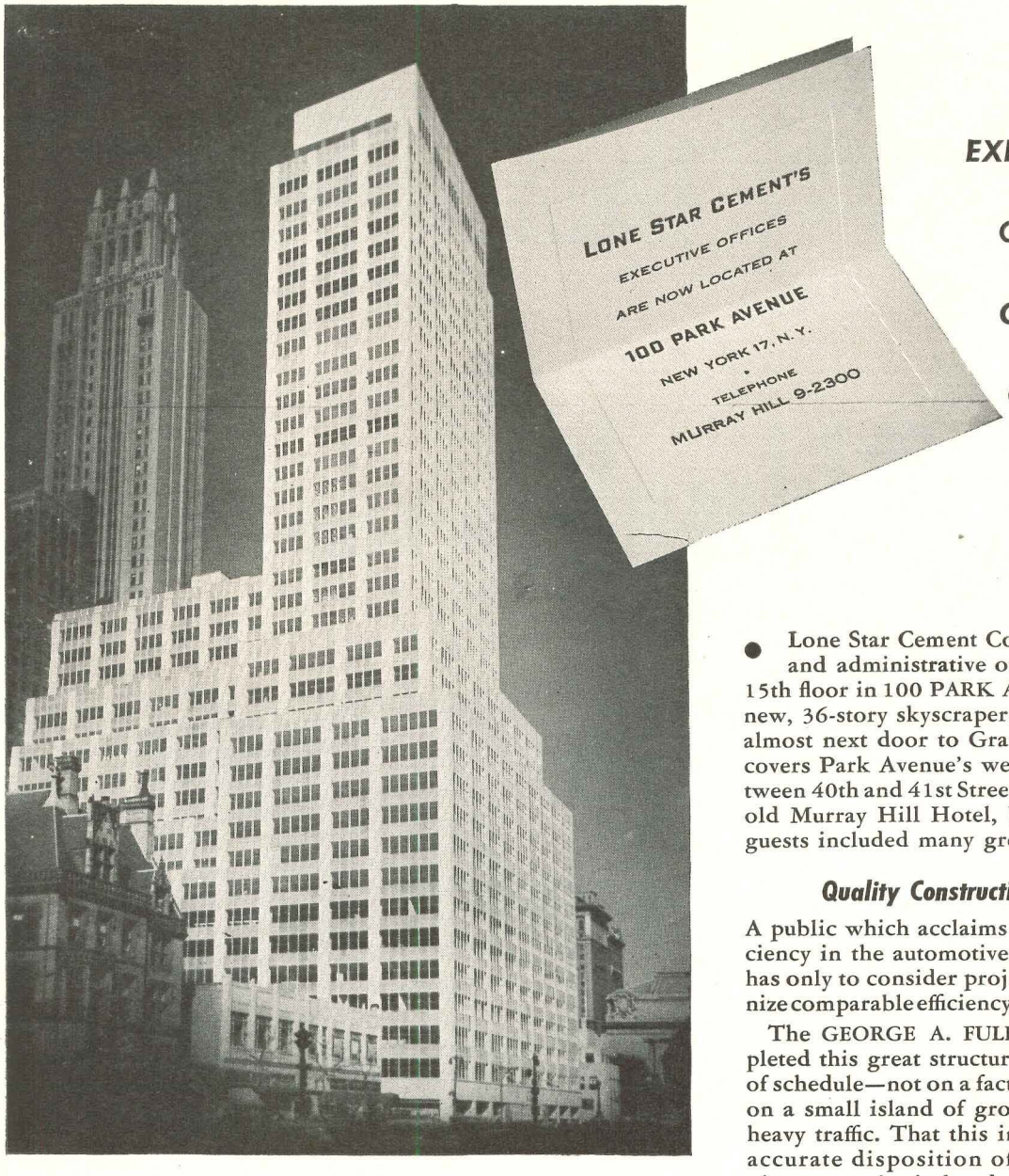
LONE STAR'S NEW HOME



Owner: **100 PARK AVENUE, INC.**
Architects: **KAHN & JACOBS**
General Contractor: **GEORGE A. FULLER COMPANY**
Concrete Contractor: **RIZZI CONSTRUCTION CO., INC.**
Ready-mix Lone Star Concrete: **JAMES A. NORTON, INC.**
Lone Star Cement: **GENERAL BUILDERS SUPPLY CORP.**
all of New York City

LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

EXECUTIVE OFFICES CONSOLIDATED ON 15th FLOOR OF NEW YORK'S NEW 36-STORY SKYSCRAPER

● Lone Star Cement Corporation's executive and administrative offices will occupy the 15th floor in 100 PARK AVENUE, New York's new, 36-story skyscraper. This great building, almost next door to Grand Central Terminal, covers Park Avenue's westerly block-front between 40th and 41st Street, on the site of famous old Murray Hill Hotel, built in 1884, whose guests included many great figures of the day.

Quality Construction Throughout

A public which acclaims mass-production efficiency in the automotive and other industries, has only to consider projects like this to recognize comparable efficiency in construction today.

The GEORGE A. FULLER COMPANY completed this great structure three months ahead of schedule—not on a factory assembly-line, but on a small island of ground space in a sea of heavy traffic. That this involved handling and accurate disposition of some eight-million pieces or units, in hundreds of different shapes and materials, time-scheduled for arrival and placing, gives some idea of the size, scope and efficiency of the operation.

The use of 121,112 bags of Lone Star Cement in all concrete work typifies the quality of the construction—building-dollar value at its soundest and best.

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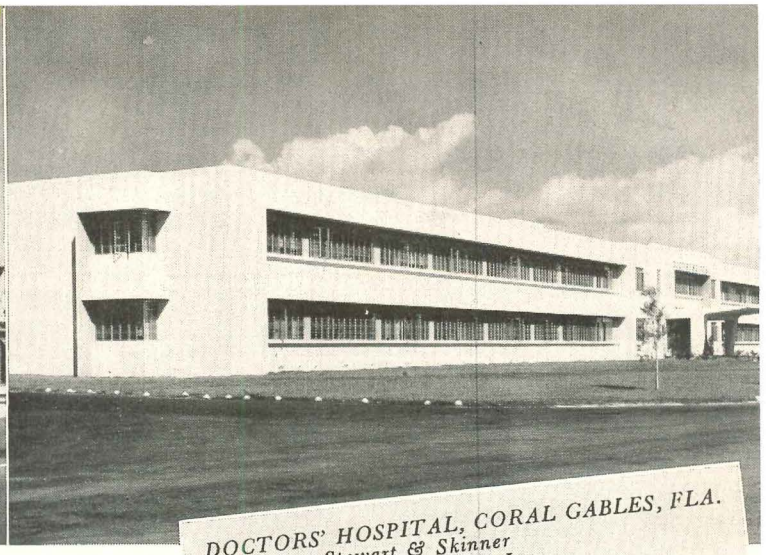
LASKIN BUILDING, BEVERLY HILLS, CALIF.
Architect: Arthur Froehlich
Contractors: Jackson Bros.
Installed by Elevator Maintenance Co., Ltd.



DOCTORS' HOSPITAL, CORAL GABLES, FLA.
Architects: Stewart & Skinner
Contractors: Fred Howland, Inc.
Installed by Miami Elevator Co.

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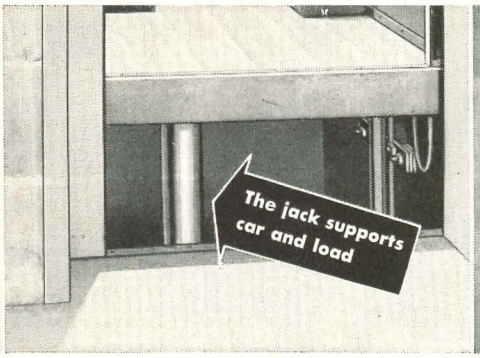
How to simplify designs and cut construction costs with Oildraulic Elevators

■ You can streamline your building designs and cut construction costs by specifying Oildraulic Elevators. There's no need for a costly, unsightly penthouse because this modern elevator is pushed up from below, not pulled up from above. Nor does the building structure have to be designed to support all the load of the elevator and its contents. The powerful Oildraulic jack does that.

Actual figures on jobs throughout the nation show savings up to 25% or more where Oildraulic Elevators are used. What about the performance of these elevators? Just read the next page.

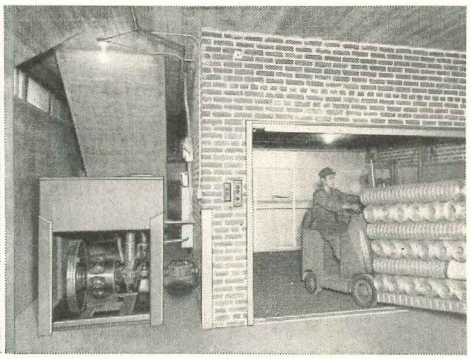
No costly, unsightly penthouse

You don't use an elevator penthouse with the Oildraulic Elevator. This permits a saving of hundreds to thousands of dollars on construction costs. It also enables you to simplify and improve building designs.



Lighter shaftway structure

There's no need for heavy, load-bearing sidewall supporting columns and footings to carry the car, counterweights, overhead machinery, and the load. Rotary's hydraulic jack supports the entire system.



No special machine room

A machine room can usually be dispensed with, because Rotary's compact power unit can be located at any convenient spot, on any landing, on any side of the hatchway . . . anywhere within 50 feet.

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Architects: Thomas, Jameson & Merrill
Contractors: Inge Construction Co., Inc.
Installed by Hunter-Hayes Company

LAFLIN APARTMENTS, CHICAGO, ILL.
Architects: Pace Associates
Contractors: Rush Construction Co.
Installed by Gallaher & Speck, Inc.

levator for modern buildings

Only Rotary Oildraulic Elevators give you the velvet power of ROTA-FLOW

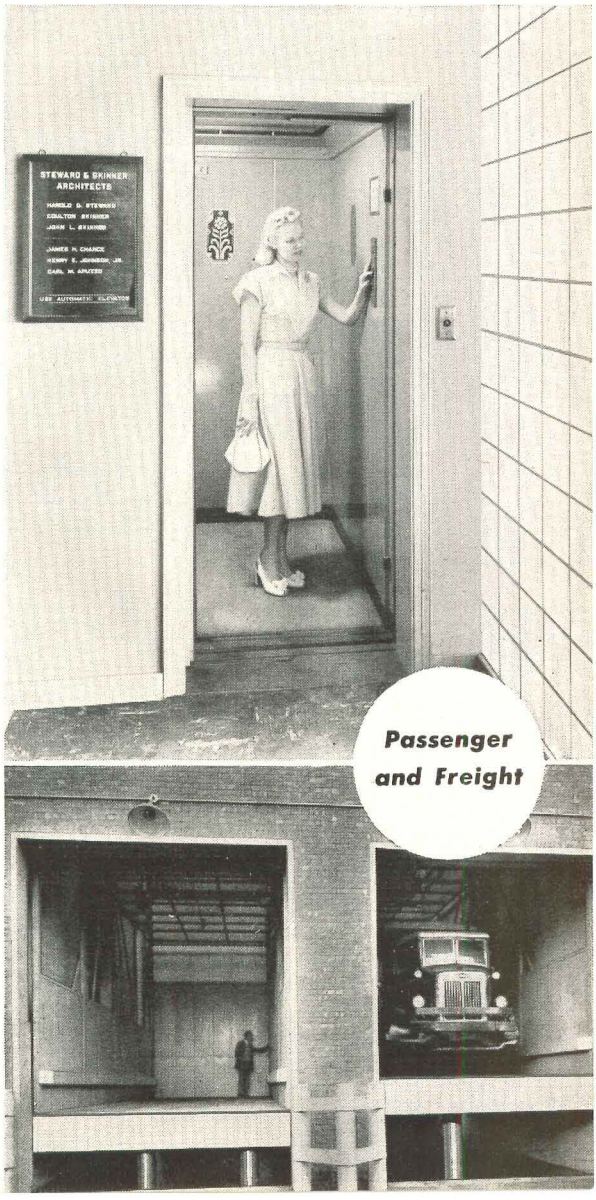
QUIET!—Rota-Flow, revolutionary new hydraulic power transmission system, moves Oildraulic Elevators on a continuous, pulsation-free column of oil. Vibration and pumping noise eliminated!

SMOOTH—Cushioned starts and stops are assured by the automatic unloading valve in Rotary's famous Oildraulic Controller.

ACCURATE LANDINGS—Automatic floor leveling guarantees landings within ¼ inch, regardless of load or speed. This is very important on hospital elevators carrying patients, and on freight elevators loaded by power trucks.

ECONOMICAL—The Rota-Flow system operates with greater efficiency than any other oil-hydraulic power unit. The Oildraulic jack and Oildraulic Controller also contribute much to economical, trouble-free performance.

Write for Architect's Data File—See Section $\frac{33a}{10}$ *in Sweet's Architectural File*



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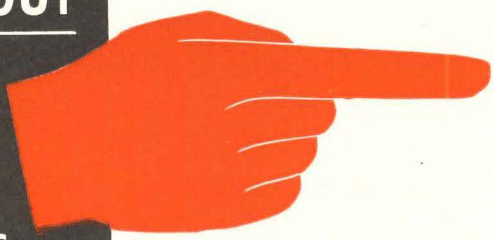
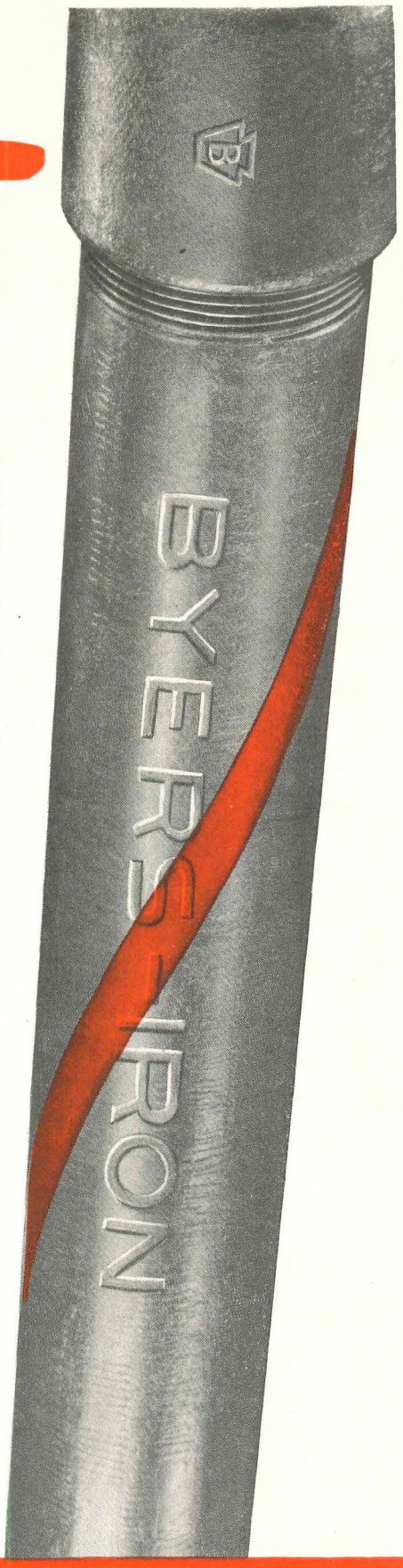
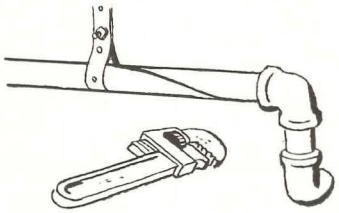
Take THIS WAY OUT of your STEAM RETURN LINE TROUBLES





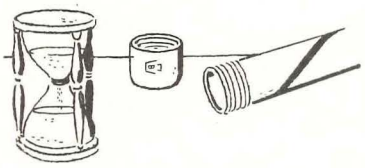
No matter what the situation is in other piping services, it's a safe bet that practically every plant has a serious *corrosion threat* in its steam return lines . . . and a recurring *maintenance problem* unless proper safeguards are utilized.

You can take different steps to modify the corrosive conditions—such as utilizing a deaerating heater—and to eliminate danger



points—by reaming the ends of all pipes, making-up joints properly, pitching lines so there are no low spots, and following good installation practice in other respects. But after you've done all this, the pipe must still carry a highly corrosive fluid, and the only final safeguard is to use a corrosion-resisting material. Engineers all over the country are finding the answer in Byers Wrought Iron pipe.

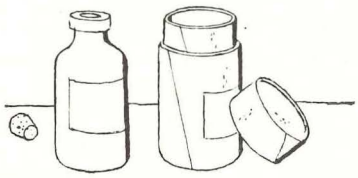
As an indication of how successfully wrought iron pipe stands up in return line service—one study



covering 125 buildings located in 25 cities in 17 states revealed wrought iron installations still serving after periods up to 70 years. The fact that such long service was not due to mild conditions was demonstrated by reports on the use of low first-cost materials. In every area, repairs and replacements had been necessary in a fraction of the comparative service life *to date* of wrought iron.

It is only natural that wrought iron should offer unique service properties, because it is unique in composition and structure. The tiny fibers of glass-like silicate slag that are threaded through the body of high-purity iron halt and "detour" corrosive attack, and so discourage pitting. The fibers also anchor the initial protective scale, which shields the underlying metal.

If you are having trouble with your return lines, we will be glad to study the problem with you, furnishing a bottle for collecting a sample of the condensate—having



it analyzed in our laboratory—*evaluating* the findings, as they affect corrosive activity—and reporting on the experience of other engineers with wrought iron in similar situations. If you would like to know more about the material, ask for our booklet, THE A B C's OF WROUGHT IRON which gives the whole story.

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Vol. 107 · No. 4 *April 1950*

ARCHITECTURAL RECORD

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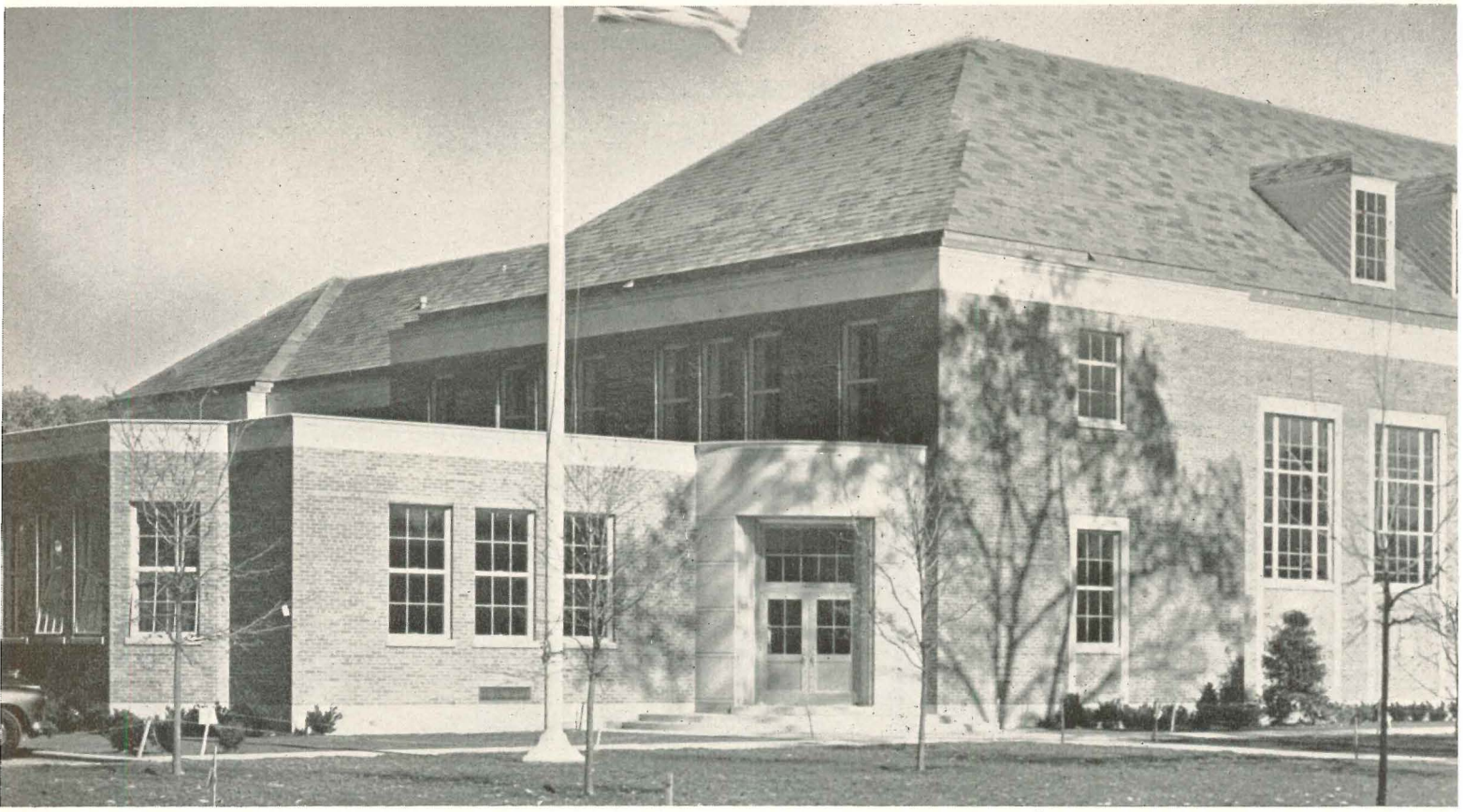
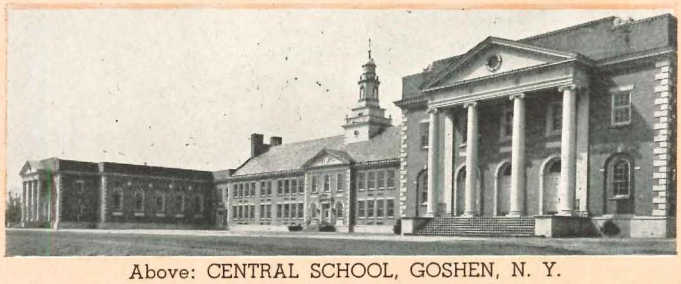
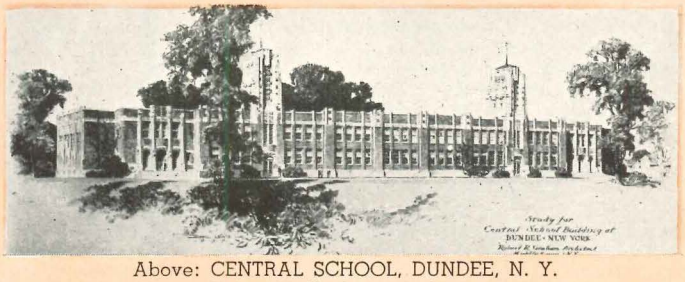
TODAY'S MODERN SCHOOL



Above: SEAMAN AVENUE SCHOOL, FREEPORT, LONG ISLAND, N. Y. FREDERIC P. WIEDERSUM, ARCHITECT.



Above: CENTRAL SCHOOL, GOSHEN, N. Y.
Robert R. Graham, Architect



Above: CENTRAL SCHOOL, DUNDEE, N. Y.
Robert R. Graham, Architect

Above: FORT ANN SCHOOL, FORT ANN, N. Y.
Carl W. Clark, A. I. A., Architect

Above: JUNIOR-SENIOR HIGH SCHOOL, HARRISON, N. Y.
Robert P. Vignola, Architect

ROBERT P. VIGNOLA, Architect
Harrison, N. Y.
(Junior-Senior High School)

I wish to take this opportunity, now that the Junior-Senior High School (Harrison, N. Y.) has been completed, of expressing my appreciation of the business-like way in which your firm carried thru this half million dollar project.

I can assure you that should I have another similar project, I sincerely hope that you may be the successful bidder and that I may have the opportunity of renewing the pleasant relations that have existed throughout the entire construction of this school.

(Signed) Robert P. Vignola

ROBERT R. GRAHAM, Architect
Middletown, N. Y.
(Goshen, N. Y., Dundee, N. Y., and Montpelier, Vt.)

The issuance of your final payment on the Goshen project brings to a conclusion 3 years of close association with you on the construction of 3 of my largest school buildings.

It seems appropriate now to thank you for your careful work and to congratulate you on your organization, your superintendence and ability to expedite your work.

It has been a pleasure to work with you, and I trust that we will soon have work which will be of interest to you.

(Signed) Robert R. Graham

CARL W. CLARK, A.I.A., Architect
Cortland, N. Y.
(Fort Ann School, Fort Ann, N. Y.)

. . . Thruout the progress of the work, (at Fort Ann) your corporation was all that one could ask and the completed product is one of which the School authorities, the State authorities and this office are justly proud. Our administration work was made easy due to the efficient office practices of your company.

(Signed) Carl W. Clark, A.I.A.

AN INSPIRATIONAL SOURCE FOR AN ENTIRE COMMUNITY

FREDERIC P. WIEDERSUM, Architect
Valley Stream, N. Y.
Seaman Avenue School, Freeport, L. I.

The Seaman Avenue School in Freeport, Long Island, was made possible by the broad vision and tireless efforts of the Board of Education, the Superintendent of Schools and the Superintendent of Buildings. They received the wholehearted support and cooperation of the taxpayers of the School District. The building has been carefully and well constructed by your company and it faithfully represents both the ideas of our office and the ideals of those in the District who worked so zealously and unselfishly towards this result.

The school was dedicated in an atmosphere of pleasure and satisfaction by a large group of citizens — the people who had sought and obtained a structure of functional merit, outstanding serviceability and cultural beauty.

We appreciate the businesslike manner in which your organization progressed the construction of this building and we commend your competence in handling the many details which are so important in obtaining satisfactory results. The completed building is a source of gratification to us and, we are quite sure, to the Board of Education and the entire community which it now serves.

(Signed) Frederic P. Wiedersum

Today's modern, functional approach to school construction vastly advances the educational, recreational and intellectual opportunities of the community. John A. Johnson & Sons is responsible for the erection of some of America's finest functional schools.

In addition to those illustrated on this page, at Freeport, Dundee, Goshen, Harrison and Fort Ann, N. Y., other outstanding schools constructed by Johnson include the Senior High School and Community Facilities at Oak Ridge, Tennessee, the Elementary School at Montpelier, Vermont, schools at Sampson, N. Y., Wapakoneta, Ohio, Warner Robins, Ga., Oneida, Tenn., and several schools and school additions at Knoxville, Tenn.

Equally outstanding modern functional buildings have been erected by Johnson in several other fields. The Johnson organization is responsible for many of the nation's finest hospitals, institutions and other public buildings, as well as huge housing projects and entire urban communities including utilities and all necessary facilities.

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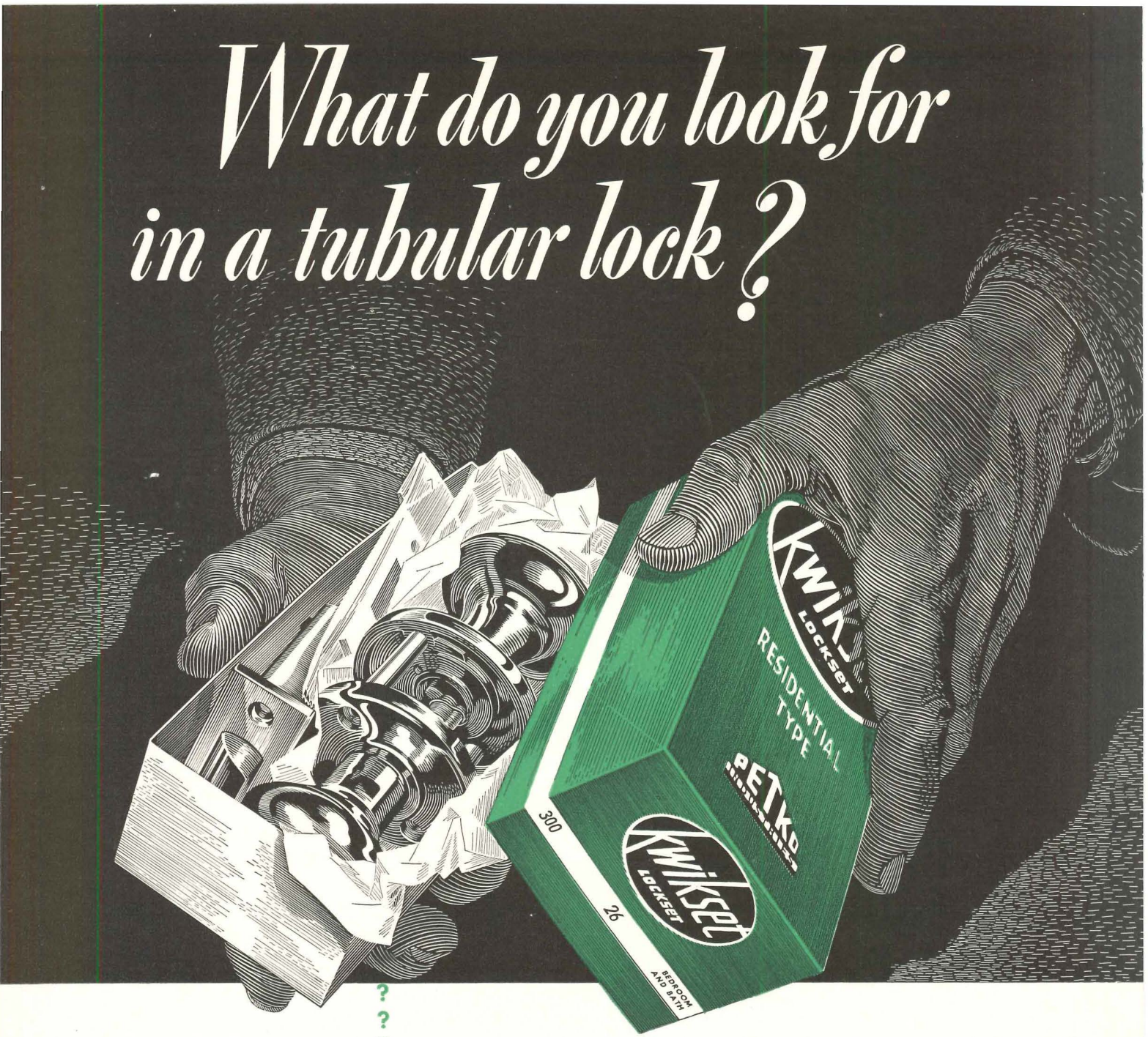

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KWIKSET LOCKS ARE BUILT TO TAKE IT! Kwikset's simplicity of design and rugged construction assure years of trouble-free service. Individual lock parts are precision-built from highest quality wrought brass, bronze, steel and tough, durable Zamak No. 5.

BEAUTY

KWIKSET LOCKS ARE DISTINCTIVELY STYLED! Simple beauty and clean modern design make Kwikset locks perfectly suited for both traditional and modern homes. Style makes Kwikset locks a credit to any home . . . and to the architect or builder who puts them there.

VERSATILITY

KWIKSET LOCKS FOR EVERY DOOR ON EVERY HOME! There's a Kwikset lock to enhance the beauty and appearance of every door on every home. Kwikset guards its finishes by furnishing plated chromium on satin and polished chromium finishes and genuine wrought brass or bronze for brass and bronze finishes.

PRICE

KWIKSET LOCKS ARE LOW IN COST! Kwikset's advanced manufacturing techniques make cost-saving volume production possible . . . keep unit costs down . . . make possible top quality locks at rock-bottom prices.

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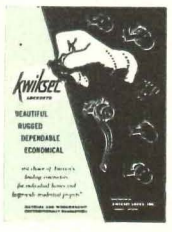

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GROWING ATTENTION TO HOUSE DESIGN NOTED AS N.A.H.B. CONVENTION DRAWS 15,000 TO CHICAGO

SIGNS OF BOOM conditions in home construction were plentifully evident at the record-breaking convention of home builders in Chicago.

Aside from the obvious fact that builders are riding the crest of a million-a-year-home wave, RECORD readers will be concerned to note:

1. Clinics and discussions on home design — especially modern design — topped all others in interest among the builders.

2. Growing numbers of speculative — or, more politely, "volume" — builders are retaining competent architects and paying adequate fees for professional services.

3. Trends in residential planning and modern home design advocated by experienced architects for years are at long last being recognized by speculative builders and put into effect in their houses.

4. The two-and-three-quarter million dollar exhibit of equipment and materials — largest on record — showed that manufacturers have made notable strides in bringing postwar products into step with postwar design. This was especially noticeable in connection with a large number of new products involving windows, radiant heating, and slab construction. Many "packaged" home equipment products that cut on-the-job costs were in evidence. These, coupled with improved building techniques being adopted by builders, are bringing home costs down — particularly in volume operations.

15,000 Overflow Hotels

The occasion was the annual convention and exposition of the National Association of Home Builders, February 19–23, at the Stevens, Congress and Palmer House Hotels, in Chicago. Overflowing these and other hotels were some 5000 builders and 10,000 architects, dealers, manufacturers and home finance people.

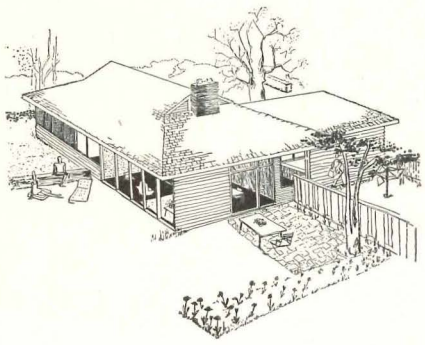
Seven hundred products, displayed by 179 exhibitors, were spread out in every inch of available space in the Stevens and Congress. The very size and complexity of the convention alone was an indication of the boom conditions in the industry, with simultaneous clinics, discussion panels and ballroom assemblies attended by capacity crowds.

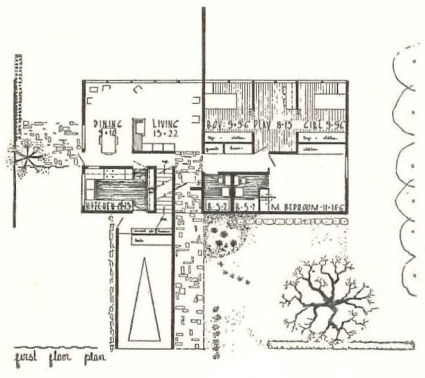
A cautious note was sounded by Frank W. Cortwright, executive vice president of the Association, when he pointed out that building moves in waves or cycles and that "busts" frequently follow hard on booms. But there was little indication that any such unhappy thoughts disturbed the builders who overwhelmed exhibits, meetings, convention halls and dining facilities of the hotels.

Builders were reminded by Rodney Lockwood, N.A.H.B. president, that January home building "starts" were the highest on record, topping January 1949 by 60 per cent. He expressed the belief that a million homes will again be built in 1950.

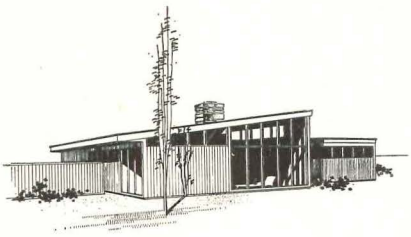
(*Continued on page 234*)

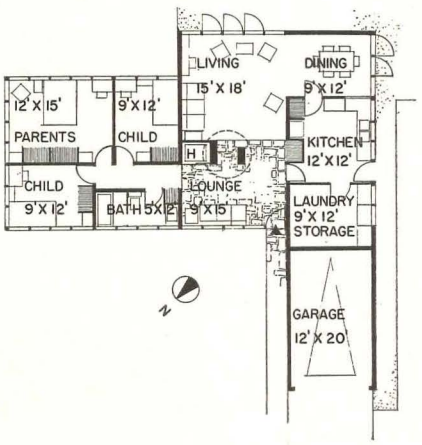
Prizewinners Elizabeth Graham Bell (right) and Sonia Jean Albert with E. J. Gavin

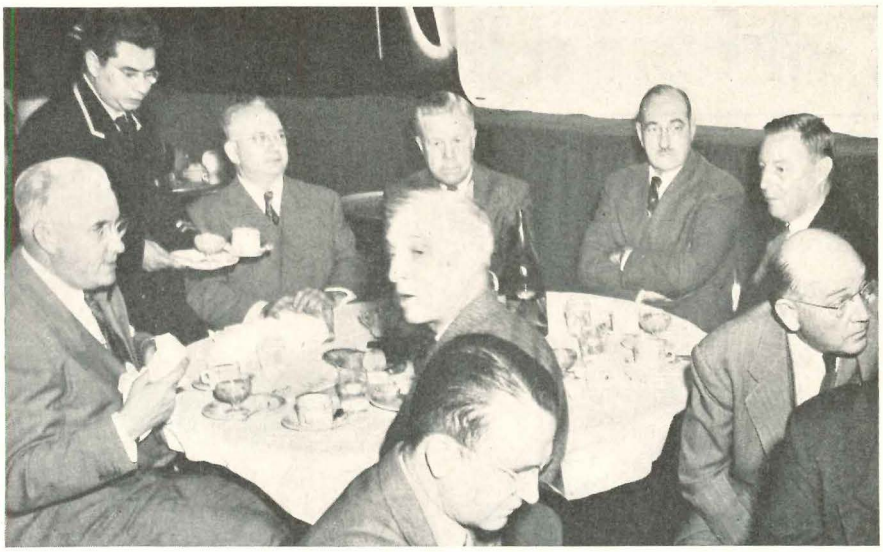




Prize-winning designs in the competition sponsored by American Builder Magazine. Awards were made at convention. Above: second prize; below: first prize







At the Kansas City luncheon (left to right): Joseph B. Shaughnessy, Kansas City A.I.A. president; Ernest E. Howard, A.S.C.E. president; Lorenz Schmidt, A.I.A. Central States director; City Manager L. P. Cookingham; Ellsworth Philby, program steering comm. chairman; A. L. Walters, Kansas City C. of C. president. Center: Mayor William E. Kemp

KUDOS FOR ARCHITECTS AND ENGINEERS: KANSAS CITY LOOKS OVER THE RECORD

MEMBERS of the architectural and engineering professions were lauded for their valuable service and accomplishments over a long span of years at a luncheon meeting last month of the Kansas City Chamber of Commerce. The meeting was the 32nd program of a series entitled "Kansas City on Parade" presented under the auspices of the professions and industries, with funds raised by architects and engineers.

Arthur Ellison, of the Kansas City Little Theater, who was the introductory speaker, reviewed the work of the architects and engineers, noting especially the American Society of Civil Engineers, founded in 1852, and the American Institute of Architects, in 1857.

A feature of this meeting was a screen display depicting important services rendered by the architects and engineers in Greater Kansas City. Students of the dramatic department of William Jewell College, Liberty, Mo., acted as narrators voicing the accomplishments of the engineers and architects. The "voices" analyzed the following seven operations:

1. Engineers specializing in water supply, sewer systems and sanitation projects.

2. Engineers specializing in power plants, electricity.

3. Engineers specializing in heating, ventilation, air conditioning, plumbing, electric lighting and power wiring for buildings.

4. Engineers specializing in facilities for transportation, airports, railroads, highways, streets, grain elevators and bridges.

5. Architects who design homes for better living.

6. Architects who design housing for commerce and industry.

7. Architects who design schools, hospitals, civic buildings, institutions.

Mr. Ellison in his introductory speech stated that "today in our Kansas City our architects and engineers are recognized for their high ideals, integrity and technical experience." He pointed out that there are in Kansas City today 77 architectural firms, employing approximately 350 persons, and 37 engineering firms employing about 1000 people. Their volume of business for 1948 totaled approximately $25,000,000 and $110,000,000 respectively, he said.

Luther Orville Willis, A.I.A., of Kansas City, reported that only professionals conducting practices of their own were included in the solicitation of funds to carry on this program.

"On the whole," Mr. Willis stated, "we believe the ethical manner in which the program was conducted and the fact that the script was broadcast by a local radio station on two different occasions since, indicated that a most favorable impression has been created in the minds of many laymen in this area regarding the type and quality of service rendered by architects and engineers.

A.A.S.A. CONVENTION SEES A.I.A.-SPONSORED EXHIBIT

APPROXIMATELY 100 different school plans and models were viewed by many of the 14,000 educators, a record number, attending the 76th annual convention of the American Association of School Administrators. School designs from almost every state in the country were presented at the exhibit, "Schools of Tomorrow," which was held in Atlantic City, February 25 through March 2. This is understood to be the first exhibit of plans to be presented at the full national convention.

Highlights of the schools on display were tendencies toward:

a) greater emphasis on functional architecture as opposed to monumental.

b) leaning to one-story structures, on large plots of land.

c) wide use of bilateral lighting and use of clerestory as compared to unilateral lighting.

d) wide range of newer building materials.

e) several examples of pentagonal and sawtooth designs, especially in California.

f) pastel shades for classroom color.

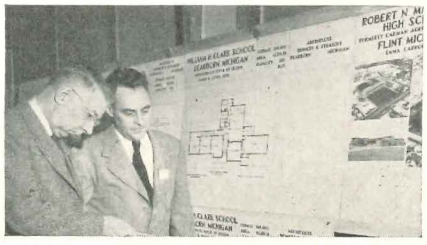
g) larger classrooms, especially for elementary schools.

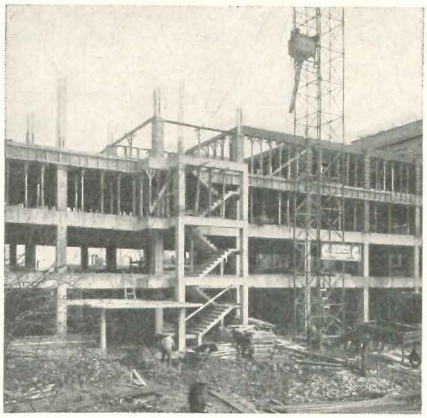
The exhibition was set up under the auspices of the A.I.A. The rules required the school illustrated to have been completed since 1945 or to have had the general contract let; all designs to have been done by a registered architect.

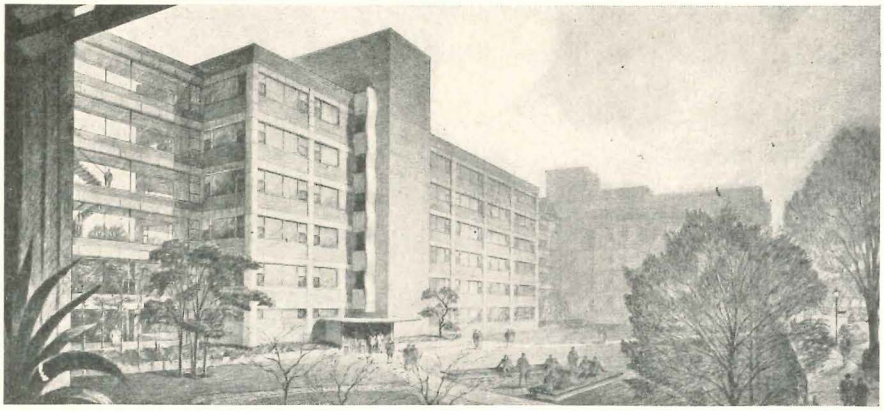
The committee handling the school design phase of the exhibit consisted of Shirley Cooper, assistant executive secretary of the A.A.S.A.; Ray Hammond, school building specialist, U. S. Office of Education, Federal Security Administration, Department of the Interior; John Lewis of Baltimore, school building specialist; Howard Dwight Smith, professor of architecture, Ohio State University; and William Caudill, John E. Nichols and Henry Blatner, all practicing architects, from Texas, Connecticut and New York respectively.

At the exhibit: Ray L. Hammond, chief of school housing, U. S. Office of Education; Asst. A.A.S.A. Secretary Shirley Cooper

Fred Hess & Son Photo







WASHINGTON UNIVERSITY BUILDS CANCER RESEARCH LABORATORY

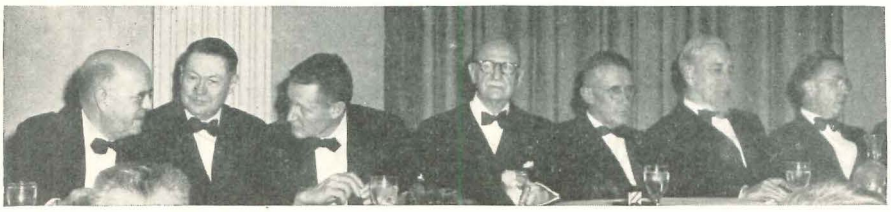
A LABORATORY for cancer research will be completed this summer at Washington University Medical School in St. Louis, the first of a number of new buildings to be constructed for the school.

Located between two existing buildings which date back to the early years of this century, the laboratory forms a continuous connection between them at all levels, and has been planned to achieve the flexibility possible with movable partitions and other present-day techniques. (Above: left, construction photo; right, photo of rendering.)

The new building will be of reinforced concrete frame with brick and limestone trim. Windows are of aluminum and glazing is of blue-green heat-reducing glass.

Cost of the structure, $700,000, is being met jointly by the University and the federal government, each furnishing half of the funds.

Harris Armstrong of Kirkwood, Mo., is the architect.



At the speakers' table, 36th annual convention, Michigan Society of Architects: (left to right) Andrew R. Morison, H. A. Manley, Edmund R. Purves, Col. George B. Walbridge, William Hazlett Upson, Roger Allen and the Society's president, Alden B. Dow

200 ATTEND 36TH ANNUAL CONVENTION OF MICHIGAN SOCIETY OF ARCHITECTS

MORE THAN 200 architects and guests were registered at the Michigan Society of Architects' 36th annual convention at Detroit's Hotel Statler March 9 and 10.

A panel discussion on architects and city planning was led by presidents of the three A.I.A. chapters in Michigan: Andrew R. Morison, Detroit; Christian Steketee, Western Michigan; and Donald A. Kimball, Saginaw Valley.

"The Architect's Responsibility to the Young Graduate" was discussed by Charles B. McGrew, George W. Sprau and John Mackenzie.

The Producers' Council took charge of one section with a presentation of "What's New in the Building Industry," supplementing comprehensive displays of members' products.

Eleven hundred attended the banquet, at which Col. George B. Walbridge of Walbridge-Aldinger Co., general contractors, received an award for service to the building industry. William Hazlett Upson was the speaker, and Roger Allen, A.I.A., toastmaster.

Carl B. Marr, A.I.A., of Detroit, was convention chairman.

STRESS SMALL HOUSES AT WILLIAMSBURG SYMPOSIUM

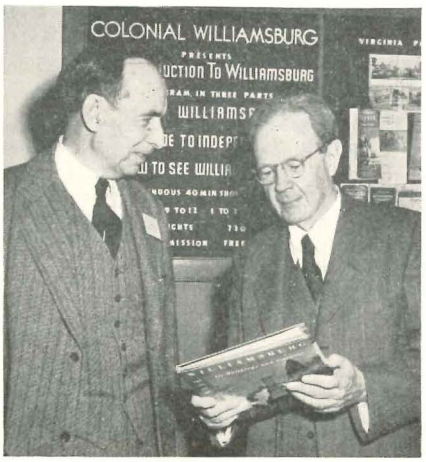
ARCHITECTS, landscape architects and interior decorators were sprinkled among 300 people from 24 states at the fourth Colonial House & Garden Symposium held in two separate but similar sessions last month at Williamsburg, Va.

The symposium, broadened this year to include talks and discussions on small houses, was sponsored by *House & Garden* and Colonial Williamsburg, Inc.

Harvard Dean Joseph Hudnut's opening talk, "We Are No Longer Colonials," created a mild flurry when it evoked newspaper headlines like the *New York Herald Tribune's* "Harvard Dean Is Critical of Williamsburg." What Dean Hudnut intended, as he was busy reiterating next day, was a protest against copying without understanding. Houses must express the "temper of life," he said.

Prof. Carroll L. V. Meeks of Yale discussed design of Colonial houses in New England in the first session, as did Consultant William G. Perry of Colonial Williamsburg in the second. A. Lawrence Kocher, Colonial Williamsburg Records Editor, covered Colonial house design in Virginia at both sessions.

Mr. Kocher (left) and Dean Hudnut in talk



APARTMENT DESIGN PRIZE-WINNERS ANNOUNCED

Iowa State Senior Is First in Timber Engineering Competition

MAURICE E. FREITAG, 25-year-old senior student in architecture at Iowa State College, Ames, Ia., has won the $1500 First Major Award in the architectural prize competition sponsored by the Timber Engineering Co.

Mr. Freitag's design for an eight-family residential building of wood frame construction was adjudged best of 276 entries submitted by practicing architects and architectural students in the nationwide competition.

Student entries were also judged in a separate category; and in this division the first prize of $500 has been awarded to Emmit A. Ingram Jr., a senior student in architecture at Texas A. and M. University, College Station, Tex.

Other major awards were made as follows: Second Prize ($750) — C. E. Stade, architect, and M. J. Dolan, engineer, Chicago, Ill.; Third Prize ($500) — R. T. Morrisett, architect, Springfield, Ill.

These student awards were also given: Second Prize ($250) — Allan B. Mitchell, Carnegie Tech; Third Prize ($150) — Milton Holtzman, Georgia Tech.

In addition, there were 10 major Honorable Mentions ($100) and seven student Honorable Mentions ($50).

The general problem of the competition, which had the approval of the Committee on Competitions of the American Institute of Architects, was the design and plot layout of a residential building of wood frame construction with wood exterior finish. The building was to provide living accommodations for eight families of such sizes as would be encountered in a rental project catering to moderate income groups. The contest located the building in a suburban area where ample ground on the site was available for service, parking, play, garden and lawn areas. It was requested that designs postulate a building similar in scale and character to a well-planned single family residence in privacy, appeal and opportunity for use of outdoor space.

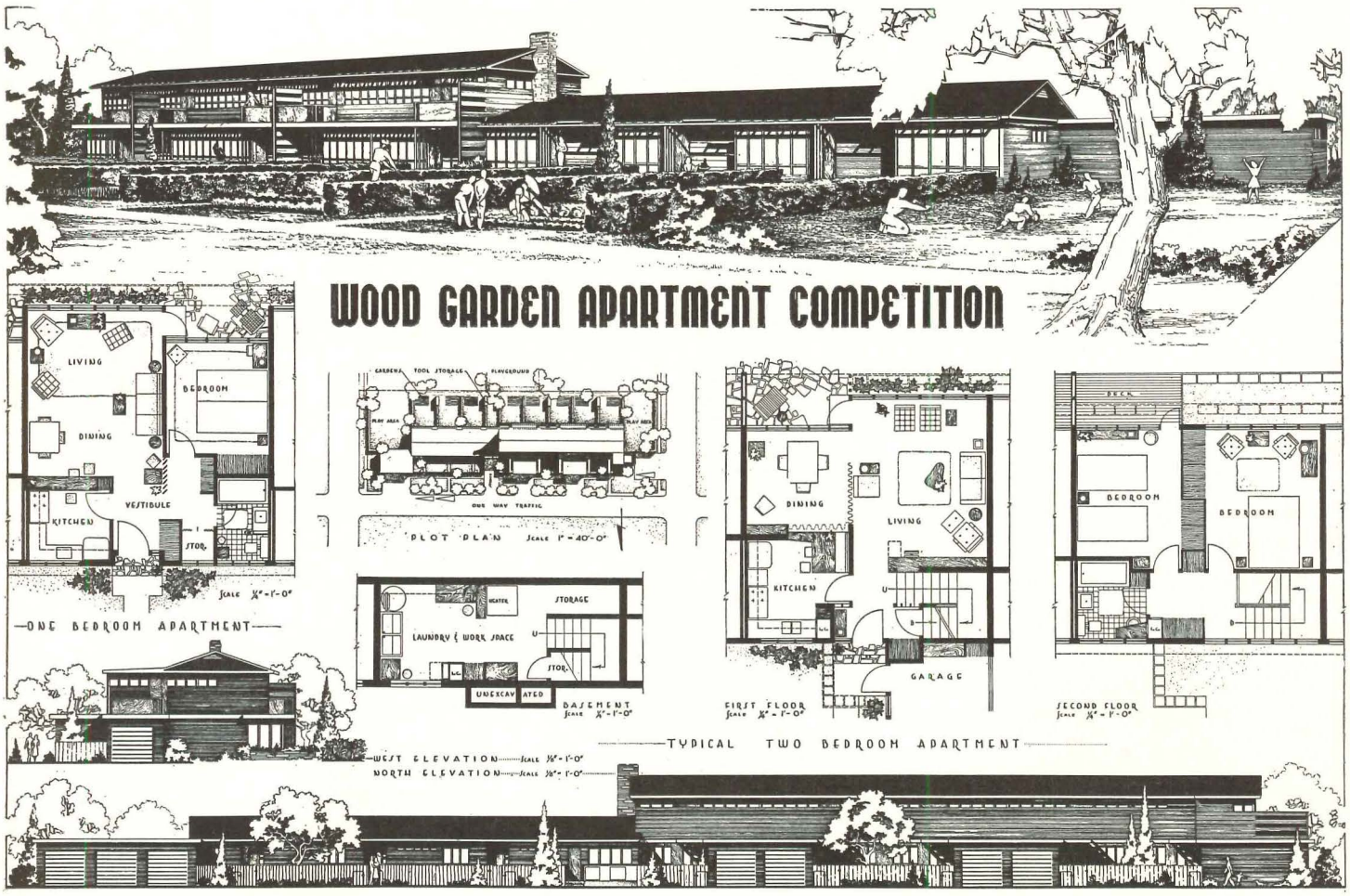
Mr. Freitag's first prize design was conceived for a location at Fort Dodge, Ia., described as follows: "The plot is at the northern end of a large block with the apartment forming the northern part of a perimeter composed of private dwellings. The interior of the block provides an area of community green and gravelled play areas."

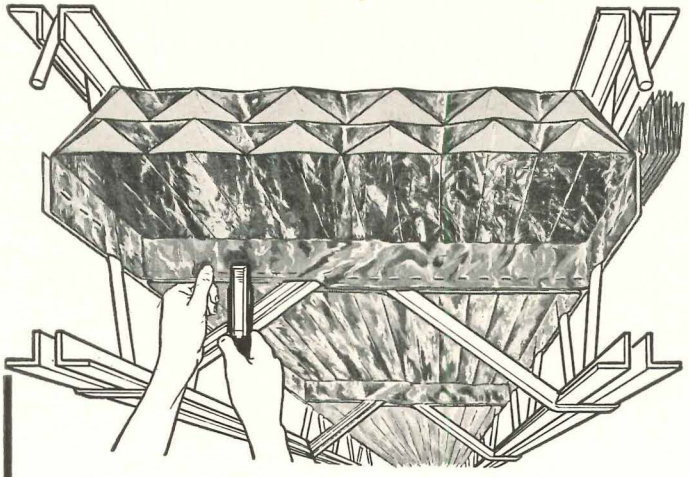
The modern character of Mr. Freitag's entry has been achieved without resort to bizarre detail. The judges felt the building had been well oriented for sun and view, and that apartment units had been planned with good circulation. It was also noted that garages had been well related to the entrance of duplex apartments, and that the north (front) elevation had been skillfully designed.

Members of the Jury of Awards were: George W. Petticord Jr., A.I.A., Washington, D. C.; John M. Walton, A.I.A., Washington, D. C.; Edward R. Carr, Builder, Washington, D. C. Lawrence M. Stevens, Architect, of Washington, D. C., was professional adviser.

Copies of the Jury Report are available from: Timber Engineering Co., 1319 18th St., N.W., Washington 6, D. C.

Below: Maurice E. Freitag's First Major Award-winning board for the Timber Engineering Co. apartment competition





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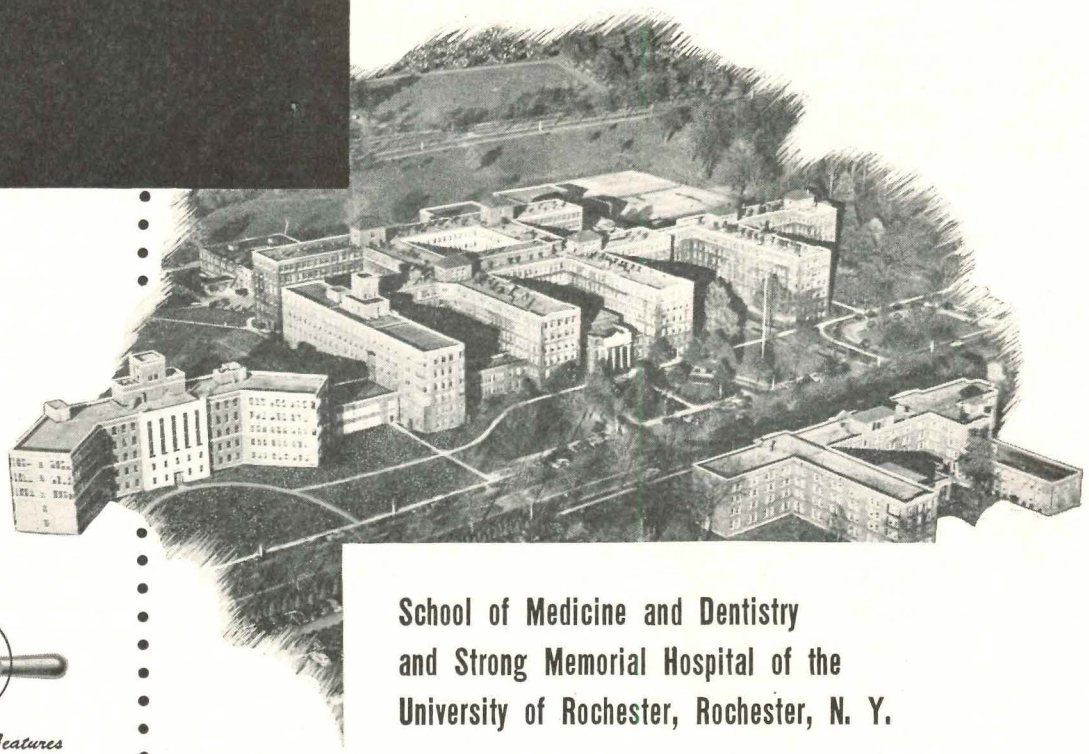

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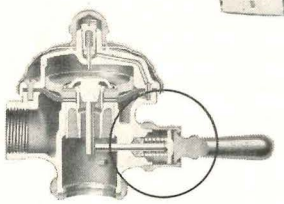

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WASHINGTON NEWS *by Ernest Mickel*

Title VI Expires: What Happens to "Dangling" Programs? Sparkman Bill Concedes Need for Larger Houses; GSA Sees Construction Industry at Postwar Turning Point

CONGRESS permitted Title VI (Sec. 608) National Housing Act to expire March 1 and temporarily failed to take any action on the Title I and II programs, thereby injecting the usual amount of confusion and uncertainty into the operations of the housing industry. True, architects and builders had been warned by federal housing officials and members of Congress as well that they could expect these events — at least there was repeated assurance that the Sec. 608 rental housing insurance program would end. Nevertheless, as March began, Federal Housing Administration field offices were swamped with their application backlogs and the whole construction industry waited to see how Congress would resolve, if indeed it would resolve, the newly posed problem of dangling programs.

The government's economy housing program, hinging on the continued operations under Title II, appeared to be in no danger despite delays permitted by Congress. The $8.5 billion revolving fund was returning several million dollars for loan insurance on small homes each month. FHA officials admitted that if no further money authorizations were forthcoming from Congress "in a few weeks," the Title II small homes program would slow down to its more normal course of two years ago. There has been a synthetic stimulation of the Title II activity over the past 20 months or so which would certainly disappear if the current revolving fund total had to be relied on for full operations.

The middle-income housing bill, however, as it was reported out by the Senate Banking Committee a month ago, proposed to increase the amount by $1750 million — $750 million to be made available immediately and $1 billion later at the discretion of the President.

Thus the tendencies during March pointed toward a return of the housing insurance programs to prewar purposes. The regular permanent mortgage insurance provided under Title II was first set up in 1934 for sale and rental housing, based on the long-term economic value (as a basis for valuation) rather than on necessary current costs. The latter phrase, applying to such "emergency" measures as the Sec. 608 rental housing program, had its warborn critical connotation. This is reflected in the Banking Committee's report on Sen. Sparkman's middle-income housing bill, S. 2246: "Unlike the periodic authorizations under Title VI, the Title II authorization was intended to provide a permanent revolving fund related to the outstanding obligations of insured mortgages."

Now, with the Title VI provisions definitely out of the picture, architects and builders will be turning to what advantages they can find in Title II sections. Even before Congress finally acted on the legislation, FHA field offices were told to inform applicants for Sec. 608 commitments that they may have the option of converting the 608s requested to Sec. 207 under Title II. If they decided to convert, they would be credited with fees paid. If cost estimating had been completed by the FHA office on the 608 application, but no commitment had been issued prior to expiration of the program March 1, applicants were told their fees would not be returned.

No new application was necessary to convert. It was required merely that the proposed construction meet all the requirements of Sec. 207, Title II, which varied in considerable detail from the former Sec. 608 requirements under Title VI.

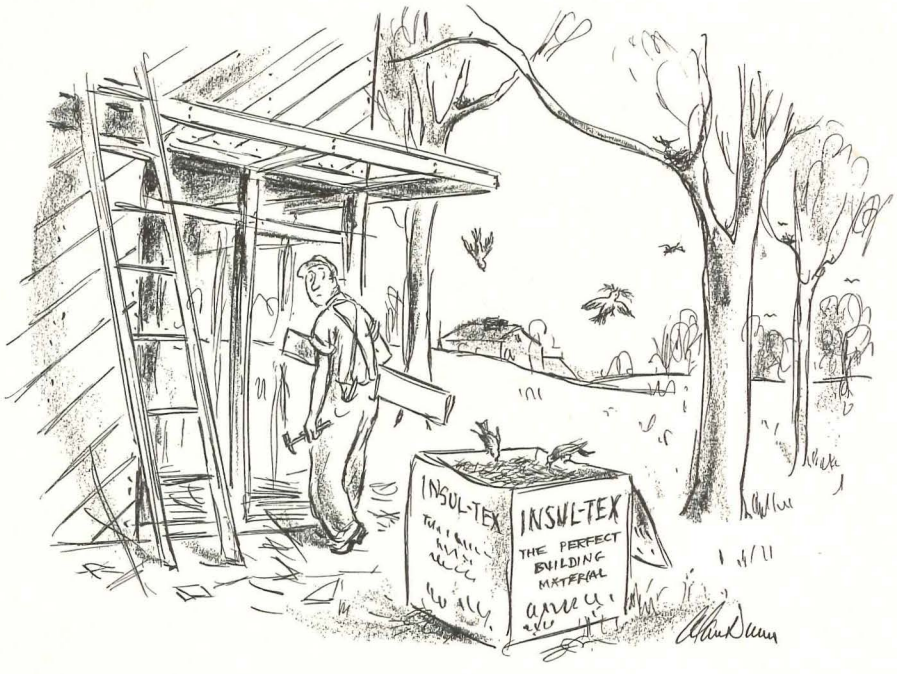
(Under the expired section, FHA insured up to $9000 per unit or 90 per cent of the cost. If Congress put through the middle-income bill, and thereby amended the National Housing Act, insurance of 90 per cent of the first $7000 and 60 per cent of the balance up to $10,000 would be provided.)

During the past few months the Title II authorization has been used up at an average monthly rate of $178 million. It is therefore essential, says the Banking group, that an increase be provided.

Larger Houses Needed

Congress was beginning to recognize the legitimate complaint of architects that they cannot plan, and builders that they connot construct, housing of adequate size under federal programs

(*Continued on page 16*)



— Drawn for the RECORD by Alan Dunn

THE RECORD REPORTS

WASHINGTON

(*Continued from page 15*)

of limiting benefit. The Banking Committee of the Senate put it this way: "The testimony presented to your committee indicated that it is generally difficult, if not impossible, for a builder to erect a three- or four-bedroom house at a cost that will permit him and the purchaser to receive full advantage of mortgage insurance on the most favorable terms."

This general language of the committee means that it is convinced, from the arguments given it by builders, that the law should be changed to provide more incentive to the planning and construction of homes with more space. This is expressed in the terms "three-bedroom and four-bedroom houses."

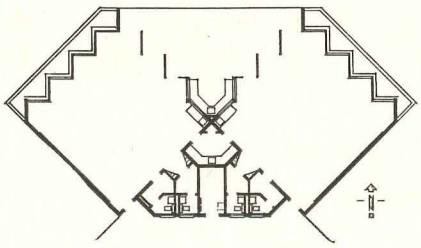
To achieve such a goal — design and erection of larger homes, particularly in metropolitan areas where the need is felt to be greatest — the Sparkman bill would do this:

Amend Sec. 203 (b) (2) (D) of the National Housing Act to authorize insurance of a 30-year mortgage which does not exceed $6650, or 96 per cent of the value of the property up to not more than $7000 value. This boosts the present maximum eligible mortgage amount by $650 for the most liberal FHA insurance. It provided further that if the FHA Commissioner finds it not feasible, within this increased dollar amount limitation, to construct dwellings with three or four bedrooms each without sacrifice of sound standards of construction, design and livability, he may increase the eligible mortgage amount by $950 or less for each additional bedroom in excess of two. The total amount of the mortgage under this section thus could not exceed $7600 on a three-bedroom house valued at $8000, or $8550 on a four-bedroom house valued at $9000.

Progress of the Legislation

Writers of the bill said they expected FHA to proceed immediately with a re-examination of its minimum property requirements. It was expected to make changes necessary to bring the additional benefits outlined above to the home construction industry. Congress appears to be convinced that minimum standard changes must accompany lib-

(*Continued on page 18*)



Above: Floor plan, typical classroom unit

"TWO SIDES FACE NORTH" IN NEW LAKELAND SCHOOL

CLASSROOMS with "two sides of each room facing north" are under construction at Lakeland School in the Little Lake school district, Santa Fe Springs, Calif.

Ralph C. Flewelling and Walter L. Moody, the architects, in describing this project report that the revolutionary design of the classrooms will give the buildings a unique appearance and use, through its ceiling-to-ceiling windows, forming a triangle of window-wall area for each room. Plywood louvers and glass panels are set at 90 deg angles.

According to the architects, the panel fins are 5 ft apart, and oriented directly north and south to form a series of large vertical louvers. The 5-ft floor space between the panels is filled with steel sash running from floor to ceiling, and facing directly north. This forms a series of 90 deg triangles composing the northeast and northwest walls of glass and louvers. The ceilings are of asbestos fibre, pitched in two directions to get the greatest amount of reflected light.

Lakeland School will have six double classroom buildings, including kindergarten building and an administration-library structure, according to the plans drawn by Flewelling and Moody. Future plans call for a cafeteria-auditorium combination, and three additional double classroom buildings. The separate units are to be connected by covered walks. Roofs of the classroom buildings will be supported by steel trusses which bear the walls and steel columns concealed in plywood fins.

Lakeland School is to occupy a 10-acre site at Lakeland Avenue and will house classes from the kindergarten through the fourth grade. Plans have been approved by the State Division of Architecture, Department of Public Works.

NEWS FROM CANADA *By John Caulfield Smith*

COMPLETE FIRST UNIT OF SCHOOL FOR CRIPPLED BOYS AND GIRLS

THE initial project of "Variety Village," a vocational and residential school for crippled children, has been completed at Scarborough, Ont.

The school, believed to be the only one of its type in Canada, is being built and equipped by the Variety Club of Toronto. A. G. Facey and Gibson and Pokorny are the architects.

The first unit (photo below) provides for 24 boys, cost $250,000. Later extensions will increase capacity to 48 boys and 48 girls. Included in the project are clerical and manual training wings and assembly room.

(*Continued on page 222*)

Panda Photograph

New General Electric booklet gives practical help on school lighting!

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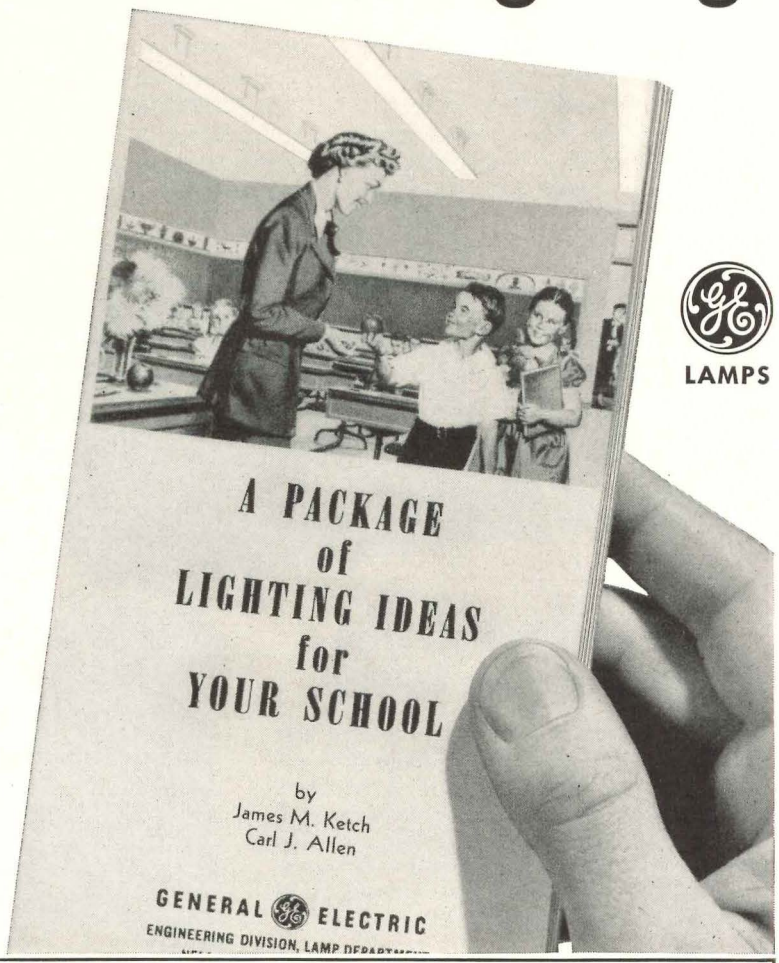

LAMPS

18 pages on lamps, fixtures, installations, wall colors

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Tells how to select wall and trim colors

Shows 6 actual wall and trim colors. All designed to produce efficient, comfortable, balanced-brightness environment. For north, south, east and west exposure class-rooms, and cafeterias, corridors, washrooms, libraries, art rooms, foyers, kindergartens.

Tells all this and more

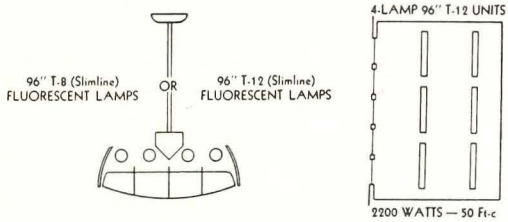
COMPARISON OF FILAMENT AND FLUORESCENT LIGHTING. How the systems compare for wattage, initial cost, maintenance. Factors that influence selection of each.

FACTORS IN COMFORTABLE LIGHTING. The three components that affect visual efficiency and comfort of students.

RECOMMENDED REFLECTANCE PATTERN. Diagram shows brightness ratios for ceiling, wall areas, floor, chalkboard, tackboard, desk top, trims. Gives recommended wood and floor finishes.

RECOMMENDED FOOTCANDLE LEVELS. Lists minimum maintained footcandles for various rooms in school. Defines illumination terms.

Tells about 14 basic school lighting systems



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GENERAL ELECTRIC

WASHINGTON *Cont. from p. 16*

eralizing of the law. For by what other method, it is asked, can the planning of essential accommodations other than bedrooms be insured?

For example, a small dining room in a two-bedroom house which may be adequate for a family with one or two children, would be totally inadequate in a three-bedroom house for a family with four children. It is apparent also that design standards for a three-bedroom or four-bedroom house should be quite different in other respects from design standards appropriate for one- and two-bedroom dwellings.

The legislation came out of the Banking committees of both houses only after it had been shuffled and re-shuffled with the result that clean bills were finally introduced by each group. While the House committee sought to make Title I improvement loan insurance a permanent affair, the Senate committee finally backed down to a two-year extension after hearing Chairman McCabe of the Federal Reserve Board testify on inflationary aspects of the measure. These and other less-important differences would have to be ironed out in conference if the legislation were to get that far.

The House Banking committee voted its bill out 11 to 4 after extensive hearings. It contained the highly debatable cooperative housing section and immediately ran up against Rules Committee opposition. It became more and more apparent that Committee Chairman Spence would have to invoke the 21-day rule to bypass the Rules group. The House last fall voted down a direct loan proposal for cooperative and other nonprofit housing corporations. Its mood is not likely to have changed much on the subject by this time. The Appropriations Committee is beginning to show signs of raising the economy axe again, and at this writing the middle-income bill faced a stormy floor session in the lower body. The Republicans withheld their opposition in large measure during the committee hearings, offering no amendments in executive session. The big blow was being delayed purposely for the floor battle.

Chances for the middle-income program appeared somewhat better on the Senate side, although Senator Robert A. Taft (R-Ohio), an acknowledged friend of former housing measures on the liberal side, had come out against this one. He apparently disagreed with the proposed move to set up a National Mortgage Corporation for Cooperative Housing in which the federal government would sink $100 million as an initial investment. This sum, it was argued by proponents, would be replaced eventually by $200 million of privately subscribed share capital.

The measure could not get to the floor until Senators talked themselves out on the Displaced Persons bill. Sen. Sparkman had hopes of its being called up before the Gas bill, scheduled after DP's, and Floor Leader Lucas had assured it would certainly come up before the expected filibuster on FEPC.

Meanwhile, Senators Sparkman and Maybank clung to their previous assurance there would be no more temporary extensions of mortgage insurance programs before the consideration of the middle-income proposal (the Housing Act of 1950), S. 2246.

(*Continued on page 20*)

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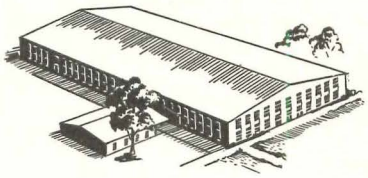
to meet a limited budget



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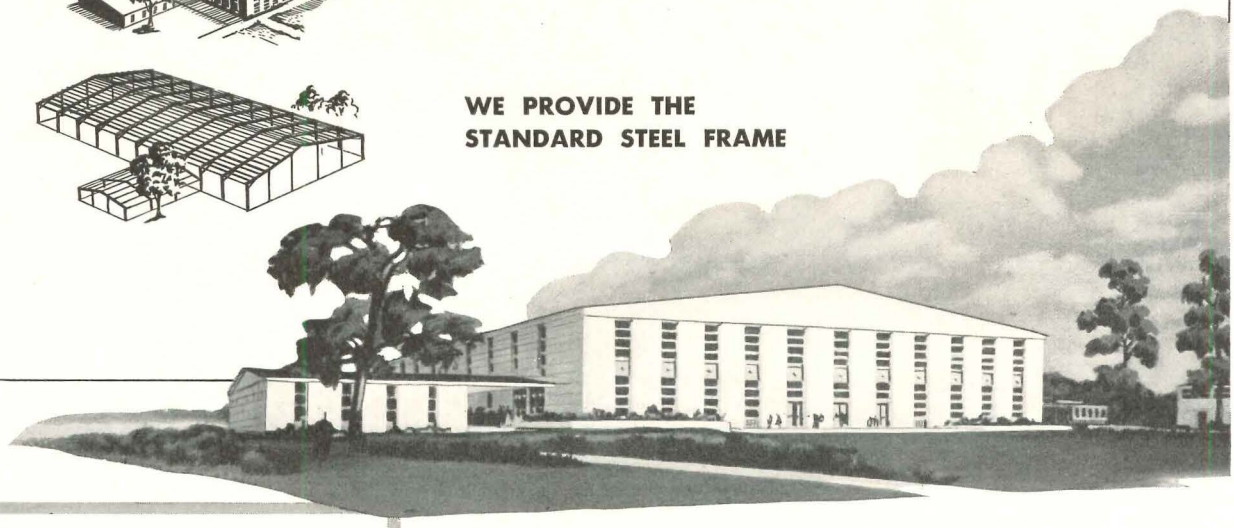

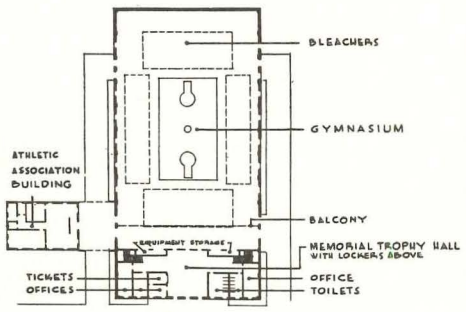

Plan includes two Luria Standard Buildings—one 100 feet wide and 200 feet long with 20-foot eave height—the other 40 feet wide and 60 feet long, with an eave height of 12 feet.

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WASHINGTON *Cont. from p. 18*

Federal Building Program

General Services Administration spokesmen are taking the view that all construction now stands at a turning point in its postwar course. Expressing this position before the Associated General Contractors of America, Inc., assembled for annual convention in San Francisco, James W. Follin, a GSA special assistant, said the relative position of construction volume in relation to the entire economy needs to be studied closely. We may well be at a turning point, he opined. Either construction shall begin to move forward from here on to occupy its proper position in the national economy, or it shall begin to taper off so that the country will not have the facilities it needs nor the construction industry the opportunity to utilize fully its talents.

With private building declining somewhat, Follin fears the balance will be lost unless this decline is reversed or public construction is increased to offset the drop. A private construction drop of moderate degree in 1949 was offset by a $1 billion increase in public construction. Now, those in the know are looking for public construction to increase still further in 1950 — probably to $6 billion.

Follin observed: "Public construction expenditures are steadily approaching the historic ratio of one-third of total construction, or one-half of private construction. Will they reach this position, and can they be even further increased?" There is an obvious need for higher annual public construction volume. The known needs in all fields make the $6 billion annual figure "seem so grossly inadequate."

Planning Program Proceeds

GSA is moving ahead with the revived advance planning program for non-federal public works. Working on the initial $25 million made available by Congress for commitment, the agency was accelerating its loan approvals in a way reminiscent of the days before the program was temporarily stopped on July 1, 1947. Applications are being received in increasing number and now exceed $10 million in loans requested. These interest-free loans pay for the planning of such projects as schools, hospitals, local streets, municipal buildings, waterworks, etc.

GSA feels the most important feature of this advance loan program to be this: it inculcates into municipal practice orderly and considerate habits, under which adequate time is taken to plan on a long-range basis and for thorough design of public improvements. This procedure, it is claimed, obviates the need for hurried and precipitate and frequently incomplete treatment when projects are planned and designed after the projects have been submitted to the electorate, and bonds voted, when the public has probably become impatient for the improvements.

Finally, the federal government's building needs are known to be very great; the lack of needed facilities is costly in itself. A $40 million site acquisition and plan preparation program is now in progress. This will encompass 575 projects spreading through all Congressional districts; post offices for the most part. No construction funds for this have been appropriated but sentiment for starting actual building in

(*Continued on page 22*)

PENETRATING SEAL-O-SAN fills the pores in untreated wood with a life-giving seal that strengthens and renews the life of the wood fibres. It goes into the thousands of microscopic cells and actually becomes part of the wood. Its penetration gives the floor greater "surface depth", so that it *uniformly* resists wear. Cracks are sealed, too. Penetrating Seal-O-San is adding years of service to heavily-travelled wood floors in thousands of the nation's schools and public institutions. Write for all the money-saving facts on easy-to-use Penetrating Seal-O-San.

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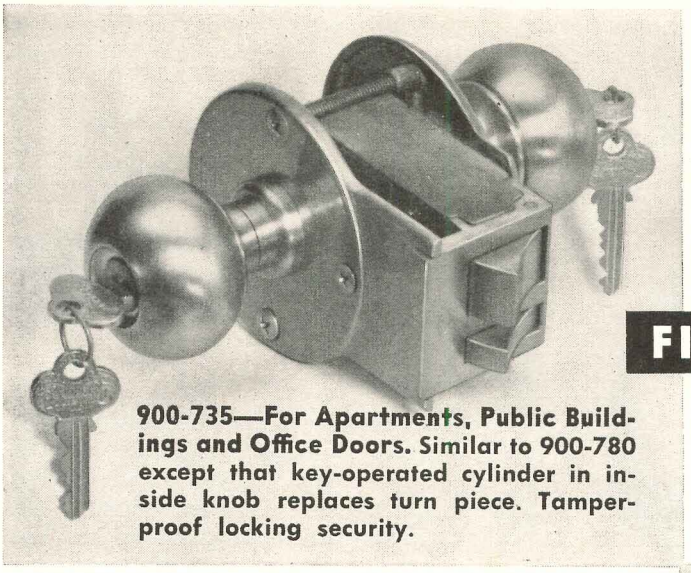

900-735—For Apartments, Public Buildings and Office Doors. Similar to 900-780 except that key-operated cylinder in inside knob replaces turn piece. Tamper-proof locking security.

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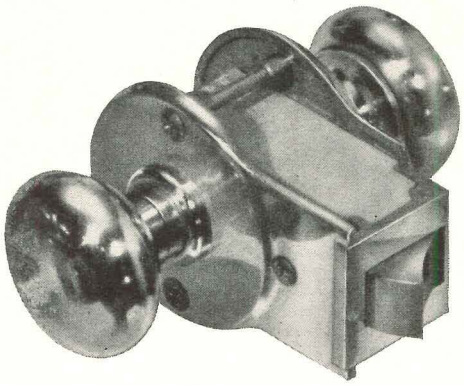
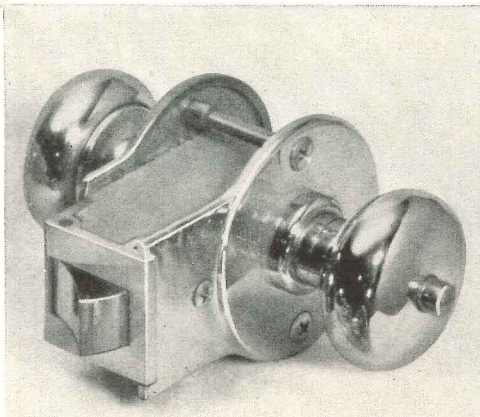
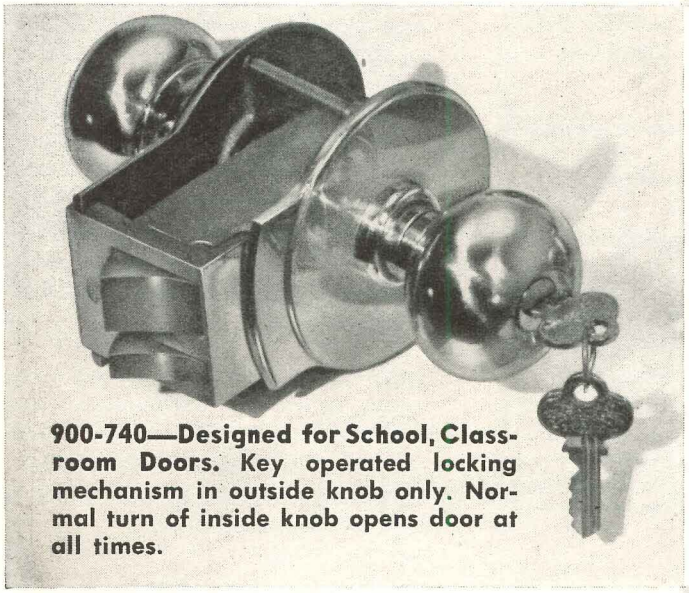


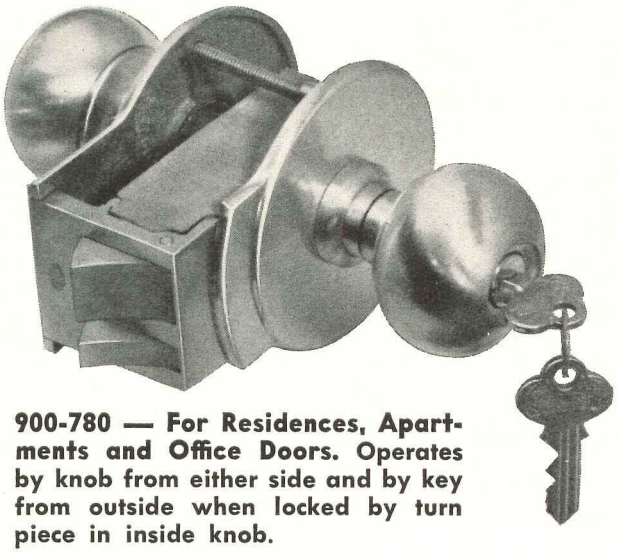
900-710 — Interior Door Latchset. Operates by knob from either side at all times.



900-730 — Privacy Lockset for Bath or Bedroom Doors. Operates by knob from either side except when locked by push-button in inside knob. Turn of inside knob releases locking mechanism.



900-740—Designed for School, Classroom Doors. Key operated locking mechanism in outside knob only. Normal turn of inside knob opens door at all times.



900-780 — For Residences, Apartments and Office Doors. Operates by knob from either side and by key from outside when locked by turn piece in inside knob.

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 20*)

1951 is developing. In the main, private architects are designing these structures; architects located in the particular districts.

Shorts

• The Federal Housing Administration issued commitments on approximately 18,000 units of prefabricated housing in 1949, about half the volume of all prefabricated housing turned out. Yet FHA insured only one-third of the total housing volume produced in all types. The prefab commitments covered $118 million in loans advanced by private lenders, an increase over the 1948 business. Largest loan insurance activity centered in midwestern states where the larger plants are located.

• The military housing construction program under the Wherry Act (Title VIII) had gone through the throes of an adjustment period. Defense Secretary Louis Johnson reviewed processing procedures after halting applications Dec. 16. The ban was effective about two months and a half. Before applications were stopped, construction had started on 2250 units, but the three services had approved preliminary plans for 31,000 dwelling units. This is rental housing constructed by private builders and designed by private architects. It is located on or near military reservations. The stop order did not affect Wherry Act projects where proposals had been received or scheduled. It shut off new proposals only.

• The building industry showed keen interest in the fate of the fabulous Lustron Corp., makers of enamel-covered steel houses at Columbus, Ohio. Reconstruction Finance Corp. had gone ahead with its foreclosure action, asking a receiver in an effort to recoup as much as possible of its $37.5 million loans to the firm.

MODULAR COORDINATION FUND APPROACHES GOAL

The American Institute of Architects and the Producers' Council, co-sponsors of modular coordination, have set up a plan which will result in a specialist being retained by the Department of

Education and Research of the A.I.A. to promote the use of modular coordination.

According to Charles M. Mortensen, managing director of the Producers' Council, prospects are bright for reaching the goal of $15,000 for the special fund being contributed by manufacturers of building materials and equipment to promote wider understanding and adoption of modular coordination as a means of reducing construction costs. The fund, to which the A.I.A. is also contributing, is being set up within the American Architectural foundation.

"Considerable emphasis has been given to the adoption of modular coordination through the efforts of the Housing and Home Finance Agency," Mr. Mortensen said, "but the work of that agency is confined to housing. The raising of the special fund will mean that proper emphasis also can be placed on the use of modular design and materials in commercial, industrial and other non-residential construction.

"The fact that substantial savings in building costs can be effected by coordinating the dimensions of materials has been demonstrated beyond question by studies undertaken at the University of Illinois and by use of the principles in actual construction of hospitals and other buildings."

ON THE CALENDAR

Apr. 10–16: VII Congress of Panamerican Architects, Havana, Cuba.

Apr. 12–14: Spring Meeting, The American Society of Mechanical Engineers, Hotel Statler, Washington, D. C.

Apr. 19–21: Spring Meeting, American Society of Civil Engineers, Los Angeles, Calif.

Through Apr. 29: Eleventh Annual Exhibition, National Serigraph Society, Serigraph Galleries, 38 W. 57th St., New York, N. Y.

Apr. 11–May 7: Exhibition of photographs and drawings of recently completed school buildings, The Art Alliance, 251 S. 18th St., Philadelphia.

May 1–3: 38th Annual Meeting, Chamber of Commerce of the United States, Washington, D. C.

May 6–8: Meeting of the Board of Directors, The American Institute of Architects, Washington, D. C.

May 8–9: 36th Annual Meeting of the Association of Collegiate Schools of Architecture, Mayflower Hotel, Washington, D. C.

(*Continued on page 24*)

New Veterans Administration 475-bed hospital now being completed by Merritt-Chapman & Scott at Wilkes-Barre, Pa.
Kelly & Gruzen — Architects.

Streptomycin processing and packaging plant built by Merritt-Chapman & Scott for Merck & Company, Rahway, N. J.
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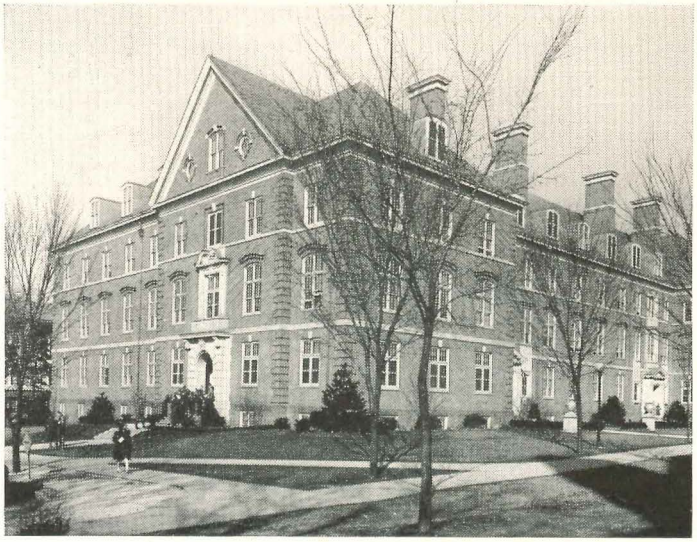
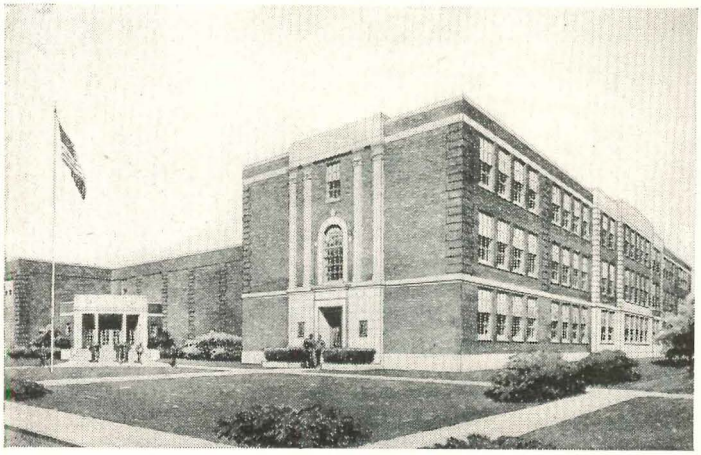


Gregory Hall, University of Illinois. Architect: Ernest L. Stouffer, University of Illinois. Engineer: Samuel R. Lewis, Chicago. Clarage fans installed for ventilation.



Irondequoit High School, Irondequoit, N.Y. Architect: Carl C. Ade, Rochester, N.Y. Clarage fans installed for ventilation.

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THE RECORD REPORTS

(*Continued from page 23*)

May 8–9: Meeting of the National Council of Registration Boards, Washington, D. C.

May 9: Meeting of the Producers' Council, Washington, D. C.

May 10–13: 82nd Annual Convention, The American Institute of Architects, Washington, D. C.

June 26–30: 53rd Annual Meeting and ninth exhibit of testing apparatus and related equipment, American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J.

June 12–15: 43rd Annual Convention, National Association of Building Owners and Managers, Olympic Hotel, Seattle, Wash.

AT THE COLLEGES

Architectural Schools Should Create Artists, Howe Asserts

The producing of artists was the function ascribed to architectural schools in a speech by Chairman George Howe of the Yale Department of Architecture before alumni of the School of Fine Arts.

"I hasten to add," he said, "that an artist who is not technically competent in his art is no artist. Some critic has said that every esthetic advance of an artist is a new technical experience. That is important."

Discussing the common criticisms of architectural schools by architects on the ground that they do not adequately prepare for a professional career, Professor Howe warned that "we must not lose sight of the fact that the primary purpose of architectural schools is to create architects, not to prepare draftsmen for office work.

"Draftsmen as such can probably be better prepared in technical schools and offices. The comparative success that architectural schools have achieved in creating architects is easier to estimate than their alleged failure in preparing draftsmen, for it is visible to the eye in our buildings, and it is not unworthy of admiration."

Professor Howe said that more good young architects are being prepared for practice now because of the "encouragement of free individual development in the field of design.

"With this process over-emphasis on technical preparation must not be al-

(*Continued on page 184*)

NEW ALLSTATE INSURANCE BUILDING

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CONSTRUCTION COST INDEXES

Labor and Materials

United States average 1926–1929 = 100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1925	121.5	122.8	111.4	113.3	110.3
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1945	160.5	161.7	156.3	158.0	155.4
1946	181.8	182.4	177.2	179.0	174.8
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
Nov. 1949	242.7	239.4	241.0	244.2	237.6
Dec. 1949	242.4	238.9	241.4	244.5	237.8
Jan. 1950	242.8	239.4	242.3	245.2	241.2
	% increase over 1939				
Jan. 1950	**96.6**	**95.6**	**85.4**	**83.8**	**85.4**

ATLANTA

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1925	86.4	85.0	88.6	92.5	83.4
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1940	91.0	89.0	96.9	98.5	97.5
1945	132.1	133.9	123.2	122.8	123.3
1946	148.1	149.2	136.8	136.4	135.1
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
Nov. 1949	184.8	186.0	178.2	177.8	175.1
Dec. 1949	184.5	185.5	178.6	178.1	175.3
Jan. 1950	184.5	185.5	179.2	178.6	177.7
	% increase over 1939				
Jan. 1950	**113.8**	**123.2**	**88.4**	**83.4**	**87.6**

ST. LOUIS

1925	118.6	118.4	116.3	118.1	114.4
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1945	152.8	152.3	146.2	148.5	145.6
1946	167.1	167.4	159.1	161.1	158.1
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
Nov. 1949	220.9	219.2	214.2	217.9	215.4
Dec. 1949	220.7	218.9	214.6	218.2	215.7
Jan. 1950	220.3	218.4	214.7	218.4	216.5
	% increase over 1939				
Jan. 1950	**99.9**	**104.1**	**80.9**	**82.3**	**81.9**

SAN FRANCISCO

1925	91.0	86.5	99.5	102.1	98.0
1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1945	146.2	144.3	144.5	146.8	147.9
1946	159.7	157.5	157.9	159.3	160.0
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
Nov. 1949	213.6	207.6	215.2	220.0	215.4
Dec. 1949	214.0	208.0	215.7	220.4	215.8
Jan. 1950	213.3	207.0	216.7	220.6	216.9
	% increase over 1939				
Jan. 1950	**102.0**	**108.5**	**84.6**	**81.0**	**86.2**

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

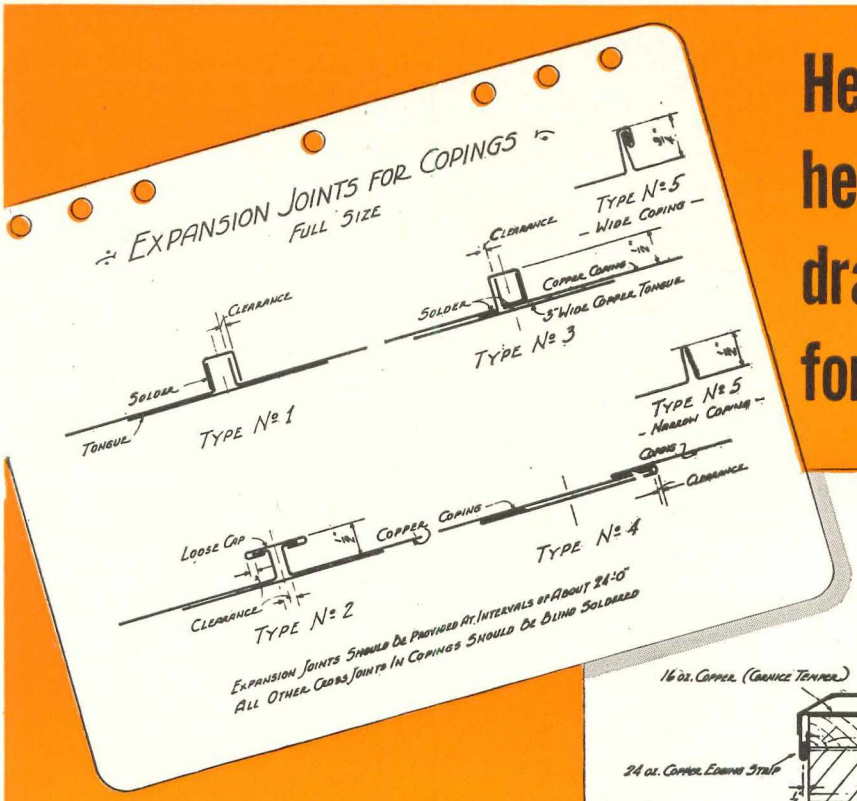
$$\frac{110-95}{110} = 0.136$$

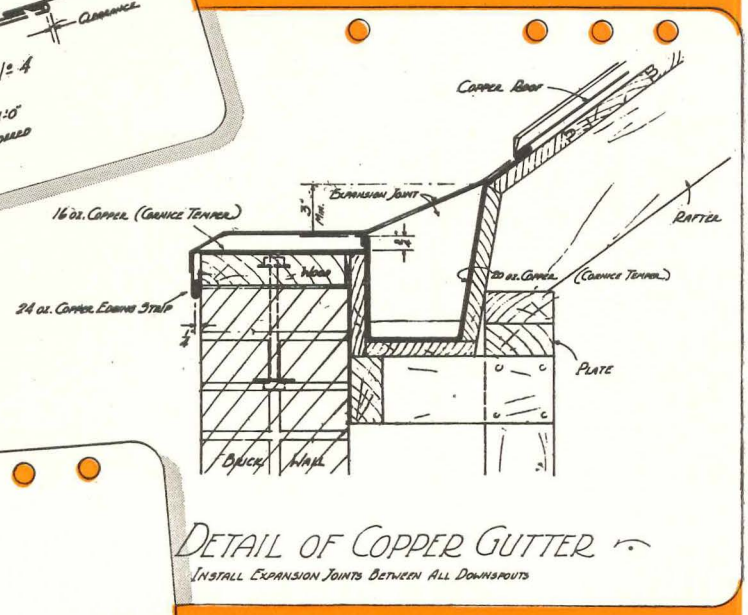
Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.

Here are some helpful Copper Coping drawings for your notebook





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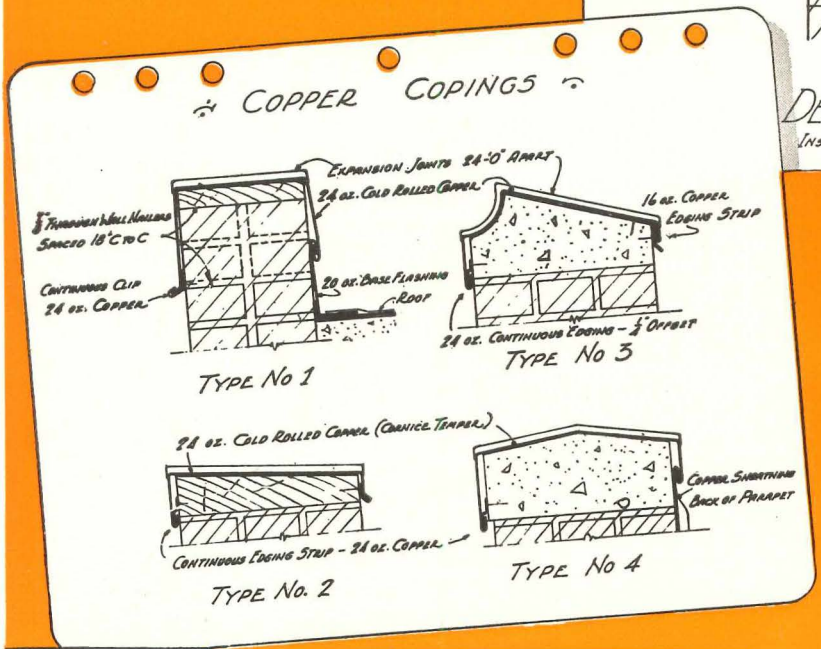

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REQUIRED READING

RURAL SCHOOLS

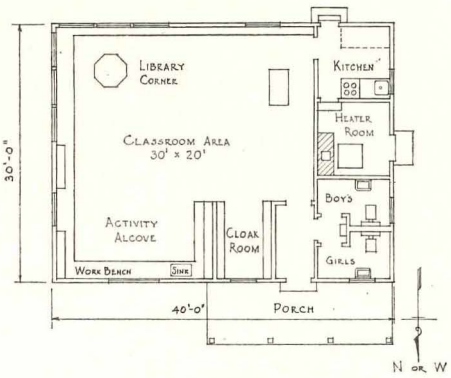
Planning Rural Community School Buildings. Sponsored by the National Council of Chief State School Officers. Prepared Under the Supervision of Frank W. Cyr and Henry H. Linn. Published by the Bureau of Publications, Teachers College, Columbia University (New York, N. Y.), 1949. 8½ by 11¾ in. xiii + 162 pp. illus. $3.75.

"In the preparation of this volume," the introduction states, "the fact was kept constantly in mind that consolidation of schools of small communities is one of the chief reasons for the great demand for new school buildings in the United States. Planning the new school building is one of the first major tasks of the new consolidated district. The effectiveness of consolidation depends in a large measure on how well the school building is adapted to educational and community needs."

The volume was prepared by a staff of experts especially appointed to study school needs throughout the country. It represents the combined thinking of educators, laymen and architects in many widely separated areas; its avowed purpose is "to help the local community find its own answers" to its school planning problems.

The report is divided into four parts, by far the largest of which is the second, "Rural School Building Plans." This is the architects' own section, well supplied with plans of schools ranging in size from the one-teacher elementary school to the complex 12-grade consolidated school with its provisions for community activity. The plans are not presented as "ideal" ("there is no such thing as an 'ideal' plan which will meet all conditions"), but as examples of what is being done. Each is accompanied by a one-page description pointing up the main features. There are basic plans and alternatives; details; diagrammatics; site plans; classroom schematics; plans for special facilities such as workshops and canning centers, school kitchens, gymnasiums, agriculture units, art studios, homemaking departments. There are even plans for a "teacherage" for the isolated country school.

To the school architect such a collection of plans, all of them large and clearly drawn, should be of immense interest. The rest of the volume — Part I on the planning of a school building, Part III on architectural styles, and Part IV on "Sources of Help" — will be of less interest to him except as they help him in his relations with the school boards and educators. The book as a whole, however, is a "must" for everyone concerned with school planning.



Basic plan for a one-teacher school by Frank Gilson, Architect. From "Planning Rural Community School Buildings"

SCHOOLS AND COLLEGES

The American School and University: 1949–50. 21st annual ed. American School Publishing Corp. (470 Fourth Ave., New York 16, N. Y.), 1949. 8½ by 11 in. 784 pp., illus. $4.00.

Throughout the years each new edition of THE AMERICAN SCHOOL AND UNIVERSITY has offered its readers a vast store of information on current trends in the school field, and this 21st edition is no exception. Its Editorial Section, comprising roughly half the book, contains 38 articles, some of them on general design problems and trends, others on such highly specialized features as the print shop, still others describing recently completed educational buildings of various kinds.

Particularly interesting in view of the volume on rural schools reviewed just above is M. R. Sumption's brief article on "Planning Buildings for New Community School Districts in Illinois." "The typical small community unit district in the state," Dr. Sumption says, "has an area of 50 to 75 square miles and a total enrollment of 400 to 600 pupils. . . . In looking forward to new construction such districts will probably find the twelve-grade building the best solution. . . . In districts somewhat larger, the six-grade secondary school has found favor. The typical district where the six-year school is planned has an area of 75 to 150 square miles and enrolls 600 to 1000 pupils." Units of the latter size require in addition several strategically placed elementary schools, and still larger areas need the four-year high school and the junior high school. Community facilities are provided regularly under each of the four housing plans.

Particularly interesting in conjunction with the Building Types Study in this issue of the RECORD is William Arild Johnson's treatment of "Economy in Schoolhouse Planning and Construction." Economy starts on the drawing board, Architect Johnson says. The research necessary to achieve it is considerable and "costs the architect extra money, but it should all be part of *his* job." Schools should be one-story whereever practicable, he says, listing eight reasons why. Square classrooms designed by his firm (William Arild Johnson and Associates, Architects and Engineers, Everett, Wash.) have been "more economical to build than the conventional wood-joist construction across a 24-foot span," he reports.

Other timely and interesting articles in this AMERICAN SCHOOL AND UNIVERSITY include: "The Economy of Contemporary Design," by Jay C. Van Nuys, New Jersey architect; "A Graphic Method of University Space Analysis," by Hermann H. Field, Director of Building Plans, Cleveland College of Western Reserve University; "Planning a College Library," by Earle U. Rugg, Chairman, Division of Education, Colorado State College of Education; and "Storage Cabinet Assemblies as Dividing Partitions," by John W. McLeod of McLeod and Ferrara, Architects, Washington, D. C.

New buildings described and discussed include the Morehead Building (science) at the University of North Carolina, designed by Eggers and Higgins; the Fairfax Elementary School, Fairfax, Calif., by John Lyon Reid, of Bamberger and Reid; and Bowman Hall (dormitory) at the University of Kentucky, designed by John F. Wilson.

The latter half of the book contains,

(*Continued on page 30*)

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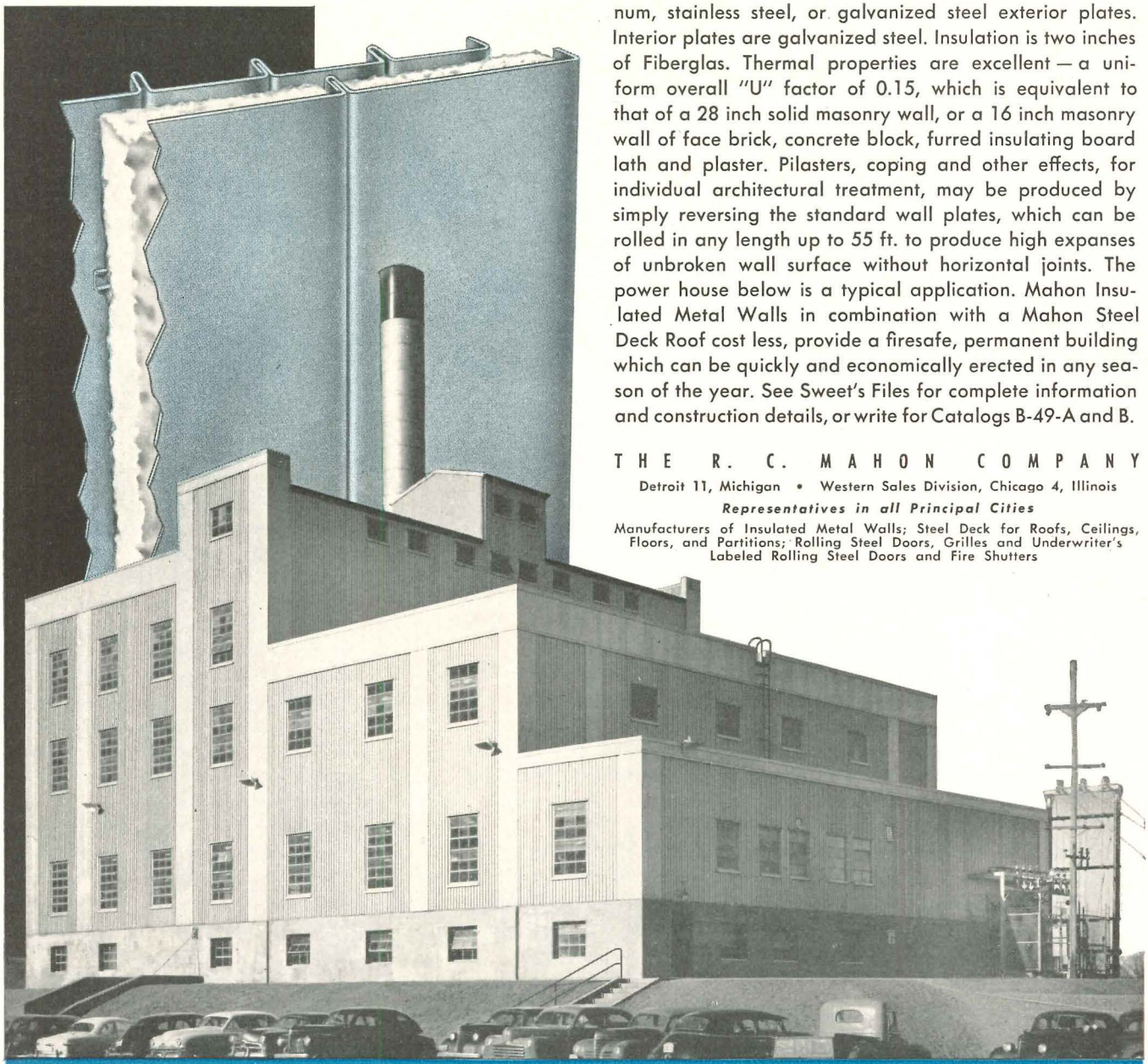

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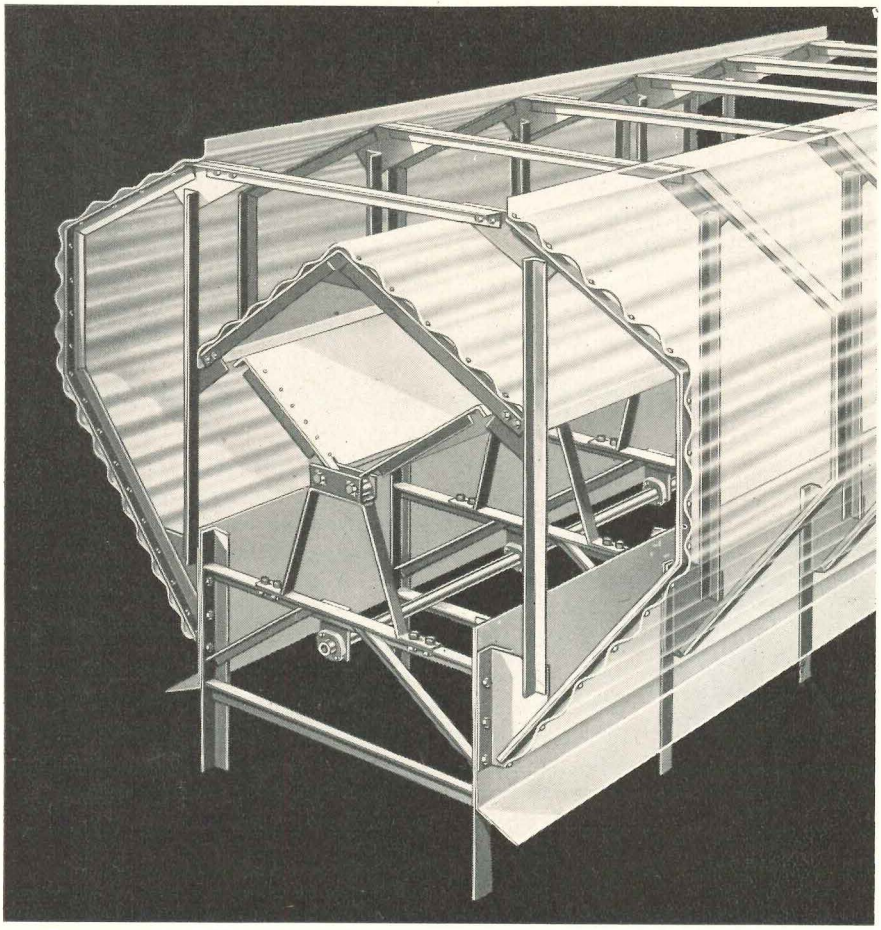

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REQUIRED READING

(*Continued from page 28*)

as usual, product information of all kinds, and cumulative indexes to editorial subjects and authors for the past 11 editions.

SCHOOL LIBRARIES

Planning School Library Quarters. A Functional Approach. By the Sub-Committee on Library Service Schools Planning Board of Illinois Library Association. Mildred L. Nickel, Chairman. American Library Association (Chicago), 1950. 8⅜ by 11 in. 53 pp. illus. $1.50.

"Within the last few years the concept of the function of the school library has broadened in three major respects, all of which should affect the planning of school library facilities." (1) The librarian now stimulates demands for library service instead of being expected to mark time until a teacher makes demands upon him and his library, the usual, former practice; (2) the conception of library materials is expanding; and (3) the teaching function of the librarian is becoming more important. These aspects levy new responsibilities upon library planners.

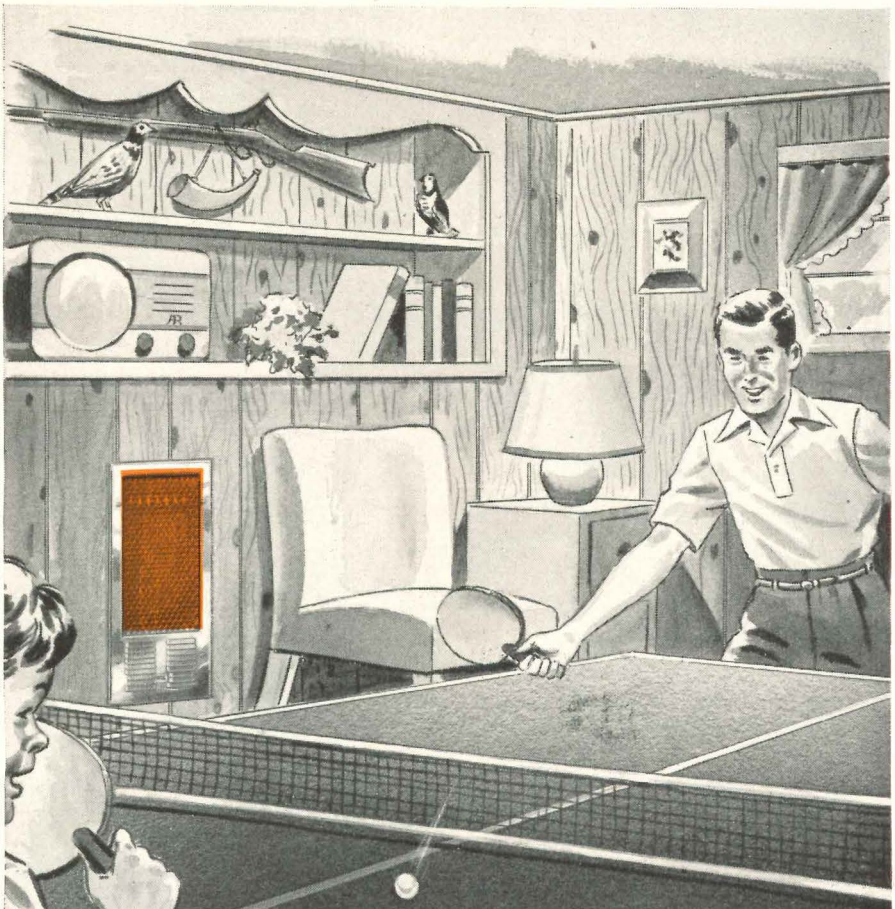
In light of advanced educational techniques, school just isn't what it was. And its libraries no longer rely on a traditional and outmoded form, that is, of providing mere shelves for books, or hard-seated reading locations for students between classes. It has a more embracing function in the student curricular life; it has become the very nucleus of the school. Adequate provision (storage and usage space) for its new accoutrements (recordings, films and slides, charts and other source material) in addition to book and study facilities is now required.

Related here — the question of the functional format of the school library itself. The committee discusses possible shapes for the room, placement of equipment, etc. The importance of correct furniture — shelving, filing and reference cabinets, periodical storage equipment — is stressed. Details of shapes and sizes for furniture, the most efficient types of design and refinishing jobs are suggested.

Sound control and color are treated at some length. A concerted attempt should be made, the committee urges, to create an attractive atmosphere, yet

(*Continued on page 32*)

This *used to be* the coldest room in the house



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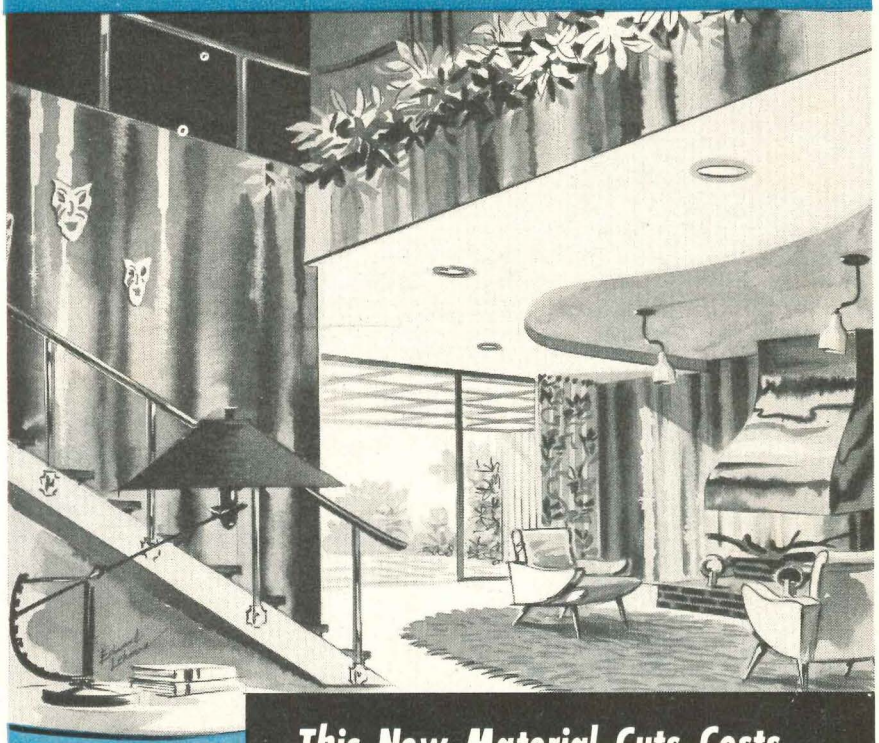

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REQUIRED READING

(*Continued from page 30*)

one which is conducive to the purposes of the room. Lighting and windows each occupy a chapter; examples of many types are presented and criticized.

The conclusions of this publication are derived from material gathered together by authorities in the educational field for the purpose of helping administrators, librarians and architects in the designing and redesigning of school libraries and in the possibilities of converting classrooms into libraries. Thus, although the booklet is not directed to the architect alone, it ought to be useful to him in the planning of flexible school library quarters that will not only answer the needs of students today, but will provide for future expansion of those needs.

ACOUSTICS

Acoustical Designing in Architecture. By Vern O. Knudsen and Cyril M. Harris. John Wiley & Sons, Inc. (440 Fourth Ave. New York 16, N. Y.), 1950. 5½ by 8¼ in, x + 458 pp., illus. $7.50.

This book is written primarily for architects, students of architecture and others who wish a non-mathematical but comprehensive treatment of architectural acoustics which will serve as a practical guide. Readers of Mr. Knudsen's earlier book, ARCHITECTURAL ACOUSTICS (John Wiley & Sons, New York, 1932), will recall that that volume made considerable use of mathematical analysis in developing basic acoustical theory. The present volume develops background information qualitatively, omitting rigorous mathematical derivations. Emphasis is placed on the use of equations and several charts and monographs are included to facilitate application. The approach makes the volume a convenient handbook for everyday use as well as a text for developing the subject.

The first part of the book is devoted to an explanation of the properties of sound, the mechanism of hearing and the behavior of sound in enclosures. The chapter on sound-absorptive materials is especially well presented. The authors' wide practical experience is evident here from the care they take to point out the several factors other than sound absorption that must be taken into account in selecting acoustical ma-

(*Continued on page 238*)

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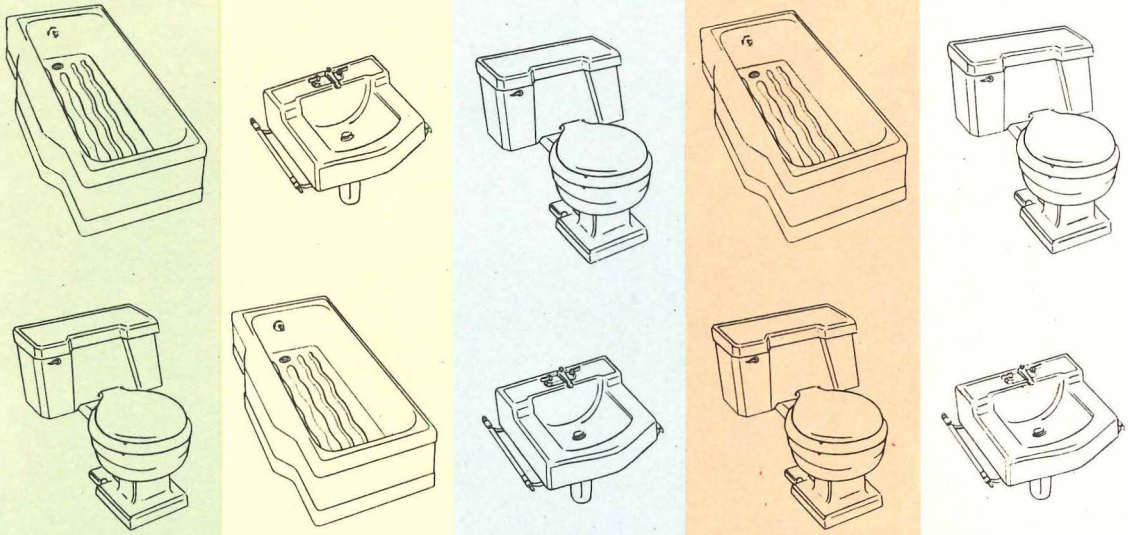

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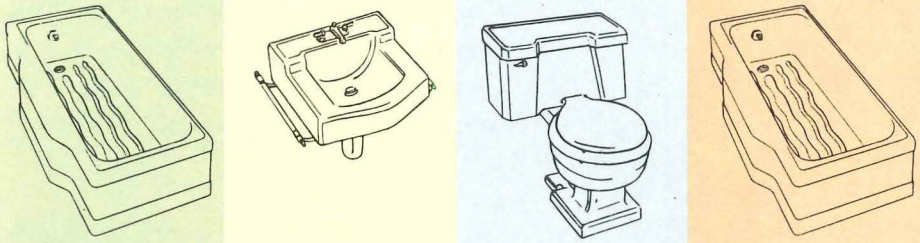

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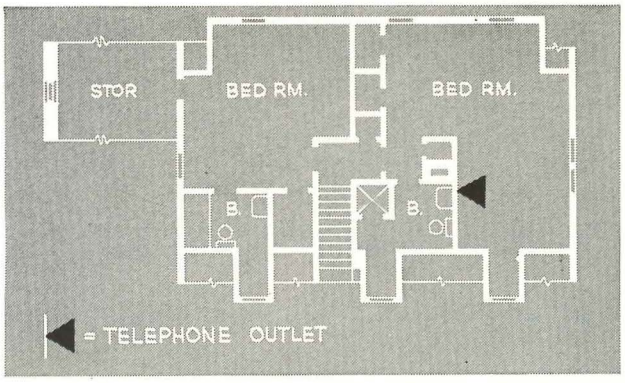

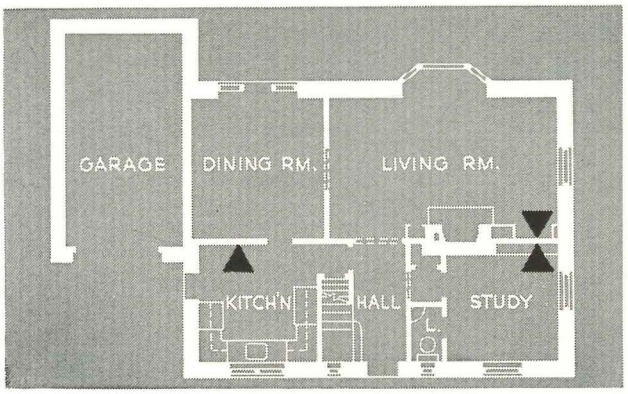

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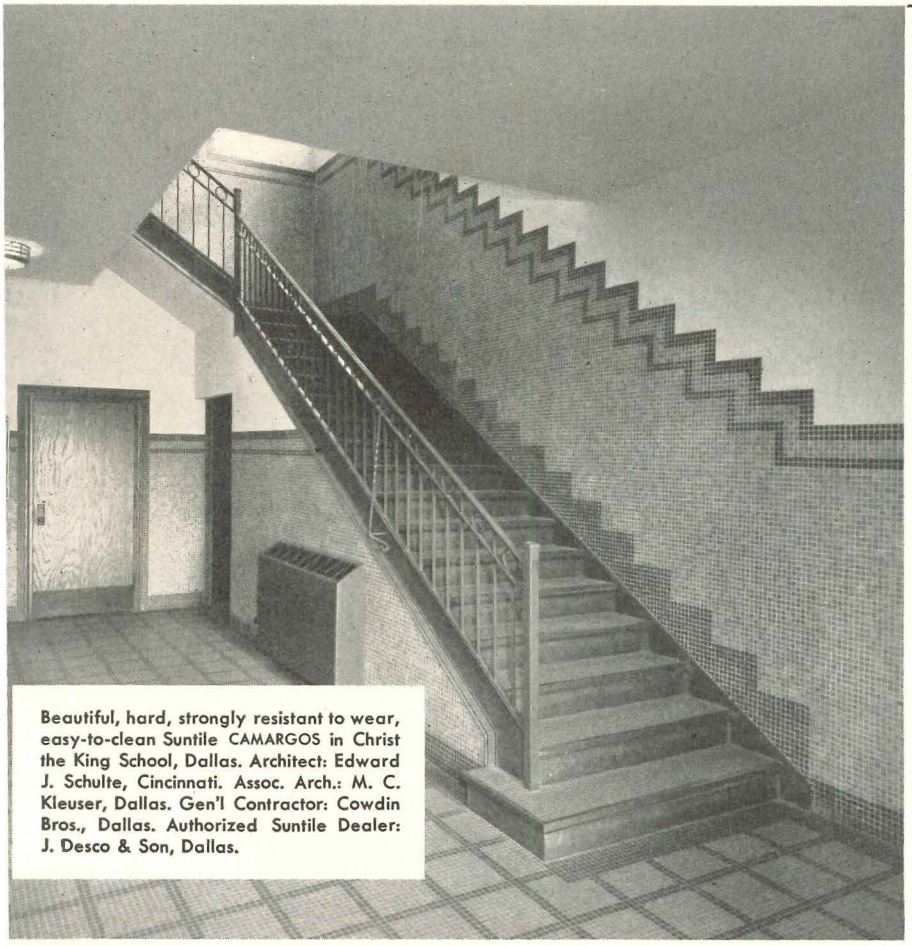

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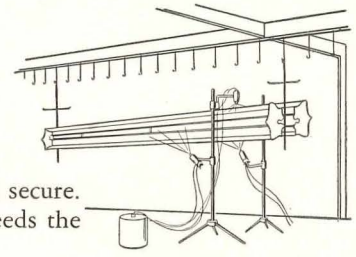

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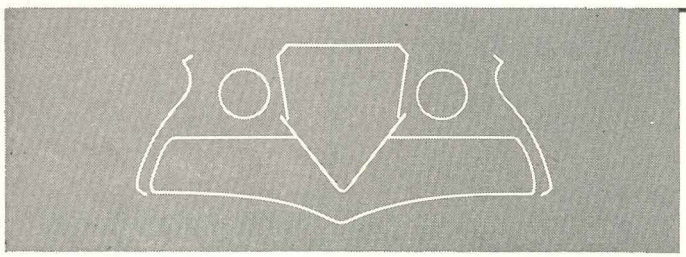

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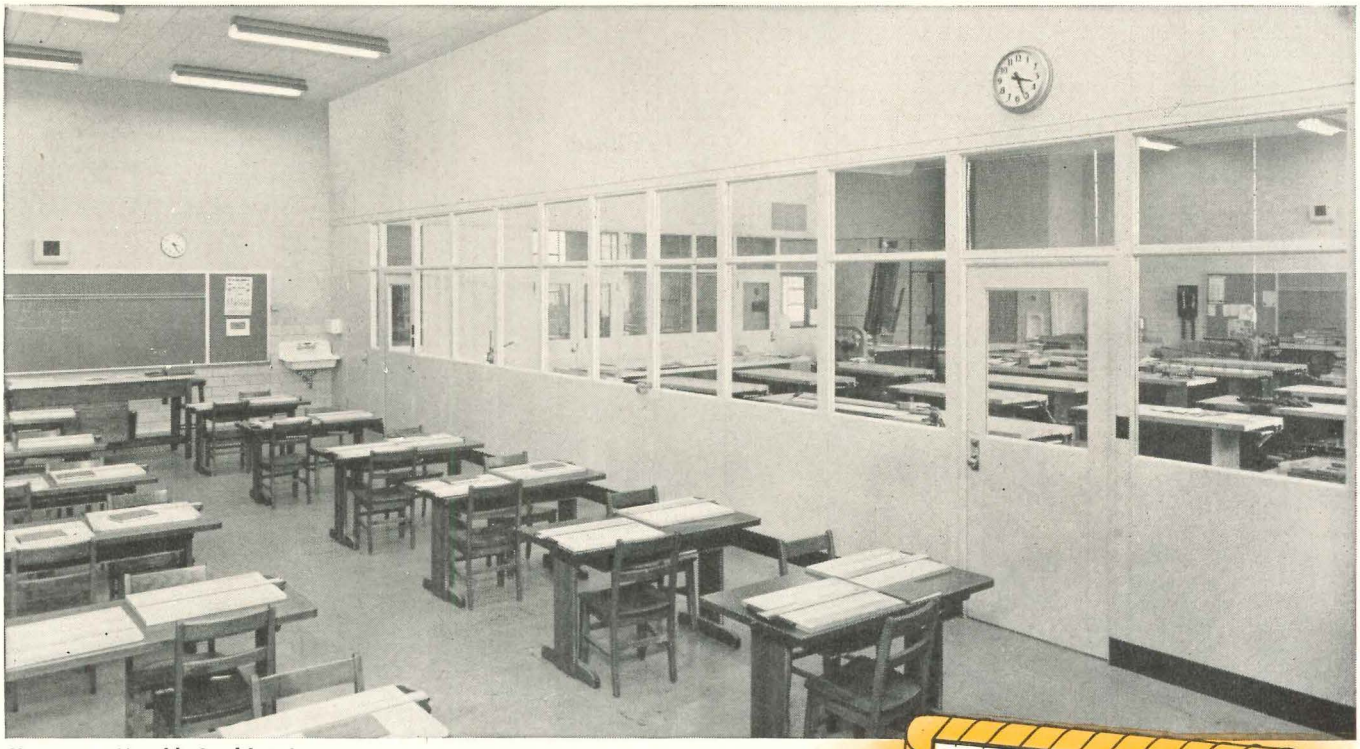

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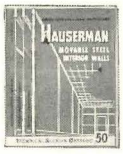
Hauserman *Movable* Steel Interiors have a baked-on finish that won't chip, crack, warp or scale. This eliminates frequent patching and repainting. It means that a janitor can easily perform all the normal maintenance required, occasional soap-and-water washing.

There are many reasons why Hauserman *Movable* Steel Interiors are used in schools and colleges all over America. Among these advantages are: 60 Beautiful Colors and Authentic Wood Grain Finishes • Rigid Construction • Excellent Sound Control • Earlier Occupancy • Incombustible Materials • Ease of Servicing Utilities • Ease of Adding Wires and Outlets • Rock-bottom Maintenance Costs • Easy to Move • Lifetime Service.

Why not write for your free copy of Hauserman Catalog 50. It's fully illustrated and describes in detail all the many Hauserman advantages. Just write or call the Hauserman office or representative nearby or contact *The E. F. Hauserman Company, 6777 Grant Ave. • Cleveland 5, Ohio.*



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HAUSERMAN
Movable Steel Interiors

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Railings • Acoustical Ceilings
Complete Accessories

Announcing the

Wakefield

CEILING

. . . *in which large-area low-brightness illumination is integrated with acoustical control*

THE F. W. WAKEFIELD BRASS COMPANY is pleased to inform the architectural profession of the availability this summer of luminous-acoustical ceilings for improved seeing and hearing in classrooms, drafting rooms, offices and other areas devoted to critical visual tasks.

GENERAL DESCRIPTION

The Wakefield Ceiling* may be described briefly as consisting of Slimline fluorescent lamps suspended from the structural ceiling slab, supported below which at a distance of about 18 inches are thin translucent corrugated plastic sheets. Suspended below the plastic sheets are perforated acoustical baffles, trapezoidal in cross section and filled with sound absorbing material.

ADVANTAGES

The integration of large-area low-brightness illumination with acoustical control offers advantages which are immediately apparent. When wall materials, colors and furniture are coordinated, The Wakefield Ceiling insures a room with low brightness ratios, excellent light diffusion and efficient sound absorption. The architectural result is quiet and discreet. Concealment of pipes and ducts is accompanied by ready availability for maintenance.

The simplicity of hanger rod and T-bar chassis arrangement insures efficient ceiling attachment and economical installation. The lamps in a single installation may be controlled in various combinations to provide different levels of working illumination.

PARTIAL CEILING AREAS

Where room design or economics makes it desirable, individual luminous-acoustical panels may be installed. In one such experimental installation, 18 per cent of luminous ceiling area provided 42 footcandles below the luminous panel and 40 footcandles at the walls. Without cleaning for one year, these panels showed 25 per cent depreciation. After cleaning, the illumination was restored to within a few per cent of the original values. The cross section of the structural sides of these partial illumination areas is essentially the same as the trapezoidal acoustical baffle in the totally luminous ceiling, thus assuring a substantial degree of acoustical control.

HISTORY

The Wakefield Ceiling has been under development by The F. W. Wakefield Brass Company, Vermilion, Ohio, since 1944. It is the logical extension of a continuing effort to provide high quality lighting through luminous indirect equipment first achieved in the Wakefield COMMODORE (incandescent) in 1935 and then in the Wakefield STAR (fluorescent) in 1945.

Almost simultaneously with the Vermilion studies other studies were under way by C. M. F. Peterson, Parry Moon and H. L. Beckwith. Their large-area lighting installation was first made in Massachusetts Institute of Technology in 1947. Documentation of their work has appeared in several journals recognized by the architectural, engineering and other professions.†

Since the principals in these parallel developments—the Wakefield group on the one hand and the three M.I.T. engineers on the other—were favorably known to each other, it was natural that the professional abilities of the latter should be merged with the engineering and production abilities of the former.

Out of this has come The Wakefield Luminous-Acoustical Ceiling, which will be distributed from Vermilion, Ohio, beginning this summer. Meanwhile consultation at a professional level is immediately available to architects and engineers interested in learning the full story of this significant contribution to a better seeing-hearing environment. All inquiries will be accorded prompt attention by The F. W. Wakefield Brass Company, Vermilion, Ohio.

†ILLUMINATING ENGINEERING, Vol. XLIV, No. 4, April, 1949, "The New Approach to Room Lighting," by Parry Moon.

ARCHITECTURAL RECORD, June, 1949, "Glare Free Lighting Methods," studied by M.I.T., by H. L. Beckwith, C. M. F. Peterson and Parry Moon.

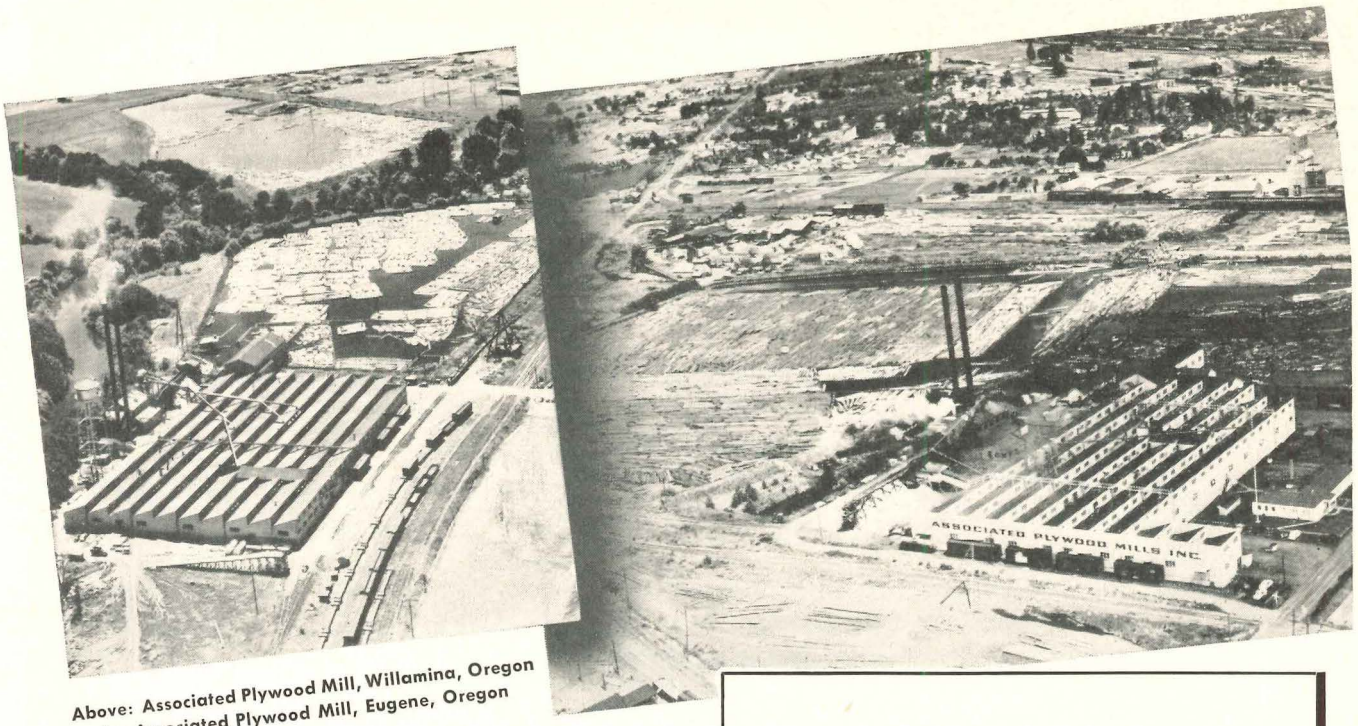
THE SIGHT SAVING REVIEW, National Society for Prevention of Blindness, "School Lighting Studies," by C. M. F. Peterson, Parry Moon, H. L. Beckwith, Pages 216-219.

ELECTRICAL ENGINEERING, July, 1949, "Modern Trends in Room Lighting," by H. L. Beckwith, C. M. F. Peterson and Parry Moon.

Wakefield CEILING

© The F. W. WAKEFIELD BRASS COMPANY

*Patent Pending



Above: Associated Plywood Mill, Willamina, Oregon
Right: Associated Plywood Mill, Eugene, Oregon

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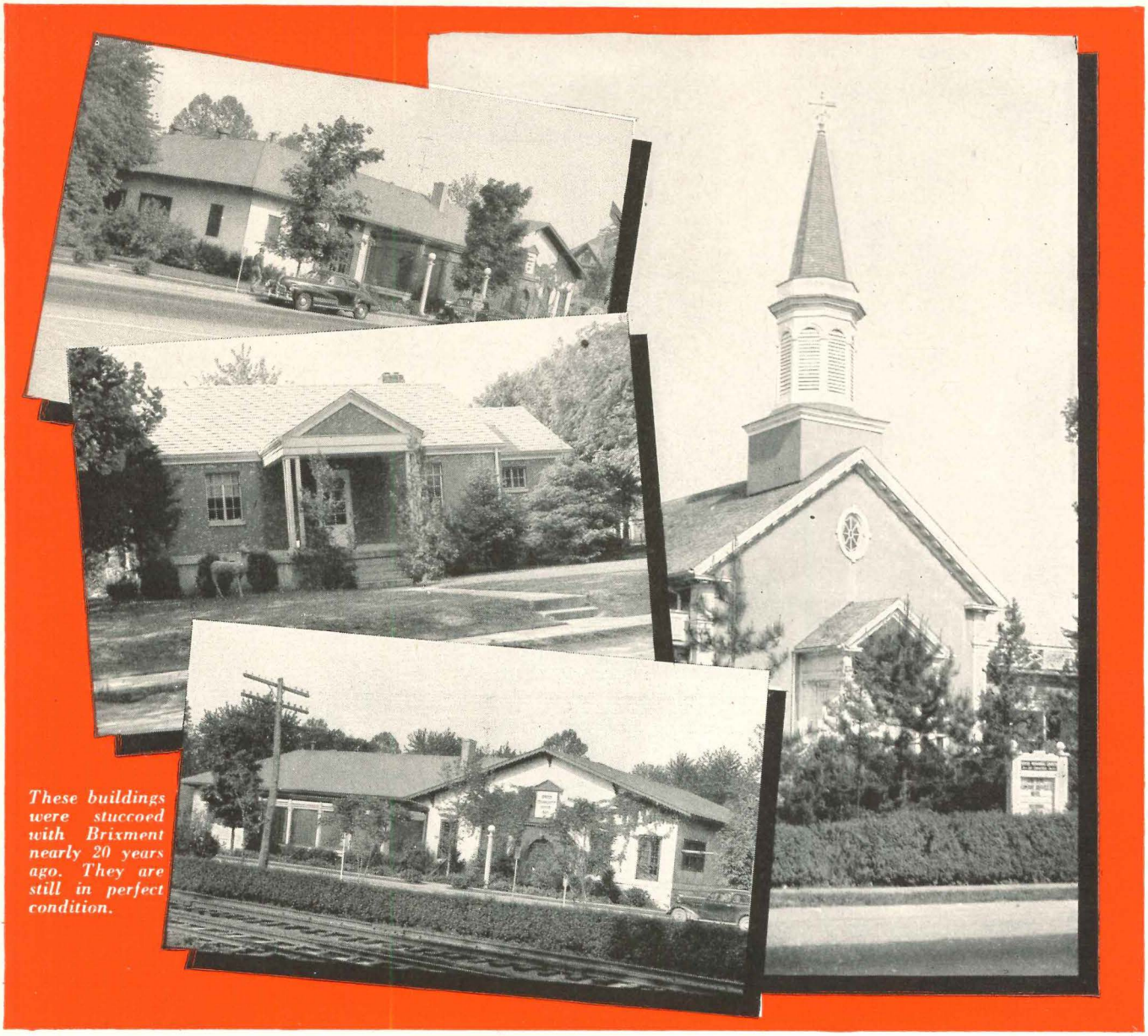
GENERAL OFFICES: EUGENE, OREGON

Plywood plants at Eugene and Willamina, Oregon ☆ Lumber mill at Roseburg, Oregon



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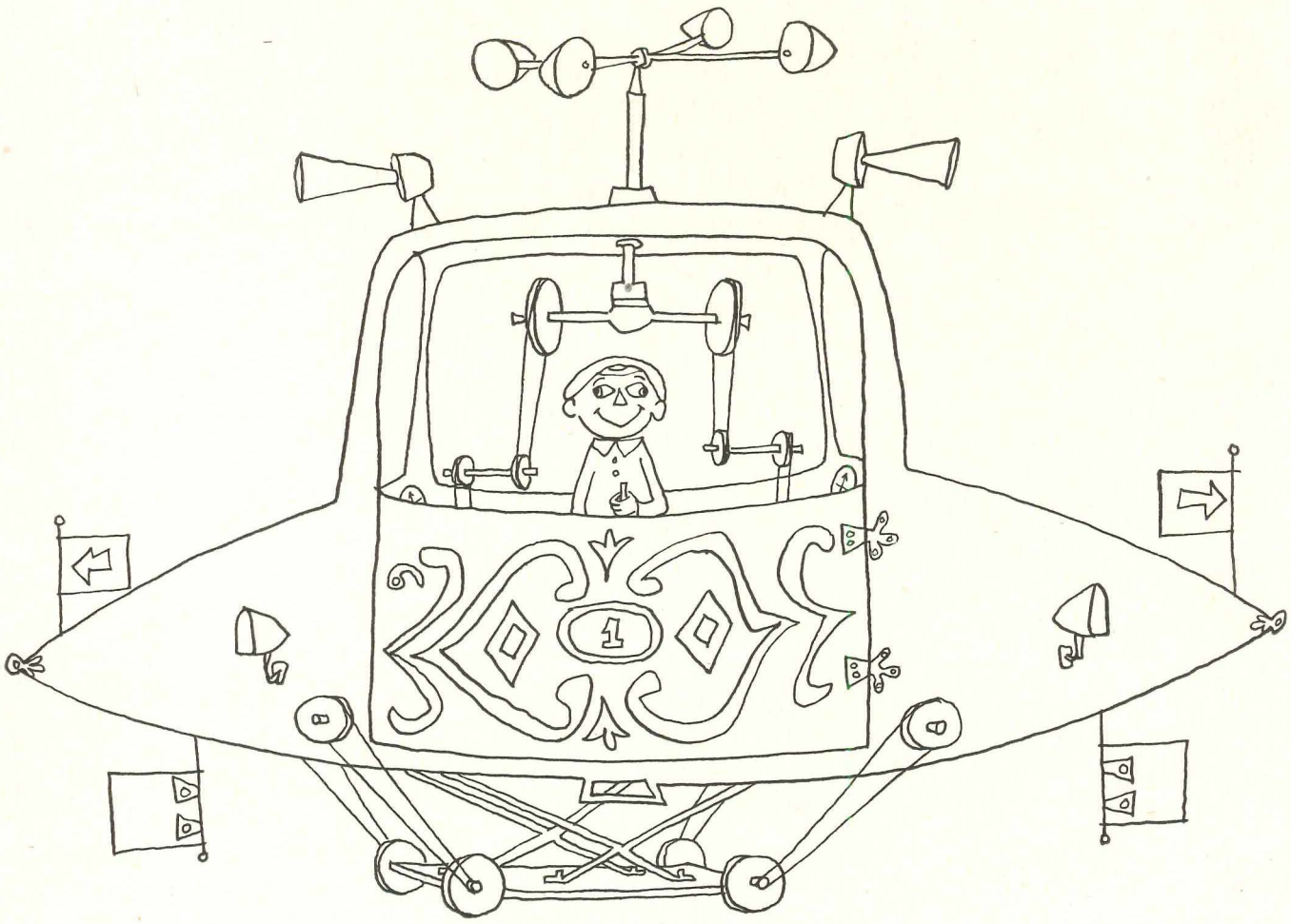

Will it run?

Of course. The inventors are unanimous. Which way? W-e-l-l. *That* they *can't* agree on.

Just the same, this invention has its uses. For instance, it's a perfect example of the dangers of divided responsibility.

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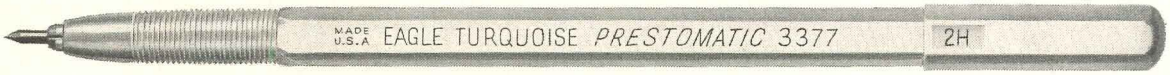
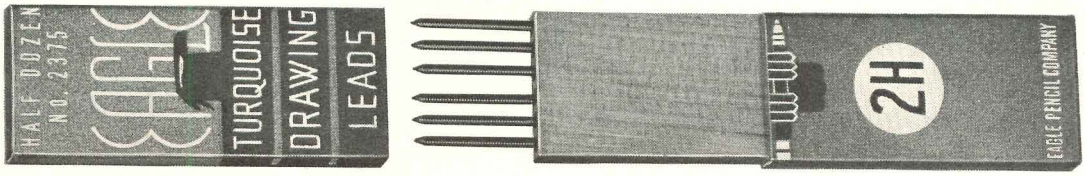
Carrier AIR CONDITIONING · REFRIGERATION · INDUSTRIAL HEATING

SEARCHING for the perfect lead holder?



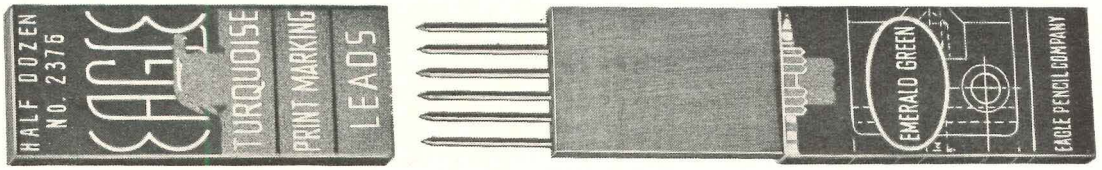
You'll find it in Eagle PRESTOMATIC. Its *rifled* jaws keep a firm, sure grip on the lead . . . never let it push back . . . never bite it off. Non-rolling, featherweight, aluminum barrel makes a permanently beautiful, precision drafting instrument. Handy press-cap quickly controls jaws for lead adjustment. Changeable indicator instantly adaptable to any degree of lead.

SEARCHING for the ideal drawing leads?



Look no further . . . Eagle TURQUOISE Drawing Leads are exactly what you want. They're the same smooth, strong, opaque leads as in famous Eagle TURQUOISE drawing pencils. 15 grades . . . 4B to 9H. Uniform .078" diameter and 5⅛" length.

SEARCHING for colored print-marking leads?



Here they are . . . the same strong, brilliant, *insoluble* leads as in famous Eagle VERITHIN pencils. Vermilion, yellow, white and emerald green for marking blueprints; blue for filling in unwanted white lines; carmine red for marking all black and white prints. PRESTOMATIC lead holders come with a colored cap to match each lead.

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8. **It is the only roofing** made of long, remarkably strong Louisiana cane fibres, and protected against dry rot, fungus and termites by the exclusive patented Ferox Process.
9. **Low in cost,** high on dependable performance through the years.

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Pattern JPA-402 Canterbury Blue

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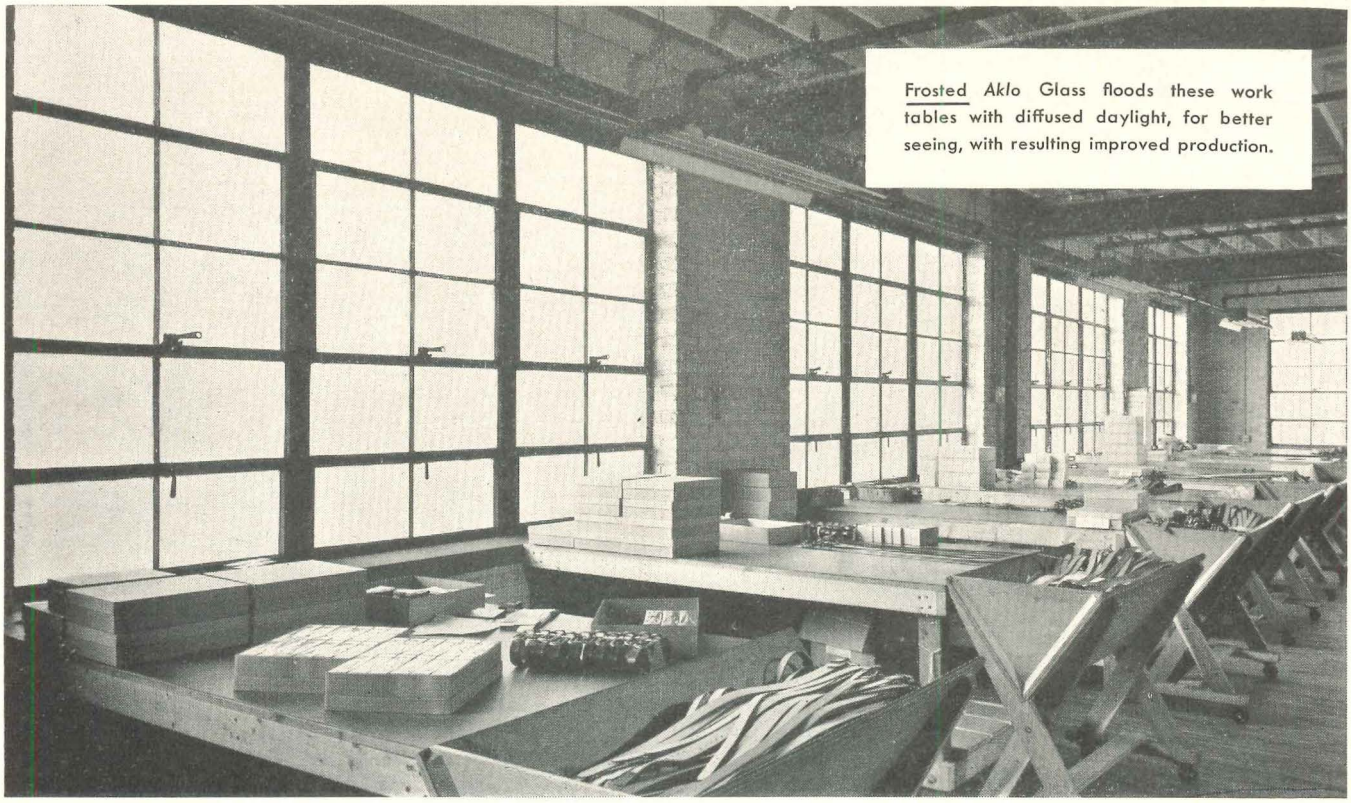

Frosted *Aklo* Glass floods these work tables with diffused daylight, for better seeing, with resulting improved production.

Production UP... Labor turnover DOWN with FILTERED DAYLIGHT

Aklo Glass provides production and employe benefits which clients want for their money in new construction or remodeling.

That's the record at the Reliable Belt Company's Chicago plant where Blue Ridge Frosted *Aklo**Glass was installed in side walls and skylights for reduction of glare and sun heat.

Before the *Aklo* installation, roller shades were lowered to avoid glare. As a result, artificial lighting was required even on sunny days. Here are some comments from the management on the success of filtered daylight through *Aklo* Glass:

- Increased production with fewer rejects because quality of light is better.
- Better attention to the job with less time out for rest periods because of eyestrain.
- Economy on artificial light and no more maintenance of shades.
- More comfort on hot days because *Aklo* retards sun heat.
- Happier employes and resulting lower turnover.

AKLO REDUCES GLARE. This blue-green diffusing filter between the sun or sky and the eyes of workers makes seeing more comfortable, less tiring.

RETARDS SUN HEAT. *Aklo* Glass absorbs nearly all the infrared radiation of the sun and re-radiates much of it externally. Interiors stay cooler. Load on air conditioning is decreased.

Aklo Glass is manufactured by the Blue Ridge Glass Corporation of Kingsport, Tenn., and sold through L·O·F Glass Distributors. Ask your distributor for a Radiometer demonstration, see for yourself how Frosted *Aklo* Glass reduces glare and sun heat. *®

Free Book on Reduction of Sun Glare and Heat. **Write to Blue Ridge Sales Division, Libbey·Owens·Ford Glass Company, 9045 Nicholas Building, Toledo 3, Ohio.**

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Heat Absorbing • Glare Reducing • Figured and Wire Glass

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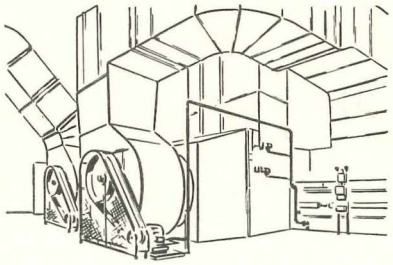
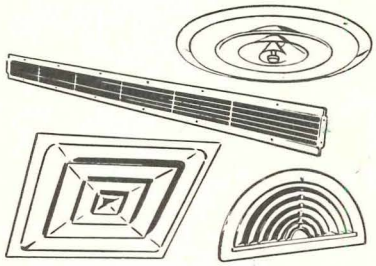
and you'll always specify Anemostat Air Diffusers

ASPIRATION PRODUCES DRAFTLESS COMFORT — The famous Anemostat aspiration and air expansion principles, illustrated and described below, distinguish Anemostat Air Diffusers from all other outlets and therefore assure the utmost in conditioned comfort . . . *no drafts . . . no stale air pockets . . . temperature and humidity instantly equalized.*



SAVE ON DUCTS AND FANS — You save on the initial cost of fans and ducts . . . and on the operating cost of fans . . . when you use Anemostat Air Diffusers. That's because these aspirating air diffusers permit the use of higher temperature differentials and higher supply air velocities than ordinary air outlets.



A TYPE FOR EVERY NEED—Round, semi-circular, square and straight-line . . . low pressure or high pressure! For every requirement there is a type and size Anemostat Air Diffuser exactly suited to your need . . . whether your designs call for ceiling or wall outlets . . . whether for comfort conditioning or industrial applications.

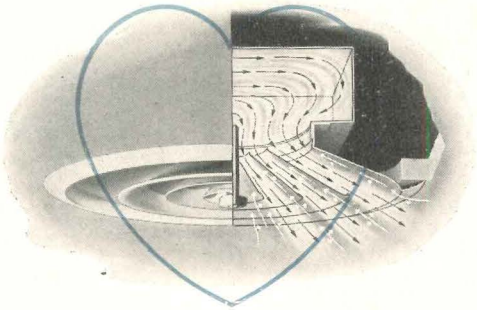
SPEEDY INSTALLATION — Anemostat Air Diffusers can be installed quickly and economically because of snap-on, ball-and-socket and other time-and-labor-saving features, depending on the type of Anemostat.

PREDICTABLE PERFORMANCE — You can count on precisely the air diffusion pattern you have selected because Anemostats are designed according to modern fluid flow theory and precision-manufactured to close tolerances.

PATENT-PROTECTED DESIGNS — Over a million dollars have been spent on research. Anemostat has protected its developments with more than fifty patents. That's why Anemostat is always a step ahead . . . why only Anemostat offers all these important features.

The PROOF! MORE THAN A MILLION ANEMOSTATS are now providing quality air diffusion in commercial buildings, industrial plants, hotels, stores, hospitals, theatres, restaurants, homes, buses, ships, railroad cars, military and commercial aircraft.

These installations required the solution of a great many different air distribution problems. Take advantage of this experience. What may appear to be a new air handling problem has probably already been solved by Anemostat. Call in your local Anemostat Sales Engineer who is backed by a most experienced engineering department.



THE HEART OF THE MATTER...

Anemostat's Exclusive Aspiration Effect

Due to its special design, the Anemostat distributes air of any duct velocity in a multiplicity of planes traveling in all directions. Simultaneously, the unit creates a series of countercurrents traveling toward the device which siphon into the device room air up to 35% of the supply air depending on the type and size of the unit. This room air is mixed with the supply air, within the Anemostat before the air mixture is discharged into the enclosure.

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Bethlehem Pacific Coast Steel Corporation
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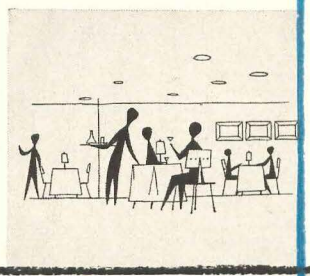
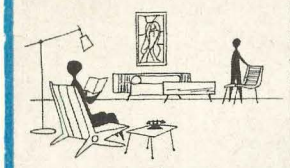
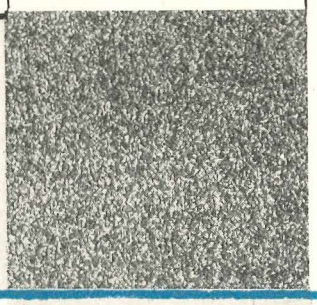
★ BETHLEHEM STEEL ★ **BETHLEHEM LONGSPAN JOISTS**

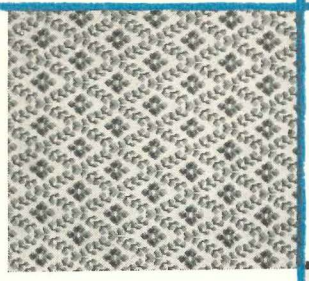


Restaurants

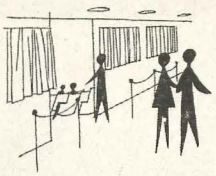


Apartments

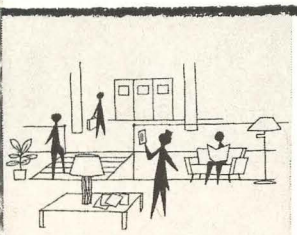




The Theatre



Terminals



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You want your client's carpeting to be right...right in quality, in design, and in price. Your local Alexander Smith-Masland Carpet Contractor is a carpet specialist. He will tell you what kind of wear you can expect from each type of carpet. He will show you what is new, in weaves, designs, colors, and textures. He will estimate the cost of any type of installation. Phone him, today.

Alexander Smith
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CONTRACT CARPETS

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Emergency Lighting

IS OF INCREASING IMPORTANCE IN MODERN SCHOOL DESIGN

Every night, in the nation's schools, thousands upon thousands of students are attending classes. Frequently other crowds of people gather in gyms and auditoriums for lectures, meetings, entertainment. All need protection from the ever-present danger of lighting failure.

Such protection is vital, for despite all precautions of utility companies, storms, floods, fires and accidents beyond their control can interrupt normal current supply. You can provide this protection for the buildings you design . . . not only schools, but also hospitals, theaters, stores and other buildings where crowds gather at night.

Exide Emergency Lighting provides safe, sure, modern protection. Batteries are always fully charged . . . always ready to take over the lighting load *instantly* and *automatically* when other sources fail. There are Exide Emergency Lighting systems and units to fit the requirements of every type and size of building you design.

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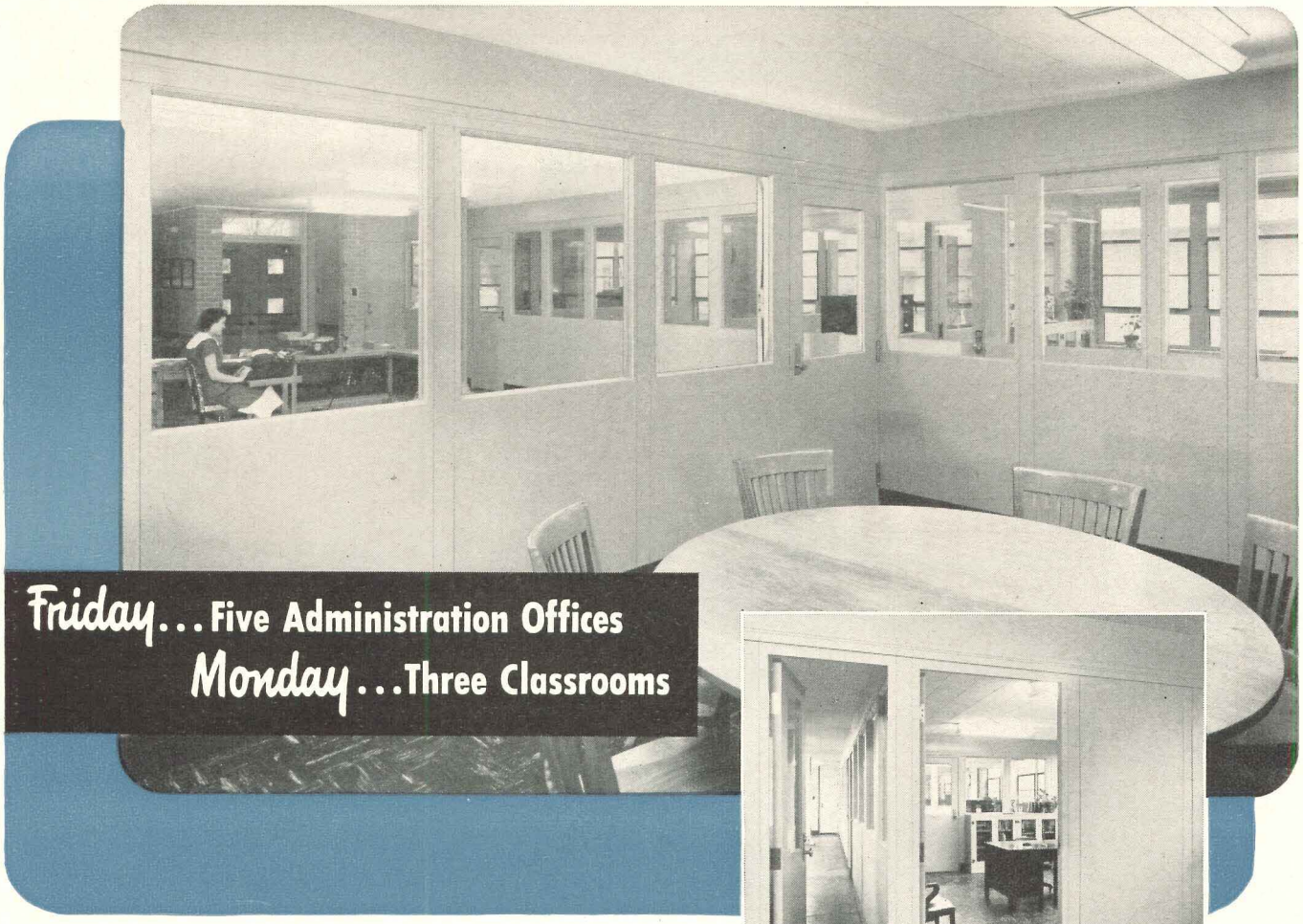
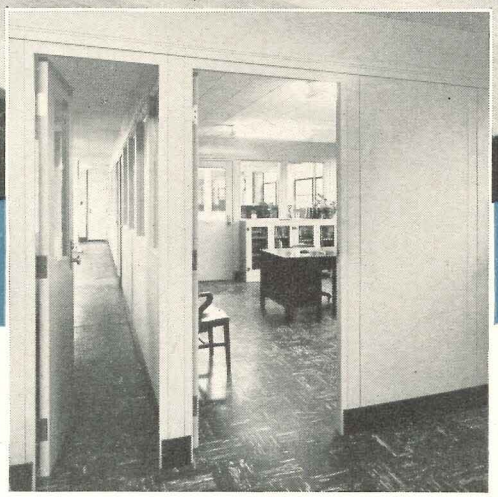
"Exide" *Reg. Trade-mark U.S. Pat. Off.*

1888 . . . DEPENDABLE BATTERIES FOR 62 YEARS . . . 1950



Friday... Five Administration Offices
Monday...Three Classrooms



Administration Offices
Department of Buildings and Grounds
Oberlin College — Oberlin, Ohio

IF Oberlin's needs for the space shown here were to change as radically as that they could be met during the same weekend.

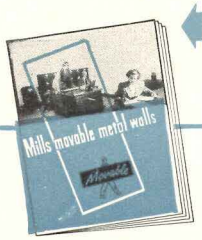
These walls are Mills Walls—as beautiful and solid and permanent as walls can be. Yet they can be moved quickly, easily, economically to fit new space layouts without disturbing administrative or educational routine.

Completely insulated and soundproof, Mills Walls create pleasant, efficient environment for classrooms, laboratories and offices. They are distinguished by their refined architectural design, their structural stability, the pleasing soft colors of their baked-on enamel lifetime finishes. Their smooth flush surfaces are specially treated to eliminate all harsh light reflection. They will not chip or mar. They require no maintenance but occasional ordinary washing to keep their fresh new look.

Maximum mobility with a minimum of labor is achieved through exclusive Mills features, the result of thirty years experience in this field. All-welded panel prefabrication permits easy erection and rearrangement. Entire sections of walls can be moved intact, units are interchangeable. Since all parts are reused there is no loss of materials. Air conditioning, light and phone lines are easily installed in separate lay-in raceways in panel connections, cornice and base.

Complete responsibility for the design, construction and installation of Mills Movable Metal Walls is characteristic of Mills service.

THE MILLS COMPANY
961 WAYSIDE ROAD • CLEVELAND 10, OHIO



You'll find this new 48-page Mills Catalog bound into Sweet's File, Architectural, for 1950—or we'll be glad to send you an easy-to-handle copy for your individual use. Just ask for Catalog No. 50.

★ MILLS *Movable* METAL WALLS ★

1818 HOPE'S 1950
SCHOOL WINDOWS

Addition to Chestnut Street School, West Hempstead, N. Y., Frederic P. Wiedersum, Architect
O'Driscoll Construction Corp., Contractors

A glance at this pleasing school exterior shows plainly that the interior is also completely satisfying.

Large openings, making a "window-wall" of Hope's Steel Windows in each classroom, give full daylight and an easily adjusted brightness pattern, providing correct natural illumination on every desk.

Clear glass set in narrow steel frames offers the restfulness and hygiene of distant vision to young eyes that need frequent relief from close work.

Note also that the ventilating casements are convenient to operate and assure perfect control of fresh outdoor air.

Such school rooms foster superior health records. Also, when Hope's Steel Windows are used, they provide most satisfying records of economy in construction and maintenance.

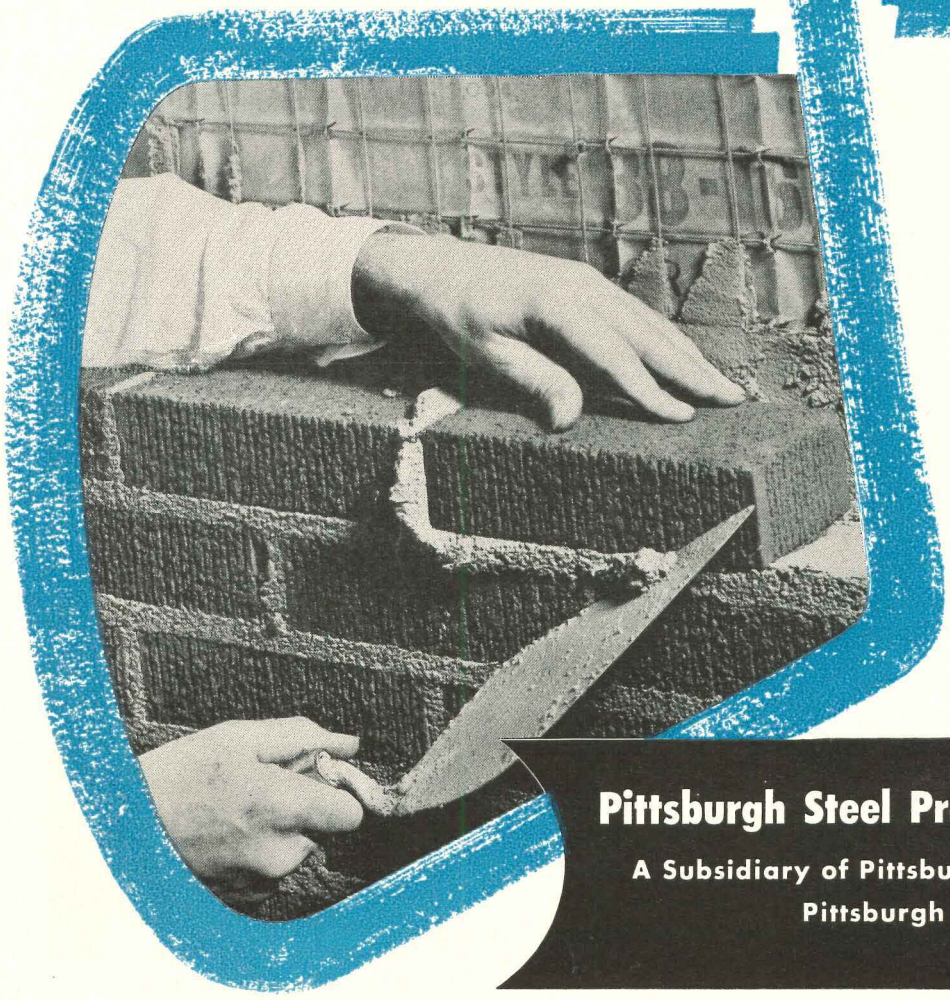
Write for Hope's Catalog and illustrations of school fenestration. Hope's Engineering Department, experienced in hundreds of school window installations, is at your service.

HOPE'S WINDOWS, INC., *Jamestown, N. Y.*

THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS

You get better masonry walls with Pittsburgh Steeltex

When you specify *Pittsburgh Steeltex* for masonry veneer, you get a better wall for two very basic reasons. First, the veneer and frame are more completely bonded together, thus providing greater mutual assistance against later settling and distortion. Second, you'll never have the trouble of wet sheathing. For further good reasons to specify *Steeltex* see our catalog in Sweet's or write for your copy of our catalog D. S. 132, Dept. AR, Pittsburgh Steel Products Company, Grant Bldg., Pittsburgh 30, Pa.

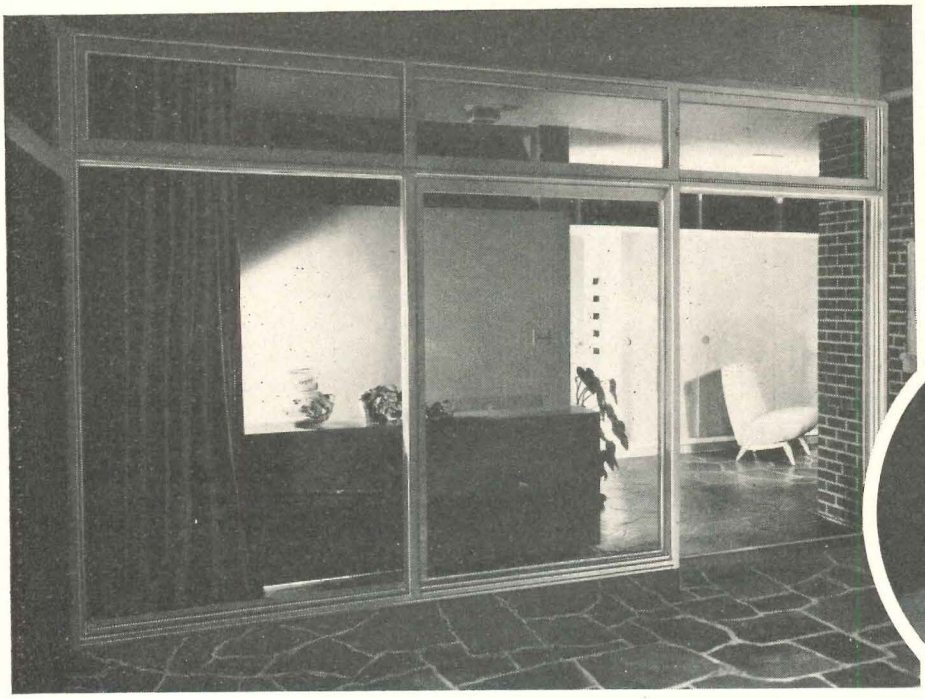


Notice how the strong, welded, galvanized steel mesh bites into the continuous mortar bond.

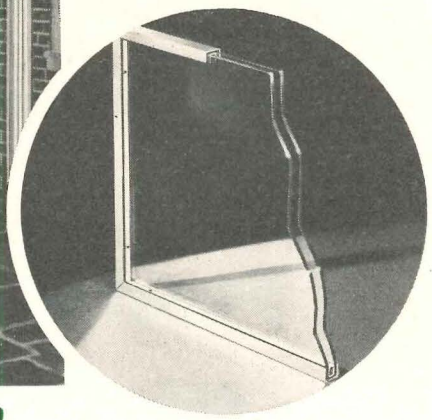
Pittsburgh Steel Products Company

A Subsidiary of Pittsburgh Steel Company

Pittsburgh 30, Pa.



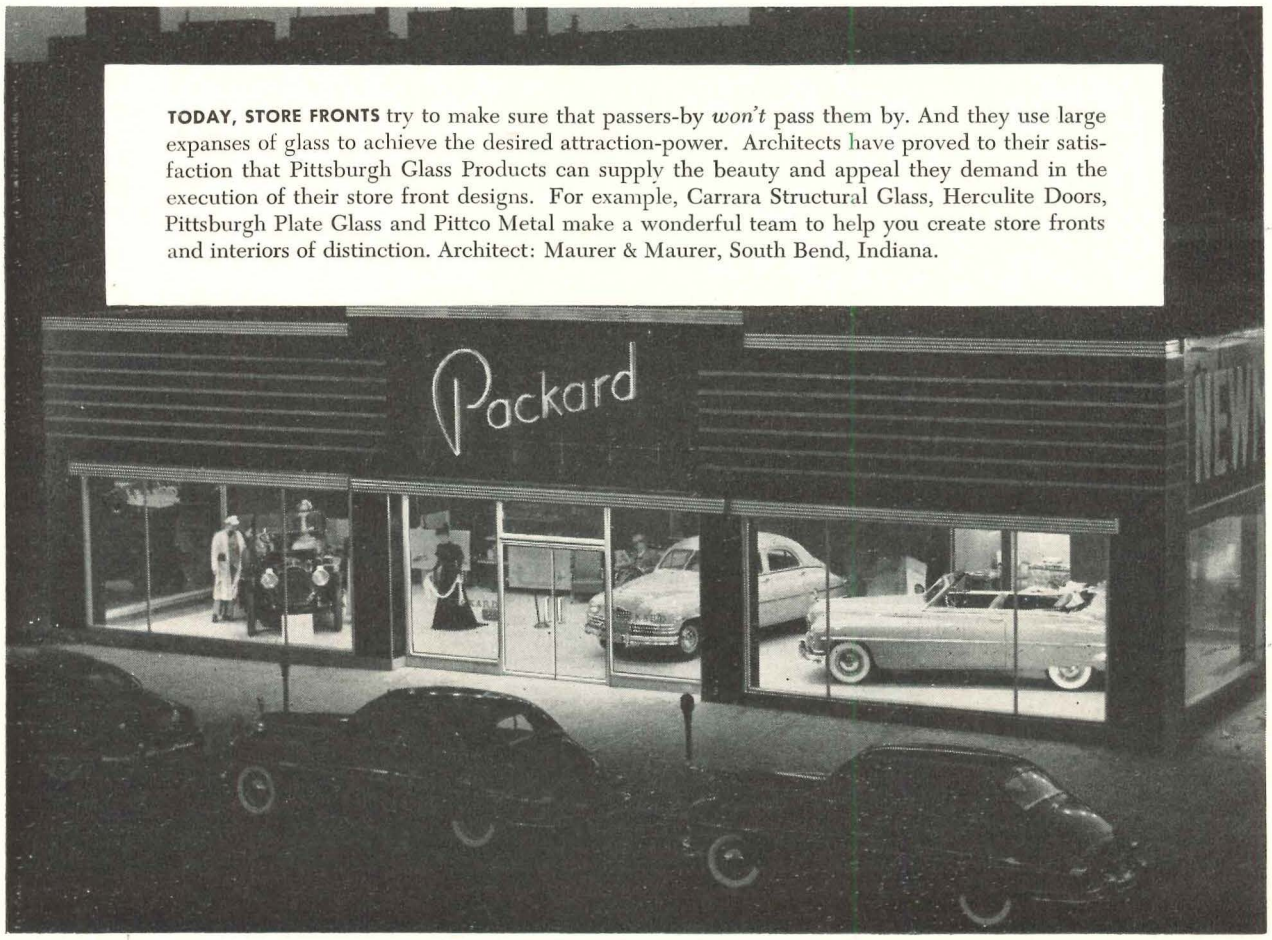
TWINDOW is made up of two or more panes of Pittsburgh Polished Plate Glass, with a sealed-in air space between them. When composed of two panes, it provides almost twice the insulating effectiveness of single-glazed windows. When three or more panes of glass make up the Twindow unit, even better insulation results. 45 standard picture window sizes are available for either wood or steel sash.

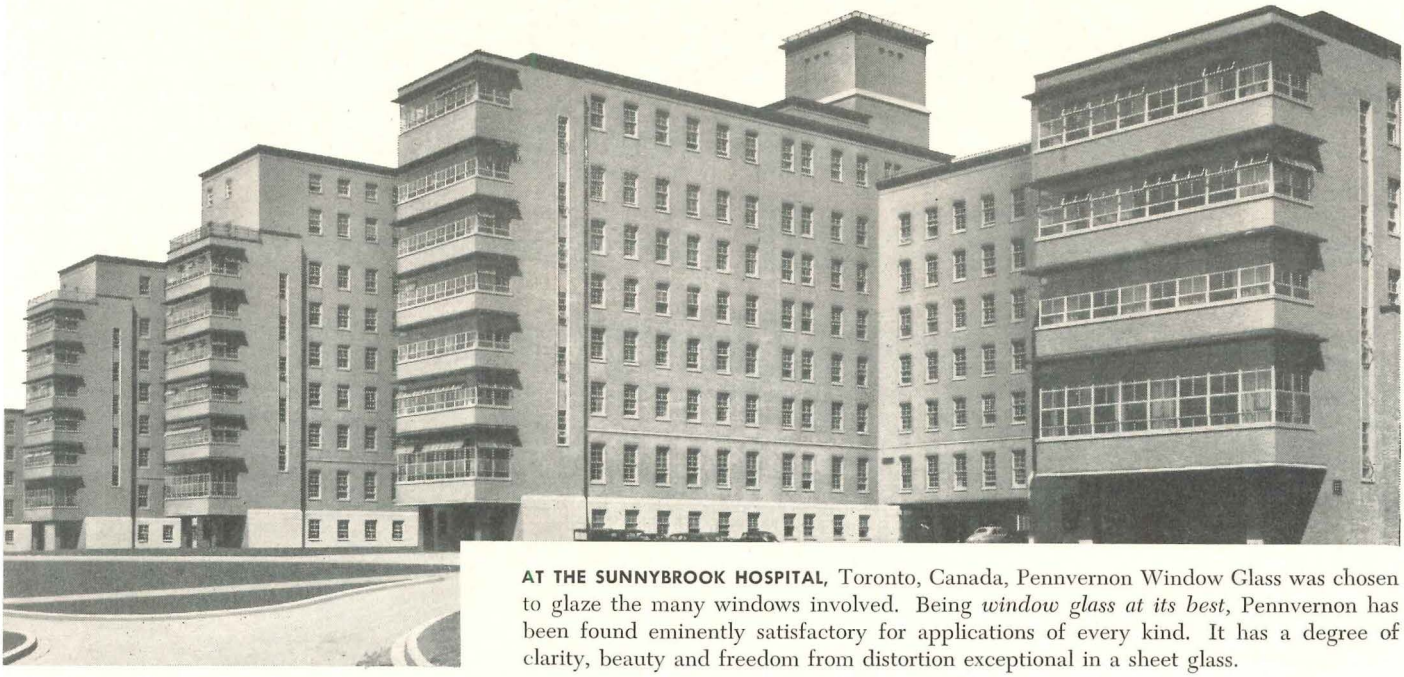


FOR HOMES, for buildings of all kinds, Twindow, Pittsburgh's window with built-in insulation, offers new latitude in window design. Twindow makes it possible to gain all the popular advantages of large windows, without sacrificing heating or air-conditioning economy. Architect: Seymour Joseph, New York.

4 practical in recent

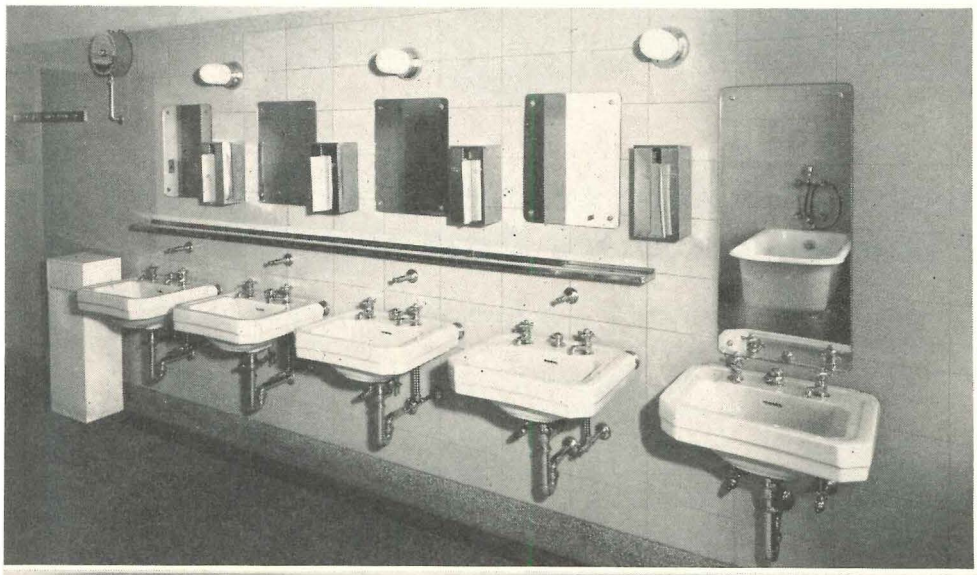
TODAY, STORE FRONTS try to make sure that passers-by *won't* pass them by. And they use large expanses of glass to achieve the desired attraction-power. Architects have proved to their satisfaction that Pittsburgh Glass Products can supply the beauty and appeal they demand in the execution of their store front designs. For example, Carrara Structural Glass, Herculite Doors, Pittsburgh Plate Glass and Pittco Metal make a wonderful team to help you create store fronts and interiors of distinction. Architect: Maurer & Maurer, South Bend, Indiana.





AT THE SUNNYBROOK HOSPITAL, Toronto, Canada, Pennvernon Window Glass was chosen to glaze the many windows involved. Being *window glass at its best,* Pennvernon has been found eminently satisfactory for applications of every kind. It has a degree of clarity, beauty and freedom from distortion exceptional in a sheet glass.

applications of GLASS construction



IN THIS SAME hospital, Carrara Structural Glass on washroom walls offers unique advantages. For Carrara is an ever-lasting material, distinctively beautiful, easy to keep clean and sparkling. It has a reflective, flawless surface. And it can be etched, sandblasted, laminated, fluted or bent for all kinds of original effects. Carrara is truly "the quality structural glass of infinite possibilities." Architects: Allward & Gouinlock, Toronto, Canada.

Your Sweet's Catalog File contains a complete listing and descriptions of Pittsburgh Glass Company products.

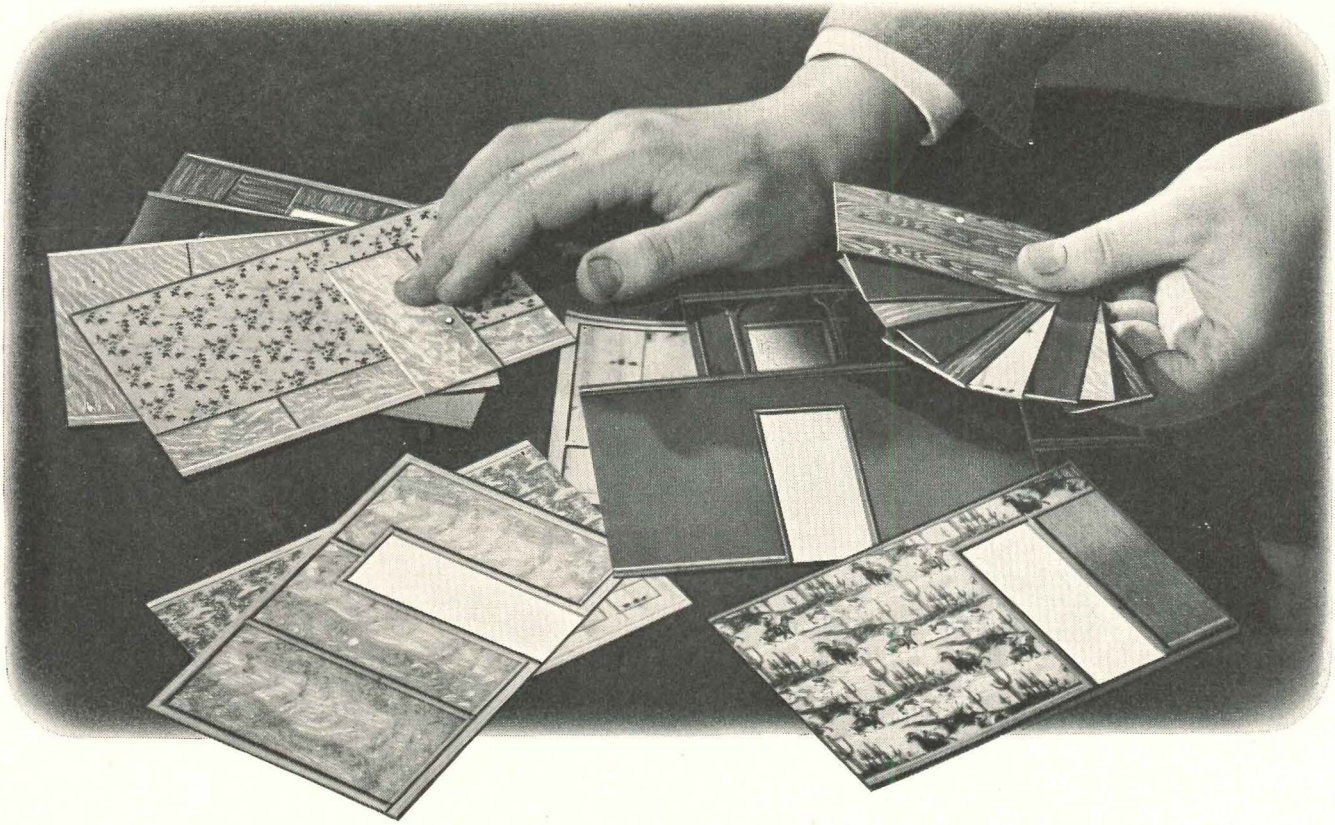
DESIGN IT BETTER WITH— *Pittsburgh Glass*

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

Show your clients dozens of different door and wall combinations

WITH THE Roddiscraft DOOR AND PLYWOOD SELECTOR



You Can Show Your Clients in Full Color Exactly the Kind of Doors and Wall Treatments You Are Planning

Sometimes — with only words and samples — it's pretty hard to make your clients understand exactly the combinations of doors and wall treatments you have in mind.

But with a Roddiscraft Door and Plywood Selector you can show them dozens of different combinations of doors and walls. You can let them *see for themselves* precisely how the *finished job* will look.

The Roddiscraft Door and Plywood Selector includes ten different doors and ten different wall treatments — reproduced in true color on thick enamel stock.

This remarkable visual aid for architects was developed by Roddiscraft with the aid of a well-known architect. Now you'll be able to give your clients a future look at the finished job. A "sight-satisfied" client will be your reward.

Write to us on your letterhead, and we will send you a Door Selector free. Additional sets for your clients, 15¢ apiece.

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RODDIS PLYWOOD CORPORATION
Marshfield, Wisconsin

NATIONWIDE Roddiscraft WAREHOUSE SERVICE

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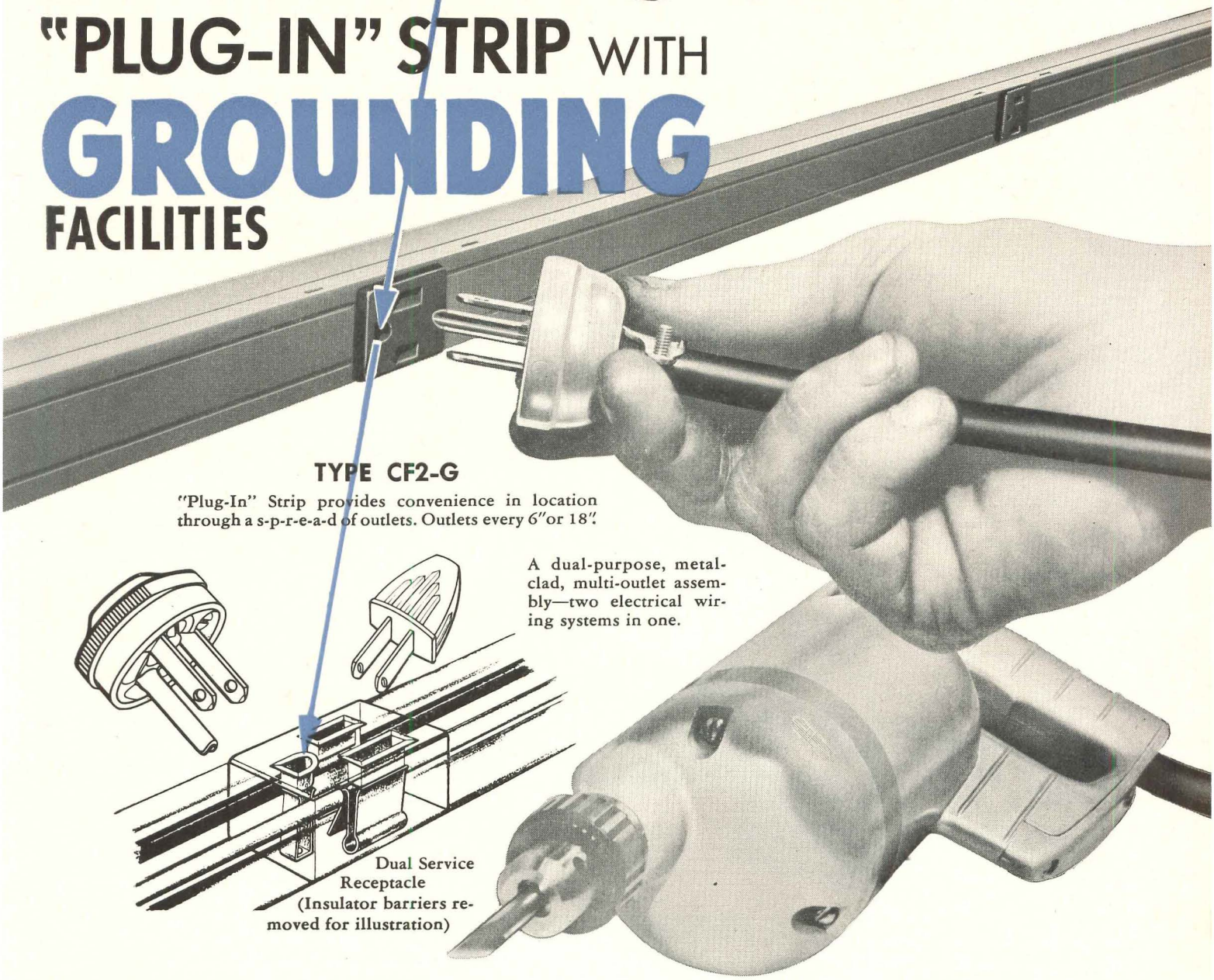
READY NOW

"PLUG-IN" STRIP WITH GROUNDING FACILITIES



TYPE CF2-G

"Plug-In" Strip provides convenience in location through a s-p-r-e-a-d of outlets. Outlets every 6" or 18".

A dual-purpose, metal-clad, multi-outlet assembly—two electrical wiring systems in one.

Dual Service Receptacle (Insulator barriers removed for illustration)

Type CF2-G Grounding "Plug-In" Strip permits use of grounded or ungrounded devices *from the same outlet* . . . Will take either the new *Series 5200* 3-blade grounding plug or the standard 2-blade ungrounded plug.

STEEL FOR PERMANENCE
GROUNDED FOR SAFETY

Listed by Underwriters' Laboratories, Inc.

UNLIMITED APPLICATIONS . . . in FACTORIES . . . OFFICES . . . STORES . . . HOMES . . . HOTELS . . . APARTMENTS . . . SCHOOLS . . . HOSPITALS . . . INSTITUTIONS . . . "Plug-In" Strip is a professional material. Consult your electrical contractor for installation. *Grounding* "Plug-In" Strip meets contemplated revisions in the National Electrical Code covering grounded electrical systems. Type CF2-G Grounding "Plug-In" Strip is the quickest and easiest method of meeting grounding requirements. Write for our *free* folder "Grounding Plug-In Strip."

Everything in wiring points to NE

National Electric
PRODUCTS CORPORATION
1327 CHAMBER OF COMMERCE BUILDING, PITTSBURGH 19, PENNSYLVANIA

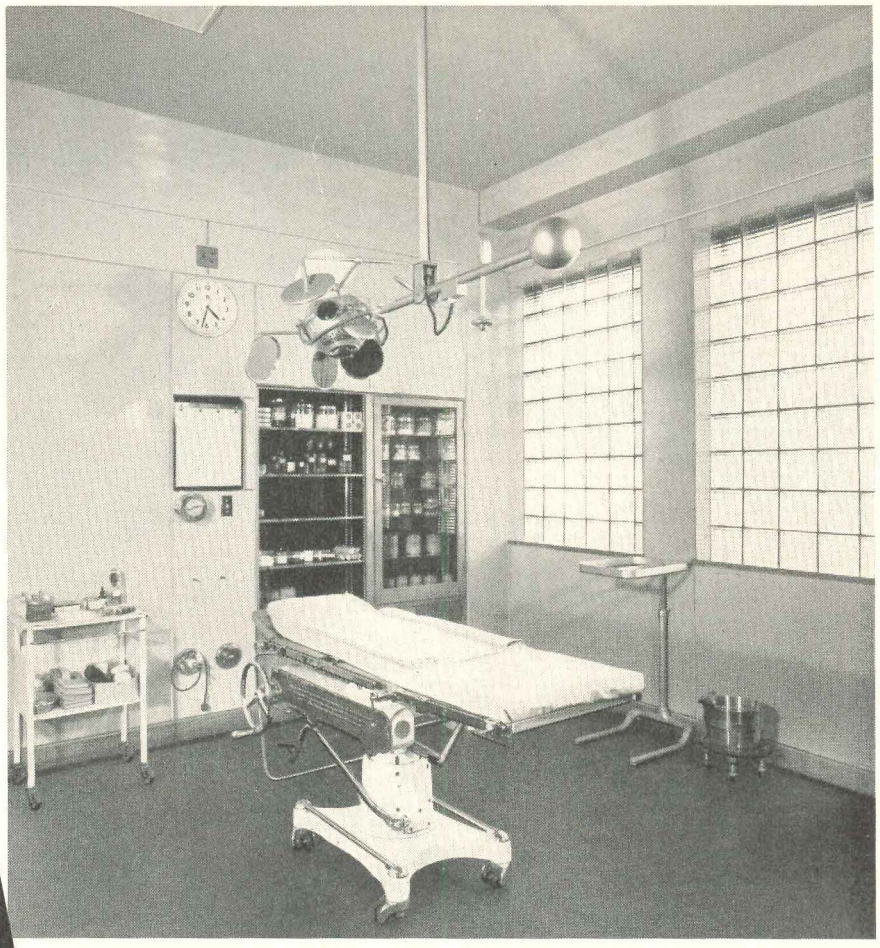
Marlite helped this hospital cut costs *two thirds* on a big remodeling job

HUGE SAVINGS EFFECTED . . . When the Massillon City Hospital, Massillon, Ohio, planned extensive remodeling of their five surgeries, scrub-up rooms, milk laboratory and other areas, Marlite plastic-finished wall and ceiling panels were chosen, over all other wall surfacing materials because of their ease and speed of application, clean attractiveness and long-time durability. Marlite helped the Massillon City Hospital complete what would have been a $125,000 modernization job for $40,000!

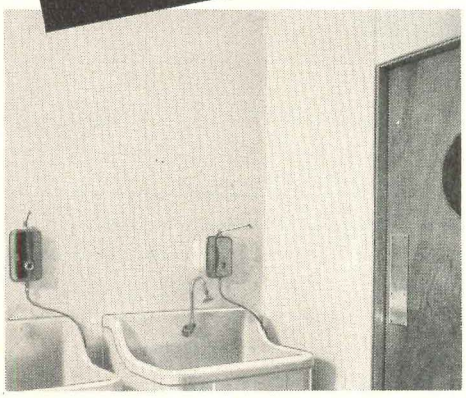
HANDLED OWN INSTALLATION . . . Big savings resulted because the hospital's own building mechanics were able to install Marlite. Large, wall-size Marlite panels are easy to cut and fit, go up over any wall, save fuss and muss. That's why, today, you'll find more and more architects specifying Marlite for modern interiors in institutions, hotels, clubs, stores, chain markets, theatres and other similar installations.

WRITE FOR . . . full color, illustrated folders and installation details. See Sweet's Architectural File for information on the wide range of Marlite sizes, colors and patterns. MARSH WALL PRODUCTS, INC., Dept. 405, Dover, Ohio. Subsidiary of Masonite Corporation.

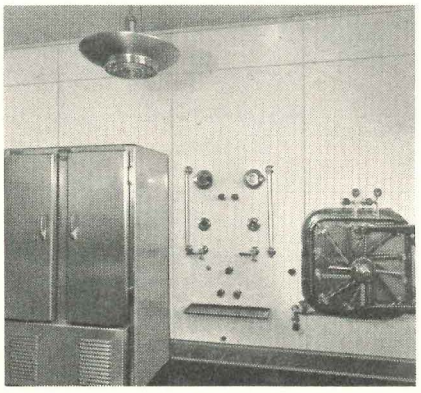
Marlite®
PLASTIC-FINISHED
WALL PANELS



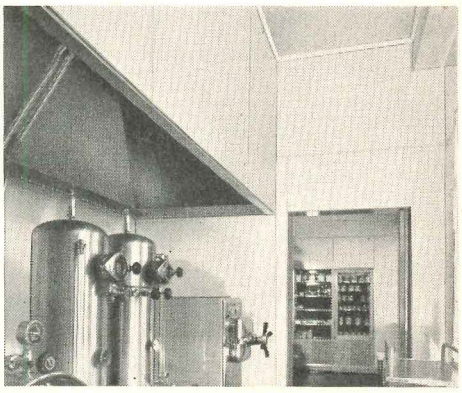
The five modern operating rooms at Massillon City Hospital have been remodeled in Light Green Velvetex Marlite wall panels . . . as easy on the eyes as they are easy to clean and maintain. These durable walls will never require costly periodic painting or refinishing.



Two new scrub-up rooms reflect spotless cleanliness with their walls and ceilings of gleaming White Velvetex Marlite. Marlite's exclusive plastic finish *seals out* dirt, grease, alkalies, odors, stains and moisture . . . *seals in* the restful, eye-pleasing colors.

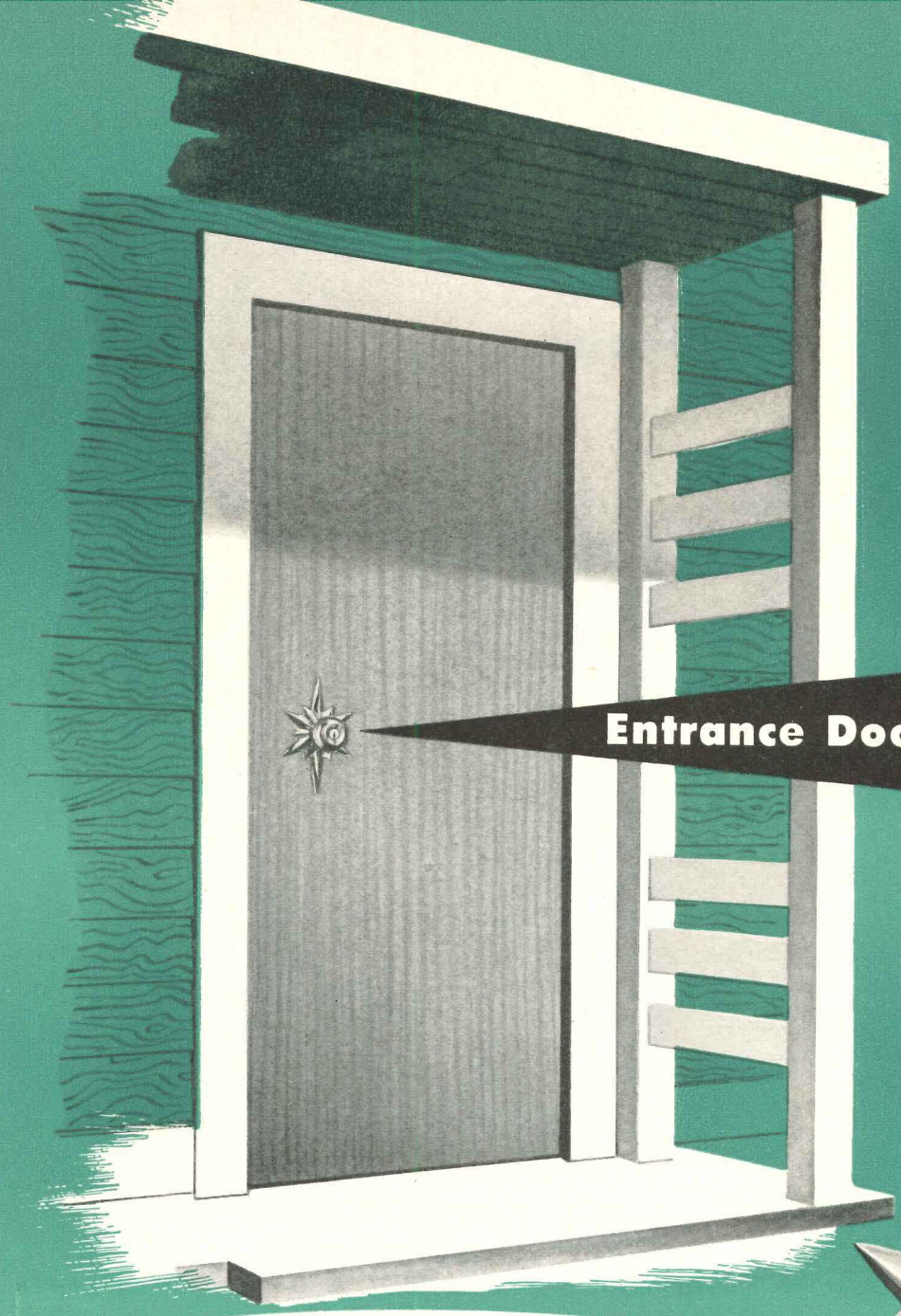


Massillon's new spic-and-span Milk Laboratory is second to none. Snow White Velvetex Marlite panels cover walls and ceiling. They are constantly subjected to moisture, high heat and hot steam—yet retain their sparkling, permanent finish and lustre.



Marlite even covers the big exhaust hood located in the remodeled sterilization room, and is unaffected by constant temperature changes. And cleaning time in *all* the Marlite-paneled rooms has been cut 75% —for Marlite's hard, smooth, sparkling surface does not retain dirt or stains!

MARLITE—GOOD FOR HOME MODERNIZATION, TOO

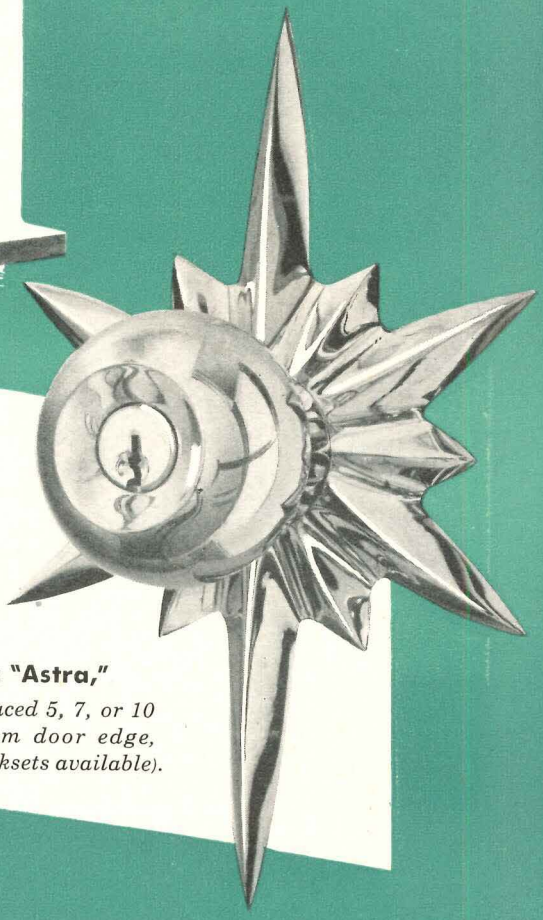


SCHLAGE®

Entrance Door Distinction

created by

Schlage "long backset"



The unusual and distinctive effect created by the "Astra" design is made more dramatic by its placement 7" from the door edge, as illustrated. This is made possible by the Schlage "long backset."

Schlage "long backset" locks are easy to install —have the dependable Schlage mechanism— proved by more than a quarter century in use.

Do you have the new Schlage brochure illustrating "long backset" locks and designs? You may have your copy by sending for booklet No. AR-630.

Dramatic "Astra,"
May be placed 5, 7, or 10 inches from door edge, (longer backsets available).

SCHLAGE®

SCHLAGE LOCK COMPANY • Bayshore Boulevard, San Francisco • Empire State Building, New York

SCHLAGE...FIRST NAME IN CYLINDRICAL LOCKS

NATIONAL Pipe gets first call for the United Nation's "Secretariat" Building

IN this 39-story skyscraper, the first structure in the permanent home of the United Nations, more than 400 tons of steel pipe were supplied by NATIONAL Tube Company. 178 tons went into the heating and air-conditioning systems, 208 tons were used in the plumbing lines, 23 tons serve as stair hand railings.

NATIONAL Pipe, produced by the world's largest maker of tubular products and used almost exclusively in this important building, is the same NATIONAL Pipe that has been giving uniformly good service for more than sixty years in all types of buildings throughout America. Constantly improved, thoroughly dependable, NATIONAL Pipe offers the most service per dollar of cost.

NATIONAL Pipe offers the user more for his money because there's more put into it. Its manufacture combines the finest steel making practice and the most advanced pipe making techniques. As a result, NATIONAL Steel Pipe is unsurpassed for its uniformity in all respects. Strong, clean, easy to thread and to weld, it installs readily, and performs so dependably that the passing years serve merely to demonstrate its superiority.

We welcome the opportunity to show you where and how NATIONAL Pipe can be used to improve your installations and to reduce their long-time cost.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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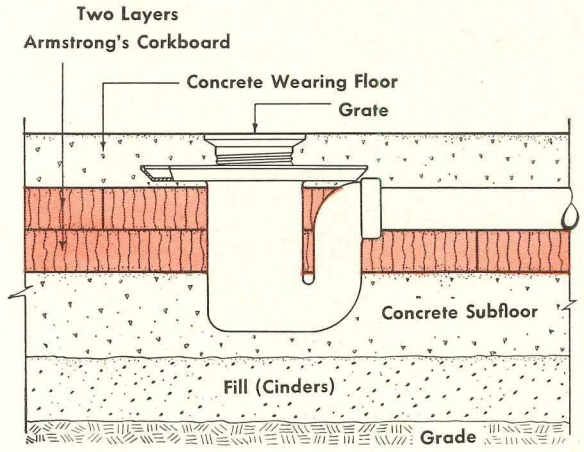
NATIONAL Steel PIPE

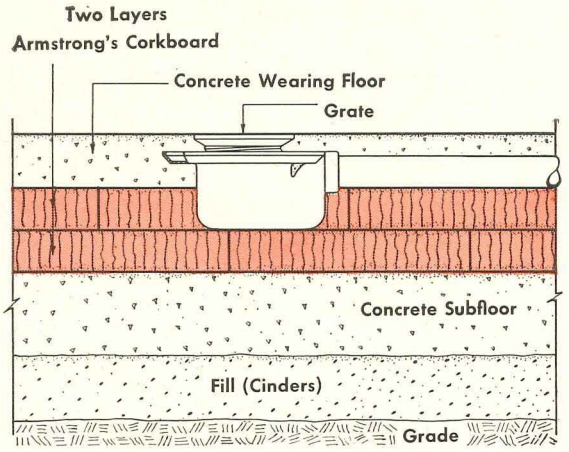
UNITED STATES STEEL

WRONG



The diagram above shows a common type of floor drain fixture installed. Note that the upper layer of insulation must be cut because of the position of the drain pipe. The insulating envelope must also be pierced to accommodate the tall dimensions of this drain.

RIGHT



This drawing shows how a properly designed cold storage room drain can be installed. The lead-off pipe clears the upper layer of insulation. Because of its squat dimensions, this drain is readily installed without making a complete break in the flooring insulation.

How to install floor drains in refrigerated rooms

When you're planning a low-temperature room, remember that the use of a standard type floor drain results in higher installation costs and weakens the insulation envelope.

In standard drains the outlet leads away from the trap below the wearing floor, making it necessary to tunnel it through the insulation. Labor costs go up, and insulation thickness is reduced at this point. The place where the traps of these drains completely pierce the insulation is a weak spot where trouble may develop.

By choosing drains specially designed for cold rooms, these weaknesses can be corrected. The distance between outlet and base of these drains is shorter than in standard fixtures. Lead-off piping runs in the wearing floor. There's no need to tunnel through the floor insulation and reduce its efficiency. The shallow trap also allows for insulation thickness below its base.

Cold room drains and piping are installed before the last layer of floor insulation is laid. The last layer then is fitted under the drain pipe and around the trap, where it's sealed with hot asphalt. Then the concrete wearing floor is poured flush with the drain grating.

Correct design of a low-temperature room calls for a specialized knowledge of many details that aren't found in ordinary building plans. Armstrong engineers are familiar with these details. When you have a question involving the design of a low-temperature room, take advantage of their specialized knowledge. The complete contract service these men represent also offers you quality insulating materials and skilled mechanics to apply them. Call the Armstrong District Office located nearest you or write today to Armstrong Cork Company, 2404 Concord Street, Lancaster, Pennsylvania.

ARMSTRONG'S INDUSTRIAL INSULATIONS

MATERIALS Ⓐ INSTALLATION

FOR ALL TEMPERATURES FROM 300° F. BELOW ZERO TO 2800° F.

KOHLER

DRINKING FOUNTAINS

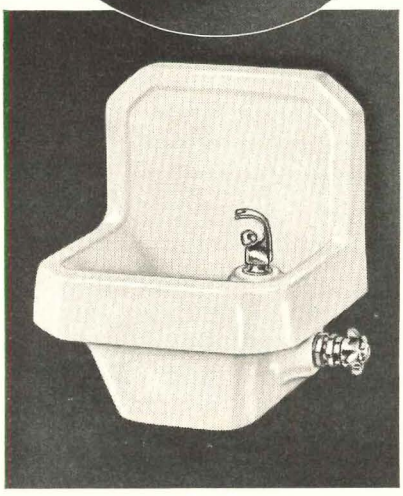
Low-cost maintenance—Lasting Beauty

Drinking fountains should receive careful consideration when you plan for the building or remodeling of a school plant. Kohler drinking fountains perform efficiently during their entire term of constant and often rough usage. They meet the health regulations of all States, appeal to architects' interest in design and beauty, and school administrators' concern for safety and low-cost maintenance.

Other advantages include a drinking mound of the best angle and height for convenience and sanitation; an automatic volume regulator that keeps the mound uniform under varying pressures; a self-closing valve adjustable for continuous flow; and especially designed bubbler head that defeats any attempt at mischievous squirting.

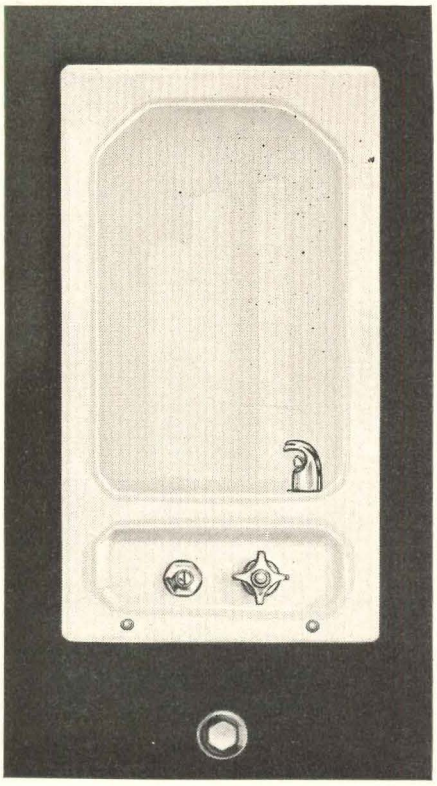
Kohler drinking fountains are used daily in hundreds of schools throughout the nation. Write now for "Kohler Plumbing Fixtures for Industrial Plants, Public Buildings, Clubs, Schools" showing a line of Kohler fixtures suitable for use in washrooms, gymnasiums and corridors. Kohler Co., Dept. 8-P, Kohler, Wisconsin.

Daybrook K-5335-A. Vitreous china wall-hanging type. Bowl 14x10″.

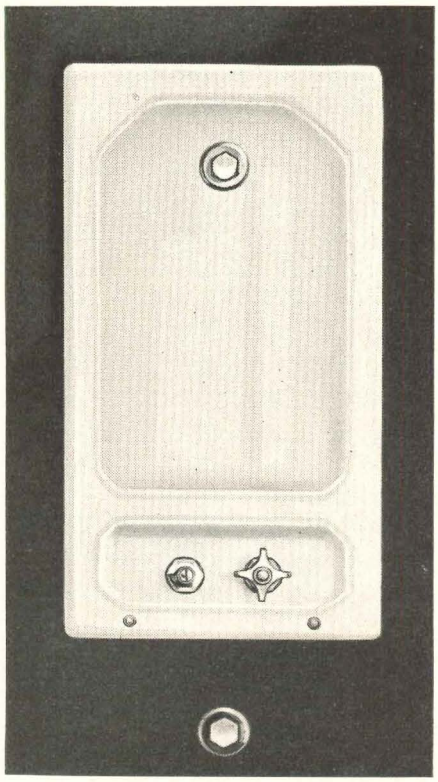


Rockbrook K-5340-A. Vitreous china wall-hanging type with back. Bowl 12x12x16″.

Edgebrook K-5390-A. Enameled iron wall-hanging type. Bowl 12x8″.



Vanbrook K-5368-A (above) and **Vanguard K-5370-A** (below). Recessed vitreous china drinking fountain and cuspidor—recommended combination for gymnasium. 30″ high, 16½″ wide, 11″ front-to-back.



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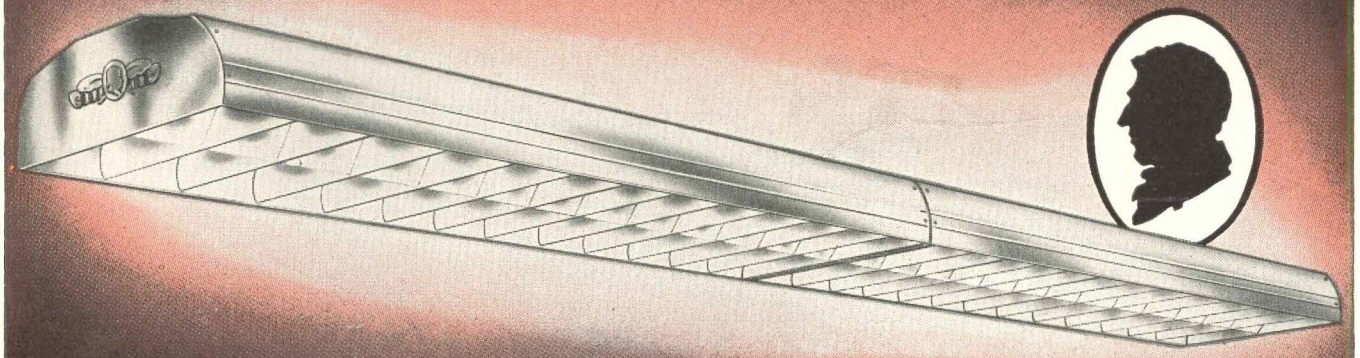
PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS • AIR-COOLED ENGINES

new highs in EFFICIENT & ECONOMICAL LIGHTING FOR SCHOOLS AND OFFICES



THE "Monroe" * in 4 and 8-Foot MODULES FLUORESCENT LUMINAIRES

Check these Advantages

ECONOMICAL INITIAL COST
Simplified design and construction of the basic chassis, side-panels and reflecta-louver assembly result in production economies which are passed on to the ultimate users.

LOW INSTALLATION COST
One man, working from the side and not from the bottom, hangs the bare chassis in a minimum of time. Side-panel and reflecta-louver assembly snap into position *after* the chassis is hung; no tools required. The 8-foot chassis requires less hangers and less installation time.

MAXIMUM EFFICIENCY
Permaflector Lighting Engineers have designed the Monroe to give efficiencies up to 83% with 25-35 shielding. Brightness comes well within the I.E.S. recommendations.

SIMPLIFIED MAINTENANCE
Cleaning or relamping is fast and simple. Reflecta-louver assembly hinges down from either side; full-length fibre-plate snaps out quickly for easy access to wiring channel and ballast.

FLEXIBLE APPLICATION
Plastic, aluminum or steel side-panels . . . reflector-closures that attach for totally direct lighting . . . and individual or inline installation with or without hangers—make the Monroe the "ideal" unit for many varied applications.

THESE ADVANTAGES ADD UP TO
ALL AROUND LIGHTING ECONOMY!

Write today for complete details on this exceptional series of fluorescent luminaires.

"Pittsburgh" Permaflector

PITTSBURGH REFLECTOR COMPANY

PITTSBURGH 22, PENNSYLVANIA

Permaflector Lighting Engineers in All Principal Cities

Distributed by Better Electrical Wholesalers

PITTSBURGH REFLECTOR COMPANY
402 Oliver Bldg., Pittsburgh 22, Pa.

Please send me your bulletin which describes the Monroe Series in detail and shows specification, photometric and installation details.

Name_____

Title_____

Company_____

Street_____

City_____ Zone____ State____

MODERN...as tomorrow

with floors of time-proved

NORTHERN HARD MAPLE

(Above) Kindergarten classroom, (below) exterior of Everett Elementary School, Detroit. Floored throughout in Northern Hard Maple. Photographs, courtesy of Giffels & Vallet, Inc., L. Rossetti, Associated Engineers and Architects.

• Bright, resilient, tough, Northern Hard Maple in schoolroom service, by happy coincidence, lends itself admirably to modern styling. Its light-reflecting qualities may be used to the fullest, or modified in finishing to any desired degree. Its easy maintenance and lifetime endurance are features of powerful appeal.

Very appreciable economies are achieved *with no sacrifice of beauty, utility or durability*, by use of Second Grade, Second-and-Better Grade, or in some areas, Third Grade. Strict **MFMA** grading regulations (See Sweet's) enforced by veteran **MFMA** inspectors, positively assure thoroughly sound wood and precise dimensions in *all* **MFMA** grades.

May we send you newest **MFMA** folders covering latest approved list of finishes and finishing methods, as well as the economy possibilities of Second and Third Grades?

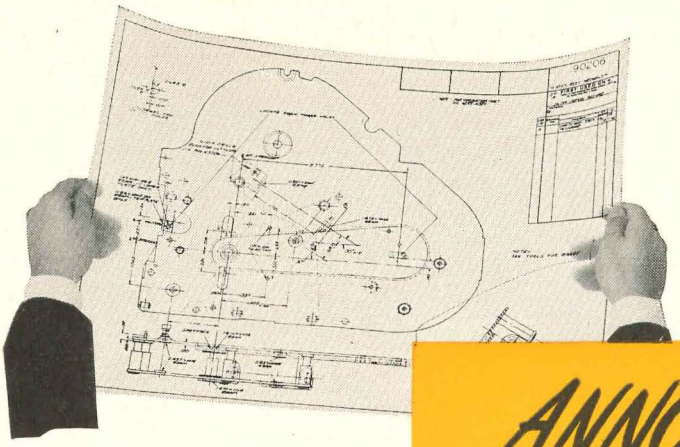
See Sweet's

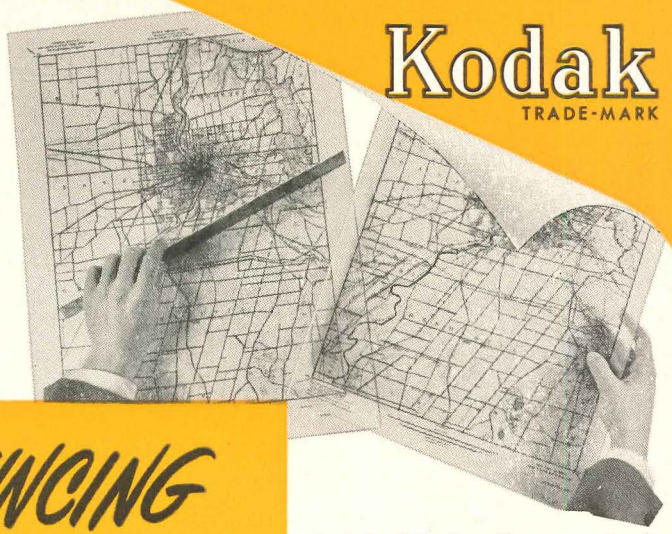
Architectural 13g-7; Engineering 4j-21; contain full dimensional data, grading rules, and standard specification material.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Room 363—46 Washington Blvd.
OSHKOSH, WISCONSIN

FLOOR WITH *NORTHERN* HARD MAPLE
BEECH AND BIRCH

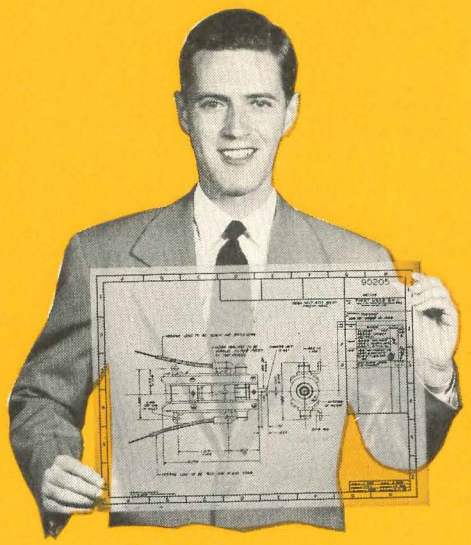
Kodak
TRADE-MARK





ANNOUNCING

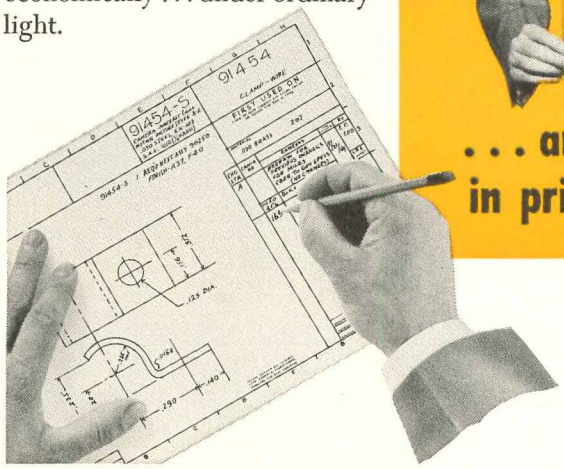
Kodagraph Autopositive Film



. . . and 4 new advantages in print production for you

1. It gives you faster printing intermediates. Now you can speed up quantity print production . . . save time and money . . . with new Kodagraph Autopositive Film! What's more, you, or your local blueprinter, can expose this amazing reproduction material in high-intensity blueprint or direct-process machines . . . or in a vacuum frame; develop it in standard photographic solutions. You get positive intermediates directly . . . and the job can be done quickly, economically . . . under ordinary light.

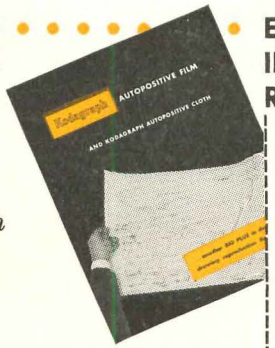
2. It holds detail—amazingly. Kodagraph Autopositive Film combines a high-contrast photographic emulsion and famous Kodak safety film base. It catches the finest line – keeps close lines from "filling in." Think what an aid this new intermediate material will be in producing print-making "masters" from difficult originals . . . how it can save you many thousands of dollars in redrafting costs—while assuring final prints of highest quality!



3. It simplifies revision, reference. Both sides of Kodagraph Autopositive Film are matte-surfaced . . . can be written on with pencil or pen. And since the base is highly translucent, details can be read from either side without use of an illuminator.

4. It even reproduces illustrations and text on opaque stock—giving you sharp, fast-printing "masters" which will produce sparkling direct-process prints. An economical short cut you'll appreciate in preparing data sheets, instruction manuals, and parts lists.

Mail coupon today for this free illustrated booklet giving all the facts on Kodagraph Autopositive Film—*the latest addition to the famous Kodagraph line of reproduction materials.*



EASTMAN KODAK COMPANY
INDUSTRIAL PHOTOGRAPHIC DIVISION
ROCHESTER 4, N. Y.

95

Gentlemen: Please send a copy of your folder on Kodagraph Autopositive Film.

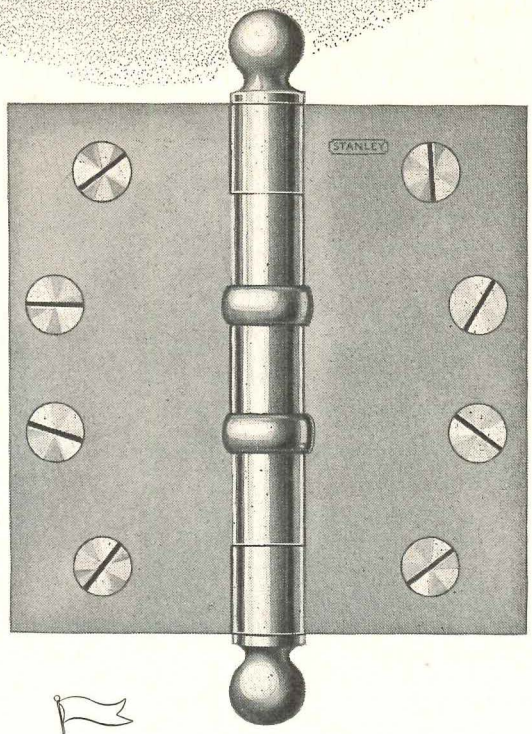
Name_____ Position_____
(please print)

Company_____ Street_____

City_____ State_____

For Hinge-and-Door teamwork...

specify STANLEY *TEMPLATE* BUTT HINGES *for metal doors*



Architects like the smooth operating efficiency and long life of Stanley Ball Bearing Template Hinges. Every Stanley Template Butt Hinge fits *exactly* the sinkage and screw hole location in both door and jamb made to U. S. Standard Template.

This hinge and door teamwork—made dependable by Stanley accuracy in manufacture—will save worker time, cut building costs, and assure the durable service that makes satisfied clients. Insist on butt hinges that bear the name Stanley. There is an architectural Hardware Consultant in your vicinity whose specialized knowledge and training is at your service. The Stanley Works, New Britain, Connecticut.

Specify Extra Heavy 4 Ball Bearing Template Butt Hinges. On heavy hollow metal doors or hollow metal doors with high frequency service.

Stanley Template Butt Hinges are made in steel, brass, bronze, stainless steel, aluminum, and are exact in size and gauge of metal. Each hinge is stamped with the class number on the back.

Specify 2 Ball Bearing Template Butt Hinges. For medium weight doors receiving average frequency service, BB174 Template shown here is recommended.

REMEMBER . . .

THREE HINGES TO A DOOR

STANLEY

Reg. U. S. Pat. Off.

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

FLOORS?... Flexachrome WALLS?... Mura-Tex CLIENT?... Happy!

Cafeterias, Libraries, Lobbies and other "dressed-up" areas in a school call for something special in planning and design. Consider the particular fitness of Flexachrome* for floors, and Mura-Tex* for walls, in locations of this kind.

The first thing about these plastic-asbestos materials to catch the eye is their brilliant color range. 33 sparkling hues to vitalize interiors. Rich, bright, *true* colors that bring striking beauty to floors and walls.

And they're matched colors. Flexachrome and Mura-Tex are made in companion colors . . . decorator-designed to blend or contrast perfectly with one another.

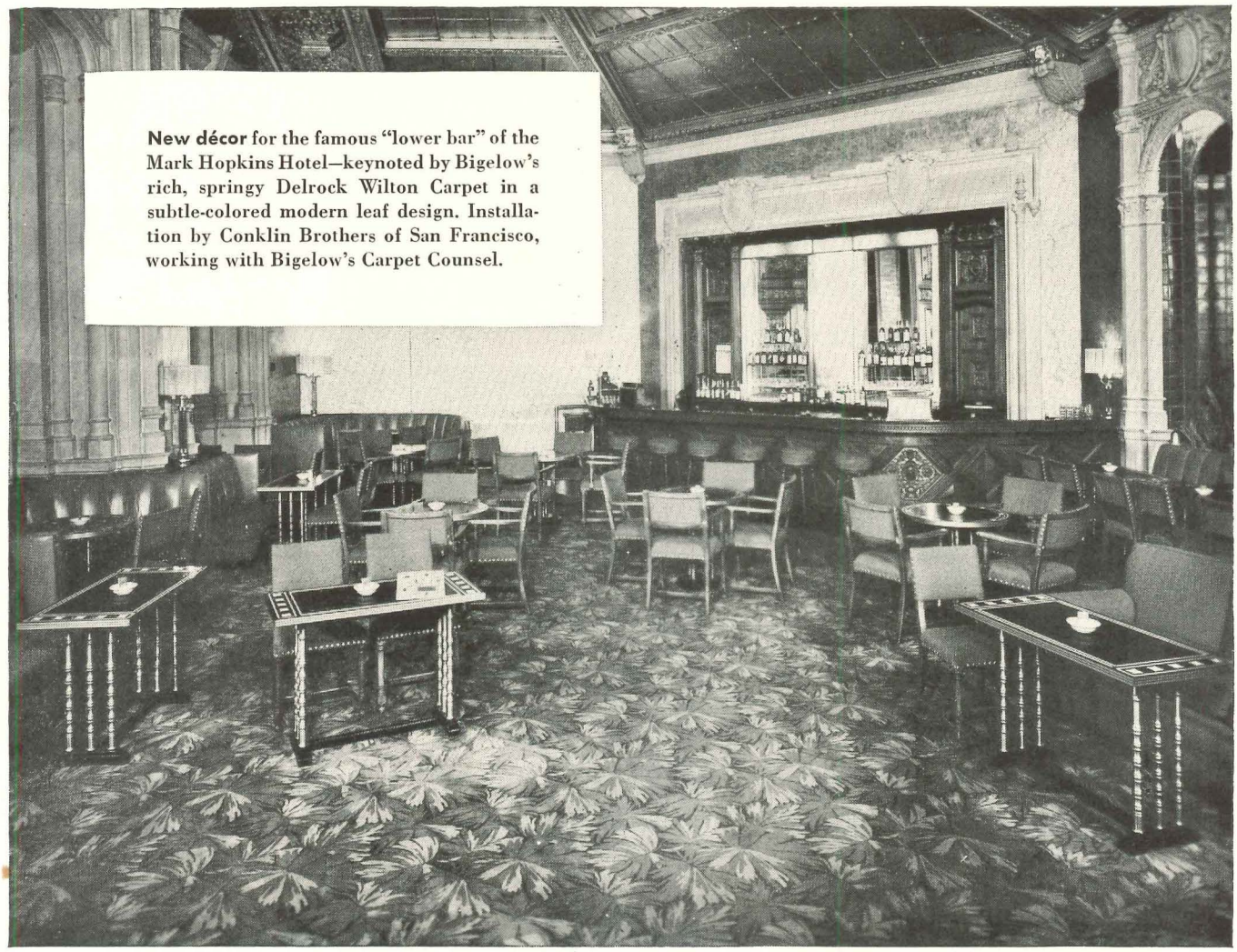
This color balance is only one virtue of these modern floor and wall coverings. Another is the tile-at-a-time installation that allows almost endless pattern variety. Still a third is the custom-cut inserts that enable you to use *personalized* designs in floors and walls. And, because they're *truly greaseproof,* Flexachrome and Mura-Tex are ideal for coping with grease-abuse in kitchen, dining and similar areas.

In addition, maintenance is simple and economical; durability is exceptional. You can specify Flexachrome and Mura-Tex for floors and walls with the comfortable assurance that you're giving clients cost-per-square-foot-per-year that's astonishingly low.

Let us send you complete specifications on these plastic-asbestos materials. You'll find they not only make clients happy . . . they're stimulating to work with. THE TILE-TEX DIVISION, The Flintkote Company, Dept. S, 1234 McKinley St., Chicago Heights, Ill.

Tile-Tex
PLASTIC-ASBESTOS
FLOORS AND WALLS

*REGISTERED TRADEMARK, THE FLINTKOTE COMPANY



New décor for the famous "lower bar" of the Mark Hopkins Hotel—keynoted by Bigelow's rich, springy Delrock Wilton Carpet in a subtle-colored modern leaf design. Installation by Conklin Brothers of San Francisco, working with Bigelow's Carpet Counsel.

Among the famous names at the Mark Hopkins...

"Bigelow"...registering on every floor

SINCE 1825
BIGELOW
Rugs – Carpets

Two years of viewing plans . . . three and a half weeks of concentrated remodeling and redecorating . . .

The result: a new air of distinction for San Francisco's famed Mark Hopkins Hotel. You walk through the familiar rooms, and your eye meets pleasurable new color combinations; your feet sink springily into deep-textured new Bigelow Carpets.

Over 1200 yards of luxurious leaf-design carpets lead through the "lower bar". . . the Peacock Lounge and into the "Room of the Dons." Each one looks familiar to you . . . because, to keep the pleasant associations, only color-décor and appointments have been changed.

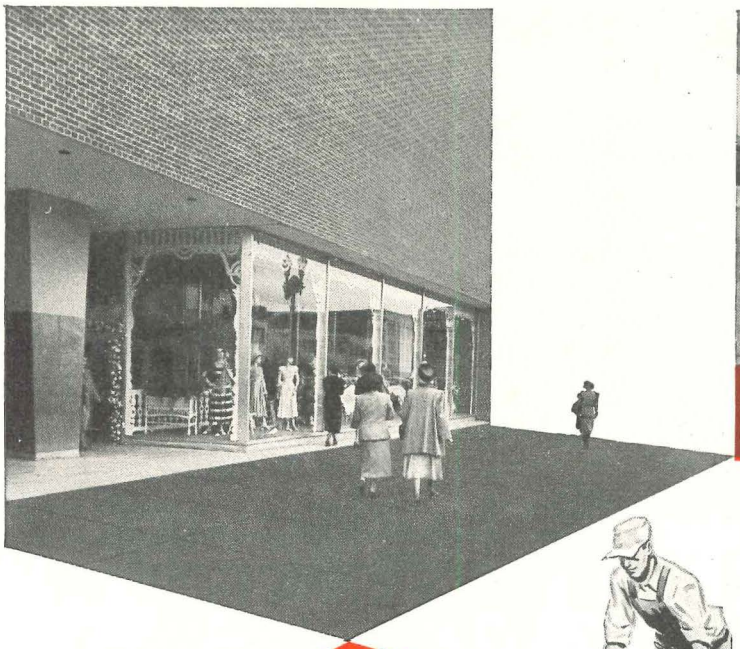
The Bigelow Carpet Counsel worked with the interior designers, to choose Bigelow Carpets that would be perfectly attuned in design and color, that would feel soft and welcoming; that would give superb year-in, year-out service.

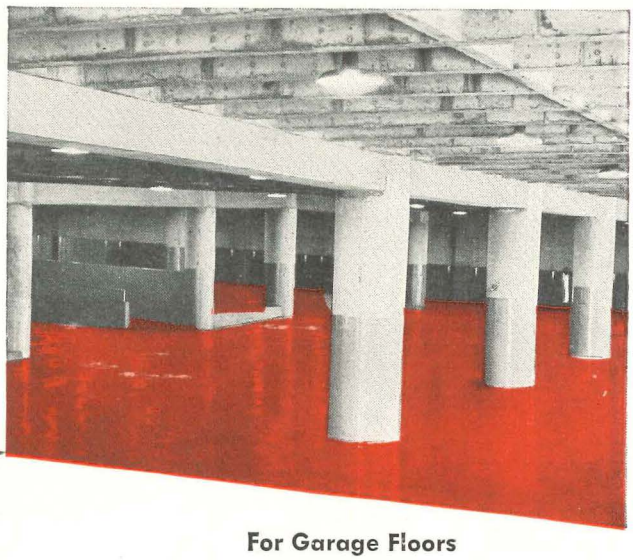
If *you* are contemplating an important carpet installation, and find problems such as these confronting you, let Bigelow's Carpet Counsel help you to the happiest solution.

Call on one of the 26 Carpet Counsel Offices near you or write to the Bigelow Carpet Counsel, at 140 Madison Avenue, New York, N. Y.

BIGELOW Rugs and Carpets

Beauty you can see . . . quality you can trust . . . since 1825





For Garage Floors

A recent Los Angeles
Installation of *170,000 Square Feet*

For Colored Sidewalks

Nation's leading retailers are
installing Horn Colored Sidewalks
for beauty and the reduction
of show window glare.

Dramatic Modern Design

COLORUNDUM

for colored concrete floors & sidewalks

For colored concrete floors or sidewalks of tile beauty and durability specify the use of Colorundum. For interiors or exteriors of hotels, banks, stores, hospitals, show rooms, service stations and factories you get bright, colorful surfaces with a wear-resistant topping of long life—at practically the cost of an average concrete floor or sidewalk—highly decorative and modern in effect. Colors are red, brown, green, french grey and black.

Colorundum is a dry powder, composed of coloring mediums, fused aggregates, water-repellent and hardening elements, plus cementitious binders. Colorundum is a dust-coat floated and trowelled into the topping. The non-slip, dense surface makes it an ideal flooring on new work or when replacing old concrete floors.

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Manufacturers of materials for building maintenance and construction—established in 1897

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HORN PRODUCT

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COMPANY_____

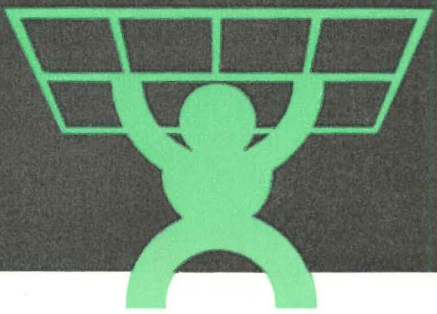
ADDRESS_____

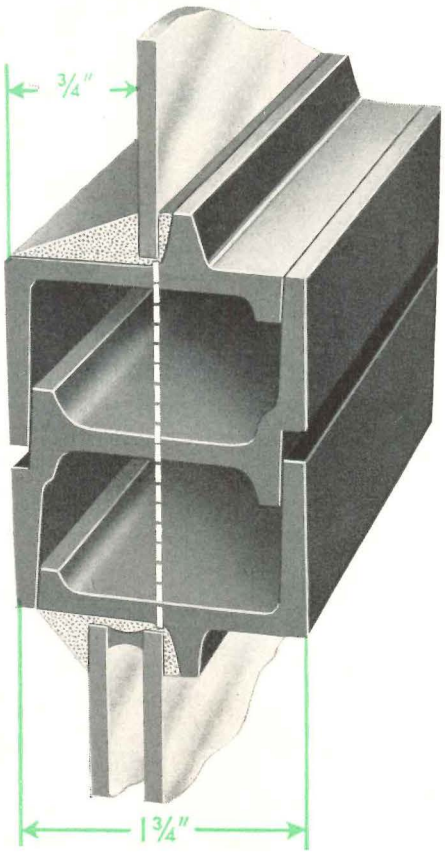
CITY_____ STATE_____

MESKER

steel windows...known for their

STRENGTH



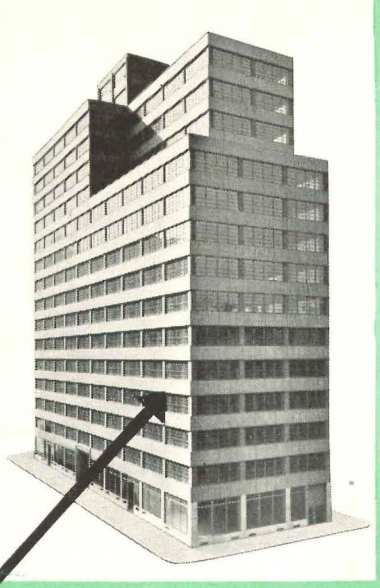


YOUR MARGIN OF SAFETY!

What makes a steel window *extra strong?* The answer: EXTRA STEEL! Proof is this 1¾" deep section of Mesker Intermediate Windows—*the deepest section of any window made.* It means Mesker Windows resist wind and shock better than any other windows; hence involve fewer risks when used in large openings. It means you can do things with Mesker Windows you'd hesitate to try with any other. Take no chances by using windows of questionable strength, especially in large openings! Specify MESKER, *the strongest window made.*

FOR MONUMENTAL BUILDINGS, FOR SCHOOLS

design it LIGHT
build it **STRONG**
with Mesker
"window walls"



FIFTEEN-STORY COMMERCIAL BUILD
250 CHURCH STREET, NEW YORK

ENGINEER
Victor Mayper
New York

OWNERS—CONTRACTORS
250 Church St. Realty, Inc.
New York

Here's proof that Mesker STEEL Windows are the answer to more dramatic modern design, controlled ventilation, maximum natural light . . . plus tremendous savings in wall construction! More architects than ever are designing buildings like that shown here. Here's a structure with almost a mile of Mesker Steel Windows 6′ 9″ high. That adds up to a square foot of window area for every 2½ square feet of floor area! Many similar buildings have *as little as half* this window area. Think how much more natural light will carry deep into every floor of this 15-story building. *65 per cent* of the walls are windows! What's more, consider the additional ventilation available in a mile of windows — and it's perfectly controlled ventilation. Compare the cost of Mesker Steel Windows with *any type of wall construction*. Compare the beauty, utility and low cost with any other window. You'll agree you can design lighter, stronger, lower cost "window walls" with Mesker STEEL Windows — *the strongest windows made!*

FOR COMMERCIAL BUILDINGS, FOR HOSPITALS

Available now and FREE TO ARCHITECTS

Just off the press — new 1950 Catalog of Mesker "Heavy Duty" Windows! An organized reference book that covers every aspect of steel window designing, engineering and specifying. Order your copy today by mailing the coupon below!

Mesker
BROTHERS

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Gentlemen: I want to know more about the added advantages of Mesker Heavy Duty Steel Windows. Please send me (free) your 1950 Catalog.

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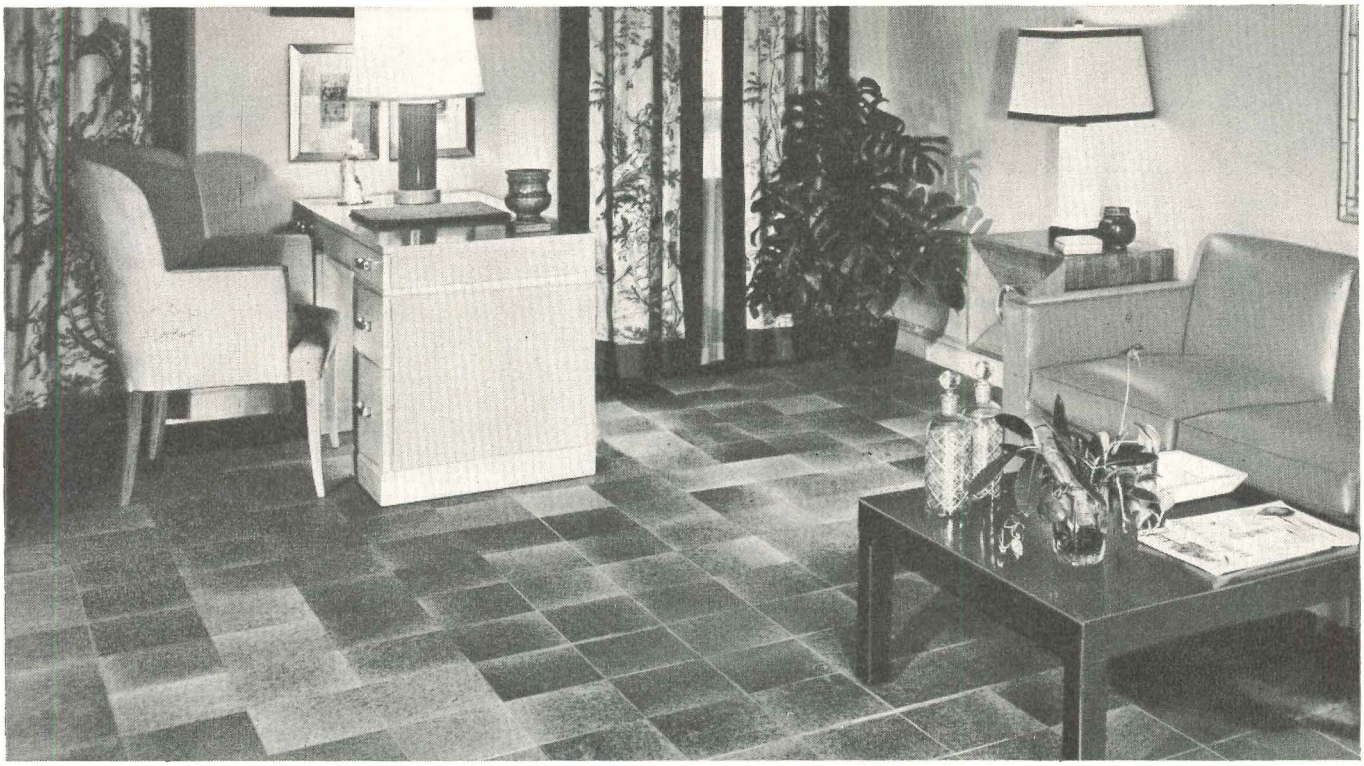
AR 40

Announcing

New 3/16" gauge KENCORK

At New Low Prices!



Now Kencork's Complete Floor Beauty costs your clients less than wall-to-wall broadloom

News for Small Home Developments

• Now you can suggest this luxury floor for use in low cost home developments . . . for the first time offering a truly outstanding flooring at very little extra cost. Architects' specifications carrying this recommendation may provide the exact *home-selling* feature that new "merchant-builders" and contractors are looking for.

NOW YOU CAN OFFER your clients wonderful Kencork's many advantages at lower prices than ever before! This resilient flooring does the work of floor and carpeting alike . . . rich nut-brown cork tiles offer restful, quiet comfort underfoot . . . provide a perfect flooring that won't wear out through years of use. Staining liquids that permanently damage carpeting can be easily wiped off Kencork. Kencork insulates floors against heat and cold . . . is ideal for use with radiant heating panels. Specify this new gauge Kencork for every installation where *practical luxury* is your client's first requirement.

Specify Kencork Walls in new 3/16" gauge, too. Your clients will be delighted with this distinctive, luxury wall treatment at the new lower cost.

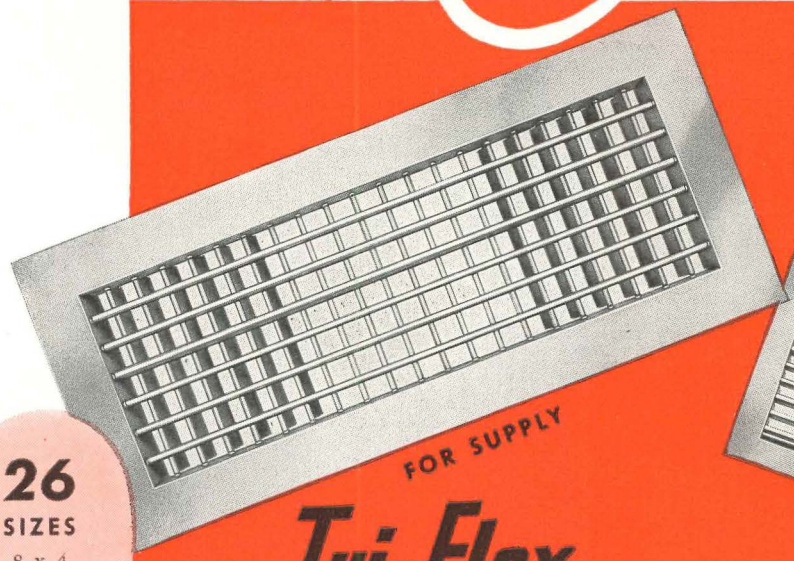
KENCORK
FLOORS
WALLS

DAVID E. KENNEDY, INC., 58 Second Avenue, Brooklyn 15, N. Y.

RESILIENT FLOORING FOR OVER FIFTY YEARS . . . KENTILE • RUBBER TILE • KENCORK

26 & 20

FOR ECONOMY
FOR QUICK SELECTION
FOR PROMPT DELIVERY



Tri-Flex Aerovane

26 SIZES

8 x 4
10 x 4
10 x 6
12 x 4
12 x 5
12 x 6
14 x 4
14 x 5
14 x 6
16 x 5
16 x 6
20 x 5
20 x 6
20 x 8
24 x 5
24 x 6
24 x 8
24 x 10
24 x 12
30 x 6
30 x 8
30 x 10
30 x 12
36 x 8
36 x 10
36 x 12

FOR ECONOMY . . .
size standardization of Tri-Flex and Aero-vane Grilles and Registers has resulted in efficient mass production methods that mean real savings.

FOR QUICK SELECTION . . .
size standardization has simplified the specification of grilles and registers to meet normal job requirements.

FOR PROMPT DELIVERY . . .
size standardization means on-the-shelf stock . . . job completion without costly delays.

And, all standard items are individually packaged in sturdy cartons for protection . . . for handling convenience. Easy-to-read labels facilitate sorting and locating.

For complete details and engineering data, write for a copy of Catalog 48S.

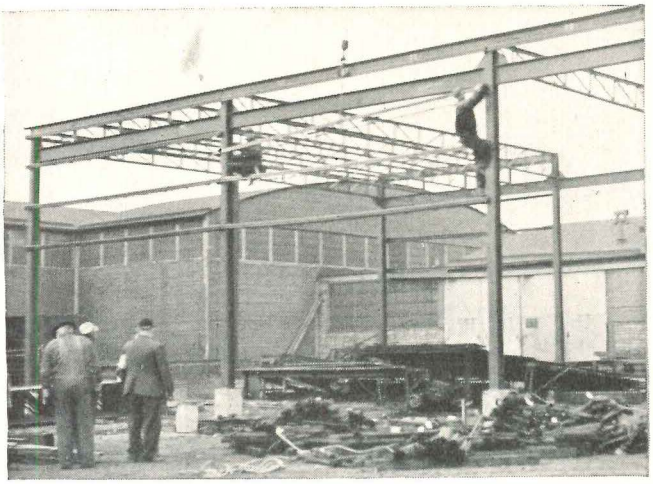
TUTTLE & BAILEY INC
NEW BRITAIN, CONNECTICUT

20 SIZES

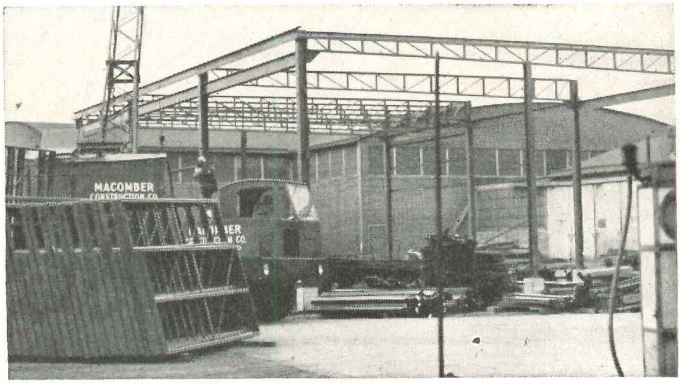
10 x 6
10 x 8
12 x 6
12 x 8
12 x 12
18 x 6
18 x 12
18 x 18
24 x 12
24 x 18
24 x 24
30 x 12
30 x 18
30 x 24
36 x 18
36 x 24
36 x 30
48 x 24
48 x 30
48 x 36

ITB50

Looking For a Helpful Suggestion?



A STEEL BUILDING OF ANY WIDTH OR LENGTH··MADE OF LONGSPANS, STEEL COLUMNS AND ALUMINUM ROOFING AND SIDING.



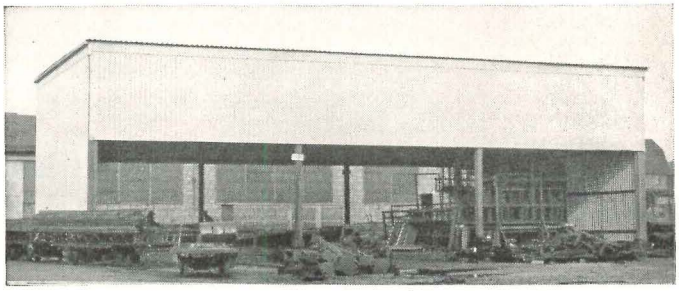
HERE'S A PRACTICAL WAY TO BUILD—

1. A STRUCTURE to house or shelter a plant operation or commercial enterprise.
2. A STEEL AND ALUMINUM building combining good structural design with a minimum of structural units and materials.
3. A PERMANENT BUILDING that goes up like a mushroom. Longspans are framed into columns joined with eave struts and you have a structure ready to close in.
4. TO SPEED UP attachment of aluminum siding and roofing plates, Macomber Nailable Steel Purlins and Girts complete the job.

To have one of these buildings for any size property —any width, any length, any height, all we need is your out-to-out measurements and clear height under Longspans.

Macomber will design your building, fabricate all units, erect it anywhere you wish and hand you the key.

You can have load concentrations such as mono-rails, cranes, hoists, heating equipment. You can have any type of sash and doors. You name it. Macomber will supply it and make scheduled deliveries. Write us.



HOME, SCHOOL, COMMERCIAL AND INDUSTRIAL FLOOR AND ROOF SYSTEMS

STANDARDIZED STEEL BUILDING PRODUCTS

SERVICE IN STEEL · CONSTRUCTION · MACOMBER · CANTON, OHIO

MACOMBER · INCORPORATED

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IN CANADA, SARNIA BRIDGE CO., LIMITED, SARNIA, ONT.
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V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK

2-WAY PROTECTION WITH SQUARE D CIRCUIT BREAKERS

RESIDENTIAL and INDUSTRIAL

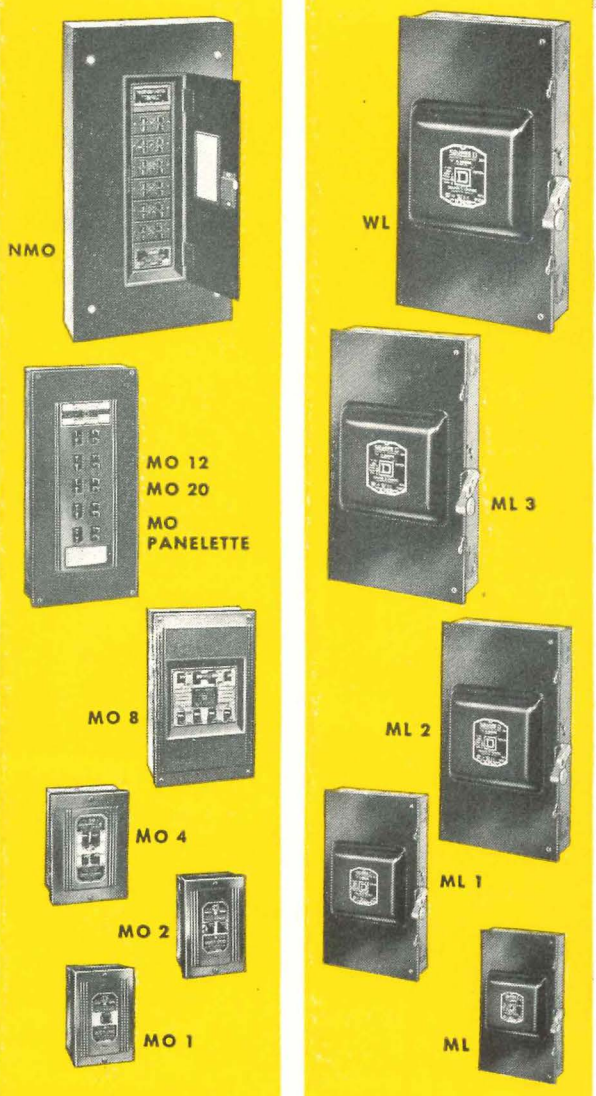
Coilless THERMAL-MAGNETIC

—combining the proven advantages of both Thermal and Magnetic tripping elements. They give positive protection against dangerous overloads and act instantaneously on "shorts." Useless tripping on harmless momentary overloads is eliminated.

1 THERMAL element is a bi-metal providing positive and timed response to heating effects of both load current and surrounding atmosphere. The life of wire insulation is prolonged by limiting total temperature to a safe value.

2 MAGNETIC element responds instantaneously to the higher values of current characteristic of dangerous overloads and "shorts." Damage is minimized.

Both **ELEMENTS ARE NEEDED FOR** *Complete* **PROTECTION!**



Write *for Bulletin SA 590*
Square D Company, 6060 Rivard Street, Detroit 11, Michigan

SQUARE D COMPANY

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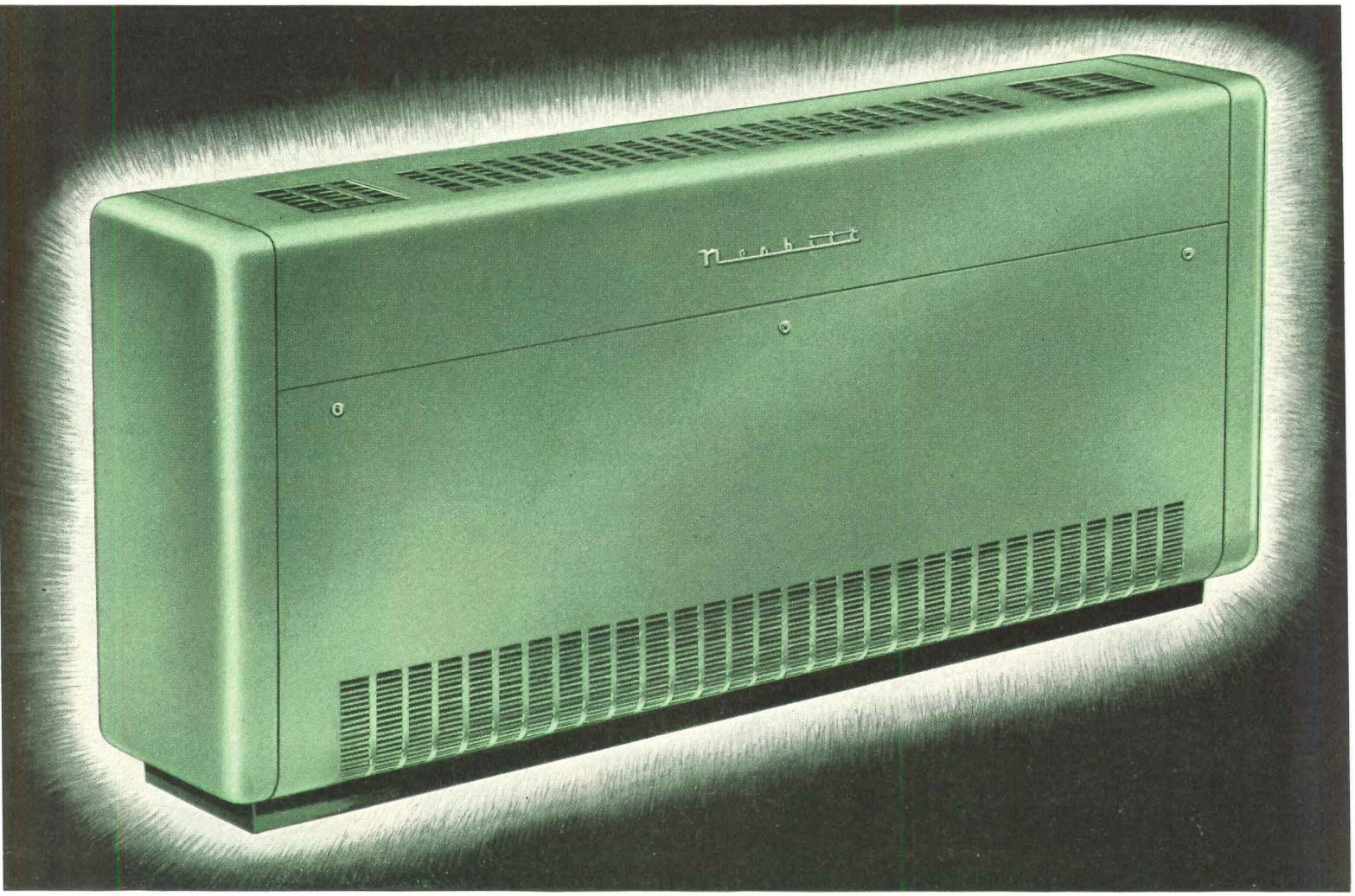
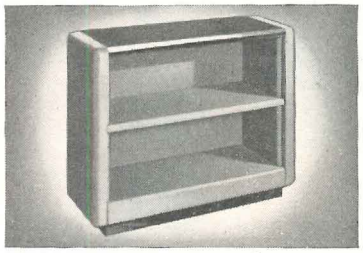
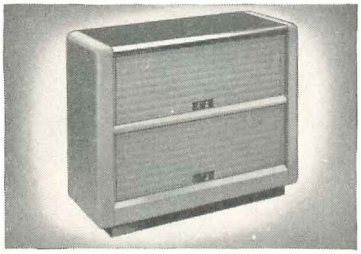


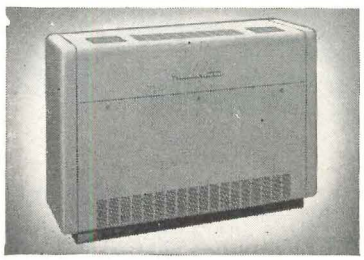
The Nesbitt Syncretizer Unit Ventilator, Series 500, semi-recessed model.



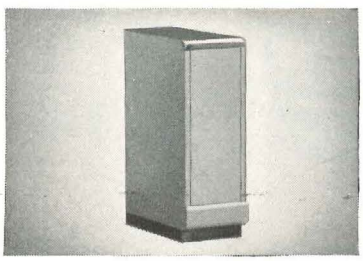
Nesbitt open storage cabinets are made in several standard lengths.



Also in three-foot lengths, closed cabinets with receding doors, locks.



When desired, a Nesbitt convector may become a unit in the "Package."



Adjustable fill-in sections make complete wall-to-wall assemblies.

"The Nesbitt Package"

The Nesbitt Series 500 Syncretizer may be installed independently (semi-recessed or non-recessed models); or it may be perfectly integrated (non-recessed models) with Nesbitt open or closed storage cabinets (and convector when desired) to form *The Nesbitt Package.*

This utilitarian ensemble — an original Nesbitt development — makes good use of the space below windows to provide the storage and display conveniences needed in the modern classroom. The available components are described at the left. Distinctive features are the one-piece linoleum top, receding doors on the closed cabinets, modern art colors, and other refinements. Send for publication 261.

NESBITT

NESBITT *Syncretizer*

THE UNIT VENTILATOR THAT SETS A NEW STANDARD OF CLASSROOM COMFORT

With today's most attractive unit ventilator being at once the most satisfactory guardian of comfort in the classroom, the problem of ventilation in your schoolhouse planning deserves a straight, sure answer: NESBITT.

Appealing as the beauty and the convenience of The Nesbitt Package are, the paramount reason for going Nesbitt exists in the performance characteristics of the Series 500 unit ventilator.

All that you KNOW about the fine points of thermal balance is comprehended in the advanced features of this unit. For instance, you know that the real threat to classroom comfort lies in the cold walls and exposed surfaces—especially in the large window area—which rob the occupants of body heat on cold days, even when the room thermostat registers 70 degrees.

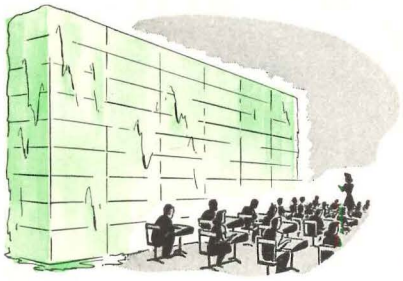
The built-in Comfort Control of the Nesbitt Syncretizer answers this problem by constantly sampling the outdoor air and automatically adjusting the minimum temperature of the ventilating air-stream: warmer as the outside temperature falls, cooler as the outside temperature rises.

Besides, there is the Nesbitt Outdoor Air Volume Stabilizer. Two pivoted vanes located within the unit at the outdoor air inlet gradually restrict the opening as wind velocities increase, preventing excessive quantities of cold air from entering the unit. This plus feature accounts for much of the unit's added economy and satisfaction.

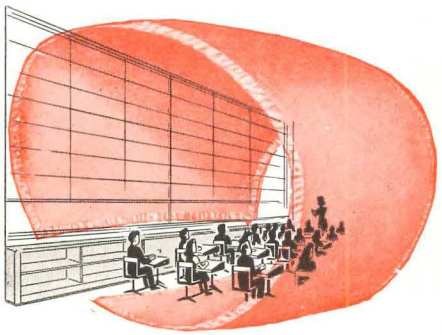
Moreover, the Nesbitt Directed Flow Adjustable Outlet: A series of adjustable vanes below the discharge grille permits the direction of the air-stream to be varied over a wide range. This makes possible the selection of a discharge pattern best suited to a particular classroom installation, and makes optimum use of the uniformly tempered air-stream created by the Nesbitt radiator with its dual steam-distributing tubes.

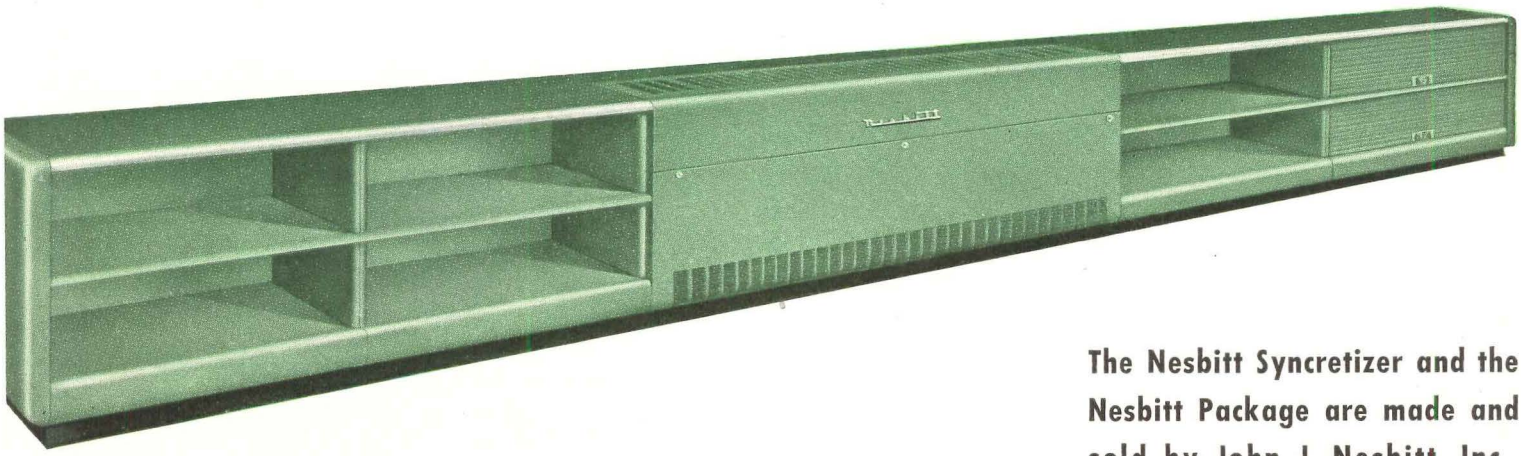
These exclusive features—and many others proved in more than 85,000 installations—provide a new standard of classroom comfort which a representative of John J. Nesbitt, Inc., or American Blower Corporation will be glad to discuss with you.

IN YOUR SCHOOLROOMS



A WALL OF ICE? . . . OR A NESBITT THERMAL BLANKET?





The Nesbitt Package with Syncretizer and open and closed storage cabinets.

The Nesbitt Syncretizer and the Nesbitt Package are made and sold by John J. Nesbitt, Inc., Philadelphia 36, Pa. Sold also by American Blower Corporation.

LUCKY KIDS . . . up to now

Are the school children in your neighborhood actually protected against the dangers of fire? Or have they just been lucky up to now?

When you stop to realize that year in and year out there is an average of five school fires each day—all too many of which spell tragedy—you'll be inclined to agree that it may be luck. And that now's the time to check their protection before that luck runs out.

Almost all schools have efficient, periodic fire drills . . . and that is of prime importance. So is "fireproof" construction. Yet how can they be deemed adequate protection when interiors are often like tinder . . . when basement-ignited fire can eat its way through walls to break out unexpectedly or "flash" upward through vents and stair-wells to demoralize orderly retreat, seal off escape, spread destruction and death?

No, by the time fire "breaks out" in a school, it is generally too late. Here, if ever, is the place where it is absolutely *imperative* to control fire at its start, with automatic certainty!

Fires that start in schools *can* be controlled wherever and whenever they start, and with automatic certainty, by a Grinnell Automatic Sprinkler System. Seventy-five years experience shows that practically 100% of fires starting in buildings protected by Grinnell Automatic Sprinkler Systems are extinguished before doing material damage.

SEE THAT GRINNELL SPRINKLER HEADS ARE ON GUARD

In schools, as well as in hospitals, hotels, theaters and factories, there is a moral obligation upon management for the utmost in protection of life and property. For your own sake be sure the schools, the hospitals, the hotels, and the plants for which you are responsible are protected with the famous Grinnell Automatic Sprinkler heads—your assurance of positive, automatic protection against fire. Grinnell Company, Inc., Providence, Rhode Island.

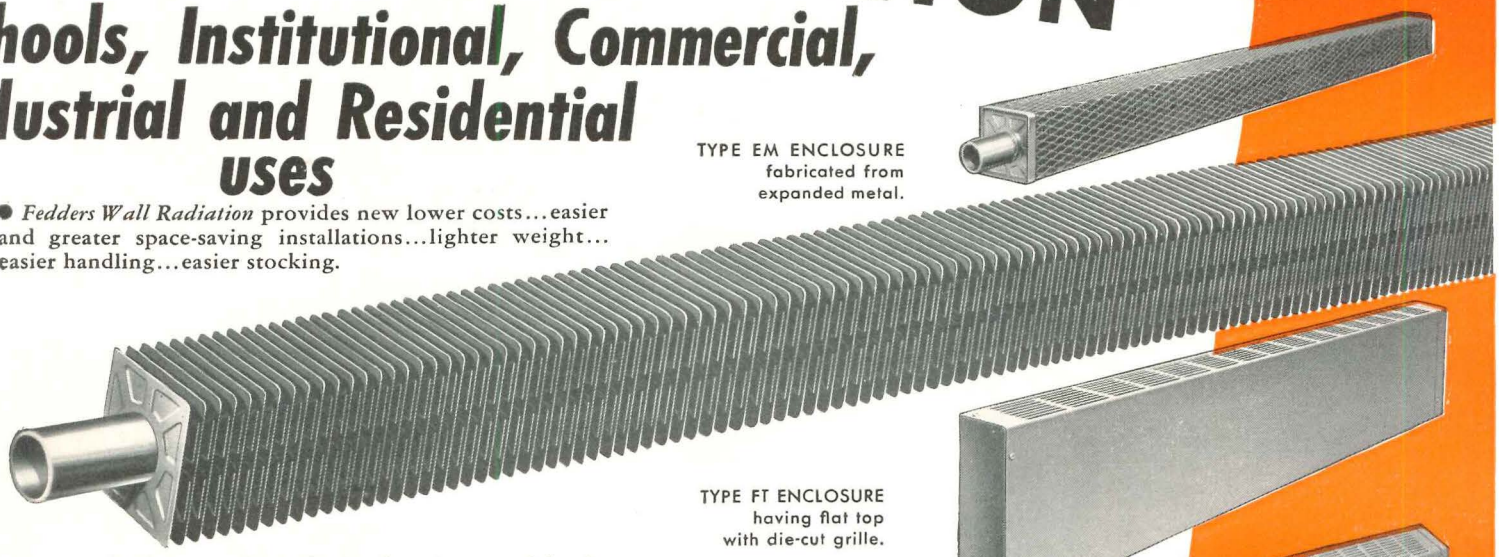
GRINNELL

FIRE PROTECTION SYSTEMS

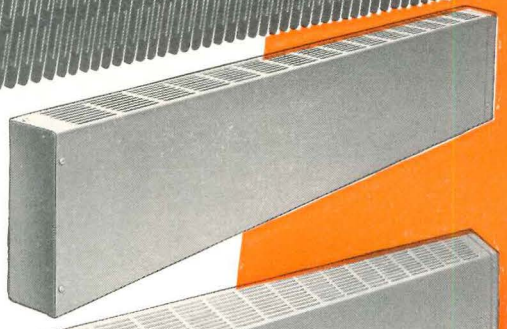
fedders

New WALL RADIATION
or
:hools, Institutional, Commercial,
dustrial and Residential
uses

● *Fedders Wall Radiation* provides new lower costs...easier and greater space-saving installations...lighter weight... easier handling...easier stocking.



TYPE EM ENCLOSURE
fabricated from
expanded metal.



TYPE FT ENCLOSURE
having flat top
with die-cut grille.

TYPE ST ENCLOSURE
having sloping top
with die-formed
louvered grille.

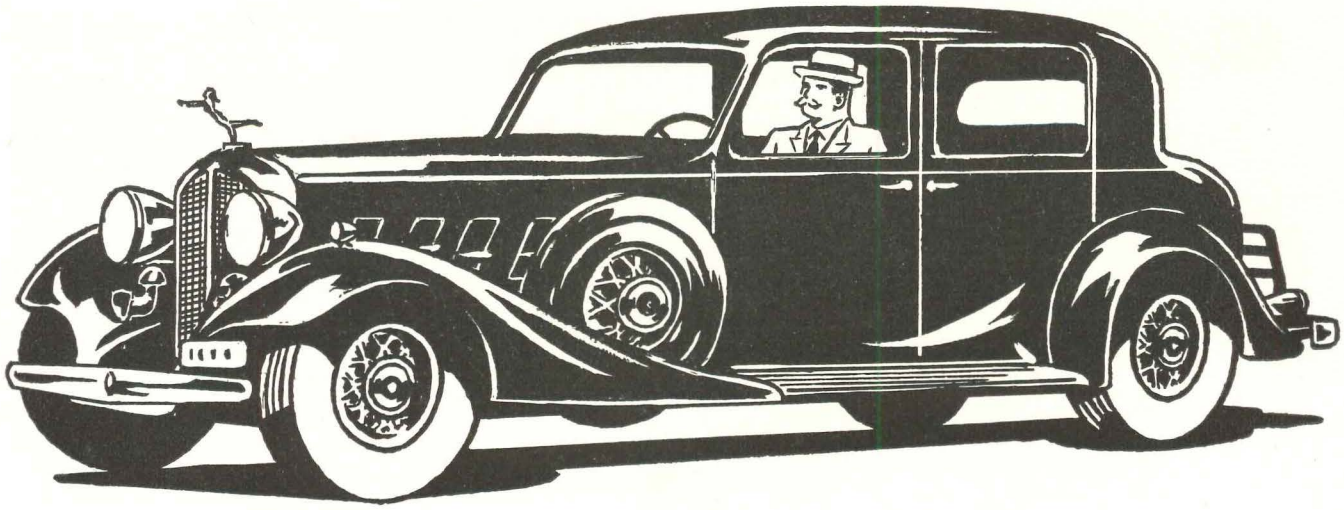
Increased efficiency of transferring heat is assured by the pattern stamped in the fins which creates a turbulent scrubbing action of airflow against fins. This die-formed pattern also produces greater fin strength.

Three styles of enclosures are available as illustrated.

Fedders Wall Radiation for steam and hot water lines is available in lengths from 2 to 12 feet in 6 inch increments. 38 and 50 fins per foot on 1¼ inch tube and 24 fins per foot on 2 inch tubes. Write for catalog WR-C1 TODAY.

:DDERS-QUIGAN CORPORATION
BUFFALO 7, N. Y.

Quigan



YOU *CAN* HOLD DOWN THE COST PER YEAR

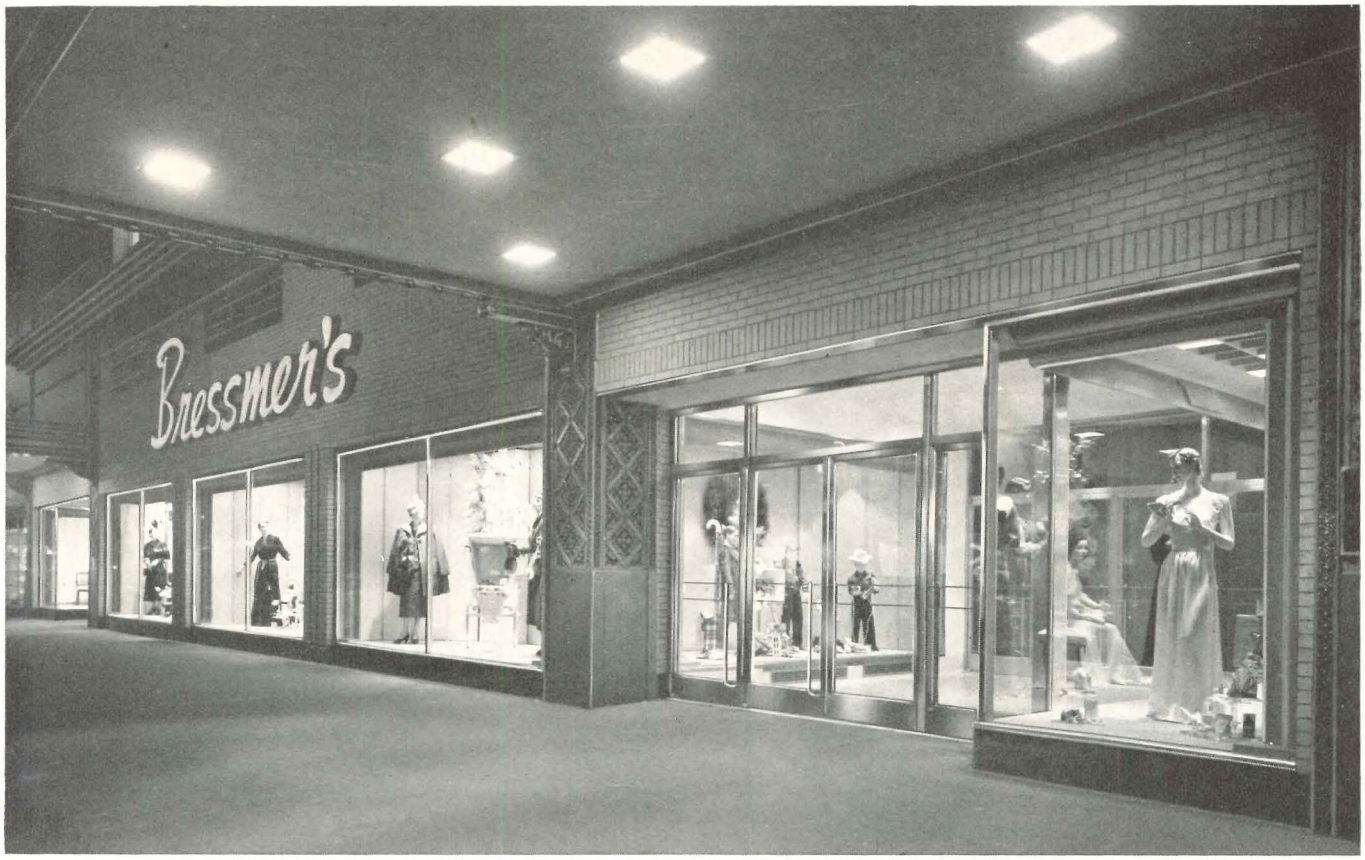
About nine times out of ten the finest thing you can buy gives you the lowest cost per year over the period of its long life—an actual over-all saving instead of a premium for the satisfaction of having the finest.

Take drop-forged Von Duprin panic exit devices for example: the superior workmanship, the precision forging, the supremely safe, sure, quick exit they provide, are yours at lowest cost. Their higher price is quickly balanced by their freedom from up-keep or repair expense, so that the yearly cost, over the life of the building, becomes the lowest at which you can supply any adequate panic exit device service.

It's no wonder that more and more people are insisting on Von Duprins.

VON DUPRIN DIVISION, VONNEGUT HARDWARE CO., INDIANAPOLIS 9, INDIANA

Von Duprin



Archts. Hadley & Worthington, Springfield, Illinois

Smart Front.. Smart Store

FIRST IMPRESSIONS count heavily when milady is off on a shopping spree. The artistry of alluring window display, expertly framed, presents irresistible appeal to eye and purse. Trim and beautiful Brasco Settings add the touch that completes the picture and sets it off to best advantage.

Architects detail Brasco not only for its sound structural strength but also for the variety of custom designed effects easily obtained with our wide selection of standard stock members. Choice of either handsome stainless steel or anodized aluminum offers quality store front metals to suit varying conditions and budgets.

Owners prefer Brasco because its distinguished appearance helps to identify the store as smart, up-to-the-minute and pleasant to shop in. Regardless of the size of your store front job you can build it better with Brasco. Write for our 1950 catalog and full size construction details.

★ ★ A COMPLETE LINE FOR EVERY DESIGN ★ ★

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BRASCO MANUFACTURING CO.

HARVEY · (Chicago Suburb) · ILLINOIS

Specialists in Metal Store Front Construction for more than 40 Years

One of a series of papers prepared by leading authorities on air conditioning. The opinions and methods presented are those of the author and are not necessarily endorsed by Kinetic Chemicals, Inc. Reprints of this and other articles in the series may be had free of charge upon request.

AIR CONDITIONING RETAIL FOOD STORES

By H. M. Hendrickson, Associate Professor of Mechanical Engineering, University of Washington

H. M. HENDRICKSON *received his engineering degree from the University of Washington. He has been associated with air conditioning since 1923, having been in the employ of York Corp. and Carrier Corp. He was engaged in store air conditioning and plant refrigeration for Safeway Stores, Inc., and served as chief engineer for Ralph E. Manns Co , refrigeration engineers. Last year, he returned to his alma mater as Associate Professor of Mechanical Engineering.*

Although, basically, air conditioning the large retail food store or super market provides comfort for both customers and employees, it also supplies the following six essential benefits:

1. Better keeping qualities of the food being sold;

2. Maintenance of the food in more satisfactory condition at the point of sale;

3. Reduction in the frequency of cleaning and painting of the store interior;

4. Proper ventilation to reduce odors from fruits, vegetables and other store stocks;

5. Prevention of dust entering from outside the store;

6. Improvement in the operation of meat cases, frozen-food cases, ice cream cabinets and walk-in refrigerators.

METHODS OF AIR CONDITIONING

While it is possible under certain special outside temperature conditions to use straight ventilation or evaporative cooling, a system using mechanical refrigeration is the most positive and the most universally satisfactory method of providing comfort conditions.

Beside reducing temperature in summer, an air conditioning system also delivers filtered, dehumidified air to the selling area.

Cooling can be supplied by a central air conditioning system which employs one large refrigeration unit and air ducts to convey the conditioned air to outlets in the store, or by means of a number of properly placed self-contained or packaged air conditioners.

Unit air conditioners should be located near the points of greatest cooling load so as to blanket these areas with cool air. However, it is not usually considered good practice to blow cold air from unit conditioners over the fresh fruit and vegetable areas because of the danger of dehydrating such produce.

AIR CIRCULATION

It is not economical to circulate 100 per cent outside air except in localities where cool well water can be pumped cheaply and used for precooling the incoming air. Therefore, air conditioning systems use about 25 per cent fresh outside air and 75 per cent recirculated air. Dampers are installed so that all fresh air can be circulated during mild outside weather. The store should have about five complete air changes per hour.

When large quantities of fresh air are used, a positive pressure is produced which prevents outside dirt and dust from entering the store. However, the excess air must be vented to the attic and then

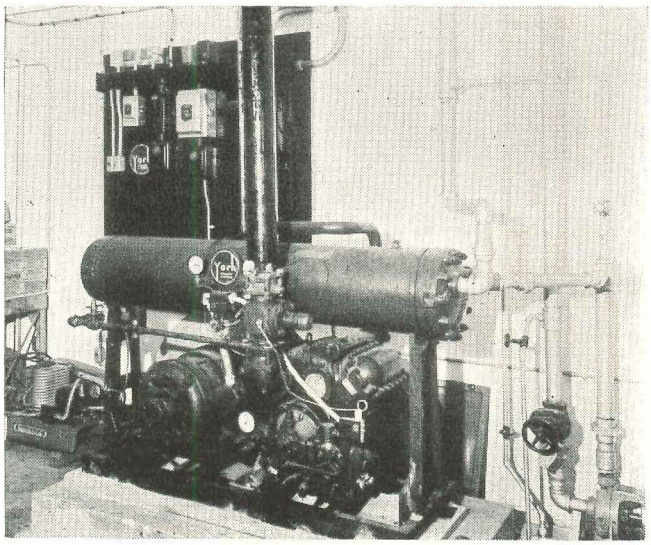


Photo courtesy of York Corporation, York, Pa.

to the outside by means of roof ventilators.

DESIGN DATA

Inside temperature conditions should be maintained in summer at 78 to 80 degrees F. and the relative humidity at 50 per cent.

In planning air conditioning systems for the retail food stores, the designer should consider that one horsepower of the refrigeration compressor will produce one ton of refrigeration effect, or perhaps slightly more. One ton of refrigeration will serve from 300 to 500 sq. ft. of floor area, depending upon climatic conditions. Air circulation should be from 1 to 1.25 c.f.m. for each square foot of floor area.

A fan-cooling system with refrigeration, or one employing a number of small 3- or 5-h.p. unit or packaged air conditioners, generally costs from$1.00 to $1.50 per square foot of floor area, or from $400 to $600 per ton of refrigeration. A good average figure to use is $500 per ton of refrigeration.

Based on a cooling season of 1000 operating hours for the equipment, and power costs of 1.5 cents per kilowatt-hour, a rough average figure for operation and maintenance is $30 per ton refrigeration per season. This figure does not include interest and depreciation on the capital investment.

To help reduce operating costs, satisfactory insulation against heat gain from the outside is an important consideration. For one-story buildings, a minimum requirement is to have 3 to 4 inches of roof or ceiling insulation.

Unless the store has its own well system, a cooling tower or an evaporative condenser should be installed to save on the cooling water required. This applies to both packaged units and central air conditioning systems.

HEATING

During the winter, particularly in cold climates, heating must be provided for the comfort of customers and employees. Where a central air conditioning system using air ducts is employed, one main heating coil may be installed in the duct system.

However, it is advisable to have some type of booster heater at the entrances to offset drafts and to provide greater comfort for the employees at the check-out stations. While employees at check-out stations may require 70 degrees F., customers are comfortable at 65 degrees F., for they are wearing street clothes and are moving about.

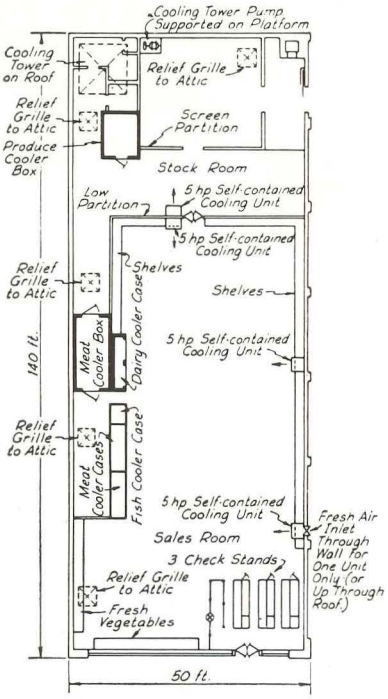
Auxiliary humidification is seldom provided for the heating of retail food stores.

Operating costs for the heating cycle vary so greatly with climatic conditions and fuel costs that it is practically impossible to set an average figure.

DEVELOPMENTS

The further development of unit or packaged air conditioning units may reduce costs sufficiently so that air conditioning will be attractive to the 475,000 major retail food stores in the United States. Several large food chains have already tried the packaged air conditioners with considerable success.

The architect and engineer will find that the retail food store is a field full of opportunities for the application of new and improved methods of air conditioning, with possibilities for both radiant heating and the heat pump.



Typical cooling equipment layout for a retail food store, using 5-h.p. packaged air conditioning units.

Plans for retail stores or modern super markets today must provide for air conditioning and refrigeration. These must be adequate to assure comfort for customers and employees and optimum conditions for protecting perishable foodstuffs.

The safety of the system cannot be overemphasized in any establishment serving the public. These refrigerants are safe . . . nontoxic, nonflammable, nonexplosive, odorless and nonirritating . . . ideal for store and super market applications. That is why architects, consulting engineers and distributors of equipment unhesitatingly recommend "Freon" safe refrigerants for use in both air conditioning and refrigeration systems. It is to your client's advantage at all times to stress the importance of selecting equipment designed to utilize "Freon" refrigerants. Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

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FREON SAFE REFRIGERANTS

"Freon" is Kinetic's registered trade mark for its fluorinated hydrocarbon refrigerants.

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EFFICIENCY...Unexcelled!

BEAUTY...Unrivalled!

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AIR
DIFFUSER
GIVES YOU ALL
THREE

AGITAIR®

SQUARE & RECTANGULAR AIR DIFFUSERS

Design: AGITAIR square and rectangular air diffusers are tailor-made to suit conditions of each application. The vanes and louvres are assembled in a variety of arrangements to provide blows in ONE, TWO, THREE or FOUR directions.

Efficiency: AGITAIR square and rectangular air diffusers assure 100% control of air volume and direction of discharge from any location without the use of makeshift blank-offs or oversized outlets. Put them anywhere—center of ceiling, off-center or corner . . . sidewall or baseboard. Yes—AGITAIR diffusers give you maximum efficiency from any location.

Beauty: AGITAIR square and rectangular air diffusers, available in numerous vane arrangements and patterns, blend perfectly with modern ceiling treatments. They are the natural choice of designers to complete an artistic decorative effect.

Write for Complete Data

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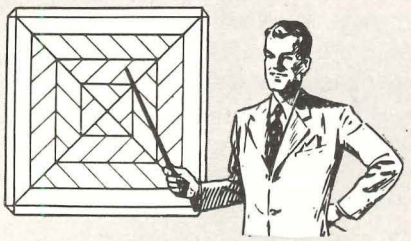
AIR DIFFUSERS • AIR FILTERS • ROOF EXHAUSTERS

Here's the Secret of Greater Diffusing Ability:



Patented built-in vanes deflect the air in numerous divergent streams resulting in turbulence at the point of contact with the aspirated air. Result: Rapid mixing, diffusion and temperature equalization.

THE DIFFUSING VANES MAKE THE DIFFERENCE

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There's more than just one type of stainless steel . . . because *stainless* applies to a family of steels. And in order to get the best possible results from stainless in your application, the *right* analysis must be used.

That's why Crucible, a pioneer in the development of this specialty, offers you the services of an alert staff of metallurgists to help you with your stainless application problem.

Crucible's half century of specialty steel leadership is built on a strong foundation of service to Industry . . . with attention to detail . . . whether the order is in tons or pounds. From the ground up, Crucible designed and put into operation one of the first integrated mills built specifically to hot and cold roll stainless steel. This $18,000,000 addition gives Crucible facilities to provide industry with stainless in every form.

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CRUCIBLE first name in special purpose steels

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TO SAVE TIME ON YOUR NEXT TOUGH AIR CONDITIONING JOB

As near as your phone is a York-trained air conditioning and refrigeration engineer. Let his experience-sharpened, specialized knowledge knock the drudgery from your next tough job—from preliminary plans to final installation inspection.

Behind his technical lore lie thousands of successful York installations in every type of business and industry. And to save you post-installation headaches and time-consuming chores, York offers its unique Certified Maintenance Plan. A service assuring continuous efficiency and top-peak performance—at costs that are determined in advance.

York's complete line of refrigeration and air conditioning products are the result of 75 years of production know-how and fruitful research. Your clients have full faith in the name—a deserved trust.

Check today with your York District Office. The York-trained engineer is able, fully qualified. See how his wide-range technical experience dovetails with your T-square and triangle—how he can serve to save you time in design and detail work. No obligation, of course. York Corporation, York, Pennsylvania.

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- **technical assistance based on "case histories"**
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York refrigeration air-conditioning

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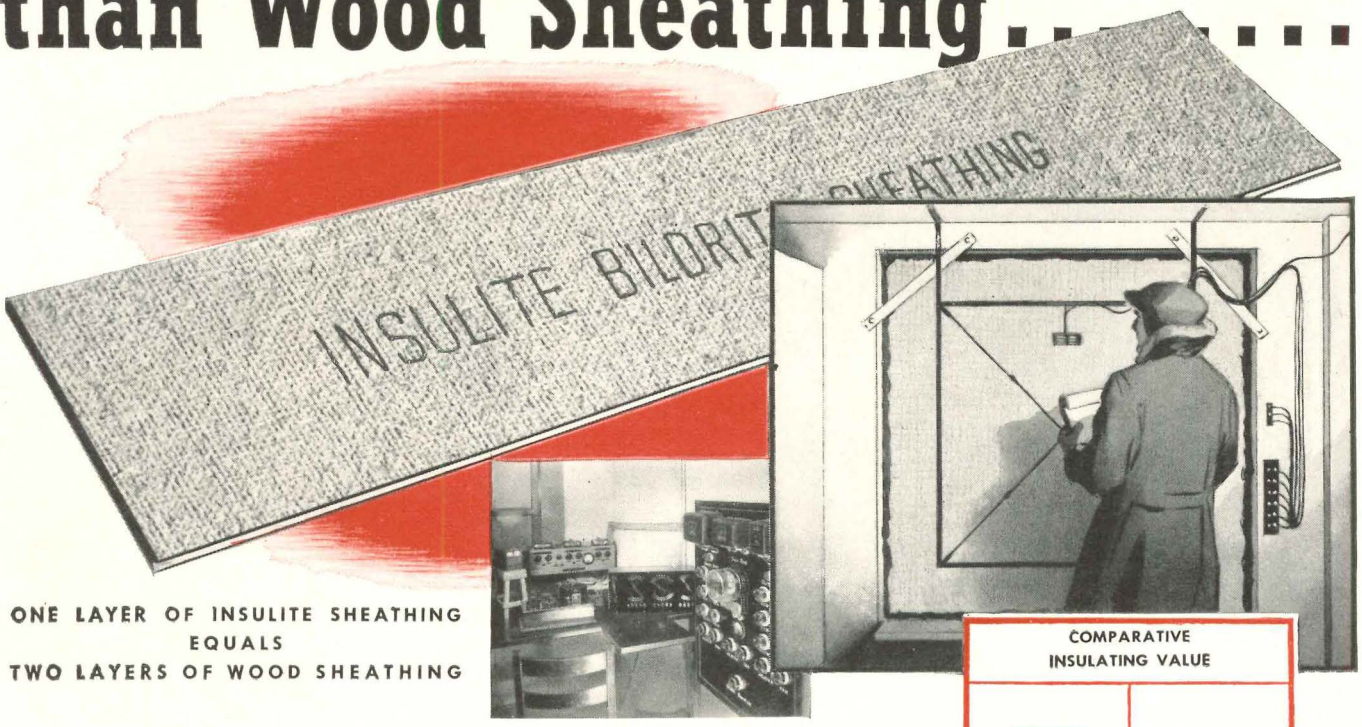
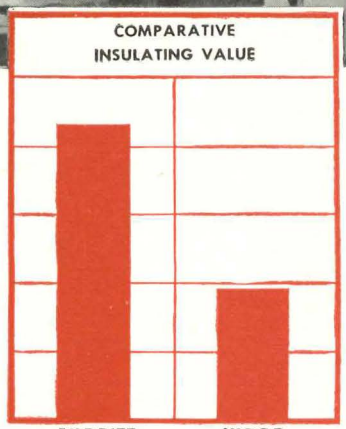
Insulite* *Bildrite* Sheathing Offers

222% More Insulating Value than Wood Sheathing.....



ONE LAYER OF INSULITE SHEATHING
EQUALS
TWO LAYERS OF WOOD SHEATHING



IT'S 10° below zero in that laboratory "cold room." On the other side of the test panel it's 70° above zero—average room temperature. This was a test to re-create actual living conditions in an average home. We wanted to compare the insulating value of INSULITE Sheathing and wood sheathing.

HERE'S WHAT THE LABORATORY REPORTED

Delicate instruments measured the heat flow through the materials from the "warm room" side to the "cold room" side. INSULITE performed an amazing insulating job! Here are the facts:

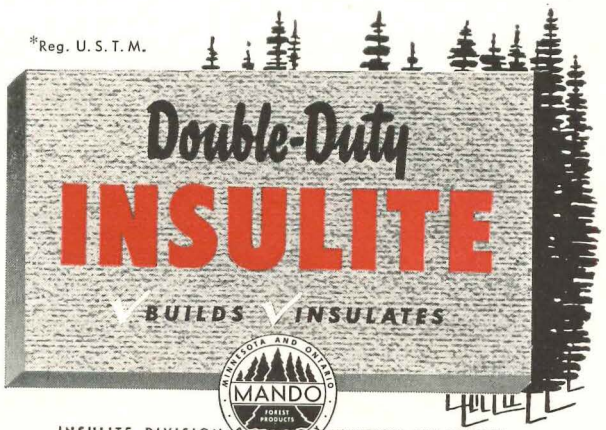
- INSULITE resisted heat loss better than *twice* as well as wood.
- Engineers call this the "k" factor, and the "k" factor of INSULITE was 222% better than that of wood.
- One layer of INSULITE ($^{25}/_{32}$" Bildrite Sheathing) provided more insulating value than 2 layers of wood sheathing.
- Besides double the insulating value, Bildrite also gives you double the bracing strength of wood sheathing horizontally applied. It's water-proofed throughout—every fiber protected.

THAT'S WHY INSULITE builds better—*gives more* for the money. Warmer homes in winter, cooler homes in summer. Specify Double-Duty INSULITE.

Refer to Sweet's File, Architectural Section 10a/8

3-50

*Reg. U. S. T. M.



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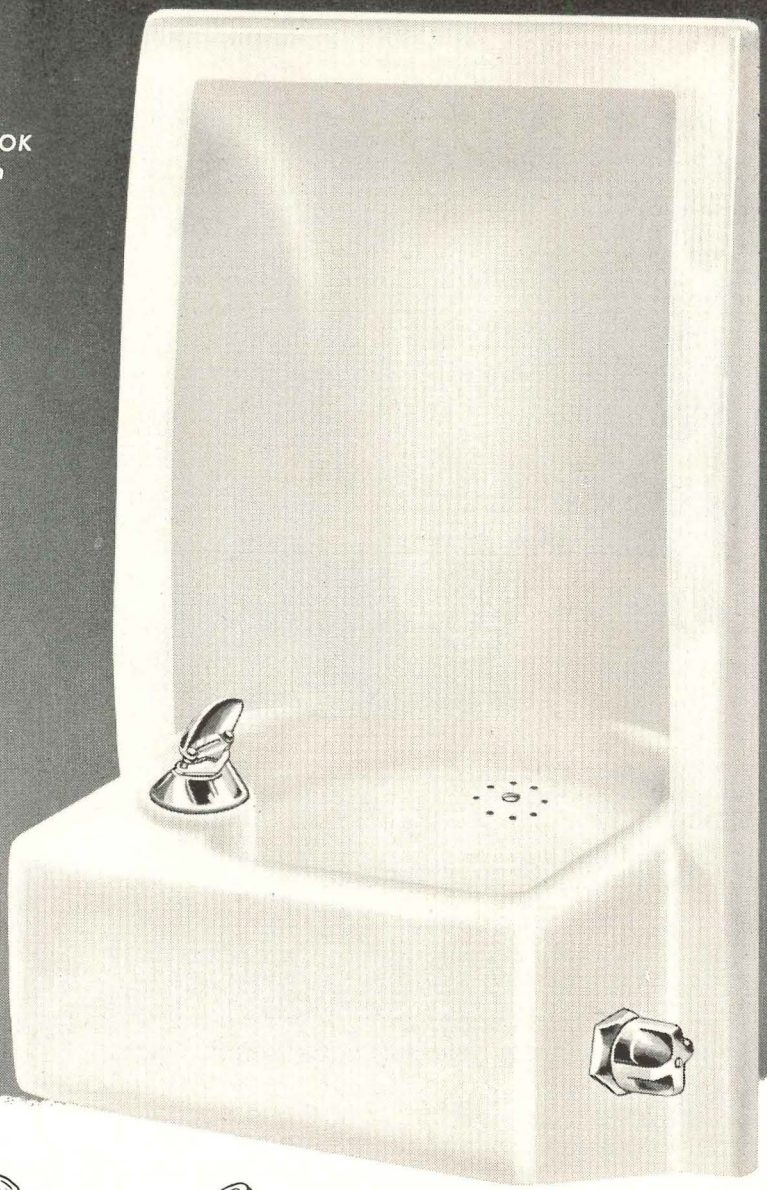
the preferred school plumbing

CRANE COOLBROOK
Drinking Fountain



One of a complete new quality line ideal for school installations. Removable cover plate for easy access . . . bright vitreous china for quick cleaning . . . durability to withstand years of tough school usage. For everything in school plumbing, consult your Crane Branch or Crane Wholesaler.

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Are you a Quiz Kid on Fluorescent Lighting?

try this quiz to test yourself

Q. Is the light output of a fluorescent tube affected by ballast operation?

A. Yes. Some uncertified ballasts reduce light output by 20%! CERTIFIED BALLASTS assure rated light output.

Q. Does the ballast affect lamp life?

A. Decidedly. Improperly designed ballasts can lower lamp life by as much as 1,000 hours in a 40 watt lamp. CERTIFIED BALLASTS assure full lamp life.

Q. How can one guard against overheated ballasts?

A. Use CERTIFIED BALLASTS in well designed fixtures.

Q. Do some ballasts last longer than others?

A. Yes. A CERTIFIED BALLAST should outlast the life of the installation.

Q. Can ballasts be a source of noise?

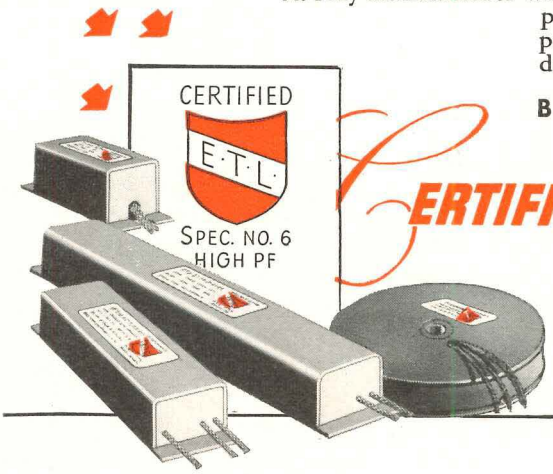
A. Audible "humming" is often due to the ballast. CERTIFIED BALLASTS produce a minimum of noise.

Q. What ballasts are made to exacting specifications, then tested and checked by Electrical Testing Laboratories, Inc., who certify that they conform to these specifications?

A. CERTIFIED BALLASTS!

Q. Who makes CERTIFIED BALLASTS?

A. Any manufacturer who wishes to produce ballasts that meet the specifications may participate in the CERTIFIED BALLAST MANUFACTURERS program. Currently 10 leading ballast manufacturers are producing CERTIFIED BALLASTS.



BE SURE... ALWAYS SPECIFY CERTIFIED BALLASTS!

CERTIFIED BALLAST MANUFACTURERS

Makers of Certified Ballasts for Fluorescent Lighting

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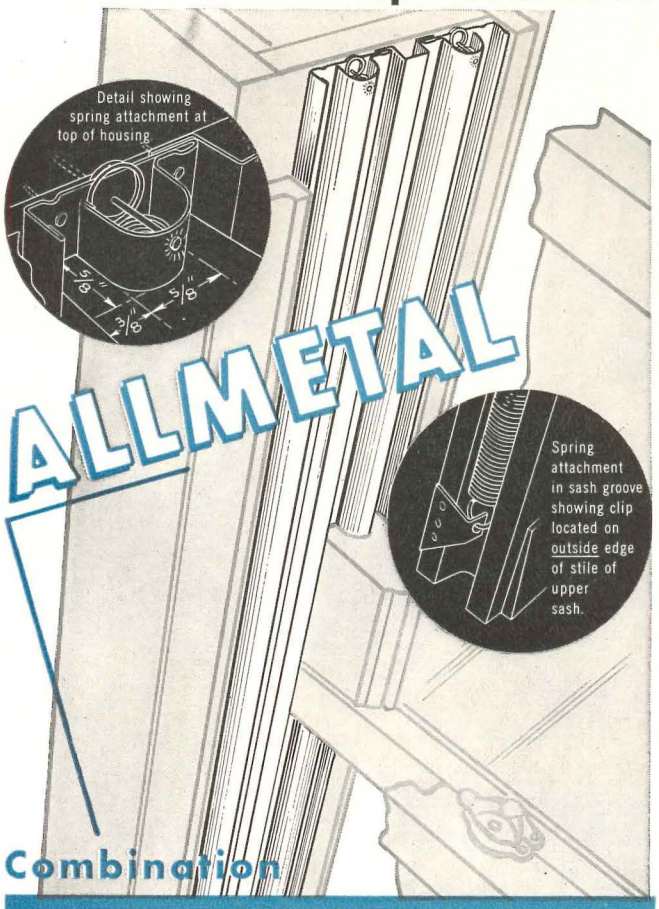
This is the way to balance windows . . . and weatherstrip them too!



Combination SASH BALANCE AND WEATHERSTRIP UNIT

Do two jobs at once on *any* double-hung window. Here is an installation on an economy frame giving an *all* metal sash run. Or simply "cap" old or new wood parting beads. Allmetal Sash Balance give *stable* sash — provides finger-tip control — cuts labor and material costs and provides better windows by weatherstripping as well as balancing. Send for complete information now.

See Our Catalog in Sweet's File Architectural 18A/1

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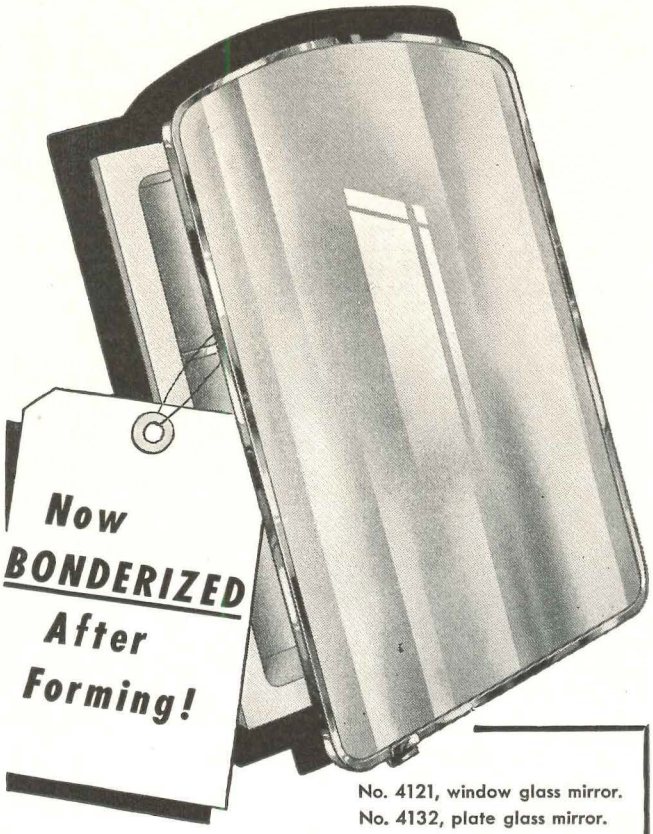

No. 4121, window glass mirror.
No. 4132, plate glass mirror.

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Quality features found *only* in more costly cabinets are built into these low cost cabinets by Lawson:

- **ONE PIECE DRAWN SEAMLESS STEEL BODY.**
- Easy-To-Clean rounded inside corners.
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- Full Length Piano Type Hinge.
- Stainless Steel Adjustable Shelf Supports.
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- **BONDERIZED AFTER FORMING** for protection against rust and corrosion. Gives maximum adhesion of enamel to metal.

Compare these features with those in other cabinets, higher priced.

- ***Write for catalog on LAWSON Bathroom Cabinets and chrome accessories . . .***

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134 YEARS

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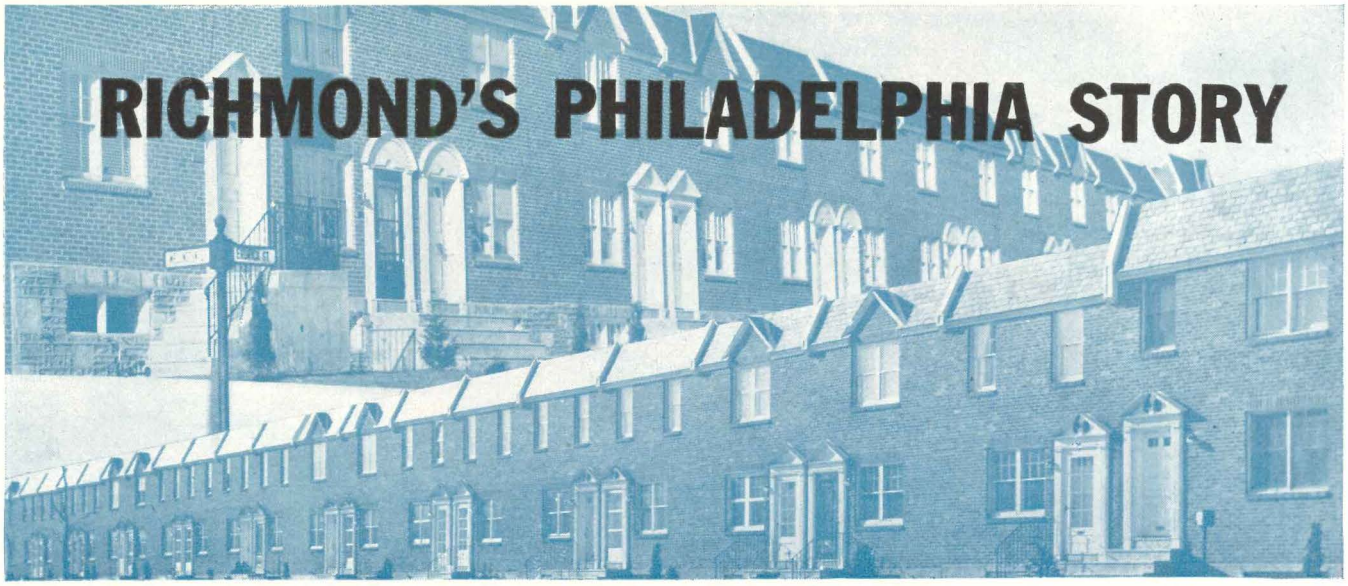


Partial view of new Broad Construction Company development in Philadelphia. Richmond plumbing installed by Provident Plumbing and Heating Company . . . heating by William G. English. Distributor: Atlantic Plumbing and Heating Supply Company.

234 NEW PHILADELPHIA HOMES COMPLETELY EQUIPPED WITH RICHMOND PLUMBING AND HEATING

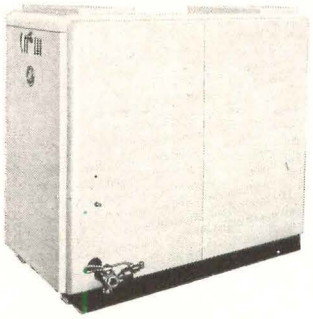
It's a Richmond exclusive! Each home in this fine new Philadelphia housing development uses four Richmond plumbing fixtures and one Richmond heating unit—identical or similar to those shown below.

It's Richmond's own Philadelphia story—and a familiar one in quality housing, nationwise. For quality homes demand quality plumbing and heating—and Richmond gives them just that, *plus* the economy that comes from efficient operation.

Next time you figure on a job, consider Richmond before you decide. Richmond has a complete line of both cast-iron and vitreous china plumbing fixtures as well as a wide range of heating equipment, both oil- and gas-fired warm air furnaces and gas boilers. And Richmond has a long-standing reputation for customer satisfaction that's hard to beat.

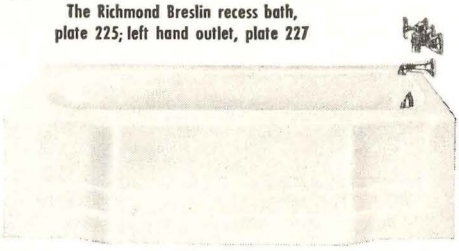
The Richmond Claremont 2-piece close-coupled closet comb., G-210 plate

The Richmond gas-fired boiler, Type WFD



The Richmond Servilla double drainboard cabinet sink, plate 1535

The Richmond Breslin recess bath, plate 225; left hand outlet, plate 227



The Richmond Lorain shelf-top lavatory, plate 837

RICHMOND RR PLUMBING & HEATING

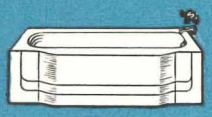
RICHMOND

RICHMOND RADIATOR CO.—AFFILIATE OF REYNOLDS METALS CO.

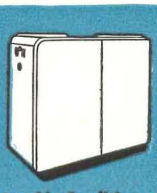
SEE OUR CATALOG IN SWEET'S

Vitreous China

Gas Boilers



Enameled Cast Iron Ware



Winter Air Conditioners
Gas—Cast iron or steel
Oil—Steel

See your wholesaler or Mail Coupon Today:

Richmond Radiator Company AR-4
19 East 47th St.
New York 17, N. Y.

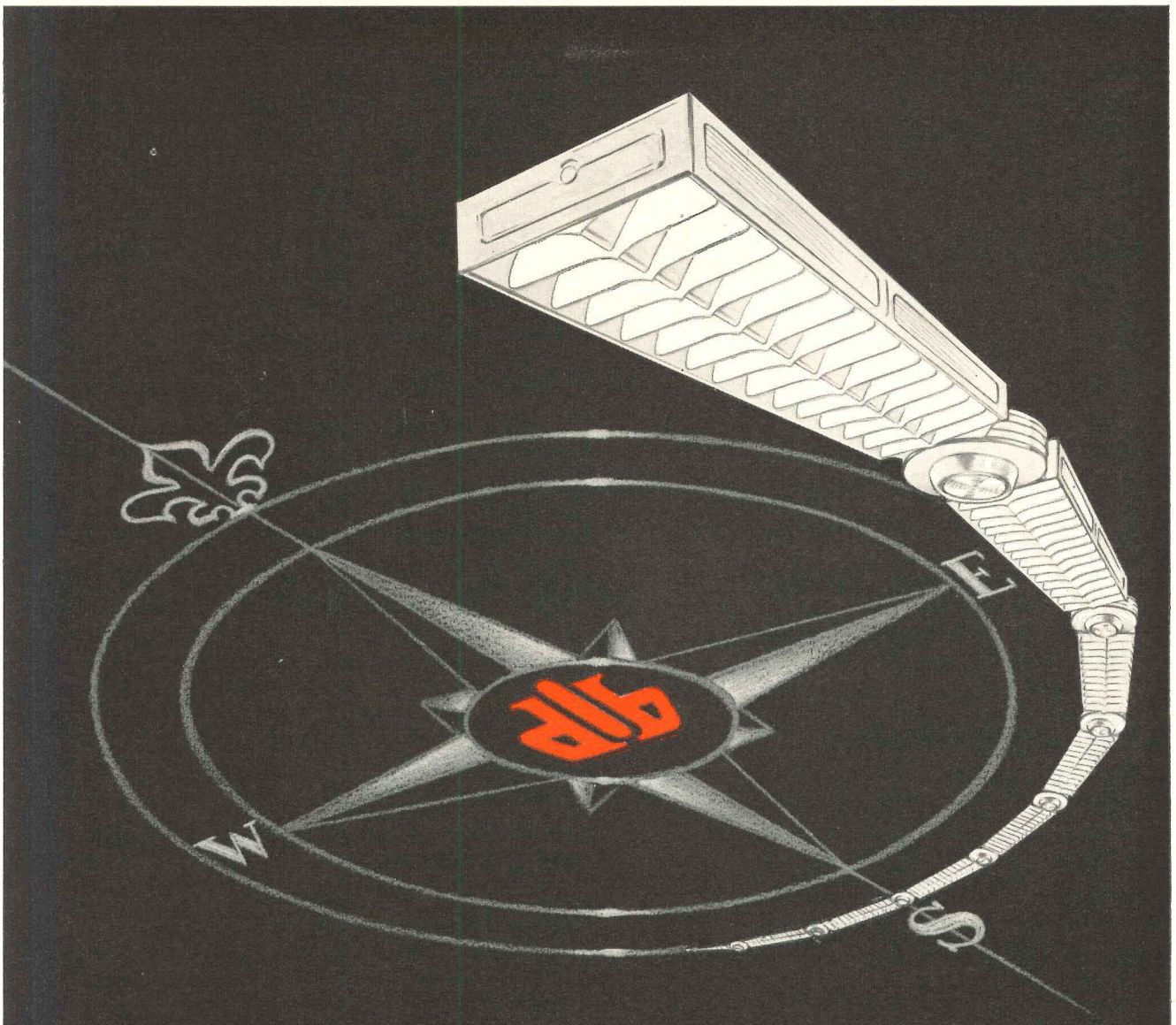
Please send me the latest literature and information on the Richmond line of fine plumbing fixtures. No obligation, of course.

Name .....

Company .....

Address .....

Let your imagination run riot!
Picture long sweeping curves of fluorescent illumination . . . circular contours . . . dramatic abstract shapes . . . acute angle patterns . . .
Then . . . picture an ingenious system of luminaires . . . a masterpiece of simplicity and beauty . . . with the unique ability to transform your every creative lighting idea into reality . . . and you have . . .
The sensational new
022



A "package" of spectacular new versatility . . . circular lens units or spots with luminous sides . . . 2- and 4-light linear sections, Slimline in 4′, 6′, 8′ lengths or standard fluorescent in 4′ and 8′ sections . . . individual mounting or continuous runs . . . unlimited straight or flexible combinations . . . ceiling or suspended . . .

Plexoline

BY

DAY-BRITE

Day-Brite Lighting, Inc., 5465 Bulwer Avenue, St. Louis 7, Missouri

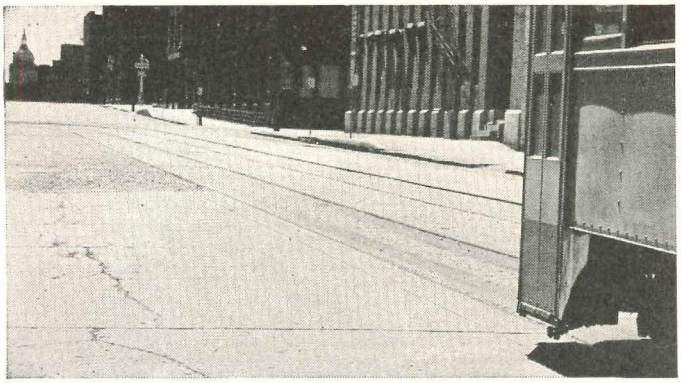
In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario

Please send me your FREE booklet "PLEXOLINE... IMAGINATION AT WORK."

NAME_____

ADDRESS_____ ZONE_____

CITY_____ STATE_____

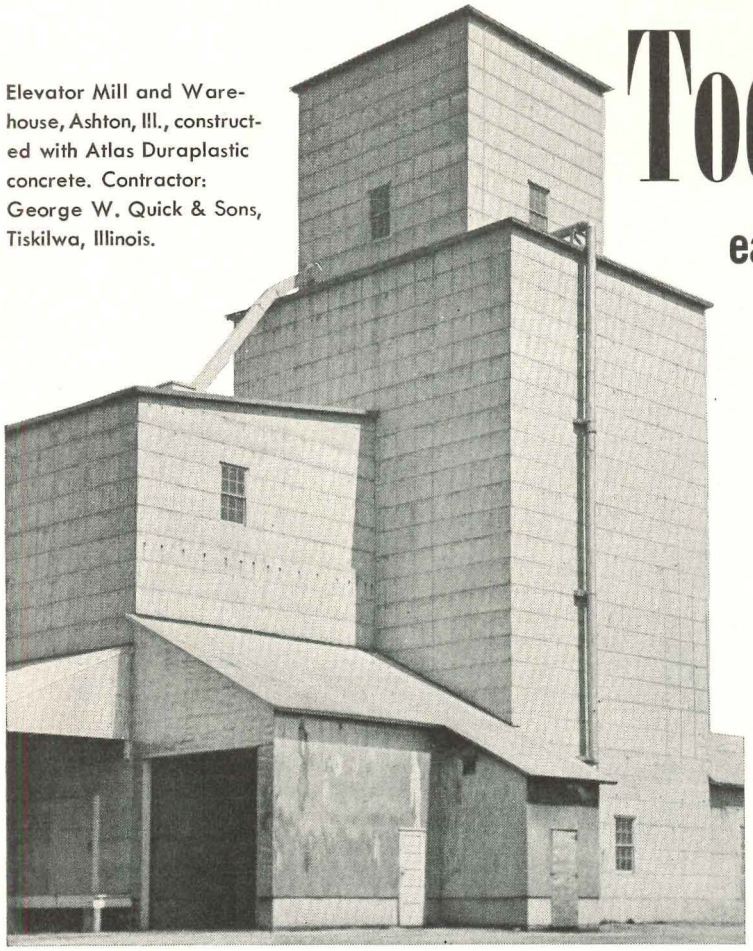


Ten Years Ago...

A Decade of ATLAS DURAPLASTIC AIR-ENTRAINING PORTLAND CEMENT

in August, 1939, this concrete test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, *laid at the same time*, was made with Atlas Duraplastic—the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown just as they appeared in July, 1949—convincing proof of the characteristic durability of Duraplastic concrete, of its high resistance to freezing-thawing weather and the scaling action of de-icing salts. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.



Elevator Mill and Warehouse, Ashton, Ill., constructed with Atlas Duraplastic concrete. Contractor: George W. Quick & Sons, Tiskilwa, Illinois.

Today... more plastic easy-to-place structural concrete with DURAPLASTIC*

During the past decade, the advantages of Atlas Duraplastic air-entraining cement for paving concrete have been increasingly applied to structural and mass concrete—for foundations, walls, columns and floors; for slip-form work, gunite, stucco and other uses.

Particularly, has the increased plasticity of Duraplastic concrete been of benefit in structural work. For example, on this elevator mill and warehouse, the contractor reported, "Use of Duraplastic saved about 12 man-hours of labor per day while running concrete walls. First job on which we have used Duraplastic, and were more than satisfied with the results. Will use it in the future."

As it does for paving concrete, Duraplastic for structural and mass concrete permits the use of less mixing water for a given slump. The resulting mix is more plastic, more workable, more uniform and more cohesive. It's easy to place and finish. Water-gain and segregation are reduced. Surface appearance is improved and exhibits higher resistance to the effects of weather-exposure.

Duraplastic provides the precise amount of air-entraining agent interground with the cement for satisfactory field performance. It complies with ASTM and Federal specifications, sells at the same price as regular cement and calls for no unusual changes in procedure.

Send for new free booklet, *"A Decade of Duraplastic Air-Entraining Cement." Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Bldg., New York 17, N. Y.*

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

**"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.*

AR-D-100

ATLAS DURAPLASTIC

TRADE MARK REG. U. A. C. CO.

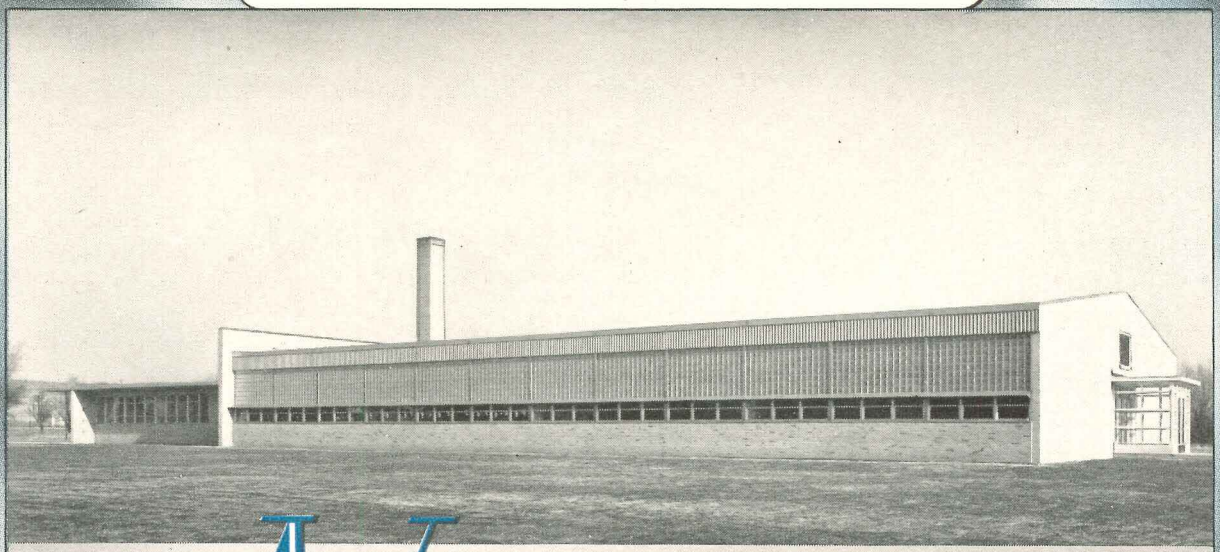
A UNIVERSAL ATLAS PRODUCT

AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

VAMPCO ALL-ALUMINUM WINDOWS



ELEMENTARY SCHOOL, COMSTOCK, MICHIGAN

ARCHITECTS — LOUIS C. KINGSCOTT & ASSOCIATES
KALAMAZOO, MICHIGAN
CONTRACTOR — M. C. J. BILLINGHAM, Inc., Kalamazoo, Michigan

NO STRUCTURAL LINTELS REQUIRED

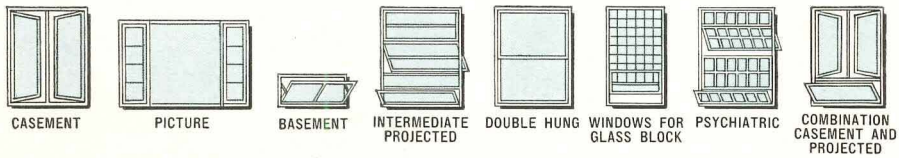
FOR VAMPCO ALUMINUM RIBBON WINDOWS

That's a fact! So strong, so rigid are Vampco all-aluminum ribbon windows that they provide their own lintels. Deep head flanges and heavy mullions bear the load with ease.

Vampco pioneered this construction, employing extra-heavy high-tensile-strength extruded aluminum alloy. Now . . . as of 1950 . . . it has been tried and tested in hundreds of attractive, satisfactory installations. Here's a proven window that can save you many hundreds of dollars in construction costs — a window that will perform well and look well for life without one dollar of maintenance.

Vampco ribbon units are fabricated to your order in lengths up to 25 feet . . . vents up to 40" high by 48" wide. Heads and sills are continuous and absolutely water-tight. Shipped fully assembled, ready for installation. Ask our engineering department for help on specifications!

FOR ALL THESE WINDOW TYPES — IN LIFETIME ALUMINUM

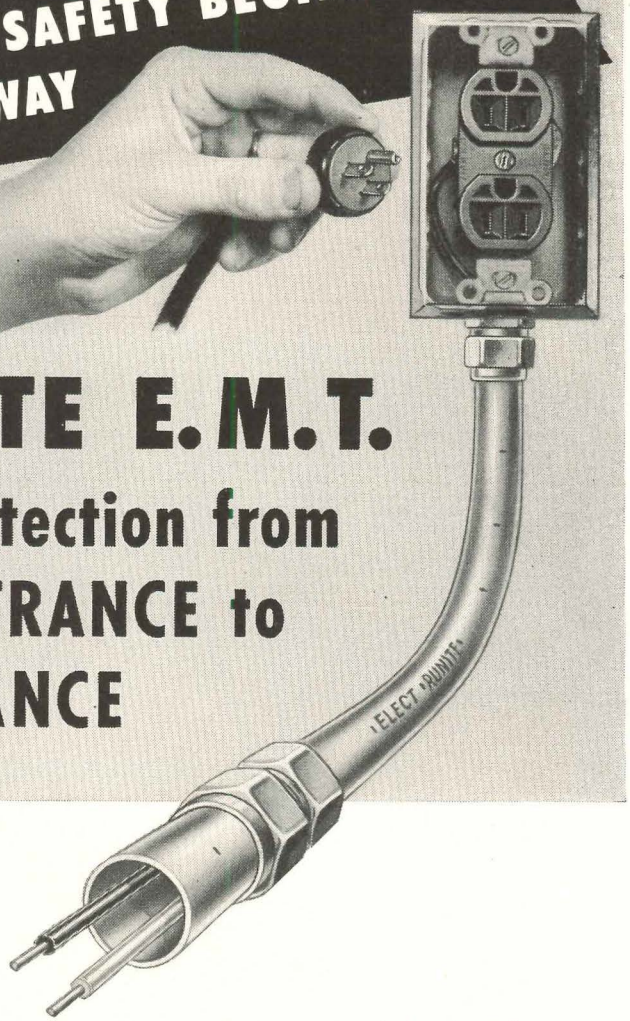


WRITE
Dept. AR 4

our Engineering Department for money-saving suggestions . . . Consult SWEET'S for standard sizes and specifications.

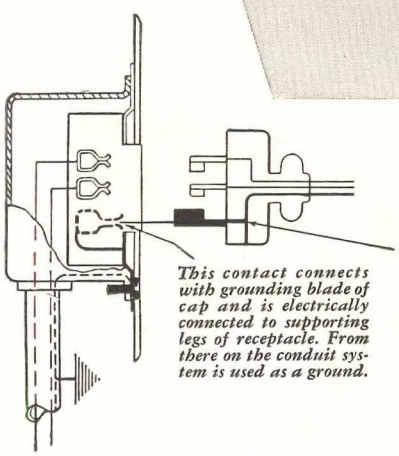
VALLEY METAL PRODUCTS COMPANY - PLAINWELL, MICHIGAN

IN HOME WIRING, TOO...SAFETY BEGINS WITH A GROUNDED RACEWAY



ELECTRUNITE E.M.T.

Gives FULL Protection from SERVICE ENTRANCE to APPLIANCE



Grounding wire connected to outer steel casing through shunt . . . The wire itself is fastened under a bind screw in grounding terminal.

This contact connects with grounding blade of cap and is electrically connected to supporting legs of receptacle. From there on the conduit system is used as a ground.

With a grounded raceway of ELECTRUNITE E.M.T. there's no danger of stray currents running amuck in residential wiring installations. Not only does ELECTRUNITE E.M.T. provide safe, fireproof wiring protection . . . its rigid steel walls furnish a positive ground all the way from the service entrance to the outlet.

Today, with more and more residential wiring installations featuring a variety of motor-driven appliances, the importance of the "extra" grounding circuit cannot be over-emphasized. By specifying grounded raceways of ELECTRUNITE E.M.T. and appropriate receptacles, you assure your clients this vitally-needed protection without excessive cost.

For complete information about modern ELECTRUNITE E.M.T. and its easy-to-install advantages which keep wiring installation moving "on-time", write, wire or phone *today*.

SEE SWEET'S FILE
or write us for detailed information on these Republic Steel Building Products:

Pipe—Sheets—Roofing
Enduro Stainless Steel
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Fretz-Moon Rigid Steel Conduit
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Berger Lockers, Bins, Shelving
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STEEL AND TUBES DIVISION • CLEVELAND 8, OHIO
Export Department: Chrysler Building, New York 17, New York

Republic REPUBLIC STEEL ®
ELECTRUNITE E.M.T. ®

LIGHTWEIGHT THREADLESS RIGID STEEL RACEWAY

beautiful carpet deserves the best installation

Specify smoothedge

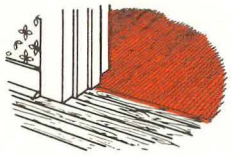
TACKLESS METHOD

ELEMENTS OF QUALITY INSTALLATION

"*Smoothedge*" makes removal easy

Power Stretchers eliminate ripples and looseness

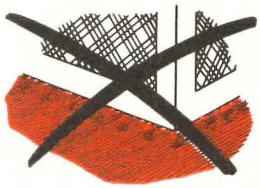
Smooth flowing installation at door jamb



Tackless Installation at flush doorway

Avoid ugly tack marks and puckers

Specify "*Smoothedge*" for beautiful effect



Even the best turn-and-tack job shows tack marks

With "*Smoothedge,*" carpet is secured from beneath

"Smoothedge" tackless installation was specified in the beautiful Holmby Hills home of Mr. and Mrs. Alan Ladd. Alan Ladd now appearing in Paramount's "After Midnight."

1950 CARPET FASHION OPENING

April 17 to 27 is arousing national interest in wall-to-wall carpeting. To do justice to the exciting new colors, patterns, and textures, Quality Installation is a must. Quality Installation means "*Smoothedge,*" the modern, tackless method. 4,000 carpet retailers and installation contractors recommend "*Smoothedge.*"

THE ROBERTS CO.

FOR SMOOTHEDGE TACKLESS CARPET INSTALLATION GRIPPER

1536 NORTH INDIANA STREET ★ LOS ANGELES 33, CALIFORNIA

THE ROBERTS COMPANY, Dept. A
1536 North Indiana Street • Los Angeles 33, California

GENTLEMEN: Please send me the illustrated A. I. A. file on "Smoothedge," tackless carpet installation.

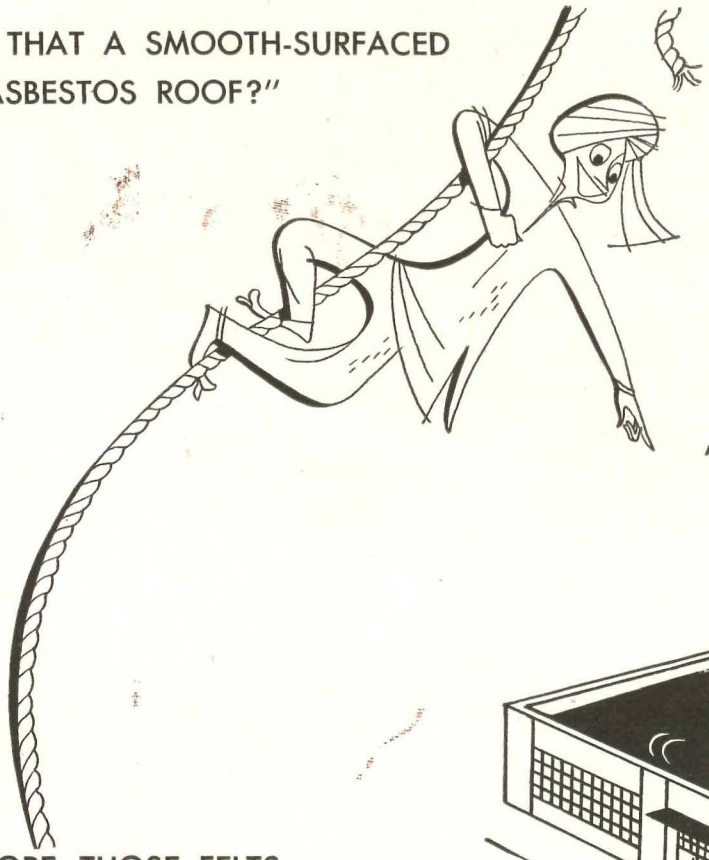
Name _____

Firm _____

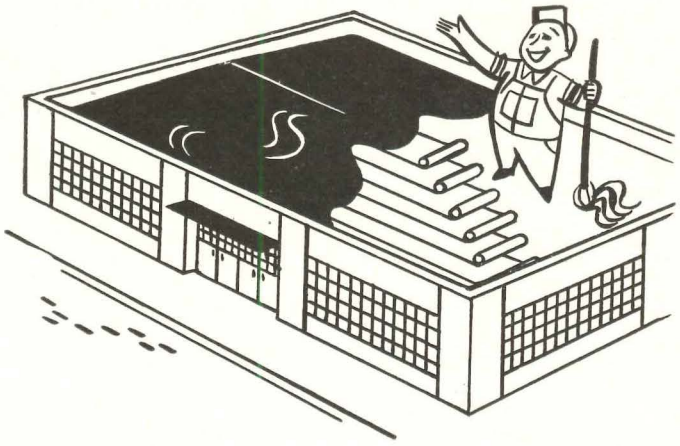
Street _____

City _____ Zone ____ State ____

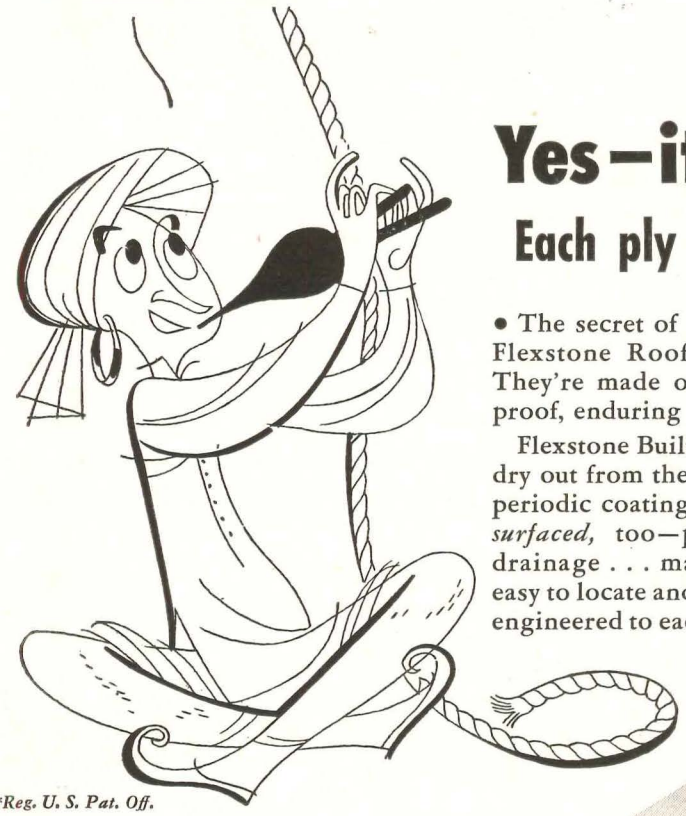
"HEY, ISN'T THAT A SMOOTH-SURFACED ASBESTOS ROOF?"



"YES SIREE! AND THE FELTS ARE PERFORATED TO GIVE A SMOOTHER JOB"



"WHAT'S MORE, THOSE FELTS ARE FIREPROOF, ROTPROOF, WEATHERPROOF!"



Yes—it's a Flexstone* Roof

Each ply is a flexible covering of stone!

• The secret of a Johns-Manville Flexstone Roof is in the *felts.* They're made of fireproof, rotproof, enduring *asbestos.*

Flexstone Built-Up Roofs won't dry out from the sun . . . need no periodic coating. They're *smooth-surfaced,* too—permit thorough drainage . . . make any damage easy to locate and repair. They are engineered to each job . . . applied only by J-M Approved Roofers. J-M Asbestos felts are perforated to make application easier . . . give you a smoother job and conform better to irregularities in the roof deck.

Send for Flexstone brochure BU-51A. Contains complete specifications. Address: Johns-Manville, Box 290, New York 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

*Reg. U. S. Pat. Off.

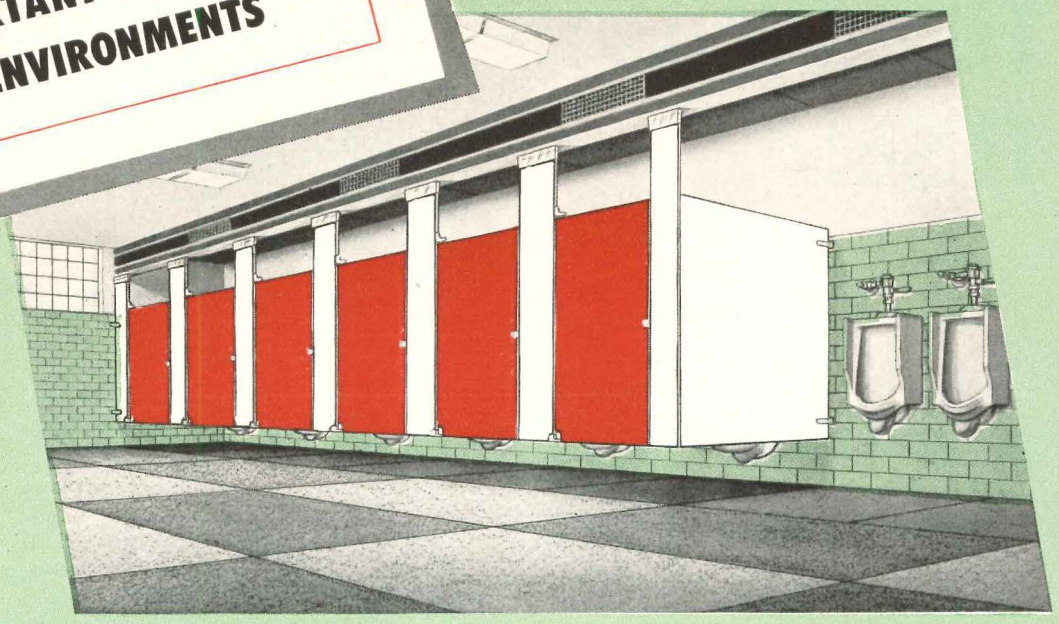
Made of ASBESTOS

Johns-Manville FLEXSTONE* Built-Up Roofs

CORRUGATED TRANSITE* • ACOUSTICAL CEILINGS DECORATIVE FLOORS • *TRANSITE WALLS • ETC.

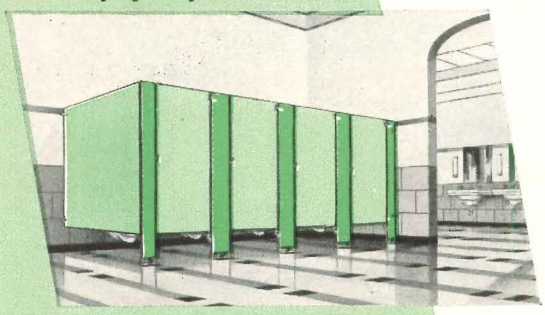
Sanymetal*
*Trade Mark Reg. U. S. Pat. Off.

A TOILET ROOM ENVIRONMENT IS AS IMPORTANT AS OTHER SCHOOL ENVIRONMENTS

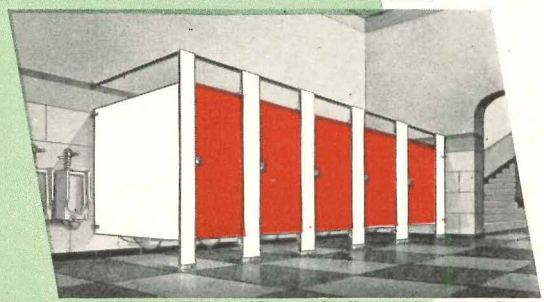


Sanymetal CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive toilet room environments for schools, institutions, terminals and other public buildings.

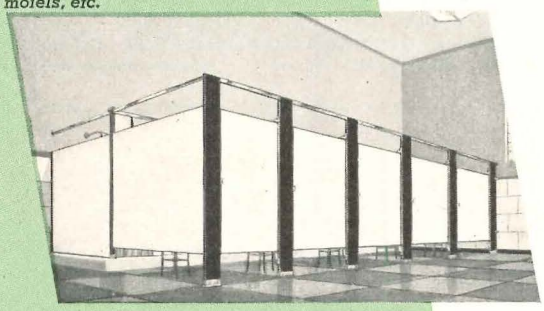
etal NORMANDIE Type Toilet artments endow a toilet room enment with dignity and good taste.



Sanymetal ACADEMY Type Toilet Compartments are suitable for conservative but modern toilet room environments.



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



● Toilet room environments impress students either favorably or unfavorably regarding the school's concern for such conveniences. School toilet room facilities are no less important than such facilities in the home. The treatment of a school toilet room environment is, therefore, no longer secondary to its utility. Toilet room compartments usually dominate a school toilet room and influence its environment.

Sanymetal offers several different types of toilet compartments for creating the most suitable toilet room environment for every type of school building. Sanymetal also offers two full purpose materials; Sanymetal "Tenac"—galvanized, Bonderized* steel—a highly corrosion-resistant material, and Sanymetal "Porcena"—porcelain on steel—the ageless, ever-new material. Sanymetal Toilet Compartments embody the result of over 36 years of specialized skill and experience in making more than 120,000 toilet compartment installations in all types of educational buildings and every other type of building constructed.

Ask the Sanymetal representative in your vicinity for information about planning suitable toilet room environments. Refer to Sanymetal Catalog $\frac{22b}{5}$ in Sweet's Architectural File for 1950.

THE SANYMETAL PRODUCTS CO., INC.
1689 URBANA ROAD • CLEVELAND 12, OHIO

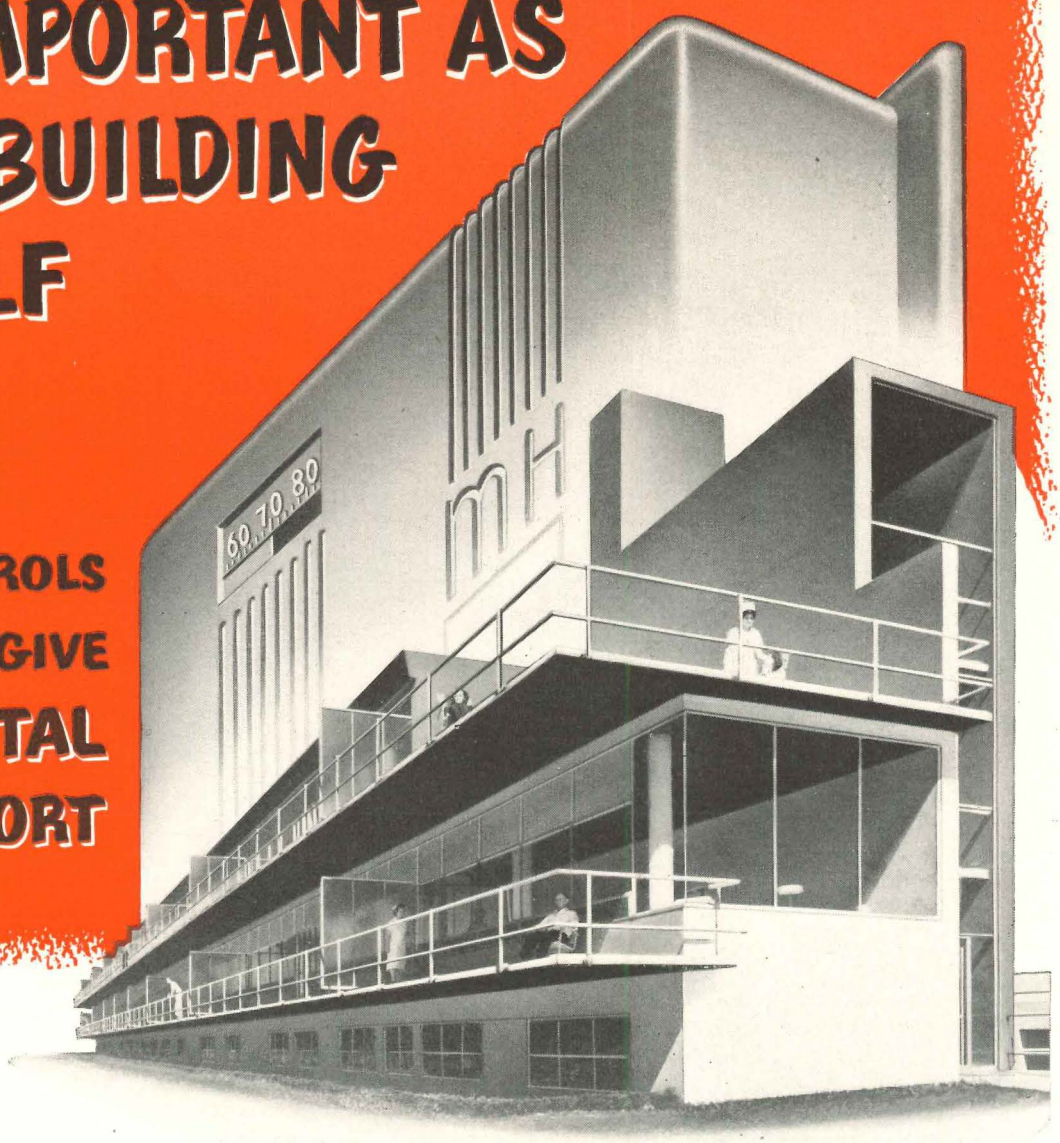
Sanymetal
*Trade Mark Reg. U. S. Pat. Off.

TOILET COMPARTMENTS, SHOWER STALLS AND DRESSING ROOMS

*Treated with "Bonderite", a product of Parker Rust Proof Company.

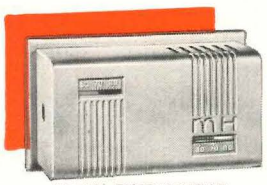
AS IMPORTANT AS THE BUILDING ITSELF

THE CONTROLS THAT GIVE HOSPITAL COMFORT



Lake County Tuberculosis Sanitarium,
Waukegan, Ill.
Architects: W. L. Pereira, Hollywood
Wm. A. Ganster, Waukegan, Ill

THIS room thermostat looms large—and for a purpose! We are emphasizing its importance in the *modern* hospital. Hospital administrators—and the patients themselves—recognize and appreciate the advantage of individual room control—COMFORT—*the prescribed temperature for rapid convalescence.*



ROOM THERMOSTAT
The Symbol of Modern Temperature Control

In hospitals—in homes—in every structure, the quality of service delivered by the heating or air-conditioning system is in exact proportion to the quality of controls governing the system. Honeywell controls are *quality* controls. Specify them.

Minneapolis-Honeywell maintains Factory and Branch Offices in all principal cities. Consult experienced Honeywell engineers on every automatic control problem.

Mail the coupon for free booklet—"Plan Your Hospital's Atmosphere".

MINNEAPOLIS
Honeywell
FIRST IN CONTROLS

MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
2600 Fourth Avenue South • Minneapolis 8, Minnesota

Please send free copy of booklet "Plan Your Hospital's Atmosphere."

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Address_____

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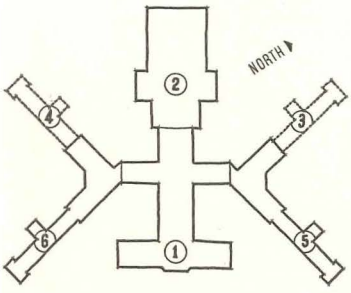
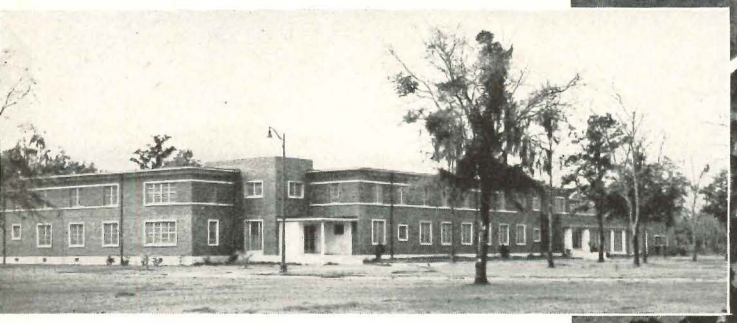
U.S. NAVAL HOSPITAL, BEAUFORT, S.C.



Design:
Paul P. Cret, Architect; and his successors, Harbeson, Hough, Livingston & Larson; and J. N. Pease & Co., Associated Architects-Engineers. Schematic layouts by Bureau of Yards and Docks

General Contractors:
Principal construction: Thompson & Street Co.; site preparation and raw water supply: V. P. Loftis Co.

Supervision:
Design and construction: Bureau of Yards and Docks, Navy Dept.



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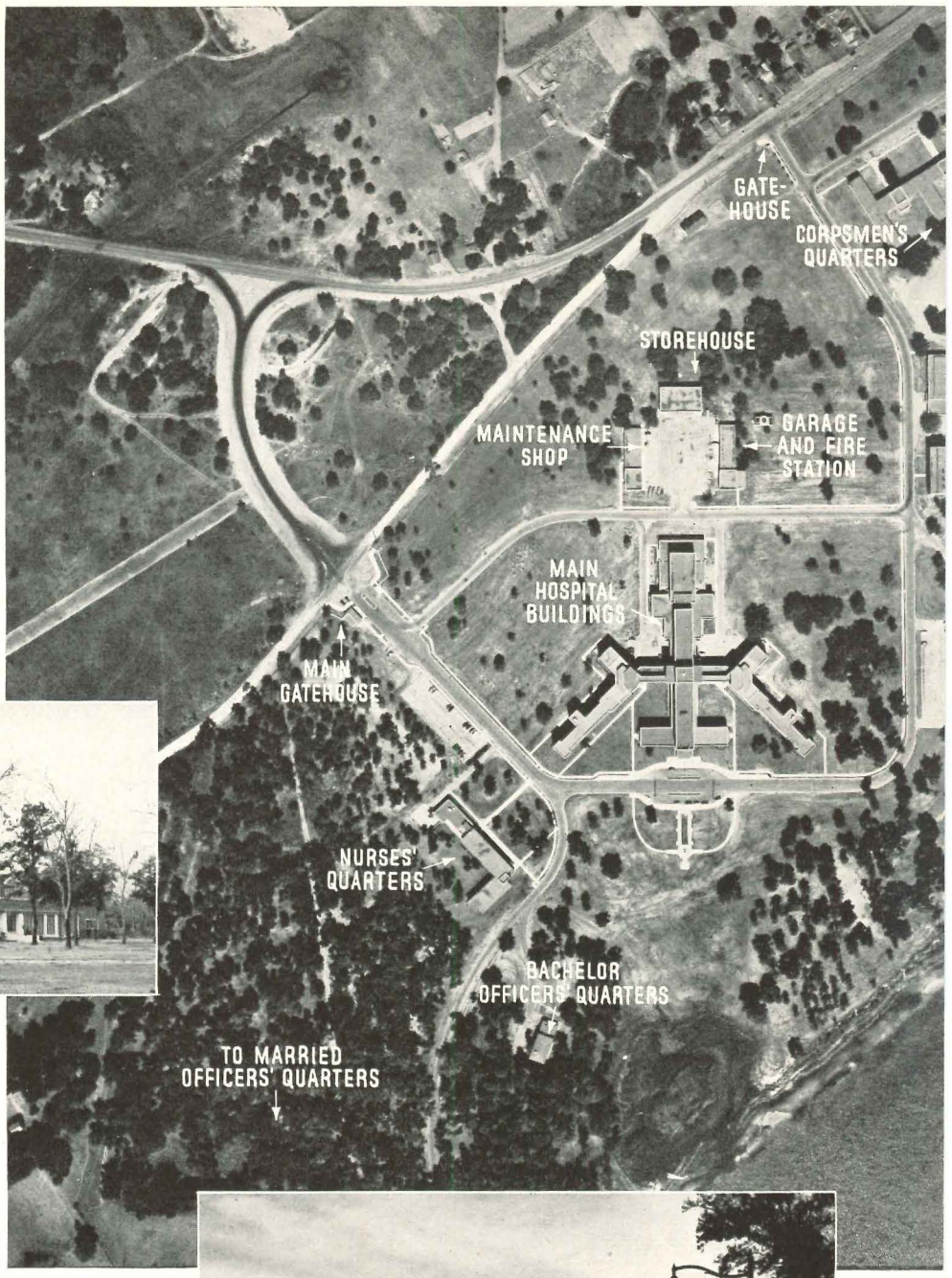
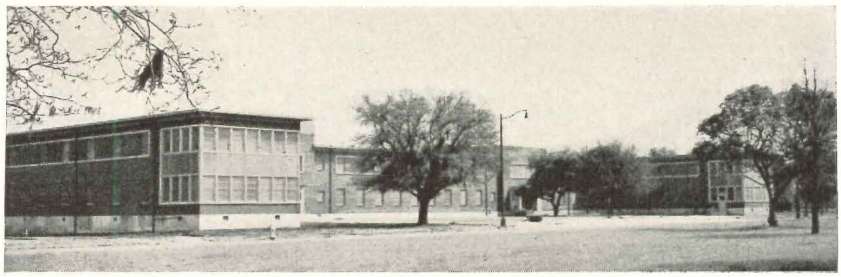


2

Study of the fully developed site, a 115-acre tract of high land fronted by a bluff on the Beaufort River, reveals the extent to which a permanent naval hospital is a complete facility — almost a small naval station — including many structures in addition to the main hospital building. A few are illustrated: ***1****, Nurses' Quarters;* ***2****, Bachelor Officers' Quarters;* ***3****, Corpsmen's Quarters;* ***4****, Heating Plant;* ***5****,* ***6****, Sewage Treatment Plant. (Photos courtesy Bureau of Yards and Docks, Navy Department)*



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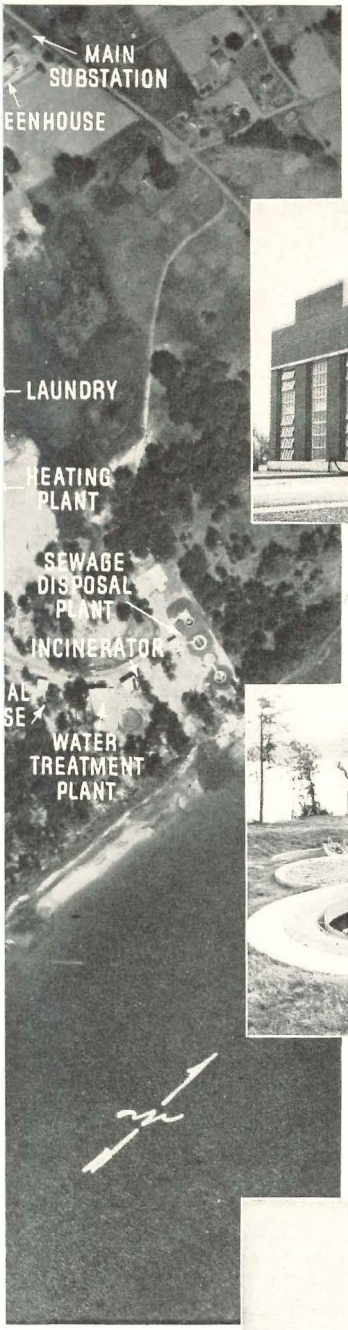

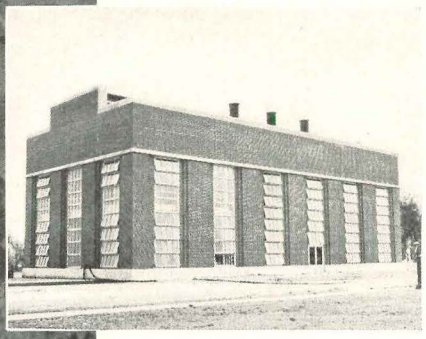

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6

THE NAVAL HOSPITAL, Beaufort, S. C., is part of the post-war, permanent hospital construction program of the U. S. Navy. It replaces an outmoded hospital at the Marine Corps Depot, Parris Island, two and one-half miles away — an agglomeration of "temporary" buildings, which had been in use many years, on an inappropriate site.

The new steel, concrete, and masonry hospital, commissioned April 29, 1949, has a present capacity of 300 beds on a 500-bed chassis, so to speak (administration, treatment, subsistence, recreation and welfare facilities); it is designed for future expansion by adding ward wing units to complete the double-Y plan of the main building group.

The original design contract was awarded by the Navy's Bureau of Yards and Docks to Paul P. Cret and J. N. Pease & Co., Architects-Engineers. In September, 1945, Mr. Cret died; this was shortly after the first design studies had been started. The work was continued by Harbeson, Hough, Livingston & Larson, and J. N. Pease & Co., Associated Architects-Engineers.

It was recognized from the start that a modern, permanent naval hospital differs in many important respects from a civilian facility of comparable capacity. For one thing, the naval plant of this type must be as complete an establishment as possible, dependent very little on civilian resources for light, heat, power, sewage disposal, medical services and personnel, etc. For another — and this is perhaps even more important — patients cannot normally be discharged as soon as they are in private hospitals. The greater part of the convalescent period must be spent here; patients are discharged only when fit for active duty or when convalescence has progressed enough for them to return to full normal civilian life.

Such a program makes obvious demands in respect to convalescent therapy (occupational, welfare and other rehabilitation procedures, etc.); and to the requisite completeness of the hospital facilities (acute general, surgical, isolation, outpatients, etc.; even maternity for the benefit of married Navy personnel). In support of its scheme for design of the actual hospital buildings in this permanent facility, the Navy cites both the fact that this is a military establishment, and that in addition to customary hospital facilities it must provide for modern medico-psychological practice in aiding convalescence. Since the convalescent period is relatively long, the Navy concept appears sound for a military establishment. These fundamental differences from civilian practice are explained in detail on the following pages.

FIRST FLOOR, MAIN STRUCTURE

1. Doctor's Office
2. Stair Lobby
3. Toilet
4. Corpsmen
5. Nurses' Dressing Room
6. Cleaning Gear
7. Diet Kitchen
8. Linen
9. Quiet Room
10. Bath
11. Examination Room
12. Doctor's Room
13. Stretcher
14. Storage
15. S. W. Corridor
16. Solarium
17. Strong Room
18. Passage
19. South Corridor
20. Ward
21. Utility
22. Washroom
23. Continuous Flow Bath
24. N. E. Corridor
25. Booth
26. Dark Room
27. Eye, Ear, Nose & Throat
28. Soiled Linen
29. Sterilizer
30. Operating Room
31. Waves
32. Roof
33. Dressing Room
34. Stage
35. Lobby
36. Foyer
37. Ship's Service
38. Women's Lounge
39. Entry
40. Game Room
41. Men's Lounge
42. Coat Room
43. Soda Fountain
44. Galley
45. Ship's Service Officer
46. Ship's Service Store
47. Book Stacks
48. Library
49. Work Room
50. Red Cross
51. Athletic Office
52. Waiting Room
53. Welfare Officer
54. Upper Part of Stage
55. Projection Room
56. Film Rewind Room
57. Cystoscopy
58. Radiography & Fluoroscopy Room
59. Radiography
60. 240 KVP Deep Therapy
61. Superficial Therapy
62. Fluoroscopy Room
63. Control Room
64. Plaster & Splint
65. Plaster Cast
66. Urol. Treatment
67. Scullery
68. Thorac.
69. Nurse's Station
70. Massage
71. Hubbard Bath
72. Blood Chemistry
73. Serology
74. Corridor
75. Media & Glass Wash
76. Records & Specimen Collection
77. Urinalysis & Bacteriology
78. Hematology
79. Pathology
80. Laboratory Medical Officer
81. Helio Therapy
82. Infrared
83. Ultraviolet
84. Diathermy
85. Leg Bath
86. Arm Bath
87. Sitz Bath
88. Needle Shower
89. Light Bath
90. Dental X-Ray & Examination
91. Eye Chair
92. Transillumination & Refraction
93. Office Records
94. Senior Dentist & Records
95. Dental Operating
96. Prosthetic Operating
97. Prosthetic Laboratory
98. Medical Library
99. Library Work Room
100. Junior O.O.D.
101. Staff Room
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103. Legal Officer
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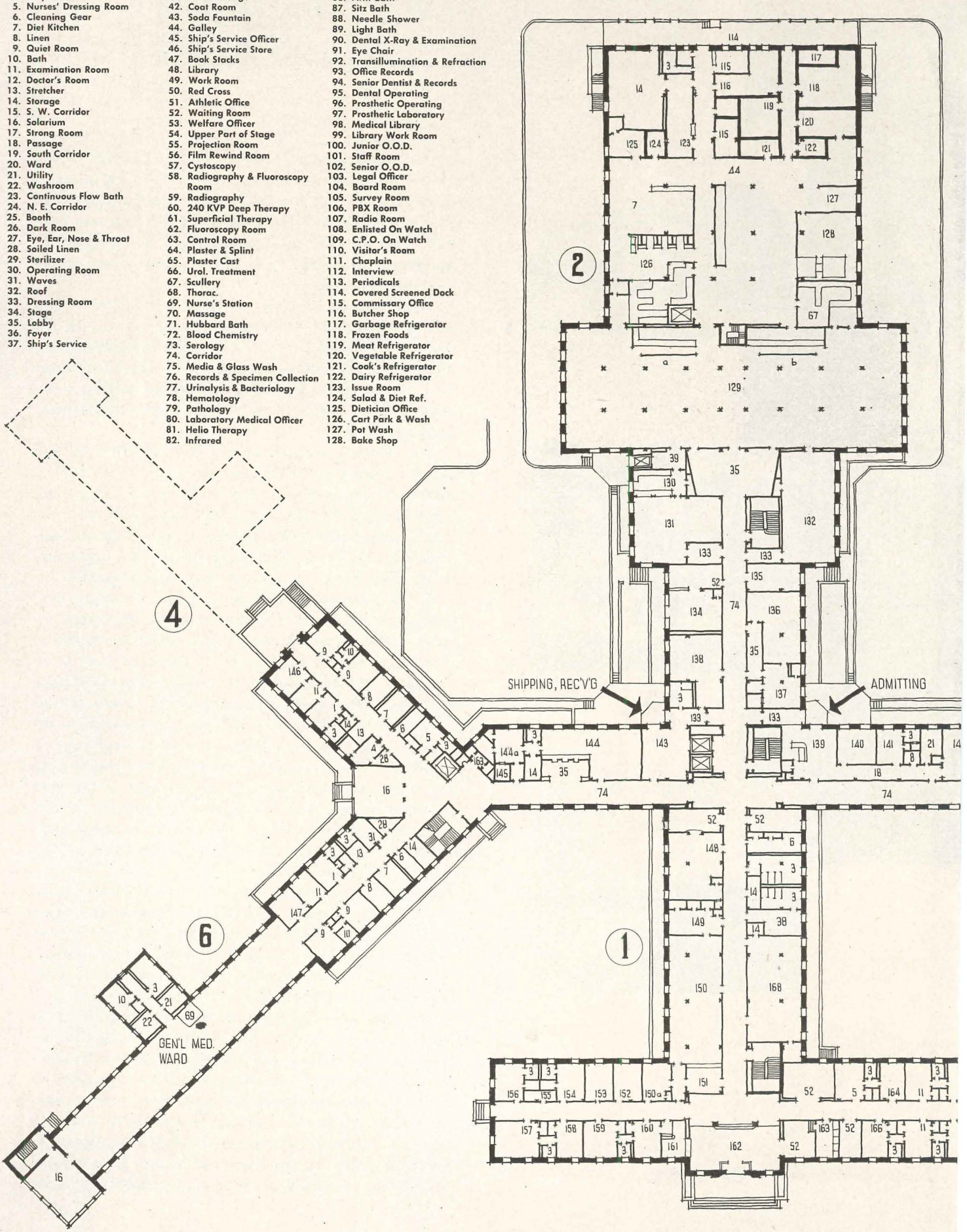
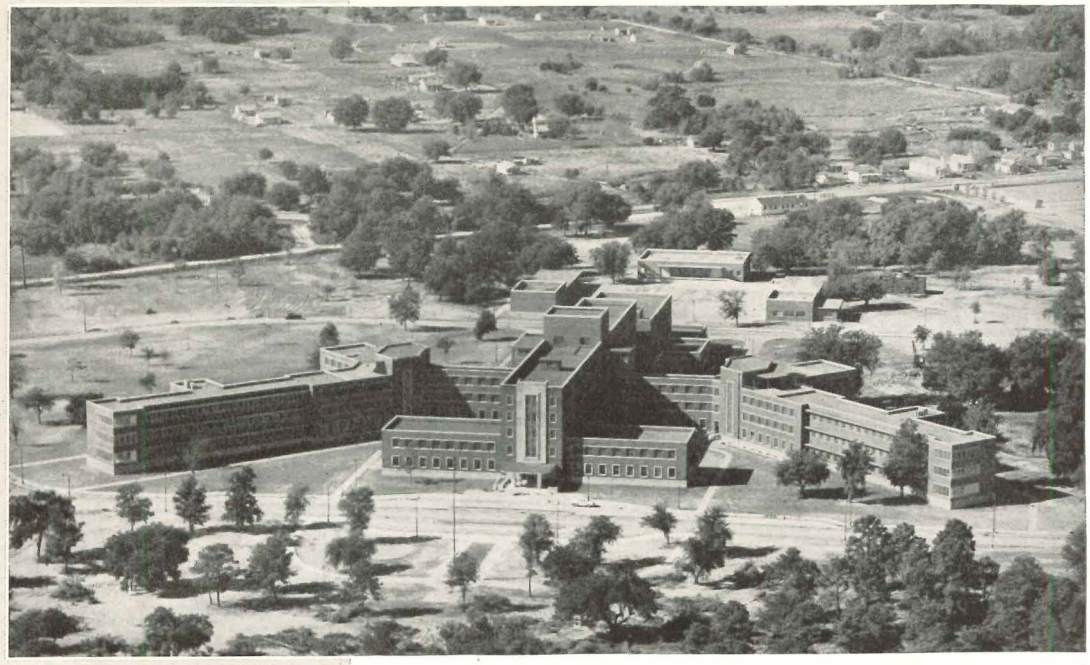
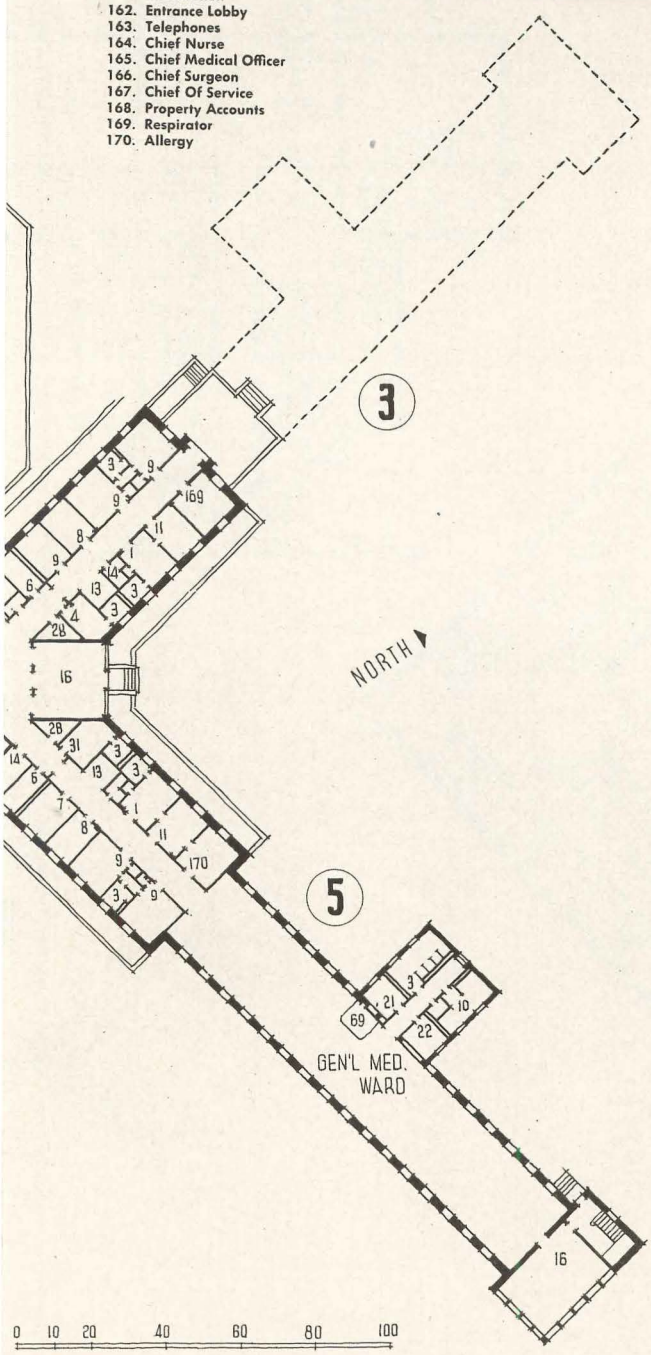
106. PBX Room
107. Radio Room
108. Enlisted On Watch
109. C.P.O. On Watch
110. Visitor's Room
111. Chaplain
112. Interview
113. Periodicals
114. Covered Screened Dock
115. Commissary Office
116. Butcher Shop
117. Garbage Refrigerator
118. Frozen Foods
119. Meat Refrigerator
120. Vegetable Refrigerator
121. Cook's Refrigerator
122. Dairy Refrigerator
123. Issue Room
124. Salad & Diet Ref.
125. Dietician Office
126. Cart Park & Wash
127. Pot Wash
128. Bake Shop





129. Mess Hall
129a. Staff
129b. Patients
130. Pantry
131. C.P.O. Mess
132. Officer's Mess
133. Vestibule
134. Barber Shop
135. Hospital Corps Detail Office
136. Disbursing
137. Paymaster
138. Property Receiving Office
139. Admitting
140. Accident Treatment
141. Women's Ward
142. Men's Ward
143. Shipment Receiving Lobby
144. Post Office
144a. Officer In Charge
145. Vault
146. Salversan
147. Basal Metabolism
148. Pharmacy
149. Records
150. General Record Office
150a. Officer In Charge
151. Public Space
152. Officer Mail Room
153. Master At Arms
154. Personnel Officer
155. Stores
156. Admin. Asst.
157. Medical Officer In Charge
158. Stenographer
159. Executive Officer
160. O.D.
161. Information
162. Entrance Lobby
163. Telephones
164. Chief Nurse
165. Chief Medical Officer
166. Chief Surgeon
167. Chief Of Service
168. Property Accounts
169. Respirator
170. Allergy



In the Naval Hospital at Beaufort, S. C., the main buildings (administration, treatment, wards, subsistence, welfare) contain 296,000 sq ft, or 3,870,200 cu ft.

The Administration and Treatment Building (1) contains the necessary administrative offices, operating rooms, laboratories, library, etc.; and patient facilities for staff officers and maternity cases. Directly behind, in Building No. 2, are the mess hall, a complete galley and, above these, recreational facilities. Buildings Nos. 3 and 4 are at present stubs to which future ward wings can be attached; all necessary building services are now in place, ready for extension when the additions are built. The stubs contain some patient rooms. Buildings Nos. 5 and 6 are wards, three floors high. Patient capacity is as follows:

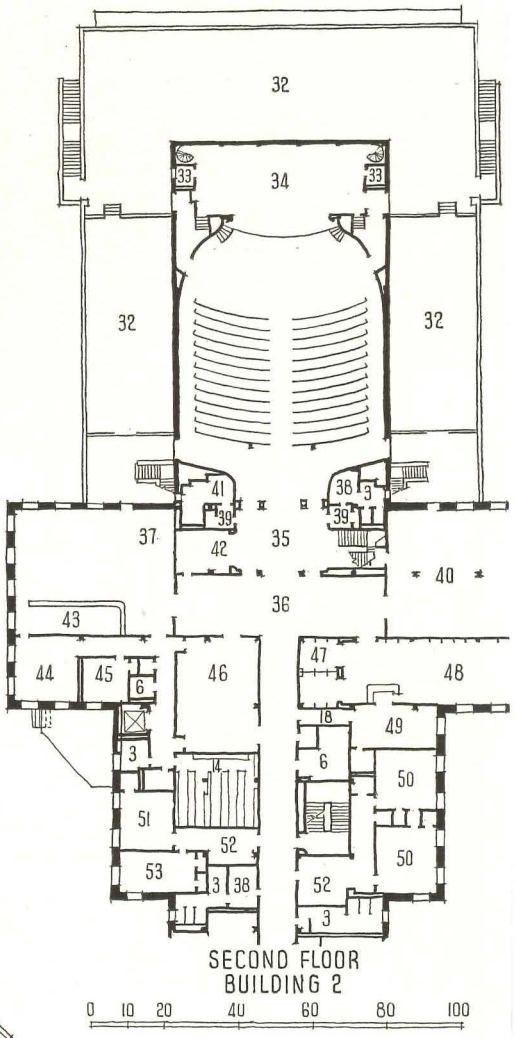
Bldg No. 1 — Sick Officers Quarters	46
Maternity (dependents)	29
Bldgs Nos. 3 & 4 (stub wings, 2 Quiet Rooms per floor, 3 floors per building)	24
Bldg No. 5 — (3 floors; general medical, isolation, and surgical wards)	96
Bldg No. 6 — (3 floors; general medical, N P, and surgical wards)	107
Total Beds	302

(When extended, Buildings Nos. 3 & 4 will increase capacity by 200 beds.)

It is in the use of open, multi-bed wards (without cubicle partitions), as distinct from the "Copenhagen" type of multi-bed ward of four or six cubicles, that the Navy's scheme differs from civilian practice. The Navy has found that the open, multi-bed ward provides the neatest and most orderly space for the care of the military patient; in the Navy's experience it is preferred by most patients and personnel; and in addition to being cheerful and comfortable it has proved to be both efficient to operate and economical to maintain. The location of nurses' station and toilet-utility wing, midway of the multi-bed space, contributes greatly to the attainment of these characteristics.

Surgical Ward

Center, below, are second and third floors of Subsistence and Welfare Building No. 2, containing a 458-seat auditorium, Navy Exchange, and recreation rooms



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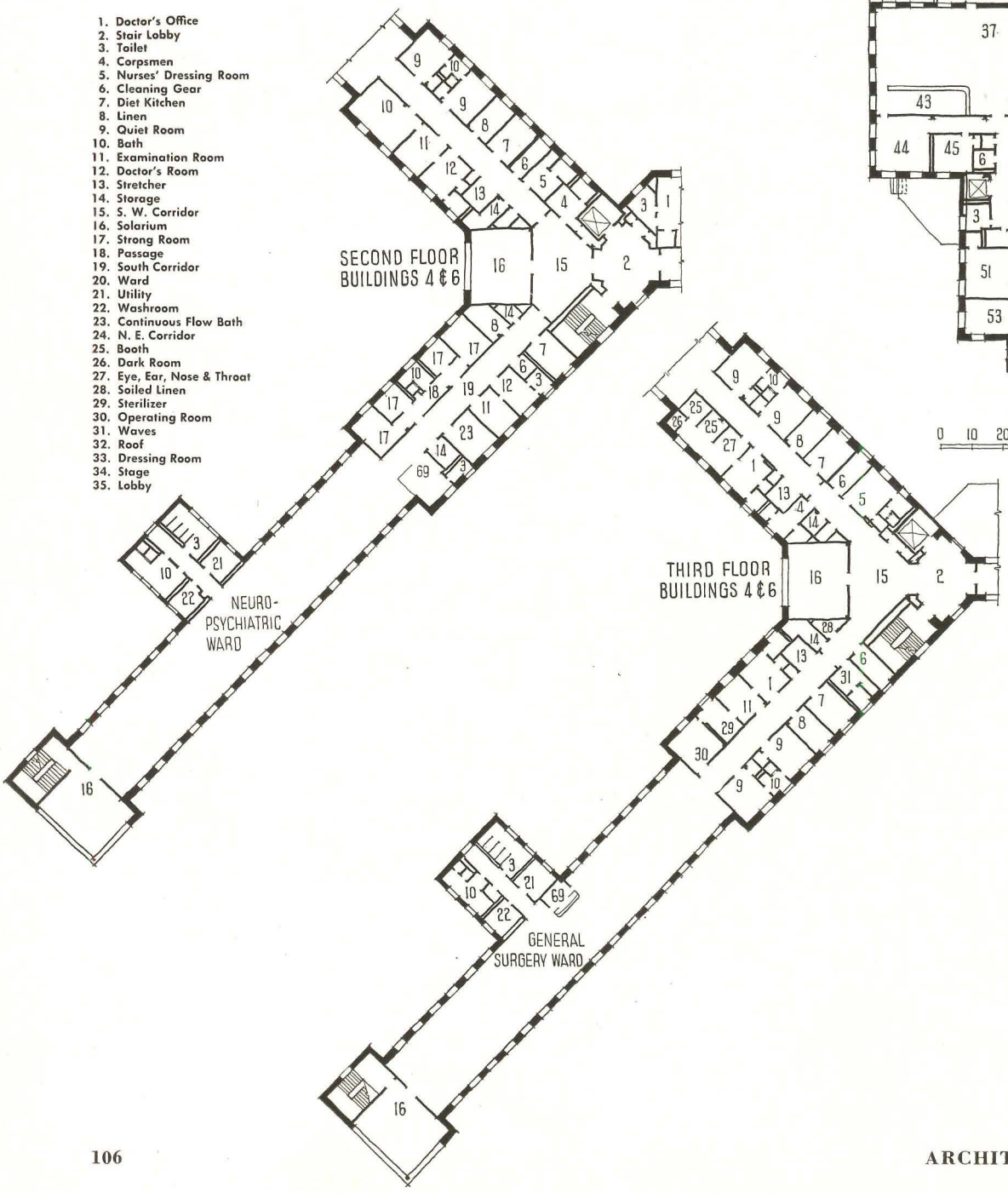
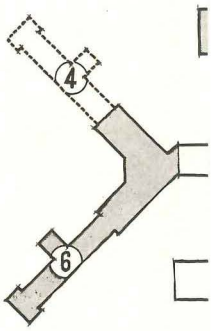
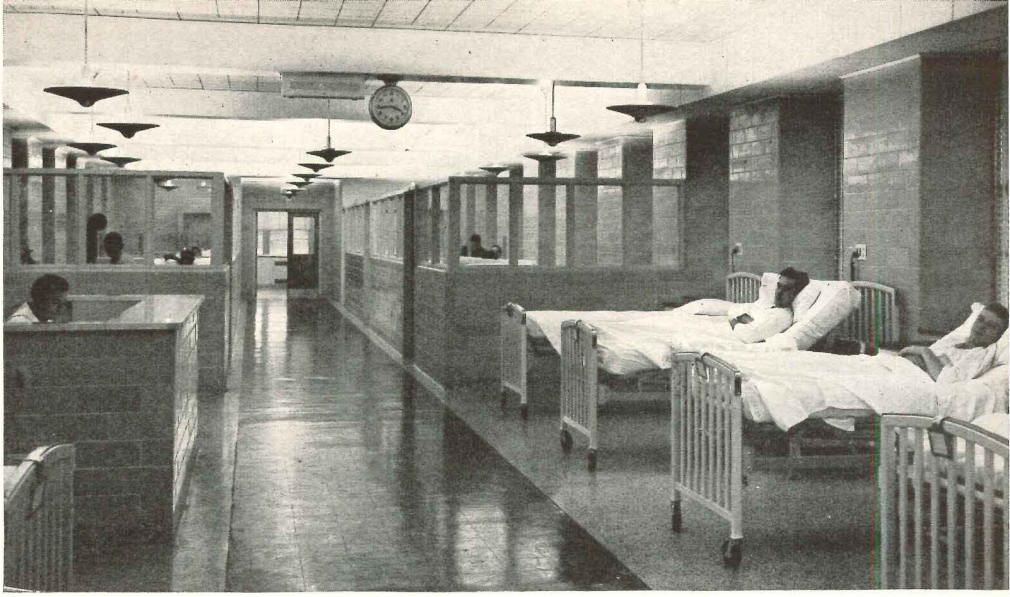
25. Booth
26. Dark Room
27. Eye, Ear, Nose & Throat
28. Soiled Linen
29. Sterilizer
30. Operating Room
31. Waves
32. Roof
33. Dressing Room
34. Stage
35. Lobby

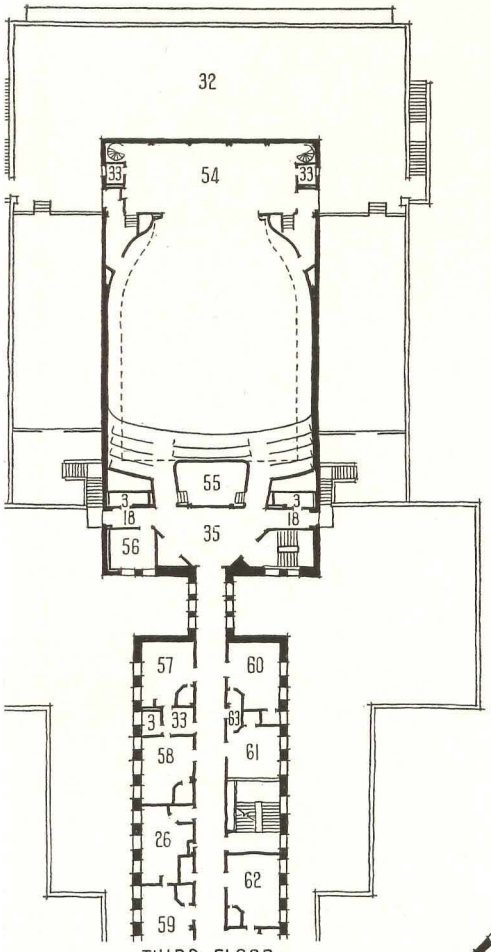




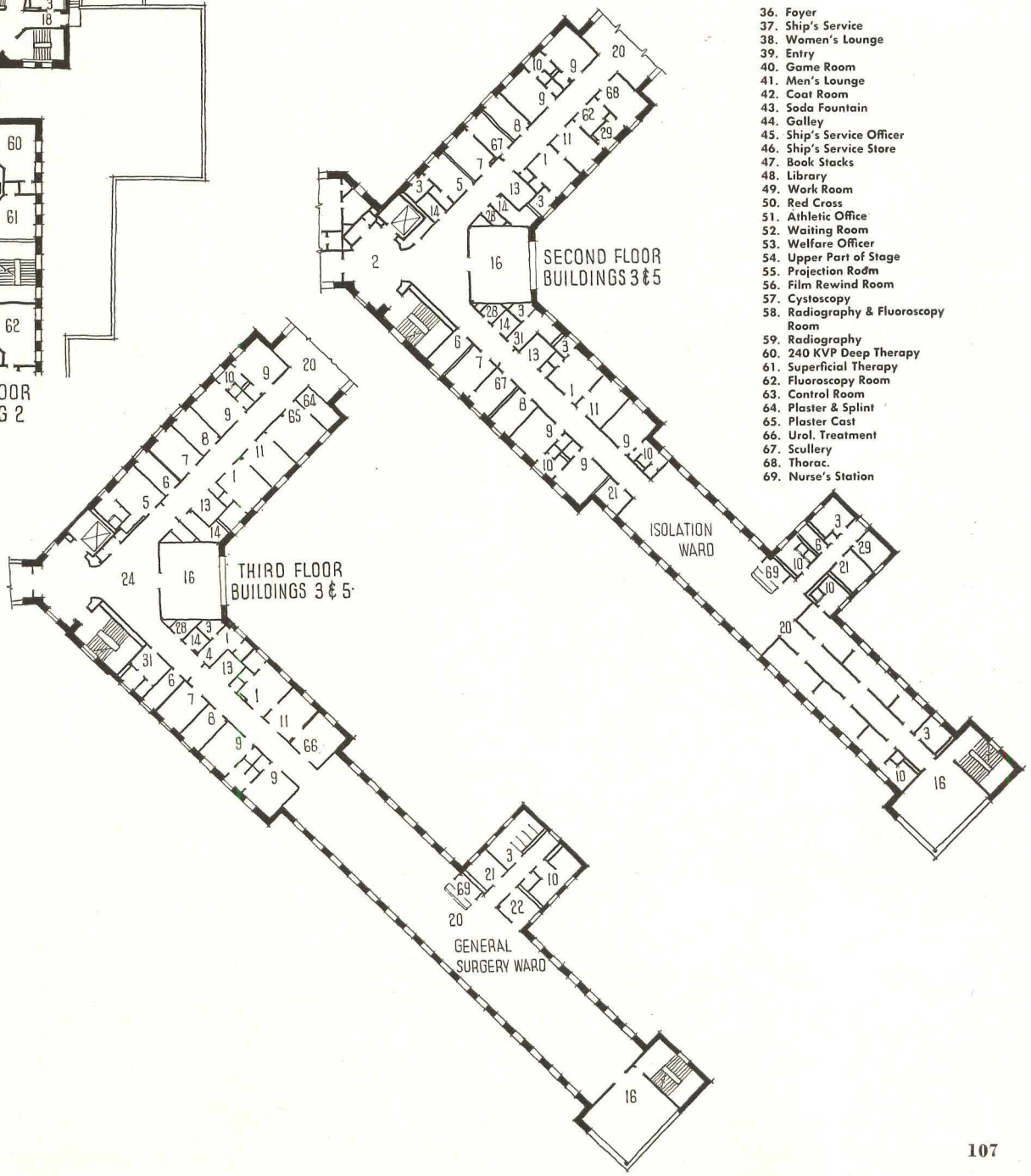
Ward Buildings 3, 4, 5 & 6 contain, in basements, occupational therapy, brig, laundry, storage, mechanical equipment. On fourth floors are solaria and sun decks



General Medical Ward (Isolation)



THIRD FLOOR
BUILDING 2



36. Foyer
37. Ship's Service
38. Women's Lounge
39. Entry
40. Game Room
41. Men's Lounge
42. Coat Room
43. Soda Fountain
44. Galley
45. Ship's Service Officer
46. Ship's Service Store
47. Book Stacks
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49. Work Room
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51. Athletic Office
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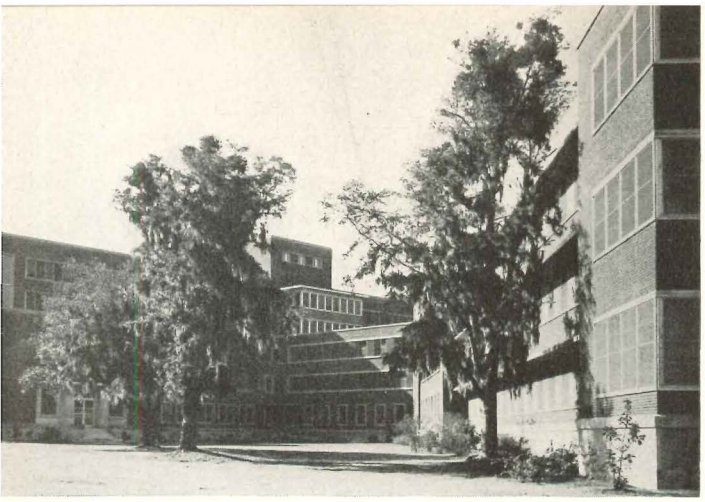
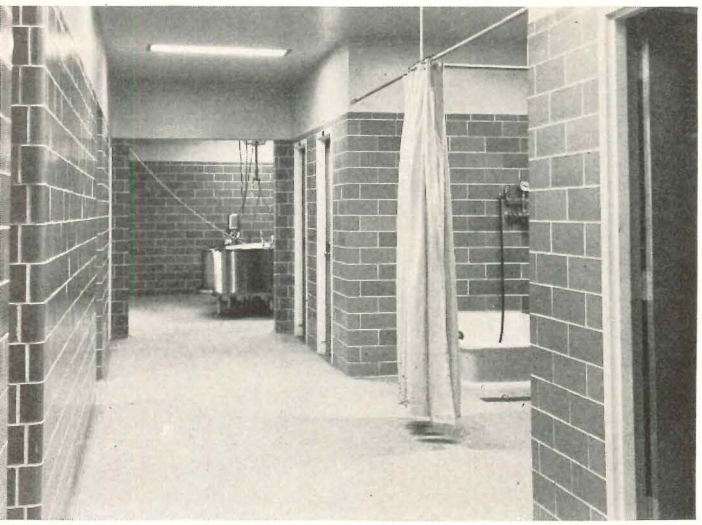
63. Control Room
64. Plaster & Splint
65. Plaster Cast
66. Urol. Treatment
67. Scullery
68. Thorac.
69. Nurse's Station



1

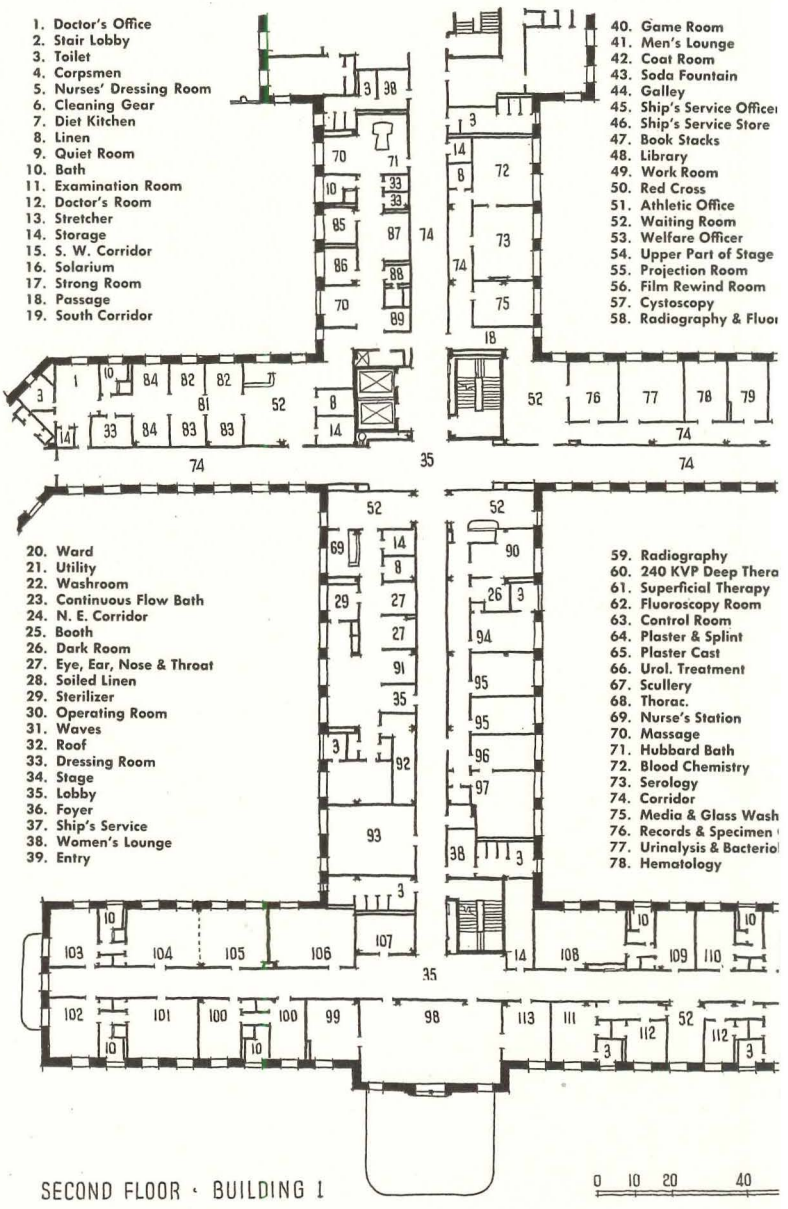
The main structure at the Naval Hospital, Beaufort, S. C., is supported by cast-in-place concrete piles on which rest the reinforced concrete basement walls. The superstructure is steel framed, with concrete floors and roof deck. Exterior walls are red face brick with limestone and greenstone trim, backed up with clay tile. Windows, principal doors and exterior metal trim are aluminum, except that steel sash are used where maximum security is required. Windows are mostly double-hung, with aluminum screens and interior Venetian blinds. Detention screens are used in N P spaces.

*Photos: **1**, exterior, Bldg. No. **5** in foreground; **2**, physiotherapy corridor; **3**, hydrotherapy; **4**, corridor, Sick Officers' Quarters*



2

3

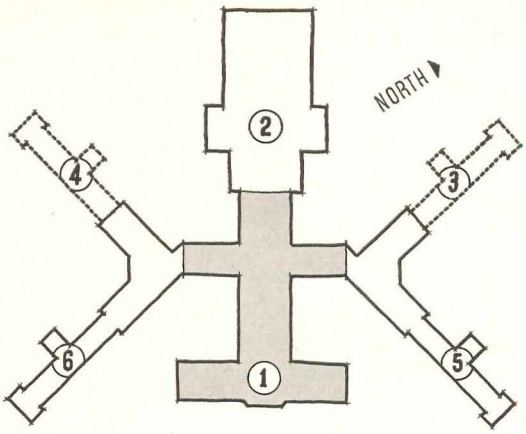


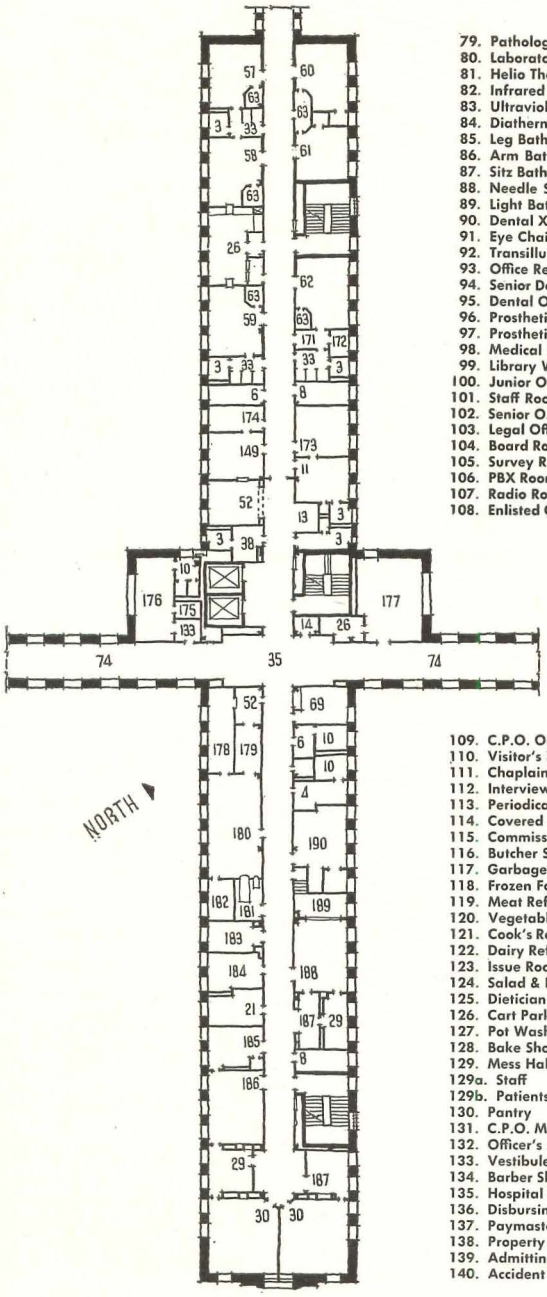
4

SECOND FLOOR · BUILDING 1

0 10 20 40

Floors are terrazzo in lobby, wards and bedrooms; asphalt tile in offices, laboratories, x-ray rooms, theater, traffic aisle in wards and corridors; ceramic tile in clinics, treatment rooms, etc.; grounded terrazzo in operating and delivery rooms; quarry tile in galley and sun decks. Walls: marble in lobby; plaster in offices, laboratories, bedrooms; birch paneling (walls or wainscots) in private offices, library, staff conference room, auditorium; glazed tile in wards; ceramic tile in clinics, etc. Most ceiling areas are acoustic tile. Extensive use of color contributes greatly to the hospital's cheerfulness and comfort.





79. Pathology
80. Laboratory Medical Officer
81. Helio Therapy
82. Infrared
83. Ultraviolet
84. Diathermy
85. Leg Bath
86. Arm Bath
87. Sitz Bath
88. Needle Shower
89. Light Bath
90. Dental X-Ray & Examination
91. Eye Chair
92. Transillumination & Refraction
93. Office Records
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129. Mess Hall
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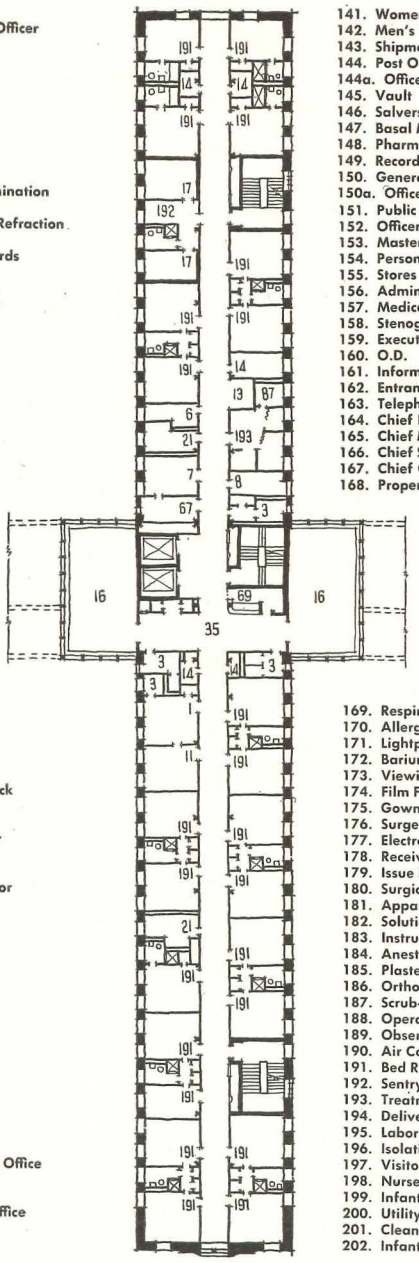
130. Pantry
131. C.P.O. Mess
132. Officer's Mess
133. Vestibule
134. Barber Shop
135. Hospital Corps Detail Office
136. Disbursing
137. Paymaster
138. Property Receiving Office
139. Admitting
140. Accident Treatment

THIRD FLOOR BUILDING 1



141. Women's Ward
142. Men's Ward
143. Shipment Receiving Lobby
144. Post Office
144a. Officer In Charge
145. Vault
146. Salversan
147. Basal Metabolism
148. Pharmacy
149. Records
150. General Record Office
150a. Officer In Charge
151. Public Space
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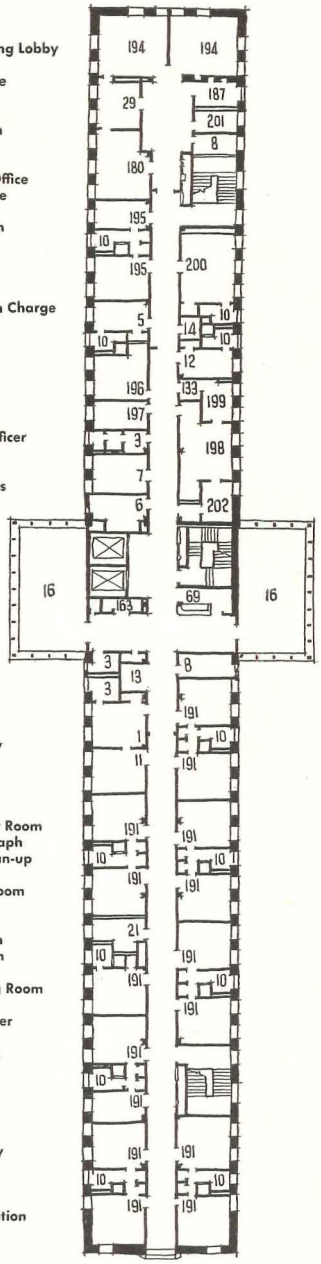
160. O.D.
161. Information
162. Entrance Lobby
163. Telephones
164. Chief Nurse
165. Chief Medical Officer
166. Chief Surgeon
167. Chief Of Service
168. Property Accounts

169. Respirator
170. Allergy
171. Lightproof Lobby
172. Barium
173. Viewing Room
174. Film Files
175. Gown Room
176. Surgeon's Locker Room
177. Electro-Cardiograph
178. Receiving & Clean-up
179. Issue Room
180. Surgical Work Room
181. Apparatus
182. Solution Room
183. Instrument Room
184. Anesthesia Room
185. Plaster Splints
186. Ortho-Operating Room
187. Scrub-up
188. Operating Theater
189. Observation
190. Air Conditioning
191. Bed Room
192. Sentry Station
193. Treatment
194. Delivery Room
195. Labor Room
196. Isolation Nursery
197. Visitors
198. Nursery
199. Infant Utility
200. Utility & Preparation
201. Clean-up Utility
202. Infant Formula

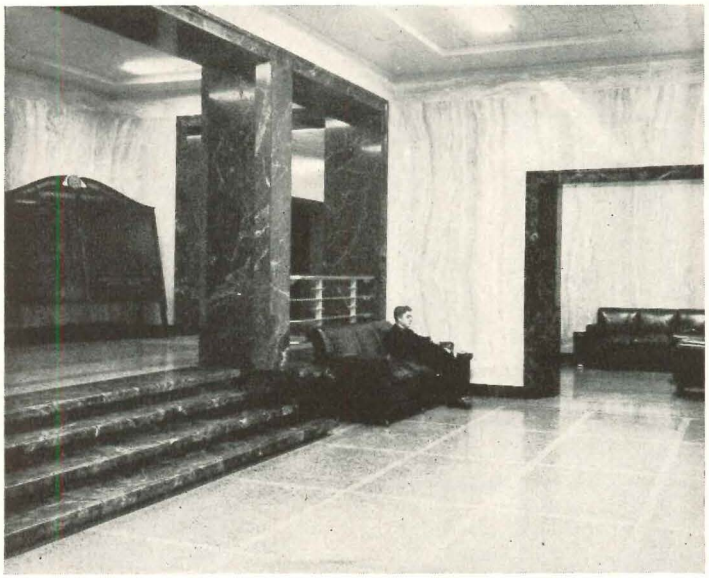
FOURTH FLOOR BUILDING 1



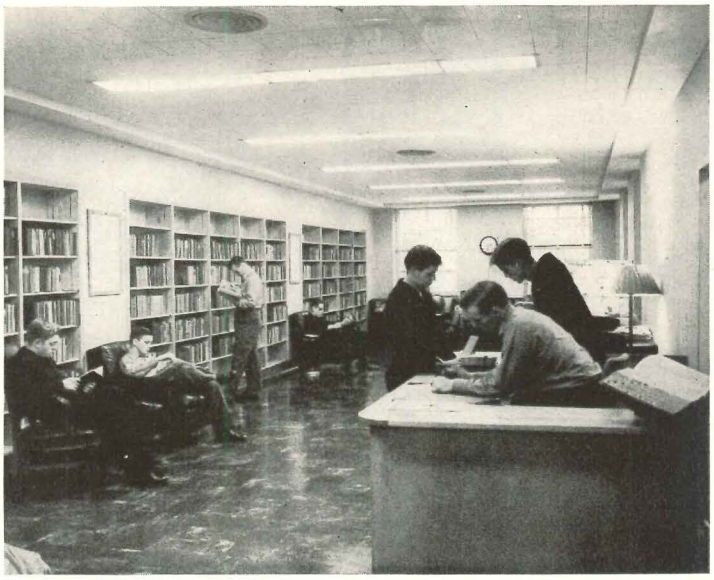
FIFTH FLOOR BUILDING 1

The hospital is equipped with the latest developments in modern hospital furnishings and equipment. Lighting is recessed fluorescent in corridors and major rooms, surface fluorescent in general offices, incandescent elsewhere. The doctors' paging system is visual; nurses' call system has cord at each bed, buttons in toilets, annunciators at nurses' stations. Electrical service comes from the local utility company at 44,000 volts to a government-owned substation on the property, with primary distribution in underground ducts and feeder circuits in buried lead-covered cable. The main structure is completely air conditioned, winter and summer; Operating Suite has a low-pressure unit, uses 100% outside air, electrostatically filtered. Theater, Mess Hall and Ships' Service have a conventional unit; all other spaces, a high-pressure system. There is a self-contained unit for the Butcher Shop; special refrigeration compressors for storage rooms, for ice-making and for chilling drinking water. The galley has separate mechanical ventilation. The structure has three automatic, self-leveling elevators, one manually operated elevator, and two 3500-lb hydraulic freight elevators. Galley equipment is steam, electric, or oil heated, includes mechanical dishwashers.

Main lobby



Library (crews)



Galley

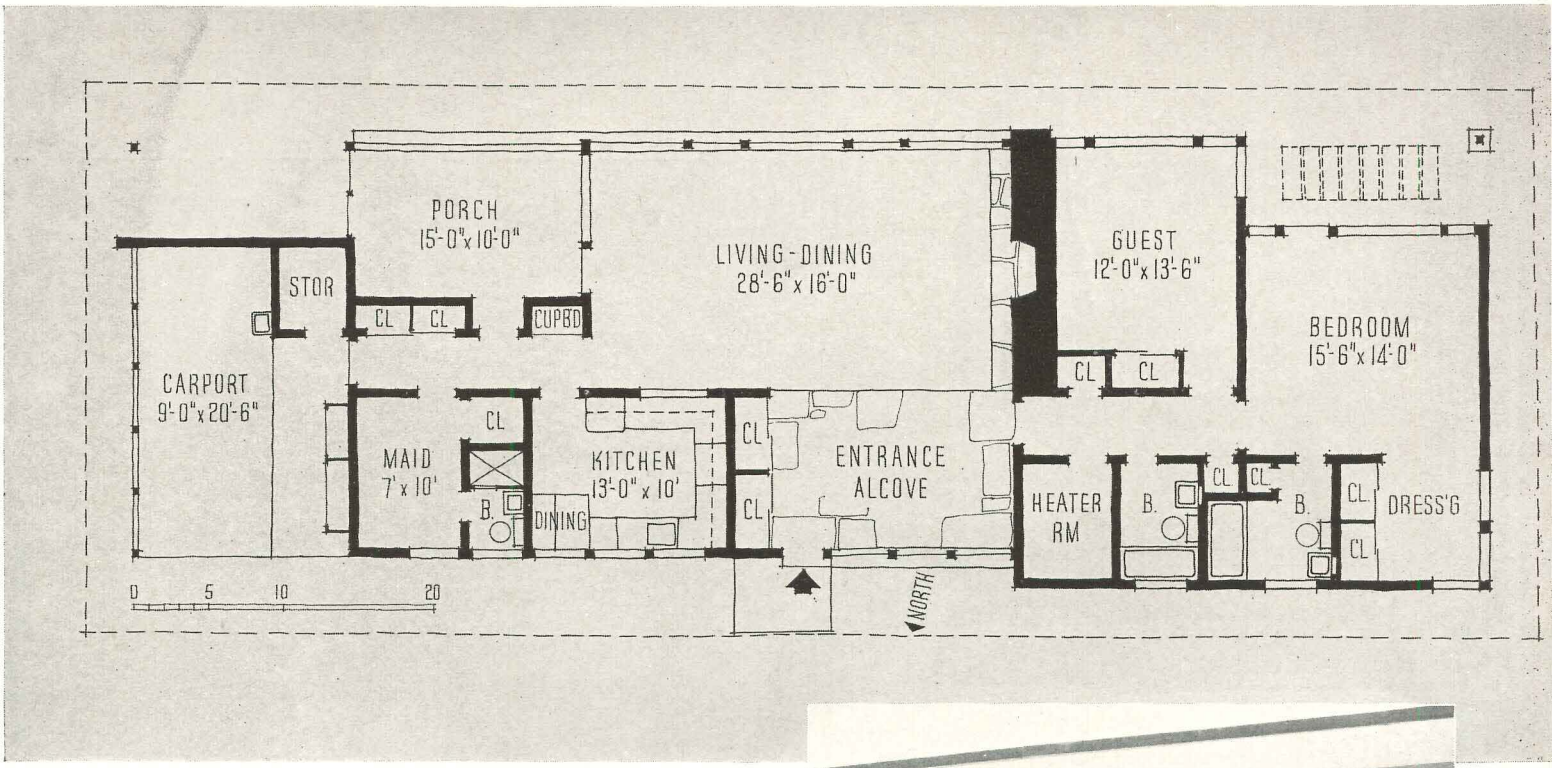
Mess Hall

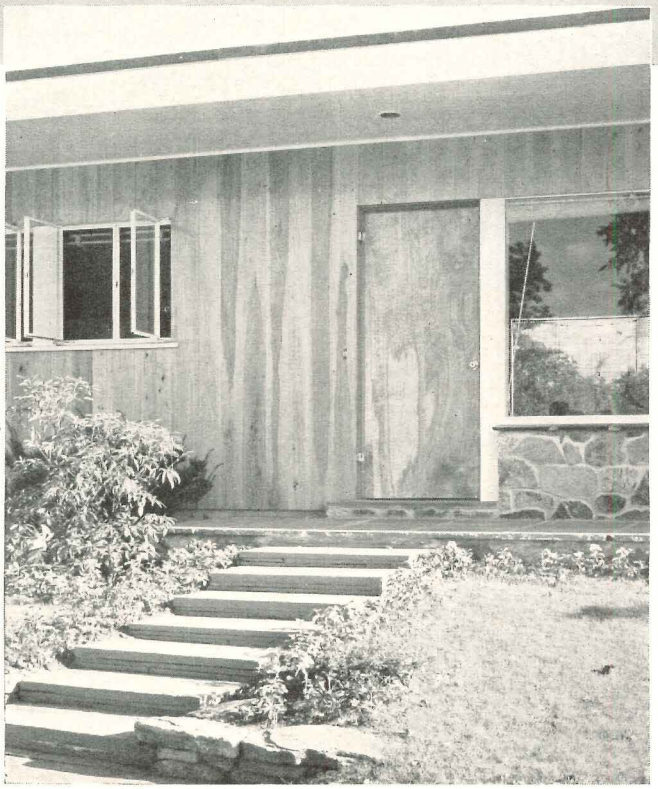
SUMMER RESIDENCE ON LONG ISLAND SOUND

Residence of Mr. and Mrs. Max Borgenicht, Westport, Connecticut

Cordes, Bartos & Mihnos, Architects

Charles Middeleer, Landscape Architect

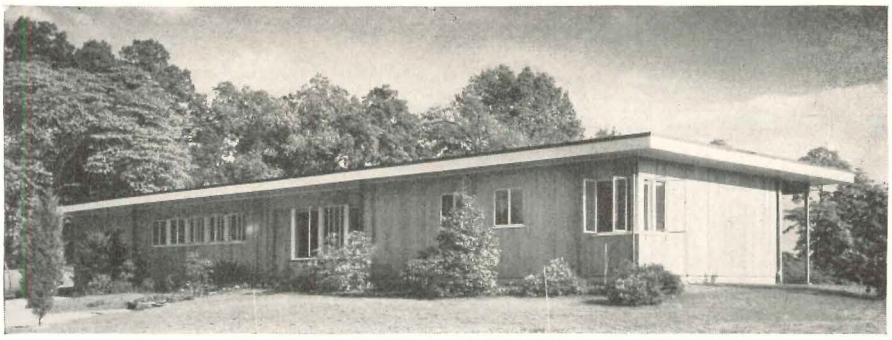




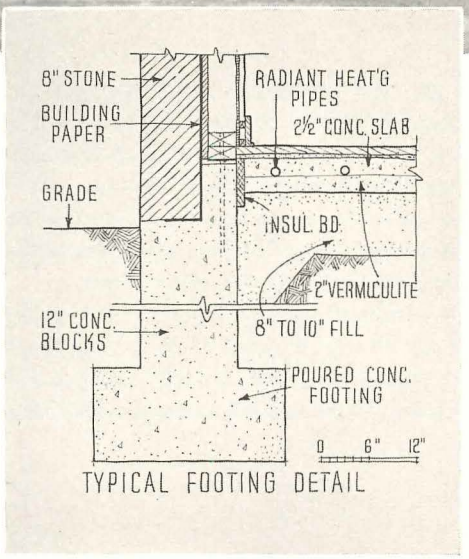
Ben Schnall

THIS HOUSE, say the architects, was designed for a middle-aged couple whose children, three daughters, are married and have children of their own. Hence the two terraces (see photos, next page): the one off the master bedroom provides a quiet retreat for Mr. Borgenicht, away from the grandchildren and the activities of living room and kitchen and the east terrace.

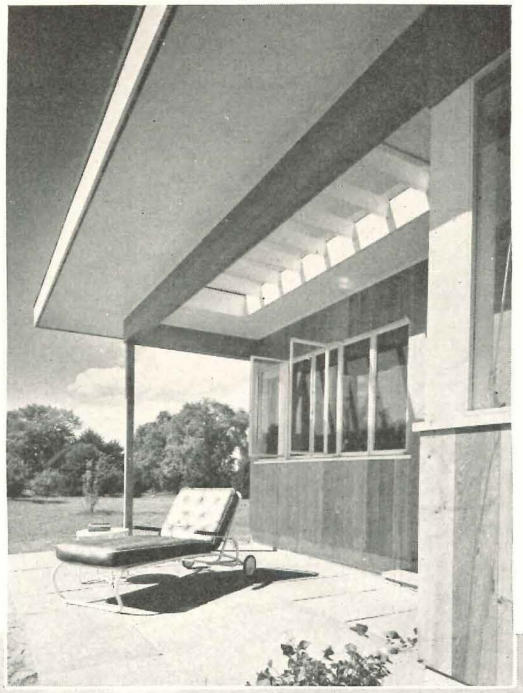
The house is situated on the crest of a low bluff overlooking Long Island Sound. It is primarily for summer and weekend use, but is fully equipped for year-round occupancy when and if desired, with radiant

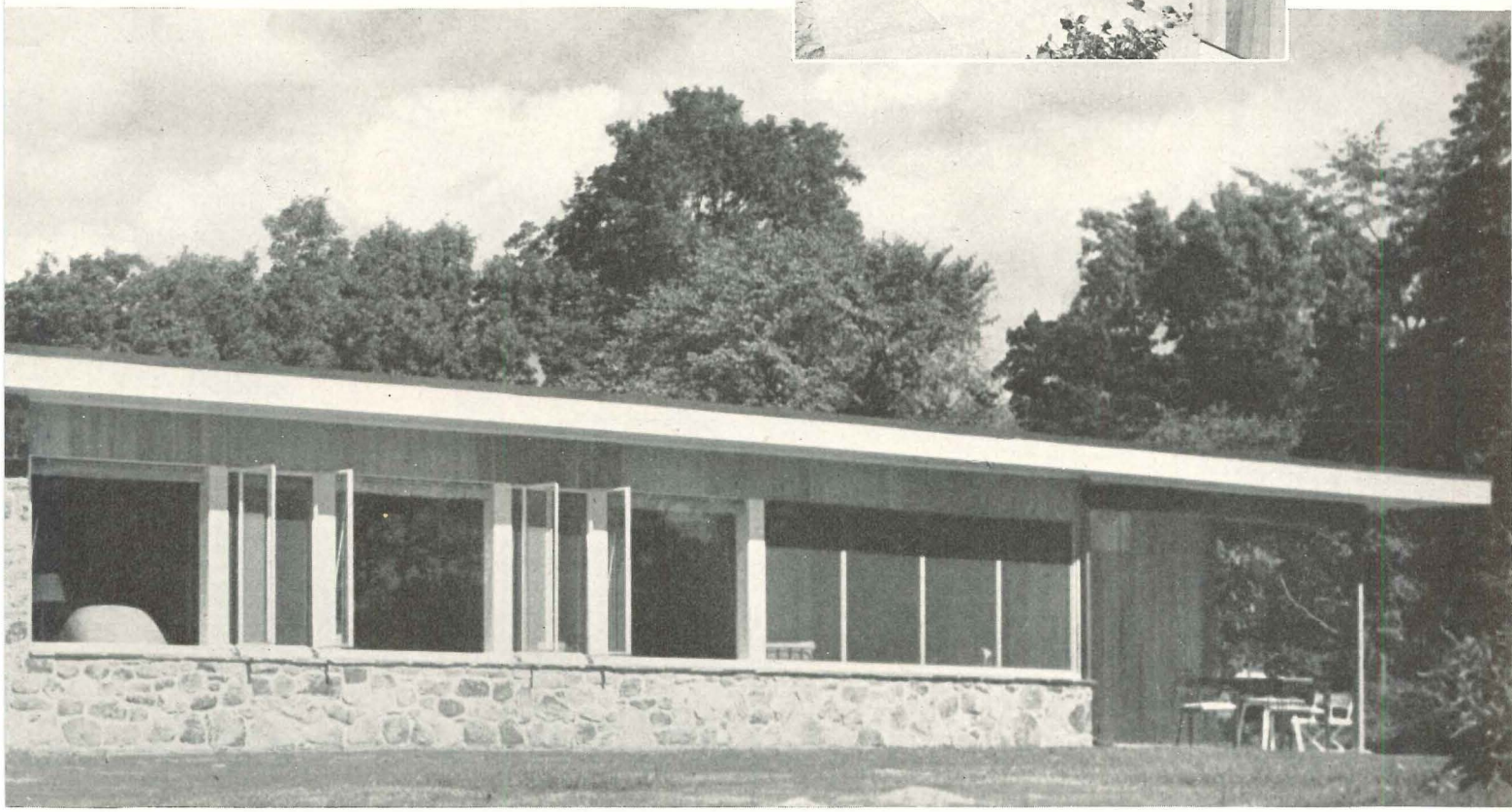


Ben Schnall



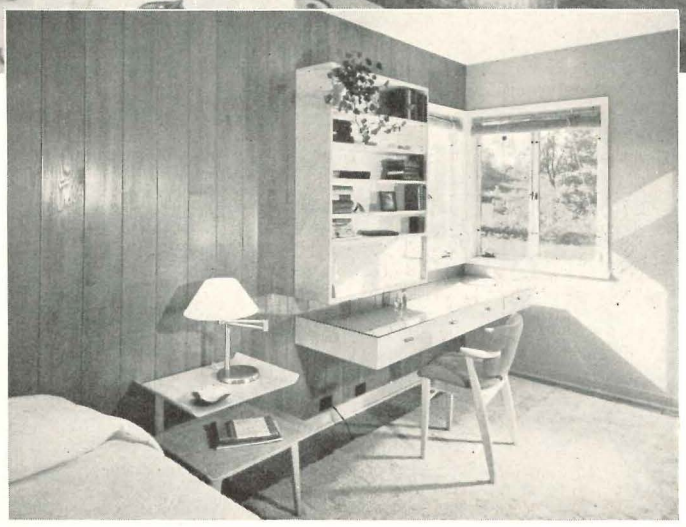
Floor slab is of insulating concrete with a lightweight aggregate. Waterproof board insulation prevents heat loss through edge of the slab. Framing is wood; exterior walls are natural finish cypress. Interior walls are plaster and redwood siding





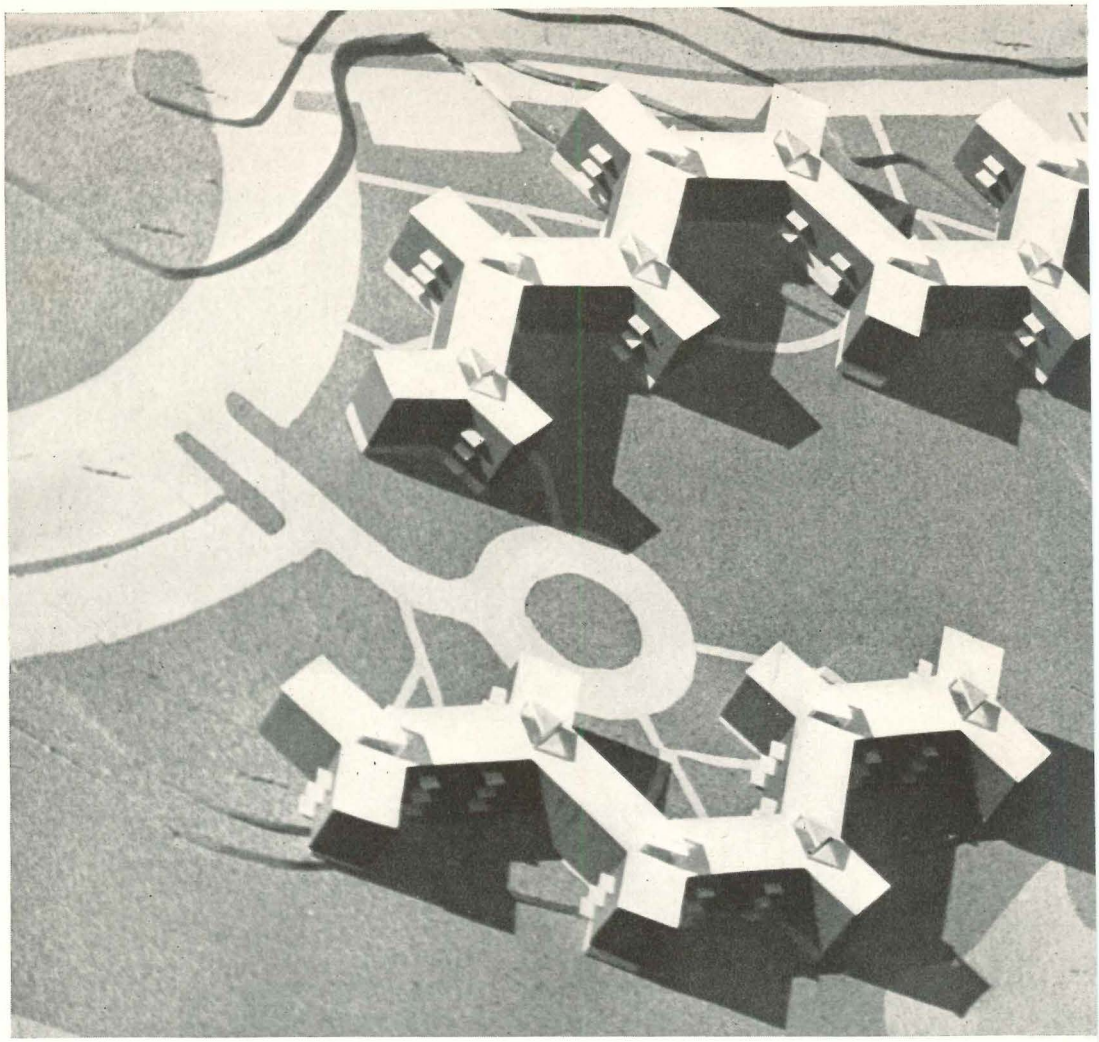
heating throughout. Owners' requirements were: as much through ventilation as possible, particularly in the master bedroom and living area; plenty of closet space; a screened porch readily accessible from the kitchen for the serving of meals; easy housekeeping and maintenance; and wide glass areas to the south to take advantage of the view over the Sound. The screened porch was so located as to permit its future conversion into a separate dining room (heating pipes are in place in the floor slab); the adjoining open terrace would be screened at the time of such conversion.

Interiors were designed by the architects, as were the custom built furnishings such as the sofa, hanging desks, dressing table, wall and book cases. Wall case on north wall of living room (opposite and below) has sheet-plastic top



Ben Schnall

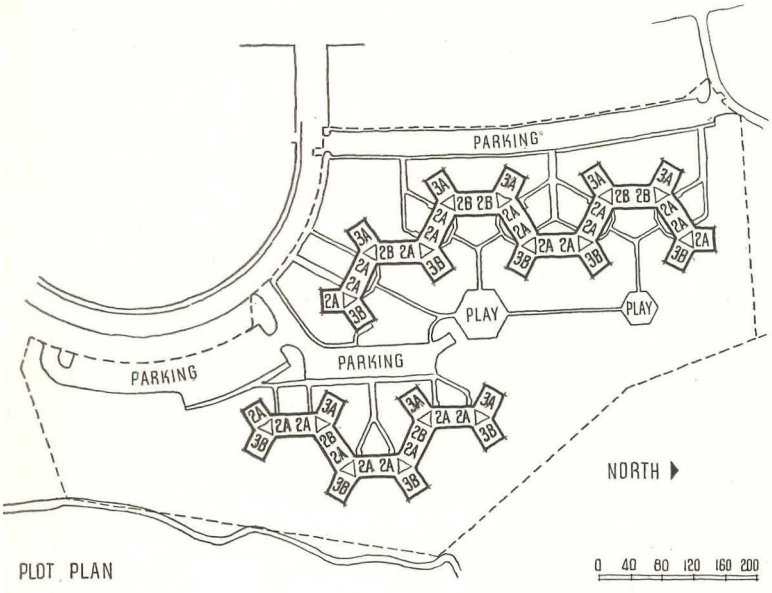
Outdoor living is encouraged by balconies and play areas away from traffic. To simplify maintenance, landscaping will consist mainly of large trees in the courts, vines on buildings. Key letters on plan below designate number of bedrooms and entrance location in each unit



DESIGNED FOR PRIVACY AND CONVENIENCE

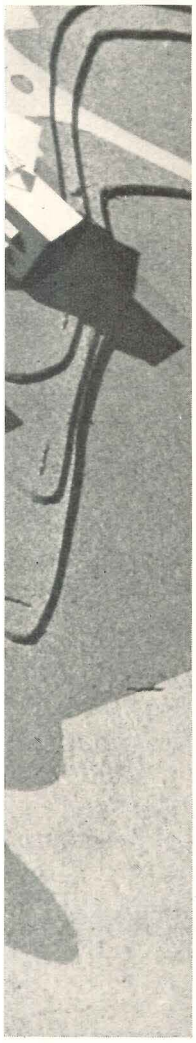
Chelsea Housing Project, Chelsea, Mass.

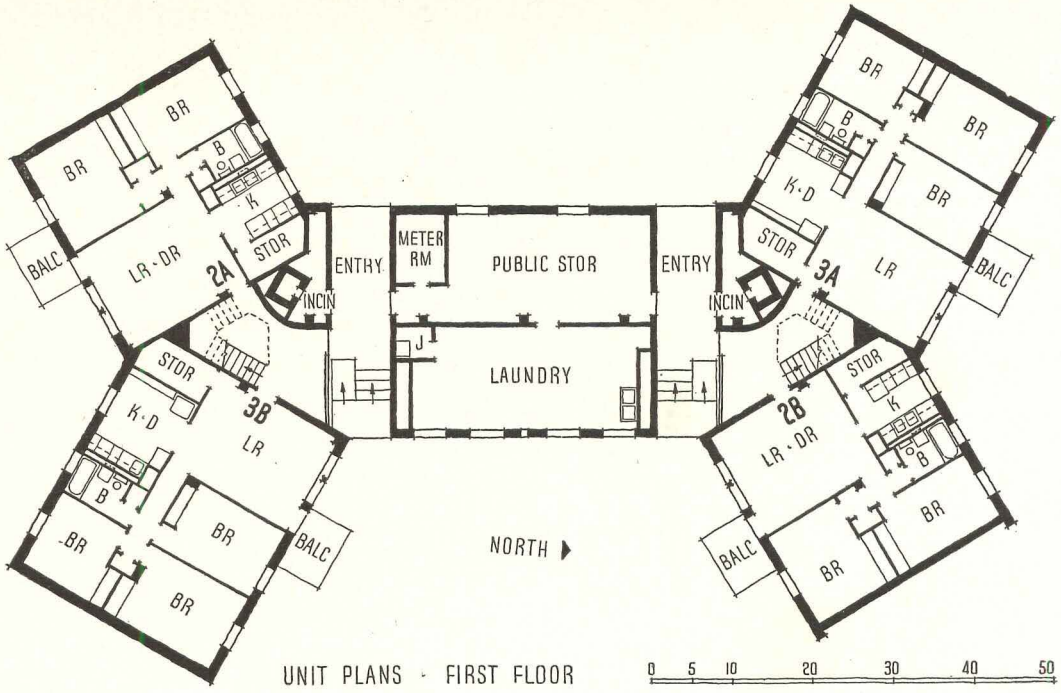
Hugh Stubbins, Jr., Architect



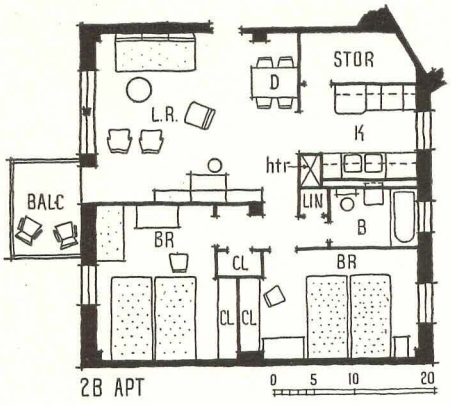
PLOT PLAN

AMENITIES for healthy, private family life are amply and economically provided in this 128 unit state-aided veterans' housing project. The interesting solution employs a triangular stair hall with radiating wings as a basic element. These join to form varied garden courts and give wide views and cross ventilation to each apartment. No unit looks directly at others. Water conditions on site led to elimination of basements, with utility rooms on ground floor. A central plant furnishes hot water to converters in each unit, allowing individual control of heating. Buildings are fireproof with masonry bearing walls, center row of columns and concrete floors. Bids on the project were about $100,000 lower than estimated costs.

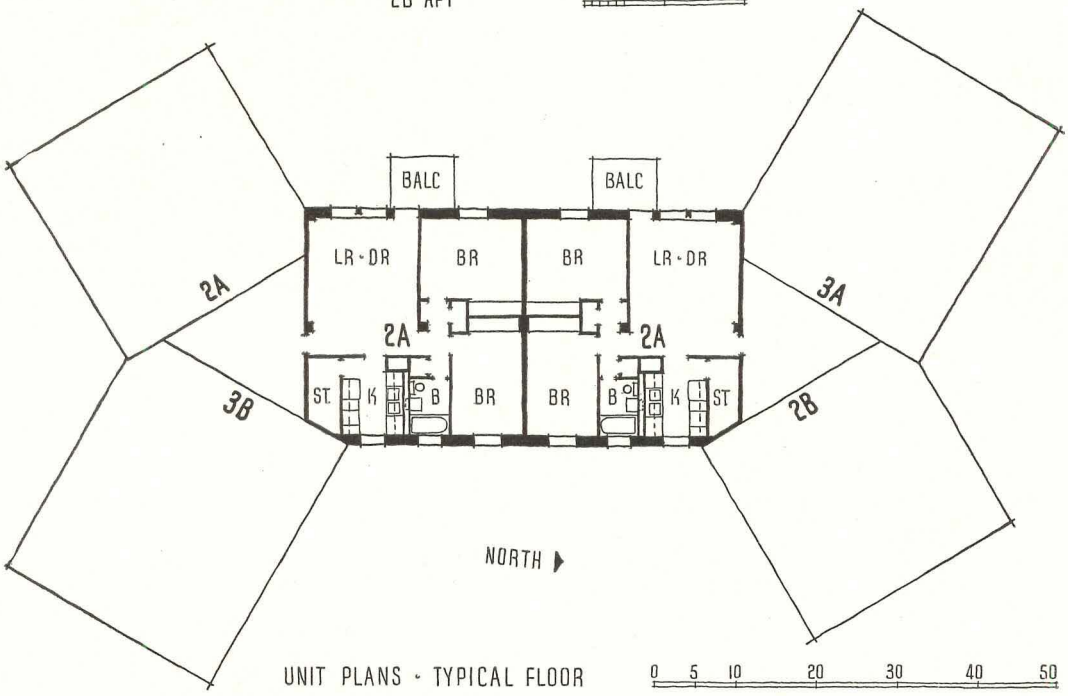




UNIT PLANS - FIRST FLOOR



2B APT



UNIT PLANS - TYPICAL FLOOR

Triangular stair halls give direct access to utility rooms, incinerators and passages leading to parking and play areas. Units have well studied layouts, spaces for crib and storage

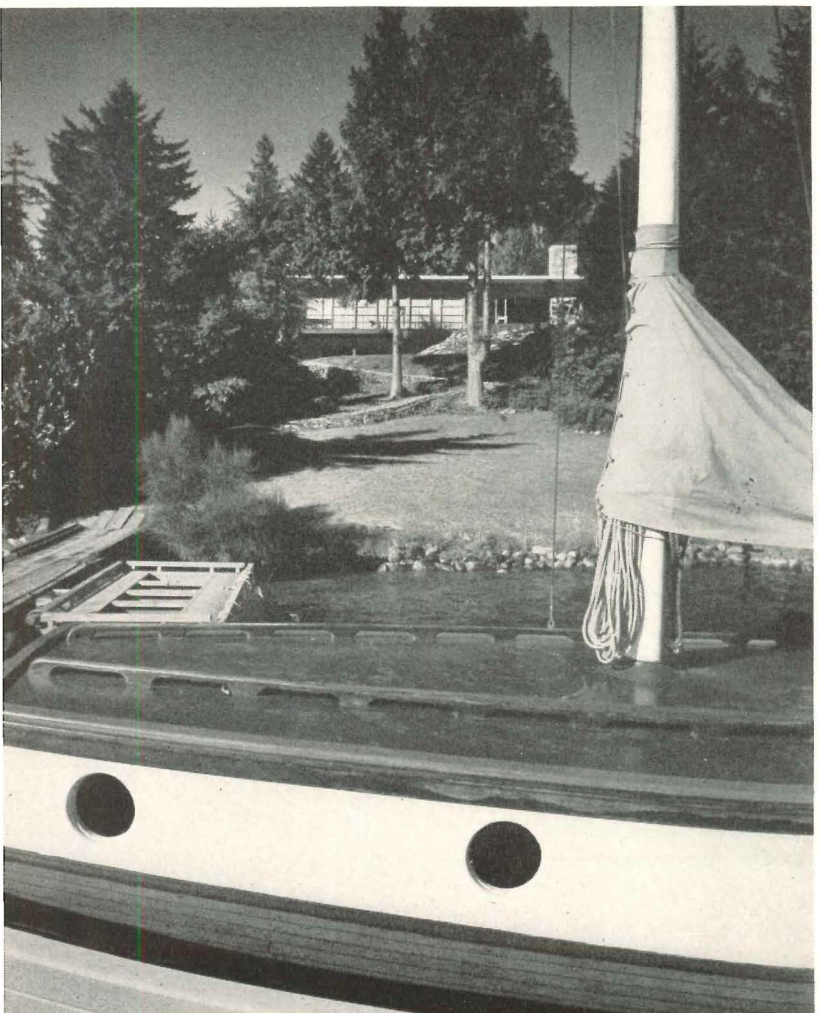
With these two basically dissimilar houses, Architect Paul Thiry has met the common problem of the narrow lot in two uncommon ways. One of the two he spread lengthwise, all but covering the site; the other he stretched across the width of the lot, leaving most of the length for terraces and landscaping.

Residence of

Mr. and Mrs. Charles D. Alhadeff, Seattle, Wash.

THE ALHADEFF RESIDENCE occupies a lot only 40 ft wide — exceptionally narrow for so large a house. It is within Seattle's city limits, fronting on Lake Washington, one block north of the Floating Bridge and only six minutes via traffic tunnel from the owner's downtown office. Since Mrs. Alhadeff wanted all principal rooms on one floor, the zigzag design resulted, the architect explains, from "the effort to obtain the maximum use of the land, to provide outlook plus privacy. . . . Each room looks out at the view or into the sheltered garden and has a seeming independence from the others."

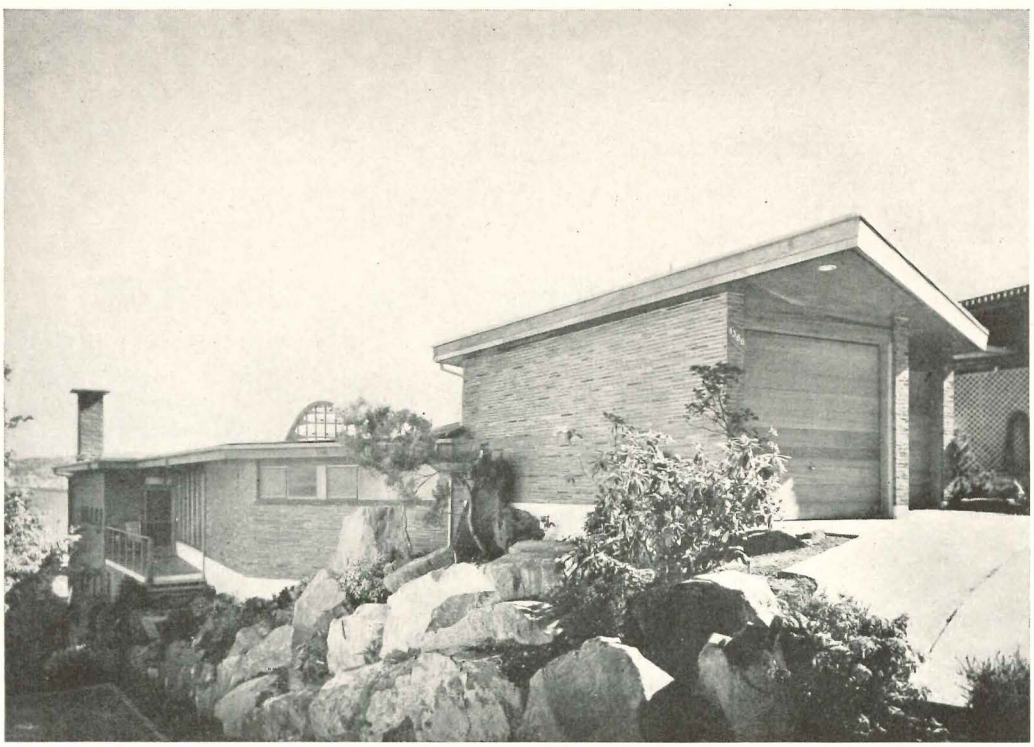
TWO SEATTLE HOUSES BY PAUL THIRY SOLVE



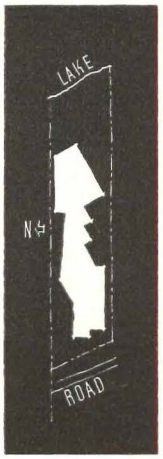
Residence of

Mr. and Mrs. Roy Halsey, Hunt's Point, Wash.

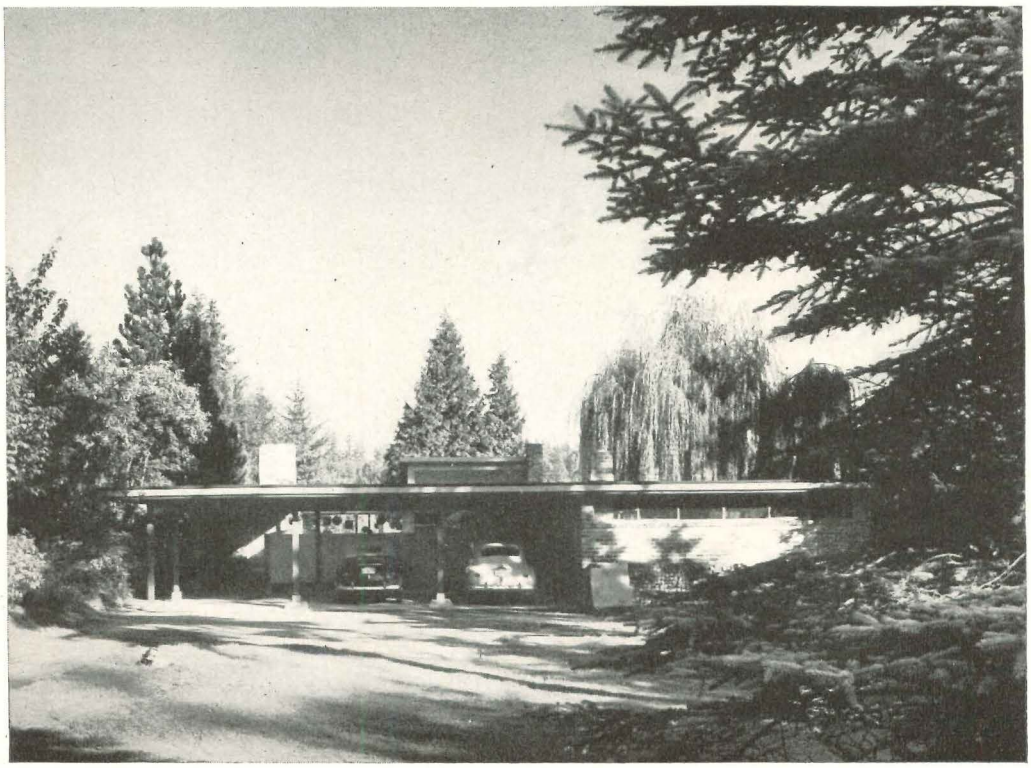
THE HALSEY HOUSE, across the lake at Hunt's Point, has a wider lot — almost 80 ft — across which the house is stretched, cutting off road from waterfront. Mr. Halsey spends long periods in Alaska supervising his business interests there, living then aboard his boat. When at home on Lake Washington he uses his boat for getting about almost as frequently as he does his car, so access to the dock is vitally important. Because he and his family do a lot of large-scale entertaining, the carport was planned as an adjunct to the paved yard onto which the combination living-dining room opens: for large parties the whole area can be thrown into one by opening the gates (not shown on plan, page 122) between yard and carport. A large workshop next to the carport and a workroom beneath the bedrooms are provided for care of boats and gear.

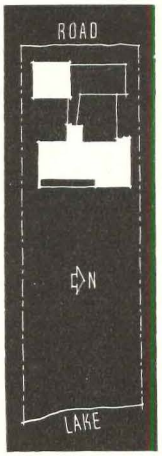


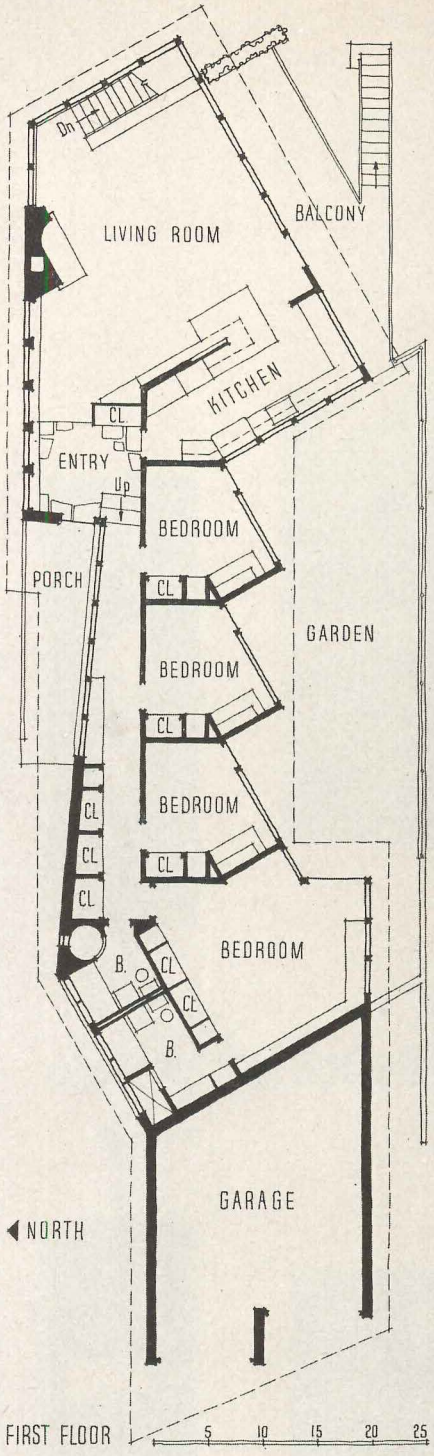
Richard Garrison

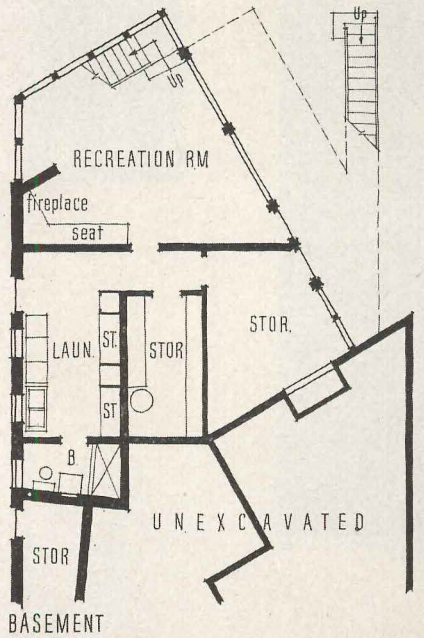


NARROW-LOT PROBLEM IN TWO DIFFERENT WAYS

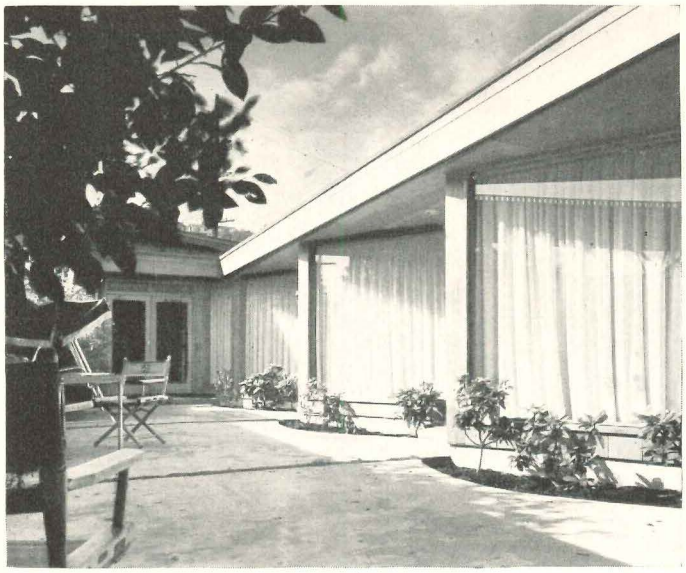


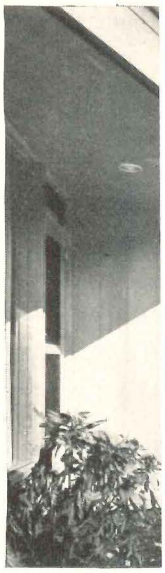






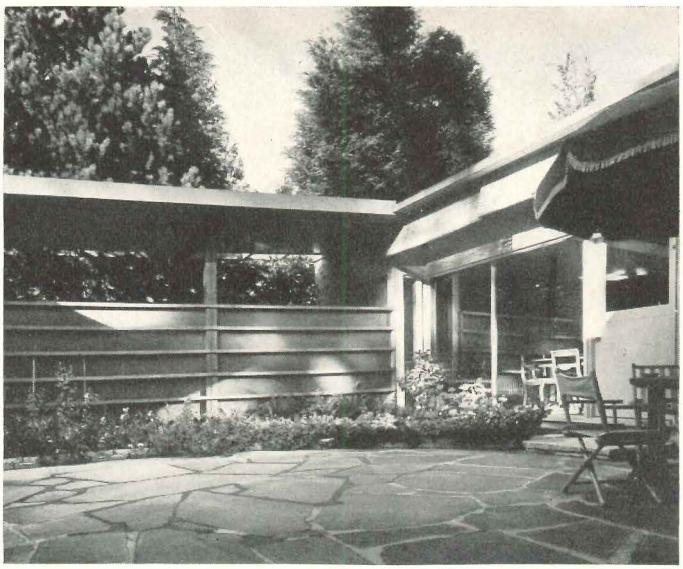
Concrete-paved terrace accessible to all four bedrooms is major feature of Alhadeff house. Louvered screen (both photos across page) is so constructed as to give a view of lake from court and still maintain privacy. Strip windows in background (opposite page, left) are over working area in kitchen. South facade (far right) shows how completely the house is shielded from neighbors



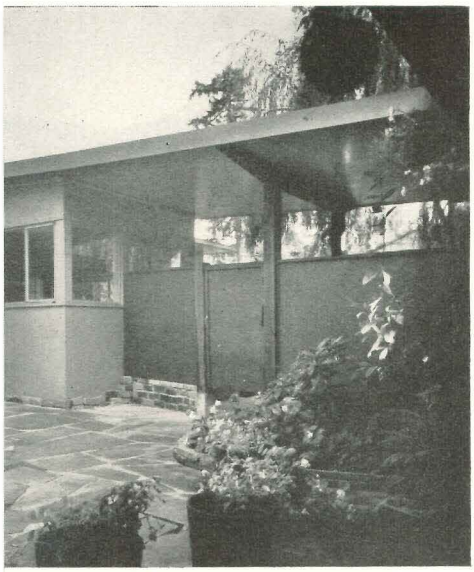


Alhadeff Residence

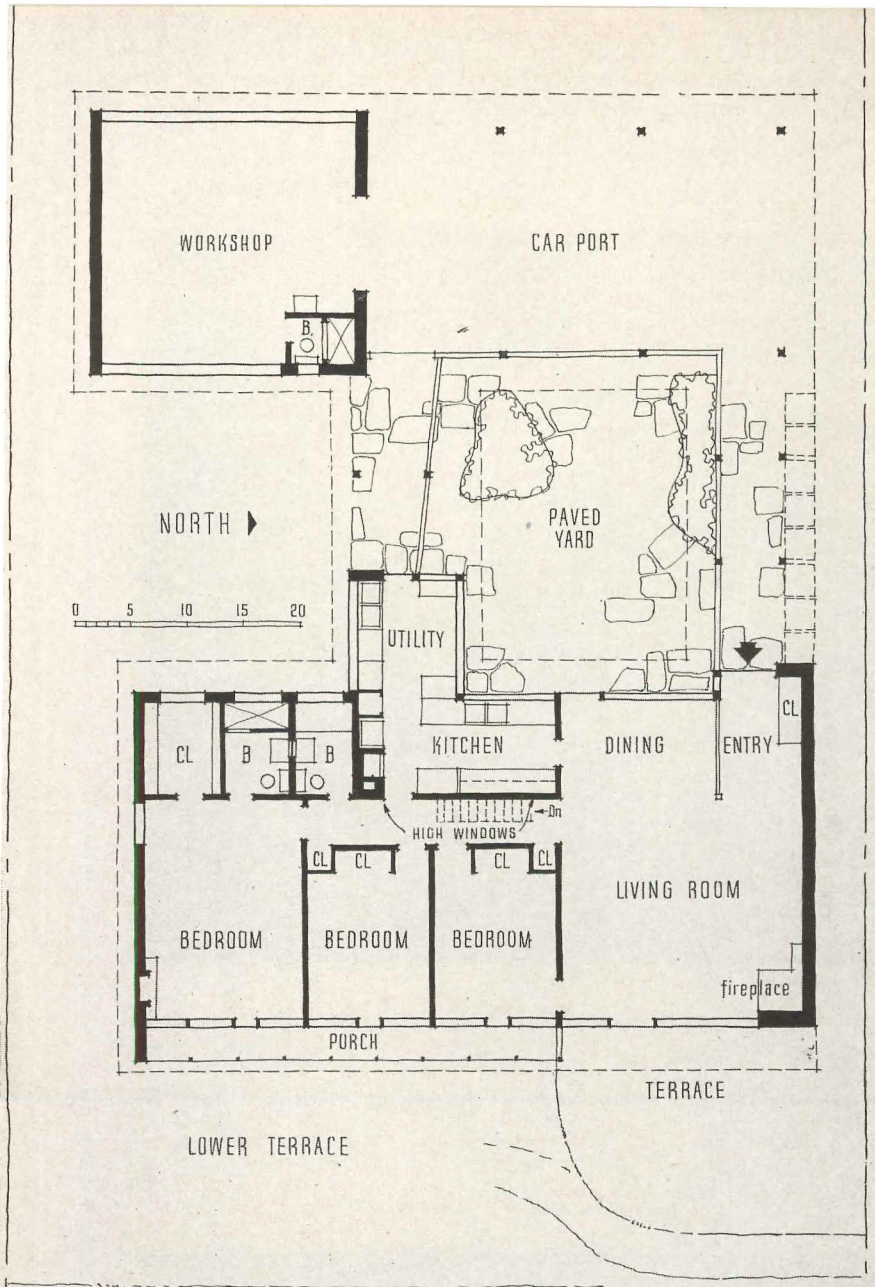
Halsey Residence

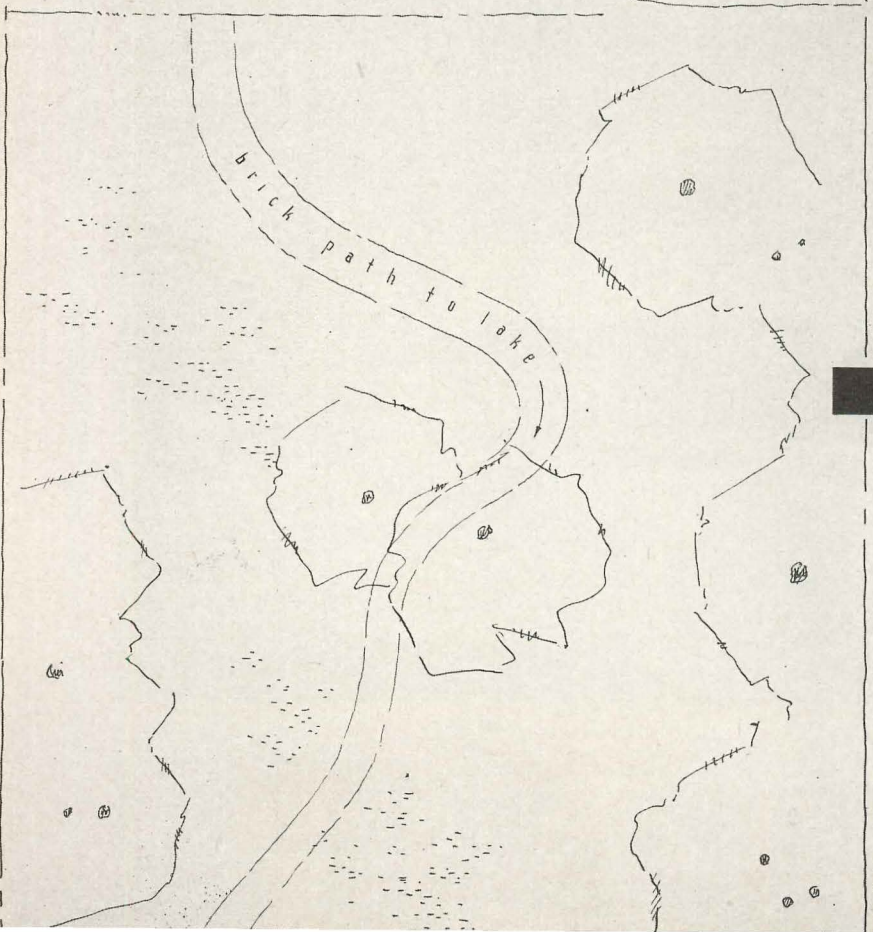


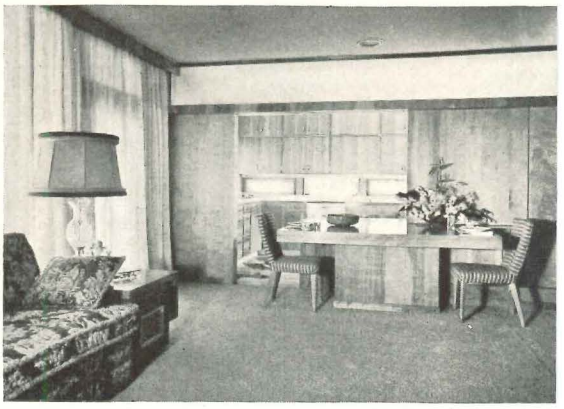
The Halseys have flagstone-paved courtyard, separated from carport and entrance by fence and planting beds. Exterior walls are Douglas fir plywood. Bedrooms and living room (opposite page) face the lake; below them is workroom used to supplement workshop next to carport (next page). Wider margin to property line at south was allowed for carrying boats and gear to shop



Richard Garrison







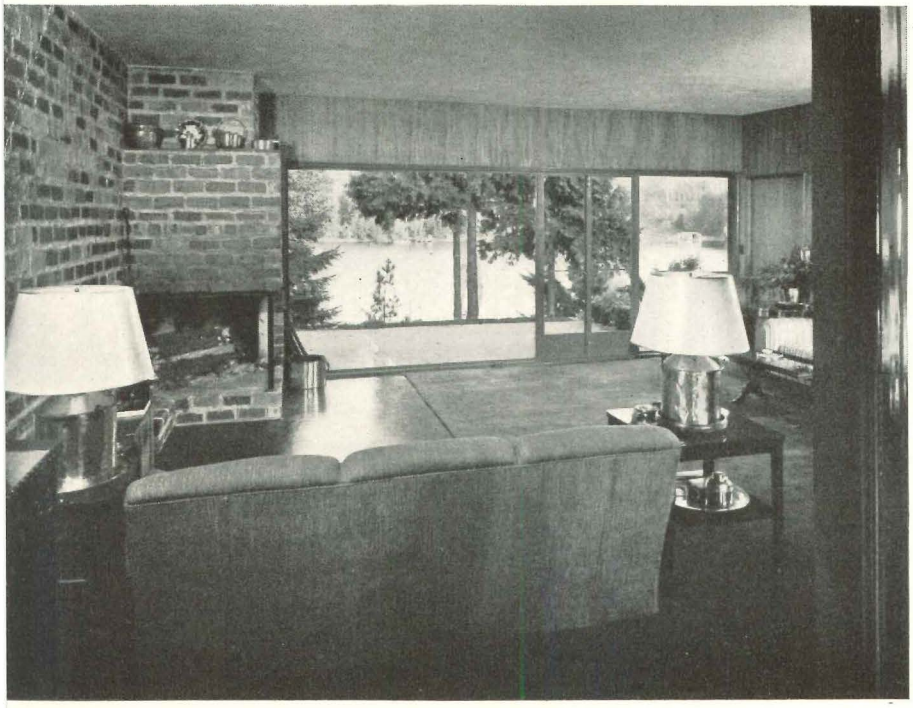
Alhadeff Residence

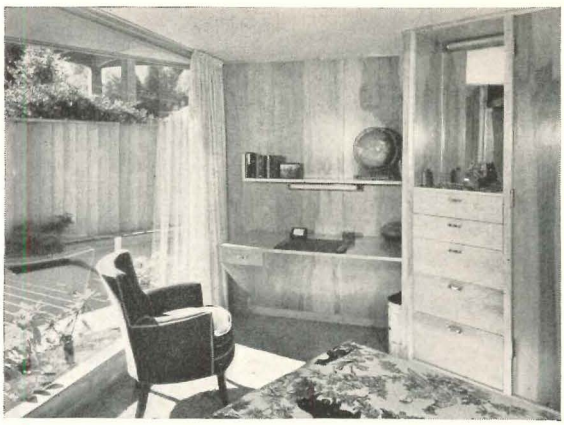
Halsey Residence

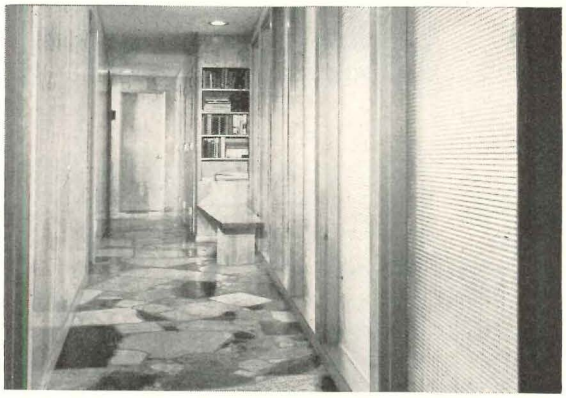
Richard Garrison

Alhadeff living room is paneled in birch plywood; fireplace is Roman brick. Random marble floor in kitchen (above) and hall (next page) is relic of fish pool in the retail market originally maintained by Mr. Alhadeff's father. The family-owned market, now grown into a wholesale business national in scope, was in past years one of the show places of Seattle

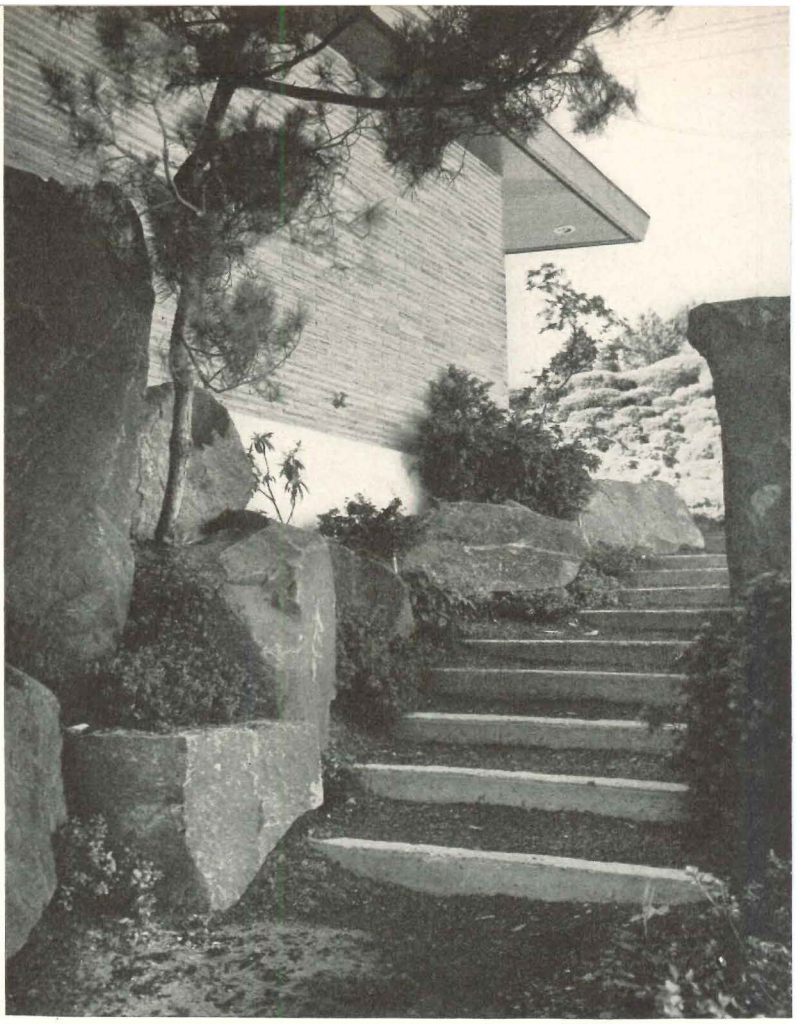
North wall and corner fireplace of Halsey living room are of reclaimed brick; remaining walls are of African mahogany veneer; floor is asphalt tile. Combined kitchen-utility room has charcoal grill built into chimney from basement furnace







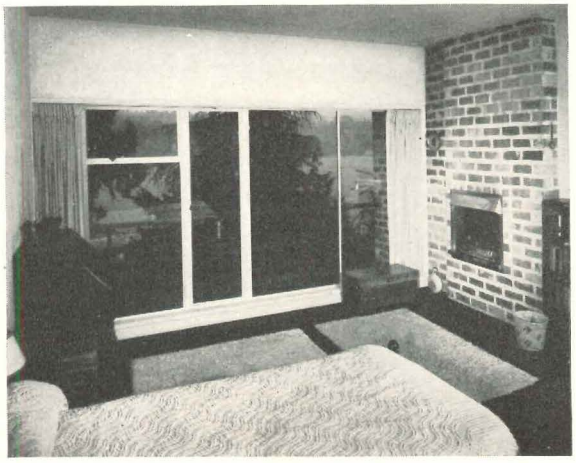
Alhadeff Residence

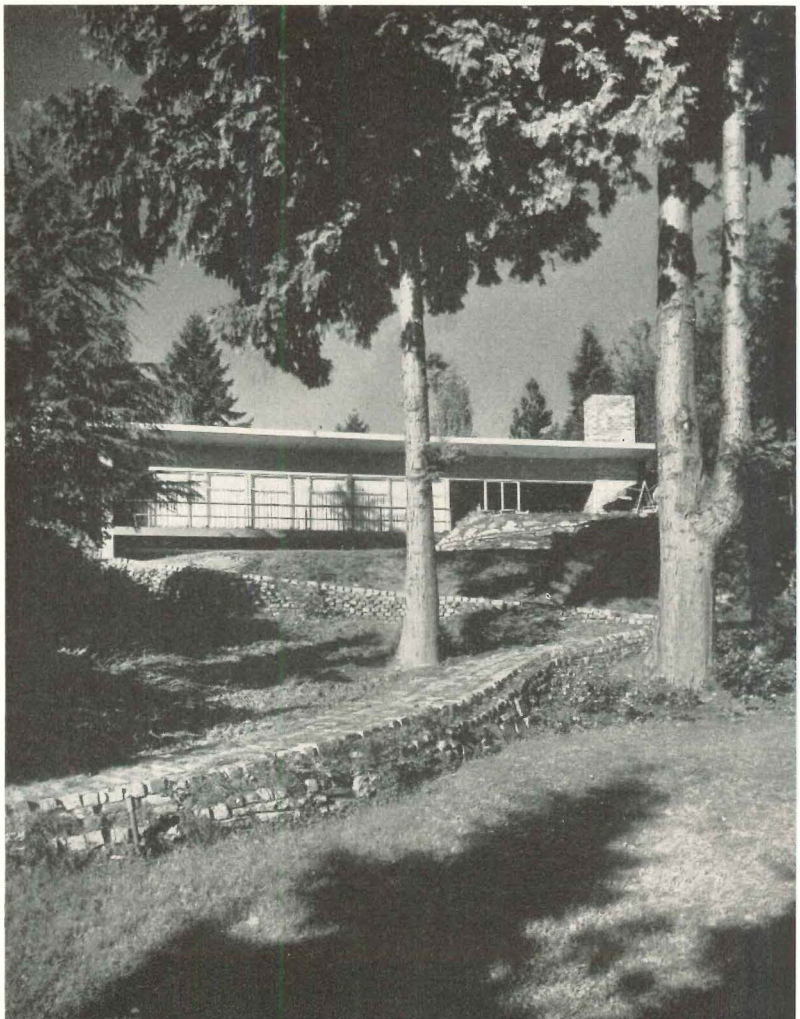


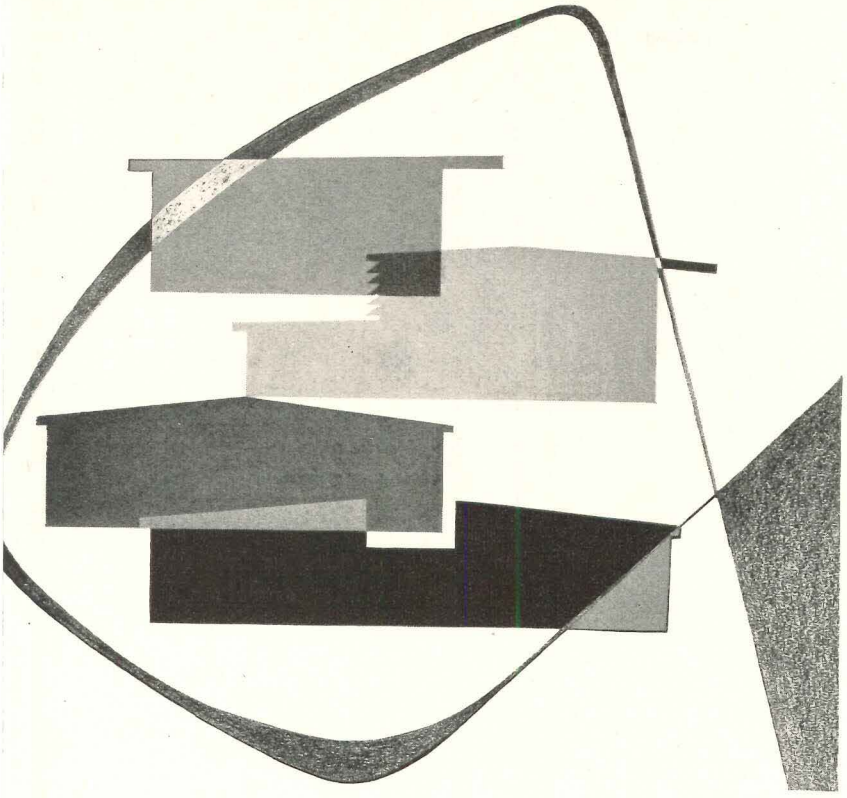
Richard Garrison

Chief difference in the two houses is best shown in the two large photos on this page: the verticality of the Alhadeff residence, marked by the steps leading from street to entrance past the garage; and the horizontality of the Halsey home, characterized by the broad sweep of lawn from lake to terrace.

Halsey Residence







PROTOTYPES FOR LOW-COST SCHOOLS

SEVERAL significant things happened when, several months ago, we began asking architects for their best low-cost schools. For one thing, a deluge broke over us — the RECORD offices soon had school plans stacked in all corners. The prints came accompanied by detailed cost breakdowns, lists of money-saving expedients, diagrams of new plan and construction ideas, pie charts and slide-rule calculations. It was quickly apparent that every architect and his associate had been beating their ingenuity pretty earnestly to design schools for war-born youngsters who were literally going to school in shifts.

The word "prototype" turned up quite frequently — "this school is a prototype for a half dozen we are building this year," or, "a basis for designing the theoretically most economical school for Maine conditions" (Harriman, p. 126). This Building Types Study was done, then, by picking the plums from a rich basket of prototypes.

The schools differ widely. Some architects found economy in plan arrangements, in multi-purpose rooms and corridors, in new classroom shapes. Some in structural simplicity and modular design. Some used bilateral lighting; others designed for artificial lighting. The climatic regionalism of schools is readily seen.

There is eloquent testimony, in the diversity of ideas, of the essential ingenuity of architects when they really tackle the problem of costs. Also, perhaps, a comment on research still to be done.

There is a rightness, too, in this diversity of approach. Nobody expects that from such cost study a single standard school will emerge. Schools, like other buildings, are designed for strictly local needs, for local material supply conditions, for local weather, for local school boards. More and more, for example, are schools designed for adult use — one in this study even houses the township offices.

Everybody, however, has a right to expect good schools. All those here presented are well equipped, well lighted, well planned for modern activity programs. They do not waste money in massive monumentality that might appeal to older taxpayers; if the old folks want to use the school they will just have to get along with a bright and busy gayety put there for the youngsters. — *Emerson Goble*

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NUMBER 160

A DESIGN STUDY: SCHOOL OPERATING COSTS

*By Alonzo J. Harriman**

The author here completes his school cost studies, as promised in these pages a year ago, and develops the results in a "prototype" school theoretically most economical for Maine. This part of the study adds operating and maintenance factors to his earlier comparisons of structural systems and plan types. He makes no claims as to comprehensiveness of comparisons, or application to other localities. This is an individual study of design factors needing local evaluation, and dollar and cents figures are used only comparatively. Readers are urged to try out the methods developed by the Harriman firm, when similar questions must be brought into focus for a specific community.

Fig. 1. *HEATING COSTS—WALL TYPES*

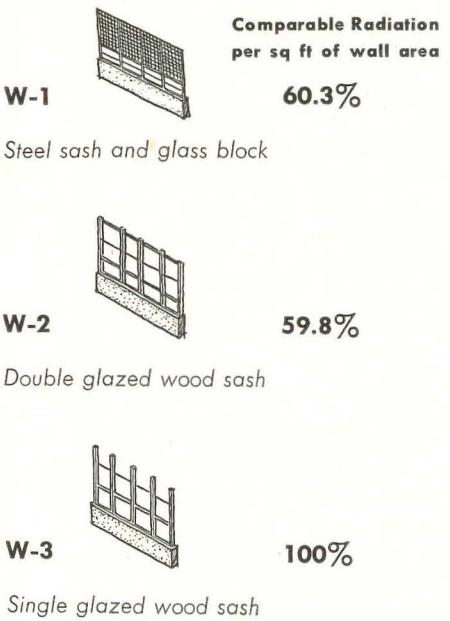
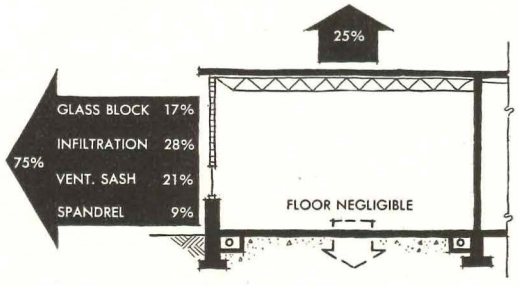


Fig. 2. *HEAT LOSSES FROM TYPICAL CLASSROOM*



IN THE year since our office started these school cost studies in ARCHITECTURAL RECORD (March and April, 1949) we have continued our researches by investigating various design factors as they affect operating and maintenance costs as well as first costs of construction. We have also satisfied ourselves on the much-debated question of the daylighted school for our own lighting conditions, having long wanted a solid basis for arguing with Californians or Texans. We "Mainiacs" have a hard climate to deal with, and have not felt we could safely accept generalized tenets of school design.

So we have analyzed, both with slide rules and with observations in existing schools, such questions as: How much glass? What type of wall and roof construction for heating economy? What kind of lighting? The results, coupled with earlier studies of plan types, have given us a basis for designing the theoretically most economical school for Maine conditions, considering maintenance as well as first cost.

Actually we present here two "prototype" schools. One is strictly of the slide-rule, or engineering type; this is called type R (R for regional). The second is the more finished application, the real prototype; it is called K-8 (kindergarten and 8 classrooms) (page 131).

Construction and Heat Losses

These studies of heat losses directly continue the earlier studies of the wall and roof types most economical as to construction costs. The wall types, W-1, W-2, W-3, are the same as in the earlier articles; so are the roof types, R-1 to R-5.

Fig. 1 illustrates these different wall types and the calculated relative heat losses. The W-3, the single glazed, we have used as 100 per cent. The heat loss from the combination wall of glass block and steel framework and steel sash is 60.3 per cent of this, and the heat loss from the double glazed one, using two wood sash to our detail, is 59.8 per cent of this base.

Of the total heat loss from a one-story semi-fireproof classroom, 52,000 Btu, 75 per cent is lost through the wall (see Fig. 2). This heat loss does not include, however, any loss due to ventilation. Ventilation we have considered as a use loss, not chargeable to the building efficiency.

* *Alonzo J. Harriman, Inc., Architects-Engineers, Auburn, Maine*

If the design heat loss through single glazing is 32,950 Btu, it is economical to double glaze even at the increased cost of approximately $324, for there is a saving of 13,225 Btu or 25 per cent of the heat loss through the single glass. In dollars and cents, this $36.30 yearly saving in the heating of a classroom is an 11 per cent return on the investment.

Fig. 3 shows the direct transmission losses through the roof for different roof types, R-1, R-2, R-3, R-4 and R-5. The studies indicate that R-1, which is the most economical to build, is also the most economical in heat loss. This is due to the fact that in this type construction we can use a fluffy insulation of the batt type or loose fill in place of the rigid insulation applied directly onto a flat roof boarding. R-2, R-3 and R-4 are the same due to the similar type of roof construction. R-5 is a little less efficient, due to the fact that it has a concrete slab in place of wood plank.

For saving in heating then, we would use wall construction W-2 and roof R-1. There are, however, other advantages to the glass block wall W-1. With visor over clear glass we have had satisfactory light with direct sunshine on the wall without blinds or screens, but the new blocks do have a very low surface brightness.

Plan Types and Heating

Fig. 4 shows the over-all heating results of our various types of schools indicated in the earlier article — type S-2, two-story semi-fireproof; S-1, one-story semi-fireproof; and C-1, one-story combustible.

Note that in the figures for heating, no lights, no pupil content, and no sun heat gains have been considered.

It is again noted that type C-1, the one-story with the combustible roof, is the most efficient, as far as heat loss goes, of them all. Again the reason is the ability to put in fluffed insulation economically in the roof space. That is the only difference between this type and the one-story semi-fireproof. However, change to double glazing in place of glass block and steel sash, and there would be a further saving.

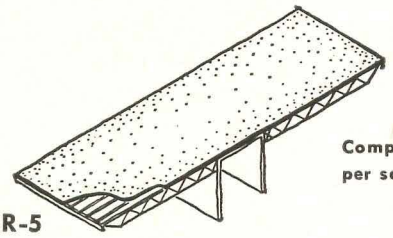
It is interesting to note, in the above figures, that the heat loss through the roof, which would be approximately 25 per cent of the total heat from the building, is more than offset by the heat loss from the auxiliary spaces. In other words, the heat loss from the corridor ends, from the stair-halls and toilets, is more than enough to offset the heat loss through approximately twice the roof area. This, I must say, is contrary to what we expected.

It develops, therefore, that although the heat loss of the two-story classroom itself is less, the over-all loss is greater than for the one-story building. And with the more economical combustible roof, we would have a still more economical building as far as heat loss goes. It is most interesting to note that the most economical building to construct is also the most economical to heat.

How About the Daylighted School?

It is frequently said that north light is the ideal lighting for a classroom in any climate. Also that a

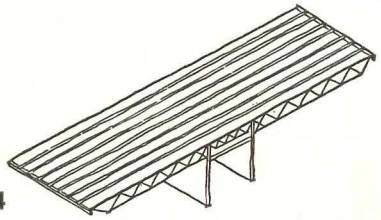
Fig. 3. *HEATING COSTS—ROOF TYPES*



Comparable Radiation per sq ft of floor area

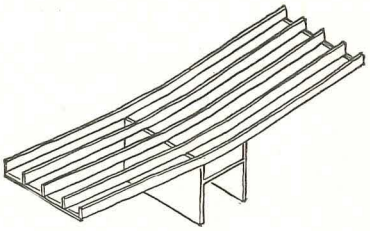
R-5 **100%**

Open-web steel joists, 2½-in. concrete slab; lath and plaster ceiling, rigid insulation



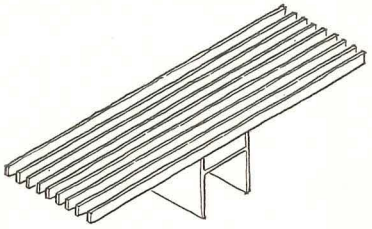
R-4 **88.9%**

Open-web steel joists, 24 in. o.c., with 2 by 4 wood nailers for sheathing; gypsum board ceiling strapped to joists, rigid insulation



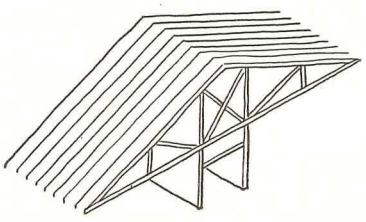
R-3 **88.9%**

Dihedral type, wood mill-frame construction, timbers 48 in. o.c., 2 by 4 wood nailers; structure exposed, painted; rigid insulation



R-2 **88.9%**

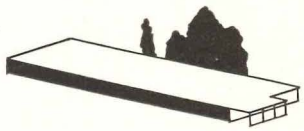
Wood joists, 24 in. o.c.; matched wood sheathing ceiling strapped to bottom of joists, gypsum board, painted; rigid insulation



R-1 **33%**

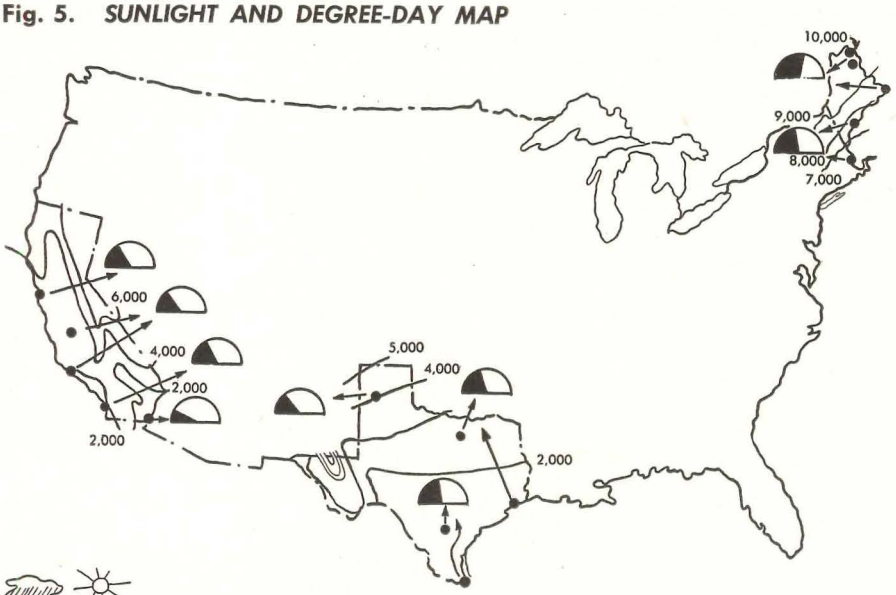
Pitched type, light wood trusses 24 in. o.c.; ceiling strapped to joists, gypsum board, painted; 4-in. mineral wool insulation

Fig. 4. ***HEATING COSTS—BUILDING TYPES***



	Total Design Heat Loss in BTU per hr.
S-1	
Classrooms	549,000
Auxiliaries	186,000
Total	735,000
% of base (S-2)	91%
C-1	
Classrooms	434,000
Auxiliaries	146,000
Total	580,000
% of base (S-2)	71.8%
S-2	
Classrooms	502,000
Auxiliaries	306,000
Total	808,000
% of base	100%
R	
Classrooms	285,000
Auxiliaries	134,000
Total	419,000
% of base (S-2)	52%

Fig. 5. ***SUNLIGHT AND DEGREE-DAY MAP***



Cloudy and sunlight proportion of daylight hours during normal school year

9,000 Lines of equal degree-days per year

classroom suitable for Texas or California is equally good for Maine. With this we have always disagreed. We have not, however, always had the necessary facts to back up the Maine side of the debate. The old argument has at least had the constructive result of goading us into assembling some concrete data.

We have considered the effect of temperature, ventilation, natural light and sun on the schoolhouse design for climatic conditions shown in Fig. 5; the effect of snow, which covers the ground half of the school year; and the reaction of various teachers and superintendents for whom we have built schools recently.

In surveying recent schools that we have done, we found that *every* teacher wanted sun in her classroom at some time during the day. They all preferred sunny classrooms; some asked for south exposure but were satisfied with east and west, east preferred. It seems that on a west exposure, there are a few weeks during the year, both in spring and in fall, when the west sun, shining into the room, overheats the room to some extent. However, this was not too serious a complaint. Teachers would much rather have this than not to have any sun at all during the winter months. I think this west overheating can be very well taken care of in this climate by putting a deciduous tree screen to the west of the classrooms, as indicated in our K-8 school.

We also tried designing a school for natural light, but observations indicate that natural light is not sufficient for good classroom lighting much over half the time, that is, without some strong measures in the way of clerestories. We have not been able to get from the Weather Bureau the sky dome brightness and a definite reading as to the amount of sky light for various days. However, the Weather Bureau has recently put in a type of apparatus that will continuously register the amount of light each day and the intensity of the light at any period during the day. Their findings will be of great advantage to us in the future.

We have, however, been able to observe daylighting in an addition to our office. This addition was the size of one half of a 30 by 30 ft classroom, or 15 by 30 ft. The area of glass is 46 per cent of the floor area. It is not designed exactly like one half of a classroom, but is very similar. It has awning type roof projection over the windows to the south and sunboards over the windows to the east and west.

We started experimenting in this room, taking light readings on various overcast days. From these readings we found definitely that there were certain days in this climate when it was impossible to light a classroom with daylight. As a result, also, we question the sunboards.

With this in mind, we took readings in our several schools in varying overcast weather. These are given in the graphs in Figure 6.

Note that in the upper graph only about half of the classroom is satisfactorily lighted with a 1200-foot-candle sky. Notice that on a 400-foot-candle sky none of the classroom is well lighted. This is not changed much by a snow cover. Graph 2, Curve B, shows that for a 700-foot-candle sky, only at one point is the room satisfactorily lighted. This is with a snow cover. Curve A, however, shows most of the room satisfactorily lighted. This was a clear glass window.

On overcast days sunboards and awnings of various types were very detrimental to the reading in the classroom, although advantageous on sunny days. We also found that, on overcast days, clear glass was better for the classrooms than glass block, though here again we must remember the glare of bright days. Also that a sloping ceiling was of considerable help.

Observations indicated that lights were as apt to be left on continuously as not to have been put on at all when the necessity arose for artificial lighting, or vice versa.

The figures that we got for classroom readings were corroborated by information supplied by the glass block manufacturer, for the intensity of sky dome for which we were taking readings. It is simply a matter of what weather conditions set the pattern for design. It is, of course, possible to augment our unilateral lighting by bilateral lighting. Bilateral lighting, however, generally does away with the double loaded corridor, which means a more expensive school.

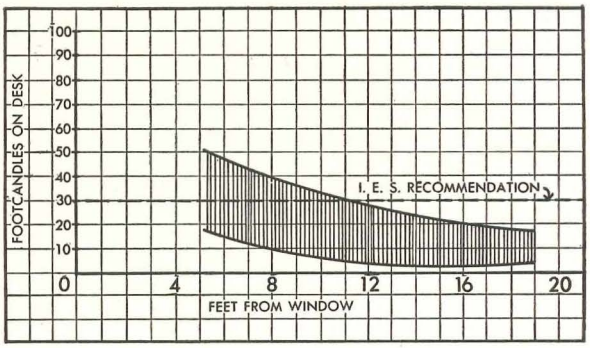
Daylight Proves Expensive

Another lighting experiment involves a high school in Easton, Maine, which was designed with a clerestory. A section of this school is shown in Fig. 7. However, the price was more than the community could afford, so we had to re-design it without the clerestory. We found that on clear days we got approximately the same amount of light in the back of the classroom (with glass block) that we would have had with a clerestory.

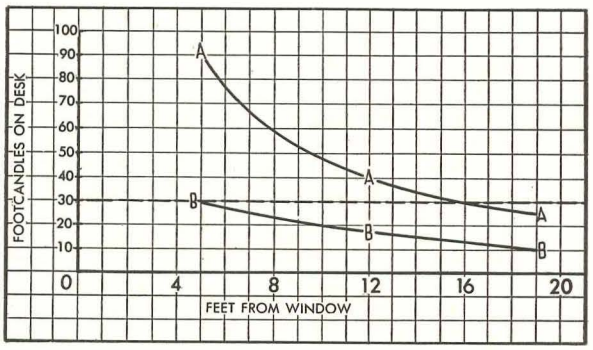
We built a mock-up of this clerestory section and experimented with light, and were convinced that the light was equivalent at least to the requirements. However, in re-designing this school, omitting the clerestory and putting in a flat roof and glass block, unilaterally lighted, and cutting down our heat losses too, we saved approximately $1 a sq ft, or a 10 per cent saving in the cost of the building.

Finally, there is the fact that our readings and those of the Weather Bureau show that the number of overcast days runs at least 45 per cent. We have to face the fact and design a classroom for artificial illumination, with at least part of it to be artificially illuminated all of the time. It looks as if we were just getting around to what is already a well marked trend in factory design — elimination of sawtooth roofs in favor of artificial lighting, with open windows for psychological effect.

Fig. 6. *RANGE OF LIGHT READINGS ON CLOUDY DAYS*

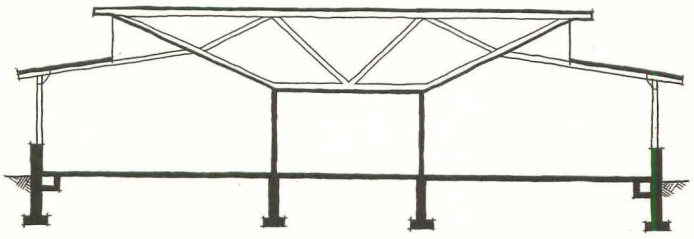


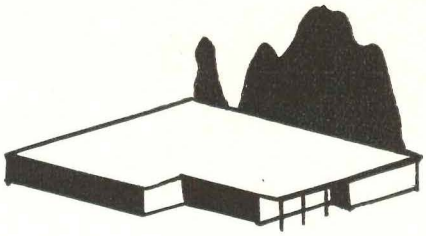
Graph 1: Upper curve, glass block over vision strip 1200-ft-candle sky, snow cover; lower curve, similar room, 400-ft-candle sky, no snow

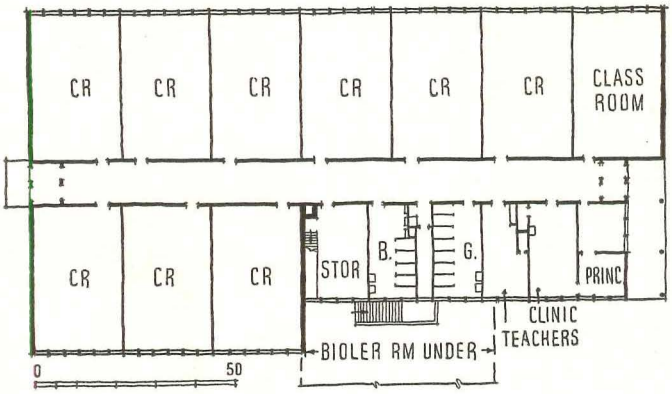


Graph 2: Comparison of light readings with and without sun glare protection; Curve A, wood sash, no sun visor, 700-ft-candle sky, snow cover; Curve B, glass block and vision strip, equivalent sky

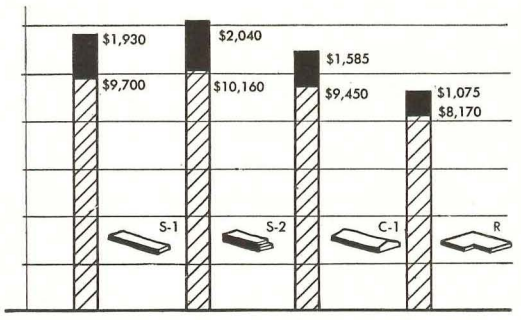
Fig. 7. *PROPOSED SECTION FOR DAYLIGHTING*







The "slide rule" prototype school uses the deep classroom, to save outside wall, previous studies having indicated the savings possible by pushing outside walls apart. It has double-glazed side walls, flat roof design for easy installation of insulation



Final calculations of construction cost and heating costs in annual terms show substantial savings over types of buildings already thought to be fairly economical. In the test run, the R school won by a wide margin. The basic scheme is developed farther in the final "K-8" (opposite page)

A "Slide Rule" Prototype

The foregoing studies and previous articles indicate that the most efficient building for our Maine climate is the one-story building. It is much more efficient in construction costs, with a saving of about 7 per cent. It is also more efficient to heat.

This "R-type" building would also, of course, make for savings in janitorial service, having only two toilets to clean and maintain, while in the two-story there are four. Also, the net area of the one-story is less by approximately 16 per cent, which means 16 per cent less janitoring. This is true, even though they are of identical construction. Also, of course, stairs are one of the hardest things to clean.

From our previous studies we found that if we increased the span in the classroom we decreased the cost per square foot. The farther we pushed the outside walls apart, and diluted their cost, the less the building cost per square foot. We therefore thought that if we changed our classroom so that the end was the outside wall and the length the depth, we would be saving something. We also felt that by designing a classroom this way, we could light the interior artificially all the time for activities which might just as well, if not better, be carried on under artificial light. Also by cutting the exposure of the exterior wall by one-third, we cut down a large amount of heat loss. Of course, shortening the classroom also shortens the corridor a corresponding amount.

The deep classrooms caused a change in roof design, the building being too wide for the pitched roof. For this school we would use long-span steel joists and plank roof, with 2 by 6 ceiling joists. With this we could use the batt type insulation about as easily as in the pitched roof. The wall would be the W-2 type with double glazing.

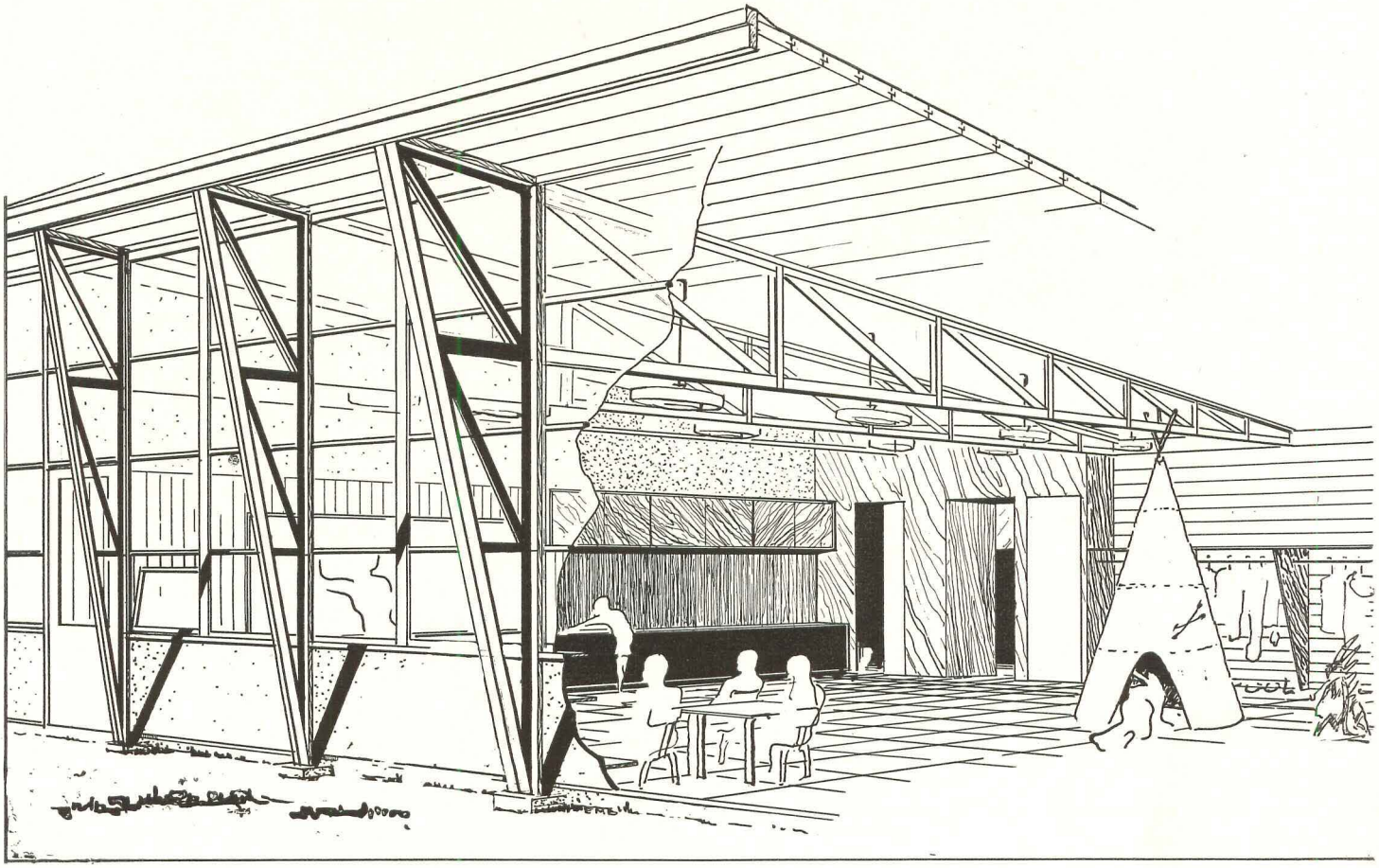
In conclusion, this R type school (using the same unit prices) reduced the cost by 19.8 per cent over our S-2 school, or $40,300; 16.2 per cent over our S-1 school or $31,400; 7.3 per cent over our C-1 school or $26,000.

It also has a saving in heat loss and, therefore, in annual heating cost. There would be a saving of approximately $965 a year in fuel for this building, or approximately 48.3 per cent of the total cost of heating the two-story building, or a saving of 32 per cent or $510 over the one-story building.

New Codes for New Schools

It would be far better to build more new schools, and junk some of the old, even though the standards are not as high as we desire.

We realize that there are certain things in this design that the laws will not now allow us to do. The classroom height must be one-half the width in certain states, and possibly there are many other requirements that this school will not meet. Perhaps, however, logic will help change some of the codes.



PROTOTYPE SCHOOL BORN OF RESEARCH

By Alonzo J. Harriman

THIS "K-8" school is in effect the summation of all of our cost studies. It is designed to put the results into a workable "prototype" school that will be economical in maintenance as well as first cost. The K-8 means kindergarten and eight grades, in a school to house from 250 to 300 students in the typical Maine community.

Classrooms are designed for 100 per cent use of artificial light in the inner half of the room. The outer end will be naturally lighted, but will be supplemented even there by artificial light, so that at all time seeing conditions will be good.

The building runs north and south, the kindergarten having south and east exposure. West classrooms would be shaded by a screen of deciduous trees to keep out the hot afternoon sun. These trees, of course, shade them in spring and fall, but in winter allow the sun to shine through.

The activity space acts as a corridor to save space. All the services are together, and toilets in excess of those necessary in the rooms are located off the activities space, so that they can be readily used by the children during playtime both indoors and outdoors. The storage space off the activities room is for play

yard material, and for material used in the playroom. The toilets are individual for the kindergarten and the first four grades.

We have arranged a teacher's closet and a wardrobe in the back near the corridor in all rooms, and have assumed that as shown in our sketches, the back end of this classroom will be used for activities.

The unit has a roof of two different pitches coming to the low point on the masonry wall, with interior downspouts.

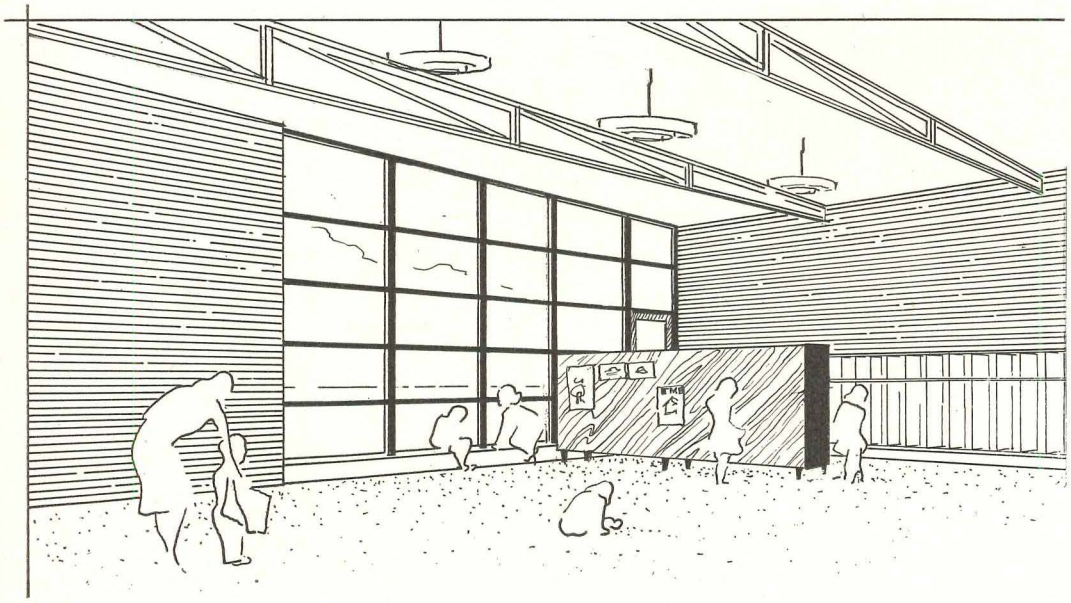
The structure uses a rigid frame (similar to an open-web joist), that runs from the central bearing wall outward. It would come in one unit. Frames are spaced eight feet apart; the ceiling is planked with 3-in. planks, spanning between these joists. The central bearing wall is of 8 by 8 terra cotta tile, load bearing, and aside from structural considerations, effects a desirable noise attenuation. The walls are of double glazed sash with single glazed hopper vents. They are all glazed with clear glass.

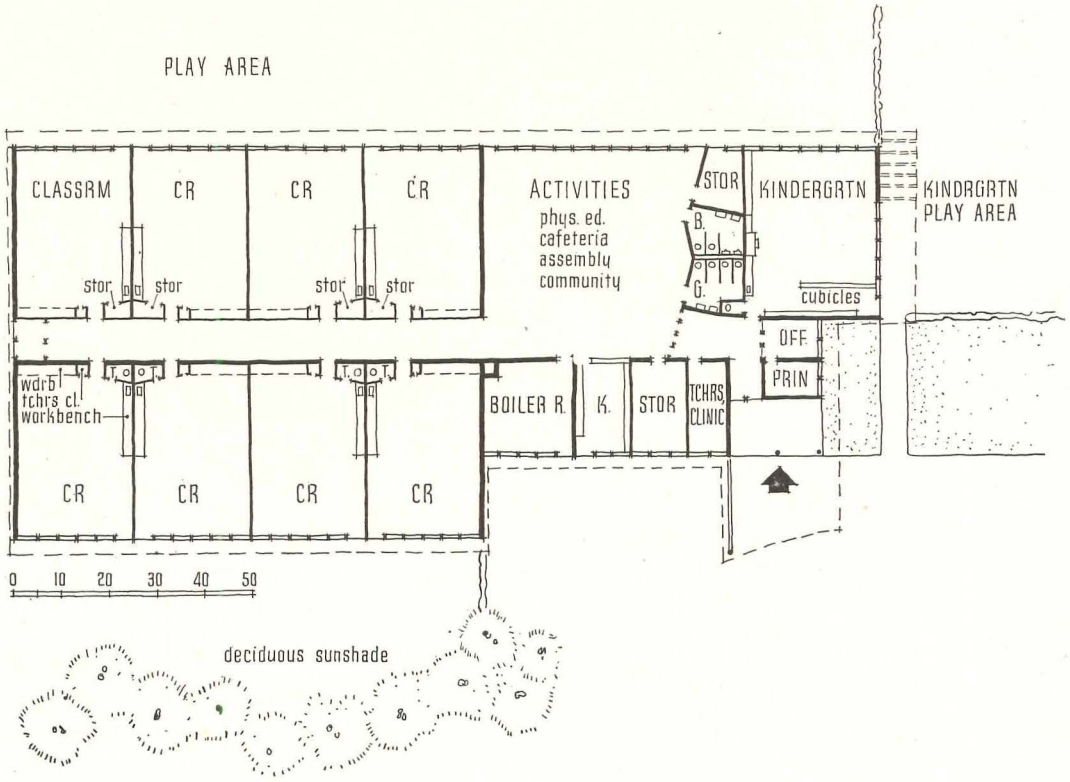
Materials are chosen for minimum maintenance. Where we have been using light paints, maintenance has been high. We now think that to use a light, natural plywood of approximately the same reflectance with a durable natural finish is much more economical in the long run. In this state there are certain grades of plywood that can be bought here very economically. These hardwood plywoods are not only good looking but tough.

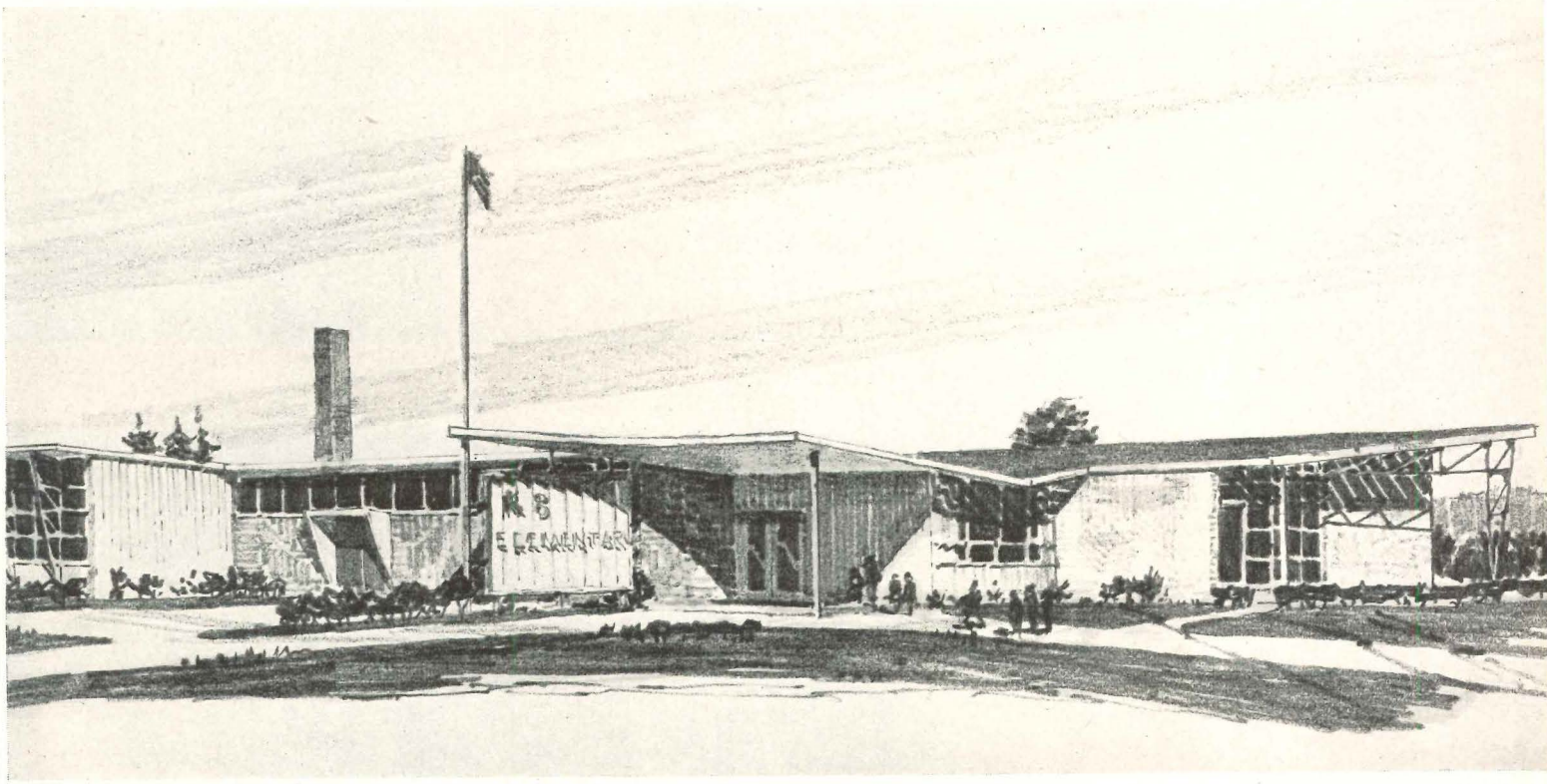
The end walls are of masonry with brick exterior. Under the windows we are using a prepared board of fibrous material an inch and a half thick with asbestos cement bonded to both exterior and interior faces. The sash is of wood. The floor covering is asphalt tile, except in the toilets, which have ceramic tile walls and floor. The ceilings are painted for light reflection and the walls above the plywood are painted the same color as the ceilings. The plywood extends up to the height of 7 ft, and from there above, it is plasterboard painted, with patches of acoustic material as needed. The plasterboard continues down in back of the plywood in all cases to give a fire-retarding effect.

In the K-8 school, we have exploited the economies developed in the Type R building and added certain features, notably the rigid frame structure, which we *believe* to contain further economies, combining them into a plan and building that make an architectural project of the purely engineering study developed in Type R.

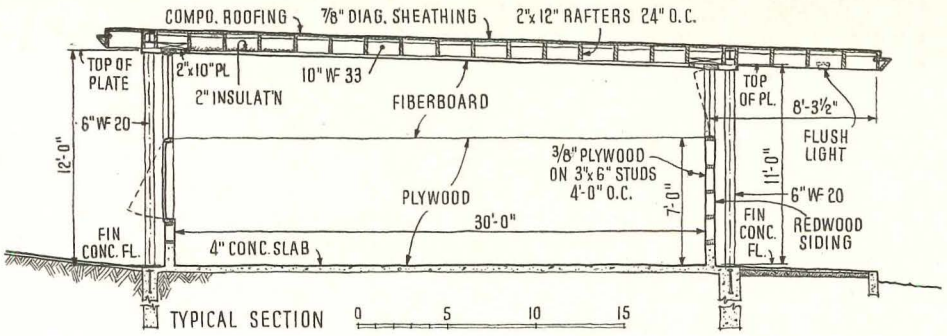
Classrooms are designed for artificial lighting, with daylight expected to serve only the outer portion of the room. Classrooms face east and west; Harriman proposes a screen of deciduous trees against afternoon sun

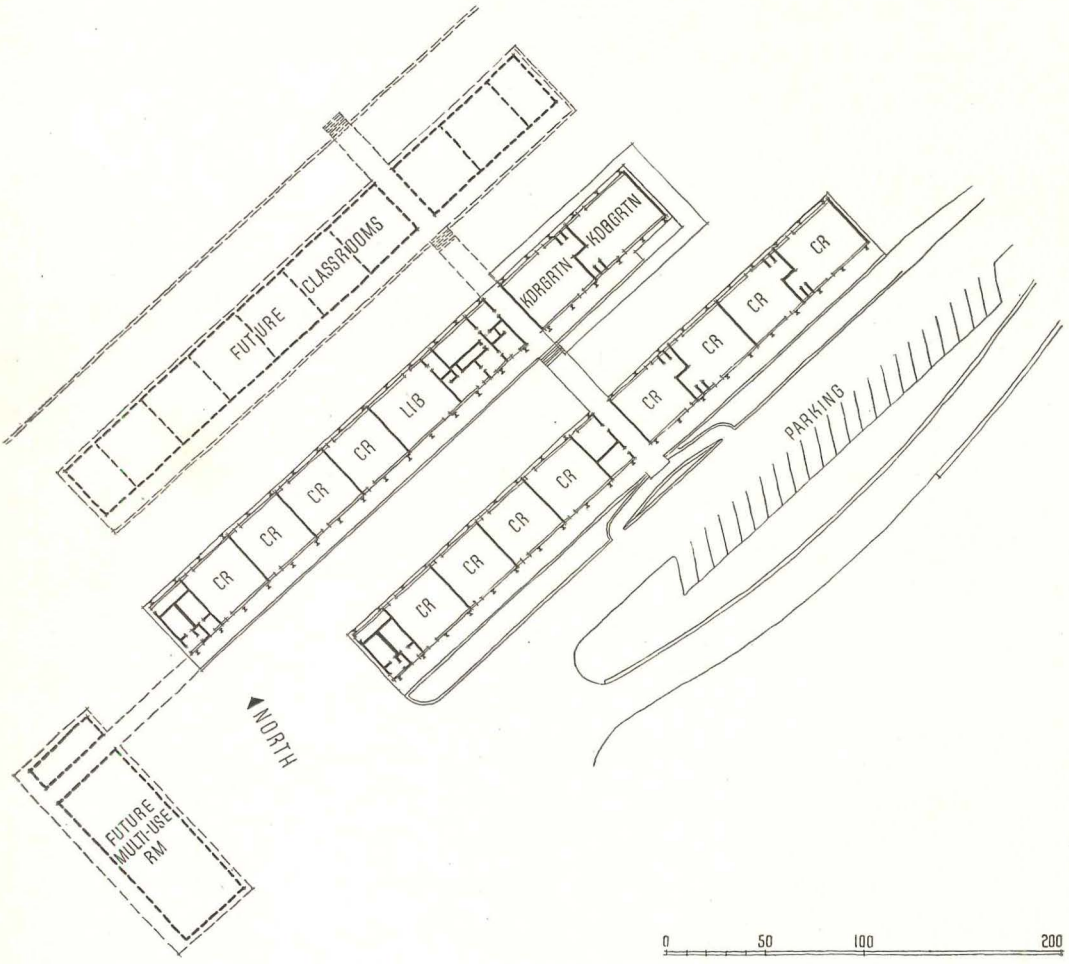






Harriman's cost studies extending over more than a year come to fruition in K-8 school (kindergarten and eight classrooms), which incorporates the basic findings and adds a wrinkle or two for good measure. The rigid steel frame, still not tested for cost, is occasioned by the deepening of the classrooms


COMPO. ROOFING
7/8" DIAG. SHEATHING
2"x12" RAFTERS 24" O.C.
TOP OF PLATE
2"x10"PL
2" INSULAT'N
10" WF 33
FIBERBOARD
TOP OF PL.
8'-3½"
FLUSH LIGHT
6" WF 20
12'-0"
3/8" PLYWOOD ON 3"x6" STUDS 4'-0" O.C.
11'-0"
PLYWOOD
7'-0"
6" WF 20
30'-0"
FIN CONC. FL.
REDWOOD SIDING
4" CONC. SLAB
FIN CONC. FL.
TYPICAL SECTION
0
5
10
15


FUTURE CLASSROOMS
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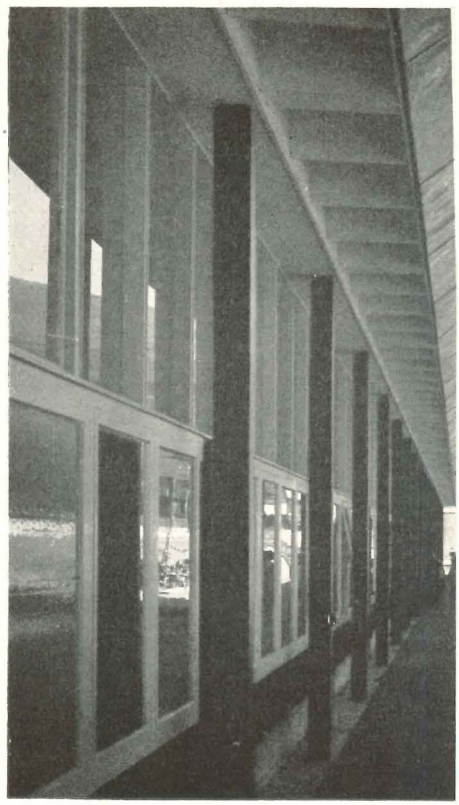
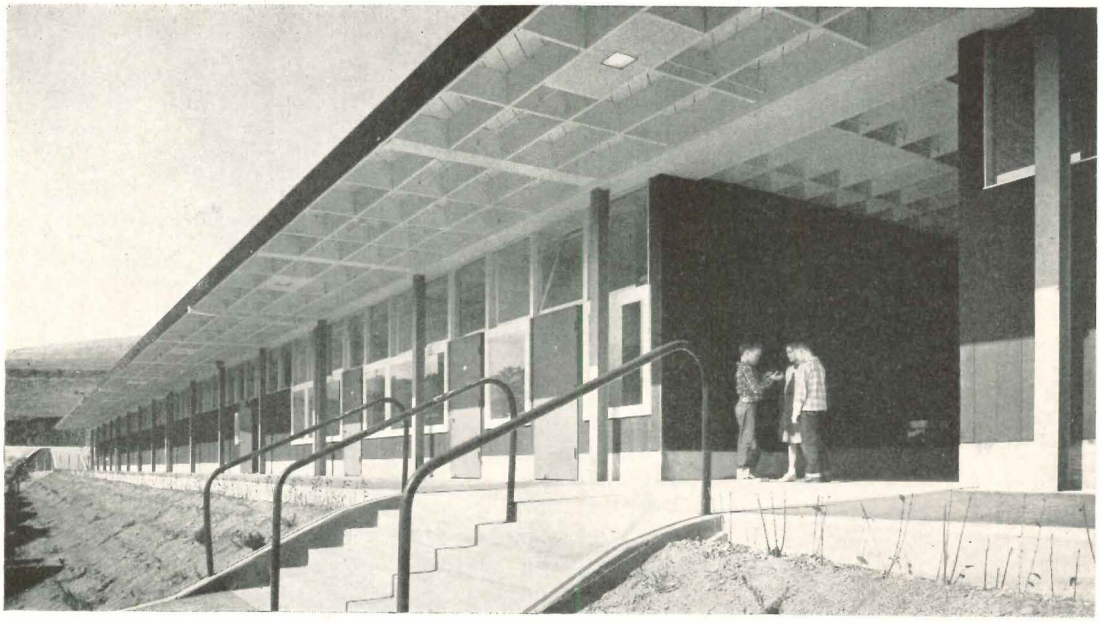
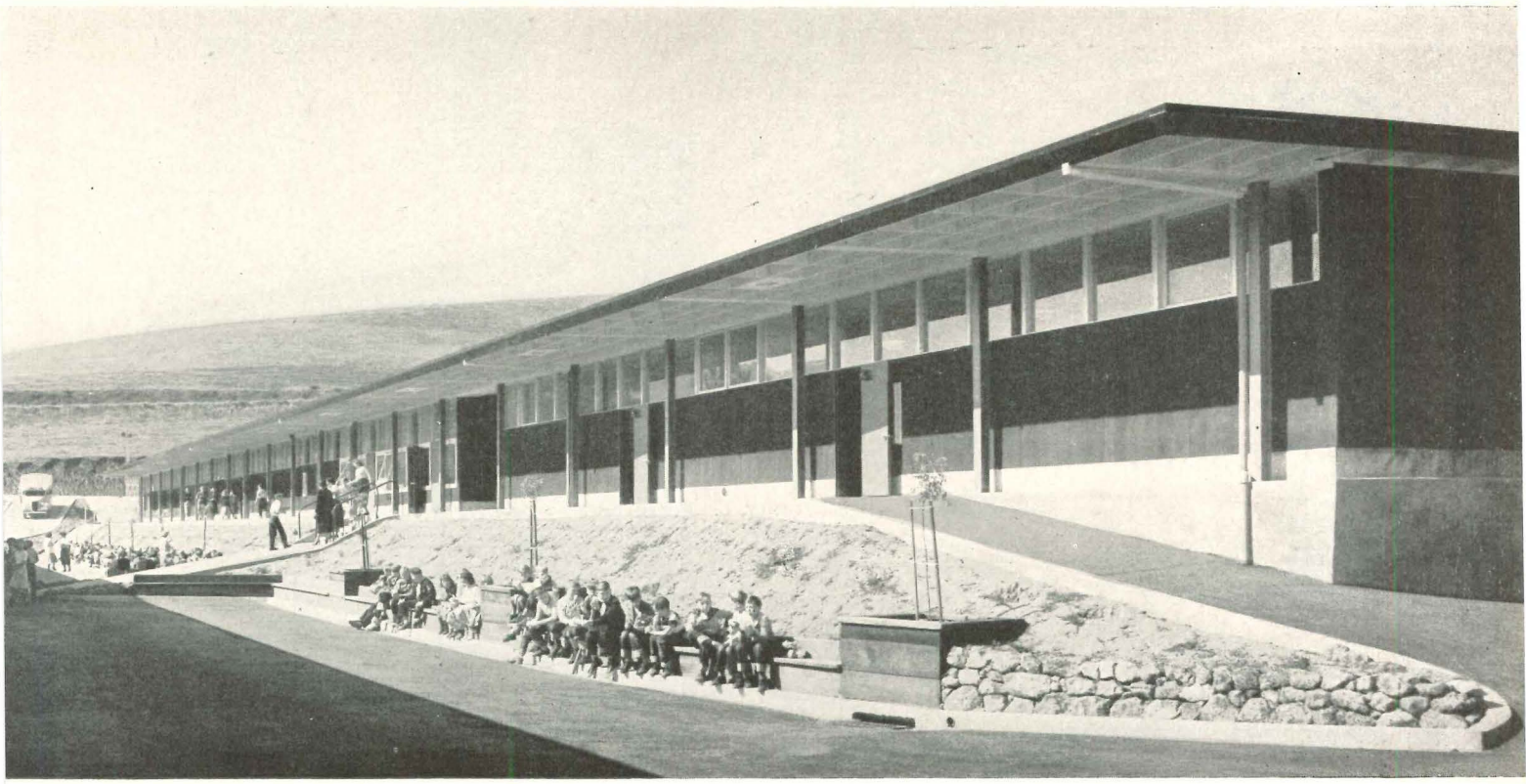




CUT THE COST BUT KEEP THE QUALITY

Arundel School, San Carlos, Cal.



Roger Sturtevant

Ernest J. Kump, Architect

Mark Falk, Engineer

OF THE low-cost group of schools out of the Kump & Falk office, Arundel is one of the most economical. In a chronological sense the true prototypes are Moorpark and San Tomas schools at Campbell, Cal. The schools in this group are all basically alike (photos pages 138, 9), but differ considerably in architectural aspects.

All are of the single-loaded-corridor, square classroom type, with bilateral lighting, without clerestory. All have a simple steel frame, with columns standing free of outside walls. The exterior walls become in effect partitions, placed just inside the columns. The frame is designed for simple, fast erection, and for most economical use of steel — no effort is made to fit the column spacing to the window or partition arrangement.

In general the schools in this group represent an expert paring down of dozens of items, preserving the functional quality of the school but choosing the least costly specifications. In working with school boards the Kump office stresses a thorough understanding of

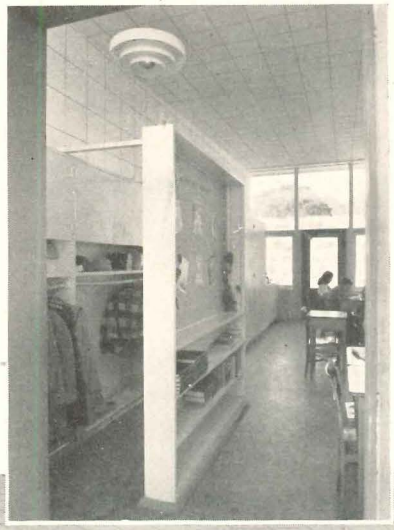
TYPICAL SCHOOL COST BREAKDOWN

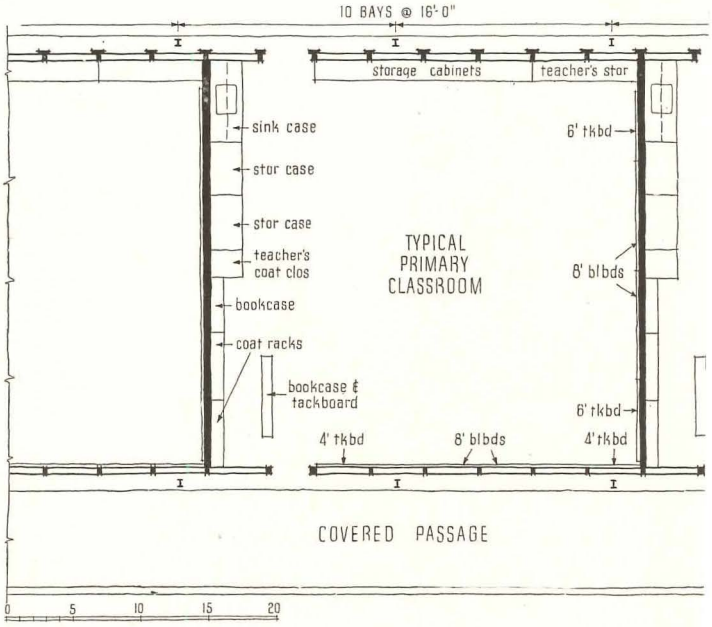
SHOREVIEW SCHOOL, SAN MATEO, CALIFORNIA

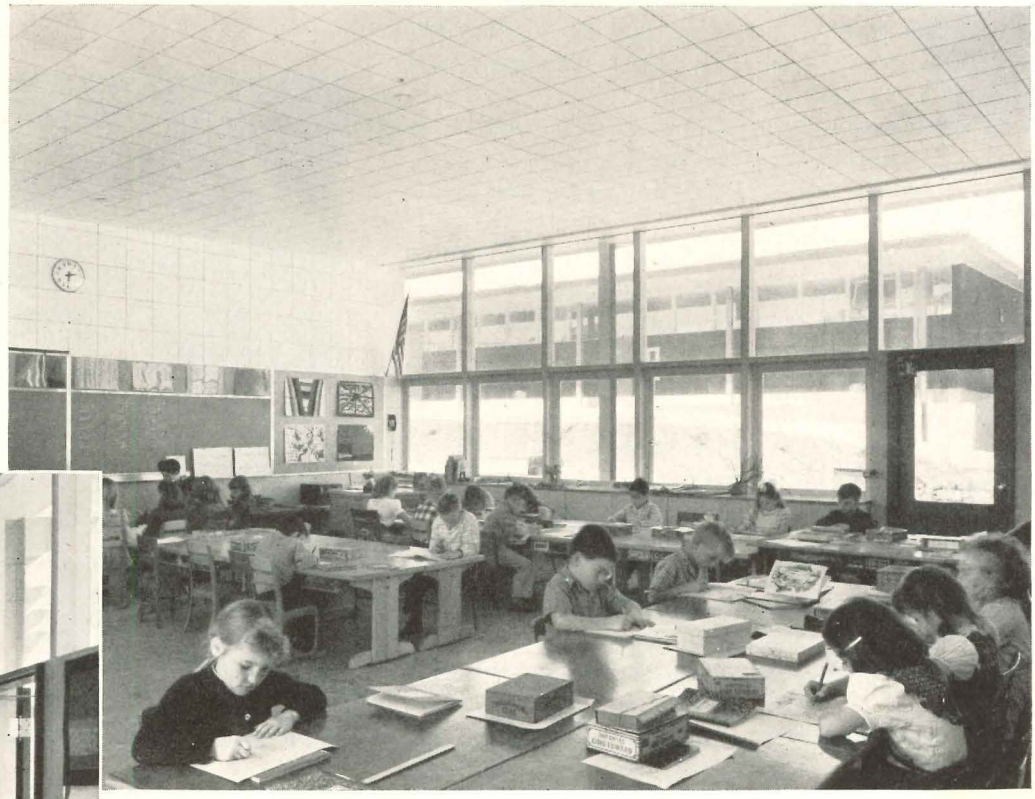
Ernest J. Kump, Architect & Mark Falk, Engineer

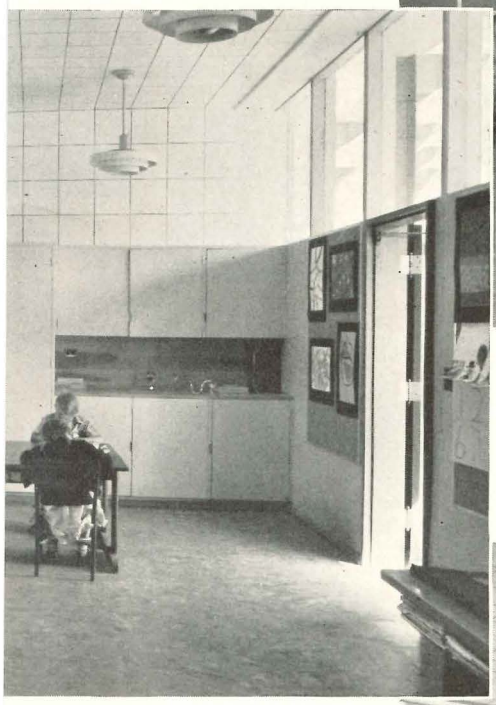
DIRECT COSTS		Per sq. ft.	
Move on and clear	$ 110.00	*	
Earthwork	2,250.00	$ .25	
Yard paving and grading & fencing	(17,980.00)	(1.95)	
Concrete and cement work	16,315.00	1.76	
Structural steel & misc. steel	8,250.00	.89	4.48
Carpentry, rough and framing	16,870.00	1.83	
Finish carpentry and hardware	7,075.00	.77	
Sheet metal	3,180.00	.34	
Steel sash	3,085.00	.33	
Roofing	4,180.00	.45	
Lathing & plastering	2,235.00	.24	
Glass and glazing	3,965.00	.43	
Metal stall partitions	1,260.00	.14	
Chalkboard and tackboard	4,840.00	.52	
Painting	2,985.00	.32	
Asphalt tile flooring	2,290.00	.25	
Insulation	60.00	*	
Bike racks	330.00	*	
Plumbing	5,810.00	.63	
Heating	7,845.00	.85	2.15
Electrical	6,110.00	.67	
Clean up and move off	460.00	*	
Miscellaneous*		.07	
TOTAL	$117,485.00	$12.69	
INDIRECT COSTS			
Office overhead, insurances, sales taxes, bonds, field overhead, superintendence and supervision	$12,635.00	$1.37	
PROFIT			
15% on labor and material	$ 6,350.00		
7½% on sub-contracts	5,635.00		
	$11,985.00	$1.30	
TOTAL	$142,105.00	$15.36	

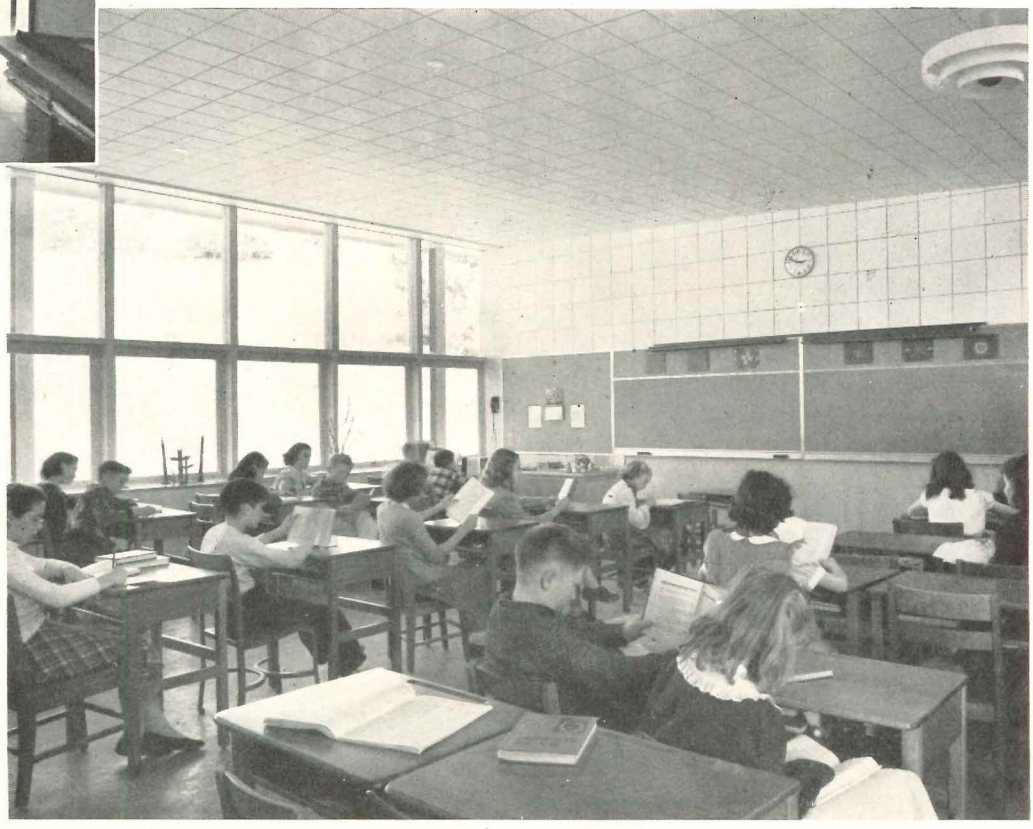
costs of both construction and equipment, not forgetting the items not subject to control — grading, for example, or foundations on a difficult site. The firm reports that much educational effort is frequently required, as lay citizens are inclined to think of the building shell itself as the costly thing, forgetting the many by-paths of a real search for savings. Kump's brief-case usually contains, therefore, a sheaf of cost data sheets, including actual cost breakdowns for finished schools, tabulated lists of specification items arranged by relative costs, and so on. One example is given above: a breakdown for the Shoreview school, San Mateo (ARCHITECTURAL RECORD, March, 1949). Notice, for example, that chalkboards and tackboards cost more









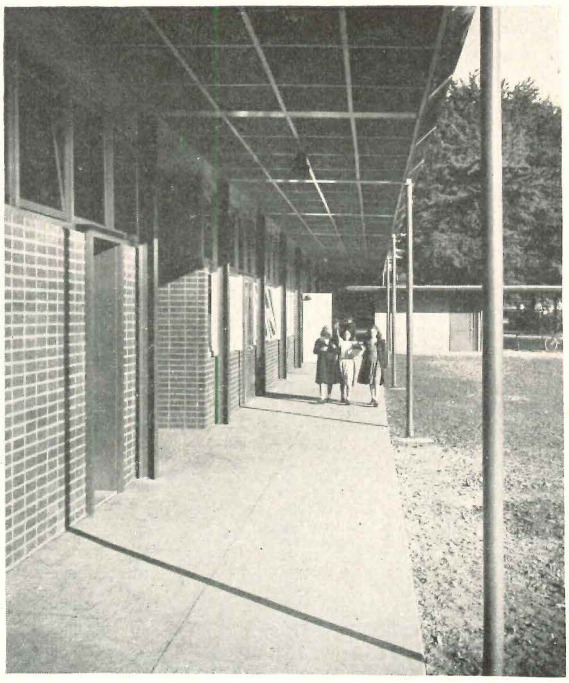


Roger Sturtevant

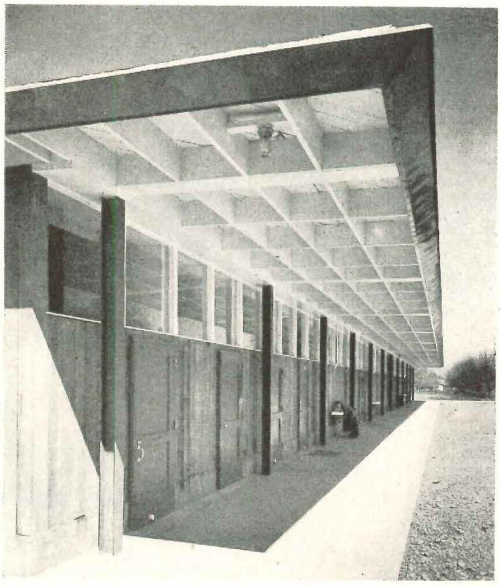
than half as much as structural steel, yard work twice as much as steel work and more than all rough carpentry. In fact yard work was the one most costly item. Indirect costs of overhead were the fourth largest item, followed by contractors' profits.

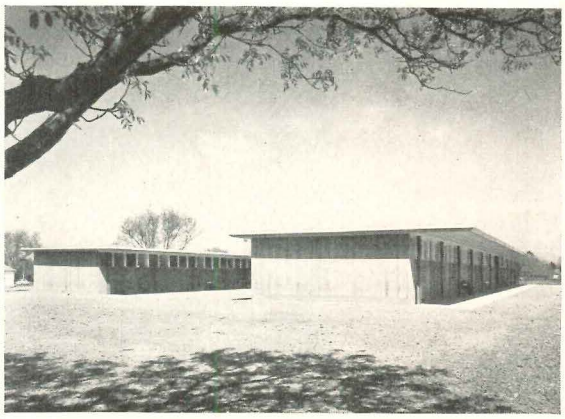
As for Arundel, the architects have compiled a list of ways in which costs were kept down:

1. No covers (roofs) over the cross-connecting corridors.
2. Underside of the corridor along the building is unfinished, exposed, painted structural timber.
3. Building has concrete slab on fill. There is no under-floor space.
4. Foundations largely on rock, low foundation design cost.
5. Exterior siding applied directly to studs. No sheathing underneath the siding.
6. Studs themselves form window mullions.
7. Less than one-half glass in operable sash. More than one-half glass fixed with stops to studs.
8. Interior finish all plywood.
9. Ceiling finished with fiberboard tile.
10. Less expensive grades and colors used for asphalt tile floor.
11. Conduits only for public address system.
12. "B" grade window glass double strength, rather than plate glass.
13. Wood sash.
14. Floor mounted toilets, rather than wall-hung.
15. Plaster finish in toilet rooms.
16. Cement floors in toilet rooms.
17. High ratio of usable classroom space to auxiliary space, efficiency in space planning.
18. Standby classroom lighting only. (Classrooms completely wired, but only one-third of the fixtures installed.)
19. Main cabinet work of Douglas fir, rather than of hardwoods.
20. No exterior stucco or brick.
21. Only one structural frame used throughout.
22. Asphalt concrete floor in exterior corridors, rather than cement.
23. No guttering, downspouts or rain leaders — simple drainage system.
24. Birch sink tops and splash backs.
25. Standardized pre-fabricated chalkboards and tackboards.
26. Flat, built-up roof.
27. Use of stain on redwood exterior finish.
28. Radiant floor panel heating.
29. Natural ventilation, no forced air system.
30. No expensive special rooms — cafeteria, music room, etc.
31. Playground equipment not included.
32. Readily available utilities.
33. Convenient location of job in relation to labor and material supply.
34. Mild climatic conditions; year-round construction; no insulation necessary in the exterior walls.



Below: Moorpark School, Campbell, Cal.

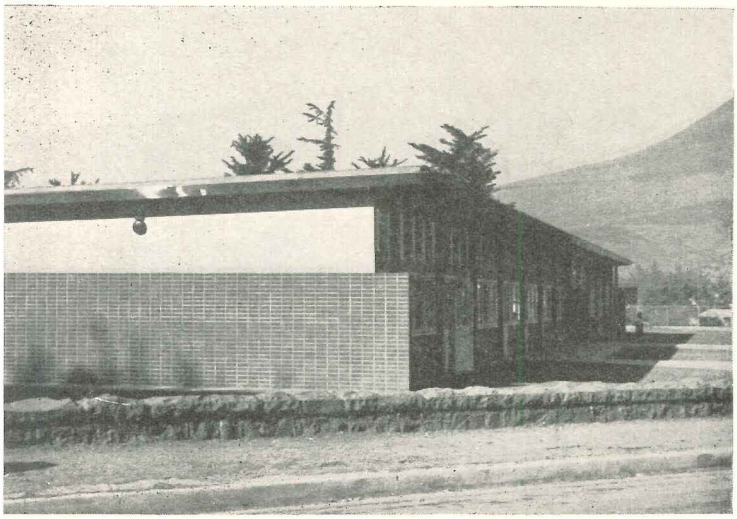


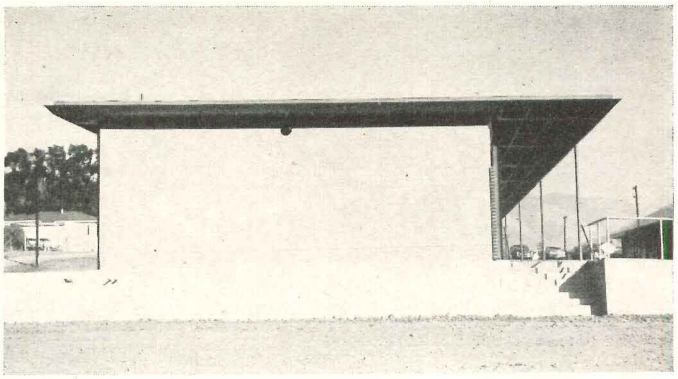


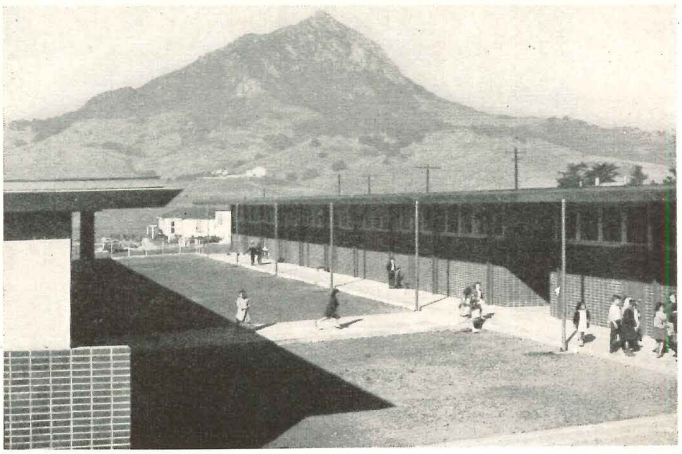
Skelton Studios

LOW-COST SCHOOLS

BY KUMP & FALK

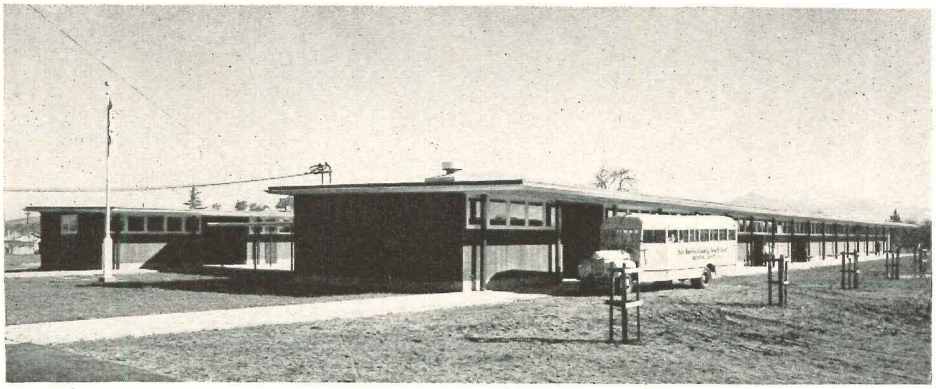






Above and left: Emerson School, San Luis Obispo, Cal.

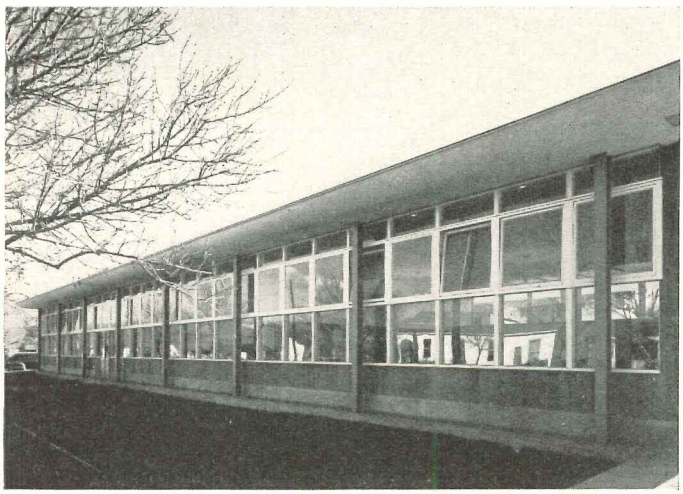
Right: Two views, Teach School, San Luis Obispo, Cal.

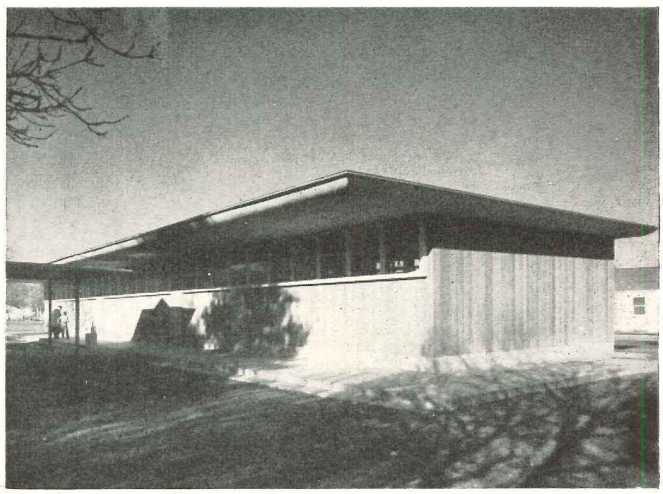


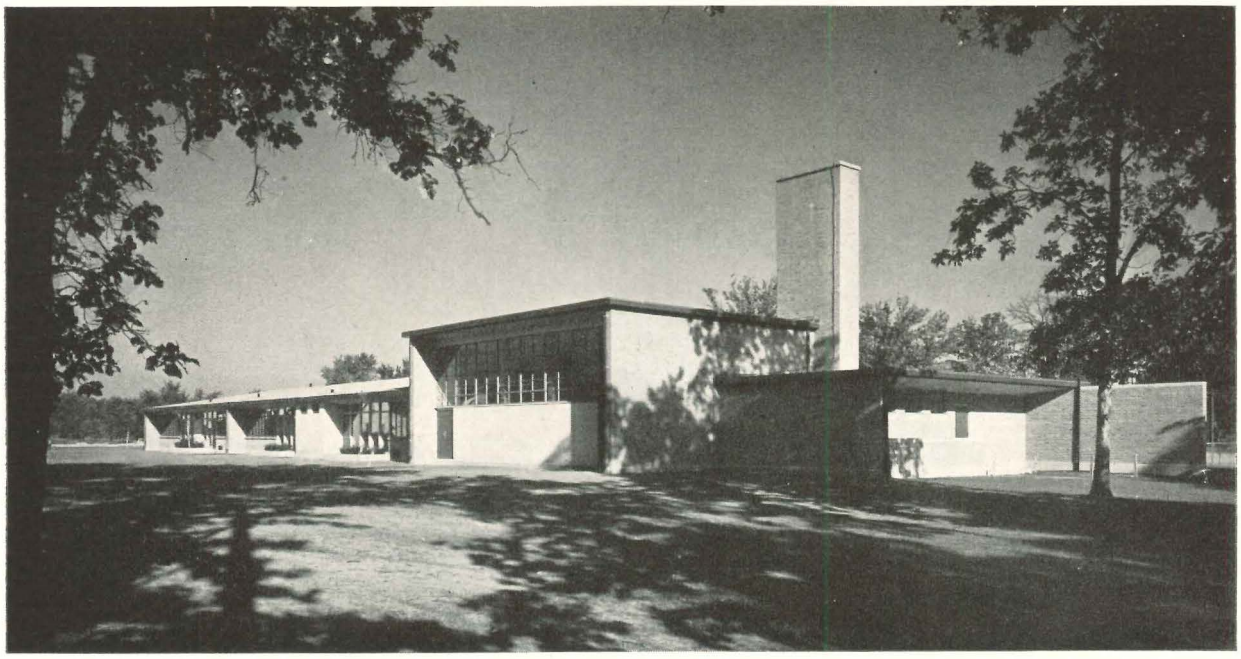
P. O. Hardin School, Hollister, Cal.

Below: two views of the Eliot School, Gilroy, Cal.

Skelton Studios





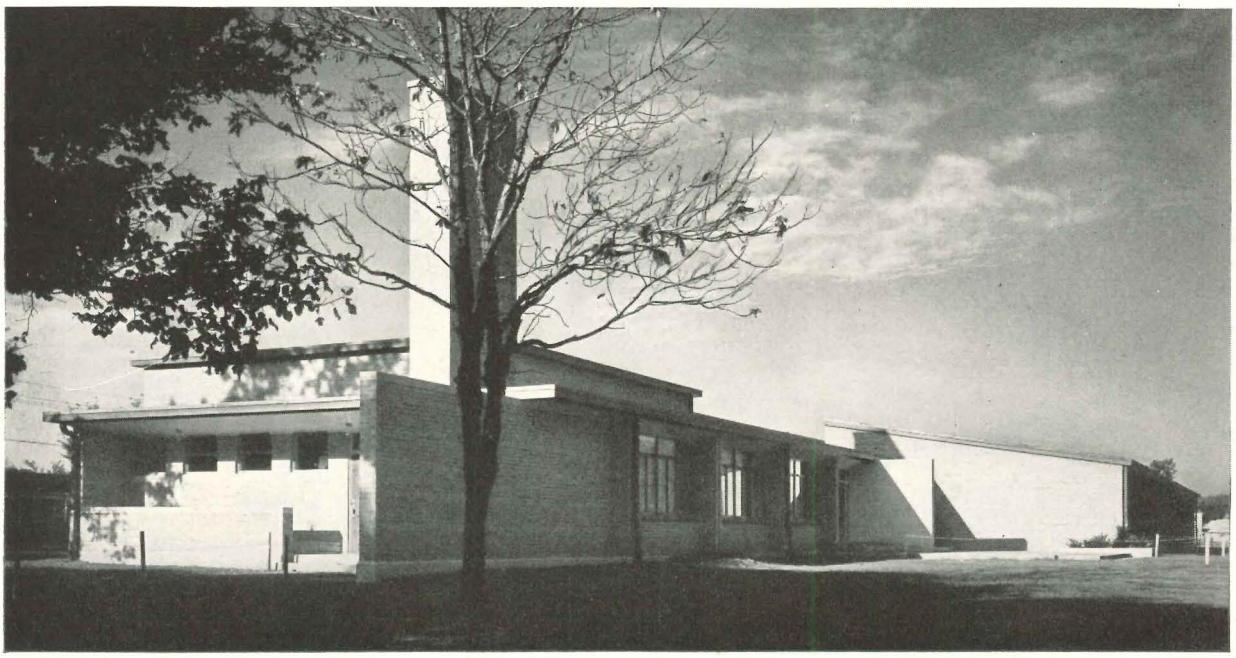


"MODEL FOR OUR LOW-COST SCHOOLS"

Deerfield Primary School, Deerfield, Ill.

Perkins & Will, Architects-Engineers

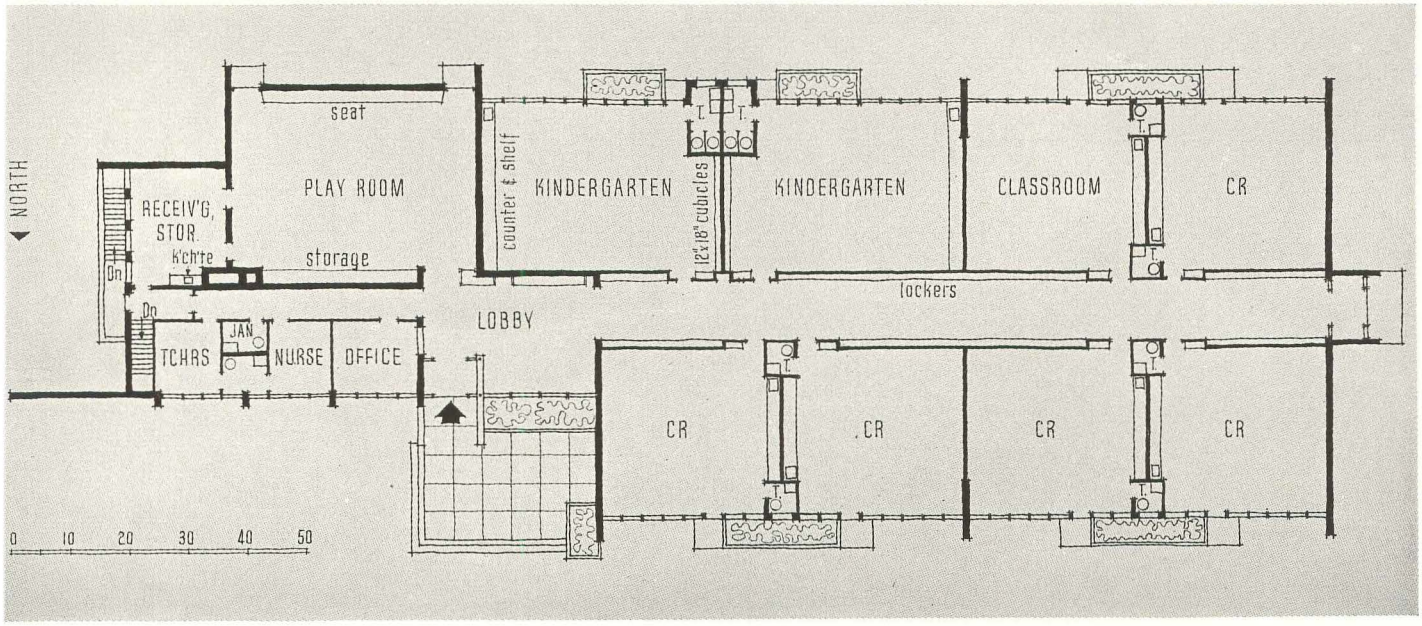
Hedrich-Blessing Studio



THE ARCHITECTS give this Deerfield school a prototype rating, for it will serve as the basic model for a great number of low-cost schools throughout the country. They do not, however, want it to be taken as a low-cost school of itself. It is rather the model for their low-cost schools.

Deerfield, bid in at the 1948 peak of building costs, ran to $15.88 a sq ft, or $1.22 per cu ft. It has some quality features — limestone trim, built-in window boxes, fire-resistant construction — which might not be considered necessary against a close budget.

Its prototype considerations lie in design features, not necessarily expensive, which represent the current Perkins & Will thought, breaking somewhat with other ideas. "We believe in sunlight, break sharply with the tendency to erect artificial barriers . . . and to reduce all color contrast in a classroom to a dull monotone."



Deerfield has floor-to-ceiling windows, for a feeling of spaciousness and for unity with outdoors, but its visors are relatively narrow. Deerfield uses much of the warm colors, even though brightness contrasts might not be just so. Painted concrete block and red brick interior partitions "broke sharply with the recent trend to insipid flat colors for 'visual comfort.' The psychological value of strong color accent and unrestrained warm sunlight is apparent."

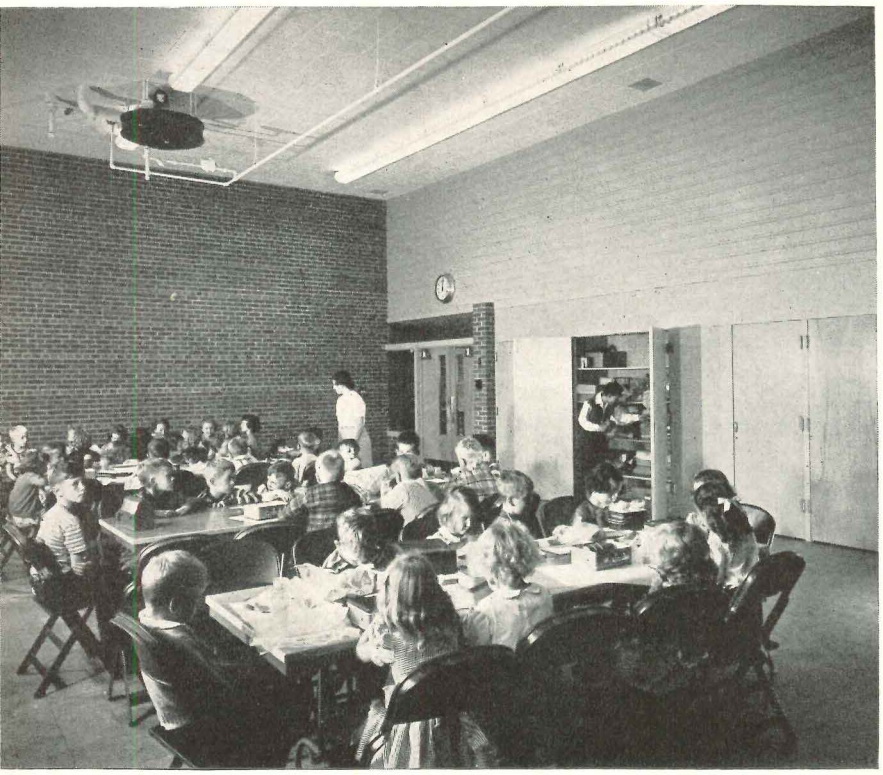
This school is bilaterally lighted, through clerestories over a double-loaded corridor. The double corridor scheme is an economy measure; calculations indicate it saves something more than 5 per cent over single corridor plans. This type of lighting, it is pointed out, helps keep the ceiling down to a child scale.

Square classrooms here are also current favorites of the architects. There is a long utility workbench, with

sink, which is a saver of space. It is found that children concentrating on work projects here seldom bother their classmates who are focussing on the chalkboard at the opposite side of the room. There is no space in the classroom for clothing, as this space is considered too usable. Deerfield uses lockers in the corridor.

In a school of this size (kindergarten and six grades) the playroom-cafeteria combination seems to work well, though the architects are quick to assert the difficulties of combining real gymnasium and auditorium needs. Here, with storage room readily accessible, teachers have become quite expert at quick changes in the multi-use room. Children at Deerfield bring their own lunches;

Hedrich-Blessing Studio

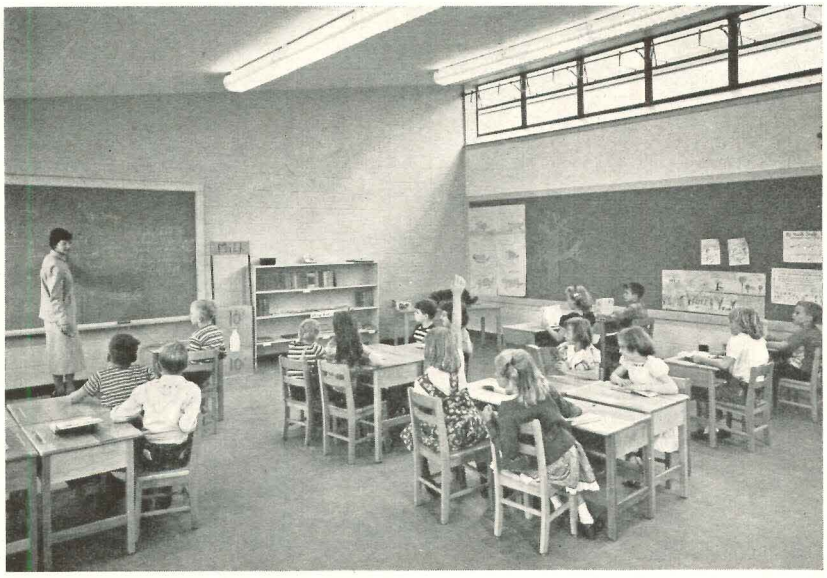


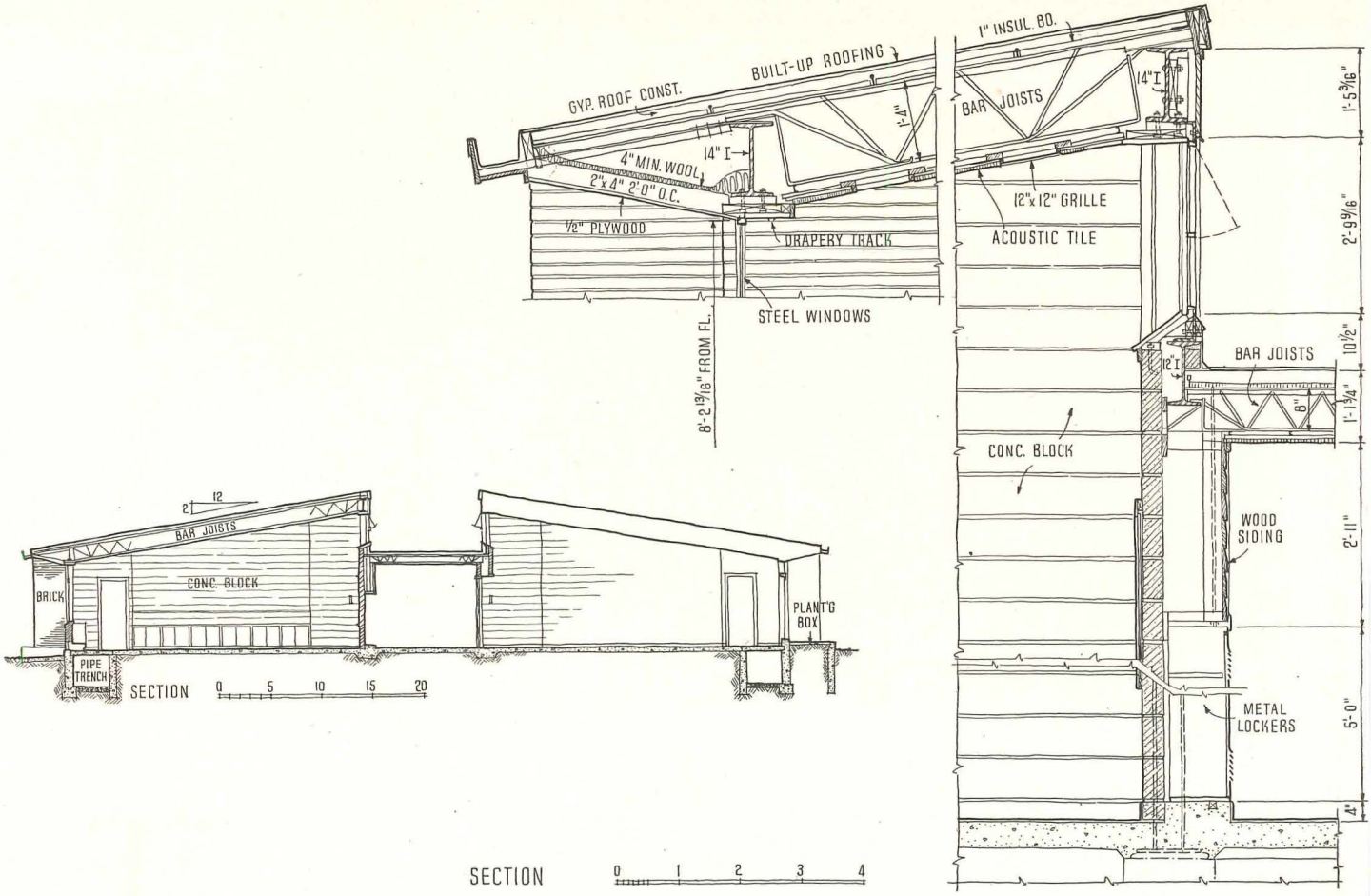
kitchen facilities are needed only for teachers' use, for serving milk and ice cream to children, or perhaps for small community gatherings.

Deerfield also stresses the outdoor classroom, and has large planting boxes for an additional tie between indoors and outdoors. The outdoor classroom rates high in the thinking that makes Deerfield a prototype school.

Many of its standards of construction could be cut down if necessary to meet budgetary requirements, but the basic elements that make this school a pattern are not essentially matters of costs. Its auxiliary spaces are about at the minimum. They would have to be enlarged considerably if, say, seventh and eighth grades were added in another program. Central toilets would be required, more sports facilities, and more serving facilities. The architects express the feeling, however, that for a "K-6" type of school, Deerfield represents their starting point for similar assignments.

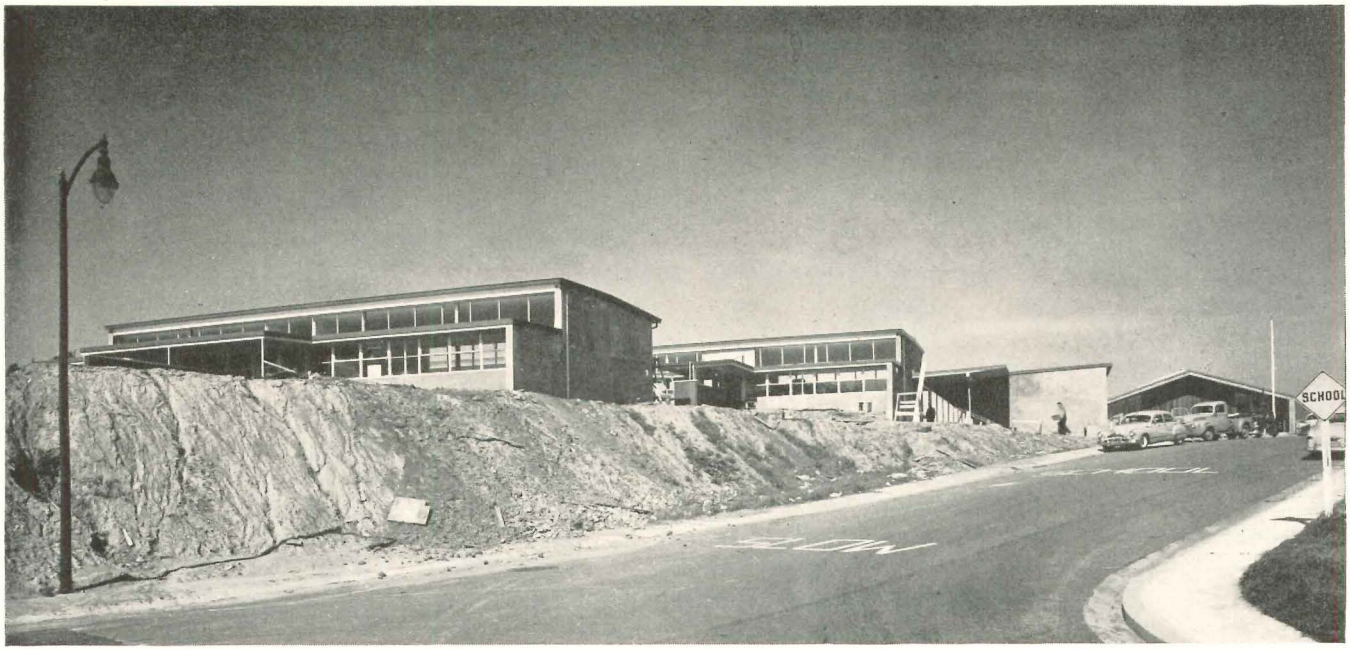
Typical classrooms at Deerfield have floor-to-ceiling windows in at least part of one side, clerestory over the corridor on the other. They have a long activity bench on one transverse wall (far right, center), chalkboard on the other, tackboard under the clerestory windows. Clothing is kept in corridor lockers, to keep wall space free





Clerestory lighting over a double-loaded corridor (details above) help keep ceilings down to child scale. Planting boxes join indoor and outdoor classrooms

Hedrich-Blessing Studio



Roger Sturtevant

DEEPER CLASSROOMS YIELD ECONOMIES

Buri-Buri Elementary School, South San Francisco, Cal.

Bamberger & Reid, Architects

THOUGH THIS school is here presented somewhat sketchily, being still unfinished, its economy ideas are worthy of immediate inclusion. Interestingly, Mr. Reid's pursuit of savings checks generally with some others in this study, but they were arrived at independently and applied differently.

Buri-Buri is one of four similar schools (others are Los Cerritos, Martin and Southwood-Brentwood) for South San Francisco, a suburban town whose population has tripled since before the war. Its square foot cost of $9.05 puts it in the low-cost class, but this figure includes a mechanical plant large enough for an expanded program, and thus does not truly measure its planning economy.

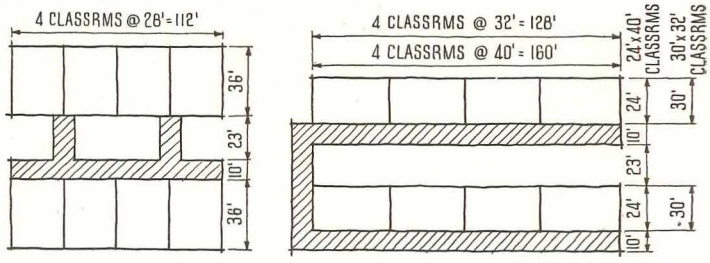
Most noteworthy of the economy ideas are:

1. Shortening outside wall by deepening classrooms.
2. An ingenious corridor scheme to save corridor cost.
3. Inexpensive framing for the increased depth.
4. Construction economy in general.
5. Multi-purpose room designed "for everything but midget auto racing," which slides its stage under the heater room.

Reid keeps to the daylight concept, with bilateral lighting and clerestory, and single loaded corridor, and manages it most economically.

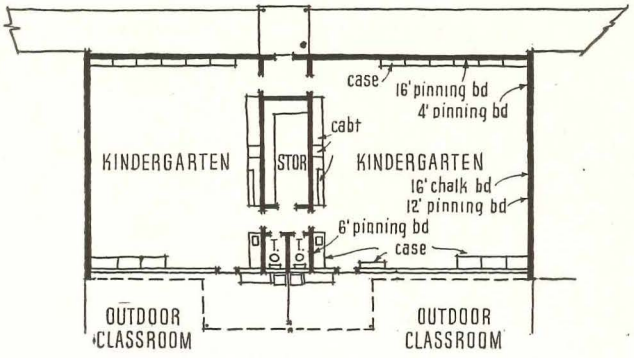
The classroom dimensions are 28 ft in "length" by 35 ft in depth. The 28 ft compares with 32 and 40 ft, both much used in California. The shortening of the outside wall is, then, quite considerable, a saving in window construction in both the outside walls and clerestory. There is a corresponding shortening of corridors.

Buri-Buri uses a single corridor for two rows of classrooms, with a short cross corridor to each two rooms in the second row (see diagram below). As the tabulation



	Buri-Buri	24x40 Classrooms	30x32 Classrooms
Total corridor length	158	387	331
Total areas* (sq ft)	9260	11550	10990
Bldg. area per pupil	38.6	47.9	45.8
Relative costs †	$76,653.	$87,015.	$84,481.
Bldg. cost per pupil	$319.	$363.	$352.

** All classrooms 960 sq ft; all corridors 10 ft wide.*
† Sq ft cost of Buri-Buri, $9.05 per sq ft, used for all corridors at half of bldg. cost.



shows, the saving amounts to from 52 to 60 per cent of total corridor length, a substantial cut in this non-productive space. Not indicated in the diagram is another idea — the corridor is not directly against the building; it is set out by the width of the roof overhang, to let light in for a slightly deeper window, and to simplify the structural system.

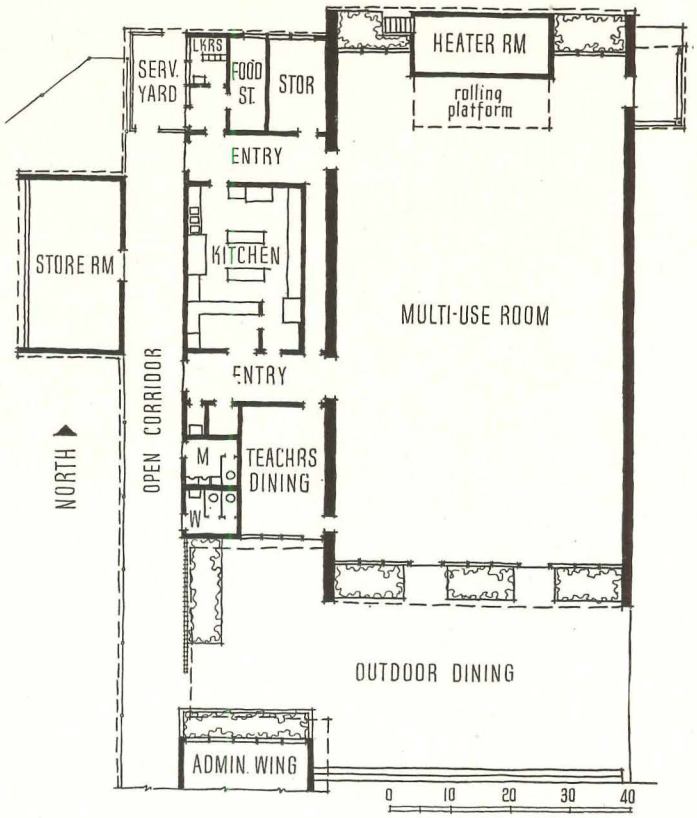
As for the structural system, the architect reports, "Our office has used lightweight steel joists and structural steel construction because we are fully convinced of its economy. The economy, however, is dependent on structural design. Our design uses a complete steel skeleton, which means that when foundations are prepared the steel may be erected without overlapping other crafts. The steel on this project required about two and a half days for erection, so that there is an economy in time as well as cost."

The multi-purpose room at Buri-Buri is exceptionally ambitious, with full kitchen facilities, rolling stage, fold-away tables, motion picture provisions. It is intended for heavy community use in a burgeoning town now almost without any recreational facilities. A cubage-saving idea was the elevation of the heater room to permit the stage to roll under it — the stage area adds nothing to the room dimensions.

Construction economy crops up in many details. Exterior siding is redwood, treated with a natural stain. Interior finish of classrooms is plywood, with a single cost of stained wax. Classroom cabinets and casework are movable; they are painted in different brilliant primary colors.

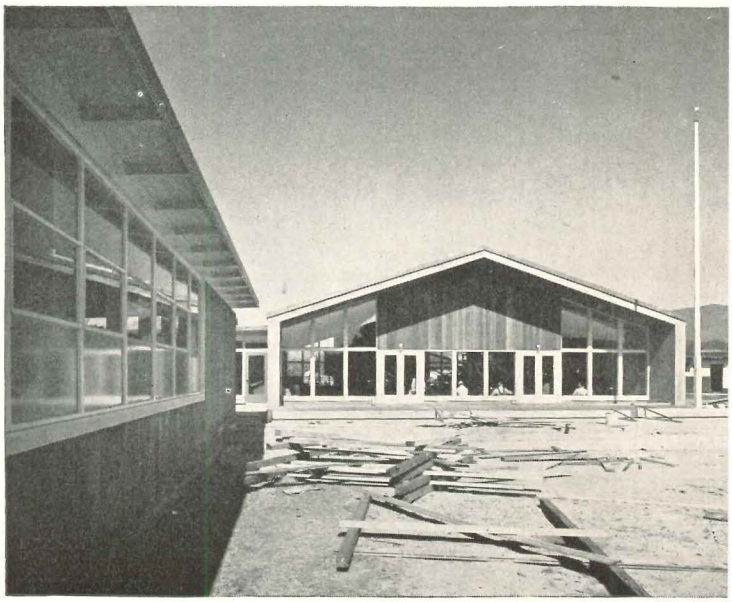
Radiant heating is used in classroom and office areas. Multi-purpose room has a warm air system providing both ventilation and separate control for night use.

Reid joins with some other architects (in this study) in allowing some sunlight to enter classrooms. Sunlight is kept out of study areas, however, by louvers in the clerestory and visors over other windows. Clerestory louvers are of stainless steel. Simplicity of design kept them quite inexpensive ($1.20 per sq ft of vertical surface), and the stainless steel has zero maintenance cost. Glare reducing glass is used in lower panes of north windows, to eliminate brightness contrast between north sky and chalkboards. Outdoor classrooms are located to the south, for full sunlight and for protection against the chill winds of the San Francisco climate.

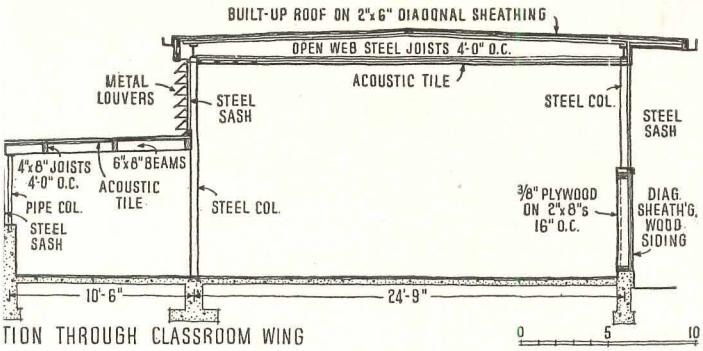


Multi-purpose room is a separate building, really a community building, with full kitchen facilities. It serves a fast-growing community, where recreational facilities are needed as badly as schools

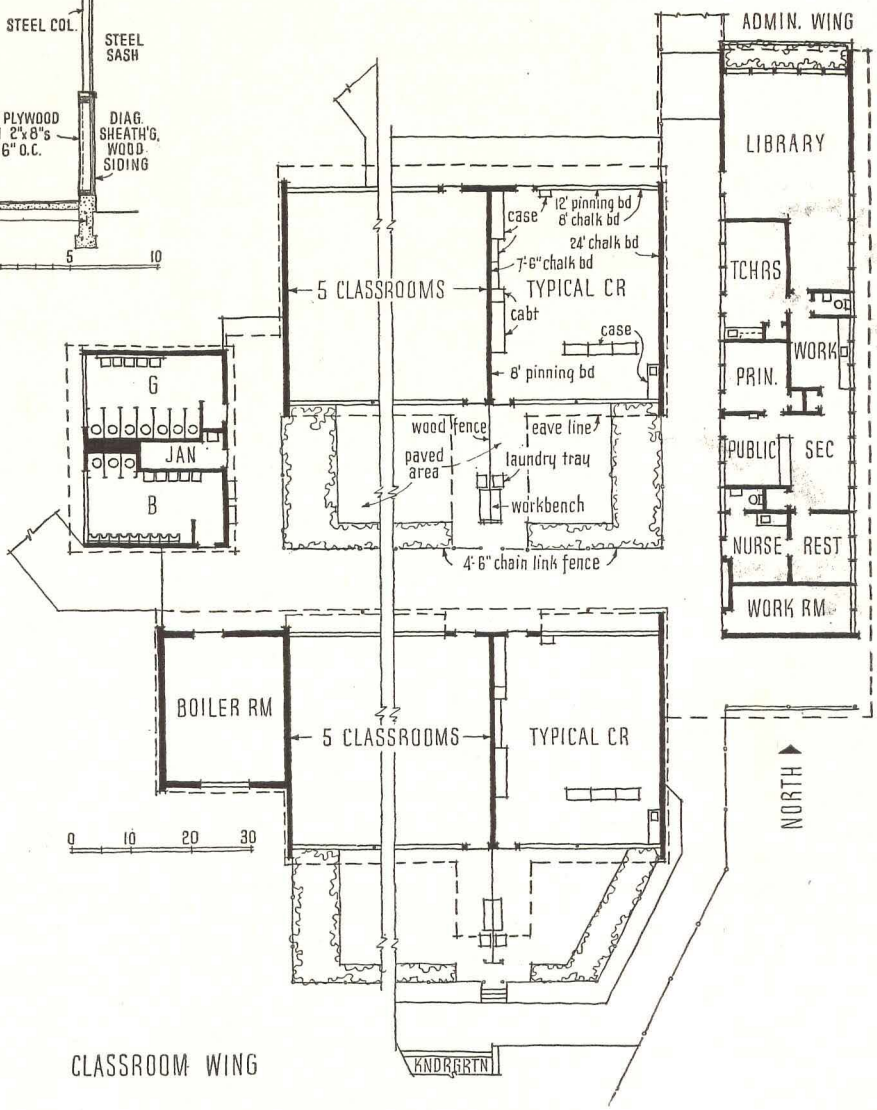
Exterior of multi-purpose room (under construction)



Roger Sturtevant



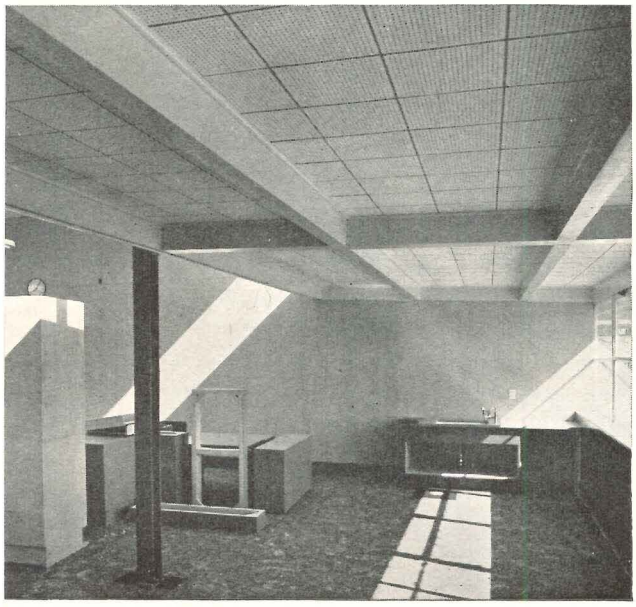
TION THROUGH CLASSROOM WING



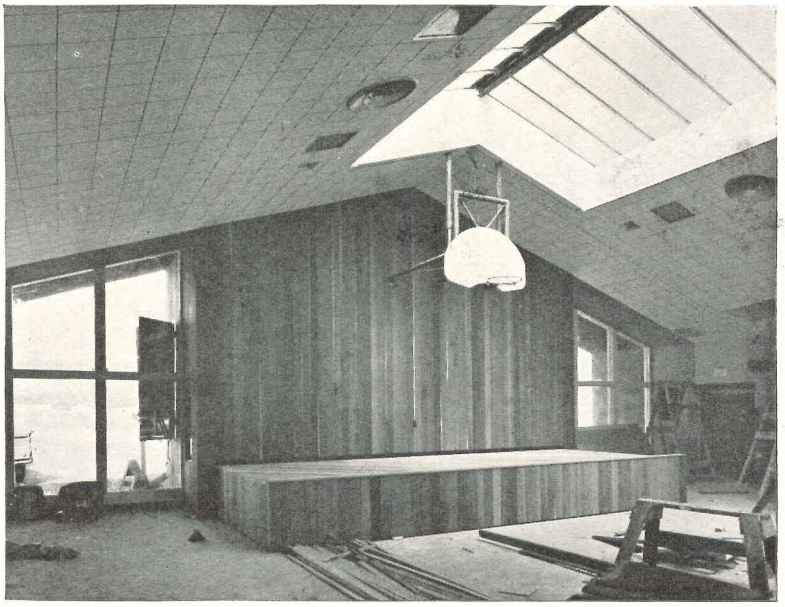
CLASSROOM WING

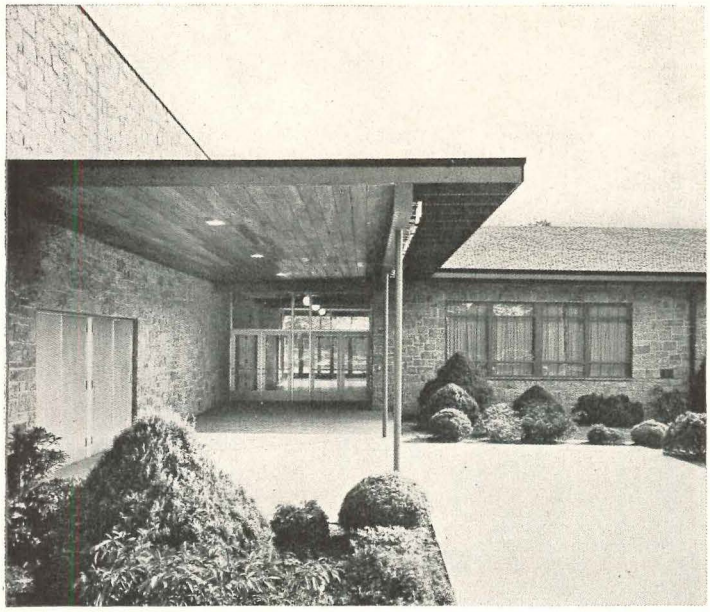
Plan shows total program for Buri-Buri; for the present only one classroom wing has been built; kindergarten, administration wing and community building ready for full program

Classroom interior, in almost-complete stage



Stage in multi-purpose room rolls under raised heater room





PROTOTYPE FOR A QUALITY SCHOOL

Transfiguration School, Tarrytown, N. Y.

Robert A. Green, Architect

ALTHOUGH not necessarily a "prototype" in the sense that it will be duplicated, this school is the direct result of a pilot search for design economy in schools for the current crop of elementary school youngsters. The Archdiocese of New York picked a test location, and deliberately chose an architect who had already been working along economy lines.

The bid figures were such pleasant news that the final plans were revised upward, not downward.

The program did not call for a minimum school, but rather for a maximum effort at eliminating the extras in the cost figures. Stone facing and slate roof, for example, could have been left off. And the school is well equipped, including such items as stainless steel kitchen work surfaces. The contract cost of the building was $252,800, or 71¢ a cubic foot. The Archdiocese figures this to represent "a saving of 33 per cent in comparison with the typical type of school construction."

The architect's early precepts are given thus:

"1. Eliminate the costly architectural embellishments.

"2. Eliminate all plastering and as much millwork as possible — two costly trades.

"3. Use an inexpensive yet quickly constructed frame.

"4. Standardize wherever possible — i.e., one type of door for all interior openings, one type of exterior window for all rooms, etc.

"5. Finally, the design and construction should be such as to blend harmoniously with the adjacent properties and, while low-cost was the watchword, we could not make the basic mistake of developing a unit which would be apt to disintegrate or be costly to maintain as it grew older."

The architect added a further principle to his list, one he reports to have been quite effective in this school. That is to design for the contractor, for fast construction. Don't be afraid to ask a contractor for pointers. The stonework here, for example, is actually an added veneer. It would be nice to think of it as sharing the structural load, but it doesn't; it was put on later than the concrete block, because that was cheaper.

The building was designed as a wall-bearing structure of hollow, textured concrete blocks (expanded slag is the coarse aggregate), with interior face exposed as the classroom wall. Corridor walls use the same blocks, with glass block borrowed lights, all unplastered and unpainted.

The floor system uses filler blocks with precast concrete joists, 11 ft. 6 in. in length, bearing on the block at outside bearing walls, and on 14-in. I-beams at the center of the classroom and corridor bearing walls.

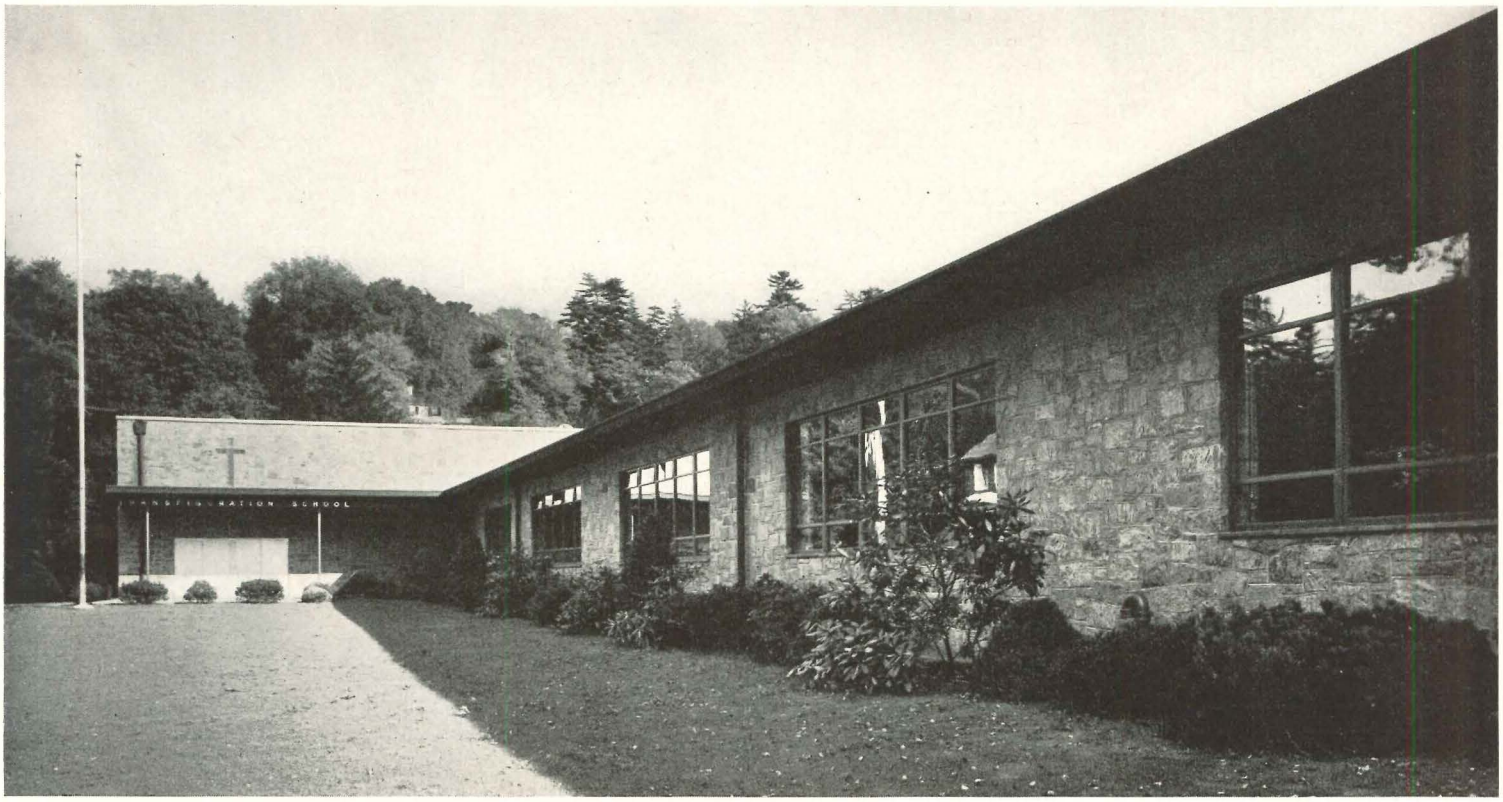
Wooden roof trusses (1 to 3 pitch) also made for simple, fast construction. Wood furring strips were attached directly to the trusses, for 12 by 12 in. acoustical tile. All electrical conduit is run in this attic space, to save cutting into concrete blocks. Lighting fixtures for all classrooms are concentric ring, incandescents.

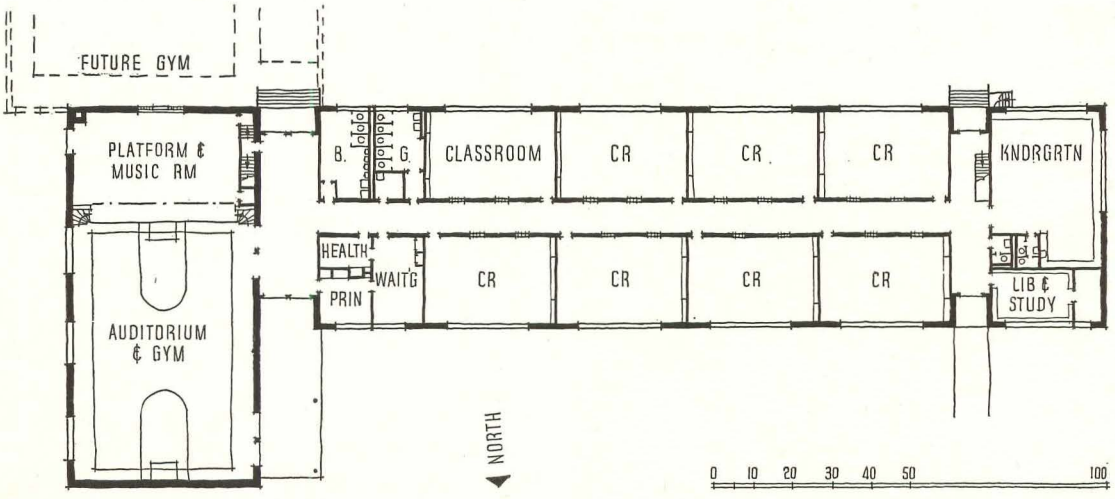
It was early decided that there would be no attempt at sufficient daylighting for full normal needs. The archi-

tect explains that complicated framing for clerestory lighting and large window areas would not be possible with the simple construction system that was sought.

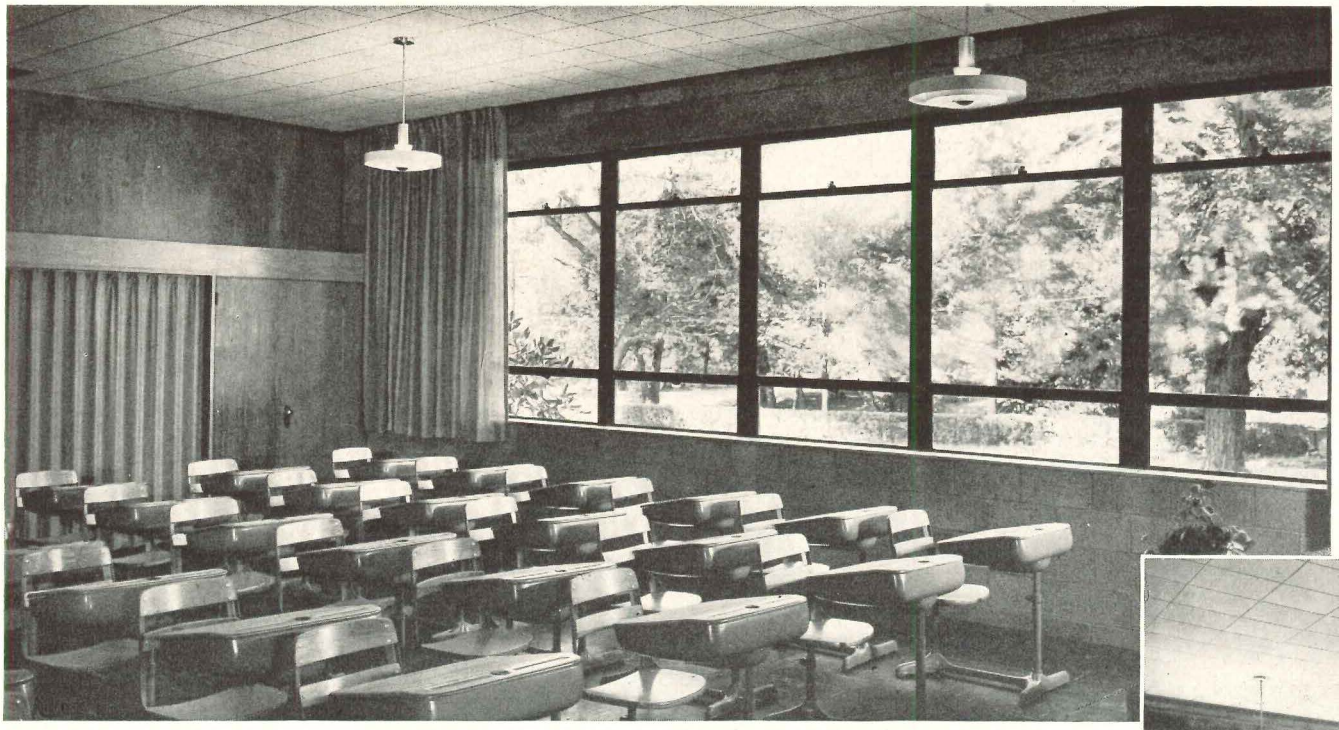
The New York Archdiocese shows every sign of great pride in this school, and it is constantly visited by representatives of other parishes. The Archdiocese is watching it closely in operating, and will continue to use it for study.

James Vincent

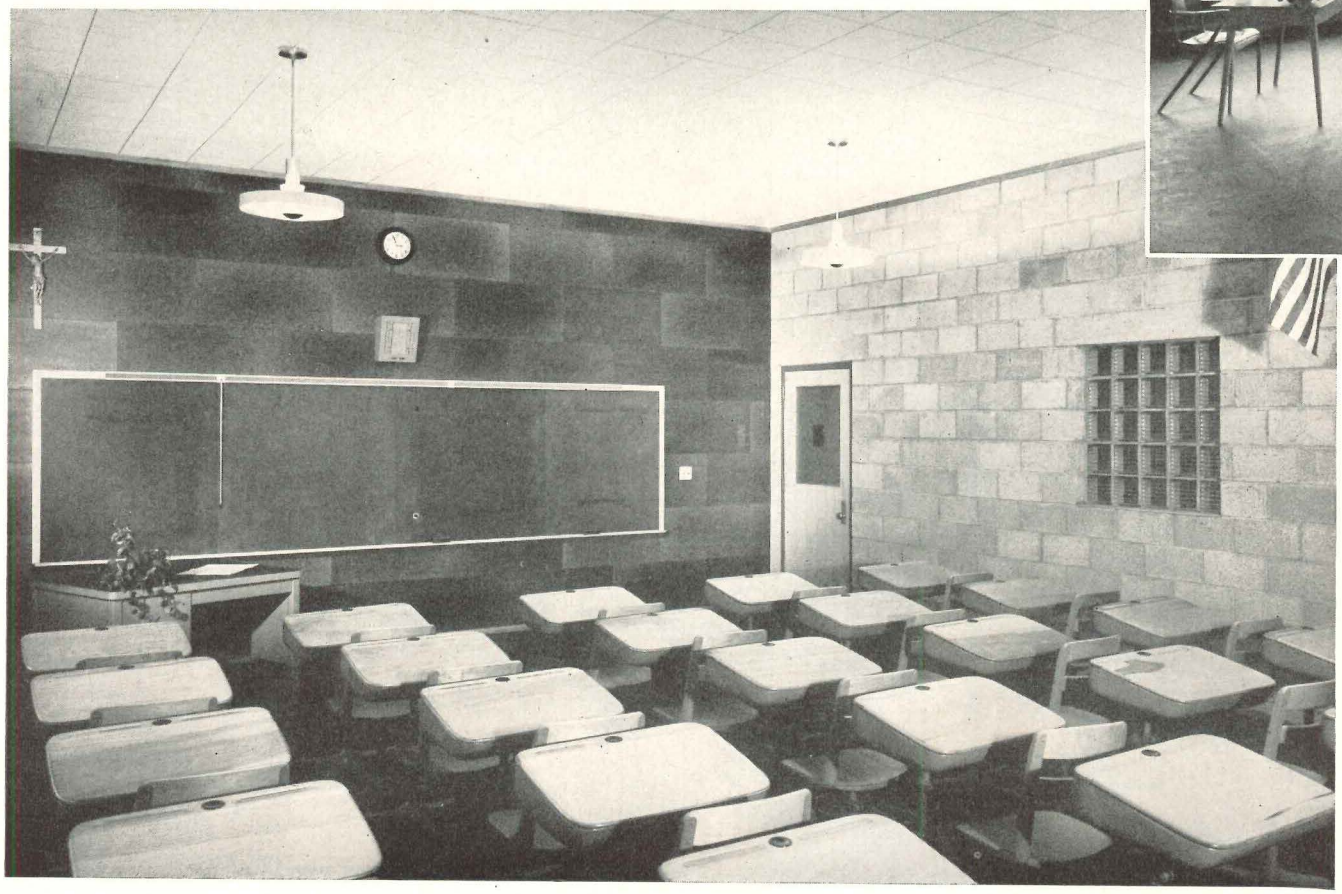




There is basement space under auditorium stage for boiler room and locker room, under kindergarten for kitchen and cafeteria

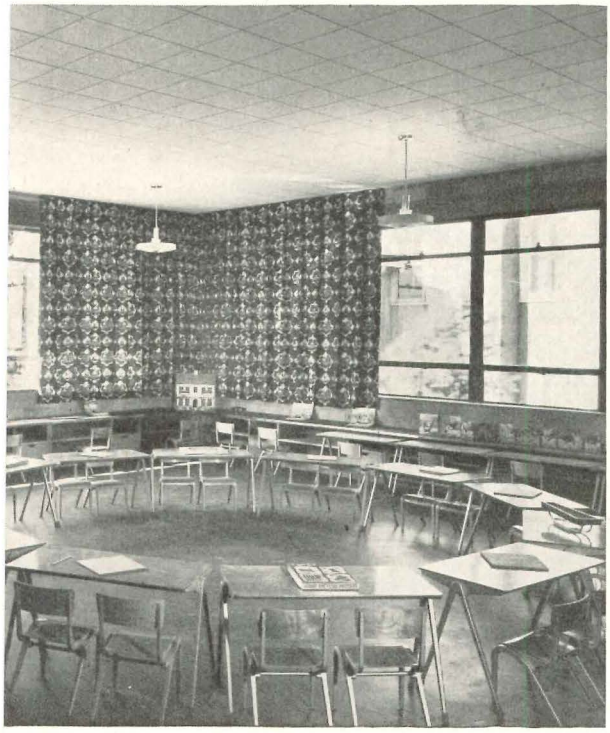


Classrooms have more warmth and color than the camera can show. Corkboard front wall (below) is quite warm in tone, as is also the plywood finish of rear wall (above). The fold door in rear wall screens wardrobe; teacher's cabinets on either side. While windows are designed for a very open outlook, they are not relied on for full lighting



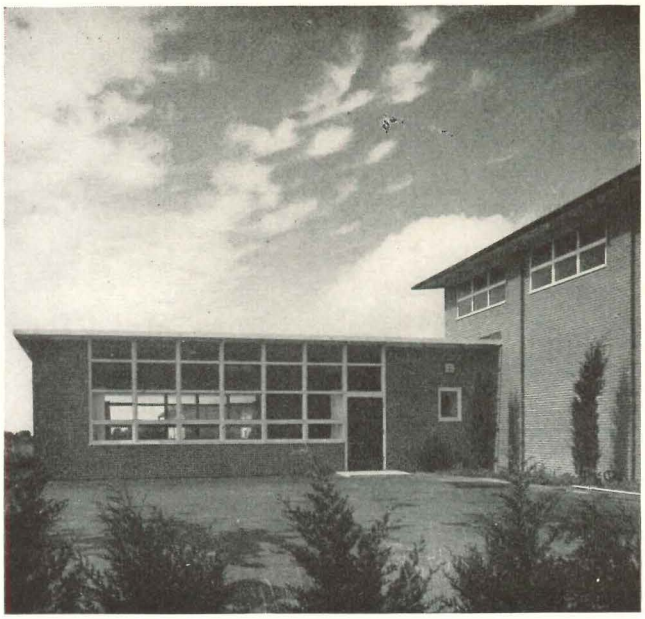
Transfiguration School uses combination gymnasium-auditorium for the present, but plans call for separate, larger gym at a later stage. Space under stage stores seats. Partial basement under stage contains boiler room and locker room with showers. Heating here, as throughout, is radiant system in floor slab

James Vincent



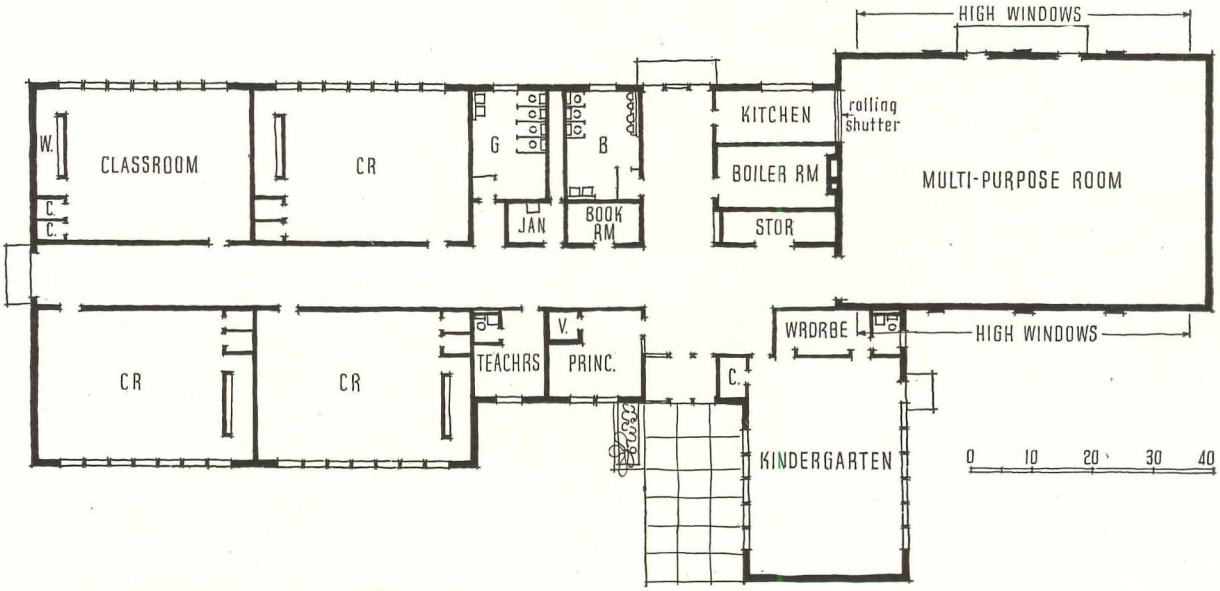
Kindergarten (above) is open to south and west, with highly colorful drapes for sun control. Open shelving clear around the room provides plenty of storage space. Waiting room (right center) also serves as Sisters' lounge, is served by a small kitchenette. Cafeteria (right) is completely unfinished, except for a few striking color accents. This room is served by a complete kitchen

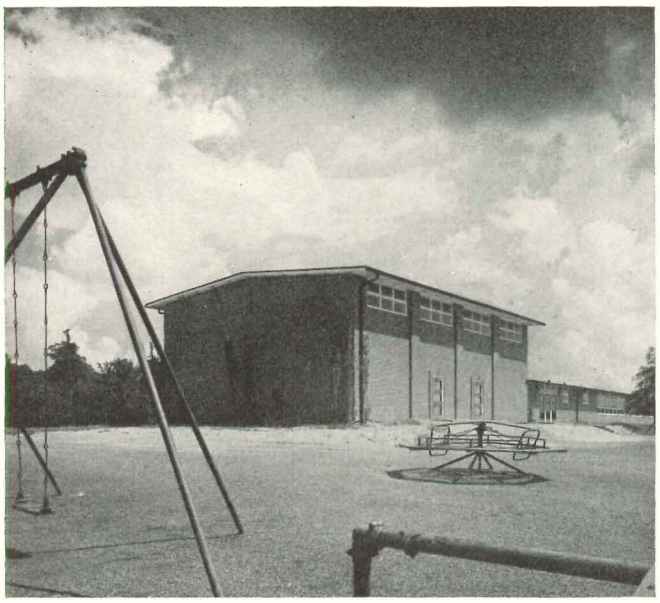
TYPICAL SCHOOL BUILT



Lawrence

A TYPICAL school type, for a typical school situation, this one was done for non-typical costs. It represents the consolidation of three one-room schools in a fast-growing community. It begins existence with but four classrooms, but with kindergarten, multi-purpose room and mechanical plant ready for the addition of four more, altogether a typical beginning. It runs to a familiar design pattern of double-loaded corridor, with bilateral lighting via a dropped corridor height.





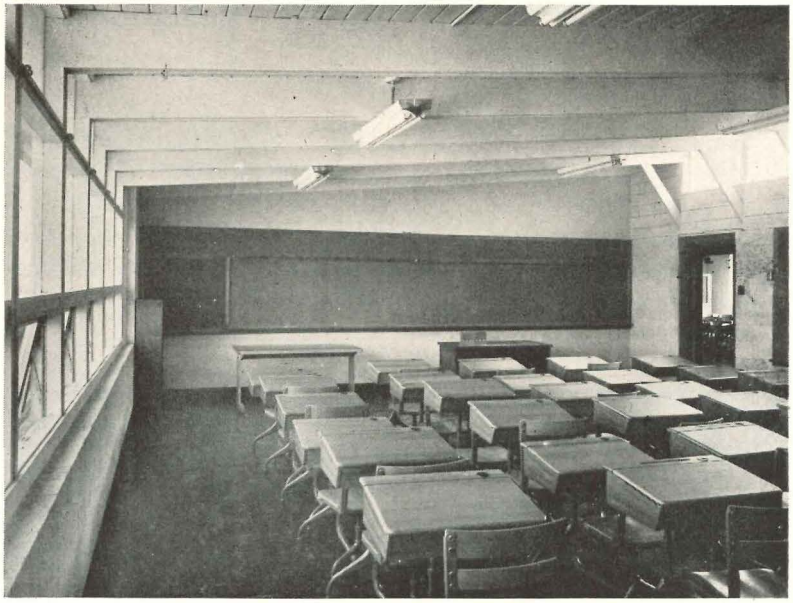
The pattern of costs, however, is more distinctive. Total cost of building was $90,951; 63¢ per cu ft; $8.00 per sq ft; $519 per pupil.

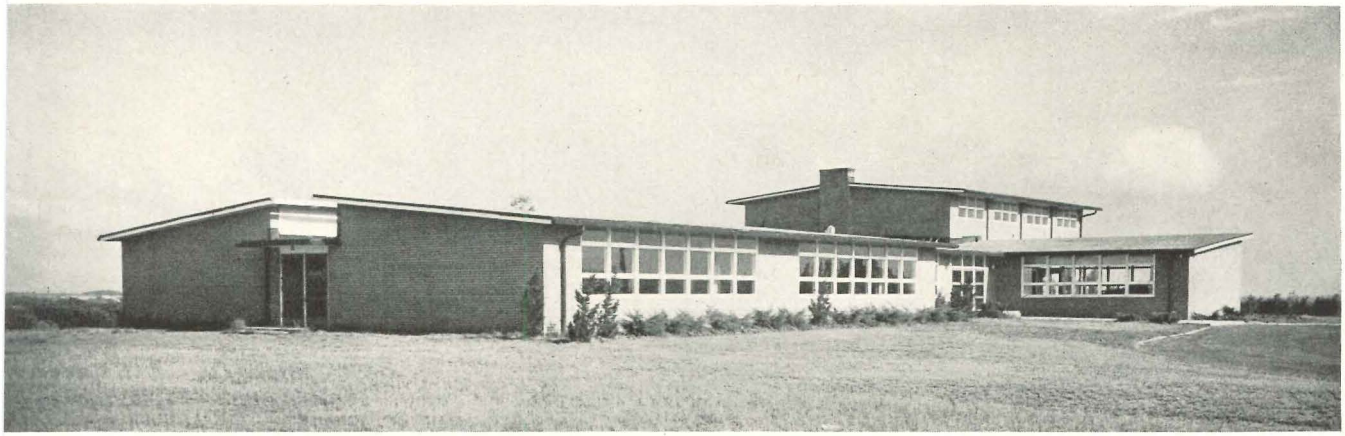
The building is constructed of a local red shale brick with concrete block backing, the block exposed on the interior. Roof construction is a built-up roof over 1-in. glass insulation board and 2 by 6 tongue and groove sheathing, which forms the ceiling. Floors are asphalt tile over a concrete slab on grade. Radiant heat was used. The site is particularly good — five acres on a superhighway location in rural surroundings.

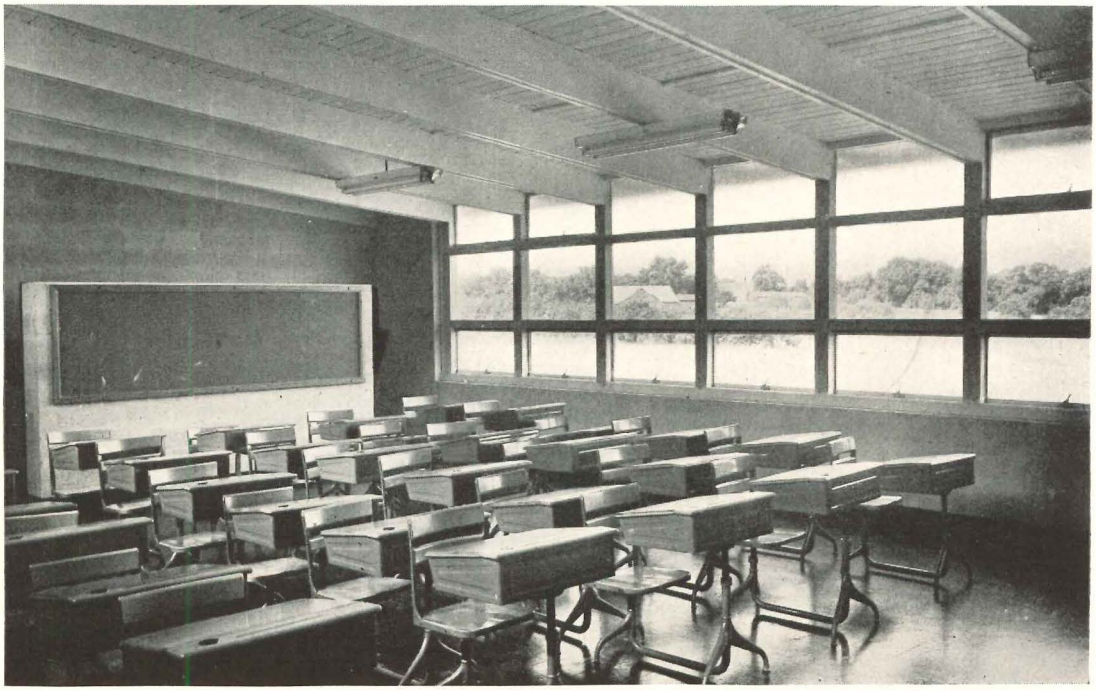
AT LOW COST

Mason Ridge School,
St. Louis County, Mo.

Wischmeyer & Lorenz, Architects

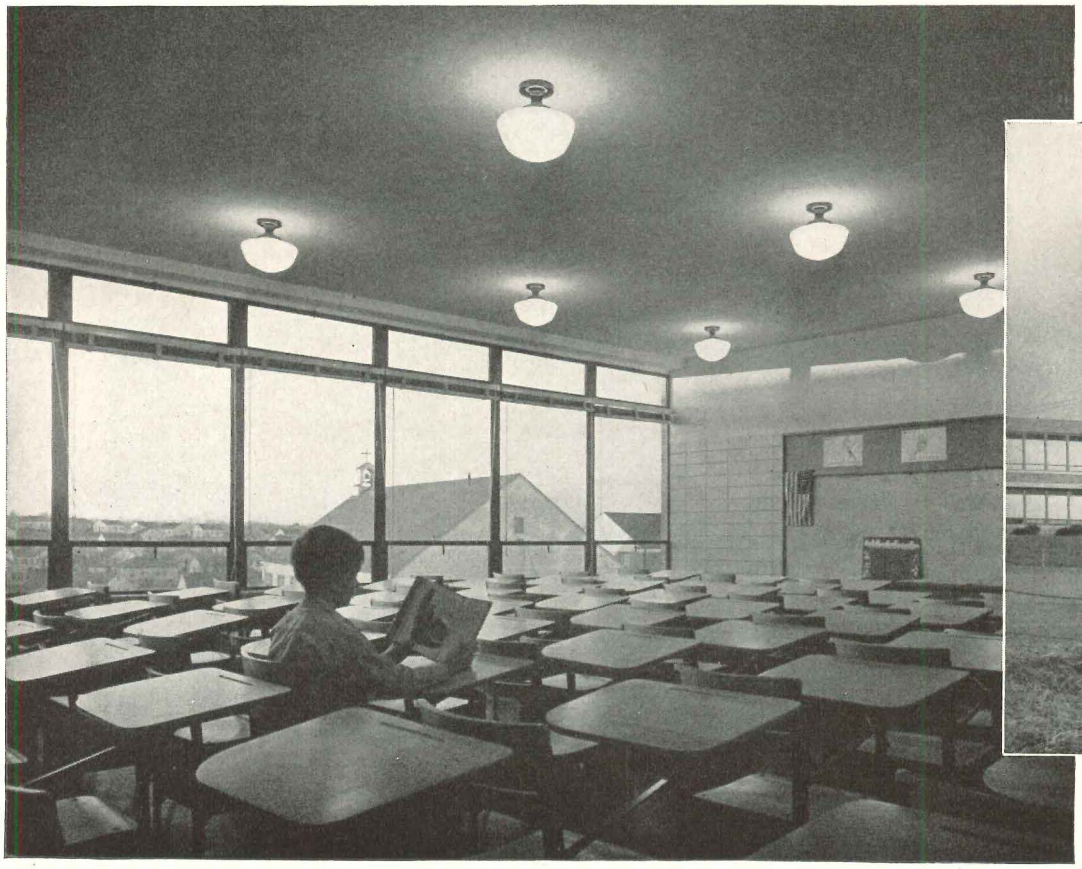


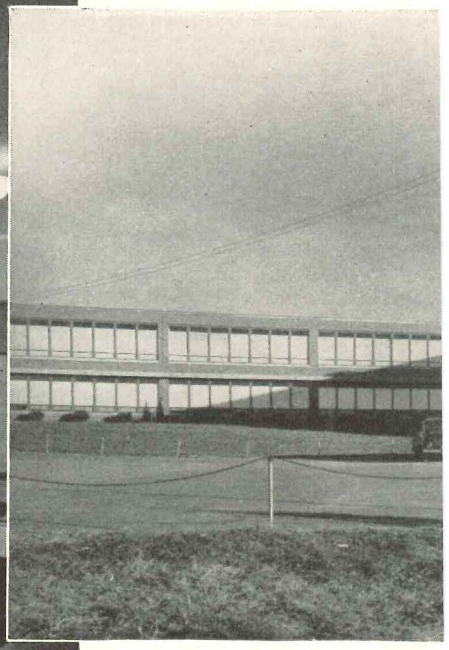


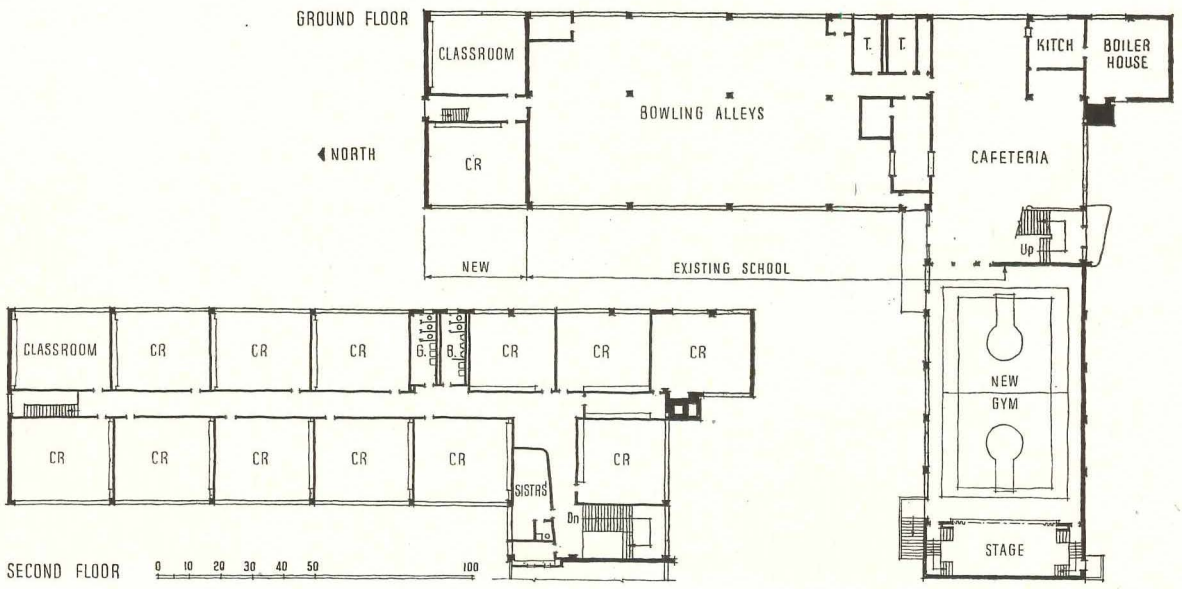


PARISH SCHOOL AND RECREATIONAL CENTER

AS A PARISH school for a Catholic community, this looks like a high school but is really for only six grades. Much of its cube goes into recreational facilities for the parish. Actual classroom space is difficult to sort out on a cost basis, for the present program added a classroom floor to an existing community building. However, for the addition costs ran 77¢ per cube, $14.00 per sq ft, working out to around $315 per pupil.



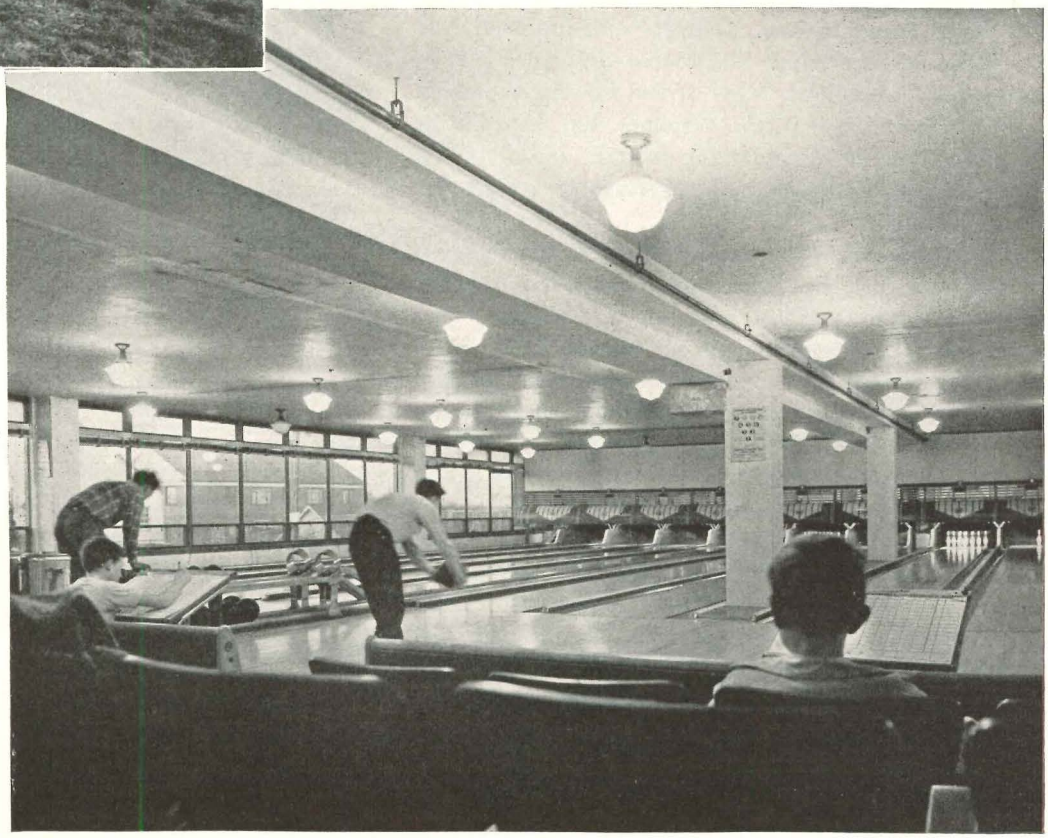




St. Gregory's School
St. Ann's Village
St. Louis County, Mo.

Joseph D. Murphy
Architect

Robert Frei



COMMUNITY SCHOOL

Elementary School, Burlington, Conn.

Moore & Salsbury, Architects

HANDSOME as it is, with its hard brick walls and its clerestory lighting, this school sets something of a record for economy in its state. And Connecticut is not known for throwing its money around. The state average postwar cost per pupil is $1,131.77, whereas in this school, the cost per pupil is $696.00, or $20,900 per classroom.

It was built to replace six widely separated one-room schools; it also houses the functionaries of the Township of Burlington, these spaces served by a separate entrance, and the assembly room doubles as meeting hall for many local functions.

Classrooms are square, and bilaterally lighted. On an average winter day there is no need for artificial light. Each classroom is painted a different color, all colors kept light. Radiant heating is used throughout — wrought iron piping in the floor slab. Wall finishes are fir plywood; ceilings 1½-in. fiberboard acoustical tile. Ceramic tile is used for floors and walls in toilets; elsewhere floor finish is asphalt tile.

The architects explain the economical construction in a detailed list:

1. There is almost no departure from a strict 4-ft grid modular planning. This, together with a deliberate uniformity of similar elements both in plan and elevation, enabled the builder to precut all the structural elements of the building. The 4-ft modular system also enabled the 4-ft plywood sheets on interior walls to be put in place with almost no excess labor for cutting and fitting, and very little waste material. "In spite of all the arguments pro and con concerning modular planning, this is one job where its economy was proved. We feel that this is largely due to the fact that the module is consistent and uninterrupted."

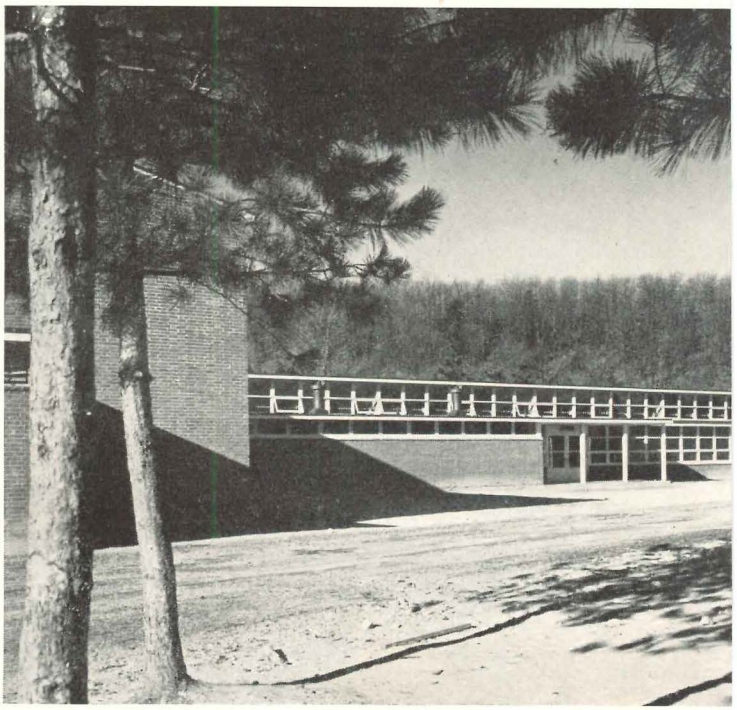
2. The framing system is simple and uniform. The roof joists for the entire classroom wing were put in place almost overnight. Most of the framing members were so standardized in the detailing that the bulk of the material could be pre-cut in the mill and delivered to the site ready for slotting together. (See isometric detail, p. 157.)

3. The drawings and specifications were complete down to the last full-size detail before the building went out for bids. There was not one change order issued during the entire course of construction.

4. Elimination of all dead air spaces and furred-in spaces. Services which do not run under the floor are exposed. Electrical conduit is all exposed, but carefully detailed in wire mouldings so as not to be offensive visually.

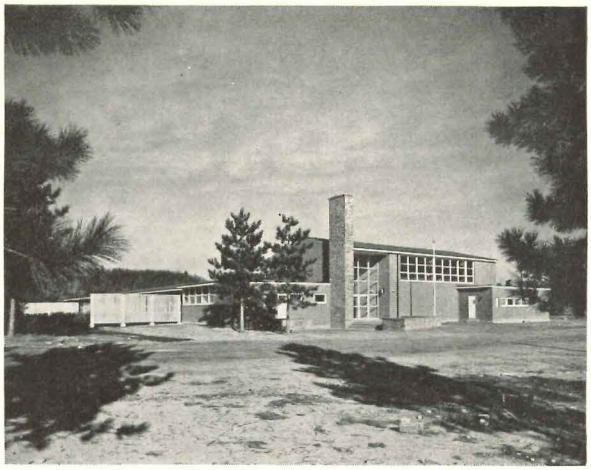
5. Savings in plastering and masonry. "The ⅜-in. plywood finish in corridors will hold up sufficiently well under hard abuse, although is admittedly harder to keep clean than tile or masonry. We feel that the consistent elimination of plaster throughout the building had an economical bearing overall."

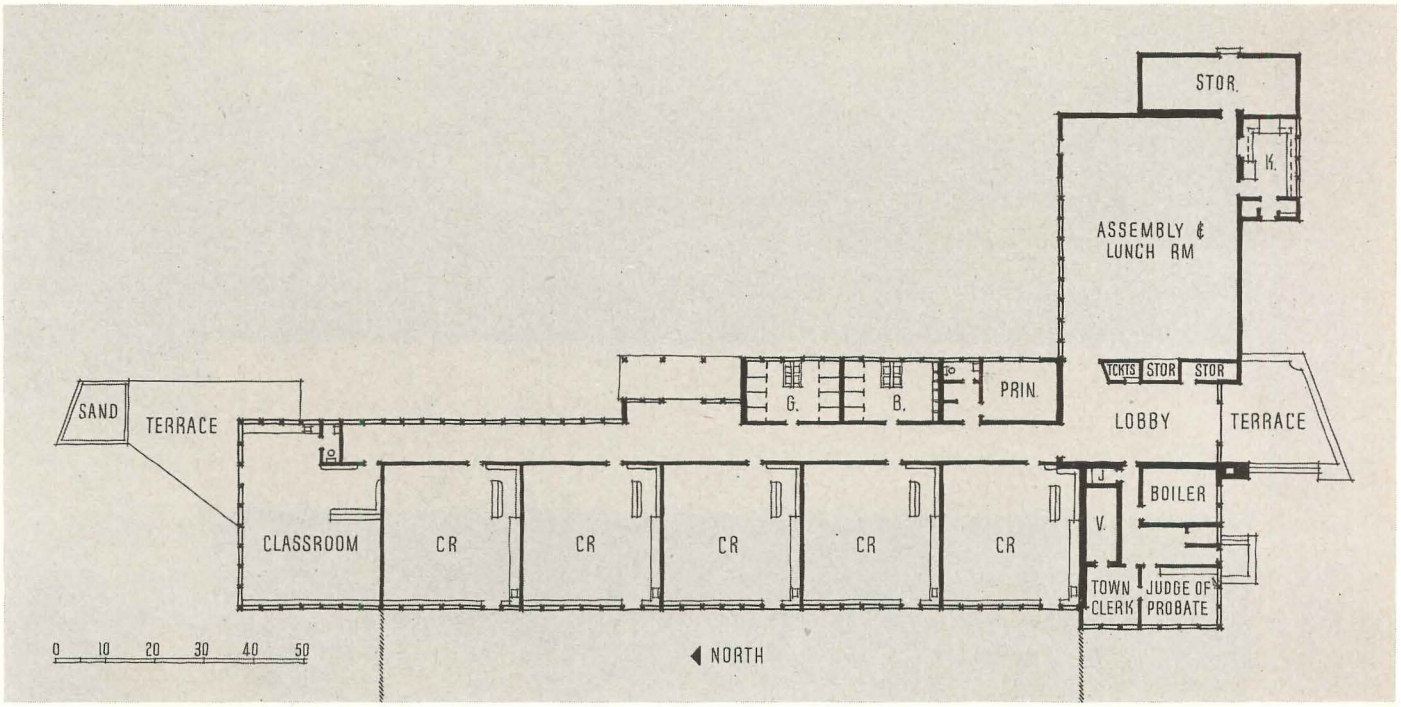
6. "The bilateral ventilation in classrooms enabled us to eliminate mechanical ventilation in those rooms. The only rooms mechanically ventilated are the toilets, the assembly room and the kitchen."

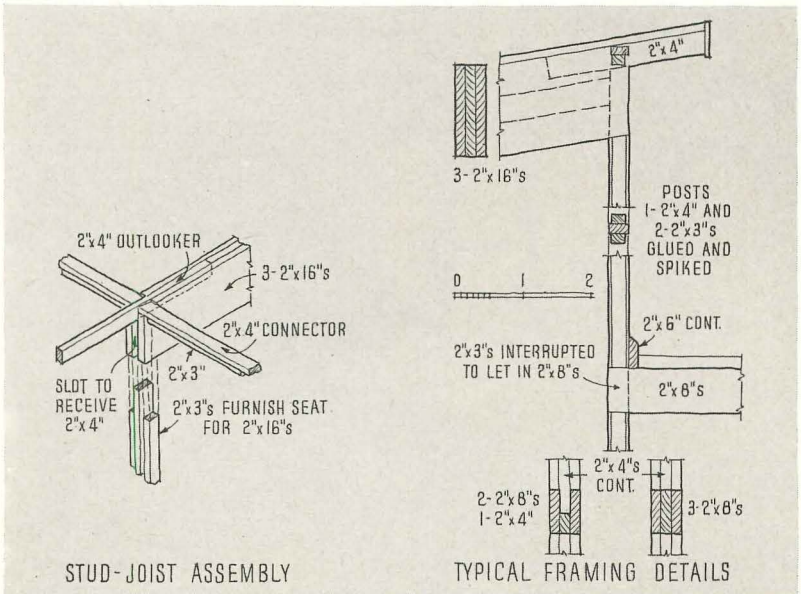


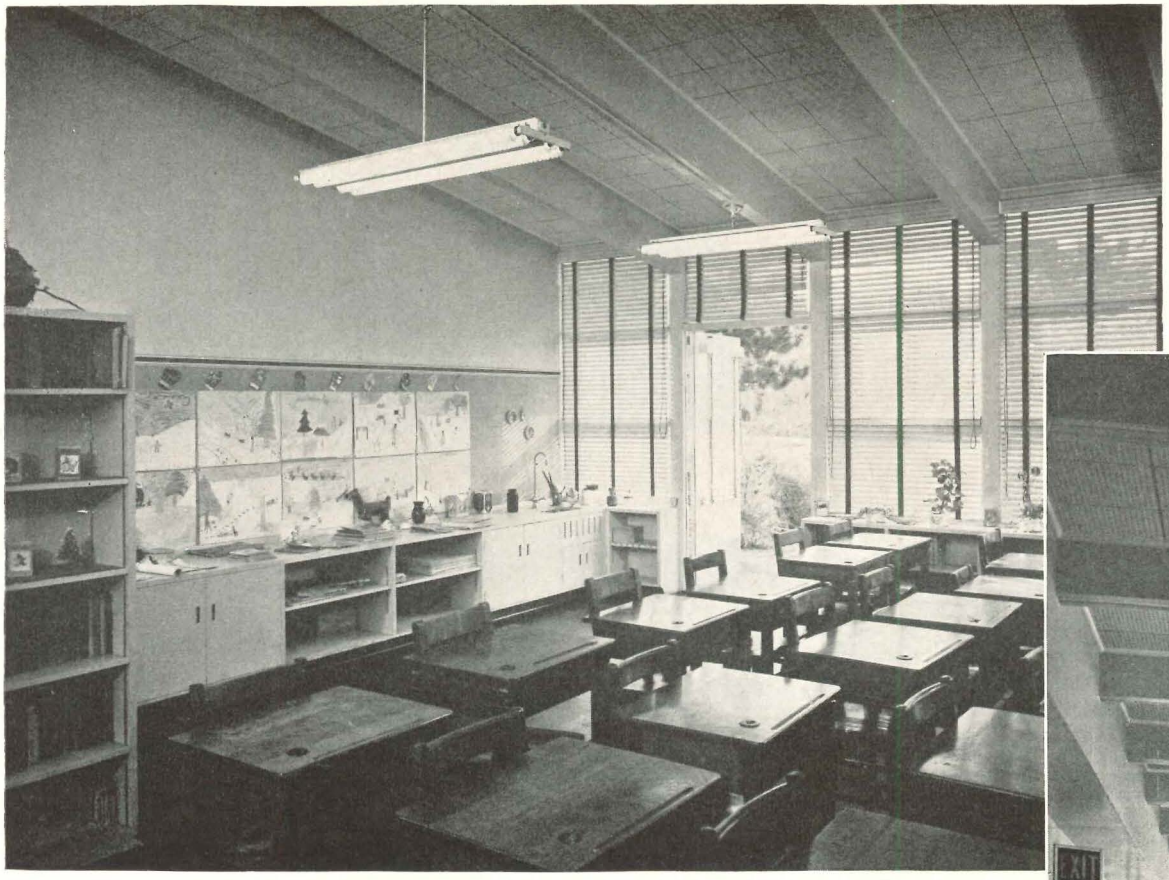
Joseph W. Molitor

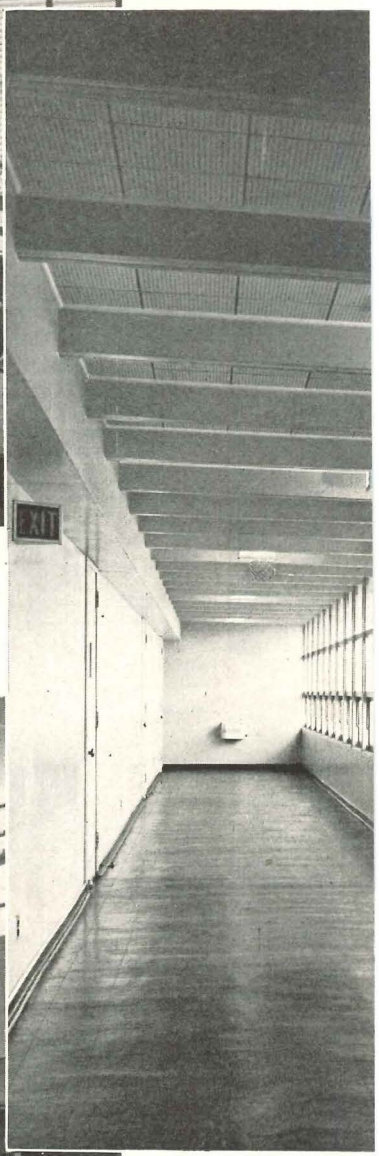
DESIGNED FOR ECONOMY

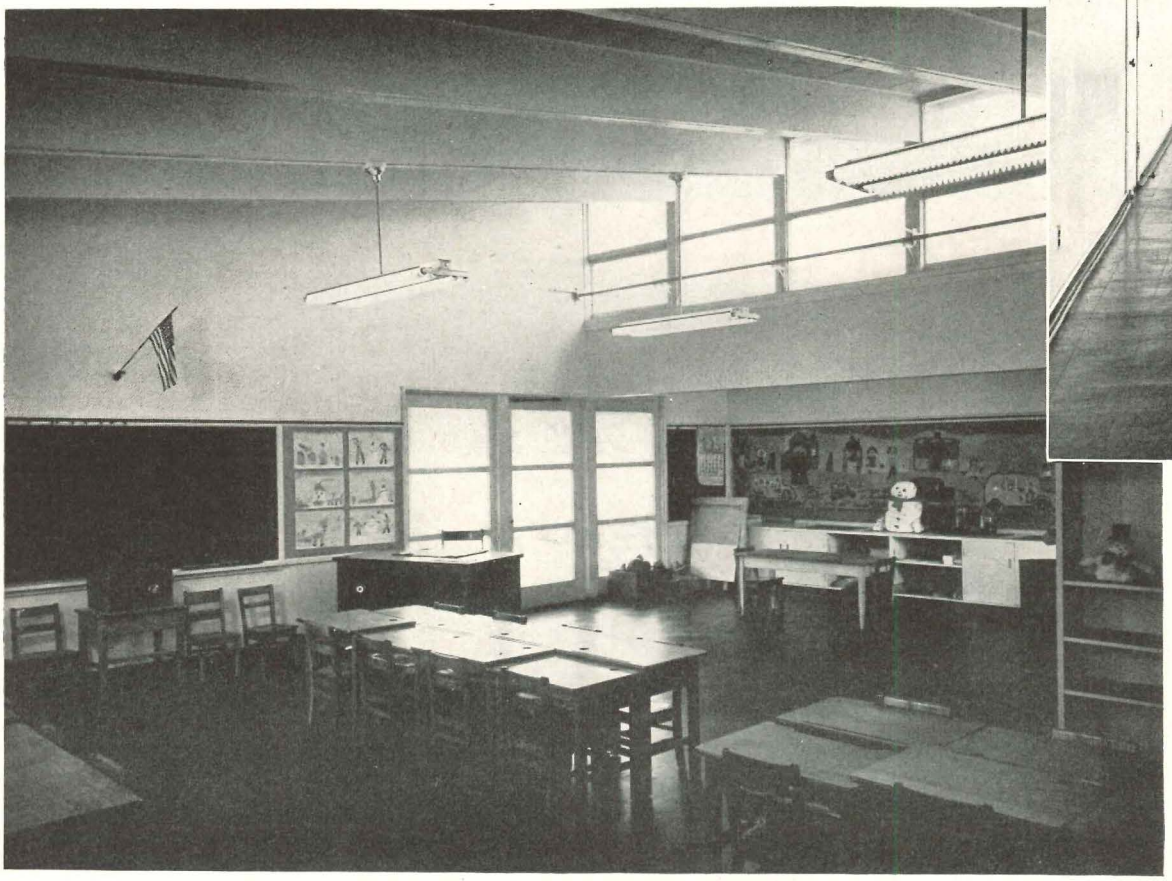









EXIT



7. The lower-than-average ratio of operating sash to fixed sash, and the consistency of size of operating sash and type of hardware.

8. Elimination of long runs of piping for drainage of individual classroom sinks, by draining each sink into individual dry wells.

9. "In this particular case the use of wrought iron pipes in the floor slab for radiant heating was more economical than the conventional heating system with its attendant long runs of pipe trenches."

In addition to these economy features, the architects list some items that added more than normally to the cost of the building:

"1. The brick veneer used is not a common brick, but a special hard burned brick, laid up in a special bond.

"2. Throughout there is more than average built-in equipment.

"3. The roof is a five ply 20-year bonded roof.

"4. The plywoods used were selected for grain and soundness.

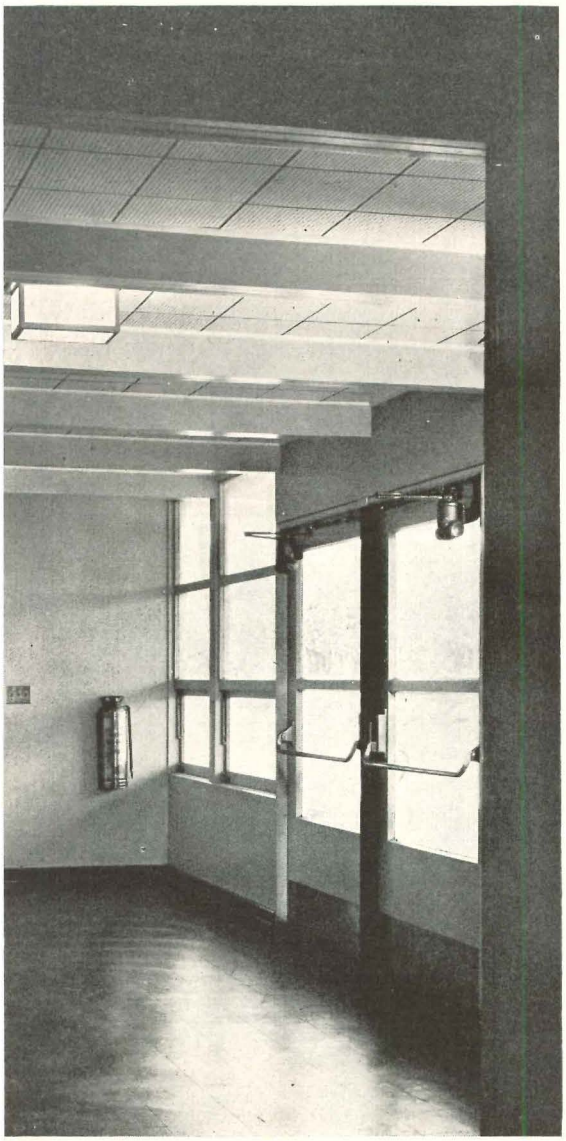
"5. Most of the framing skeleton is exposed and all framing members were selected for straight grain and freedom from knots.

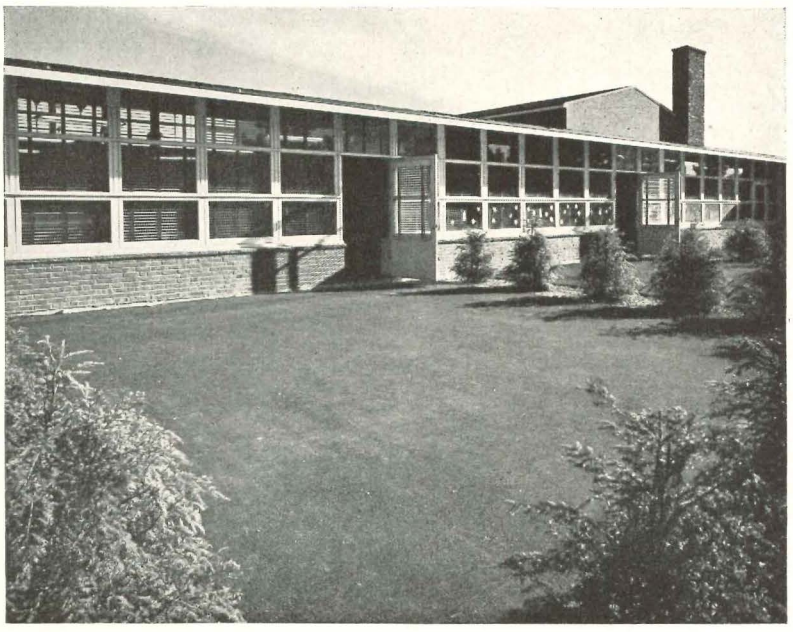
"6. The assembly room has an excellent system of mechanically controlled tempered air changes.

"7. Each classroom has two exits, one of which is to an outdoor classroom extension.

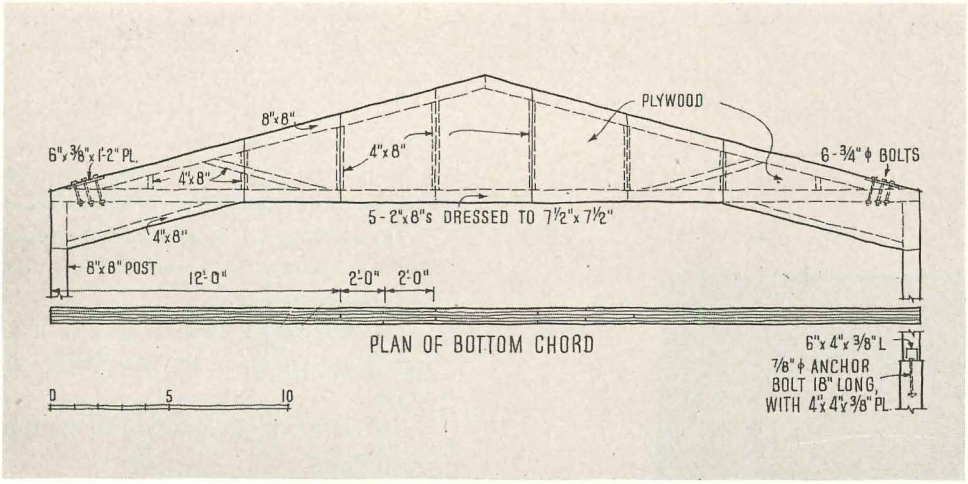
"8. Each classroom has an individually enclosed (by hemlock hedges) outdoor extension. This feature, in the Connecticut climate, was something of an experiment, but has proven hugely successful. They are used for overflow classroom activities not only in the mild fall and spring, but also when there is snow on the ground. The first grade class has its own segregated playground, adjacent to its classroom for easy supervision."

Joseph W. Molitor



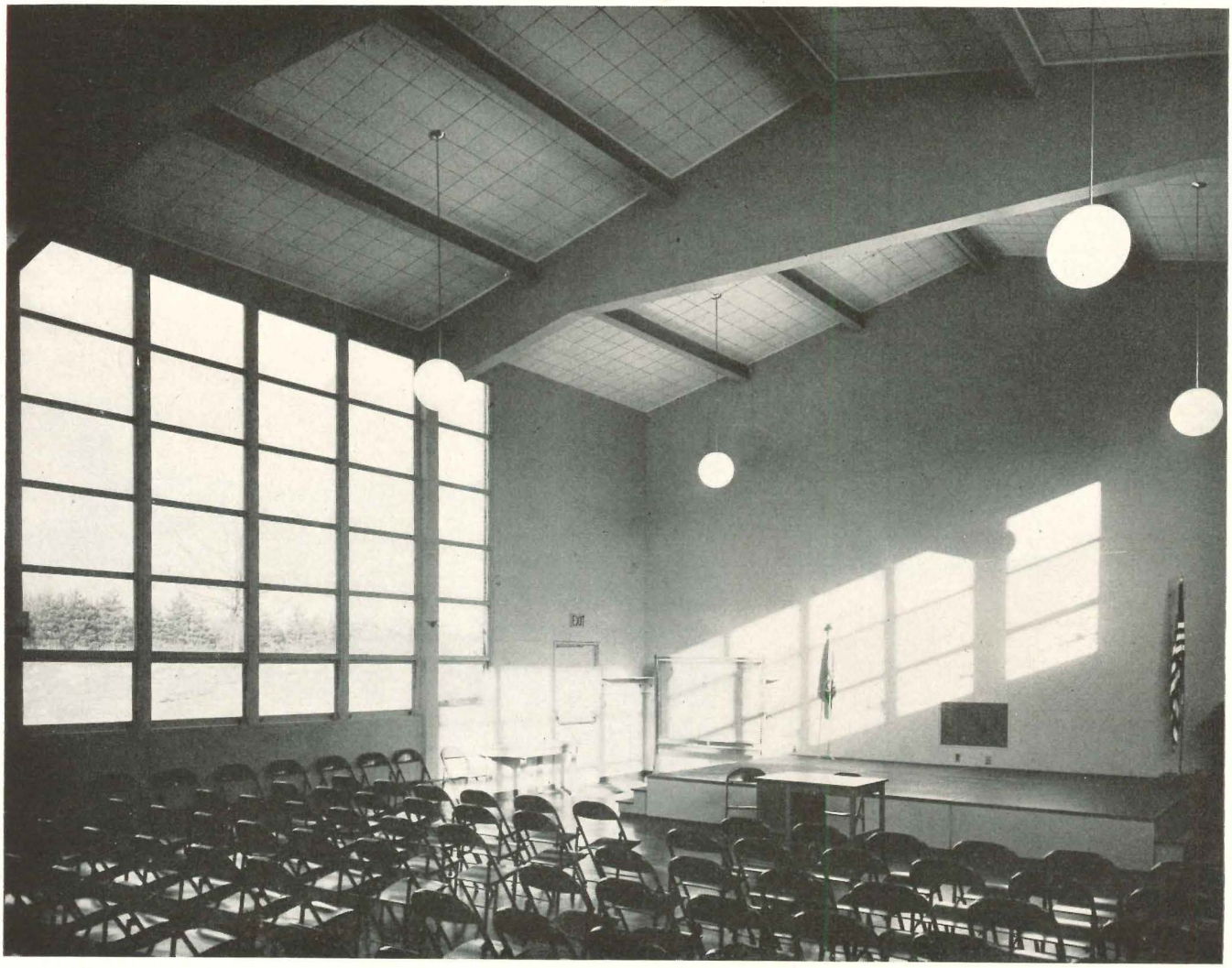


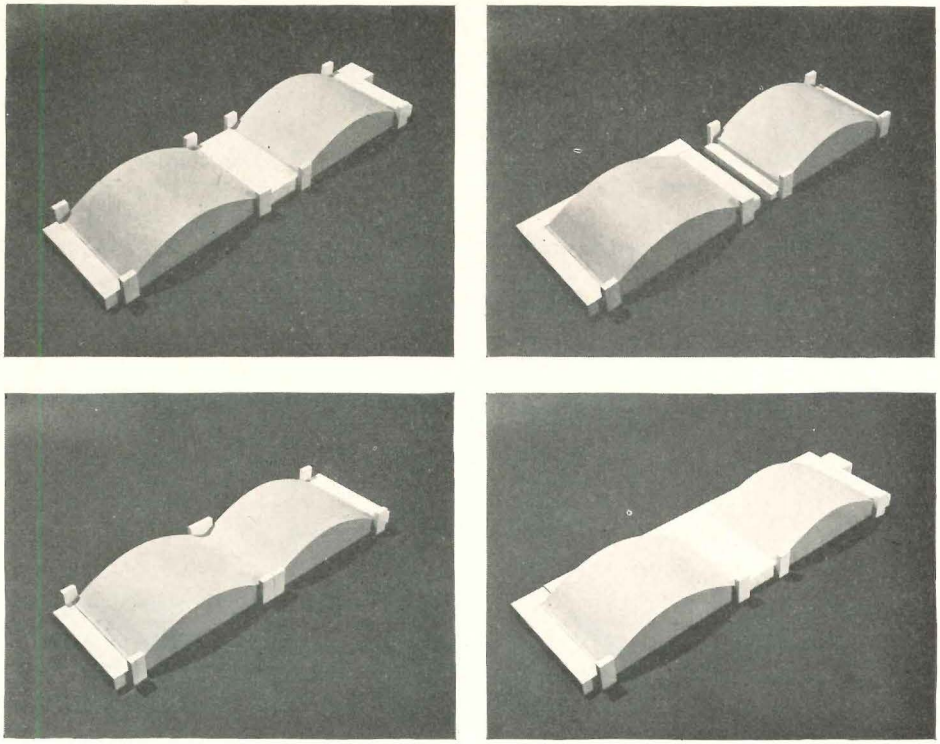
Burlington School classrooms are square, bilaterally lighted, with single-loaded corridor (above). Each grade has its private outdoor classrooms, set off by evergreens (right)



Simple wood framing contributed much to the economy of Burlington school. Multi-purpose-community room is spanned by boxed wood truss; plywood covering acts as stiffener

Joseph W. Molitor





These models show some of the designs possible by varying the size and location of the lean-to's, used for offices and shops. At first only two hangars were contemplated, but a third was found necessary. Upper left photo shows the double-entry type chosen for N. Y. International Airport. (Three hangars and four lean-to's are actually being built.) The prototype design can be varied to accommodate overhaul, line maintenance and storage according to the anticipated end usage

WORLD'S LARGEST STEEL ARCHED HANGARS

The Port of New York Authority develops a prototype design . . . elevated arches made it possible

Roberts and Schaefer, Structural Engineers ***Lorimer and Rose, Architects***

By JUNE, three of the world's largest steel arched hangars will be completed at New York International Airport. Each of the hangars, with a clear span of 300 ft and depth of 219 ft, will be large enough to accommodate six Douglas DC-6 transports or four double-decked Boeing Stratocruisers.

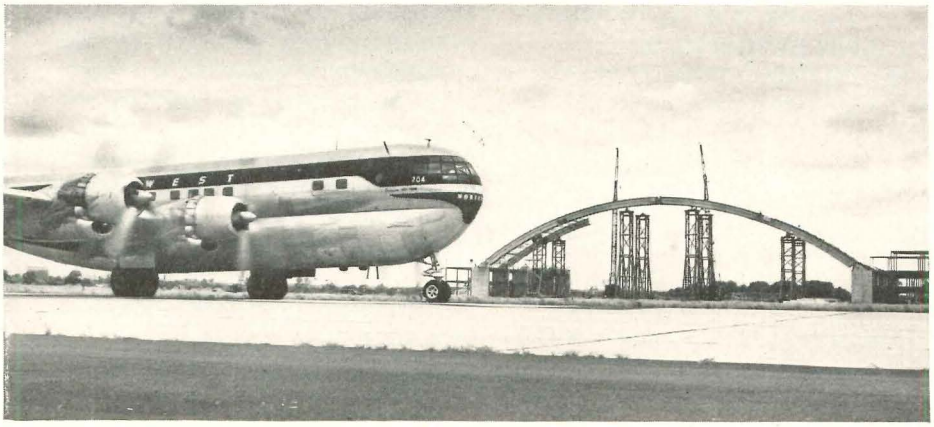
During preliminary discussions and design studies, it was impossible to specify exactly how the hangars would be utilized, or what size or combination of aircraft would be housed — so the basic design needed to be versatile. Another prime functional requirement was that the design of the hangar proper should be a standardized unit that could be repeated and adapted to varying foundation conditions for future expansion.

The hangars had to be designed so that they could accommodate any one or a combination of three functional operations — overhaul, line maintenance, and storage, although the problem of storage was considered of little importance because the hangars will be used for aircraft operated by commercial airlines.

Prototype Design

Stemming mainly from these requirements came a prototype design, consisting of the main hangar as a standard unit onto which many different lean-to combinations can be incorporated for offices and shop space. The arches were designed with an elevated springing line which allows lean-to's to be built on the sides as well as on either end, besides providing more head room. As an example, if one basic unit were required to accomplish overhaul work, then two 100-ft lean-to's could provide the neces-

Photos courtesy The Port of New York Authority



One of the planes which will soon be using the new hangars at N. Y. International Airport taxis down the runway in front of one of the steel arched units

sary shop and office space. If only line maintenance is to be done, one basic unit with a 40-ft lean-to on one side would be needed. Models in the photos on the previous page illustrate several possible arrangements.

Other functional requirements that evolved for the prototype hangar were that: the hangar, of permanent type construction, would be used long enough at a normal rental to amortize the capital investment; the hangar would have to house completely the largest commercial aircraft under construction or

structural systems to be incorporated in the structural steel design and the reinforced concrete design were made before the adoption of basic dimensions. An economic appraisal of varying rise-span ratios and arch spacings was made. There were functional limitations on the arch spacing, since the spacing must permit the conversion from double-ended to single-ended hangars without basic redesign.

In the case of the structural steel design, the various arch types (hingeless, 2-hinged and 3-hinged) were investi-

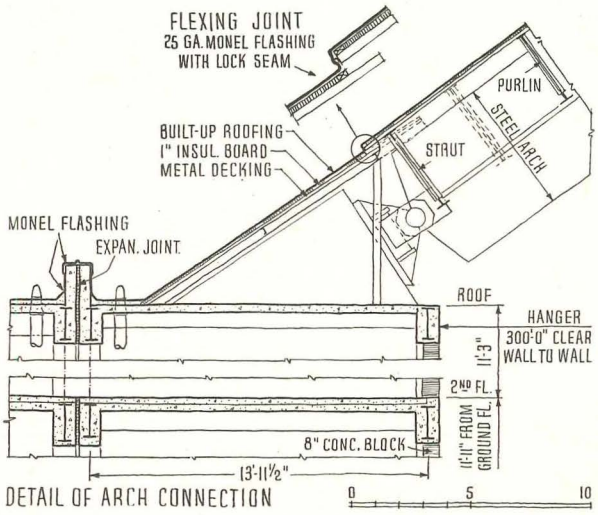
Basic Hangar Dimensions Required

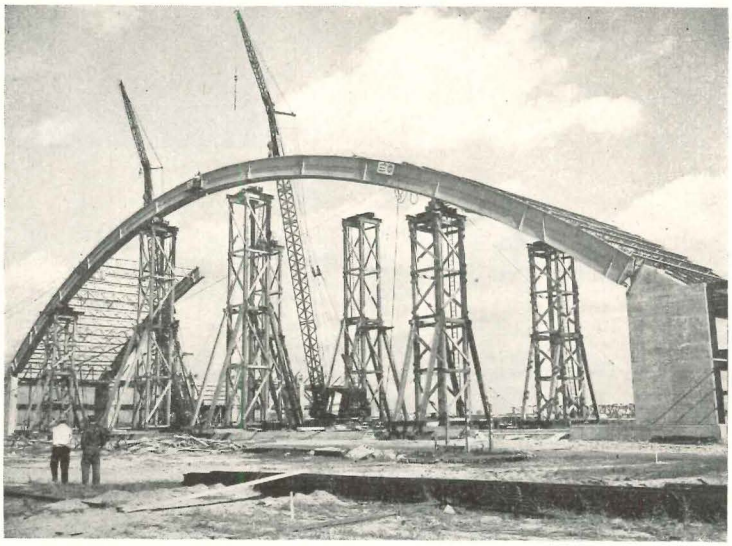
Width . . . . . **300 ft**
Depth . . . . . **219 ft (to outside of masonry walls)**

Min. clear height at center . . . . . **62 ft**
Door height . . . . . **40 ft**

provides
Tail Door . . . . . **62 ft clear opening**

To provide the most flexible utiliza-





Lean-to's can be built on the sides of the hangar since the arches are anchored at the top of concrete columns (at right in the photo). Structurally, 15 ft of the lean-to's belongs to the hangar because of the column width necessary. An expansion joint is used, therefore, between this section and the rest of the lean-to. Note the flexing joint to take care of arch movement

"on the board"; the dimensions and layout of the hangar must be such that it could be constructed in either steel or concrete.

Designs were prepared and bid on for both types of construction. The lowest bid was for the steel construction, although the bid for reinforced concrete was close enough to this to be competitive for this particular design.

The underlying premise for alternate designs in structural steel and reinforced concrete was that identity in utility value be maintained. In the development of the structural steel design, this meant providing for external fireproofing. In the lean-to's, conventional methods are used; in the hangars a suspended vermiculite ceiling can be provided.

Exhaustive preliminary studies of the

gated, in addition to other factors that were involved in the concrete design. Choice of the type of arch also influenced the cost of bracing and purlins.

A complete preliminary investigation was made to determine the most economical lean-to framing for the structural steel and reinforced concrete designs. In the case of structural steel, the systems considered had to meet the same requirements for fireproofness as those inherently possessed by reinforced concrete.

After exhaustive studies with various hangar designs, and construction of numerous model hangars in which the parking and maneuvering of model aircraft were investigated (see drawing, opposite page), these basic dimensions were established:

tion of the hangar area and to effect a considerable saving in the required area per aircraft, the double-ended design with sliding doors opening onto their respective parking aprons was selected.

The aprons provide parking for eight aircraft having a turning circle of 175 ft or 11 of the smaller type aircraft having a turning circle of 150 ft. The aprons are designed for aircraft having a maximum gross load of 300,000 lb.

The new hangars are located in the north central section of the 4900 acre airport near the two existing hangars. From west to east, the lineup is: the west lean-to, 41 ft wide; Hangar No. 3 — 300 ft; west-center lean-to, 103 ft; Hangar No. 4 — 300 ft; east-center lean-to, 38 ft; Hangar No. 5 — 300 ft; and the east lean-to, 65 ft.

Steel Arch Design

The arches have a clear span of 300 ft, are spaced longitudinally 48 ft on center (except two middle arches are 24 ft) and have a rise of 49 ft, 11 in. This gives a clear height at the center line of the hangar of 75 ft. The arch is a three-hinge, built-up, plate girder type.

The depth back-to-back of the flange angles remains constant at 5 ft 7 in. The end pins have a diameter of 10 in. while the pins at the crown have a diameter of 8 in. The webs are stiffened at mid-depth by two angles. There are spread footings are used for the exterior columns and combined spread footings for the interior columns. No tension ties are used. The footings in the edge lean-to's are trapezoidal in plan and vary in depth from 10 ft to 3 ft. The footings in the center lean-to's are rectangular in plan, having a constant depth of 10 ft under the west-center lean-to and 5 ft under the east-center lean-to. Most of the lean-to columns are supported by the arch footings.

The hangar floor slab which rests on compacted limestone varies in thickness from 11 in. to 14 in. at the expansion joints. The six service pits in each hangar floor have compressed air, electrical outlets and drains.

There is a set of doors (12 leaves) at each end of the hangars with a clear opening 40 by 285 ft. Also at each end of the hangar there is a tailgate door 22 ft high and 33 ft 7 in. wide to provide clearance for planes with large tail sections. These tailgates are of the turnover canopy type. To prevent frequent opening of the large hangar doors, there are two vertical lift doors, 8 by 8 ft, and one pilot door built within the main doors. The upper portion of the hangar doors is glazed to produce even distribution of daylight over a large interior floor space. Hangar doors roll on tracks embedded in the concrete foundation. The wind loads on the doors and front closure walls are transmitted by steel trussed frames to the first two arches. All the doors are motor operated and electrically interconnected. Provisions are made for emergency hand operation.

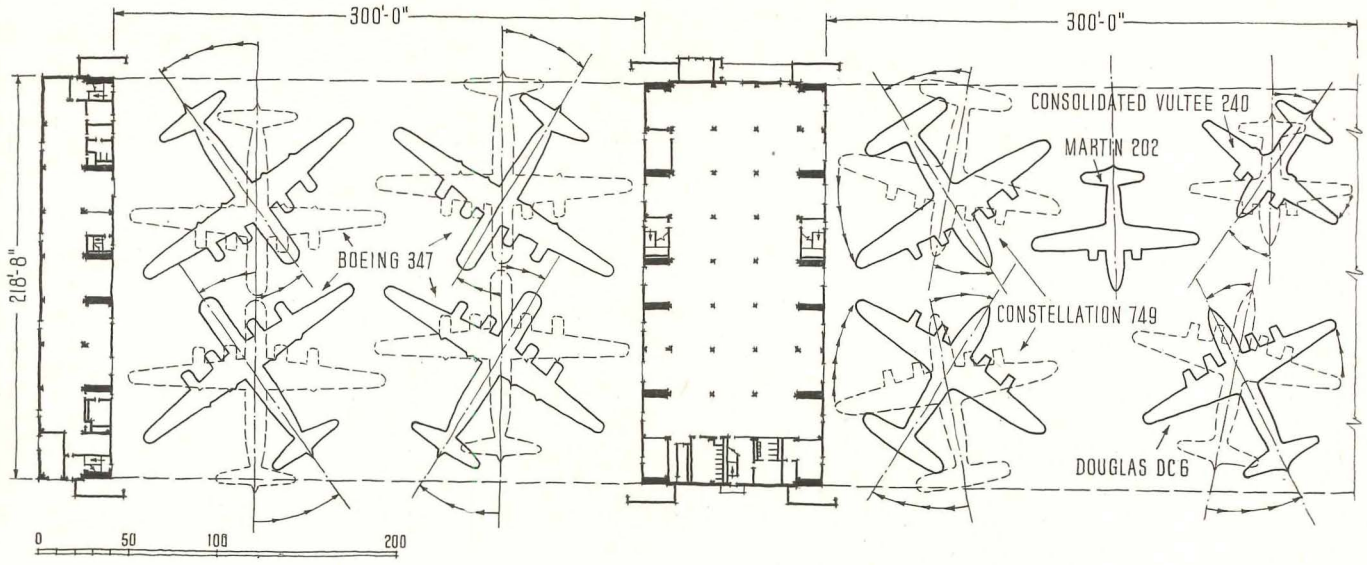
Lean-to's

In the case of all lean-to's, 15 ft of width in a structural sense belongs to the hangar structure, since this is the width necessary for the large columns supporting the arches. An expansion joint is provided, therefore, separating this 15 ft wide section of the lean-to from the remaining lean-to structure.

A boiler plant 73 ft wide and 50 ft long is provided on the roof of the west lean-to.

Modular Layout. The selection of a constant 24 by 24 ft structural bay with 15 by 16 in. columns throughout lean-to's permits all types of masonry and sectional partitions to be erected with minimum field cutting and adjustment. Floor-to-floor heights, beam depths, etc., were selected to accommodate standard course heights of commonly used materials such as glazed structural tile, concrete block, etc.

Continuous strip windows with mul-



Recommended hangar usage is illustrated above. A functional requirement of the prototype design was that the hangar should house the largest aircraft under construction or "on the board"

two field splices on each arch.

The area between the arches is framed with built-up truss purlins and struts at 6 ft 7⅝ in. on center, top chords of which bear on the top of the arch thus giving a smooth surface on the outside of the hangar roof. The framing is laid out so that the arch is well braced at the top flange, and along the center of gravity of the arch by means of K-bracing. The purlins and struts are braced by means of cross frames. Hangers are used to suspend framing for the hung ceiling, lights and the sprinkler system. Metal decking is used for framing between the purlins.

The arch hinges at the springing line are anchored to concrete columns. These columns rest on pedestals, which in turn carry the load to the footings. Individual

lions on 4-ft centers permit ready subdivision of lean-to areas in space multiples of 4 ft, with partitions at all times coinciding with mullion locations.

The steel beams of the lean-to's are spaced 8 ft on center, coinciding with each alternate mullion. Concrete slabs topped with lightweight concrete fill span the beams for the length of the hangar.

In order to produce watertight conditions and good appearance, cavity type exterior walls are used. These have a 4-in. exterior withe of gray-buff facing brick in 4 by 4 by 12 in. nominal modular size, a 2-in. cavity, and an inner 4-in. withe of 8-in. concrete block.

Heating and Ventilating

To insure optimum floor-level temperatures, it was decided to use a radiant heating system, circulating water at approximately 140F. Each hangar contains about ten miles of 1½ in. piping, spaced on 18-in. centers and buried 6½ in. below the floor. The panels are of the grid type in which the water is circulated from a supply header to a return header and not through a continuous coil. This eliminates long, continuous runs of pipe which would require high pumping heads and possibly cause circulating difficulties.

Pipe coils on 10⅞-in. centers are provided in the door pockets and directly beneath each door track rail. Plans provide for the future installation of four unit heaters per hangar, one at each corner, to take care of the pick-up load when the doors are open during cold weather, if operational experience indicates that this arrangement is necessary. Steel-fin-and-tube type radiation, completely enclosed in enameled sheet steel cabinets, is used in the edge lean-to's.

Ventilation is provided for interior zones of second floors in the edge lean-to's and first and second floors of the center lean-to's. The ventilating equipment rooms will be located on the roofs of the lean-to's. Mechanical engineers were Karsunky, Welles and Gooch.

Fire Protection

A complete local fire alarm and sprinkler system is provided for the entire building inasmuch as the building location is isolated in relation to other parts of the airport.

The sprinkler system for the hangar is a deluge-type divided into six separate zones. The automatic control valves provided for these six systems are installed in the edge lean-to's. The systems are automatically operated from heat-sensitive devices installed in the ceiling.

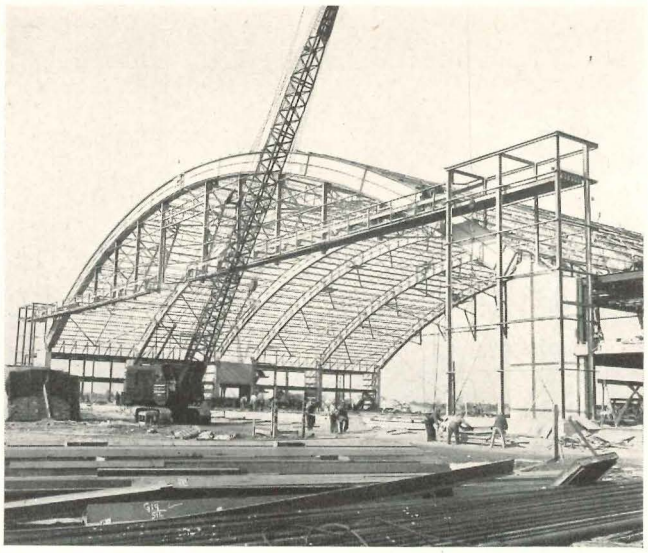
The first floor of each lean-to is provided with a wet-type sprinkler system. Provisions also have been made for future second-floor sprinklers.

Lighting

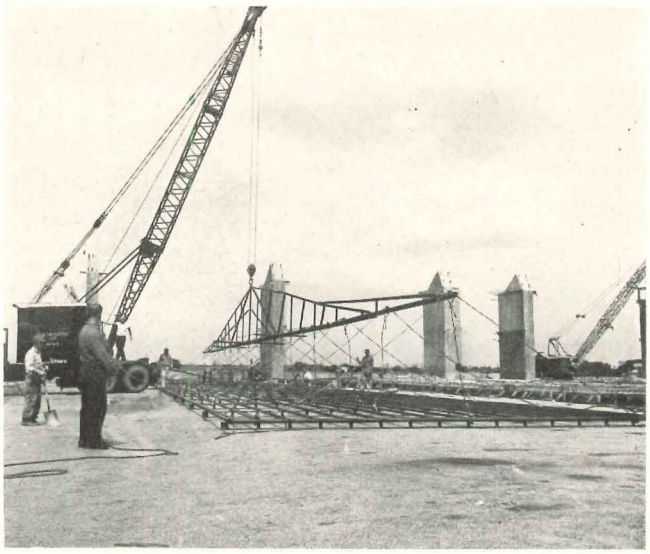
The hangars are designed with high-bay lighting fixtures, which project the light down to the floor surface where it is required with maximum efficiency, considering the high mounting which must be utilized. These fixtures will be provided with the disconnecting and lowering type of hanger.

Fixtures will be provided with two types of lamps: a standard incandescent lamp and a mercury vapor lamp, to produce an average uniform intensity of 38 footcandles. The mercury vapor lamps in combination with the incandescent will produce a bluish-white light of good color and quality.

Floodlights are provided over each hangar door to illuminate the apron area in front of the doors. Obstruction lights are provided on top of the roof of each hangar building and on the outside parapet wall of each edge lean-to. The control of these obstruction lights is designed to be automatic through photo-electric control units. They switch on when daylight drops to 35 f-c and off when it raises to 55 f-c.



Structural steel framing almost completed for one of the hangars, including end framing, door pockets and upper door guides



A unique supporting rig handled by the crane moves radiant heating grids into correct position before concrete floor is poured

ARCHITECTURAL ACOUSTICS

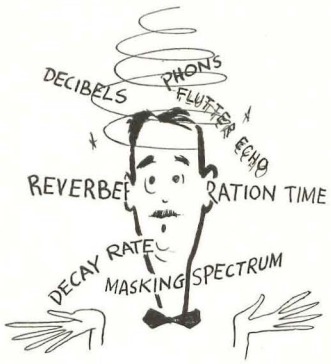
Article 1: Basic Planning Aspects

By Richard H. Bolt and Robert B. Newman *

This is the first in a series of articles by the authors, planned to give the architect a general perspective of acoustics — an orientation to the special language and techniques. They are not intended to replace a comprehensive course or book for one who wishes some mastery of the subject. But with the background provided, the architect will find more meaning in the growing literature on acoustics.

The Scope of the Field

Acoustics has been discussed in the architectural press from time to time (1) † and an increasing amount of technical information is available in manufacturers' literature, and in publications covering standardized acoustical values of materials and structures (2,3).



". . . the architect will find more meaning in the growing literature on acoustics."

All of these sources provide information that is useful when properly interpreted, but correct utilization of the engineering data, as in any branch of engineering, requires some background knowledge of the subject. Unfortunately the study of acoustics has been notably absent in architectural education, and few practicing architects have had an opportunity to acquire a detailed knowledge of this field. Yet almost every project undertaken by the architect involves some acoustic problems.

Often these problems are not recognized, at least not explicitly, by either the architect or the client. Of course an auditorium or broadcast studio needs special acoustic attention; but few people realize that the apartment house and the office building pose equally important acoustic problems. Many of these problems can be handled with little if any additional expense for acoustics itself. In a sense, every element of design and construction has some influence on acoustics; the important thing is to understand how much and what kind of influence these elements have.

We must learn first to recognize the various kinds of acoustic problems and their relation to the general functioning of buildings. Next we should consider the ways in which acoustic problems can be solved or anticipated in the basic planning: in the selection and utilization of the site, in the horizontal and vertical inter-relation of spaces within the building, in the general choice of materials and construction, and in the over-all shapes of rooms. These questions of functional analysis and planning are discussed in this article. Further articles will consider specific methods for achieving good acoustics in buildings. Their sequence follows more or less the logical order in which the architect should deal with acoustics as he develops a project.

Basic Problems and Criteria

Although the practice of acoustics involves a wide variety of special problems and techniques, the basic reasons for acoustical design are simply:

(a) to provide a satisfactory acoustic environment, or

(b) to provide good hearing conditions.

In a hospital room, for example, the designer is concerned primarily with the problem of providing a quiet environment, while in a recital hall he is concerned principally with the hearing problem. Similar methods may be used in handling these two kinds of problem, though in general their requirements and treatments differ. For these reasons it is logical to study the two types separately, as will be done in the second and third articles in this series. But here we shall learn to recognize the problems and their relation to general planning.

CRITERIA FOR AVERAGE NOISE LEVELS IN UNOCCUPIED ROOMS

	Decibels
Radio, recording, and television studios	*25–30*
Music rooms	*30–35*
Legitimate theaters	*30–35*
Hospitals	*35–40*
Motion picture theaters, auditoriums	*35–40*
Churches	*35–40*
Apartments, hotels, homes	*35–45*
Classrooms, lecture rooms	*35–40*
Conference rooms, small offices	*35–45*
Court rooms	*40–45*
Private offices	*40–45*
Libraries	*40–45*
Large public offices, banks, stores, etc.	*45–55*
Restaurants	*50–55*
Factories	*45–80*

These recommended acceptable levels are "weighted"; that is, they are the levels measured with a standard sound-level meter incorporating a 40-db frequency-weighting network (compensates for the ear). Table of noise level criteria, reprinted from* Acoustical Designing in Architecture, *Knudsen and Harris, p. 221, with permission of John Wiley and Sons, Inc.

Factors Influencing Acoustic Environment. A satisfactory acoustic environment is one in which the character and magnitude of all noises are compatible with the satisfactory use of the space for its intended purpose. For example, a library reading room can be a difficult place for study in the presence of distracting noises. These same noises might be quite acceptable in a large business office; but here again there are limits of noise intrusion beyond which the workers would find it difficult to maintain efficiency and composure. There is thus a wide range of acceptable background noise levels in rooms, as indicated in the table above.

* *Acoustics Laboratory, Massachusetts Institute of Technology, and members of the consultant firm Bolt, Beranek and Newman.*
† *Numbers in parentheses refer to items in bibliography.*

The noise level specified in this way is usually taken as the primary specification of an acoustic environment, but it is not the only one that counts. It is sometimes important to consider the noise levels at several frequencies instead of using the values given in the table which represent an average over a wide range of frequencies. It is sometimes important to consider the sound reflecting properties of the rooms because an extremely reverberant space can be annoying for some purposes even with relatively low noise levels.

The tolerance to noise depends also on its quality (high pitched whine, low pitched rumble, sharp rasping noise, etc.) and on its dynamic characteristics (continuous, intermittent in a regular rhythm, intermittent in unpredictable bursts, etc.). These characteristics are difficult to define, and their influences on annoyance and fatigue are not fully understood today; but extreme cases are easy to spot. To some extent the evaluation of these characteristics is simply a matter of common sense and experience. One obvious rule is that the more unexpected a noise, the more likely it is to be a disturbance. The steady drone of distant traffic giving 45 decibels in a hotel room would not be especially disturbing; but the same noise level from a siren will attract immediate attention. There will be cases in which the noise quality influences acoustic design. In particular the noise reducing elements such as insulating walls and sound absorbing materials should be effective in the predominant frequency ranges of the noise to be controlled. Keeping these points in mind, then, we can use the table as a partial checklist for noise control problems to be considered in each project. The architect may find it useful to expand this list from personal experience.

Factors Influencing Hearing Conditions. The room designed for hearing music or speech may already have been treated for environment control, in which case a start has been made on the listening problem. But the requirements for good hearing are more exacting, and their attainment is frequently more complicated. In general we must satisfy four requirements:

(1) Background noise must be low enough not to interfere with the desired sounds of speech or music.

(2) The desired sounds must be sufficiently loud.

(3) The reverberation time must be short enough to avoid excessive overlapping of successive sounds and yet it must be long enough to provide some blending.

(4) The sounds must be distributed properly throughout the room to give a desirable degree of acoustic uniformity and to avoid disturbing echoes, undue focusing, or islands of low intensity of sound.

Sketches by Sol Ehrlich

"Planning for Noise Control"

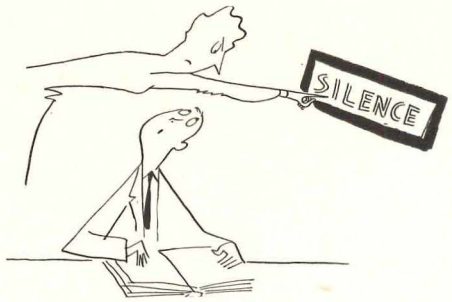
Planning for Noise Control

We note that the background noise is an important factor in both the environment aspects and the hearing properties of the rooms. General criteria for listening rooms are included in the table. In speech rooms special attention must be given that particular range of frequencies in which a masking noise can reduce the intelligibility of speech. In the case of music a much wider range of frequencies is important

As already mentioned, the detailed criteria for acceptable amounts and kinds of noise will differ depending on the purposes of the room, but the general methods of achieving any of these criteria are common to all purposes. Let us now consider these noise control measures as related to general planning.

Achievement of low background noise in a room obviously will be aided by locating the room as far as possible from noise sources, both inside the building (ventilating machines, shops, gymnasiums, etc.) and outside (highway, railroad, airfield, noisy factory, etc.).

Frequently the site selection is beyond the architect's control. But usually he has considerable influence on the horizontal and vertical layout of the building, and this should be scrutinized for sensible segregation of noisy areas. Ventilating equipment and bowling alleys should not be placed immediately under or over an auditorium if this can be avoided. See if the machine shops or testing laboratories can be placed in a different wing from the offices and conference rooms. The play room should be removed from the bedrooms; the band room from the library and study halls. Noise control can sometimes be helped by the judicious use of dead areas —



". . . a library reading room can be a difficult place to study in the presence of distracting noises"

storage spaces, courts, etc. — as buffers. Noise sources within the building can often be controlled locally, by the housing of machines and quieting of rooms containing noisy devices. The selection of quiet mechanical equipment in the first place is a part of rational planning.

When all possibilities of noise control by site selection, separation planning, buffer areas and noise source control have been fully utilized, we are ready to determine the expected sound levels (and perhaps other characteristics) of all noises immediately surrounding each room requiring protection. The difference between these noise levels and the background criterion for the room (calculation methods to be discussed in the second article) gives the amount of insulation that must be provided by the shell of the room itself.

Thus the second general phase of noise control leads to problems involving structures and materials. In general, the degree of noise insulation of a wall increases with weight. Composite structures, particularly if they include air spaces, are generally superior to homogeneous walls of the same weight. For example, an 8-in. brick wall has an average transmission loss of about 50 db, while two 4-in. brick walls spaced 4 in. apart give nearly 60 db which is more than the value for a solid 12-in. brick. Laminated walls of impervious outer layers, separated by materials of differing density and compressibility (fiber boards, soft blankets, light weight fill, etc.) are usually 5 to 10 db better than homogeneous walls of the same weight.

Regardless of weight, however, a wall must be highly impervious to air flow through it, if it is to give a high degree of sound insulation. As a striking example, ordinary thin walls of unplastered clay tile or porous cinder block rate as "poor" insulating walls — inadequate for inter-office privacy, for example. But

the same walls tightly sealed with even a thin coat of plaster on each side are in the "good" range of 35 to 40 db transmission loss.

The same rule applies to air leaks around doors and windows and through ventilating openings. An ordinary flush door with a threshold crack has negligible transmission loss (perhaps 10 db); with tight rubber gaskets all around it can reach a rating of 25 or 30 db which gives adequate privacy in many cases. (Note in passing that the transmission loss of a door or window need not be as high as that required for the wall as a whole if the door or window occupies only a small fraction of the area.)

It is very difficult with a single door to obtain more than 35 or 40 db even with elaborate precautions in construction, gasket sealing, and tight fitting hardware. So when we have a need for higher insulation through entries, we must go to double doors or enclosed sound locks, as frequently used in broadcast studios.

Thus the design of a sound insulating enclosure involves more than the choice of a wall structure with adequate transmission loss. Attention must also be paid to proper detailing of all joints, divisions, and inserted elements. Many an expensive wall construction has been vitiated acoustically by short circuiting air leaks.

Although such short circuits are readily comprehended, the equally dangerous by-passing by structural paths is often overlooked. The impact of heels on a floor sets up vibration which in turn gives rise to sound radiated into the space below. The degree to which a given floor structure thus responds is measured by its impact noise transmission loss. Impact noise transmission loss values for many types of floors are given in BMS 17 (see Ref. 2). A bare concrete floor slab transmits impact noise as efficiently as any commonly employed structure and is therefore frequently used as a reference for measuring impact noise. Taking this bare slab as having zero loss, the addition of a carpet improves matters by 5 to 10 db; and the addition of a resiliently floated finish floor can provide a structure with as much as 20 or 25 db impact transmission loss.

Now, the structural vibration set up by impact can also be transmitted to other parts of the building along the slab and through the structure. As a matter of fact, even air borne sound striking a wall always imparts at least a small amount of motion, and once this vibration is in the structure it can travel throughout the building. This structure-borne vibration is "telephoned" readily through a continuous rigid frame of steel or concrete; less efficiently through unhomogeneous masonry or frame constructions; and blocked almost entirely by structural breaks which are sealed, at most, by a soft mastic. Sound passing between two adjacent rooms through the floor slab may exceed the amount transmitted through a common wall. This sound transmission sets an upper limit to the amount of sound isolation that can be achieved between these rooms, regardless of the effectiveness of the wall between them. This limit is usually about 45 to 55 db, depending upon the type of construction. Above this limit special detailing must be used to break paths of transmission.

Sometimes the detailing of high sound insulation in a building necessitates wall and floor structures of uncommon thickness. It may be necessary to provide floated floors or ceilings, or an isolated inner shell around a room. This will not generally occur if less than 45 db airborne sound transmission loss is needed; but above 55 db the structure is almost certain to be of increased thickness. This situation gives rise to one of the most important reasons for anticipating noise control requirements in the planning stages. More than one building has been doomed to inadequate noise control simply because the floor levels and room dimensions were irrevocably fixed (or even the structure erected) before thought was given to acoustics.

Planning for Adequate Loudness

Provision of sufficient loudness is not a problem in small rooms (less than about 25,000 cu ft). In rooms of this size, an average person talking normally can be heard very well throughout the room if the other conditions for good hearing are satisfied. At the other extreme, in very large rooms (more than approximately 250,000 cu ft) the average person simply cannot generate enough acoustic power to fill the room, so he needs the aid of a sound amplifying system. In rooms of intermediate size an amplifying system may or may not be necessary, depending on the skill with which the other influencing factors of background noise and sound distribution can be controlled.

The loudness problem is somewhat different in the case of music, because ensembles of musical instruments usually can be made large enough for satisfactory hearing even in large auditoriums. Solo voices may require amplification, but only under unusual circumstances is amplification needed for the orchestra.

Whenever we recognize the possible need for a sound reinforcement system (and of course such systems are automatically required in motion picture theaters) we should keep in mind that the loudspeakers should be located in accordance with well established principles, and that the system should be properly integrated with the design of the room. In most cases, a single group of loudspeakers located centrally some 20 or 30 ft above the stage will provide optimum hearing condition with greatest realism. There are recent developments in stereophonic reproduction using two or more separate groups of loudspeakers fed independently from separate microphones.

In fact, the engineering of sound reinforcing systems with high fidelity and realism has advanced considerably in recent years. It is now important for architects to understand these potentialities and to incorporate the required components in the basic design of the room

Planning for Optimum Reverberation

The reverberation time is a measure of the prolongation of sound in a room after the source has stopped; specifically, the time in seconds for sound to decay 60 db. The optimum value of reverberation time depends on the volume

"Planning for Adequate Loudness"

of the room and on the type of sound to be heard. In general, the working range runs from about ½ second for very small speech rooms up to 2½ seconds for very large concert halls or churches. Detailed criteria will be discussed in a later article.

The reverberation time that exists in a room is determined by the volume of the room and by the sound absorptive properties of the finishes, furnishings, people and the air in the room. The

amount of sound absorption is specified in terms of absorptive units; the calculation of the number of units and then of the reverberation time is an essential step in the acoustic analysis, but one which we can postpone here. One point to bear in mind at this stage is that reverberation control does not always require the use of special acoustic materials, though they are generally needed in some amount. In moderate sized rooms with a small volume per person, with upholstered seats and perhaps with wood paneled walls, the optimum reverberation time already may be achieved.

It is important to know that the reverberation time must be satisfactory over a wide range of frequencies and not simply at one frequency such as 512 cps, as is too often believed to be the case. A common form of frequency unbalance is excessive reverberation at low frequencies (below 250 cps) and inadequate reverberation at high frequencies (above 2000 cps). The effect is "boomy" and yet "dead" and music hearing is particularly poor. Usually this condition is attributable to inadequate low frequency absorption; conventional acoustical materials less than 1 in. thick and mounted directly on hard surfaces fall off rapidly in absorption below 250 cps. Increased low frequency absorption can be obtained by using thicker materials, or deep air spaces behind porous materials, or specially designed thin panels, or acoustic resonators. All of these measures require greater depth than is normally allowed for acoustic treatment. Thus it is important in the planning stage to recognize those cases in which large amounts of low frequency absorption may be needed and to allow adequate depth in walls and ceilings for this treatment. A space of 4 to 6 in. is usually enough for this treatment, and yet one frequently sees cases in which previous design decisions have made it impossible to apply more than 1 in. thickness of absorptive treatment.

Acoustical materials are made in a wide range of surface textures, and many possibilities in surface design and color are possible by judicious combinations involving available finish materials. The architect who is familiar with these possibilities, or better yet with the basic principles from which new combinations can be conceived, will find that the treatment for reverberation control can be made a part of the design rather than a necessary evil which must be applied as "correction."

". . . vibration is telephoned readily through a rigid frame of steel or concrete . . .

. . . blocked almost entirely by structural breaks . . ."

"The impact of heels on a floor sets up vibration . . ."

Planning for Sound Distribution and Room Shape

The distribution of sound in a room is determined principally by the over-all shape of the enclosure and the smaller scale breakup of the surfaces. Amounts and locations of absorbing materials also influence sound distribution to some extent. For proper distribution, sounds from persons speaking or singing, instruments, and loudspeakers should be projected to all the listeners with fidelity and uniformity. The exact meanings of these words are subject to careful definition, but a general understanding can be given at this point by some qualitative statements. There should be no distinct echoes such as come from distant reflecting surfaces. High domes and large expanses of concave wall focus sound annoyingly to certain parts of the room and rob other parts. (Whispering galleries make good sightseeing but poor auditoriums.)

Excessive space in itself is wasteful of acoustic energy. If monumentality is essential, in a particular room, its inherent acoustic difficulties should be clearly recognized and ameliorated as far as possible in the design. If, on the other hand, the design of a large hall can be generated primarily by acoustic requirements, a high degree of sound conservation and uniformity can be achieved.

Usually volume should be less than 300 cu ft per person and the height of the hall should not be excessive at any point. At the same time if there is a balcony, sufficient height should be allowed in the framing to yield a good balcony shape. The front of the balcony should be pointed or rounded and the underside should slope downward toward the rear. These features eliminate echo reflections from the balcony front, carry reinforcing sound to the rear under balcony seats. Even worse than a horizontal balcony soffit is one which slopes up to the rear. A listener sitting in such a reentrant space feels that he is in another room into which inadequate sound is coming from the auditorium itself. There should be properly oriented reflecting surfaces near the sources of sound. Smaller scale surface irregularities are frequently help-

(*Continued on page 244*)

PLANNING GRADE SCHOOL KITCHENS

Engelhardt, Engelhardt and Leggett, Educational Consultants

TO KEEP operation expenses of school cafeterias at a minimum, the physical layout must permit an orderly sequence of work. Receiving, storage, working and serving areas must be closely related. And at the same time, adequate food service equipment must be provided, properly integrated with the layout.

The architect should plan the cafeteria to serve the two groups of children who will use it. One group will buy lunch there; the other will bring lunch from home and buy milk at school. Congestion will be reduced if a separate line is established for purchase of milk and ice cream only.

Careful consideration should be given to the problem of handling the large quantities of milk used in modern schools — refrigeration, washing and bottle storage.

A double service line is desirable, as speedy service insures a greater number of children buying school lunches.

Receiving and Storage Areas

The door to the kitchen proper must be wide enough to permit the movement of all equipment. A protected space for unloading and receiving supplies adjacent to the storeroom and kitchen is essential. A table and platform scales should be located here so that the deliveries may be weighed and checked before they are stored or taken to preparation areas.

The storeroom for canned and staple foods should be ventilated, rodent-proof, easily cleaned and protected from theft by a door which can be securely locked. Metal shelving is desirable. For No. 10 cans, shelves 14½ in. deep and 16 in. apart are satisfactory. It is convenient to have one 2-ft shelf at a height of about 42 in., below which bins or metal cans on rollers can be placed. A portable table on casters saves many steps between the storage room and the kitchen.

A walk-in icebox is necessary for the storage of vegetables, sacks of potatoes, etc. Ample refrigeration insures that sufficient quantities of perishable supplies may be ordered and delivered at wholesale prices. There is an increasing use of frozen foods which must be held at a temperature of approximately 5 F, so a frozen food storage cabinet should be provided. (See Table for sizes.)

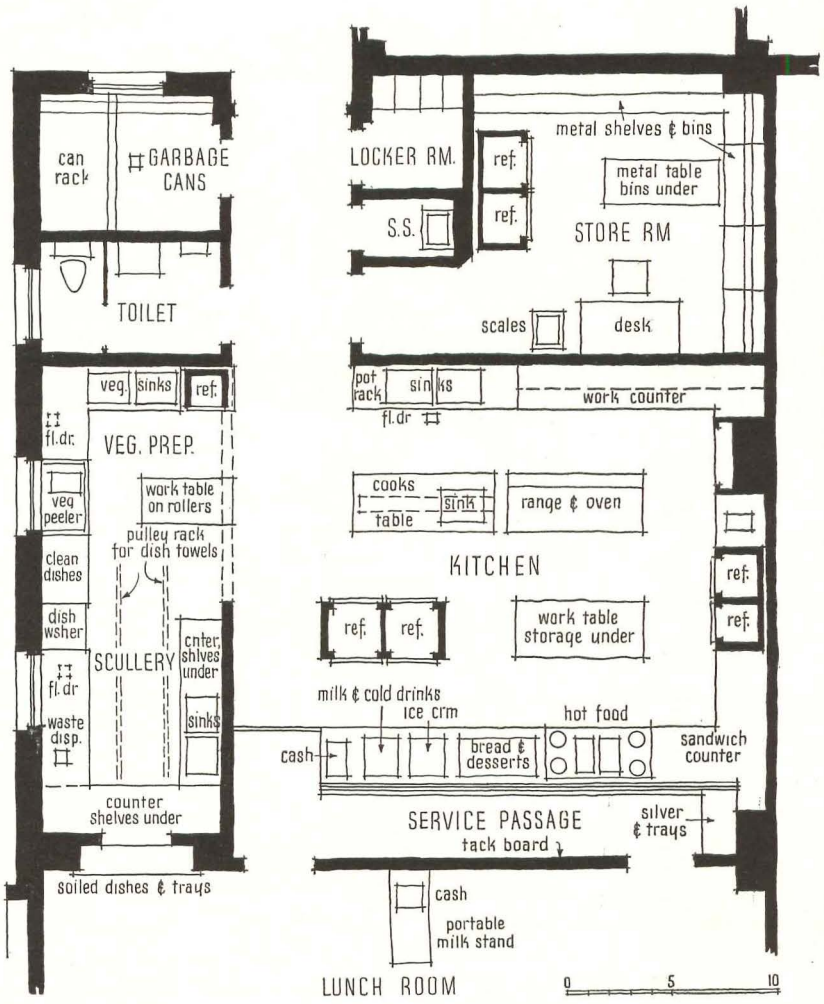
Food Preparation

Sinks. The food preparation area should have two- or three-compartment sinks. The sinks should be stainless metal, welded, seamless, one-piece, with rounded corners and with sufficient pitch to drain quickly. If space permits, each compartment should be 24 to 30 in. long and the drainboards 30 to 36 in. Gate valves should be used instead of plugs.

Potato Peeler. The potato peeler should be set high enough to empty onto the drainboard or into the sink. It should be so placed that it is easy to clean.

Tables. Three tables are necessary — one for vegetable preparation, one for the salad and sandwich preparation and one for use by the cook. Stainless metal table tops and shelves are desirable.

The cook's table should be provided with a rack overhead and a sink. It should have drawers mounted on slides, with roller bearings. Linoleum lined drawers for knives and spoons lessen the noise and protect the implements.



A typical kitchen layout for an elementary school. Designed for Hillcrest Elementary School, San Francisco, Calif., by Day and Michelsen, Architects

Ranges. Either two-section, heavy-duty ranges (each section 36 in. wide, oven below) with solid tops and ovens should be provided or a one-section range with oven plus a two-deck oven in the elementary schools. Larger schools should be provided with three to four range units and the two-deck ovens. A water tap over the range is convenient for filling the kettles.

An electric fan should be installed in the hood to remove heat and kitchen odors.

The vent pipe of all range hoods must be trapped with a grease trap or filter in a manner satisfactory to the local health department. Installation of hoods in which the vent opens directly to the outside without a filter or trap is no longer permissible.

EQUIPMENT FOR VARIOUS SERVICE NEEDS

Equipment	*Dimensions*	No. Units to Serve *75–150*	*150–350*	*350–800*
Heavy Duty Range	36 by 36 in.	2 units, or 1 plus bake oven	2	2
Bake Ovens, 2 deck	54 in. wide by 36 in. deep by 70 in. high		1	2
Steam Cooker, 2 compartment	41 in. deep by 35 in. wide		1	1 (4 compartment
Potato Peeler, capacity 15 lb	29 in. wide by 20 in. deep	1	1	1
Mixing Machine, 40 to 60 qt		1	1	1
Dishwashing Machine		Single tray	Double tray	Double tray
Slicing Machine	Large table model	1	1	1
Sinks				
Vegetable Sink, 2 compartment	18 by 18 by 12 in.	1	1	1
Slop Sink	24 by 20 by 14 in.	1	1	1
Hand Sink	15 by 12 in.		1	1
Pot Sink *		1	1	1
Tables				
Receiving Table		3 ft by 18 in. by 28 in.	4 ft by 24 in. by 28 in.	6 ft by 24 in. by 28 in.
Pre-preparation for vegetables			4 ft by 24 in. by 36 in.	5 ft by 30 in. b 36 in.
Salad and Sandwich		4 ft to 6 ft by 30 in. by 36 in.	6 ft by 30 in. by 36 in.	6 ft by 30 in. L y 36 in.
Cook's Table		6 ft by 30 in. by 36 in.	6 ft by 30 in. by 36 in.	7 ft by 30 in. by 36 in.
Baker's Table			3½ ft by 30 in. by 36 in.	4 ft 6 in. by 30 in. by 36 in.
Refrigeration				
Reach-In Refrigerator		35 cu ft	45 cu ft	2 (45 cu ft)
Walk-In Box		6 by 6 ft	6 by 6 ft	8 by 10 ft
Deep Freeze Lockers		28 by 37 by 38 in. (approx.)	same	28 by 57 by 38 in. (approx.)
Ice Cream Cabinets (for serving lines)		1 (2 hole)	2 (4 hole)	2 (8 hole)
Refrigerator for separate milk service				15 cu ft
Electric Bun Warmer			28 by 37½ by 54½ in.	same

* *See text, "Pot and Pan Sink," this page.*

Pot and Pan Sink. A pot and pan sink located near the range saves steps. It should be built with two drainboards, one on each end; three wash compartments; and a small scraping compartment. The first one is a soaking sink. Between the soaking and the wash compartment is a small one, approximately 8 in. wide and 10 in. deep, with a removable perforated tray set on top of it into which food materials are scraped. The third wash compartment is for rinsing. The compartments for the sink should be 14 to 16 in. deep, 20 in. wide, and 28 in. long. Shelves should be provided, mounted on wheels, under the drainboards.

Serving Area. A glass plate in front of each serving counter to protect food from the breaths of those in line is usually required by the health authorities. This glass plate should be placed several inches above the top of the counter so there is space for passing plates of food under the glass.

Electrically heated food tables in stainless metal are more desirable than the gas steam tables. In the electric food tables, steam and moisture are eliminated and the tables do not require plumbing. Each section in the table is thermostatically controlled and the heat in each section can be adjusted to the proper temperature for each type of food. Panel adapters are available which makes it possible to use different sized containers.

A dry hot food storage table may be substituted. For this type, a gas line is required, but no plumbing, water, or drains are needed. The temperature of each compartment can be controlled individually.

Silver containers should be on the service counter near the trays. These containers should be built so that the silver may be stacked, handles up.

Soaps, detergents, etc., should be stored in a compartment under the pot and pan sink area. Sufficient space above and below the dish tables insures proper air drying.

A towel drying rack which can be pulled up close to the ceiling should be included.

The garbage can storage room should be located so that it is accessible from the driveway, convenient to the kitchen, yet can be locked on the kitchen side. The room should be louvred and screened for natural ventilation. It should be located near the receiving area, not the kitchen. The garbage room should have

(*Continued on page 248*)

I.E.S. ISSUES FIRST DAYLIGHTING REPORT

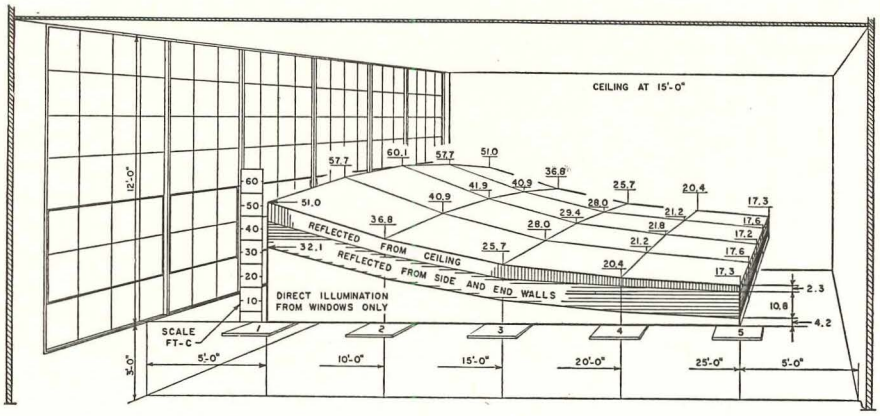


Illustration from first I.E.S. report on daylighting effectively shows the total lighting distribution on a horizontal plane 3 ft above floor

The first *Recommended Practice of Daylighting** just published by the Illuminating Engineering Society presents technical data and recommendations for the effective utilization of daylight in schools, offices, factories and homes. The principles described, however, can be applied to all types of building.

Recommendations form the main text of the report; design information needed for daylighting calculations is covered in several appendices; and a comprehensive bibliography of over 200 references concludes the report. Almost all of the data contained is from previously published material.

At first, the report discusses daylighting design principles, including such topics as sky brightness, daylighting distribution, effect of inside and outside colors, and effect of obstructions. Then follows general information on sunlight control, including building orientation; fixed and variable devices such as shades, louvers and overhangs.

Tables and graphs plus accompanying explanatory text in the appendices permits planning for desired lighting requirements.

The report was compiled by a Sub-Committee of the Committee on Daylighting, assisted by Bernard F. Greene, lighting consultant.

* *Available from Illuminating Engineering Society, Publications Office, 51 Madison Ave., New York 10, N. Y. 50 cents.*

HEATING CABLE USED FOR SNOW MELTING

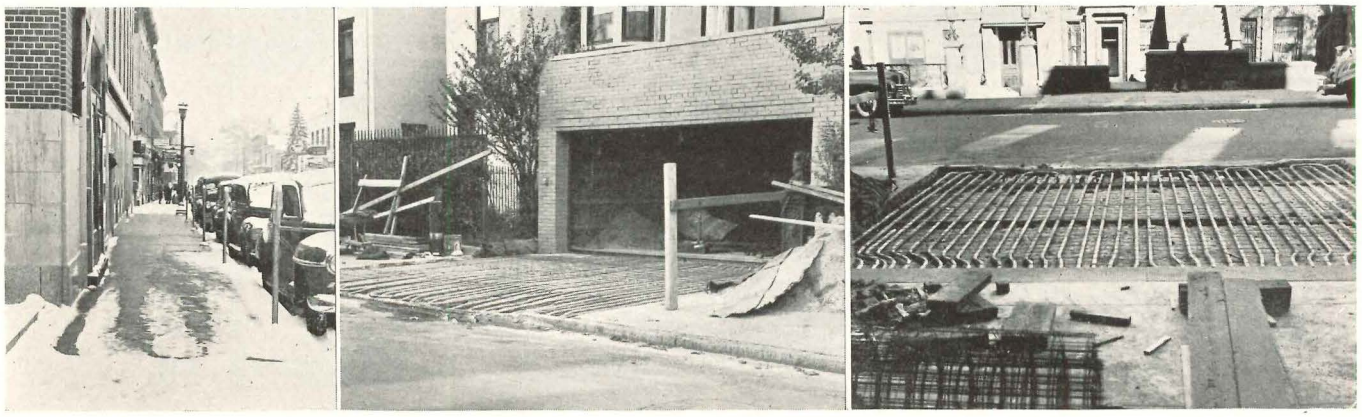
Snow was melted from the sidewalk (portion just beyond second parking meter) shown in the left photo simply by flicking a switch. Electric heating cable placed inside steel conduit supplies heat to this sidewalk which is in front of the Rockland Light and Power Co. building in Nyack, N. Y. Conduit protects the cable and permits replacement if the cable fails. The other photos show how the system was installed in a driveway for a garage in Brooklyn, N. Y.

The lead-sheathed heating cable used comes in 60- and 120-ft lengths for 120 and 240 v, respectively; rating of the 60 ft cable is 420 watts. Maximum sheath temperature is 165 F.

Spacing of the 1-in. galvanized conduit is based on a load of 32 w per sq ft, which is sufficient to melt a snowfall of 1 in. per hr at an air temperature of 26 F. The conduit on these jobs was spaced 6 in. on center and buried about 1½ in. below the concrete surface.

Conduits terminate in a pull box with copper terminal strips for the cables.

According to Mario F. Muzzillo, New York City consulting engineer who designed these installations, initial cost is about $2.00 per sq ft (New York City), and annual operation cost (100 hr) for 1000 sq ft would cost $64 at 2 cents per kwh.



HARDWARE—10; DOOR CLOSING DEVICES

By Seymour Howard, Architect, with the cooperation of American Society of Architectural Hardware Consultants

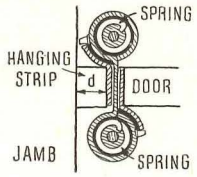
SPRING HINGES

Simplest closing device. Energy stored in spring closes door. No closing speed control unless additional device is used, such as surface type door check without spring.

DOUBLE ACTING SPRING BUTT HINGES

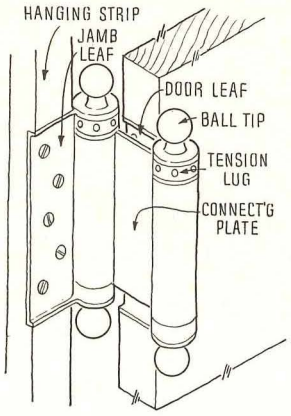
Note: Also available with button tip

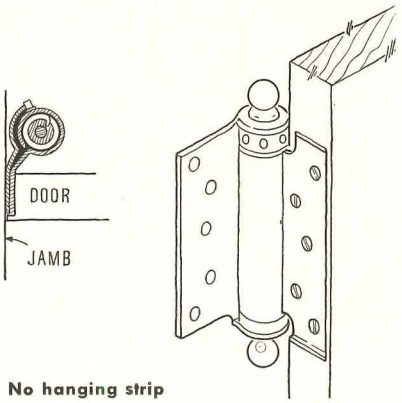
Double Acting



With hanging strip

Also available with clamp flanges and bolts for kalamein doors.

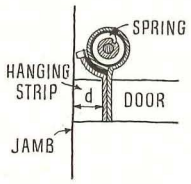




No hanging strip

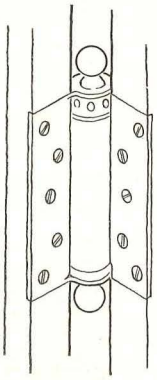
SINGLE ACTING SPRING BUTT HINGES

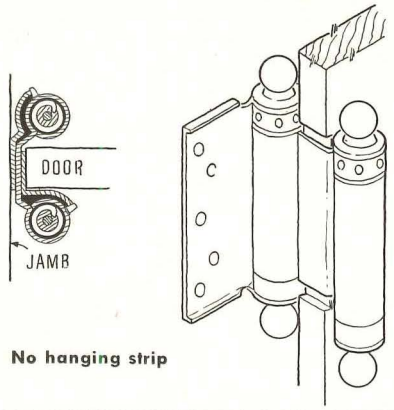
Note: Also available with button tip



With hanging strip

(If jamb face is in line with door face, this type can be used without additional hanging strip)
Also available as half surface hinge for kalamein doors with pressed steel jambs (4, 6, and 7 in. sizes)





No hanging strip

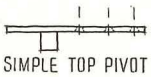
SIZES OF SPRING BUTT HINGES	Size	Min Door Thickness	Max Door Thickness Wood	Max Door Thickness Metal	Max Door Width	Max Door Weight	Depth (d) Hanging Strip (if required)
Note: Check all information and details for exact cases carefully with mfr.'s catalogs.	3″	¾″	1″	⅞″	2′–2″	30 lb.	½″
	4	⅞ (1)	1¼	1⅛	2–4	42	⅝
Variations in door thickness for hinges of different mfrs. shown in parentheses.	5	1⅛ (1)	1½	1⅜	2–6	56	⅝
	6	1¼ (1⅛)	1¾	1½	2–8	72	¾
* For hanging strip only.	7	1¾ (1¼)	2	1¾	2–9	90	⅞
	8	1½	2¼	2	2–10	110	1
	10	1¾	2½	2⅛	3–0	150	1⅛
	12*	2¼	3	2⅝	3–2	190	1¼

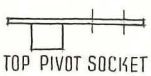
General Rules

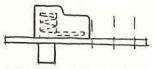
1. Use largest size hinge that thickness of hardwood and kalamein doors will permit
2. Use min door thickness only for light wood doors
3. Use three hinges for doors that are extra heavy or frequently used. Place third hinge down ⅓ distance between upper and lower hinges.

SPRING PIVOT HINGES

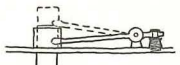
Double Acting





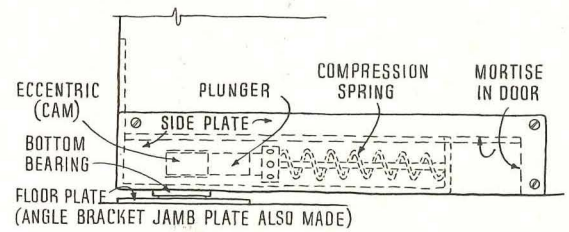


NOTE: TOP PIVOTS MAY BE USED WITH ANY CENTER-PIVOTED DOOR



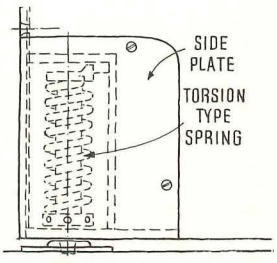
Horizontal Type

For doors 1⅛ to 2¾ in. thick



Vertical Type

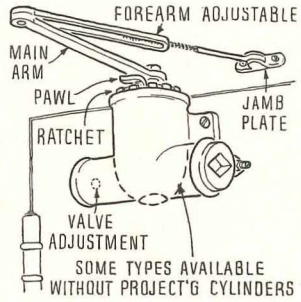
For doors 1⅛ to 2¾ in. thick

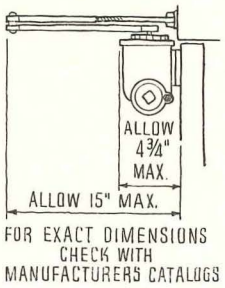


HARDWARE—11; DOOR CLOSING DEVICES

By Seymour Howard, Architect, with the cooperation of American Society of Architectural Hardware Consultants

DOOR CHECKS (CLOSERS)



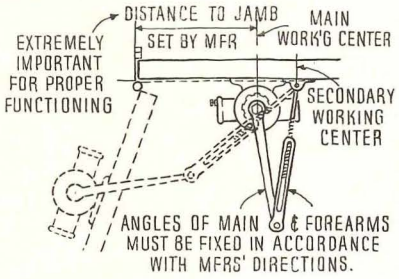


Surface Type

Dimensions approx. Check with mfr. for exact sizes

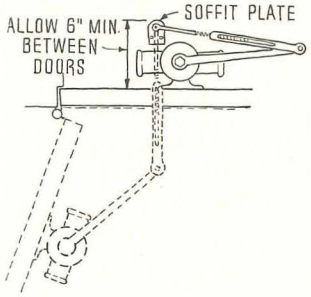
Angle to which door may be opened is set by: closer to jamb distance; length of main arm (may be available in different sizes) and fore arm (adjustable); jamb and butt conditions; projection of closer. When specifying, state max opening angle desired.

OVERHEAD CLOSERS



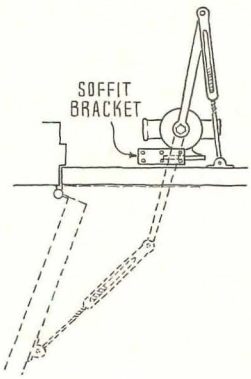
Mounted on door, hinge side, with regular (exposed) arm.

Door weight carried on hinges or pivots



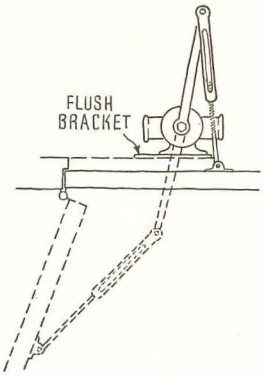
Parallel Arm

Mounted on stop side of door. Used where min clearance is required; e.g. between two doors. Effective power reduced; use next larger size.



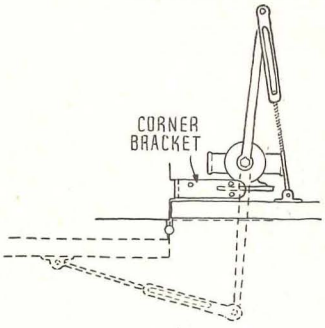
Soffit Bracket

Soffit bracket usual type. Distance from jamb to main working center maintained for full effectiveness.



Flush Bracket

Flush type mounted on face of opposite side when soffit is narrow. Working center distance maintained.



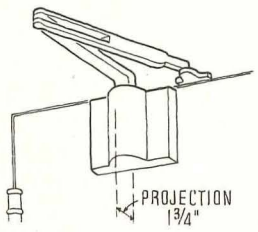
Corner Bracket

Mounted on brackets on stop side to keep closer out of weather, to hide, or when trim interferes.

Corner bracket used to obtain 180° opening or for less obstruction. Effective power reduced; use next larger size.

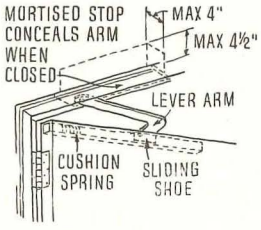
Special Arms Available: Two or three point hold open arms for hospitals (private—about 10° for ventilation; semi-private—about 45°; passage—about 95°); and hold open arms with fusible links for automatic closing in case of fire. Hold open arms cannot always be depended on for exterior doors opening out; use separate holder if necessary.

Semi-Concealed Type

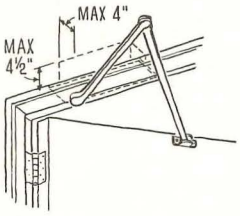


Partly mortised into upper door rail. Usually requires 1¾ in. wood, 1½ in. metal door.

Fully Concealed Type



Housed in head above door. For doors on hinges, offset or center pivots.



Housed in head above door. Projecting arm gives greater power than concealed arm. Door on hinges or pivots. Arm projects on stop side. Also used on outswinging wood doors when door top is not weather protected.

Sizes of Overhead Door Closers *(From Dept. of Commerce CS22–40)*

Where strong drafts are encountered and as noted above under bracket and parallel arm installations, use next larger size.

Size	Description, Max Door Size (Approx.)
I	Ordinary screen, light interior doors 1⅛ in. by 2 ft-6 in. by 6 ft-6 in.
II	Heavy screen doors, 1⅜ in. by 3 ft by 7 ft Light interior doors, 1⅜ in. by 2 ft-8 in. by 7 ft Closet doors, 1¾ in. by 2 ft-8 in. by 7 ft
III	Light exterior doors, 1¾ in. by 2 ft-6 in. by 7 ft Corridor or office doors, 1¾ in. by 3 ft by 7 ft
IV	Ordinary exterior doors, 1¾ in. by 3 ft by 7 ft-6 in. Heavy interior doors, 2¼ in. by 4 ft by 7 ft-6 in.
V	Heavy exterior doors, 2¼ in. by 3 ft-6 in. by 7 ft-6 in. Heavy interior doors subject to strong drafts
VI	Extra heavy entrance doors 3 in. thick or over, or doors of unusual height or width, refrig. doors, etc.

(Continued on page 177)

PRODUCTS for Better Building

For the Betterment of Builders' Hardware

The *American Society of Architectural Hardware Consultants* seeks to work with the architectural and engineering professions toward a sympathetic understanding of mutual problems. Their chief objectives are to promote knowledge of, and interest in the betterment of hardware and the preparation of schedules and specifications. The organization, founded in 1940, is an affiliate of the National Contract Hardware Assn., and represents distributors and technical men in the hardware industry. A uniform code of ethics requires integrity, dependability and full knowledge of building construction from all members. Regional offices are located throughout the nation. Administrative Offices are at 420 Madison Ave., New York 17, N. Y.

Ash Removal Hoist

The *P&H Zip-Lift Electric Hoist*, operating on the boom principle, is recommended by the manufacturers for use in ash removal from basements in large buildings. The 24-ft lift of the jib-mounted hoist is said to be ample to remove loaded ash cans weighing up to 400 lb from an 18-ft deep pit, to a height sufficient for easy loading on trucks. The hoist operates on standard 110-v current, and may be had in capacities up to 2000 lb for this and other services. Harnischfeger Corp., Hoist Div., 4400 W. National Ave., Milwaukee 14, Wisc.

Storm Sash and Screen Unit

The *Eagle-Picher Triple Slide* storm window combines two glass panes and a screen which move up and down independently of one another, each along an individual channel. The unit was designed to allow quick and easy changes to be made to suit any kind of weather. Frames are all aluminum or aluminum and stainless steel. An aluminum sealer strip closes the space between the storm window and the primary window frame. Each of the sash inserts is removable for washing from the inside of the house. A safety lock is provided on the bottom of the screen unit. Eagle-Picher Co., Cincinnati 1, Ohio.

Brick-Faced Concrete Block

Bric-Block combines standard concrete block with a brick facing. The blocks are available in a great variety of colors, shades and ashlar designs, and the usual types of face textures used in brick construction.

Tests made with the material showed that after 8 cycles of freezing and thawing the brick face did not separate from the blocks, nor were there any signs of cracks in the face. Features cited include good insulation value; fire-proof, damp-proof and weather-tight; and little maintenance. Bric-Block of Newark, Inc., 430 Adams St., Newark, N. J.

Asbestos-Cement Shingles

Stri-Tex, a new asbestos-cement siding shingle, is designed for exterior application on either new or old side walls. The finish is said to have a striated texture, with colorful mineral granules embedded in the surface. The material is currently available in brown, green and gray. The Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.

Industrial Floor Tile

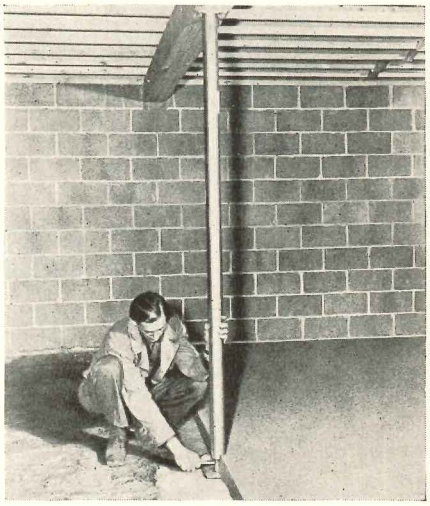
Enduro floor tile, the manufacturers claim, can be subjected to the hardest kind of usage and installed on practically any type of underflooring. It can also be laid on or below grade, provided normal precautions are taken and water pressure is not present. The tile is said to have the abrasion resistance of inlaid linoleum, not to become hard or brittle or to shatter under impact, and to be highly slip resisting.

Enduro tile has an asphaltic base and is made ¼-in. gage in dark brown, black and dark green. It is available in 12-, 18- and 36-in. squares, and in 18- by 24-in. and 24- by 48-in. sizes. Sloane-Blabon Corp., 295 Fifth Ave., New York 16, N. Y.

Adjustable Steel Columns

The *Tapco Mono-Post* is designed to serve first as an adjustable support column during the early stages of residential and light industrial construction, then to be embedded in the concrete floor as a permanent fixture. Temporary support installations are eliminated.

The post is made of 11 gage, 3 in. OD plastic-coated steel tubing. The 7-ft post weighs about 40 lb. The assembly includes welded plates at the top and bottom and a precision-built jack for periodic adjustments. In use, the jack is first attached to a footer. After adjustments on all supports have been completed, the base plate, jack, and about 1 in. of the post are embedded in the concrete floor. The finish is said to be silvery in appearance, durable under all atmospheric conditions, and resistant to acid, alkali and corrosive influence in general. Akron Products Co., Seville, Ohio.



Plastic-coated steel post serves both as temporary and permanent support column

(*Continued on page 252*)

Quality everyone can afford

Everyone wants the best hardware in his home at the lowest cost. WESLOCK Cylindrical Locks offer economy without compromising quality and style to keep costs down. They have the durability, convenience features, and acceptance generally found only in lock sets costing up to 100% more! It's easy to standardize on WESLOCKS because the line contains a proper unit for every door in the house—and they are sure to please your most exacting customers. Send today for the latest catalog.

WESTWOOD **MANUFACTURING CO.**
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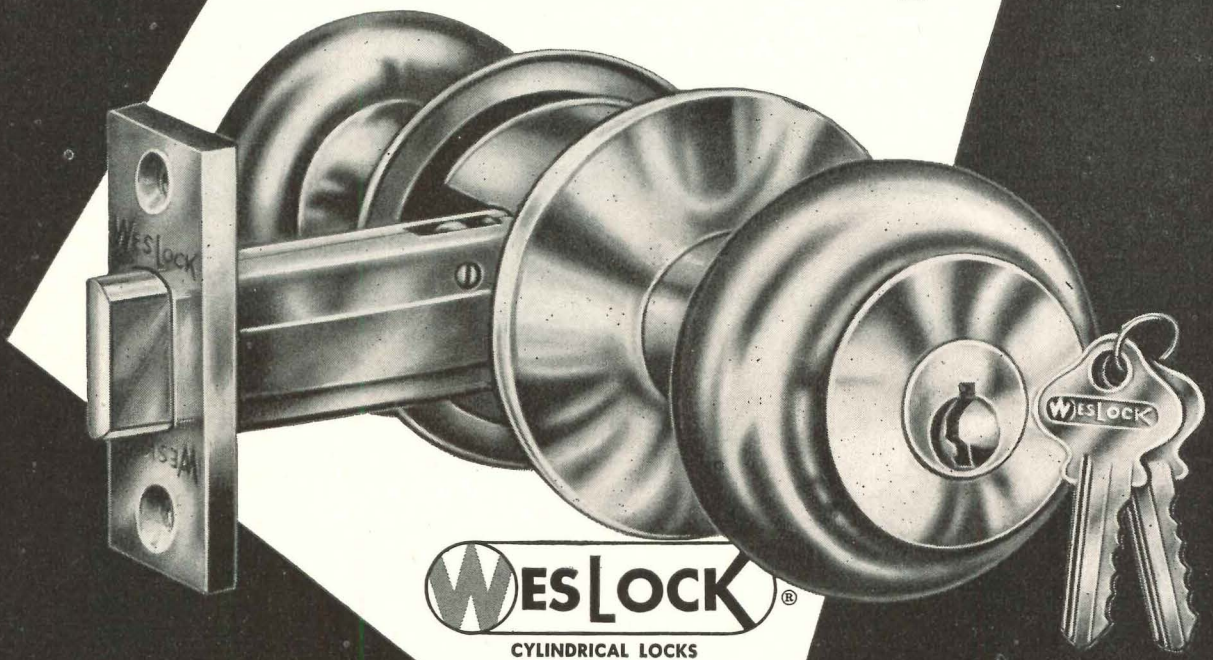
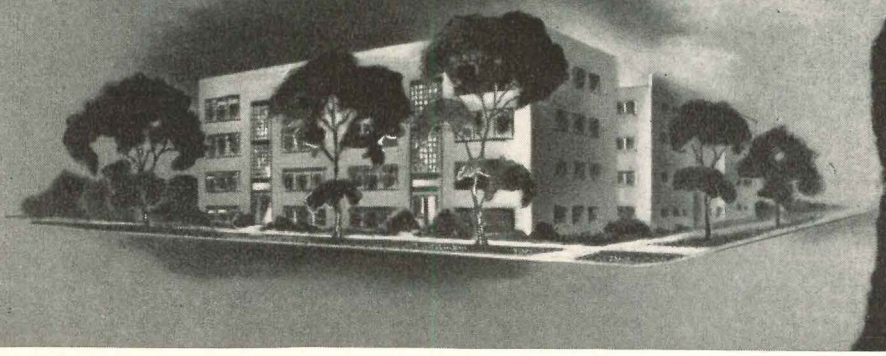
Los Angeles 23, California

WESLOCKS



WESLOCK®
CYLINDRICAL LOCKS

Sierra design
No. 230 Exterior Keylock

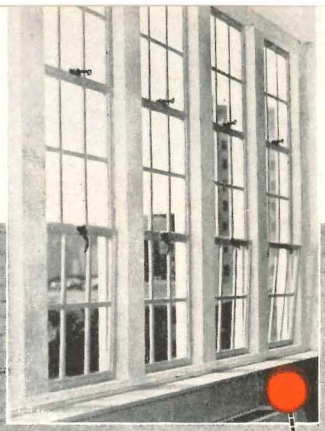


Another WESLOCK installation, Triplex Apartments, Chicago, Illinois, F.H.A. Insured

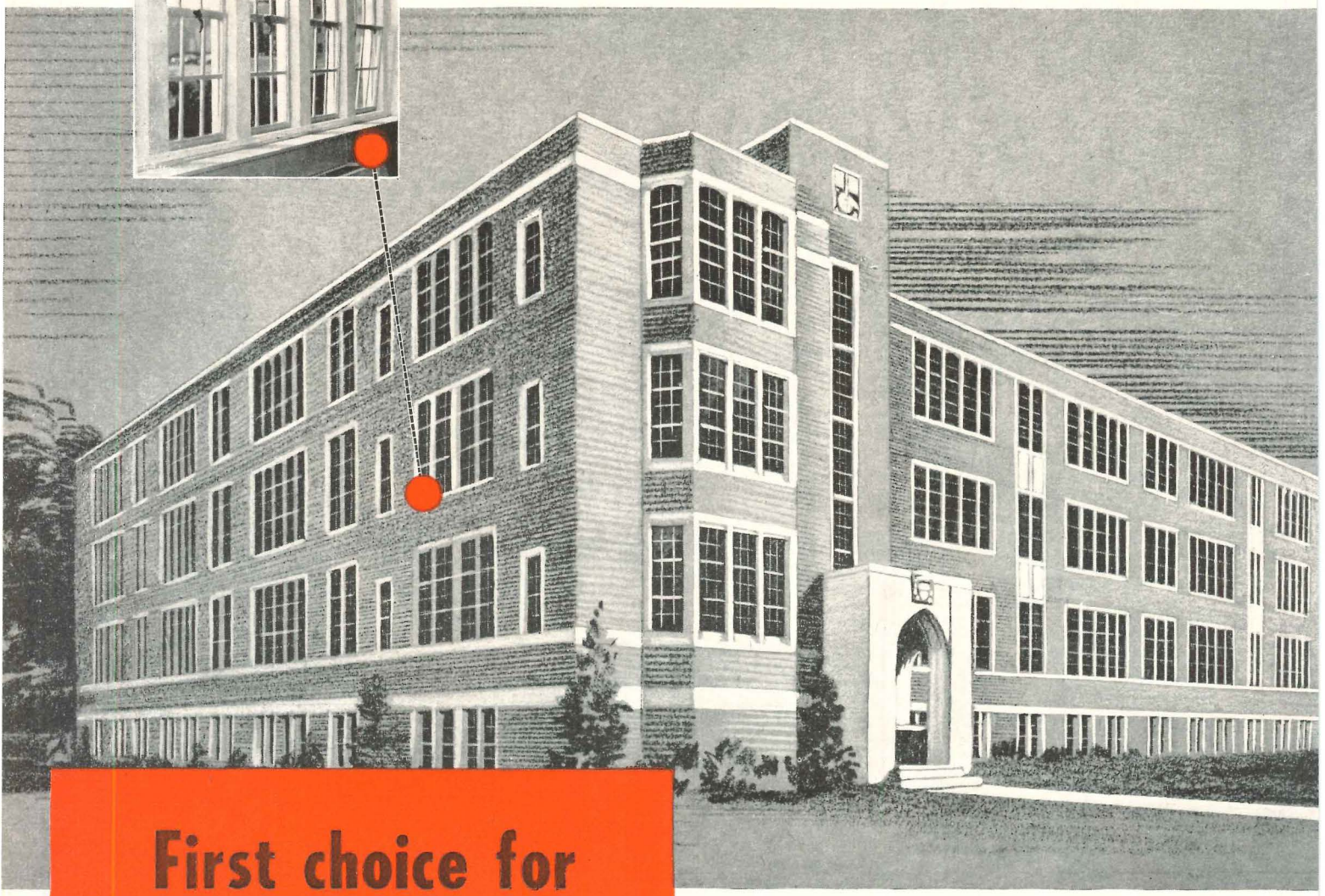
Architect: Max Alper, A.I.A.

Builder: Keere Construction Co.

Hardware Contractor: Howell Hardware Co.

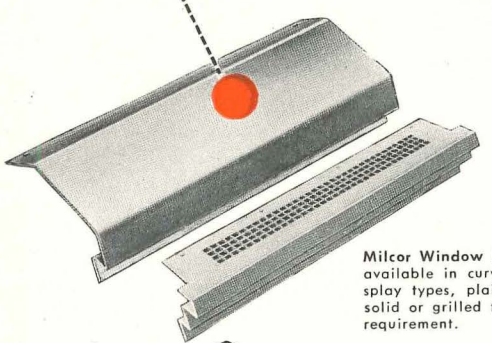


Grilled Window Stool installation over recessed radiators, installed by Dillaby Fireproofing Co., in Emmanuel College Science Bldg., Boston. *Maginnis & Walsh, Architects, Boston, Massachusetts.*



First choice for looks that last

MILCOR Steel Window Stools



Milcor Window Stools are available in curved, flat or splay types, plain or moulded, solid or grilled to meet any requirement.

A *must* for modern, fireproof construction. They are permanent, fire-safe, and wear-resistant . . . sanitary and economical . . . easy to install and easy to clean and maintain.

Attractive too. Available in a complete range of styles, types, and sizes to suit the exact interior you have in mind: curved, splay, or flat — solid or grill top, moulded or plain. May be used separately or together with Milcor Metal Window Trim, corner fittings, and other accessories. Look for full details in Sweets, or write for a copy of the the new Milcor Manual. No obligation.

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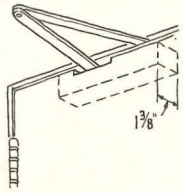
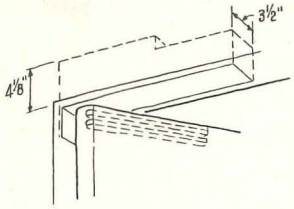
HARDWARE—12: DOOR CLOSING DEVICES

By Seymore Howard, Architect, with the cooperation of American Society of Architectural Hardware Consultants

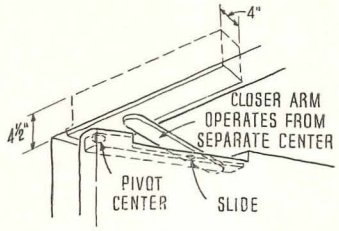
Fully Concealed Overhead Door Closers (Continued)



Housed in door. For interior doors only. Also available with concealed arm. Door hung on hinges or pivots.

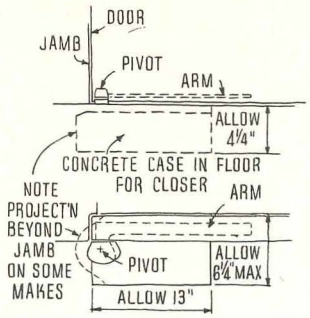


For double acting interior doors, hung on center pivots. Housed in head above door.



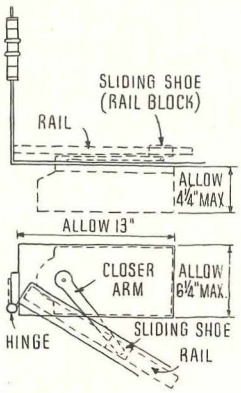
For heavy and exterior double acting doors, hung on center pivots. Housed in head above door.

FLOOR CLOSERS (CHECKING FLOOR HINGES, FLOOR CHECKS)

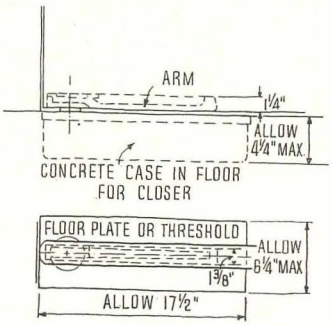


Single Acting On Offset Pivots

Weight carried on closer spindle. Also available with separate closer arm operating from centerline of door.



Single Acting on Butt Hinges



Double Acting On Center Pivots

Similar type available for single acting on center pivots (Mechanism is simpler. Only 13 in. length of case needed).

The above type closer is also available with closer arm operating from separate center (weight of door not carried on closer spindle).

See mfr.'s catalogs for sizes required for specific doors and for exact dimensions

PRINCIPLES OF CLOSER MECHANISMS

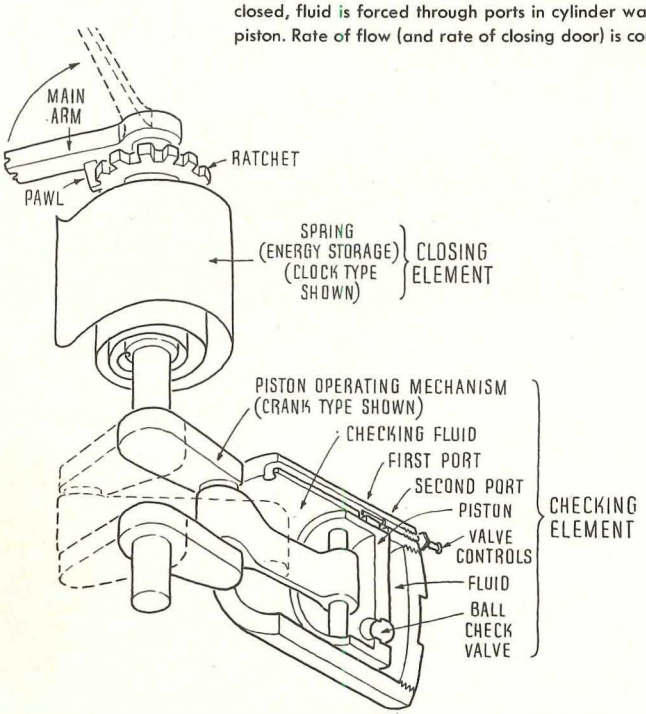
Designs vary with mfr. and position of closer. Basic operating principle is common to all:

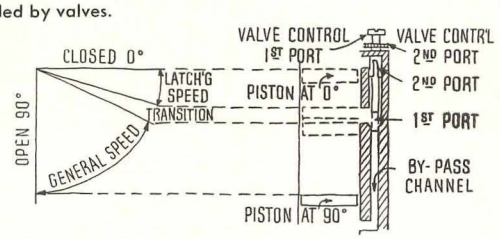
Opening Door:

Energy is stored in spring; shaft, through connecting mechanism, moves a piston, displacing checking fluid through a ball check valve.

Closing Door:

Energy in spring rotates spindle, closing door; at same time piston is moved back. With ball check closed, fluid is forced through ports in cylinder wall into by-pass channel leading to other side of piston. Rate of flow (and rate of closing door) is controlled by valves.





Latching speed may be:

1. Same as general speed
2. Greater than general speed to overcome latch-point resistance (strong draft or latch spring)
3. Less than general speed for silent closing.

Spring May be:

1. Spiral wound, flat band (clock type)
2. Helical wound, circular, oval or flat wire.

A. Torison type

B. Compression type

Piston Operating Mechanism May Be:

1. Crank type (as shown)
2. Cam type (usual in floor closers)
3. Semi Rack and pinion
4. Full rack and pinion
5. Rotary position
6. Diamond block.

3. PISTON

4. PISTON — PISTON

5.

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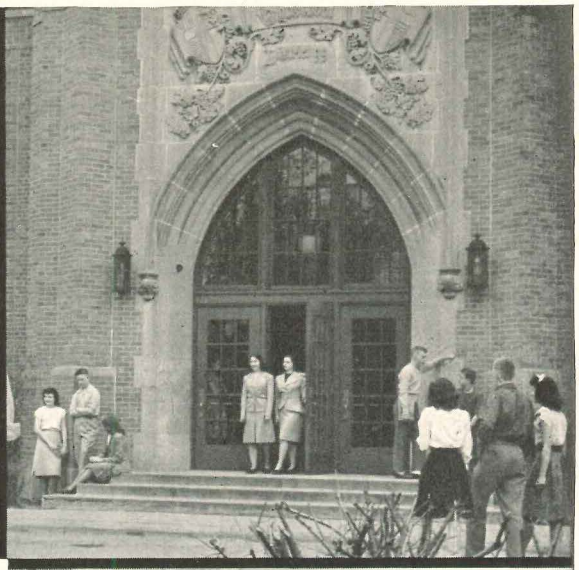
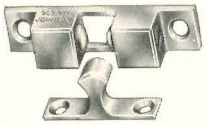


- √ Entrance
- √ Vestibule
- √ Classroom
- √ Stairwell
- √ Gymnasium
- √ Closet
- √ Office
- √ Transoms

G-J 400
Concealed Transom Adjuster



G-J 21A
4-Way Catch

G-J F-40
Door Holder
and Bumper

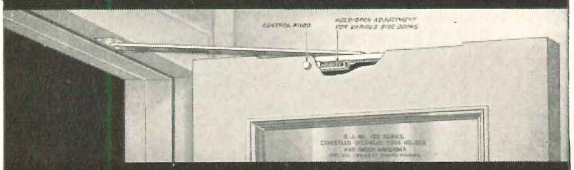
G-J FB-13
Dome Type
Door Bumper

G-J WB-5
Wall Type
Flush Bumper

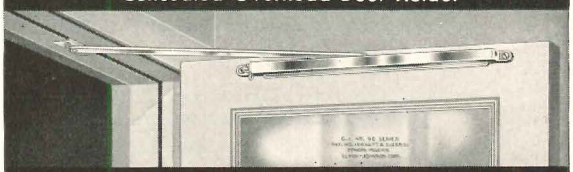
G-J F-20
Door Holder
and Bumper

G-J F-9
Door Holder
and Bumper

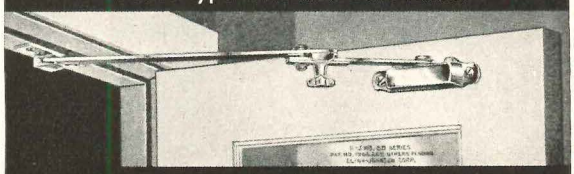
G-J No. 4
Hercules Door Holder



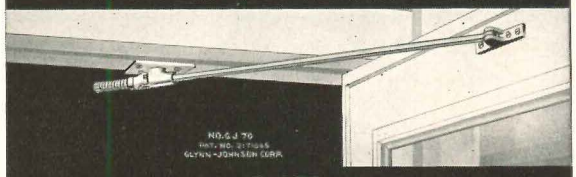
G-J 100
Concealed Overhead Door Holder



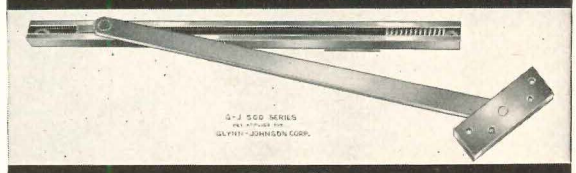
G-J 90
Surface Type Overhead Door Holder



G-J 80
Overhead Door Holder and Shock Absorber



G-J 70
Overhead Door Holder and Shock Absorber



G-J 500
Concealed Overhead Door Stay and Shock Absorber

For detailed description and applications of these devices, refer to our general catalog.

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HEATING SYSTEMS FOR HOUSES

Convector Baseboard Heating Systems: 4—Design Of System

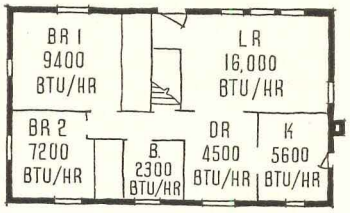
By William J. McGuinness
Professor of Architectural Engineering
Pratt Institute

This is the second of two parts on convector baseboard heating, and presents a simplified design procedure for a typical small house installation. Part I, covering basic data and layouts of the system, appeared in the March 1950 Time-Saver Standards.

Room heat loss is computed in the same manner as for other conventional heating systems. The system is very economical of pipe since most of it is in the heated space. Credit can be taken for the heat emission of bare pipe behind base. This and the finned areas of convectors make up heat loss in each room. Length of the convector will depend on its rating. Many designers feel that the lower output convectors are desirable because they come closer to filling up the length of the entire exterior wall, thus distributing heat better. A similar argument is offered for use of lower water temperatures. Convectors which discharge at the front cause less wall streaking but are slightly less efficient. Selection of pump and pipe sizes follows closely the usual procedure in designing radiator-type forced hot water systems. High points must be vented and low points drained Convectors and loops are run level. It is advantageous for incidental piping to pitch to drains. Lengths obtainable vary with manufacturers, but usually units come in multiples of 6 in. The base which covers the unit can often be cut to exact size on the job. Controls are not possible within a circuit except by dampers in some models. The several circuits in a large system can be balanced with valves or zoned by the use of separate pumps.

DESIGN OF A SERIES LOOP, FORCED HOT WATER SYSTEM USING BASEBOARD CONVECTORS

Step 1. Compute hourly heat loss. This computation is the usual one and is not affected by use of baseboard convectors:



	Btu/hr heat loss
Living Room	16,000
Bedroom 1	9,400
Bedroom 2	7,200
Bath	2,300
Dining	4,500
Kitchen	5,600
Total	45,000 Btu/hr

Step 2. Establish average water temperature and temperature drop in system:

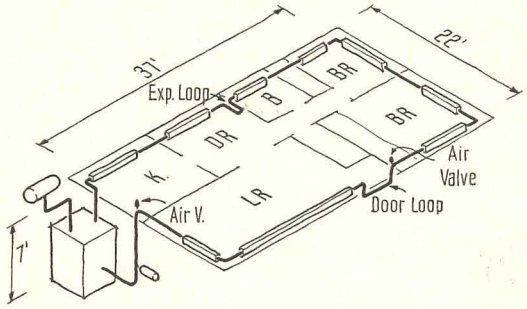
Average temperature	180 deg
Temperature drop	20 deg

Step 3. Compute gallons per minute (GPM) to be circulated at 20 deg drop to make up heat loss:

$$\frac{45{,}000 \text{ Btu/hr}}{9{,}600 \text{ (Factor)}} = 4.7 \text{ GPM}$$

For an explanation of step 3 and of factor 9,600 see Time Saver Standards, 2-Pipe Forced Hot Water Systems, Nov. 1949.

Step 4. Make layout and dimensioned pipe drawing to establish measured length and equivalent total length:

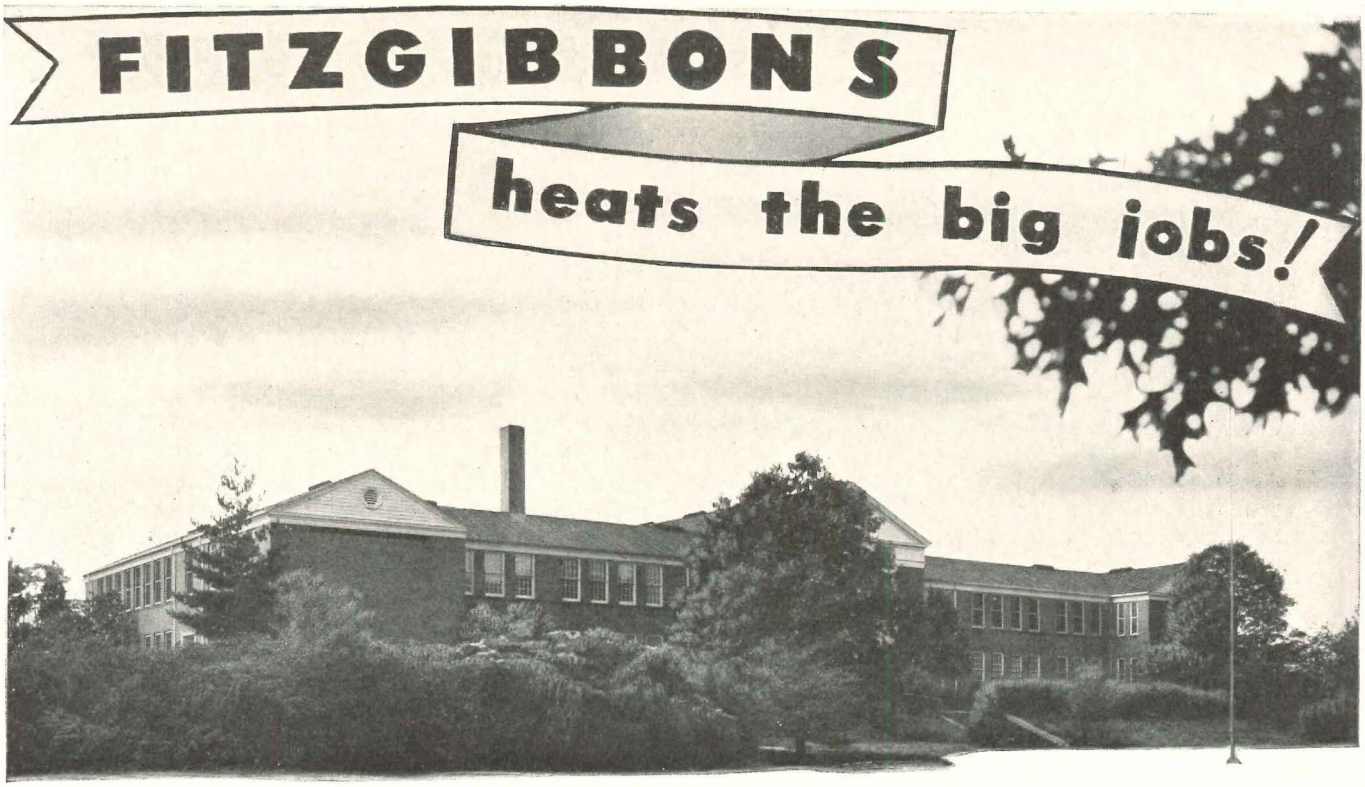


Actual Circuit Length:

Length	37
	37
Width	22
	22
Height	7
	7
	132 ft

Total equivalent length to include resistance of fittings, boiler, etc:
132 x 1.50 (add 50 per cent) = 197 ft
Say 200 ft.

(*Continued on page 181*)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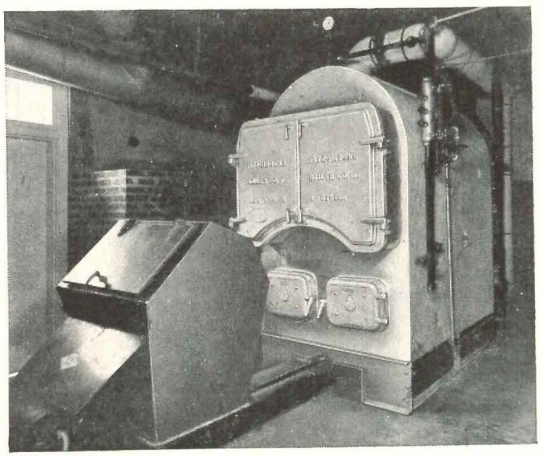
NORRIS, TENNESSEE, HIGH SCHOOL

A typically fine educational structure



Boiler room of the Norris (Tenn.) High School, showing stoker-firing.
Architects: Barber and McMurray, Knoxville, Tenn.
Heating Contractor: John F. Lonas, Knoxville, Tenn.

HEAT BY FITZGIBBONS STEEL BOILERS insures schoolroom comfort at lowest operating cost with any fuel. This stoker-fired installation is effecting great savings for the Anderson County School Board and justifying their confidence in its selection.

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HEATING SYSTEMS FOR HOUSES

Convector Baseboard Heating Systems: 5—Design Of System Continued

By William J. McGuinness
Professor of Architectural Engineering
Pratt Institute

(Continued from page 179)

DESIGN OF A SERIES LOOP, FORCED HOT WATER SYSTEM USING BASEBOARD CONVECTORS

Step 5. Select pump and establish "head" against which it must pump:

See Time Saver Standards, Nov. 1949, Booster Capacity, Chart 1.

A 1-in. pump will deliver 4.7 GPM against 5.5 ft of head.

Step 6. Select size of main:

Consult Time Saver Standards, Forced Hot Water Systems, Sept. 1949, Table 1 Sec. A, which also applies to this type of circuit. With an equivalent length of 200 ft and a head of 5½ ft, the pressure drop per ft will be 350 millinches.

Section "B" of this table shows that a 1-in. pipe will supply 59,000 Btu/hr at a 20 deg drop. This is adequate and a *1-in. main* will be selected. The capacity is found in the 350-millinch column.

Step 7. Select type of baseboard and by its output, compute the length required in each room:

For example, use Dumham "BOTS"; output at 180 F is 636 Btu/ft.

$$\frac{\text{Room heat loss}}{\text{Output/ft}} = \text{Length}$$

An "adjustment" (see below) is often used to increase the second and third divisions of the circuit 7½ and 15 per cent respectively. For this purpose, the circuit is divided roughly into 3 parts. The increase offsets the lower temperatures at end of line.

Space	Heat Loss	Length "BOTS"	Adjust-ment	Revised length to be used
L. R.	16,000	25.0 ft	None	25.0 ft
B. R. 1	9,400	15.0	x 1.075	16.0
B. R. 2	7,200	11.5	x 1.075	12.5
Bath	2,300	3.6	x 1.150	4.0
D. R.	4,500	7.1	x 1.150	8.0
K.	5,600	8.8	x 1.150	10.0

Step 8. Select expansion tank:

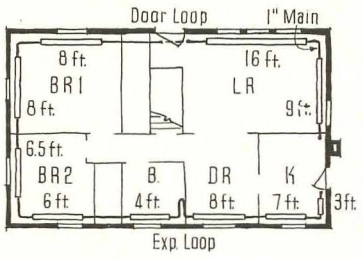
Btu Load	*Tank Size*
80,000/hr	8 Gals
150,000	15
180,000	18

An 8-gal tank is used.

Step 9. Select boiler:

Total heat loss of 45,000 Btu/hr and type of firing will be used in selecting boiler. Manufacturers make allowance for pipe-loss, pick-up and normal domestic hot water demand.

Step 10. Lay out system:



Notes: Heat emission of bare pipe has been neglected in this design, so system is slightly overdesigned.

Non-ferrous convectors can be used in series with fin-type baseboard elements. The size of these convectors is determined by their output rating at the average water temperature of the system.

180 deg average temperature is desirable for comfort and cleanliness. Higher temperature would make possible shorter units with resulting economy of installation.

MANUFACTURERS' LITERATURE

Air Diffusers

Experience Plus Energy — Agilair. Folder pictures and describes a line of square, rectangular and circular air diffusers for ceiling or side wall mounting. Line drawings give model numbers, patterns, and typical application of various types available. Air filters, grease filters and exhausters are also covered. 6 pp., illus. Air Devices, Inc., 17 E. 42nd St., New York 17, N. Y.

Ceramic Tile

The Color Book of Tile. The first section of this booklet consists of 30 color plates illustrating tile effects in bathrooms, powder rooms and kitchens. Each plate is accompanied by details of decorative strips, inserts, accessories, and alternate floor patterns. Specifications and descriptions of the tiles are listed on the reverse side.

The second section consists of eight 4-page folders giving color charts and sketches of the entire line of tiles. Copies are available to established architectural offices. 100 pp., illus. American-Olean Tile Co., 900 Kenilworth Ave., Lansdale, Penn.*

Acoustical Materials

How to Select an Acoustical Material. Booklet discusses acoustical correction and noise-reduction, and presents a line of materials, with description, sound-absorption coefficients and photographs of each. Sketches and details give data on installation by cementing, nailing, or mechanical suspension. 16 pp., illus. Armstrong Cork Co., Building Materials Div., Lancaster, Penn.*

Evaporative Cooler

Comfort Air Washer Answers the Need for Economical Summer Cooling. Folder describes and gives features of the Comfort Air Washer. Diagrams and photographs explain operation. Specification tables and drawings are given for four sizes of the unit. 6 pp., illus. Comfort Products Corp., 2220 Lamesa, Dallas 2, Tex.

Aluminum Siding

Kaiser Aluminum Siding Technical Information and Engineering Details. Booklet includes architectural drawings of various eave and window details, methods of application at exterior and interior corners, and foundation and frieze board details. Description of the siding is also given, with specifications, heat transmission coefficients, accessories, and general construction information. Renderings illustrate applications of the siding in various types of construction. 16 pp., illus. Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, Calif.

Steel Boiler

Kewanee Square-Heat Type R (Catalog 88-8). Presents features and operation notes on the boiler unit. Photographs, cut-away renderings and dimensioned drawings are included for various internal and external parts. Several tables give data for hand-fired coal, oil, gas or stoker operation. 8 pp., illus. Kewanee Boiler Corp., Kewanee, Ill.*

Radiant Heating Coils

(1) Kritzer Fin-Tube Radiant Coils for Radiant Panel Heating; (2) Kritzer Radiant Baseboard Heating. The first of these pamphlets shows step by step method of installing the heating coils in enclosed joist and stud spaces in ceilings, floors or walls. A schematic drawing shows a typical arrangement of heat circulation in a small house.

The second pamphlet gives data and construction details on a baseboard heating unit. Installation notes and drawings are also given. 4 pp., 6 pp., illus., Kritzer Radiant Coils, Inc., 2901 Lawrence Ave., Chicago 25, Ill.

Metal Louvers and Jalousies

Lemlar for Leadership in Daylight Engineering. Booklet describes line of metal Venetian awnings, vertical and horizontal louvers and jalousies for interior and exterior use. Models are shown with both fixed and movable vanes. Detailed drawings are included for each type, together with construction notes. Many photographs and drawings show typical installations. 18 pp., illus. Lemlar Manufacturing Co., P. O. Box 352, Gardena, Calif.

Storage Units

BSC, the Herman Miller System of Basic Storage Components. Brochure contains specifications, drawings, sizes, finish and related data on cabinet units for use in built-in storage walls and compartments. The units include drawers, shelves, panel doors, drop leaves, and radio and phonograph compartments in varying sizes. Several photographs show typical installations in carpenter-built frames. 16 pp., illus. The Herman Miller Furniture Co., Zeeland, Mich.

Nailing Channels

The Nailock Method for all Suspended Ceiling Construction and for Furring for all Types of Nailable Materials (Catalog N-2). Describes the nailing channels, lock clips and strips, and special nails. Basic methods of use and installation data are covered with drawings, notes and photographs. Specifications and a listing of distributors are also included. 8 pp., illus. The Sanymetal Products Co., Inc., 1701 Urbana Rd., Cleveland 12, Ohio.*

Sliding Door Hardware

Sterling Hardware for Sliding Doors (Catalog No. 11). Covers a line of hangers, tracks and hardware for sliding doors. Features and installation notes are listed for each, along with detailed plan and section drawings, and tables of sizes. Data is included for both by-passing and pocket doors. 8 pp., illus. Sterling Hardware Manufacturing Co., 2345 Nelson St., Chicago 18, Ill.

Appliance Venting

Venting Domestic Gas Appliances Four articles by Carl H. Dean, reprinted from the American Gas Journal, on the creation of venting standards for gas heaters and appliances. The series, by analyzing the problems presented and discussing research findings on the

(Continued on page 280)

**Other product information in Sweets's File, 1950*

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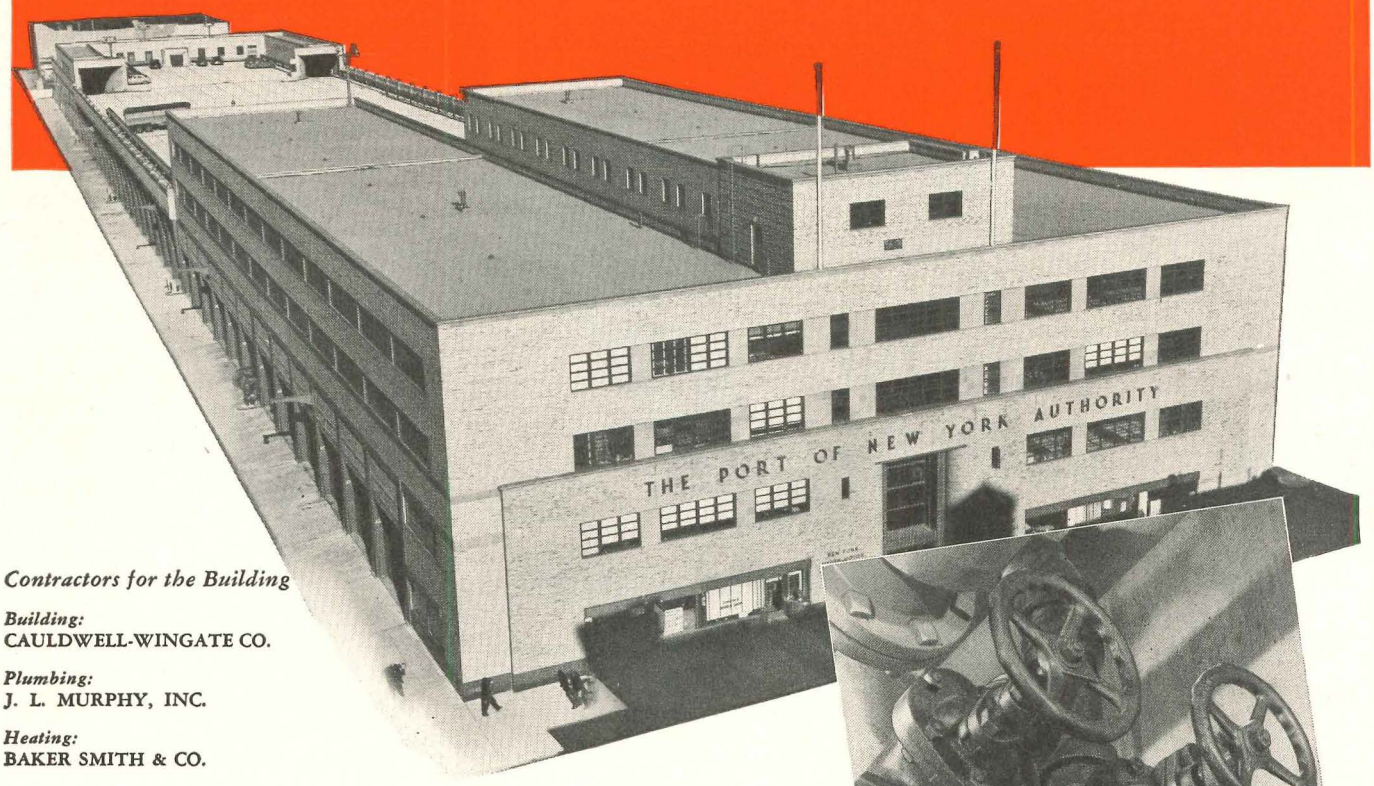

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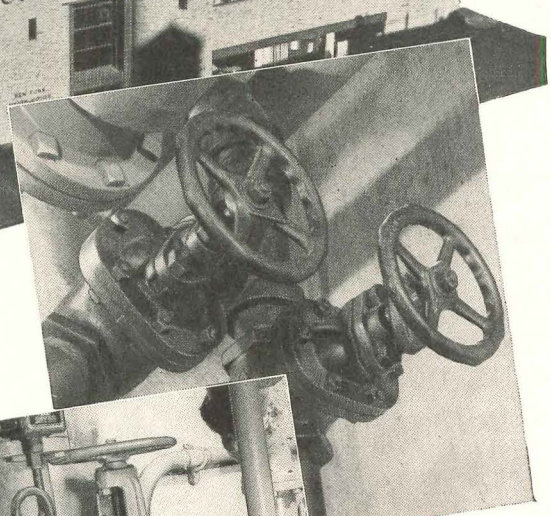

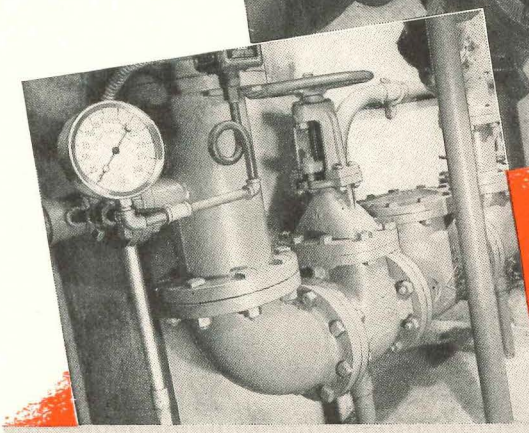

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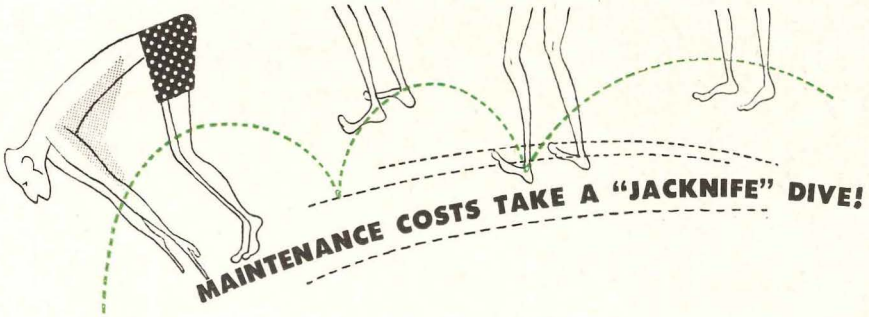

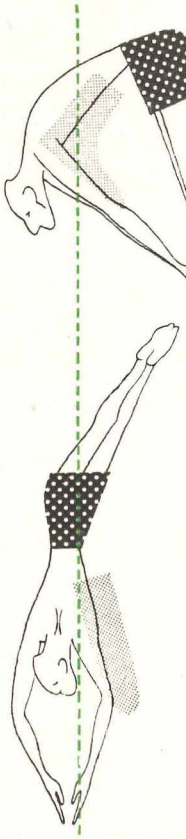

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THE RECORD REPORTS

(*Continued from page 24*)

lowed to interfere. A visitor from a foreign architectural school who came to see the department at Yale recently expressed the opinion that our emphasis on free individual development in design is superior to the European emphasis on technical training. It would seem that some just mean between the two could be found, and that is what we must look for."

Architecture Department at Illinois Gets Merit Award

Award to the Department of Architecture of the University of Illinois of the 30th medal award for scholastic merit of the American Group, The Société des Architectes Diplomes, P.L.G.F., has been announced.

The award, which was presented at the midwinter Commencement exercises of the university, is made "for exceptional excellence of the work of its faculty and students during the scholastic year 1948–1949."

The medal is given annually as a stimulus to the architectural schools of the country.

Previous awards have gone to Carnegie Institute of Technology, Catholic University, Columbia University, Georgia Institute of Technology, Harvard, Yale, Massachusetts Institute of Technology, Princeton and the University of Pennsylvania. The University of Illinois had won it four times previously.

Welding Engineering Session Is Planned at Ohio State

Some 300 engineers, designers and production supervisors from Ohio and neighboring states are expected to attend the 11th meeting of the Ohio State Welding Engineering Conference at the university April 14 and 15.

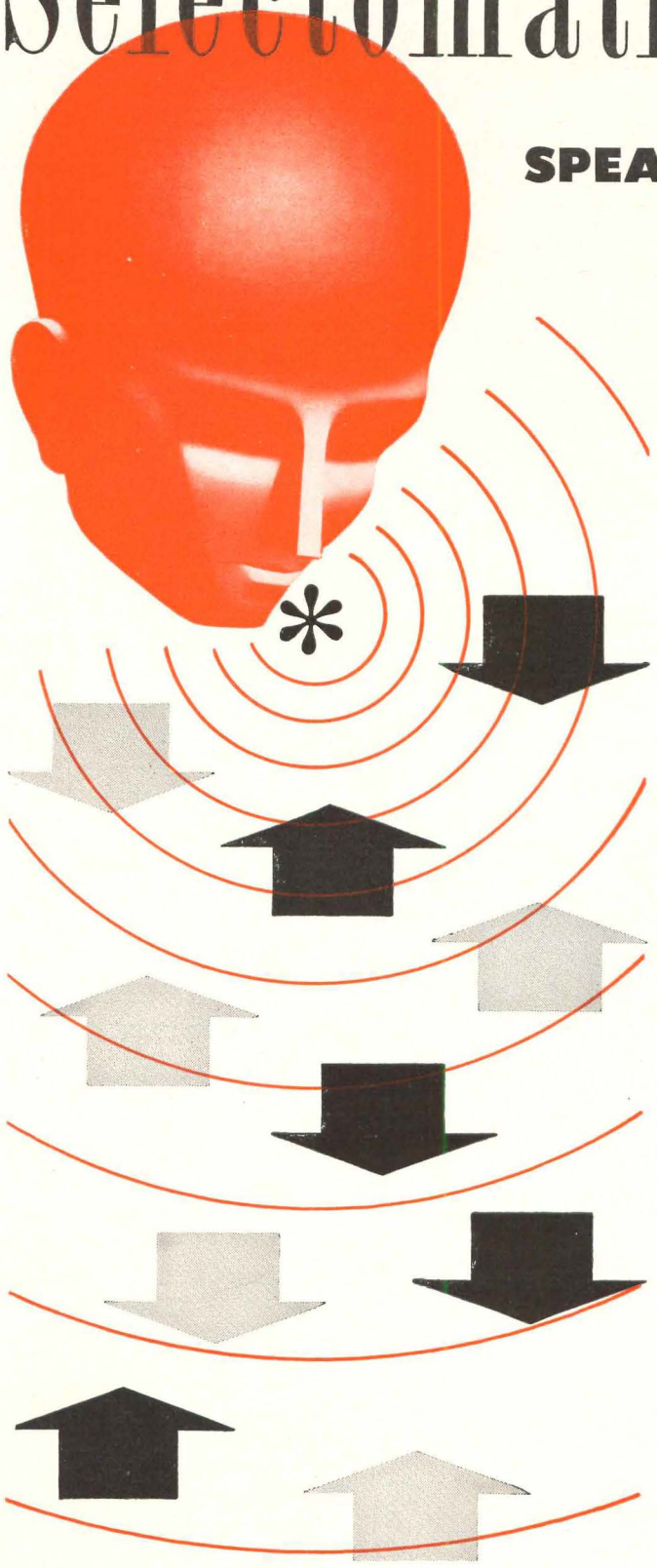
"Economy in Design and Production" is the theme of this year's conference, which will deal with design in the first day's session and with production methods in the second.

Speakers will include W. R. Plummer, Progressive Welder Co., Detroit; William J. Phillips, director, Product Development Dept., Steel Founders' Society, Cleveland; A. T. Waidelich, vice president and manager, Research Division, The Austin Co., Cleveland; Dr. Finn Jonassen, technical director, Committee on Ship Steel, National Research Council; E. C. Brekelbaum, chief

(*Continued on page 186*)

Selectomatic Elevators

SPEAK WHEN SPOKEN TO...



Selectomatic has a pleasing reply for every request for service. That reply is a car going in the desired direction within a minimum of waiting time.

Take a typical office building during the "off peak" period. Tenants voices change from loud demands for down and gentle whispers for up... to a clamor for up and a polite inquiry for down... to a steady babble for equal service in both directions. Selectomatic has an instant and automatic answer for each request.

That's because Selectomatic is never confused by the number or type of calls. Its unique electrical brain calmly separates the "ups" from the "downs" and regulates the entire elevator bank to give the most efficient service possible—and it does it all instantly and automatically.

Unlike other systems, Selectomatic doesn't depend on a starter's hunch for when to send which cars where. With Westinghouse Selectomatic automatically matching service to demand, the starter can concentrate on his most important job... directing traffic.

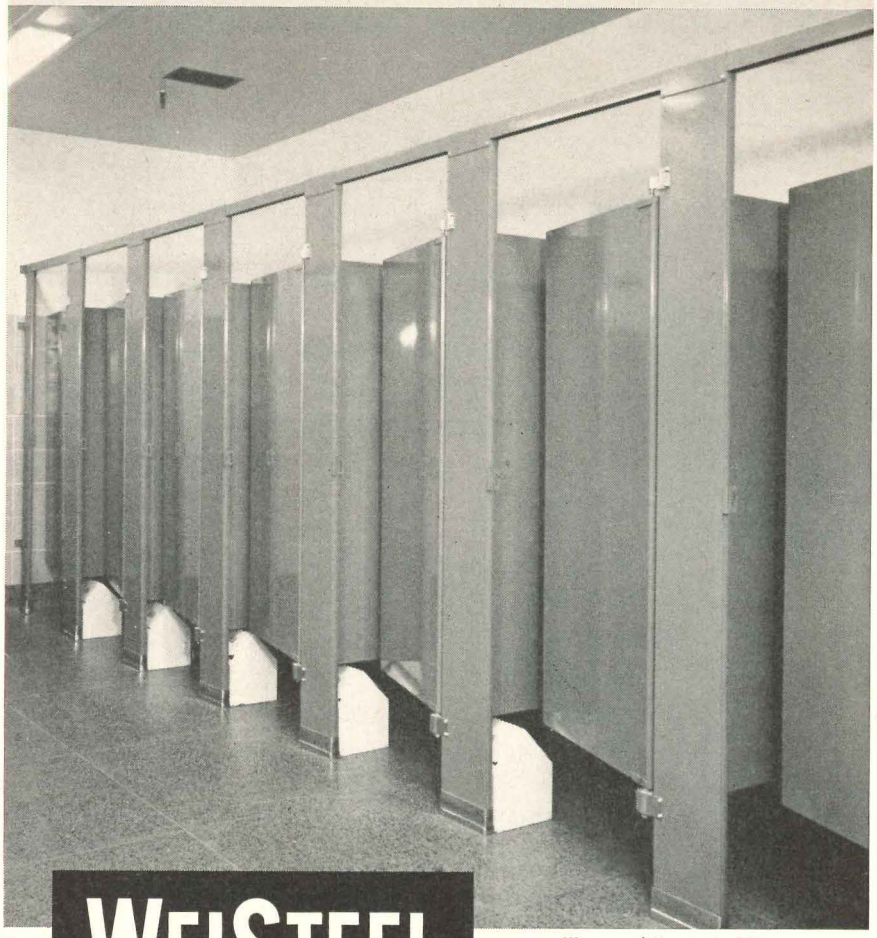
***Selectomatic, an exclusive Westinghouse development, completely supersedes the previous accepted elevator standard . . . signal control.**

See and hear the complete story of Westinghouse Selectomatic. Write on your letterhead and we'll gladly arrange a showing, at no cost, of our sound motion picture "Speeding Vertical Transportation With Selectomatic Elevators." Elevator Division, Dept. D-1, Westinghouse Electric Corporation, Jersey City, New Jersey.

YOU CAN BE SURE...IF IT'S **Westinghouse**

J-98572

In Macy's Newest and Finest Store...



Kivett and Myers, Architects

WEISTEEL HI-STILE FLUSH COMPARTMENTS

Latest design and building techniques, and newest materials, incorporated in the new Macy store in Kansas City, Missouri, have made this "probably the finest down-town store in all the U.S.," in the opinion of some specialists. It is highly significant, therefore, that WeiSteel Hi-Stile Flush Compartments were chosen for all the toilet rooms! These compartments combine the fine appearance of smooth modern design with material and structural quality *which has proved its worth through 40 years of service.*

Note the smooth lines of the flush doors, stiles and partitions, sanitary, and insulated against metallic sounds characteristic of many metal products... Edges of partitions, doors and wide stiles are bound and interlocked under tension with drawn molding which is welded at corners. Each edge is reinforced by three thicknesses of metal.

Permanent uniform rigidity and strength throughout all units. Flush dividing partitions are tension-locked directly to stiles... All steel parts are of prime furniture steel or Bonderized galvanized extra smooth steel as specified—finished in high baked synthetic enamel in any of 24 standard WeiSteel colors as selected.

WRITE NOW for new bulletin with details and specifications on WeiSteel Compartments for toilet, shower, dressing and similar enclosures.

HENRY WEIS MANUFACTURING CO., INC., 403 Weisway Bldg., Elkhart, Indiana

THE RECORD REPORTS

(*Continued from page 184*)

engineer, Harnischfeger Corp., Milwaukee; Arthur B. Tesmen, development engineer, North American Phillips Co., New York; G. C. Kiefer, associate director of research, Allegheny Ludlum Steel Corp., Brackenridge, Pa.; and Lew Gilbert, editor of *Industry and Welding.*

Reservations for the conference can be made through the Department of Welding, Ohio State University, Columbus 10, Ohio.

Special Courses

• A new program in city planning, leading to the degree of Master of City Planning, has been established in Yale University's Department of Architecture.

The new program will begin next September and will require two years of study on the graduate level. It will be open to a limited number of architects, landscape architects, civil engineers and others who already hold a professional degree in a related field.

Christopher Tunnard, associate professor of city planning, will be director of planning studies in the program. He has headed the section on city planning in the Department of Architecture for the past five years.

The graduate program will be an expansion of the city planning courses offered at Yale since 1937. "While the student will be occupied largely with a required curriculum in physical planning, he will also be encouraged to develop a broad frame of reference by taking appropriate courses in the related subjects of urban sociology, government, public health and other social sciences," Mr. Tunnard says.

• Next session of the daytime Hardware Consultants Training Course offered by the Midtown Business Center of the City College of New York will be held from April 11 to May 12.

Sponsored by the American Society of Architectural Hardware Consultants and the National Contract Hardware Association, this course concentrates 150 hours of class work in sessions held from 9 a.m. to 4 p.m. each day during the five-week period.

Applications for admission to the course should be addressed to the Supervisor of Admissions, City College Midtown Business Center, 430 W. 50th St., New York 19, N. Y.

(*Continued on page 188*)

masland **Duran** all plastic upholstery covering

MAIN DINING ROOM

STORAG

KITCHEN

Somerset Country Club, Somerset, Pa.
Walker and Mong, Architects

LOBBY

MEN'S LOUNGE

LADIES' LOUNGE

All plastics are not the same! Be sure it's MASLAND DURAN. This tag is your protection.

Specify Masland Duran for all public seating; for wall panelling. Smooth pliancy and durability combine for luxury with the color you choose,— 214 decorator color effects . . . Accidental spills and dirt wipe off with soap and water.

P.S. See Duran in Sealtuft Patterns!

Upholstered with masland Duran all plastic

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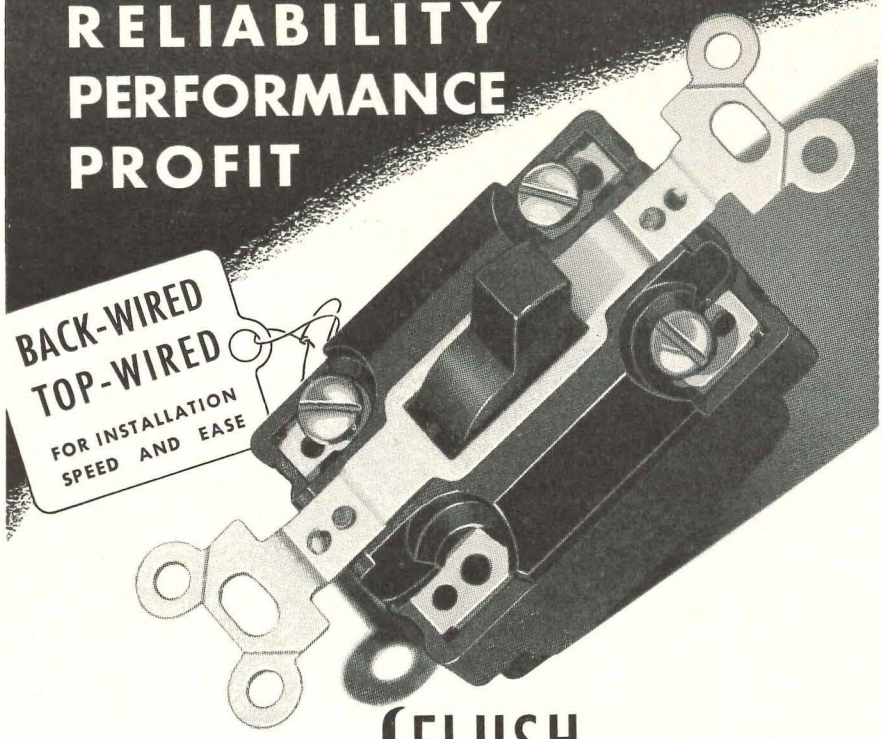
THE MASLAND DURALEATHER COMPANY, DEPT. 36, PHILA. 34, PA.

Celebrating our 36th year in business

Designed for
RELIABILITY
PERFORMANCE
PROFIT



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"T" RATED—10 & 20 AMPERES FOR ALL STANDARD CONNECTIONS

These new back- or top-wired flush tumbler switches give you plenty of performance, profit and reliability. They install quickly and positively. There's no need to bend or loop wire — it goes straight into the unit from the back and is held firmly and permanently by a wire clamp. They're safer, too — there are no exposed wire ends. And they're ideal for use with heavier (10 to 14) wire. Top-wiring with conventional binding screws is optional.

FEATURES? HERE ARE A FEW

Double switch blades protected by 2 Bakelite barriers to snuff arcing • Self-aligning double switch blades give positive connection with solid, one-piece stationary contacts • Plenty of wiring room in the box • Switch mechanism is totally enclosed • One-piece base plate, with washer type plaster ears, is firmly locked into switch cover.

10 and 20 Ampere sizes are available with Brown or Ivorylite handles or as lock-type units; for 1- and 2-pole, 3- and 4-way, and single pole, quadruple break connections.

WRITE TODAY FOR LITERATURE ON THESE AND OTHER H & H WIRING DEVICES.
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WIRING DEVICES **ENCLOSED SWITCHES**

THE ARROW-HART & HEGEMAN ELECTRIC COMPANY
HARTFORD, CONNECTICUT

THE RECORD REPORTS

(*Continued from page 186*)

• The landscape architecture curriculum of the School of Architecture and Allied Arts at the University of Oregon has received full accrediting from the American Society of Landscape Architects. Options in the curriculum lead to degrees in landscape architecture and urban planning.

Fellowships

• Applications will be accepted until May 15 for the Kate Neal Kinley Memorial Fellowship for 1950–1951, which offers $1000 to be used for advanced study of the fine arts in this country or abroad.

The Fellowship is open to graduates in music, art or architecture of the College of Fine and Applied Arts of the University of Illinois and of similar institutions of equal standing.

While applicants generally should be not more than 24 years old on June 1, the committee reserves the right to deviate slightly from this provision in the case of very promising candidates, and veterans may deduct amount of time spent in service.

The Fellowship will be awarded on the basis of unusual promise in the fine arts as attested by: high attainment in the applicant's major field of study as shown by academic marks; high attainment in related cultural fields as shown by academic marks; excellence of personality, seriousness of purpose and good moral character.

Candidates proposing to do creative work must file with the committee examples of their work to substantiate their claims of unusual promise; and candidates proposing historical studies must satisfy the committee of their fitness to pursue such studies, either by submitting work already accomplished in the field or by filing a statement by the applicant outlining preparation, accomplishment and proposed work.

Applications may be obtained by addressing Dean Rexford Newcomb, College of Fine and Applied Arts, Room 110, Architecture Building, University of Illinois.

• The College of Architecture and Design of the University of Michigan has announced that applications for the George G. Booth Traveling Fellowship in Architecture will be received until May 15.

(*Continued on page 190*)

REPORT CARD

HORACE MANN SCHOOL

REPORT ON:

J&L JUNIOR BEAMS

J&L STEEL

Left—Workman easily guides notched Junior Beam into place during construction of Horace Mann School.

Below—Completed school showing clean functional design and unique cantilever construction.

Remarks: **J&L STEEL JUNIOR BEAMS solve unique design problem *AT LOW COST***

At the Horace Mann School in Warren, Ohio, J&L Junior Beams have again demonstrated that they can do a better job in unusual applications, as well as in ordinary styles of buildings.

Notched over lintel beams and cantilevered three feet beyond the outside walls, J&L Junior Beams support not only the roof but also an attractive permanent sun shield over classroom window walls.

Because of their versatility and adaptability, J&L Junior Beams go far towards meeting the demands of today's builders. They cost less to buy and less to erect. At Horace Mann, Warren Engineering Company, who erected the school, assisted by J. A. McMahon, Ltd., Niles, Ohio steel fabricators, has found that lightweight, 12″ Junior Beams, *30 ft. long*, may be easily raised, placed and bolted directly into place by three men with the aid of only a hand-operated winch.

This means *dollars saved*—through speed of erection, elimination of secondary operations, and ease of handling. Yet in light structures, J&L Junior Beams often offer all the advantages of heavier structural members.

Junior Beams, made *exclusively* by J&L, are the lightest weight hot-rolled steel beams available.

In schools, office buildings, apartments, residences, industrial buildings, hospitals, and other light occupancy structures, J&L Steel Junior Beams offer the *modern* builder many advantages. They are economical . . . fire-safe . . . rigid . . . shrink-proof . . . termite proof . . . easy to install . . . low in maintenance . . . and are permanent.

ARCHITECTS • BUILDERS • CONTRACTORS

It will be worth your while to follow the lead of Arthur F. Sidells, architect for the Horace Mann School, Warren S. Holmes, consulting architect, and William C. Fisher, structural engineer on the job. Send for descriptive literature and engineering data on J&L Steel Junior Beams and J&L Junior Beam floors.

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Pittsburgh 30, Pa.

Please send me a free copy of your new booklet on J & L Junior Beams, "SKYSCRAPER CONSTRUCTION FOR EVERY BUILDING".

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(*Continued from page 188*)

No formal design competition will be held. Application forms will be issued on request to all graduates of Michigan's College of Architecture and Design who will be less than 30 years of age on May 15.

Inquiries about the Fellowship and requests for application forms should be addressed to: College of Architecture and Design, 207 Architecture Building, Ann Arbor, Mich.

OFFICE NOTES

Offices Opened, Reopened

• M. Davis Alexander announces the opening of an office at 4500-A Montrose Blvd., Houston 6, Tex., offering complete architectural specification service to architects.

• Hugo R. Broleman Jr., Architect, announces the opening of an office for the practice of architecture at 101 West Pine St., Orlando, Fla.

• Jacques E. Guiton has opened an office for the practice of architecture at 155 E. 40th St., New York 16, N. Y. A former partner in the Paris firm of Bazin, Guiton and Canteloup, Architects, Mr. Guiton was employed last year by Leonard Schultze & Assocs., New York City.

• H. Reid Hearn Jr., A.I.A., former chief architect for the Federal Housing Administration, State of South Carolina, announces the opening of his office for the practice of architecture at 1306 Main St., Columbia, S. C.

• Andrew E. Kuby Jr., Architect and Designer, has opened an office at 119 E. Calhoun St., Woodstock, Ill.

New Firms, Firm Changes

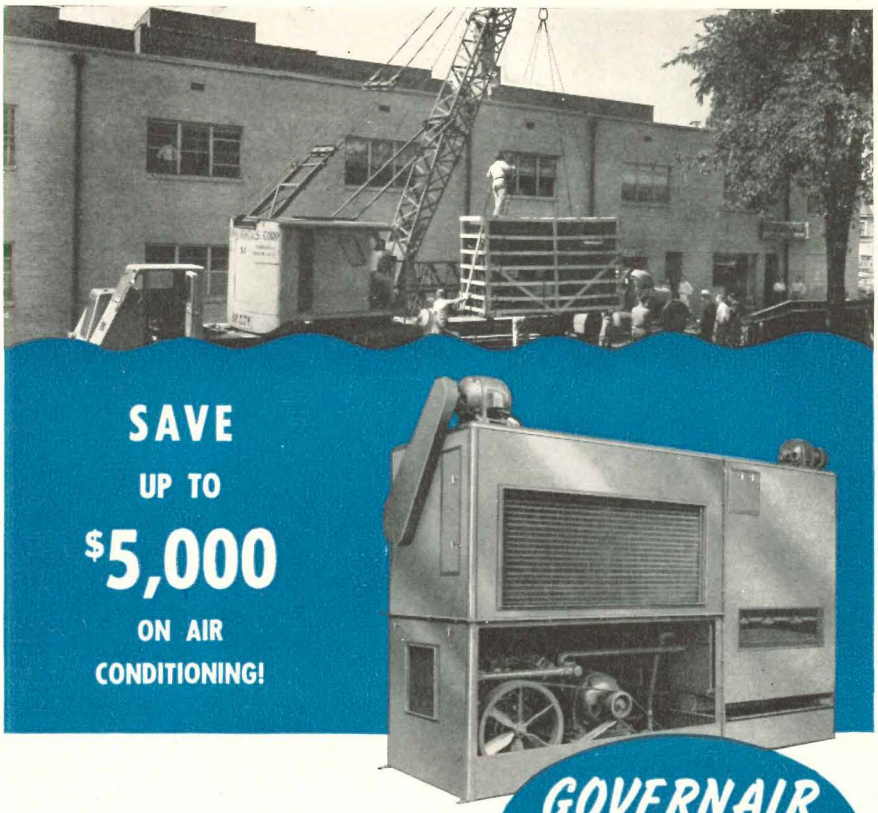
• Fred C. Allen, for 25 years associated with Crane Co. and Armstrong Cork Co., announces the establishment of Building Materials Service, with offices at 101 Park Ave., Rm. 723–4, New York 17, N. Y.

• Frankel and Curtis, Architects and Engineers, have announced that, following the death of L. K. Frankel at Cincinnati on Nov. 27, 1949, the surviving member of the partnership, John J. Curtis, has arranged a new association with James S. Frankel and Melbourne Mills, both of whom have long been connected with the office of Frankel and Curtis. With offices remaining at 510 Central Bank Bldg., Lexington, Ky., the firm will continue the general practice of architecture, together with the engineering design of structural, heating, ventilating, air conditioning, plumbing and electrical work.

• The H. K. Ferguson Co., industrial engineers and builders, have announced acquisition of the O. D. Conover Engineering Co. of Cleveland, foundry design and construction specialists. The staff of the Conover organization will form the nucleus of a newly-established Foundry Division within the H. K. Ferguson Co. Oliver D. Conover, nationally-known foundry engineer who has directed the operations of his company since it was founded in 1932, will head the new Foundry Division.

• Robert Woods Kennedy, Architect, announces the formation of a new firm, Robert Woods Kennedy, Architect, and

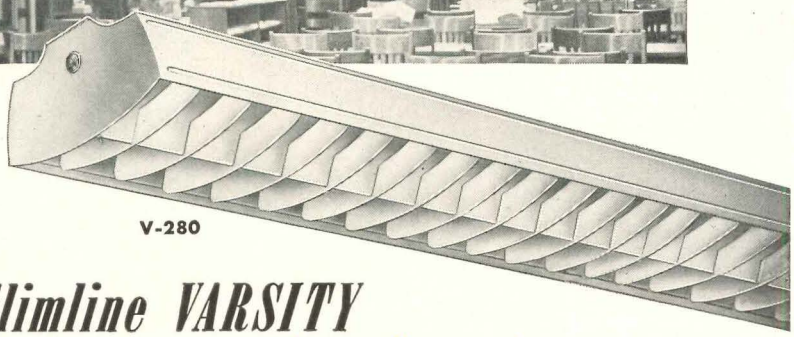
(*Continued on page 192*)



At long last . . . a L-O-N-G *light*

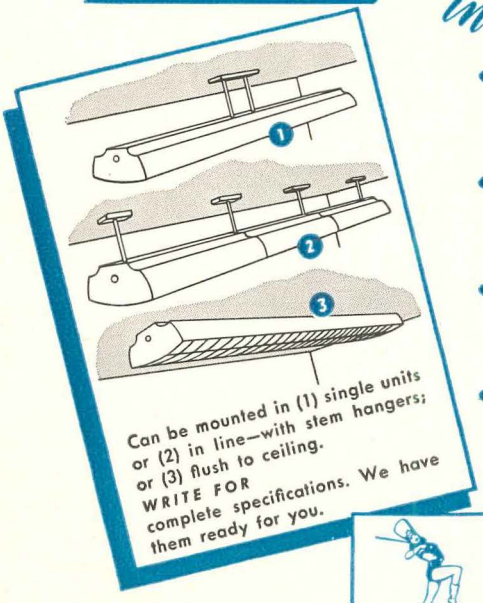
—a long lighting-fixture at a "short" price:

the new **Leader**



V-280

Slimline VARSITY in various one-piece lengths up to 8 ft.



- ***ECONOMY***
  Long fixtures mean fewer fixtures required—fewer fixtures to buy, to install, to lamp, to re-lamp. And the LEADER Slimline VARSITY—a quality-built fixture—is priced to fit tight budgets. In every way, an economy buy!
- ***SLIMLINE LAMP ADVANTAGES***
  Instant-starting . . . more light per watt . . . long life . . . handsome appearance . . . easier maintenance—single pin bases permit easy, quick relamping . . . Choice of brightness levels—more accurate light control.
- ***"40-60" LIGHT DISTRIBUTION***
  Due to its efficient design, the Slimline VARSITY illuminates directly and indirectly. 60% direct light is cast downward. 40% indirect light is cast upward . . . minimum shadow.
- ***MODERN BEAUTY***
  A streamlined, sleek avenue of light that shouts "up-to-date" in every way. A long, glossy, baked-enamel fixture—beautiful in its simplicity—at a beautifully low price.

No. V-280 Slimline VARSITY Specifications:
Fittings for two 75-watt Slimline lamps—available in various lengths up to 96". Instant-start, 100, 200, 300 and 425 milliampere operation. 18 gauge steel housing and channel. High-gloss baked enamel finish. 110-125 volts, 60 cycle A.C. Other voltages available.

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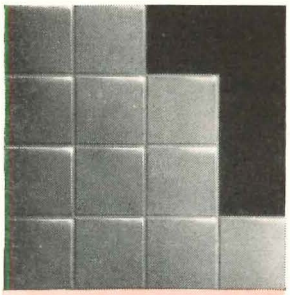
(*Continued from page 190*)

Associates, Ronald Gourley, Richard Hamilton and Byron Franklin. The firm has offices at 687 Boylston St., Boston, Mass. Mr. Kennedy was formerly a member of the firm of Kennedy & Smith.

• A. V. McIver, Architect, has announced the admission to junior partnership of two members of his staff, William J. Hess and Knute S. Haugsjaa. The firm name will be A. V. McIver & Associates, Architects.

• James J. Pollard and Julian A. Altobellis announce the formation of the firm of Pollard and Altobellis, architects and engineers, with offices at 1207 Peachtree St., N.E., Atlanta, Ga.

LOW IN COST · LIGHT IN WEIGHT
Enduring Beauty!
HASTINGS AIRCRAFT ALUMINUM alumitile
Guaranteed by Good Housekeeping



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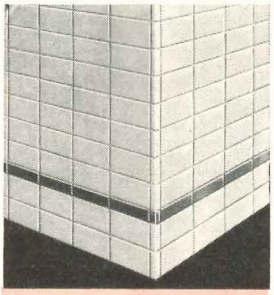
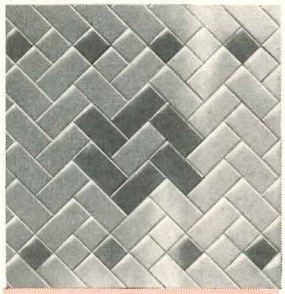
Attractive, smooth, lustrous enamel finish *permanently* bonded to sturdy aircraft aluminum . . . 14 vital colors . . . will not crack, peel or chip. Easy to clean.



OUTSIDE FINISH
A choice of 7 beautiful exterior colors in regular or embossed finish, applied by an exclusive process that insures a maximum of color control, density and uniformity.



SELF-DECORATING
A variety of sizes and colors permits modern decorative designs on interior or exterior walls . . . each job tailored to individual requirements for distinctive, lasting beauty.

FIREPROOF . . .
RUSTPROOF . . . WEATHERPROOF
HASTINGS *alumitile* is impervious to fire, rust and water, and cannot corrode. May be used *anywhere* indoors or outdoors with gratifying results. It has a gleaming bone-hard enamel finish . . . the lifetime colors are baked on. This amazing wall facing is enjoying ever increasing popularity in the construction of new buildings and the modernization of old. It strikes a modern tone which has brought enthusiastic endorsement from leading decorators, architects and contractors. Yet its cost is surprisingly low, its strength and adaptability almost unbelievable.

SCORES OF USES
The wide versatility of HASTINGS *alumitile* is expressed in its countless uses for homes, institutions, business buildings. It is ideally suited for bathrooms, kitchens, laundries, utility rooms; for dairies, bottling plants, breweries, bakeries, pharmacies, hotels, hospitals, dental offices; for store and theatre fronts, lobbies, service stations.

EASY TO APPLY—
EASY TO SELL
Offers consistent quality, sanitary sealing, insulation value, handling flexibility, scope for design, uniformity of workmanship—all at a marked saving in labor hours.

120 SQ. FEET WEIGH ONLY 37 LBS.

STRENGTH WITHOUT BULK
Save on bulk; save on shipping and handling costs; save on storage space. Lightweight HASTINGS *alumitile* is packaged compactly for convenience and economy. Well adapted to large wall areas where weight and square-foot costs are important factors.

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Makers of Hastings alumitile, alumi-SHIELD awnings, doorhoods, mouldings and flashings

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• William G. Wells, A.I.A., A.S.C.E., and Richard L. Meagher, A.I.A., announce that the partnership under the firm title of Brown, Wells and Meagher is discontinued. Wells and Meagher, Architects and Engineers, with W. E. Allen, registered professional engineer, associate, will continue to practice in the same offices, at 118½ W. Campbell Ave., Roanoke, Va.

New Addresses

The following new addresses have been announced:

David C. Baer, A.I.A., 1202 Bissonet, Houston, Tex.

Harford Field, A.I.A., 153 E. Front St., Traverse City, Mich.

Stuart Frost, Architect, 1 E. Putnam Ave., First National Bank Bldg., Greenwich, Conn.

Hall, Border and Donaldson, Architects, 2517 St. Paul St., Baltimore 18, Md.

Leon LeGrand, Architect, Rm. 110, Stokes Bldg., Greenville, S. C.

Laurence M. Loeb, Architect, 406 Mamaroneck Ave., White Plains, N. Y.

Robert Nerem, Consulting Engineer, 624 S. Michigan Ave., Chicago 5, Ill.

New Jersey Chapter, The American Institute of Architects, and the New Jersey Society of Architects, executive headquarters, 27 Washington St., Newark 2, N. J.

Porter, Barry & Switzer, Consulting Engineers, 545 Lafayette St., Baton Rouge, La.

Eberle M. Smith Associates, Inc., 153 E. Elizabeth St., Detroit 1, Mich.

Bolton White, Architect, and Jack Hermann, Architect, 75 Castle St., San Francisco 11, Calif.

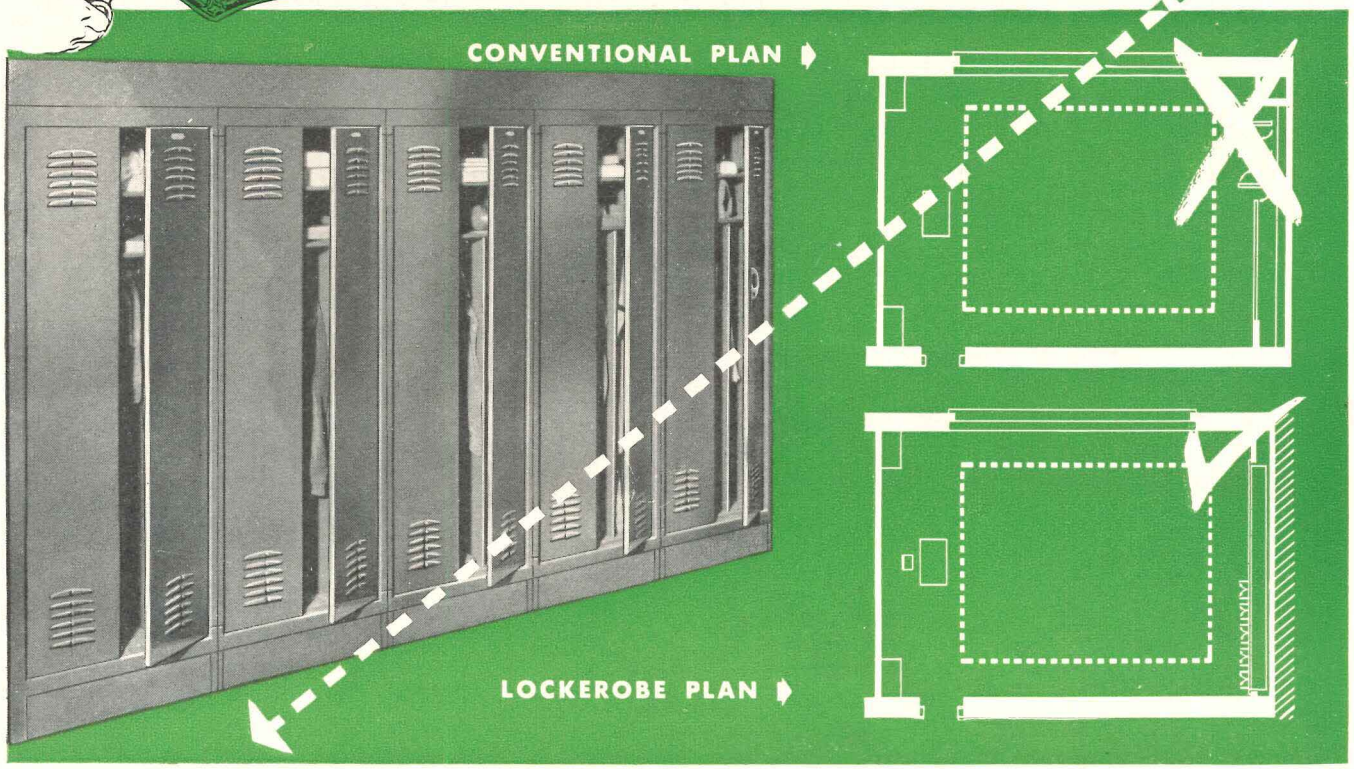
ELECTIONS APPOINTMENTS

• Titus G. LeClair, assistant chief electrical engineer, Commonwealth Edison Co., Chicago, has been nominated to succeed James F. Fairman of New York as president of the American Institute of Electrical Engineers. Mr. Fairman's term expires July 31.

• Officers for 1950 of Arthur D. Little, Inc., Cambridge, Mass., research and engineering organization, are: Earl P. Stevenson, president; Raymond Stevens and Leroy F. Marek, vice presidents; Howard J. Billings, treasurer; Frank N. Houghton, secretary and assistant treas-

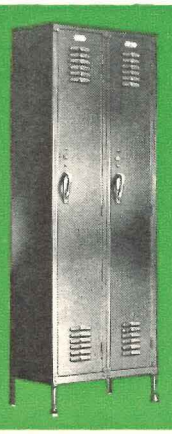
(*Continued on page 194*)

Cut Building Costs with



MEDART LOCKEROBES

"SIMULTANEOUS OPENING—MASTER DOOR CONTROL"



Medart Steel Lockers available in all standard types and sizes... either recessed or free standing. Write for descriptive literature.

Medart Steel Cabinets provide convenient and economical storage space for valuable supplies and clothing. Write for descriptive literature.

Compare the floor plans above. Here is a graphic illustration of the practicable possibility of reducing the cubic area of school buildings . . . representing savings of hundreds of dollars in construction costs. Compare the recess depth of 16 inch Lockerobes with the space waste (and higher upkeep!) of ordinary elementary school wardrobes or separate cloakrooms.

The Medart Lockerobe is a completely enclosed, self-contained assembly and may be installed in unfinished recesses, thus entirely eliminating today's costly expenses of plaster or tile walls, overhead framing, finished flooring . . . and future maintenance costs!

The Lockerobe, featuring the exclusive "Simultaneous Opening—Master Door Control," was developed by Medart at the request and with the cooperation of leading architects and school authorities to provide a practicable storage facility for elementary school use. The teacher, not the pupils, operates the Medart Lockerobe . . . ensuring safety, quiet . . . and order in the classroom.

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Write for descriptive literature . . . send your plans for suggestions.

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Leadership for over 75 years in School Equipment

(*Continued from page 192*)

urer; Allan L. Spurr, comptroller; Howard F. Hamacher, assistant treasurer; and Helge Holst, assistant secretary. Charles B. Belknap of the Owens-Illinois Glass Co. has been elected to the Board of Directors.

• Hugh M. Hughes has been reelected to the presidency of the Building Trades Employers' Association of New York City. Other officers for 1950 are: Fred J. Driscoll, vice president; Eugene Duklauer, second vice president; Perry S. Dewey, third vice president; J. George Costello, treasurer. William G. Wheeler, who had been reappointed to his 23rd term as secretary, died suddenly February 21, a few minutes after giving his report at the BTEA annual meeting.

• Roger Bowen, formerly with the U. S. Signal Corps, has been named head of the Engineering Department of Cannon Electric Development Co., Los Angeles.

• Roy D. Haworth Jr. is the new manager of product development for Carbide Alloys Division of Allegheny Ludlum Steel Corporation. Mr. Haworth was formerly employed by Armour Research Foundation in Chicago as supervisor of Abrasion Research.

• Thomas I. Crowell Jr. and Charles B. Cooke have been elected vice presidents of Ford, Bacon & Davis, engineers-constructors, of New York, Chicago, Philadelphia and Los Angeles.

• Col. John N. Gage, commanding officer of the U. S. Army Quartermaster Depot in Chicago, has been named managing director of the First United States International Trade Fair to be held in Chicago Aug. 7–19, 1950.

• Herman Snider, general manager of Acme Door Co., Hoquiam, Wash., has been reelected president of the Fir Door Institute for 1950. Other officers elected at the annual meeting in Tacoma are: Charles E. Devlin, general sales manager, Simpson Logging Co., Seattle, vice president; W. M. MacArthur, vice president of Wheeler Osgood Co., Tacoma, treasurer; A. E. Lundgren, president of Vancouver Door Co., Montesano, secretary; Thomas B. Malarkey, vice president, M & M Wood Working Co., Portland, Ore., trustee.

• Milton A. Karp has been appointed chief engineer of the Luria Engineering Corp., New York City, designers and fabricators of standard, steel-frame industrial, commercial and airport buildings. Mr. Karp will head Luria's enlarged engineering department, which is being moved to the company's Bethlehem, Pa., plant.

• Mrs Patricia H. Kelley is the new research group director for Foster D. Snell, Inc., consulting chemists and engineers.

• G. Donald Kennedy has been appointed consulting engineer and assistant to the President of the Portland Cement Association.

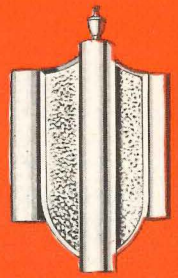
• The appointment of Miss Jane Kidder as special consultant to the New York State Dormitory Authority has been announced by Clifton C. Flather, ad-

(*Continued on page 196*)

WOMEN DON'T WANT..

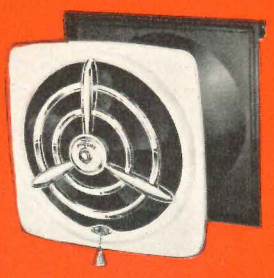
NUTONE CURES BOTH

Don't plan an *unfriendly* home for your clients—with old-fashioned, ear-splitting doorbells and irritating kitchen odors. Specify a NuTone Door Chime for a warm, friendly welcome at the front door—and specify a NuTone Kitchen Ventilating Fan for sweet, fresh air in the kitchen all year long. Make every home you plan *complete* with these two NuTone features. Write for FREE literature.



U.S. DESIGN AND MECHANICAL PATENTS PENDING

NUTONE



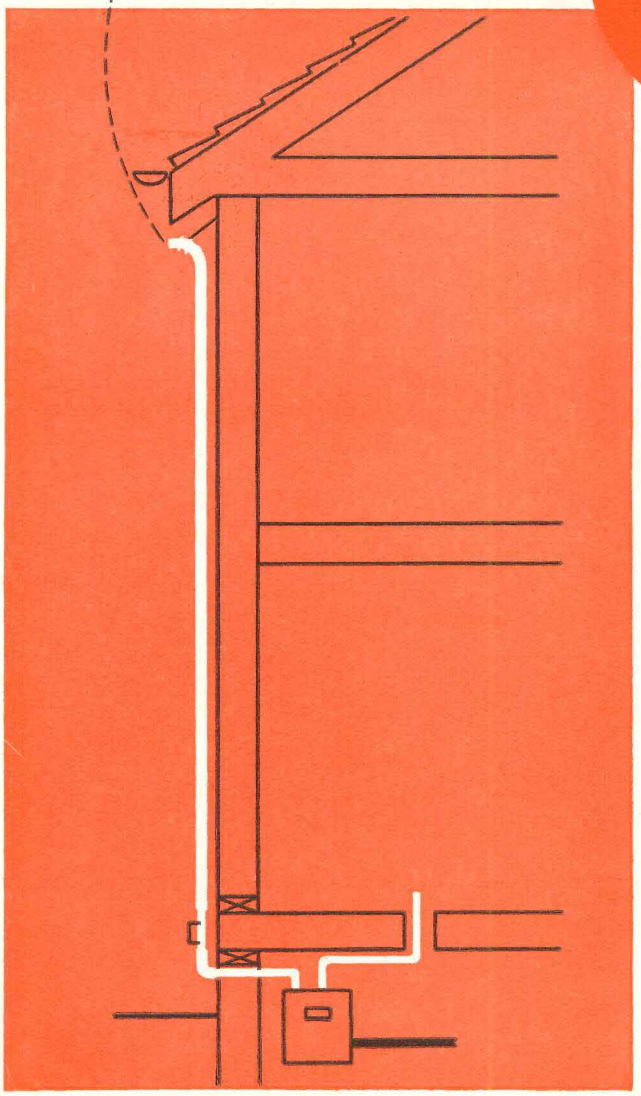
Electric Door Chimes

Kitchen Ventilating Fans

NUTONE, INC., Dept. AR-3, Cincinnati 27, Ohio.

FIBERGLAS* YARNS HELP 3 WAYS

to make Service Entrance Cable easier to work with ...longer lasting!



Today, Fiberglas yarns are used for the outer braid, for conductor coverings—*and for reinforcement of moisture seal tapes.*

Fiberglas yarns provide high tensile strength with minimum bulk—characteristics that help cable manufacturers provide you with service entrance cable that is easy to install.

And remember, Fiberglas yarns help make service entrance cable *last longer*, because glass yarns don't rot, don't burn, don't absorb moisture. They do resist corrosion.

To be sure you get all these properties in the cable you install, look for the Fiberglas glass yarn components!

Owens-Corning Fiberglas Corporation, Textile Products Division, Dept. 831, 16 East 56th Street, New York 22, N. Y.

* Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.

OWENS-CORNING FIBERGLAS Yarns

MICHAELS "Time-Tight" Display Cases

When you specify Michaels "Time-Tight" Display Cases you may be sure of perfection in exhibition. In Michaels cases exhibits stand out like jewels in a beautiful setting. Visibility is perfect from every angle. Displays are kept clean and safe, too, because Innerlocking Frames, an exclusive feature, keep exhibits free from dust, and prevent handling or theft. Michaels "Time-Tight" Cases are available in a wide range of styles and sizes to meet virtually all exhibition requirements. Or special cases will be designed to meet individual specifications.

Every architect should have a complete file on Michaels "Time-Tight" Display Cases. Write for literature containing details on structural features, case styles, various lighting arrangements and other specifications.

MICHAELS PRODUCTS

Bank Screens and Partitions
Welded Bronze Doors
Elevator Doors
Store Fronts
Lettering
Check Desks (standing and wall)
Lamp Standards
Marquises
Tablets and Signs
Name Plates
Astragals (adjustable)
Stair Railings (cast and wrought)
Wrought and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Cast Thresholds
Extruded Thresholds
MI-CO Parking Meters
Museum Trophy Cases

The MICHAELS ART BRONZE Co., Inc., 234 Scott St., Covington, Ky.

★

THE RECORD REPORTS

(*Continued from page 194*)

ministrative director. Miss Kidder will concentrate on planning of interiors, color and coordination of furniture, textiles, floor coverings and lighting for new dormitories for the state teachers colleges and agricultural and technical institutes.

• Elmer A. Lundberg has been named director of architectural development and design for Pittsburgh Plate Glass Co. Mr. Lundberg has been director of

architectural design since 1945 and now heads a department created by the consolidation of the architectural design and architectural relations departments.

• Frederick J. Mayo of New York and Donald W. Neville of Chicago have been elected to the Board of Directors of F. H. McGraw & Co., international engineering and construction firm. Both men are vice presidents of the company.

• Dean Lorin G. Miller of the College of Engineering of Michigan State College has been appointed engineering consultant by United States Radiator Corp. He will participate in engineering research and development of Corporation products.

• Frank E. Parsons has been appointed to the staff of the National Mineral Wool Association as technical engineer. Mr. Parsons was formerly vice president, director and general manager of Insulation Industries, Inc., at Janesville, Wis.

(*Continued on page 198*)

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

Rice Hotel, Houston, Texas
Architect: Kenneth Franzheim, Houston
Mechanical Engineer: Reg. F. Taylor, Houston
Electrical Contractor: Fischbach & Moore of Texas, Inc., Houston
Load: 3,000 kva for power and lighting to serve 1,000 guest rooms, ballrooms, banquet rooms, dining rooms

Rice Hotel *REMODELS and SAVES* with Low Impedance Bus Duct

While the basic advantage of using bus duct is to secure more adequate secondary power distribution, the choice of bus duct should not stop there.

Take the case of the installation limitations at the Rice Hotel, Houston. The problem: to completely remodel and air condition from basement to penthouse—and without interruption of "business as usual".

The answer: Westinghouse Low Impedance Bus Duct. Its compact design and freedom from protruding members permitted passage in places where dimensions were critical. Limited space, because of pipe and air duct systems, ruled out ordinary wiring, as well as other makes of bus duct.

Ask your nearby Westinghouse representative to tell you all the advantages of Westinghouse Bus Duct, available in four popular types. Or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-30012

Westinghouse BUS DUCT

DESIGN TESTED AND VERIFIED IN THE Westinghouse HIGH POWER LABORATORY

KNIGHT C. COWLES,
ARCHITECT

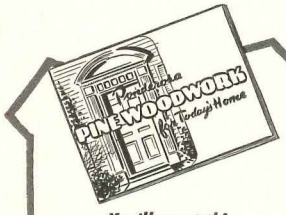
Wood Windows aid your planning

with these three "V"s

Versatility! Ponderosa Pine windows do far more than provide a view. These wood windows help *insulate* against heat and cold . . . resist sweating, won't rust or corrode. Their surface provides an excellent base for any kind of finish. For quick, easy installation, they are available as prefitted, pre-assembled window units—complete with efficient weatherstripping and mechanical sash balances.

Variety! Whether the homes you plan are modern or traditional, Ponderosa Pine stock-design windows offer the *right* types for your specification. Double hung, casements or picture windows—in many styles—all are ready to widen your scope in window selection. Available in modular standard sizes.

Value! Ponderosa Pine windows are economical. Low in cost, they save money for owners year after year because they cut down maintenance problems—because they hold paint in a vise-like grip and stand a lifetime of hard use in any climate. They are available, chemically treated, to add extra years of resistance to moisture, fungus growth and insect attack.



You'll want this New Booklet about Ponderosa Pine Woodwork

—crammed with photographs of window, door, cabinet and other woodwork installations, "Ponderosa Pine Woodwork for Today's Home" is essentially an idea book. You'll want it for constant reference—and a copy is yours for the asking. Mail the coupon!

for friendly living

Ponderosa Pine
WOODWORK

Ponderosa Pine Woodwork
Dept. TAR-4, 38 South Dearborn Street
Chicago 3, Illinois
Please send me a copy of "Ponderosa Pine Woodwork for Today's Home."

Name.....

Address.....

City.....*Zone*.....*State*.....

THE RECORD REPORTS

(*Continued from page 196*)

• The New York Association of Consulting Engineers has reelected William Eipel, of the structural engineering firm of Tuck & Eipel, president for the coming year. Other officers reelected were: John W. Hennessy of Syska & Hennessy, vice president; Harry Bond, consulting engineer, treasurer; and W. Donald Christie, consulting engineer, secretary.

• Architect Alfred Shaw of Chicago has been appointed a director of Research Foundation, a non-profit group which subsidizes production and distribution of the anti-tuberculosis vaccine, BCG, at Tice Laboratory, Chicago.

• Appointment of Lewis R. Smith as product development engineer of the Remington Air Conditioning Division has been announced by Herbert L. Laube, president.

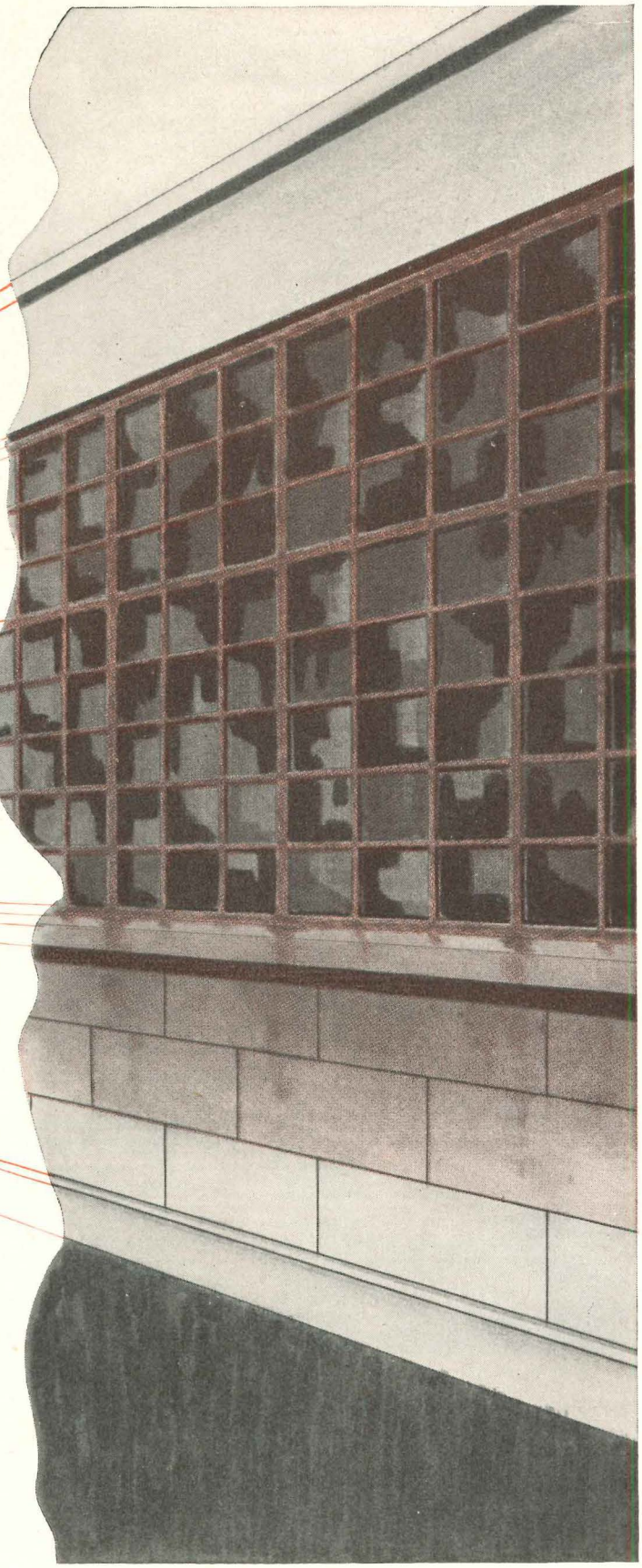
• Officers for 1950 have been elected by the Urban Land Institute as follows: Richard J. Seltzer, Philadelphia, president; Foster Winter, Detroit, and Warren Morris, Cleveland, vice presidents; Herbert U. Nelson, Chicago, secretary; and L. D. McKendry, Chicago, treasurer. Mr. Morris is new in his post; other officers were all reelected.

• Benjamin Weintraub, formerly in charge of the hospital program in the New York office of Skidmore, Owings and Merrill, has been appointed to the staff of the Blickman Hospital Consult-

ants. S. Blickman, Inc., of Weehawken, N. J., are manufacturers of equipment for hospitals and institutions.

(*Continued on page 200*)

DON'T BLAME YOUR PAINTING CONTRACTOR



You've often seen unsightly rust stains from metal sash on the adjacent brick and stone surfaces. You need never blame your painting contractor for unsightly stains caused by rust! You can *prevent* rust . . . and at no extra cost . . . simply by specifying RUST-OLEUM as the *shop coat, primer and finish coat* on all metal rust can attack.

But, specify Rust-Oleum in the *first stages* . . . when design, engineering and contracting take form . . . before actual delivery of material for the job. Rust-Oleum costs no more than quality material you may now be using . . . and is easy to apply at no added expense.

Rust-Oleum is tested and proved by a host of nationally known users. Rust-Oleum *stops* and *prevents* rust! RUST-OLEUM protects metal from rust with a tough, pliable film that dries to a firm finish. Rust-Oleum defies sun, rain, snow, salt air, smoke, fumes and other rust-producing conditions . . . and adds longer life wherever it is used. Girders, plates, stacks, gutters, roofs, tanks . . . every metal surface can be protected surely, safely and *economically* with RUST-OLEUM.

Rust-Oleum *beautifies as it protects* because it is available in many attractive colors including aluminum and white. Rust-Oleum can be applied to already rusted surfaces with minimum preparation . . . *it is not necessary to remove every appearance of rust!*

So, take the sure way to stop rust. Specify Rust-Oleum on all rustable metal, inside or out. It costs less ALL WAYS to do the job right.

Rust-Oleum is stocked and sold by leading industrial distributors in all principal cities of the United States and Canada. See Sweets for complete catalog and nearest source of supply, or write us direct for complete information.

Architects, Engineers, Builders

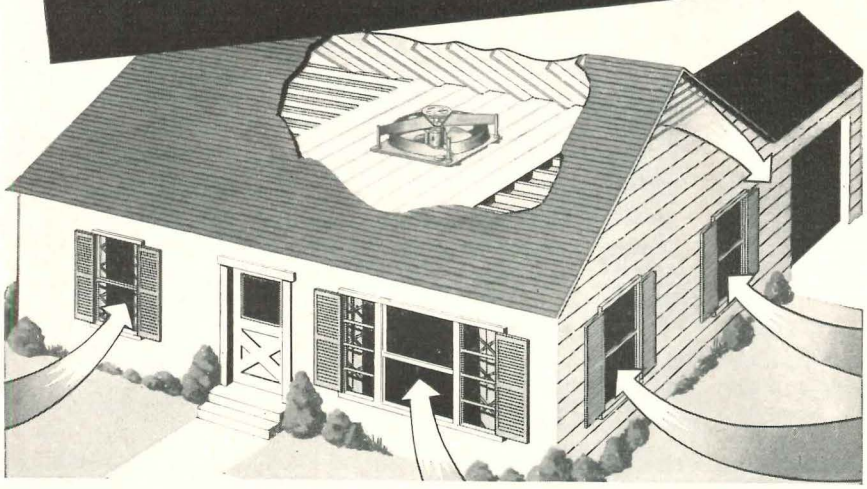
If you have a client with a rust problem, and would like a free survey and recommendations, send his name and address on your business stationery. A qualified Factory Representative will arrange this FREE Service, and it includes a trial size of Rust-Oleum for specific test purposes. These's no obligation on your part. Write today.

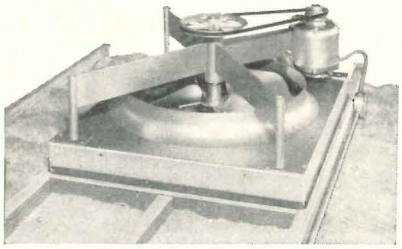
**Names on request*

RUST-OLEUM CORPORATION

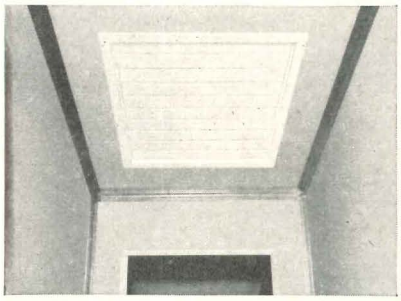
2513 Oakton Street • Evanston, Illinois

HUNTER ATTIC FANS give your homes low-cost Climate Control





Quiet, powerful, compact



New automatic ceiling shutter

Easily installed—provides cool comfort for hot summer months

Hunter Package Attic Fan is a complete home-cooling system . . . low in initial cost, economical to operate and designed for fast, inexpensive installation. No other small investment gives home-owners so much summer comfort.

Easy to Install: Delivered on the job as a compact unit, complete with ceiling shutter and modern metal trim, the Package Fan is quickly installed in ceiling opening. No suction-box to build; no accessories needed. Requires only 17″ attic clearance, fits any standard hallway.

Performance Guaranteed: Quiet, trouble-free operation is assured by Hunter's 64 years' experience in manufacturing fans, exclusively. Available in capacities from 4750 to 9500 CFM, with air delivery ratings certified. Fan guaranteed 5 years; motor and shutter, 1 year.

MAIL FOR COMPLETE DATA

Hunter Fan and Ventilating Company
396 South Front Street,
Memphis, Tenn.

Send copy of "How to Cool for Comfort" to:

Name.....

Address.....

City & State.....

Hunter Package Attic Fans

THE RECORD REPORTS

(*Continued from page 198*)

• Douglas Whitlock, chairman of the Board of Structural Clay Products Institute, has been chosen national councillor and delegate to represent the Institute at the 38th annual meeting of the U. S. Chamber of Commerce.

• G. Walter Sutton & Son, Knoxville, Tenn., have been appointed sales engineers for J. A. Zurn Mfg. Co., Erie, Pa.

• Harry E. Tear has been elected executive vice president and general superintendent in charge of construction for the White Construction Co. Other recent appointments include: Max Birman, vice president in charge of engineering; Robert A. Escher, vice president in charge of new business; and Herbert Anderson, purchasing agent.

AWARDS

Edward B. Reed of Princeton Gets Marble Institute Prize

First honors, and a prize of $100, went to Edward B. Reed of Princeton University in the Beaux Arts Institute of Design Competition for the Marble Institute of America Prizes.

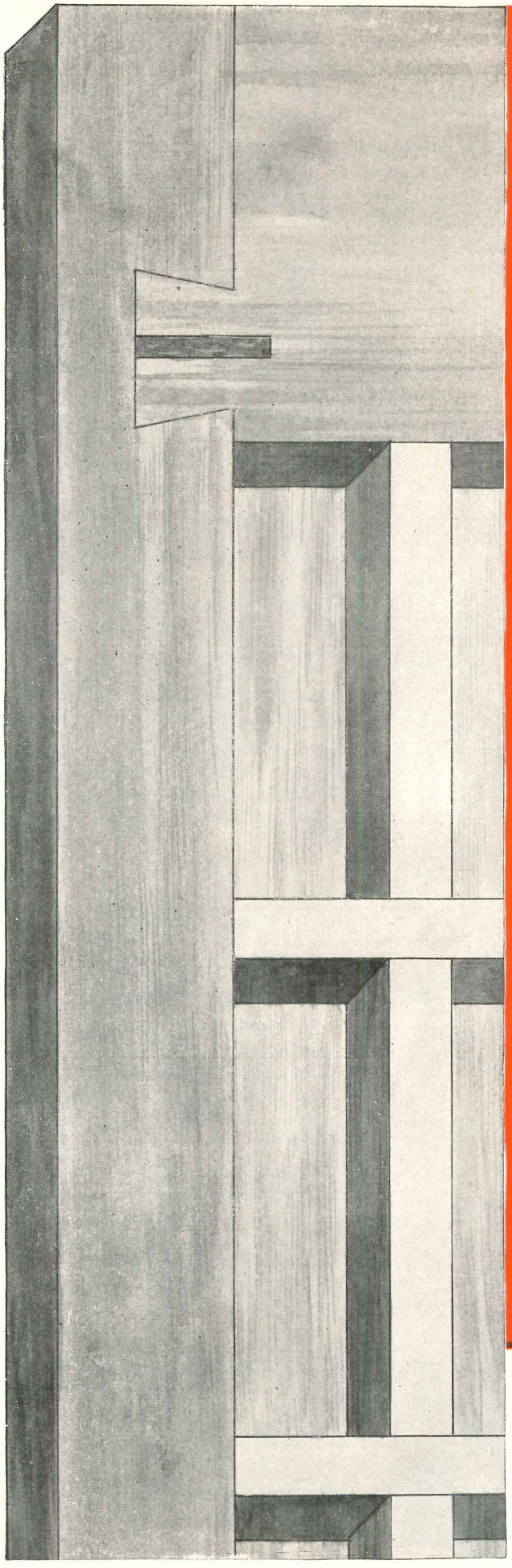
Other prizes were awarded as follows: second prize ($75) — Ray S. Febo, Western Reserve University; third prize ($50) — A. Perry Morgan Jr., Princeton University; fourth prize ($25) — Louis Eyster, Western Reserve University; honorable mentions — W. B. Henderson and Tom Cole, Western Reserve University.

The problem submitted by the Institute was prepared by Howard Lovewell Cheney, A.I.A., of Chicago. It required participating students to design the interior of a court house lobby, and afforded them an opportunity to study "an interior of substantial scale, with particular emphasis on good lighting, refined detail and the decorative qualities of marble, with which other rich materials may be combined in a discriminating manner."

Thirteen schools of architecture were represented in the competition, in which 193 students took part.

The award jury was headed by Charles W. Beeston, chairman, and included Max Abramovitz, Charles H. Bauer Jr., Robert Carson, Alonzo W. Clark III, Francis X. Gina, Francis

(*Continued on page 202*)



MORE
for your money, in
MENGEL
Hollow-Core Flush
DOORS!

Installation and finishing expense leads most architects to demand the extra beauty, durability, economy and *sales appeal* of Mengel Hollow-Core Flush Doors.

1 *Balanced* seven-ply construction to provide controlled reaction in changing weather conditions.

2 Hardwood construction throughout — stronger, more durable, free from grain-raising, more easily and economically finished.

3 Exclusive Insulok grid core material has inherent resiliency, cannot cause warping, nor transfer grid pattern to faces.

4 Greater strength. Adequate core stock surface area provides maximum gluing surface and resistance to warpage.

5 Precision key-locked dove-tailed joinings of stiles and rails add strength and stability.

6 Ready to finish. Door faces are smoothly belt-sanded. Stiles are machine-planed at factory — prefit to standard book sizes.

7 Fully guaranteed. Each door must meet rigid quality control standards and constant inspection throughout manufacture.

8 Mengel Hardwood Flush Doors are economical — no mouldings to paint — no corners to collect dirt. Smooth hardwood surfaces are less absorbent and less costly to finish — easier to clean and longer-lived.

Write for complete specifications. Use the convenient coupon.

Also see —
MENGEL STABILIZED SOLID-CORE DOORS
the finest products of their type on the market.

The Mengel Co., Plywood Division
2302 South Fourth Street, Louisville, Ky.

Gentlemen: Please send me, without obligation, full specifications on ____ Mengel Hollow-Core Flush Doors; ____ Mengel Stabilized Solid-Core Doors.

Name_____

Street_____

City_____ State_____

 (*Continued from page 200*)

Keally, John M. Liptak, Roy E. Mayes, Benjamin Moscowitz, Ralph Myers, Robert K. Posey, Jedd S. Reisner, Hugh N. Romney, Daniel Schwartzman, Abel R. Sorensen, Maurice D. Sornik, and Kenneth K. Stowell.

A. William Hajjar of Pennsylvania State College was school representative. Roy E. Mayes, president of the Marble Institute, participated in the judgment.

Film Interior Sets Winners For 1949 Announced by A.I.D.

Sets from "Luxury Liner," produced by Metro-Goldwyn-Mayer Studios, won a First Award for Supervising Decorator Edwin B. Willis in the 1949 Film Interior Sets Competition conducted by the American Institute of Decorators.

Sharing the First Award with Mr. Willis were Set Decorator Arthur Krams and Art Directors Cedric Gibbons and Paul Gruesse.

Sets from two films received Honorable Mentions — one was "Adam's Rib," produced by Metro-Goldwyn-Mayer, and the other was "Alias Nick Beale," produced by Paramount Pictures, Inc.

Upson Company Receives Engineers' Merit Award

The Upson Co. of Lockport, N. Y., has received a Merit Award of the American Society of Industrial Engineers.

Robert Law Crinnian of Detroit, national president of the society, made the presentation at an informal ceremony in the company offices.

The award, Mr. Crinnian explained, is the highest honor the Society can confer on organizations considered to have made the most outstanding contributions to the advancement of the industrial arts and sciences in their respective fields.

Recent similar awards have been made to the Hamilton Watch Co., the Detroit-Michigan Stove Co., Radio Corp. of America, Briggs Manufacturing Co.'s plumbing ware division, Nash-Kelvinator and others. Only 15 awards will be made during 1950, Mr. Crinnian said.

BUILDING NOTES

Beverly Hills Hotel To Build $1,250,000 Wing

The "Glen Way Wing" of the Beverly Hills Hotel will be the next step in the long-range modernization program of the hotel, which completed its "Crescent Wing" at a cost of $1,500,000 last December.

The new wing, which is expected to cost $1,250,000, will be constructed from plans by Paul R. Williams. It will be of Class A concrete and steel construction with a total of 88 guest rooms and a two-level basement garage with a 125-car capacity.

New Johnson & Johnson Lab Planned in New Brunswick

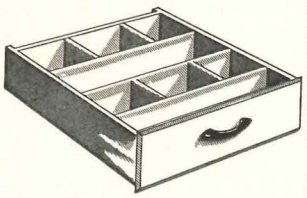
A research center in New Brunswick, N. J., will be built by Johnson & Johnson, manufacturers of surgical dressings, to consolidate and expand their present research activities.

(*Continued on page 204*)

COMPLETE OR PARTIAL INSTALLATION BACKED BY YEARS OF "KNOW-HOW"

Whether your requirement is a few additional pieces of furniture or fully equipped new departments . . . laboratories, homemaking, art, vocational or industrial shops . . . Sheldon provides standard and modified units that are outstanding for excellence of design and construction . . . qualities that long and hard usage only serve to emphasize. In experience and facilities, Sheldon is unsurpassed; and Sheldon's record of customer satisfaction is unique.

Look TO SHELDON For LEADERSHIP!



IT'S THE DETAILS THAT MAKE THE DIFFERENCE

Whether of wood or metal, Sheldon furniture is soundly engineered and carefully constructed. Drawers and doors continue to function properly despite hard usage. Drawers are equipped to receive partitions that are easily arranged and rearranged to accommodate contents for orderly storage and to prevent breakage . . . Just one more example of Sheldon's thoroughness in detail.

The key to your complete equipment problem

E. H. Sheldon & COMPANY
MUSKEGON, MICHIGAN

IMPORTANT CONSIDERATIONS

for the Architect about to recommend A SCHOOL TIME AND PROGRAM SYSTEM

FIRST, let's define the function:

A School Time and Program System has two primary functions: (1) to give the correct time in each classroom, and (2) to sound signals at pre-determined intervals. It must work automatically 5 days a week (often longer), in buildings jam-packed with kids and staffed by teachers and a principal who have neither the time nor the inclination to fuss with complicated gadgets.

SECOND, let's examine the features:

The installation consists of a Master Clock — Program Controller with Secondary Clocks and Buzzers in classrooms (bells elsewhere). In order to function smoothly the system should have these advantages:

1. Master Clock-Program Controller must be "on time" together at all times. In the STANDARD System they are one and the same mechanism, geared together. They can never get "out of step."

2. Master Clock and Secondary Clocks must also reveal exactly the same time.

   In the STANDARD System there is only one synchronous motor — a heavy-duty, slow speed, precision-built unit located in the Master Clock. Secondary Clocks have no motors, electrical contacts, tubes or other complicated parts — require no cleaning, oiling, adjustment or renewal.

   Other synchronous systems have one or two motors in each secondary clock and 1, 2 or 3 motors in the control unit where the failure of one disarranges the entire system.

3. The Master Clock-Program Controller should keep running during current interruptions, so that when current is resumed the signals will sound on time.

   In STANDARD Systems this is accomplished without a catching-up-to-time period — and without the use of batteries which require frequent attention or renewal.

4. Each Secondary Clock should reset itself automatically after current failure.

   In STANDARD Systems each clock has a 25-minute corrective range (slow or fast) and the reset feature functions in two seconds, silently. In certain other systems the Secondary Clocks must be reset in groups.

5. The Program Controller should cover all the programming needs of the entire school. This means complete service with periods down to the minute, and silence during nights, weekends, etc.

   Furthermore, it must be so simple that anyone can set up a program in a few minutes, and change schedules at a moment's notice.

   STANDARD employs a special paper tape, marked in minutes and hours, and punched by the Principal according to the schedule desired. Spare tapes, with different schedules, can be installed in a few seconds when necessary. The tapes will last 15 years or longer, and are free.

   Other systems employing lugs, pins, cams, etc., are not only difficult to set up, but are subject to failure when pins drop out or break off.

6. For best performance and long-range economy, engineers agree that the wiring system for a clock and program service should be kept separate from light and power lines.

7. The system should be backed by years of dependable operation in schools under all conditions.

   STANDARD can produce ample evidence of dependable performance in case histories running back to the turn of the century.

We shall be pleased to send you our new Bulletin No. 178, and to provide you with names of satisfied users to whom you may refer. Perhaps we can also assist you in preparing specifications for your time and program system. Please get in touch with us.

STANDARD ELECTRIC TIME COMPANY

STANDARD

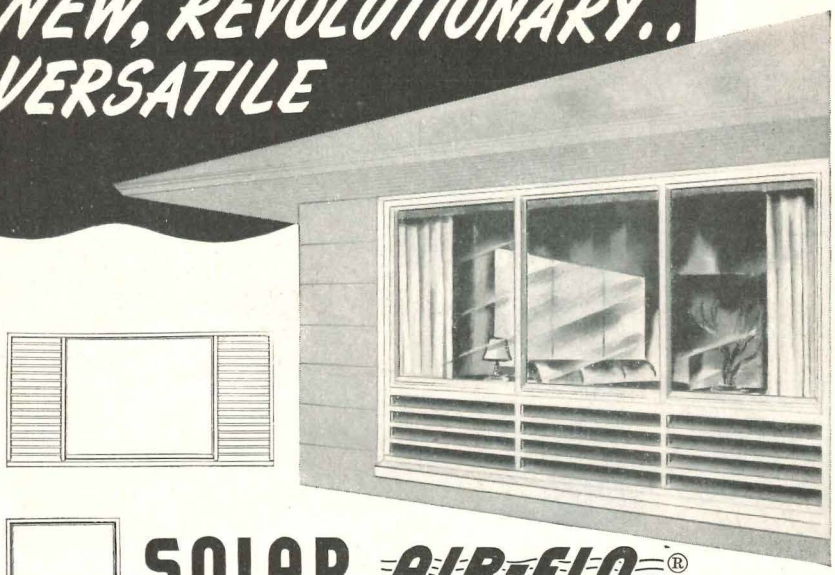
25 Branch Offices

81 Logan Street Springfield, Massachusetts

 (*Continued from page 202*)

Above: Photo of rendering of Johnson & Johnson's projected research laboratory

NEW, REVOLUTIONARY.. VERSATILE



SOLAR AIR-FLO® ENGINEERED ALL-WEATHER Windows

FOR DRAFTLESS VENTILATION

Louvered sections are placed at top, bottom or sides of stationary window pane, according to design requirements. Units may be used singly or in groupings.

STOCK SIZES FOR A WIDE VARIETY OF DESIGN

Adjustable baffle doors regulate circulation of fresh air, winter and summer. Screens concealed in *air-flo* section, may be removed from inside for cleaning. Solar Air-Flo units fit into all kinds of walls, masonry or wood . . . permit originality of design for all types of homes and buildings . . . provide weathertight insulation.

Solar Air-Flo windows allow the use of narrow mullions, come assembled with all exterior trim. Sill height and number of louvers may be varied to meet ventilation requirements. No precision work or special tools are needed for installation. Frames and sectional parts are made of either treated wood or extruded aluminum, as desired.

Beautiful Solar Air-Flo windows are in keeping with the modern trend . . . give individuality and distinction to exteriors, lend charm and an air of spaciousness to interiors. WRITE NOW for *free* descriptive literature and specification data, without obligation.

SOLAR AIR-FLO, INC.
DEPARTMENT 404, ELKHART, INDIANA

Send free literature on Solar Air-Flo windows.
I am ☐ Architect ☐ Dealer ☐ Contractor.

Name_____

Firm_____

Address_____ Zone_____

City_____ State_____

SOLAR AIR-FLO, INC.
ELKHART, INDIANA

MAIL COUPON NOW!

The center will consist of a one-story, E-shaped laboratory building and a two-story administration building. The two buildings will have approximately 50,000 sq ft of floor space and will be staffed by 100 to 200 persons. The laboratory is designed to accommodate a 25 per cent increase in scientific personnel, and the building itself is planned for economical future expansion.

Of steel-frame construction, the laboratory will have exterior walls of buff ceramic tile, while the office section will have sandstone walls with large areas of glass. The two structures will share a 90-acre site with two buildings of affiliated companies.

Alexander P. Morgan, New York architect, designed the buildings, with Guy B. Panero, Engineers, as mechanical engineers and Strobel and Salzman as structural engineers. The project will be supervised by F. N. Manley, director of construction for Johnson & Johnson. Completion is scheduled for August.

Construction Under Way On Hotel for Venezuela

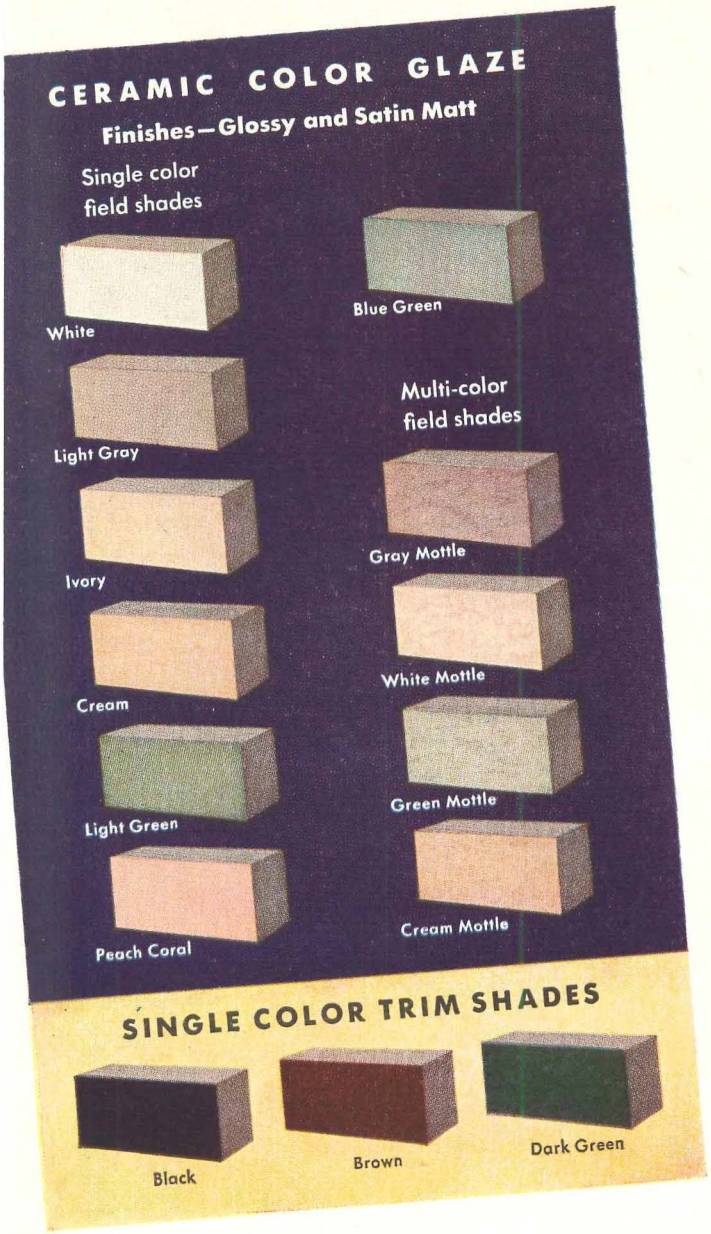
Award to American Pacific Industrial Corp. of Venezuela late in February of the contract for construction of the $6,000,000 Tamanaco Hotel in Caracas, Venezuela, was immediately followed by the announcement that ground would be broken within 30 days.

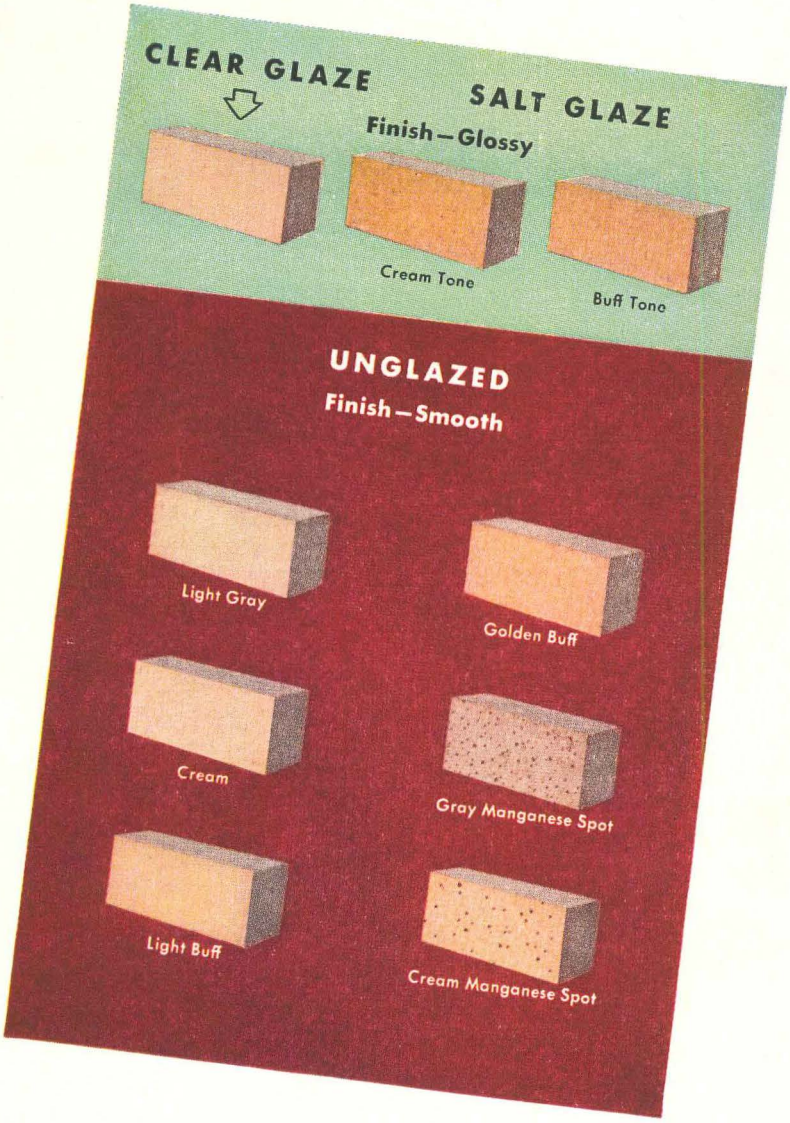
Holabird, Root & Burgee of New York, collaborating with Gustavo Guinand, of Caracas, are architects for the hotel. Plans call for a ten-story structure of reinforced poured concrete throughout, with approximately 430 rooms, all with baths. The building will be V-shaped, allowing for maximum sunlight, and oriented to take advantage of the fine view to the north across the Caracas Valley toward Mount Avila. Other features of the plan are a glass-walled night club opening onto a terrace which will be used for dining and dancing, a large swimming pool and a circulating ice water system fed from deep wells.

The Tamanaco will be built upon a ridge, with its lobby floor 80 ft above the level of the Playa Sucre, which it faces.

The Tamanaco is owned by the Hotel Tamanaco Campania Anonima, Gustavo A. San Roman, president, and was financed by local capital, the Venezuelan government and the Export-Import Bank of the United States. It is one of a world-wide chain of hotels being developed by Intercontinental, a subsidiary of Pan-American Airways.

(*Continued on page 208*)





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(standardized for your convenience)

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Here are colors that *do things* . . . for schools, hospitals, public buildings, commercial and industrial buildings.

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For more complete information on the full line of standardized Facing Tile colors, or on any of the Institute's other services, write the address below, Desk AR-4, for catalog 50-C.

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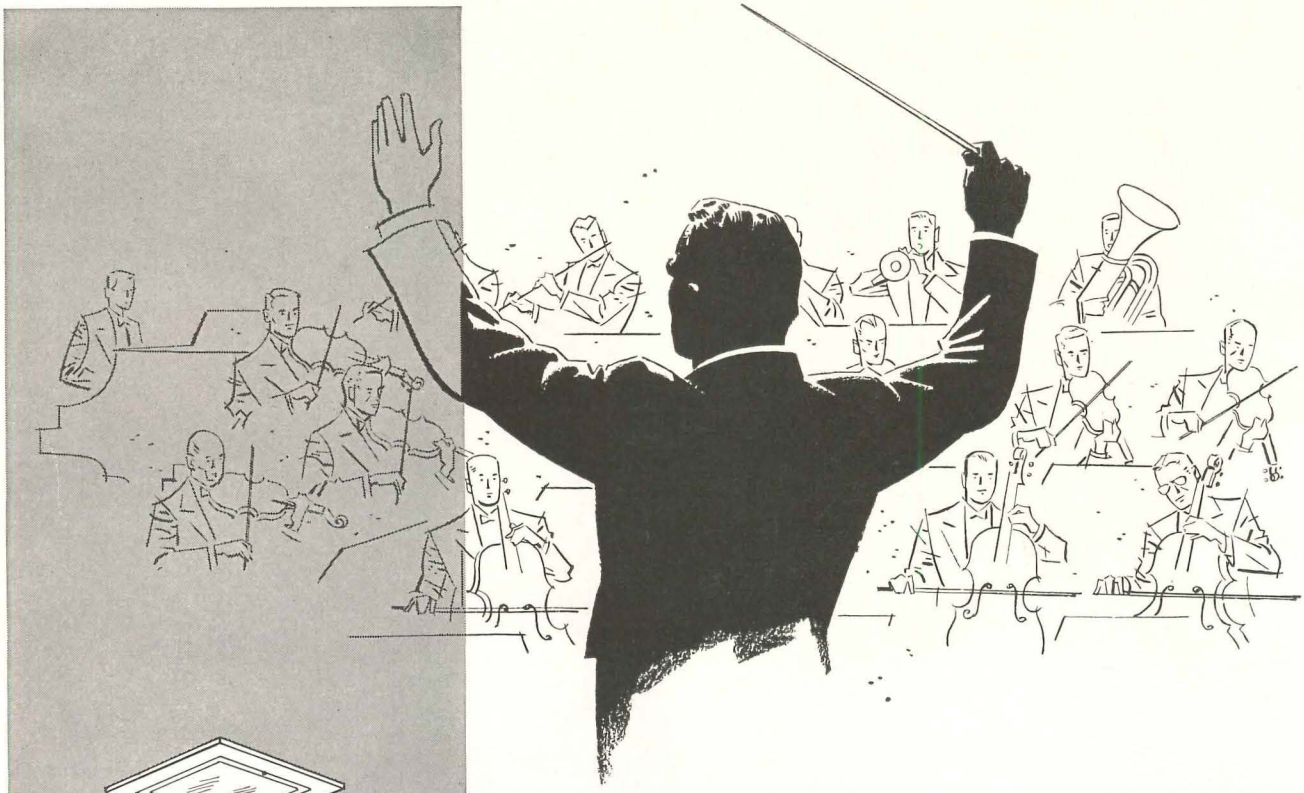

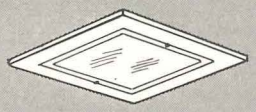

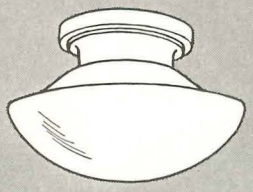

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Unified Lighting is a broad grouping of lighting equipment meeting all commercial applications . . . suitable to the varying needs of different locations . . . yet each unit harmonizes in style characteristics and in finish to blend into conformity of design.

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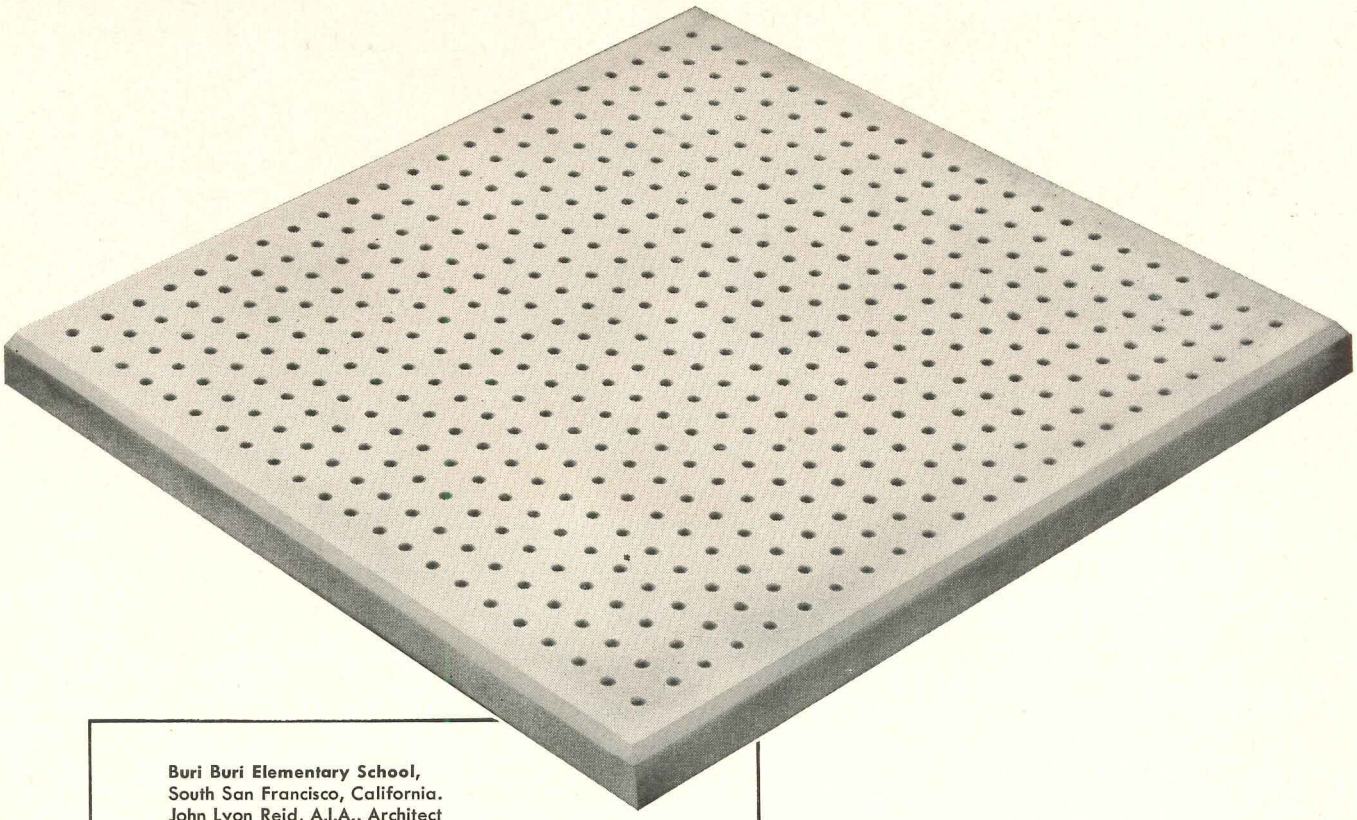

Buri Buri Elementary School,
South San Francisco, California.
John Lyon Reid, A.I.A., Architect

"...Combination of Good Appearance, Light Reflection Qualities...Meeting Specified Sound Absorption"

...says architect of Buri Buri Elementary School

Simpson Acoustical Tile was specified and installed in classrooms in the Buri Buri Elementary School, one of the modern new school buildings described in the main feature article elsewhere in this magazine. Concerning selection of acoustical tile, Architect Reid has this to say:

"One of the most important features of a modern classroom is proper sound conditioning.

We have always exercised great care in designing schoolrooms for acoustical performance and in selecting materials to accomplish the desired end. Acoustical tile, such as was used in the Buri Buri Elementary School, having a combination of good appearance, light reflection qualities and meeting the specified sound absorption coefficient, is one of the most important elements of a properly sound conditioned classroom."

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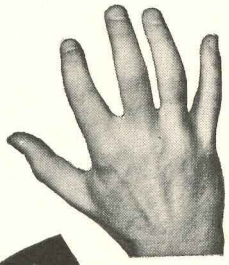


Only Simpson has all 5!

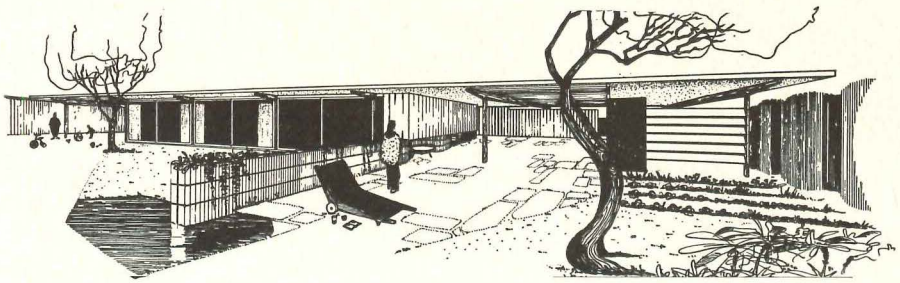
Simpson
QUALITY SINCE 1895

ACOUSTICAL TILE

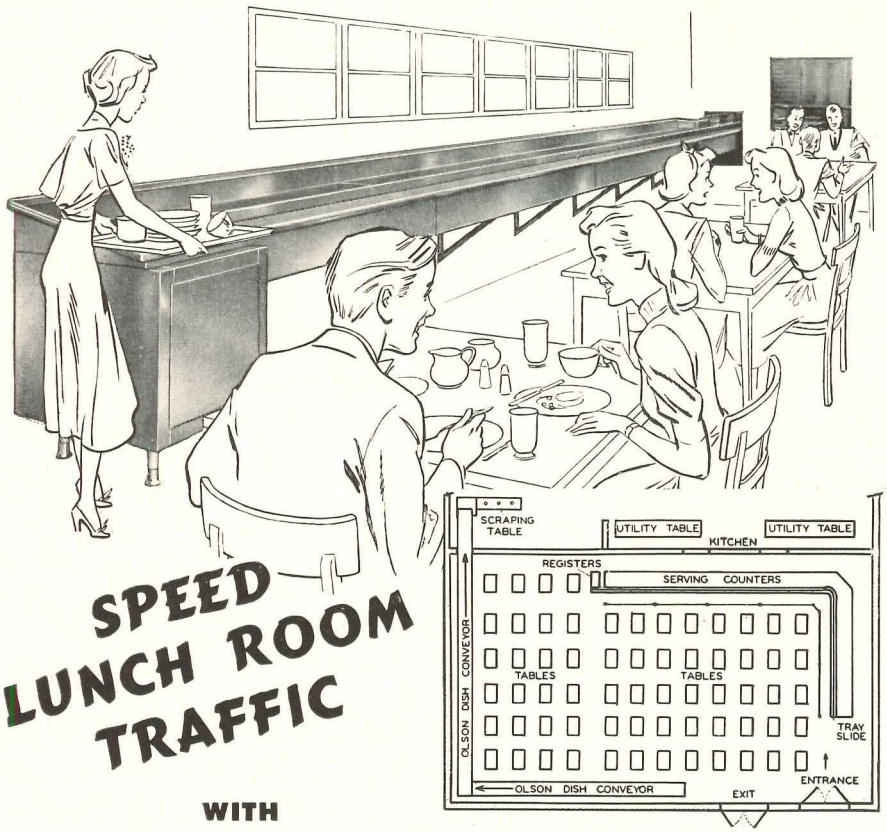
FOR BETTER SOUND CONDITIONING

THE RECORD REPORTS

(*Continued from page 204*)



Above: Indoor-outdoor living was stressed in design of exhibition house at Cleveland



SPEED LUNCH ROOM TRAFFIC WITH OLSON DISH TRAY CONVEYORS

The photo above shows an Olson Dish Tray Conveyor recently installed in the Woodrow Wilson High School, Tulsa, Oklahoma. The inset diagram shows a typical floor plan and indicates how one or more Conveyors can be conveniently located.

See our catalog in Sweet's File.

Olson Dish Tray Conveyors are the ideal equipment for school cafeterias. They provide fast, even flow of soiled dishes to the dishwashing area and shorter clean-up time between lunch periods. Each diner merely places his tray of soiled dishes on the Conveyor nearest his table or near the exit. Dishes move quietly, smoothly. The usual confusion is eliminated and breakage is reduced to a minimum.

Where dishwashing facilities are on another floor, a Subveyor can be installed to take the trays from the Conveyor and lift or lower them automatically.

Olson Dish Tray Conveyors and Subveyors are fast becoming standard equipment in modern schools and institutions all over the country. Write us today for full details.

SAMUEL OLSON MFG. CO., INC.

2436 Bloomingdale Ave., Chicago 47, Illinois

WITH THE A.I.A.

Buffalo-Western New York — Officers for 1950 have been elected as follows: Roswell E. Pfohl, president; Trevor W. Rogers, vice president; Thomas Imbs, secretary-treasurer; directors (for three years) Guy Baldwin and W. Newell Reynolds.

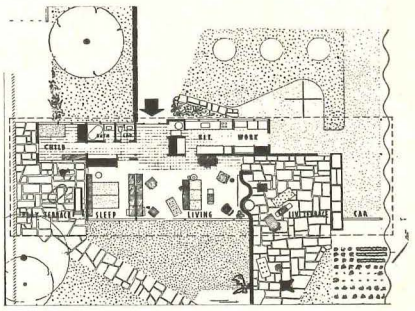
Cleveland — An exhibition house designed by a special committee of the chapter last month was providing a graphic illustration of the value of an architect's services.

Some 50,000 people were estimated to have seen the chapter's exhibit at the Seventh Annual Home and Flower Show at the Cleveland Public Hall March 4–12.

Design for livability was basic in planning "The House that Jack Built" for "Mr. and Mrs. Jack and son," the hypothetical clients. Specific attention was given in the design to activity and space relationships, flexibility and privacy, indoor-outdoor living. Advanced developments in structure, materials and building equipment were freely used.

Joseph Ceruti headed the special committee which initiated the project. On the committee were Alfred W. Harris, Robert A. Little, Ernst Payer, Wilbur Riddle and Edward Higgins, a student associate of the chapter representing the student chapter of the Institute at Western Reserve University.

Below: plan of Cleveland's model house



New York State — The Sidney L. Strauss Memorial Award, to be given annually for outstanding service to the architectural profession, has been established by the Association in honor of its late past president. The award, which will be a medal and a suitably inscribed certificate, will be announced Nov. 1. Candidates are to be nominated by constituent societies and chapters of the Association.

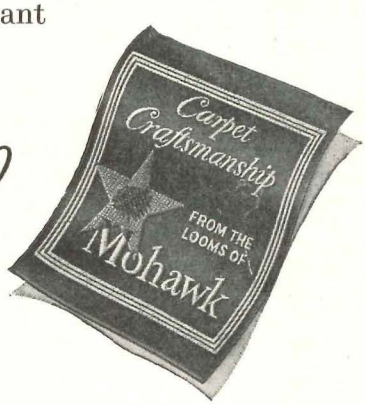
Indiana — Advice from the Bulletin of the Indiana Society of Architects:

(*Continued on page 210*)

WILLIAM S. BROWN, of the firm of Skidmore, Owings & Merrill, nationally known architects and designers of many of America's outstanding buildings. Mr. Brown was architect in charge of the famous Terrace Plaza Hotel in Cincinnati, where the architects with the owner's mandate had complete charge of all materials, equipment and furnishings that went into the hotel. Mohawk laid 11.5 miles of carpet in the Terrace Plaza.

Mr. Brown has, in speaking of Mohawk Carpets, remarked that he has had most satisfactory results from Mohawk Carpets and that in his experience they have met the requirements of the owners. The understanding and cooperation on the part of the Contract Department of Mohawk has been helpful in his planning. Samples, information on colors and styles, and reliance on their agents while the job is under way have been useful factors in their service.

"In the Terrace Plaza Hotel in Cincinnati, for example, practical considerations such as wear and durability of the floor covering were of utmost importance; and carpet pattern and color helped create the comfortable and pleasant interiors in many of the rooms."



Mohawk

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THE RECORD REPORTS

(*Continued from page 208*)

"The most important part of architecture is following up the design placed on paper. Once architects did this. How . . . does a bricklayer from the south side of Chicago know or recognize the 'message' hidden in the blueprints of an architect of the contemporary Cliché period? Uninstructed, how does he know how to give you 'floating ceilings free to extend beyond walls to echo into outer space'?

"If you do not watch a mechanic on a job of yours he will always contrive an artistic expression of his own, bearing small resemblance to your inspired intention. Furthermore, if you are an architect at all . . . why don't you have guts enough to tear out a piece of work and have it replaced by a reasonable facsimile of your own thinking on the subject? . . .

"Are not your specs mighty enough? . . . Maybe some of your specs are copied from old specs of an architect who used to run his own job and not be run off it."

Pittsburgh — Beginning its 59th year, the chapter reelected Rody Patterson as president. B. Kenneth Johnstone was named vice president; Charles S. Ingham, secretary; Frank E. Wehrle, treasurer. Builder Edward Wehr — one of the few American builders with a degree in architecture — was elected to honorary membership in the chapter.

Southern California — Officers elected to serve for 1950 are: John Rex, president; John Landon, vice president; Edla Muir, secretary; Charles E. Fry, treasurer; Paul O. Davis, Walter O. Hagedohm, Albert C. Martin Jr., Henry L. Wright, directors.

NEW WAY
to make a
GRAND
ENTRANCE

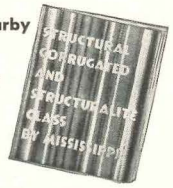
Shafts of refracted light attained by the use of Structural Corrugated Glass dramatize the entrance to Beloit College Field House, Beloit, Wisconsin.* Note how the bright, vertical lines accent height, lend stature and dignity, increase the apparent size of the structure. Transmitted light gives the modern architect another dimension . . . broader scope for his talents. For exteriors of weather-defying beauty and interiors high in interest, specify Mississippi Structural Corrugated Glass.

Obscure glass by Mississippi is available in a wide variety of patterns and light transmission characteristics to meet architectural or structural requirements in any location or exposure.

For further data see Sweets' Architectural File or contact your nearby distributor of quality glass. Samples on request.

*W. Fred Dolke, Architect; Maurice Webster, Associate Architect; Cunningham Bros., General Contractor.

Send for booklet "Structural Corrugated & Structuralite Glass by Mississippi."



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EXHIBITIONS

British Industries Fair Scheduled May 8–May 19

The dollar shortage is still acute — and Britain's manufacturers will display their wares next month at the British Industries Fair from May 8 to May 19 at Earl's Court and Olympia, London, and Castle Bromwich, Birmingham.

Editor Ian Leslie of "The Builder" of London reports that visitors to the building section at Castle Bromwich will find manufacturers have devoted increased attention to good design, and that this trend will be especially notable in kitchen sinks, cupboards, heating elements, cooking and hot water plants.

Constructional plant on view at Castle Bromwich will reflect the "almost universal" importance — says Mr. Leslie — attached to the use of mechanical devices to save time on processes previously done by hand, especially carrying and hoisting.

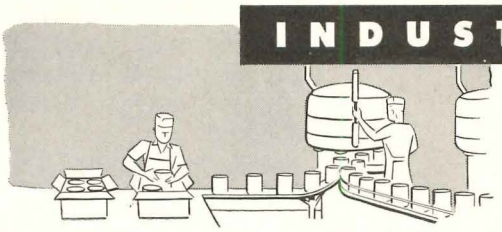
New machines of a mobile kind are increasingly used in British construction, and motor-driven barrows, hoists, winches among the displays will show this trend. Some of these machines are dual-purpose, as, for example, the mechanical shovel which has a brick stacker attachment consisting of an extension with fork arm to carry a stillage holding 100 bricks. This may be attached to the side arms without removing the scoop. In addition to serving as an excavator, the machine can be used to transport bricks from the stack and unload them onto scaffolding up to a

(*Continued on page 212*)

COMMERCIAL

Handsome *Consoweld* sets the scene for greater merchandise movement in commercial establishments. Interior design possibilities with colorful *Consoweld* are almost limitless.

INDUSTRIAL

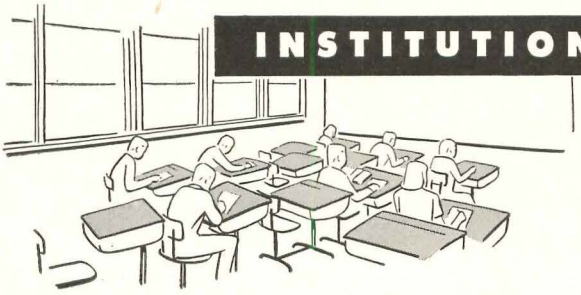


Optimum sanitation is a requirement of the food processing industry. Functional *Consoweld*, with its low absorption factor, is the perfect wall surfacing.

Horizontal or vertical surfaces calling for color—plus resistance to heat, moisture, abrasion, alkalies and acids—call for *Consoweld*, the miracle molded plastic. ■ As more and more architects and designers are discovering, *Consoweld* is the sound solution to many surfacing problems on almost every project. ■ You'll find designing with *Consoweld* an exciting experience. A wide variety of patterns and colors inspire the creation of dramatic color-contrast or handsome color-harmony effects. And you can specify *Consoweld* with confidence.

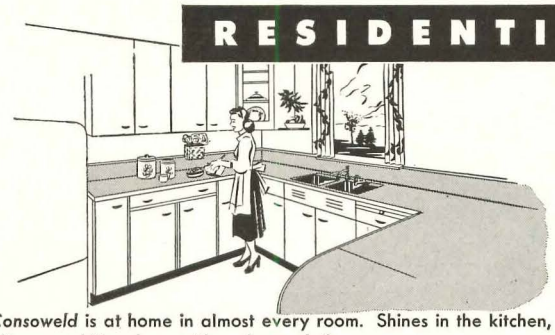
ALL 4 CALL FOR CONSOWELD

INSTITUTIONAL



Consoweld defies wear and tear—cleans easily—needs no maintenance. Reasons aplenty why *Consoweld* is so popular in schools and hospitals.

RESIDENTIAL



Practical *Consoweld* is at home in almost every room. Shines in the kitchen, where it wipes sparkling clean with a damp cloth.

Good for a colorful lifetime!

LOOK!

***Consoweld*, available in unusually big sheet sizes (up to 16 feet long), is ideal for large wall surfaces or long counters where joints would be unsightly.**

SEE!

. . . Sweet's File, Architectural, 14a/1a, for detailed information — specifications, panel sizes, packaging, full-color installation views and reproductions of colors and patterns.

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Write *today* for your *free* Color-Ring and the complete Bonding and Fabrication booklet.

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Iron Clad Rules

1. Have dust and dirt removed from sash.
2. Be sure the sash is dry.
3. Wood sash must be primed. Metal sash must be free from rust.
4. See that clips are suitably installed.
5. Avoid using thinners excessively.
6. Use your glazing material fresh from the manufacturer and be sure it is mixed with all the oil.
7. Protect your lights from condensation until glazing material is set and painted.
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9. After putty is set (about 14 days) always have it painted immediately! We recommend painting compounds, too.

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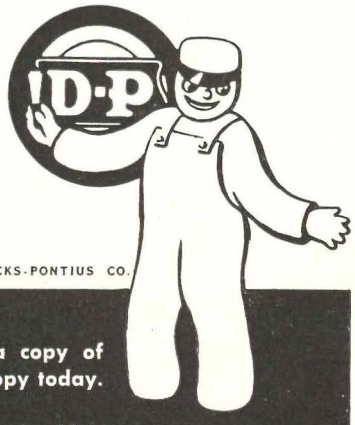

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THE RECORD REPORTS

(*Continued from page 210*)

height of 16 ft at the rate of 3000 per hr.

Other new machines include light builders' hoists of high mobility which can be easily demounted for erection elsewhere.

Fixtures and equipment for houses and all types of buildings will also be on display.

A wide range of machinery for woodworking purposes will also be seen. Typical of this group will be a "universal" woodworker which comprises in one machine a saw-bench, planer and jointer, thicknesser, moulder, mortiser, borer and tenoner.

Among constructional developments of note will be the "Kwikform" system of unit-framed scaffolding for barrel-vault shuttering; this includes a suspended formwork and vertical shuttering which reduces to a minimum bird-cage scaffolding, is adaptable to any radius and gives a perfect soffit.

Intarsia Featured in Craftsmen's Exhibit

Modern marquetry by Howard Whipple of California and Andrew Szoeke of New York was featured in an exhibition of the American Craftsmen's Educational Council in their gallery at America House, 32 E. 52nd St., New York City, last month.

Mr. Whipple is a retired banker who developed a hobby into a fine art to gain a national reputation. The collection of his work shown included 37 pieces, cut from multi-hued wood, fitted together and combined much as a jeweler treats his stones.

Mr. Szoeke, designer and cabinetmaker, was known when he first came to this country from Vienna in 1921 as a specialist in calligraphy. A group of his designs for modern furniture of inlaid wood was shown at the exhibit.

Home Furnishings Show at Philadelphia Art Center

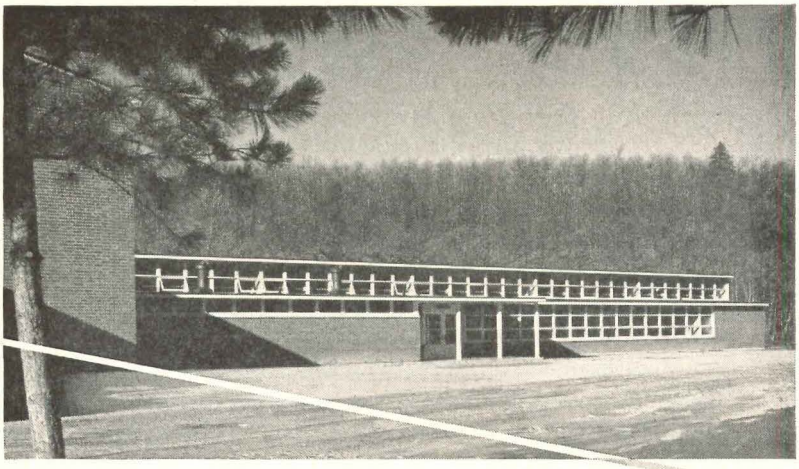
"Inside 1950," an exhibition designed to acquaint Philadelphians with the best in contemporary home furnishings, will open at the Philadelphia Art Alliance, 251 S. 18th St., Philadelphia, on April 24 and continue through June 4.

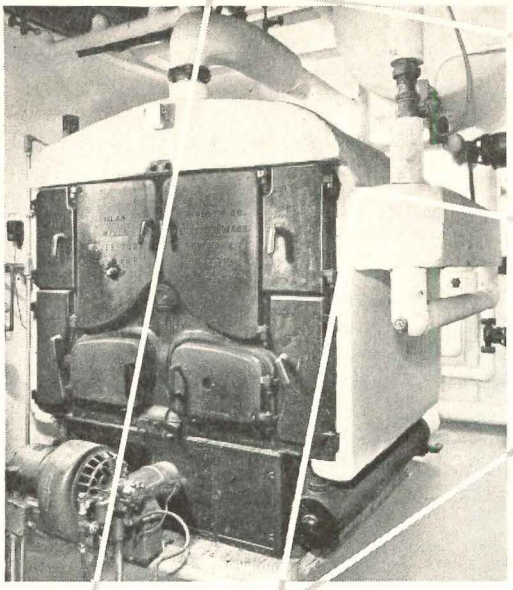
Visitors will be permitted to test and touch all items in the exhibition, which will be presented as a four-room apartment typical of Philadelphia.

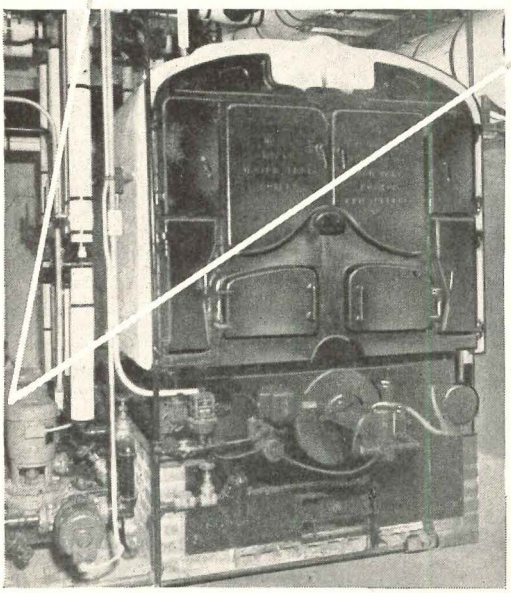
(*Continued on page 214*)

New Elementary School at Burlington, Conn., one of the five outstanding schools featured in the *Architectural Record* Study, is equipped with *one* No. 440 Smith-Mills Water Tube Boiler, fired with No. 3 Oil. Please notice (1) the one-story construction; (2) large area fenestration; (3) small space needed for boiler room.

Architects: Moore & Salisbury, Hartford, Conn.; *Heating Engineer:* H. B. VanZelm, Hartford, Conn. Boiler installation by Standard Cycle Co., Winsted, Conn.





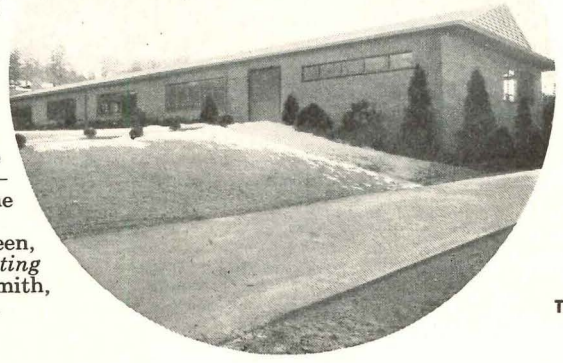


Modern School Designers find Smith-Mills Boilers

Ready

. . . Ready to meet the special heating problems involved in one-floor arrangement and large window areas . . . Ready for the new developments in radiant heating. And more than all, ready for those fundamental requirements: fuel economy, low maintenance and ability to expand as the needs of the school grow.

You need a heating system that has already proved itself in school heating. The basic principle of vertical cast iron boiler tubes, originated and developed by The H. B. Smith Company, insures maximum heat transfer — the use and *re-use* of every bit of heat from the fuel, oil or coal, to create steam or hot water. Now add the fact that a Smith-Mills boiler is assembled on the job — can be increased in size (or made smaller) without extensive alteration; is self-cleaning, and lasts many years (lots are over 50 years old!) — and you can see why architects and engineers specify Smith-Mills boilers with confidence for the important task of keeping kids warm!



Transfiguration School, Tarrytown, New York; another *Architectural Record* selection characterized by one-story layout and ample daylight. One No. 440 Smith-Mills Boiler fired by horizontal rotary burner, provides ample heat for today's needs — promises to grow as the school grows.

Architect: Robert A. Green, Tarrytown, N. Y.; *Heating Contractor:* Hauxwell & Smith, Inc., Port Chester, N. Y.

H.B. Smith

CAST-IRON BOILERS

THE H. B. SMITH COMPANY, INC., WESTFIELD, MASS.

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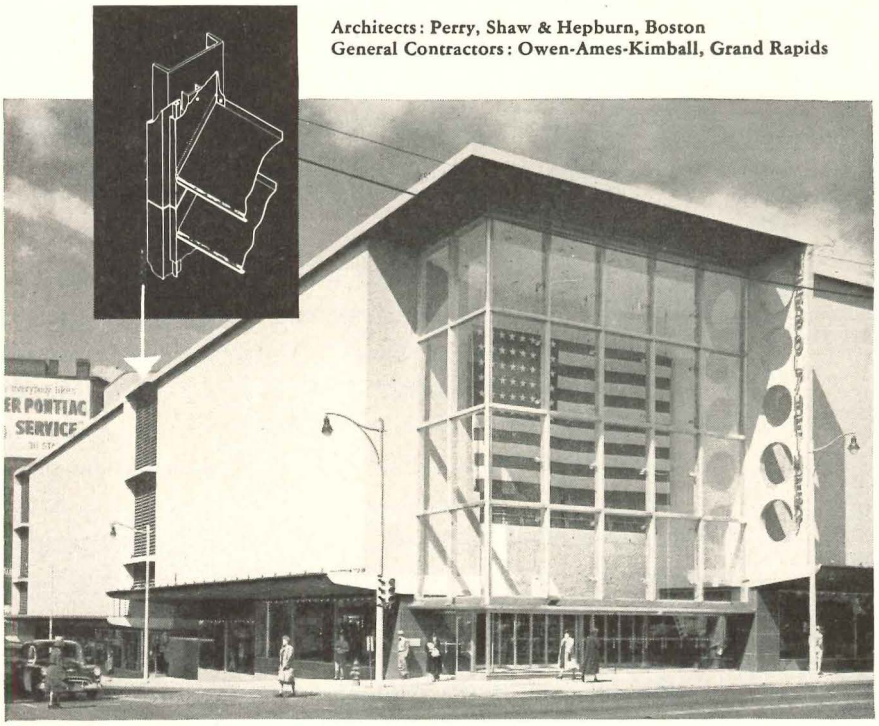
Practical beauty *where it counts* is Seaporcel's contribution to this impressive temple of business, designed by Mr. George L. Ely, of Allied Stores, Boston.
For the distinctive sign facia and the modern-as-tomorrow louvres on both sides of the structure, the choice was Seaporcel Architectural Porcelain Enamel, unsurpassed for beauty of appearance - low installation and maintenance cost - permanence - resistance to weather - and the integrity of its manufacturer.



Architects: Perry, Shaw & Hepburn, Boston
General Contractors: Owen-Ames-Kimball, Grand Rapids

A new "Fact Sheet" is just off the press, giving in isometric detail specifications and construction of these ventilation and air conditioning louvres. A copy is yours for the asking.

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THE RECORD REPORTS

(*Continued from page 212*)

Lott-Neagle Design Associates of Philadelphia have worked with the Crafts and Industrial Design Committees of the Art Alliance to make the showing, an innovation for Philadelphia, possible.

PANERO GROUP WORKS ON PROTECTIVE CONSTRUCTION

A special group of engineers has been organized by the engineering firm of Guy B. Panero to work on problems of protective construction for strategic industrial plants. Considerable attention will be devoted to cost aspects.

Mr. Panero has disclosed that his firm has had inquiries from several large firms interested in obtaining reasonable protection at existing plants where process and ground limitations will not enable them to spread out their buildings and where constructing a complete plant underground is not feasible.

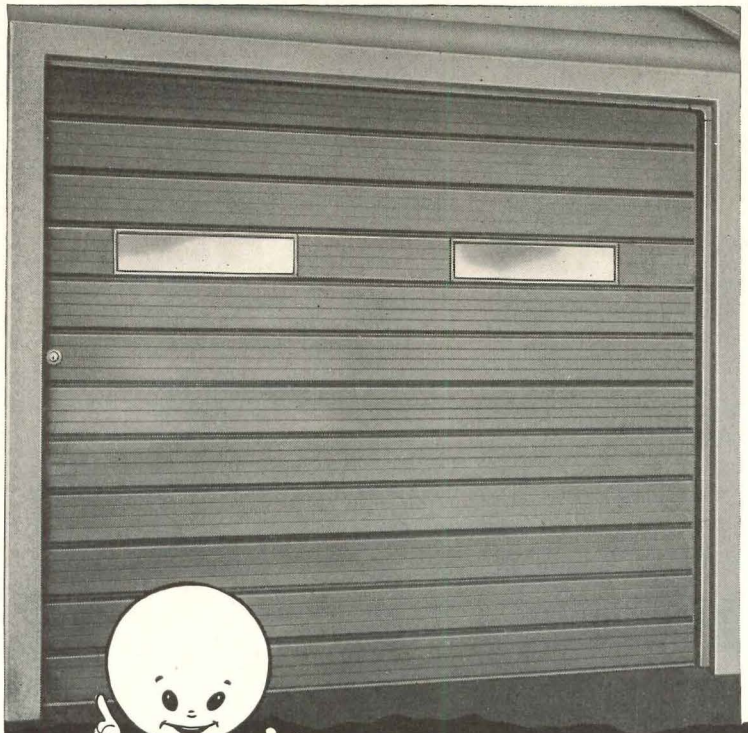
Mr. Panero believes that national defense now requires that at least a part of the total spent annually on new plants be invested in protective construction.

Specially developed construction and planning techniques designed to give optimum protection to the most critical portions of a single plant are a part of protective construction as described by Mr. Panero, whose firm last year completed a major study for the government on feasibility of underground construction.

"It is not practical or desirable to place all, or even a major segment of important manufacturing facilities such as atomic plants underground," Mr. Panero says. "Nor would it be economically feasible to disperse some types of industry. But the time is opportune to consider 'protective construction' for those production facilities which are absolutely necessary to the defense of this nation. Sites must be selected and structures must be designed to offer the maximum degree of protection consistent with economic aspects of our industrial complex."

Mr. Panero cites a report recently released by the Atomic Energy Commission and the Department of Defense which revealed that 320,000,000 sq ft of floor space available in existing mines

(*Continued on page 216*)



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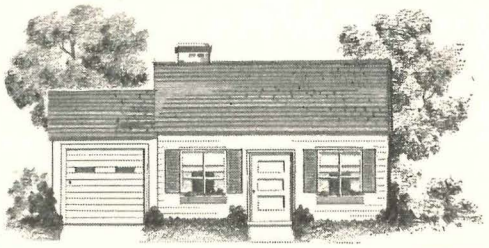
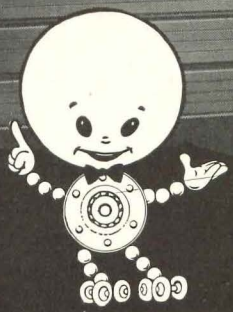
Satisfaction!





The Sensational New
MORRISON ROLY-DOOR
The Four-Sectional, All-Steel, Overhead Residential Garage Door*

** Patent Pending*

- ***it costs less to buy!***
- ***it costs less to ship and store!***
- ***it costs less to install!***
- ***and it's Four-Sectional!***

BUILDERS!
The MORRISON Roly-Door needs Minimum Field Assembly!
Everything that can be predetermined is fixed to the door at the factory! All brackets and hinging are permanently welded or riveted! Easier to install—in less time!

ARCHITECTS!
The MORRISON Roly-Door conforms to all building code specifications . . . Because it operates completely within garage, it does not operate through the jambs. Installation is self-contained; settling, shifting, sagging, or out-of-square building conditions cannot interfere with its "TOUCH 'N' GO" operation. It requires no air rights (it can be installed on lot line openings), and it conforms to nation-wide building code specifications.

DISTRIBUTORS!
Franchises for a few choice territories are still available. Write in detail!

The New MORRISON Roly-Door Four-Sectional All-Steel Overhead Residential Garage Door is the first and the only Residential OVERHEAD DOOR in the world with *every* wanted feature! It has everything — and it's the only overhead residential garage door that has everything!

A New Low Price for a Quality Door!

(Please Read this Twice — it's the most sensational price news in the home-building industry in years!)

Because of its exclusive method of manufacture, the MORRISON Four-Sectional, All-Steel Residential Garage DOOR can be *sold and installed for as low as any four-sectional garage door on the market!*

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The complete story of The MORRISON Roly-Door it's yours for the asking. . .

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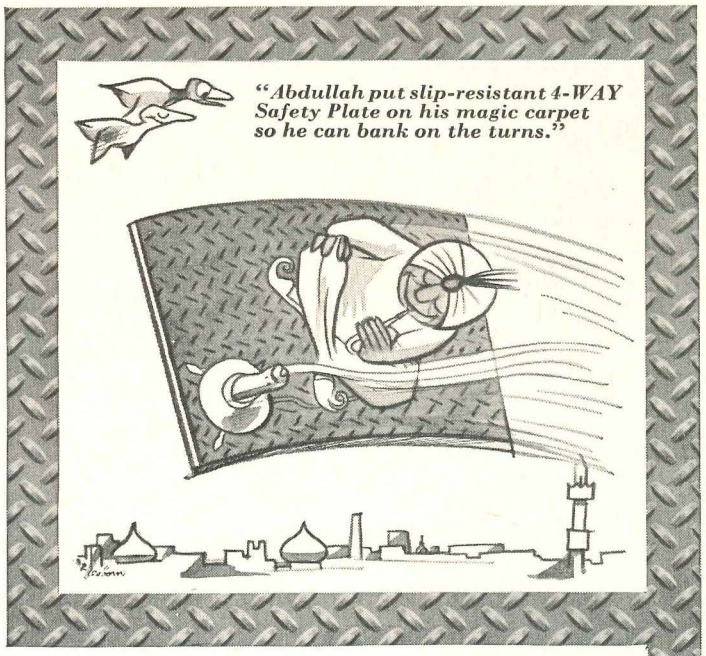

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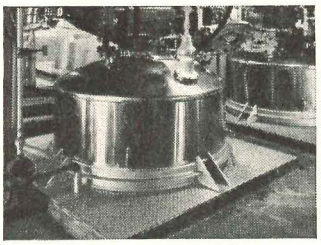
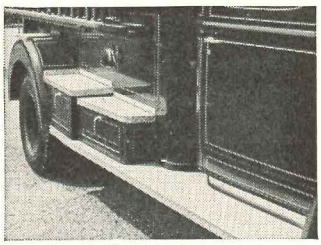
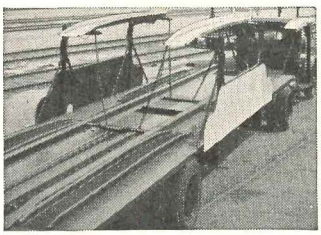


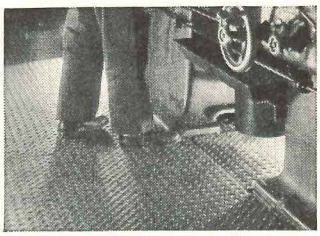
Easy Assembly



Safe Footing



More Traction



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STOCKED BY LEADING STEEL WAREHOUSES

THE RECORD REPORTS

(*Continued from page 214*)

could be converted into first-class production areas at a cost only slightly higher than conventional above-ground buildings.

The Panero firm, in a $400,000 survey conducted for the Corps of Engineers, Department of the Army, actually designed three different types of plants for location in underground sites, and comparative cost studies were made with similar conventional structures. The plants designed included a precision manufacturing plant, a chemical plant and a storage depot. They have not been constructed.

12 STUDENTS COMPETING IN LLOYD WARREN FINALS

Twelve students, four of them from Princeton University, were selected to compete in the final exercise of the 1950 Lloyd Warren Scholarship, the 37th Paris Prize in Architecture.

The winner, who will receive $5000 for architectural study and travel over an 18-month period, will be announced this month.

Subject of the second preliminary exercise, on the results of which choice of the finalists was based, was "an oil town." The competition is held under the direction of the Committee on Scholarships of the Beaux-Arts Institute of Design. Finalists chosen were: Charles H. Boney and G. Lee Everidge, North Carolina State College; John J. Mooney, Pennsylvania State College; Maxwell G. Mayo, H. Bryce Roberts, D. M. Simmons and W. H. Sippel Jr., Princeton University; Paul H. Graven Jr., Oklahoma Agricultural and Mechanical College; William J. Scheidementel, University of Illinois, Urbana; Harry Kale and William Murtagh, University of Pennsylvania; and Haigh Josgochian, Virginia Polytechnic Institute.

L. Bancel LaFarge is chairman of the Jury of Award, which includes Gordon Bunshaft, Alonzo W. Clark III, Harmon H. Goldstone, Michael M. Hattis and Benjamin Lane Smith.

FEDERATION ENDORSED BY ENGINEERS JOINT COUNCIL

Proposals made at the first Pan-American Engineering Congress held in Rio de Janeiro last July for an inter-American engineering organization have

(*Continued on page 218*)

SETTING CLAY WALL TILE on almost any type wall is a cinch with 3M Ceramic Tile Adhesive. Lighter foundations are possible — that means weight and construction-time savings.

Tile a bath in one day?

Yes, clay wall tile setters are doing just that—in one day and on the same day—with no call-backs to finish the job.

They're doing it with a new product which almost amounts to a new method—a product you as a progressive wholesaler, constantly seeking ways to make sales greater and customer service better, should investigate. It's a new type, rubber-base adhesive.

In remodeling, this waterproof, always resilient adhesive requires no major alterations to existing walls such as are required if mortar is used.

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This adhesive is cleaner than mortar; there's no splattering to stain or dirty porcelain or chrome. Faster than mortar; tile are floated on. This adhesive contains no water, makes cold weather applications simpler.

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WRITE TODAY for full information on the complete line of 3M Building Adhesives. If you prefer, one of our representatives will be glad to explain why it pays to handle these sure-fire sellers. National advertising combined with the famous 3M name makes 3M Building Adhesives a *must* on your list.

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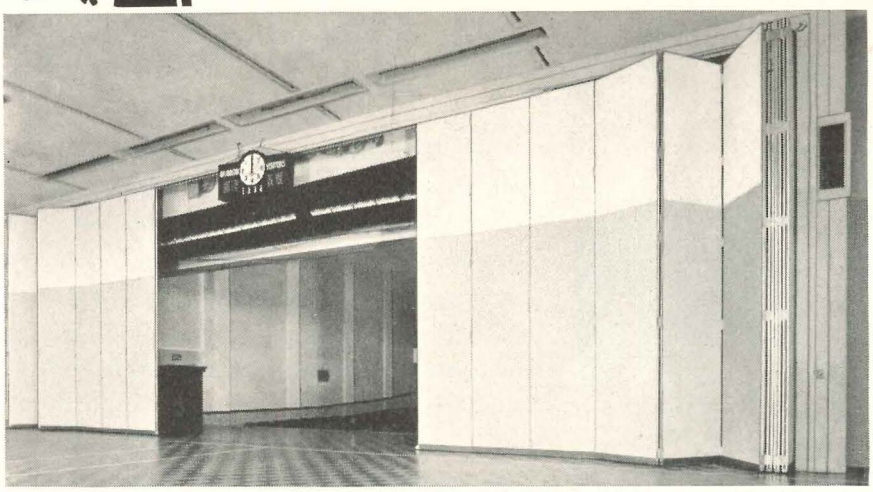
R-W DeLuxe FoldeR-Way Partition

FULLY AUTOMATIC—ELECTRICALLY OPERATED

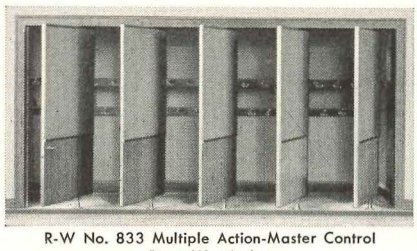


R-W DeLuxe FoldeR-Way Partition, bi-parting, 64′ x 22′ opening.

Just a turn of the switch key and the R-W DeLuxe FoldeR-Way Partition goes into operation silently and swiftly . . . locking and unlocking, opening and closing automatically! Designed specifically for school gymnasiums, auditoriums, stages and other high or wide openings—no matter how large—to be closed against light and sound, electrically operated FoldeR-Way Partitions are the answer to present-day problems of economy in space and expenditure. They transform any large indoor area into two smaller ones—a quick change made entirely without manual effort.

Yes, you turn the switch key and R-W does the rest! DeLuxe FoldeR-Way locks to the floor without floor bolts, keepers, guides, tracks or manually operated sealing strips, pressure-sealing itself to the floor for complete soundproofing. When bi-parting partitions are installed, both halves are synchronized to operate simultaneously—all sections are full-size, equal width doors folding in accordion fashion into jamb or pocket.

R-W Offers a Complete Line of Single and Multiple Action Classroom Wardrobes



R-W No. 833 Multiple Action-Master Control Door Wardrobe

Richards-Wilcox Classroom Wardrobes are outstandingly popular because they are designed to give maximum space for pupils' wraps without overcrowding—because simplicity of design and installation in wall recess means low cost. Wardrobes are available in Single or Multiple Action-Master Control Door units with mounted slate or cork boards. Each door opening accommodates eight to ten pupils.

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Uninterrupted R-W Service to HOME, INDUSTRY and FARM

Since 1880

- In industry, conveyor systems to solve any overhead handling problem.
- In the home, R-W Silver Streak Vanishing Door Hangers and Aluminum Track afford quick, economical conversion to space-saving Disappearing Doors. Complete hardware for modern overhead garage doors.
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Get all the facts about Richards-Wilcox cost-cutting, space-saving FoldeR-Way Partitions and Classroom Wardrobes now—write today or call your nearby branch office for complete information without obligation.

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RICHARDS WILCOX R-W AURORA

1880 1950

OVER 70 YEARS

THE RECORD REPORTS

(*Continued from page 216*)

been approved by the Committee on International Relations of the Engineers Joint Council.

Participation of United States engineering societies with those of other American nations in an organization meeting in Havana is thus assured. Date of the meeting, which will launch the new organization, will be announced later.

GRANTS OF $42,500 MADE BY ENGINEERING GROUP

Grants of $42,500 were made by Engineering Foundation to 12 projects in fundamental research in the engineering sciences and to two projects in advancing the engineering profession during the fiscal year ending Sept. 30, 1949, the Foundation's recently published annual report showed.

The report stated that Foundation sponsorship and grants had stimulated contributions by industry and universities to these projects of $642,800.

Also included in the report is a summary of the Foundation's work since it was established 35 years ago as the joint research activity of the American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers and American Institute of Electrical Engineers.

The summary showed $9,888,330 had been spent during the 35-year period to advance engineering science and education.

STORY OF BLUEPRINTS DRAMATIZED IN FILM

"The Print before the Product" is the title of a new film which offers buyers of prints a chance to find out what the commercial blueprinter has to contend with when he's told to "make that fast!"

The film, which is available for showing to professional or company groups, shows actual shop practice, with scenes taken right in the blueprint and photocopy departments.

The 16 mm. color-sound film, with a running time of 35 minutes, was made by Western Blue Print Co., Kansas City, Mo., and edited by the Calvin Co. of Kansas City, industrial film producers, who also added musical back-

(*Continued on page 220*)

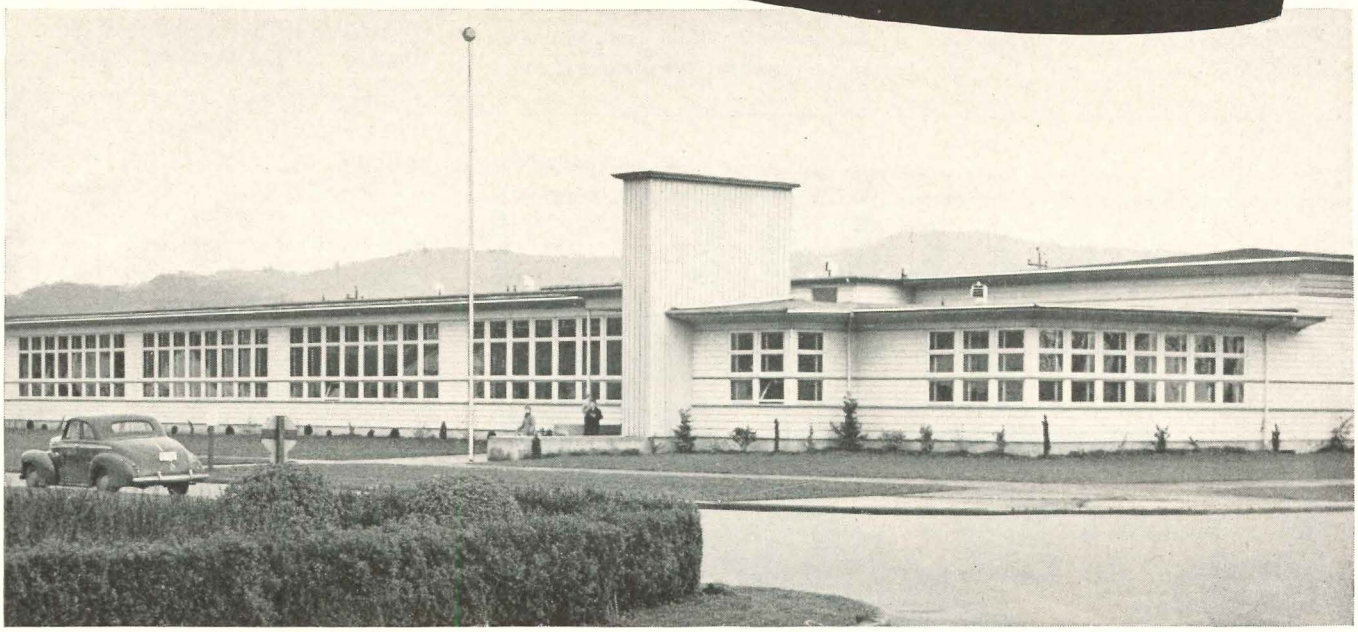
Today's Better Schools Are Built of WOOD

. . . For economy, durability, beauty, flexibility

SPECIFY:

WEST COAST WOODS

Douglas Fir • West Coast Hemlock
Western Red Cedar • Sitka Spruce



NO OTHER BUILDING MATERIAL GIVES *ALL* THESE *PROVED* ADVANTAGES

ECONOMY. Over-all economy is designed into schoolhouse construction plans when wood is specified. As a building material wood is time-tested, easy to obtain, easy to work.

DURABILITY. Many wooden structures, as old as the nation, are still in use. Buildings have a long life expectancy when built of West Coast Woods. With today's rapidly changing educational requirements, the lumber in a school of wood will be in sound condition long after the building design itself may have become obsolete.

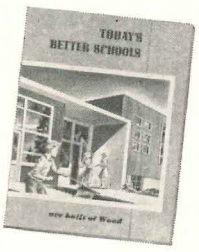
PRACTICABILITY. West Coast Woods are adaptable to every architectural style, allow for individuality of plan and design. Craftsmen in every community know how to take advantage of wood's workability.

BEAUTY. West Coast Woods, rich in natural beauty, give school buildings warmth and friendliness. Pleasing decorative effects may be obtained by using natural grain finishes or any desired color scheme.

FLEXIBILITY. Schools built of wood may be remodeled—or rooms added—at minimum cost without undue loss of time.

SEND FOR *FREE* BOOKLET

Beautifully illustrated in four colors, this new booklet points out many different applications of wood in schoolhouse construction. It tells how schools of wood meet today's educational needs and at the same time give more for the building dollar. The booklet will be ready for distribution about May 1. Reserve your copy now. Use coupon below.



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WEST COAST WOODS } Douglas Fir, West Coast Hemlock, Western Red Cedar, Sitka Spruce

Quality Lumber Produced by Member Mills

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Please send me a copy of your free booklet "Today's Better Schools Are Built of Wood" when it is available.

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Address_____

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State_____

(*Continued from page 218*)

ground and supervised narration.

Inquiries should be addressed to: International Association of Blue Print and Allied Industries, 506 S. Wabash Ave., Chicago 5, Ill.

INTERNATIONAL TRADE FAIR SCHEDULED IN CHICAGO

The first international exposition for industry and commerce ever held in this country will be staged in Chicago August 7–19.

Purpose of the First United States International Trade Fair is to provide an economical and productive medium for sellers of the world's goods to open the American market. American manufacturers also are participating and foreign buyers will be on hand.

A ratio of one-third American exhibitors to two-thirds exhibitors from the rest of the world has been set by Fair officials. Exhibits will be grouped, not by national origin, but by 29 categories of products which have been established.

Four halls — Navy Pier, International Amphitheatre, Coliseum and Arena — will house the Fair, which is expected to be the largest trade show ever held in this country. Fair headquarters is the Merchandise Mart.

ENGINEERING INDEX FOR EIGHT CITIES COMPLETE

National Association of Engineering Companies has announced completion of its index of engineering services available in eight cities across the country.

The index, which is cross-referenced for type of engineering service and geographic location, now covers Detroit, Cleveland, Cincinnati, Providence (R. I.), Salt Lake City, Reading, Grand Rapids and Roanoke.

A state-by-state survey is being conducted by questionnaire. Inquiries should be addressed to: National Association of Engineering Companies, 1601–13 Dime Building, Detroit 26, Mich.

"CITÉ DES ARTS" PLANNED FOR RIGHT BANK IN PARIS

One of the oldest sections of Paris, near the Hôtel de Ville, will soon have studios and living quarters for 200 French and foreign artists in a "Cité des Arts" similar to the Left-Bank Cité Universitaire.

The old Hôtel d'Aumont, built by Le Vau and altered by Mansart, will be restored by Architect Michel Roux-Spitz to serve as the Cité's center, with a restaurant, lecture rooms, and an entrance on the Seine's bank.

Painters will be assigned studios with northern exposure; sculptors studios on the ground floor; and musicians soundproof practice rooms. A bathroom or shower, a hot plate, a telephone and a heater will be provided with each room.

ERRATUM

The RECORD regrets that an article on page 12 of the January issue incorrectly described Architect Eric Stengade as designer of the Danish Pavilion at the New York World's Fair of 1939. Mr. Stengade was assistant to Tyge Hvass, the architect for the pavilion.

The Ninth of a Series in the interest of more efficient use of steel . . . a vital American resource

LACLEDE MULTI-RIB REINFORCING BARS

NOW . . . Available by Number in Standard Sizes of New A.S.T.M. Serial Designation A305-49 Table I

Thanks to A. S. T. M. specification A305-49, designers now have a more efficient bar for concrete reinforcement . . . one that provides **increased anchorage** which when properly used will give appreciable **savings in steel and concrete.** Advanced design Laclede Multi-Rib Reinforcing Bars exceed the A305-49 specification. They are available in uniform round sections in all standard sizes and can now be ordered by number.

TABLE I A.S.T.M. SERIAL DESIGNATION A305-49

Dimensional Requirements for Deformed Steel Bars for Concrete Reinforcement

		NOMINAL DIMENSIONS ROUND SECTIONS			REQUIREMENTS OF DEFORMATIONS		
Bar No. °	Unit Wt. Lbs./Ft.	Diameter-Inches Decimal	Cross Sectional Area Sq. Inches	Perimeter	Max. Avg. Spacing Inches	Min. Height Inches	Max. Gap. Inches ‡
3	0.376	.375	0.11	1.178	0.262	0.015	0.143
4	0.668	.500	0.20	1.571	0.350	0.020	0.191
5	1.043	.625	0.31	1.963	0.437	0.028	0.239
6	1.502	.750	0.44	2.356	0.525	0.038	0.286
7	2.044	.875	0.60	2.749	0.612	0.044	0.334
8	2.670	1.000	0.79	3.142	0.700	0.050	0.383
9*	3.400	1.128	1.00	3.544	0.790	0.056	0.431
10*	4.303	1.270	1.27	3.990	0.889	0.064	0.487
11*	5.313	1.410	1.56	4.430	0.987	0.071	0.540

*These sections have the same weight and area as bars formerly known as 1" Sq., 1⅛" Sq. and 1¼" Sq.

‡Chord of 12½% of Nom. Perimeter.

°Bar numbers are based on number of ⅛" included in the nominal diameter of the bar section.

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About specifing **LACLEDE MULTI-RIB BARS** *on your jobs*

LACLEDE STEEL COMPANY

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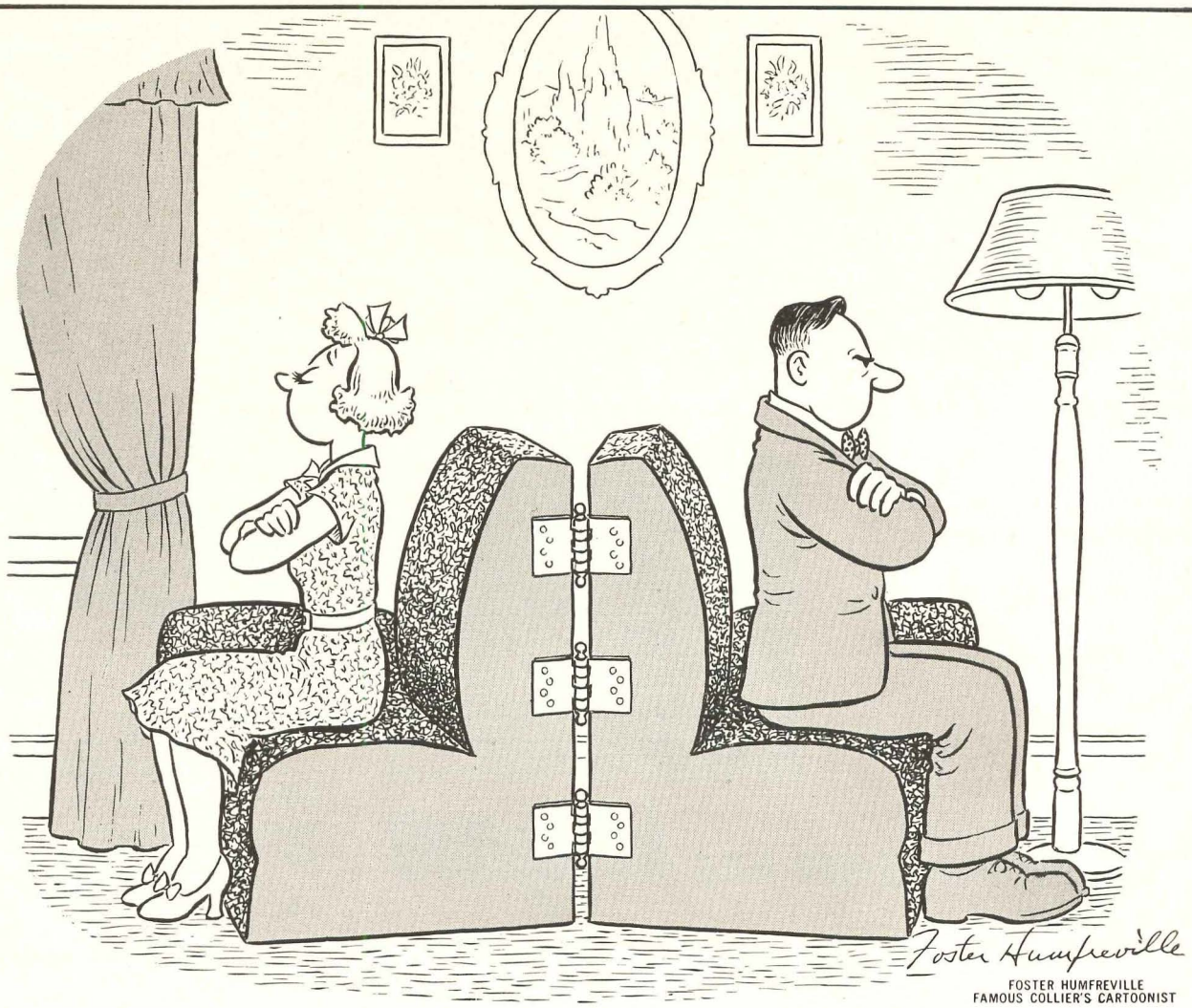
Producers of Construction Steel



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FAMOUS COLLIER'S CARTOONIST

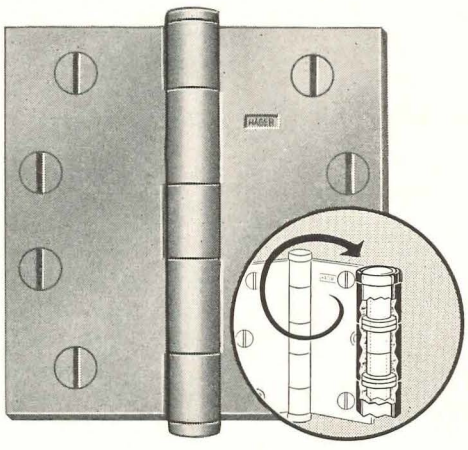
Everything Hinges on Hager!

BRASS BEAUTY *and* STEEL STRENGTH!

Hager combines the glistening elegance of luxurious solid brass with the timeless strength of steel (at the critical point of knuckle joint wear) to reinforce permanent beauty with *long life performance!*

Door weight swings on case-hardened, cadmium plated steel bushings, extending the *full length* of each knuckle. These hardened steel bushings—*steel-against-steel*—actually support door weight . . . leave brass knuckles free from errosive joint wear and friction. Beveled leaves insure close-fitting joints. Trim, square outer edges are firmly milled sharp and clean. Steel Pin with Brass Tip.

Specify Hager Solid Brass Steel-Bushed Butts for average frequency residence doors calling for finest service and enduring beauty.



HAGER 1193 FBT
BRASS BUTTON TIP BUTT, STEEL BUSHED
Solid Brass Rust-Resisting Beauty
Hardened Steel-Bushed Knuckle Strength

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FOUNDED 1849 — EVERY HAGER HINGE SWINGS ON 100 YEARS OF EXPERIENCE

CANADA (*Continued from page 16*)

Building Decline Shown in MacLean's January Figures

Construction contracts during January were down $16 million from January 1949, MacLean Building Reports Ltd. figures show.

Total figure for the first month of this year was $56,685,800. Principal decline was in the west; Quebec alone recorded an increase of $1.8 million over the corresponding month last year.

All categories except business building were off. Comparative January figures for four classifications follow:

Residential — 1950, $24,032,000; 1949, $30,299,400.

Industrial — 1950, $3,161,600; 1949, $9,170,200.

Engineering — 1950, $4,491,100; 1949, $15,139,300.

Business — 1950, $25,001,100; 1949, $18,183,500.

J. Roxburgh Smith Elected R.A.I.C. President for '50

J. Roxburgh Smith of Montreal was elected president for 1950 of the Royal Architectural Institute of Canada at its 43rd annual assembly in Winnipeg. He succeeds A. J. Hazelgrove of Ottawa.

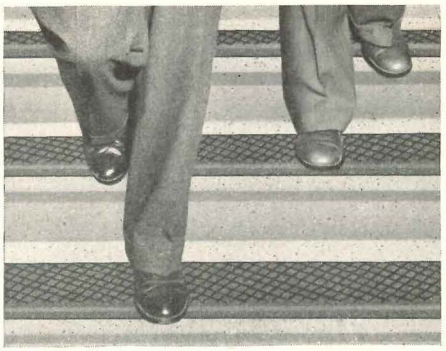
Other officers are: H. H. Simmonds, Vancouver, first vice president; H. Claire Mott, Saint John, N. B., second vice president; R. S. Morris, Toronto, treasurer; Harold Lawson, Montreal, secretary.

The Institute's 1950 Council will be: Alberta — T. Gordon Aberdeen, Gordon K. Wynn, Cecil Burgess; British Columbia — S. Patrick Birley, W. F. Gardiner, H. H. Simmonds, F. L. Townley; Manitoba — D. H. Carter, G. Leslie Russell, Prof. R. Sellors; New Brunswick — R. Duschenes, H. Claire Mott; Newfoundland — F. Coubourne, J. E. Hoskins; Nova Scotia — C. A. Fowler, A. E. Priest; Ontario — C. Lenz, V. J. Blackwell, J. H. Craig, A. J. Hazelgrove, D. E. Kertland, R. Schofield Morris, W. Bruce Riddell, L. E. Shore, Harland Steele; Quebec — L. N. Audet, C. David, Harold Lawson, J. C. Meadowcroft, A. J. C. Paine, Maurice Payette, J. Roxburgh Smith, Emile Venne; Saskatchewan, D. H. Stock, J. C. Webster.

Fellows admitted to the College of Fellows were James Govan, Toronto; J. C. Meadowcroft, Montreal; G. C. Nairne, Vancouver; J. Morrow Oxley, Toronto; and Prof. John A. Russell, Winnipeg.

Kiyoschi Izemi, 28-year-old Canadian-Japanese graduate in architecture of Manitoba University was awarded the R.A.I.C.'s $1500 scholarship. Mr. Izemi has had an outstanding record in architecture and will use the scholarship for travel in the United States and study at Massachusetts Institute of Technology.

(*Continued on page 226*)

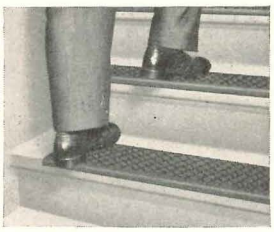


SMOOTH NOSINGS ARE dangerous FOR down TRAFFIC!

Specify FERALUN*—the safety tread with abrasive IN THE NOSING SURFACE

As the illustrations show, DOWN traffic needs the underfoot "grip" of abrasive particles embedded in tread nosings, to prevent slipping and wear. UP traffic needs the same safety features.

Feralun treads are made to provide full protection from this "double traffic" all stairways must serve. They always have abrasive granules in the nosings —for the *down* traffic, and should be wide enough (at least 4″) to protect the *up* traffic as well. *Note action photos showing points of foot contact which are also points of slipping and wear.*



Not only do these sturdy cast iron abrasive treads give underfoot safety *up* and *down*, but they also give protection from wear as well. Installations of Feralun treads are still giving maintenance-free safety after more than a quarter century of continuous use.

For full information on Feralun and other underfoot safety products, see Sweet's File, Architectural, Sec. 13a/10, or write to:

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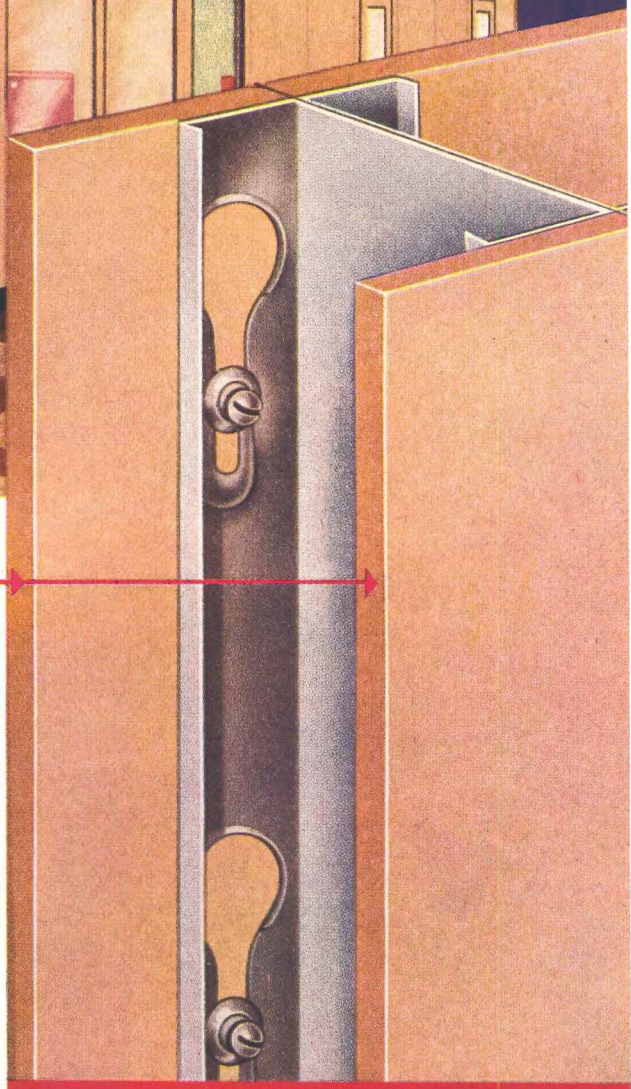
*Reg. U. S. Pat. Off.

USE FERALUN TREADS AND BE SAFE . . . "DOWN AND UP"

Mathers & Haldenby are architects for the U. S. Consulate General's projected building in Toronto (photo of rendering above). It will have three stories and basement; exteriors, Indiana limestone, granite trim

NOW! Asbestos Movable Walls WITH THE PANELS "integrally colored"



NOTE HOW THE COLOR GOES ALL THE WAY THROUGH!

No paint to wear off, chip, or peel . . .

A totally new and important feature has been combined with the basic advantage of *flexibility* in J-M Movable Wall construction.

Johns-Manville scientists have perfected a process for introducing inorganic pigments throughout the asbestos panels used in J-M Movable Walls.

As a result, these beautifully-textured, fireproof panels are now "integrally colored" at the factory. That of course means the color is not a painted or baked-on surface coating; it is an *intrinsic* part of the structural material—goes *all the way through* each panel.

With no paint to wear off, chip, or peel, your walls will have that "first-day newness" *every day* for years and years to come!

By eliminating the cost of periodic painting and decorative treatment, the new Transitone Movable Walls will help you to meet your wall-and-partition requirements *economically*.

Transitone panels are hung on steel studs, forming a 4" double-faced partition. Also used as interior finish for the outside walls. Lighter than ever, they are readily installed or re-located. For details or an estimate, write Johns-Manville, Box 290, New York 16, N. Y.

Cutaway of J-M Movable Wall construction. The 7/16"-thick asbestos panels, on patented steel studding, are available in a light tan or light green. Note color is not a surface coating; it actually goes *all the way through* each panel.

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MOVABLE WALLS *with asbestos panels colored all the way through*

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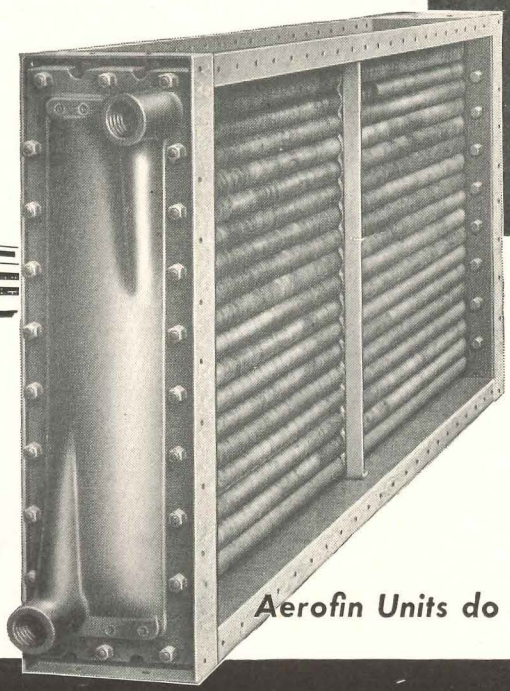

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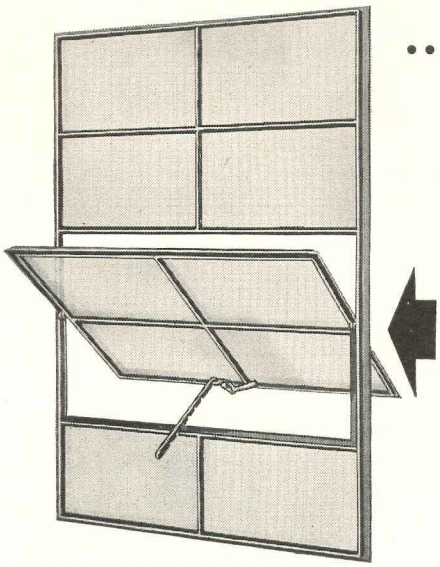
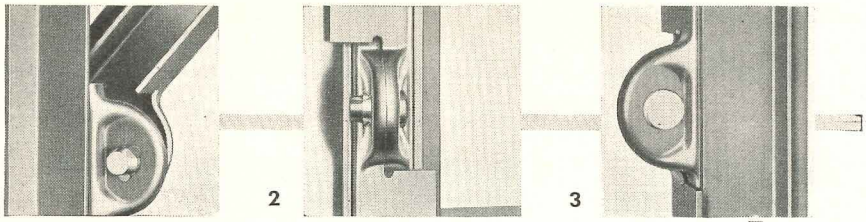
Tips on cutting window costs

If You Want To Cut Maintenance Costs

...look for this Window Feature

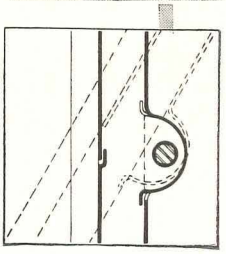


New Fenestra Pivoted Window



THE NEW STREAMLINED INTEGRAL VENTILATOR BUTT

One of 7 Features of Fenestra Superiority



Above, you see the new Fenestra* Pivoted Steel Window and 4 views of the exclusive feature that slashes window maintenance . . . the new, streamlined *integral* butt which keeps vents fitting perfectly for complete weather-tightness. (1) Frame side (2) Head-on, inside view (3) Window side (4) Overlapping weathering sections. The butt has no protruding parts open to damage. Cup shape and drawn ribs give it special strength.

Fenestra Pivoted Windows are widely used for extra daylight, fresh air and see-through vision.

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Fenestra Windows cost less in three important ways: *Low first cost:* Standardization of types and sizes permits efficient volume production. *Low installation cost:* Modular sizes provide co-ordination of windows with wall materials. *Low maintenance cost:* Precision fabrication of strong, high-quality materials.

For plants, offices, labs, warehouses, commercial buildings and many others, Fenestra Industrial Steel Windows are your best bet for high quality at remarkably low cost.

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3. Automatic assembly of ventilators—vents fit properly and operate easily.
4. Extended jamb bars—vents always align perfectly.
5. Strong, tight-weathering sections—continuous double contact all around vent opening.
6. Rigid, interlocking muntin joints—rugged construction for low maintenance.
7. Strong hardware attachment—prevents breakage, affords safer locking.

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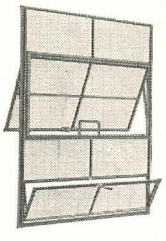
Popular for efficient, economical screening or shading—vents do not interfere. Open-out vent serves as a canopy over opening, protecting interior against rain; open-in vent is a built-in windguard, shedding water outside.



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CANADA (*Continued from page 222*)

In reporting for the 1949 Council, Retiring President A. J. Hazelgrove urged architects to specify and use materials from sterling areas.

"This may involve disruption of some well-regarded connections and disturbance of routine of practice," he said, "but the advantages will be such as to compensate for practical difficulties."

A plan for periodic award of medals for Canadian architecture by the Massey Foundation was announced at the meeting. The scheme, prepared after consultation with the Institute, provides that Massey Medals for Architecture will be awarded first in 1950, then every second or third year, depending on building activity in Canada. Awards will be made at exhibitions sponsored by the R.A.I.C.

Purpose of the awards is to enable the public to recognize outstanding examples of Canadian achievement in the field of architecture and thus encourage members of the profession in their efforts to achieve distinction of design.

Harold Sleeper Addresses Quebec's Annual Meeting

Harold R. Sleeper, F.A.I.A., of New York, was guest speaker at the luncheon which climaxed the 59th annual meeting of the Province of Quebec Association of Architects which convened at the Windsor Hotel in Montreal on January 27 and 28.

Mr. Sleeper, a past president of the New York Chapter, The American Institute of Architects, and chairman of the Advisory Commission on Rezoning of New York, discussed "The Public and the Architect."

More missionary work on the part of members of the profession is needed to get rid of certain public misconceptions regarding architects, Mr. Sleeper suggested:

"The public should know that we can be of help at a small cost in vital matters such as selecting a site, changing plans to fit a site, supervision or minor changes in stock plans."

Comparing architecture to medicine, Mr. Sleeper asked: "What doctor would refuse to bandage a cut finger or prescribe for your stomach upset? He takes the small, uninteresting jobs along with those that are more serious. Can't we do as much?"

Through public relations, Mr. Sleeper stressed, much can be done to give the public a clearer picture of the architect and his work.

Pierre C. Amos of Montreal, newly-elected president of the association, presided at the luncheon.

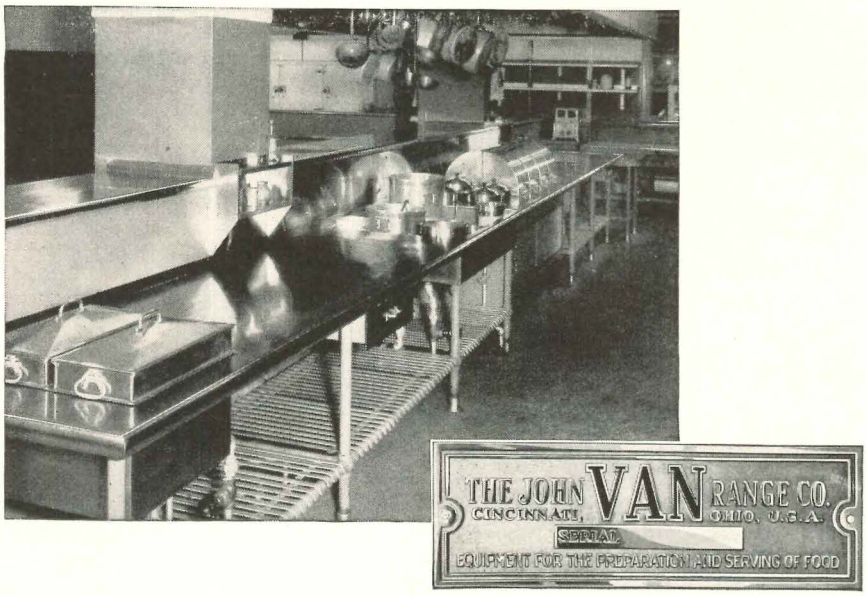
Other officers for 1950 are: H. Ross Wiggs, Montreal, first vice president; Emile Venne, Montreal, second vice president; John Bland, honorary treasurer; Maurice Payette, honorary secretary; J. C. Meadowcroft, Montreal, retiring president.

Members of the Council are: George E. deVarennes, Hugh A. I. Valentine, E. J. Turcotte, Henri Mercier, R. E. Bolton, Patsy Colangelo, Paul Fleury, all of Montreal; Alphonse Belanger, Sherbrooke; Lucien Mainguy, Gerard Venne, Quebec.

American, Canadian Planners Meet in Joint Sessions

Members of the American Institute of Planners and the Institute of Profes-

(*Continued on page 228*)



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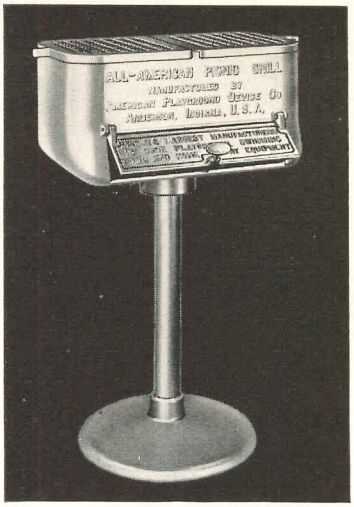
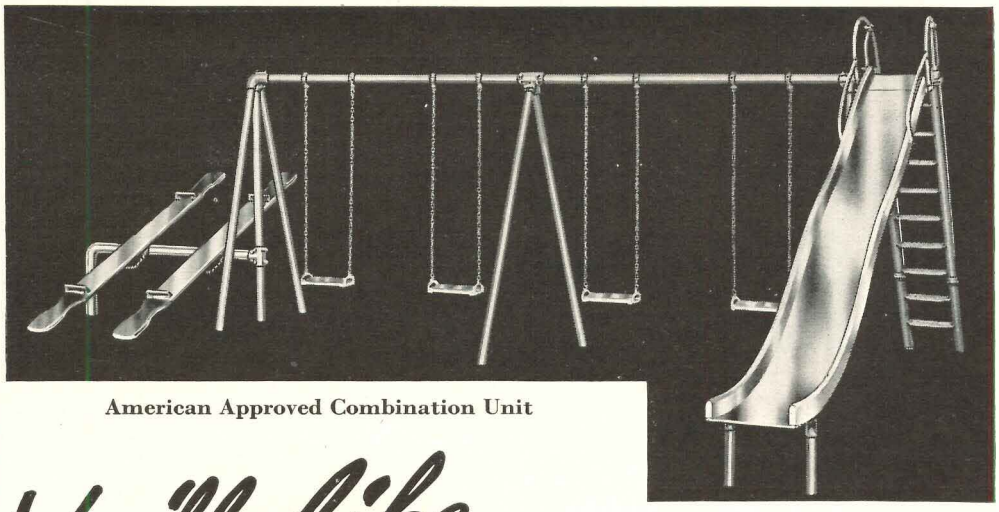
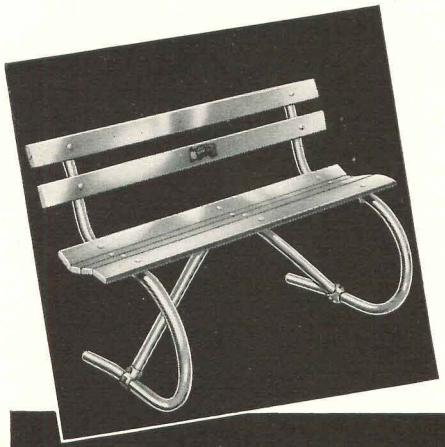


All-American Picnic Grill



American Approved Combination Unit

You'll like DOING BUSINESS WITH AMERICAN



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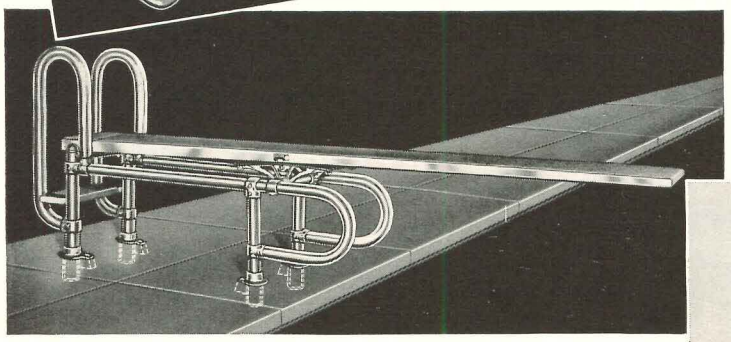

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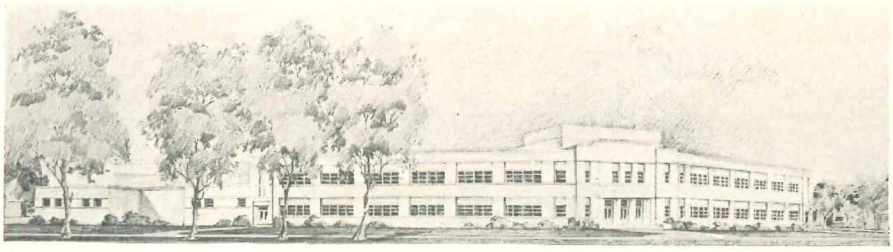
CANADA (Continued from page 226)



Dalewood Senior Public School at Hamilton, Ont. (photo of rendering above) is one of the first schools built in Canada to accommodate grades 7, 8, 9 and 10, or the intermediate grades. A later addition will house pool. William R. Souter & Assocs., Architects

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sional Town Planners of Canada raised their voices in friendly discussion at joint sessions held at Niagara Falls, Ontario, March 3–5.

In addition to general meetings, there were panel discussions, luncheons and dinners, with distinguished planning authorities participating. Subjects for the discussions were: "The Consultant and the City Plan — How May His Services Best Be Applied?", "Techniques of New Town Design," "New Trends in Housing and Redevelopment Legislation," and "An Institute Program to Formulate a National Policy and a National Program for Planning."

Speakers included Frederick J. Adams, president of the American Institute of Planners; Miss Catherine Bauer; The Hon. W. Griesinger, Minister of Planning and Development of Ontario; George Prudham, M.P., parliamentary assistant to the Minister of Resources and Development; Hon. C. Girard Davidson, Assistant Secretary of the Interior for the United States; Carl Friedrich, professor of government, Graduate School of Public Administration, Harvard University; W. Phillip Shatts, president, Metropolitan Plan Association Inc., St. Louis, Mo.

D. G. Geiger New Head Of Engineers' Council

D. G. Geiger, representing the American Institute of Electrical Engineers, Canadian District, was elected chairman at the recent annual meeting of the Canadian Council of Professional Engineers and Scientists.

Dr. G. C. Monture, O.B.E., representing the Canadian Institute of Mining and Metallurgy, was elected vice chairman.

L. L. Bolton continues as liaison officer and acting secretary until a decision on scope of future activities is made.

Ontario Architects Name Representative to C.N.E.

Toronto's Mackenzie Waters has been reappointed as representative of the Ontario Association of Architects to the Canadian National Exhibition for 1950.

Mr. Waters is also a member of the C.N.E. Board of Directors.

Study Climatic Factors in Problem of Condensation

Extended research into the building problem caused by Canada's climatic conditions was reported to the 43rd as-

(Continued on page 230)

How To Get The Most Out of ANY GYMNASIUM AREA..... with *Universal* Seating

Factual Example:

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12,790 SQ. FT. MORE USABLE FLOOR SPACE

1,030 MORE REVENUE-PRODUCING SEATS

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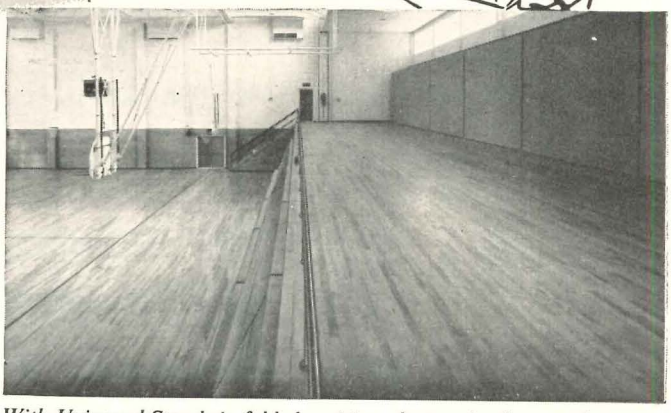
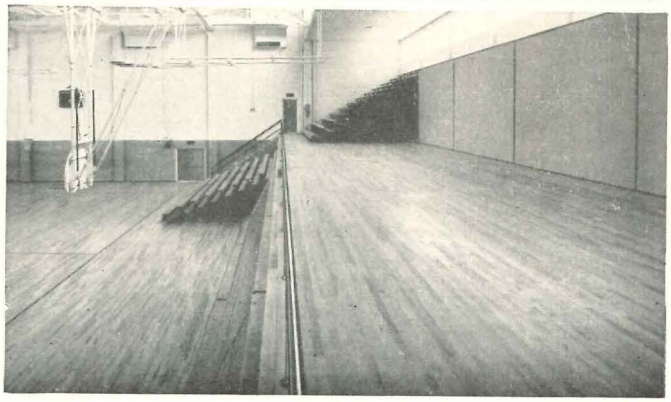


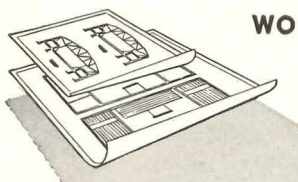
With Universal Stands in folded position, thousands of square feet of extra floor space is made available on each level in 15 minutes.



Universal Stands are installed in sections; may be opened or folded back by sections when and as needed. Exceptionally convenient!

With Universal Stands open, every available square foot outside the basketball floor is converted into revenue-producing seating.

Actual comparisons in a given gym area show these outstanding advantages of modern two-level seating . . . with Universal Folding Stands . . . over old type built-in seating. Total seating capacity can be increased up to 40% . . . yet, in this case, there is also a gain of 12,790 square feet of floor space when stands are folded. On the balcony level alone, ample area is provided for practice wrestling, boxing, corrective physical education, etc. Gains in main floor space result in one or two extra basketball cross-courts plus additional space for physical education and specialized training. *Total seating costs are usually cut in half* . . . and the flexibility of Universal Folding Stands assures easy co-ordination with your plans for roof trusses, exit space, window location, shower and locker room facilities. See *Sweet's Catalog*, section 23-g/2. Additional literature free on request.



WORKING SCALE BLUEPRINTS

of the gymnasium seating plan described are available without cost . . . also complete literature, including comprehensive studies of gymnasium seating by Harold R. Sleeper. F.A.I.A. Use the coupon

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Please send working scale blueprints of two-level gymnasium seating plan described . . . and complete literature on Universal Folding Stands.

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CANADA (*Continued from page 228*)

sembly of the Royal Architectural Institute of Canada by R. F. Legget, director, Division of Building Research, National Research Council.

Mr. Legget noted that the two-year-old division is accenting climatic conditions in its program, which also includes fire research, special problems of building in the North, soils and foundations study, snow and ice research.

Some surveys of houses in operation have been carried out and have revealed serious problems of condensation brought about by improved standards of insulation and construction, he said.

So serious are condensation problems in modern house building that the division arranged for carrying out a special eight-week test in the climatometer of Pennsylvania State College. A small test building insulated in different ways was subjected to severe outside conditions, while normal living conditions were maintained inside, Mr. Legget reported.

This project threw new light on condensation problems and will assist the division in planning its own research facilities in Ottawa. Construction may start early this year.

$20 Million Development Slated for North York

Accommodations for nearly 2000 families will be provided in a $20 million housing and commercial development expected to get under way shortly in North York township, bordering on Toronto.

Included in the project are 1200 homes, apartment buildings containing 500 suites and a shopping centre with 12 acres of stores.

The land, purchased several years ago by Central Mortgage and Housing Corp., is being subdivided by Investors Syndicate of Canada Ltd. and the Great West Life Assurance Co. It is the biggest housing undertaking in the township since the war.

The two companies, in preparing the land for sale to contractors, invested $1 million in public improvements.

Marcel Breuer Visits Toronto

"Where Do We Stand?" was the topic of a recent address given in the Museum Theatre, Toronto, by Marcel Breuer, well-known exponent of contemporary architecture in the United States.

Mr. Breuer's visit to Toronto was sponsored by the Architectural Society of the University of Toronto.

Priorities Office Disbanded

Now that there are few scarcities in building materials, the federal government has announced the closing of its priorities office.

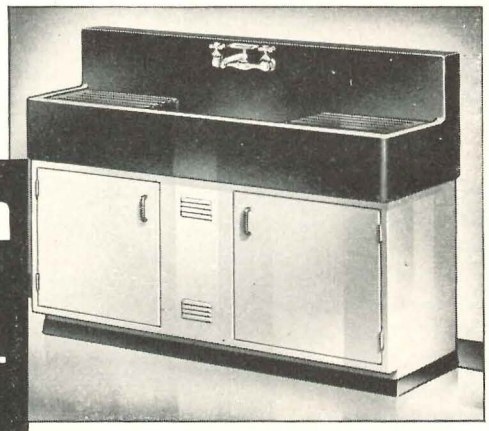
Since 1941 this office has granted priority ratings for construction materials, following a policy favoring veterans and those building dwellings worth $10,000 or less.

The office reached peak activity after the war, and in the past five years okayed priority ratings for about 105,000 houses.

At present there are only a half-dozen scarce building items in Canada: cement and its by-products; brick, in Ontario and Quebec; small-sized nails; steel sheets; plumbing pipe and fixtures.

(*Continued on page 232*)

New! for your laboratory THIS "10 FEATURE SINK" ...at No Extra Cost



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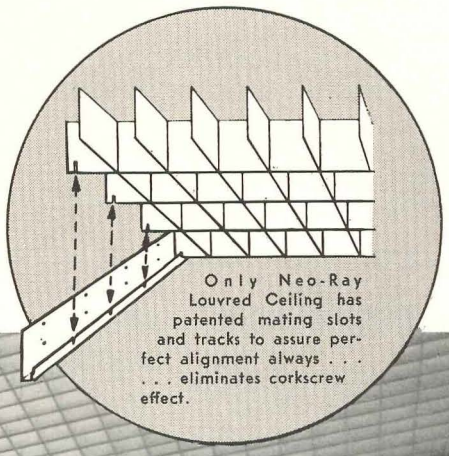
with Neo-Ray recessed Mammoth #M607 4 x 4 ft. squares and #M605 2 x 4 fixtures.



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See our catalogue in Sweet's Architectural File for 1950, Sec. 31a/16

NEO-RAY PRODUCTS, INC.

315 East 22nd St. • New York 10, N. Y.

CANADA (*Continued from page 230*)

Ontario Acts on Housing

Legislation making racial or religious restrictions in property deeds illegal is under consideration in the new session of the Ontario provincial legislature. The Ontario government plans to outlaw any future deeds which include such clauses.

Also being introduced is legislation to get under way a low-cost housing plan which will offer tenants an opportunity to buy the dwellings they occupy. In the last two years Ontario housing loans of more than $17 million have enabled 15,000 families to buy their homes.

Apprentice System Needs Aid

Contracting firms must show more active interest in the apprentice system, H. C. Nicholls of Toronto told members of the Ontario General Contractors' Association at their annual meeting in Toronto recently.

Bricklayers and plasterers particularly were criticized. As chairman of the Apprenticeship Committee, Mr. Nicholls told of a recent occasion when six boys wished to be apprenticed to bricklaying and he was unable to place them.

The building industry must do everything possible to improve this "fantastic" situation, he said, urging employers to take interest in their apprentices, see that they work with good mechanics, and have the necessary tools.

Edmonton Sets Building Pace

This year promises to be one to remember in the nation's fastest-growing city: Edmonton, Alberta.

According to the *Edmonton Journal*, $65 million in building projects are now under way or pending. And predictions are that by the end of the year, this may reach a whopping $90 million.

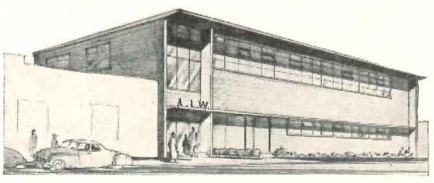
What happens to a city when it finds itself in the midst of an oil boom can best be understood by a glance at construction figures: private housing will account for $25 million; retail stores, $5 million; warehouses, commercial and office buildings, $10 million.

Also planned are a $28 million refinery, a $5 million extension to the C.N.R. MacDonald Hotel, a new federal building and other government buildings at $9 million, new schools worth $5 million, and extensions to the University of Alberta.

Protest Obsolete Bylaw

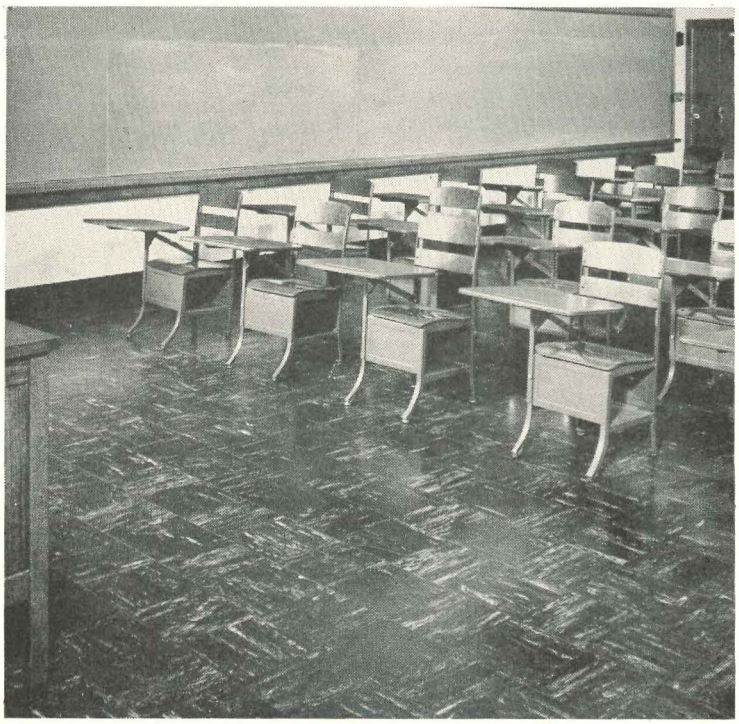
What's the cost of an obsolete plumbing bylaw?

Well, in Toronto it's claimed to amount to $1 million a year. That's the estimate of Alderman Belyea, who points out that Toronto's plumbing bylaws haven't been revised for 30 years and therefore bear no relation to present-day needs. Citizens are forced to spend $1 million each year, he says, for needless work and installations.



Proposed office and warehouse extension for Allcock, Laight & Westwood Co. Ltd., Leaside, Ont. (photo of rendering above) will have structural steel frame, front brick-faced, concrete block side walls. Harry B. Kohl of Toronto is the architect

Low Cost, Long Life Flooring Beauty



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School floors must be durable—but that doesn't mean that they must be drab, noisy or expensive.

AZROCK Asphalt Tile is tough and durable; its through-and-through colors give lifetime service under heavy traffic; it is available in a large assortment of color patterns; and is easily maintained.

For classrooms, halls, auditoriums, gymnasiums and offices AZROCK is ideal; for laboratories, kitchens and other areas where the danger of grease damage is present, premium-quality AZPHLEX offers maximum resistance to greases, alkalis, alcohols and acid solutions.

Before you specify floor surfacings, get the complete AZROCK-AZPHLEX story —you'll be surprised at how much quality your client's flooring dollar will buy!

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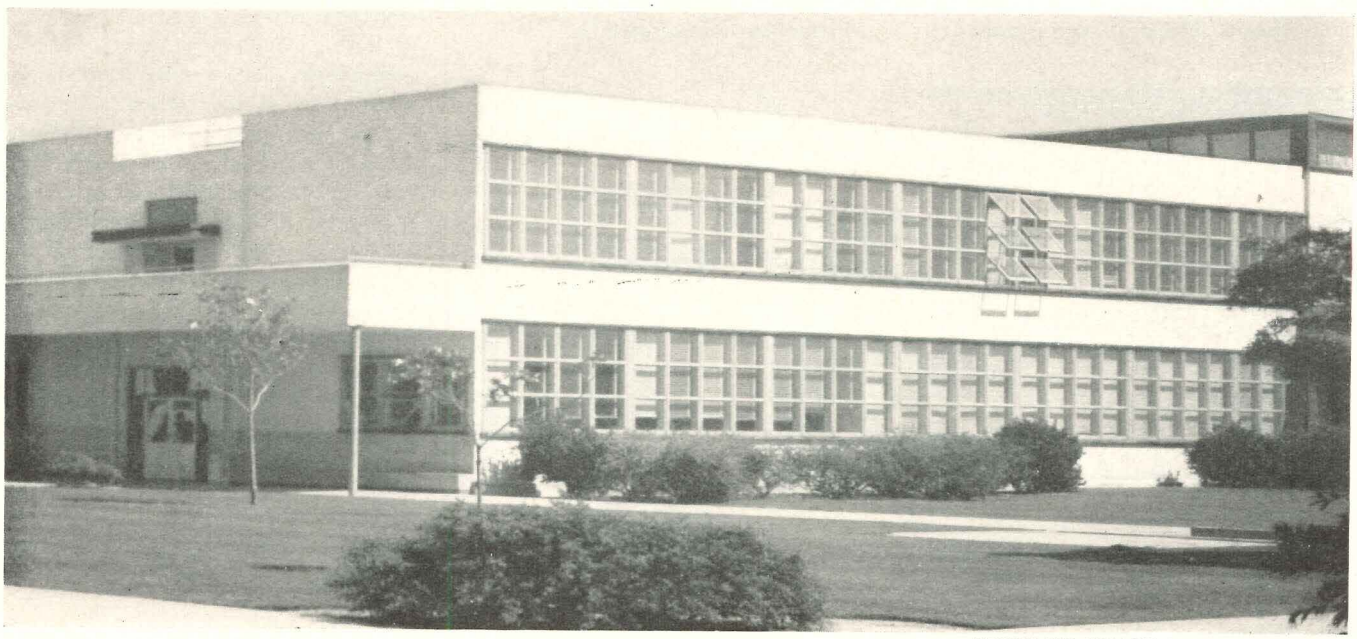
with *Dalmo*

AUTOMATIC MULTIPLE WINDOWS

WOOD PROJECTED AWNING TYPE



POLYTECHNIC HIGH SCHOOL — Long Beach, Calif.
HUGH R. DAVIES, *Architect*

VENTILATION • Dalmo Windows give full control of ventilation to the entire area of the window opening. The angle of the open sash directs air currents upwards, eliminating drafts. The air diffuses from the ceiling and circulates evenly through the room. The open sash sheds rain, deflects wind, and allows controlled ventilation under all weather conditions. From 1% to 100% controlled ventilation.

LIGHT • Dalmo Windows allow the use of venetian blinds or ordinary shades. The sash can be operated without disturbing the blind. Ordinary shades may be attached to the sash itself to control daylight illumination and permit uniform light distribution without interfering with ventilation. Shades applied directly to the sash are protected from the weather with a resultant economy of maintenance costs.

We suggest you write for catalog and complete specifications. Our engineering department is maintained for your convenience. Consult us for layouts, specifications and estimates.

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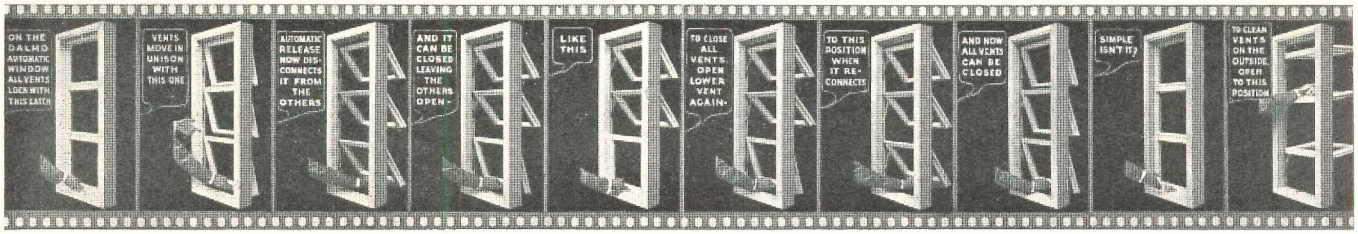
SEE OUR CATALOG IN SWEET'S FILE ARCHITECTURAL

Movie showing operation of Dalmo Automatic Multiple Awning Type Window



(*Continued from page 9*)

Architects Attend

Although primarily a builders' convention, it was attended by many architects. Professionals specializing in residential work and community development projects not only were present in large numbers but took part in many of the meetings, which ran in profusion throughout the four-day convention. One of these, entitled "The Architect and Builder Debate Today's and Tomorrow's House Design" was moved from its former "clinic" status to the grand ballroom of the Stevens, where 3000 people could attend. Here a panel of three architects, three builders and several magazine editors exchanged ideas and debated trends in design. If any conclusion could be drawn from this discussion, it was that builders are at last awakening to the possibilities of good modern design and the value of sound professional assistance, but are vastly confused as to what buyers in their communities will accept.

Another panel entitled "Producing Better Custom-Built Homes" surprised convention arrangers by overflowing its allotted space and resolving into an extended debate on the extent of consumer acceptance of modern trends in home design. Architect Walter K. Durham of Philadelphia participated in the panel discussion.

Even the feminine side of the profession of architecture came in for attention at the builders' convention. A national competition for women students in architecture in the United States and Canada was sponsored by the National Association of Home Builders and *American Builder* Magazine, and prize winners received their awards in the opening assembly. Women architectural students representing 31 colleges had submitted entries. The first prize of $500 was awarded to Elizabeth Graham Bell, an advanced student in architecture at Carnegie Institute of Technology; second prize went to Sonia Jean Albert of Yale; and third prize went to three girl students at the University of Illinois, who collaborated in designing what they titled "Sunback House." They were: Nancy Hopkins, Josephine Willrodt and Margaret Sinclair.

Further evidence of builder interest in design, color and texture was indicated by a grand ballroom program presided over by a woman builder, Mrs. Henny Mollgaard, of Milwaukee. Panel talks were devoted to "House Design from a Woman's Viewpoint," "Modern Wallpapers and their Effectiveness," "Proper Lighting for Homes and Gardens" and "What the Right Color Did for 30,000 Homes" — a slide lecture by Color Consultant Beatrice West.

Radiant Heat

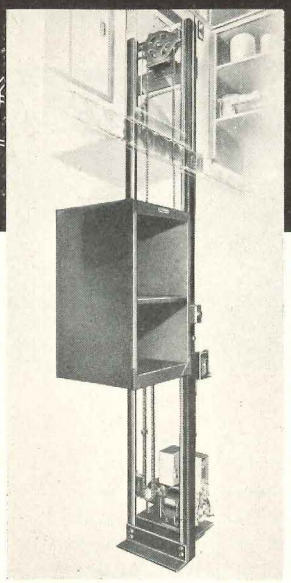
The glittering array of equipment, devices and materials for homes, largest ever assembled, called attention to the change taking place in design and construction. Notable were the large number of new, compact heating units for radiant panel systems and for perimeter systems. Displayed also were new white-jacketed heating plants for location in kitchens or laundries. Other compact units were designed for use in attics, in crawl spaces, under stairs, in closets and between studding in walls.

Other displays showed how home costs may be cut by new products. A lock manufacturer demonstrated in-

(*Continued on page 236*)

SPECIFY THE *Sedgwick*
ELECTRIC UNDER-COUNTER ROTO-WAITER

for { SAFE / DEPENDABLE / ECONOMICAL
UNDER-COUNTER DUMB WAITER SERVICE



Where space limitations or service needs require an electric dumb waiter installed under a counter . . . in a back bar . . . or in a cabinet — in drug stores, groceries, markets, restaurants, cafeterias, soda fountains — the Sedgwick Under-Counter Roto-Waiter provides the ideal solution. The unique roto-drive principle eliminates the possibility of over-travel and allows every inch of available height to be used safely. The outfit is self-contained, requiring fastening — but no support at the upper floor level. Its compact machine, occupying but a minimum of space in the basement, is placed *at the side* of the equipment, where it is easily accessable for inspection and lubrication — and where it will not be subject to the service disorders so often caused by accumulated dirt, spillage or drainage.

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In addition to the Sedgwick Under-Counter, and regular two-stop Roto-Waiters, Sedgwick also builds Multi-Stop Electric Traction Dumb Waiters for three or more landings — with a wide selection of specially engineered control equipment and signal systems to suit individual needs. Other Sedgwick Dumb Waiters — including both electrically and manually operated types — are likewise available in a wide range of sizes and capacities. Steel towers and enclosures can be supplied where desirable. Specify, too, Sedgwick Steel Dumb Waiter Doors for complete satisfaction.

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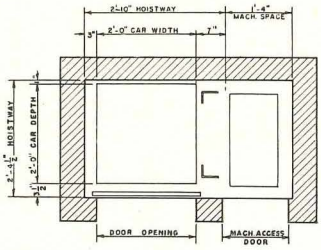

Car Travels to One Inch Beneath Underside of Counter . . . Safely!

Plan, shown above, shows standard Under-Counter Roto-Waiter with car 24" x 24", 150 lbs. capacity. Also built specially in greater capacities with cars up to 36" x 36". The height of the car is, of course, dependent on the clear height available under the counter.

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Bruce develops new BLENDWOOD BLOCK for beautiful, durable floors at low cost

■ This new, economical Bruce Block has been produced specifically for installation over concrete in areas calling for a handsome, long-wearing floor at minimum cost. Blendwood Blocks are most suitable for apartment buildings, housing developments, offices, stores and schools.

They offer all the well-known qualities of regular Bruce Blocks, which have been used in many of the nation's leading building projects. Blendwood Blocks have natural beauty, modern style, matchless durability . . . and provide a floor that is quiet, resilient and comfortable underfoot.

This new block is made from selected mixed heavy hardwoods, prefinished for beauty and durability. Manufactured in one grade only: No. 1 Common & Better. Block sizes: 9x9 in., 7½x7½ in., 6¾x6¾ in. Thickness: 25/32 in. Prefinished only.

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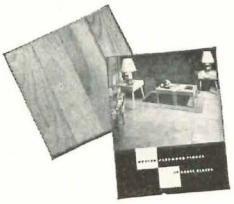

Write for literature and free sample block

NAHB CONVENTION

(*Continued from page 234*)

stallation of his tubular front door unit in 2½ minutes time. An in-wall heating unit that can be installed in 40 minutes was shown. Prefabricated chimneys that cut both time and cost attracted much attention.

Exhibits of windows showed the trend to greater glass area and double glazing. One manufacturer displayed a double glazed unit that is raised and lowered by turning a switch. As the window disappears, a screen takes its place. (Vita Automatic Windows, Inc., New York)

Another manufacturer displayed a window unit consisting of a fixed glass area in a louvered frame. Screened louvers, located above, below or beside the fixed glass area, provide all necessary ventilation, while the glass area admits light and permits vision. Double glazing eliminates the need for storm sash. (Solar Air-Flo, Inc., Elkhart, Ind.)

Also shown was a complete window package consisting of frame, weatherstripping, glass, screen and insulating panels. They are installed with a minimum of labor. Both glass and screen panels are easily removed from the inside. Adding the insulating panel affords double glass protection in cold weather. (F. C. Russell Co., Cleveland, Ohio)

Improvements in kitchen convenience were numerous. A new three-compartment sink was on display. The third compartment, located between two regular bowls, is a covered well which contains a hidden garbage basket. Scraps are disposed of by washing into the basket. (American Radiator & Standard Sanitary Corp., Pittsburgh, Pa.)

Better lighting, step-saving layouts, and easy-to-clean working surfaces were featured in other kitchen displays.

For the modern kitchen-laundry, an appliance manufacturer displayed his new model sink that acts as clothes washer and dishwasher in addition to its regular functions. Thus, the housewife first clears breakfast dishes away in a dishwasher that does full service for six in five minutes. Then she effects a quick change of tubs and does the family wash. The unit not in use is stored in the cabinet below the sink and is mounted on a swinging arm. The entire installation is 60 in. long, 27 in. wide and 36 in. from floor to work surface. (Thor Corp., Chicago, Ill.)

Two separate units, a new electric cooking top and electric oven, can now be built in as part of the kitchen. Designed for complete individuality of kitchen arrangement, these independent units may be mounted on the working level at any height to suit the housewife, and may be located wherever desired, even on opposite sides of the kitchen. A companion appliance, a built-in electric griddle, was also previewed at the exposition. (Thermidor Electrical Mfg. Co., Los Angeles, Calif.)

For flexible storage, prefabricated wood wall closets are rapidly gaining favor. They offer extra storage space at low cost and can be built in as partition walls in new homes or merely added in houses already built. (The Mengel Co., Louisville, Ky.)

Typical among the many new products which stress economy was a new type bonding plaster which makes it possible to refinish old or damaged walls and ceilings without knocking out the old plaster or removing the wood trim. It is said to bond to cracked, chipped or painted walls, to Spanish plaster, glazed tile, concrete, brick, fiberboard, wallboard and insulation board (Nu-Wall Mfg. Co., Milwaukee, Wis.)

Hari Van Hoefen, *Architect*

MODERN DOOR CONTROL BY *LCN* · CLOSERS CONCEALED IN HEAD FRAME

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WOLMANIZED Lumber is pressure-treated. It provides sure, lasting protection against rot and termites—lasts 3 to 5 times longer than untreated wood. It's a time-tested, service-proved building material. Besides, it's clean, odorless, non-leaching and paintable.

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Here are some of the common conditions that call for the use of WOLMANIZED Pressure-Treated Lumber:

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4. *Where steam and vapor from industrial processes promote wood decay.*
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6. *Where wood is exposed to moisture in humidified buildings.*

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For SURE protection build with...

WOLMANIZED Reg U S Pat Off **PRESSURE TREATED LUMBER**

REQUIRED READING

(*Continued from page 32*)

terials. In this connection, the section on the effect of paint on the absorption of acoustical materials discusses what is perhaps the most vital consideration in the maintenance of acoustically treated interiors.

The last part of the book applies the criteria previously developed to the planning of specific types of rooms and buildings such as theaters, speech and music rooms, schools, restaurants, commercial buildings, churches and radio, TV and recording studios. ACOUSTICAL DESIGNING IN ARCHITECTURE is a volume that should be in the library of every architect's office.

NOISE CONTROL

Noise and Sound Transmission: Report of the 1948 Summer Symposium of the Acoustics Group. The Physical Society, London, 1949; available from Acoustical Society of America (57 E. 55th St., New York 22, N. Y.). 7 by 10¼ in. 200 pp., illus. $2.75.

Noise control is usually the most important aspect of acoustics to be considered when buildings are being planned. Contained in these technical papers, presented at the Symposium by investigators from 12 countries, is a great deal of sound insulation data and design information for noise control with various types of construction.

The symposium was convened by the Acoustics Group in association with the Royal Institute of British Architects. Thus, in addition to the fundamental research reported, there are many papers of value and interest to RECORD readers. For example: Party Walls with Improved Sound Reduction; The Sound Insulation of Wood-Joist Floors; Floating Floors; A Study of Domestic Noise. This country was represented by Leo L. Beranek of the M.I.T. Acoustics Laboratory, who described studies in progress at this school on Sound Transmission through Partitions.

FOR THE FARM

Farm Structures. By H. J. Barre and L. L. Sammet. John Wiley & Sons, Inc. (440 Fifth Ave., New York 16, N. Y.), 1950. 6¼ by 8½ in. xi + 650 pp., illus. $7.00.

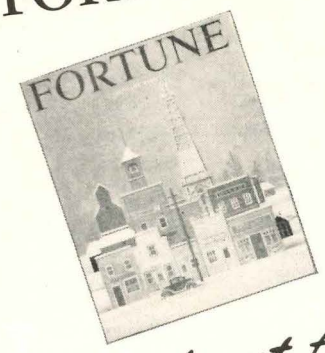
Six basic areas of instruction in agricultural engineering were considered by the authors in the preparation of this text: farm structures, field power, field machinery, processing of farm products,

(*Continued on page 240*)

again

IN THE APRIL ISSUE OF

FORTUNE



we point out the

REAL FACTS ABOUT ARCHITECTS!

Building the "homes" of today is no "child's play"—as every architect knows. It takes vision and ability, and the knowledge of the needs of all types of people, old and young, sick and well. It takes a sincerity of purpose to insure the fulfillment of these needs. Unfortunately there are those who do not realize that convenience, service and performance take precedence over price, and who would compromise quality and security by seeking to substitute inferior products or materials? That's why we are telling this to the American public in the hope that they will understand that to tamper with an architect's specification is to weaken the principles by which each succeeding generation has achieved a higher standard of living. Inferiority can never build permanence and security into any "home"!

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This is the second of a series of advertisements by JOSAM to appear in Fortune Magazine.

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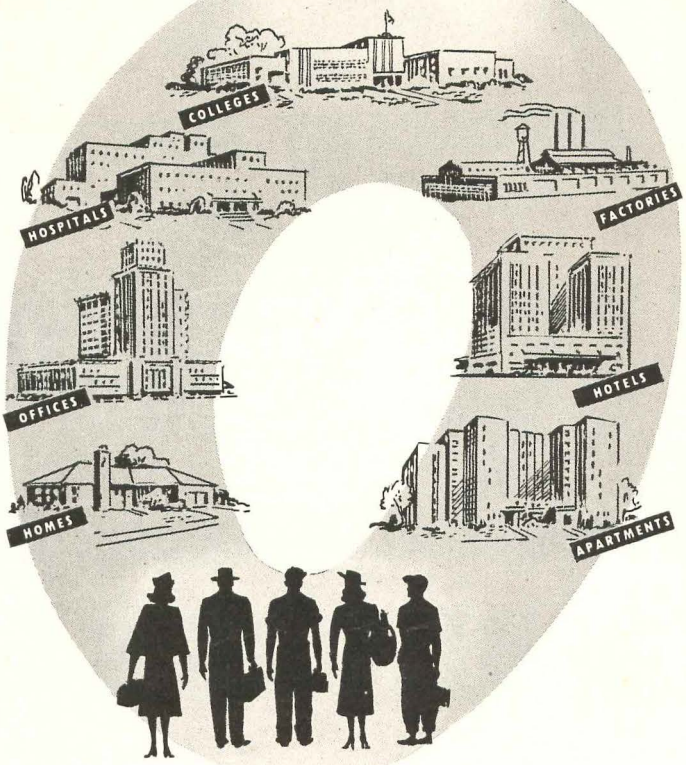

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Call a house by any other name—school, factory, hospital, office or hotel—it is your home for a major part of every working day! You expect certain standards of comfort and convenience in these homes, and you get them because an architect knew your needs long before you did. Buildings are not manufactured... they are created by the architect out of his knowledge of how to meet a profusion of specialized requirements. He must know about lighting and swimming pools and cafeterias for schools, about flooring and power and communications for factories, about elevators and air conditioning and partitions for offices, about roofing and heating and plumbing for apartments—and how to put them all together to make each building a "home" for its occupants. Because the architect has combined the knowledge of many professions with the skill of many crafts, life is indeed easier for us in whatever place we call "home." Josam takes great pride in its long association with the architectural profession and is honored that architects, for over thirty-five years, have made Josam their overwhelming choice in the specification of plumbing drainage products.

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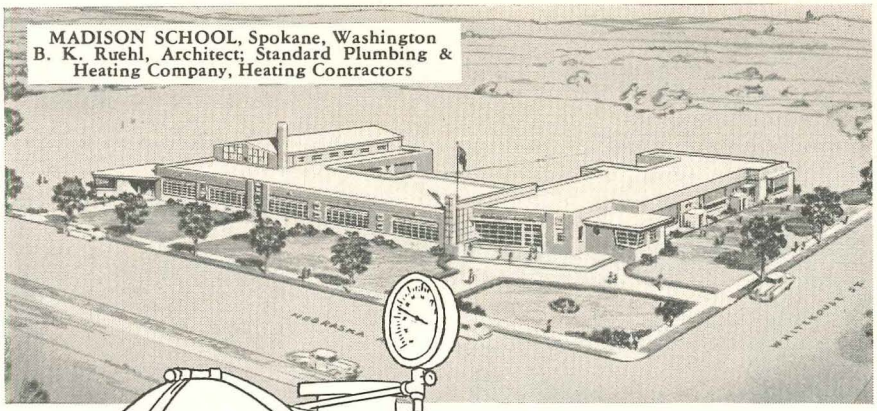
World's Largest Manufacturer of Plumbing Drainage Products

DRAINS • INTERCEPTORS • BACKWATER VALVES • SWIMMING POOL PRODUCTS



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compact ALL-WELDED steel
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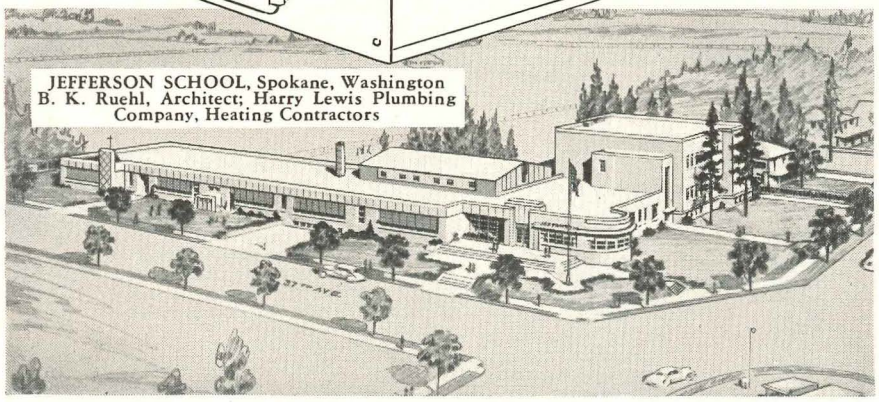

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THE TITUSVILLE IRON WORKS CO.
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REQUIRED READING

(*Continued from page 238*)

farmstead power and equipment, soil and water conservation. The result is a presentation of the principles of (1) functional analysis; (2) design; and (3) utilization of materials for farm structures, which will be of interest to the architectural as well as the agricultural engineering student.

The volume, initiating the Ferguson Foundation Agricultural Series, is designed for two semesters' work. The first 22 chapters apply to structural materials, functional requirements and economic aspects, the balance to the design of structural members and frames.

NEW EDITIONS

AN OLD FRIEND

Plan Your House to Suit Yourself. By Tyler Stewart Rogers. 2nd ed. Charles Scribner's Sons (597 Fifth Ave., New York 17, N. Y.), 1950. 7 by 9 in. 314 pp., illus. $3.95.

After 12 years of popularity, this useful and familiar volume certainly deserved a revised edition. Not changed in any essentials, it has been enlarged and in part rewritten to accommodate the many developments since it first appeared. Several new chapters have been added dealing with the current cost and financing picture.

This is a book written specifically for the prospective home owner, intended to help him get just the house he wants and requires. As such it is a book which the architect will want to have handy for his clients' perusal.

ABBREVIATIONS

Scientific and Technical Abbreviations, Signs and Symbols. 2nd ed. By O. T. Zimmerman and Irvin Lavine. Industrial Research Service (Dover, N. H.), 1949. 5½ by 8¼ in. xiv + 542 pp., illus. $7.50.

This second edition follows the first edition of the work by only a year; but recent important developments in the field of abbreviations, signs and symbols make this revision welcome. Major developments covered in the new edition include issuance of the new American Standard for physics, electrical quantities, and aerodynamics and aeronautics; adoption by the U. S. Weather Bureau of the International Weather Code; important revisions of several earlier American Standards.

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FOR CURTAIN-WALLS OR INTERIOR PARTITIONS, new Kaylo Laminated Panels mark a significant development in the building field. Available with a number of different facings, they alone provide this great combination of advantages:

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Kaylo Laminated Panels provide better walls, reduced building load and easier erection for nearly every type of building. Investigate now.

A VARIETY OF FACINGS AVAILABLE in Kaylo Laminated Panels including: cement-asbestos, porcelain enamel, wood veneer, aluminum, steel, plastics, zinc-coated steel, stainless steel and Monel.

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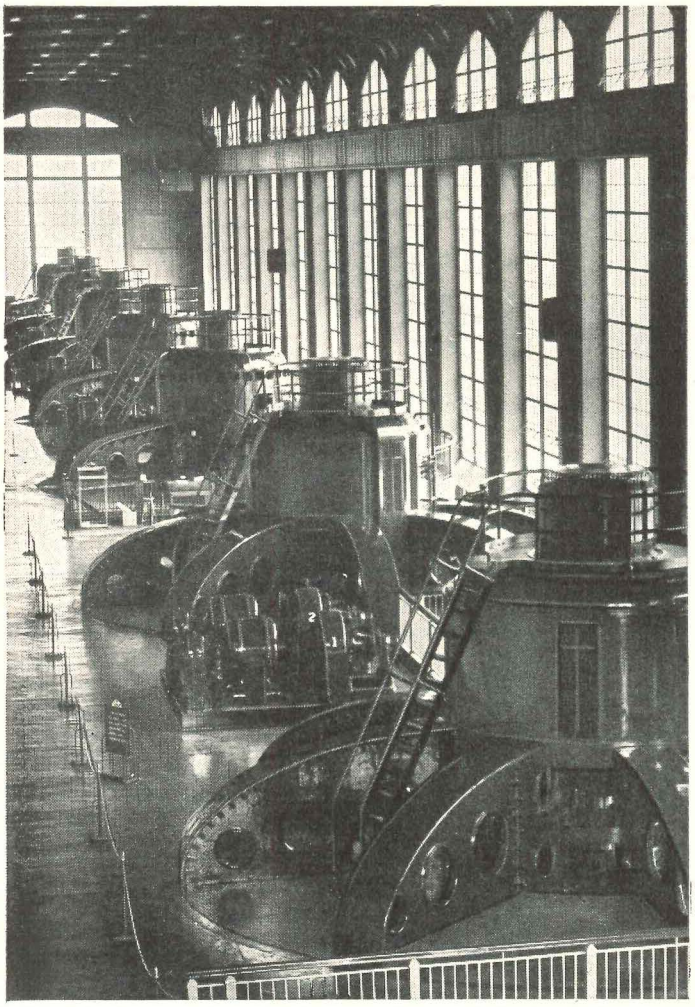
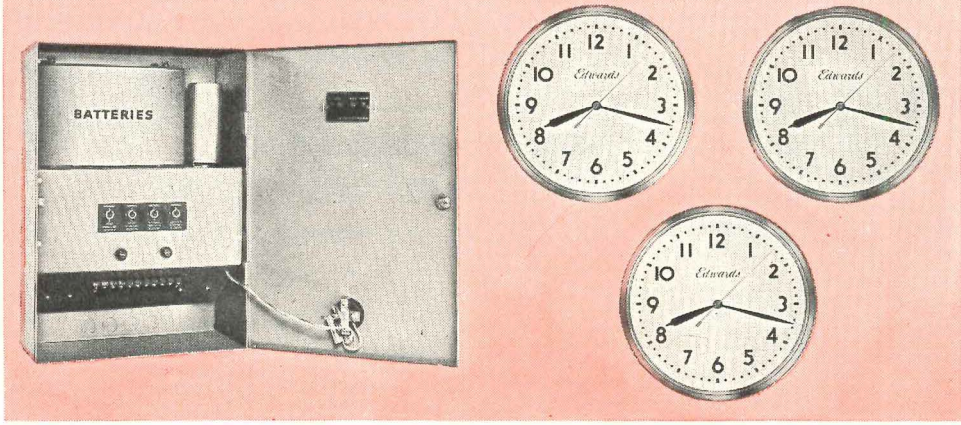


SPLIT-SECOND ACCURACY starts here, at the central power station, where perfect AC frequencies are maintained by a Telechron Master Clock . . . the same type of synchronous motors used in your Edwards Synchromatic Clock System to provide absolutely accurate time, *all* the time!

EDWARDS' Accuracy Guaranteed by Over 17 BILLION DOLLARS Worth of Electrical Generating Plants



SIMPLE AUTOMATIC RESET is a major feature of Edwards' system.

When power is interrupted, batteries keep selected clocks running at correct time. When power returns, *dual* motors operate remaining clocks at accelerated rate until restored to correct time!

NO COSTLY SERVICE CALLS LIKE THESE!

Edwards Synchromatic Clock Systems are the simplest, surest ever designed to meet modern timing needs. No master clocks, rectifiers, relays, radio tubes to service or replace. No mercury pendulums requiring semi-annual adjustment. Small wonder Edwards Clock Systems operate year-in and year-out *without servicing or parts replacements.*

NEXT TIME the question of a school clock system comes up, visit your central power station.

Here, where your time is "manufactured" with split-second accuracy, note that the vital job of *keeping* alternating current frequencies on the nose every minute of every hour is entrusted *only* to a *Telechron* Master Clock!

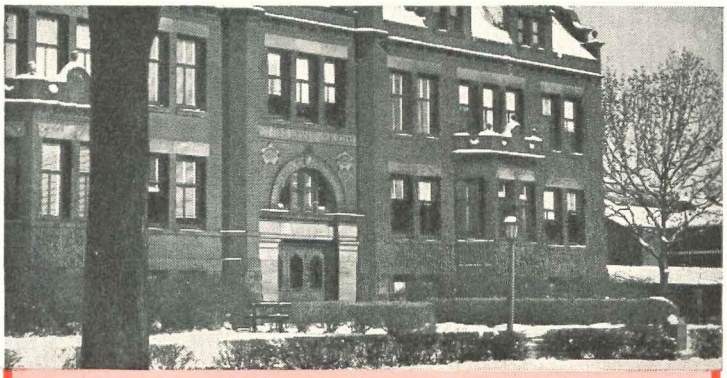
Significant, then, is the fact that Edwards Synchromatic Clocks employ the *same* type of matchless Telechron synchronous motors! Small wonder no other type of clock system can challenge Edwards for consistent, *correction-free* accuracy!

Equally important to you . . . this accuracy is achieved with *unequalled* simplicity! No master clocks, no temperamental electronic devices, no delicate pendulums requiring servicing and regulation. Over the *years,* a service call on an Edwards Clock System is the exception, never the rule.

Complete literature will be supplied on request.

Edwards Scientific Engineering

The masterly precision evidenced in Edwards Program Clock Systems is a product of 78 years of pioneering research and engineering progress. This experience has been applied with equal success to the perfection of such other vital school equipment as Edwards Fire Alarm and Communication Systems.



"18 YEARS WITHOUT A SERVICE CALL!"

From R. L. F. Biesemeier, Supervising Engineer of the New Trier Township High School, Winnetka, Ill., comes this report:

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"Based on our experience, we recommend Edwards Telechron-powered Clock and Program Systems without reservation."

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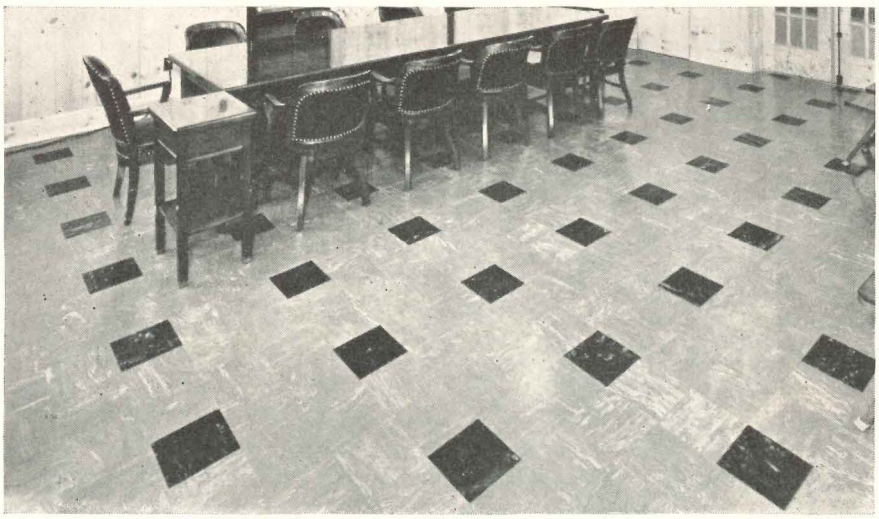
EDWARDS Synchromatic CLOCK SYSTEMS

accurate to the second... every second!



Any building manager will tell you that keeping fixed costs down is one of his most important aims. Aside from taxes, maintenance costs and repairs are principal worries.

You can almost eliminate flooring repairs, and *cut maintenance costs in half,* by installing WRIGHT RUBBER TILE!

That half you save will go a long way towards paying taxes.

Our correspondence files bulge with letters from satisfied customers who report that WRIGHT RUBBER TILE enables a single maintenance man to do the work of two — with less effort and reduced cost. Mopping with luke-warm water, plus occasional waxing and buffing is all the care needed. They are pleased with the way WRIGHT RUBBER TILE resists damage of all kinds—keeping its new appearance long after other floors have worn out. They appreciate the added safety that results from its resistance to fire.

But there are still other benefits you gain with WRIGHT RUBBER TILE, such as: very low cost per year (Wright floors have a life expectancy of 25, 50, even 100 years), quiet comfort, your choice of 21 dynamic colors, and enduring beauty.

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- WRIGHTEX—Soft Rubber Tile
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- WRIGHT-ON-TOP Compression Cove Base

Architectural Engineering

ACOUSTICS

(*Continued from page 168*)

ful for giving diffuse reflection of sound. But we must recall that sound waves are several inches to several feet in length and thus require irregularities of this scale for diffusion, whereas irregularities less than a ten-thousandth of an inch will change a glossy appearing surface to one which reflects light diffusely.

Even in small rooms there are some problems of sound distribution. Parallel opposing surfaces can give rise to multiple back and forth reflections called flutter echoes. These can be eliminated by a slight tilt in plan or section, or by breaking up the surfaces for diffuse reflection. Small rooms for conference, music listening or practice can often be shaped adequately at no extra expense simply by laying partition walls at off angles. The more critical requirements of radio and recording studios usually demand more complicated solutions.

Conclusions

A large part of this article has dealt with the noise control aspect of acoustics, and indeed this is usually the most important aspect to be considered in the planning stages. Noise control is the primary means for providing a satisfactory acoustic environment, and without a sufficiently low background noise in a room, the hearing conditions will be unsatisfactory regardless of the design and finish treatment.

The simple element of distance between noise sources and quiet areas can often be had without cost — and yet this element is frequently overlooked, to the expense of the client. Of course noise insulation can be obtained in a wall of almost any thickness, but beyond a point the cost rises tremendously with decreasing thickness or increasing value of insulation. If high insulation with construction of reasonable cost and weight is desired, considerable thickness must be provided. Adequate thickness must also be planned for low frequency absorptive treatment where required.

There is no need for *afterthought* attachment of loudspeakers, absorptive materials, and panels to deflect echoes. In fact nearly all of the technical requirements for good acoustics can be specified

(*Continued on page 246*)

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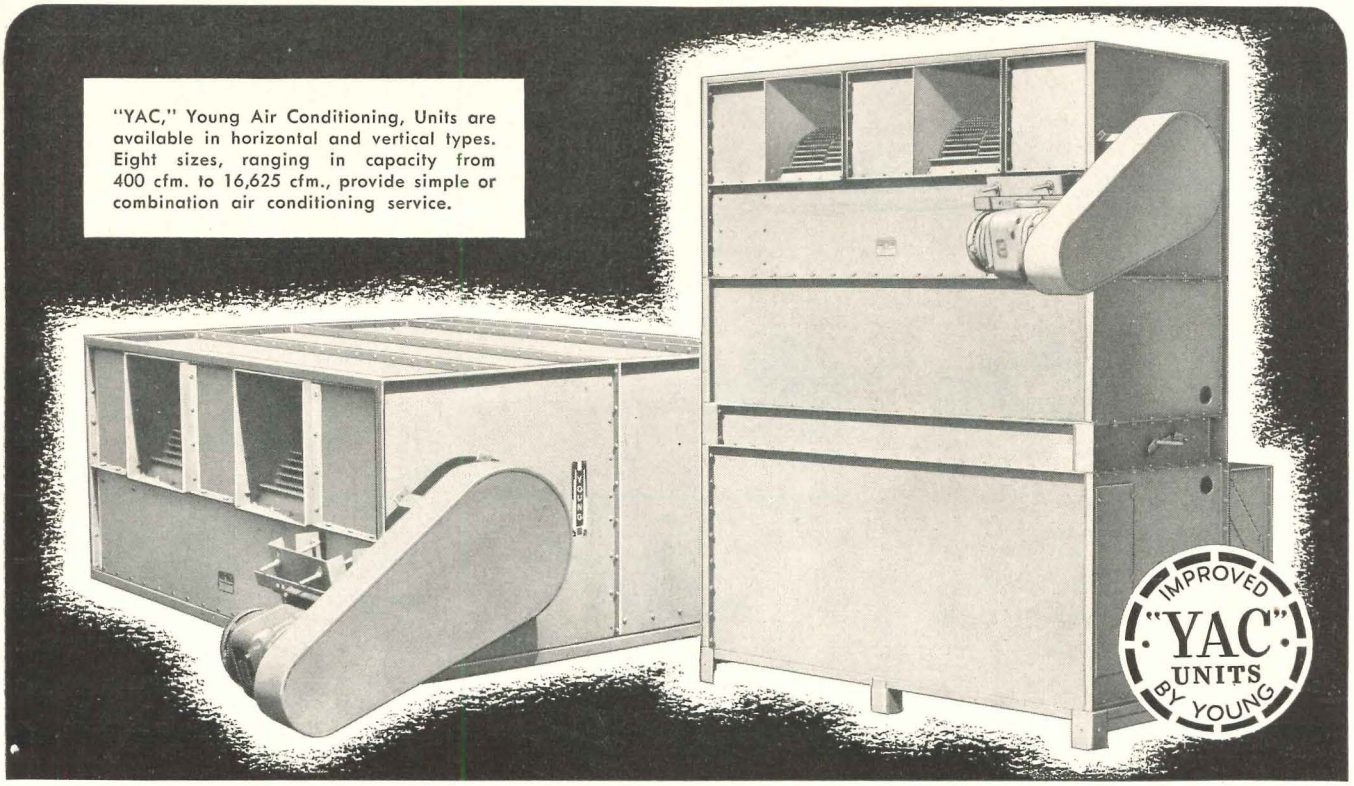

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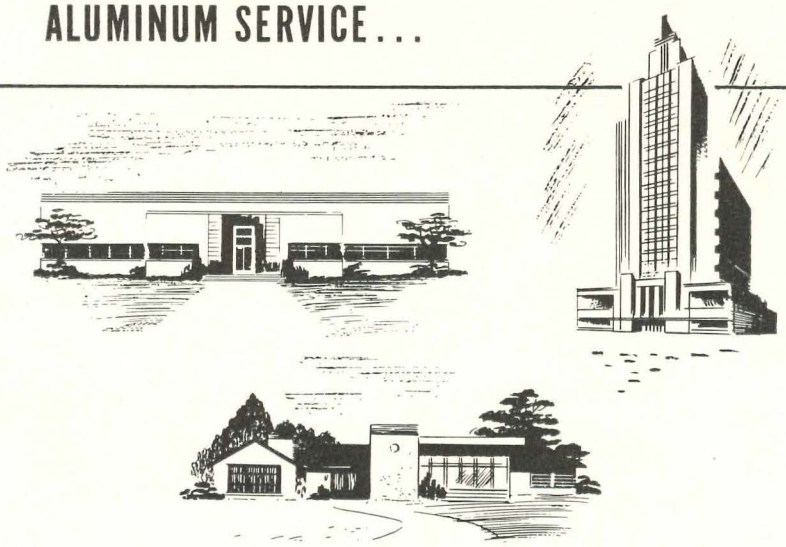

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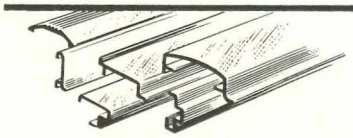

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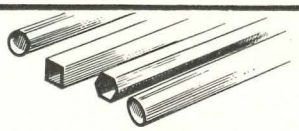

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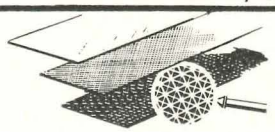

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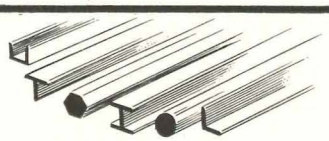

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Architectural Engineering

ACOUSTICS

(*Continued from page 244*)

in advance, along with requirements for structure, lighting, and heating and ventilating. In every sense, acoustics is an integral part of the architectural problem — from basic planning to final detailing.

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(*Continued on page 248*)

Individual lighting fixtures in this PLEXIGLAS installation measure 6 x 8 feet and consist of four corrugated-bottom diffusing panels with curved side panels—all of white translucent acrylic plastic. Each fixture is lighted with ten 96" 300 MA Slimline and two 40-watt fluorescent lamps. Room ceiling is 18 feet high. Fixtures installed by Bell Electric Company. Design Consultants: W. E. Conley, General Electric Company; John Liston, George S. Rider Co.; W. A. Mize, Cleveland Electric Illuminating Company.

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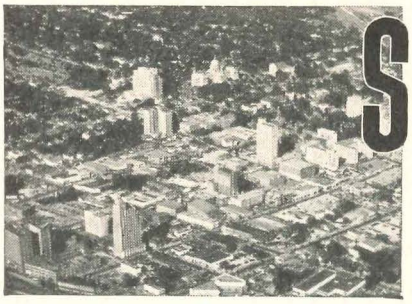

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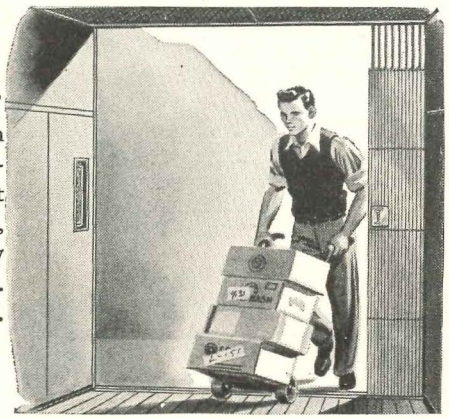

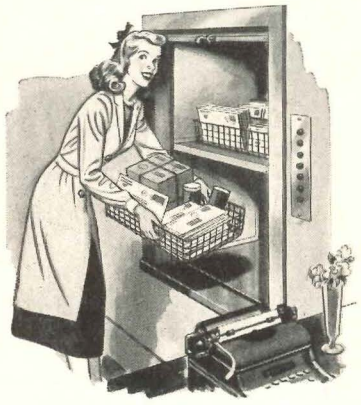

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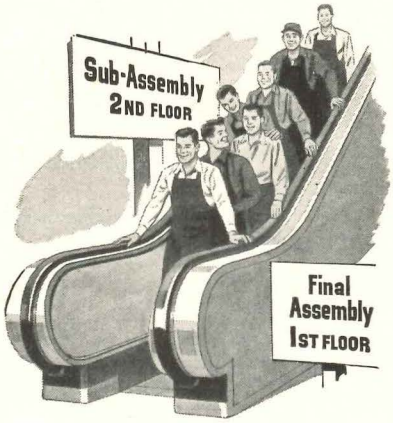

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ACOUSTICS

(*Continued from page 246*)

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KITCHENS

(*Continued from page 170*)

a separate door for the garbage man. The floor of this room should be provided with a deep drain in order that the garbage cans can be rinsed properly. A hot water tap and hose are necessary. A rack or rod for drying wet mops and a place for the mop buckets should be included.

Helpers' Room

The helpers should be provided with a locker room. A toilet and lavatory should be included; the wash sink should have foot control for faucets.

Clean-Up Area

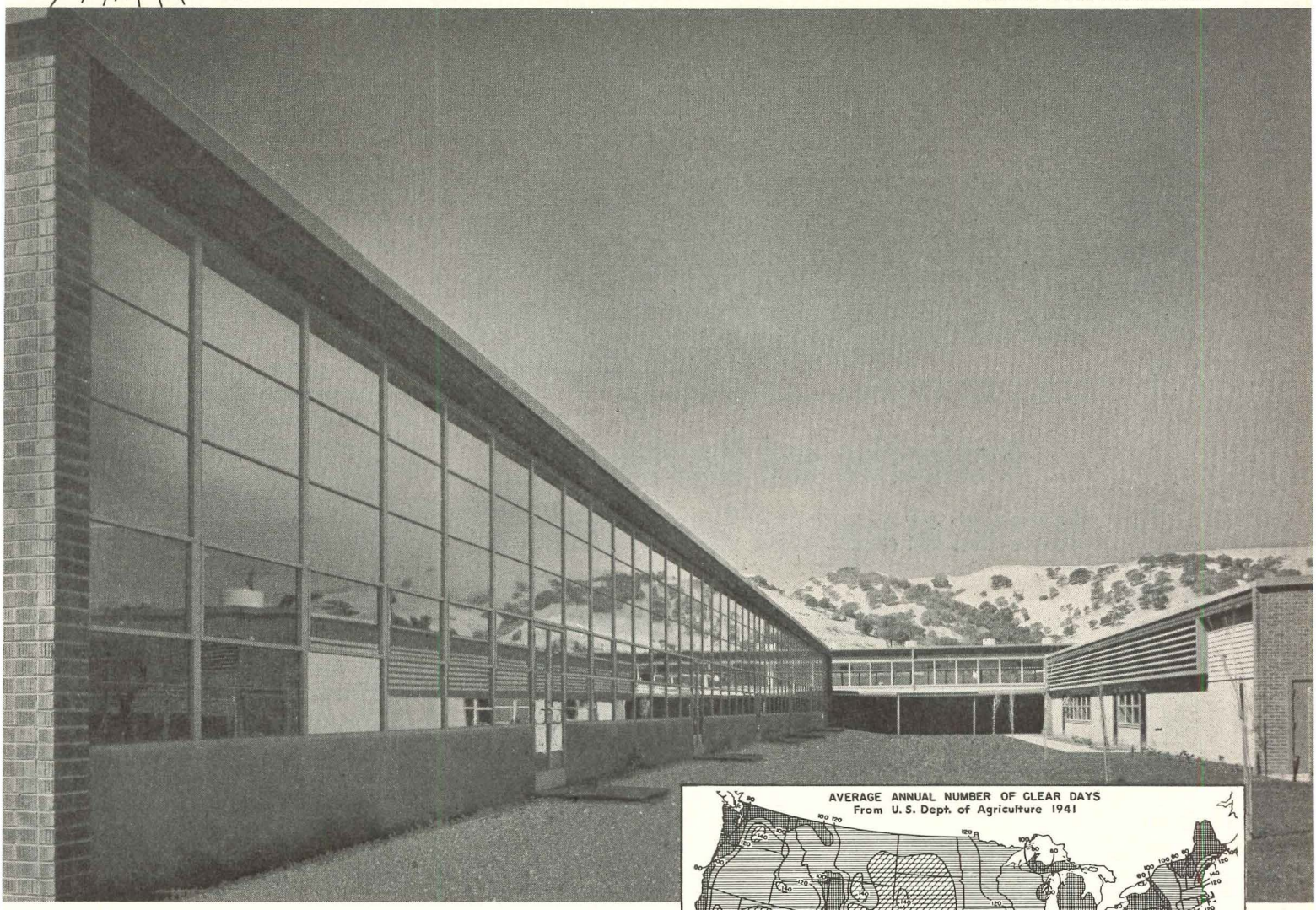
Dishes and trays are returned to the pass window which opens into the dish-washing unit. The pass window should be wide enough to permit the quick return of trays and dishes. To save time and labor, counters in the pass windows may be divided into sections — one for silverware, one for glasses, one for dishes and the last section for trays.

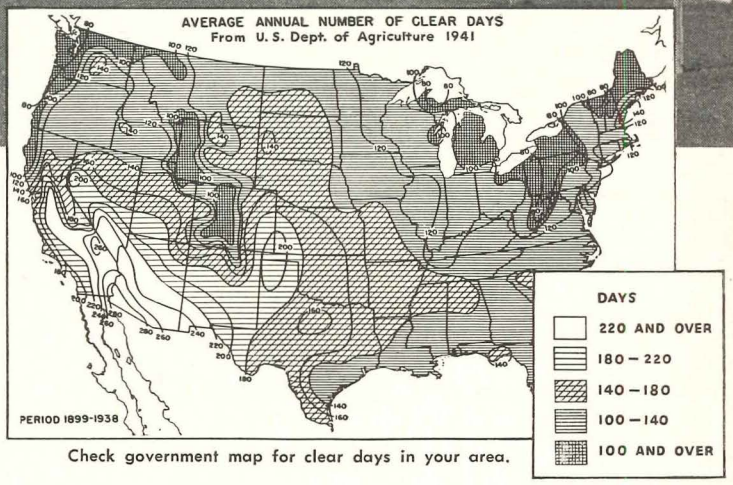
The soiled dish table should be provided with a scrape hole and garbage can beneath. It is desirable to have a hose with a spray attachment and a small sink so that the dishes may be pre-rinsed before entering the dish-

(*Continued on page 250*)

The Sun Hides on Most School Days...but...

Montecito School, Martinez, Calif.





Check government map for clear days in your area.

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Maybe you don't know how elusive old Sol can be during the school term. Actually, he hides most of the time. So say government figures. In 90% of the country, there are less than 130 clear days in a whole year when you deduct weekends. Then subtract 90 summer days and it's easy to see most school days are overcast. Therefore, it's most important in providing light for schools to use a window that admits the most daylight. Here, Ceco Steel Windows truly meet the test because only steel windows admit enough daylight on overcast days to provide good vision. Then, too, steel windows offer controlled ventilation up to 100%...assure distant vision. The cost? Lowest of all installed. Maintenance? Cost is lower here too. Any way you figure it—cost, maintenance or functional superiority, Ceco Steel Windows are the best buy.

*Bamberger & Reid, architects. Roger Sturtevant Photo.

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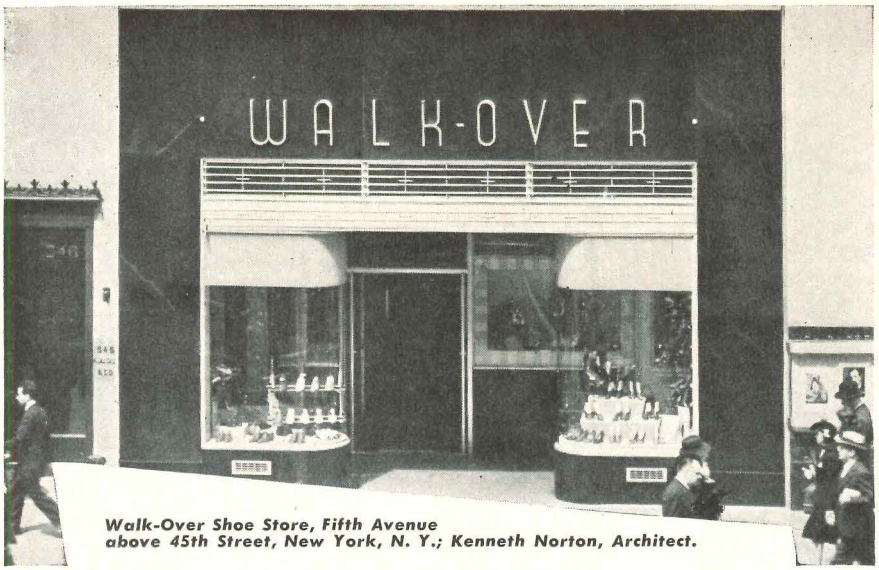

Walk-Over Shoe Store, Fifth Avenue above 45th Street, New York, N. Y.; Kenneth Norton, Architect.

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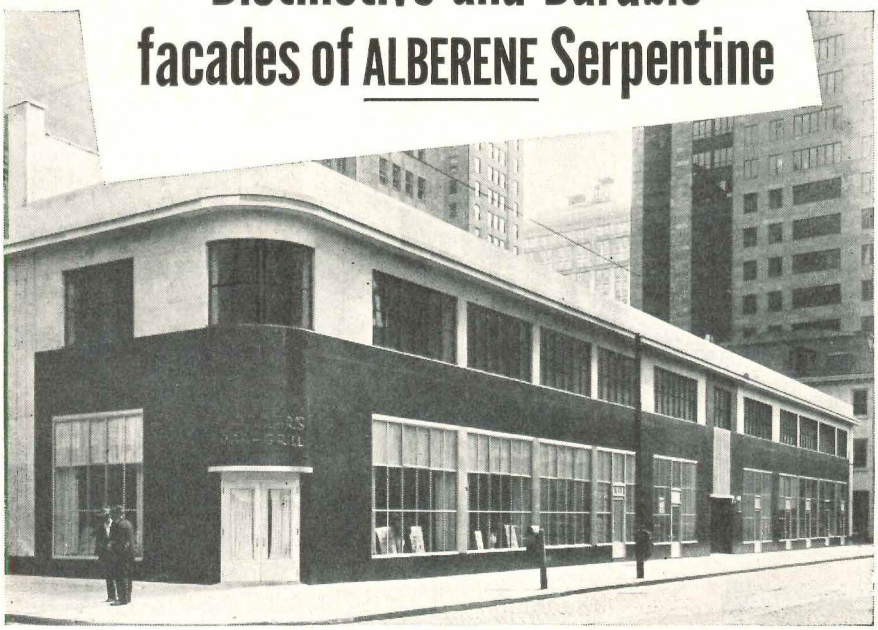

Flanders Bar & Grill, Philadelphia, Pa.; George W. Pepper, Jr., Architect.

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Architectural Engineering

KITCHENS

(*Continued from page 248*)

washing machine. In the smaller schools, if the dishwashing machine is not installed, three sinks are necessary for a pre-rinse, wash and rinse.

A dishwashing machine saves time and labor, and insures sterilization of dishes. The machine should be sized to take trays. (In the elementary schools, the trays are 12 by 14 in.) The water for washing should be 135 to 140 F, and the rinse water 180 F. An adequate hot water storage tank of 150 gal is a necessity.

A handwashing sink for the employees must be located in the kitchen. This is a health department requirement in many areas.

General Suggestions

Manager's Office — A small office with a desk, files, and shelves for cookbooks should be provided.

Dining Area — The dining area should be completely cut off from service and kitchen areas with a partition having proper entrance and exit doors to and from the service counter and the kitchen itself.

Equipment Details

The following equipment needs are specific, but the sizes are approximate since all models do not require the same space.

Refrigeration. Food products require different temperatures. Meat, fish and poultry, 32 F; fruits, vegetables and dairy products, 45–50 F; frozen foods, 5 F. Refrigerator space is usually figured 1/10 to 1/5 cu ft per meal served, but in elementary schools extra refrigeration for the mid-morning milk supply is needed.

Serving Counters. The serving counters should be planned with a cold plate or ice pan for salads and milk. If there are two service lines, each service line in the larger junior and senior high schools should have four rectangular compartments and four well-type compartments. In the elementary schools, two rectangular compartments, three 8 1/2-in. wells and one 6 1/2-in. well are needed. Coffee service is needed for the teachers' line.

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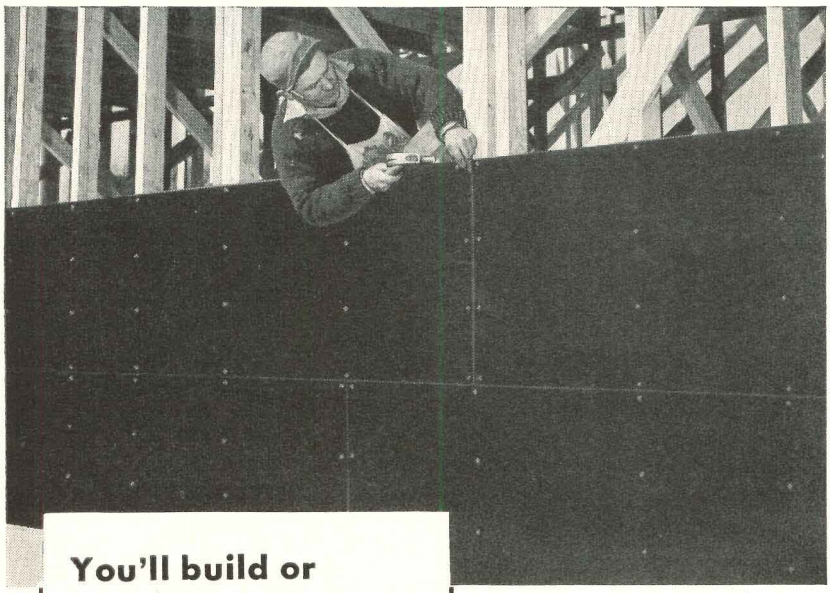

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3 ASPHALT-TREATED CORE Combines with water-repellent surface for greater protection against moisture. (Stockpile it outside without fear of damage from the elements.)

4 WIND-TIGHT JOINTS Tongue and groove edges insure snug fitting joints. No expansion or contraction to cause open gaps. No knot holes.

And that's only half the story. Gold Bond Gypsum Sheathing actually reduces building costs. It costs about ⅓ less than ordinary sheathing and cuts handling and installation time in half. It comes in standard 2 x 8′ panels. For use under any exterior finish including shingles. Specify Gold Bond Gypsum Sheathing on all your houses from now on, and give your clients more house for their dollar.

NATIONAL GYPSUM COMPANY, BUFFALO 2, N. Y.

Fireproof wallboard, decorative insulation boards, lath, plaster, lime, sheathing, wall paint, rock wool insulation, metal lath and sound control products.

PRODUCTS

(*Continued from page 174*)

Asbestos Cloth

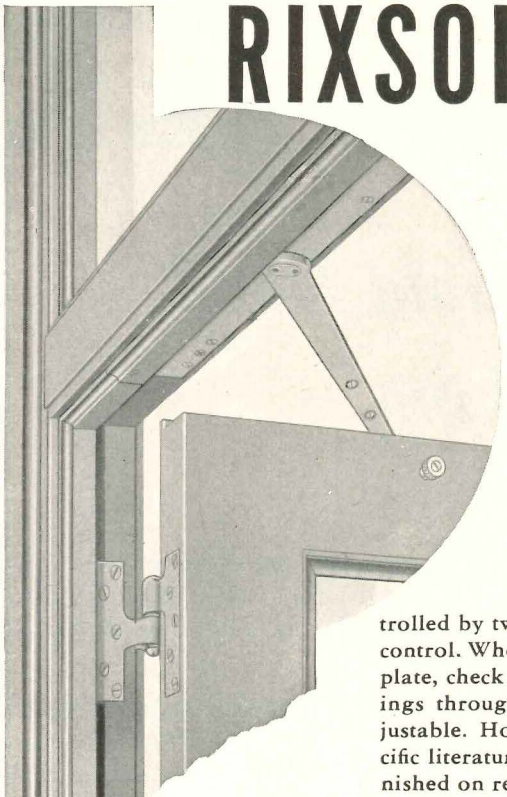
Claimed to be the first commercial offering of an asbestos textile for drapery purposes, *Colorbestos* is said to provide a fire-safe fabric. It was developed for use as drapery or wall covering in public gathering places.

Woven of asbestos yarn on a warp of cotton, the material is available in 10 plain colors and three different weaves. Special designs are made to order. All colors are reported fast to daylight, washing, dry cleaning and pressing. Johns-Manville, 22 E. 40th St., New York 16, N. Y.

Tubular Latch

The *Clinton Ball Bearing Tubular Latch* is reported very easy to install, with only one hole to bore in the door — 13/16 in. diam by 1⅝ in. deep. No alignment of knobs or latch is said to be necessary and no boring jig needed. The knob is stationary and acts as a pull. A locking device is provided for bed and bathroom doors. In emergency, a screw driver unlocks door from outside.

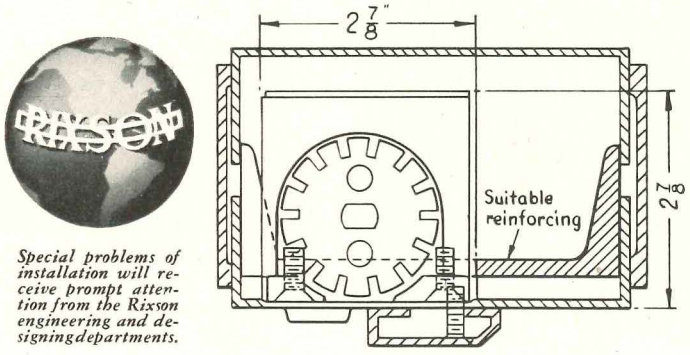
The unit has all brass screw machine parts and chromium steel ball bearings. An adjustment of the latch regulates spring tension and extension of ball to allow for shrinkage of door. The latch is available in all standard finishes, coated with a synthetic lacquer said to be resistant to moisture, salt spray, perspiration and corrosion. Clinton Lock Co., Clinton, Iowa.



RIXSON CONCEALED OVERHEAD DOOR CHECKS

Especially Compact for NARROW Headframes and Transom Bars ... Metal or Wood

Rixson No. 220 concealed single-acting overhead door checks—for interior, vestibule or entrance doors—are particularly desirable when small space is a factor. These sturdy, reliable units are only 2⅞" wide x 2⅞" high and 17" long. Checking action is controlled by two valves—for closing and latch control. When door is closed, no parts of the plate, check or arm are visible. Roller bearings throughout. Spring control easily adjustable. Hold-open feature available. Specific literature and specifications will be furnished on request.



Special problems of installation will receive prompt attention from the Rixson engineering and designing departments.

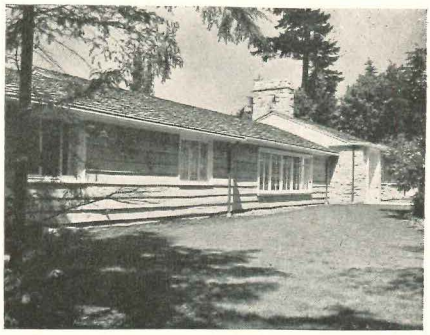
The Oscar C. Rixson Company
4450 Carroll Avenue Chicago 24, Illinois Telephone Mansfield 6-5050
Established 1900

SALES REPRESENTATIVES

ATLANTA—Walter S. Johnson, 917 St. Charles Ave., Tel. Vernon 4725.
CANADA—The Richards-Wilcox Canadian Co., Ltd., London, Ont., Tel. Fairmont 2800.
LOS ANGELES—George E. Tupper, 1010 W. Olympic Blvd., Tel. Prospect 0924.
NEW YORK—Fred G. MacKenzie, 107 Reade St., Tel. Barclay 7-6852.
PHILADELPHIA—G. Norris Williams, 211 Greenwood Ave., Wyncote, Pa., Tel. Ogontz 1929.
PORTLAND, ORE.—W. N. Browning, 529 Henry Bldg., Tel. Atwater 5839.
SEATTLE—E. R. Spragg, 4012 East 38th St., Tel. Kenwood 7605.
WASHINGTON, D. C.—L. J. Fait, 2068 14th St. N., Arlington, Va. Tel. Chestnut 6262.

Hand-Split Siding

The Olympic Stained Products Co., following a recent name change from the West Coast Stained Shingle Co., announces a new textured, pre-stained cedar siding. Called *Olympic Handsplit Siding*, the product is said to be actually cut by hand and then resawn to obtain



Split cedar siding has strong character lent by bold shadow line, rough texture, and variety of colored finishes

a beveled siding with a hand-split face. The butts of the siding run from ¾ to 1½ in. in thickness, with the tapered edge running down to ¼ in. thick. Lengths vary from 6 to 14 in.

Stained finishes include Beachwood Gray, Seafoam Green, Chamois, California Rustic, Russet Brown and Bleachtox — a bleached silver gray. Olympic Stained Products Co., 1118 Leary Way, Seattle, Wash.

Drafting Aid

The *Dremel* electric eraser incorporates a burnisher at the opposite end of the eraser shaft to smooth erased areas for re-drawing, and a rotating abrasive disk for sanding pencil leads. Through the medium of a worm gear drive, power is said to be increased and

(*Continued on page 254*)

Which homes will they visit first ?

It was just another classified ad in the Daily News. Three or four lines of type described the house on Rosewood Drive. But the last four words turned the usual flow of house-lookers into a parade.

Those words . . . *Bryant Automatic Gas Heating* . . . have caused many home-seekers to make a certain house their first and, often, their *only* stop. That's because, somehow, people have come to know that Bryant *originated* gas heating equipment for homes, and they have faith in this famous name.

Today, the Bryant distributor and dealers in your area offer the most complete line of gas heating equipment in the nation. You can find in their stocks just the right equipment for all residential, commercial and industrial applications, for every new construction or modernization program.

So, watch the house-hunting Sallies and Bobs in your neighborhood beat a path to the Bryant heated homes. It's a tip-off for all who strive to please them.

Let the pup be furnace man ...and water boy too!

bryant

AUTOMATIC HEATING

The most complete line of gas heating equipment in the nation

Bryant Heater, Dept. 231,
17825 St. Clair, Cleveland, Ohio

( ) Send me the new booklet that tells the Bryant story. ( ) Have your distributor call on me.

Name_____

Company_____

Address_____

City_____ State_____

PRODUCTS
(*Continued from page 252*)

an ideal erasing speed of 3000 rpm achieved to prevent burning or tearing of paper. Other features include a vibrationless motor, light weight, sliding snap type switch, and a hanger hook. The unit is furnished with a 6-ft rubber cord and plug, 3 grades of eraser tips and 6 extra abrasive disks. Dremel Manufacturing Co., Racine, Wisc.

Electric Radiant Heating

The *General Radiant* electrical panels consist of wire networks embedded in fireproof panels similar to wall board. The panels are designed to be mounted on brackets or imbedded in walls or ceilings. An ornamental metal moulding carries connections that hook the panel system into the house wiring. They can be turned on or off by a switch, like the lights. Temperature control is by an individual thermostat in each room.

Three types are designed for various uses: *Medrae* for wall installation; *Hirae* for high level installation in factories, auditoriums, etc; and *Dulrae* for normal ceiling installation. Also available is a portable screen panel which can be plugged into any a-c or d-c outlet. The General Radiant Heater Co., Inc., 101 Park Ave., New York 17, N. Y.

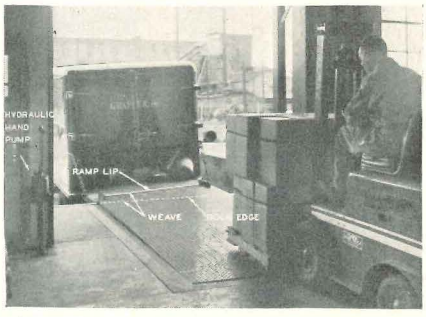
Plastic Cove Base

An improved *Fremont* vinyl plastic cove base is announced as having a much higher gloss finish, to be much broader at the base and more pliable to work with. The material is available in continuous lengths, 120 ft to the roll, 240 ft to the carton. Widths are 4 or 6 in. The manufacturers recommend that it be applied to the base wall with Fremont's new adhesive. The Fremont Rubber Co., Fremont, Ohio.

Truck Loading Ramp

The *Hamilton Truck Loading Ramp* is designed to bridge difference in levels between a loading dock and a transport truck or trailer, making it possible to run a power or hand truck directly into a truck body for loading or unloading goods.

A special weave compensation feature is said to allow the lip of the ramp to follow exactly all the motions of the truck floor on which the lip is resting. This feature is claimed to provide a continuous smooth surface from the dock floor to the truck floor for safe and sure trucking of even unsteady loads.

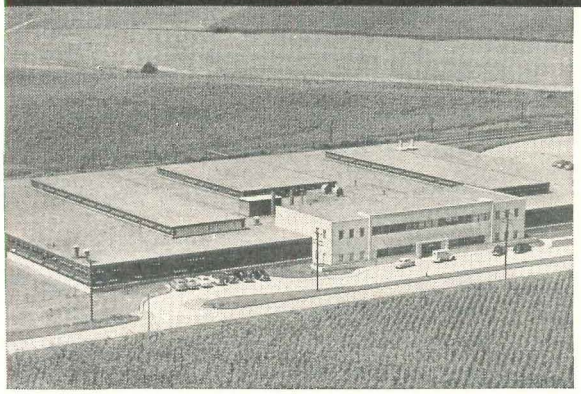


Loading ramp features freedom of adjustment to allow surface flush with trucks

The ramp is built in 5-, 8- and 12-ft lengths, and in widths of 5-, 6- and 6½-ft. Operation is by means of a hand hydraulic pump or by a power pump where ramps are installed in multiple. Arthur S. Hamilton, Jr., Consulting Engineers, 205 Davis Bldg., Rochester, N. Y.

(*Continued on page 256*)

JOB DATA ON ANOTHER FIBERGLAS* INSULATED ROOF



Building: Victor Animatograph Corp., Davenport, Iowa
Architect: Graham Anderson Probst & White, Inc.
General Contractor: Geo. A. Fuller Co.
Roofing Contractor: Holmquist Co.
Roof Deck: Metal
Slope: Flat deck
Roof Insulation: Fiberglas Roof Insulation 126,900 sq. ft. of 1½" thick material
Roofing: 4-Ply Tar and Gravel

YOU SPECIFY CONDUCTANCE . . . WE'LL SUPPLY IT

When you specify the heat conductance required for roof insulation you make unmistakably clear the degree of protection you wish provided against condensation and the passage of heat and cold.

The thermal conductances of Fiberglas Roof Insulation are exceptionally low as shown:

Thickness	½"	¾"	1"	1¼"	1½"	2"
Heat Conductance	.50	.33	.25	.20	.17	.13

We'll be glad to certify to the above values.

The core of the product is made of durable, resilient, ageless fibers of glass bonded securely with a stable resin. Fiberglas Roof Insulation provides a firm, structurally sound material as the underlying layer of insulation in built-up roofs.

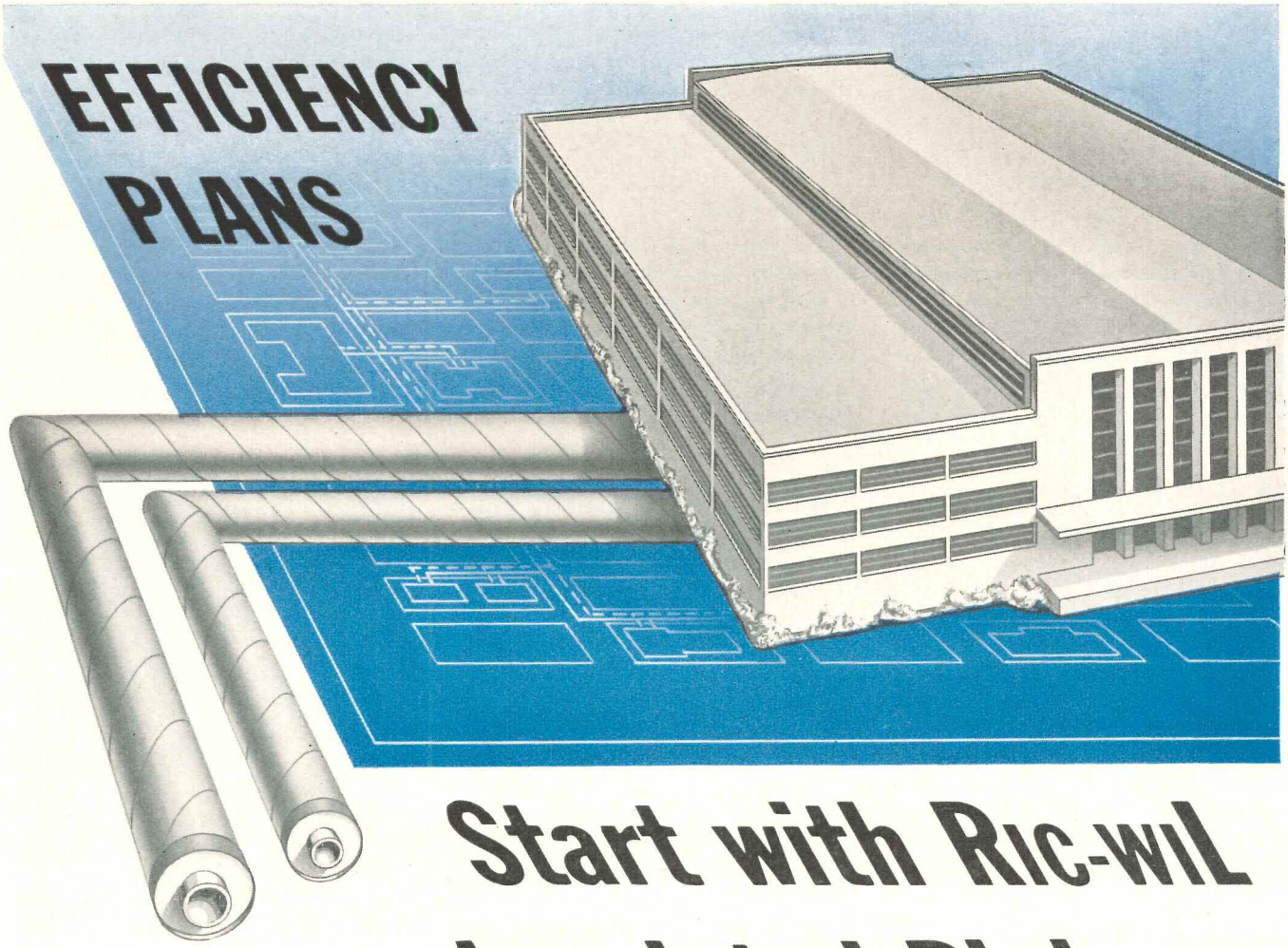
"Proved In Use" a booklet listing hundreds of important installations of Fiberglas Roof Insulation, many in your locality, is available on request.

For further information also write us today for our A.I.A. File No. 37 "The Design of Insulated Roofs" (36-page manual) or refer to Sweet's Architectural Files. Owens-Corning Fiberglas Corporation, Dept. 68-D, Toledo 1, Ohio.

*FIBERGLAS is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.

OWENS-CORNING FIBERGLAS BUILDING MATERIALS

BUILDING INSULATION • ACOUSTICAL TILE • ROOF INSULATION • MEMBRANE FABRIC



Start with Ric-wiL Insulated Piping

● Ric-wiL Prefabricated Insulated Piping occupies a key position in the planning and production of efficient insulated piping in central heating or air conditioning systems for multiple building projects.

Experienced architects, engineers and contractors recognize Ric-wiL systems as the practical answer for exposed or underground insulated piping. They are custom engineered and prefabricated of the finest materials for quick economical installation, efficient performance, and long maintenance-free life.

The Ric-wiL engineering service, developed through forty years' experience in the insulated piping field, is available for planning and field consultation.

Call the Ric-wiL office nearest you and our representative will be glad to give you detailed technical information as related to your specific problem.

RIC-WIL 40th YEAR DEPENDABLE INSULATED PIPING SYSTEMS 1910 · 1950

For full technical information on Ric-wiL Insulated Piping Systems, call or write the Ric-wiL office nearest you or Dept. 9-N in Cleveland, Ohio.

RIC-WIL
INSULATED PIPING SYSTEMS
THE RIC-WIL COMPANY · CLEVELAND, O.

OVERHEAD • UNDERGROUND

FOR FORTY YEARS THE GREATEST NAME IN INSULATED PIPING SYSTEMS

PRODUCTS
(*Continued from page 254*)

Slimline Lampholders

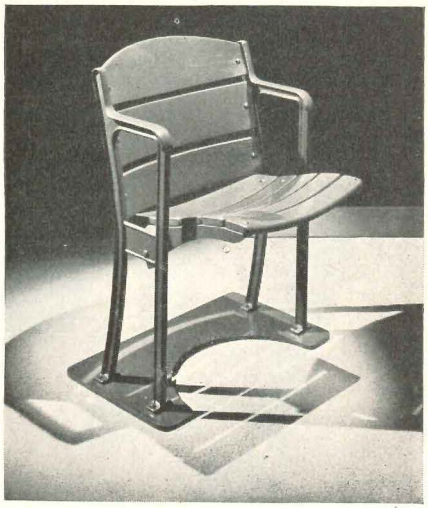
The compact *Bryant Push Contact Lampholders*, designed to accommodate all sizes of slimline lamps, are made of white thermosetting plastic. The leads are said to simplify wiring by making it unnecessary to twist or dip the wire ends. The devices are supplied in pairs for the low voltage primary and high voltage secondary and can be provided for butt-on mounting or equipped with brackets for flush mounting. The Bryant Electric Co., Box D, Barnum Station, Bridgeport 2, Conn.

Budget Sink

The *Elkay* 39-in. stainless steel sink is designed for use as a component part of their 60-in. apartment kitchen installations. The sink, as well as the other units of this "package kitchen," has a stainless steel top set on a white enamel cabinet base. They are recommended for use in summer cottages, guest houses, recreation rooms, etc. Elkay Manufacturing Co., 1874 S. 54th Ave., Chicago 5, Ill.

Stadium Seat

A stadium-type chair, for use in arenas, field houses, stadia, etc., is said to have been so engineered as to eliminate all tearing and pinching hazards, and to afford maximum comfort. It can be furnished for either floor or riser installation.



Greater comfort and safety are featured in this iron and wood stadium-type seat

The seat is durably constructed, with gray enameled iron standards and arms. Back and seats are of wood slats in natural color or enamel finish. The chair is equipped with ball bearing hinges and rust-resisting hardware. Ideal Seating Co., 547 Ann St., N.W., Grand Rapids, Mich.

Floor Slab Sealer

The *Stafco On-Grade Sealer* was developed to seal concrete ground slabs against capillary moisture and alkali, and to eliminate condensation between the slab and finished floors. Manufacturers claim that the material will function over radiant heating, but is not an adhesive, and will not seal off hydrostatic pressure. Two coats are recommended. The first coat is said to take from 1 to 4 hrs to dry, the second, 8 to 12 hrs. One gallon reportedly covers from 50 to 75 ft with a two coat application. Standard Floor Co., 141 Gulf Bldg., Pittsburgh 19, Penn.

(*Continued on page 258*)

How would YOU air condition the Congressional Hotel?

NOW, keep all the problems in mind... 308 rooms to be made comfortable whether they're occupied by vigorous young salesmen who like it really cool or by nice old ladies who take a chill at the drop of a hat . . . not much space available for ductwork . . . keep building costs down.

What's the *one* system that'll give you everything you need? Well, the Congressional Hotel people found out it was Modu-aire.

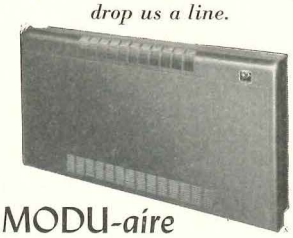
And no wonder . . . Modu-aire lets every guest, in any room, choose his own weather . . . without complex zoning or balancing.

Modu-aire doesn't take a single inch of ductwork . . . slim copper tubes hidden inside the walls out of the way carry the heating and cooling medium.

Modu-aire simplifies installation . . . piping contractors install quickly and easily at amazingly low cost.

Modu-aire is a year 'round system . . . cools and dehumidifies in summer, heats in winter . . . uses the same coils and piping for each at no extra cost.

Want to know more? Just drop us a line.



MODU-aire

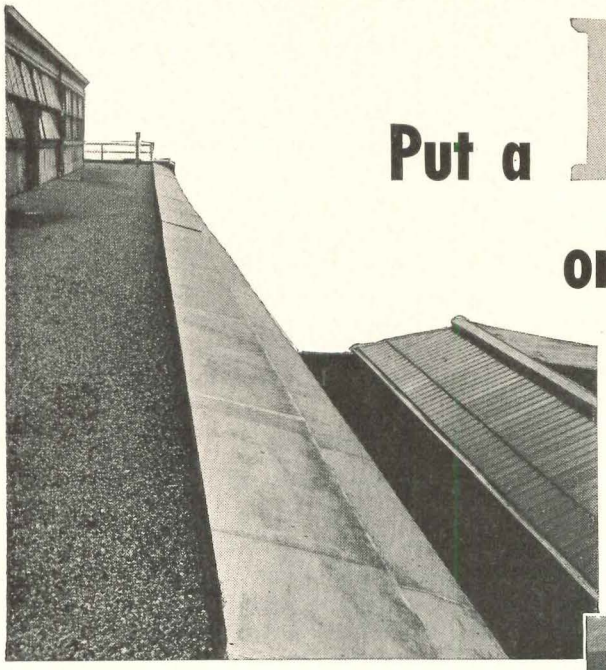
BY

UNITED STATES AIR CONDITIONING CORPORATION

usAIRco

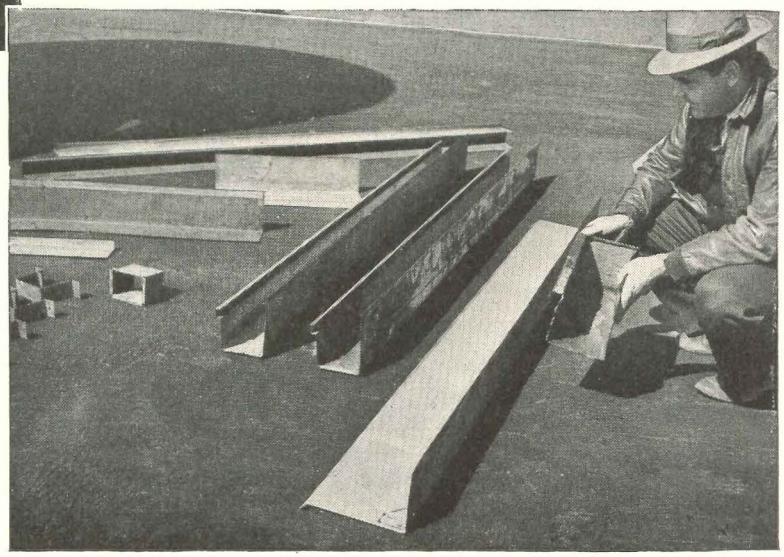
COMO AVENUE S. E. AT 33RD, MINNEAPOLIS 14, MINN.

Put a ROOF on the rising cost of Upkeep!



MONEL PARAPET FLASHING, *sidings, skylight trim and gutters. Installed on a coal-burning power plant in 1913, they are still in good condition.*

Roof upkeep doesn't have to be a constant expense. Architects can end this problem with economical Monel Roofing Sheet— roofing that lasts the life of the building



INSTALLED ON A *chemical manufacturing plant, these Monel gutters, base, cap and step flashings, down spout straps and eaves boxes are successfully resisting destructive fumes, smoke and lowland dampness.*

There's one simple way to assure your clients long-lasting, trouble-free roofing.

Give them roofs of MONEL*.

Monel is a non-rusting alloy consisting of approximately ⅔ nickel and ⅓ copper. Throughout industry it is known for its *resistance* to:

- *corrosion*
- *severe stresses*
- *wear and abrasion*
- *buckling and cracking*

Monel is doing hundreds of different jobs — *tough* jobs — in many fields, in many forms.

To you, it offers an opportunity to help clients reduce annual outlays for roof maintenance. A quick look at the record will prove that. Monel roofing installations date back to 1910 and they are still in good condition today.

No wonder Monel is called "life-of-the-building" roofing!

Investigate the practical advantages of Monel Roofing Sheet for the building now on your boards. Remember, the term "Monel Roofing" includes not only entire roofs, but also roofing parts such as flashings, skylight frames, ventilators, louvers, gutters, siding, expansion joints and copings.

And roofers' quotations on life-of-the-building Monel installations are reasonable and practical. Monel's excellent properties permit use of lighter gauge sheet on practically every job.

WRITE FOR NEW BULLETIN

You'll find a complete review of the properties and characteristics of this economical roofing metal in our new bulletin, *Basic Application Data — Monel Roofing Sheet.* In addition to indicating how you can save your clients money by reducing gauges, the bulletin gives information about availability, discusses installation procedures, and provides a sample specification wording.

SEND FOR YOUR COPY *of this helpful, file-size bulletin now. The coupon will bring it to you promptly and without obligation.*

MONEL ROOFING

For the "Life-of-the-Building"

EMBLEM OF SERVICE

INCO TRADE MARK

GET VALUABLE REFERENCE BULLETIN

Architectural Section
The International Nickel Company, Inc.
67 Wall Street, New York 5, N. Y.

Please send me without obligation a copy of your new bulletin for architects, *Basic Application Data — Monel Roofing Sheet.*

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THE INTERNATIONAL NICKEL COMPANY, INC.

*Reg. U. S. Pat. Off.

67 Wall Street, New York 5, N. Y.

PRODUCTS
(*Continued from page 256*)

Microfilm Files

Filmsort microfilm equipment has been developed for use in offices for filing images of bulky documents and plans on standard sized filing cards. The equipment includes a camera, mounter and viewer. The camera will handle records up to 36 by 48 in. It is a self contained unit with automatic spacing and masking devices. The mounter is said to cut and insert 400 frames of film per hour into cards. The viewer projects the image on a 16- by 16-in. screen, and can be used in daylight. Standard enlarging equipment can make photographic copies from the microfilm in the Filmsort cards. Film 'N File, Inc., 330 W. 42nd St., New York 18, N. Y.

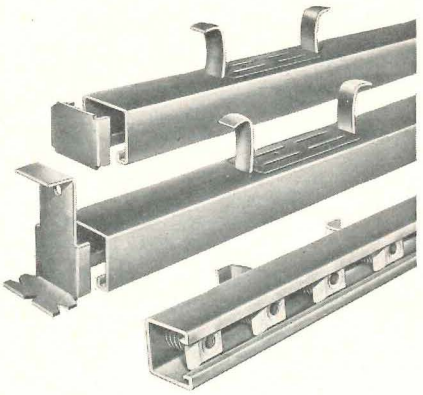
Incandescent Bulb

A new bulb, the *G. E. 50GA*, is announced as having a unique mushroom shape and an enamel finish to form a combined light source and fixture in one unit. The lamp was developed for use in ceiling fixtures in which bare bulbs in base-up position are used.

To be made currently in a 50-watt size, the lamp is said to be 3½ in. in diameter at the widest point, and to direct two-thirds of the light upward. The lower portion of the bulb is covered with a soft-toned permanent enamel finish. General Electric Co., Nela Park, Cleveland 12, Ohio.

Concrete Insert

A new concrete insert, known as the *Series P-3000*, is said to allow attachments to be made quickly and easily at any point along the channel without disturbing other attachments. A spring nut is inserted into the channel at the point where attachment is desired, and bolted to the fitting.



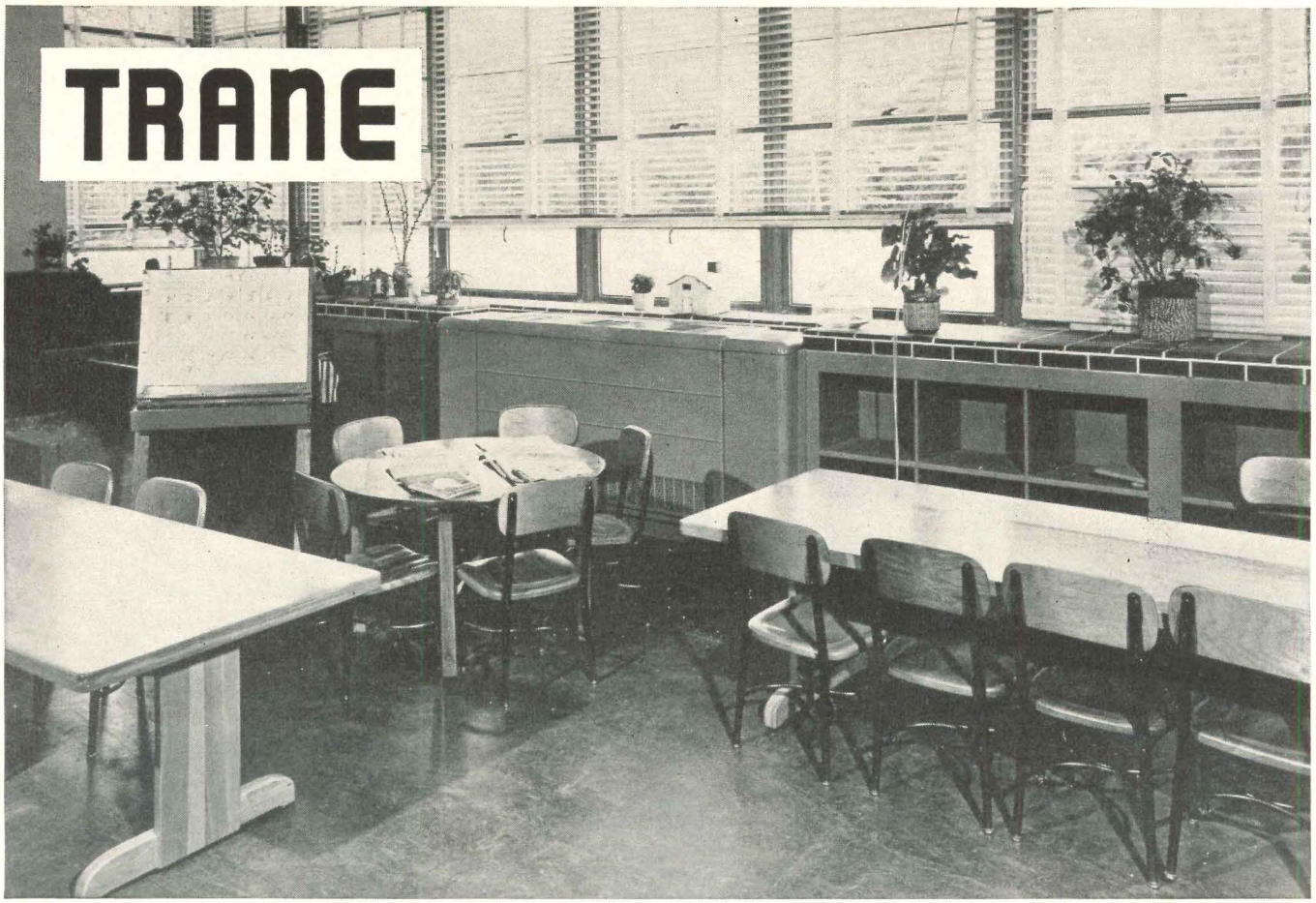
Insert channel for concrete is available with choice of ends, fittings for attachments at any desired point

The inserts may be had in stock lengths from 3 in. to 20 ft, and are available with Type A plain drive-in end caps or Type B anchor type drive-in end caps equipped with slots for nailing. The insert channel measures 1⅝ in. wide by 1⅜ in. high outside dimensions, is formed of 12 gage cold rolled steel and comes in several finishes. Load capacity is said to be 2000 lb per ft, with a safety factor of 3. Unistrut Products Co., 1013 W. Washington Blvd., Chicago 7, Ill.

Radiant Heat Fittings

Redi-Bends is a new line of pre-bent pipe fittings for radiant heating installations, designed to eliminate pipe bending on the job. The units are avail-

(*Continued on page 260*)



Trane Unit Ventilators in Stratfield School, Fairfield, Connecticut. *Architects, Lyons and Mather, Bridgeport, Connecticut.*

Ventilation–for the life of the building

Trane Unit Ventilators give controlled ventilation to classrooms in the Stratfield School and provide the utmost in *effective*, *economical* and *dependable* operation:

EFFECTIVE because they bring in healthful outdoor air, clean it, warm it, and spread comfort to even the remotest corners of the classroom—QUIETLY AND WITHOUT DANGER OF DRAFTS!

ECONOMICAL because over two decades of Trane engineering know-how have been applied to developing today's attractive sturdily-constructed unit ventilator. As a result every Trane Unit Ventilator embodies thoroughly proved and tested designs, expertly built from top quality material.

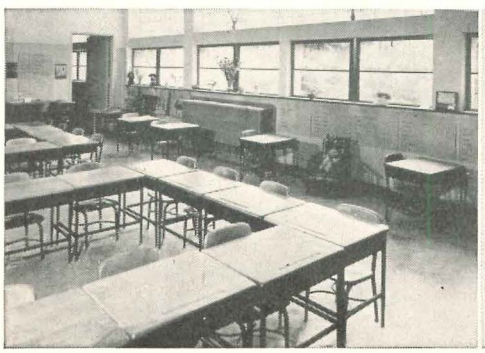
DEPENDABLE because Trane has developed smoothly running centrifugal fans—particularly desirable where extremely quiet operation is necessary. Kinetic Orifice coils guard against freezing and assure positive, capacity heating. Block-offs and quick acting dampers prevent cold outside air from blowing directly through the unit. Generous filters trap dust and dirt.

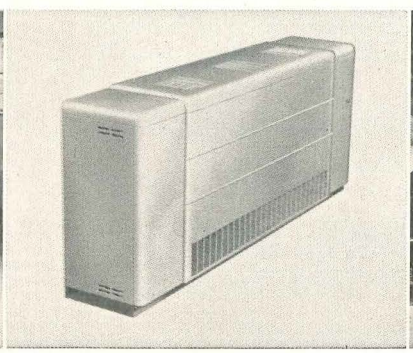
There are Trane Unit Ventilators for every size room—gymnasium, classroom, auditorium or office. The Trane sales engineer in your area will be glad to show you how Trane Unit Ventilators and other Trane products are being used to meet heating, ventilating and air conditioning needs in modern day schools.

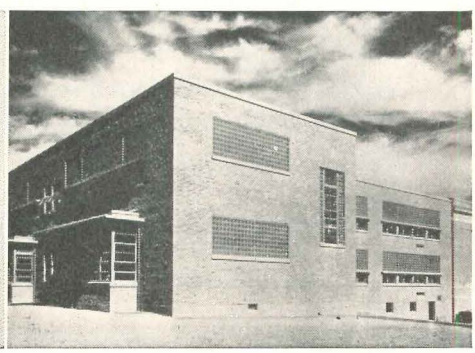
THE TRANE COMPANY...LA CROSSE, WIS.
EASTERN MANUFACTURING DIVISION, SCRANTON, PA.

Manufacturing Engineers of Heating, Ventilating and Air Conditioning Equipment—Unit Heaters, Convector-radiators, Heating and Cooling Coils, Fans, Compressors, Air Conditioners, Unit Ventilators, Special Heat Exchange Equipment, Steam and Hot Water Heating Specialties ... IN CANADA, TRANE COMPANY OF CANADA, LTD., TORONTO.

Beauty is added to classrooms while clean, tempered air promotes health and efficiency.







PRODUCTS
(*Continued from page 258*)

able in pipe sizes ranging from ½ to 2 in., and in bends of 45, 90 and 180 degrees. The latter bend is made in a choice of centers for each pipe size The fittings are furnished in weld-, sleeve- or coupled-type, and in either wrought iron or steel. The weld-type has ends formed into welding sockets and permits use of an electric seal weld. The sleeve-type is available with ends beveled for welding, and is furnished with or without welding sleeves. The coupled-type has recessed, taper tapped couplings for those who prefer screwed fittings. The Capitol Manufacturing & Supply Co., 153 W. Fulton St., Columbus 16, Ohio.

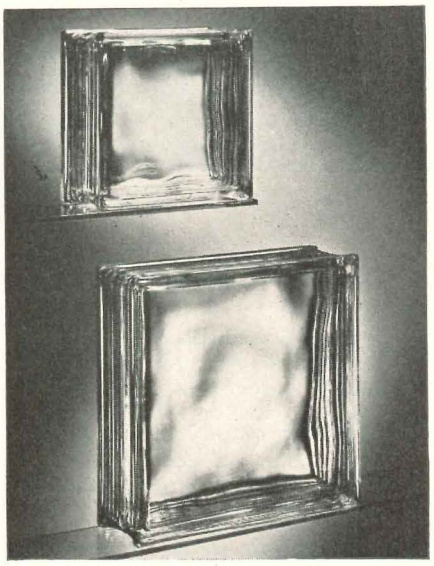
Roof Exhauster

Produced for industrial and commercial ventilation, the *Chicago Axial-Flo* roof exhauster employs a low mushroom-type diffuser head to permit an uninterrupted flow of discharged air. The unit is of welded heavy steel plate, with a hinged cover on the motor driven fan to permit easy access for inspection, maintenance and lubrication.

The cast aluminum alloy wheel has adjustable pitch blades ranging in diameter from 14 to 48 in. Air deliveries range from 1000 to 40,000 cfm, static pressures to 1 in. The entire unit is supported on rubber to reduce vibration and noise. Exhausters are shipped completely assembled, with motor, frame, housing and safety switch. Chicago Blower Corp., 4558 W. Congress St., Chicago 24, Ill.

Transparent Glass Block

A glass block design, described as having sparkling transparency, is now available in 8- and 12-in. sizes. This *Random Clear Insulux Glass Block No. 31*) is said to achieve a hand-formed random effect by using several slightly dissimilar molds to form the two halves of the block, and then using different combinations of the halves. American Structural Products Co., Ohio Bank Bldg., Toledo 1, Ohio.

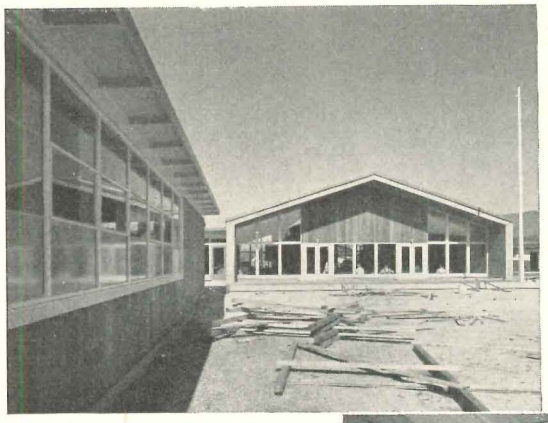


New glass block is transparent with hand-formed appearance and characteristics

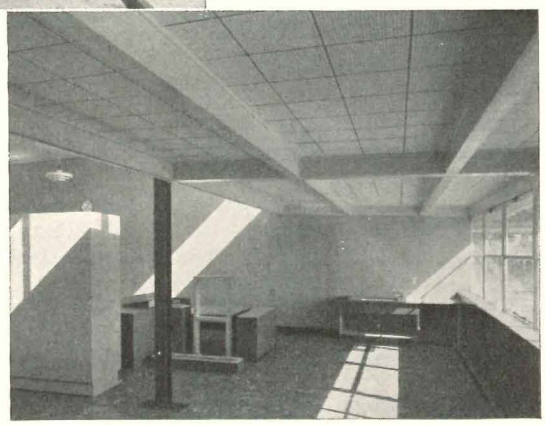
Flush Pedal Converter

The *Easy Flush Pedal* converts a hand operated flushing action on water closets to a sanitary foot pedal flush. The unit is designed to accommodate all flushometer and tank type water closets on

(*Continued on page 262*)



HOW TO KEEP COSTS DOWN IN SCHOOL DESIGN



Buri-Buri Elementary School
South San Francisco Unified School District

Architects:
Bamberger and Reid
San Francisco, California

Specifications call for interior Douglas Fir Plywood stained with one coat of Cabot's Stain Wax.

Specify

CABOT'S STAIN WAX

An inexpensive, attractive finish for all interior woodwork. In one application produces the effect of a penetrating stain plus the soft lustre of a waxed surface. Only one coat necessary . . . no priming required. Easy to clean and maintain.

Cabot's Stain Wax offers a wide range of colors, many available from no other source, including many light, blonde shades ideal for modern interiors.

Write Today for complete information and Stain Wax Color Card for your specification files.

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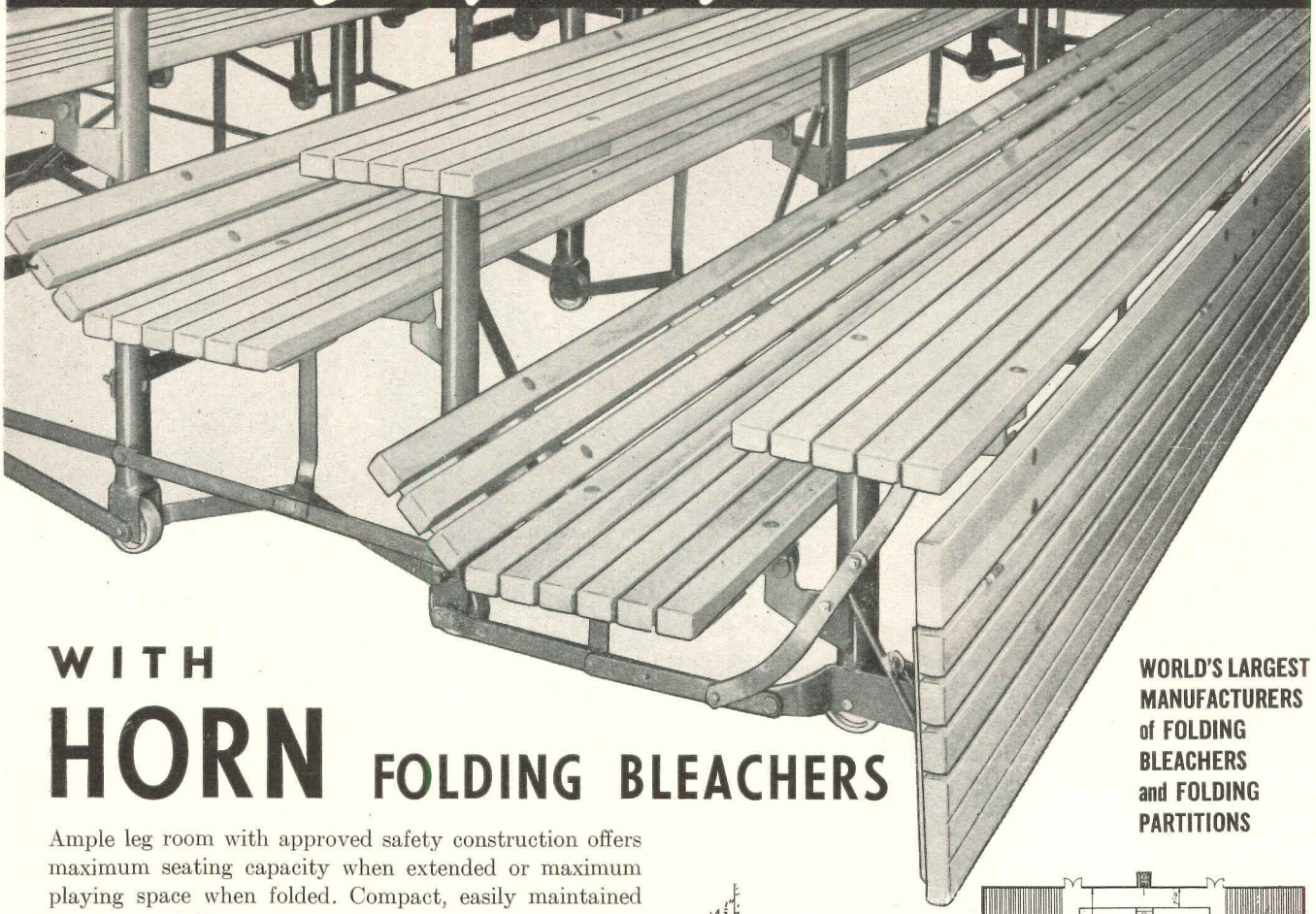
449 OLIVER BLDG., BOSTON 9, MASS.

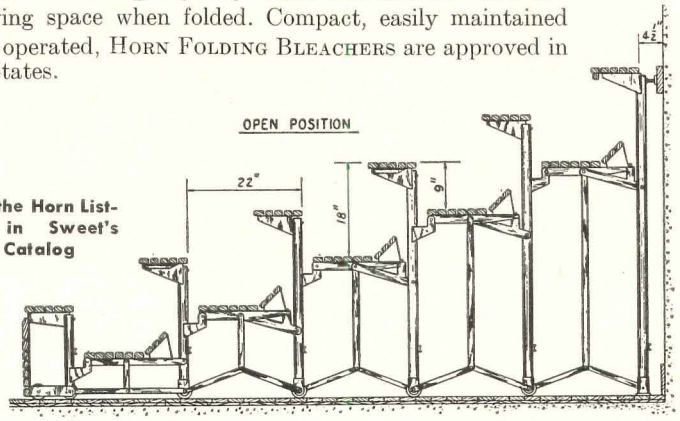
Utilize Your Gym Space

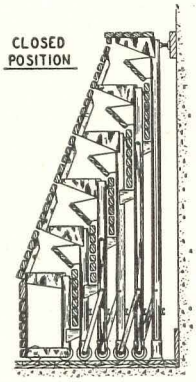


WITH HORN FOLDING BLEACHERS

WORLD'S LARGEST MANUFACTURERS of FOLDING BLEACHERS and FOLDING PARTITIONS

Ample leg room with approved safety construction offers maximum seating capacity when extended or maximum playing space when folded. Compact, easily maintained and operated, HORN FOLDING BLEACHERS are approved in 48 States.

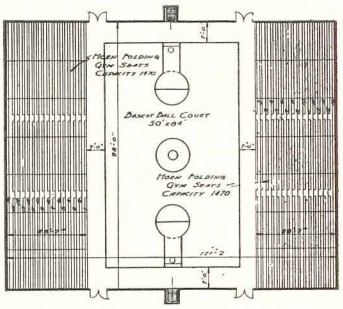




See the Horn Listing in Sweet's Catalog

ROWS	FLOOR SPACE IN USE	FLOOR SPACE * CLOSED	** HEIGHT	ROWS	FLOOR SPACE IN USE	FLOOR SPACE * CLOSED	** HEIGHT
3	4 Ft. 9 In.	1 Ft. 8¾ In.	3 Ft. 0 In.	12	21 Ft. 3 In.	4 Ft. 3⅛ In.	9 Ft. 9 In.
4	6 Ft. 7 In.	2 Ft. 0⅛ In.	3 Ft. 9 In.	13	23 Ft. 1 In.	4 Ft. 6½ In.	10 Ft. 6 In.
5	8 Ft. 5 In.	2 Ft. 3½ In.	4 Ft. 6 In.	14	24 Ft. 11 In.	4 Ft. 9⅞ In.	11 Ft. 3 In.
6	10 Ft. 3 In.	2 Ft. 6⅞ In.	5 Ft. 3 In.	15	26 Ft. 9 In.	5 Ft. 1¼ In.	12 Ft. 0 In.
7	12 Ft. 1 In.	2 Ft. 10¼ In.	6 Ft. 0 In.	16	28 Ft. 7 In.	5 Ft. 4⅝ In.	12 Ft. 9 In.
8	13 Ft. 11 In.	3 Ft. 1⅝ In.	6 Ft. 9 In.	17	30 Ft. 5 In.	5 Ft. 8 In.	13 Ft. 6 In.
9	15 Ft. 9 In.	3 Ft. 5 In.	7 Ft. 6 In.	18	32 Ft. 3 In.	5 Ft. 11¾ In.	14 Ft. 3 In.
10	17 Ft. 7 In.	3 Ft. 8⅜ In.	8 Ft. 3 In.	19	34 Ft. 1 In.	6 Ft. 2¾ In.	15 Ft. 0 In.
11	19 Ft. 5 In.	3 Ft. 11¾ In.	9 Ft. 0 In.	20	35 Ft. 11 In.	6 Ft. 6⅛ In.	15 Ft. 9 In.

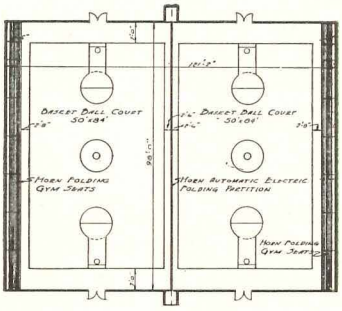
* Dimension includes 4½ in. space between top seat and wall.
** Height in open position same as closed. For Bleachers higher than 20 Rows write for complete details and dimensions.



Bleachers Opened and Partition Opened

HORN FOLDING BLEACHERS HORN FOLDING PARTITIONS

Bleachers Folded and Partitions Closed

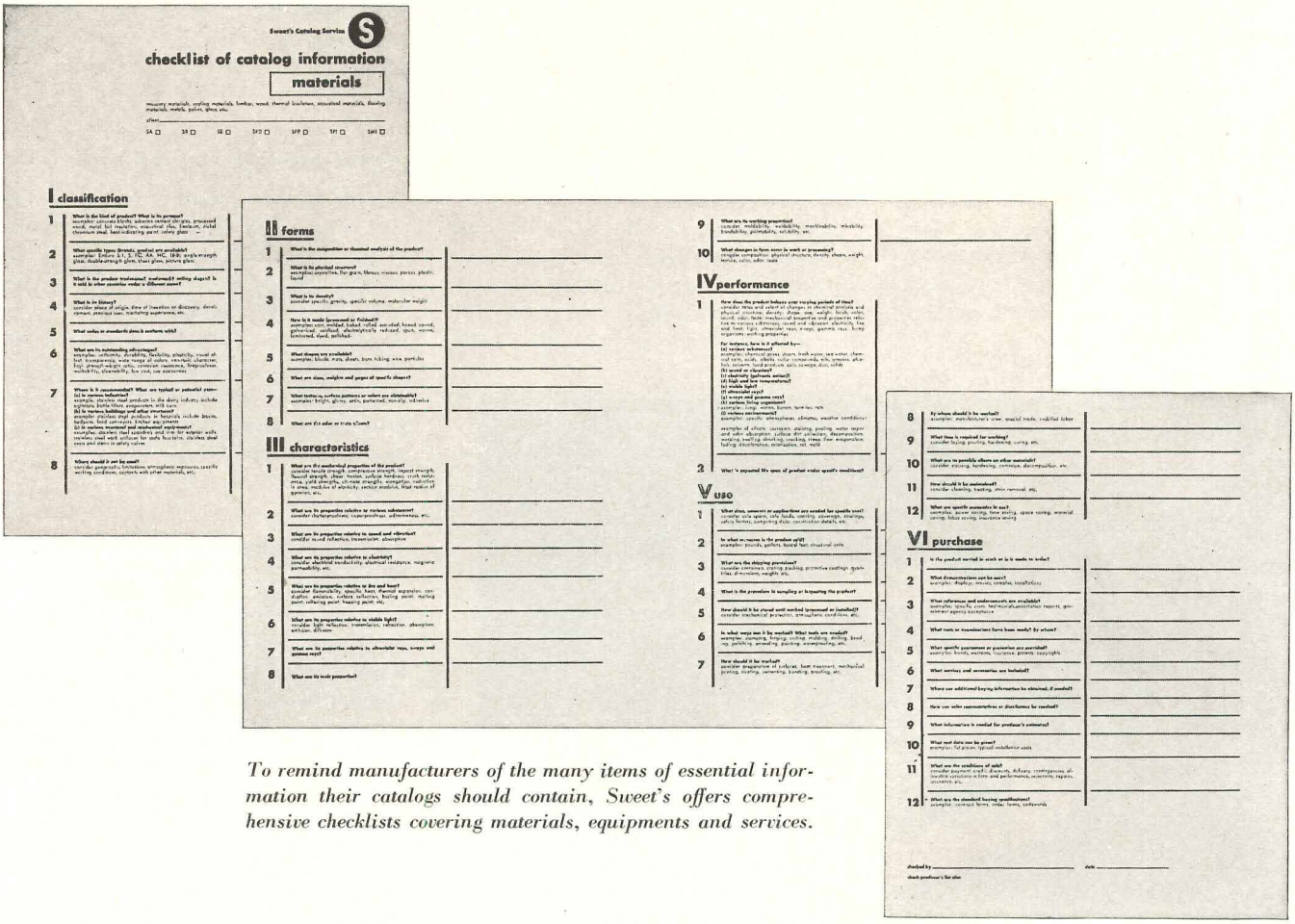


HORN BROTHERS COMPANY
DIVISION OF HORN INDUSTRIES
FORT DODGE, IOWA, U.S.A. • ESTABLISHED 1909

What information

Users of Sweet's tell us from time to time that some manufacturers' catalogs in Sweet's File don't give enough information. Here is the reason, and here is what we are doing to correct this shortcoming, wherever present.

Your Sweet's File is the product of joint action between Sweet's Catalog Service and hundreds of manufacturers. The manufacturers have the final say as to how much information their catalogs shall contain. Our control extends only as far as uniform requirements regarding the mini-



To remind manufacturers of the many items of essential information their catalogs should contain, Sweet's offers comprehensive checklists covering materials, equipments and services.

should a catalog contain?

mum size for all catalogs and the general type of information. Beyond this, the adequacy of any catalog in Sweet's File, whatever its size, depends on the manufacturer's recognition of your information needs and on his realization of the advantage of giving you all essential information in this convenient form.

Through an experienced staff of consultants, designers, writers, draftsmen and printing experts, Sweet's offers clients specific recommendations on catalog content and format, and all needed assistance in the production of their catalogs. These continuing efforts have brought about a vast improvement.

Most of the manufacturers who send you their catalogs in Sweet's File now recognize the importance of giving you all essential information on their products. Others will do likewise when they are persuaded that this is the best way to get your consideration and the specifications leading to orders.

Sweet's Catalog Service
Division of F. W. Dodge Corporation
119 West 40th Street, New York 18, New York

PRODUCTS
(*Continued from page 260*)

both new and existing installations. No plumbing changes or shutting off water supply is said to be required for a simple 10 minute installation. The item is reported of sturdy construction, precision engineered, and finished in polished chromium plating on heavy gage brass. Approved Products Co., 205 E. 42nd St., New York 17, N. Y.

Fluorescent Pylon Lights

Revere Pylon-lites combine fluorescent lamps and glass columns for use in after-dark advertising, building entrance lights, street lights, etc. The unit is available in halves to permit mounting on flat surfaces. Opaque letters can be fired into the glass.

Construction of the lights is said to be strong and sturdy. A heavy steel channel serves as a structural support of the fixture as well as an enclosure for the ballasts and wiring. The glass enclosures are sealed in two gasketed hinged frames, which may be opened for lamp replacement. Mounting standards and shafts are available. Revere Electric Mfg. Co., 6009 Broadway, Chicago 40, Ill.

Metal Storage Equipment

Re-designed storage equipment for tool and stock rooms is announced, which is said to have a correct type of storage accessory available for every item of tools, supplies and wastes. Typical units include sloping front cases, drawer cases, sloping shelf units and swinging panels. Units may be fitted with various adjustable dividers and racks. Lyon Metal Products, Inc., Aurora, Ill.

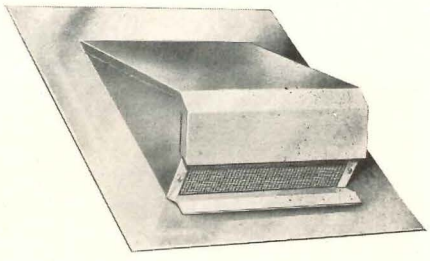
Lacquer Hardware Finish

Improvement in hardware for the *Fenestra* hollow-metal entrance door is claimed, with the use of a new lacquer finish said to be impervious to all known cleaning fluids, and the salts and acids of perspiration. The finish is also claimed to be resistant to bumps, scratches and abrasion, and cannot be dissolved by any standard paint remover or lacquer thinner.

The manufacturers say the finish eliminates the chief need for hardware replacement or refinishing. Detroit Steel Products Co., 3113 Griffin St., Detroit 11, Mich.

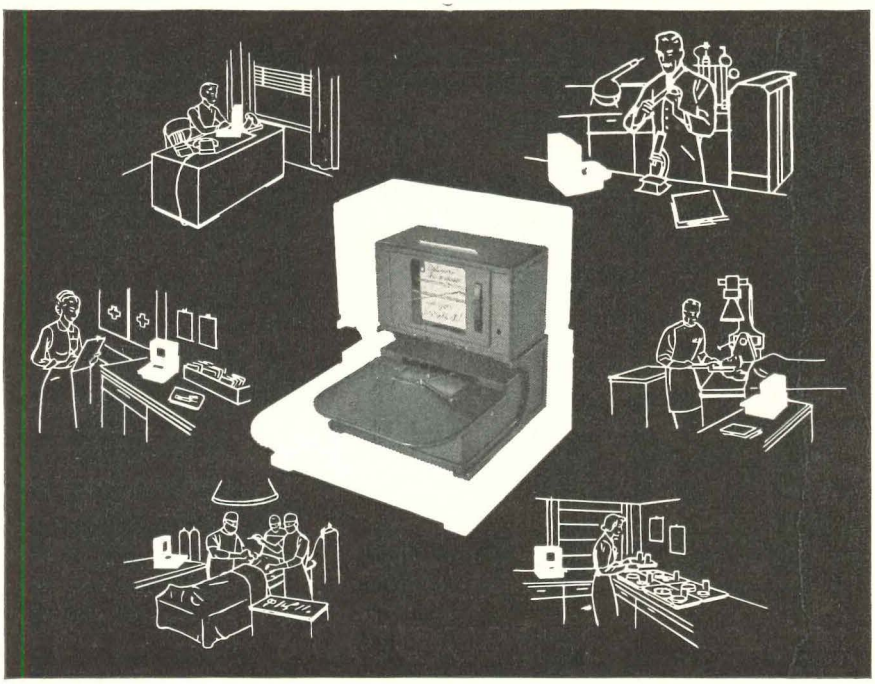
Roof Ventilators

The *Leslie* slant roof ventilators are made of 16-oz copper and are flanged, baffled and screened. They are said to be weathertight and insect-proof. Two sizes are available: the *SRC 10-3*, with an air opening of 30 sq in.; and the *SRC 20-3*, with 60 sq in. Leslie Welding Co., 2943 Carroll Ave., Chicago 12, Ill.



Copper slant roof ventilator is prefabricated to save on-the-job time and labor

(*Continued on page 266*)



A SPECIAL MESSAGE TO BUSY ARCHITECTS

When funds are limited and the school, hospital, office building or other edifice you are designing has a particular need for a communication system of peak performance and reliability, spend a few moments in reading once again your TelAutograph Telescriber System file.

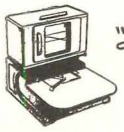
"No capital investment" is no idle phrase when the savings considered are weighed against the minor monthly rental cost of the TelAutograph telescribers. Maintenance and repair (when necessary) of these instruments are the responsibility of the TelAutograph Corporation. This in itself is a saving to the subscriber.

Summed up briefly, TelAutograph Telescriber Systems provide the user with a dependable handwritten communication arrangement, the operation of which requires no special training. The System provides instant written contact with one or more departments simultaneously. The messages themselves form a trustworthy file of each day's activities. In addition to these features is the rigid maintenance provided by the TelAutograph Corporation.

Literature of both a general and specific nature is available to architects. *Address all inquiries to Dept. A-2.*

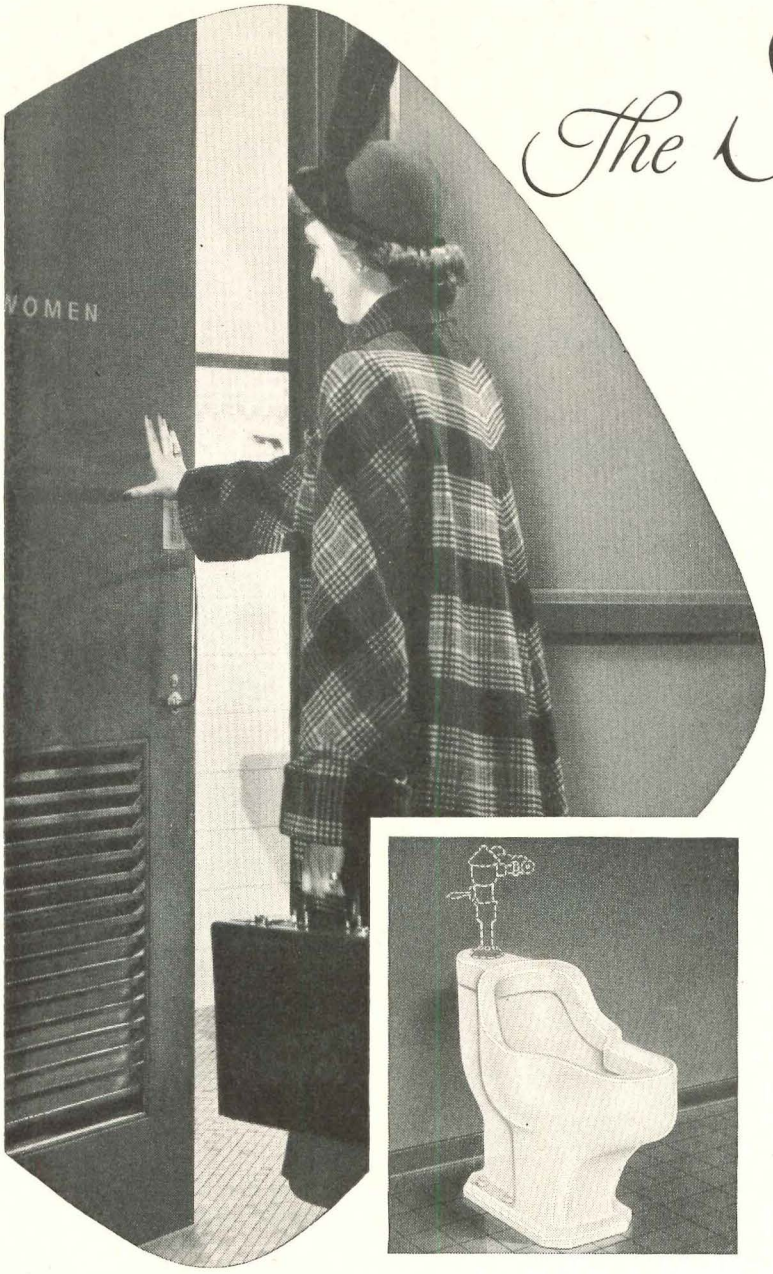
TelAutograph CORPORATION

16 West 61st Street, New York 23, N. Y.



"Handwritten Messages Deliver Themselves . . . While You Write"

NOW... a new sanitary fixture for women's rest rooms to increase sanitation and cut maintenance



The Sanistand

THE SANISTAND FIXTURE, developed by the American-Standard Institute of Plumbing Research, is an outstanding contribution to modern plumbing . . . and should be considered in any planning that will involve public rest rooms for women. It is designed to offer women the same convenience and sanitation the standing urinal does for men . . . to make wash rooms cleaner, neater and more pleasing to women patrons . . . and to reduce cost and time of rest room maintenance.

This new urinal is constructed throughout of easily-cleaned, non-absorbent, genuine vitreous china in a variety of attractive colors, and combines efficient flushing action with an extra large outlet to make it completely sanitary in operation and appearance. It is as easy to install as a water closet and can be placed in a regular wash room compartment. When used in modernization work, it usually can be installed where a water closet has been removed.

Test installations prove the Sanistand is popular with women. Out of 5,029 questionnaires filled in by users at department stores, bus terminals, railroad stations, hotels, restaurants, theatres and service stations, nearly 90% show prompt acceptance of this new fixture. Women praise Sanistand—say, "It's much more convenient and more sanitary."

For more complete details, see your Heating and Plumbing Contractor, or send in the convenient coupon below. **American Radiator & Standard Sanitary Corporation,** Dept. AR-4, Pittsburgh 30, Pa.

AMERICAN-Standard
First in heating . . . first in plumbing

American Radiator & Standard Sanitary Corporation
Dept. AR-4, Pittsburgh 30, Pa.
Please send me, without obligation, your new rest room folder, including complete information on the Sanistand.
Name_____
Firm_____
Address_____
City_____ State_____

Look for this AMERICAN-Standard HEATING PLUMBING *Mark of Merit*

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

PRODUCTS
(*Continued from page 264*)

Quick-Drying Paint

Nu-Hue Quik-Flat reportedly dries to handle, under normal conditions, in 30 to 45 minutes, hardens overnight, and may be re-coated in five hours.

This quick-drying flat finish was developed to meet the needs of speed for finishing banquet rooms, store window backgrounds, interior displays, etc. The paint is available in white and can be colored with liquid tinting colors produced by the same manufacturer. Martin-Senour Co., 2520 S. Quarry St., Chicago, Ill.

Electric Dehumidifier

The *Frigidaire* electric dehumidifier removes moisture from the air automatically by means of electrical refrigeration. The unit is designed for use in any closed area subject to constant or seasonal dampness, and may be plugged into any electrical outlet.

In operation, the unit uses a simplified refrigeration mechanism to cool a series of coils below room temperature. Air is drawn in by a fan and is cooled in passing over the coils, causing moisture to condense. Water thus collected is disposed of either by a fixed drain or a removable container. The dehumidifier is 14-in. in diameter and 33⅝ in. high. The unit controls 8000 cu ft of closed space. Frigidaire Division, General Motors Corp., 300 Taylor St., Dayton 1, Ohio.

Kitchen Range

A new electric range, developed for small kitchens, is left open in kneehole desk fashion to store a kitchen stool, wastebasket, etc. The *Rancho* range is 38 in. wide, and is supported by the usual metal base under the oven on the left. The open side is supported by a U-shaped chrome tubing leg.

"Kneehole" range gives extra storage area and less bulky appearance

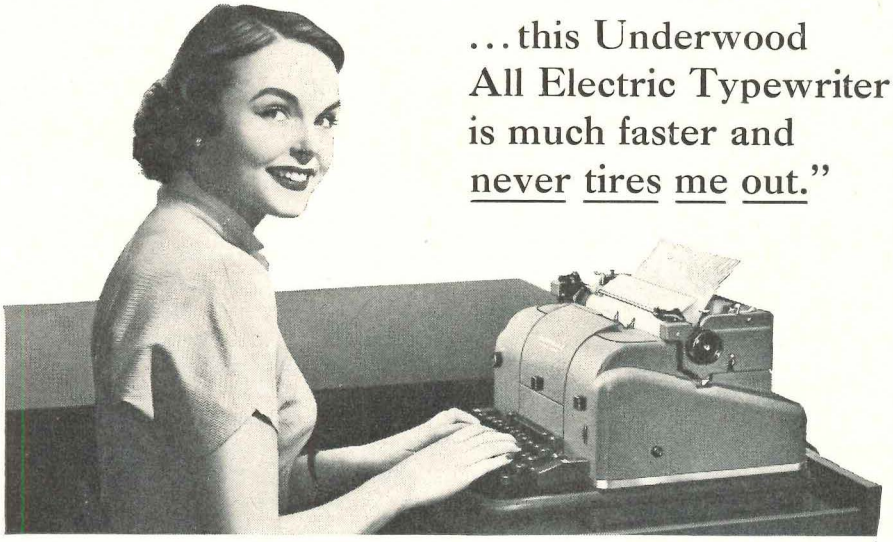
The cooking top has two 8-in. and two 6-in. surface units. The oven has automatic heat control and can be equipped with a timer. A convenience outlet for electric appliances is provided. Westinghouse Electric Corp., First National Bank Bldg., Pittsburgh 30, Pa.

Packaged Steel Buildings

A line of packaged steel buildings, which reportedly the purchaser himself can erect without special tools or skills, includes storage warehouses, garages,

(*Continued on page 268*)

"Oh Yes, Typing Is Lots Easier...



...this Underwood All Electric Typewriter is much faster and never tires me out."

WELCOME words to every secretary . . . because the Underwood All Electric conserves so much of her time, and her energy.

When typing, her hands never leave the keyboard. Finger travel, hand travel are minimized . . . with the *Electric* Keyboard, *Electric* Shifting, *Electric* Line Spacing, *Electric* Tabulating, *Electric* Back Spacing and *Electric* Carriage Return.

The new Underwood Electric . . . with the scientifically-designed, exclusive Console Keyboard and Rimlesss Finger-Form Keys . . . provides a light, easy, rhythmic, responsive action. Impressions are uniform . . . all characters clean-cut, perfectly spaced and aligned. All carbons clear, neat, legible. Every letter . . . better!

Welcome news, too . . . to the business man faced with need for greater office efficiency.

Give your Secretary the opportunity to turn out the best work she's ever done . . . with an Underwood All Electric that's made to order for her. Call your local Underwood representative today . . . for a demonstration.

Underwood Corporation

Typewriters . . . Accounting Machines . . . Adding Machines . . . Carbon Paper . . . Ribbons
One Park Avenue New York 16, N. Y.
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Sales and Service Everywhere

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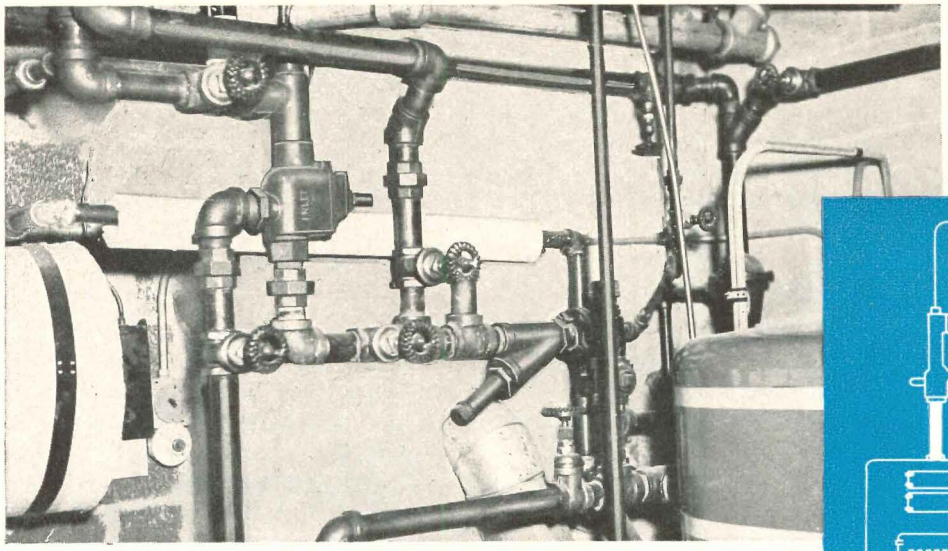
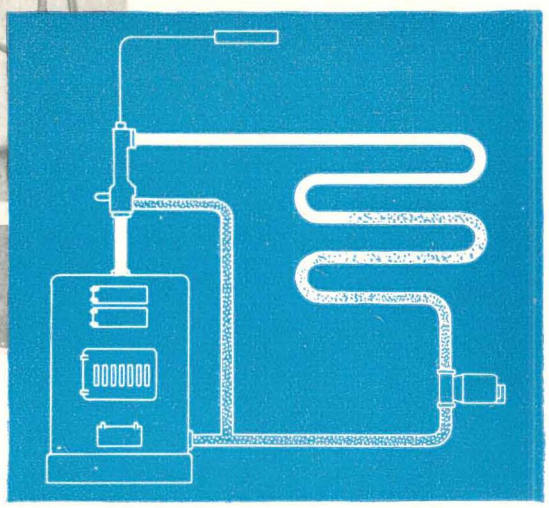
UNDERWOOD *All Electric* **TYPEWRITER**

. . . Made by the TYPEWRITER LEADER OF THE WORLD





Simplicity is Obvious— IN PLANNING, SELLING AND INSTALLING

SARCOTHERM HOT WATER CONTROL

Sarcotherm has made great strides in the past five years, thanks largely to architects and heating men who have appreciated its simplicity, flexibility and low cost. The designer can figure on lower boiler temperatures, even comfort for all outside conditions, zone control, split systems, night set-back—all with the same simple three way valve that comes in a package called "Sarcotherm."

He can compete successfully on any hot water job including the large apartments where engineers sharpen pencils on the fuel costs as well as the first cost. He can help builders compete on homes, when price is involved, or when the owner wants evidence from other users that Sarcotherm is the ideal for comfort, in all seasons.

And finally, because each Sarcotherm job leads to others, the volume of business grows, and since servicing costs of this simple, reliable system are low, the profits go up.

Besides the catalog shown below, which is primarily for the user, Sarcotherm provides mail pieces, technical data and other material, imprinted as desired.

THERE IS A SARCOTHERM MAN NEAR YOU. WHY NOT CALL HIM UP NOW?

Sarcotherm

SARCOTHERM CONTROLS, INC. • Empire State Bldg. • NEW YORK 1, N. Y.

15

PRODUCTS
(*Continued from page 266*)

machine sheds, etc. The buildings are available in widths up to 24 ft, in any desired length, and in steel or aluminum, galvanized or painted with heavy base gray.

Features include paneled gables and die-formed eaves, U-channel draw type connectors, complete insulation. Side walls come in 8-ft-wide sections, 6 or 8 ft high. Doors and windows can be selected from standard stock and inserted where desired. Roof trusses are designed for wood sheathing so that any type of shingle can be used. Any type of siding may also be used. H. D. Campbell Co., Rochelle, Ill.

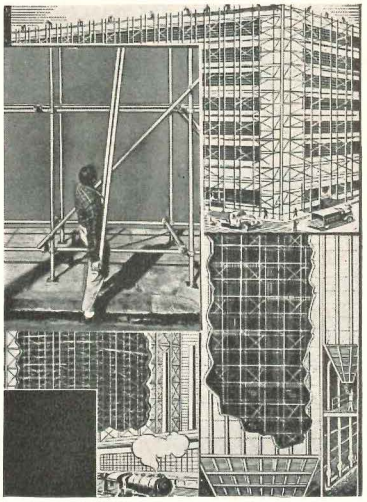
Lighting Selector-Switch

The *Lightronic* control switch employs a radio type knob, with a 1-2-3-4 marking of the control steps. The unit was designed to permit the dialing of a spot of light, several accents of light, or general illumination, as desired.

A typical suggested use for a living room hooks one stop with soft lights illuminating the lower portion of the room; the second would turn on light from above; the third combines both upper and lower lights, and the last turns all lights out. Lightolier, 346 Claremont Ave., Jersey City, N. J.

Aluminum Scaffolds

Lightweight aluminum alloy *Tube-and-Coupler* scaffolds, designed for heavy construction work and for industrial maintenance, are claimed to cut time and cost in half for erection, dismantling and transportation. The scaffolding is said to be less than half the weight of iron pipe equipment, to have twice the gripping friction of steel on steel, and to have ⅓ greater strength than iron pipe tubing of similar diameter.



Aluminum scaffolding is light weight and easily handled, yet sufficiently strong for erection of tall frameworks

The equipment consists of aluminum alloy couplers and locking tubes, with swivel base plates which require no wedging. The units are said to carry a load of over 75 lb per sq ft with a safety factor of 4. Up-Right Scaffolds, 1013 Pardee St., Berkeley, Calif.

Balancing Valve

Equatemp, a bronze balancing valve for hot water radiant heating systems, is said to provide both positive leak-tight shutoff and adjustable flow control. The closing and balancing actions of

(*Continued on page 270*)

THIS MAN IS PAID TO HELP ARCHITECTS AND THEIR ENGINEERS!

He is a specialist in planning and engineering RCA Sound Systems for every type of building: Schools . . . Hospitals . . . Hotels . . . Factories and Offices . . . Churches . . . Department Stores . . . Airports and Terminals . . . Warehouses and Garages . . . Auditoriums . . . Recreational Centers . . . Institutions . . . Stadiums . . .

No matter what size or type of job you have on your drawing boards, you can get practical help from RCA in fitting RCA Sound Systems to your architectural plans. No obligation, of course.

Contact your nearest RCA Sound System distributor or write: Sound Products, Department 3D, Radio Corporation of America, Camden, New Jersey.

SOUND PRODUCTS
RADIO CORPORATION of AMERICA
ENGINEERING PRODUCTS DEPARTMENT, CAMDEN, N.J.

In Canada: RCA VICTOR Company Limited, Montreal

New Steam Plant in Massachusetts

Contractor:
Thompson-Starrett Co., New York
Architects:
Gilbert Associates, Inc., Reading, Pa.
Engineers:
Negea Service Corp., Cambridge, Mass., and Gilbert Associates, Inc.
Steel Fabricator and Erector:
A. O. Wilson Structural Co., Cambridge, Mass.

The steady growth of Cambridge, Mass., during the last decade necessitated the erection of this new steam-electric generating plant for the Cambridge Electric Light Co. The 10-story, 218 ft x 115 ft structure is located on the Charles River, and is known as the Kendall Square Steam-Electric Generating Station. Its boilers, of 200,000-lb-capacity each, are designed to burn either oil or coal, and its 20,000-kilowatt, turbine-driven generator produces sufficient electricity to satisfy nearly 40 per cent of the city's average daily requirements. A second generator, more than doubling the plant's capacity, is expected to go into service this year.

Beneath the attractive buff-tile exterior of this new steam-electric plant stands a 1350-ton steel framework of Bethlehem Structural Shapes.

Bethlehem
STRUCTURAL SHAPES

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

PRODUCTS
(*Continued from page 268*)

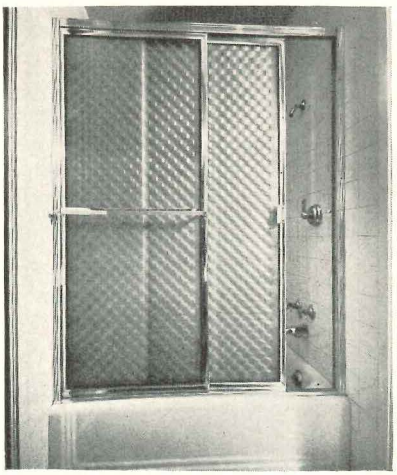
the valve are accomplished by a butterfly type disc. The valve is designed to accommodate standard venting attachments and has a well drilled in the stem for taking temperature readings. The units are available with solder-type ends in sizes ⅜ to ¾ in. or with screwed ends in sizes ¾ to 1½ in. Ohio Brass Co., Mansfield, Ohio.

Clear Anti-Rust Paint

Rustrem Clear anti-rust paint reportedly can be brushed or sprayed directly over rust without wire brushing or scraping. As it will not bleed through painted surfaces and can be painted over with any good quality paint except lacquer, it is said to provide a good rust-proofing primer and undercoater. By applying the paint as a first coat, users can employ any desired finish color and at the same time secure rust protection. Rustrem Clear is available in quart, gallon and 5-gallon cans and in 55-gallon drums. Speco, Inc., 7308 Associate Ave., Cleveland 9, Ohio.

Shatterproof Shower Enclosures

Ripple-Lite tub and shower enclosures and shower doors employ translucent Fiberglas laminate panels set in polished extruded aluminum frames. The units are said to be shatterproof and long lasting. They are available in a waffle indentation pattern, and a wide range of sizes and colors, including rose, green, yellow, maize, aquamarine, opalescent blue and white.



Textured plastic sheets form light, durable shower enclosures in range of colors

The panels are reported to withstand heat and mild chemicals, and to be lower in cost than glass of comparable quality and appearance. Frames are adjustable to compensate for wall variations. O'Morrow Corp., 4509 Firestone Blvd., South Gate, Calif.

Prize Winning Chair

One of the prize winners in the low-cost furniture competition staged by the Museum of Modern Art, a new chair designed by Charles Eames consists of a molded plastic shell, mounted on one of three optional bases. The bases include: four chromium-plated legs with rubber glide tips; a metal shaft with a three-pronged base for auditorium and commercial use; and a version with blond wood rockers joined to metal legs.

The plastic used for the chair is claimed to be virtually indestructible, to withstand stains and most abrasions, and to be warm and velvety to the touch.

(*Continued on page 272*)

Architects: KIVETT and MYERS, of Kansas City, Mo.

everything's up to date at...

Macy's Kansas City of course

Macy's selected only the most modern equipment and furnishings available for its new Kansas City store . . . that's why they chose International Van Kannel Revolving Door entrances.

The beauty of International Van Kannel Revolving Doors helps make any store more attractive and adds prestige to any business . . . an irresistible invitation to customers to come in.

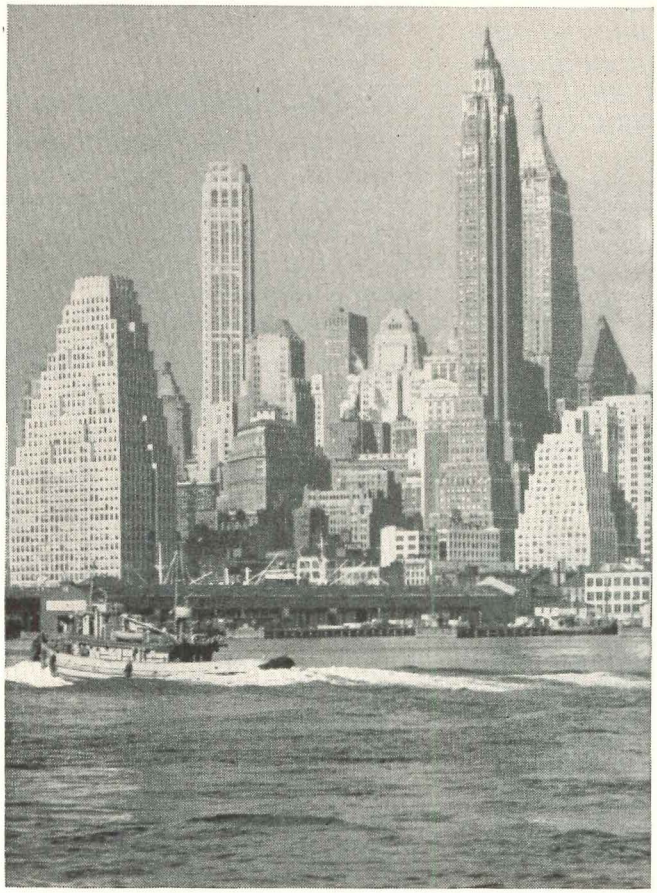
But the greatest value of revolving doors to Macy's, Kansas City, and many other department stores throughout the country, is their utility. Revolving doors cut heating and air conditioning costs up to 25% . . . keep dust, noise, and drafts out . . . and make more floor space "pay" space.

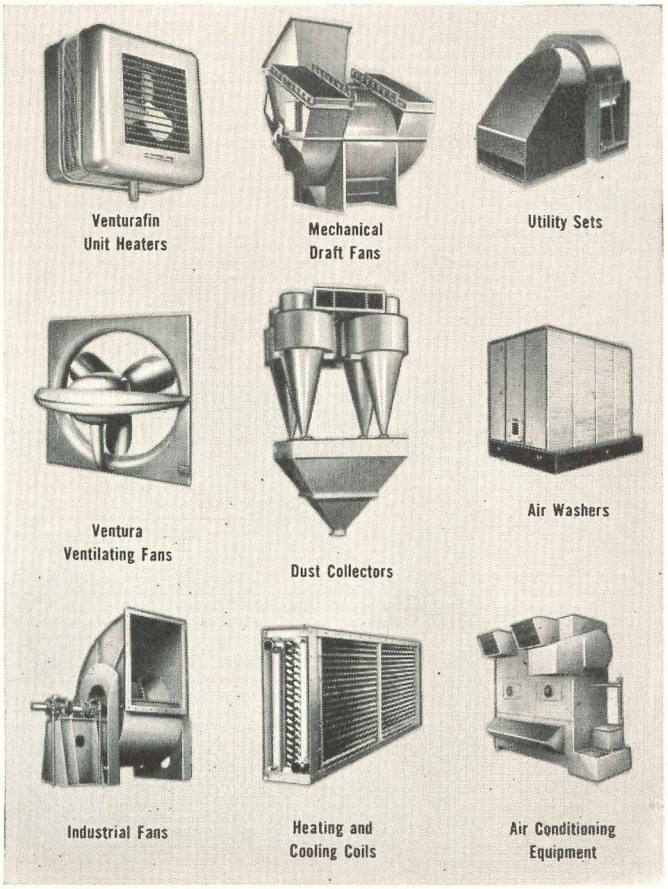
Write today for complete information . . . how International Van Kannel Revolving Doors pay for themselves . . . and build profits!

For the rest of the Macy's Kansas City Story, see the April issue of Stores magazine.

REVOLVING
INTERNATIONAL VAN KANNEL DOORS
1806 EDGAR ST. EVANSVILLE 7, IND.

American Blower—a time-honored name in air handling





In New York, as in other cities, American Blower Air Handling Products serve commerce, industry and public utilities. For air handling data in the New York area, call American Blower—Bryant 9-2885. Elsewhere, consult your phone book.

Look before you buy. Comparison tests prove the superiority of American Blower Products. There's a big difference in quality, design, quietness, operating costs and efficiency between American Blower and other air handling equipment.

Air is free . . . use it profitably!

IN RECOMMENDING air handling equipment for a wide variety of jobs, you, as an architect, must have a keen sense of values.

For you must determine where to draw the line between "priced" products and quality products. And your good judgment can well result in savings of thousands of dollars later on.

American Blower has built an enviable reputation for building only the highest-quality products. These products reflect a background of over 69 years' experience in the field of air handling. They are tested in accordance with the Standard Test Code and carry Certified Ratings. They are the results of the broadest and most thorough methods of engineering and research known.

To users of air handling equipment, these values build confidence and insure longer, more dependable service and lower operating costs.

To architects with an eye to the future, these same factors insure satisfied clients.

Our nearest branch office will give you full data.

AMERICAN BLOWER CORPORATION, DETROIT 32, MICHIGAN
CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONTARIO
Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

YOUR BEST BUY

AMERICAN BLOWER

AIR HANDLING EQUIPMENT

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

PRODUCTS
(*Continued from page 270*)

It is available in four colors. The Herman Miller Furniture Co., 1 Park Ave., New York, N. Y.

Lighting Fixture

The *New Yorker* fluorescent fixture is a rectangular troffer-like unit with aluminum louvers and individual mounting on twin- or single-stem hangers. It is designed for the lighting of stores and commercial interiors. Connectors join luminaires end-to-end to form continuous rows. An inside cover plate encloses wiring channel and all operating equipment. Direct-indirect distribution of light is shielded 35 degrees crosswise and lengthwise.

The units are available in a 96-in. size, using four 96-in. Slimline lamps, or eight 48-in. General line lamps, and in a 48-in. size, using four 48-in. lamps. Wiring channels are of steel, finished in baked aluminum. Louvers and channel cover are of aluminum with a permanent etched finish. The Miller Co., Meriden, Conn.

Umbrella-Type Clothes Dryer

The *Clay E-Z-Kary* revolving clothes dryer uses a pulley system to raise automatically the drier arms and lines to the height and tension desired. The unit is set up in galvanized steel sockets mounted indoors or outdoors. Light weight and umbrella action allow the drier to be easily transported from one spot to another. The center post is of rust-proof galvanized steel, and the four pine drier arms hold 120 ft of braided cotton clothes line. Rounded "snag-proof" fasteners are used to cover the threaded ends of all bolts. Clothes Drier Div., Clay Equipment Corp., Cedar Falls, Iowa.

Alarm System

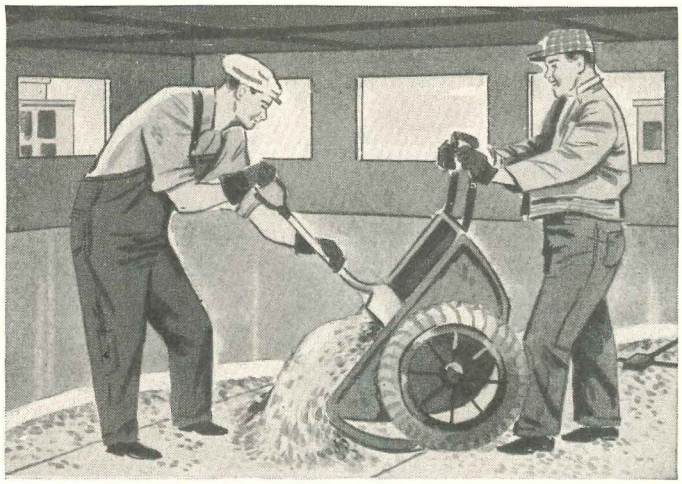
The *Panalarm Series 400* alarm signal system has hermetically-sealed relays on a sealed plug-in octal socket for use in hazardous locations and corrosive atmospheres. Many combinations of light and sound signals are available to warn of abnormal operating conditions. Suggested applications include monitoring speeds, time cycles, pressures, temperatures, liquid or gas flow, or electrical or mechanical equipment operation.

The units are said to have flexibility and low installation cost, and come in standardized multi-unit cabinet designs. Panalarm Products, Inc., 7216 N. Clark St., Chicago 26, Ill.

Explosion-Proof Water Cooler

The self-contained *Temprite* drinking water cooler was planned for use in plants exposed to dust, chemical or gas explosion hazards. Design of the cooler is said to make it impossible for any of its operating mechanism to generate static electricity or produce open sparks. Rated capacity is 10.3 gal. per hour. Outside water pressure variations of as much as 20 to 85 lb have no effect, it is said, on the ability of the cooler to deliver a smooth flow of water. Stainless steel cases and foot pedal controls are available on special order. Temprite Products Corp., Piquette St., Detroit 2, Mich.

(*Continued on page 274*)



for lightweight concrete... use

WAYLITE **AGGREGATE**

Save up to 35% in deadweight... design up to 4,000 psi

When you want lightweight structural concrete with adequate strength, specify the use of Waylite aggregate.

Waylite is a cellular aggregate made by processing molten slag. Its air cells are completely sealed giving lightness and strength. Design for strength with Waylite as in ordinary plain or reinforced concrete. Handles similarly. Approved by Board of Standards and Appeals, New York City. Waylite Concrete 2,000 psi weighs 100 pounds per cubic foot . . . 4,000 psi Waylite weighs 108 pounds.

Waylite offers many important economies and advantages in structural design. Also widely used as floor and roof fills. See data in Sweet's—for additional information and quotations write The Waylite Co., 105 W. Madison St., Chicago 2, or Box 30, Bethlehem, Pa.

WAYLITE
AGGREGATE

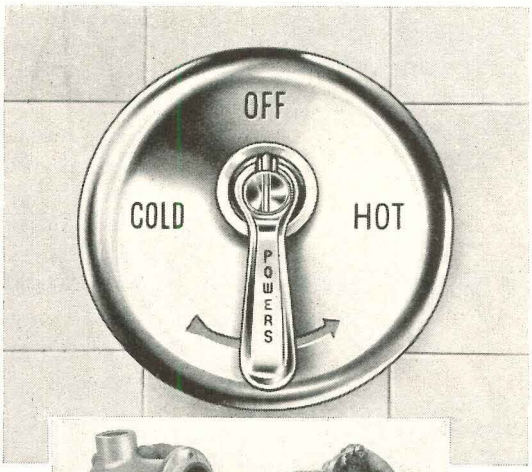
BANISH "Booby Trap Showers"

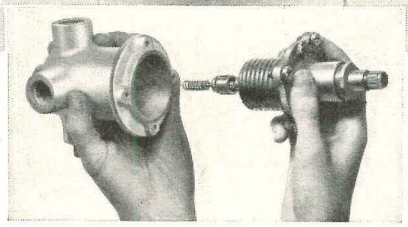
with the DOUBLE safety of

POWERS

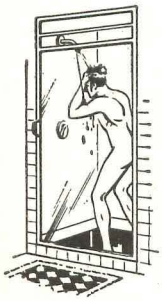
THERMOSTATIC SHOWER MIXERS

Right: Type H Mixer for Concealed Piping has 6" diameter dial. Mixer for exposed piping has 3¼" dial.





ONLY ONE MOVING PART, easily accessible from the front. Minimum of maintenance, simple, rugged construction. Parts subject to wear have hard chromium finish.



MODERN SHOWERS require the safest shower regulator made . . . POWERS.

Why be "Half-Safe" with mixers that only protect bathers from scalding caused by *pressure* changes? No mixer is really safe or non-scald that does not give *double* protection against both *pressure* and *temperature* changes in water supply lines . . . plus a *complete* shut off on cold water failure.

Regardless of (1) *temperature* or (2) *pressure* changes in water supply lines, a Powers thermostatic mixer holds the shower temperature constant. Failure of cold water instantly and *completely* shuts off the shower. Bathers can really relax and enjoy their showers.

May we send Bulletin 358-H?

● **For new showers or when modernizing obsolete showers —play safe, use Powers Thermostatic Shower Mixers. Phone our nearest office or use coupon below. There's no obligation.**

Just ONE Accident may cost Many Times More than Powers Thermostatic Shower Mixers

The Powers Regulator Co.
2752 Greenview Ave., Chicago 14, Ill.

☐ Please send Bulletin 358-H and prices.
☐ Have an engineer call.

Name _____

Title _____

BTH Address _____

PRODUCTS

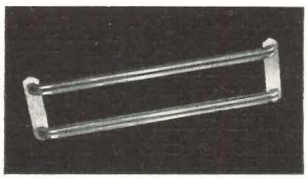
(*Continued from page 272*)

Custom-Built Lighting

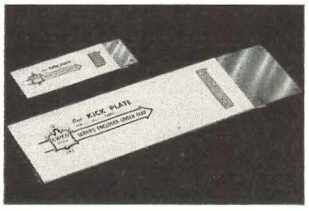
The new firm of Court Butler Lighting, Inc., announces a "lighting by prescription" service. The aim of the firm is "to interpret architect-engineer custom designs in terms of mechanical construction . . . engineered to provide for easy maintenance, with . . . emphasis on the economics . . . and other important concepts of illumination, such as brightness contrast considerations, glare reduction, color and esthetic suitability."

Arrangements have been made with a group of manufacturers, but the firm states that orders will be processed through the manufacturer best qualified to produce the particular types of equipment involved. Typical lighting fixtures will be furnished to provide full coverage. Court Butler Lighting, Inc., 19 Luther St., Stamford, Conn.

make CIPCO part of your plans



CIPCO CUSTOM-BUILT ARCHITECTURAL HARDWARE



CIPCO PACKAGED PUSH and PULL BARS, PUSH PLATES and KICK PLATES

Your favorite Architectural Hardware Consultant will be happy to work with you in specifying and selecting Cipco Hardware. Our Custom Built department is organized to produce any design desired . . . or we can suggest appropriate layouts. We are equipped to fabricate orders of any size—in brass, bronze, aluminum and stainless steel . . . on prompt delivery schedules. For quality . . . smart appearance and enduring service . . . specify CIPCO *all around.*

CIPCO originated the method of packaging kick plates and push plates as illustrated. Size, style and finish are clearly indicated and screws are enclosed. This method makes for ease of itemization. Also helps prevent mistakes in selection . . . saves time in installation.

Our latest Catalog No. 49 can be obtained from your Hardware Consultant or write us—Dept. R.

Manufacturers of Fine Hardware for 25 Years

CIPCO BUILDERS HARDWARE

CIPCO CORPORATION
22nd and COLE STREET • ST. LOUIS 6, MISSOURI

Clear Plastic Muntins

The new *Clark Steel Reinforcing Door Sections* employ clear plastic muntins between the glass lights to give the appearance of a section with a single light of glass. The sections are tailor made units, designed for use in service stations and other buildings where large glass areas are desirable.

Steel reinforcing is said to provide sufficient rigidity for the sections to withstand the weight of a 212-lb man. Doors to a width of 20 ft can be manufactured, with operating mechanisms using sealed-in grease type ball bearings and special wound springs. Clark Door Co., 515 Hunterdon St., Newark, N. J.

Mechanical Bending Device

The *Tal Handy Bendy* reportedly makes instantaneously a variety of uniform bends, including offsets, in ½ and ¾ in. rigid, EMT thin wall or aluminum conduit. The device has a measuring gage and bend degree indicator to control precision bends made by inexperienced workmen on the job.

The device is recommended for use in either open or slab work, and is said to operate easily without special knowledge. The unit is strong and rigidly constructed from light weight metal. Total weight is 30 lb. Tal Bender, Inc., Milwaukee 2, Wis.

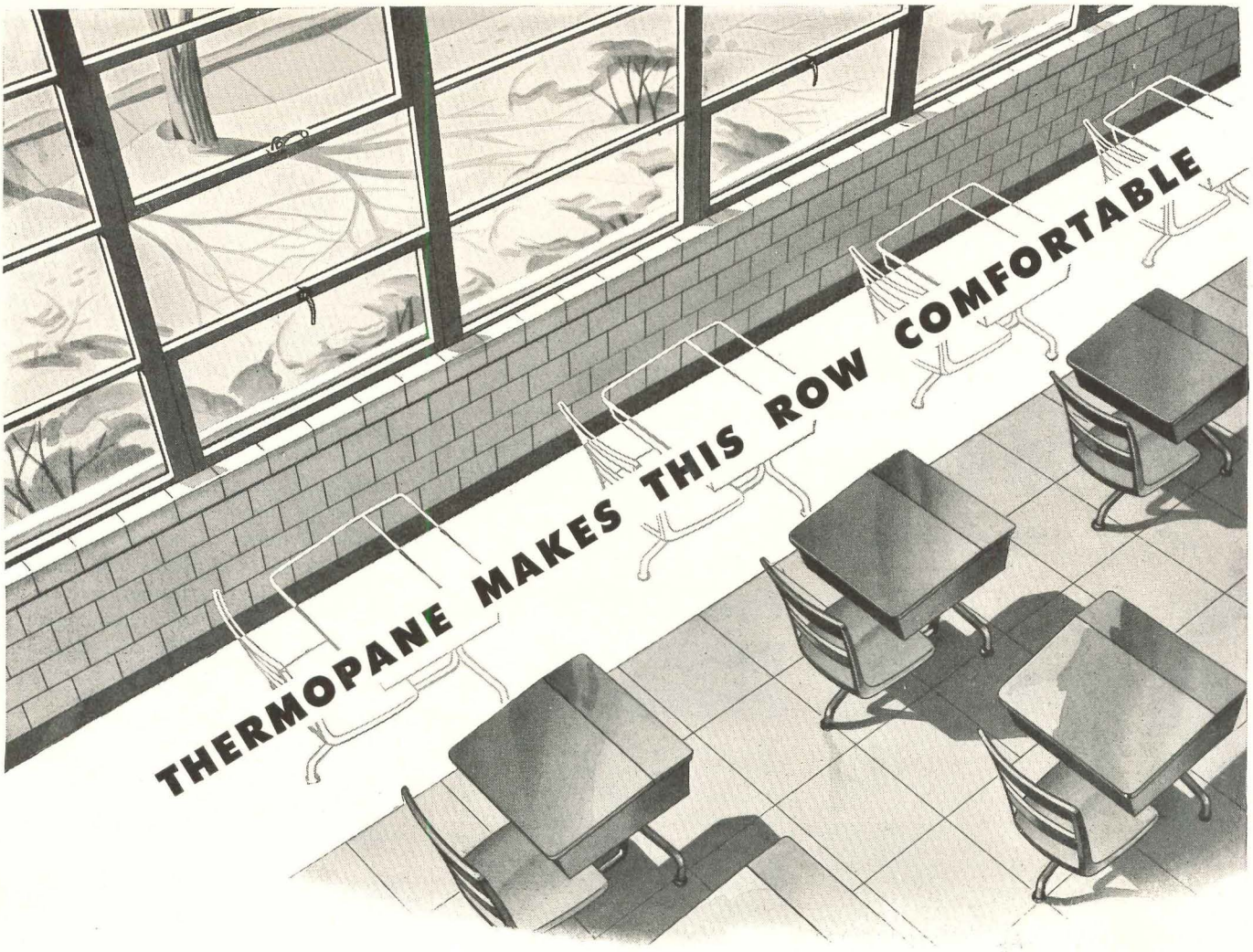
Fibre Rugs

A new series of inexpensive indoor-outdoor fibre rugs is available in twenty color combinations. The rugs are permanized to keep the colorings bright in and out of the sun. Patterns include tweedy textures; block plaids in one-, two- or several colors; and plaids accented with a stripe of white and a line of black. All are made in sizes ranging from 27 by 54 in., to 9 by 18 ft. Waite Carpet Co., 295 Fifth Ave., New York, N. Y.

Gas Conversion Burner

The *International Model 5R* gas conversion burner reportedly eliminates the use of baffle plates and supplies air at both sides of the flame for more complete combustion. The gas ports are designed to direct heat toward the walls of the furnace by means of the combustion air, which can be regulated by means of shutters on the burner cabinet. This is said to make it unnecessary to plaster the burner, which comes in three Btu sizes, with a visible automatic

(*Continued on page 276*)



HAVE YOU RELATED *Thermopane* TO FLOOR SPACE?

The fact that *Thermopane** insulating glass increases the usefulness of floor space is even more important to schools than the fact that *Thermopane* saves fuel.

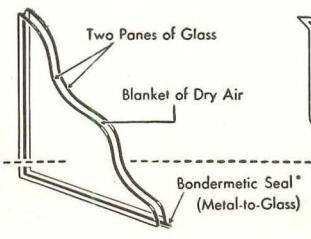
Single glazed windows chill the area immediately beside them creating a "low-comfort zone" during winter. This floor space cannot be used to seat children comfortably. *Thermopane,* which is two panes of glass with a half inch of dry air sealed between, brings the comfort zone right up to the window. For all practical considerations, it makes a room larger to accommodate more pupils—in comfort. Each year, the added area is a dividend on the investment.

Thermopane is the ideal material for achieving good daylighting. A window wall double-glazed with clear, flat glass, transmits 81% of daylight—more than an equal area of any other form of double glass insulating unit.

For further details, write for our *Thermopane* literature.

*®

FOR BETTER VISION SPECIFY THERMOPANE
MADE WITH POLISHED PLATE GLASS



L O F

Thermopane

MADE ONLY BY LIBBEY·OWENS·FORD GLASS COMPANY
5645 Nicholas Building, Toledo 3, Ohio

PRODUCTS
(*Continued from page 274*)

safety pilot of stainless steel, and silver electrical contacts and recycling feature. An automatic gas control valve has a stainless steel core and the gas pressure regulator is of the adjustable type. An air door is provided which allows the secondary air adjustment to remain stationary when the cover is removed. Controls and pressure regulator are inclosed in a metal cabinet. Gas Div., International Oil Burner Co., 3800 Park Ave., St. Louis, Mo.

Steel Overhead Door

The *Morrison Roly-Door* is a new four-sectional all-steel overhead residential garage door, said to require only 5½ in. headroom for an opening 8 ft wide by 7 ft high, or 12 in. headroom for an opening 6 ft 6 in. high. The low headroom bracket is welded to the track assembly at the factory. To hang the door, tracks are installed, the sections are dropped in place with rollers inserted, then snapped to adjoining sections by pivot points and connect springs.

The doors have four horizontally-ribbed sections, with a baked-on gray enamel finish. It comes packaged in a compact carton, and includes stops, rubber astragal, hangers, bracket and tracks. Roly-Door Div., Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7, N. Y.

Float Valve

The *Scoville M-VB No. 16* float valve is claimed to be extremely quiet in operation, and to provide a very fast refill. The valve is said to be adjustable for pressures ranging from 25 to 150 lb. The design embodies a lone cone-shaped bronze valve seat and a regulator. The plunger is equipped with a composition seat washer and a leather split-ring washer. The seat washer retaining cap is of cadmium plated brass and the supply tube is made of heavy gage seamless copper tubing. For ease of servicing, removal of a single thumbscrew from the cross-lever is said to permit removal of the entire regulator-plunger assembly from the valve body. Waterville Div., Scoville Mfg. Co., Waterville 14, Conn.

Portable Printer

The *Fairchild Copy-Roll* is said to make low cost, photo-exact duplicates of any subject that is written, typed, printed, drawn or photographed. The electric unit is reported to be simple to operate, and requires no technical knowledge or skill. Various sizes are available from 8½ by 11 in. to a table model 30 by 42 in., in a price range from $19.50 to $500.00. The small model weighs 2¼ lb and is claimed to fit into the average size brief case or desk drawer. General Photo Products Co., 12 Summit Ave., Chatham, N. J.

Heater For Basementless Houses

The *Mueller Climatrol Type 155* gas-fired horizontal winter air conditioner is designed for attic or crawl space installation in small home construction, or for multiple installation in large ranch style homes. The heater can be installed with perimeter, zone control or conventional forced air systems. It is claimed to be approved for natural, mixed, manufactured, LP or Butane air gases, and for high altitude installation without derating.

The unit has a welded steel, updraft, tubular heat exchanger; cast iron, raised

(*Continued on page 278*)

BARBER-COLMAN

Products for Up-to-date Homes

The BARCOL OVERdoor

"An improved overhead door" offering distinctive features of engineering and construction that insure durability and provide good operation. Barcol OVERdoors are weathertight, yet easy-working. Thousands of homes all over the country can demonstrate thoroughly satisfying installations in all sizes and in special as well as standard designs.

RADIO CONTROL FOR GARAGE DOORS

Here is a really modern home utility that is rapidly gaining in popularity. The driver simply *pushes a button inside the car,* and automatically the garage doors open or close! A great convenience day or night and, in stormy weather, a valuable protection. Barber-Colman Company has pioneered in the development and manufacture of successful radio control equipment since 1928.

NEW MODEL OVERdoor AND RADIO CONTROL NOW AVAILABLE

At the NAHB Exposition in Chicago in February, the new economical Model 31 Barcol OVERdoor and the new Model E Electronic Radio Control for garage doors were shown for the first time. Architects and builders will welcome these new Barcol products because they provide still greater latitude of application, enabling "Barber-Colman" specifications in a wider range of possible installations.

Full information is available from your Barber-Colman representative.

FACTORY-TRAINED SALES and SERVICE REPRESENTATIVES in PRINCIPAL CITIES

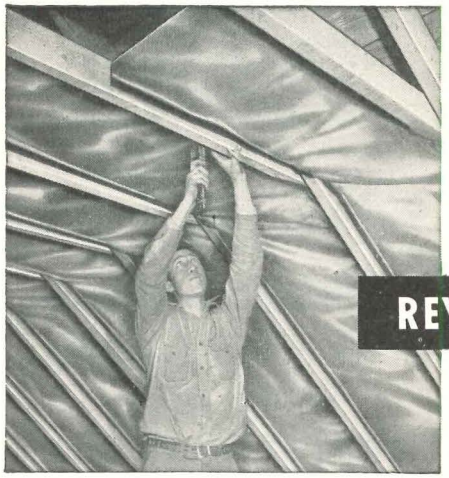
BARCOL **BARBER-COLMAN COMPANY**
102 MILL ST. • ROCKFORD, ILLINOIS

How to make Insulation a Dramatic Feature in your plans . . .

The story of Aluminum's radiant heat reflectivity is challenging, exciting . . . and convincing. Clients like the idea of this modern "miracle" inside their walls and attics, under the floor joists of unheated crawl spaces. They talk about BTU's bouncing off the aluminum . . . up to 95% of all radiant heat.

Technically, it's a sound specification . . . providing the perfect vapor barrier together with high insulating efficiency. Under floor joists, one layer of Type B (foil two sides) has a conductance coefficient of approximately 0.10—meets FHA requirements in most areas. Over ceilings or under rafters, one layer of Type B is excellent to take off summer sun load; two reflective-faced air spaces give you a conductance of approximately 0.14; or the single foil face (Type C) may be used with blanket insulation. In side walls, Type B bowed between studs provides extremely high efficiency at low cost . . . see diagrams below.

Turn the prosaic subject of insulation into a *Sales Feature* . . . with Reynolds Aluminum Reflective Insulation. Write for folder in A.I.A. file form. **Reynolds Metals Company,** Building Products Section, Louisville 1, Ky. Offices in 32 principal cities.



REYNOLDS ALUMINUM REFLECTIVE INSULATION

Aluminum foil bonded to one side (Type C) or both sides (Type B) of tough kraft paper. Special pressure-embossing strengthens the bond and produces a handsome pattern effect. Clean, odorless, pliable, fire-retardent. Easy to cut, bend, tack or staple. In boxed rolls of 250 square feet, 25", 33" and 36" wide. Rolls weigh 15 lbs.

Also board types, for use as exposed wall and ceiling material. This is aluminum foil bonded to one or both sides of 15-pt. cardboard. Supplied in 25" and 17" widths, in rolls of 2,000 square feet.

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

GUTTERS and DOWNSPOUTS

RESIDENTIAL CASEMENT WINDOWS (also Fixed and Picture)

ARCHITECTURAL SHAPES

5-V CRIMP and CORRUGATED ROOFING AND SIDING

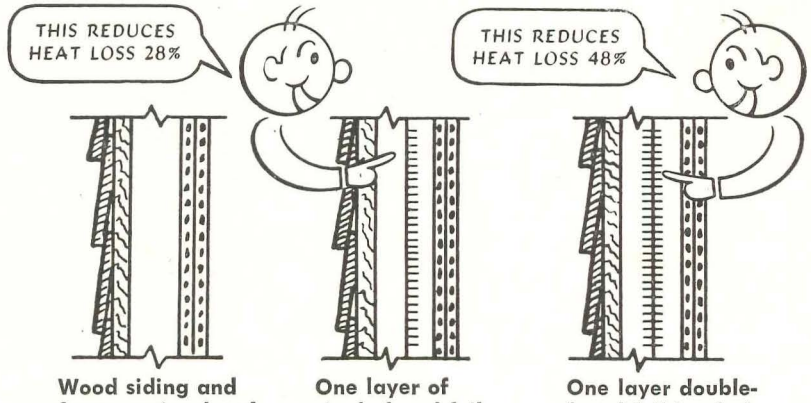
WEATHERBOARD SIDING

INDUSTRIAL CORRUGATED BUILT-UP ROOFING

NAILS

FLASHING

ROOFING ACCESSORIES



Wood siding and frame, uninsulated —overall heat loss 0.25 BTU/hr/°F.

One layer of single-faced foil —overall heat loss 0.18 BTU/hr/°F.

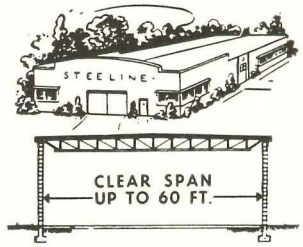
One layer double-faced foil insulation —overall heat loss 0.13 BTU/hr/°F.

REYNOLDS ALUMINUM

Specify Steeline and "PACKAGED" ROOF SYSTEMS SAVE BUILDING COSTS

PITCH ROOF SYSTEMS

FLAT ROOF SYSTEMS



In designing industrial and commercial buildings you can save your client money and time by specifying a Steeline complete "packaged" roof system. Each system is furnished complete from the eave line up. No columns required in the side walls. Pitch roof systems are structural framework and heavy galvanized steel roof sheets. Flat roof systems consist of structural steel trusses, bridging and steel deck. Both of these Steeline Roof Systems are easy to insulate. Write for more complete information . . . . Fill in and mail the coupon below.

All Steel Buildings also available.

I am interested in:
.....Pitch Roof Systems
.....Flat Roof Systems
.....All Steel Buildings
.....Width.....Length.....Height
NAME .....
ADDRESS .....
CITY .....STATE .....

CAREW STEEL PRODUCTS CORP.
YORK 3, PENNSYLVANIA

Architectural Engineering

PRODUCTS
(*Continued from page 276*)

drill port burner; large single-port air shutter; and multi-blade centrifugal blowers at the rear. Cold air may be brought in from either side, back or bottom, and the unit may be cleaned from either top or bottom. It is available in 60,000 and 90,000 Btu capacities, with heavy bottom support channels for setting, and hanging brackets for suspended installation. L. J. Mueller Furnace Co., 2005 W. Oklahoma Ave., Milwaukee 15, Wis.

Upholstery Material

A new furniture covering material, *Boltaflex*, is said to blend the decorative qualities of regular woven and printed fabric with the durability of all-plastic upholstery made from Vinylite resins. Patterns include plaids, metallic stripes, floral patterns and several chintz styles. The plastic material is claimed to be stain and scuff resistant, and to wipe clean with a damp cloth. It is available by the yard or as a furniture covering. The Bolta Co., Lawrence, Mass.

Room Air Conditioners

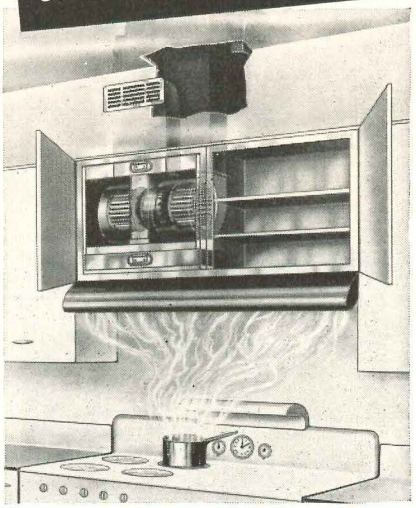
Increased cooling capacities, quieter operation and more compact cabinets are claimed as features of the *Remington* 1950 line of room air conditioners. Four console models are available, with Btu per hour outputs from 11,600 to 14,200. These are supplied with mahogany cabinets finished in Cordovan or honey-blonde Avodire, 36¾ in. wide, 38 in. high and 20½ in. deep.

Two window units complete the line. These have two-tone metal cabinets with one-piece adjustable grilles of molded plastic, finished in sand gray and Biscay beige. Capacities are 6020 and 9010 Btu per hour. Outputs are said to be increased by as much as 10 per cent during high humidity weather.

All units in the line are offered with hermetic refrigeration systems for the more prevalent electrical characteristics. Open compressors have been retained in the console models for 115 or 230 volts D.C. and for 50-cycle applications for export. Remington Air Conditioning Div., Remington Corp., Cortland, N. Y.

The most MODERN kitchen ventilating system

TRADE-WIND SUPER CLIPPER CABINET VENTILATOR



Installs in cabinet over range... double inlets provide COMPLETE ventilation

Only the Super Clipper Kitchen Ventilating System—made by Trade-Wind—exhausts cooking fumes and heat from *both the stove and at the ceiling level.*

This newest development is installed in metal or wood cabinets directly over the stove.* The twin squirrel cage blowers produce 600 CFM—more than sufficient power to trap all cooking heat, grease and odors from the range top as well as through the second inlet at the ceiling. The motor is equipped with a 2-speed control. Two metal air filters are provided. Both a fold-under hood and stationary hood are available and both are optional.

No other kitchen ventilator can do the *complete* job that the Super Clipper accomplishes. And no other ventilator offers the architect, the builder and the home owner the versatility and efficiency which the Super Clipper provides for the modern kitchen.

*Several manufacturers now build metal cabinets especially for the Super Clipper. Wood cabinets can also be built on the job. Trade-Wind does not provide the cabinet.

Write today for complete information.

TRADE-WIND MOTORFANS, INC.
5707 S. Main, Los Angeles 37, Calif.

Make your Power plan

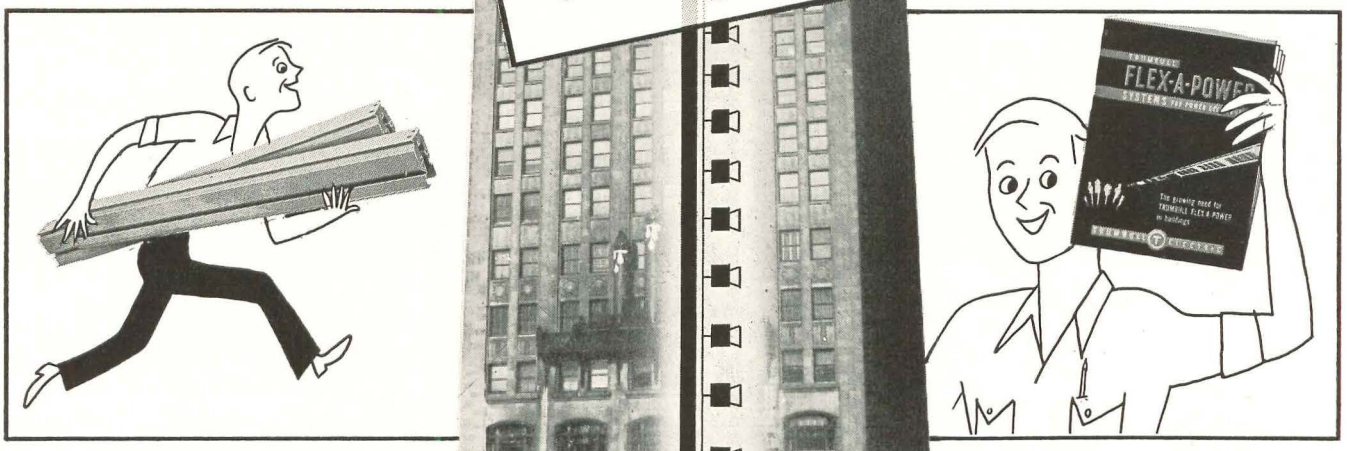
economical to begin with
and everlastingly flexible

When FLEX-A-POWER goes UP . . . costs come DOWN

Standardized construction and flexibility of FLEX-A-POWER busways reduce investment. No costly investment to anticipate future needs. Low cost to install pre-fabricated sections. LVD (low voltage drop) used as main feeder.

Always room for ADDITIONAL loads

Take-offs at frequent intervals permit loads to be added or rearranged without disturbing the feeder system. FVK (secondary feeder) has 15 outlets in every 10-ft. section; LTG (light duty) is a potential outlet its entire length.



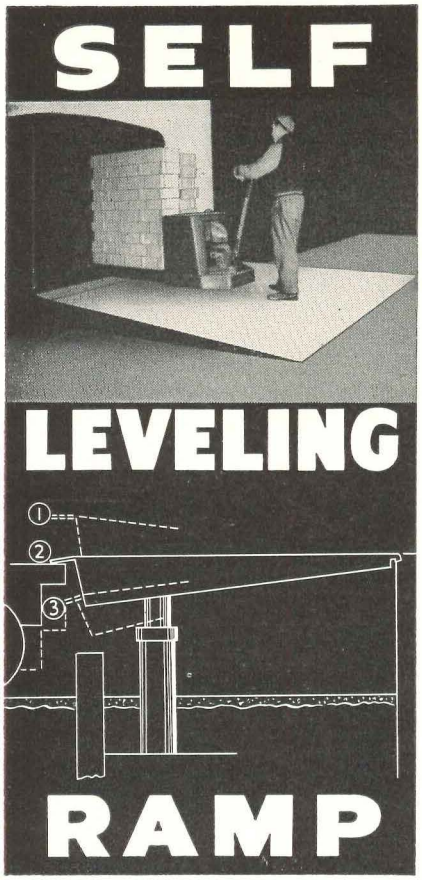
FLEX-A-POWER never grows old

Whenever a *major* relocation of outlets is required, the entire FLEX-A-POWER system can be dismantled, removed to another location and re-installed with practically 100% re-use of materials.

How to make your clients POWER-HAPPY

This free booklet tells more about economical FLEX-A-POWER—the *modern* power distribution system used, for example, in Atlanta's Candler Building, Cincinnati's General Hospital, Houston's Shamrock Hotel, Gimbel's Milwaukee store. Write for Bulletin TEM-1. THE TRUMBULL ELECTRIC MANUFACTURING COMPANY, Plainville, Conn.

TRUMBULL (T) ELECTRIC



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A great time saver for your clients' loading and unloading operations. Globe Self-Leveling Ramp permits material to be wheeled directly from dock to truck, regardless of varying truck bed heights. Loads are moved faster, without hand lifting and with less breakage. Time and work savings up to 50%.

Drawing shows operation sequence of both Direct-Air and Hydraulic type Self-Leveling Ramps: (1) Ramp elevated to receive truck. (2) Truck backed into place with ramp "Lip" lowered to truck bed. (3) Ramp "riding" firmly with the truck when springs are compressed or expanded during loading or unloading.

Globe's experienced Lift Engineers will be glad to advise with you on your lifting or handling problems. Suggestions or estimates are yours for the asking without obligation.

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GLOBE HOIST COMPANY

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Architectural Engineering

LITERATURE
(*Continued from page 182*)

subject, seeks to find solutions to these venting problems. Three sketches of floor furnace installations are included with the author's comments on each. 10 pp., illus. Stewart-Warner Corp., Domestic Heating Div., 1516 Drover St., Indianapolis, Ind.

Contract Bonds

Construction — The Bonded Contract is the Owner's Protection. Booklet discusses the nature and functions of the construction contract bond, and the benefits accruing from the bonded contract to the owner, architect, engineer, contractor, subcontractor and supplier. The appendix includes sample forms of various types of construction contract bonds. 23 pp., illus. The Surety Assn. of America, 60 John St., New York 7, N. Y.

Combination Sash Balances

Hettinger's Triple Seal Combination Sash Balances and Spring Bronze Metal Weatherstripping for Windows. Pamphlet illustrates double hung window application of the coil spring sash balances and weatherstrip components. Installation steps and features are covered. Some items of door weatherstripping equipment are also noted. 4 pp., illus. The Weatherproof Products Corp., 329 Westport Rd., Kansas City 2, Mo.

Plastic Covered Tubing

Dekoron Tubing, Plastic Armored Metal. Folder describes and illustrates properties and uses of the tubing, with notes on the fabrication, fittings, manufacturing arrangements, and available forms and colors. Photographs show the tubing employed in appliances, furniture, clothes rods and sporting goods. 4 pp., illus. Samuel Moore & Co., Dekoron Tubing Div., Mantua, Ohio.

Concrete Blocks

Celocrete Lightweight Masonry Units, Concrete Masonry Units, for Home, Commercial, and Farm Construction. Pamphlet points out features of the

(*Continued on page 282*)

Middletown High School, Middletown, N. Y. Protected with Minwax Caulking Compound, Weathercap and Colorless Transparent.

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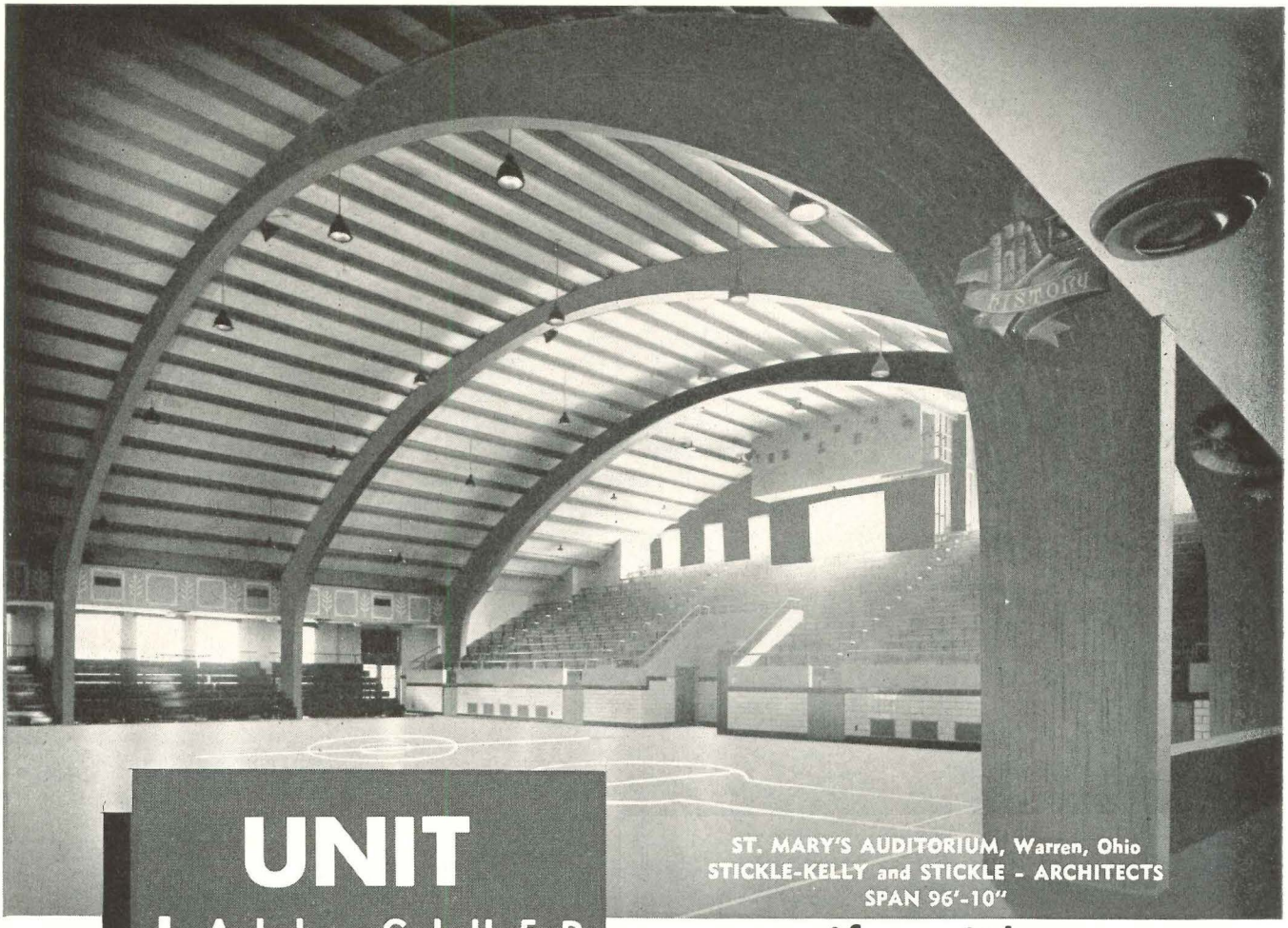

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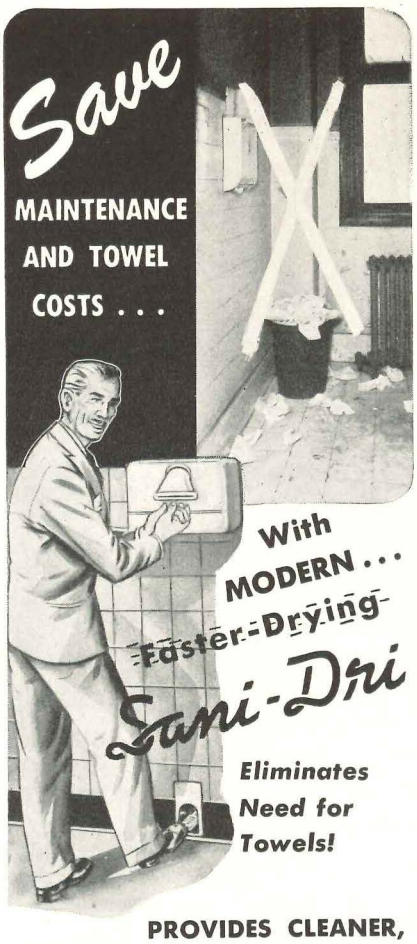

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Architectural Engineering

LITERATURE

(*Continued from page 280*)

blocks and illustrates several buildings constructed of the materials. Drawings show the 86 sizes and shapes available in the masonry units, and give dimensions and stock numbers. A weight chart and notes on the manufacturing plant are included. 8 pp., illus. Worrall Bros., Inc., Hubbard Lane (St. Matthews), Louisville, Ky.

Freight Elevators

Buyer's Guide — Freight Elevators. Booklet covers material on the design and selection of freight elevators. Chapters are included on the types and component parts; determination of lifting capacity, size and speed requirements; controls and door operation; layouts; application examples; price data; and typical and special installations. The text is illustrated with charts, graphs, tables and drawings. 44 pp., illus. Westinghouse Electric Corp., Elevator Div., 150 Pacific Ave., Jersey City, N. J.*

Electric Plants

Onan Electric Plants (Folder A-168). Presents a line of gasoline-driven electric generators for small homes and buildings. Each unit is illustrated, and has pertinent data given in notes and tables. Special accessories are itemized. A selector guide is included for choosing the proper type, size and starting method required for particular installations. 8 pp., illus. D. W. Onan & Sons, Inc., 498 Royalston Ave., Minneapolis 5, Minn.*

Safety Switches

Trumbull Electric Type A Safety Switch Style HCI (High Capacity Interrupter) (Folder TEC-10). Describes features of the switches designed for use in industrial distribution systems. An expanded isometric drawing shows the component parts of the unit, and several schematic drawings illustrate the operating action. A table lists ratings and descriptive data on the models available. 6 pp., illus. Trumbull Electric Manufacturing Co., Plainville, Conn.*

(*Continued on page 284*)

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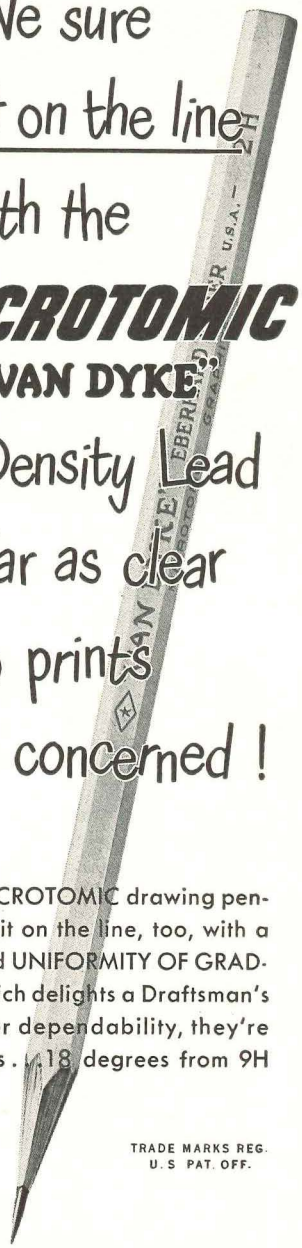

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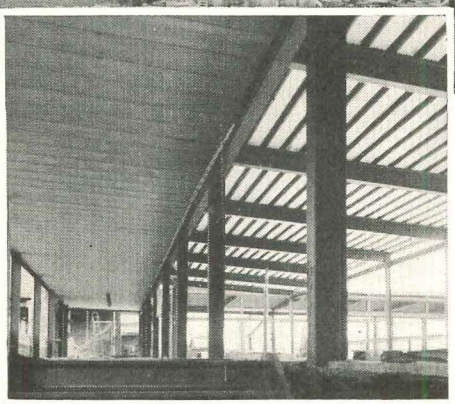
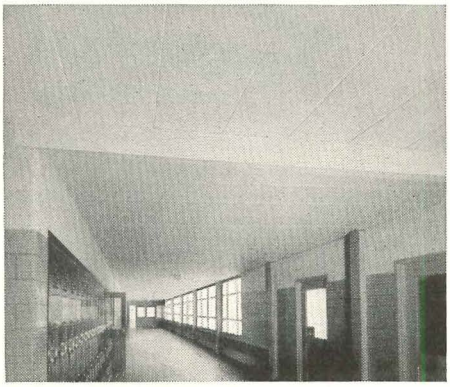
Fenestra insulated "C" Panels used as a spandrel between windows of first and second floors. Four panels high. 14′ long panels laid horizontally.



Exposed corridor roof shows Fenestra "D" Panels laid flat side down. Main roof area under panels at right was finished with suspended plaster ceiling. Roof was finished over a large area early in construction.



Exposed ceiling of structural Building Panels wall to wall. Factory prime-painted, Panels provide a smooth surface, economically finished by adding a coat of paint. Attractive, noncombustible. Note Fenestra Hollow Metal Doors, Fenestra Intermediate Windows.

How Fenestra Steel Panels, Windows and Doors contributed to economical construction in the Robert N. Mandeville High School at Flint, Michigan.

Architects Bennett & Straight of Dearborn, Michigan, faced a familiar set of requirements:

—Large size, with a layout involving considerable perimeter for good daylighting.
—To be ready for fall occupancy.
—Limited budget, calling for low cubic-foot cost.

Convinced of the speed of erecting with Fenestra* Building Panels, the architects checked costs . . . saw how on-the-site labor could be saved if the building was planned specifically to use standard units to minimize special work.

They decided on a 7′ module. Classrooms were established in a 28′ width, with partitions spaced at 14′, 21′, 28′ and 35′ intervals. The structural steel frame was designed in a bay size of 14′ x 28′, saving weight in steel. Saving in roof construction was achieved with standard Fenestra Type D Panels on the 14-foot span. Standard Type C Panels formed spandrels between floors and the window walls of Fenestra Intermediate Projected Windows.

For the roofs of the 100′ x 100′ gymnasium and the shop, Fenestra Acoustical Holorib Roof Deck was used. This provides a surface for application of roofing materials. The underside provides a sound-absorbing, perforated surface. It is noncombustible, and being steel, withstands impact. Holorib was used as the permanent reinforcing form for the seats in the spectator stands of the gymnasium.

Fenestra Panels—Fenestra Windows—Fenestra Doors—combined in this structure to help the architects and contractor achieve their triple goal of a sizable, sound structure, speedily erected, at low cost.

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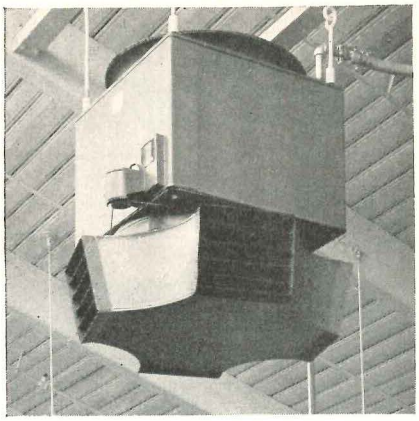
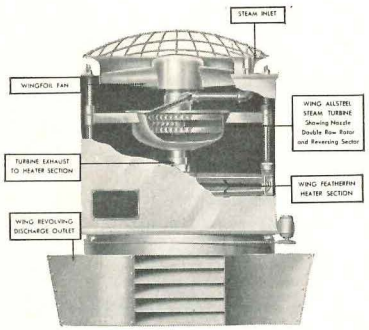


The Steam That is Used for Heating, First Drives the Fan

Wing Turbine Driven Heaters make steam do "double duty" by utilizing the same steam for both heating and for driving the revolving discharge units, the turbine, in effect, acting as an efficient reducing valve. Live steam is passed through the turbine, providing power for the heater fan, and the exhaust piped to the heater sections. By using the source of heat first as a source of power for the fan, power costs are cut to a minimum.



The Wing Turbine Driven Heater provides the ultimate in plant heating. Its revolving discharge outlets project a stream of healthfully heated air over, around, and under obstructions — to all parts of the plant area. Hot and cold spots are eliminated — employees work refreshed and invigorated. Bulletin TH-3 will be sent on request.

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Wing

Revolving UNIT HEATERS

Architectural Engineering

LITERATURE

(*Continued from page 282*)

Office Furniture

Office Planning For Profit. Contains data on color, lighting and layout in office planning, along with descriptions of types, features and construction available in wood office furniture. Notes are included on personnel management and presumed savings from careful planning of space. 30 pp., illus. Wood Office Furniture Inst., 730 Eleventh St., N.W., Washington 1, D. C.

Iron Surfaced Concrete Floor

The Masterplate Iron-Clad Concrete Floor. Describes and pictures features of the flooring. Color samples of Masterplate aggregates available are included, with detailed instructions for laying new floors and resurfacing old floors. Many typical installations are illustrated. 36 pp., illus. The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio.*

Metal Building Products

Majestic Building Necessities. Catalog describes a line of building products including: ashpit equipment; incinerators; garbage receivers; coal chutes; indoor and outdoor fireplace units and fittings; ventilating bricks, grills and grates; furnaces; window wells, grates and basement windows; and miscellaneous covers, strainers and traps. Illustrations, specifications and details are given for the various items. 22 pp., illus. The Majestic Co., Huntington, Ind.

Apartment Telephones and Mail Boxes

Apartment Telephone Systems and U. S. Approved Mail Boxes (Bulletin No. 160). A variety of mail boxes and communication systems for apartment houses are described and illustrated. Schedules, wiring diagrams and specifications are covered, with instructions on selection and ordering of equipment. Such accessories as power rectifiers, bells and chimes are listed. 28 pp., illus. Auth Electric Co., 34–20 45th St., Long Island City 1, N. Y.

(*Continued on page 286*)

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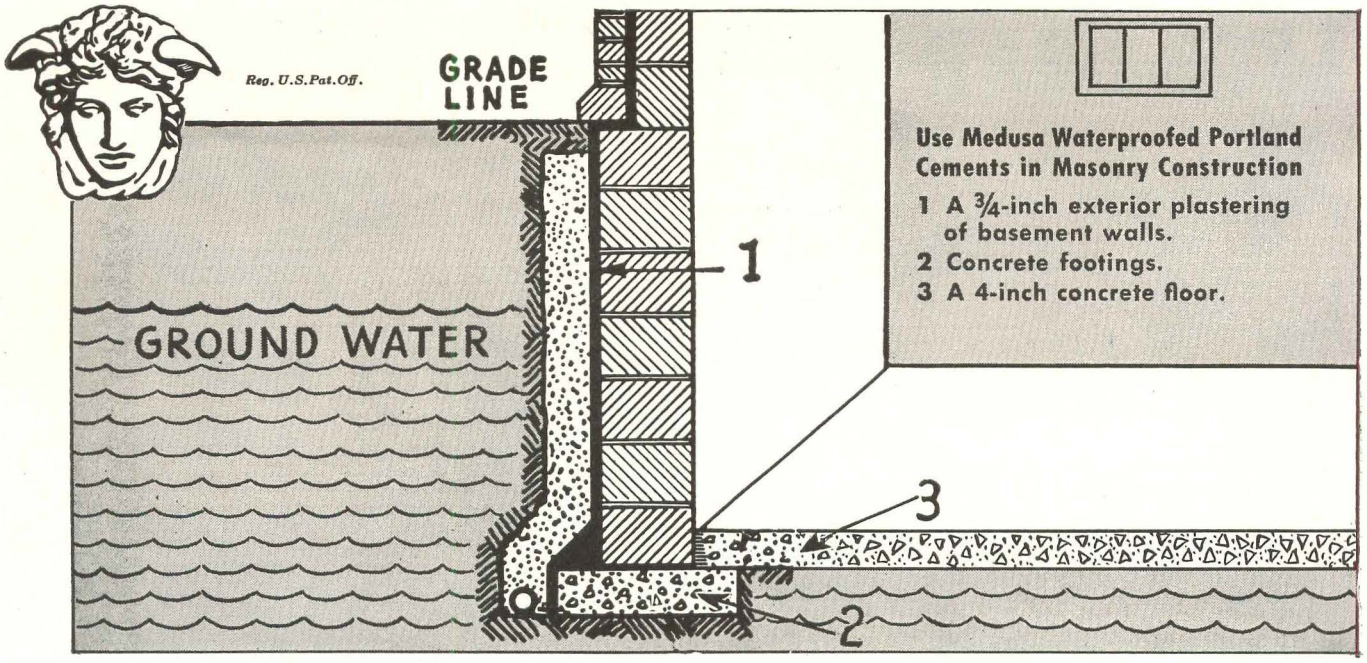

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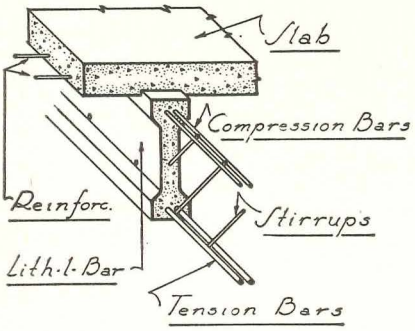

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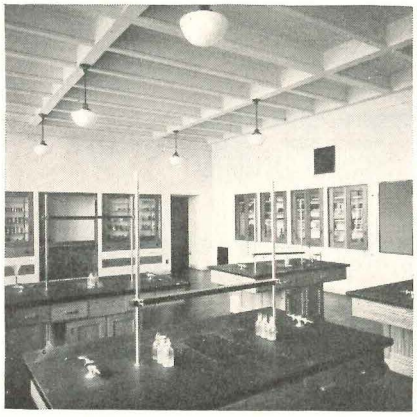

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Architectural Engineering

LITERATURE
(*Continued from page 284*)

Fuel Oil Heaters

Yula Tested and Approved Thermosyphon Fuel Oil Heaters (*Catalog No. F-150*). Describes the preheater, equipped with an expansion tank, and gives notes and tables on its use and operation. Specifications, installation drawings, and tables of dimensions and capacities are included. 8 pp., illus. Yula Water Heaters, Inc., 166 W. 225th St., New York, N. Y.

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

Bruce C. Cameron, 917 Jessie Ave., Winnipeg, Man., Canada.

Joel H. Cooper, Registered Architect, 2064 Cropsey Ave., Brooklyn 14, N. Y.

Irving R. Dana, Student, 2121 Washington, Lincoln, Nebraska.

Paula De Avilla, Student, Franklin School of Professional Arts, 460 Park Ave., New York 22, N. Y.

Mrs. Robert L. Dull, Brooks-Newton Realty Inc., 201 E. Liberty, Ann Arbor, Mich.

Edward Twiss Dunlap, A.I.A., 1656 33rd St., N. W., Washington, D. C.

Charles Dvorak, Jr., Student Architect, 80 De Wolf St., New Bedford, Mass

Lester Triem Haldeman, Consulting Engineer, 5000 Lancaster Ave., Philadelphia 31, Pa.

Norman J. Hamill, A.I.A., 408 Lewisohn Bldg , Butte, Montana.

Instituto Guatemalteco De Seguridad Social, Departmento de Prevencion de Accidentes, Guatemala, 8a. Ave. Sur No. 40-Guatemala

John R. Lulloch, c/o Harold T. Griggs, Architect, 26 Carrie St., Adelaide, South Australia.

Charles B. McElroy, A.I.A., Wise, Virginia.

Donald McGinn, 103 Ash Ave., Ames, Iowa.

Robert B. Pardue, Architect. P. O. Box 2225, Vernon, Texas.

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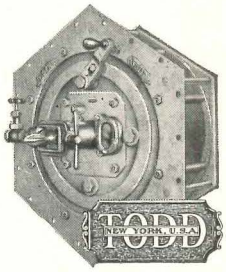

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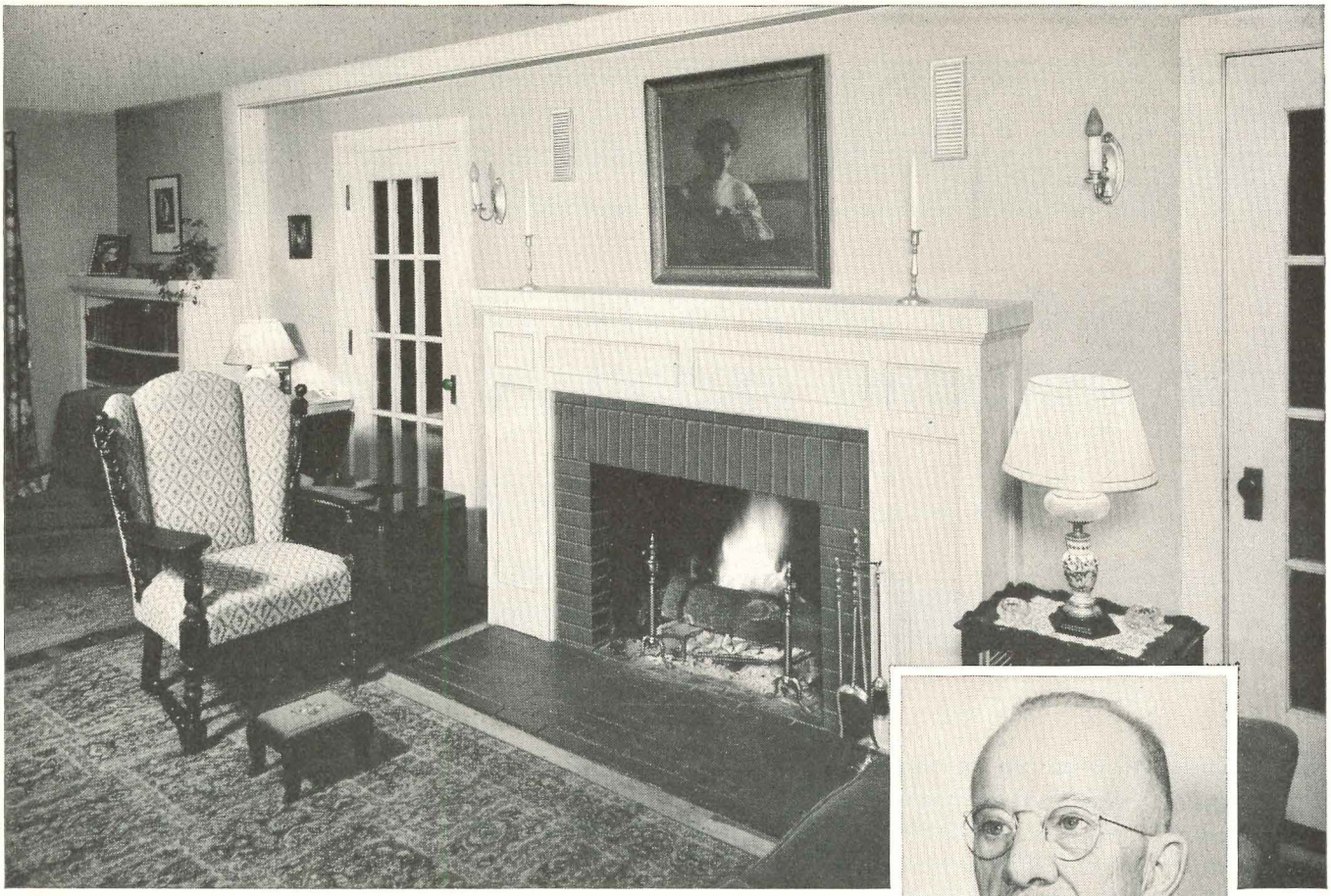
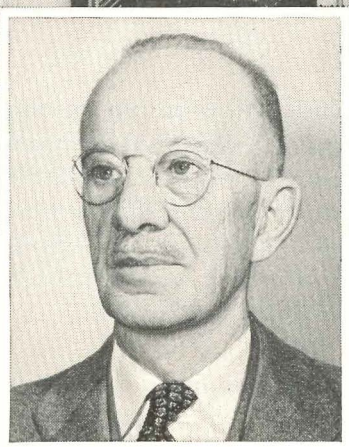




"Heatilator* fireplace saved time and cost my client no more than an ordinary fireplace!"

says: **HARRY F. HUDSON**
prominent Buffalo Architect

YOU can be sure of a smokeless, trouble-free fireplace by using a Heatilator Fireplace unit, around which any kind of fireplace can be designed. Even inexperienced masons can't go wrong because the Heatilator unit provides all the vital fireplace parts in one compact form. No extra parts to buy or build.

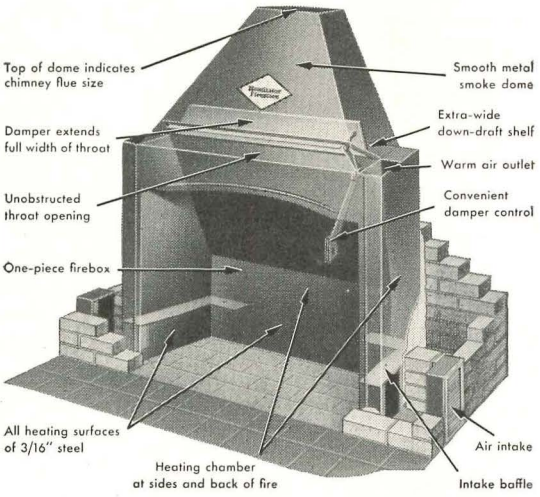
Costs little, if any, more than ordinary fireplace

The Heatilator unit adds little or nothing to fireplace cost because it reduces time and labor, and requires less materials. It draws in air from floor level, heats it, and circulates it to every corner of the room. It makes furnace operation unnecessary on cool Spring and Fall days. In mild climates, it is the only heating equipment needed. Ideal for camps, cabins and basement recreation rooms. Warm-air outlet grilles are easily placed to blend with any design.

Proved for 23 years

Give your clients the advantages of a genuine Heatilator Fireplace . . . perfected over 23 years ago, and now in successful use in hundreds of thousands of American homes. Write today for complete specifications and illustrations. Heatilator, Inc., 614 E. Brighton Ave., Syracuse 5, N. Y.

*Heatilator is the registered trade mark of Heatilator, Inc.

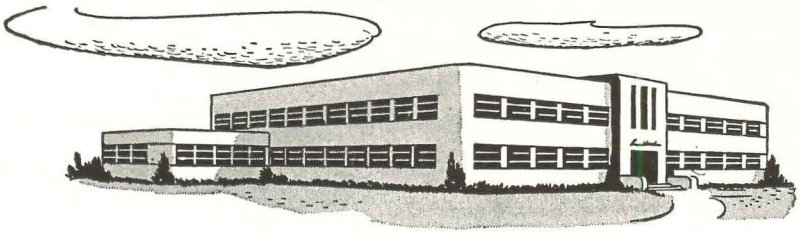


HEATILATOR *America's Leading* FIREPLACE

T.M. REG. U.S. PAT. OFF.

SCHOOLS MUST BE SAFE..

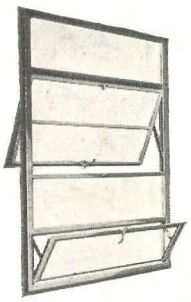
PLAY SAFE WITH TRUSCON STEEL BUILDING PRODUCTS FOR SCHOOLS



● You can meet the safety requirements of school buildings with Truscon's complete line of steel building products. They are fire-resistant and their load carrying ability provides an extra margin of safety. They also afford you an unlimited opportunity to create beautiful buildings that are in pace with modern teaching methods.

Every Truscon building product is scientifically designed and factory produced. That's why they reach your job accurate, complete, ready to be installed easily and quickly.

An experienced Truscon engineer in your community will be glad to assist you in adapting Truscon Steel Building Products to your particular requirements.



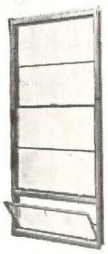
ARCHITECTURAL PROJECTED WINDOWS

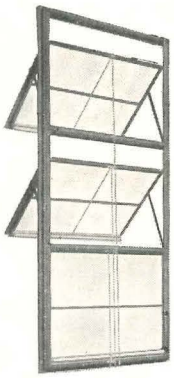
Attractive in appearance and convenient to operate. Provide maximum daylight, ventilation and freedom from drafts. Heavy one piece casement type sections in ventilator assures rigidity. Hardware is solid bronze. Screens and underscreen operating hardware are available for all ventilators.

DOUBLE-HUNG WINDOWS

In Two Types—Series 138 and Series 46

Series 138 Windows are equipped with positive action motor-spring type balances and completely weatherstripped with stainless steel. Made from electro-galvanized strip, these fabricated windows are bonderized and finished with a baked-on prime coat of paint. Available in single units or in integrally built twin, triple and panoramic window units, all are available with or without sill ventilators. Series 46 windows are of the counterweighted design. They are specially adapted for use in office and public buildings. Single or twin units may be had in either standard or special sizes and are available with or without sill ventilators. Made from new billet steel, electro-galvanized. Windows are bonderized and finished with a baked-on prime coat of paint.

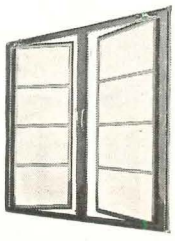




DONOVAN AWNING TYPE WINDOWS

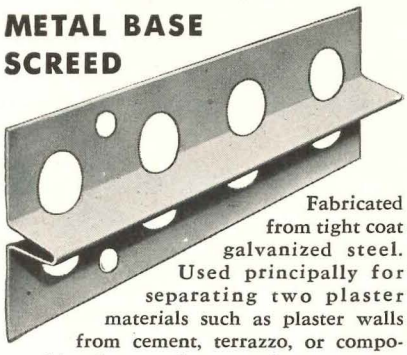
These windows are basically practical in the correct admission of light and proper ventilation without drafts. Sturdily built of unusually heavy special casement sections, they are positively and easily operated. Assure a high quality product incorporating features not available in any other window design.

INTERMEDIATE CASEMENT WINDOWS



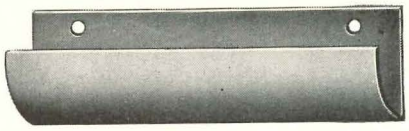
Constructed of specially designed one-piece sections throughout. Accurate weathering is assured through the final cold-rolling of sections to produce positive contacts between weathering surfaces. Hardware is solid bronze furnished in medium statuary finish.

METAL BASE SCREED



Fabricated from tight coat galvanized steel. Used principally for separating two plaster materials such as plaster walls from cement, terrazzo, or composition base, and separating a cement wainscot from ordinary plaster. Another function is to give a permanent straight edge to which both trades work.

METAL CASINGS



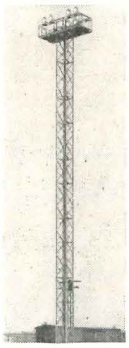
Meet a definite demand for an artistic, sanitary method of trimming around doors and windows. Afford many architectural effects. Metal casings are fire-resistant, vermin proof, easy to maintain and do not shrink or warp.

FERROBORD STEELDECK ROOFS

Truscon Ferrobord provides a fire-resistant, economical roof deck for all new construction or replacements. Covered with insulation and waterproofing, it weighs approximately 5 pounds per square foot.

FLOODLIGHT TOWERS

Made in a wide selection of heights, they offer a firm, long-lasting floodlight tower for lighting in stadiums, parking areas, etc.



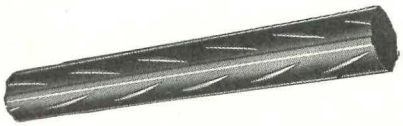
CURB BARS

Protect exposed corners of concrete curbs, walls, steps, etc. Designed to give positive anchorage into the concrete. Plate surrounds and protects the corner without splitting concrete into two portions.

WELDED WIRE FABRIC

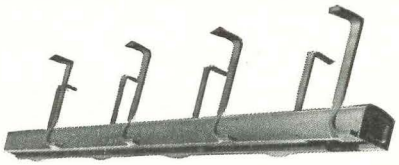
Truscon Welded Wire Fabric is made in various sizes for concrete reinforcing in all types of structures. Each joint is electrically welded for permanence.

CONCRETE REINFORCING BARS



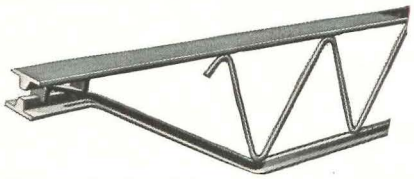
A special rolled section of high grade steel, with a series of longitudinal and diagonal ribs, so designed to provide the maximum bond with the enclosing concrete.

PRESSED STEEL INSERTS



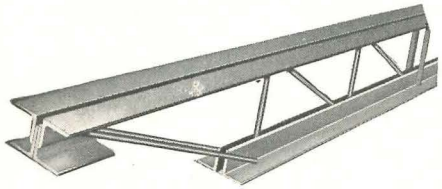
Truscon Slotted Inserts are attached to the forms and are completely imbedded in the concrete. Bolt can be moved along slot to any location, allowing wide variation in position. Used in ceilings, slabs, beams or columns.

OPEN TRUSS STEEL JOISTS



Truscon developed the open truss steel joist to meet the demand for economical, light weight, fire-resistant floors in schools, and other light-occupancy buildings. They are easy to install. Completely shop fabricated, they reach the job ready for placing.

CLERESPAN JOISTS

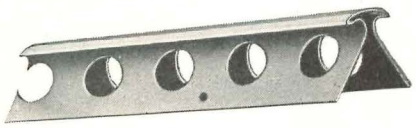


Truscon "Clerespan" Joists meet all clear span requirements up to 80 feet. They eliminate undesirable columns and provide greater unobstructed floor areas, in gymnasiums and auditoriums.

METAL LATH

There is a Truscon Metal Lath for every plastering requirement. Flat laths for ceilings and sidewalls; rib laths to reinforce concrete floors or plaster ceilings; expanded laths for stucco reinforcement; Corner Beads and Cornerite, to protect outside and inside corners.

CORNER BEADS



Recommended as an exposed corner reinforcement. The round nose is strongly reinforced by a deep groove which holds the plaster flush for a perfect bond. It can be wired, stapled or nailed to any kind of wall construction without the use of clips.

TRUSCON STEEL COMPANY

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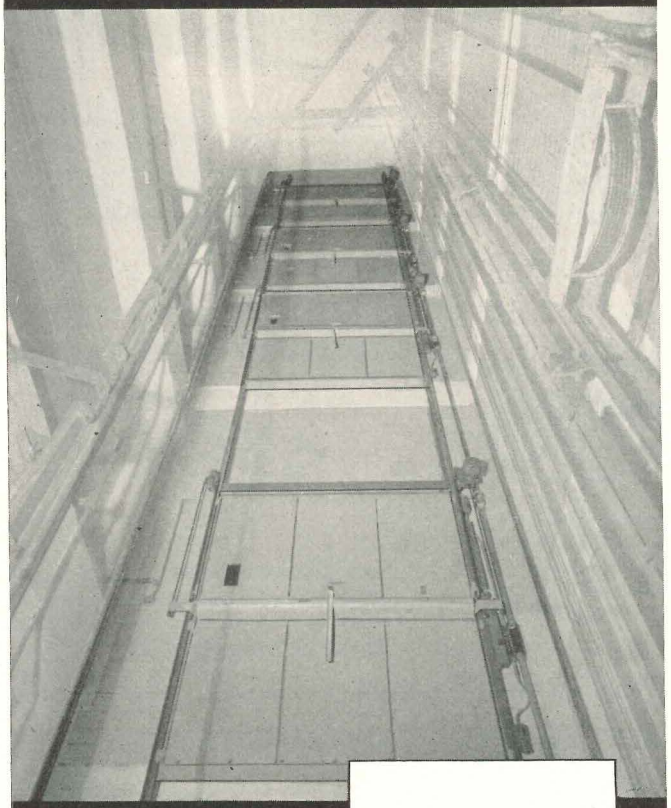
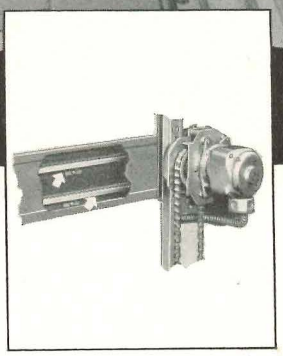
YOUNGSTOWN 1, OHIO • Subsidiary of Republic Steel Corporation

Manufacturers of a Complete Line of Steel Windows and Mechanical Operators...Steel Joists...Metal Lath ...Steeldeck Roofs...Reinforcing Steel...Industrial and Hangar Steel Doors...Bank Vault Reinforcing... Radio Towers...Bridge Floors.

CHICAGO'S GREAT FILTRATION PLANT HAS SHAFT *Security*



FREIGHT ELEVATORS EQUIPPED WITH SECURITY "UNI-MOTOR" OPERATED DOORS



Strong, compact, rigidly attached operator unit is connected to adjustable sheave at opposite side by firmly supported and completely covered "no-sag" roller chain giving continued positive performance. Security operators allow manual operation in case of emergency.

WHERE 24 HOURS A DAY DEPENDABLE DUTY IS REQUIRED...SECURITY AUTOMATIC DOORS ARE SPECIFIED

Thousands of installations throughout America have proven to architects that where years of unfailing service are the requirement, SECURITY DOORS and OPERATORS *do* the job. Rugged, engineered-to-perfection, metal clad, hand or power operated freight doors... made by SECURITY...will do *your* job better...longer!

THE SYMBOL OF PROVEN PERFORMANCE

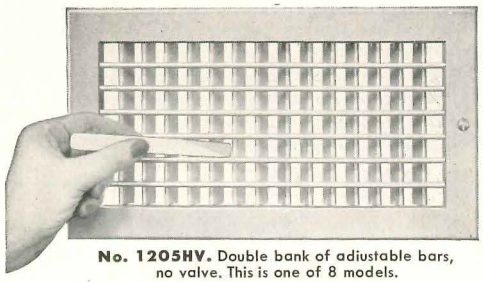
Security FIRE DOOR CO.

3046 LAMBDIN AVE. • ST. LOUIS 15, MO.

"AUER Streamliner"

REGISTERS and GRILLES
— for high velocity outlets

Air Conditioning — Cooling — Ventilating



No. 1205HV. Double bank of adiustable bars, no valve. This is one of 8 models.

Fully described in

SWEET'S ARCHITECTURAL FILE for 1950—Page 29 b/13

Write for complete Auer Register Book on air conditioning and warm air registers and grilles—or Catalog "G" on perforated grilles.

THE AUER REGISTER CO., 6600 Clement Avenue, CLEVELAND 5, OHIO

Auer REGISTERS
& GRILLES for AIR CONDITIONING & GRAVITY

D.I.P. Solves UNDERGROUND & EXPOSED PIPING PROBLEMS

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When architects and contractors have difficult insulating problems in the conveyance of steam, hot water, or refrigerants, they most often find the answer in DURANT INSULATED PIPE.

Because the positive protection is always dependable and the non-porous asphalt is completely waterproof, D. I. P. will not lose efficiency with the passage of time. This long service dependability with its low maintenance costs adds to the over-all economy of DURANT installations.

If you do not have complete catalog information and engineering data on DURANT products and processes, we will send them on request — or you can secure them through our representatives located in principal cities over the entire country.

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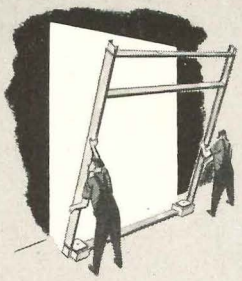
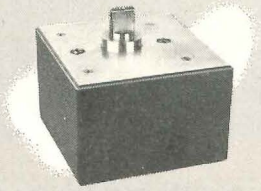
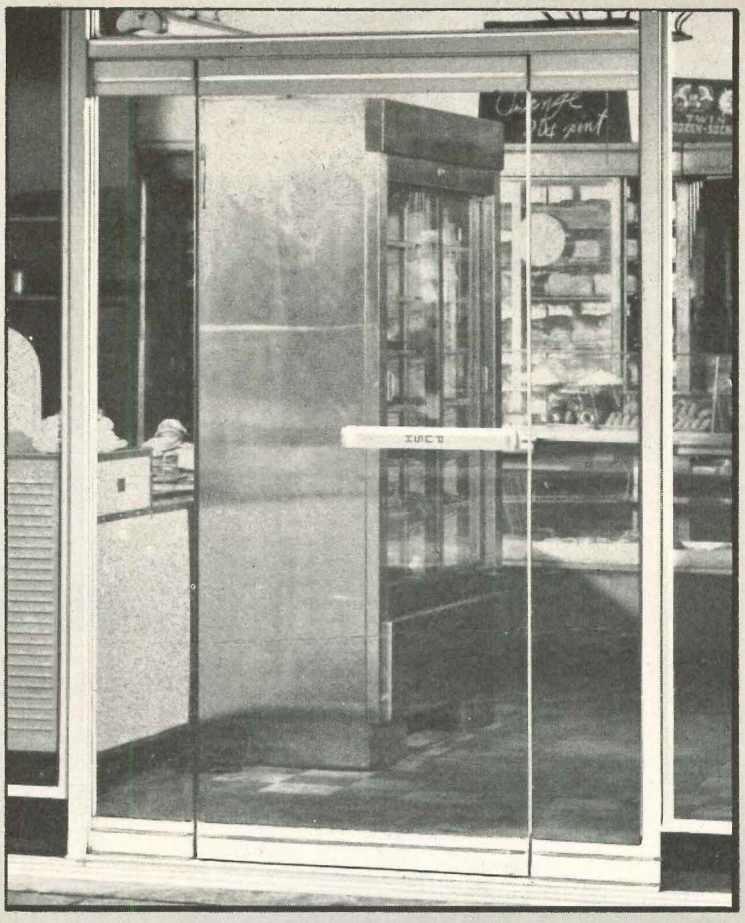
DURANT INSULATED PIPE COMPANY
1015 Runnymede St. East Palo Alto, California

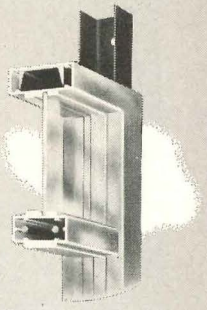


SIMPLE TO INSTALL. 12 standard designs, plus four new *free-standing* door frames are available to fill almost any requirement. Just bolt the frame into the building opening and hang the Herculite Tempered Plate Glass Doors.



LABORATORY-TESTED, SERVICE-PROVED Pittco Checking Floor Hinge. This unique device is only 6¼" x 6¼". It has positive door-speed control, separate checking control, built-in hold-open feature. Is sealed in oil for life.





PRECISION-FABRICATED FRAME. Experienced craftsmen use special checking gauges to assure accuracy of all dimensions. Frame is built of special shapes and heavy extruded aluminum, reinforced with steel channel and tie rods.

Your job's always easier when you specify

"the doorway that has everything!"

TIME-CONSUMING calculations? Worries about setting and fitting? These things are out now. Even a screw driver isn't needed, when you specify the new Pittsburgh Doorway. All that's necessary is to unpack the frame, bolt it into the building opening, and hang the sturdy, massive Herculite Doors, for which the frames have been especially developed. No drilling of holes in the frame. Nothing to assemble. Everything reaches the job in one "package" — the Pittco Checking Floor Hinge, a marvel of engineering; moldings for transom glass, supports for sidelights, strikes for locks, sockets for bolts. And the entire installation is done with the least possible interference with traffic into and out of the building. There are many more facts we'd like to give you. So, why not send for full details? There's no obligation. Just fill in and return the coupon below.

Pittsburgh

DOORWAYS

Pittsburgh Plate Glass Company
2068-0 Grant Building, Pittsburgh 19, Pa.

Without obligation on my part, please send me a FREE copy of your booklet on Pittsburgh Doorways.

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Address.....

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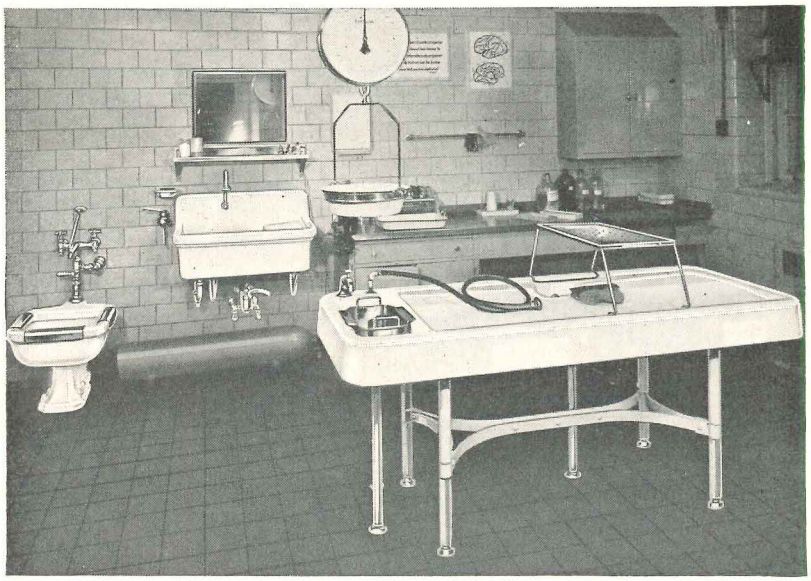
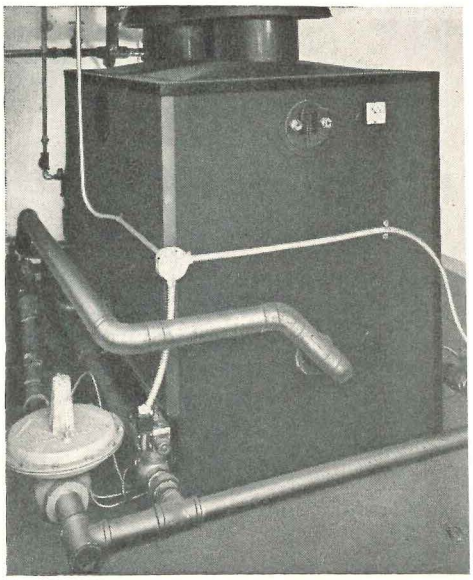
PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

THERE'S COMFORT, CONVENIENCE AND COLOR in this o room. There's cleverly concealed storage space and careful contrived utility. Yet there's a provincial air that lends adc tional charm to an efficient bathroom plan. The unusu design of the **NEO-ANGLE** Bath permits a space-saving corn installation that is convenient and attractive. And the han some **ROXBURY** Lavatory—with its gleaming non-tarnishii Chromard fittings—and the trim **MASTER ONE-PIECE** Wat Closet are fitting complements to the modern decorati scheme. Whatever the color scheme, whatever the arch tectural plan of the bathroom, there are American-Standa Plumbing Fixtures that will enhance the beauty of the roo while affording lasting, efficient service.



EVEN THE MOST SPECIALIZED NEEDS can be filled from the American-Standard line. This autopsy room in the Georgetown University Hospital includes genuine vitreous china **ALL-SERVICE SINK** with drain shelf and knee-action mixing valve. **AUTOPSY TABLE** is made of acid-resisting enameled cast iron and has two slab drains, integral sink basin. **CLINIC SERVICE SINK** of non-absorbent vitreous china features syphon jet flushing action. The **ARCO MULTIFIN CONVECTOR,** far right, heats air as it passes between the convector's light, non-ferrous fins. With an **AMERICAN ENCLOSURE** it makes an attractive, space-saving installation. Architects: Kaiser, Neal and Reid, Pittsburgh, Pa.



DEPENDABLE, AUTOMATIC HEATING is furnished th Montecito Elementary School in Martinez, Cal fornia, by this **STANDARD** Gas Boiler. The heatin surfaces, burners, controls and other essential fea tures are coordinated to assure maximum outpu with lowest operating and maintenance cost. Se tions are carefully machined for gas-tight joint Architects: Bamberger & Reid, San Francisco.

idest latitude in design

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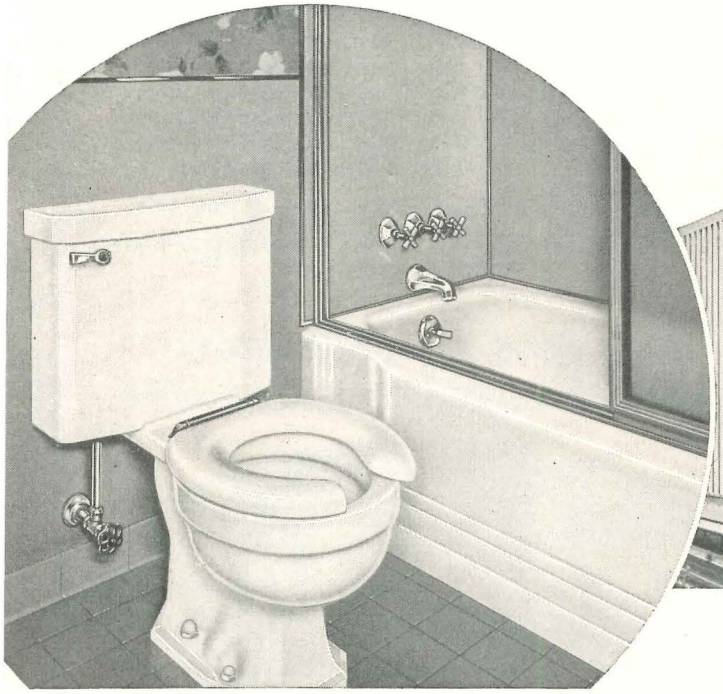
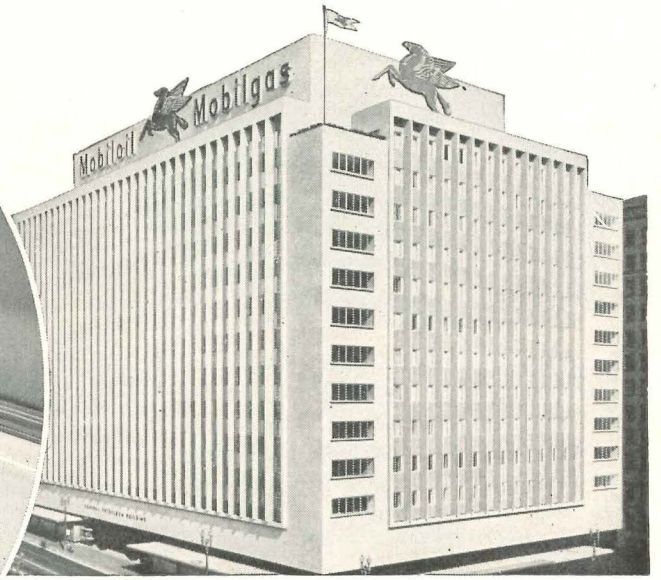
ıe American-Standard line of heating equipment plumbing fixtures is the most complete in the in- ry. From the wide range of products available can find just the size, style and color of plumbing res you need to fit your particular architectural or decorative scheme. And the equally extensive of heating equipment includes radiator heating, n air heating and winter air conditioning — for y kind of fuel.

his completeness of line is one reason American- dard Heating Equipment and Plumbing Fixtures are being used on more and more of today's finest construction jobs. And, too, American-Standard products are recognized for their engineering and construction advantages . . . for their long life and dependability in service.

Check with your Heating and Plumbing Contractor. He'll be glad to give you up-to-date information about the complete American-Standard line of heating equipment and plumbing fixtures. **American Radiator & Standard Sanitary Corporation,** P. O. Box 1226, Pittsburgh 30, Pennsylvania.



LL THE CONVENIENCES OF A RESIDENTIAL BATHROOM are in this ɔmpact bathroom of Eaton's Santa Anita Hotel on U.S. Highway 6 near Pasadena, California. The **MASTER PEMBROKE** Bath is made f rigid cast iron for durability, and finished with a heavy coating of ıamel for beauty and ease of cleaning. Lower sides, flatter bottom ıake bath and shower more convenient. The **CADET** Water Closet a close-coupled closet combination made of permanently non-absor- ent genuine vitreous china. Architect & Building Contractor: larry Werner.



LARGEST OFFICE BUILDING in Southern California—the new $11,000,000 home of General Petroleum Corporation in Los Angeles. The building is distinguished by its hundreds of wall-supported plumbing fixtures . . . all American-Standard. These quality products are in keeping with the scores of engineering and architectural features that make this one of the nation's most modern structures. The wall-supported plumbing fixtures—which include **FENWICK** and **LUCERNE** Lavatories, **GLENCO** Water Closets and **WASHAL** Urinals —make for neater, cleaner rooms. Architects: Wurdeman & Becket, Los Angeles.

LOOK FOR THIS MARK OF MERIT

AMERICAN-Standard

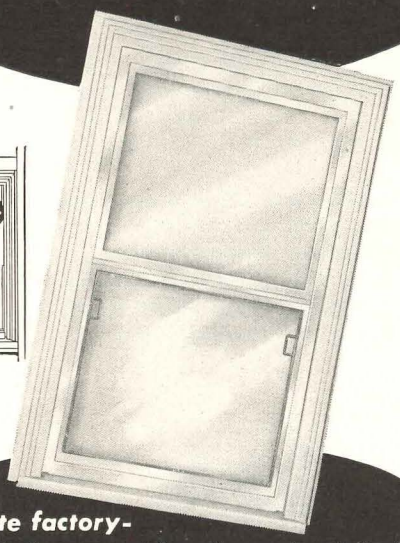
First in heating . . . first in plumbing

Serving home and industry

AMERICAN-STANDARD · AMERICAN BLOWER · CHURCH SEATS · DETROIT LUBRICATOR · KEWANEE BOILERS · ROSS HEATER · TONAWANDA IRON

Its features appeal to the BUILDER...
Its benefits appeal to the HOME BUYER

THE **RUSCO** PRIME WINDOW UNIT
(Vertical Slide)



Complete factory-assembled, factory-painted metal unit includes glass, screen, weather stripping, wood or metal installation members . . . plus insulating sash*. . . ready to install with cost-saving ease and speed

Since its introduction, the Rusco Prime Window with built-in controlled ventilation has won immediate favor from architects, builders and home buyers because it provides advantages in year 'round comfort, convenience and protection never before achieved by ordinary window units. And . . . Rusco costs LESS to install and less to maintain.

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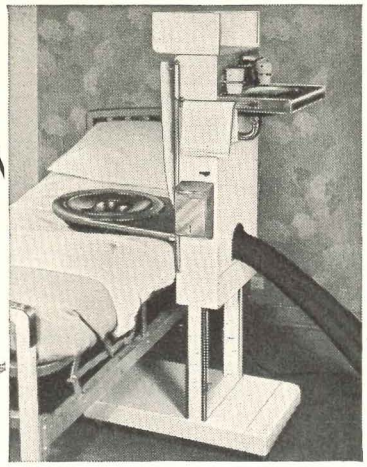

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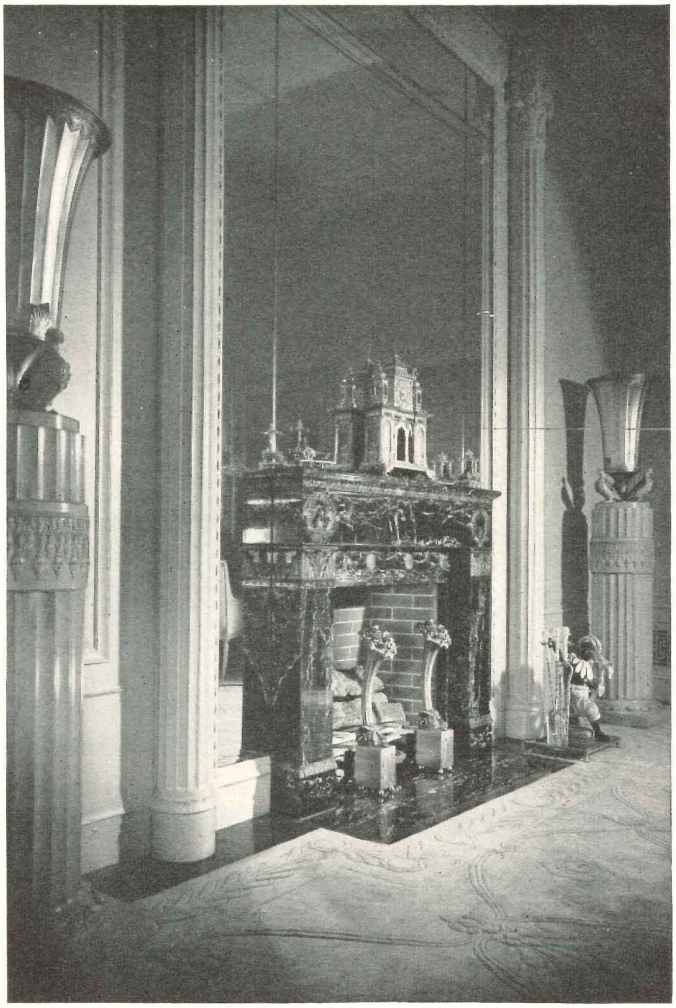

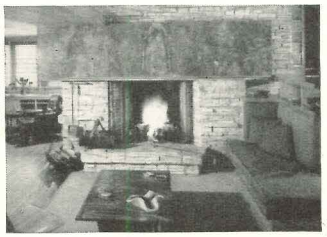

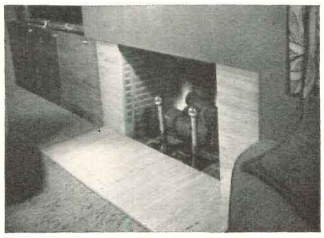

Marble enhances equally well the most elaborate decor, and the simplest. It is as perfectly adapted to modern, functional design as it is to conventional period design. But wherever used, Marble is *always* beautiful, always in good taste.

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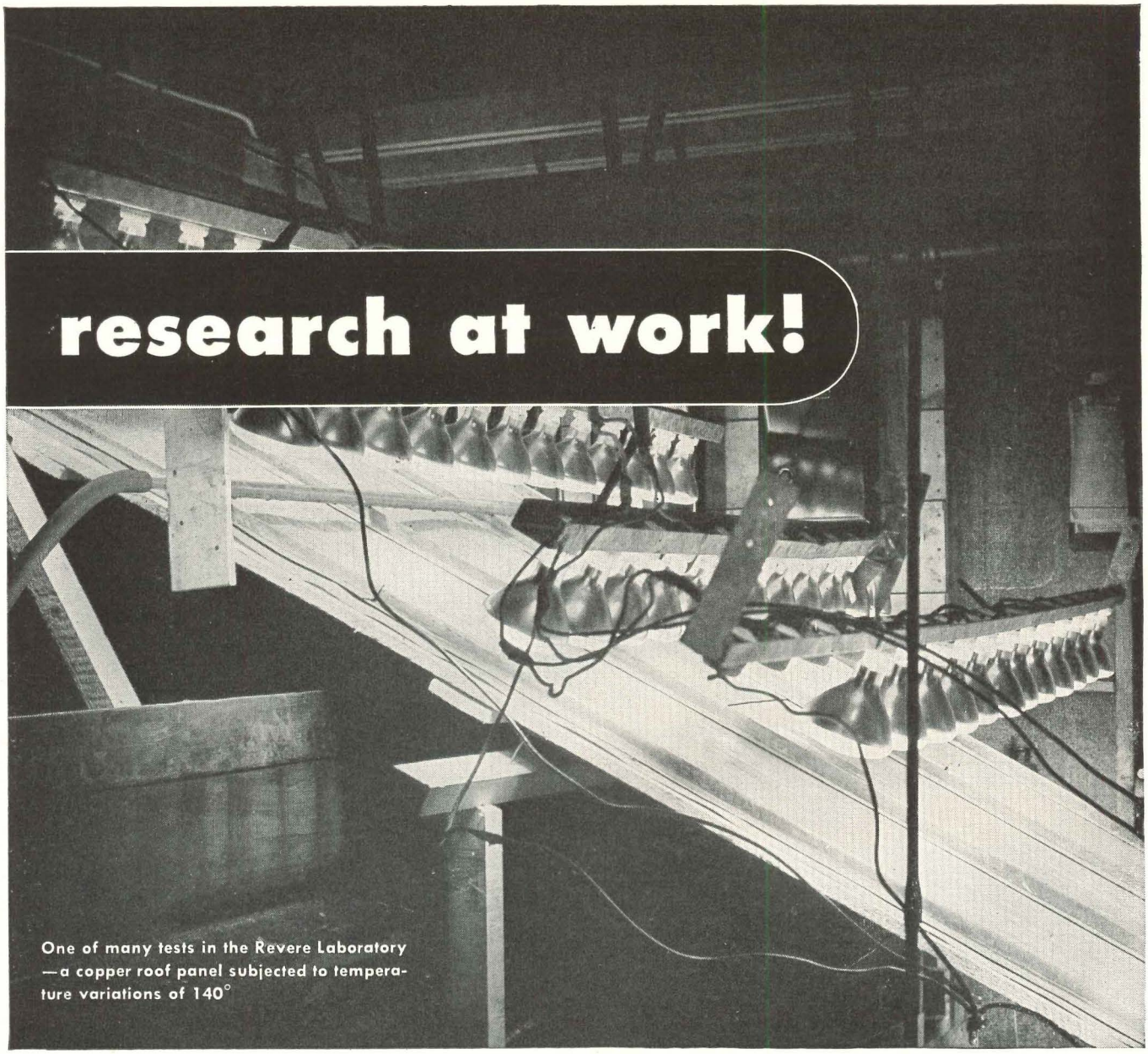


One of many tests in the Revere Laboratory —a copper roof panel subjected to temperature variations of 140°

Taking the guesswork out of the design and application of copper for roofing

● This is the story of the successful conclusion of a Revere Research project, as a result of which new information was uncovered concerning an old application of sheet copper—roofing. For centuries this traditional metal was applied by rule-of-thumb methods; now, for the first time the engineering principles that must be followed have been uncovered and published for all to use. Today it is possible for any ordinarily-skilled designer and sheet-metal worker to be certain that copper roofs, flashings and gutters are strong enough. In other words, you can be sure that the copper is not so thick as to be wasteful of metal, nor so thin as to be too weak for the job it has to do. You can also know that such design details as seams, stiffening members, and expansion joints are right from an engineering point of view.

True Economy

In these days of high costs it is as important not to over-design as it is not to under-design, though probably in the recent past it has been under-design that has been of most concern. Copper has been recognized universally as the prime roofing material. The metal is so highly resistant to atmospheric corrosion, and hence so confidently relied upon, that there has been a constant tendency to cut down on thickness, until in some instances a mere veneer a few thousandths of an inch thick has been applied. Since modern manufacturing methods have made wide sheets of copper economically available at gauges much lighter than were produced for early copper construction, it became essential to determine the minimum thicknesses of copper that could be used without introducing the danger of mechanical failure of the metal under the structural loads that would be applied to it in service.

Roof Walkers

As the first step in this project, a number of qualified Revere metal research workers were sent out into the field. They

checked every copper roof they could see. Such records as were available were studied. In addition, these men clambered over roofs to examine gauges, tempers, sheet lengths, methods of making joints, provisions for allowing for expansion and contraction, and the kind of underlying materials.

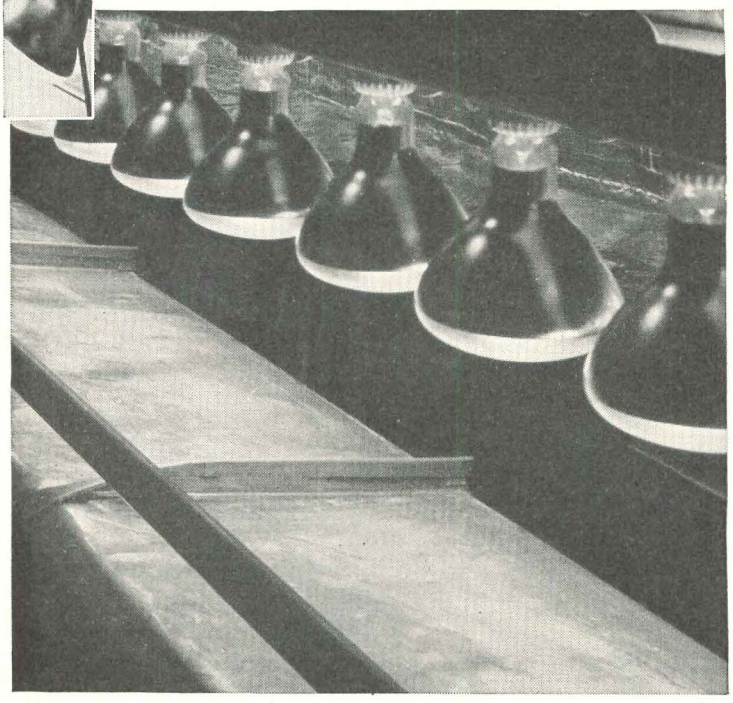
It quickly became evident that complete provision must be made for the expansion and contraction of the metal with changes in temperature. If the copper was not free and able to transmit forces to the expansion joints, buckles would form, and in time repeated flexing of the metal could produce cracks.

Roofing Must Move

The fundamental ideas brought back from the field were these: copper on a roof must be stiff enough to transmit movement; its movement must not be restricted by adherent underlying substances; expansion joints must be properly spaced. These, however, were general conclusions. It was necessary to confirm them, and translate them into working specifications. Laboratory work then began. Full-scale replicas of actual installations were built indoors, and subjected to conditions approximating those that had to be met outdoors. To duplicate the summer sun, batteries of infra-red lamps were used. After the metal had been heated, the lamps were turned off, and a cold "rain" of frigid river water was poured upon it. Thus a temperature change of 140° was produced in a few minutes. Various installations up to 65 feet in length were given this severe treatment six times an hour.

The Speed-Up

These tests were spectacular because of the speed with which things happened. You could see the metal move before your eyes, see where stresses were concentrated and where buckling developed. The action was so pronounced that it was easy to record it in motion pictures, as well as make accurate measurements. Sheet copper thus tested ranged from 16-oz. soft, which had become virtually standard in recent years, to 32-oz. cold rolled, such as was installed in 1873 on the State Capitol in Albany, N. Y., one of many outstandingly successful jobs.



Getting the proof. A standing-seam parapet wall coping cover, installed in the laboratory according to Revere specifications. Withstood 500 cycles of heat and cold, without injury, equivalent to several times the life of an average building.

Strength Needed

At this point it would have been all too easy to say that the tests showed that heavier copper was desirable. That was too easy an answer. It gave no help to the many people who want to use the world's finest roofing material without buying too much of it. So the matter of strength was investigated. Quantitative stress analyses indicated that copper roofs, gutters and flashings must be considered from the structural point of view rather than regarded as mere weatherproofing veneers. The columnar strength of formed sheet copper sections was found to be of particular importance, because such strength is required to transmit movement.

Eventually, after much mathematical work and confirmatory laboratory tests, it became possible to draw up completely new specifications for copper roofings, gutters and flashings of adequate strength and minimum metal. All this information has been printed. It is widely distributed among architects, designers, builders and contractors, roofers and sheet metal workers. This was the first authoritative work of its kind.

A Caution

Such enthusiasm has been aroused by this new, practical approach that attempts have been made to apply the Revere designs and specifications to other materials. It is a fact, however, that each material has individual characteristics which must be taken into account independently. The Revere specifications apply to copper only, and cannot be safely applied to other materials.

Only the size and universal scope of this project differentiate it from our daily collaboration with individual customers. On a private and confidential basis the Revere Technical Advisory Service collaborates with engineers and production men, making a joint attack upon problems associated with such things as choice of materials, cost reduction, process improvement, production rates, product betterment. Will you allow us to study such matters with you?

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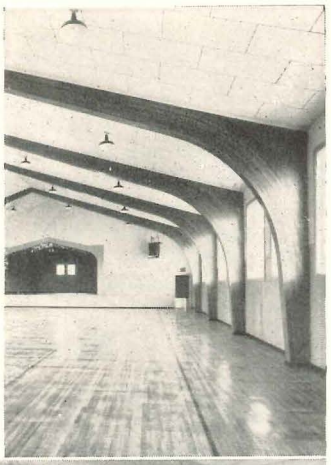

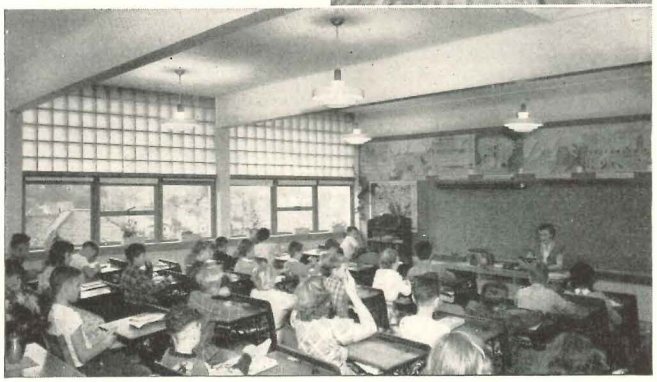

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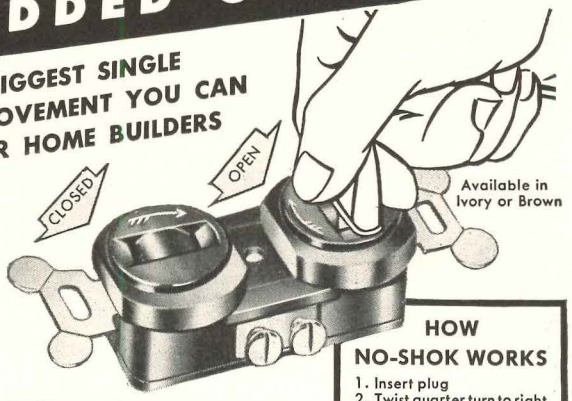

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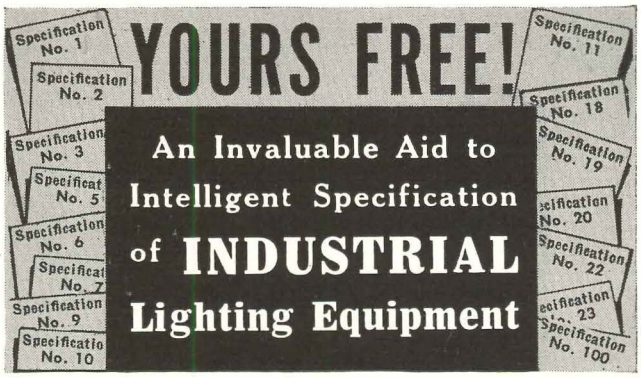

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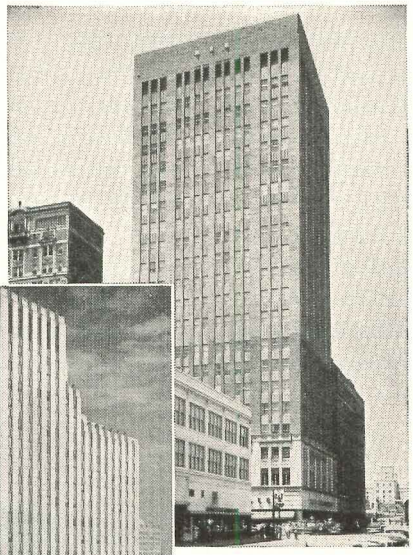

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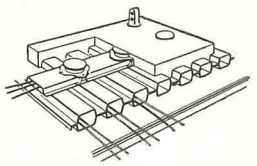

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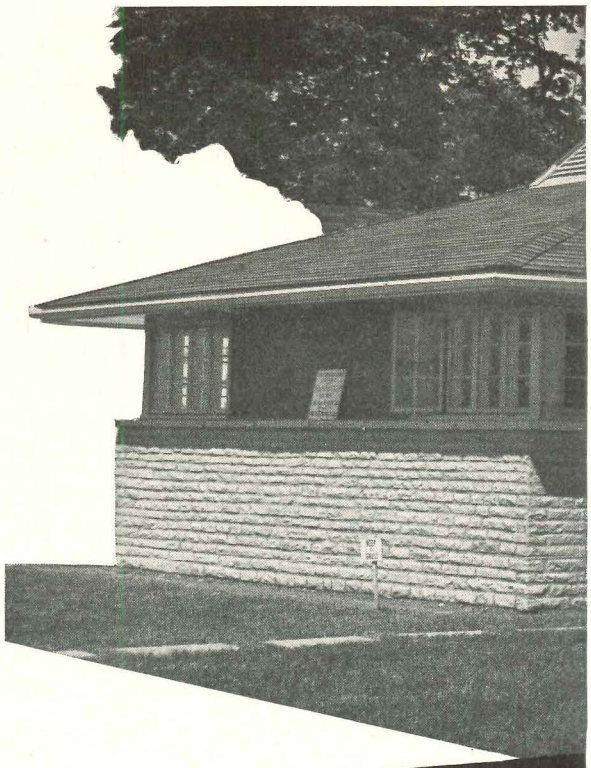

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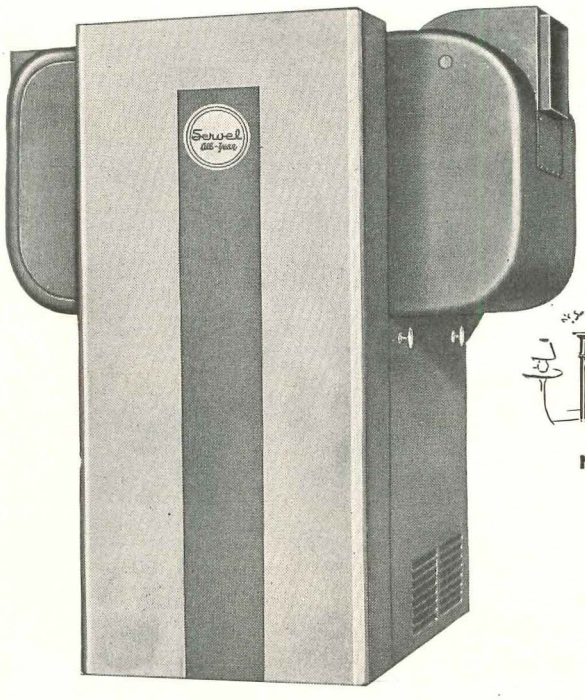

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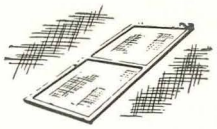

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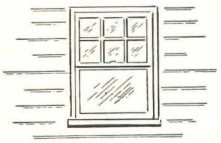

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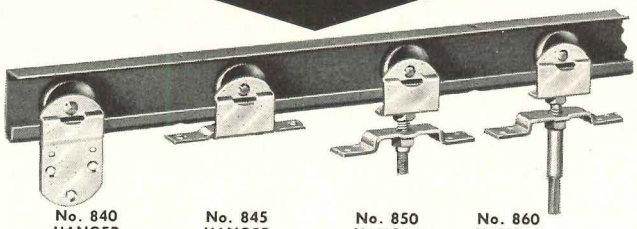

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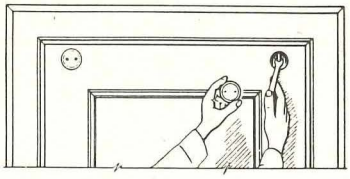

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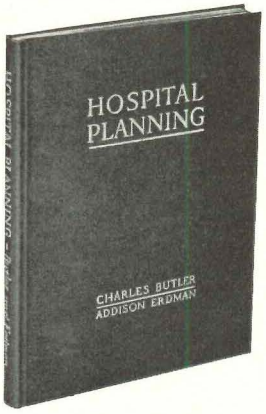

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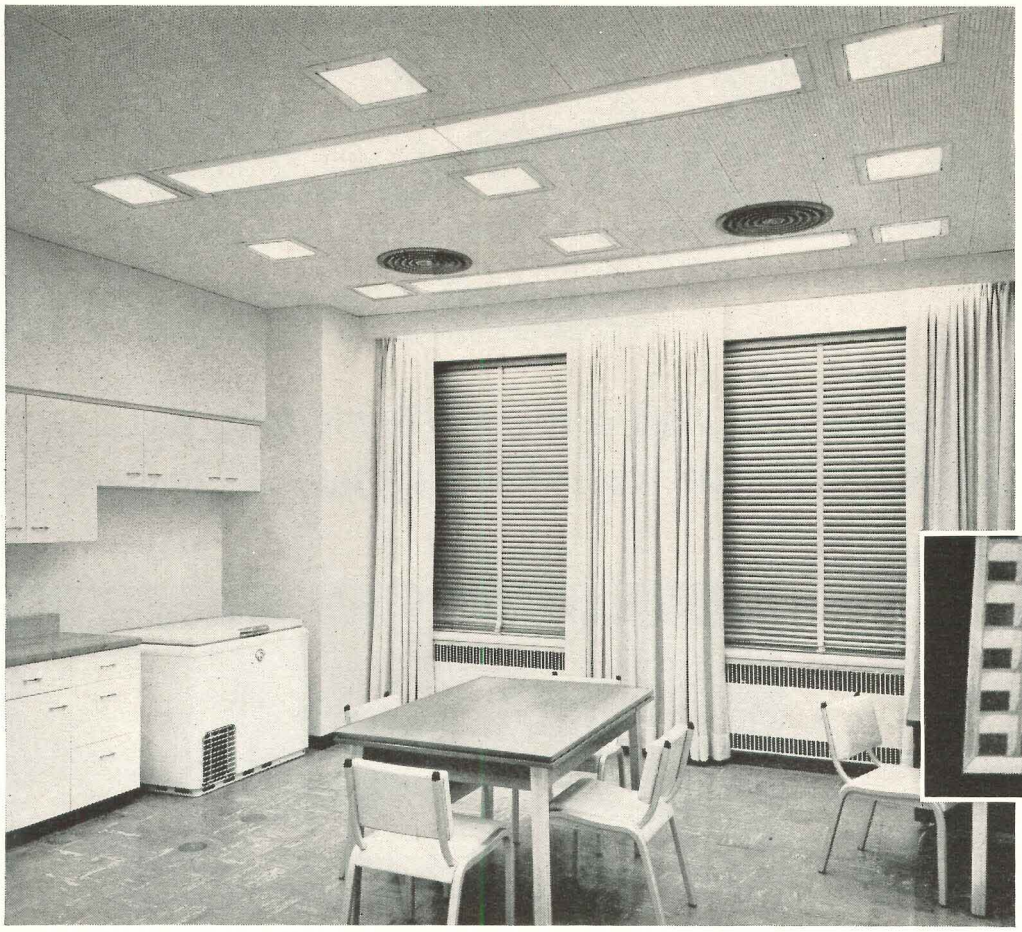
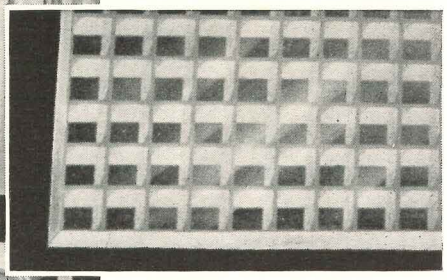


A NEW STANDARD OF LIGHT TRANSMISSION

Taste-Testing Room, Kraft Foods Company, Chicago, Illinois. Installation involved three types of recessed troffers made by Curtis Lighting, Inc. The three 40-watt lamp troffers provide an average of 40 F.C.; two lamp 29 F.C. and single lamp, 15 F.C. Recessed incandescent, 200-watt I.F. lamp troffer averages 66 F.C. Averages were calculated by using a coefficient of utilization of .41 and a maintenance factor of 75%. These values were verified by 21 actual readings after 100 hours of burning.



Close-up of FOTA-LITE showing how louvers penetrate full thickness of glass.

Like the Glow from the Northern Sky

Corning FOTA-LITE provides uniform brightness and control from both fluorescent or incandescent light sources

In the taste-testing kitchen of Kraft Foods Company, foods are appraised and arranged for color photography and advertising art. A high level of illumination plus exceptional brightness control was desired. A combination of incandescent and fluorescent were found desirable for delicate color control.

To blend the external appearance of both luminaires and use the most efficient and effective material, Corning FOTA-LITE glass was selected. The choice of FOTA-LITE gave excellent footcandle and brightness values. Comparative brightness readings *proved* that FOTA-LITE produced lower values than louvered fixtures or several other types of glass panels in the 45° to horizontal zone. It brought out color contrast with clarity and reality.

FOTA-LITE *is* a remarkable new lighting glass. Diffusing louvers are transmitted into the full thickness of glass by a photographic process. They never lose efficiency for the image is permanent. Light directed vertically remains unrestricted while the diffusing louvers intercept and eliminate glare at the 45° cut-off.

FOTA-LITE permits dust-tight fixture construction. Maintenance is no problem since only a single flat surface need be cleaned. There is almost no limit to its application as it may be used in recessed or pendant lighting fixtures, continuous row or complete luminous ceilings. You can evaluate it best by sending for a sample. Use form below.

CORNING GLASS WORKS

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Corning means research in Glass

PYREX T.M. REG. U.S. PAT. OFF.

FOR EFFICIENT, ATTRACTIVE LIGHTING...

CORNING ALBA-LITE for diffusion of fluorescent light ... CORNING FOTA-LITE for high level illumination ... CORNING brand LENS PANELS and PYREX brand LENSLITES for prismatic light control

***FREE*—FOTA-LITE sample on request.**

CORNING GLASS WORKS, Dept. AR-4, Corning, N. Y.

Please send me your FOTA-LITE demonstration card showing how FOTA-LITE diffuses and cuts off light at 45°

Name_____ Title_____

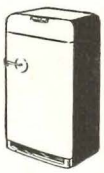
Company_____

Address_____

City_____ Zone_____ State_____

Every Modern School needs something

Frigidaire School Plan Makes It Easy For Students To Learn Modern Methods With New 1950 Frigidaire Appliances

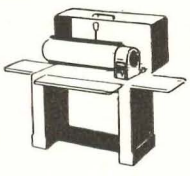


Frigidaire Refrigerators are ideal for teaching the best methods of food keeping. They're available in 3 types—4 series—10 sizes—4 to 17 cu. ft.—frozen storage capacities ranging from 15 to 70 pounds.

Frigidaire Electric Ranges are simple to operate—easy to demonstrate. They provide an exact heat for every type of cooking. Wide selection of models and sizes.

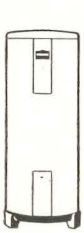
Frigidaire Automatic Washer permits instruction on all types of fabrics. Washer has exclusive Live-Water action and may be opened or stopped during any part of the washing cycle.

Frigidaire Automatic Electric Dryer dries clothes in 20 minutes. If it is used with a Frigidaire Automatic Washer, students can wash and dry a washer-load in a class period.

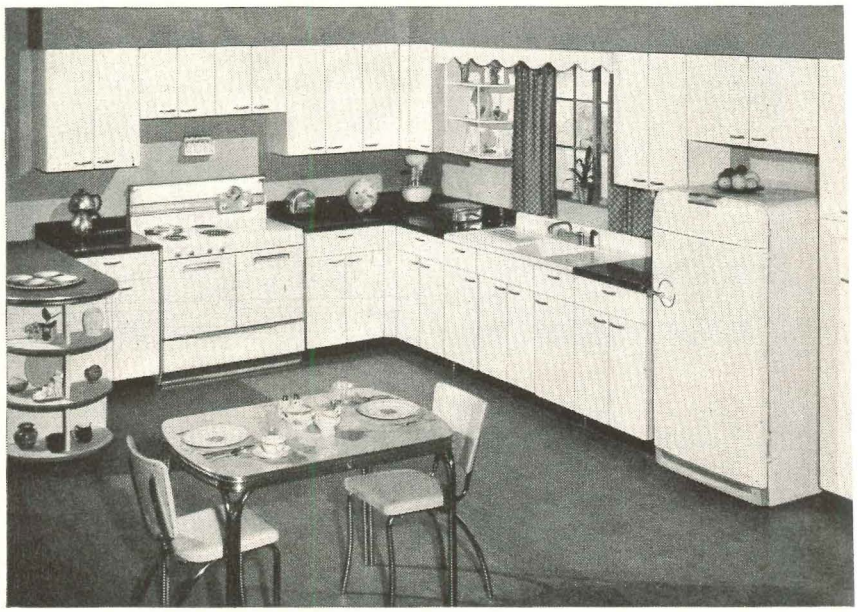


Frigidaire Electric Ironer makes it easy to teach expert ironing techniques. Its simple controls help students learn rapidly.

Frigidaire Food Freezers provide finest equipment for teaching latest methods of preparing foods for freezing, and freezing and storing foods. Models range from 8.8 to 18.0 cu. ft. capacity.



Frigidaire Electric Water Heaters are fully automatic, equipped with fast-heating Radiantube Units. They're available in a wide range of sizes that includes single or double unit models, Table-Top or Round Upright.



Home economics teachers say model kitchens like this make idea classrooms—make modern methods easy to teach and easy to learn. Even beginners can get good results on this beautiful new Frigidaire Electric Range. And it's fun to learn up-to-date food-keeping with a big new Frigidaire Refrigerator. Well-planned Frigidaire Cabinets and Sink show how the proper kitchen arrangement can save time and work.

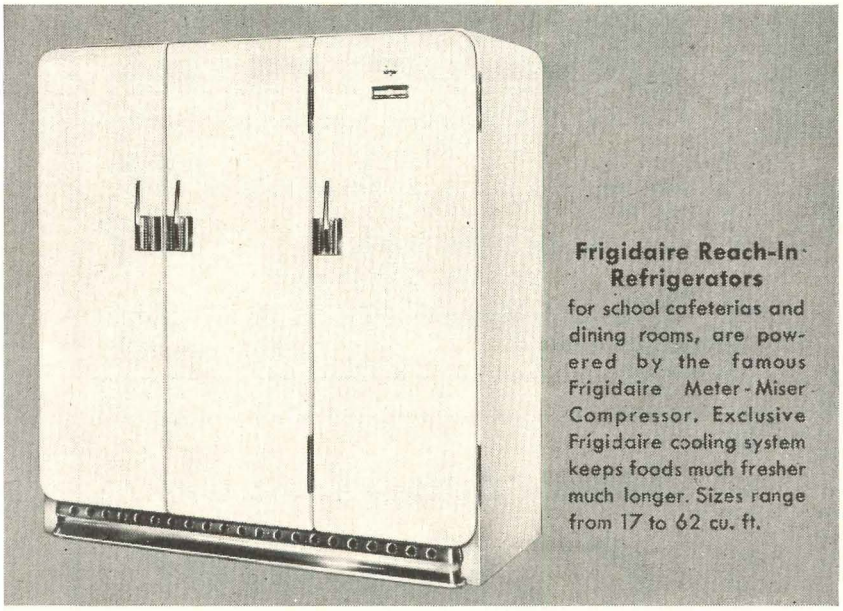
To teach the latest home economics techniques, schools need the latest and best home appliances. Frigidaire Appliances are ideal for this use, and Frigidaire makes it easy for schools to purchase these famous products through its special school plan. Here's how the Frigidaire School Plan works:

Accredited schools may buy any of the Frigidaire Home Appliances shown on this page, for instruction purposes in home economics classes, at approximately half the normal retail price. And, for a 5-year period after the purchase, the school is entitled to automatic replacement with new models—at no additional cost!

All products sold under the Frigidaire School Plan carry the regular Frigidaire One-Year Warranty. Sealed-in refrigerating mechanisms are protected for an additional four years. Prompt, expert installation and servicing are provided by the local Frigidaire Dealer.

that FRIGIDAIRE makes!

Big 1950 Frigidaire Line Supplies Answers For All The School's Refrigeration And Air Conditioning Needs



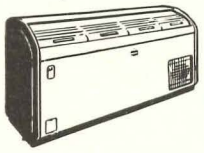
Frigidaire Reach-In Refrigerators for school cafeterias and dining rooms, are powered by the famous Frigidaire Meter-Miser Compressor. Exclusive Frigidaire cooling system keeps foods much fresher much longer. Sizes range from 17 to 62 cu. ft.

When you specify Frigidaire efrigeration and Air Conditioning quipment, you specify advanced esign *plus* the kind of sound conruction that gives years and years dependable, trouble-free service. hat's why Frigidaire has long been ie choice of skilled commercial ıyers—why Frigidaire Refrigeration and Air Conditioning Equipment is the logical choice for the school plant. **You can be sure,** too, of always getting capacities that are just right for the job when you specify Frigidaire. For Frigidaire makes over 400 commercial refrigeration and air conditioning products — the most complete line in the entire industry.

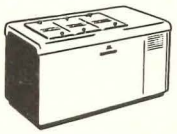
For complete information on Frigidaire Home Appliances, the Frigidaire School Plan, and all Frigidaire Commercial Refrigeration and Air Conditioning Equipment, call your dependable Frigidaire Dealer. Or write the Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside 12, Ontario.

FRIGIDAIRE

Products for Schools



Frigidaire Beverage Coolers are ideal for cafeteria use or for milk storage. Wet and dry types in a wide range of sizes.



Frigidaire Ice Cream Cabinets give more capacity per dollar of cost than other leading makes. Sizes from 4.8 to 17.1 cu. ft.

Frigidaire Water Coolers are exceptionally sturdy and compact. Wide variety of sizes and types meets any need — bottle-type, pressure-type, tank-type, and industrial-type.

Frigidaire Store-Type Air Conditioners supply a fast, low-cost way to meet any number of air-conditioning problems. They're self-contained, easy to install — little or no duct work. Also Frigidaire Central Systems.

Frigidaire Room Air Conditioners supply a perfect answer for the conditioning of private offices. They're smartly styled, compact, easy to install. Powered by Frigidaire's famous Meter-Miser.

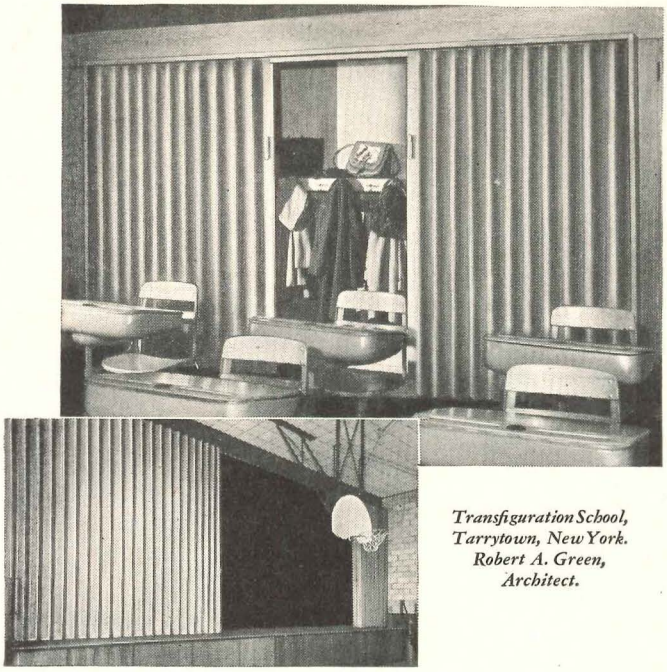
Frigidaire Electric Dehumidifier checks costly moisture-damage electrically and automatically. It's ideal for libraries, storage rooms, basement areas. Effectively reduces moisture in closed areas up to 25 x 40 x 8 feet.

Frigidaire Compressors are powerful and dependable, assure peak operating efficiency. Sealed rotary and reciprocating types. Capacities to 25 HP.

Model School Chooses

"Modernfold" doors

for efficiency at low cost



Transfiguration School, Tarrytown, New York. Robert A. Green, Architect.

Transfiguration School, a model for other new schools in the diocese, was built at a cost of only 84¢ per cubic foot. Thus, it is evident that the architect and Archdiocesan officials used only products which were efficient and inexpensive.

"Modernfold" accordion-type doors fitted into this category perfectly. No other type of closure met the needs for an intelligent, complete use of all space so well. The school uses eight pairs of "Modernfold" doors as wardrobes, one large door on the auditorium stage, and another to partition the teachers' room.

In all applications, schools, commercial or residential, "Modernfold" doors are beautiful. The sturdy metal frame is a firm foundation for the beautiful plastic-coated fabrics. Available in a wide variety of colors, they match any general color scheme; are flame-resistant and easily washed with soap and water. Mail coupon for full details . . . or look under "doors" in your telephone book for the name of our installing distributor.

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Gentlemen:
Send me your new folder, showing how to relieve crowded school conditions.

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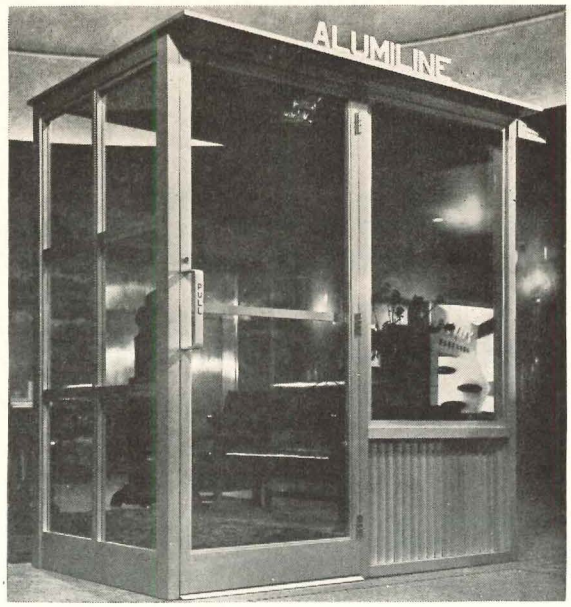

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see our CATALOG in SWEET'S FILE ARCHITECTURAL

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Reduce School Costs with

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Vermiculite Aggregates

VERMICULITE CONCRETE AGGREGATE

(1) In insulating concrete for roof fill insulation gives a monolithic permanent job for less money. Ask in your specifications for an alternate on this and see your savings.
(2) In concrete floor slabs for insulation, especially kindergarten floors.
(3) As a lightweight floor fill reducing dead weight loads.

VERMICULITE PLASTER AGGREGATE

(1) For warmer plastered walls—for less drafts.
(2) In acoustical plaster for school corridors.
(3) For fireproofing of steel columns and beams. Ask for this alternate. See your savings.
(4) In plastering auditoriums and gymnasiums ceilings for lighter weight.

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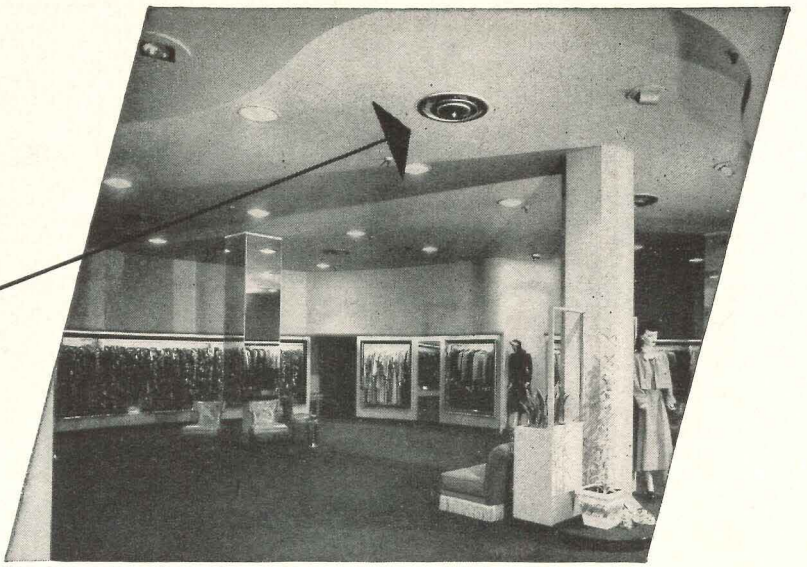
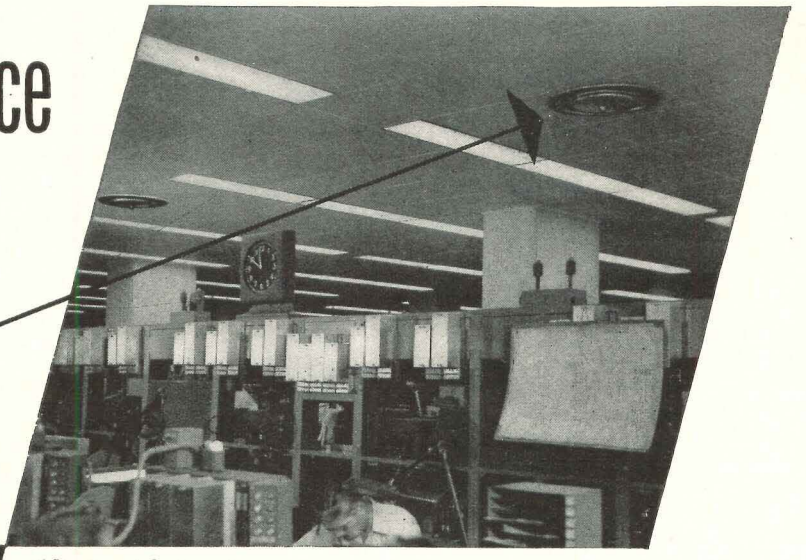


Simple, unobtrusive design blends with any architectural treatment.

for performance



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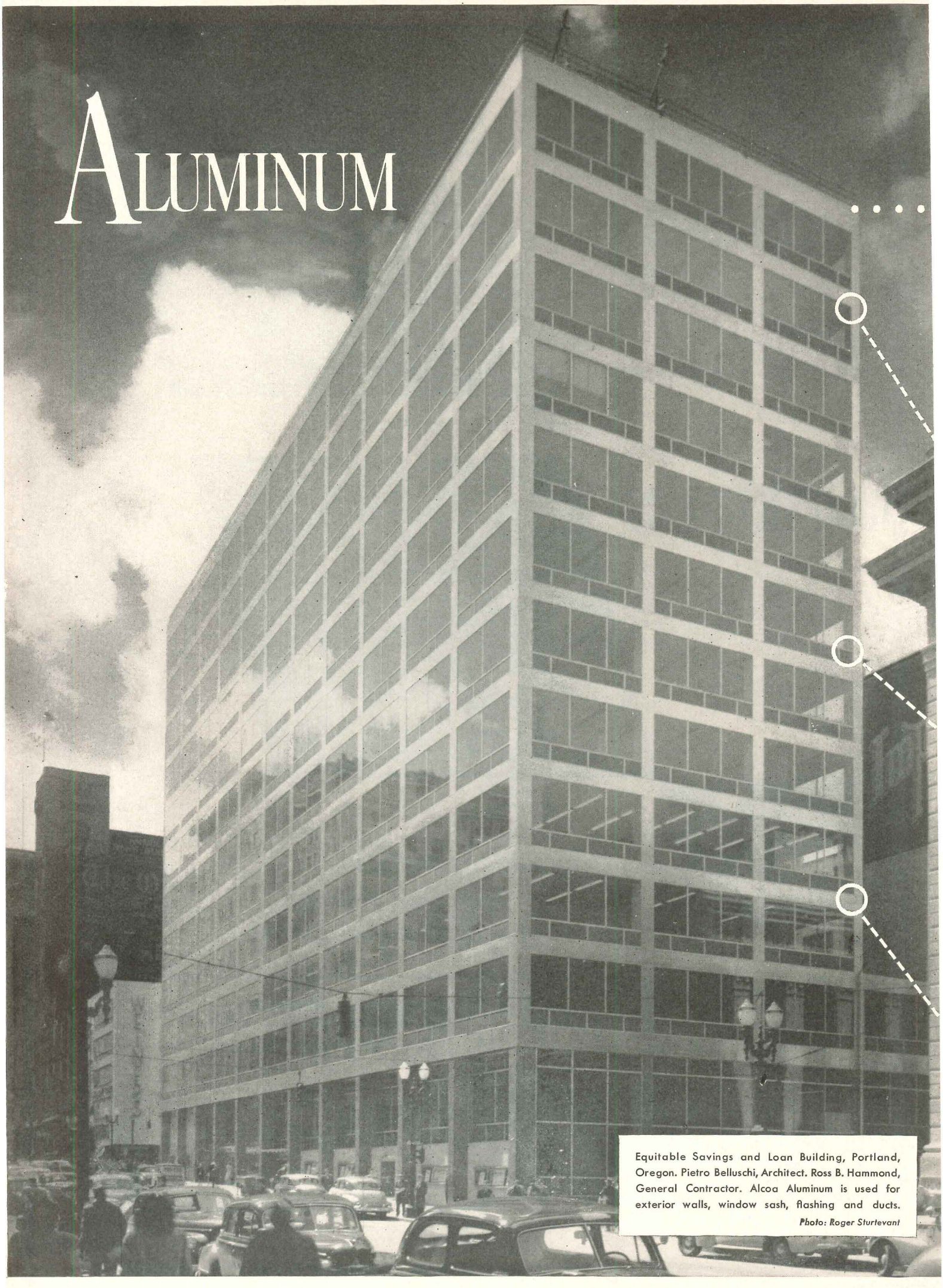
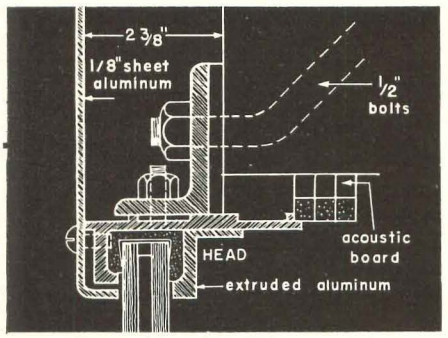


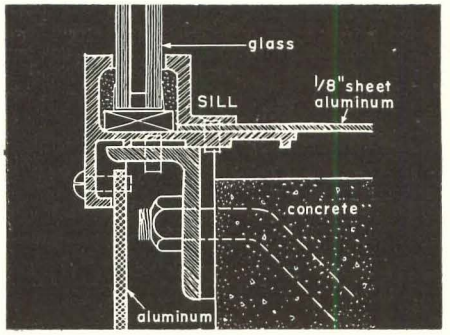
Equitable Savings and Loan Building, Portland, Oregon. Pietro Belluschi, Architect. Ross B. Hammond, General Contractor. Alcoa Aluminum is used for exterior walls, window sash, flashing and ducts.

Photo: Roger Sturtevant

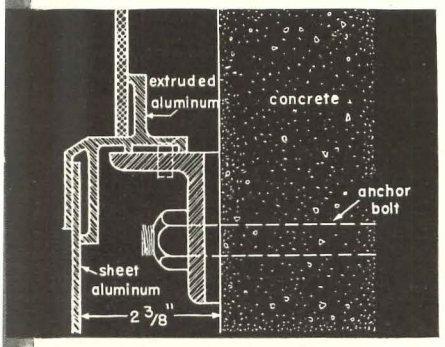
BRIGHTENS THE BUILDING PICTURE



Extruded aluminum channels, bolted to the concrete frame, hold the surface system consisting of glass, aluminum sheet and sheet aluminum spandrels. Light weight of units facilitated handling and installation.



Surface material was moved up on building's own elevators and assembled in place. Portability and precise dimensions permitted use of hand tools and standard handling and fastening methods.



All exterior surface units were installed from portable painters' rigging instead of conventional and costly scaffolding. Erected nearly two years ago, building's performance has exceeded expectations.

Plates courtesy Architectural Forum

Across America the story of contemporary building is punctuated with such bright spots as Portland's Equitable Savings and Loan Building. Sheathed in Alcoa Aluminum, this building reflects the advanced thinking that is in every part of its design and construction.

The lightness and structural honesty of contemporary architecture are well expressed in aluminum—the modern metal. This expression springs from the inherent qualities of the metal itself. For no other building material so well combines workability, strength, weather resistance, good appearance, lightness, economy, long life and ease of installation.

The host of new buildings that make extensive use of aluminum's unique qualities stand as proof that aluminum has come of age as a building material. Consider it not only for the visible applications . . . walls, windows and trim . . . but for the hidden places...ducts, wiring, insulation, flashing and vapor barriers . . . where economy, conductivity, reflectivity or freedom from corrosion and decay make Alcoa Aluminum the logical material.

To architects designing in aluminum, Alcoa offers engineering assistance and a fund of aluminum knowledge gained through sixty-two years of research and development. For a forward look at aluminum's place in the building world, ask to see the film or book, "The Davenport Story". Call or write your nearby Alcoa Sales Office or ALUMINUM COMPANY OF AMERICA, 1888D Gulf Building, Pittsburgh 19, Pennsylvania.

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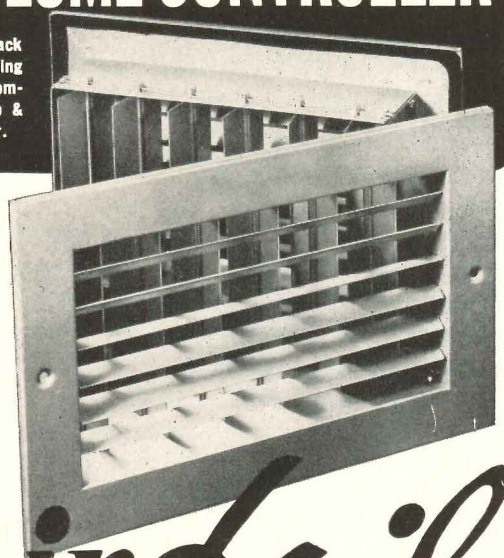
● Front & back views of amazing new AF-325 Combination Grille & Vol. Controller.



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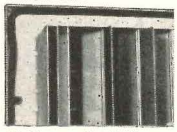
AIR CONDITIONING OUTLETS

SOLID-SECTION AIRFOIL LOUVER

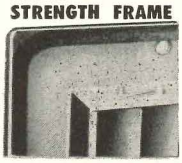
● Louver knifes air in wind tunnel tests. Turbulence has been almost eliminated, giving noiseless control of air.

TWIN REAR LOUVERS



● More flexibility—greater and easier air control — faster, surer adjustment are certain.

EXTRA STRENGTH FRAME



● Special concealed support eliminates all mullions. Heavy gasket seals to duct—prevents dust streamers.

AIRFOIL scoops the air conditioning outlet world with *new advance design—compact* AF-325. Handles air volume and distribution with one unit. Split rear louvers control volume . . . combined with front AIRFOIL louvers give draft-free 4-way distribution.

ONE UNIT TO PURCHASE

Exclusive design holds cost at *30% less than combined costs of a volume controller and grille.* Less parts—non-freeze louver action—easy adjustment —compact—rugged.

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Workmen save valuable time handling one compact unit. There are less screws to place—less parts to fumble—less weight to carry. System *adjusts in 1/10 normal time.*

CHECK TYPE OF GRILLE ON WHICH INFORMATION IS DESIRED

- ☐ Air conditioning outlets
- ☐ Perforated metal & ornamental grilles
- ☐ Return air grilles and registers
- ☐ Door ventilators
- ☐ Volume controllers
- ☐ Special made-to-order grilles

TITUS MANUFACTURING CORP.
Waterloo, Iowa

RUSH me complete information including prices, discounts and delivery on the AF-325 plus above checked items.

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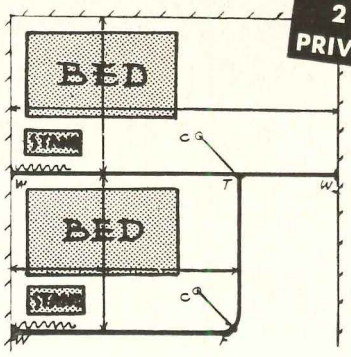
ONLY $45 . . . TO TURN YOUR PRIVATE ROOMS INTO 2 BED WARDS WITH PRIVATE ROOM COMFORT



Cubicles for a room about 11 feet wide arranged as shown in diagram costs only $30 including all tracks, hooks and fittings needed for complete installation. Jean cloth or duck curtains for this layout are obtainable at just $15.

Imagine, doubling your bed space and increasing your revenue for a mere $45 per room.

All Capital metal parts are #14 gauge brass, finely chrome plated over nickel plate. Curtains are 160 count jean or 8 ounce duck. Both metal parts and curtains meet or exceed U. S. Navy specifications. Send for free samples plus a list of nearby hospitals where Capital Cubicles may be seen.

A rough sketch of your requirements showing dimensions, will bring an estimate by return mail.

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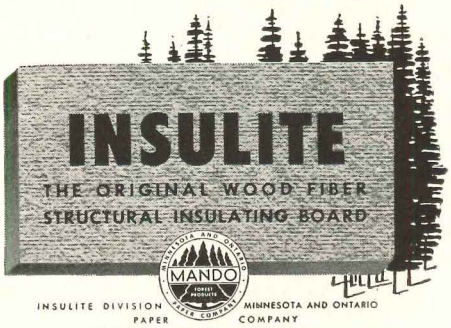
A permanent highly efficient glass fiber flexible insulation—competitively priced! Cannot burn, rot or decay. Quick, easy, economical application. With Insulite Insulating Wool, sell Bildrite Sheathing and Lok-Joint Lath for quality wall construction and greater profits.



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ANY STYLE
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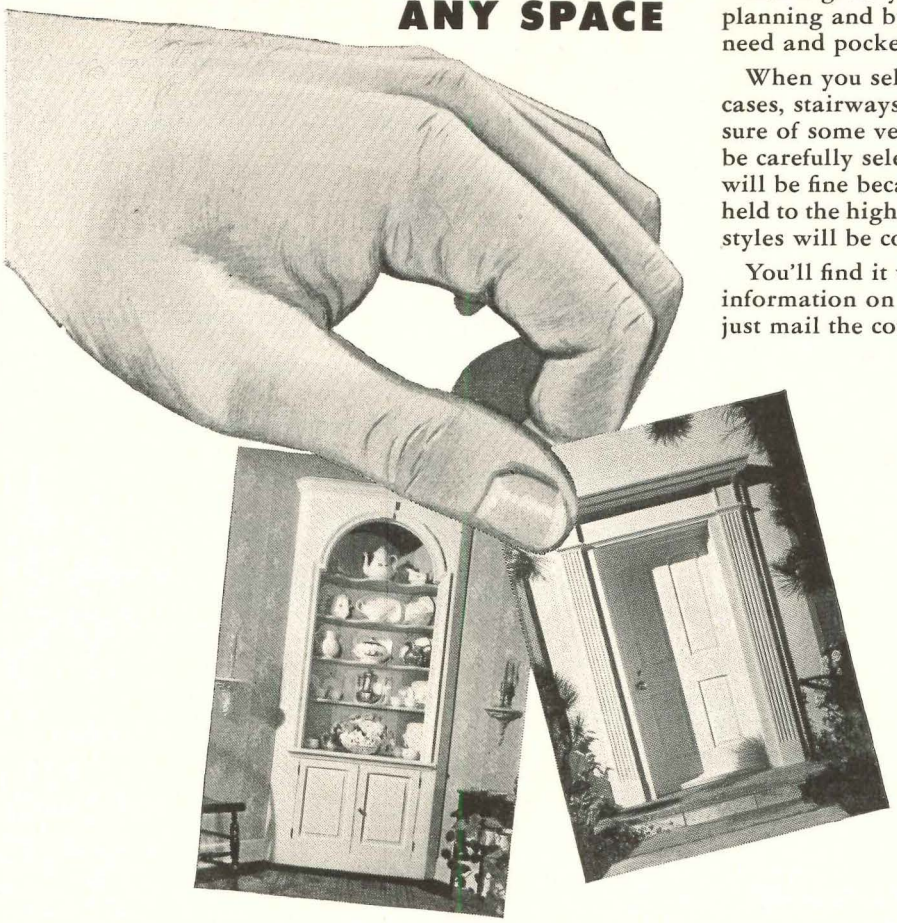
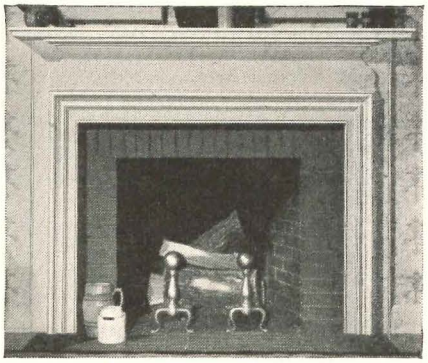
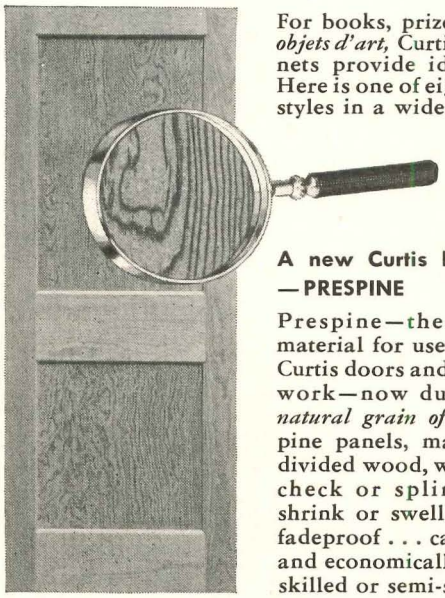
Ranch house—Cape Cod—Colonial—whatever the architectural style—whatever the size or cost of the house—Curtis has woodwork to fit your need. For the Curtis woodwork line is so wide—so varied—that it gives you practically unlimited scope in planning and building homes for every taste, need and pocketbook.

When you select Curtis entrances, mantels, china cases, stairways or kitchen cabinets, you can be sure of some very definite qualities. The materials will be carefully selected for every need. Craftsmanship will be fine because of Curtis precision manufacture—held to the highest standards for 84 years. Architectural styles will be correct. Costs will be moderate.

You'll find it worth while to have complete information on Curtis stock architectural woodwork—just mail the coupon.







For books, prized china and *objets d'art,* Curtis china cabinets provide ideal storage. Here is one of eighteen Curtis styles in a wide price range.

A new Curtis Development —PRESPINE

Prespine—the new wood material for use in panels in Curtis doors and other woodwork—now duplicates the *natural grain of wood!* Prespine panels, made of finely divided wood, will not warp, check or splinter—won't shrink or swell. Prespine is fadeproof . . . can be quickly and economically finished by skilled or semi-skilled labor.

Where the owner wants an entrance above the ordinary, this Curtis design will solve the problem and reflect good taste. Design C-1709—one of many outstanding styles.

A Curtis mantel makes the utility of a fireplace beautiful. Curtis mantels "wear well"—they were designed by leading architects—have fine proportions and detail.

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Curtis makes a complete line of woodwork for the modern home. Make your next house "all Curtis."

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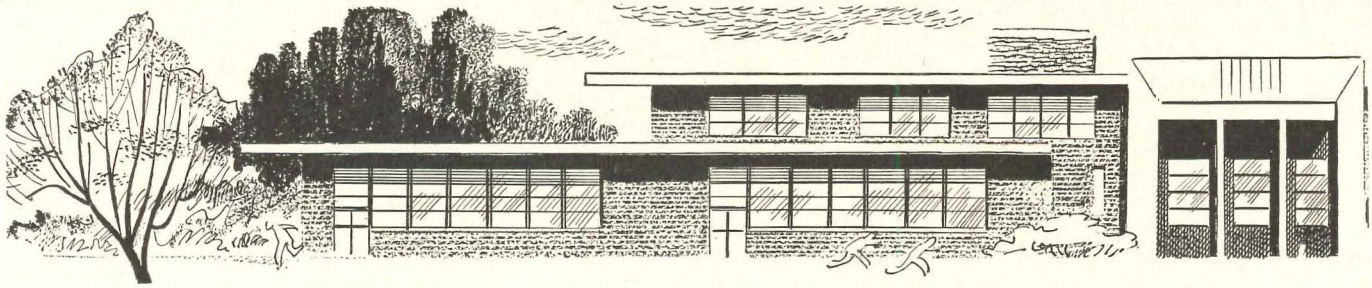


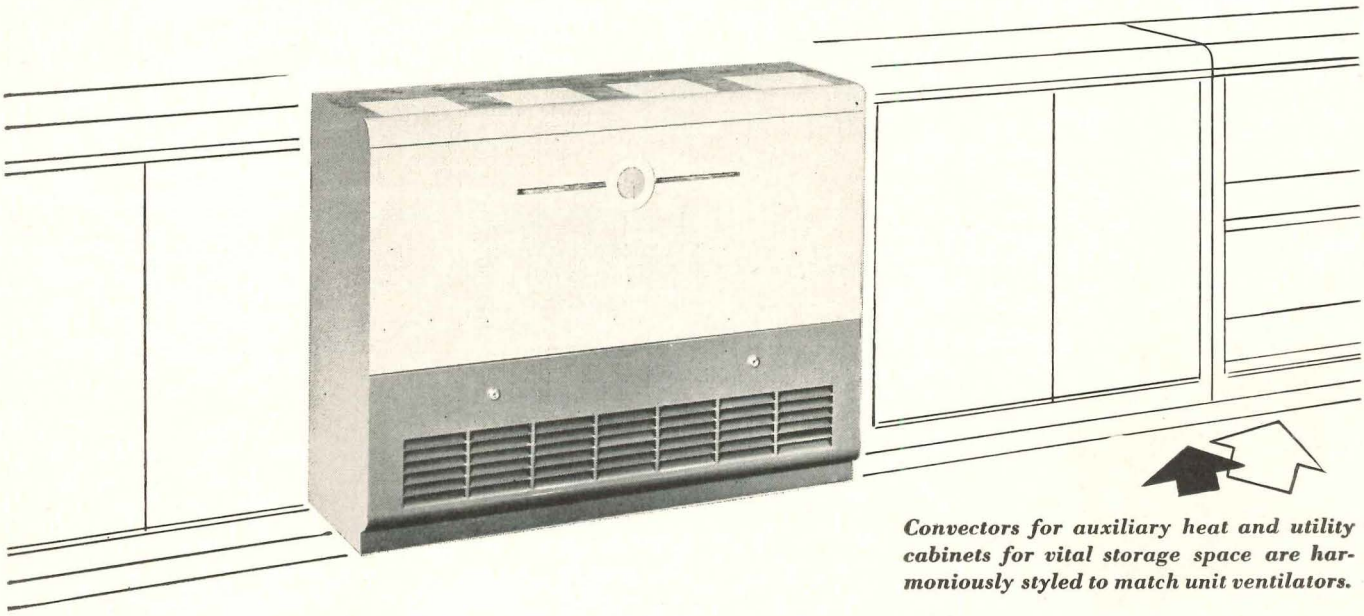
Specify

WITHOUT SUBSTITUTION

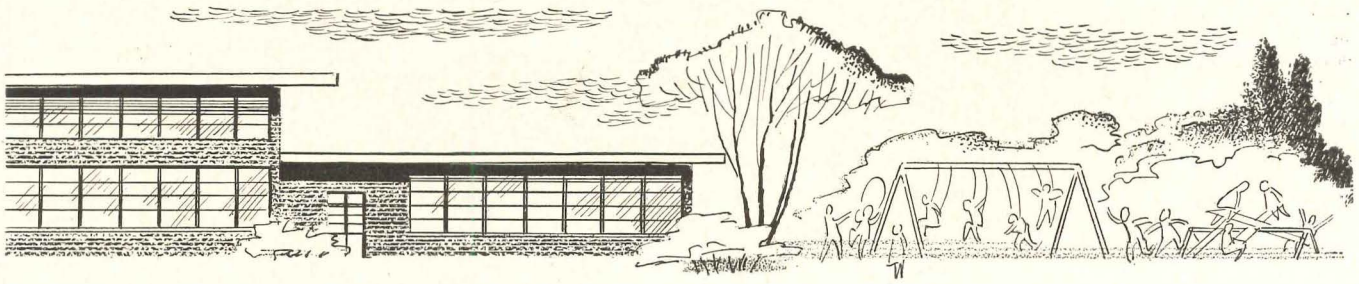
THE 1 system of mechanical ventilation that assures uniform temperatures in classrooms.

There are 2 important functions, introduction of outside air and recirculation of room air, which are performed automatically and most efficiently by unit ventilation. The architect is assured of these and 37 points of proven superiority by selection of

the herman nelson system of unit ventilation



Convectors for auxiliary heat and utility cabinets for vital storage space are harmoniously styled to match unit ventilators.



THE HIGHEST PERFORMANCE STANDARDS EVER ENGINEERED

Cooling of classrooms is no longer a problem. Unit ventilation does the job automatically. Performance standards of the Herman Nelson Unit are unmatched for delivery of fresh, warm air, under conditions of uniform temperature control. Operation in any season is economical and dependable.

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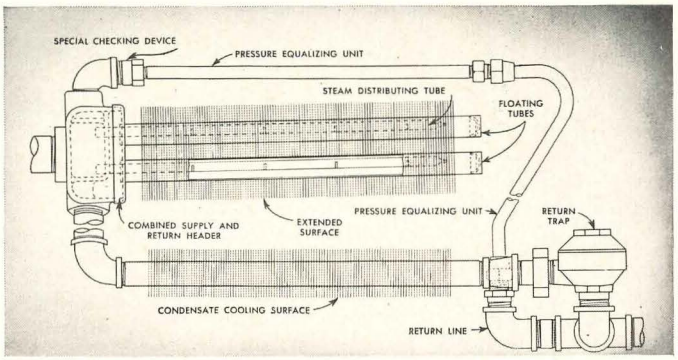
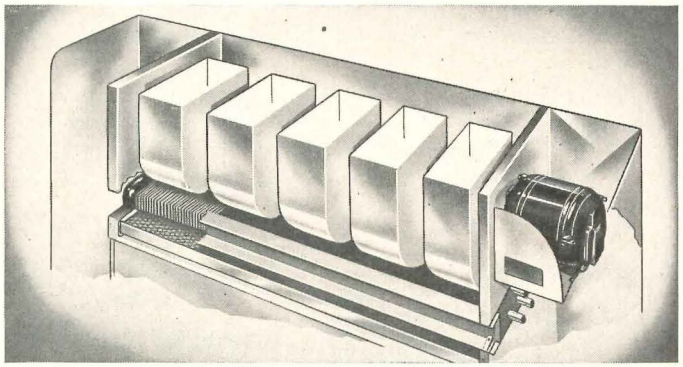
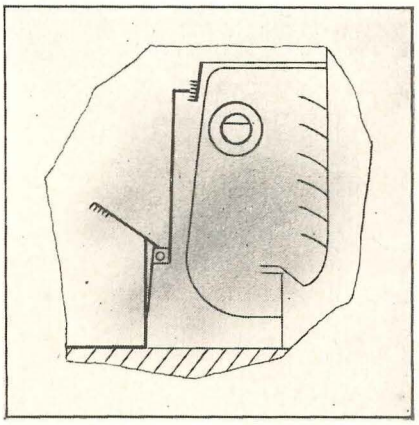


Heating element shown above permits gradual throttling of steam supply insuring uniform temperature control. Pressure equalizing unit and condensate cooling surface, two exclusive features, guarantee elimination of condensate permitting uniform distribution of steam. This is the only way of preventing drafts and water hammer.



Placement of the slow speed motor in the end compartment as pictured above permits utilization of entire suction chamber for larger fans. Fans located at top in Herman Nelson's "draw through" system assure constant volume of air delivered at proper velocity for uniform diffusion.



Automatic back draft damper prevents cold air from passing through room air grille—a patented feature of the Herman Nelson Unit.

AAF herman nelson moline illinois

THE HERMAN NELSON DIVISION
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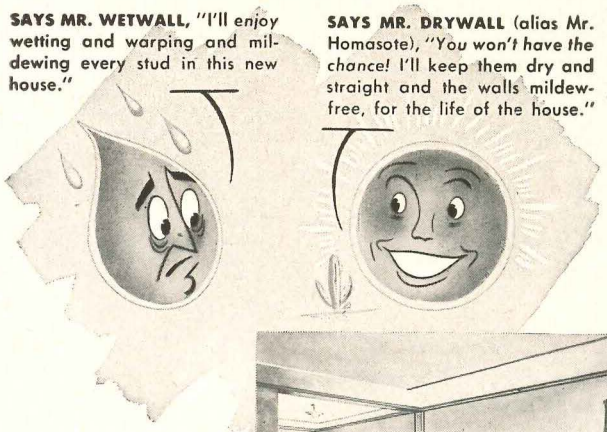
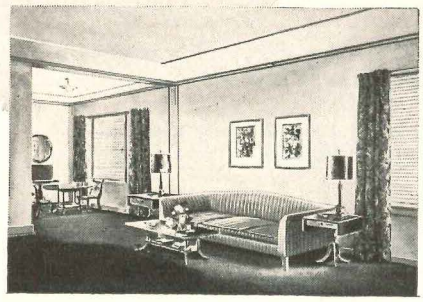
Moline, Illinois





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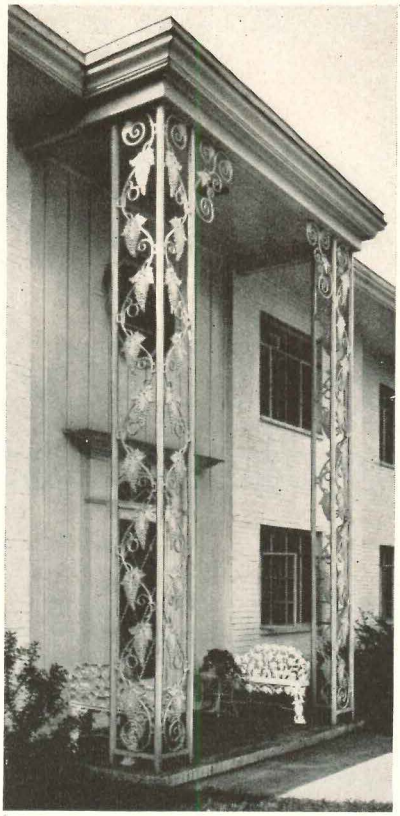

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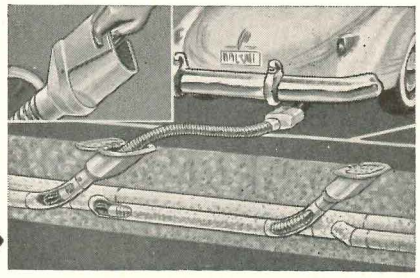

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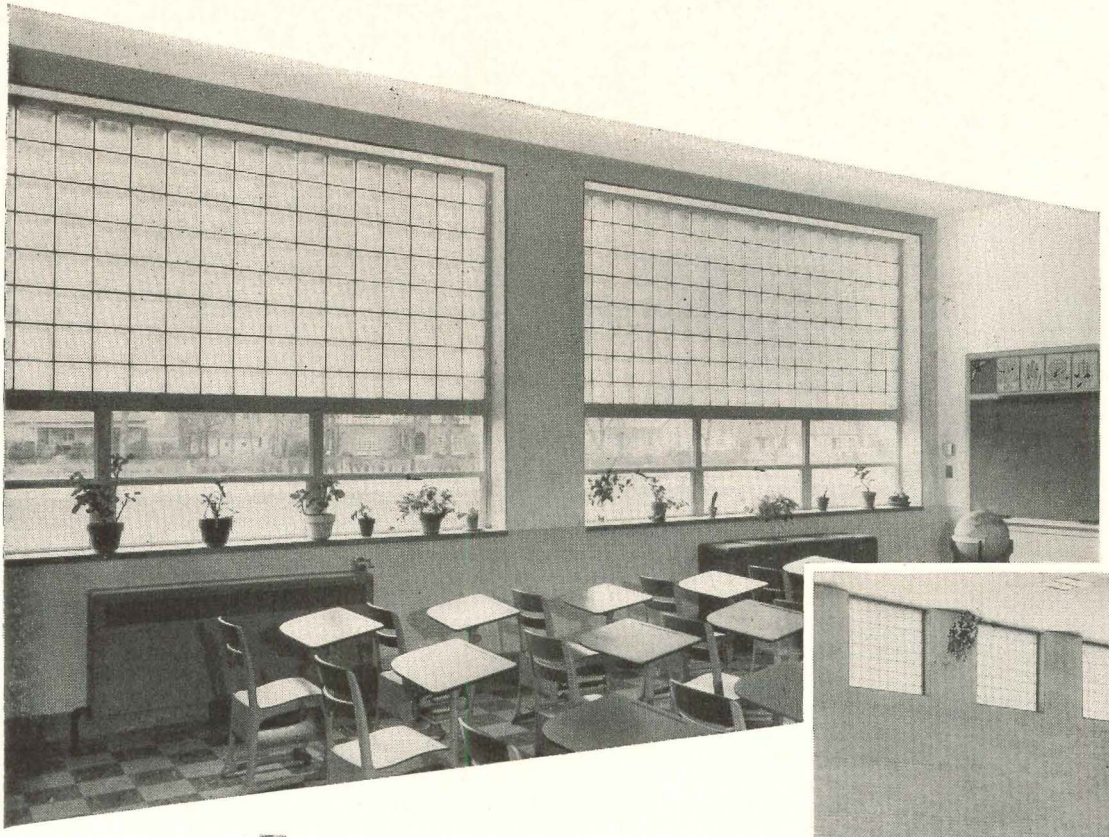

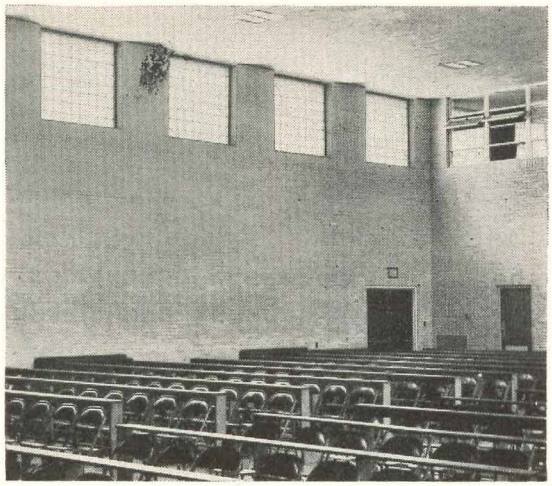

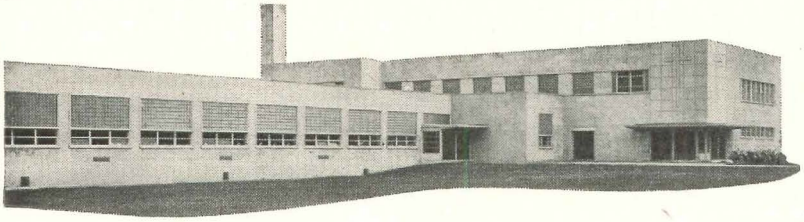

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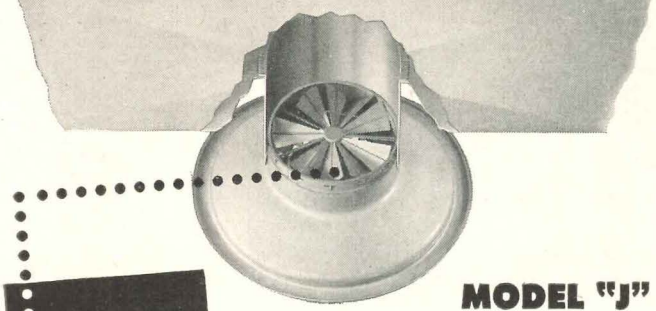

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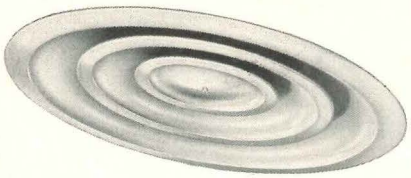

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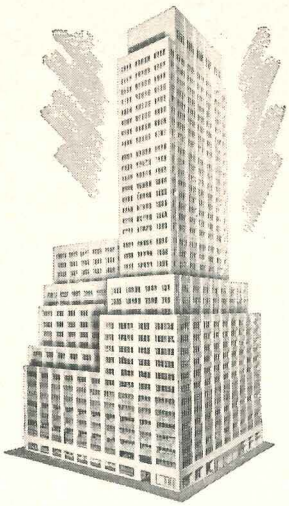
(Continued on page 318)



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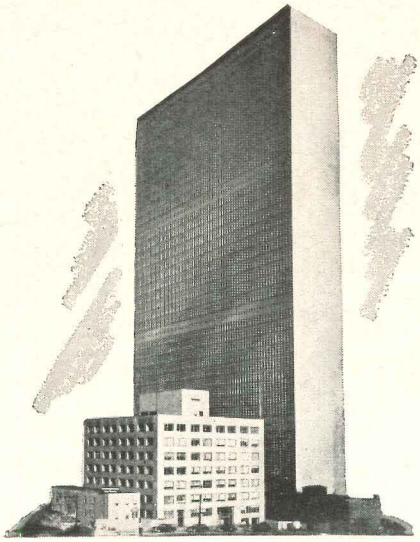

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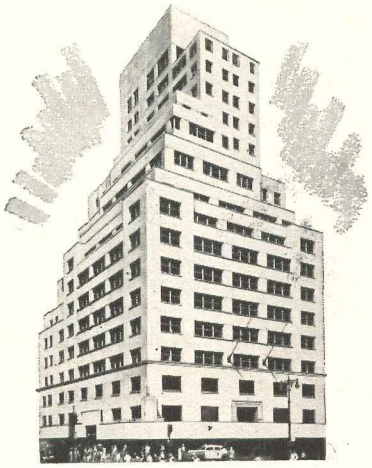

CROWELL-COLLIER BUILDING — a 35,000-foot over-all Fiberduct raceway pattern.

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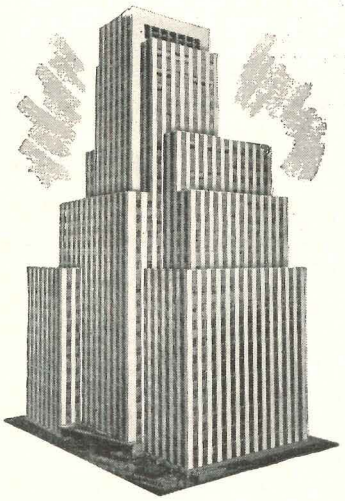

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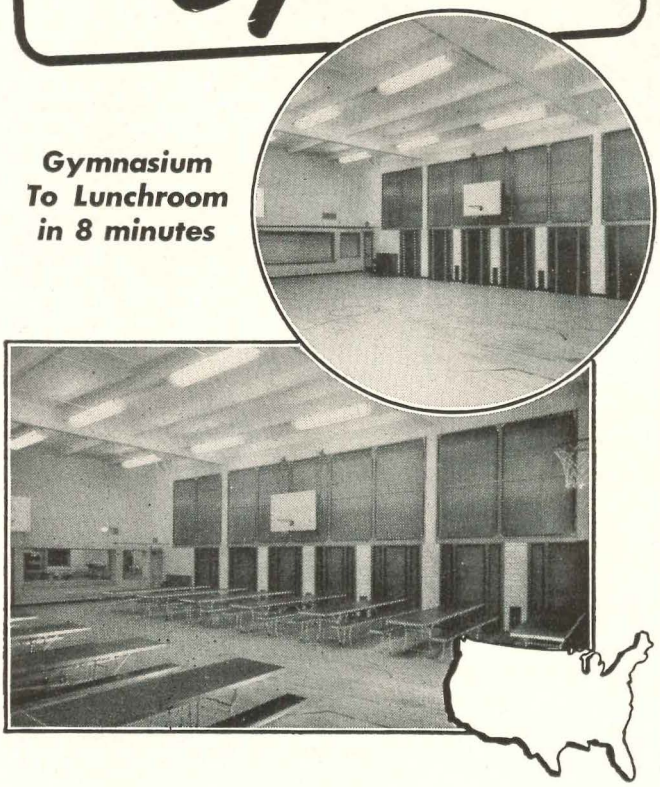

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(*Continued from page 316*)

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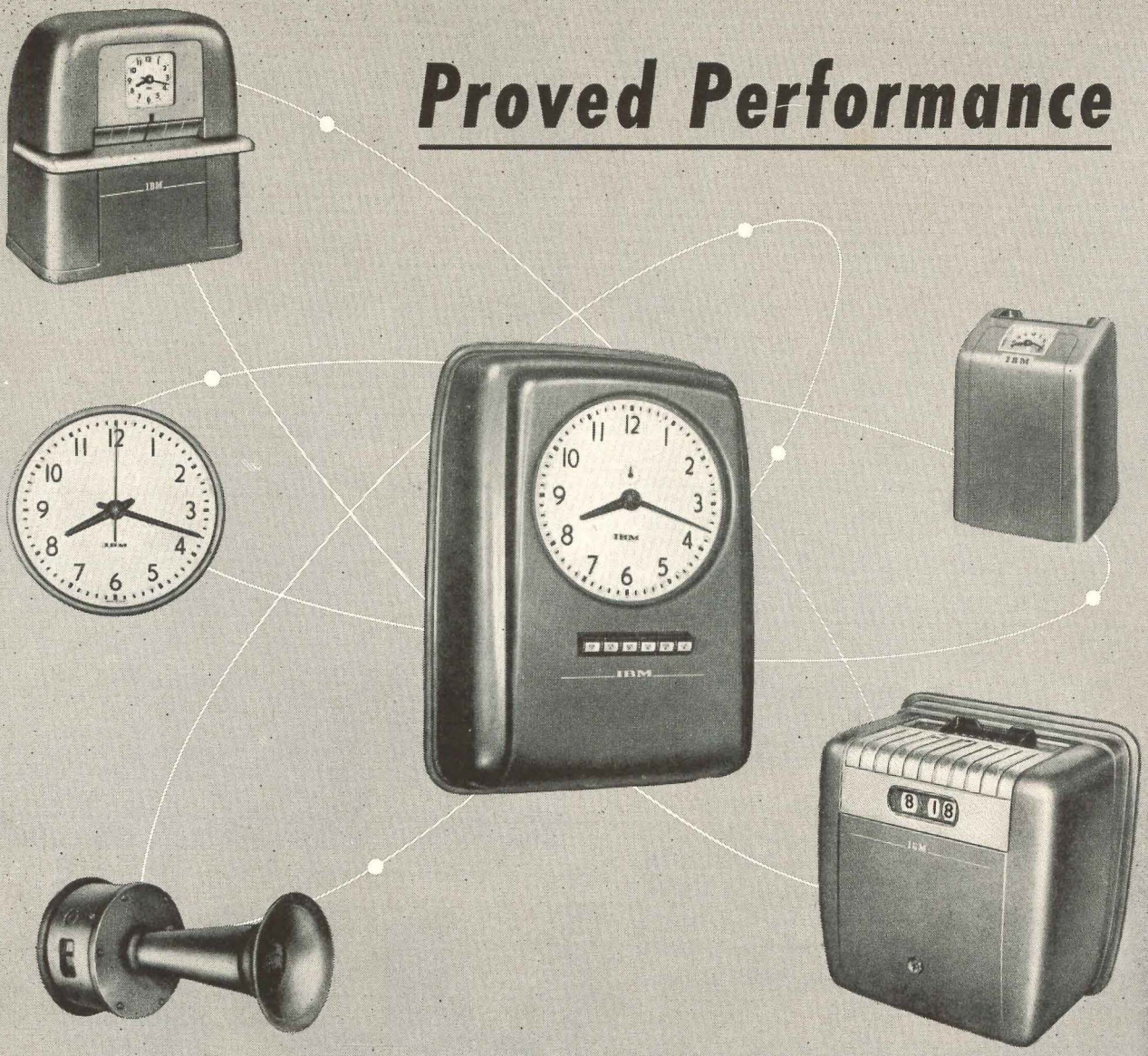

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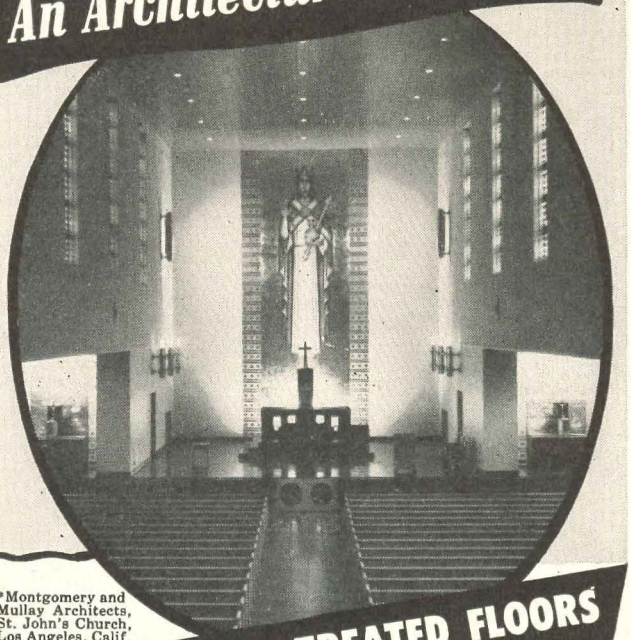

*Montgomery and Mullay Architects, St. John's Church, Los Angeles, Calif.

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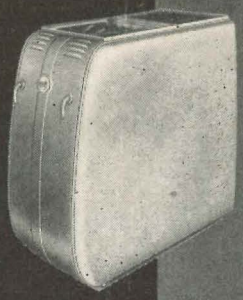

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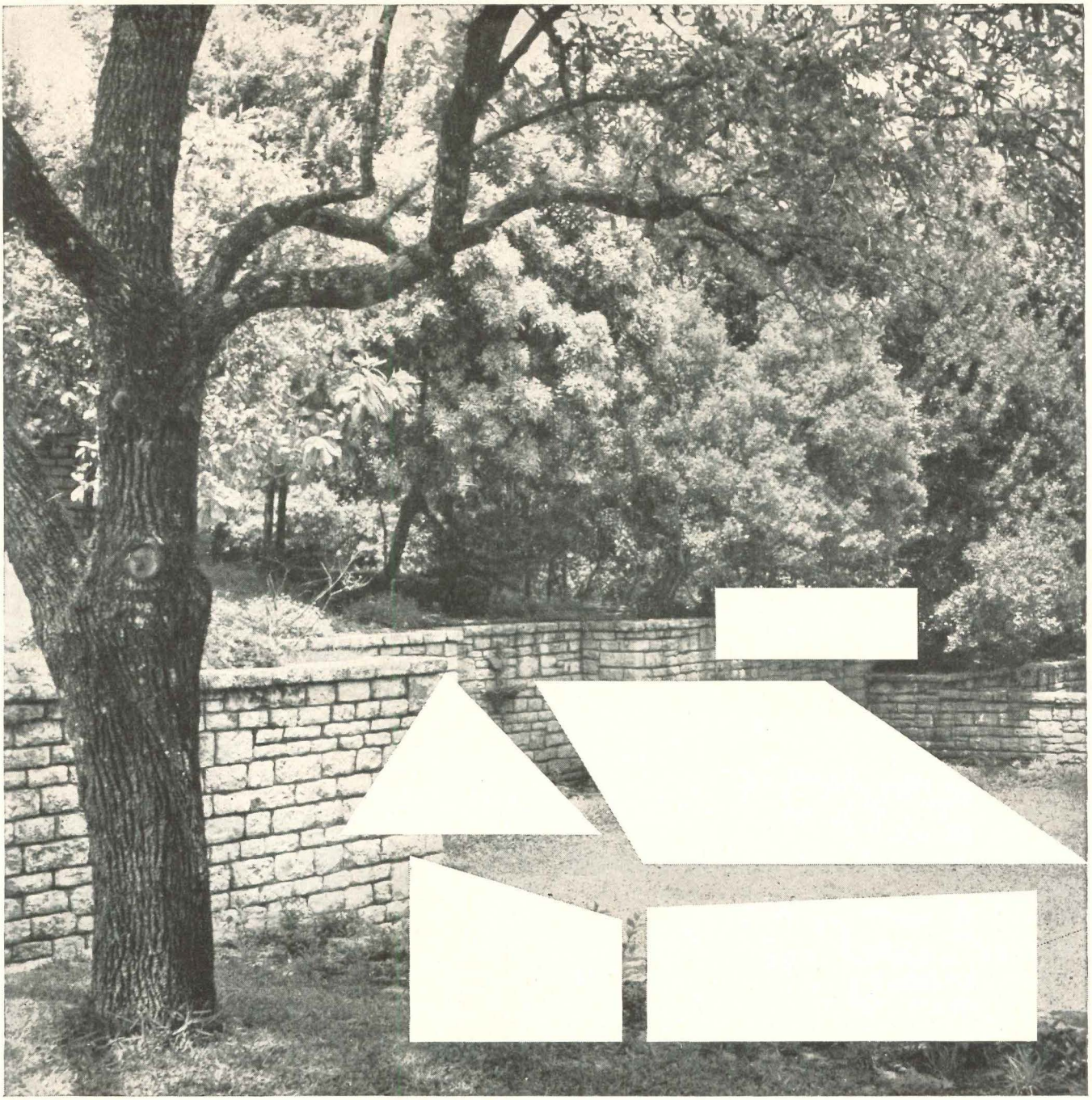

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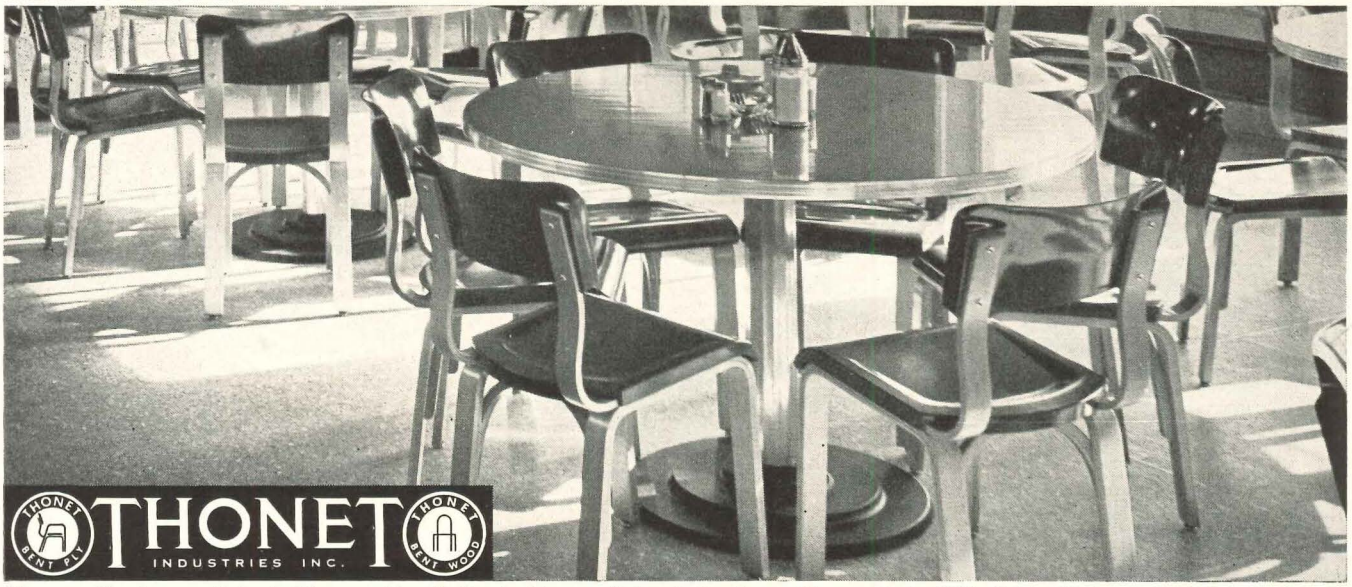

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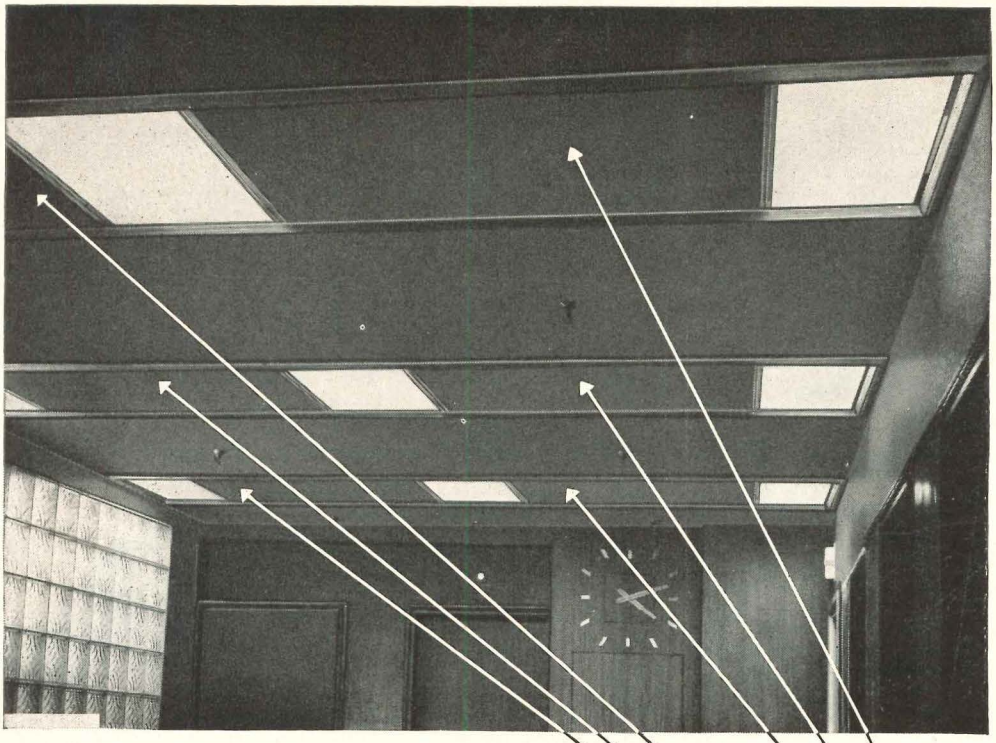

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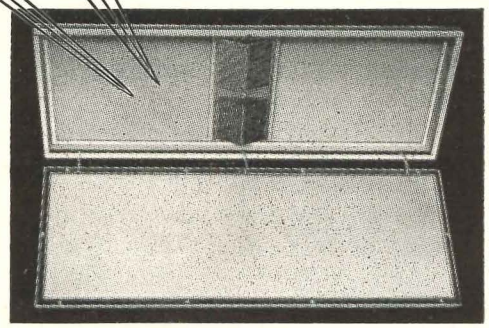

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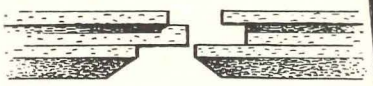

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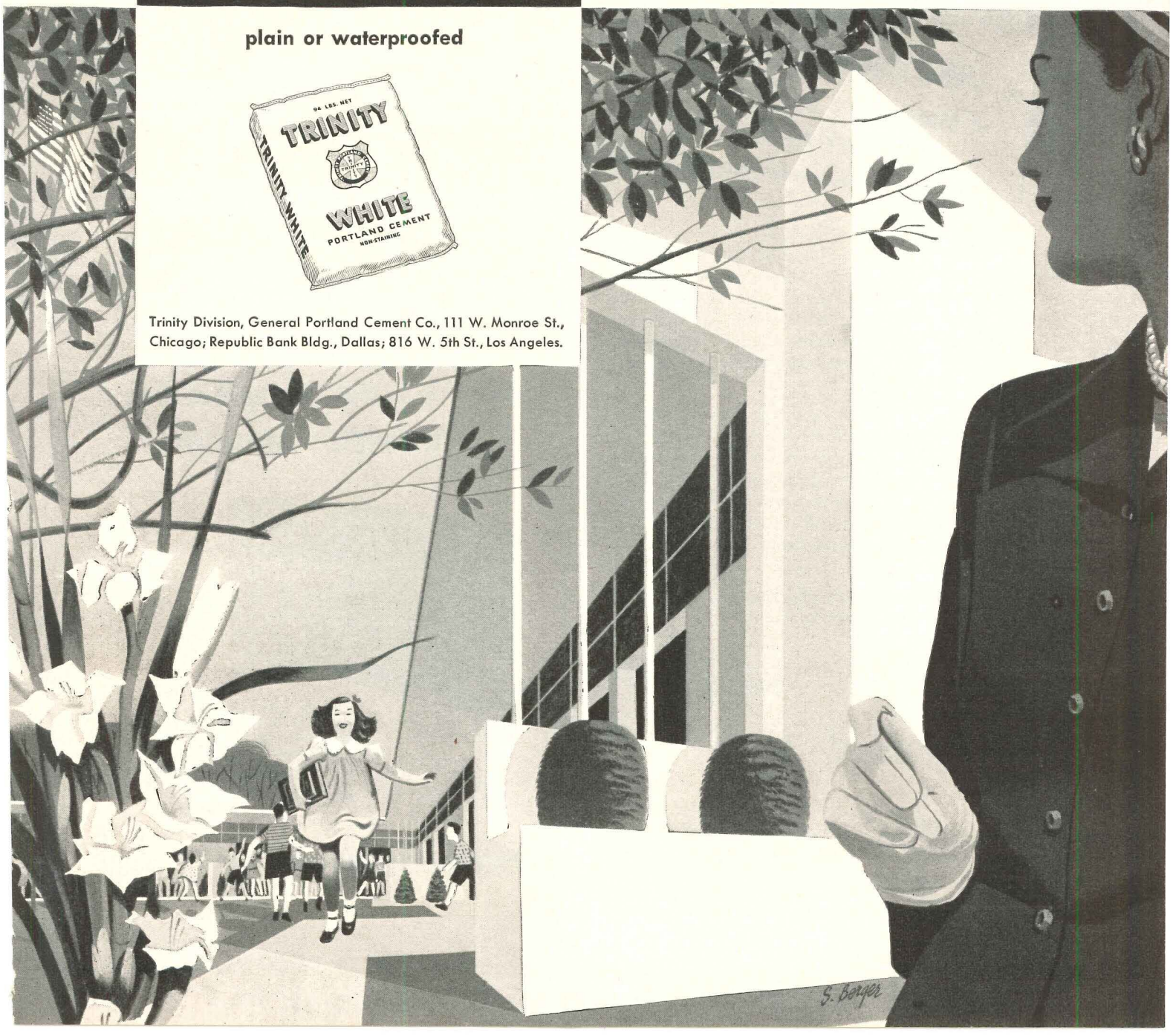

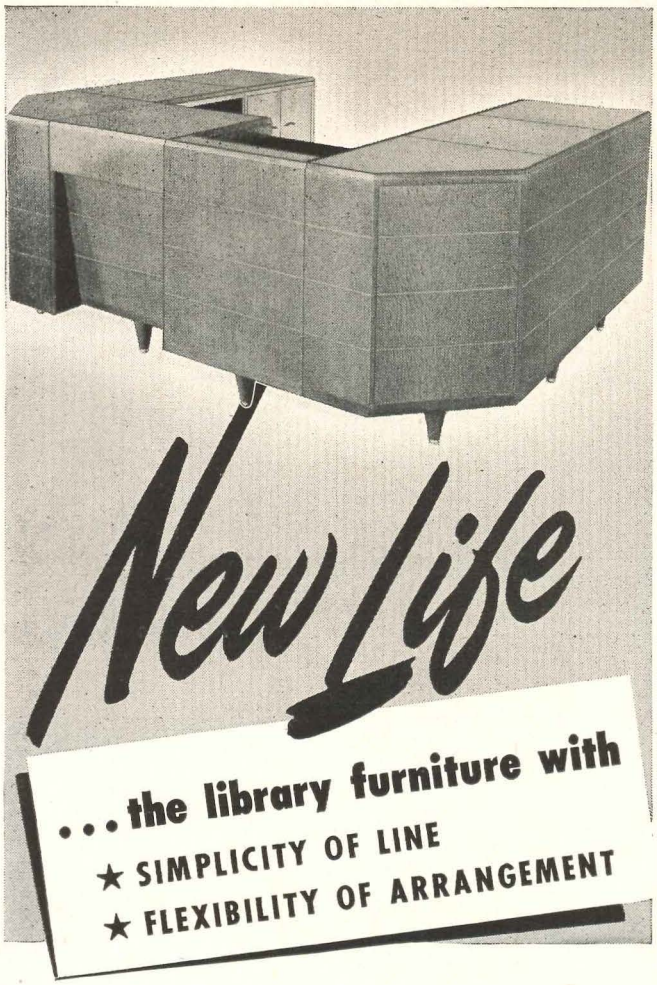

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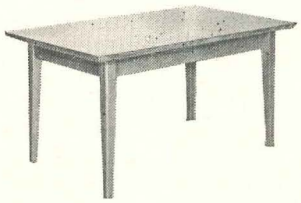

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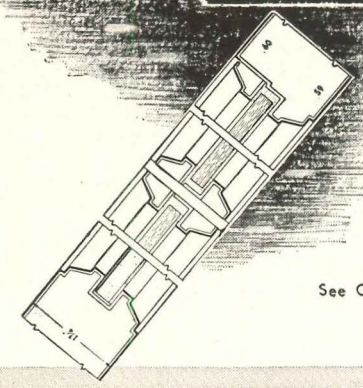

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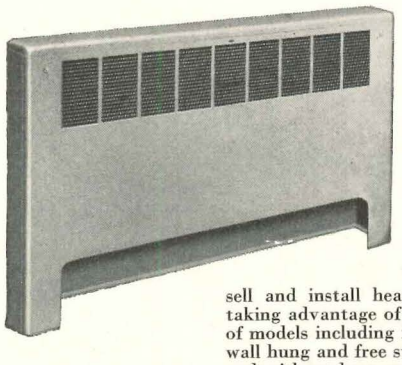

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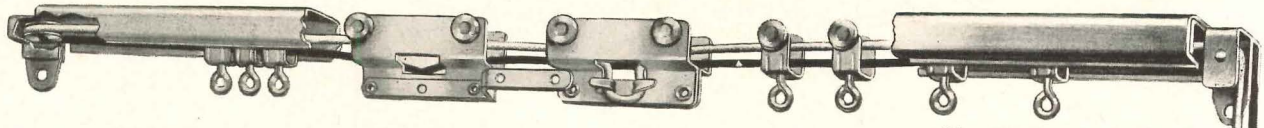

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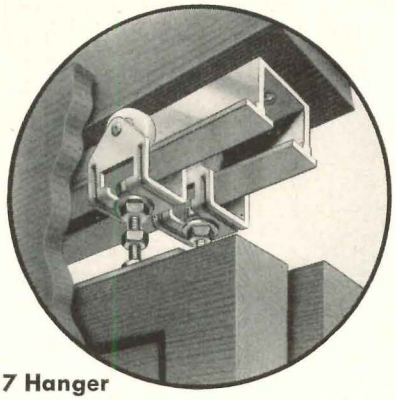

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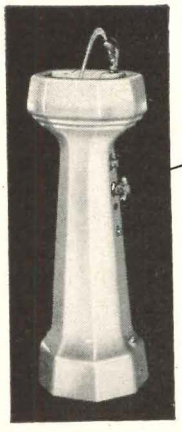

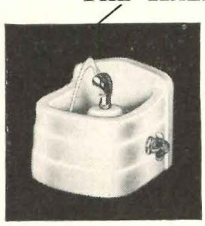

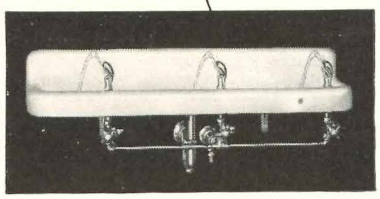

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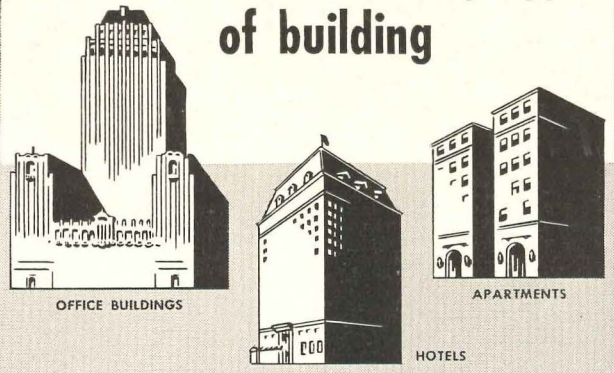

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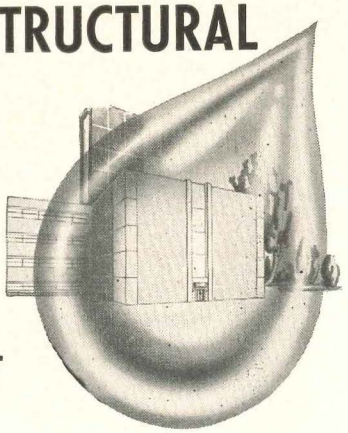

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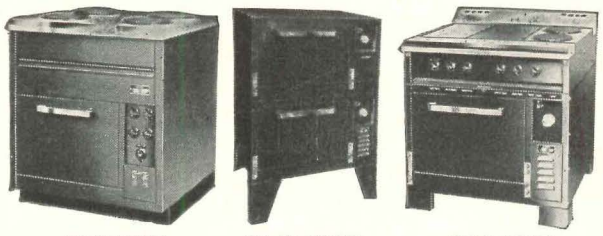

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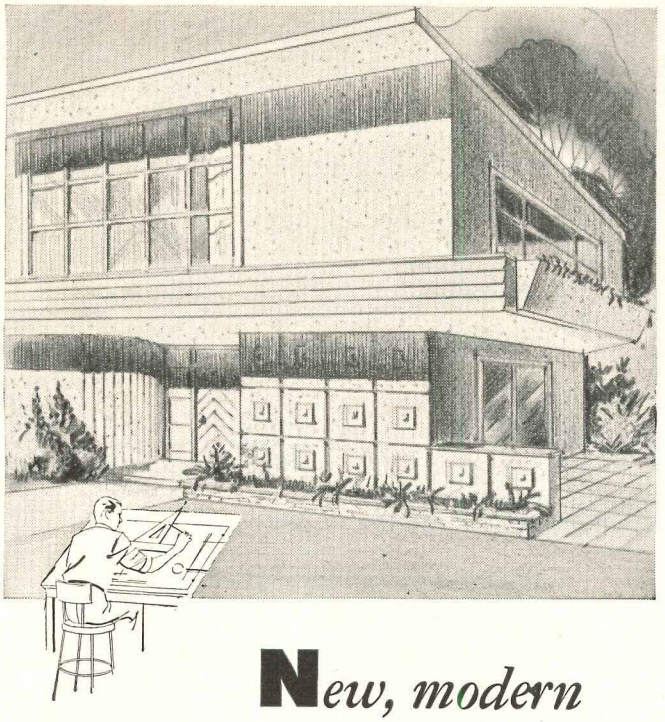

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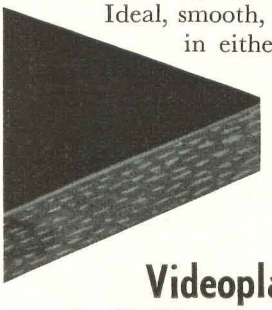

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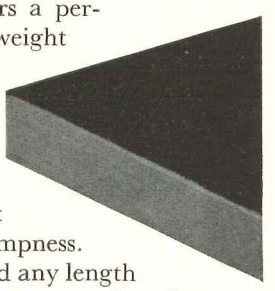

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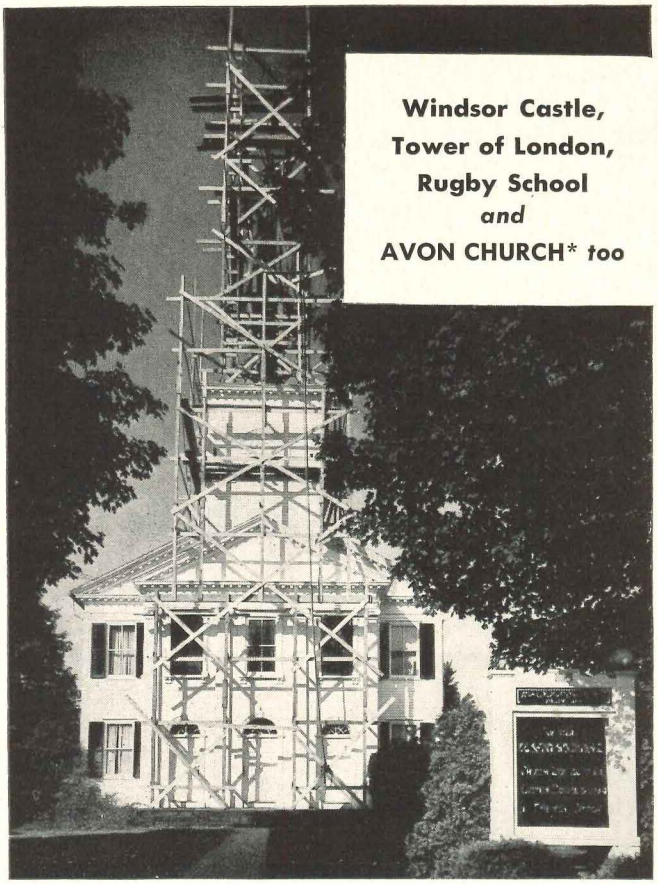

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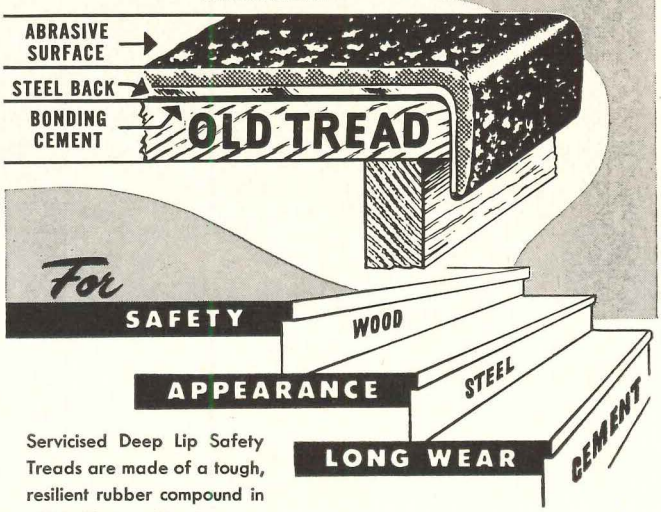

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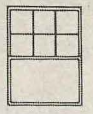
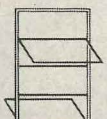

DOUBLE-HUNG

CASEMENT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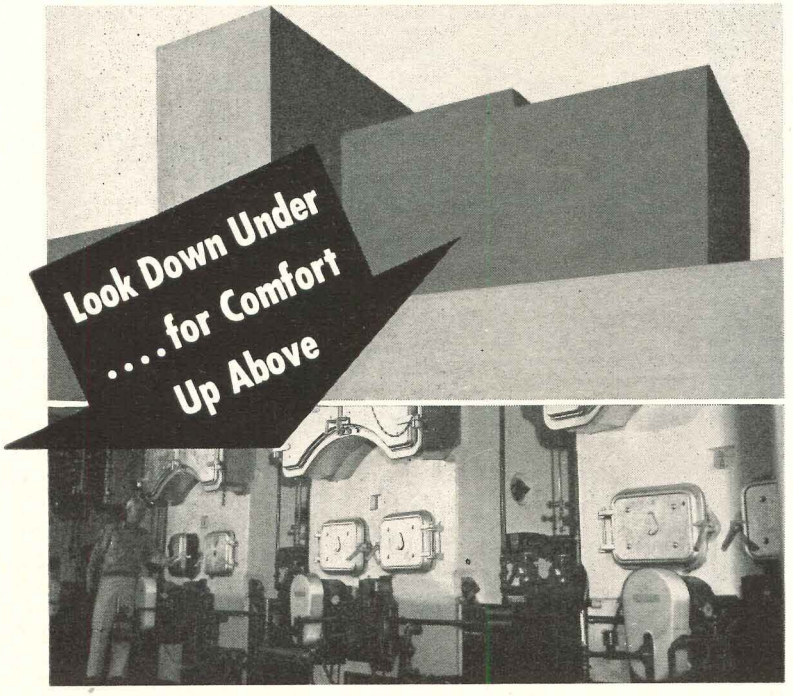

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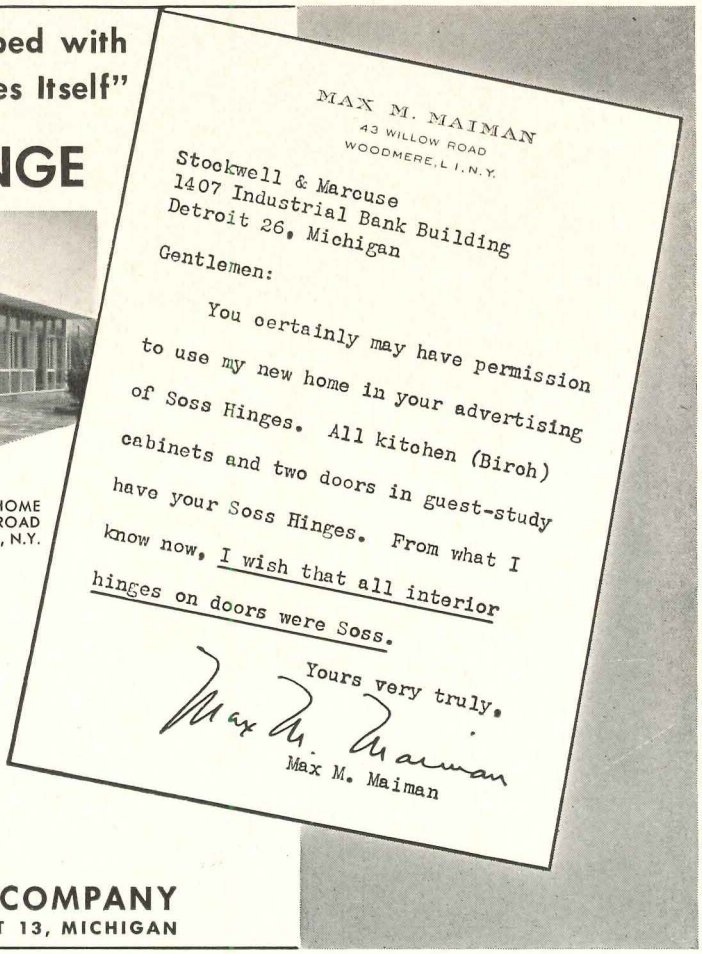

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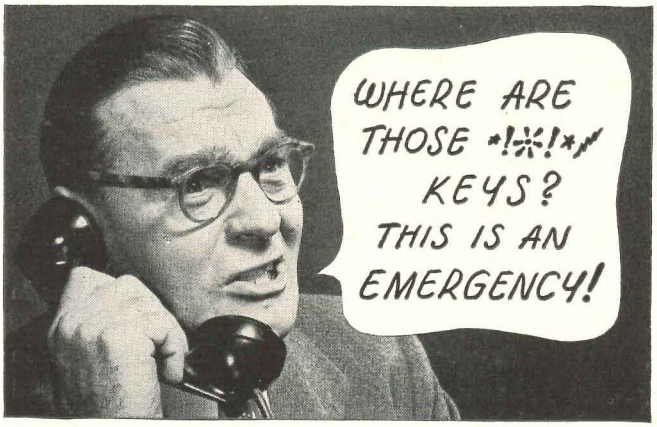

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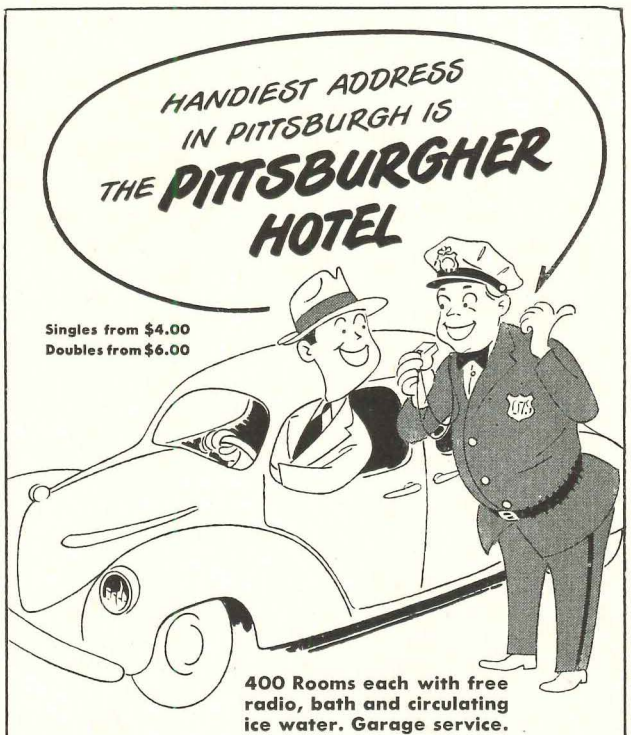

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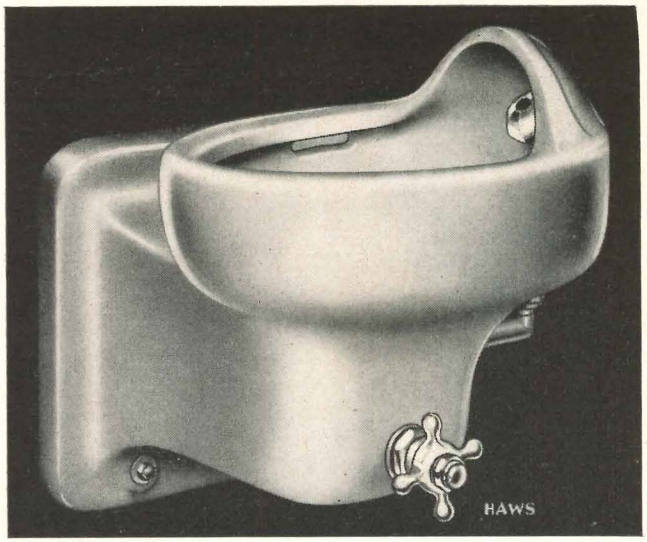

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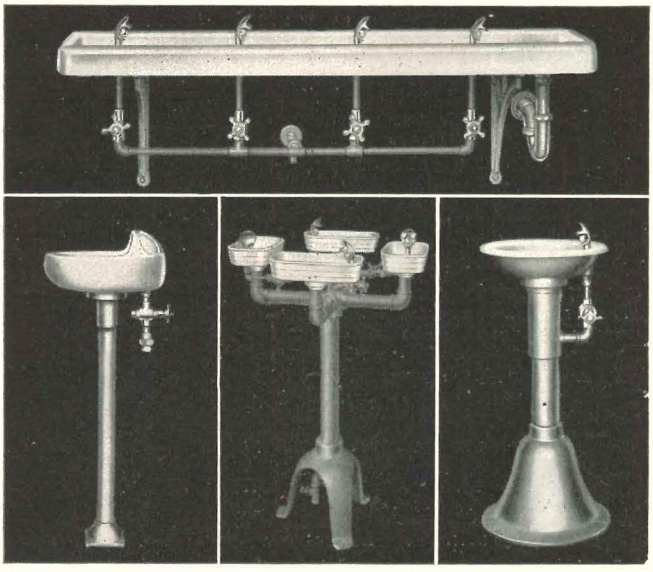

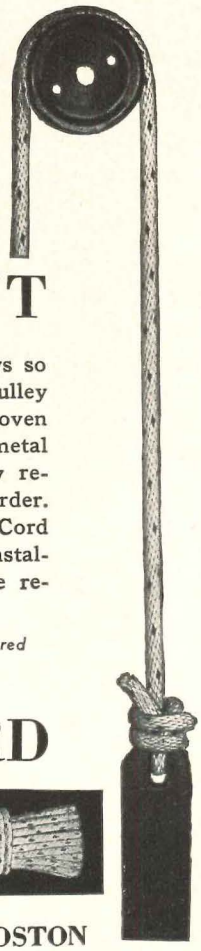

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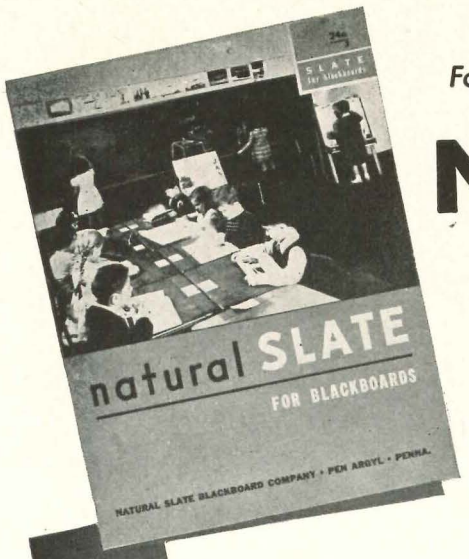

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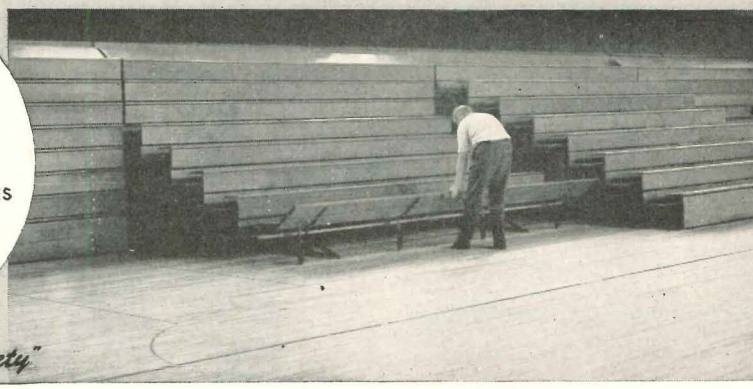

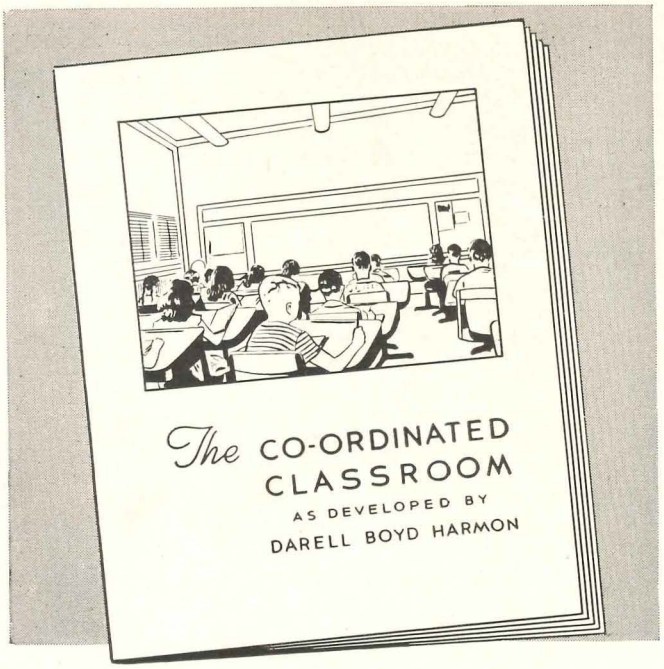

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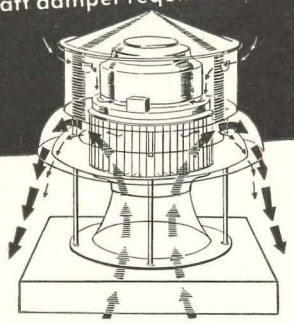

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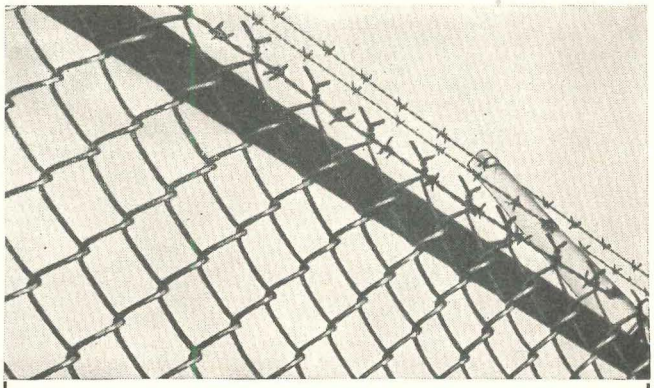

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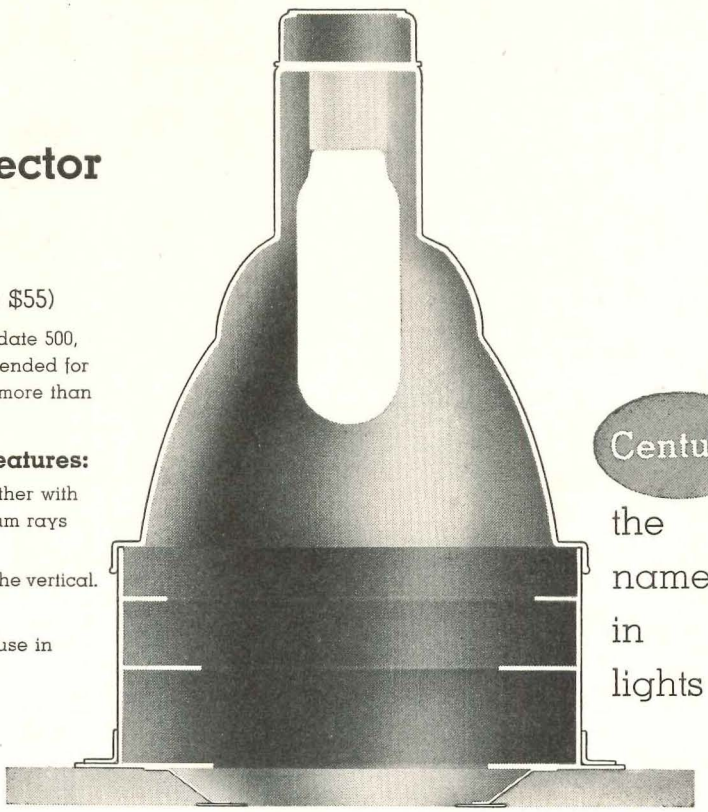

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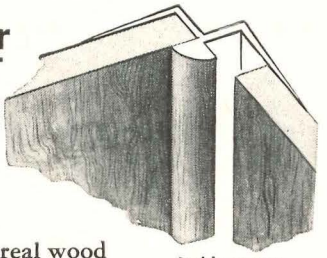

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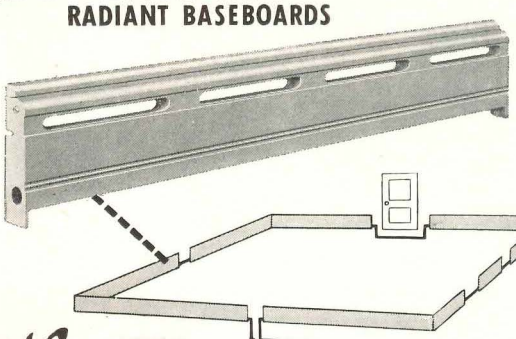

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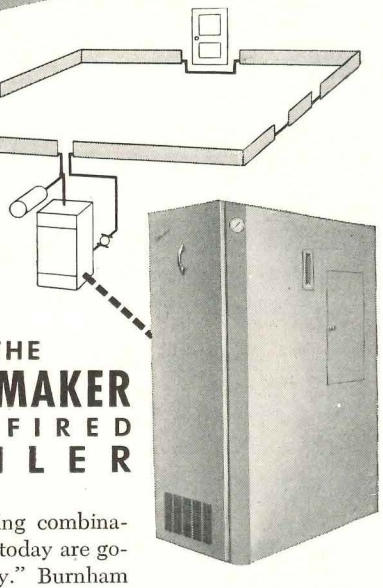

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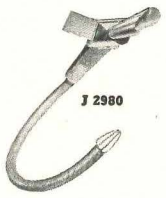
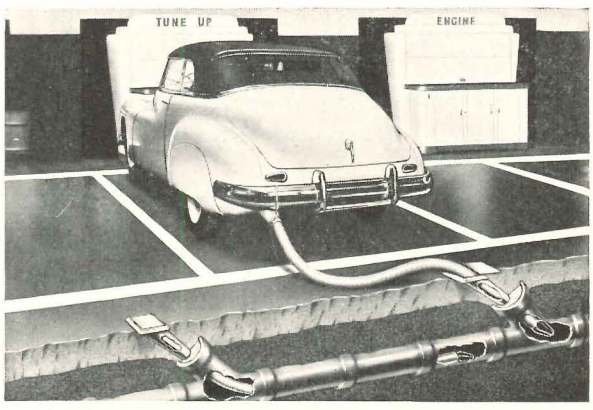


Nothing quite like the Kent-Moore J 2980 MONOXIVENT Set for effectively ridding a service department of toxic carbon monoxide! Designed for use with underfloor exhaust eliminating systems, it features a special tailpipe adapter, an asbestos-packed flexible tubing of durable stainless steel, and a virtually airtight floor outlet assembly. Provides quick, convenient, positive connection between car and underfloor duct, disappears completely below floor level when not in use. Fully protected from damage. Can't get lost or "borrowed". And the floor outlet assembly is readily installed in upturned "Y" in duct main . . . no individual "T's" or branch ducts required. Assures more efficient, long-life operation at a minimum cost of installation. Write today for details.



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Engineers and Manufacturers of Special Automotive Service Tools and Equipment

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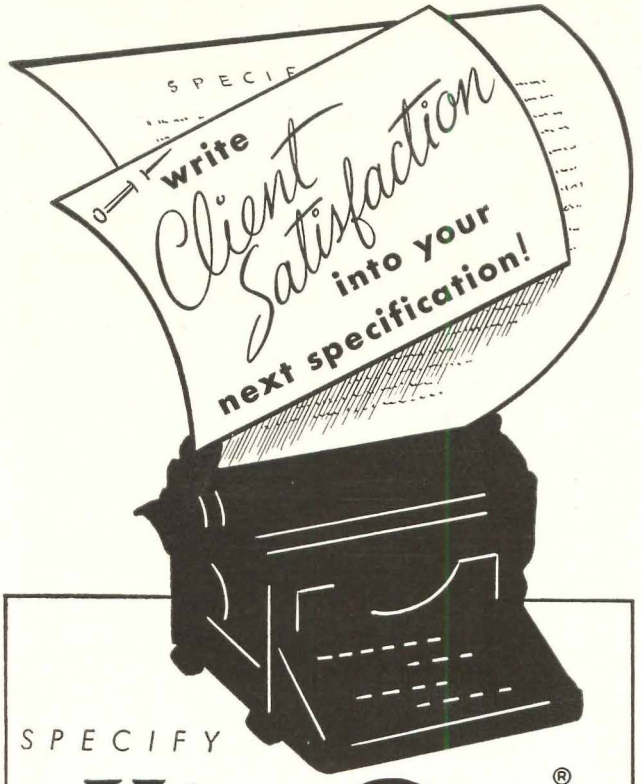
Sales and Service Engineering Representatives in Principal Cities Coast-to-Coast



SPECIFY

Win-Dor®

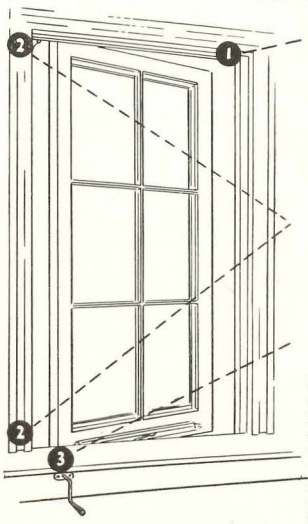
HARDWARE

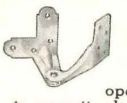
—Quality Since 1906—

The three Win-Dor devices shown below are the elements that help assure client satisfaction with your *out-swung wood casement window installations.* Each one performs a specific important function — and does it *better!* Together, they furnish the most satisfactory control that quality manufacture and the engineering experience of almost half a century can provide.

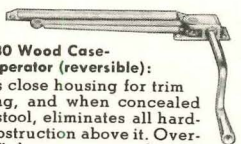
See Sweet's file $\frac{18b}{16}$ for details.

Series 48 "Snugger" Closer: Reaches out and pulls casement tight at top. Automatic closing and release. Furnished in steel or brass, with 6 or 8-lb. spring. Reversible. "Snuggers" also available to provide automatic closing of all doors — especially cabinet and wardrobe doors where "whip" is encountered. Eliminates latching devices. No mortising.





Series 75 Extension Hinges: Provide 4" clearance between open sash and frame to permit cleaning outside of glass from within the room. Reinforce sash corners

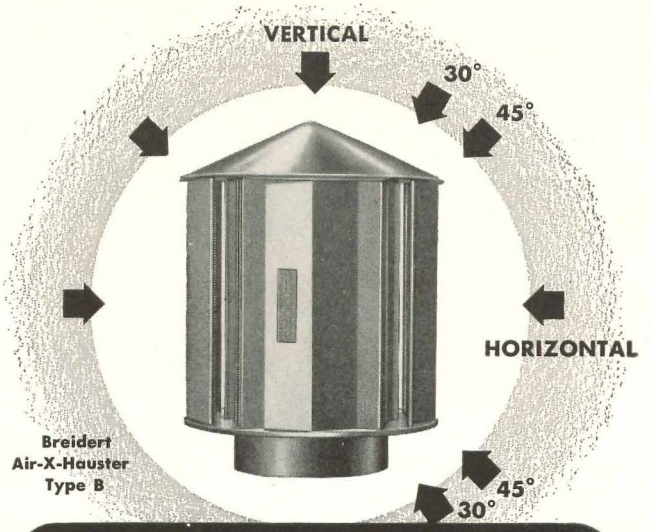


Series 30 Wood Casement Operator (reversible): Permits close housing for trim detailing, and when concealed under stool, eliminates all hardware obstruction above it. Oversize ¾" bronze worm, bronze bushing. Steel arm, channel, and integrated housing.

THE CASEMENT HARDWARE CO.

406 N. Wood St., Dept. J, Chicago 22, Illinois

First Ventilator with Certified Capacity Ratings!

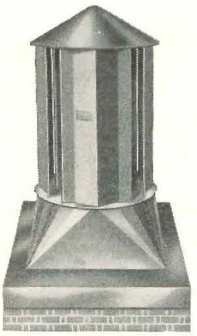


Breidert Air-X-Hausters

PATENT NO. 2269428

The Revolutionary Improvement in Roof Ventilators and Chimney Tops

Only the Breidert Air-X-Hauster offers certified capacity ratings based on tests* made with wind blowing in *all* directions as shown above. Only such tests can guarantee the capacities a ventilator will deliver under actual operating conditions! No matter which way the wind blows, barring interior negative pressures, the Breidert provides safe, sure ventilation.



For Chimney Tops . . . the Breidert Air-X-Hauster stops down-draft, exhausts smoke and fumes, completely overcomes sluggishness caused by down-draft. Thousands of Breiderts are in use all over the country.

For Vent Flues . . . the Breidert succeeds when conventional ventilators fail because it completely eliminates back-draft where no interior negative pressure exists. Positive flue action is assured regardless of wind direction. The Breidert is more compact and neat in appearance.

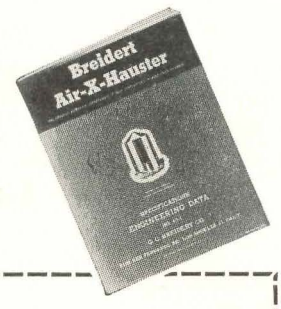
For Roof Ventilating . . . the Breidert is unsurpassed in efficiency, economy and appearance for use on residences, commercial and industrial buildings of all types. Stationary . . . no moving parts . . . nothing to jam or get out of order.

Send for ***FREE***

ENGINEERING DATA BOOK . . .

USE the coupon for complete information on the Breidert Air-X-Hauster, including certified capacity ratings.

* *By Smith, Emery & Co. of San Francisco, Pacific Coast Branch of the Pittsburgh Testing Laboratory.*



THE G. C. BREIDERT CO.

3129 San Fernando Road

Los Angeles 65, California

The G. C. BREIDERT CO., Dept. AR
3129 San Fernando Road
Los Angeles 65, California

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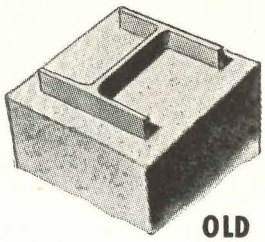
Street.....

City.....Zone.....State.....

Cut Costs...Weight and WORK in Fireproofing STRUCTURAL STEEL

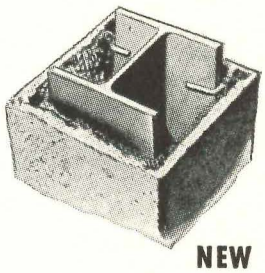
In recent Underwriters' Laboratories tests, columns fireproofed with Zonolite* vermiculite plaster as illustrated received a 4 hour rating for 1½" thickness and 3 hours for 1". Similar exceptional ratings have also been obtained for Zonolite plaster fireproofing for beams, trusses, floors and ceilings.



OLD WAY

SAVES WEIGHT

Weight saving as compared to ordinary fireproofing methods is enormous. Form construction is eliminated, lighter steel members can be used, and building time is reduced while rentable space is increased.



NEW WAY

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135 S. La Salle St.
Chicago 3, Illinois

Fireproofing with Zonolite plaster calls for no new methods or skills. It is applied in a manner familiar to all plasterers.

ZONOLITE BRAND VERMICULITE INSULATION

Member of the Vermiculite Institute

MAIL COUPON FOR DETAILS

ZONOLITE COMPANY—DEPT. AR-40
135 S. LaSalle St., Chicago 3, Ill.
Gentlemen: Please send me booklet showing uses of Zonolite Vermiculite Plaster Aggregate for fireproofing.

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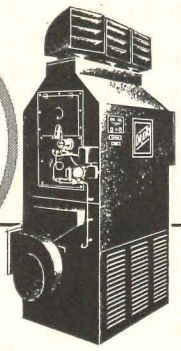
Address.....

City and Zone.....*State*.....

*Zonolite is a registered Trade Mark

What OTHER HEATING METHOD CAN Match all THESE BENEFITS



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With the outstanding performance of radiant systems in thousands of homes, in hospitals, schools and churches, it was inevitable that the clean, uniform comfort conditions produced by radiant heating would become a prominent feature in modern multiple dwelling construction. And, for the successful performance of a radiant system, steel pipe is the first choice as it always has been for conventional steam and hot water systems.

Steel pipe is, first of all, completely practical and adaptable. It can be formed readily, welded soundly and easily, and its expansion and contraction in concrete or plaster for all practical purposes may be considered the same. Moreover, it is durable . . . a fact proved beyond the shadow of a doubt in more than 60 years of use in steam and hot water heating systems. Economy is its important and considerable advantage.

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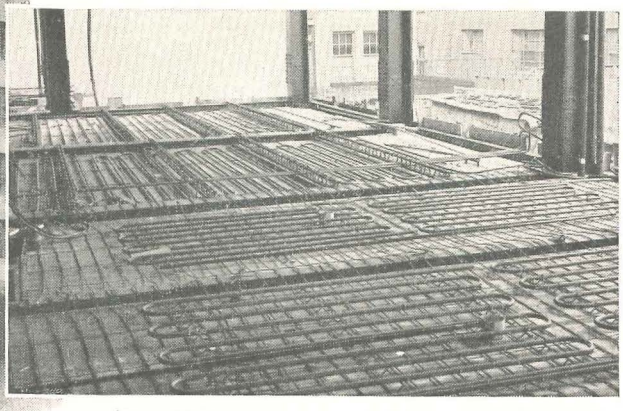
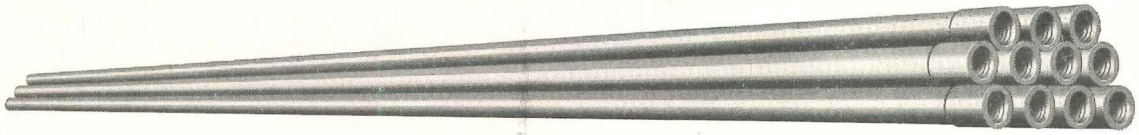


City Investing Company, builder of this structure utilized steel pipe coils in the ceilings, with some supplemental wall piping and a few floor coils. Photo shows ceiling coils viewed from floor above.

COMMITTEE ON STEEL PIPE RESEARCH

AMERICAN IRON AND STEEL INSTITUTE

350 Fifth Avenue, New York 1, N. Y.



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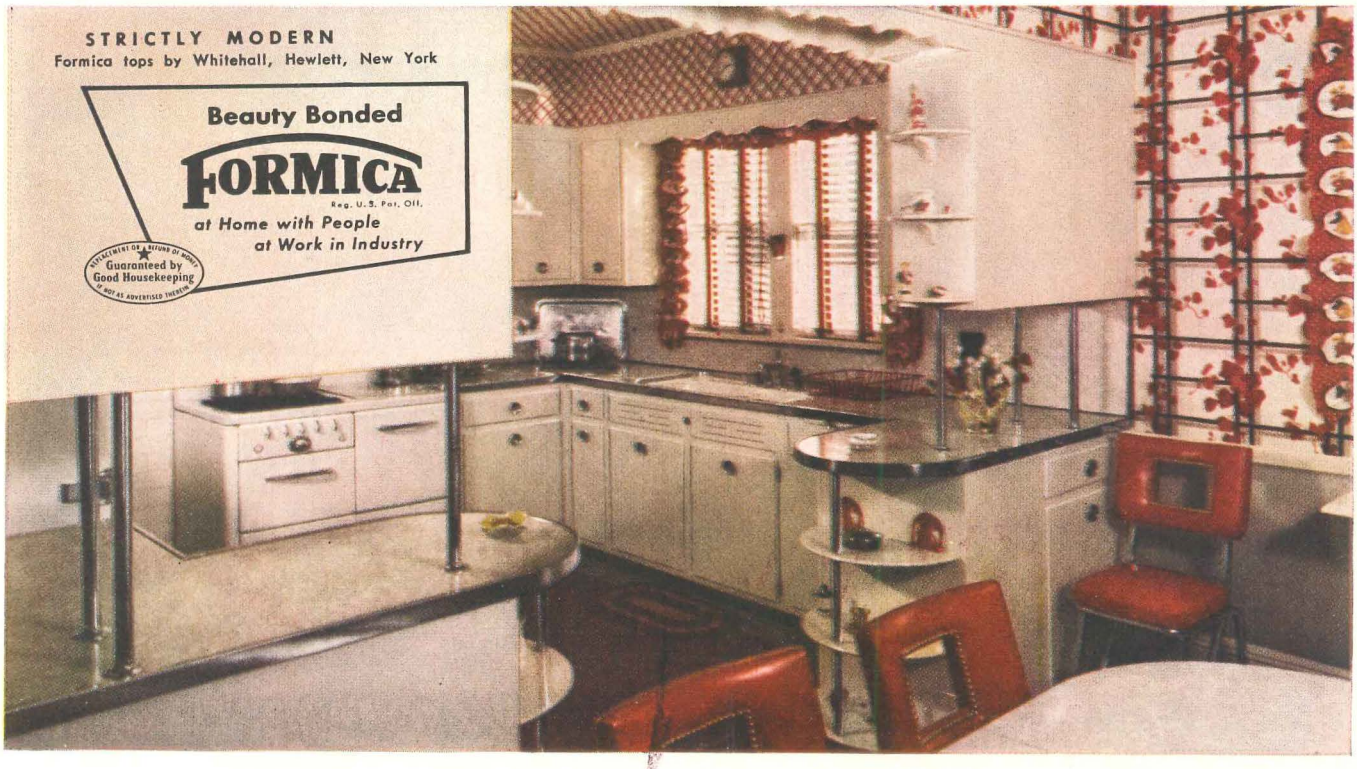
Look under "Plastics" in your Classified phone book for the name of a local Formica fabricator.

"Just as good" is a fable. Look for the label. Insist on Genuine Beauty Bonded Formica.

New 16 MM color sound movie "Living With Formica" pictures uses and how it is made. Available now for group showings. Write for film.