you on your own projects.

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THE HOUSE OF WEATHER MAGIC



This is Armstrong's Linotile

An exclusive Armstrong Floor with outstanding ability to resist hard wear. For over 25 years, first choice of architects for heavy traffic areas. Extra smooth surface, the result of Linotile's® density saves maintenance costs, is easy to clean. Resilient, it's comfortable and quiet underfoot. Indentation resistance of 200 lbs. per sq. in. Recommended for all suspended subfloors. 15 marbled colors; 1/8" gauge; variety of sizes. Medium priced.

*They're all
Armstrong's
Floors*



This is Armstrong's Rubber Tile

Often specified solely for its rich, colorful beauty. Extra resilient, it cushions footsteps, minimizes underfoot noises. Brilliant colors subtly blend in a handsome marble effect. Its surface sheen is unequalled in other medium-priced floorings. Noted for its long service, Armstrong's Rubber Tile has indentation resistance of 200 lbs. per sq. in. Available in 20 marbled colors and plain black; 1/8" and 3/16" gauges; many tile sizes.

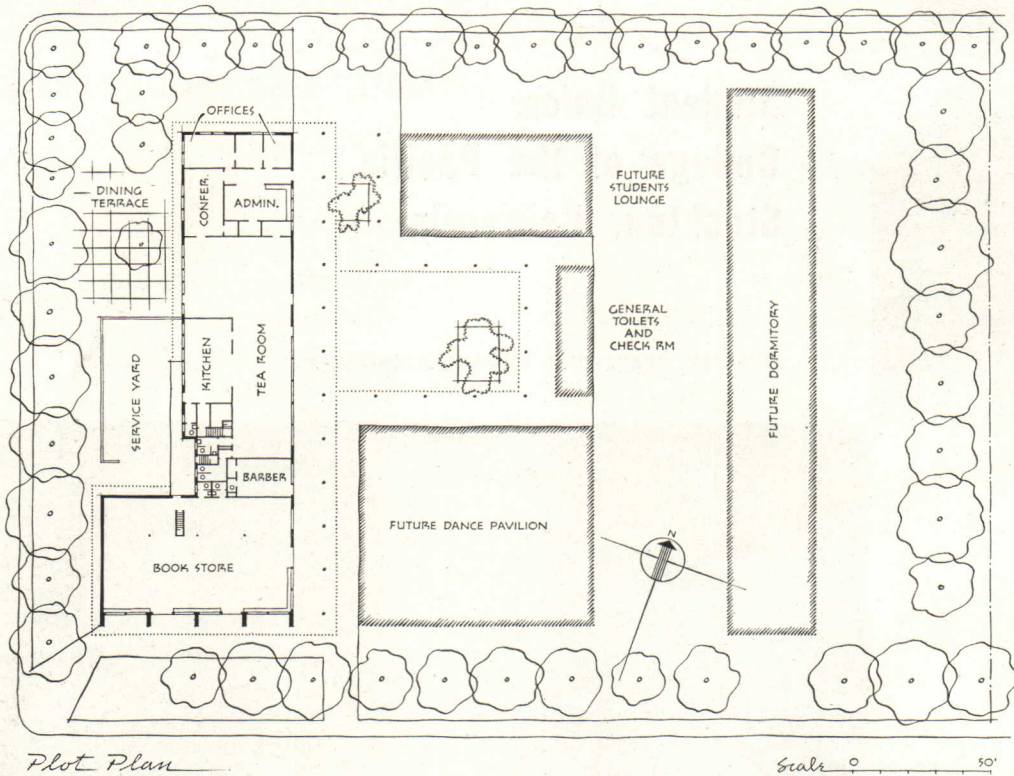


This is Armstrong's Asphalt Tile First choice for a durable, attractive floor when cost is the most important consideration. Tough and long wearing, it gives good service even under heavy traffic. Not affected by alkaline moisture, Armstrong's Asphalt Tile is recommended for use in basements and on grade level concrete subfloors. Five types: Standard, Greaseproof, Industrial, Conductive, and Greaseproof Conductive. Made in plain and marbled colors. Gauges, 1/8" and 3/16".

For additional data on Armstrong's Resilient Floors—Linoleum, Linotile, Rubber Tile, Asphalt Tile, and Cork Tile—consult Sweet's Architectural File, section number 13e, catalog number 2. For samples and specifications, as well as help in solving any unusual flooring problems, architects are invited to write to any Armstrong District office or directly to the Armstrong Cork Company, 8910 State Street, Lancaster, Penna.



In the kitchen area moisture resistance efficiency



Below: general view with bookstore unit at left; barber shop, food shop, and offices, right.

Across page: south end of building; light in tall windows of bookstore is controlled by double overhangs, plus vertical fins to cut direct southeast and southwest sun. Exterior wood is painted either green or warm gray; underside of overhangs and porch, blue.

The architects wish special credit given to the contractors, Shepherd & Green.





MATERIALS AND METHODS

CONSTRUCTION: Frame: wood mainly; some steel beams. **Walls:** brick veneer over wood sheathing; interior wall finishes: plaster. **Floors:** concrete surfaced with either asphalt tile or rubber tile. **Roofing:** asbestos cap sheet. **Fenestration:** double-hung wood sash; double-strength and 1/4-in. plate glass. **Insulation:** thermal—4-in. wool type in ceilings; acoustical—perforated ceiling tile. **Doors:** flush, vertical grain, Douglas fir.

EQUIPMENT: Heating and air conditioning: forced, warm-air system; gas-fired furnace; evaporative cooler units. **Wiring:** rigid conduit under slab; metallic tubing elsewhere. **Piping:** cold-water pipes: galvanized steel; hot-water pipes: copper.

STUDENT UNION: STOCKTON, CALIFORNIA

program: First unit of an eventual group (see plan) that will include a student lounge and a dance pavilion. Initial structure to contain a bookstore, a barber shop, a food shop, and offices for the student body association—units that were financed by the tenants and hence could be built promptly. Future additions await the raising of funds.

site: Level, well-wooded area on the campus of the College of the Pacific, across the street (on the south) from a junior college campus. College gymnasium to the west; other buildings to north and east.

solution: Bookstore placed on south to lure both the campus and junior college trade. Barber shop and food shop set back to discourage trade from the junior college, since there is more than enough business on the campus. In all areas except the student offices, only unfinished space was provided, the architects acting in an advisory capacity on fixtures and equipment. Existing campus buildings are Collegiate Gothic; local brick used in new building matches that of the older buildings; landscaping further ties all elements together.



Above and right: the food shop. Door on outside wall (at right of large photograph) leads to what will in time become an outdoor dining terrace.

Below: general view from northwest; offices in end of foreground wing. Future dining terrace is planned for the area just this side of the service-yard wall (background).



STUDENT UNION: STOCKTON, CALIFORNIA

the architect and his community

A CASE STUDY

FREEMAN-FRENCH-FREEMAN, ARCHITECTS

BURLINGTON, VERMONT

This is the fourth in a series of P/A Case Studies (see October 1947, March 1948, and February 1949) of firms which have based their work on the belief that an architect must make himself an important part of his community if he hopes to improve its physical aspect. The fact that this often results in a successful practice is not accidental; these studies have shown that a community will usually make good use of the services of a professional who has shown himself devoted to over-all interests. The firm studied in the following pages practices in Burlington, Vermont, but its work and its influence spreads over the entire state, and even into adjoining states. The "community" which it serves is, in this case, a wide and scattered one.

Left to right: John French, Ruth R. Freeman, William W. Freeman.

Photo below: James V. Detore
All other photos: Richard Garrison



THE REGION

The firm of Freeman-French-Freeman believes strongly that architecture must reflect the nature of the region in which it is planned and the character of the people for whom it is designed:

"The type of work which we do is conditioned largely by the characteristics of the area in which we practice. Geographically, it is hilly or downright mountainous, and studded with lakes. The people are thrifty and independent. The climate ranges from sub-zero winter cold to a summer heat that is sometimes intense and humid. Vermont is sparsely populated; Burlington, its largest city, has a population of about 32,000. Our work must necessarily spread over quite an area, and this presents physical difficulties unknown in more thickly populated sections."

BACKGROUND

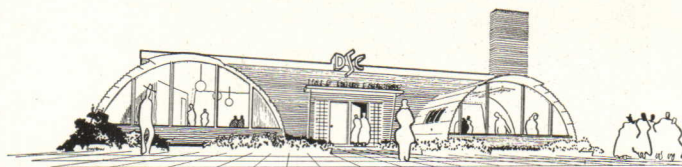
Ruth R. and William W. Freeman—husband and wife, who both studied architecture at Cornell University—were joined by John French to start the present firm in 1937. For several years most of the work was residential, with public buildings coming along in time. The firm recently completed its 500th commission. Under construction is an office building for the State of Vermont and several projects for the New England Telephone and Telegraph Company. The firm has been retained to develop a 10-year building program for the Burlington School Commission.

It might be pointed out that this fairly rapid success of a new firm is not common. The factors here seem to have been the paucity of able architectural services in the area and the firm's complete understanding of and sympathy with the people in their state, and their needs. They have no difficulty in gaining the confidence of the conservative, economical, taciturn Vermonter, who is never unfriendly but may be clannish.

Another factor is that the firm turns down no work, no matter how small: "A small job, with a satisfied client, will almost always lead to a larger project at some later date. In a small community, client relationship is inclined to be on a friendly and somewhat personal basis. We believe that if an architect is going to give maximum service to his community, he should not hesitate to shoulder whatever problems, large or small, need to be solved."

OFFICE PRACTICE

The Freeman-French-Freeman organization is small—at the present time, besides the three principals, there are 10 employees. Mrs. Freeman is responsible for most of the design and makes most of the presentation drawings. Mr. French has charge of drafting room production and part



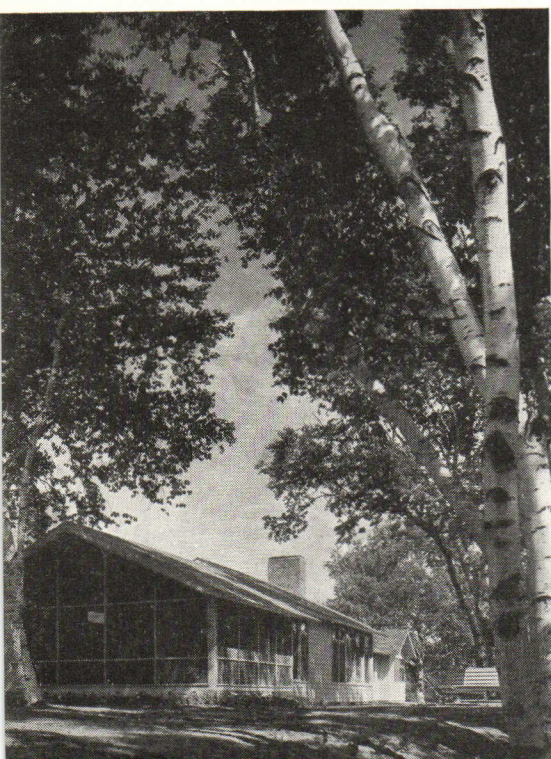
Postwar commission for a "laundromat" near low-cost housing development was solved by use of Quonsets. U-plan opens to landscaped court on street side.

of the field supervision, and also assists in client contact. Mr. Freeman generally handles contacts with clients, office administration and specifications, does some supervision, and acts as design critic. Drafting room personnel is used flexibly. A field man covers the larger projects and sends daily reports to the office.

The office staff usually includes several young men who have come directly from architectural school. "The reasons are: (1) We can train them in our own methods; (2) A recent graduate, if competent, has a certain fresh approach to his work that is stimulating to the group."

Office procedure is simple and logical. After Mr. Freeman has gone over a project in general terms with a client, he dictates a memorandum which is used in the drafting room to prepare preliminaries, under Mrs. Freeman's supervision. This process is repeated until approvals are obtained and working drawings are started. During the preparation of the contract documents, periodic conferences are held with the client, one of the principals, and the drafting room personnel assigned to the job present.

Kienle house near Milton, Vermont, is on a birch-wooded plateau overlooking Lake Champlain and the Adirondacks. A rambling one-story scheme, it terminates at the northwest in a large screened porch containing a fireplace.



BUILDER RELATIONS

The firm members point out that relations with the building trades in a community such as theirs is peculiarly intimate:

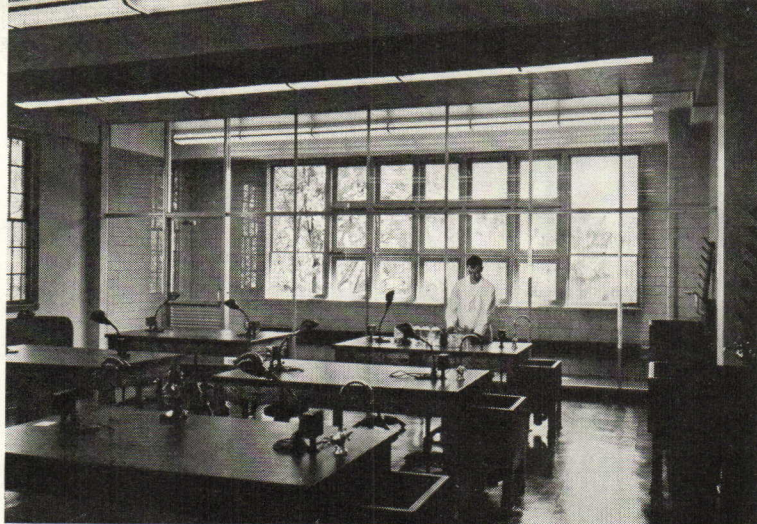
"We have a close relationship with the building trades craftsmen throughout the area. They have become, in effect, co-workers and friends. They know our work, what we require, and know all of us personally. We, in turn, know their individual skills and limitations.

"Many of the products used so frequently in the metropolitan areas are not readily available or familiar to our local contractors. When we decide to use a new material we start a minor campaign to familiarize the contractors with it—request that literature be mailed, keep samples in the front office for handling and viewing, discuss it socially, have local distributors obtain costs and samples, etc. By the time it is specified it is no surprise to anyone."

COMMUNITY AND PROFESSIONAL ACTIVITY

Although the firm denies that any of its members are "joiners" of fraternal organizations for business reasons alone, their record of participation in community affairs is impressive.

the architect and his community:



Left: Science Building for St. Michael's College, Winooski Park, Vermont, is a concrete-frame, masonry cavity-wall structure, conservative in appearance, with laboratories carefully studied. Cost, not including equipment, was 86 cents a cubic foot.

Below: warehouse for Blodgett Supply Co., on the lake shore at Burlington, Vermont. Solar visor of light structural steel members successfully screens west summer sun.

Mr. Freeman has served as chairman of the City Park Commission, for the last three years has acted as consultant to the City Planning Commission, and is a director of the local Chamber of Commerce. Mr. French has been president of the local Lion's Club and is active in youth work throughout the state. All members of the firm speak in public occasionally—at town meetings, for welfare organizations, clubs, and schools.

Mrs. Freeman is president of the Vermont Association of Architects, a Chapter of the A.I.A. Together with other architects in the state, the firm has been working to get a registration or licensing law passed by the state legislature (Vermont is one of the very few remaining states without such a law. "A man recently advertised here on a pick-up truck that he was an architect and builder and did floor sanding as a specialty.")

DESIGN PHILOSOPHY

The attitude of the firm of Freeman-French-Freeman toward design matters is expressed most adequately in their own words:

"We have a theory which we stress constantly, both within our office and in our contacts with the public. It is this—that a building should achieve proper balance with respect to four points:

"1. Budget. The Vermonter, a true conservative, is limited in buying power and is most conscious of costs, both initial and maintenance.

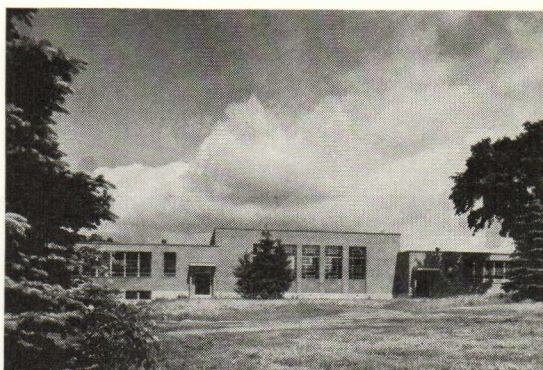
"2. Construction. Each material and method of construction should be carefully scrutinized so that its value is properly balanced against its cost and to assure that each component part has the proper relative value to each other part and to the structure as a whole.

"3. Function. The plan must have an essential fitness to its social purpose. Impractical use of space cannot be tolerated.

"4. Esthetics. An esthetically satisfying structure will result only from a finely balanced relationship of voids and solids, of light and shade, and of texture and color.

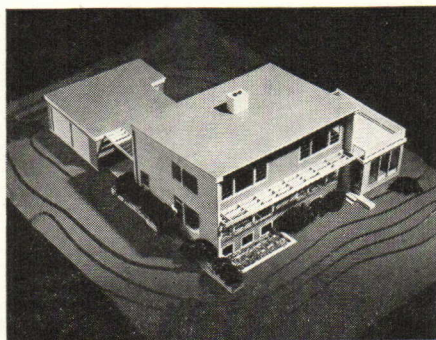
"When a building is designed that satisfies these four requirements, it is normally a direct simple solution using, as far as possible, native materials together with local labor and methods. The Vermonter, perhaps unconsciously, therefore has accepted contemporary design on the same basis that the original Vermonters did their equally simple and economical Colonial structures."

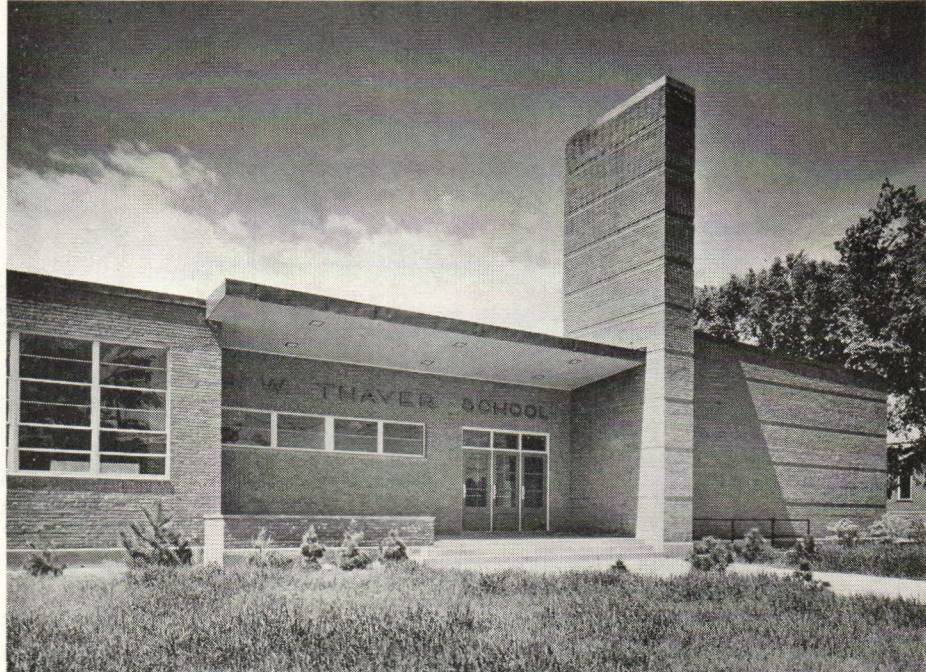
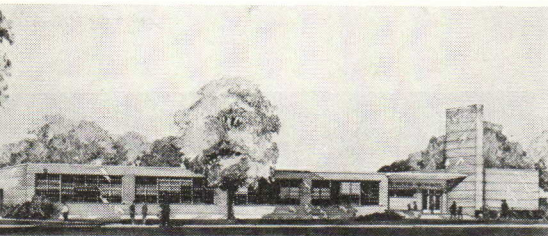
On the following nine pages, a number of commissions designed by the firm of Freeman-French-Freeman are studied in more detail.



Above: auditorium-gymnasium for Brandon State School, Brandon, Vermont, an institution for feeble-minded. Program required minimum cost and plan segregating sexes.

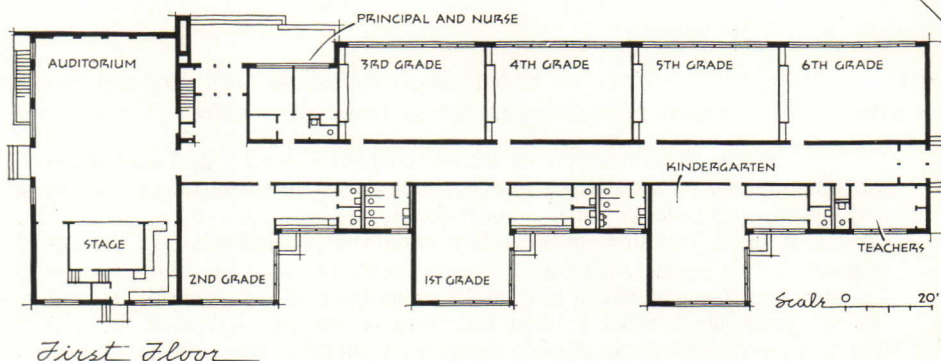
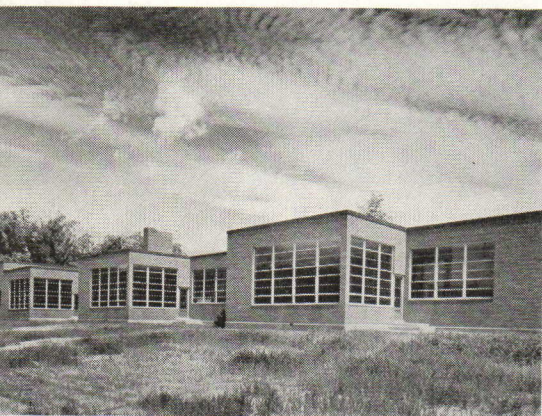
Below: model of Holden house, Barre, Vermont. Firm says: "Many of our projects are studied this way, and often a model is presented to a client in lieu of a rendering."





the architect and his community: FREEMAN-FRENCH-FREEMAN

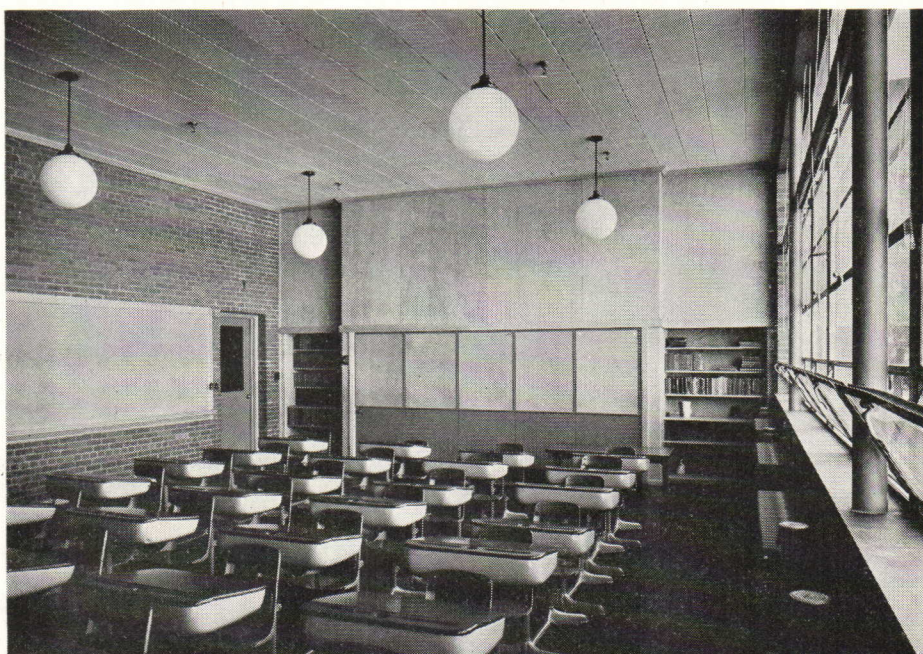
School: Burlington, Vermont

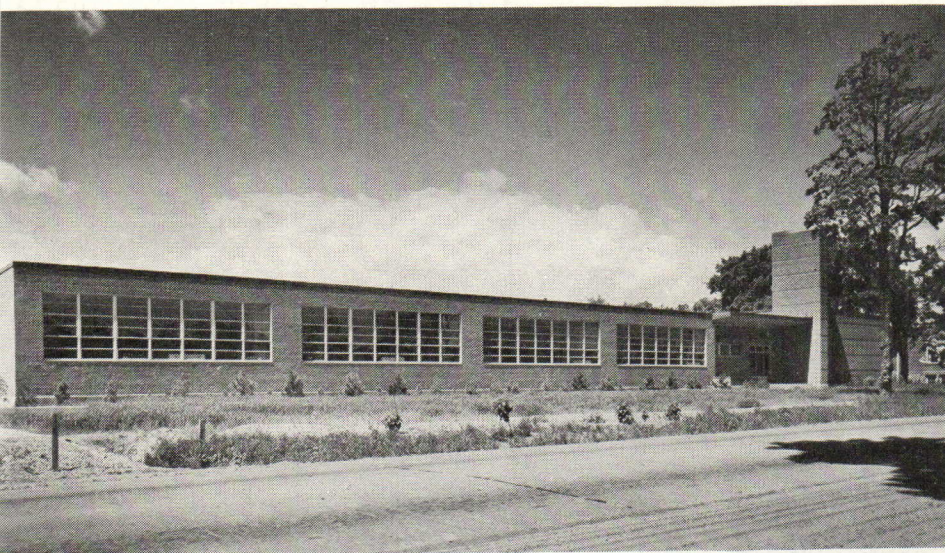


Top of page: rendering; entrance detail.

Above: kindergarten and first and second grade classrooms project at rear, with separate play areas and project rooms.

Right: typical classroom. Exposed warm brick complements natural wood partitions. Doors, windows, and radiators are painted gay colors, an innovation in Vermont.



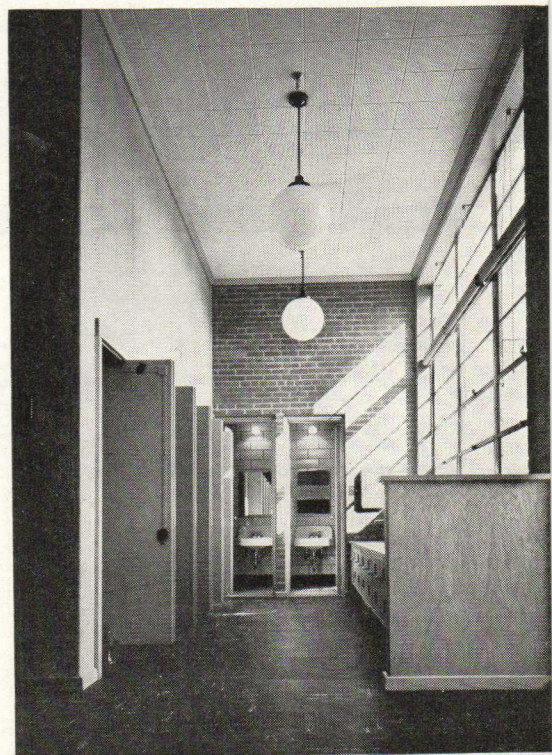


Left: general view of northeast elevation.
Below: looking along corridor to wash-
room.

MATERIALS AND METHODS

CONSTRUCTION: **Floors:** reinforced concrete, surfaced with asphalt tile (classrooms and corridors), first grade birch (auditorium), or ceramic tile (toilet rooms). **Walls:** masonry bearing, native red brick. **Roof:** steel roof decking on steel frame; 5-ply tar and gravel. **Fenestration:** steel sash with both clear and obscure glazing. **Insulation:** acoustical—12" x 12" tile, 3/4" thick; thermal—2" cane-fiber type in roof deck. **Partitions:** frame, sheathed with 1/4" oak plywood; red brick; structural, glazed tile. **Doors:** 1 3/4" flush type, birch faced.

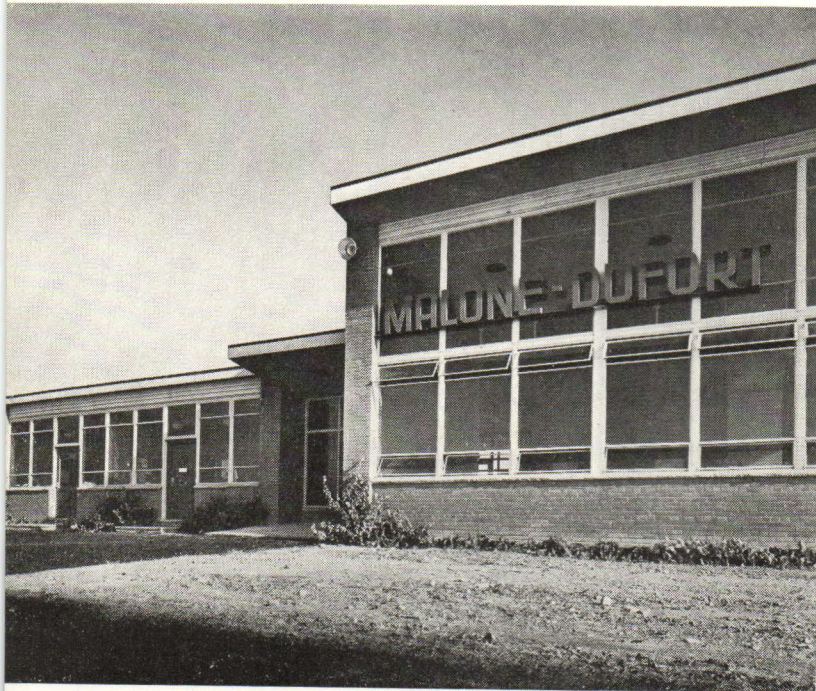
EQUIPMENT: **Heating:** low-pressure steam system; stoker-fired, anthracite-burning furnace; standing radiation. In auditorium—unit heaters and ventilators. Controls. **Lighting:** incandescent throughout. **Ventilation:** mechanical exhaust throughout; mechanical supply for auditorium. **Special equipment:** intercommunication and public-address system; program clock system; sprinklers.



program: A new building, known as the S.W. Thayer School, to replace a substandard 55-year-old structure. Location is in a rapidly growing residential section—student population was 74 the year before and 188 the year after new school was completed: total capacity is 245. Grades run from kindergarten through sixth. Auditorium with minimum stage was required. Low initial and maintenance costs were mandatory.

site: Level property near a main highway. Soil is light sand.

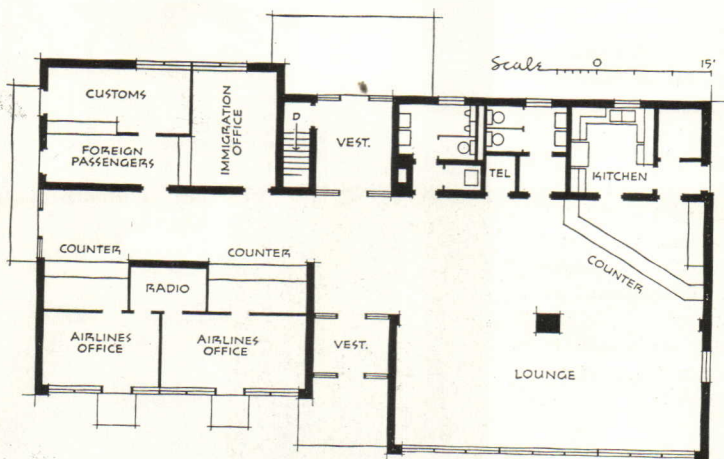
solution: One floor scheme, with classrooms for third to sixth grades facing east (girls' and boys' washrooms off main corridor) and lower grades in separated double-exposure rooms facing southwest. Administration offices located for simple control. Auditorium planned for use as lunchroom, with kitchen adjacent. Structure is simple and economical—the school was built in 1947-1948 for 71 cents a cubic foot.



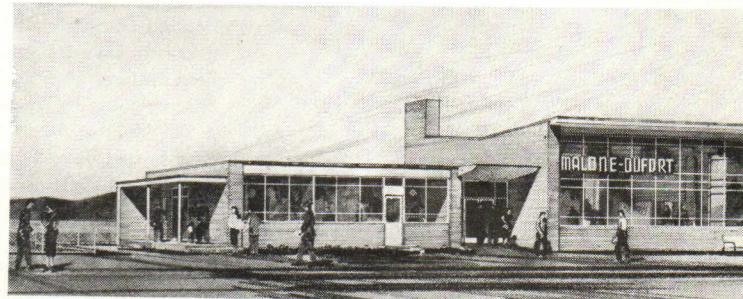
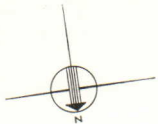
At left: detail of lounge window.

Below: rendering of airport building looking from field. Office expansion will be at left, restaurant at right.

Airport: Malone, New York



First Floor

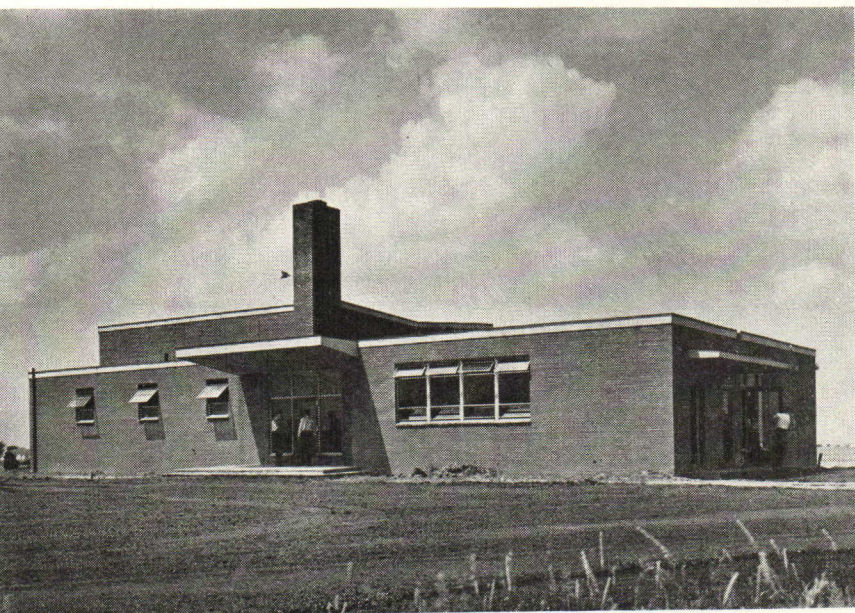


program: An airport administration building serving two towns in upper New York State, to be used by one commercial airline, private plane owners, and townspeople who come to watch plane activity. Future expansion, to accommodate two more airline offices, restaurant, and enlarged customs, mail, and cargo space. Control tower may be added in future.

site: Plateau between Adirondack Mountains and Canadian border. Soil is heavy clay, moisture laden. Climate ranges from very cold winters to warm summers.

solution: Large lounge, looking toward field, off which open toilets and future short-order concession: lobby-corridor, where airline offices and customs and mail rooms are located. Deep foundations, with partial basement.

expansion: Corridor will be extended, to allow more offices. Restaurant to be added at west; control tower planned over entrance vestibule.



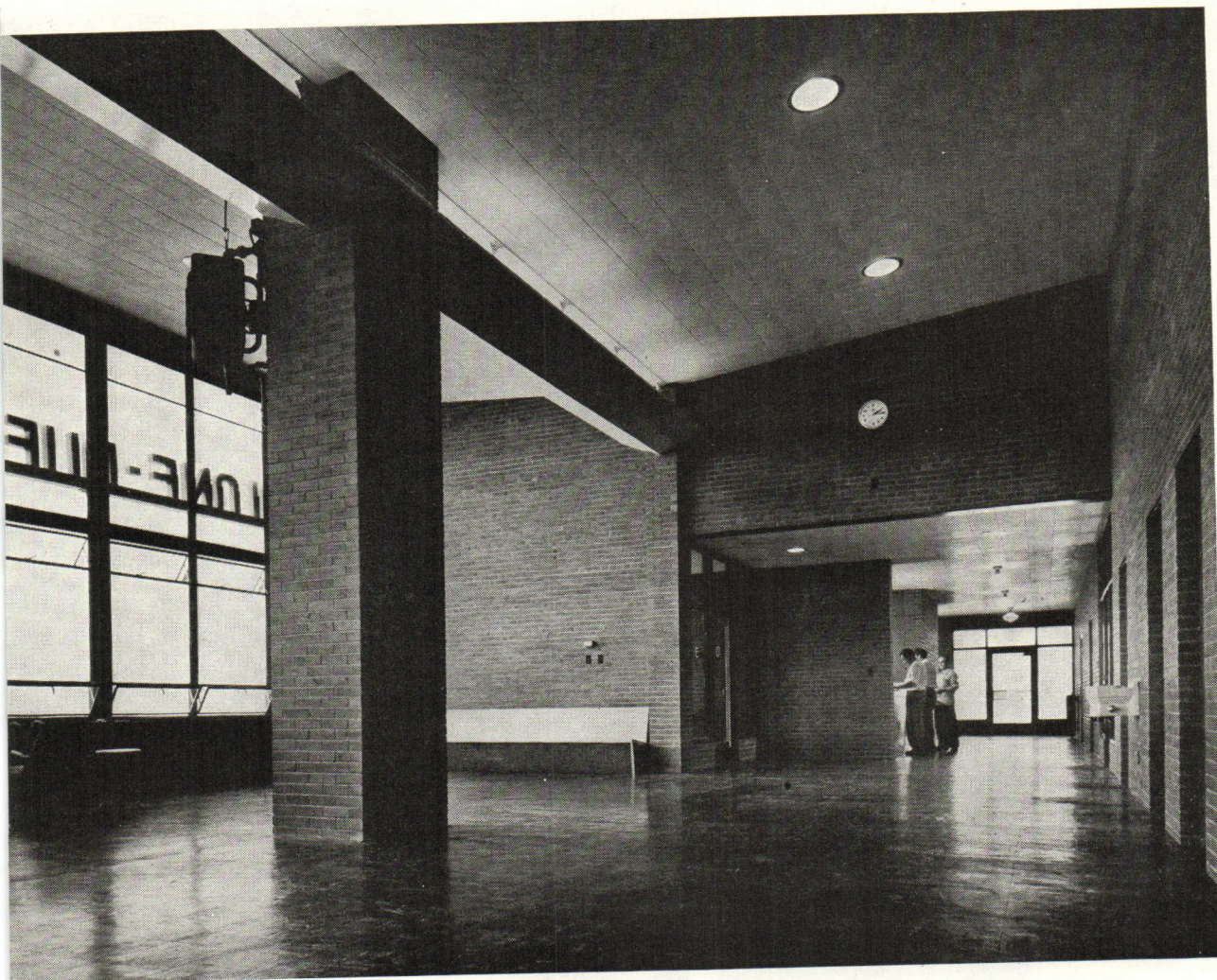
Above: entrance to building from street side.

Below: lounge interior—finish materials were chosen for reasons of economy and ease in maintenance. Red brick, ruddy-brown asphalt tile floor and blue-green trim are set off by lemon-yellow continuous lighting trough. Crippenstone, a native material, was used for sills as well as flagstone paving.

MATERIALS AND METHODS

CONSTRUCTION: **Frame:** structural steel. **Walls:** load bearing 12" brick. **Floors:** reinforced concrete supported on structural steel frame and surfaced with asphalt tile. **Roof:** steel roof decking; 3-ply built up over 2" rigid insulation. **Fenestration:** steel sash; ½" polish plate glass for doors and fixed openings; "A" quality, double-strength glass elsewhere. **Insulation:** acoustical—ceiling tile; thermal—2" cane-fiber rigid board on roof. **Partitions:** movable steel, painted blue-green. **Doors:** unselected rotary cut birch, flush face.

EQUIPMENT: **Heating:** low-pressure steam system; standing radiation; oil-fired boiler. Also unit heaters. Automatic controls.

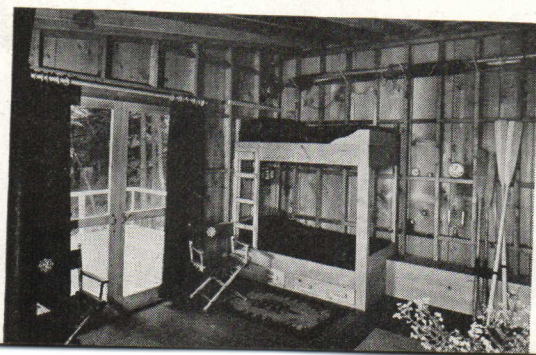




Interior wall surface is left unfinished. Room is large enough to be divided by furniture grouping into areas for eating, sleeping, daytime activities.

Camp: Lake Champlain, Vermont

- program:** A summer camp on the shore of Lake Champlain, which could be used in the winter to store boating equipment, for a couple whose hobby is boats. The camp will be used eventually as a guest cottage when a larger building is built on an adjoining site.
- site:** Atop rocky precipice, 25 feet above the lake shore.
- solution:** One large room, with bunks, off which are a large bathroom and two dressing rooms. Barn doors open to east breezes, and as well allow dingies and boat equipment to be moved in for the winter. Structure is raised on piers to assure framing being above deep snow. Siding is wide western fir boards, finished on outside with two coats of oil and turpentine. Cost, including septic tank installation and 300 feet of waterline, was about \$3 a square foot.



House:
Burlington, Vermont

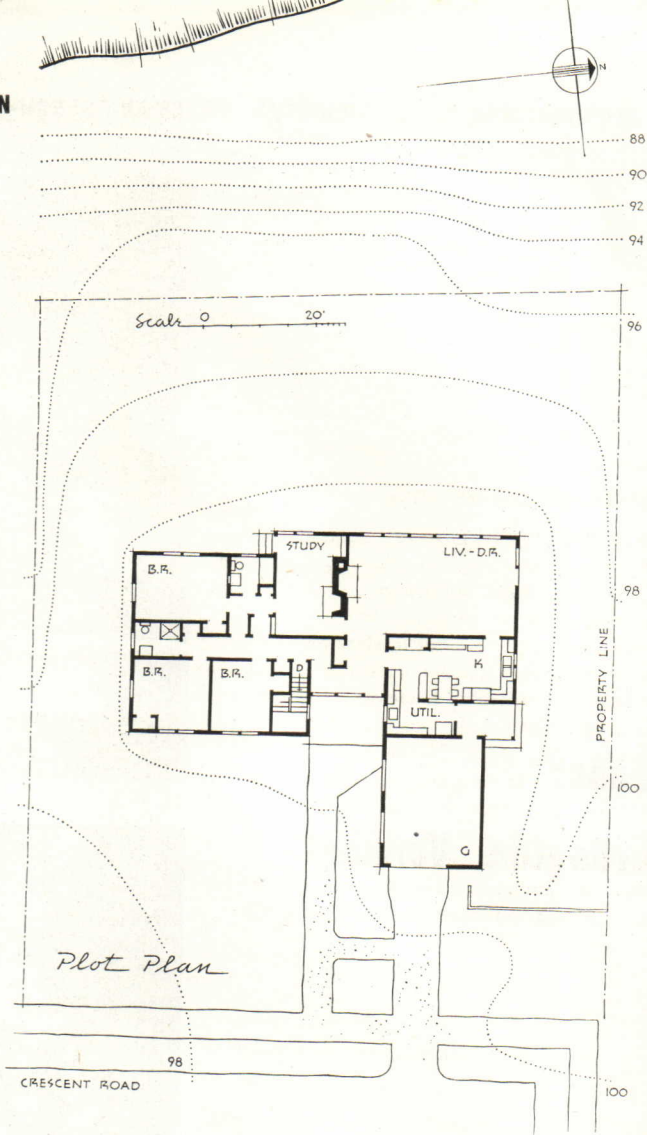


Above: entrance to house, which sits on cliff top.

Right: rear of house has unbroken view of lake and mountains.



Top: view from southwest.
Below: north elevation.



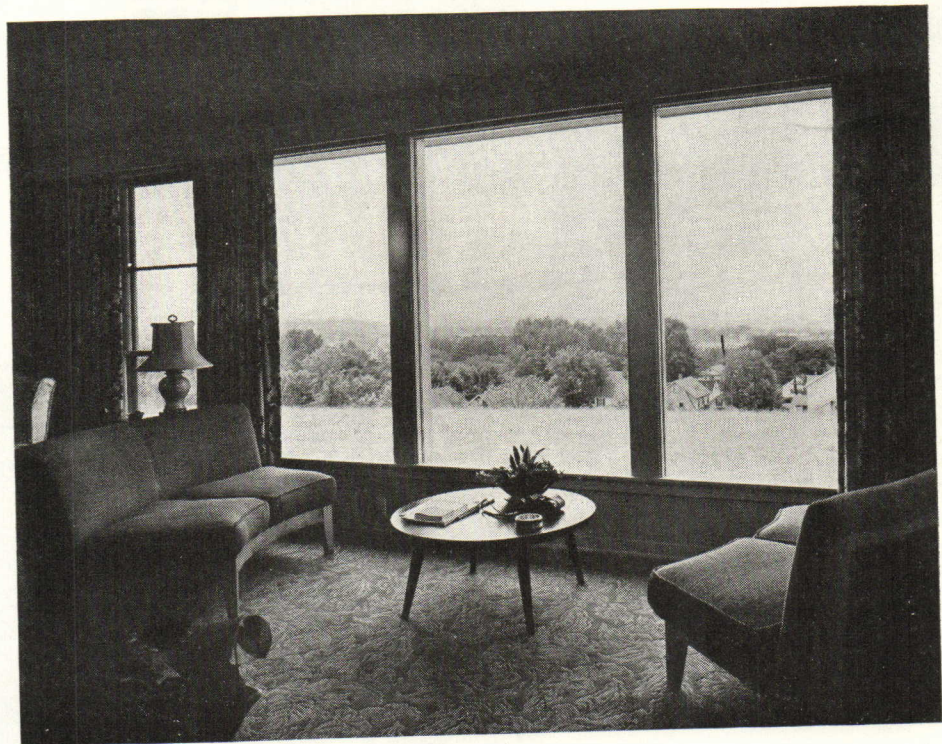
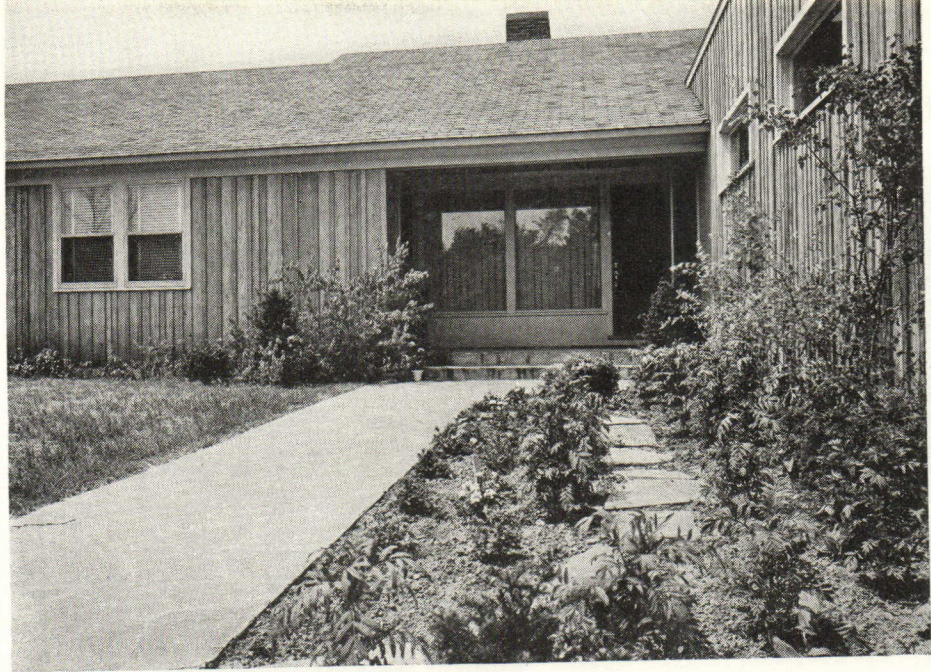
HOUSE: BURLINGTON, VERMONT

- program:** House for a family of four (including a son in late teens and a daughter away at school in winter). Husband is an insurance salesman who uses his home largely as his office. Open plan was desired and an aspect which would "give a feeling of space and restfulness." Wife was particularly interested in kitchen planning. Dining space was required to be available for entertaining in conjunction with living area.
- site:** A 100-foot lot, the first to be used in a new development on upper edge of 75-foot cliff, with magnificent view. House is visible from main thoroughfare entering Burlington below, about 600 feet away. Site lacked trees, a fault being corrected by landscaping.
- solution:** A low silhouette; a plan that takes advantage of the view for all principal rooms except children's bedrooms. A study, which serves as owner's office. Breakfast space in kitchen adequate for most family meals. Simple, local framing and finish materials.

MATERIALS AND METHODS

CONSTRUCTION: **Frame:** standard wood. **Floor-surfacing:** asphalt tile; ceramic tile; carpeting. **Wall surfacing:** exterior—clear cypress, random widths placed vertically with battens over joints; interior—plaster over board-type plaster base; ¼" oak plywood; ¼" cork tile. **Roofing:** 210# asphalt strip shingles, slate blended. **Fenestration:** double hung, wood; "A" quality glass; fixed—double insulating glazing. **Insulation:** 3" blanket type (gypsum base) in walls and ceiling. **Doors:** flush, unselected birch.

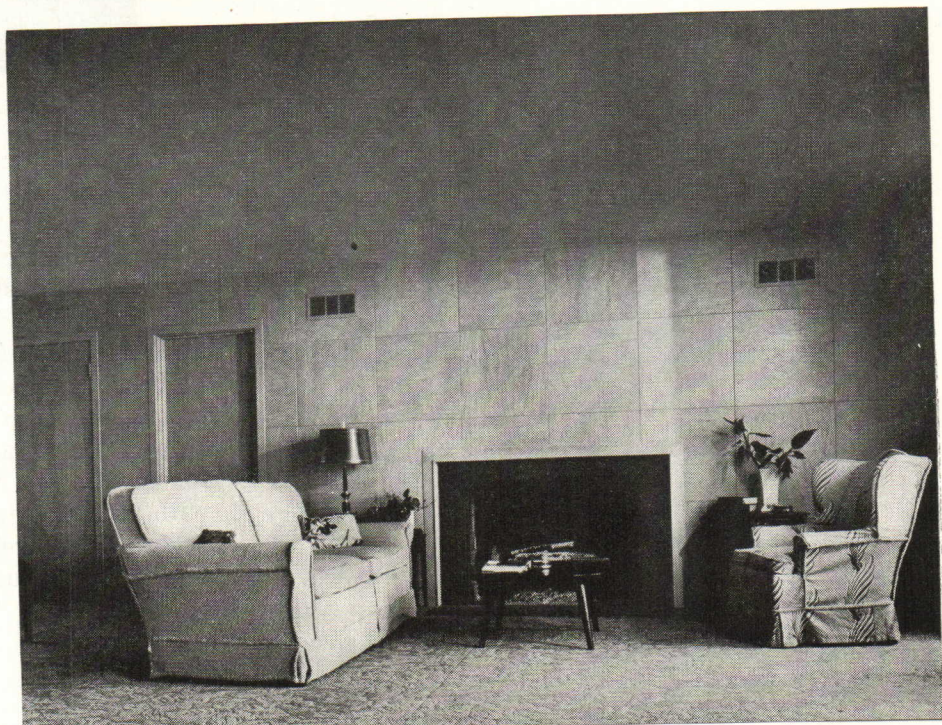
EQUIPMENT: **Heating:** forced, hot-air system; oil-burning furnace. **Kitchen equipment:** electric sink; automatic laundry; deep freeze.



Top: entrance, on east side of house. Garage shows at right of photo.

Center: view from living room windows.

Bottom: fireplace wall, finished in squares of oak plywood, a surface which has been carried into entrance hall.



He started practice (1937) in association with Elsie Krummeck (Mrs. Gruen); Hollywood offices opened, 1941; branch office in San Francisco. Baumfeld has been associated with the firm since 1941 and has served as project director since 1946.



Before and after views. Originally the store front occupied only the two left-hand bays; the remodeled Kutlers includes two additional bays —where a stairway entrance existed in the original. Top photo: Pacific Air Industries All other photos: Julius Shulman

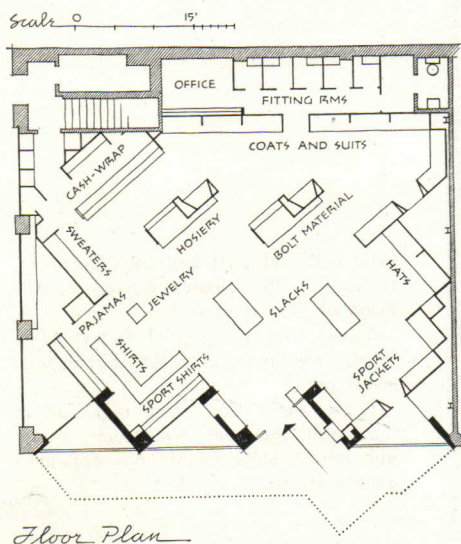
MEN'S WEAR SHOP: LONG BEACH, CALIFORNIA



Left: sidewalk view; projecting triangular sign on rim of marquee displays store name equally in both directions.

Below, left: immediately inside entrance doors; sports-jacket department at left.

Below, right: general view of sales floor.



program: To develop a departmentalized, men's wear shop out of two adjoining commercial spaces (right-hand one an open-stair entrance to second-story shop) with a maximum area of only 50 feet on the street front and a 48-foot depth. Important streets at either end of block made visual appeal in both directions desirable.

site: Interior block, ground-floor space.

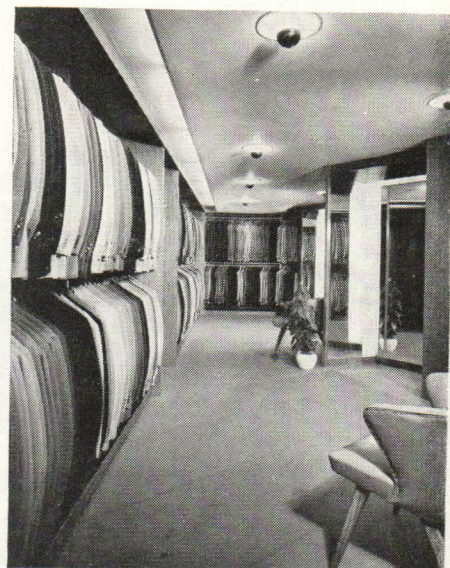
solution: To increase apparent size, the architects introduced a sidewalk marquee, the soffit of which lies in the same plane with (and is given identical louverall lighting treatment as) the ceiling of the shop proper; show window backgrounds kept below ceiling line so that lighted overhead surface appears continuous from inside to out; total store plan (including T supports for the 3" x 3" eggcrate cells) laid out on the diagonal for maximum effect of depth; sawtooth display windows (see Selected Detail, page 93) provide equally alluring views from both approaches to the store. The store won First Prize as the "Best Modernized Store of the Year" at this year's Store Modernization Show in New York.



Left: detail of shirt and tie department, in one of the alcoves formed by the diagonal plan treatment.

Below, left: close-up of free-standing jewelry display case in the shirt-department space.

Below, right: view along rear wall of shop—suit and coat department; three-way mirror units (right) are organized around structural columns.



MATERIALS AND METHODS

CONSTRUCTION: Frame, Walls, Floors, Roof: existing building. **Marquee:** steel decking; lacquered copper fascia. **Floor covering:** sea foam green carpeting. **Wall surfaces:** exterior: tan ruffled Roman brick laid on end; Peruvian travertine marble; interior: plaster; stained oak; display casework. **Glass:** plate-glass windows; tempered plate-glass entrance doors.

EQUIPMENT: Heating and air conditioning: year-round air conditioning, with automatic controls. **Electrical:** fluorescent strips, 18" o.c. above eggcrate ceiling.

MEN'S WEAR SHOP: LONG BEACH, CALIFORNIA



Making A House Model

BY A. L. AYDELOTT

Many architects have found that a model serves well both to assist design studies and to demonstrate what a building will look like. There are various techniques of model making and many materials can be used. Specialists are available for those who have not the facilities or the skill to construct their own. The pictures following illustrate the making of a cardboard model of Mr. Aydelott's own residence in the office of Dent & Aydelott, Memphis, Tennessee. Text and captions are Mr. Aydelott's own description.

T.H.C.

The success or failure of an architectural model is often determined by initial decisions concerning scale, textures, materials, etc. A large structure should usually be at a much smaller scale than a house, and consequently the materials used in its construction would be of a smaller scale. In the model pictured, the scale of one-eighth of an inch to a foot was chosen because it would enable us to show enough detail to make clear the character of the residence, and at the same time it was small enough not to require excessive work on details. Model work of this type is divided into two parts: construction of the building itself and arrangement of the landscape. Work progresses most smoothly when attention is concentrated upon one part of the task at a time, until final assembly is possible.

Photos: Hitchings



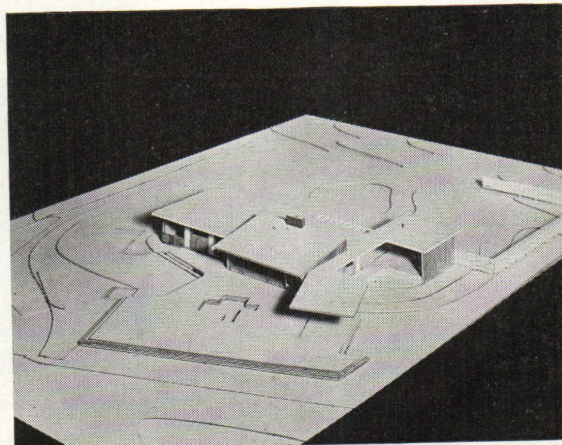
Half-inch plywood was used for the base. Six-inch contours, cut from 1/16th-inch illustration board, were applied with rubber cement and tacks. The two top contours were cut around the floor-plan outline, to receive a base plate which formed the floor of the house and was slotted for partitions.



The walls were now made in sections. To simulate vertical siding, illustration board was lined with a pencil and a water-color wash applied.



Openings were cut out and Plexiglas used for windows. White ink applied with a ruling pen made mullions and posts. The roof was cut from artists' pastel board, which closely approximates the desired thickness, texture, and color at eighth scale.



Finish work was now done: red paper was applied where brick would be used; carpets were laid, etc. Tentative assembly was then tried. Any necessary adjustments or changes are more easily accomplished now than later.



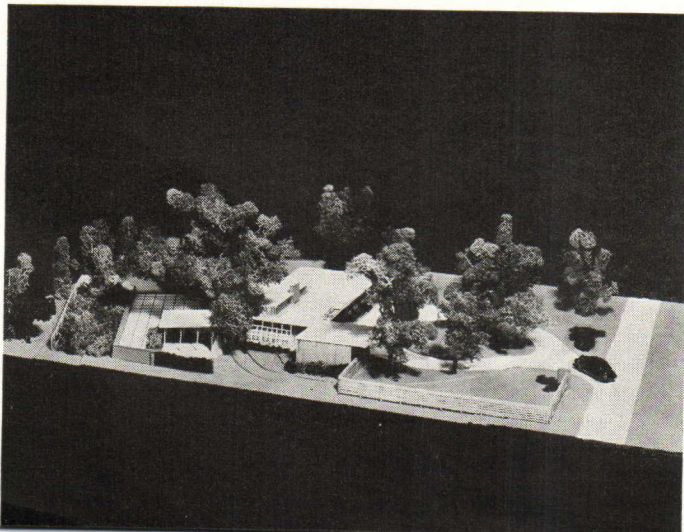
Landscape work was next in line. Masking tape applied to the road outlines made painting of the lawn area a simple matter. Then the tape was reversed and the road and the drive were painted white.



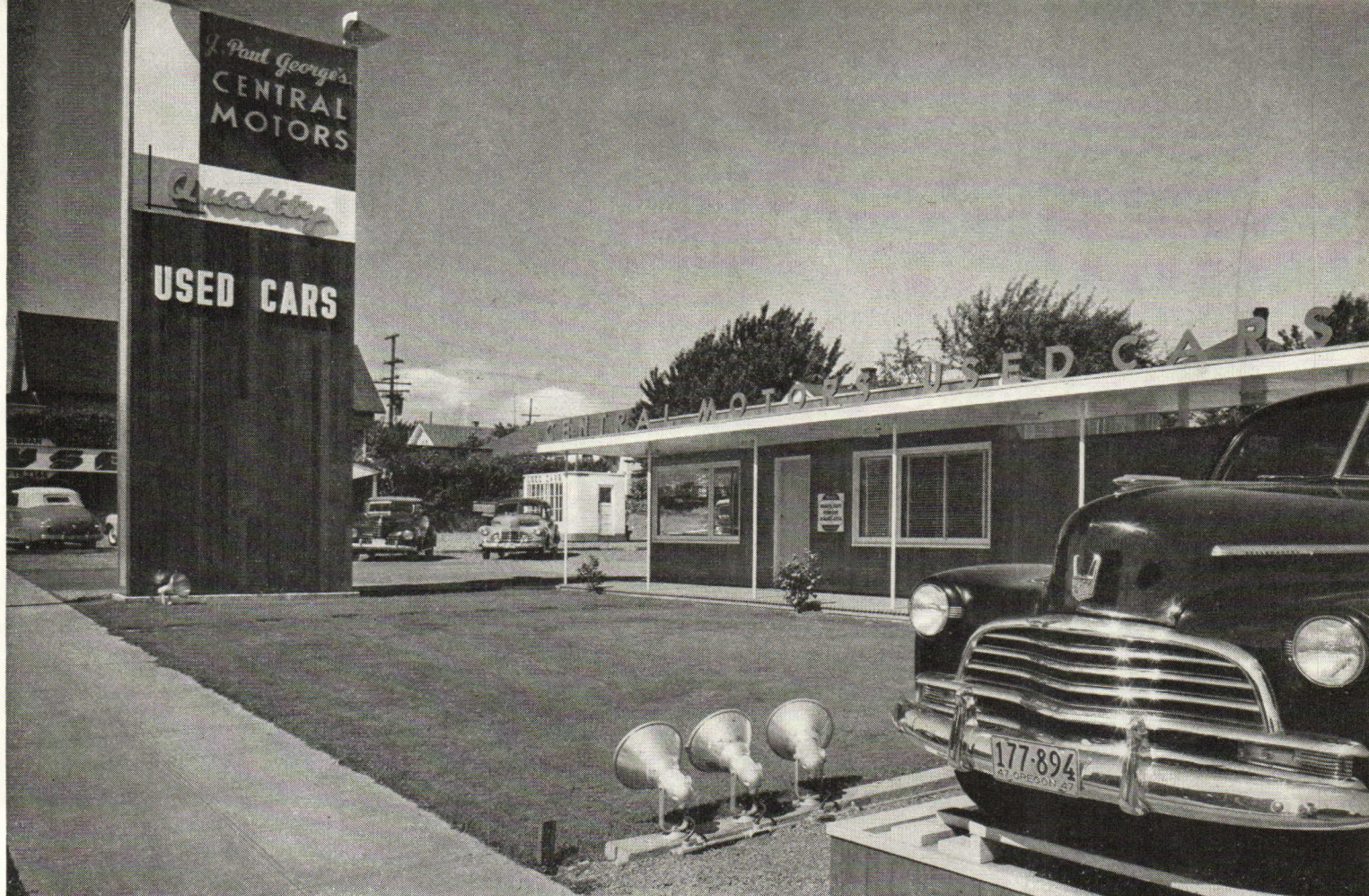
Garden walls were made of built-up illustration board strips, with red paper applied over them to imitate brick. Fences were made of cardboard strips. The woven cedar fences were scored and a water-color wash was applied.



Twigs from suitable plants were used as the trunks and branches of the model trees. Scale is the important factor. Norwegian moss was used for the foliage—its delicate scale and variations in color make it an excellent material for such work. Shrubs are of Norwegian moss; hedges and a few trees, of rubber sponge.

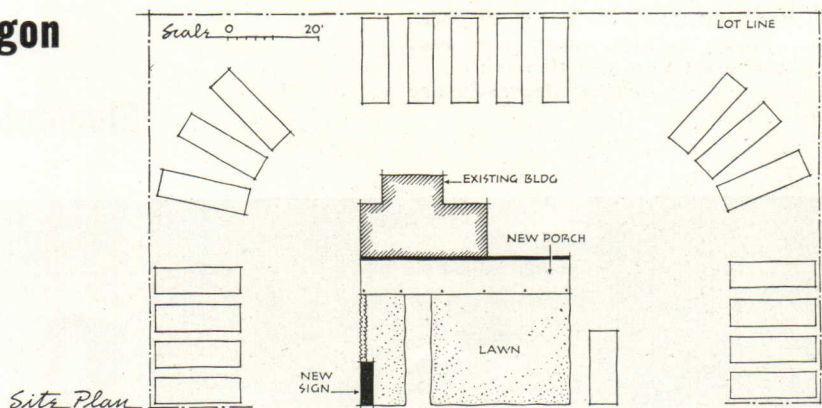


Now final assembly took place. Clamps were necessary in some cases to hold the walls together while the glue dried. The landscape pieces were glued in place. Trees had to be sunk in nail holes to assure rigidity. The final step was painting the plywood base black, to focus attention on the model. Figures, cars, and furniture help observers visualize the scale.



Used Car Lot: Portland, Oregon

WALTER GORDON, ARCHITECT



MATERIALS AND METHODS

CONSTRUCTION: Office building (remodeled from an existing shack)—**New Wall Surfaces:** exterior—1x4 T & G cedar, varnished; interior—rigid wallboard, taped and painted. **Roofing:** Built-up composition. **Fenestration:** wood sash, both fixed and operable; crystal sheet glass. **Doors:** flush fir, painted.

Sign Tower: bolted timbers, sheathed and covered with 1x4 siding; **Upper sign:** 3/4" waterproof plywood, painted; **Ends of tower:** corrugated aluminum.

program:

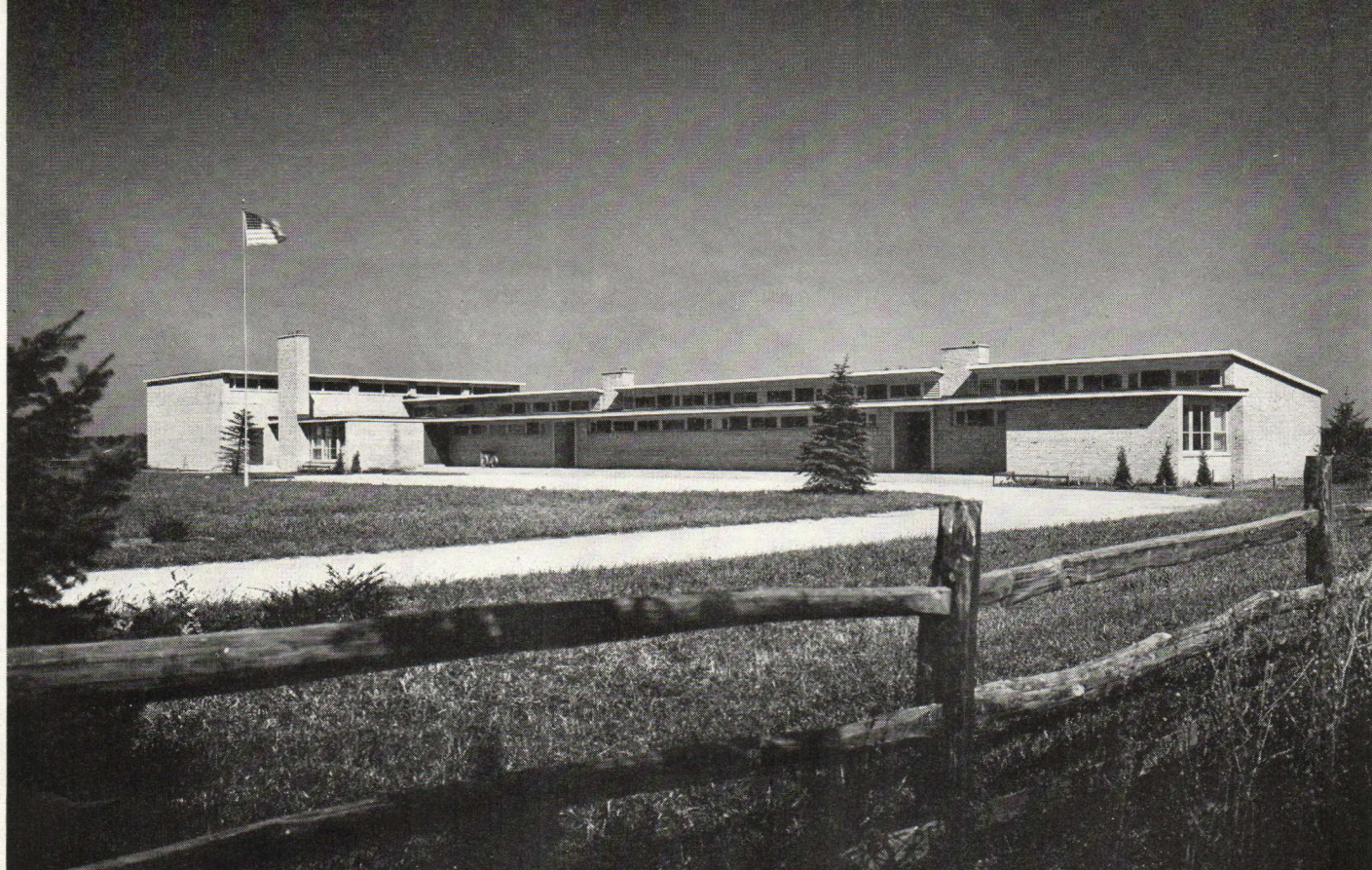
To remodel a shack acquired from a war-housing project, and so scheme the plot and provide signs and symbols that the completed job would be an attractive, efficient place for selling used cars.

site:

Rectangular plot along Portland's "automobile row"—with the longer dimension (156') facing the avenue.

solution:

In order to attract attention amid the nondescript jumble of salesrooms, neon signs, etc., the architect persuaded the owner that "nothing would be a greater novelty or have greater shock value than to minimize advertising signs and plant a lawn instead." A wing wall was added to the shack (which is made up simply of two offices), and the whole redesigned (resurfaced with cedar siding; new windows, doors, and lights) in a restrained manner, producing a character which the pleased owner refers to as "station-wagon smartness." *Photo: Dearborn-Massar*



Above: view from southwest, showing long, outside play corridor and bus-loading platform, the clerestory bands in classrooms, and (at the far end) the playroom.

Below: southeast aspect, with doors opening out from each classroom.

Photos: Hedrich-Blessing

Elementary School: Barrington, Illinois

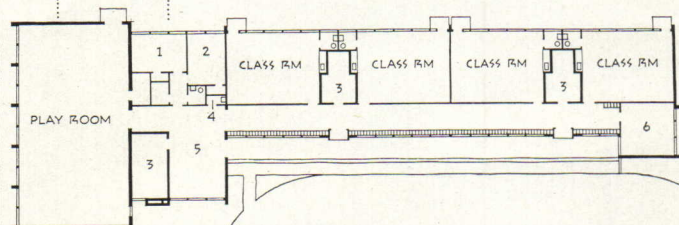


Scale 0 50'



FUTURE BUILDING

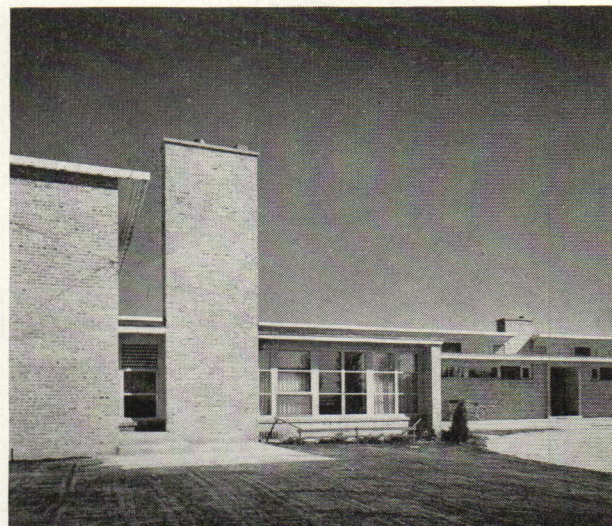
- 1 PRINCIPALS OFFICE
- 2 NURSE AND TEACHERS
- 3 HEATER ROOM
- 4 JANITOR'S CLOSET
- 5 LOBBY
- 6 UNASSIGNED



Floor Plan

Eventual development anticipates addition of another classroom wing toward the east.

Below: detail of west wall—left to right: playroom unit; window and chimney of heater room; lobby window wall; classroom wing.



PERKINS & WILL, ARCHITECTS



Continuous windows light the east wall of the classrooms. Arrangements of fixed and operable lights create a design pattern of their own.

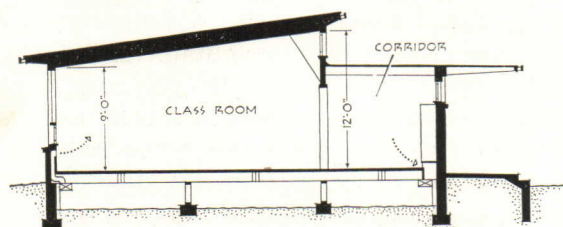
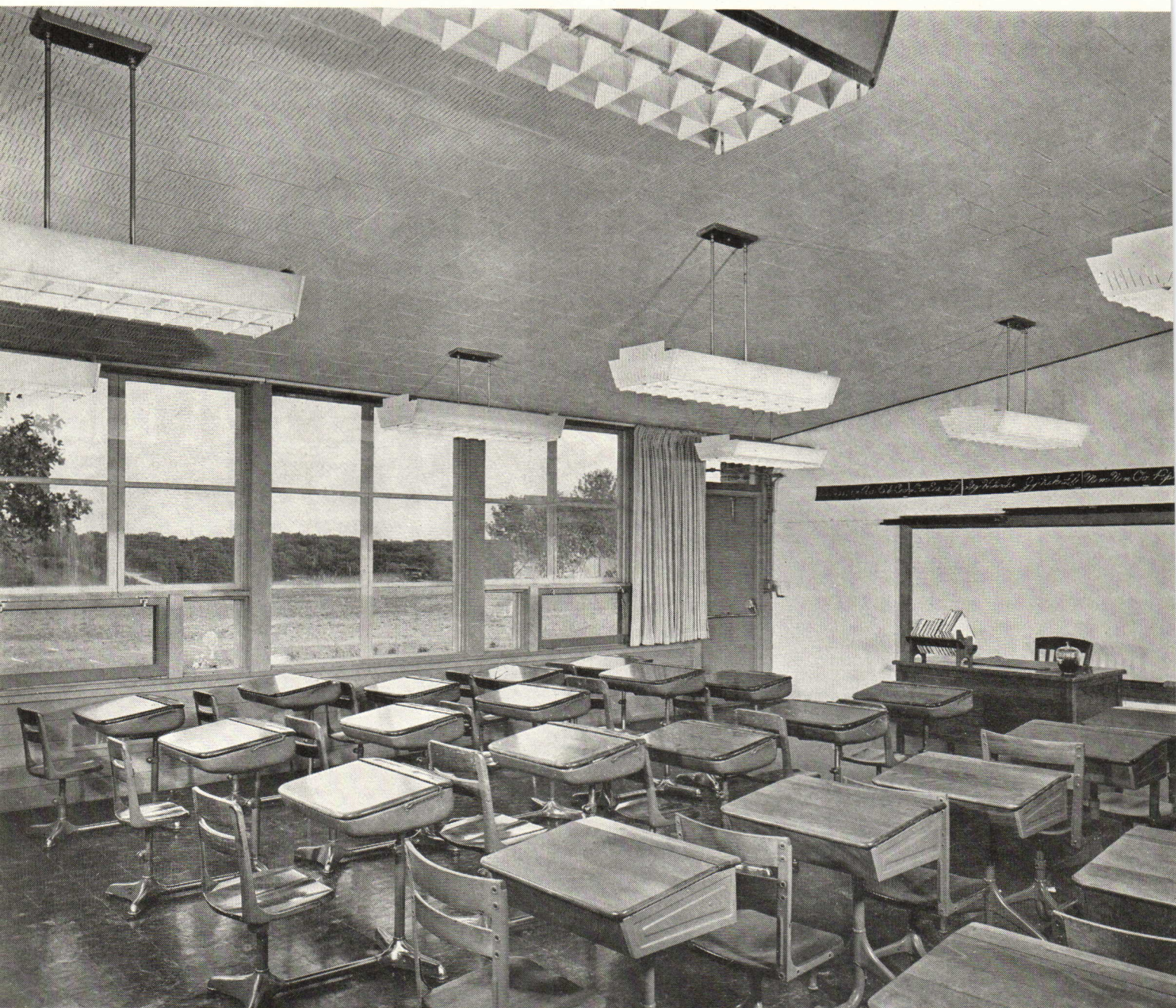
Mention, Class I: P/A Awards for work done in 1948

program: Four-classroom school, urgently needed as a result of local, postwar housing boom; a school to replace three, one-room districts; most of children to come by bus.

site: Seven-acre tract donated by local resident.

solution: Four classrooms (with toilets and heater room between each pair) aligned along east side of building; bilateral lighting and cross ventilation obtained from clerestory band above corridor on west; playroom, offices, and lobby (a third furnace room in this area) at north end of building. Cantilevered corridor-roof overhang on west provides continuous, covered porch that serves both as a loading area for school buses and as protected outdoor play space in bad weather.

Important part of the story is the economy of planning and structure: brick-veneered frame; three, domestic-size, oil-fired, warm-air furnaces instead of complex central heating system, etc. Total building cost was \$10.32 per square foot, with mechanical contract accounting for only 16 percent of this total, leaving an unusually large percentage of the budget for classroom facilities. Construction speed, also notable—five and a half months.



Cross Section

ELEMENTARY SCHOOL: BARRINGTON, ILLINOIS

MATERIALS AND METHODS

CONSTRUCTION: **Frame:** wood. **Walls:** soda-ash brick veneer; interior surfaces: pecky cypress, fir, and concrete block. **Roof:** composition over frame. **Flooring:** asphalt tile. **Fenestration:** wood sash; plate glass. **Insu-**

lation: acoustical—ceiling tile; thermal—1" rigid insulation. **Partitions:** fir on studs and concrete block. **Doors:** flush, wood.

EQUIPMENT: **Heating:** oil-fired, warm-air furnaces; controls. **Lighting:** louvered fixtures; fluorescent tubing.



Across page: typical classroom looking toward south-east corner; concrete block partition wall; acoustical-tile ceiling.

Photos this page: above—detail along west wall of classroom, with fin-baffled clerestory for cross lighting and venting (see diagrammatic section, facing page). Sink and storage unit on far wall adjoins one of the heater rooms. Door at right leads to toilets. Photo at left—corridor with coat hooks above continuous bench; shelf projection on right-hand wall and the wood surface above allow flexible display of student work.



House: Big Hill, Kentucky

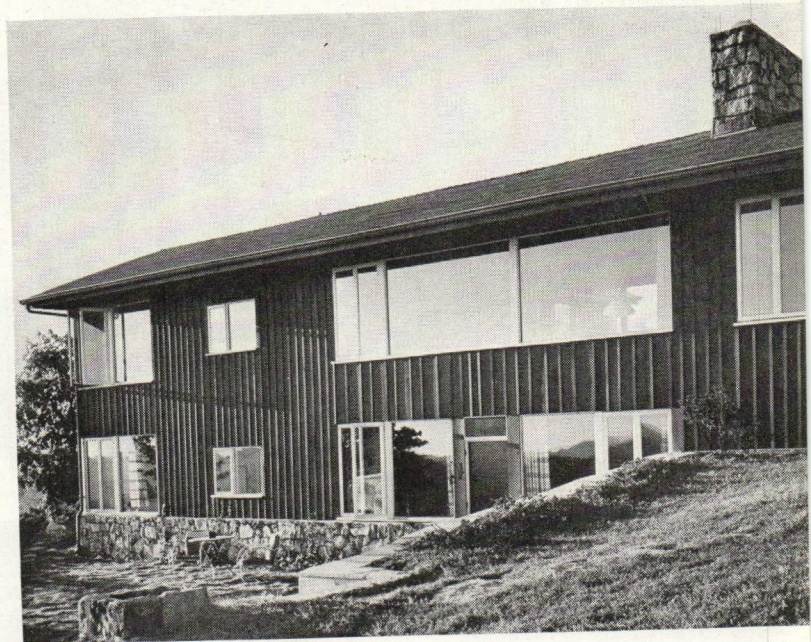
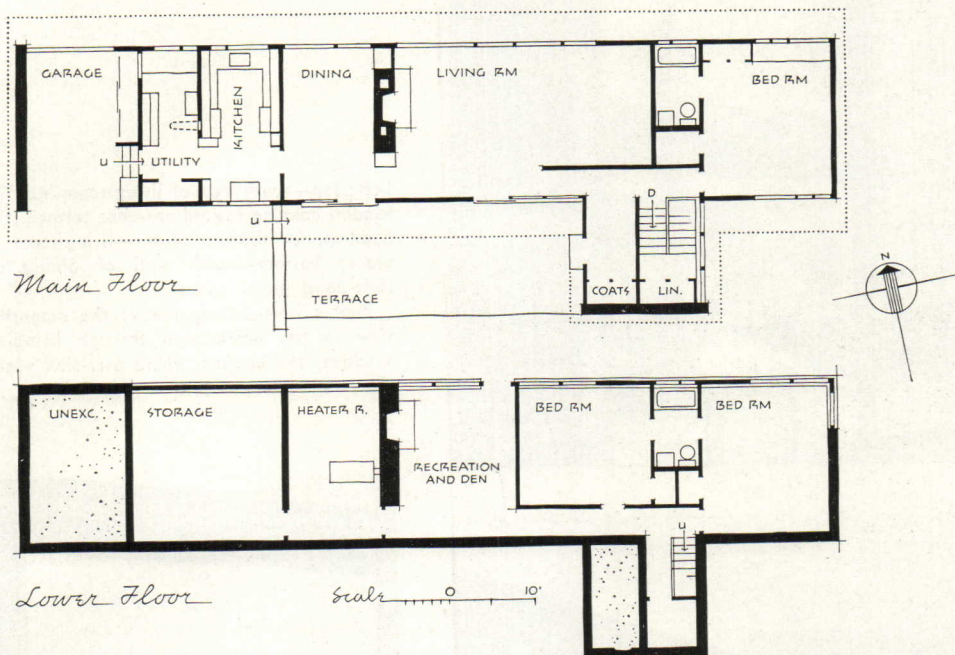
W. DANFORTH COMPTON, DESIGNER

program: Home for parents (wife is a music teacher at near-by Berea College) and two grown children. Required: that the children's quarters be so arranged that, when they are away, this space might be rented to young faculty members or married graduate students. An expressed desire: that the house "fit the land naturally," using local materials.

site: Superb hilltop with 40-mile-radius view to north.

solution: Placement of house on site in such a way that the steep slope to the north allows full, above-ground story height for children's "apartment," including a den-recreation room. Rooms on each floor aligned in a simple, long rectangle (except for entrance and stair-hall projection) so that exterior walls of main rooms all enjoy the view to the north and (on the upper, or main, floor) have large sliding window panels toward the south terrace. Living room large enough to accommodate musicales and receptions.

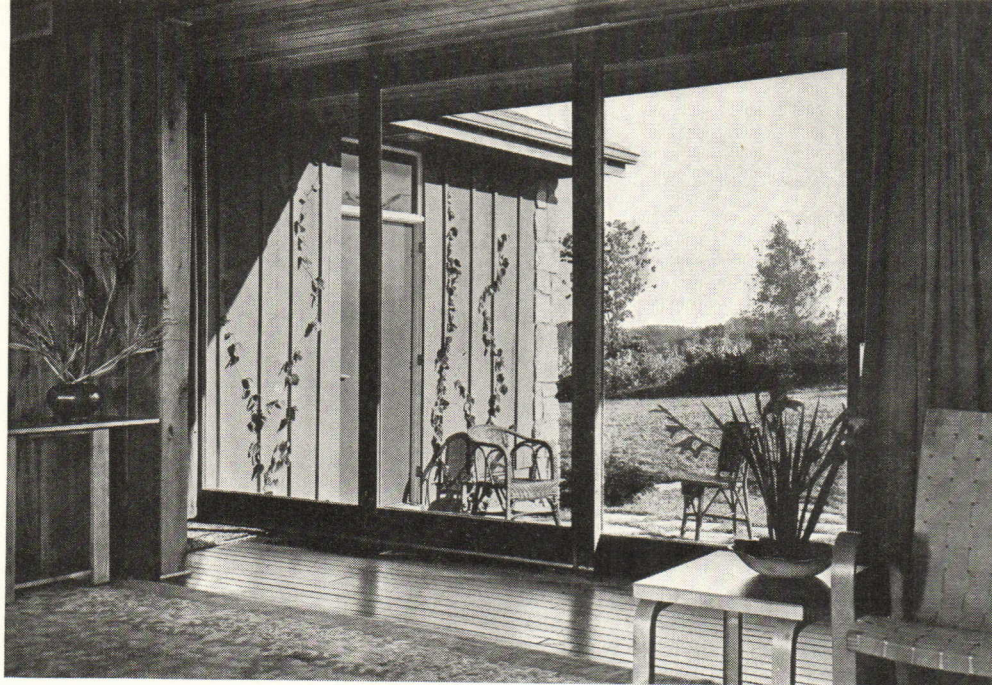




Photos across page: top—approach, or south front; bottom—detail of southern entrance terrace.

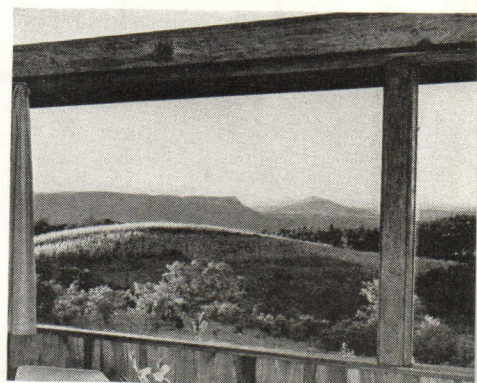
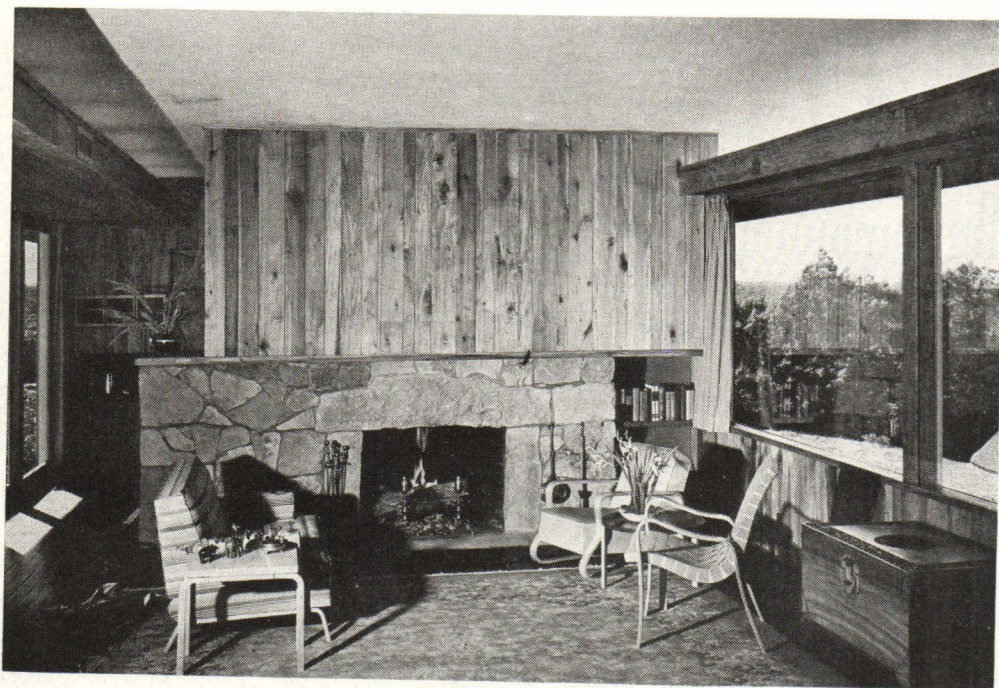
This page: left—looking along south front, from garage to front door; right—north, or view front, with lower floor built above sill-height masonry wall. Recreation room-den at right; bedrooms and bath, left. Nearly all structural materials came from the immediate site.

Photos: W. Danforth Compton



Left: top—south wall of living room has 12'-9" window opening toward entrance terrace (right-hand panel slides); center—living-room fireplace; bottom—south wall of dining room (left-hand panel slides).

Photos immediately below: the magnificent view to the north seen through living-room windows; the kitchen, whose over-sink windows share the view.



The house was built of wood and stone from the site; black walnut flooring from the site; board and batten exterior, chosen because it is characteristic of the area and requires little milling. Most of the construction was done by local farmers who, according to the designer, were "careful and sympathetic workers and produced just as satisfactory results as professional labor."



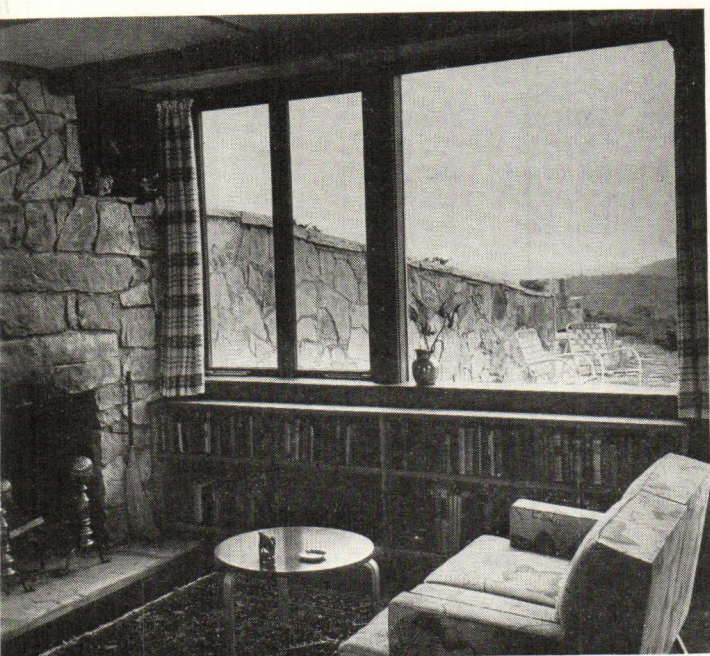
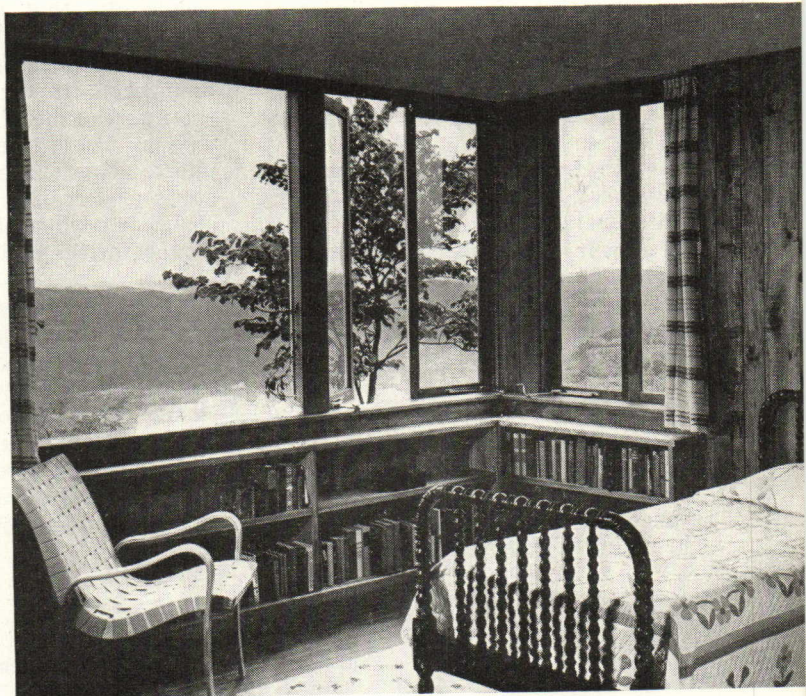


W. Danforth Compton: Princeton U.; Harvard School of Design; war service on motor torpedo boats ("snatched a few design projects along the way in the South Pacific."); M.Arch., M.I.T., 1947; year of work with Sven Ivar Lind in Stockholm; since fall of 1948, with Carl Koch & Associates.

MATERIALS AND METHODS

CONSTRUCTION: **Frame:** wood. **Walls:** exterior—random-width board and batten yellow poplar; local stone masonry; interior—V-jointed T & G paneling; lath and plaster. **Floors:** black walnut. **Roof:** asbestos shingles over frame. **Fenestration:** wood casements milled to detail; double, insulating glazing. **Insulation:** glass wool (4" in roof; 2" in walls). **Doors:** flush, wood.

EQUIPMENT: **Heating:** forced, warm-air system. **Kitchen:** electric range and refrigerator.



Photos on this page are of rooms on the lower floor: above—the corner bedroom, with windows commanding view to both north and east; left—den-recreation room with masonry of terrace wall treated as direct extension of fireplace stonework.



Structural Applications of Stainless Steel

BY RICHARD E. PARET*

This article is of interest to all members of the architectural profession. It has particular value for the architectural designer, the structural designer, the draftsman, and the specification writer. Types, economic factors, mechanical properties, fabrication, cleaning, and scope of applications of stainless steel are thoroughly discussed by the author.

Increasing acquaintance with the stainless steels for varied architectural uses is resulting in development of a number of new applications, in the design of exteriors as well as interiors of buildings.

Exploration of the possibilities of this "new" metal has grown rapidly since the end of World War II. Its appeal to present-day architects is based in the main on four characteristics—resistance to corrosion, great strength in relation to comparable materials, lasting beauty of finish, and economy.

Postwar shortages of stainless steel have now been overcome to a considerable degree; its availability in sheet or strip form has currently stimulated interest.

The term stainless steel denotes a large family—a group of some 30 alloy steels which resemble each other, yet differ widely in their properties and uses. The family resemblance is based upon the fact that all the stainless steels contain chromium

in addition to the iron and carbon present in all steels. It is the chromium in this combination that makes the steel stainless. The chromium joins with oxygen in the air to form an oxide on the surface—a microscopic film that protects the metal from rusting and discoloration.

If the protective film is scratched or broken, it forms again just as soon as the metal is exposed to the oxygen present in ordinary atmosphere. The chromium in stainless steels also resists corrosion and discoloration when the metal comes in contact with various acids and alkalis.

All stainless steels contain at least 11.5 percent chromium. When other elements are added, the character of the stainless steel undergoes a change. Nickel, for example, makes it stronger and more ductile, so that it can be more easily cold-worked and formed into a great variety of shapes at ordinary room temperature.

Nickel also increases resistance to scaling at high temperatures, reduces grain growth, and lessens embrittlement after long exposure to high temperatures. Its presence results in an alloy of the stable austenitic type; highly resistant to impact, nonmagnetic, with extraordinary toughness, and with no capacity for hardening under heat treatment.

Other elements impart still other special qualities. Molybdenum, for example, increases the ability of stainless steel to resist corrosion by reducing pitting under severely corrosive conditions.

stainless steel types

No single analysis of stainless steel satisfies all the requirements of the 100,000-odd applications to which the metal is put. About 30 compositions of stainless steel in common use have been compiled by American Iron and Steel Institute and given type numbers for purposes of identification.

For architectural applications, Types 301, 304, and 316 are usually

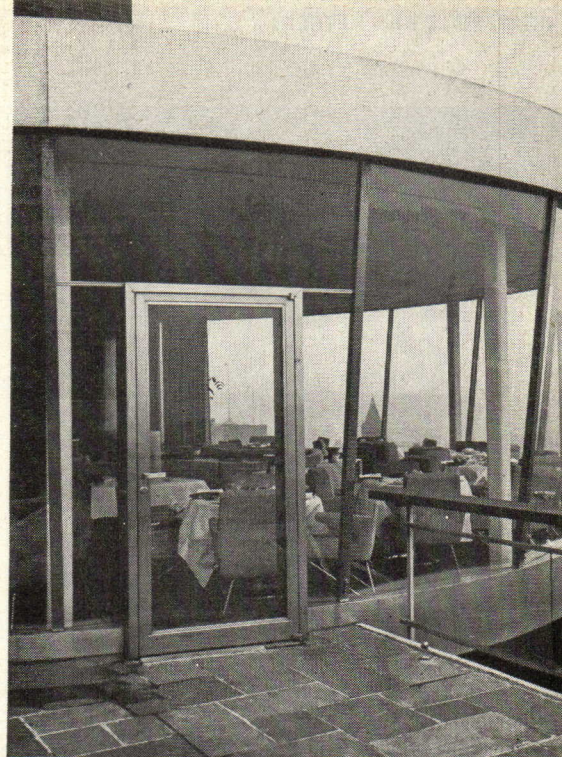
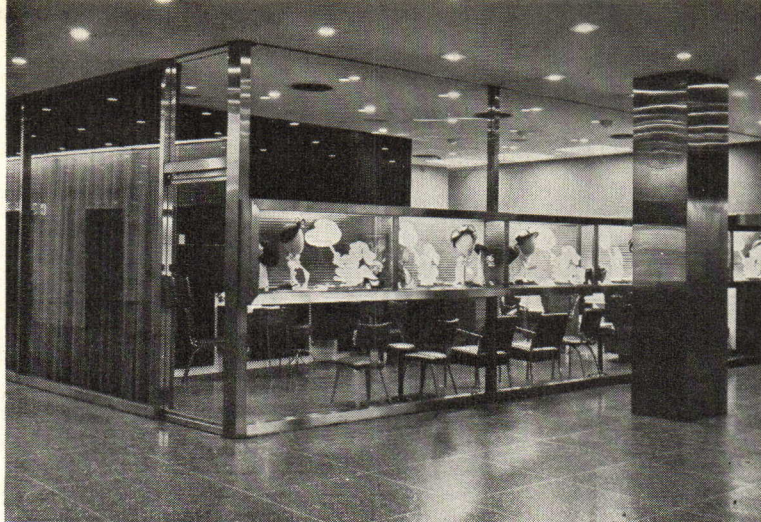
* Stainless Steel Specialist, American Iron and Steel Institute.

Stainless Steels—A.I.S.I. Types: Chemical Composition Limits and Ranges

Type Number	Chemical composition, per cent							Other Elements
	C	Mn Max.	Si Max.	P Max.	S Max.	Cr	Ni	
301	Over 0.08/0.20	2.00	1.00	0.040	0.030	16.00/18.00	6.00/8.00	—
302	Over 0.08/0.20	2.00	1.00	0.040	0.030	17.00/19.00	8.00/10.00	—
304	0.08 Max.	2.00	1.00	0.040	0.030	18.00/20.00	8.00/11.00	—
316	0.10 Max.	2.00	1.00	0.040	0.030	16.00/18.00	10.00/14.00	Mo 2.00/3.00
430	0.12 Max.	1.00	1.00	0.040	0.030	14.00/18.00	—	—

Stainless Steel Properties: Annealed Sheet and Strip

AISI Type	Tensile strength psi.	Yield strength (offset: 0.2%) psi.	Elongation in 2 in. percent	Modulus of elasticity in tension psi.	Cold bend degrees	Mean coefficient of thermal expansion: 32° to 212° F
301	110,000	40,000	60	28 x 10 ⁶	180	9.4 x 10 ⁻⁶
302	90,000	40,000	50	28 x 10 ⁶	180	9.6 x 10 ⁻⁶
304	85,000	35,000	50	28 x 10 ⁶	180	9.6 x 10 ⁻⁶
316	90,000	40,000	50	28 x 10 ⁶	180	8.9 x 10 ⁻⁶
430	75,000	45,000	25	29 x 10 ⁶	180	5.8 x 10 ⁻⁶



specified by the designer, according to individual uses as a structural material or for decorative purposes. For example, Type 301 normally is used where thin, relatively high-strength material is desirable, such as in roof drainage equipment, some fascia work, and the like.

For general architectural application, Type 302 or 304 is ordinarily specified. The choice between these two is based upon the amount of welding to be done, and upon whether the material is to be used for interior or exterior work. Type 302 is frequently used for interior trim or constructions, welded or unwelded. It is also deemed satisfactory for exterior trim where there is a minimum amount of welding and relatively mild atmospheric corrosion. Where any darkening parallel to and near the weld is to be avoided, Type 304 is considered more suitable.

Where very severe corrosion conditions are encountered, as in sea-shore locations, Type 316, which contains a small amount of molybdenum, is usually specified. On many buildings Type 430 has been used, but because of a slight difference in corrosion-resistant properties, those mentioned above are generally preferred.

economic factors

Taking advantage of the high tensile strength and the toughness of stainless steel, designers are now extending the use of extremely light-gage sections, assemblies, and panels for structural purposes, resulting in considerable economy. The absence of expense factors which would be involved in repairs, replacements, polishing, or other maintenance items means that the first cost is also the last for stainless steel applications—an important consideration for the building owner.

The metal is available in the conventional forms, sheets, strips, bars, wires, tubular sections, and some structural sections, and in a wide

range of dimensions, so that standard sizes and shapes are obtainable from regular jobber or warehouse stocks.

mechanical properties

Stainless steel has a high weight-strength ratio. To take Type 302, the commonly used stainless which contains 18 percent chromium and 8 percent nickel, as an example, this metal has a specific gravity of 0.286. Either as 24-gage sheet or as round bar stock up to 2-inch radius, its ultimate strength when annealed is 85,000 psi., its yield point is 35,000 psi., and its modulus of elasticity is 28,000,000 psi. Strip of this designation, cold-rolled to 150,000 psi. of ultimate strength, will stand a 135-degree bend across the grain of the metal and 135 to 180 degrees with the grain.

fabrication

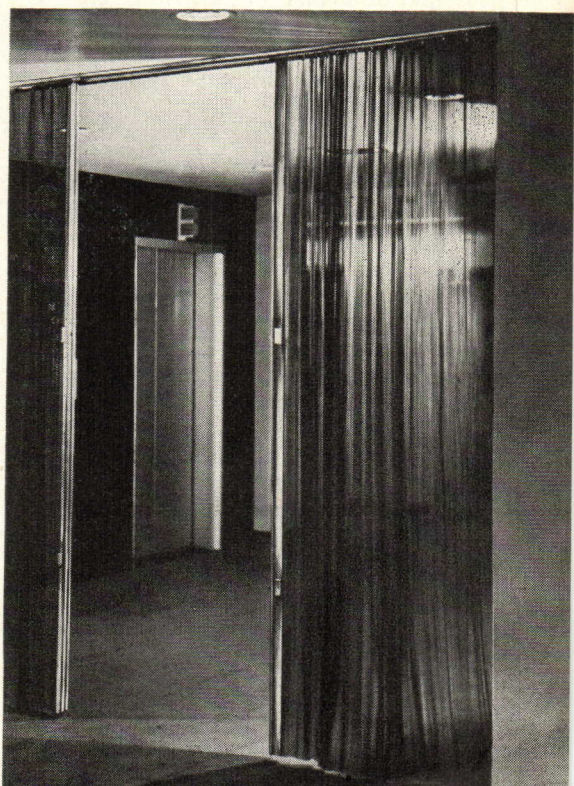
Either stainless steel sheet or strip of the chromium-nickel types lends itself readily to cold-forming in the fabrication shop because of its high ductility. In the softer tempers it may be bent flat on itself without danger of breaking or edge-cracking in thicknesses up to $\frac{1}{4}$ inch. These types are much stronger and work-harden more rapidly than mild steel, however, and thus require greater power. Because of the metal's high yield strength the springback is roughly twice that of mild steel. If the fabricator has not been accustomed to working with stainless, he should be warned to protect the finish. By applying adhesive tape, plastic coating, or strip-off adhesive paper to the points where it will come into contact with metal tools, he can prevent scratching or marring.

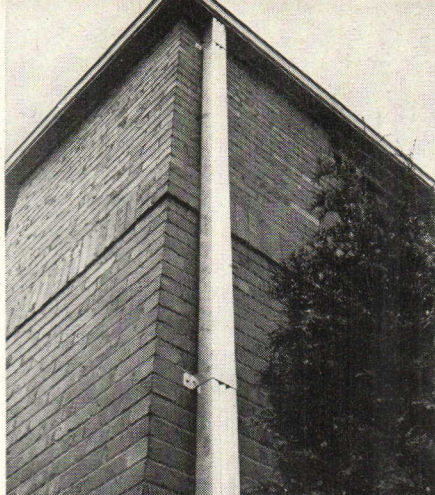
Cutting of stainless steel requires only the usual tools and equipment found in a fabricating shop; however, because of the metal's strength and toughness, the cutting requires more power than mild steel. It may be sheared, sawed by hand, power,

Upper left: looking toward barber shop in basement lobby, Terrace Plaza Hotel, Cincinnati, Ohio. All glass frames, display cases, and facings on column at right are of stainless steel. Above: exterior view of Gourmet Room on roof of Terrace Plaza Hotel. Door frame, window mullions, railing supports, and bands at top and bottom of windows are of stainless steel. (See Selected Detail, page 97.)

Photos: Ken Rarich

Below: Stainless steel curtains hung between elevator lobby and reception room of Monsanto Chemical Company's offices, New York City. Standard 3/32" chain mesh, made from 19-gage wire, was specified. Vertical edging sections are also of stainless steel. Curtain, suspended from an overhead track, can be closed and locked at center.





Above: downspout assembly showing details of stainless steel straps. Left: stainless steel walls in a beer cooling room of the Schlitz brewery, Milwaukee, Wisconsin.

abrasive cut-off wheels, or cutting torches, as well as punched, perforated, drilled, or tapped.

Joining of stainless steel by welding, riveting, or soldering calls for the conventional equipment. It may be welded by electric resistance, electric arc, acetylene or atomic hydrogen methods, but not hammer-welded. The chromium-nickel types have a coefficient of thermal expansion 50 percent greater than mild steel and a heat conductivity about a third as great. Thus, in order to prevent warpage, planned sequences of welding operations, jigs, or adequate means of drawing off heat should be employed. Type 430 stainless steel welds are not as ductile or resistant to shock as welds on the 300 series.

For welded work which is to be placed in locations subject to high atmospheric corrosion, stainless steel Types 304 and 316, modified to contain a maximum carbon content of .03 percent, are now available.

In riveting stainless steel sheets and plates, preferably rivet holes should be drilled, but may be punched. Holes should be clean of burrs; on plates $\frac{1}{2}$ inch and up in thickness, it is advisable to chamfer the hole. Chromium-nickel stainless steel rivets up to $\frac{1}{4}$ -inch diameter may be driven cold. Above that size, they should be heated to between 1950 and 2050F and set before they cool below 1800F. Riveting is not ordinarily recommended because of

the excellent weldability of stainless steel and the uniformity with which weld metal can be blended into the parent material.

Welding rather than soldering is recommended for utmost strength and tightness. Stainless steels may be soft-soldered to produce tight and hermetically sealed joints; however, they will give a relatively low-strength joint. Edges to be joined should be lock-seamed, spot-welded, or riveted for strength, and then soldered to seal the seam. Sheets having a smooth cold-rolled finish or a highly polished finish should be roughened to produce good adhesion.

Surface finishing in the fabricating shop is sometimes desirable, particularly on welded jobs. Cloth buffs for grinding and polishing usually are employed with abrasive heads, or factory-coated abrasives may prove simpler to use. Aluminum oxide as an abrasive lends itself to all grinding and polishing operations on stainless steel. The type of finish desired may be controlled by the use of lubricants with the abrasive. For bright-luster surfaces, buffing follows the polishing operation.

cleaning

Unnecessary cleaning of stainless steel can be eliminated by keeping the work covered during fabrication operations whenever possible. Tiny tool fragments or other substances, when picked up may cause superficial discoloration. Chemical cleansing or passivation before delivery is rec-

ommended. This consists of immersing the work in a 20 percent nitric acid solution at 120F for 15 to 30 minutes. Remove and wash thoroughly with water. On large assemblies, the acid solution may be swabbed on with a brush, this operation to be followed by thorough washing with water.

Stainless steel is easily cleaned with ordinary soap and water. Light discolorations may be removed with household cleansers. Heat tints and other blemishes may be removed with stainless steel wool, never ordinary steel wool.

scope of applications

The combined decorative and protective features of stainless steel place it generally in the same fields as the other light-gage metals used in the building arts—carbon steel, aluminum, copper, brass, tin alloys, and porcelain-enameled steel. Its peculiar properties of resistance to heat and to corrosion due to weather have proved of major interest. The principal types of installations include exterior and interior trim of light-occupancy buildings; working areas such as kitchen, laundry, and bathroom of private homes; restaurants and hotels; roof drainage; and insect screening. A new application which is experiencing rapid development is as exterior curtain walls in multistoried buildings.

exterior trim

Stainless steel is used for mullions, sheathing, window trim, doors, marquees, letters and numerals, and fascia. It is also adaptable to spandrels and has been effectively employed for flagpoles, spires, and the like.

Among the early installations of stainless steel mullions were those on the Chrysler and Empire State Buildings, both now about 20 years old, a sufficient time to demonstrate the practical and economical nature of the metal for this purpose. When an airplane crashed into the Empire State Building in 1945, a selection of a mullion was removed; on examination this piece of Type 304 stainless steel, .050 in. thick, showed no evidence of pitting or other damage to the surface and on being washed with ordinary soap and water resumed its high luster. Each year a committee of the American Society for Testing Materials makes an inspection of mullions on the Chrysler Building, Empire State Building, Philadelphia Savings Fund Society Building, and others. The reports have uniformly described an absence of corrosion or other deterioration.

Similar history is provided by

other types of exterior trim. In 1949, the doors of the Empire State Building were replaced by stainless steel doors, in order to eliminate further maintenance and replacement costs.

interior trim

Decorative moldings and doorways, elevators and elevator doors, lobby and foyer walls, counters, and furniture are among the interior building uses of stainless steel. The installations range from apartment houses to office buildings and from theaters to department stores. It has wide application in bank buildings, particularly for vault and safe doors, trim, and tiers of boxes in safe deposit departments. In hospitals, stainless steel walls and ceilings for operating rooms, therapy rooms, diet kitchens, and pantries are finding increasing acceptance because of sanitary features.

roof drainage

Deterioration of roof drainage equipment for dwellings, commercial, and industrial buildings has long presented serious problems. Roof gutters, downspouts, conductor pipe and flashings demand adequate protection against atmospheric corrosion, particularly in seaboard locations where the air is laden with salt particles held in suspension. In most parts of the country, roof drainage systems also must be strong enough to withstand heavy snow and ice loads without sagging. Other hazards include rotting leaves, birds' nests and droppings, acrid soot and cinder deposits, heavy smoke accompanied by fog, sleet, and hail, and acid or alkali fumes. Maintenance cost is reduced if the drainage equipment does not discolor in service and "bleed" onto adjacent surfaces.

Stainless steel roof drainage equipment provides excellent protection against deterioration. Installations 10 to 12 years old, backed by scientific test data prepared by the A.S.T.M. and International Nickel Company, have established an excellent record of endurance.

In the following table are given the average yield strengths of materials commonly used for roof drainage systems:

Material	Yield Strength Psi.
Type 301 Stainless Steel (annealed)	40,000
Galvanized Iron	28,000
C. R. Copper (5%-6% cold reduced)	20,000
Soft Copper, sheet or strip	10,000
Aluminum 3S (1/2 hard)	20,000



Left: installation of a stainless steel mullion in the Universal International Building, New York City.



Right: construction view of stainless steel curtain wall exterior of the Turbine Building, General Electric Company, Schenectady, New York.

The extra strength of stainless steel permits it to withstand heavy ice and snow loads without sagging, to resist buckling and cracking due to extreme temperature changes, and to resist denting and crushing during shop fabrication and erection. This extra strength also permits the use of lightweight sections, with resulting economy in material and erection costs. The neutral color and enduring luster of stainless steel add to its appearance value.

insect screening

A stainless steel screening, recently brought to market, meets architectural requirements of strength, prevention of clogging of the mesh, and inability to "bleed" onto surrounding surfaces. The strength factor has made it possible to reduce the diameter of the wire used, by several thousandths of an inch. This strength insures against bagging and other deformation or damage through normal wear or misuse. The wires resist stretching, which enables the screen to be pulled tight.

Visibility through the screen also has been increased, by use of the finer wires. This high visibility remains constant with the passage of time, because there are no loose corrosion products to clog the mesh, and painting is not required. Type 316 stainless steel screening, subjected to tests by International Nickel Company, reported through the A.S.T.M., withstood years of exposure longer than other screening

materials. In industrial and sulfurous atmospheres, screens of Type 316 showed no failures. Complete failure of the next most enduring material occurred in from five to eight years.

curtain walls

Perhaps the most important new development in the use of stainless steel in the architectural field is that of the curtain wall, designed to replace the masonry wall common in multi-story buildings. The wall does not merely act as a weather facing; panels of "sandwich" construction are built, consisting of fluted sheets of 18-8 stainless steel on the outside and flat carbon steel sheet on the inside, with a core of insulation between. It is claimed that the panels, which are 3" or 4" thick, are superior in thermal insulation value to a 12" masonry wall with furred plaster interior. They offer the further advantages of increased floor space, fast construction, elimination of cold-weather construction problems, and marked savings in maintenance and depreciation costs.

The first large office building using this construction was recently completed for General Electric Company, in Schenectady, New York,* to house offices for its turbine division. Several other large office buildings employing stainless steel panel curtain wall construction are now in the design stage.

* This building will be published in full in the November issue of P/A.

Design Progress in Prestressed Concrete

BY CURZON DOBELL*

Prestressing in Europe has been largely linear, while in America it has been primarily circumferential. No longer a theoretical possibility, it can, with its many advantages, compete favorably with conventional structural methods. The author discusses several outstanding buildings of prestressed concrete abroad, and describes the direction this construction method is taking in the United States.

In recent years, the architectural profession has become increasingly aware of the need for longer spans to eliminate space restrictions inevitably caused by interior columns and supporting walls. Unobstructed space makes for greater flexibility of layout and operation in commercial, industrial, and monumental buildings. Yet, the architect is continuously faced with the dilemma of the high cost of such unobstructed space, as opposed to the advantages to be gained by providing it.

A solution to this dilemma may be found in the use of prestressed concrete. With this material, as compared with structural steel or conventional reinforced concrete, it is now possible, in many cases, to more than double column spacing without increasing cost, depth of members, or dead load. In view of the importance of this development, a brief historical discussion follows.

Concrete, because of its convenience, availability, long life, and low cost, has been a favored building material since the days of the Romans. However, until 100 or so years ago, because of its inability to resist tension, the use of concrete was limited to such structures as gravity dams, pavements, and arches. About that time, Hennebique, Monier, and other European engineers conceived the idea of placing steel, in the form of chains or bars, in concrete to take tensile stresses. Thus they made it possible to use concrete as a building material for members subject to

bending. This was a revolutionary advance in construction technique, and reinforced concrete soon became widely adopted for the construction of walls, columns, piles, beams, and frames. However, these members had definite limitations. Under load, cracks due to tensile stress developed in the concrete. To keep these cracks from opening to a point of danger, working stresses in the steel had to be held far below the strength limits of this material. In consequence, designers were compelled to use large amounts of steel in reinforced concrete members. As a result, because of their dead weight, the use of these members was, and still is, generally restricted to structures of comparatively small span or load capacity.

Shortly before the turn of the century, a number of European engineers attempted to eliminate tensile cracking stresses in concrete by introducing, in the tension zone of the member, during construction, compressible stresses greater than the tension stresses which would subsequently be produced by dead and live loads. Such a design would not only eliminate cracks, but would permit the steel and concrete to work independently, and to the limits of their strength, thus effecting significant savings in materials and in dead weight. In practice, however, these early attempts at prestressing failed because the designers were not aware of the phenomenon of plastic deformation. Shrinkage and plastic flow of concrete, and creep in steel, quickly

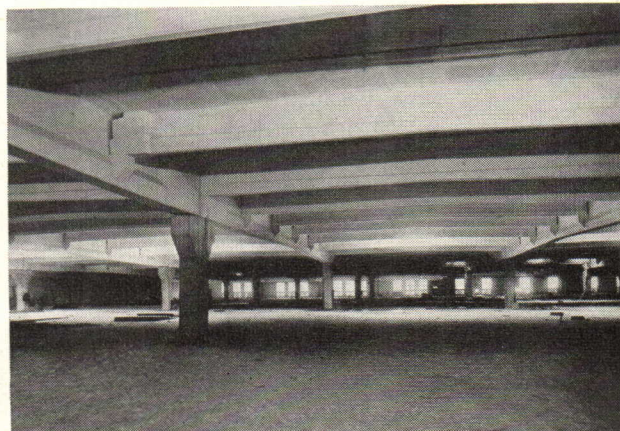
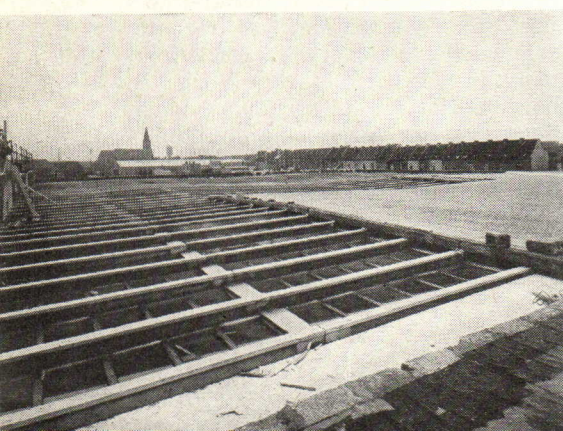
nullified the comparatively low prestresses which the designers could obtain with the standard steels and concretes then available.

Eugene Freyssinet, a French engineer, was the first to appreciate the full significance of these phenomena, and to measure and calibrate them. In consequence, he realized that to make prestressing effective and permanent, it was essential to use unit stresses in steel sufficiently high to absorb all losses of stress due to shrinkage and plastic flow of concrete, and still leave a balance of prestresses in the steel which would be adequate for design requirements. Since 1928, Freyssinet and others have successfully employed prestressed concrete members, using high tensile strength wire as reinforcement. They have done so in many large structures, notably in bridges, dams, and harbor works.

The principal exponent of prestressed concrete in the field of architecture is Gustave Magnel, professor of reinforced concrete and director of the Laboratory at the University of Ghent. Professor Magnel has general supervision of all prestressed concrete work in Belgium, and advises on the design and construction of all projects involving this material. He is also associated with Preload Enterprises, Incorporated, and its operating companies in North America.

Among the notable buildings recently completed under Professor Magnel's supervision is a cotton mill built for the Union Cottonniere at

* Vice-President, International Association for Prestressed Concrete Designers. Vice-President, Preload Enterprises, Incorporated.

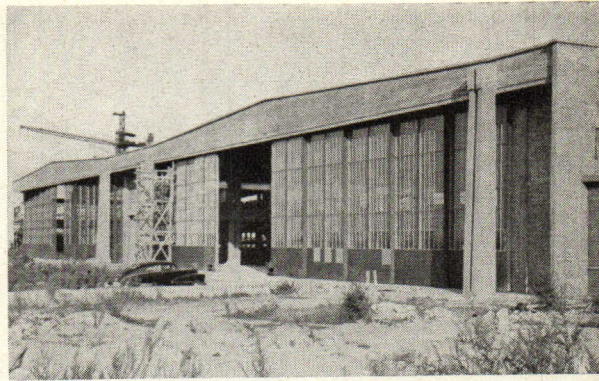
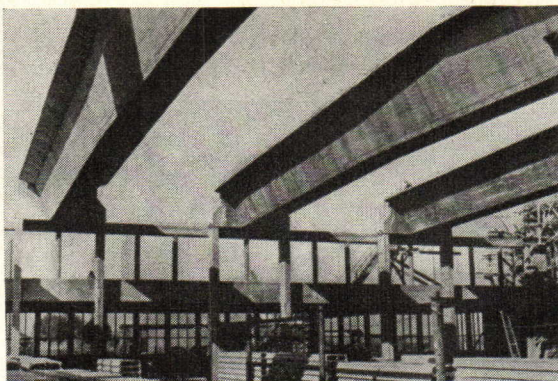


Far left: roof of cotton mill for Union Cottonniere at Ghent, Belgium. Prestressed secondary girders carry reinforced concrete beams which in turn support precast slabs.

Left: dimensions of typical interior bay of same mill are 72'x48'. Brackets on main girders support secondary girders.

Right: three prestressed beams in place at Melsbroek Airport, Brussels, Belgium.

Far right: exterior view of Melsbroek hangar. Prestressed beams above sliding doors form an integral part of the facade. Small shops begin at extreme right.



Ghent, by Enterprises Blaton-Aubert, of Brussels. The plant covers an area of 325,000 square feet, more than seven acres. An idea of its size may be gained from the fact that it will contain 43,760 spindles and 50 large looms. It will house more than 700 workmen. One of the principal considerations in designing this building was to obtain large areas unobstructed by columns, so that the handling of materials would be reduced to a minimum. Another requirement was to provide controlled temperature and humidity conditions. Unnecessary air cubage had to be avoided. These considerations led to the construction of a one-story building. Prestressed concrete beams and girders were used to eliminate parabolic roof arches, or large sloping or saw-tooth roofs, which would have been required in conventional reinforced concrete or structural steel design.

The basic unit of measurement or module for the structure is 12 feet, corresponding closely to the dimensions of the equipment to be installed. The spacing of the columns in one direction is 48', and in the other 72'. The free area between columns is thus 3456 square feet. The main girders bridge the 72' span and rest on brackets projecting from columns. In these main girders, the initial concrete compression induced by prestressing was 1800 psi. This compression is reduced to 1560 psi. under the total load. Each main girder is 5' deep and was prestressed by three

cables, each consisting of 48 wires of .197" diameter, stressed initially to 140,000 psi. No ordinary reinforcing steel was placed in the main girders with the exception of light stirrups at the ends and dowels for the brackets which carry the secondary girders. About 100 of these main girders were required, each carrying a total load of 200 tons. The secondary girders have a length of 48' and a depth of 3'-3". Their top and bottom flanges are, respectively, 12" and 6 1/4" wide. The web is only 4" wide. Prestress was obtained by a cable of 24 wires of .197" diameter also stressed initially to 140,000 psi. 600 secondary girders were used.

The main girders were poured immediately adjacent to their supporting columns and were lifted into place by tackles hung from two movable towers. The secondary girders were placed by a standard crane equipped with an equalizer. These girders were placed 12' on center and in turn support I-shaped reinforced concrete beams whose top flanges support the precast slab elements forming the roof of the plant. The bottom flanges of these beams support the ceiling, and the space between the roof and the ceiling was insulated with glass wool.

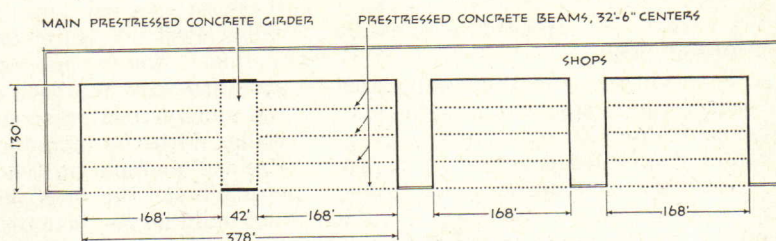
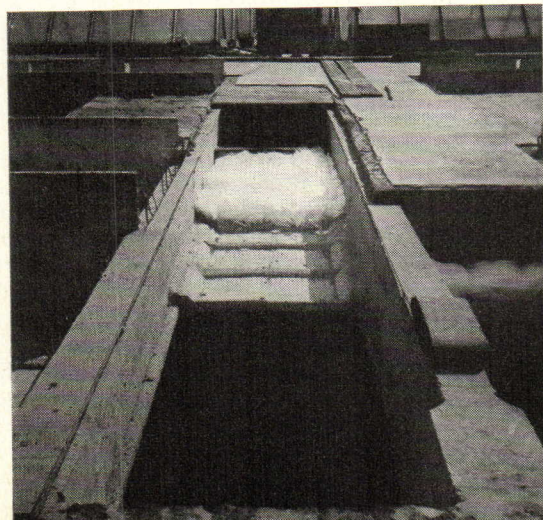
Considering the wide spacing of the columns, and the excellent insulation which was provided, this type of construction proved extremely economical.

Another project supervised by Professor Magnel is a six-story factory

in Brussels, where the main girders of the floors span 40'-5" and are continuous over several columns; the main girders and the columns are of conventional reinforced concrete. The distance between the center lines of the columns supporting the main girders is 42'-10". Brackets on the sides of the main girders carry prestressed beams which span 39'-2". The beams are 6'-6" on center and 21 1/2" deep. These members, which were made on the ground and then hoisted into position, carry cast-in-situ concrete slabs, and the ensemble forms a composite structure. Initial stress induced in the concrete by prestressing was 2000 psi. Under the total load, including a superimposed load of 80 pounds per square foot, the stress was reduced to 630 psi.

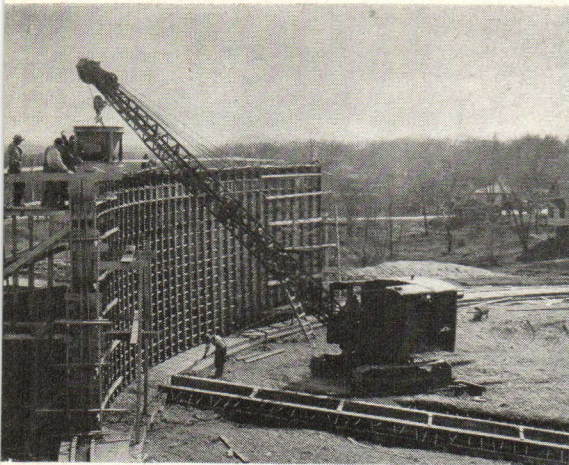
The new hangars at Melsbroek Airport, Brussels, provide an unusually interesting example of prestressed concrete construction. Primary consideration for this project was to build a fireproof structure of the lowest practicable height. It should contain unobstructed areas sufficiently large to permit the repair of aircraft as large as DC-6's. In addition, since the hangar was to be a permanent feature of the National Airport at Brussels, its exterior had to be simple and attractive.

The plan of the building at Melsbroek consists of two hangars measuring 130' x 168', and a third which measures 130' x 378'. Shops are located on three sides of each hangar and entrance is obtained through



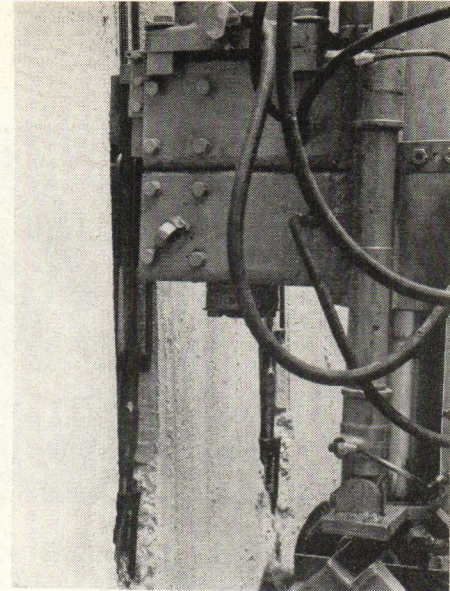
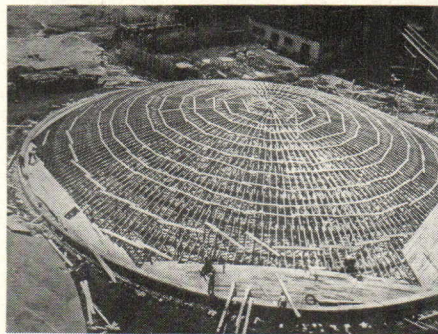
Above: Figure 1. Sketch plan of new hangars at Melsbroek Airport. Main prestressed girder allows unobstructed space of 378'x130'.

Left: roof construction similar to that in mill at Ghent. Precast slabs, hung from bottom flanges of reinforced concrete beams, form ceiling and carry insulation material. Top flanges of beams support roof slab and roofing material.



Above: pouring tank wall. Prestressed concrete tank walls require from 25 to 50 percent less concrete than those of conventionally designed tanks.

Right: two views of dome showing ribs of form work and placement of reinforcement.



Above: vertical reinforcement, provided by units of high strength wire, is stressed by this type of hydraulic machine.

four 168' openings which may be closed by sliding doors. The 378' hangar was originally planned as two areas, each 168' wide, and separated by shops. During construction, however, it was decided to merge these areas. (See Figure 1.)

The general arrangement of this structure consists of four 130' x 168' rectangles. The long axis of each rectangle is spanned by four prestressed beams which are spaced 32'-6" on center. These beams generally rest on columns; however, the columns are eliminated at the center of the large hangar and the beams are supported by a prestressed concrete girder 130' long and 42' wide. This girder carries a load of approximately 3500 tons, the greatest load ever superimposed on a prestressed concrete girder. Each of the beams was prestressed by means of 420 wires of about $\frac{1}{2}$ " diameter stressed initially to 128,000 psi. Divided into seven cables, and fixed at the ends of each beam by "sandwich plates," the wires were stressed in pairs by a 10-ton jack.

The contract for the prestressed concrete hangars was awarded in competition with steel and conventional reinforced concrete. The prestressed concrete design made it possible to keep over-all height to a minimum—a consideration of utmost importance in a building which adjoins an airfield.

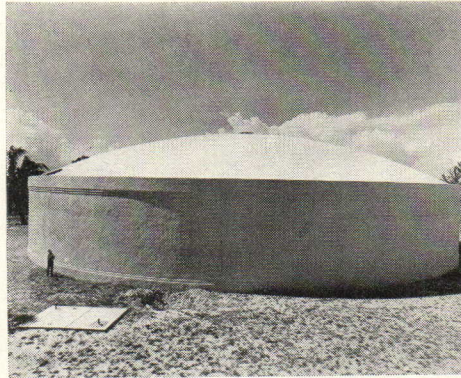
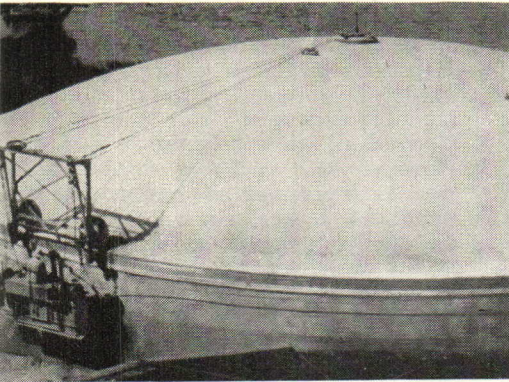
The principal architectural applications of prestressed concrete in Europe have been with linear structural

members. In the United States, on the other hand, the bulk of prestressed concrete work has been done with circular structures, notably with large tanks for the storage and treatment of liquids. The present methods for designing and building these tanks were evolved as the result of an extensive research program designed to evaluate shrinkage and plastic flow of concrete and steel in connection with the design of circular structures. The program was initiated in 1933 by the Preload Companies in collaboration with leading scientific institutions in the United States and Canada. This research disclosed that to maintain concrete in permanent compression, and thus insure it against cracking and leaking, it was necessary to include in the reinforcement, in addition to the stress required to meet design loads, a minimum excess prestress of 35,000 psi. to absorb subsequent stress losses due to shrinkage and flow. To attain these stresses efficiently and economically, Preload engineers developed methods for using special high-strength wire for both circumferential and vertical prestressing of tank walls. With the introduction of the Preload method in 1943, it became possible for the first time to design and build large-diameter, crackproof, circular structures in which harmful tension stresses were permanently eliminated. More than 550 of these tanks are now giving satisfactory service throughout North and South America.

Through the use of the Preload system of prestressing, it is possible to construct shallow, thin-shelled dome roofs of great span. These domes, which have great load-carrying capacity, were developed originally as efficient economical coverings for tanks. Their cost was substantially lower than any other type of roof construction of similar span. They require no maintenance.

The domes consist of a segment of thin spherical shell with a prestressed ring at its base to neutralize the high horizontal thrust inherent in such structures. The dome ring and shell are monolithic. The dome ring also serves as an edge-stiffening member to prevent undue distortion of the shell edge under unsymmetrical loading. The prestressing is accomplished by winding the exterior face of the dome ring with high strength carbon wire under a constant predetermined stress of 140,000 psi. The dome ring and shell are thereby placed in permanent compression. During the past 15 years, the Preload Companies have employed such domes as coverings for more than 200 tanks erected in climates ranging from semi-tropical to sub-arctic.

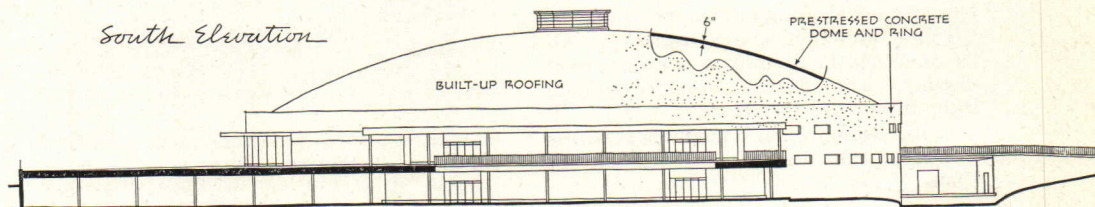
From the standpoint of the architect, the prestressed concrete dome has many advantages for use in structures where large spans, unobstructed by supporting columns, are desired. The shallow dome roof, whose rise is approximately $\frac{1}{8}$ th its diameter, presents a clear and unobstructed roof surface which permits



Far left: after walls have set, horizontal reinforcement is applied by a self-propelled machine hung from top of walls. High-carbon wire, wound around tank at a uniform stress of 140,000 psi., is covered with a thin coating of pneumatic mortar to bond wire to walls and to give permanent protection against corrosion.

Left: typical tank, located in Miami, Florida, has a diameter of 128'.

All photos: courtesy of Preload Corporation



Right: Figure 2. Elevation shows prestressed concrete dome for dominant element of shopping center near Framingham, Massachusetts. Structure is scheduled for completion early in 1950.

excellent diffusion and distribution of natural or artificial light and has excellent acoustical properties. From the exterior, the graceful, organic lines of these domes are highly pleasing to the eye. The domes are fireproof, and their pneumatic mortar coating, in addition to presenting an attractive appearance, provides permanent protection against the elements. The domes are thus ideally adapted for use as aircraft hangars, sports arenas, auditoriums, churches, and similar structures. They can be quickly built and the bulk of materials and labor necessary for their construction is usually available at the site.

The first use of such a dome for a commercial building in the United States will be in the \$5,500,000 Middlesex Shopping Center near Framingham, Massachusetts, scheduled for completion early in 1950. The dominating unit in the shopping center, leased by the Jordan Marsh Company of Boston, will be a circular building which will provide 125,000 square feet of floor space on two levels. The building will be covered by a Preload dome, 222' in diameter, which will enable Jordan Marsh to operate the upper level without the hindrance of any supporting columns. (See Figure 2.) Architects for this shopping center, and others of similar design which are expected to follow shortly, are Ketchum, Giná & Sharp, of New York. They have developed the design in collaboration with Kenneth C. Welch, vice-president of National

Suburban Centers, Incorporated, and head of the company's Planning Division. Frederick J. Adams, president of the American Institute of Planners, and head of the Planning Department of the Massachusetts Institute of Technology, will direct the site planning for all of these centers.

Recently, the Preload Companies have been called on to design a number of aircraft hangars, the main feature of each is to be the above-mentioned thin-shelled circular dome. By using their design, only a fraction of the steel required for other types of hangar construction is needed. The walls are no higher than they have to be to accommodate the tallest plane, and the pneumatic mortar provides a strong, enduring fireproof structure which requires no maintenance.

In 1946, a number of Preload-domed hockey arenas, each capable of seating from 6000 to 10,000 spectators, were designed and would have been erected had it not been for the curtailment of construction materials due to the housing shortage. Designs are currently being prepared for such a structure in Quebec, Canada, to replace a building which was recently destroyed by fire. The dome will be 300 feet in diameter, and the structure will accommodate 10,000.

Another application of the use of prestressed concrete as a tool for the architect was in a design for the Museum of Non-Objective Art in New York City. The architect, Frank Lloyd Wright, approached the prob-

lem with a completely new concept. He envisioned a circular structure in which the exhibits would be hung along a corridor which would descend a gentle spiral from the roof to the ground floor. Visitors would be carried to the upper levels by elevators and walk effortlessly downhill along the corridor, completing their tour at street level.

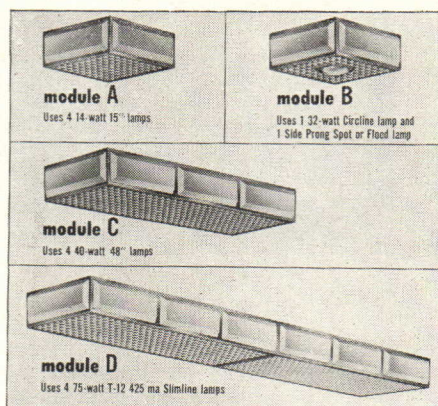
To make the design effective, however, materials of unusual strength were required, since, due to the absence of interior supporting columns, ring stresses at the exterior walls, which were only four inches thick, were in excess of 400,000 psi. Wright consulted with Preload engineers and found that he could accomplish his design through the use of prestressed concrete, with a more substantial savings in dead weight than with any other type of construction. The project is still in abeyance, due to high building costs.

In spite of the promising beginnings which have been made, as exemplified by the projects cited above, the possibilities of prestressed concrete as a tool for the architect remain to be exploited. The introduction of reinforced concrete during the middle of the nineteenth century was one of the principal developments which permitted architects of that day to break away from design and construction procedures dating from the Renaissance. Prestressed concrete may well be responsible for a revolution of equal significance during the present century.

applies modular design principles to lighting units

Lighting units, to which the principles of modular design have been applied, are now being produced by the Mitchell Manufacturing Company. The four basic modules (see illustration) provide infinite pattern possibilities adaptable to any type of commercial interior. Each unit has a single or multiple standard measurement of 16 1/4". This lighting method permits the combination of all popular commercial lighting sources, with the most advantageous points of each, in one integrated system. Type F fluorescent lamps, Slimline, Circline, and spot or floodlights may all be combined to illuminate a commercial display. The fixtures produce equal light intensities on all sides.

Installation of these modules requires minimum time and effort. Units may be lined up side-to-side, end-to-end, or end-



to-side. Pattern junctions are quickly made by connecting clamps that assure correct alignment and rigidity. Plastic

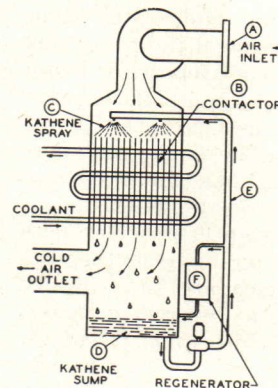
kathabar system eliminates frost condensation

Elimination of frost condensation in low temperature heat exchange coils is now possible through a system recently developed by the Surface Combustion Corporation, Toledo, Ohio. An adaptation of the Kathabar Humidity Control System, this method may be used in cold storage spaces or for other applications where a supply of cold dry air is required. Complete shutdown for defrosting at regular intervals is unnecessary. Operation is automatic and continuous.

By spraying an absorbent solution over the cold metal of the heat exchanger (note diagram) condensed moisture is immediately absorbed. The

solution drips down into a sump. Some of the liquid passes through a regenerator which extracts the moisture. The absorbent liquid is Kathene Solution, composed largely of lithium chloride; it is non-toxic, non-corrosive, and lasts indefinitely. Dust and odors are removed from the air, and the solution leaves no odor of its own.

Utilities needed for the Kathabar system are a small amount of low pressure steam for use in the regenerator, and electric power to drive the circulating pump and blower. A standard refrigeration cycle is also required to cool the refrigerating gas or circulating brine.



lockart method employs thin setting bed

A method of applying ceramic wall and floor tile to any surface, without need of metal lath or scratch coat, has been developed by the Mosaic Tile Company, of Zanesville, Ohio.



This system, known as the Lockart method, was made possible largely through the development of Expanset, a thin setting bed which is light and fast drying. Shearing tests conducted by the U.S. Testing Laboratories show that Expanset will resist shearing pressure equivalent to 2800 psf. Only three simple steps are necessary to install the tile: 1) apply Lockart Primer to act as sealer; 2) spread float-bed of Expanset on surface to be covered, or butter tiles individually; 3) set tiles in place. No structural changes need be made and cleaning up requires only a quick rub with a rubber window squeegee.

A new coordinated color line in wall and floor tile, called Harmonitone, has been developed to provide many color schemes—36 colors in glazed wall tile, and 24 in unglazed floor tile, are available. For further convenience, a simple color chart is furnished.

Left: workman spreads Expanset float-bed.

panels are omitted where junctions occur. Standard BX conduit and BX connectors are used for the connections between channels.

The frame construction of all units is of 20-gage steel, die stamped and shaped for maximum rigidity, and finished with durable satin aluminum. A one-piece egg-crate louver is of injection molded white polystyrene plastic. Vanes of .065" thickness afford 40-degree transverse and longitudinal visual cutoff. The louver, which hinges down for easy clamping, is destaticized and readily washable, and, the manufacturer claims, will not warp, crack, or discolor. Side and end panels, .05" thick, snap easily into the module frame.

In module B, which accommodates a 150-watt spot or floodlamp, the Circline fluorescent lamp completely eliminates dark sides and ends. A Gimbal ring in the assembly permits a 35-degree vertical adjustment and 360-degree horizontal adjustment.

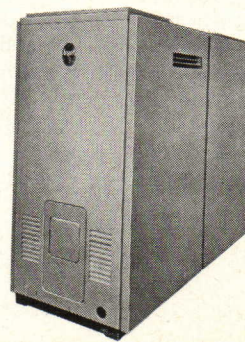
To assist in the layout of these units, a planning kit, containing a module template and layout sheets prepared to scale, is available. Charts readily enable the designer to compute the number of module units required for a desired illumination level.

new model conditioner

Bryant Heater Division has recently announced production of its new Model 576 "All Weather" 3-ton conditioner. The model features controlled humidity by employing a reheat cycle, exclusive in Bryant's packaged conditioner. Added advantages consist of a patented control circuit; simplicity of seasonal changeover; ease of installation; Fiberglas insulation throughout; and absence of exposed bolts or screws.

The two-stage burner control permits a low-stage reheat input of 30,000 Btu., and a high-stage input of 150,000 Btu.

(Continued on page 112)



this month's products

air and temperature control

Pittsburgh Blower Unit, Series CB: employing squirrel cage fan; for installations requiring heated air at greater velocities and against greater static pressure than provided by standard unit heaters with conventional propeller type fans. One-piece, cast-iron heat exchanger and combustion chamber. Five sizes. Automatic Gas Equipment Co., 301 Brushton Ave., Pittsburgh 21, Pa.

Refrigeration Machine: uses steam for air conditioning purposes, providing balance in steam loads for summer cooling and winter heating. Operates on either high or low pressure steam. Produced in 115, 150, and 200 ton capacities. Single units will air condition areas of from 34,500 to 60,000 sq. ft. Carrier Corp., 300 S. Geddes, Syracuse, N. Y.

Combination Air Diffuser and Pendant Light: diffuser retains all functions when combined with pendant lighting, with or without air volume damper. W. B. Connor Engineering Corp., 114 E. 32nd St., New York 16, N. Y.

T-70 Timer-Thermostat: provides positive, accurate remote control of day and night temperature periods. Can be used with space or unit heaters, central, wall, or floor furnaces equipped with automatic control systems. Any temperature between 50 and 90 F may be selected for night; clock mechanism automatically returns heating system to preselected day temperature each morning. Available as single unit or in packaged set of complete automatic control system. General Controls Co., 801 Alien Ave., Glendale, California.

Huron Baseboard Radiation Unit: for installation along outside walls at floor level. Especially designed aluminum fins through which copper tubing carries hot water, distributing heat vertically and laterally. Huron Boiler Co., 12436 Van Dyke Ave., Detroit, Mich.

International Model R-9 Gas or Oil Furnace: designed for ranch type and basementless houses. Warm air distributed under floors, with special warm air outlets under windows to eliminate cool air down-draft. Blower cradled on resilient springs allows constant operation without electrical hum or vibration. Thermostat control. Heat output: 100,000 Btu. International Oil Burner Co., 3800 Park Ave., St. Louis, Mo.

Iron Fireman Model FOM-85: oil-fired winter air conditioning unit with output rating of 85,000 Btu. Spun glass filters, automatic type humidifier; circulating fan below combustion chamber to reduce floor space to minimum. Unit measures 26" x 34" x 64 1/2"; particularly adaptable for small house installation. Iron Fireman Mfg. Co., 1305 S.W. Twelfth Ave., Portland, Ore.

Warm Air Conditioning Units: two new models, designated as "90" and "115"; both fired automatically by natural, manufactured, mixed, or LP gas; Btu. inputs of 90,000 and 115,000 respectively. Fully assembled and wired, for low-cost housing installation. Jones & Brown, Inc., 439 Sixth Ave., Pittsburgh, Pa.

Radiant Baseboard System: standardized basic parts contribute to economy of price and installation. Only four separate parts: steel backplate, radiant coils, filler plates, and end posts which are interchangeable. Grilles available. Kritzer Radiant Coils, Inc., 2901 Lawrence Ave., Chicago 25, Ill.

Residential Steel Boilers: new line, for hand firing in houses, small apartment, and commercial buildings. High steel base provides large ash storage capacity, assures ready conversion to automatic firing with oil burner, gas burner or stoker. National Radiator Co., Johnstown, Pa.

Type EAC Aerofuse: ceiling diffuser with adjustable auxiliary ring for complete control of air delivery, designed to block off—partially or completely—outer passage of diffuser. Aluminum enamel finish. Tuttle & Bailey, Inc., New Britain, Conn.

Double-Duty Kitchen Ventilator: can be operated as window exhaust fan or snapped out of window panel for use as portable fan. Unit consists of 10-in. fan and steel window panel adjustable for different window widths. Westinghouse Electric Corp., Electric Appliance Div., East Springfield, Mass.

construction

Anti-Bacterial Cement: bacteria and fungi cannot grow on surfaces of damp or wet concrete floors in which this cement is used; may be mixed with mineral coloring pigments of any

shade. For use in dairies, barns, gyms, swimming pools, food plants, etc. North American Cement Corp., 41 E. 42nd St., New York 17, N. Y.

USP Partition Panel: incombustible, movable partition, in wide variety of hardwood faces, for office buildings. Panels made in 1" and 1 3/4" thicknesses, ranging in size from 18" x 34" to 34" x 144"; can be used with or without glass. U. S. Plywood Corp., 55 W. 44th St., New York, N. Y.

doors and windows

Allmetal Sash Balance and Weatherstrip Unit: rolled from one piece of non-corrosive, rust-proof metal, for application on double-hung windows. Pulleys, cords, box frames, weights eliminated. Allmetal Weatherstrip Co., 2241 N. Knox Ave., Chicago 39, Ill.

Amweld Flush Hollow Steel Doors: in two thicknesses and all standard widths and heights, constructed to accommodate standard hardware. Units especially braced against warp or sag. American Welding & Mfg. Co., Warren, Ohio.

Aluminum Storm Sash: for permanent installation on outside of casement windows; may be used on either metal or wood sash. Will not hamper venetian blind controls, or interfere with locks and ventilating control handles. Stainless steel weatherstripping seals outer sash when closed. Eagle-Picher Co., American Bldg., Cincinnati, Ohio.

Vertical Jalousies: made with movable aluminum blades set in vertical position, mounted on ball bearings for ease of operation. Can be installed inside or outside window. Variety of gages and sizes. Lemlar Mfg. Co., 715 Redondo Beach Blvd., Gardena, Calif.

electrical equipment, lighting

Swivelite: swivel socket screws into any fixed ceiling socket, gives wide flexibility in 360° horizontal and 180° vertical range. Accommodates any light bulb or reflector lamp equipped with medium base. For supplementary store lighting, including interior display and window lighting; equipped with hood and louver clip to accommodate any spotlight or floodlight reflector lamp in standard shapes and lengths. Color filters available. Amplex Corp., 111 Water St., Brooklyn, N. Y.

Val-Lite: combination fluorescent lighting-merchandising-advertising fixture, in standard models having two to four 40w lamps for single or multiple unit continuous strip lighting applications. Letters, for advertising or department identification, 6" high, finished in Chinese red for high visibility; each letter has steel clips which fit into retainer lip in fixture, for quick, easy changing. Kent-Moore Organization, Inc., General Motors Bldg., Detroit 2, Mich.

Magic Wire: new wire for electric control, using numbers instead of color-coding to increase ease and accuracy of installations and maintenance. Numerals will not wash or wear off. Available in No. 16 solid wire with plastic insulation. Midwest Automatic Control Co., 510 Third St., Des Moines, Iowa.

Table and Wall Lamps: new line, all combining metal, glass and/or plastic, designed by Architect George Nelson. Two wall models and four table models, including miniature "television" lamp with metal tiltable helmet shade. Herman Miller Furniture Co., Zeeland, Mich.

Solarlite "Dean": all-metal school fixture employing 5' 40w Low Brightness Lamp with instant start. Semi-direct distribution type luminaire for suspended installation; accessible open bottom, can be cleaned from floor with vacuum brush. Solar Light Mfg. Co., 1357 S. Jefferson St., Chicago, Ill.

"12 to 20 Circuit" MO Panellette: with "plug-in" circuit breaker units. Available in 12, 16, and 20 circuit combinations for 3 or 4 wire service. "Service entrance" applications where circuit breaker mains are required. Square D Co., 6060 Rivard St., Detroit 11, Mich.

Commercial Fluorescent Lighting Fixtures: new line, four-lamp, 40w fixtures, include: unshielded unit, louver-shielded, and plastic shielded; 20-gage steel construction, finished in aluminum enamel, with matching end caps and trim so they can be hung in same areas with two-lamp fixtures. Furnished complete with starters, lampholders, and lamps. Sylvania Electric Products, Inc., 500 Fifth Ave., New York, N. Y.

finishers and protectors

Prefab Exterior Sand Finish: alkyd resin coating, with titanium pigments and silica, used to produce sand finish or stucco effect on exterior walls of prefabricated metal houses. Two other new products: **Prefab Synite Spot Glaze 58-4030**, joint filler, and **Prefab Metal Roof Coating**, similar to regular fiber-base roof coatings, in black, green, and red. Arco Co., 7301 Bessemer Ave., Cleveland 4, Ohio.

Asphalt-Seal: waterproof finish for painting and weatherproofing asphalt side wall and roof shingles. Available in one and five gallon containers, in three light and four dark colors. Dewatex Mfg. Corp., 424 W. 42nd St., New York, N. Y.

insulation (thermal, acoustic)

Reflective Kimsul: blanket insulation incorporating aluminum foil vaporsal cover designed to reflect heat and shut out condensation; credited with reducing inside temperatures up to 15° on hottest days, and reducing yearly fuel bills in completely insulated house as much as 44%. High thermal efficiency, fire resistance, and sound absorption. Kimberly-Clark Corp., Neenah, Wis.

sanitary equipment, water supply, drainage

"Make-Up" Water Feeder: for use on receiving tanks of boiler return systems. Straight-trust cam-and-roller valve action provides tight closure against water supply pressures up to 150 lbs. psi.; stainless steel valve and seat; large integral strainer, flange-mounted for easy cleaning. McDonnell & Miller, Inc., Wrigley Bldg., Chicago 11, Ill.

Automatic Gas and Electric Water Heaters: new line in complete range of sizes and models, available in 20, 30, and 40 gal. sizes, for natural, mixed, manufactured, or LP gases. U. S. Radiator Corp., 300 Buhl Bldg., Detroit 26, Mich.

specialized equipment

Little Cinerator: incinerator of heavy cast iron, with fire brick lining, asbestos board jacket; connected to furnace smoke pipe, may be located as close as 4" to noncombustible wall, not closer than 12" from combustible wall. Credited to reduce to ashes all ordinary waste, garbage, refuse. No fuel needed. Clear Mfg. Co., 4525 N. 124th St., Butler, Wis.

Leonard Freezers: new line includes four models in 6, 9, 12, and 20 cu. ft. sizes. Fiberglass insulation, steel exterior finished in baked white enamel; aluminum-lined food compartments; eleven-position temperature control; locking devices. Kelvinator Div., Nash-Kelvinator Corp., 14250 Plymouth Rd., Detroit, Mich.

surfacing materials

Dua-Laps Shingles: improved red cedar shingles; controlled oxidation process gives shingle protective coating, with linseed oil to help bind shingle surface and color pigment, thus adding more durability and greater color retention. American Stained Shingle Co., 381 Spruce St., Columbus, Ohio.

Forest Board: hard board panels especially suitable for walls, ceilings, counters, etc. Resistant to chipping, breaking, cracking, denting, and takes any finish by spraying, brushing, or baking; worked with ordinary wood working tools. Sizes range from 4' x 4" to 4' x 16" and thicknesses of 1/8", 3/16", and 1/4". Forest Fiber Products Co., Forest Grove, Ore.

Reevon: woven plastic fabric, completely odorless, for many indoor and outdoor furniture applications, such as seat covers for trains, buses, offices, hotels, restaurants, boats, etc. Non-toxic, resistant to moisture, acids, stains, vermin; cleaned with soap and damp cloth. Reeves Bros., Inc., 54 Worth St., New York, N. Y.

Timber-Craft Wallpaper: finished in extra relief, with ridges and depressions giving three-dimensional appearance. Four designs, each in blond finish, can be stained, glazed, or painted to any desired color, or hung as is. Timbertone Decorative Co., Inc., 324 Lafayette St., New York, N. Y.



Manufacturers' Literature



Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.

AIR AND TEMPERATURE CONTROL

1-300. Kennard Engineered Products, catalog showing variety of finned coils, blower units, and evaporative condensers for air conditioning and refrigeration systems. Fabrication, sizes, capacity ratings, dimensional data, specifications, details, photos, index. Kennard Corp.

1-301. Kewanee Steel Boilers, AIA 30cl (Cat. 80N), 24-p. illus. catalog on steel boilers for heating, power, and process steam, storage water heaters, and water heating coils. Characteristics, data and measurements, specifications, diagrams, photos. Kewanee Boiler Corp.

1-302. Baseboard Heating, 16-p. illus. booklet giving general description and explanation of baseboard heating system. Installation photos. Plumbing and Heating Industries Bureau. (10 cents per copy; make check or money order payable to Plumbing and Heating Industries Bureau.)

1-303. Attic Ventilation Code, AIA 30-d-1 (2nd Edition), 6-p. folder setting forth basic requirements of satisfactory attic ventilation. Newly revised edition includes drawings of typical discharge openings, method of computing areas for discharge vents, minimum air changes required for attic ventilation systems. Propeller Fan Mfrs. Ass'n.

1-304. PliOjet (Form 47), 4-p. booklet on over-fire air jet system for smoke abatement; claimed to give higher furnace temperatures, cleaner flues, and increased combustion efficiency. Description, method of operation, suggested control equipment, drawings. Plibrico Jointless Firebrick Co.

★ 1-305. Residential Panel Heating (1st Edition), 28-p. booklet describing procedure for radiant panel heating design, intended primarily for residences; also applicable to other structures ventilated by natural means. Illustrative examples, definitions and suggestions, installation details, tables, hypothetical problems with solutions. Revere Copper & Brass, Inc.

1-306. Instructions for Installing Scott-Newcomb Radiant Heating System, 12-p. illus. booklet giving installation directions of warm air radiant heating system for new or existing houses without necessity of alterations. Photos, drawings. Scott-Newcomb, Inc.

1-307. A Complete Line of Registers, Grilles, Scoops (Cat. 50), 36-p. illus. catalog. Descriptions, features, unlisted sizes, prices, specifications, characteristics for various applications. Stewart Mfg. Co., Inc.

CONSTRUCTION

3-97. Standard Buildings by Luria, AIA 14-i, 20-p. illus. booklet on prefabricated steel buildings of rigid-frame construction. Standard types, advantages, typical drawings, optional features, specifications, cross sections, details, door and window combinations, ordering instructions. Luria Engineering Corp.

3-98. Marble Forecast, AIA 22-A (1949-1950), 8-p. booklet describing domestic and imported marbles. Approximate color ranges, availability, names of manufacturers, list of M.I.A. membership, classification for soundness. Marble Institute of America, Inc.

3-99. Southern Pine Dimension—Its Properties, Grades and Uses, 12-p. illus. booklet. Also contains tables of joist sizes for various spans and grades, deflection limitations, rafter spans for roof loads, data on built-up girders and trussed rafters, contents table. Southern Pine Ass'n.

★ 3-100. Unistrut Catalog No. 500, 24-p. illus. catalog giving data and detailed information on how to frame, hang, support, and mount equipment of all kinds by means of all-metal framing structure. Method of operation, advantages, description of parts, typical applications. Unistrut Products Co.

DOORS AND WINDOWS

4-210. Spirex, 4-p. booklet describing spiral sash balance for residential windows. Advantages, sizes, drawings. Caldwell Mfg. Co.

Catalog on casement window hardware, including operators, sash hinges, casement and door snuggers, handles, etc. Also booklet on wood or glass venetian windows and doors, hardware. Installation details, construction, specifications, finishes, ordering suggestions, details. Casement Hardware Co.:

4-211. The Specification Standard, AIA 27c2 (Cat. 27)

4-212. Jalousie Hardware (1002) Specification booklet on hollow core and solid core flush doors made of Douglas fir. Construction details. Another booklet on flush cupboard door stock. Advantages, specifications. M and M Wood Working Co.:

4-213. National Quality Flush Doors

4-214. Flush Cupboard Door Stock (Spec. Sheet 4000)

4-215. Better Environment Through Daylighting in Schools, 8-p. illus. booklet describing advantages of metal windows. Basic requirements for sight, methods of controlling daylight illumination, selection of school building site for best daylighting, maintenance cost. Metal Window Institute.

4-216. Metal Louver Windows (Cat. WS-48-A), 4-p. booklet on louvered windows with simultaneous sash control. Types and sizes, specifications, installation details. Stewart Iron Works Co., Inc.

4-217. Truscon Steel Building Products (D-160), 20-p. illus. catalog describing residential double-hung and casement windows of steel construction; also formed steel surrounds and casings, hardware, metal lath and accessories, other types of windows. Types and sizes, details, types available. Truscon Steel Co.

4-218. Tyler Shutters for Better Homes, 16-p. brochure illustrating various types of slat blinds, solid panel shutters, louvered doors. Sizes, construction, ordering suggestions, recommendations. Arthur F. Tyler Co.

4-219. Visulite Entrances, AIA 16 E (Sheet No. 7), 4-p. folder on narrow stile doors and jambs. Typical vertical and horizontal sections, general notes, door and jamb specifications, standard types. Visulite Metal Products Div., Martin Katz Corp.

ELECTRICAL EQUIPMENT, LIGHTING

5-218. Pushmatic (493), 24-p. illus. bulletin on line of push-button protective control centers. Description, method of operation, types, outstanding features, specifications. Bulldog Electric Products Co.

5-219. Light for New Hospitals, 12-p. illus. bulletin describing several types of patient room lights for wall mounting, bed mounting, or floor standard. Specifications, photos. Luminous Equipment Co.

5-220. Fluorescent Luminaires, AIA 31-F-2 (Sec. 2G, page 50, July 25, 1949), 12-p. catalog folder showing luminous downlight luminaire, available with three types of hinged door enclosures. Construction, dimensional data, illumination performance. Miller Co.

FINISHERS AND PROTECTORS

6-174. Monsanto Progress Report, 10-p. report on synthetic resin sealer for industrial wood finishing. Uses, methods of applying, advantages, recommendations. Monsanto Chemical Co.

6-175. Sil-Var, circular on acid-, alkali-, water-proof, insulating coating for protection of wood, masonry, metal structures, felt, metal, and composition roofs. General data, advantages. Service Industries.

INSULATION (THERMAL, ACOUSTIC)

9-138. Certile, AIA 39-B (9100), 4-p. folder describing incombustible acoustical tile and board composed of glass fiber. General and technical data, advantages, dimensions and thicknesses. Certain-teed Products Corp.

9-139. **Fiberglas Acoustical Materials**, AIA 39-B, 8-p. illus. booklet on forms, properties, and methods of installing board, plain and perforated tile; use of thermal insulations for acoustical purposes also described. Sound absorption coefficients, details, specifications. Owens-Corning Fiberglas Corp.

SANITARY EQUIPMENT, WATER SUPPLY, DRAINAGE

19-459. **How to Select Your Water System**, 28-p. booklet on complete range of well pumps and water systems. Types, capacities, description of parts, typical installations, drawings. Deming Co.

Three folders describing all steel, self-priming centrifugal pumps, water lubricated and oil lubricated vertical turbine pumps. Design features, typical sections, sizes, capacities, standard specifications, pumping and engine data. Worthington Pump & Machinery Corp.:

19-460. **Centrifugal Pumps (W-395-B1)**
19-461. **Water Lubricated Vertical Turbine Pumps (H-450-B34)**
19-462. **Oil Lubricated Vertical Turbine Pumps (Bul. H-450-B35)**

19-463. **Shone Pneumatic Sewage Ejectors (4303)**, 16-p. bulletin. Units designed especially for small-to-medium size waste removal system. Operation, types, construction details, dimensions, selection charts, technical data tables, specifications, description of electric compressor plant for ejectors. Yeomans Bros. Co.

SPECIALIZED EQUIPMENT

19-464. **Acousti-Booths (172)**, bulletin on all wood or steel telephone booths with patented construction of perforated acoustical material. Advantages, descriptions of various models. Burgess-Manning Co.

19-465. **Electric Drinking Water Coolers**, AIA 29-D-42 (79), application guide for selecting proper type of cooler. Types, selection data, general specifications, roughing-in dimensions. Cordley & Hayes.

19-466. **Farris Safety and Relief Valves (Cat. 48)**, 72-p. illus. catalog. Types, uses, detailed indexes and comparison charts, diagrams, cross sections, technical data, sizing procedure, nozzle capacities, other charts and tables, price list. Farris Engineering Corp.

Two 4-p. folders, one giving dimensions of steel kitchen cabinets and counter tops, the other, showing how units may be grouped into average kitchen for efficiency and appearance. Sizes, dimensions, illustrations. Midwest Mfg. Co.

19-467. **Kustomized Steel Kitchens (45-B)**
19-468. **Beautiful Kitchens (44-B)**

★ 19-469. **Pascoe**, portfolio containing three brochures on seating furniture, tables and cabinets, and storage cabinets, all of contemporary design. Descriptions, brief data, photos, price list. Pascoe Industries, Inc.

19-470. **The Magic of Scenic Wallpaper**, 8-p. brochure describing and illustrating eleven scenic patterns, including hunt scenes, landscapes, chinese motifs, etc.; other patterns designed for bath and powder room decoration. Descriptions, prices. Schmitz-Horning Co.

SURFACING MATERIALS

19-471. **Carrco Board**, 4-p. illus. folder on composition wall board said to be highly insulating, fire and water resistant. Advantages. L. J. Carr & Co.

19-472. **Kimsul Hardboard (KDB-1)**, 4-p. folder on all-purpose hardboard in natural wood fiber color; easy workability, high resistance to moisture. Description, applications, advantages, sizes and thicknesses. Kimsul Div., Kimberly-Clark Corp.

19-473. **Loxit Floor-Laying System**, AIA 19-E-9, 4-p. illus. folder on mechanical wood floor-laying system using T & G wood strip flooring; eliminates nails, wood sleepers, mastics; no special tools needed. Operation, advantages, typical specifications. Loxit Systems, Inc.

19-474. **Lamidall**, 4-p. booklet on paneling consisting of decorative pattern im-

pregnated on base of tempered Presdwood with laminated polyester plastic surface; withstands heat, cold, moisture, abrasion, impact. Description, advantages, applications. Service Products Div., Woodall Industries, Inc.

19-475. **Tuff-Tex**, 4-p. illus. folder on greaseproof flooring tile for use in industrial and commercial construction (commercial kitchens, laboratories, service stations, plants, etc.). Advantages, specifications, color chart, typical installation photos. Tile-Tex Div., Flint-Kote Co.

Two 4-p. folders describing soft surface rubber tile and hard rubber tile flooring. Characteristics, sizes, advantages, colors. Wright Rubber Products Div., Taylor Mfg. Co.:

19-476. **Wrightex Soft Surface Rubber Tile**
19-477. **Wrightflor Hard Rubber Tile Flooring**

19-478. **Venetex**, folder on soft wood paneling with hardwood surface. Advantages, suggested pattern designs. Zero Plywood Co.

TRAFFIC EQUIPMENT

★ 20-246. **Elevator and Dumbwaiter Planning (231-A)**, 58-p. manual on selection, planning, and specifications of elevator and dumbwaiter equipment for all sizes and types of buildings. Engineering standards data sheets, plans and elevations. Shepard Elevator Co.

(To obtain literature coupon must be used by 1/1/50)

PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 18, N. Y.
I should like a copy of each piece of Manufacturers' Literature circled below.
We request students to send their inquiries directly to the manufacturers.

1-300	1-301	1-302	1-303	1-304	1-305	1-306	1-307
3-97	3-98	3-99	3-100	4-210	4-211	4-212	4-213
4-214	4-215	4-216	4-217	4-218	4-219	5-218	5-219
5-220	6-174	6-175	9-138	9-139	19-459	19-460	19-461
19-462	19-463	19-464	19-465	19-466	19-467	19-468	19-469
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19-478	20-246						

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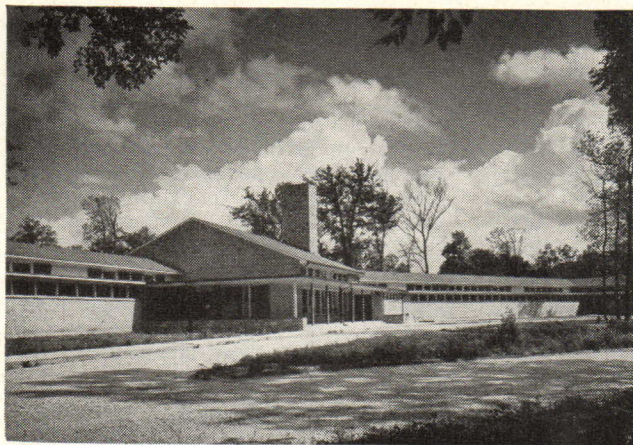
City

State

☐ Home
☐ Business

PLEASE PRINT

10/49



Flashing, counter-flashing, gutters and downspouts on the CLYDE L. LYON ELEMENTARY SCHOOL in Glenview, Illinois are all constructed of Revere Copper. Architect: Perkins & Will; General Contractor: Erik A. Borg Co.; Sheet Metal Contractor: General Sheet Metal Works, all of Chicago.



Revere Copper Water Tube in sizes under 2" and Red-Brass Pipe in sizes from 2" through 4" were used for plumbing lines in this new dormitory at PEMBROKE COLLEGE, Providence, R. I. Architect: Perry Shaw and Hephburn, Boston; Contractor: Joseph Cuddigan, East Providence, R. I.

From Coast to Coast REVERE COPPER DOES WELL AT SCHOOL!

In schools and other buildings that are *built to last*, you are almost sure to find copper, the colorful, corrosion-resistant metal that gives you rock-bottom cost per year of service.

Yes, trouble always costs more than Revere Copper. That's why it pays to specify Revere

Copper Water Tube for plumbing, heating and air conditioning, and Revere Sheet Copper for roofing, flashing, gutters, valleys and other sheet metal construction.

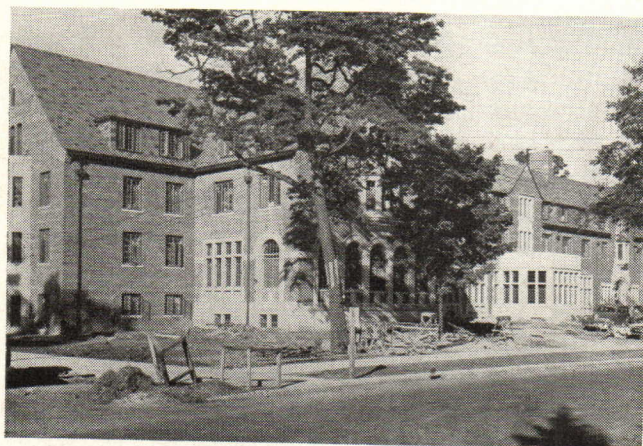
These and other Revere Copper and Brass Products are handled by leading distributors in all parts of the country.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

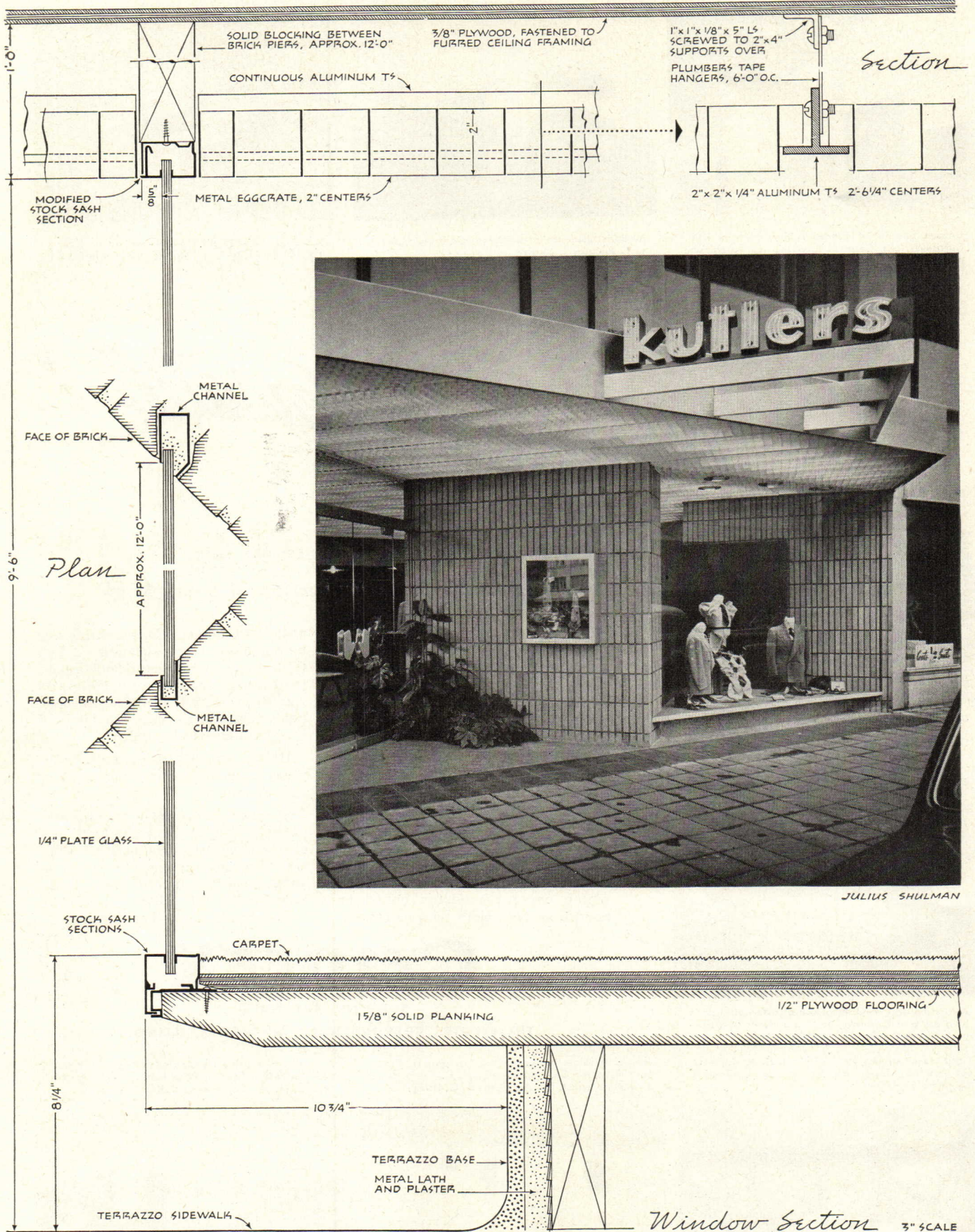
*Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.;
Los Angeles and Riverside, Calif.; New Bedford, Mass.;
Rome, N. Y.—Sales Offices in Principal Cities,
Distributors Everywhere.*



Ridges, flashing, valleys and gutters of Revere Copper protect 5 new dormitories at MICHIGAN STATE. Architect for Girls' Dormitories: Ralph R. Calder, Detroit; Contractor: Christman Co., Lansing. Architect for Men's Dormitories: Orlie J. Munson, Lansing, Contractor: Reniger Construction Co., Lansing. Sheet Metal Contractor: Michigan Sheet Metal Works, Lansing.

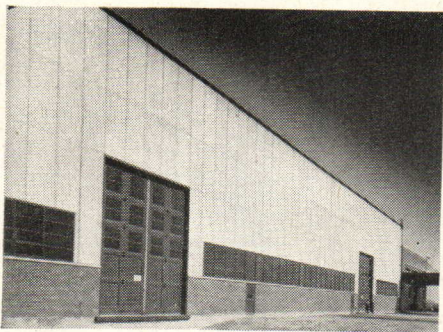


The four buildings comprising the modern design WESTSIDE UNION ELEMENTARY SCHOOL, Lancaster, California, utilize over 10,000 feet of Revere 1/2 inch type L hard temper Copper Water Tube in the radiant panel heating system. Architect: Frank Wynkoop; General Contractor: M. J. Brock & Sons; Heating Contractor: Ray Engineering Co.



KUTLERS MEN'S SHOP
Long Beach, California

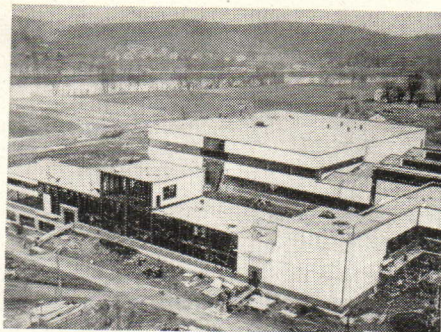
GRUEN AND KRUMMECK ASSOCIATES
Architects



Unique beauty of Cemesto in a curtain wall. Curtiss-Wright Corp., Louisville, Ky. Architect: Albert Kahn Associates, Inc., Detroit, Mich.



Modern residence of Berkeley, California. Architect: Richard J. Neutra.



42,000 square feet of Cemesto used for roof deck and curtain walls. B. F. Goodrich Co., Marietta, O.

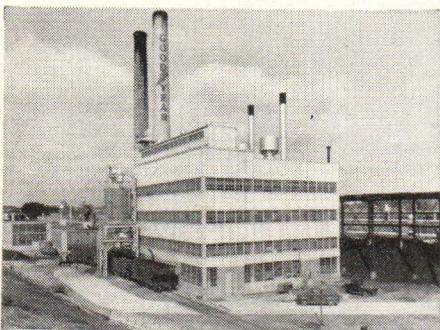
CEMESTO

REG. U. S. PAT. OFF.

amazingly Versatile!



U. S. Navy residence building of Cemesto and brick masonry built in 1939 at Brooklyn, N. Y. Contractor: White Const. Co., New York, N. Y.



Attractive and economical use of alternate bands of glass and Cemesto for power plant at Good-year Tire & Rubber Co., Jackson, Mich.

Light steel framing for 53,760 sq. ft. of Cemesto for Watson Terminal Warehouse Company, Youngstown, Ohio.



Caulking joints between Cemesto panels. Carolina Asbestos Co., Marshville, N. C. Contractor: Interstate Const. Co. Architect: A. G. Ulrey.



Asphalt roll roofing applied over Cemesto. Pittsfield Township School, Washtenaw, Mich. Architect: C. Nobel. Contractor: DeKenning Const.



Celotex Cemesto is first choice for fast, permanent, low-cost construction of every kind

More and more architects are specifying Cemesto* for *insulated* structural roof decks, curtain walls, and partitions of every type. Because the unique properties of this amazing multi-function monowall material make possible important economies in design, erection, and maintenance.

This has been proved by 19 years of outstandingly successful use in industrial, commercial, and residential construction of all types . . . in all climates . . . all over the world!

Cemesto is a rigid structural panel made of Celotex* cane fibre board to which cement-asbestos board is bonded on both sides by a moisture-

proof bituminous adhesive. It has remarkable structural strength . . . high insulation value . . . its cement-asbestos facings are incombustible and weather-resistant. Its hard, durable, light-reflecting surfaces provide both interior and exterior finish.

Unless required for decorative purposes, Cemesto never needs painting or maintenance.

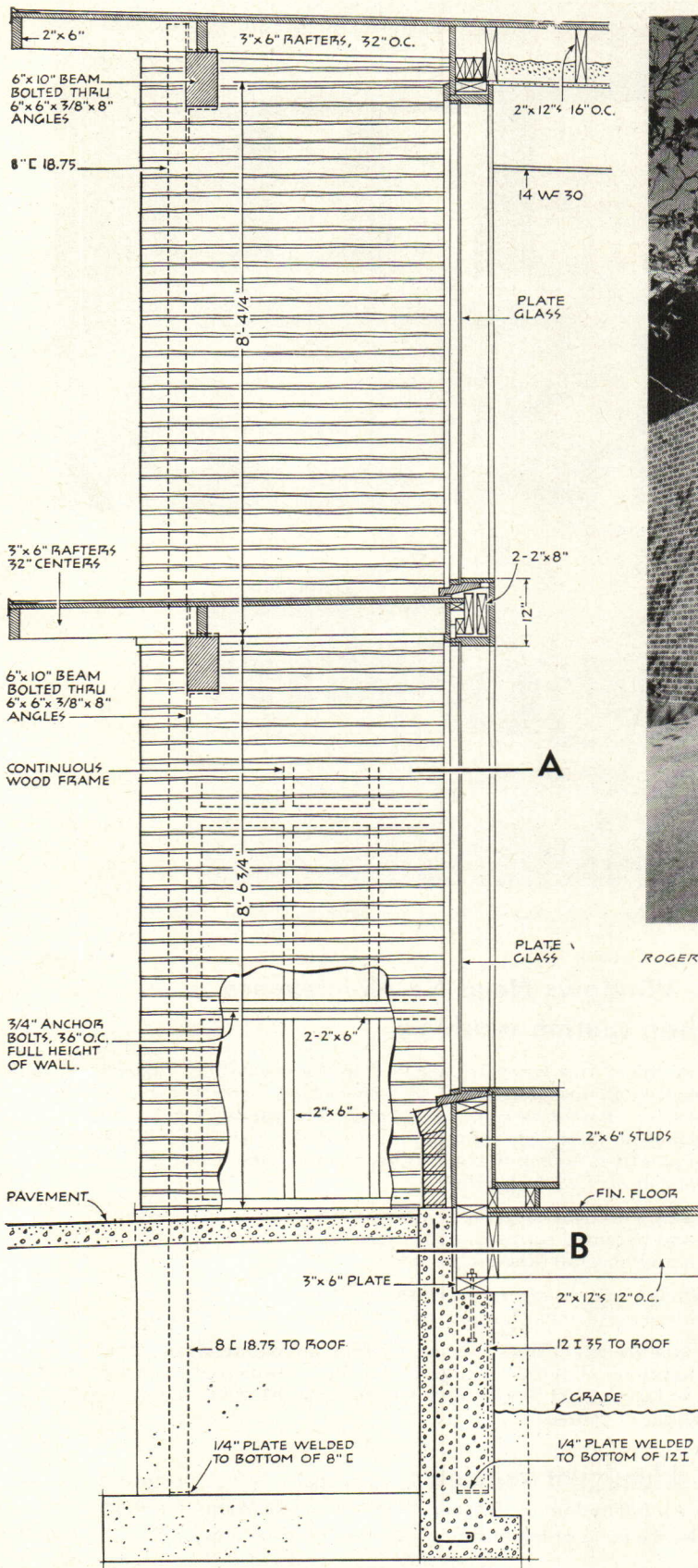
Cemesto panels are quick and easy to apply, and can be worked with ordinary hand or power tools. Discover how Cemesto can speed construction and cut material and labor costs. Write today for full technical data and application recommendations.

CELOTEX

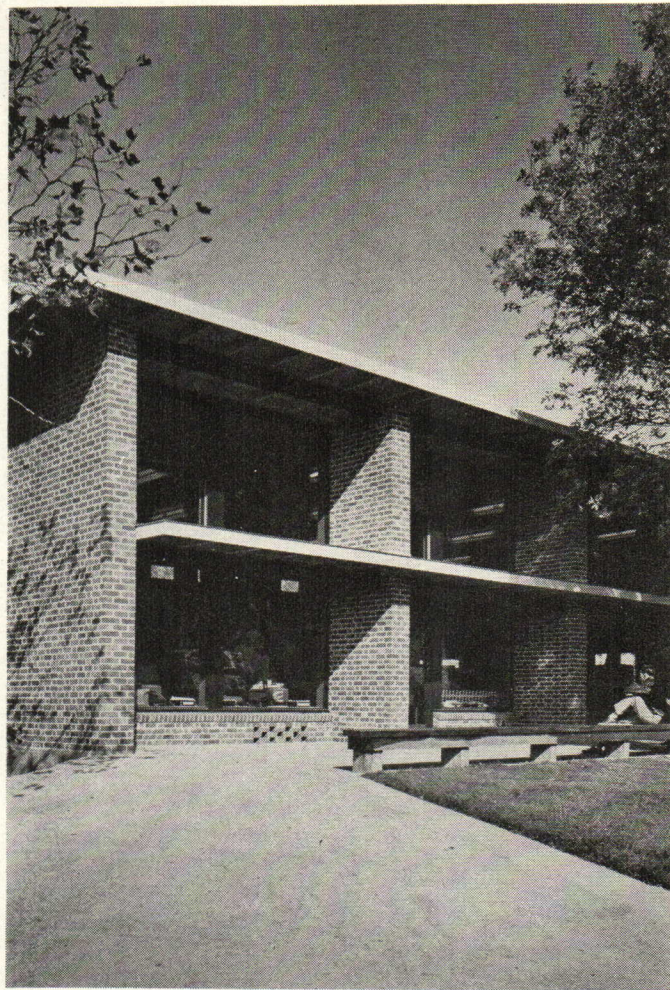
REG. U. S. PAT. OFF.

BUILDING MATERIALS

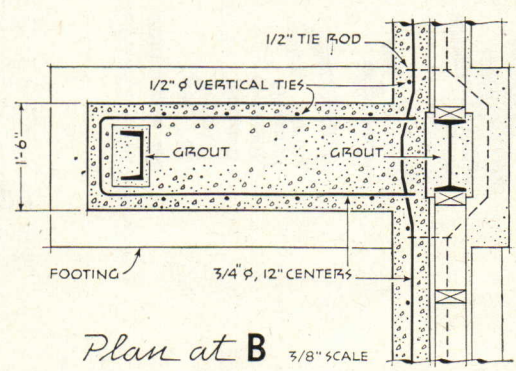
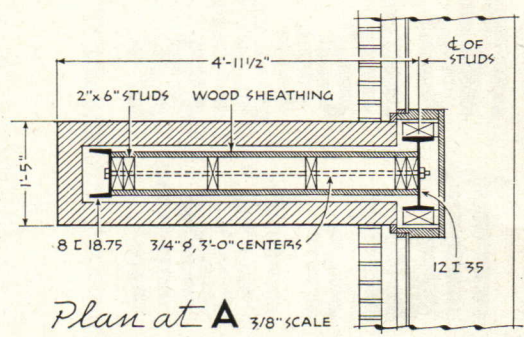
THE CELOTEX CORPORATION • CHICAGO 3, ILLINOIS



Section thru Window Wall 3/8" SCALE

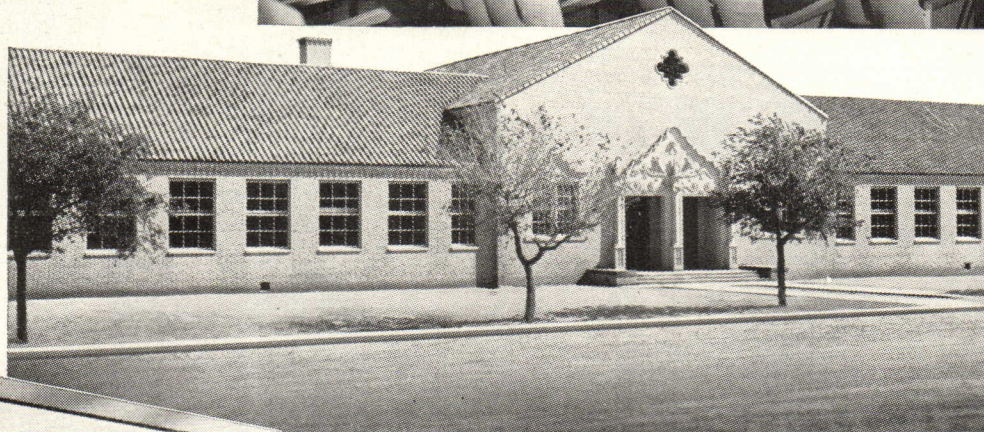
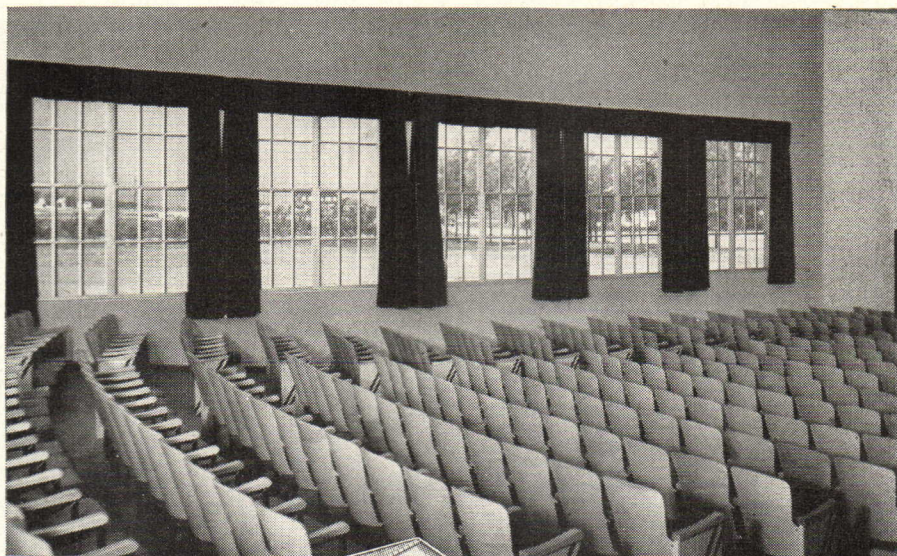


ROGER STURTEVANT



STUDENT UNION, COLLEGE OF THE PACIFIC
Stockton, California

WURSTER, BERNARDI & EMMONS
Architects



Architects: Berry, Kerr & Kerr, Amarillo, Texas. Contractor: W. D. Light, Plains, Texas

No Troubles
That a Bath
Won't Cure!

Adlake Windows Need No Maintenance other than routine washing

THE ADLAKE ALUMINUM WINDOWS installed in the newly-built Plains Grade School at Plains, Texas, will save the school a considerable sum in future years by *eliminating maintenance costs*. The windows will ultimately *pay for themselves* through this economy. For Adlake Windows require no painting, no maintenance other than routine washing! *And they last as long as the building!*

ONLY ADLAKE WINDOWS have the combination of woven-pile weather stripping and patented serrated guides that assures minimum air infiltration and absolute finger-tip control.

Adlake Windows never warp, rot, rattle, stick or swell. They keep their good looks and smooth operation for the life of the building.

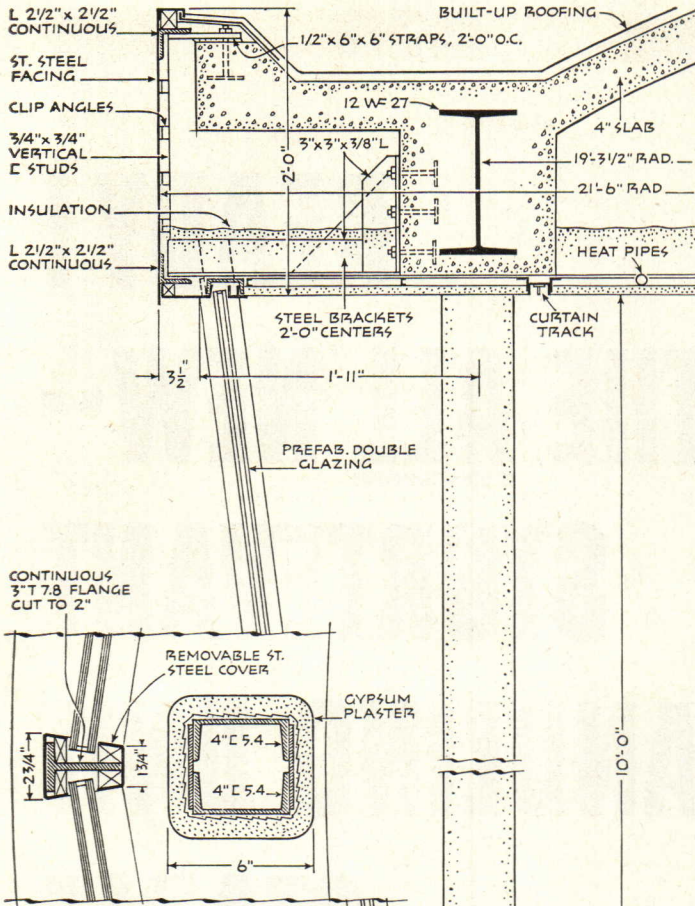
FIND OUT FOR YOURSELF about the worry-free, no-maintenance service Adlake Aluminum Windows will give you. For complete data, drop us a post card today at 1103 North Michigan Avenue, Elkhart, Indiana. No obligation, of course.

Adlake Aluminum Windows have these "plus" features:
Minimum Air Infiltration • Finger-tip Control • No Warp, Rot, Rattle,
Stick • No Painting or Maintenance • Ease of Installation

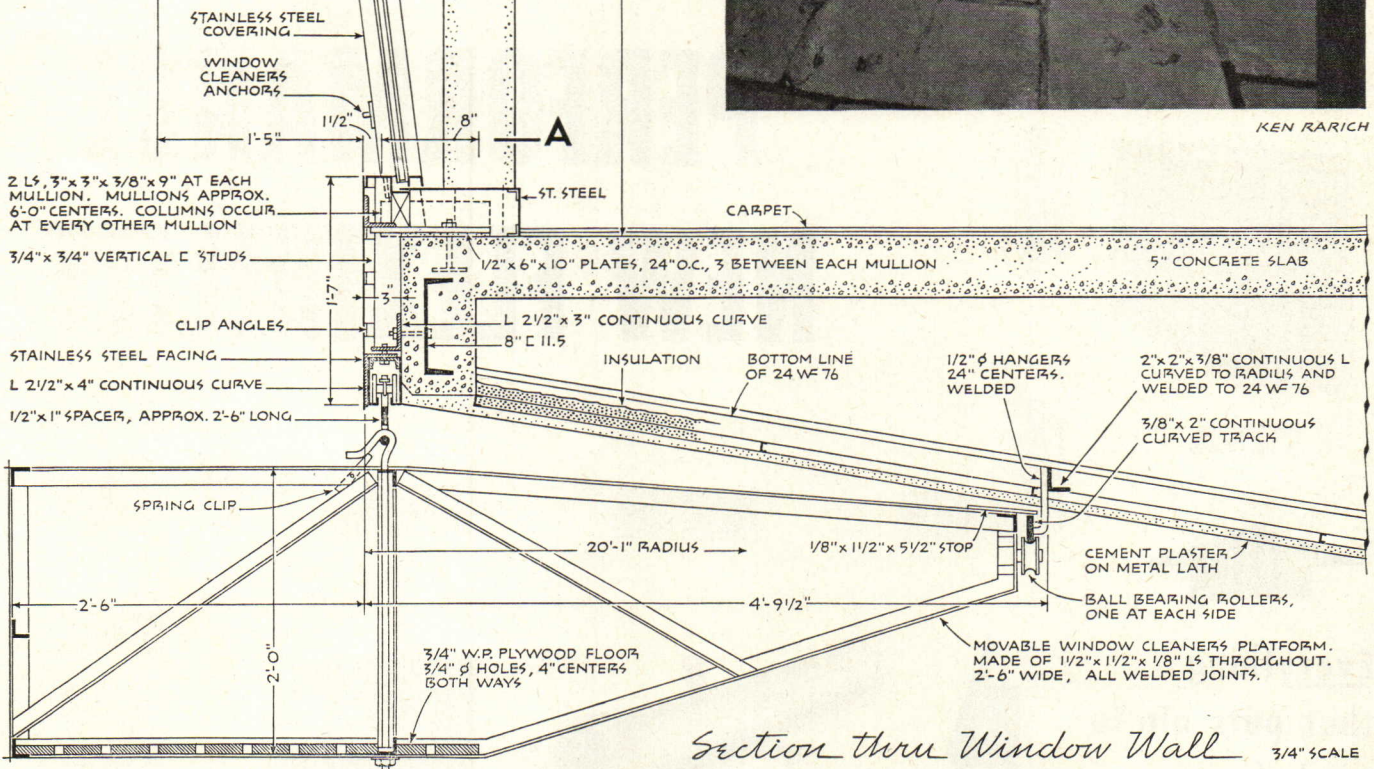


THE **Adams & Westlake** COMPANY

Established 1857 • ELKHART, INDIANA • New York • Chicago



Plan at A 1/2" SCALE

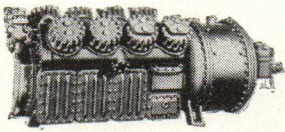


Section thru Window Wall 3/4" SCALE

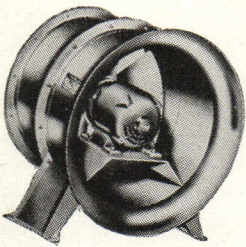


KEN RARICH

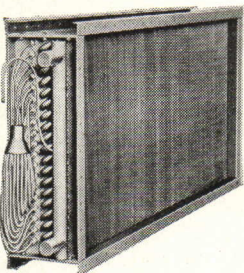
READY! THE ALL NEW-- STURTEVANT AIR HANDLING UNIT --STABLE PERFORMANCE, NEW FLEXIBILITY



Refrigeration
Compressors



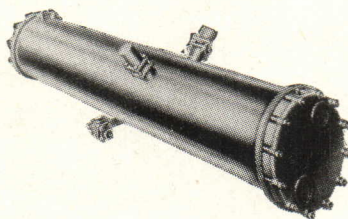
Axial Flow Fans



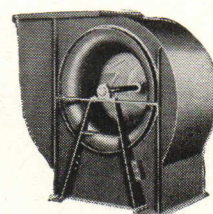
Heating and
Cooling Coils



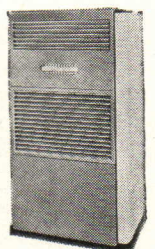
Everything
that puts air to
work for
Every application



Refrigeration
Condensers

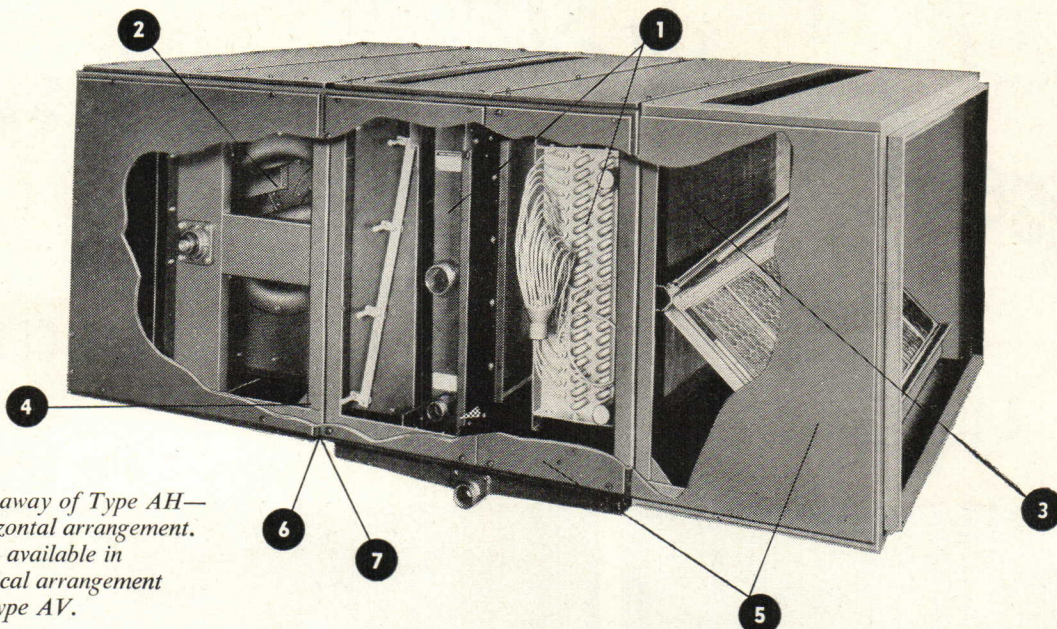


Centrifugal Fans



Unit Air
Conditioners

J-80154



Cut-away of Type AH—horizontal arrangement. Also available in vertical arrangement—Type AV.

1. ALL TYPES OF COILS AVAILABLE

—for well water, chilled water or Freon, as well as hot water or steam—a complete line.

2. STABLE, QUIET FAN OPERATION

—with a revolutionary fan design. Non-overloading horsepower, steep stable pressure characteristic, certified performance.

3. MINIMUM INTERNAL RESISTANCE

—static pressure requirements kept low. Ample filter area, plate-type fins, eddy-free flow.

4. RUGGED, INSULATED CABINET

Sectionalized casing with welded, gusseted structural angle frames and insulated panels.

5. EXCELLENT MAINTENANCE ACCESSIBILITY

—wide, gasketed, hinged doors for easy filter removal. Fan and coil section panels removable.

6. FLEXIBLE DESIGN

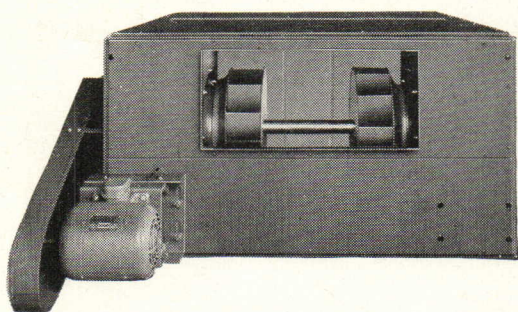
—sectional construction permits wide variety of assembly arrangements and uses.

7. EASY TO ASSEMBLE AND INSTALL

—shipped in sections for ease of handling. Single outlet simplifies duct work.

8. UNDIVIDED RESPONSIBILITY

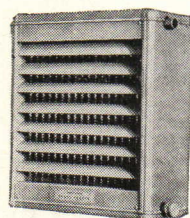
—fans, coils, motor . . . every major part a product of one manufacturer. *You can't get this vital, plus-value anywhere else!*



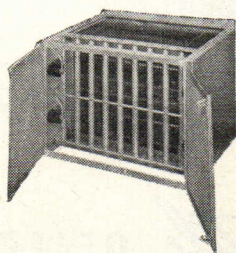
This announcement is important to you. For the complete story of these new units, including their selection and application, call your nearest Sturtevant office, or write Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Mass.

Westinghouse

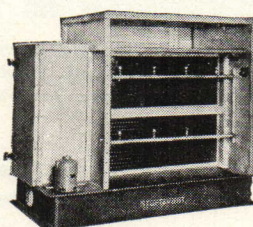
Sturtevant Division



Unit Heaters



PRECIPITRON®
(Electronic Air Cleaner)



Surface Dehumidifiers

In these Atlantic States

you'll see

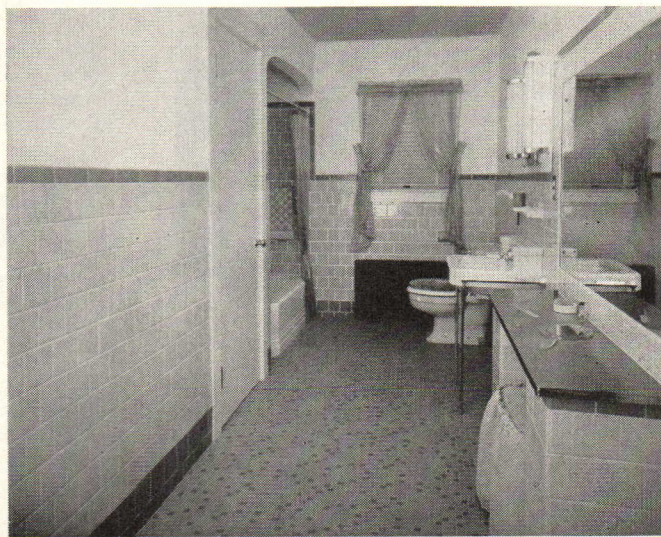
IN COLOR-BALANCED



Residence, Binghamton, N. Y. Contractor, Ward R. Murphy. Authorized Suntile Dealer, Alba Tile and Supply Company, Binghamton.



(TOP) Residence, Reinholds, Pa. Contractor, Earl R. Scheib, Reading, Pa. Authorized Suntile Dealer, Earl J. Malsnee, Reading, Pa.



Residence, Hanover, Pa. Architect, I. M. Meyers. Contractor, Earl Kopp. Authorized Suntile Dealer, H. Jensen Tile Company.

Suntile OFFERS YOU BOTH —

sound planning beautifully carried out

Suntile

It's wonderful to plan an interior so beautiful and so practical that your client literally beams his approval. Wonderful—but only half the battle.

To keep your clients smiling you'll need materials and installation that do full justice to your plans.

Interiors of color-balanced Suntile do just that. Your clients are bound to smile at the beautiful, fadeless color blends you can achieve so easily with *real clay* Suntile.

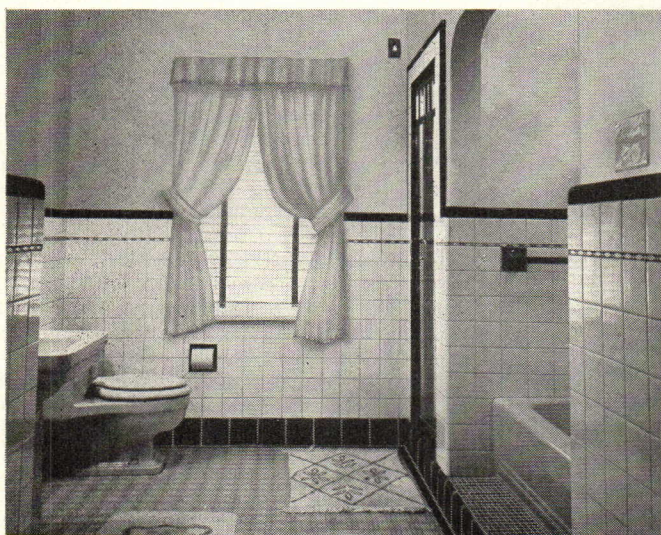
And they'll be pleased, too, at the ease and low cost of keeping Suntile beautiful. An occasional wiping with a damp cloth is all that's ever needed. There'll be no scrubbing, waxing or polishing. Unsightly chipping and scratching will

be practically eliminated. Refinishing and replacement costs will be reduced to the minimum.

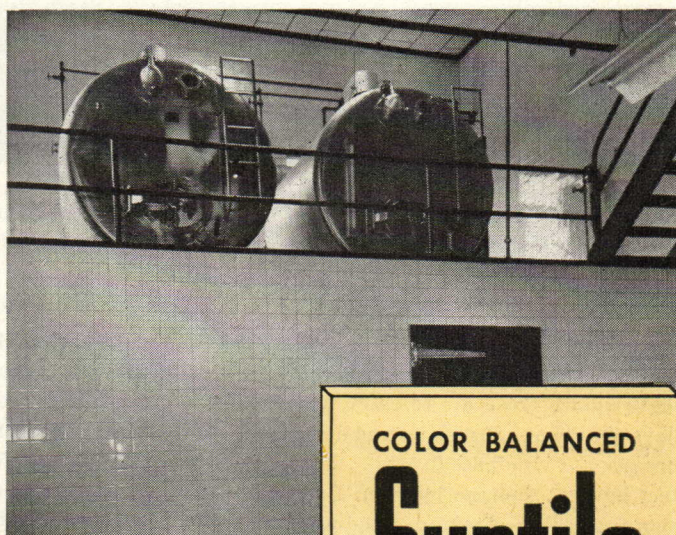
You'll *know* your clients will get all these advantages every time with Suntile. Suntile has just one standard, from the first step of its manufacture right through to the finished job: *excellence*.

That's why Suntile is installed only by Authorized Dealers, men carefully selected and trained to do work that pleases everyone concerned.

For the name of your Suntile dealer consult your telephone directory, or write us, Dept. PA-10. Ask for latest Suntile literature. Refer to Sweet's for other detailed data. The Cambridge Tile Manufacturing Company, Cincinnati 15, Ohio.



Residence, Schenectady, N. Y. Architect, C. H. Wallace. Contractor, Bellevue Builders. Authorized Suntile Dealer, State Tile Company, Schenectady.



Dairy, Reading, Pennsylvania. Authorized Suntile Dealer, Earl J. Malsnee, Reading, Penna.

COLOR BALANCED

Suntile

..... A real clay tile
 Bright with color
 Right for life

Better Tile.... Better Installation

technical press

By JOHN RANNELLS



studies of innovation

A very sober (and fascinating) study of the "economics of science and engineering" is being made by members of M. I. T. economics and social science

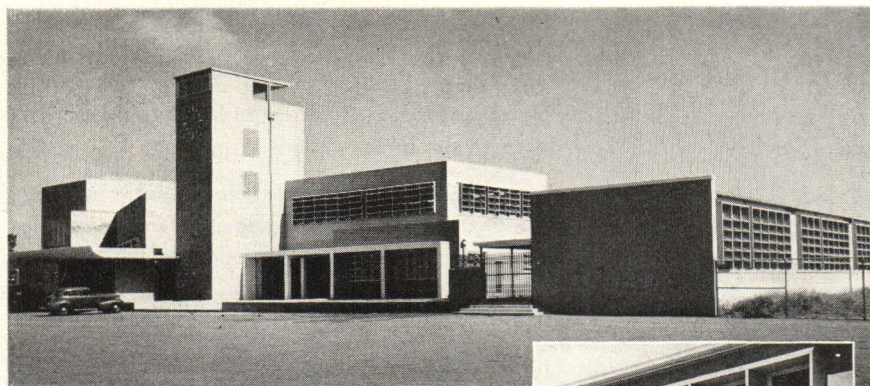
departments under a grant from the Rockefeller Foundation. The first of five volumes to be published was "Invention and Innovation in the Radio Industry*,"

by Professor W. Rupert Maclaurin who is directing the study. The second volume, "The Electric Lamp Industry," by Arthur A. Bright, Jr., is a tremendously thorough account of the history (since 1800 or so) of present-day electric lighting.

The active period covered by the development of electric lighting (since 1890) coincides with the active period of architecture as a profession in this country. The relationship was rather coincidental until recent years, when adequate illumination became a determining factor in architectural design, so much so that very many of our favorite contemporary clichés are concerned primarily with lighting or even the patterning of certain lighting gadgets. It is not likely that any one other technology will have so strong an influence on design. And it is not likely that any other major building component will become so centrally industrialized as the lamp industry. Building itself is so diffuse that there's little chance for concentration of power in a few large concerns. Yet the technical story of invention and development based on science that's told here for the lamp industry might be repeated with any number of building materials. A good thing, too, if only it brings costs down!

It's quite a story—first, the application of American engineering skill and strong financial support to basic scientific ideas developed in Europe—then, the building up of a central industry that maintains defenses against newer innovators. The chief defense, of course, is the use of patents and litigation over patents, bolstered by research organizations that necessarily pursue studies in fields of pure science—nothing less will do. Thus, industry has come a full circle in relation to science. Fairly recently, the government has broken up some of the central control through the anti-trust laws and more loosening of the industry by this means is under way.

The chief problem tackled by these studies is to understand the process of economic development of our industry and, presumably, do something to keep it developing. As Professor Maclaurin states in the foreword, "... we know relatively little about the human factors which condition the introduction of technological change into our environ-

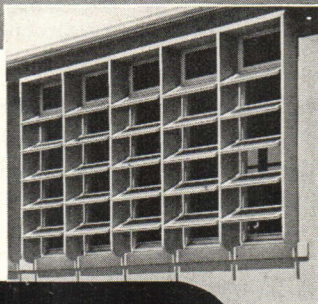


AN UNUSUAL INSTALLATION

South Broward High School, Hollywood, Florida

Architects: Clinton Gamble Associates, Fort Lauderdale, Fla.
Bayard Lukens, Hollywood, Fla.

All Gate City Awning Windows glazed with heat-resisting and glare-reducing glass. Concrete fins (right) keep sunlight from entering rooms diagonally between sash.



Cooler Under the Sun...

In countless locations, in city as well as country, Gate City Awning Windows are satisfactorily answering the need for adequate ventilation—and doing so *without mechanical assistance!*

Completely adjustable, these windows induce fresh air to enter when days are calm... break up and deflect breezes... eliminate drafts... protect against damage by rain. Precision fabricated of toxic-treated wood, they are economical to install, easy to

operate and rot-resistant. One redecorating bill avoided by the rain deflecting sash more than pays any additional initial cost!

No matter what the location or climate, you can assure abundant light and scientifically controlled ventilation—with Gate City Awning Windows. For data refer to Sweet's or write direct to Gate City Sash & Door Co., Dept. PA-10, Fort Lauderdale, Florida.



AWNING WINDOWS BY
Gate City

Offices and Factory: Fort Lauderdale, Florida • Export Sales Representative: Frazer & Company, 50 Church Street, New York 7, U.S.A. • Cable Address: Frazer, N. Y. • Agents in principal cities throughout the world.

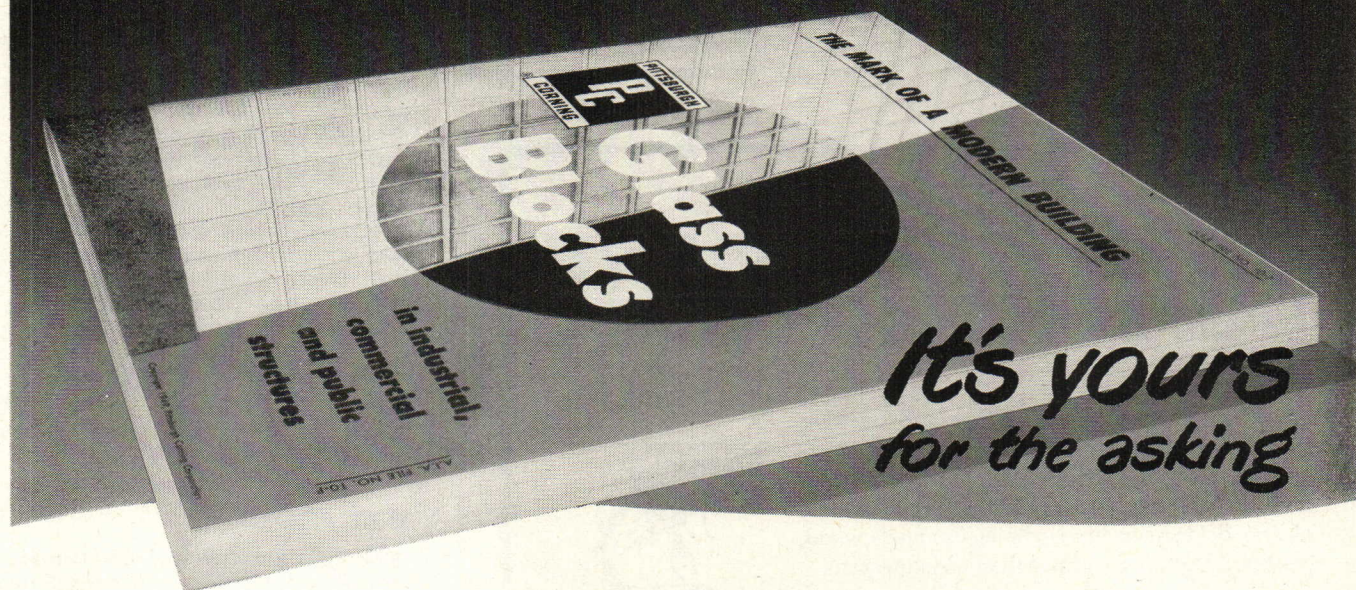
(Continued on page 104)

* Published by the Macmillan Co., 60 Fifth Ave., New York, N. Y. 526 pp., illus. \$7.50

Now...Specially compiled for your convenience...

COMPLETE INFORMATION ON PC GLASS BLOCKS

in a single, 40-page book



*It's yours
for the asking*

Table of Contents

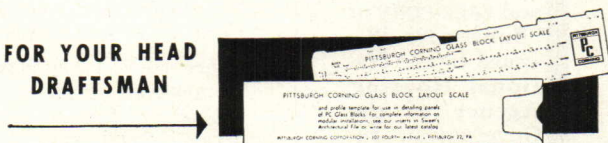
● PC Glass Blocks have won wide favor among architects everywhere . . . because years of experience have proved that PC Glass Blocks can give almost any building better lighting, more effective insulation, lower maintenance costs, a more attractive appearance, inside and out.

And now . . . to meet your need for a "bible" on Glass Blocks, we have put between the covers of a single new book all the essential information about this modern building material of countless uses.

This 40-page book treats comprehensively of its subject, includes numerous helpful and time-saving charts, tables and technical pointers. It is lavishly illustrated. From the table of contents listed at right, you can readily see the broad scope and detailed treatment of the information offered. We invite you to send in the convenient coupon for your free copy of this book.

- Description of Glass Blocks
- Advantages of PC Glass Blocks
- PC Glass Blocks in Industrial Buildings
- PC Glass Blocks for Sash Replacements
- PC Glass Blocks in Commercial Buildings
- PC Glass Blocks in Public Buildings:
 - Miscellaneous Public Buildings
 - Hospitals
 - Schools
- Technical Data
 - Facts about PC Functional Glass Blocks
 - Patterns Available
 - Sizes, Shapes, Accessories Available
 - Layout Tables for Glass Block Panels
 - Modular Installation Details
 - Curved Panel Installation Requirements
 - Listing by Underwriters' Laboratories, Inc.
 - How to Install Glass Blocks
 - Estimating Data
 - Closed Specifications

FOR YOUR HEAD
DRAFTSMAN



This handy layout scale saves time and trouble in laying out panels of PC Glass Blocks. If you would like to have this scale for your drafting room, check the coupon and we shall be glad to furnish one, free of charge.



GLASS BLOCKS

The mark of a modern building

Pittsburgh Corning Corporation
Dept. N-109, 307 Fourth Avenue
Pittsburgh 22, Pa.
Please send me, without obligation, a
free copy of your new 40-page book on
PC Glass Blocks.

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Distributed by Pittsburgh Plate Glass Company; by W. P. Fuller & Co. on the Pacific Coast and by Hobbs Glass Ltd. in Canada.

technical press

(Continued from page 102)

ment. Are there barriers to innovation inherent in the increasing concentration of power in a few large concerns? Does the patent system, designed as an incentive to invention, act more often as a brake on new developments? What has been the role of key personalities in creating change? Are there lessons to be drawn from the past on how the innovating process can be more effective . . . ?"

The great contribution made by this

study of the lamp industry is the understanding it gives of much of our industrial development during the past sixty-odd years. It is a wonderfully rich account of technological progress and the men who made it possible and the business background against which it occurred.

good lighting practice

Illuminating Engineering for June has photos of two dozen award-winners in

the contest held by the International Lighting Exposition at Chicago last April. The installations are of all types, brightness almost uniformly high.

rubber developments

Published by the British Rubber Development Board, distributed free in the U. S. by the Rubber Development Bureau, 1631 K. St., Washington, D.C. There's a lot of mighty interesting material packed in this little publication. Seems there are many unexpected possibilities in the building field: rubber-cement (Portland cement) floor covering, for instance, with granite chips for aggregate, or reclaimed rubber chips in asphalt. Funny—in one case the hard material is the wearing surface, in the other, it's the soft material. And, evidently, nothing is better than rubber panels to prevent damage to the offside rear corner of buses operating in narrow streets. That offside, highside way of telling right from left sort of harks back to the ox team, but it makes sense in a left-side-of-the-street traffic pattern where the near side does come next to the curb. How odd the British must find P/A where we misspell kerb and tyre, among other things.

TEXT BOOKS

Basic Refrigeration and Air Conditioning. Robert Henderson Emerick. Prentice-Hall, Inc., 70 Fifth Ave., New York, N.Y. 1948. 259 pp., illus. \$5.00

This is a very lively, almost chatty, text designed primarily for those who are interested in the possibilities of a career in refrigeration and air conditioning. The text was developed originally for training men of various trades who were doing installation and repair work with refrigeration and air-cooling machinery at the Pearl Harbor Navy Yard during World War II. It is most successful in giving a clear understanding of the theories and practices of the trade to men without previous technical education. There's a very good, short bibliography of books, handbooks, and manufacturers' pamphlets. J.R.

Structural Design in Metals. Clifford D. Williams and Ernest C. Harris. The Ronald Press Co., 15 E. 26th St., New York, N.Y. 1949. 596 pp., illus. \$6.50

There are so many structural texts that it must be hard, sometimes, for the authors to find a new slant. This one takes a good one: the student should concentrate on the application of the statics of simple structures and the strength of materials to details of design. Design of complicated structures can be handled better in practice, if the fundamentals are well in hand.

The fundamentals are very thoroughly covered in a clearly written and clearly illustrated text covering all the usual riveted and welded steel structures as well as aluminum, light-gage sections, fatigue, an example of rigid-frame design, and numerous appendices. J.R.

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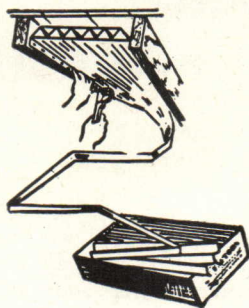
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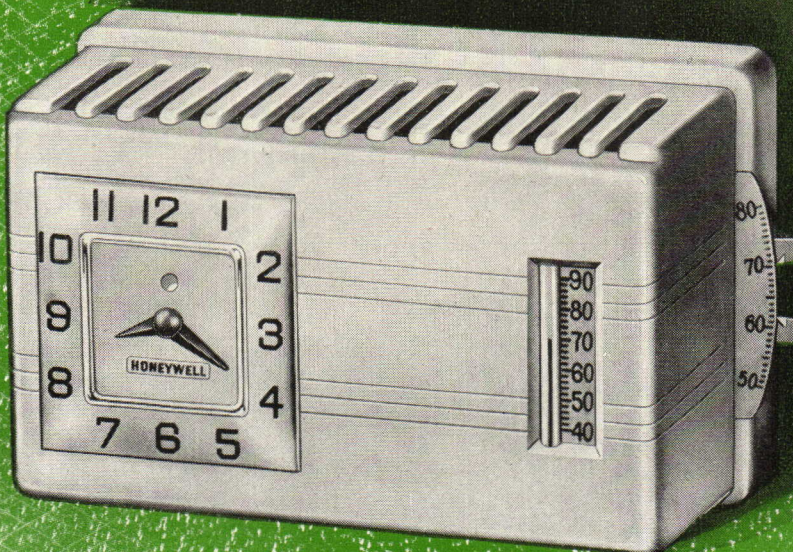
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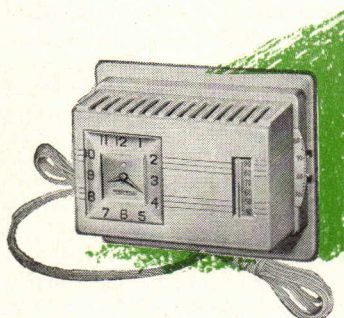


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BOOKS

SULLIVAN RECALLED

Genius and the Mobocracy. Frank Lloyd Wright. Duell, Sloan & Pearce, Inc., 270 Madison Ave., New York 16, N. Y., 1949. 113 pp., illus. \$5.00

Frank Lloyd Wright is a very great architect—perhaps a genius. Frank

Lloyd Wright has had more influence on architecture in our time than any other man. Frank Lloyd Wright is a sharp and sometimes accurate critic of our social condition. Finally, Frank Lloyd Wright has been ignored and even mistreated by his own colleagues, as well as the general public, until very

recently.

Now that you know where this reviewer stands about Frank Lloyd Wright, it can be reported that *Genius and the Mobocracy* is a tiresome and rambling repetition of remarks that have been made by the author many times in his writings and his talks. The historians will be disappointed that little new source material has been added to the story of Louis Sullivan; and students of drafting will find that the plates of Sullivan's drawings are somewhat freer in conception but otherwise little different from those previously published.

T.H.C.

USES OF GLASS

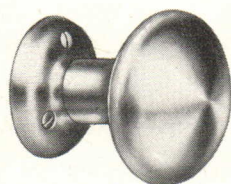
Building for Daylight. Richard Shepard, F.R.I.B.A., and Hilton Wright, A.R.I.B.A., with an introductory historical note on English window design by John Gloag, Hon. A.R.I.B.A. Printed in England and distributed by The Macmillan Co., 60 Fifth Ave., New York, N. Y., 1949. 91 pp., illus. \$5.50.

To American architects and engineers the manner in which the subject of this book is presented may be a "let down" if not a novelty. Americans have become accustomed to having similar theses presented with all the glamour of "slick" paper, fancy typography, fine art work, and often in vivid colors. No doubt the printing of this work represents a phase of the British austerity program. However, the austerity of the book itself need not detract from the subject matter for the American reader, as it will be found to be easy, interesting, and profitable reading.

Everyone will find John Gloag's historical introduction to be fascinating. In it he traces glass and glass making from antiquity, down to the present time. He has drawn copiously from a long list of references. While the art of glass making seems to be the principal theme of his essay, he correlates it nicely to all the other influences that were contemporary and go to make up British architecture: a) self-defense in the baronial castles; b) the discouragements of the window tax (1697-1851) whereby any house with more than six windows was taxed five pounds per year; c) the increase in window size as a result of efforts to get more daylight for their tax pound; d) the influence of religion on the art of glass making and window design; e) and finally, in modern times, windows used for their inherent value for bringing daylight and



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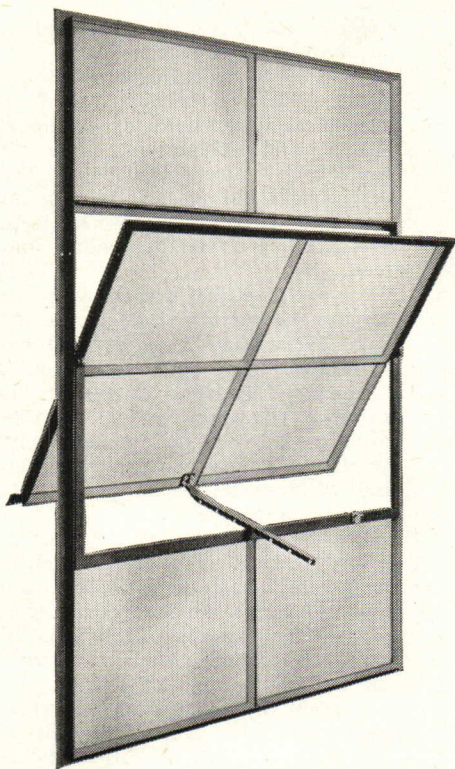
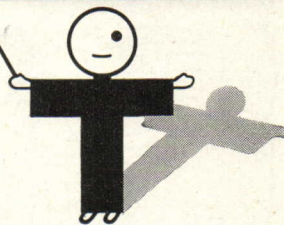
(Continued on page 108)

SALESMAN of The Month

TRUSCON PIVOTED STEEL WINDOWS

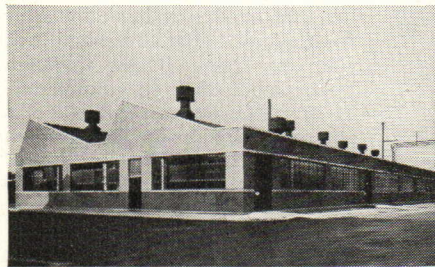
are adaptable to all types of
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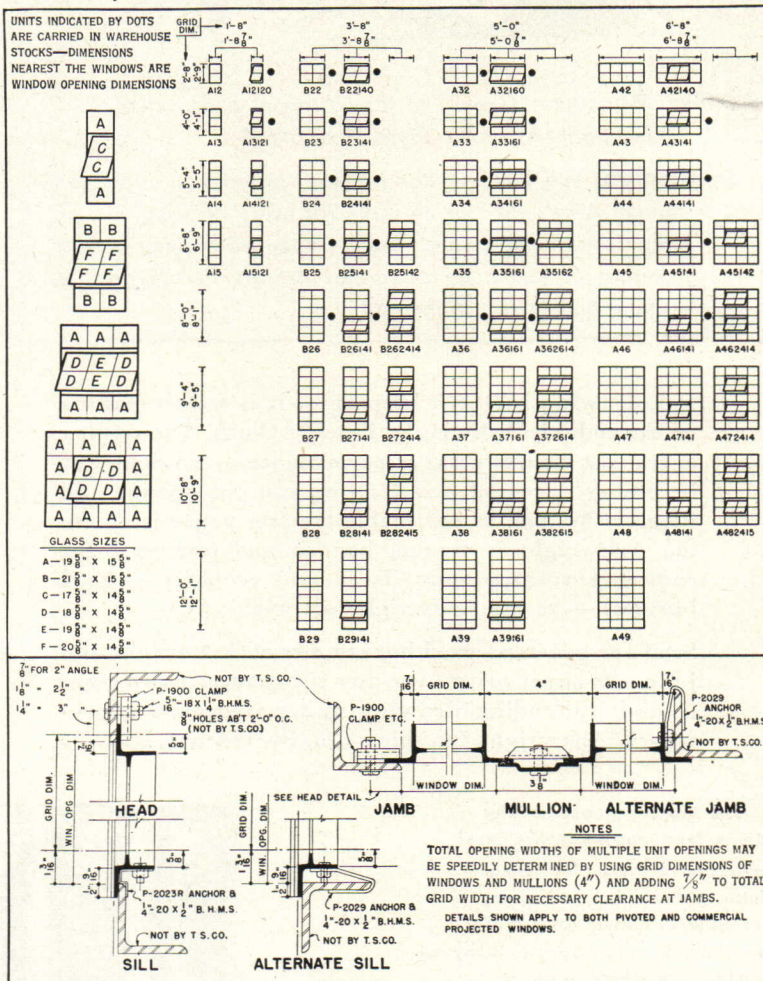
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Reviews

(Continued from page 106)

sunlight into enclosed space, often at the sacrifice of tradition.

Pages 36 to 65, inclusive, forming the second section of the book, are devoted to general discussions of daylighting "siting" and orientation, town planning, group housing, multi-story buildings, school buildings, and factory buildings. The coverage of these subjects is elementary and can be readily understood.

The architectural draftsman will appreciate the remaining 26 pages of the book. These pages are devoted to 13 well-executed mechanical, axonometric ("isometric" is American terminology) drawings showing various types of building, with a facing page giving complete specifications for the different kinds of glass that are to be used in appropriate locations.

One of the interesting features of these drawings, which differ from similar prewar sketches of British origin, is the noticeable tendency to suggest a much higher standard of living. Bathrooms, washstands, kitchen equipment, and built-in equipment are suggested on a scale that is beyond that seen in most present-day American living.

GEO. W. THOMAS, R.P.E.
Structural Engineer and
Natural Lighting Consultant
Youngstown, Ohio

BREUER MONOGRAPH

Marcel Breuer: Architect and Designer. Peter Blake. Published by Architectural Record for The Museum of Modern Art, 11 West 53rd St., New York 19, N.Y. 128 pp., illus. Paper \$2.25; cloth \$4.00

The Museum of Modern Art has brought forth another of what they call "our usually definitive monographs." In this one, Peter Blake, Curator of the Department of Architecture and Design at the Museum, records information gleaned from many hours of conversation with Marcel Breuer and correlated biographical odds and ends that have been tucked in bulletins, periodicals, but never before in book form.

Breuer's greatest contribution to his art and to society, the author suggests, has been in a transitional position between the Bauhaus and architecture as we accept it today—and he most assuredly helped shape it. Blake presents Breuer's life as developing logically within a restless and illogical world, but we do not meet Breuer, the man. The warmth sometimes absent from his work is absent from this book and Breuer does not really come alive except when he speaks for himself in two selections in the last chapter.

Architects and designers might be

(Continued on page 110)

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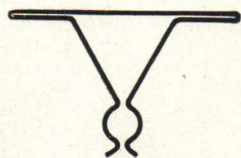
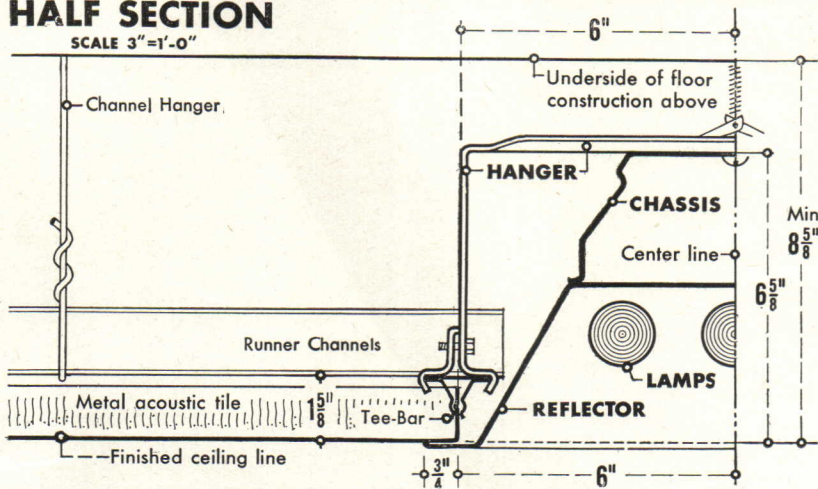
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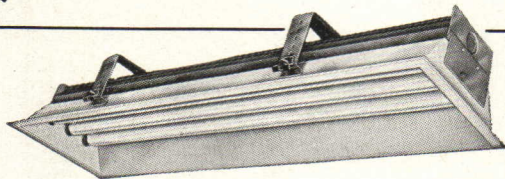
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Reviews

(Continued from page 108)

piqued as well as enlightened by this book. Laymen will be confused: finding it on a plane above them, since it assumes a basic understanding of modern architects and their work.

HELEN MERCNER

RESTORED TOWN

Colonial Williamsburg: Its Buildings and Gardens. A. Lawrence Kocher and Howard Dearstyne. *Colonial Williamsburg, Williamsburg, Va., 1949.* 104 pp., illus. \$2.75.

That the future may learn from the past—the motto of the Williamsburg project—is also the keynote of this book. The authors have outlined the principles of the restoration and the significance of the undertaking. They not only tell the story of the restoration of an American town, but show the buildings and gardens as they are today. Architects who prefer conventional design will undoubtedly welcome this semi-picture version of the oft-told Williamsburg tale.

HELEN MERCNER

GOOD READING

Architecture and The Spirit of Man. Joseph Hudnut. *Harvard University Press, Cambridge, Mass., 1949.* 301 pp. \$4.50

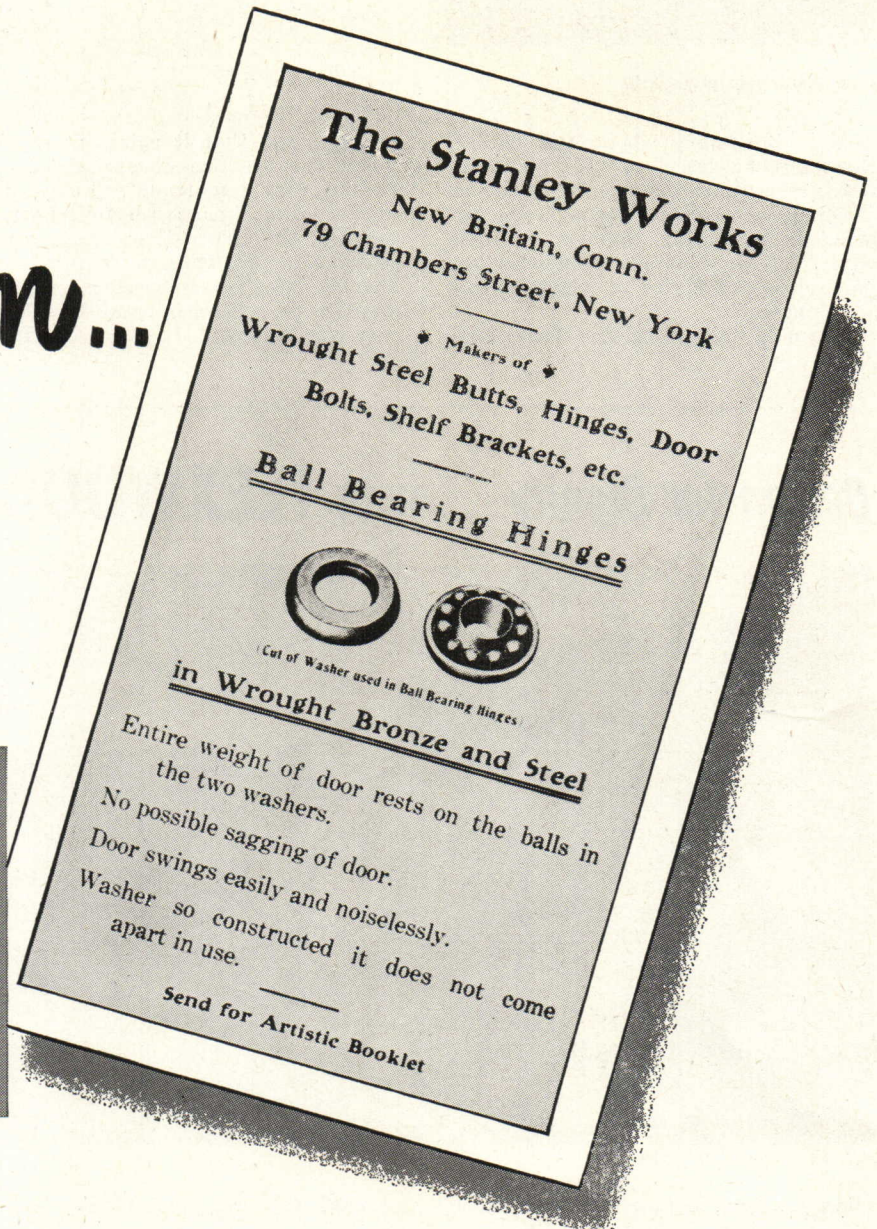
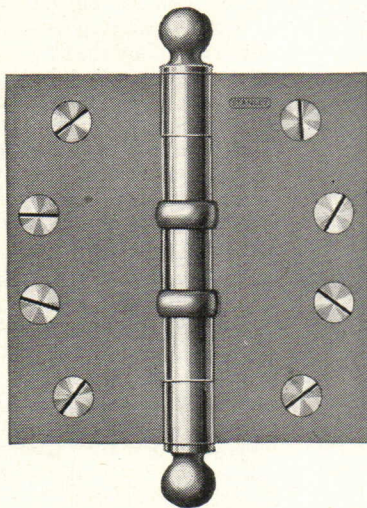
Dean Hudnut, of Harvard's Graduate School of Design, is a witty and persuasive writer as well as an able educator. His new book is a series of essays on architecture, planning, architectural education, and other related subjects. Some of the pieces have appeared as magazine articles, but that should not deter anyone from reading them again as parts in the whole fabric of his argument for beautiful buildings in our time.

This reviewer thought he was tired of books on the general subject of architecture—particularly those that have one part of the volume entitled, "On Traditional and Modern Architecture"—but he found that Hudnut's approach is so winning, and the many points so entertainingly presented, that the whole matter seems fresh.

There are quotable lines on every page. In one place Dean Hudnut explains the full meaning of the word "beauty" by recalling a conversation between an intern and a nurse, heard as the author was recovering from an operation: "... Sweetheart, you should have seen the old master open him up. My God, it was beautiful." In another he emphasizes the need for political furthering of planners' plans by noting that "Nero's method of slum clearance was impetuous but very thorough... It was some real estate man who in-

(Continued on page 112)

True then...



and just as true today!

Reproduction of a Stanley advertisement run 45 years ago in "Locks and Builders Hardware, A Handbook for Architects".

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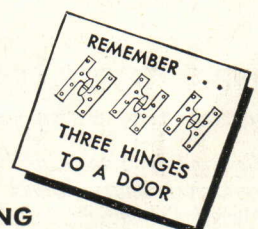
out the world. As a matter of fact, hinges installed almost half a century ago, are still in service.

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Reviews

(Continued from page 110)

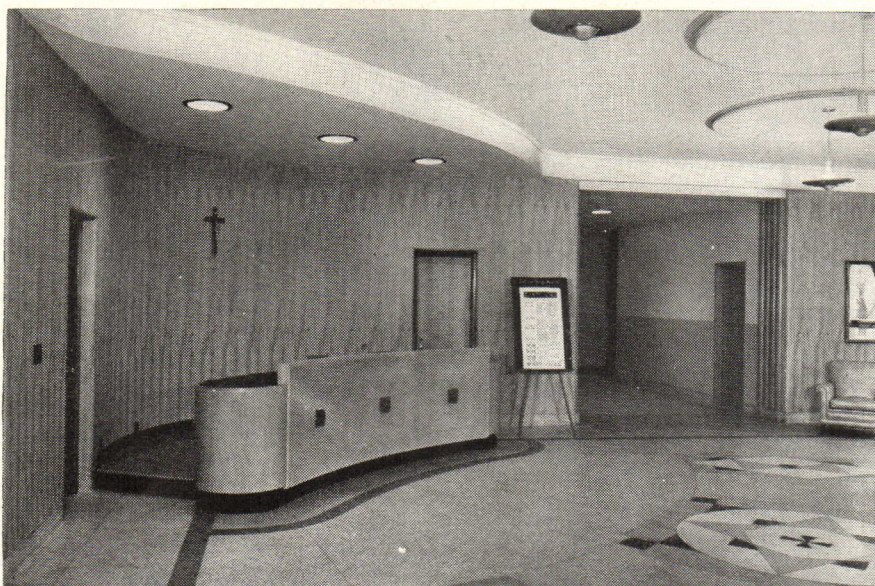
vented that story about the fiddle." Elsewhere he describes "... an architect, successful in the practice of church building, who can develop a dozen pictures from a plan common to them all ... I am constantly surprised by the number of styles in which he can be insincere."

It would be giving the book false

value to say that it raises new points about the practice of architecture; it does a very important job most ably in discussing, in a fresh and charming manner, the issues that worry a conscientious practitioner. Professionals should enjoy it themselves and will want to pass it on to good friends and important clients.

T.H.C.

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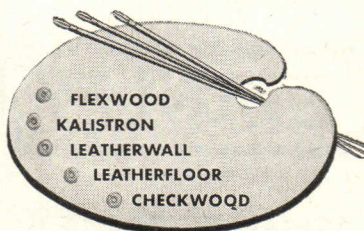
The example above shows Figured Aspen Flexwood in the Sisters of Charity Hospital, Buffalo, N.Y. George Dietel was the architect, and the installation was made by Hoddick and Taylor.

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PRODUCTS

(Continued from page 88)

recent product bulletins

- To provide improved, coordinated elevator service, and to control costs and deliveries of complete installation, Otis Elevator Company has announced that it will manufacture its own elevator doors. This is the initial entry of any American elevator manufacturer into this field.

- A new low-cost horizontal circulator has been developed by the Taco Heater, Inc., for modern radiant heating systems. Known as the Taco HC, its sizes are 1", 1 1/4", and 1 1/2" (1" size available with 3/4" flanges). Capacities range from 7.5 foot head for all sizes at zero GPM to 42 GPM at zero head for the 1", 43 GPM at zero head for the 1 1/4", and 44 GPM at zero head for the 1 1/2".

- The Y200 Powerpile Control System recently perfected by the Minneapolis-Honeywell Regulator Company, operates on gas burners without the use of outside electricity. Well suited for automatic control of gas-fired units in rural areas, the system consists of three parts: a powerpile which contains a pilot burner; a diaphragm valve employing a self-contained polarized relay to open and close the gas flow to the burner, and a thermostat that uses electrical energy supplied directly by the powerpile unit.

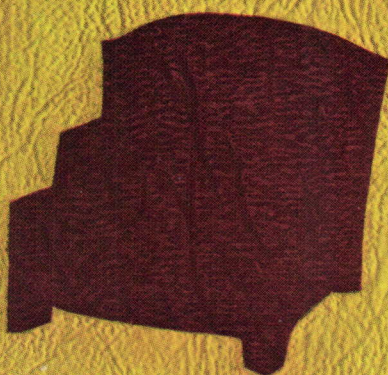
- Unsightly shadows and protrusions on commercial ceilings may be eliminated by installing flush-type sprinkler heads marketed by the Viking Sprinkler Corporation, Hastings, Michigan. The heads, which may be easily employed in new or existing structures, are fully approved by the Underwriters' Laboratories and Factory Mutual Laboratories. No part of the head projects below the ceiling except the fusible link; deflector and suspension mechanisms are completely concealed. All visible surfaces are of satin chrome.

notice

In the interests of modular coordination, the following notice is published at the request of the American Standard Association.

Dimensional Coordination as carried on under the A62 project of the American Standard Association and sponsored by the American Institute of Architects and the Producers' Council, requires information as to how many firms have converted wholly or in part to modular sizes for their products. For the benefit of the project, we are now asking if all firms who have converted will file their names as soon as possible with the secretary of the project whose name and address follow.

*W. H. Deacy, Sr., Secretary
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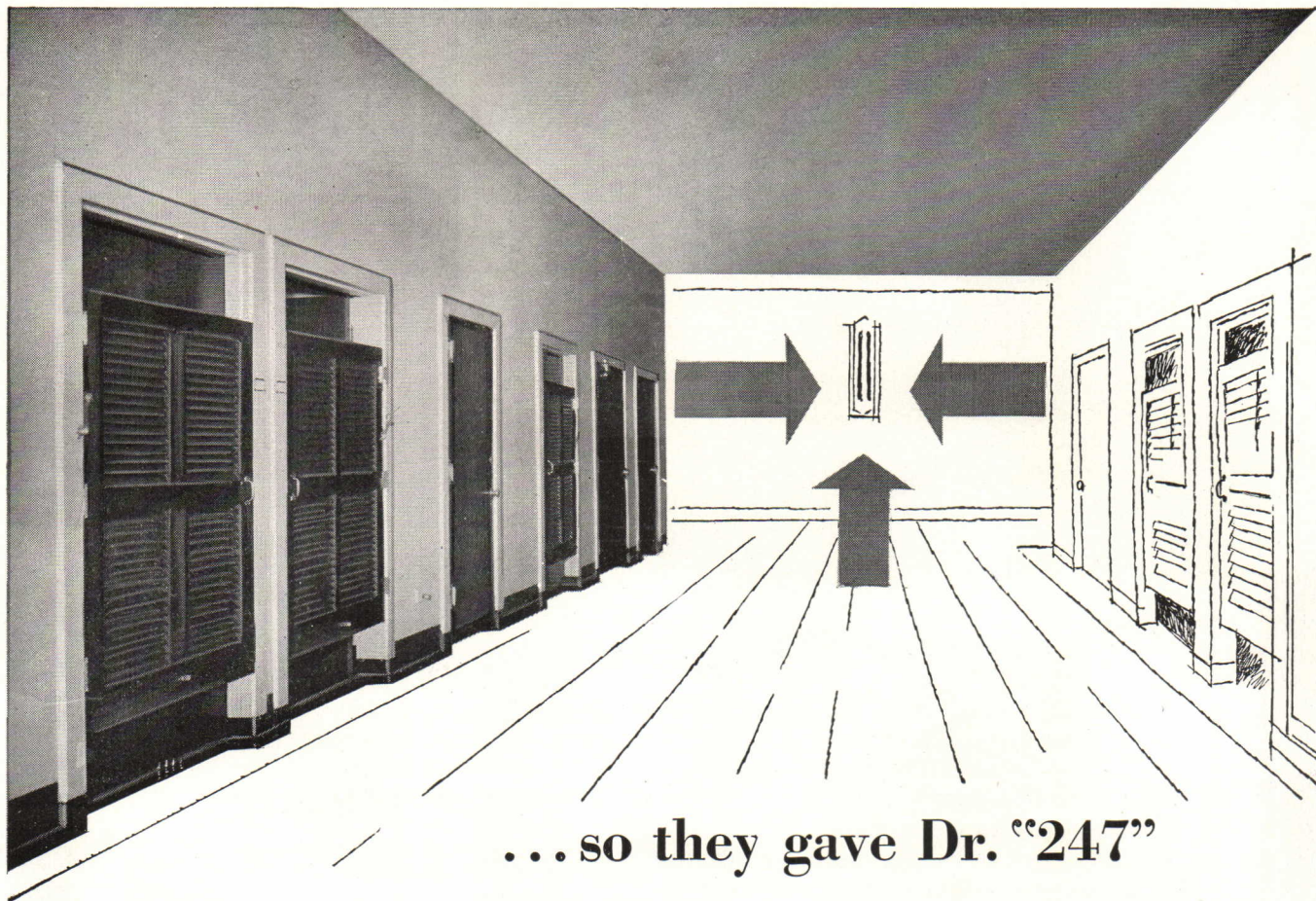
If this "outline" sets you thinking about upholstery materials for hotel, restaurant, cafeteria, home, or any other furniture, remember that the complete story is yours for the asking. We'll be glad to give you all the technical details about supported and unsupported upholstery materials—as well as tile and continuous flooring—made with VINYLITE Brand Resins. Ask for our list of representative suppliers. Write Department GX-58.

Data Courtesy Weymouth Art Leather Co.

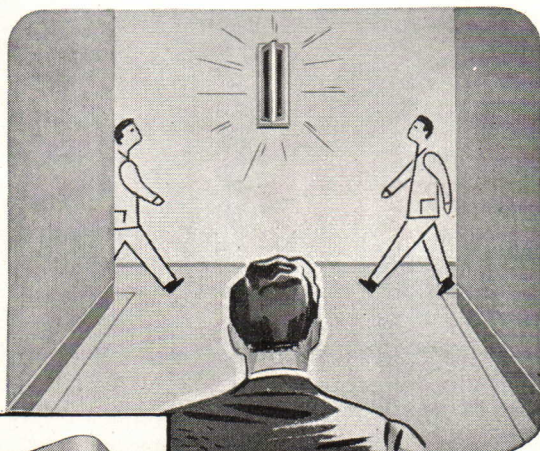


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...so they gave Dr. "247"
three-way vision...



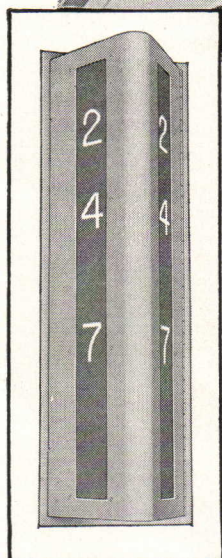
NEW PAGING ANNUNCIATOR INCREASES EFFICIENCY...

If you can see the annunciator, you can see the signals . . . it's as simple as that with the new Edwards' inverted "V" design. Flashing numerals can be seen front, left and right. At all times, visibility is clean and sharp, without any haze or cross-lighting.

Write today for free specifications bulletin on all Edwards Hospital Signal Systems.

Edwards Co. Inc., Norwalk, Conn.

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He wasn't "blind as a bat"—as the switch-board operators suggested. And he didn't miss his paging calls on purpose.

It was just that Dr. 247 never seemed to be *on top* of the annunciator when his number was flashed. And how else could he be expected to see his number on one of those "ornamental," low-visibility affairs?

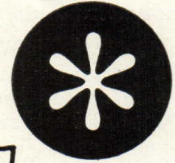
But everyone's happy now. They've installed new Edwards Double-Face Type Annunciators... and 247 hasn't missed a call since! How can he—when this simple, clever inverted "v" design affords clear viewing from three *different directions*?

A small detail, perhaps—but typical of the Edwards product refinements that help architects specify more efficient hospital equipment.



Signal Systems

*Surgeons' Scrub-Up Sinks of Crane Duraclay,
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Bath, San Gabriel
Valley Hospital*

*Duraclay Wash-Up
Sinks, San Gabriel
Valley Hospital*



San Gabriel Valley Hospital is an outstanding example of the modern small hospital. Here, as for the largest institutions, Crane supplies not only a full line of Duraclay items, but also the washroom fixtures, plus a vast array of specialized plumbing equipment.

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

APPOINTMENTS

ALFRED ROTH of Zurich, Switzerland, will join the faculty for the coming year as critic in senior design, School of Architecture, Washington University, St. Louis, Mo.

WILLIAM W. WURSTER, dean of Massachusetts Institute of Technology, has been named chairman of the National Capital Park and Planning Commission

in Washington. He will succeed Maj. Gen. U. S. Grant, III, who is retiring.

WILLIAM E. DUNLAP has been appointed instructor in architecture at Illinois Institute of Technology.

GEORGE HUBER has been appointed manager of Jellett's Interiors, Lafayette, Calif. E. MICHAEL COSTELLO and HELEN BERGER, interior designers, have also joined the staff.

WALTER SANDERS, of Sanders & Malsin Architects, New York, has been appointed professor of architecture at University of Michigan. He will establish a branch office of the firm at Arbor, and the New York office will continue under the direction of Arthur Malsin and Don Reiman.

EXPOSITIONS

THE SOUTHWEST AIR CONDITIONING EXPOSITION OF THE INTERNATIONAL HEATING AND VENTILATING EXPOSITION will be held at State Fair Park in Dallas, Tex., from January 23 to 27, 1950. During the same period, the 56th annual meeting of the American Society of Heating and Ventilating Engineers will convene, and will sponsor the Exposition. Complete details are available from the Southwest Air Conditioning Exposition's permanent headquarters, 480 Lexington Ave., New York 17, N. Y.

THE PLANT MAINTENANCE SHOW AND EXPOSITION, first of its kind devoted to installation, operation, and maintenance of equipment and services in factories, warehouses, and other plants, will be held in Cleveland, Ohio, from January 16 to 19, 1950. Concurrently with the show, a four-day conference on plant maintenance methods will be held, with L. C. Morrow, editor of *Factory Management and Maintenance*, as general chairman.

Advance registration cards may be obtained from the management of the exposition, Clapp & Poliak, Inc., 300 Fifth Ave., New York 1, N. Y.

NEW PRACTICES, PARTNERSHIPS

MILES EDWARD FALLS, Architect, 220 Cedar Springs Ave., Dallas, Tex.

HOLLIS JOHNSTON, Architect, 603-6 Concord Bldg., Portland 4, Ore.

EMIL J. SZENDY, Architect, 690 Tenth Arcade, 401 Euclid Ave., Cleveland 1, Ohio.

JOHN T. SCHNEIDER, Architect, associated with BURNS, BEAR & MCNEIL Architects, 2940 S.E. Belmont, Portland 15, Ore.

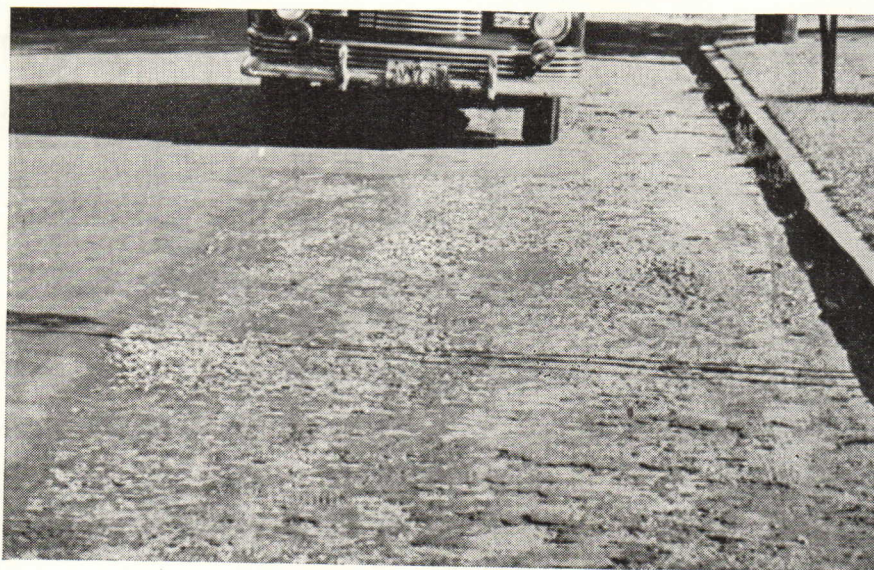
ARNOLD FLATEN, GERHARD PETERSON, EDWARD SOVIK, JR. (NORTHFIELD ARCHITECTS, INC.), 1406 Forest Ave., Northfield, Minn.

ROBERT J. BENNETT, Architect, Monongahela Bldg., Monongahela, W. Va.

GEORGE HOWARD ENGBRETSON, Architect, 1912 Minor Ave., Seattle 1, Wash.

GROVER W. DIMOND, JR., DONALD S. HAARSTICK, LOUIS R. LUNDGREN (DIMOND, HAARSTICK & LUNDGREN, Architects), 416 Endicott on Fourth, St. Paul 1, Minn.

ALWIN S. KOLM, Architect, 207-209 Dutch Block Bldg., 222 River Ave., Holland, Mich.



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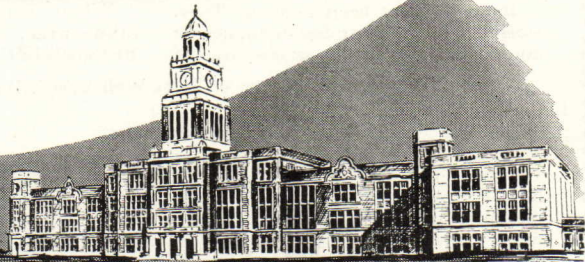
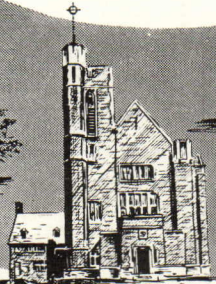
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out of school

By CARL FEISS



The Royal Architectural Institute of Canada recently publicly condemned radio, potentially "the greatest and most universal instrument of education," as being now only an entertainment outlet for mere sales propaganda

"tagged onto nonsense or pseudo-romantic drivel." The attack on radio as it is, led by A. J. Hazelgrove, R.A.I.C., president, urged that the cultural leaders of Canada, rather than advertisers, have control of program policy. More

important than the statement issued by the R.A.I.C. is the fact that the body felt itself valid to express a cultural need. This cultural need was not in the highly specialized field of architecture but in a universal area of educational lag. My compliments to the courageous Canadian architects!

There are many times when, through determined action, we can all of shape our own or others' future. Every building we build is an instrument of intent and throughout its life it exerts a continuing influence on the user. A building, when willfully designed, becomes an instrument of policy. With its walls lives are directed, actions molded, and health affected. But it is not only within these walls, but through these walls, doors, windows, and the multitude of structural elements that such action takes place. The architect has made it his practice to allow his building to speak for his character and interest. If he is timid it is a timid building. If he has courage the building reflects that courage in him.

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Designer: John Mueller



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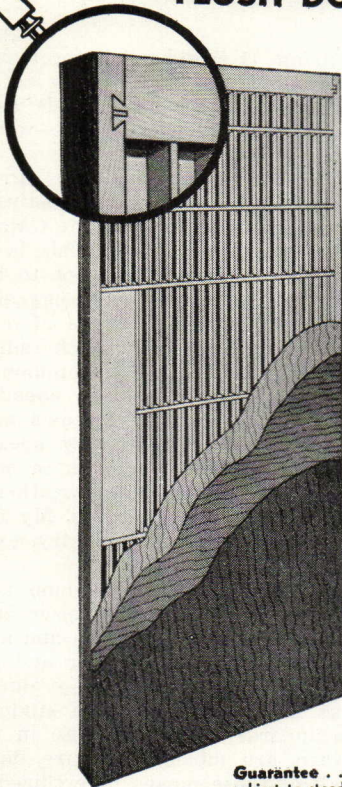
I raise the question now—shall our buildings be our only means of expression—our only public statement? Shall the architect's determined action be directed only through the impersonality of space, and materials, and design, or shall he move with all the media of expression which are available to him in this day of limitless means of communication?

The Canadian architects could not have attacked the fatuities of radio by the design of their buildings. They could not have used the radio either. Their main recourse, in this case, was through a brief to the Masses Commission on Arts and Science Development of Canada—a statement which when released through the press had widespread circulation in the Dominion.

Now *should* the Canadian architects have gone afield to discuss another means of expression—another business altogether? What concern was it of the architects anyway? What do they know about running a radio program? Why not let radio mend its own fences? Clean its own house? Would you as an architect like to have radio criticize the proportion of your Roman Doric columns? You won't even let P/A do that. No, you won't take such a chance and you certainly don't want to take a chance on attacking adver-

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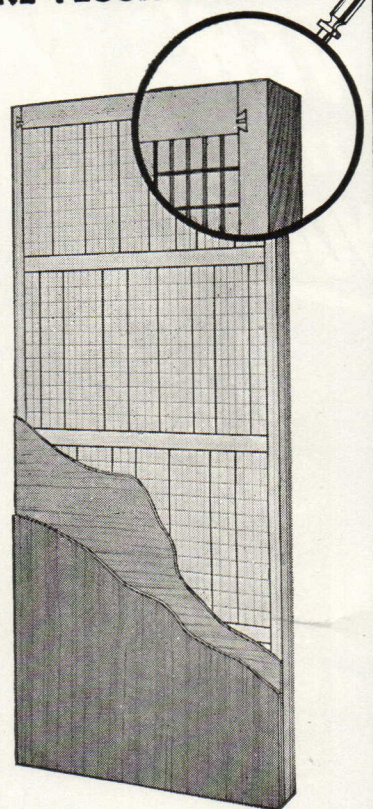
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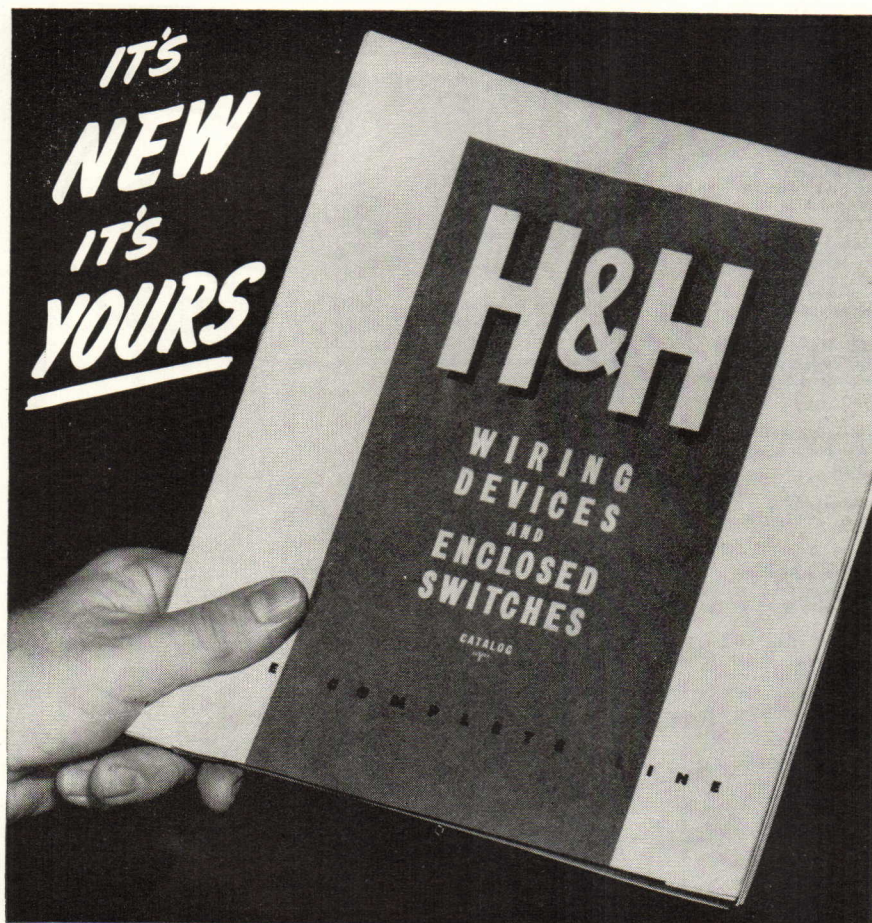


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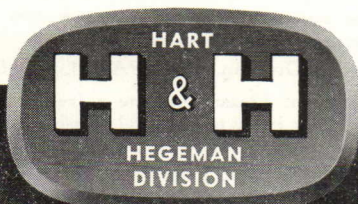
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THE ARROW-HART & HEGEMAN ELECTRIC COMPANY
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out of school

(Continued from page 118)

tising. It would not be professional. In the long run it is safer to take an American Vignola attitude as far as the public concern goes—well modulated (pun).

Don't misinterpret me again, dear reader. I am not suggesting for a moment that you buy the *Chicago Tribune* to attack radio. This is a philosophical discussion and not to be taken literally. I am not even suggesting that you follow the footsteps of our Canadian confrères and attack radio at all. If you were to ask my opinion I would certainly say, "Yes, go ahead and do it. It deserves it!" My own method is direct enough and very specific. We never turn the radio on in our house except for symphonies, weather reports and Churchill's speeches. My family is of no value to the industry, except for an occasional tube.

The crux of this sermon is that if there is a public issue deserving attention, then we as citizens and architects should study the matter and give our countrymen the benefit of our opinion as mature and qualified students. The standards of public taste in architecture, art, music, literature, dance, and all of those means of civilized expression which help to distinguish us from other vertebrates, are important to all of us. It is a constant tug of war between Chartres and the Juke Box. The latter is stronger at the moment, and the cathedral towers are trembling. We light Niagara Falls with cerise and veridian and cheapen its grandeur with a rheostat.

Where does the American architect stand on matters of public taste? Do his buildings demonstrate his position? If they are good, are they strong enough to sway taste in the right direction? Are they in the right direction in the first place? Are American architects building as much in good taste and design as in bad? Within our own profession we are so uncritical and so afraid of self-appraisal that we have no body of opinion of our own. Our journals and periodicals studiously avoid stepping on toes, and all the captions to illustrations are worded with judicious caution. The public would find it hard to detect just what the architectural world believes in, from a review of published periodical material; and most architectural books are too specialized for public appeal. "Mr. Blandings' Dream House" in the movies was an effeminate and eclectic averaging-off of the rash of emasculated Colonial Style boxes which are poxing the American countryside. A.I.A. is carefully attached to the ones being actually built with the "Blandings" trademark.

(Continued on page 122)

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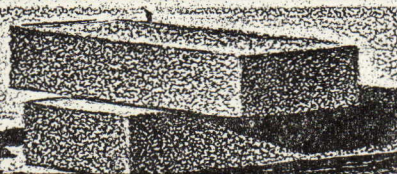
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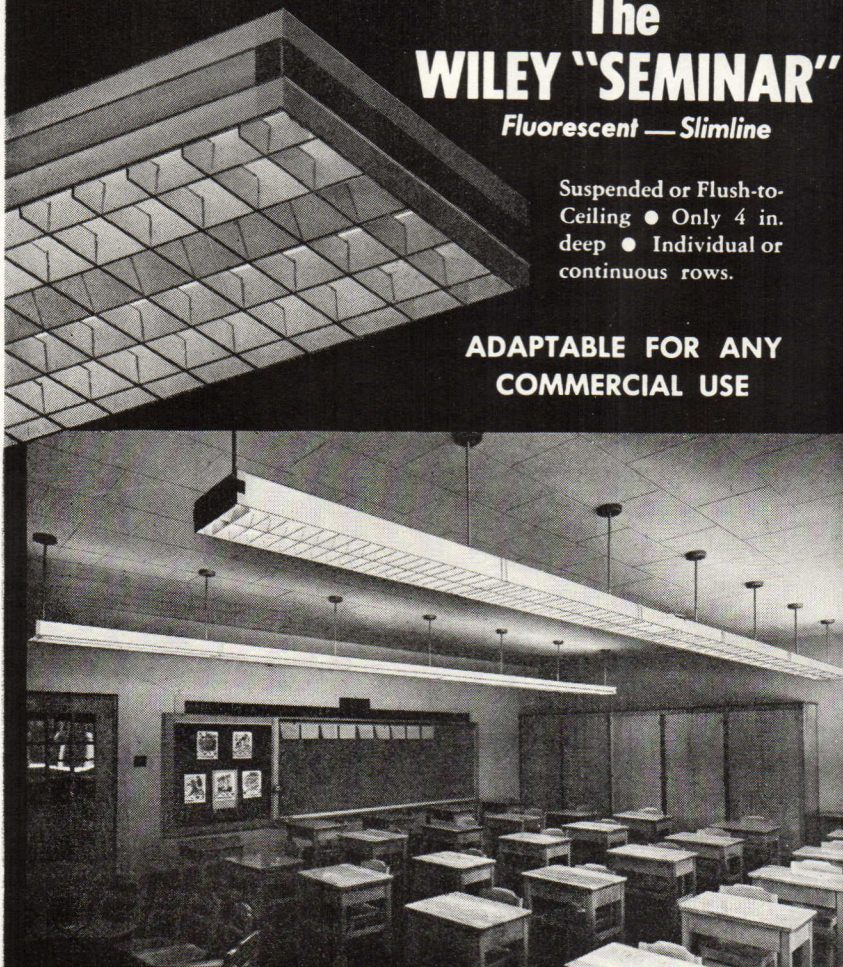


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out of school

(Continued from page 120)

No, I'm afraid that our reliance on our buildings as a medium of communication is misplaced. As instruments of intent they are too often open to misinterpretation and, even worse, to imitation.

A few rawboned men speak for themselves in the timid silence that is architecture. F. L. Wright frequently, Mumford occasionally. The outer-fringe men—those in the outermost galaxies of stars—whirl in nebulae of their own. They are to be found in the colleges, for the most part. Teaching guarantees steady income when the American taste, confirmed by the majority of American architects welcoming neither change nor intellectual and cultural advance, can offer the nonconformist no security. But not even from within the secluded security of the cloister nor from behind the much-vaunted shield of academic freedom comes the statement of objectives for which we hope. Recently Princeton and Michigan both wisely tried their hand at changing the picture, by drawing the outer nebulae into conjunction for a moment. To date no astronomical phenomena have been observed! Perhaps several light years will have to pass before celestial sparks appear.

But these are esoteric matters still within the confines of our profession. They did not bother our Canadian friends who, having determined on the public issue which appeared objectionable to them, made for it with a club. I am certain that the Canadian architects were no further along in their own internal affairs than we, but they saw still further barriers to sound cultural advance being erected before their eyes; and they felt they could not wait for either the time for full intellectual maturity to develop or for attacks by others. They gained public stature thereby. They used words as instruments of intent, not buildings.

I am hoping that radio in return will attack the Canadian architects. Why? Certainly not because I wish other than well to the Canadian architects. No, it is because among other benefits of a mutual exchange, in the best duelling sense, may come an outside evaluation of architects and architecture of a nature which, as I have said above, we do not make for ourselves. We should welcome such action.

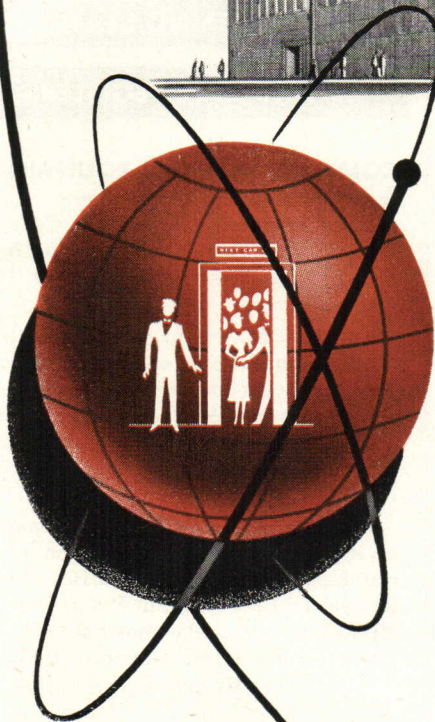
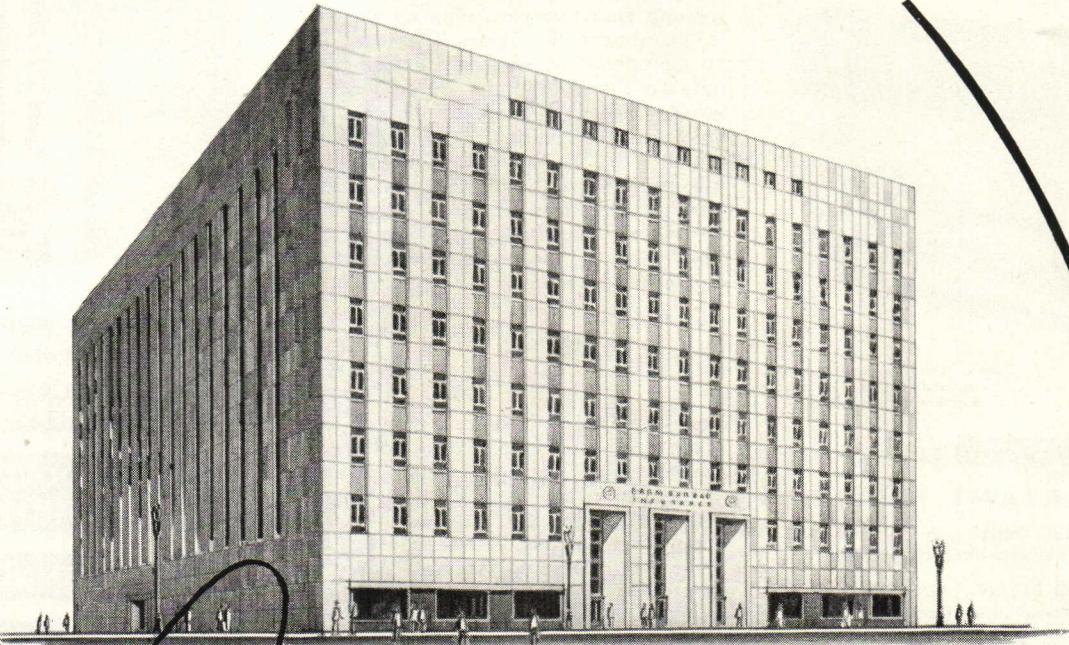
I have noticed that Corbusier, Wright, and other leaders in architecture, despite the brilliance of their work, do not count on their architecture to do all the speaking for them. Yet theirs is often architecture capable of much self-explanation. In very much the same way, a good housing project located in

(Continued on page 124)

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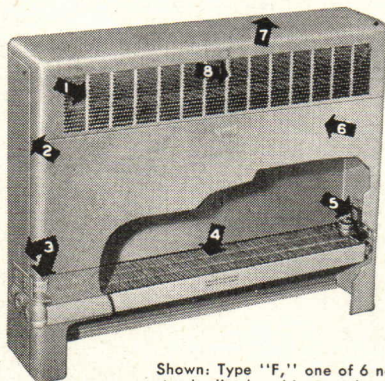


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out of school

(Continued from page 122)

a festering slum tells a social and economic story of intense dramatic interest. There is no question that up to a point certain buildings and building types speak very well for their purpose, without that purpose being emblazoned in neon over the door. There is also no question that as many buildings do not. To the public, the Columbia University Library, the National Gallery of Art, in Washington, and the Richmond, Va., Railway Station would be much the same building. They remain poached eggs (on columns) with rather an elderly odor. We can debate the importance of the self-revelation of architecture in some other issue.

The final point in this essay, if any point has been made, is that to initiate the equivalent of the Canadian attempt to rectify a national issue, we must feel strongly about an issue. To feel strongly we must know about it and believe in the importance of ourselves as purveyors of opinion and fomentors of action. There are certainly many fields besides the entertainment industry which affect us directly, both as men and architects. Should we name some of the obvious ones?

(1.) What about weak planning and zoning and slums? Where are the architects?

(2.) What about cheap subdivisions and F.H.A. "standards?" Doesn't anybody care?

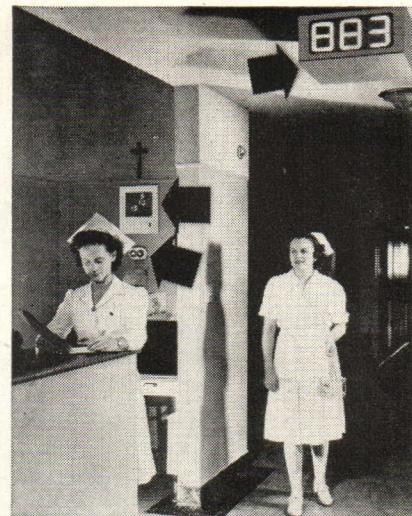
(3.) What about automobiles and their heavy tin diapers? Or "streamlined" stoves and refrigerators and radios? The Juke Box?

(4.) The whole field of industrial design is involved, and architects have to specify tons and tons of badly designed junk. Doesn't anybody care?

(5.) What about education? Are we satisfied with the products of our schools?

I could go on naming things to do and think about, but this is enough. So now we come to that question which you will address to me: I have been avoiding it until now. You will ask, "How can I take time off to do all this?" (We are so busy in the office and back in our work; "why should I take on something else?" An architect has enough to do these days what with fluctuating prices, and labor troubles, and legal problems, and all those damned tax and social security forms; and there are still material shortages; and "I can't get good draftsmen, what with the poor training they're getting in the schools—too much design and not enough working drawings—and besides they don't stick to their job like they used to and don't know the value of

(Continued on page 126)



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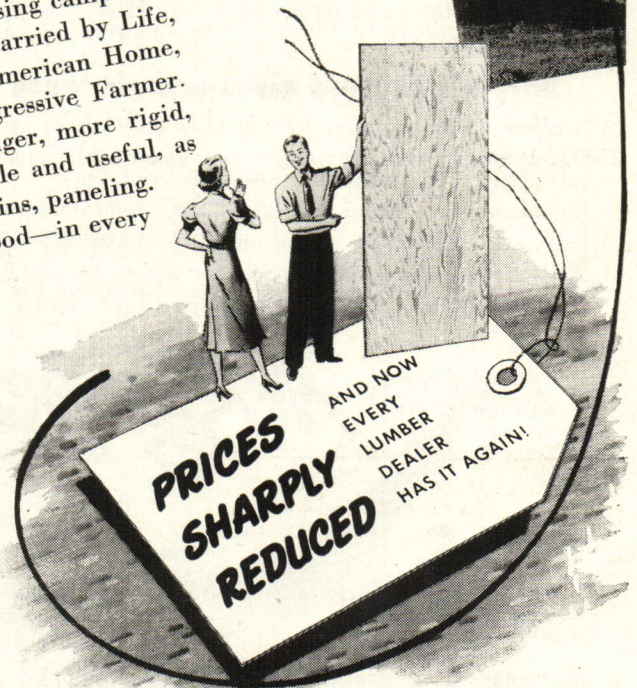


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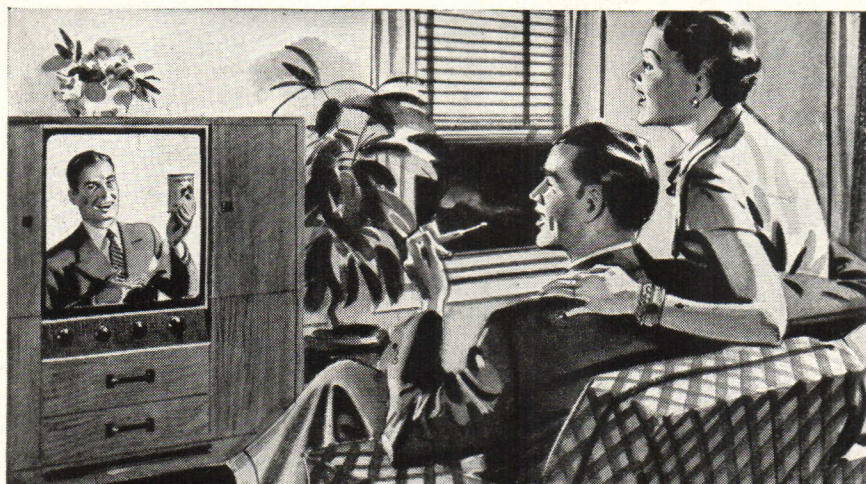
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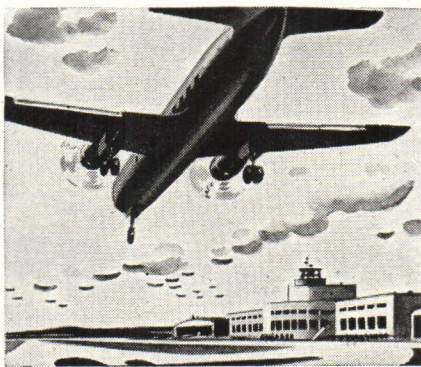
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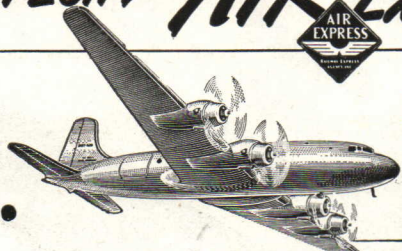
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out of school

(Continued from page 124)

money;" and "I can't get heated up about the lousy radio industry when I can't even find time to read P/A;" and "I've a stack of magazines on the desk a mile high. . . . I've got a family and have to make a living—how can I get involved in something which is going to take time off at the office?"

This is a busy world but remarkably many people engage in extracurricular activities and find that their lives are broadened, and that both direct and indirect compensations result. Even architects seem to find time to do what they really want to do—except retire young. The growth of you and your profession depends on the cultural growth of your community. If you are not interested in this cultural growth you can continue in office hack work and get buried with the proper honors and be relegated to a decent oblivion. God rest your soul! You will have already been dead a long time.

NOTICES

WANT YOUR DRAWING?

Virtually all of the entries in the recent P/A—Jay-Cee Architectural Competition (see September 1949 P/A) have now been returned to those who submitted them. But the Post Office reports that several could not be delivered at the return addresses given us. We are now holding the drawings of *Ralph W. Davis, Hal Esten and John van der Meulen, Theresa Fary, Serge Klein, J. David McVoy, and Daniel E. Merrill*. These competitors are requested to contact Miss Eileen Hornstein, PROGRESSIVE ARCHITECTURE, 330 W. 42nd St., New York 18, N. Y., to arrange for prompt return of their entries.

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STONE & THOMPSON, Architects, 609 So. Jefferson St., Roanoke, Va.

MORTON T. IRONMONGER, Architect, 1229 E. Las Olas Blvd., Fort Lauderdale, Fla.

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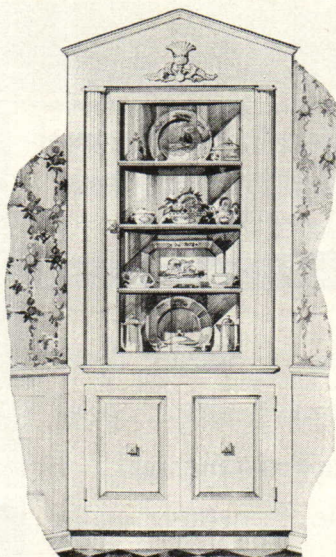
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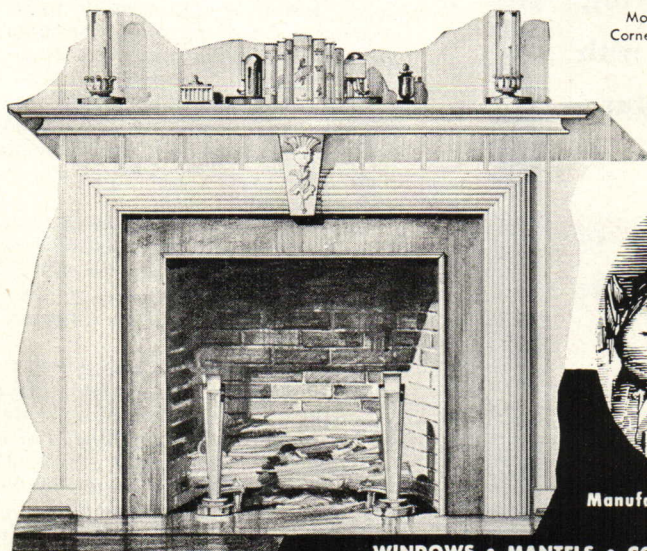


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it's the law

By BERNARD TOMSON



This column previously pointed out that professional liability insurance policies should be carefully examined (January 1949, P/A). The previous column discussed in detail two policies, "A" and

"B." Policy "A," it was pointed out, was accompanied by a brochure which implied an extent of coverage not justified by the language of the policy itself. With respect to this policy, the article

stated:

"It is important to the practicing architect in considering the purchase of professional liability insurance that he know exactly what he is buying, and the extent of his protection. There should be no reliance upon the literature which is distributed to sell the various types of policies offered, although such literature may serve to emphasize the need and desirability of professional liability insurance. The only safe and sensible procedure is to study the policy itself to determine its exact coverage. It may well be that more than one type of policy may have to be purchased in order to afford the architect the extent of protection desired."

The January column also stated:

"An exchange of correspondence between the insurance company writing the policy, the broker offering it, and the writer, will serve either to reconcile the apparent discrepancies between the brochure and the policy itself, or to indicate a very necessary change in the statements in the brochure or the language of the policy. After the conclusion of such correspondence, a report will be made in this column."

The company involved is the General Accident, Fire and Life Assurance Corporation Ltd. The insurance was originally offered with considerable publicity, and, to quote the original brochure: "approved and endorsed by the Board of Directors of the American Institute of Architects."

Extended and sometimes pointed correspondence between the writer and the insurance company totalling over twenty letters, finally resulted in an indication on the part of the general counsel for the insurance company involved, that this writer's version of the coverage was correct, that the matter had been considered by the company, and that the company had determined to discontinue the writing of this type of insurance.

Since then the A.I.A. has persuaded the company to continue the policy, with coverage "the same as for the 1948 year originally sponsored by the Institute." Just what that coverage is remains obscure.

Under the circumstances it would be useful to review this column's investigation into the apparent discrepancies between the company's brochure and the language of the policy. (Note: Permission to publish the insurance company's correspondence has been withheld. Therefore, direct quotations from

(Continued on page 130)

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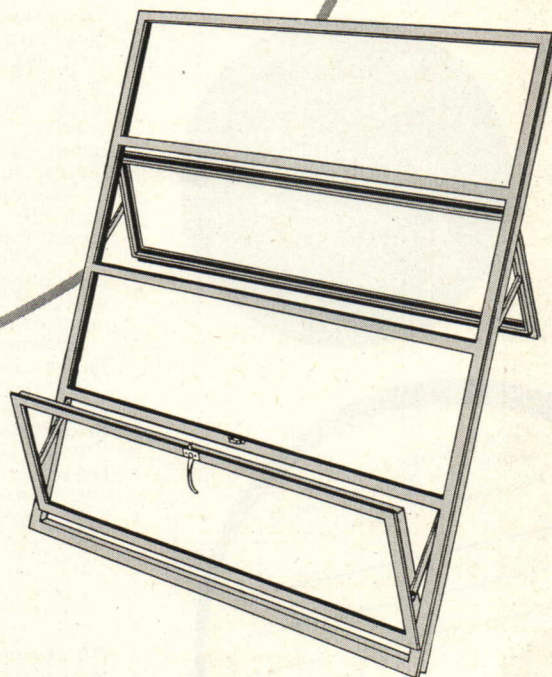
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it's the law

(Continued from page 128)

the company's letters will be avoided. Where required, the substance rather than the exact language will be given.)

A letter of inquiry was sent to the company on October 21, 1948, by the writer on behalf of a client, reading in part as follows:

"We would appreciate your informing us by return mail, if possible, whether the architect would be protected by your policy in all of the cases referred to in the brochure which accompanied the policy, or whether the policy is limited specifically to those cases where personal injury or property damage results from the negligent act, omission or error of the assured."

No answer having been received, on November 1, 1948, two additional letters were sent: one to the broker and one to the General Accident Insurance Corporation at the Washington address shown in the brochure.

In the meantime, the November A.I.A. bulletin reported that "more than 1500 institute members now have this insurance."

The November 1 letter was answered by both the company and the broker. Neither answer, however, was considered to have given a sufficiently definitive answer to the questions posed. Further correspondence resulted in the statement of the problem in a letter addressed to the company on November 15, 1948, requesting an answer to questions covering specific situations with an example of each given. The company was asked whether the policy covered these situations:

"1. Where the utility of a building is impaired (in the absence of physical injury such as collapsing walls) by an architect's negligence in supervising the construction resulting in a building different from the one desired.

"Example: A house is constructed with only one bathroom where two bathrooms were required under the plans.

"2. Where the esthetics of a building are impaired without affecting the utility of the same, due to an architect's negligence.

"Example: A variation in roof projection in the front of a building as compared with the other three sides, whereas according to the plans the roof projection was to be even on all sides.

"3. Where an owner suffers damage because of the negligent action of the architect in underestimating the cost of a proposed construction."

On December 3, 1948, we wrote noting that no reply had been received to the November 15 letter, and enclosing our communications to the broker and his reply dated November 29. On January

(Continued on page 132)



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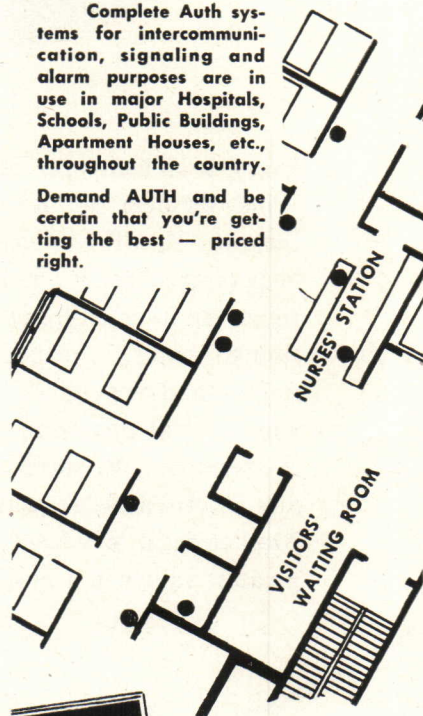
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it's the law

(Continued from page 130)

18, 1949, we wrote again requesting a reply to our letters of November 15 and December 3. On January 27, 1949, the company answered that the matter had been referred to the company's home office in Philadelphia. On January 28, 1949, no word having been received from the home office, a letter was addressed to the company in Philadelphia requesting answers to the specific questions asked in the previous correspondence. No further word having been received, on April 15, 1949, a letter was sent by registered mail to the home office.

On April 22 the same office finally replied that the language of the coverage had been amended and for that reason no answers to the questions previously set out were necessary. Since the amended language seemed on its face to cut down rather than enlarge the coverage of the policy, on April 25 a copy of a policy was requested. This was obtained on April 28. The policy as it then read made no change as to the coverage about which the specific questions had been asked, but further restricted the coverage.

On May 6, 1949, there was, therefore, dispatched to the company's attorney a letter reading:

"I am in receipt of a copy of the coverage of the Architects Professional Liability policy.

"I, however, would like your opinion as to whether this amended policy covers all of those situations referred to in the brochure put out by Adgate A. Lipscomb & Son, Inc. I further would like to have an answer to the questions which I have put in previous correspondence to both your Washington office and to you in relation to this policy.

"I would appreciate a prompt reply to this letter."

The answer to this letter on May 17, 1949, indicated that the company was considering whether this type of insurance would be continued. Until that problem was disposed of it was indicated that questions asked would not be answered.

Whereupon, on May 24, the following letter was sent:

"This is in reply to your letter of May 17, 1949.

"Although my original interest in your company's policy was on behalf of several clients of mine, my present interest is with respect to an article which I contemplate writing for an early issue of PROGRESSIVE ARCHITECTURE.

"It seems that you have no intention of supplying me with a direct answer to the questions which were put in my previous letters, a fact which I regret.

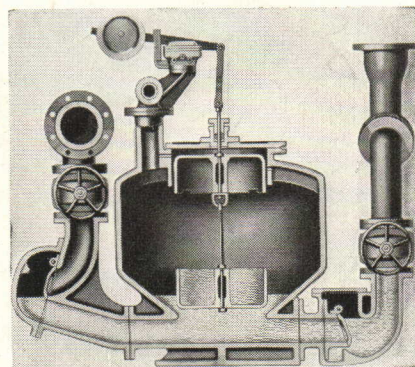
"However, since I intend to build up the article about the framework of the correspondence, I would like to urge

(Continued on page 134)

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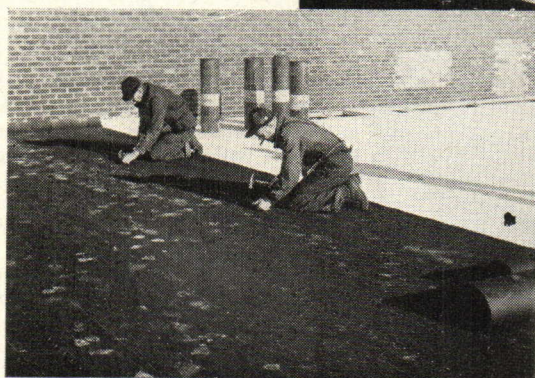
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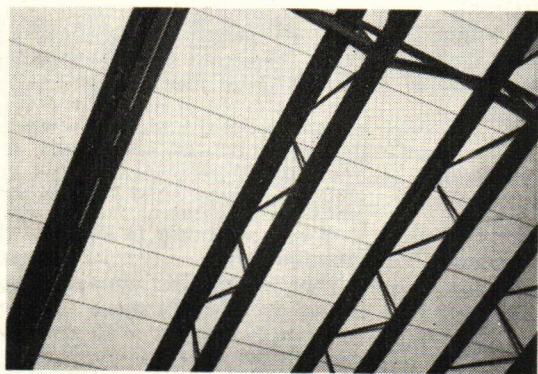
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(Continued from page 132)

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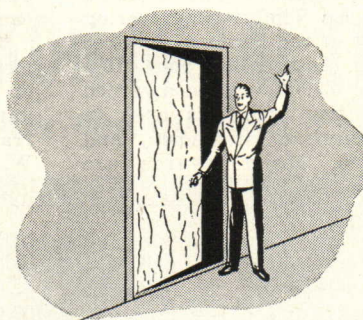
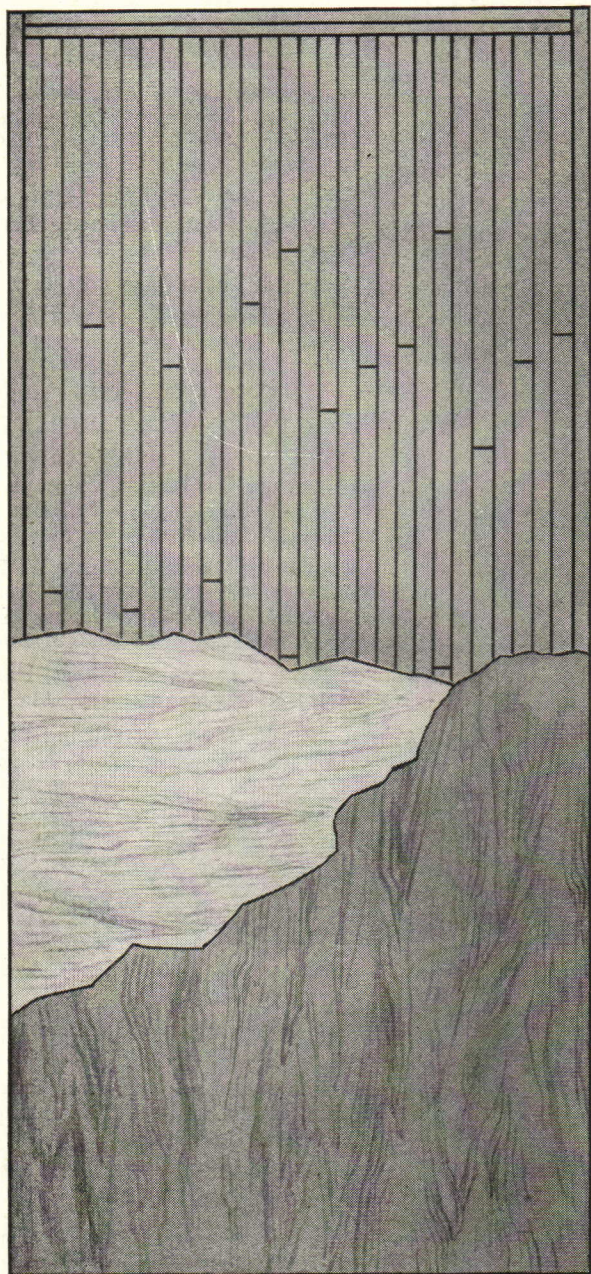


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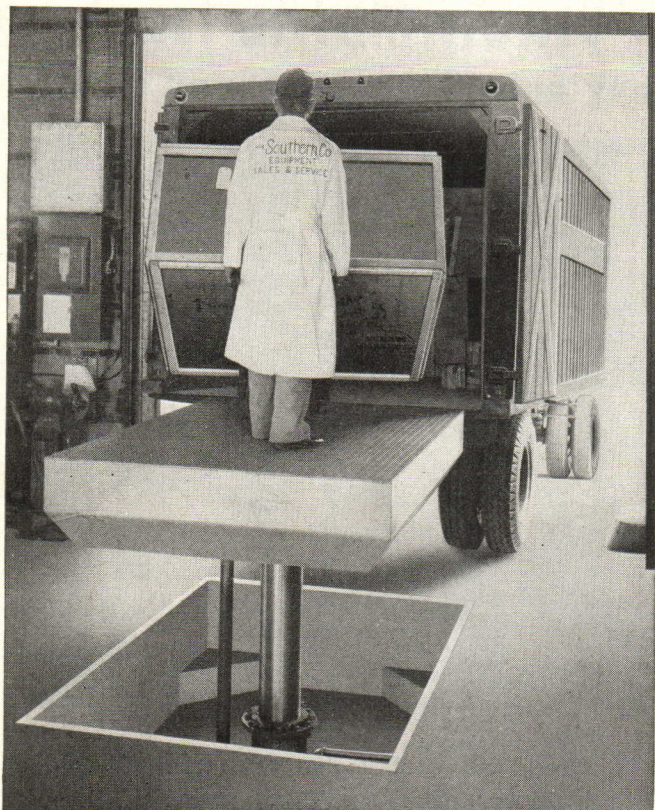
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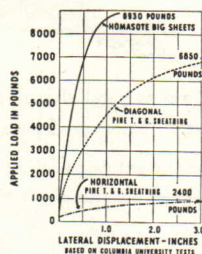
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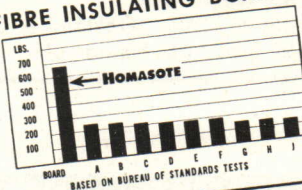


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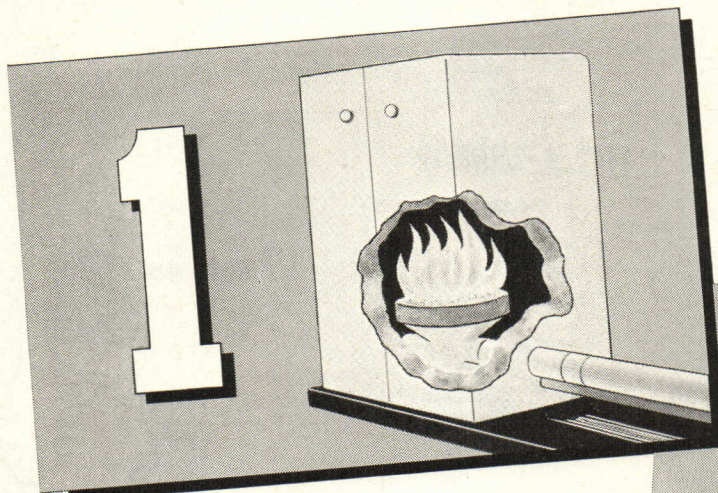


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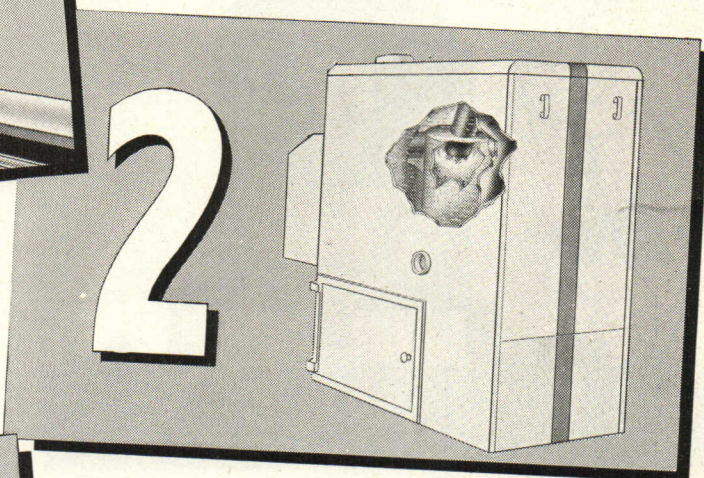
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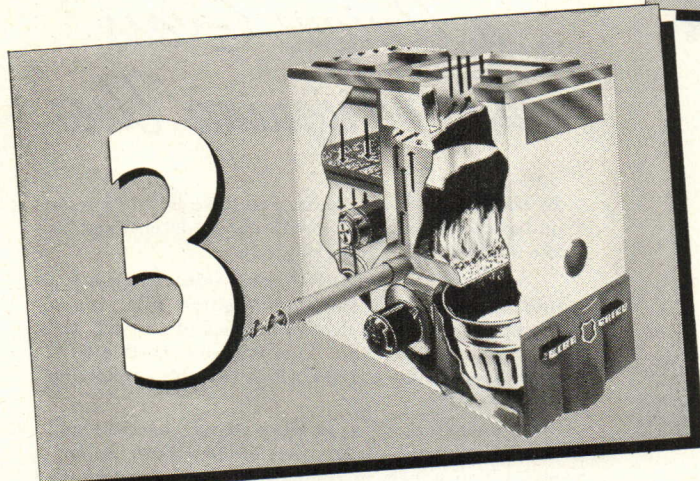


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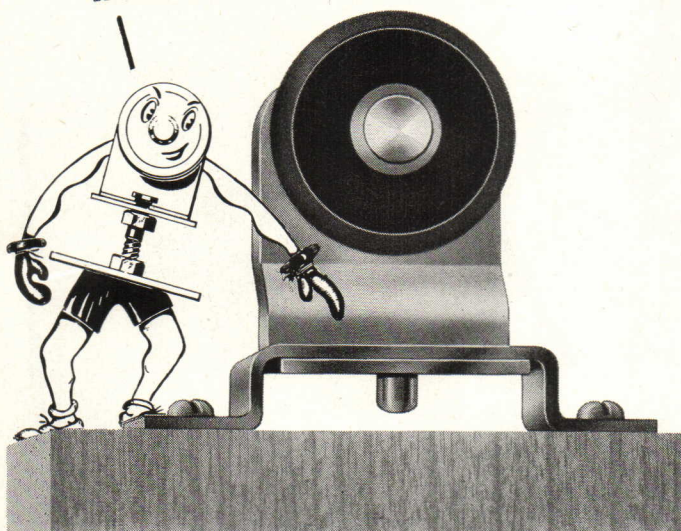
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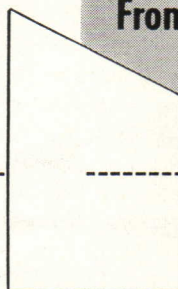
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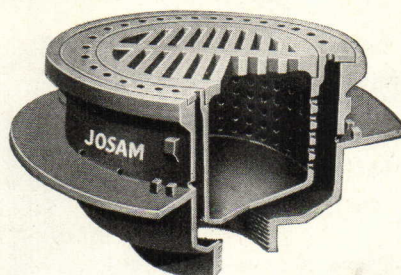
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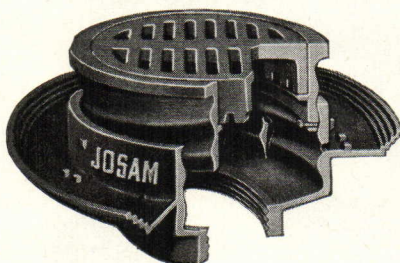
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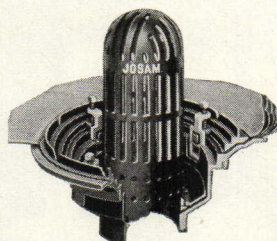
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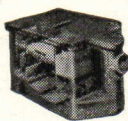
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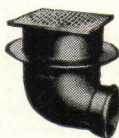


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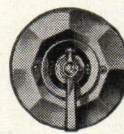
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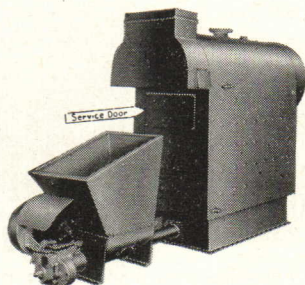
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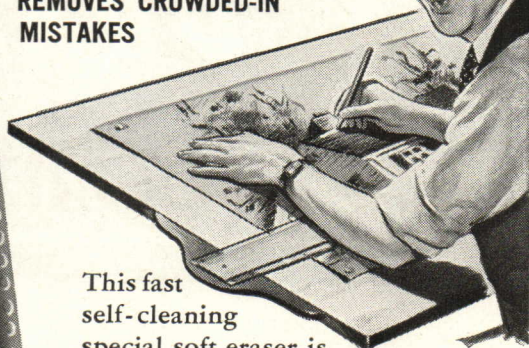


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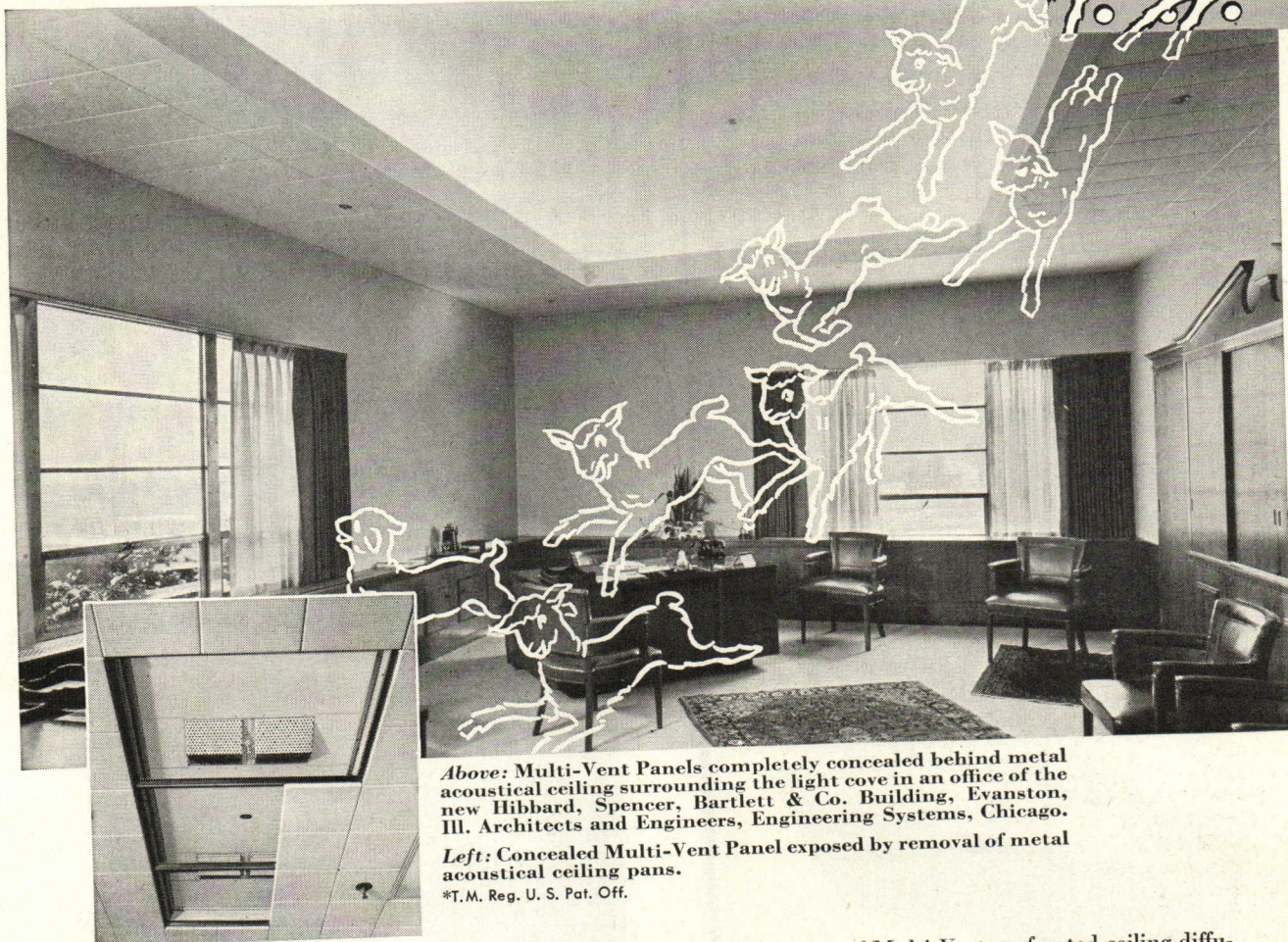
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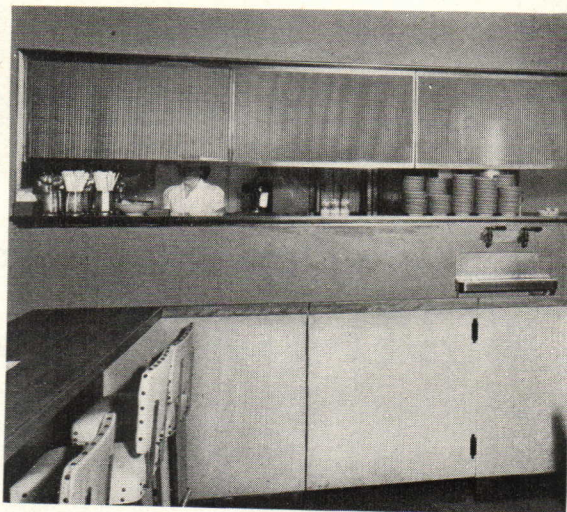
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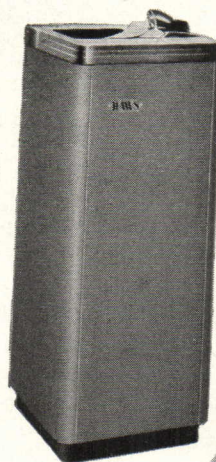
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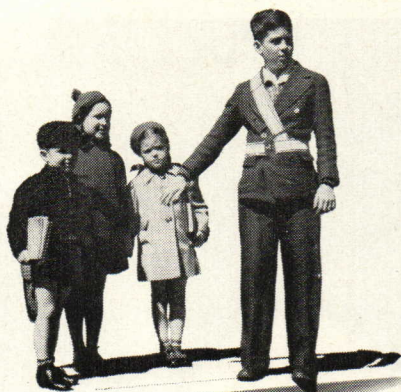
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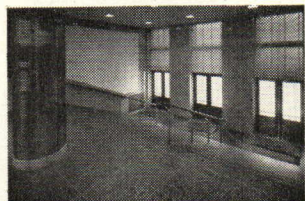
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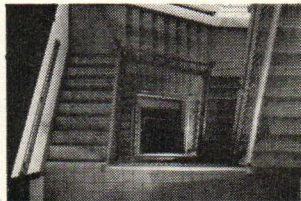
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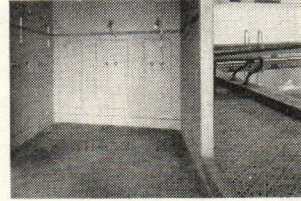
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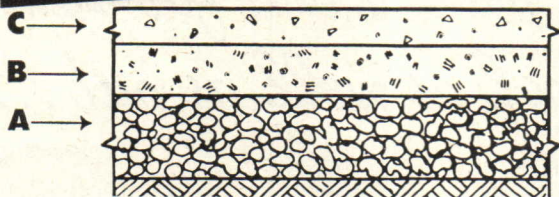
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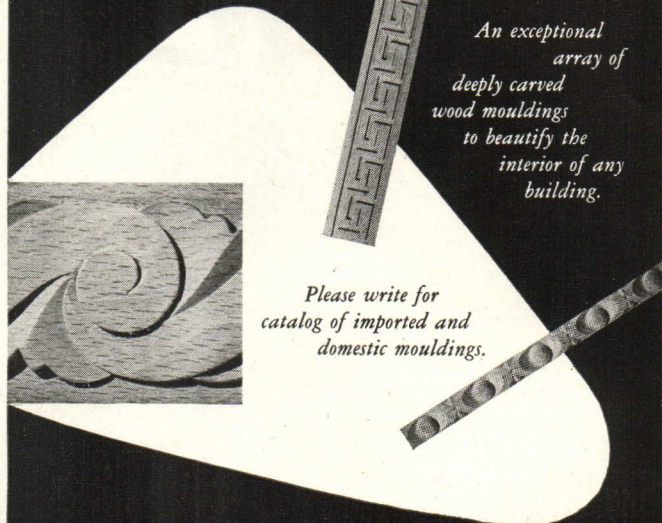
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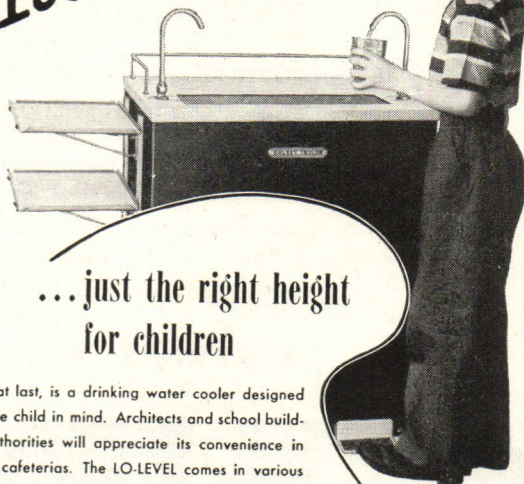
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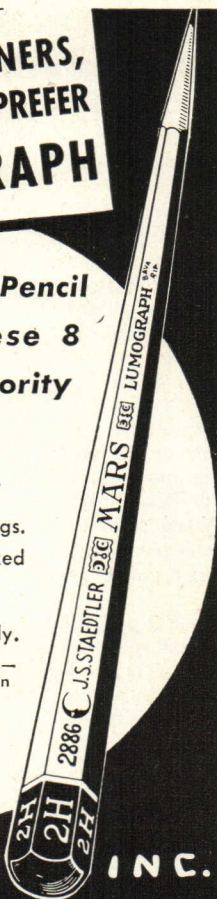
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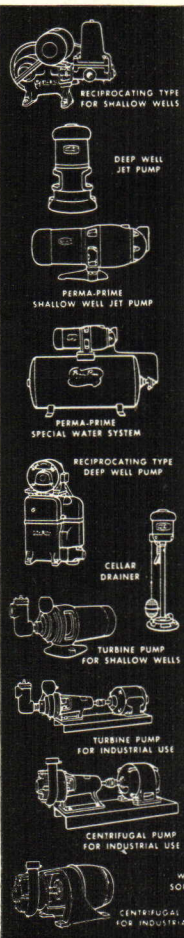


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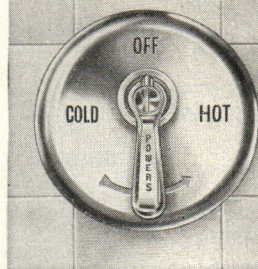
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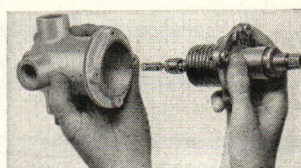
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NEW CONSTRUCTION ACTIVITY

Latest available figures indicate total new construction activity in July, after adjustment for seasonality, was 4 percent above the revised figure for June. The value of work put in place during the month was at an annual rate of \$19.8 billion. The annual rate for the first 7 months of 1949 was \$18.7 billion.

Privately-financed construction increased 7 percent on a seasonally adjusted basis because of the more-than-seasonal advance in residential building and public utility construction, together with the normal increase in private non-residential and farm construction.

Public construction declined 3 percent in July after adjustment for seasonal factors, largely as a result of a leveling off in school and hospital building. Construction of sewer and water facilities also failed to show the usual seasonal gain in July. Highway construction and conservation and development work advanced seasonally.

CONSTRUCTION MATERIALS PRODUCTION

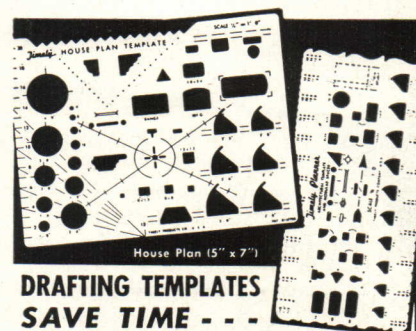
Physical production of construction materials during the first half of 1949, as measured by the Department of Commerce Monthly Composite Index of Production for Selected Construction Materials, dropped nearly 10 percent below output during the first half of 1948. Despite the decline in over-all production, however, a number of materials (nails, concrete reinforcing bars, fabricated structural steel, cement, vitrified clay sewer pipe and unglazed structural clay tile) were produced in greater volume in the 1949 half year period than in that of 1948. Several steel products (sheet, strip, plates, cast iron pressure pipe, pig iron, residential oil burners, etc.) not included in the Index were also produced in greater volume in the 1949 half year.

During June 1949, production of construction materials, according to the Index, was slightly higher than in May with 11 of the 20 materials included in the Index contributing to the over-all increase. Several of these materials, if produced at the recent low levels for any length of time, might have developed unbalanced supply-demand situations. The June output increases, which in almost all instances were substantial, probably reflect the sustained demand resulting from the continued high level of construction activity.

Cement, which is the most important of the 9 materials showing a production decline in June, is usually very sensitive to seasonal factors. The drop in cement production in June, however, was contra-seasonal in nature.

The May to June decrease was the

(Continued on next page)

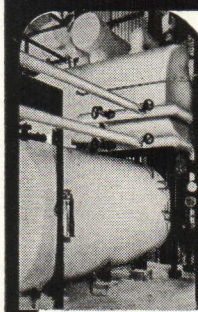


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(Continued from previous page)

third consecutive monthly drop in the shipments of nails, fabricated structural steel, rigid steel conduit and fittings, gypsum board, gypsum lath and unglazed structural clay tile.

CONSTRUCTION COSTS

Construction costs continued their slow downward movement with a further decline of 0.1 percent in June. The Department of Commerce Composite Index (a combination of various indexes weighted by the relative importance of the major classes of construction) fell to 207.8 (1939 = 100) in June, and was 0.5 percent below the index for June 1948. This is the first time since December 1944 that the Composite Index has been lower than in the same month of the previous year.

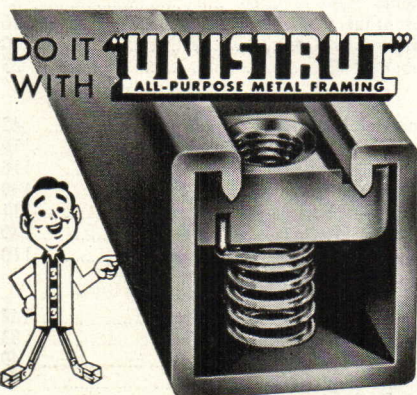
CONSTRUCTION MATERIALS PRICES

Prices of construction materials decreased again in June, according to the Wholesale Price Indexes compiled by the Bureau of Labor Statistics. The composite index for June was 211.5 (1939 = 100), a drop of 1.3 percent from May and of 6.2 percent from the record high point reached in September 1948.

The June decline was caused by drops of 2.4 percent for paint and paint materials, 1.5 percent for lumber and 1.2 percent for "other construction materials". Plumbing and heating in-

creased 0.1 percent, while no changes were shown for brick and tile, cement, and structural steel.

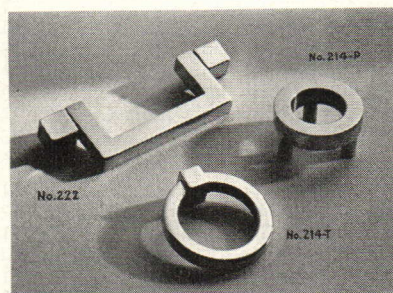
Compared with June 1948 the composite index was 3.0 percent lower this year.



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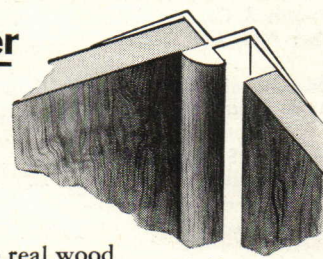
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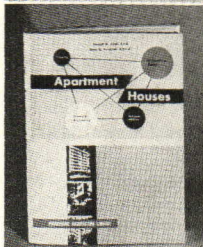
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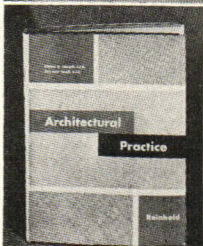
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THE CLICHÉ EXPERT TESTIFIES ON ARCHITECTURE. (With apologies to Frank Sullivan and *The New Yorker*.)

Q. *Mr. Arbuthnot, you state that you are an expert in the clichés of architecture—right?*

A. Although I have never practiced architecture, I flatter myself that I have an ability for coherent expression on the subject of the Mother of the Arts.

Q. *Well, let's test you: What is the relationship of architecture to music?*

A. It is frozen music.

Q. *What sort of man is an architect?*

A. He is a Master Builder. He is an organizer of space relationships. Sometimes he is a molder of man-made environment. Occasionally he is a coordinator of construction activities, which are also known as the various segments of the building industry. He maintains a professional relationship with practitioners of the sister arts. At all times he is a leading professional, or an active professional.

Q. *What does the architect do?*

A. It depends on the locale. In popular novels and most news releases he draws blue prints. On the real-estate page of the daily press he makes artists' conceptions.

Q. *What sorts of architecture are there?*

A. There is traditional architecture, which is known as inappropriate to our times, or sane and dignified. It is designed not for a day but for the ages. This is also, under certain conditions, given the appellation of eclectic design, which is designated as imposing or pretentious. Then there is modern architecture, contemporary architecture, or progressive architecture; this is described as attuned to modern living, or is sometimes known as cow-barn architecture or chicken-coop architecture. The only permanent structure is a flexible one.

Q. *Have there been recent changes in architecture?*

A. Yes, but architecture progresses by evolution, not revolution. There are eternal verities, basic laws of design,

and a cultural lag. The traditionalists are conservative, reactionary, or even hesitant; and the modernists are lawless, radical, planners-but-not-doers, idealists, dreamers, and opportunists.

Q. *How do you describe an opening in a building?*

A. You must be referring to fenestration. Sometimes there is a pattern of voids and solids. Sometimes a facade is pierced with arches.

Q. *What kind of arches?*

A. Deep arches.

Q. *Tell me more about architectural design.*

A. Well, there is often refinement of proportion, and sometimes refinement of detail. Or there may be delicacy of scale. Or enrichment by ornamentation. There may be a knowing organization of masses. There can be elegance, simplicity, and restraint—or a bold and original conception. The finished design expression is described as convincing.

Q. *What does an architect do with space?*

A. He encloses it. He controls it. Or he interpenetrates it. He may organize it. Sometimes he defines it, delimits it, and allows it to flow. When he has done this his plan is articulated and it is within the realm of possibility that the building may be integrated.

Q. *What does the architect do with structure?*

A. He expresses it. Or he designs the building as a symbol of the structure. He also insists on an honest use of materials, or a straight-forward conception. This is known as functionalism, post-functionalism, the international style, a mechanistic approach, sterility, and architectural integrity.

Q. *What do you know about prefabrication?*

A. Excuse me, but you mean prefab houses. They are machines for living. They are the brightest hope for a solution to the ills of the construction industry. They destroy warmth and humanism in architecture. They are an inevitable technological development.

Q. *How is the design of houses and apartments described?*

A. As steps toward the solution of the housing problem. There is private activity, which is both the law of supply and demand operating through private initiative, and the creation of future slums. There is also public housing, known as socialization of the building industry and the provision of living units for the lower-income group.

Q. *Tell me more about how an architect operates.*

A. He conducts his practice according to the principles of professional ethics. He is a man of the highest professional integrity. He has responsibilities to the community. These are the hallmarks of professional practice. Anything else?

Q. *What about city planning?*

A. You mean urbanism.

Q. *No, I mean city planning.*

A. Perhaps you refer to large-scale planning problems. They involve the obsolescence of blighted areas, the disintegration of megalopolis, and the neighborhood concept. The city is the center of culture. The city consumes its own population.

Q. *Thank you for this instructive testimony, Mr. Arbuthnot. Tell me—have you yourself had any experience with architecture?*

A. Yes. Not long ago I engaged the professional services of an architect to help design a dream house for the little woman and I. She really designed the house but the architect drew the plans. In other words, he synthesized our needs. That is, he developed a harmonious relationship between the lounging, dining and sleeping areas. Applying these fundamental planning principles we devised a cape-cod cottage, ranch house style, with picture windows, well-studied circulation, and a happy interplay of textures. It was an organic design, steeped in regionalism, which hugged the landscape.

Q. *Do you live in it now?*

A. Hell, no! We couldn't afford the damn thing.

Thomas H. Wright