

96:2

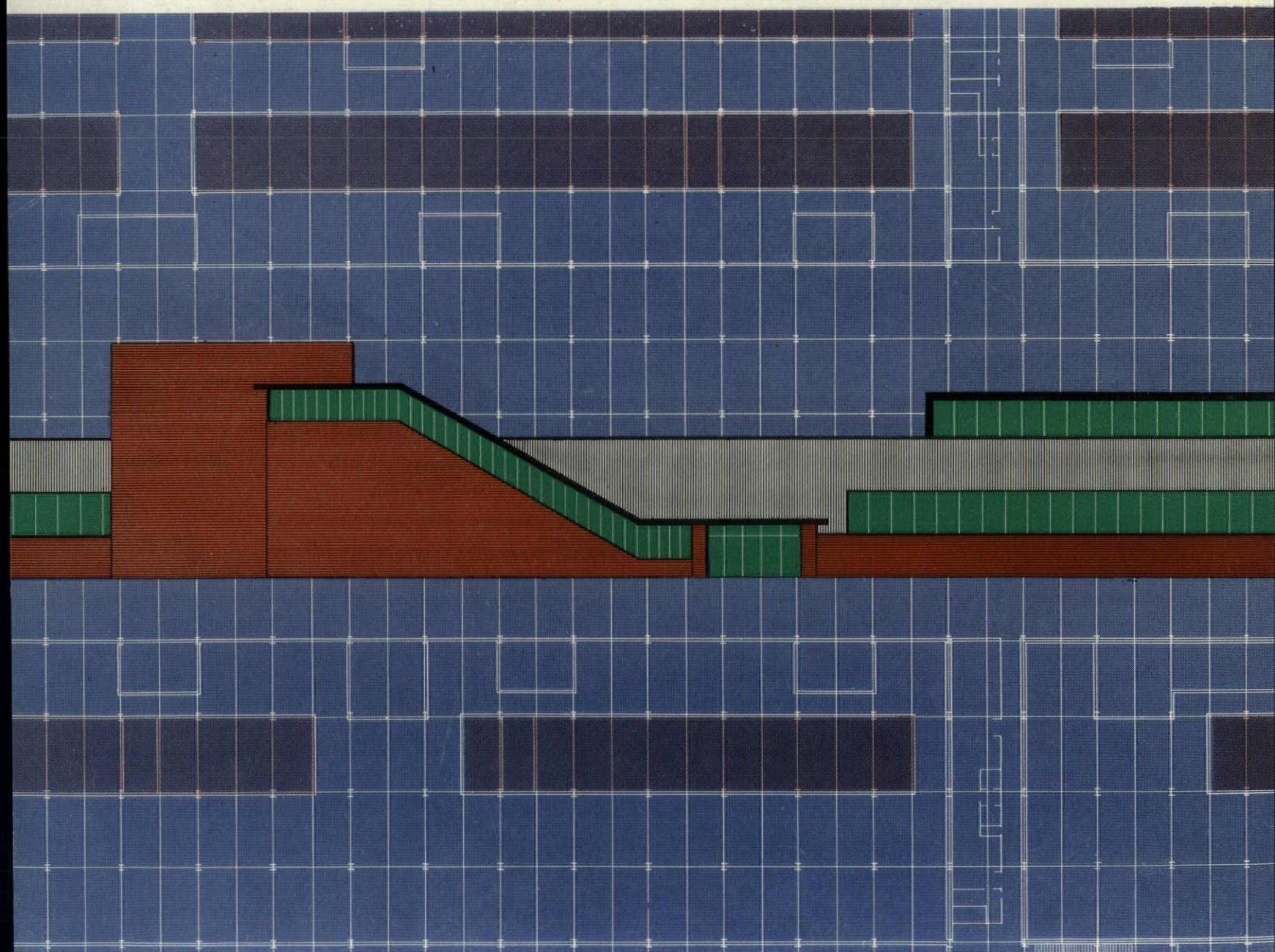
architectural **forum**

edition

February 1952

MINNEAPOLIS COLLEGE OF ART
& DESIGN LIBRARY

- Industrial building** How Albert Kahn Associates design for flexibility (below and p. 85)
- Experimental school** Top lighting and L-shaped classrooms under test (p. 103)
- Three small office buildings** Quality without premium, light without glare, plan without stairs (p. 108)
- Engineering news** Continuity and prestressing combined;
Ten framing systems analyzed;
Hospital steel welded to spare noise, steel and money (p. 134)
- Cancer hospital** What radio therapy has done to design (p. 116)
- Downtown department store** Unique building policy ignores race to suburbs (p. 126)
- Steel fireproofing** Sheets of plaster replace tons of concrete (p. 140)





This office was planned for permanent flexibility

Thanks to its walls, this beautiful office is a permanently practical investment. As space requirements vary in coming years, everything in this office—including *the walls*—can be moved or rearranged in a matter of hours.



Korweld® — the non-metallic panel construction which combines the best features of *all* types of interior partitions—is an exclusive Hauserman development. Ask your Hauserman Representative for facts about this revolutionary new product.

*Trademark

Here, indeed, is the solution to future expansion problems for *this* company, and for the thousands of other American businesses—commercial, industrial and institutional—which now enjoy the many benefits of Hauserman *Movable Interiors*.

Today the demand for Hauserman *Movable Interiors* is the greatest in our almost 40-year history. Although production expansion already is underway, we urge you to *plan now*—as far in advance as possible—in order to insure delivery and erection of your clients' Hauserman installations *on schedule*.

Your nearby Hauserman Representative will gladly furnish you with complete information . . . or write *today* to The E. F. Hauserman Company, 7117 Grant Avenue, Cleveland 5, Ohio.

Plan now for
permanent flexibility
wherever
space needs vary



LABORATORIES



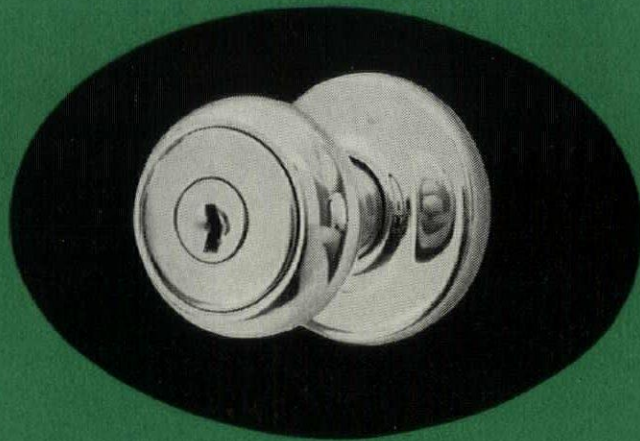
SCHOOLS



HOSPITALS

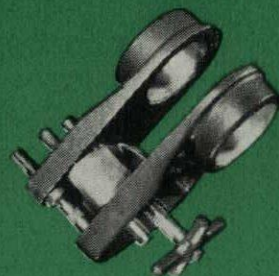


INDUSTRIAL
PLANTS



save time
for skilled hands

make the most of the valuable time
of the skilled man on the job. Specify
kwikset locksets and use kwikset's unique
time savers.



illustrated is the kwikset boring jig,
time saving guide for installations.

First time in Flooring history!

NEW GOODYEAR VINYL TILE PRE-POLISHED— NEVER NEEDS WAXING!

"You never have to wax this lifetime-lustre flooring!" That's real news to your customers! That's the kind of flooring they've always wanted! Now, for the first time, this is what you can tell 'em, sell 'em!

Developed by Goodyear Research

VINYL TILE is burnished, in an exclusive Goodyear process, at the factory. Its 24 beautiful, gleaming colors have the appearance of hand-rubbed finishes, adding instant eye-appeal, sales-appeal. When you tell your customers that this is a *lifetime lustre*—that Goodyear Vinyltile retains its built-in sparkle year after year *without waxing*—you've made the sale!

"World's Most Beautiful Flooring"

Twelve fresh, warm, appealing solid colors and twelve marbled patterns that are the decorator's delight. Blend beautifully with any decor, in any room. Easy to install, ideal for use on counter

Also available in roll form for flooring, wall covering and counter topping.

tops and on walls. Resist sun, soaps, time and wear. For beauty and durability, nothing can compare with Goodyear Vinyltile.

Nationally, Powerfully Advertised!

Biggest advertising campaign in Goodyear flooring history will bring the great "Never Needs Waxing" news to millions of homemakers. Full-page advertisements in glorious full color in the nation's top home-improvement magazines with multimillion sales prospects will bring customers looking for this most remarkable of floorings, asking for it. Don't miss out on this new opportunity for new profits.

Stock Up Now!

Goodyear Vinyltile is available in a residential gauge and two commercial gauges—and also in sheet form. For full information about this "Never Needs Waxing" flooring, write direct to Goodyear, Flooring Dept., Akron 16, Ohio.

P.S. And the Finest Line of Rubber Flooring is Made By Goodyear—"The Greatest Name in Rubber."

Vinyltile by
GOODYEAR

We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday—ABC Network

FEBRUARY 1952

Published by TIME Incorporated

EDITOR-IN-CHIEF Henry R. Luce
PRESIDENT Roy E. Larsen
EDITORIAL DIRECTOR John Shaw Billings

THE MAGAZINE OF BUILDING
Published in Two Editions
ARCHITECTURAL FORUM

HOUSE & HOME

EDITOR AND PUBLISHER
P. I. Prentice

EDITORIAL CHAIRMAN
Douglas Haskell, AIA

EXECUTIVE EDITORS
Joseph C. Hazen, Jr.
Suzanne Gleaves

ART DIRECTOR
Paul Grotz

ASSOCIATES: W. C. Bixby, Peter Blake, Curney Breckenfeld, Louise Cooper, Virginia Forsythe, Mary Jane Lightbown, Walter McQuade, Carl Norcross, Boyce P. Price, Vernon Read, Richard Saunders (Washington), Ogden Tanner, Warren Unna. (In military service: Wilson Dizard; Harry J. Middleton.)

ASSISTANTS: Rosalind Klein Berlin, Marilyn Grayhoff, Henry T. Martin, Alice O'Connor.

ART STAFF: Associate Directors, Amnon Rubinstein, Madelaine Thatcher. Assistants: Martha Blake, Linn Ericson, Jan V. White, Hannelore Teddie Wolff.

MARKET RESEARCH DIRECTOR: Arthur S. Goldman.
CONSULTANTS: Miles L. Colean, Ruth Goodhue.

CIRCULATION MANAGER: Walter F. Grueninger.

PRODUCTION MANAGER: Lawrence W. Mester.

GENERAL MANAGER
Robert W. Chastaney, Jr.

ADVERTISING DIRECTOR
George P. Shutt

ADVERTISING MANAGER
Richard N. Jones

THE MAGAZINE OF BUILDING, ARCHITECTURAL FORUM Edition, is published monthly by TIME Inc., Time & Life Building, 9 Rockefeller Plaza, New York 20, N. Y. Yearly subscription payable in advance. To individuals or firms (and their employees) engaged in building—design, construction, finance, realty; material distribution, production or manufacture; government agencies and supervisory employees; commercial and industrial organizations with a building program and their executives; teachers and students of architecture and engineering; libraries, professional clubs, societies and trade associations connected with the building industry; advertisers and publishers: USA, Possessions and Canada, \$5.50; Pan American Union and the Philippines, \$9.00; elsewhere, \$12.00. To those not connected with the building industry: USA, Possessions and Canada, \$9.00; elsewhere, \$17.50. Single copies, if available, \$2. All copies mailed flat. Copyright under International Copyright Convention. All rights reserved under the Pan American Copyright Convention. Reentered as second class matter Jan. 31, 1952 at the Post Office at New York, N. Y., under the act of March 3, 1879. Copyright 1952 by TIME Inc.

TIME Inc. also publishes TIME, LIFE and FORTUNE. Chairman, Maurice T. Moore; President, Roy E. Larsen; Executive Vice President and Treasurer, Charles L. Stillman; Executive Vice President for Publishing, Howard Black; Vice Presidents, Allen Grover, Andrew Heiskell, C. D. Jackson, J. A. Linen, P. I. Prentice; Vice President and Secretary, D. W. Brumbaugh; Comptroller and Assistant Secretary, A. W. Carlson; Manager, MARCH OF TIME Division, A. R. Murphy.

VOLUME 96, NUMBER 2



NEWS 39

LETTERS 66

INDUSTRIAL BUILDING BY ALBERT KAHN ASSOCIATES—Part I 85

Their approach to the design of today's dual-purpose plants concentrates on flexibility of space, structure and mechanical facilities.

LOW COST CHURCH 100

Checkerboard wall of glass and plywood adds a joyful atmosphere to an economical structure in Vancouver, B. C. Architects: Gardiner & Thornton.

EXPERIMENTAL ELEMENTARY SCHOOL 103

Three types of classrooms in Raleigh, N. C. test lighting and planning variations. Architect: William H. Deitrick.

THREE SMALL OFFICE BUILDINGS 108

1. Marble curtain walls for the Gulf Oil Building in Atlanta by architect I. M. Pei.
2. Long-span framing for Northwest Insurance Co. in Los Angeles by architect Richard Neutra.
3. A hacienda for SUNSET Magazine in Menlo Park, Calif.

HOSPITAL FOR THE FUTURE 116

Houston's new cancer station by MacKie & Kamrath previews the effect of new radiotherapy methods on hospital design.

BOWLING ALLEY 124

Architect A. A. Arbeit converts a wedge of waste space in a Manhattan bus terminal into a recreational money-maker.

DOWNTOWN DEPARTMENT STORE 126

Rich's in Atlanta bucks the decentralization trend with new ideas in urban store design. Architects: Stevens & Wilkinson. Designer: Eleanor LeMaire.

BUILDING REPORTER 134

Roundup of new engineering techniques: continuity in pre-stressed concrete; mechanics of 31-story parking garage; welding structural steel; cantilevered roof and floor framing.

MEMBRANE FIREPROOFING 140

A detailed analysis showing how much steel and money can be saved by insulating structural steel with plaster "boxes" instead of concrete.

REVIEWS 180

PRODUCT NEWS 186

TECHNICAL PUBLICATIONS 206

Cover: Details of automotive plant, Albert Kahn Associates, Architects



Chapel, St. Francis Episcopal Church
San Jose, California

Architects: Higgins & Root, A. I. A.

Photograph: Lionel T. Berryhill



For enduring Beauty.. **CRA Redwood**

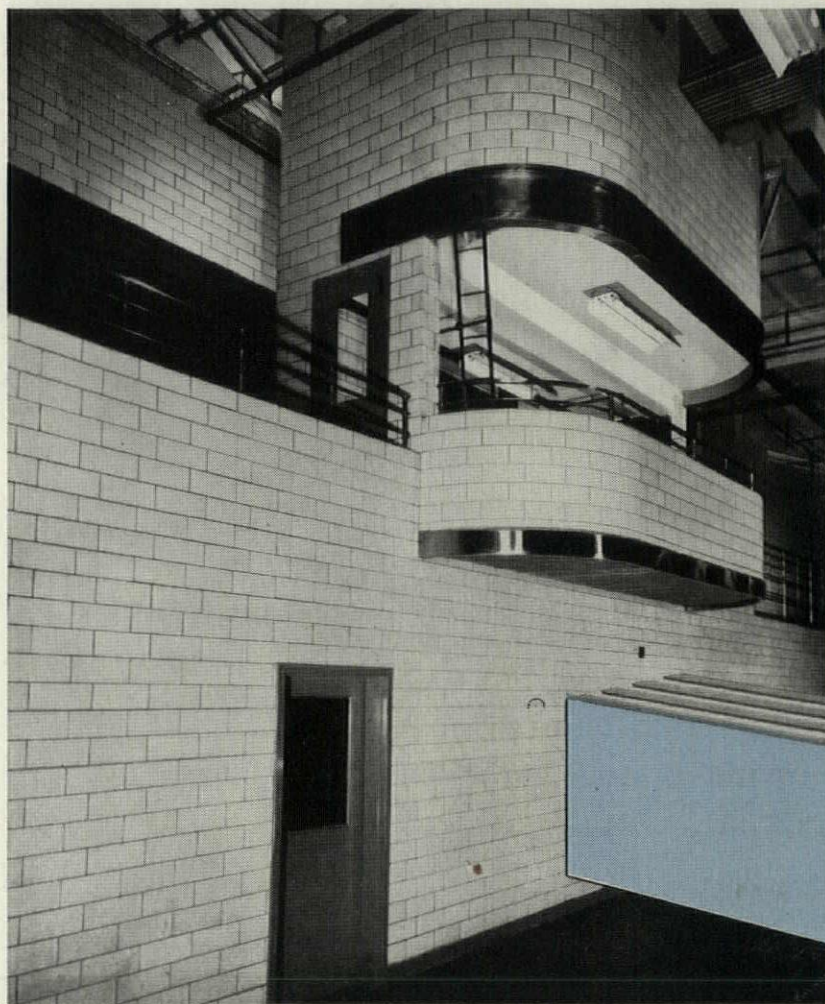
The architect
who knows Redwood
knows the necessity
of using uniform quality
Redwood in his specifications.
That's why he specifies
CRA Certified Dry Redwood—
seasoned with care,
graded with accuracy,
milled with precision.
You build with confidence
when you build with
CRA Certified Dry Redwood.

CALIFORNIA REDWOOD ASSOCIATION

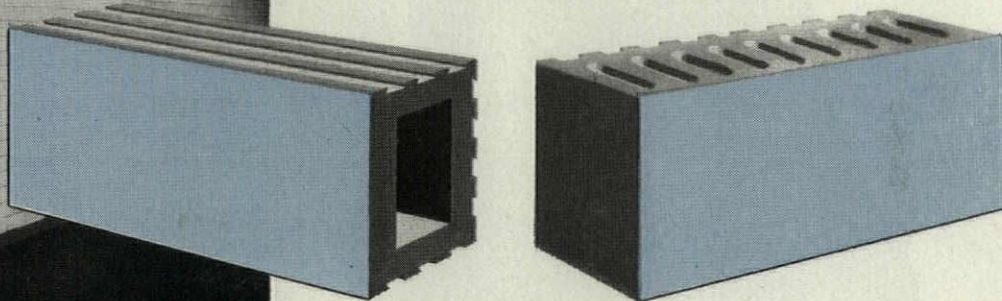
CRA

Members: Holmes Eureka Lumber Co. • Arcata Redwood Co. • Coastal Plywood & Timber Co. • Hammond Lumber Co. • Northern Redwood Lumber Co. • The Pacific Lumber Co. • Rockport Redwood Co. • Simpson Logging Co. • Union Lumber Co. • Willits Redwood Products Co.

Clay can keep you building while steel is short



Use Structural Clay Facing Tile For Interiors of Essential Buildings



Further Information

on how STRUCTURAL FACING TILE can help you build when steel is critical is available in our special bulletin "CONSERVATION OF CRITICAL MATERIALS." For your free copy, just ask any Institute Member or drop us a line on your own letterhead. Send your request to Dept. AF-2.

Facing Tile Saves Steel!

Load-bearing Facing Tile walls save structural steel. Reinforced tile lintels save additional structural steel. Masonry design saves metal lath and steel channels.

Facing Tile Goes Up Fast!

It is a modular-sized, large construction unit. It saves costly cutting and fitting of material. It builds the wall and attractive finish at one time.

Facing Tile is Available!

Increased production makes Facing Tile available for essential building. Orders placed now will receive prompt scheduling and delivery as needed.

LOOK FOR THIS SEAL. It is used only by members of the FACING TILE INSTITUTE . . . these "GOOD NAMES TO KNOW"



THIS SEAL is your assurance of highest quality Facing Tile

BELDEN BRICK CO.
Canton, Ohio
CHARLESTON CLAY
PRODUCTS CO.
Charleston 22, West Virginia

THE CLAYCRAFT CO.
Columbus 16, Ohio

HANLEY CO.
New York 17, New York

HOCKING VALLEY BRICK CO.
Columbus 15, Ohio
HYDRAULIC PRESS BRICK CO.
Indianapolis, Indiana

MAPLETON CLAY
PRODUCTS CO.
Canton, Ohio

METROPOLITAN BRICK, INC.
Canton 2, Ohio

McNEES-KITTANNING CO.
Kittanning, Pennsylvania

NATIONAL
FIREPROOFING CORP.
Pittsburgh 22, Pennsylvania
ROBINSON BRICK & TILE CO.
Denver 9, Colorado

STARK CERAMICS, INC.
Canton 1, Ohio

WEST VIRGINIA BRICK CO.
Charleston 24, West Virginia

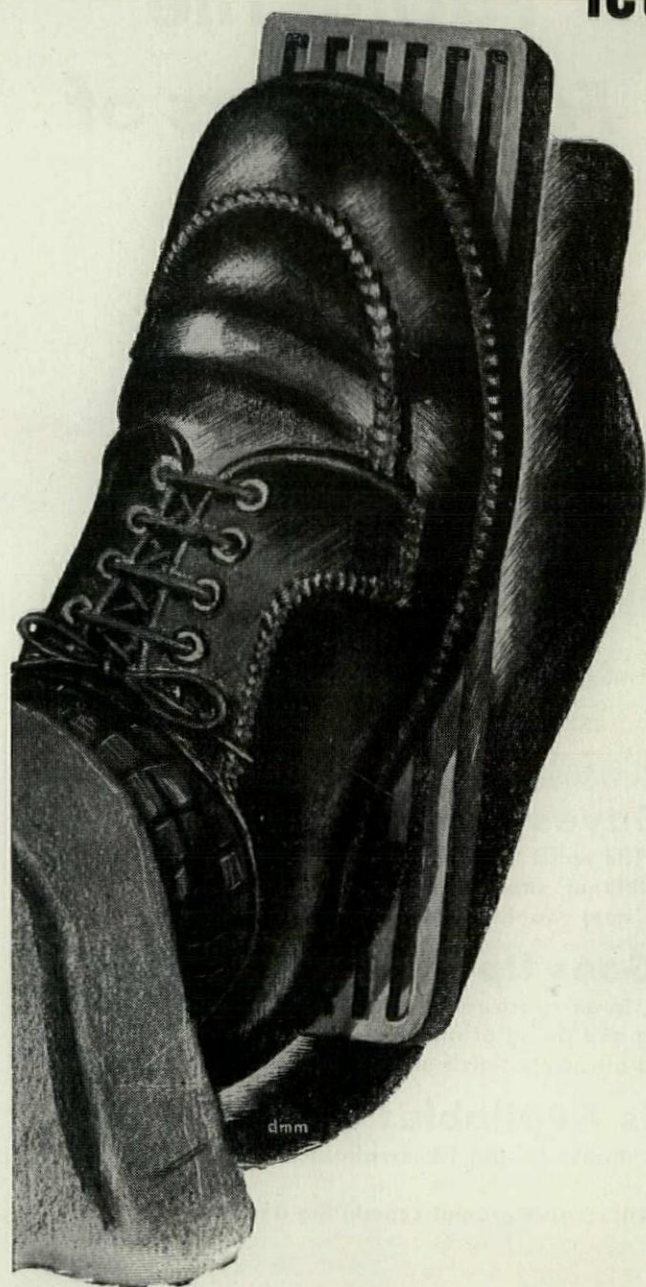
FACING TILE INSTITUTE

1520 18th Street, N.W., Washington 6, D. C.
1949 Grand Central Terminal, New York 17, N. Y.

WHEN THE WORD COMES TO . . .

STEP ON IT!

let Barrett SPEED your Roofing Jobs!



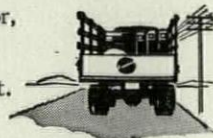
The urgency of America's defense program calls for a lot of speed on the part of American industry. And for a lot of new roofs, too! New roofs on new plants . . . and new roofs, or repairs, on old plants, as well.

Nearly 100 years of experience in meeting roofing demands of every kind have fitted Barrett to give you the world's longest-lasting built-up roof in the shortest possible time. For Barrett speeds your roofing jobs in 4 important ways.

1 BARRETT SPEEDS specifications. Ready at hand are Barrett time-tested, scientifically calculated application specifications for almost every built-up roofing problem. These are so foolproof that Barrett Specification* Roofs can be bonded for 20 years, and generally last much longer. Approved by the National Board of Fire Underwriters—Class A.



2 BARRETT SPEEDS deliveries. Strategically located supply points enable us to rush materials to your Barrett roofing contractor, and to your job when they are needed. Barrett does not have to rely on outside sources of supply for roofing pitch and felt. Because Barrett Specification* pitch and felt are made in our own factories, production can be controlled to meet demands. Your Barrett roofer can be sure that he will get the materials he wants when he needs them.



3 BARRETT SPEEDS application. The Barrett Roofer can be sure that roofing materials will be of uniform high quality. Application goes smoothly because there is no defective felt or pitch to interrupt and slow down operations. No time lost on the job!



4 BARRETT SPEEDS you the finest possible roof. Skilled workmen make for fast jobs. Barrett Approved Roofers have had many years of practical experience, plus well-trained manpower, plus Barrett engineering help, to assure you the finest possible roofing job in the shortest possible time.



THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

205 W. Wacker Drive, Chicago 6, Ill.
1327 Erie Street, Birmingham 8, Alabama
36th & Gray's Ferry Ave., Philadelphia 46, Pa.

In Canada: The Barrett Company, Ltd., 5551 St. Hubert St.,
Montreal, P. Q.

*Reg. U. S. Pat. Off.



But don't wait until you're up against it before ordering necessary roofing work. Call in a Barrett Approved Roofer today, or write us.

Cleveland's Shaker Towers chooses MODINE

780 Modine Convectors provide individual room comfort for 92 suites. Architect: Joseph Ceruti. General Contractor: Roediger Construction Co. Heating Contractor: Spohn Heating & Ventilating Co.



*America's finest buildings
use America's finest convectors*



Modine
Convectors
come in three
distinctive enclosures
—Type F (shown) for free-
standing or recessed installation,
Types W and S for wall-hanging.

Today, superior heating performance must be teamed with subtle styling and long-life construction. On all counts, Modine Convectors meet the most exacting professional standards. That's why more and more Modine Convectors are being specified by leading architects and engineers. For full information on heating at its finest, call your Modine representative. You'll find him listed in your classified phone book. Or write Modine Mfg. Co., 1507 DeKoven Avenue, Racine, Wisconsin.

Modine CONVECTORS

R-1134



HOW TO MAKE AN ENTRANCE

Take a tip from stage stars—they know an entrance sets the tone for a whole act! And what better entrance for a store or office than clear *Tuf-flex** Doors, that reveal, as they complement, a handsome modern interior.

You can do the same for your tenants—and your tenants' customers—whether they're shopping for products, services or ideas. With *Tuf-flex* Doors, their first glimpse is your entrance.

Tuf-flex Doors are made tough to stand up to the

traffic they invite. They're plate glass $\frac{3}{4}$ " thick, tempered to a strength three to five times greater than standard $\frac{3}{4}$ " plate glass. They come complete with handsome bronze or alumilited aluminum fittings, designed to take standard pivot hinges and other hardware. You have your choice of a variety of styles.

See your local Libbey-Owens-Ford Distributor for complete information, or send the coupon below for your free copy of our *Tuf-flex* Door booklet. *®



TUF-FLEX

Tempered

Plate Glass DOORS

MADE ONLY BY LIBBEY-OWENS-FORD GLASS COMPANY
8822 Nicholas Building, Toledo 3, Ohio

Libbey • Owens • Ford Glass Company
8822 Nicholas Building, Toledo 3, Ohio

Please send me a copy of your book showing uses of
Tuf-flex Doors, as well as your installation detail folder.

Name _____

Company _____

Address _____

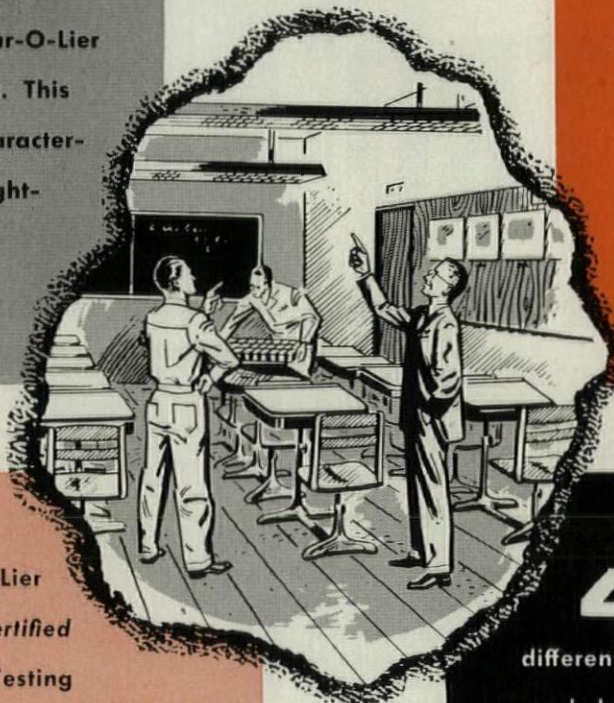
YOU GET 4 EXCLUSIVE ADVANTAGES WHEN YOU SPECIFY **FLEUR-O-LIER**

1 Only Fleur-O-Lier fixtures are rated on the Fleur-O-Lier Index Rating System. This gives illuminating characteristics, shielding, brightness, etc., for each fixture.

2 Complete photometric test data including distribution curves and coefficients of utilization tables are computed by Electrical Testing Laboratories, Inc., and are provided for every Fleur-O-Lier luminaire.

3 Fleur-O-Lier fixtures are certified by Electrical Testing Laboratories, Inc., as complying with rigid specifications covering electrical and mechanical construction.

4 More than 300 different Fleur-O-Lier fixtures made by nearly 30 manufacturers give you a wide selection from which to choose.



THESE 4 ADVANTAGES ASSURE *Lighting Satisfaction* WHEN YOU SPECIFY FLEUR-O-LIER

Free Booklet

Write for your free copy of the new booklet giving complete details of the Fleur-O-Lier Index System.

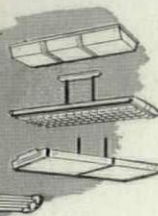


FLEUR-O-LIER

Manufacturers

2116 Keith Building • Cleveland 15, Ohio

Fleur-O-Lier is not the name of an individual manufacturer, but of a group of fixtures made by leading manufacturers. Participation in the Fleur-O-Lier program is open to any manufacturer who complies with Fleur-O-Lier requirements.



SLASH INSTALLATION ...MAINTENANCE ...AND HEATING COSTS WITH "METRO"

SINGLE RISER HEATING

"Metro" piping with Dunham Vari-Vac* Temperature Controls keeps heat supply and demand in perfect balance... *always*... and for less. That's because "Metro" uses a *continuous* flow of steam at pressures and temperatures that *automatically vary with outside weather*.

Metropolitan, Equitable, and New York Life Insurance Companies have found "Metro" with Dunham Vari-Vac a sound investment for their housing projects... so have investors in smaller buildings... because:

"METRO" costs less to install. It eliminates all radiator branches, expansion joints, and swing connections—no traps and valves in occupied quarters. Permits pre-cutting of risers to one size. Eliminates settings for temporary heat. Eliminates costly furring of masonry walls and ceilings.

"METRO" costs less to maintain. No small radiator fittings to break down. Eliminates *all* cost of valve maintenance—90% of trap maintenance.

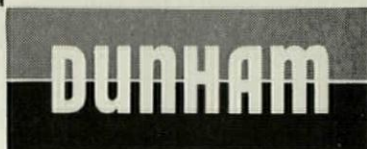
"METRO" costs less to operate. Used with Dunham Vari-Vac Controls, fuel savings as high as 40% are not at all uncommon. "Metro" never is guilty of overheating or underheating.

See your Dunham Sales Engineer for complete information—or write for Bulletin 2202-5. No obligation.

*Variable Vacuum



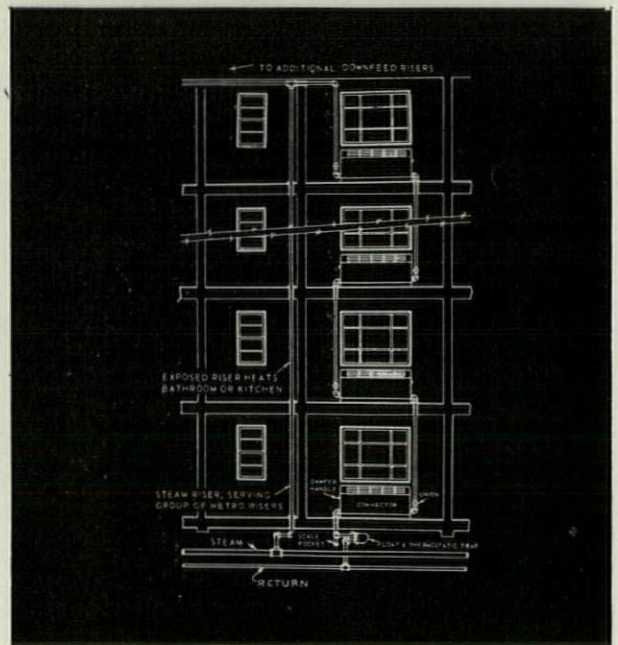
Send for Free Bulletin 2202-5. Full of helpful information about this amazingly economical heating system. Includes all essential design details, application data, and typical piping hookups.



heating systems and equipment

IN STUYVESANT TOWN

Handsome "Metro" cabinet convector with "Metro" downfeed single riser behind draperies keeps rooms comfortable—for less—in Stuyvesant Town, N. Y.



IN ANY TOWN

"Metro" single riser heating provides an uninterrupted path for flow of steam from top to bottom of building. A continuous pipe passes down through overlying rooms... is offset into a convector or baseboard in each room.

C. A. DUNHAM COMPANY

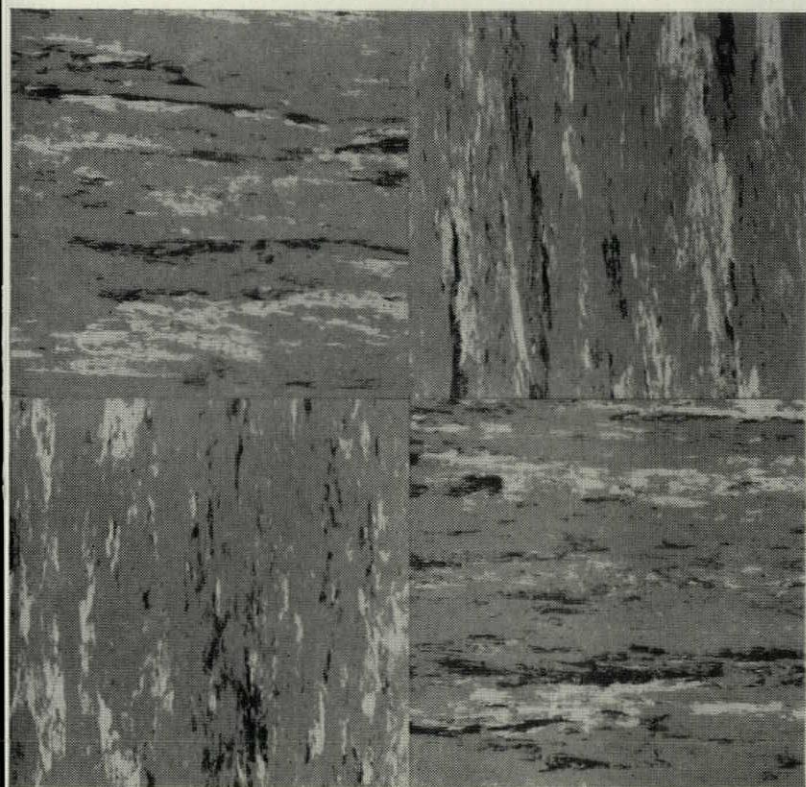
400 W. Madison Street, Chicago 6, Illinois

In Canada: C. A. Dunham Co., Ltd., Toronto

In England: C. A. Dunham Co., Ltd., London

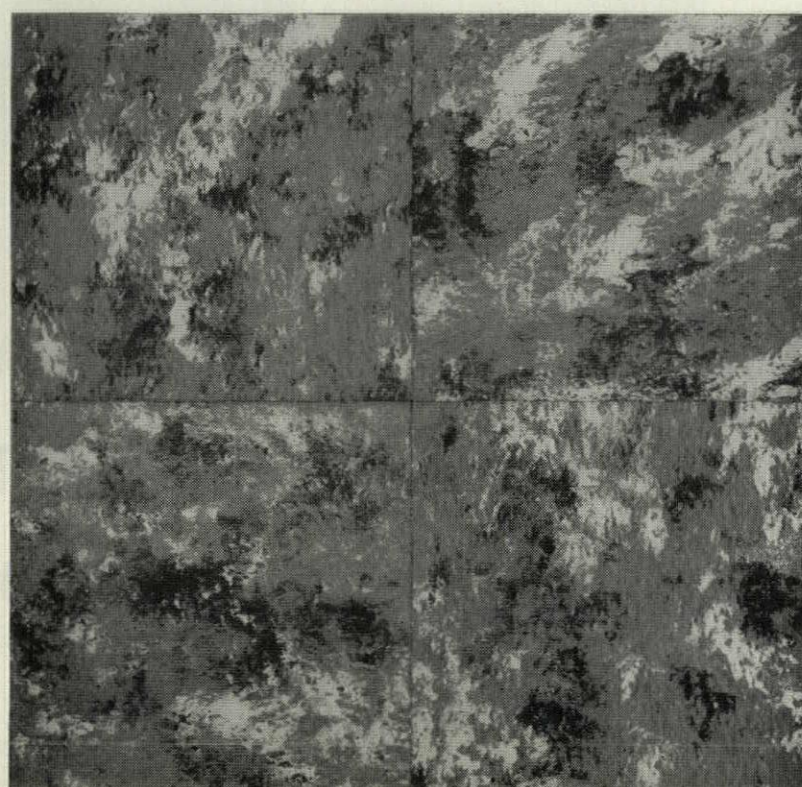
Radiation • Unit Heaters • Pumps • Specialties

Now you can specify Armstrong quality in two types of asphalt tile graining



STANDARD
(Directional Grain)

For decorative effects requiring floors with directional marbleization, the Armstrong Line now includes Standard Asphalt Tile. Floors to suit any decorative scheme in which a straight-grained asphalt tile is preferred can be designed from a full range of colors. Armstrong's Standard Asphalt Tile also offers Armstrong quality at minimum cost for use where price is the most important factor.



DE LUXE
(Swirl Grain)

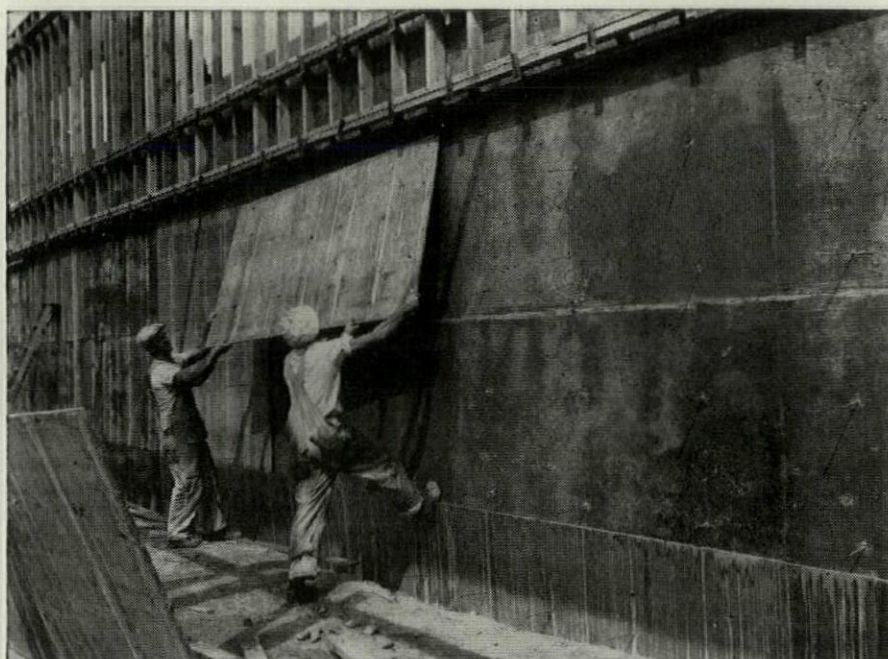
The superior swirl graining of Armstrong's De Luxe Asphalt Tile gives distinctive beauty to this floor. This tile also has extra strength and flexibility. Exclusive manufacturing processes interlock fibers and binders in two directions for greater strength, as alternating the grain adds strength to plywood. This tile speeds installation because it doesn't require twisting and turning to match the grain.

Only Armstrong's Asphalt Tile Gives You This Choice

Armstrong alone manufactures both directional and swirl-grained asphalt tile. Both types are suitable for grade-level, below-grade, and suspended floors. Both types offer the exceptional alkali resistance required of a flooring over concrete in direct contact with the ground. Armstrong's Greaseproof Asphalt Tile is also available in certain matching colors of directional and swirl-grained styles. For samples and complete specifications, write Armstrong Cork Company, Floor Division, 2602 State Street, Lancaster, Pennsylvania.



A R M S T R O N G ' S A S P H A L T T I L E



When Speed Counts— Specify Plywood Forms

WHEN THE JOB has to be done on the double, plywood concrete form panels* shave weeks off work schedules... cut form work application time and costs up to 25%. Plywood's every feature suits it for quick construction. It's light, tough, rigid... easy to work with ordinary tools. Big sheets cover large areas... are ideal for fabrication into cost-cutting built-up form sections. Plywood forms cut finishing time, too. Bridge, factory or apartment—plywood forms are adaptable to every type of concrete construction. For free catalog, write Douglas Fir Plywood Association, Tacoma 2, Washington.

Only Plywood Offers All These Advantages

- Plywood forms create smooth, fin-free surfaces
- Economical! Plywood forms can be used over and over
- Plywood forms speed work—save time and labor
- Plywood is strong, rigid—yet light, easy to handle
- Plywood forms are puncture-proof, water and mortar tight
- Plywood has superior nail and tie holding properties
- Plywood is easy to work with hand or power tools
- Plywood provides sheathing and lining in one material

Douglas Fir

Plywood

AMERICA'S BUSIEST BUILDING MATERIAL



*Several plywood grades are manufactured for concrete form work. Highly moisture-resistant glues in PlyForm® grade permit multiple re-use (up to 10-15 are not unusual). For greatest possible re-use, specify waterproof bond EXT-DFPA Concrete Form grade. For special architectural concrete, requiring finest finish, use Exterior or Interior plywood grades with "A" face veneer—or one of the new plastic-surfaced or hardboard faced plywood panels.

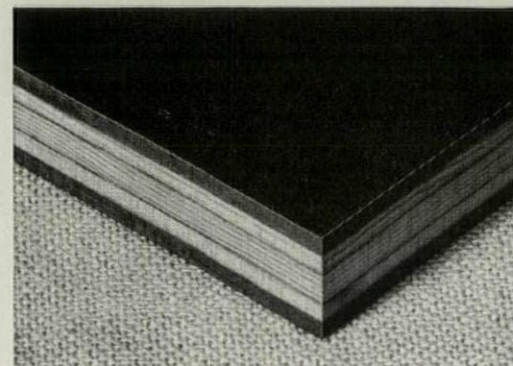
© Registered grade-trademarks of Douglas Fir Plywood Assn.

PANEL DISCUSSION

New Form Panel Combines Plywood and Hardboard

A new panel material which combines smooth, wear-resistant hardboard surfaces with the strength and workability of Douglas fir plywood is now being produced by West Coast plywood makers.

Called Plyron, the new panel has been use-tested for concrete form work on several projects. One of the initial users,



Contractor F. A. Canuso who is using the material in forming overpass road slabs on the New Jersey Turnpike, reports the new material "is giving us some of the smoothest concrete we have ever seen. We are getting plenty of re-uses, too."

Faced with hard, dense, long-wearing hardboard surfaces, Plyron relies on Douglas fir plywood inner construction to furnish the "muscle," making it puncture-proof, dimensionally stable and relatively light weight. The material has excellent nail holding properties and retains the easy workability of plywood.

Rigid industry quality standards have been established for Plyron, similar to those for Douglas fir plywood. Details on the new product may be obtained from Douglas Fir Plywood Association, Tacoma 2, Washington.

Plywood Cuts Formwork Costs On Airport Terminal Building

Douglas fir plywood concrete form panels cut formwork application time and costs by over 20% in building the Kana-wha Airport Terminal Building, Charleston, West Va., according to Charles J.



Kuhn, president, Kuhn Construction Co.

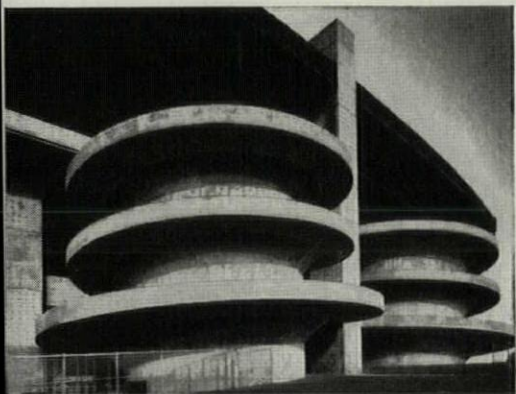
"The panels speeded formwork all along the line," says Kuhn. "Panel re-use also helped lower costs." On the job, form sections were built by placing 3/4"-thick Exterior Concrete Form panels across studding. Forms were held in line with double 2x4 wales, backed by double 2x6 liners, placed vertically.

Architects Tucker and Silling, Charleston, West Va., who specified plywood on the job because the panels "permit a smooth monolithic surface to be cast simultaneously with structure," report that concrete surfaces on the Terminal are uniformly smooth and even textured.

Plywood Helps Solve Special Form Problems

Plywood was called on to help solve an unusually intricate concrete form job in building the spectacular twin-spiral ramps at the University of Washington Stadium addition.

All concrete surfaces were curved; ramp floor slab thickness varied to provide drainage; minimum form costs were required; exposed surfaces had to be smooth, fin-free.



To create the smooth, sharply curved concrete surfaces, Strand & Son, Seattle, contractors on the job, used 1/4" plywood form liner, sheathed with lumber and backed by 2x4 studs and double 2x4 wales. The 4' wide form sections were bent to the required curvature by inserting shims between studs and walers. In this way, sections were stripped, re-erected and bent to the next required radius without re-constructing the basic form structure.

On the 9"-thick walls of the main support, 3/4" plywood panels served as a combined form lining and sheathing. Architects for the structure: George W. Stoddard and Associates, Seattle, Washington.

Plyform Calculator Available

A handy new slide rule calculator which gives construction data for plywood forms is available for \$1.00 from Douglas Fir Plywood Association, Tacoma 2, Washington. Included with calculator is leaflet "Design Assumptions for New Keely Calculator."



When Appearance Counts—Specify Plywood Forms

How SMOOTH can concrete be? As smooth as the material against which it's cast. That's why plywood-formed* concrete surfaces are smooth, dense, uniformly attractive. Large panel size automatically reduces fins and joints to an absolute minimum. Exact-size Douglas fir plywood concrete form panels are tough, rigid, dimensionally stable. Stark monolithic surfaces, curved surfaces, rustication lines, fluting and other special architectural design effects are also easily achieved with plywood forms. For free catalog, write Douglas Fir Plywood Association, Tacoma 2, Washington.

Only Plywood Offers All These Advantages

- Plywood forms create smooth, fin-free surfaces
- Economical! Plywood forms can be used over and over
- Plywood forms speed work—save time and labor
- Plywood is strong, rigid—yet light, easy to handle
- Plywood forms are puncture-proof, water and mortar tight
- Plywood has superior nail and tie holding properties
- Plywood is easy to work with hand or power tools
- Plywood provides sheathing and lining in one material

Douglas Fir

Plywood



AMERICA'S BUSIEST BUILDING MATERIAL

*Several plywood grades are manufactured for concrete form work. Highly moisture-resistant glues in Plyform® grade permit multiple re-use (up to 10-15 are not unusual). For greatest possible re-use, specify waterproof bond EXT-DFPA Concrete Form grade. For special architectural concrete, requiring finest finish, use Exterior or Interior plywood grades with "A" face veneer—or one of the new plastic-surfaced or hardboard faced plywood panels.

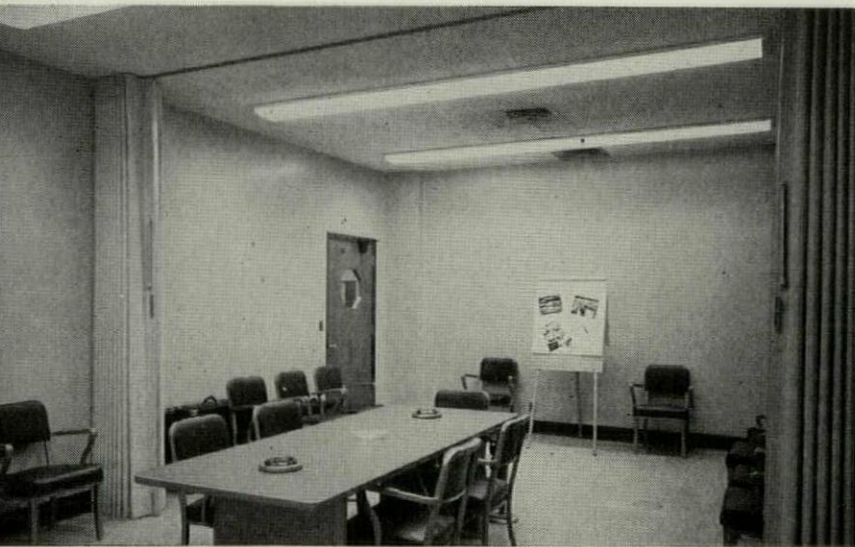
® Registered grade-trademarks of Douglas Fir Plywood Assn.



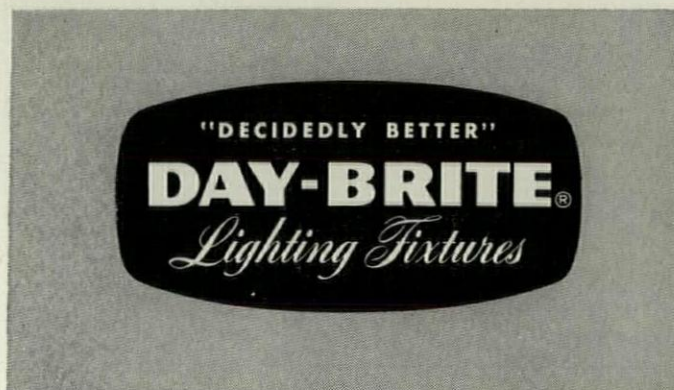
IT'S DAY-BRITE IN THE OFFICES



IT'S DAY-BRITE IN THE CORRIDORS



IT'S DAY-BRITE IN CONFERENCE ROOMS



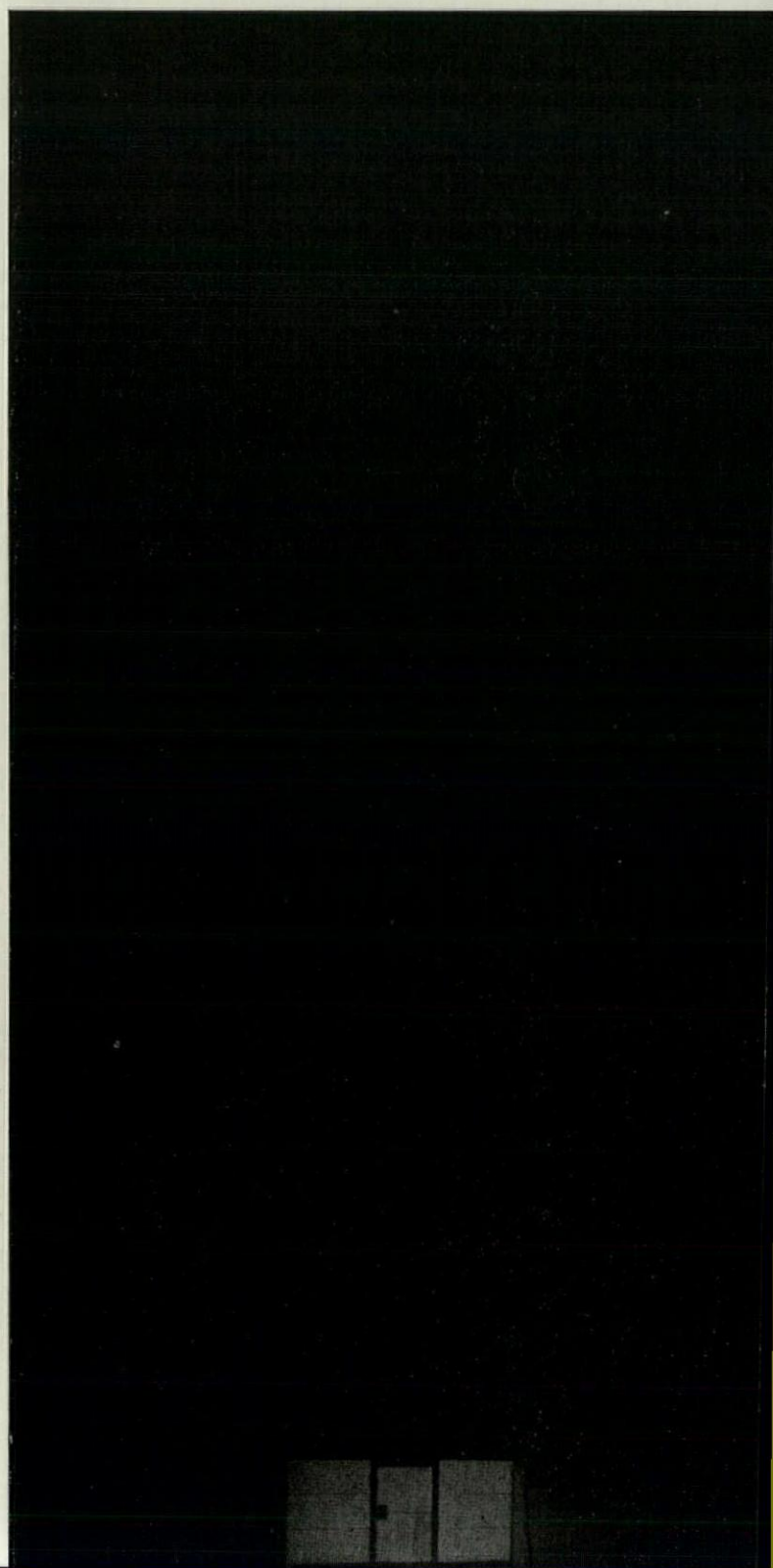
Day-Brite Lighting, Inc., 5471 Bulwer Ave., St. Louis 7, Missouri
In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario
Distributed only by leading electrical wholesalers

The *plans...*

If you notice a generous amount of pride when Minnesota Mining and Manufacturing Co. folks talk about their sparkling new St. Paul office building, it's justifiable pride. The 3M people refer to it fondly as the "workshop"—and you'd have to go a long way to find a better example of farsighted planning for pleasant, comfortable working conditions.

Architecturally, it's a beauty. Pooling their talents, Mr. Pesek and his 3M staff worked with Tom Ellerbe and his associates to achieve fresh, crisp lines and simple, dramatic form.

For example, the east and west walls are windowless. The bold, unbroken



and builds an enlightened "Workshop"

planes of rough-cut Bedford stone shut out the glaring morning and afternoon sun. Inside the offices, all desks are oriented so that no employee faces the outside light.

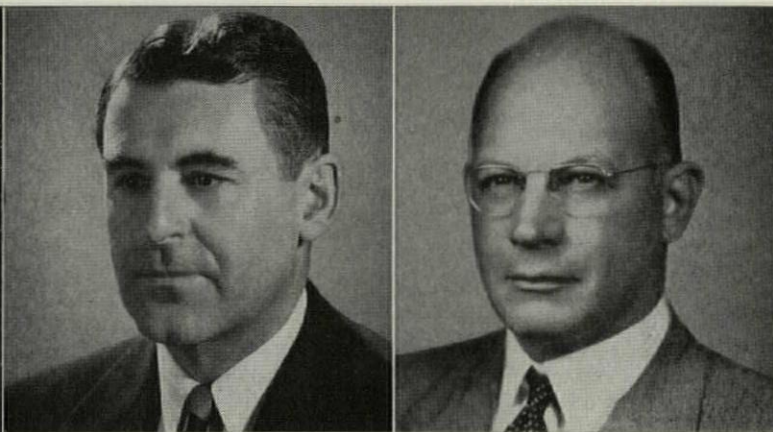
Nowhere is the planning for employee comfort and efficiency more evident than in the building's lighting system. More than 3 miles of Day-Brite troffers furnish the lighting in critical seeing areas and in the corridors. The large offices, finished in soft, restful colors, are bathed in 50 footcandles of illumination.

The choice of Day-Brite® fixtures was characteristic of the planning group's

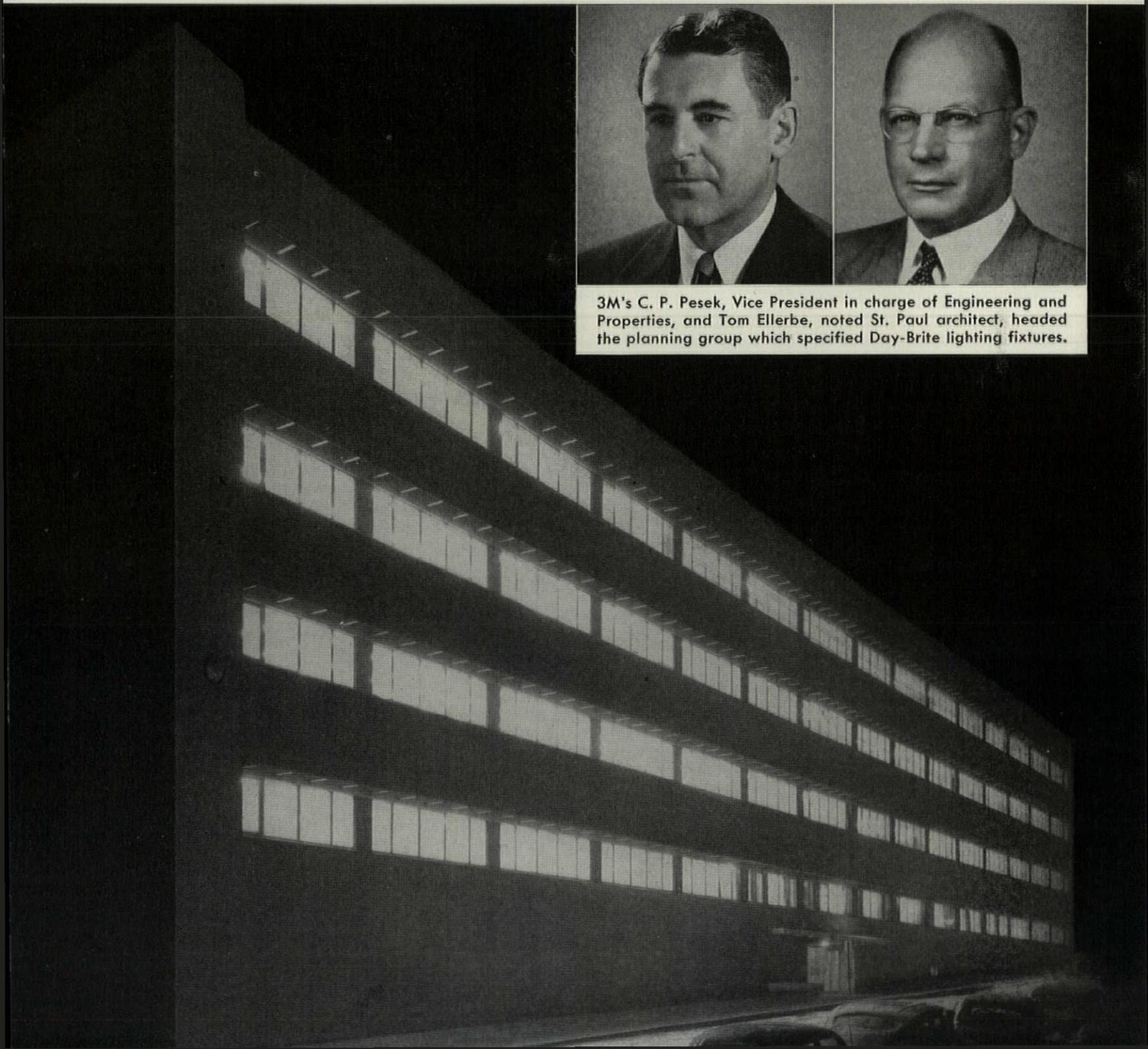
insistence on finest quality building products. They set up extremely rigid requirements for their lighting installation; they went to the nation's leading producer of fluorescent fixtures to get the results they expected.

The consistent quality of the Day-Brite line has earned the respect and confidence of thousands of the country's best architects. Chances are, there's a job on your board right now that calls for a top-performing lighting installation. May we prove to you that a Day-Brite specification will fill the bill better than any other? We'll send you all the facts if you'll write and ask for them.

21



3M's C. P. Pesek, Vice President in charge of Engineering and Properties, and Tom Ellerbe, noted St. Paul architect, headed the planning group which specified Day-Brite lighting fixtures.





FIRST...

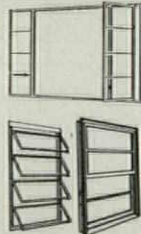
CHECK WHAT'S READY-MADE IN ALUMINUM!

The best promoters of aluminum's versatility as a building material are the designers and builders themselves. For it is a fact that each great step forward in architecture has been brought about by a new freedom from the shackles of *weight*... and that the lightness and strength of aluminum have introduced a new era in building.

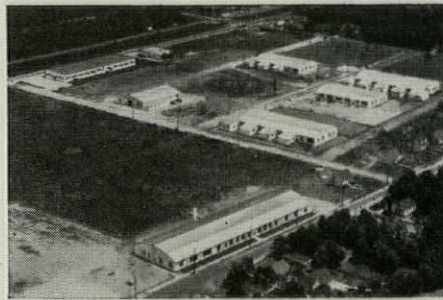
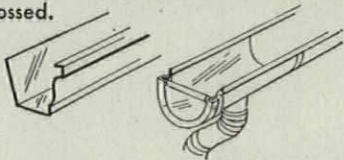
To these structural advantages, aluminum adds inherent beauty... forever free from rust... needing no protective painting. And its radiant heat reflectivity is an important bonus in roofing and siding... a means of combining, in insulation, high thermal efficiency with positive vapor barrier.

For some or all of these advantages, aluminum is widely specified, in many forms. But the most economical forms, wherever they fit your purpose, are the building products *mass-produced* by Reynolds, the leaders in the field. Their applications are more versatile than may at first appear! Write for literature. Reynolds Metals Company, Building Products Division, 2020 South Ninth St., Louisville 1, Kentucky.

Reynolds Aluminum Residential Casement Windows in the Armour Towers Apartments, Kansas City, Mo.—Luther Willis, architect; Colliers Const. Company, contractor. These corner-welded casements are adaptable to a variety of architectural functions. Reynolds Awning Windows, profile at right, are also ideal for institutional and commercial structures. These and Reynolds Double-Hung Windows are all made of Reynolds own extruded shapes, superbly finished.



Five miles of **Reynolds Lifetime Aluminum Gutters** are used in this Overland Park, Kansas, development. H. Duncan & Mulhern, architects; George Miller, contractor. Ogee and Half-Round Gutters, smooth and stipple-embossed.



Six buildings on Long Island roofed with **Reynolds Lifetime Aluminum Industrial Corrugated**—.032" thick with extra deep corrugation (7/8") for greater strength.

Remember, too, Reynolds Lifetime Aluminum Flashing—in convenient rolls or flat sheet.



Reynolds Aluminum Reflective Insulation is a superior lamination of embossed foil to both sides (Type B) or one side (Type C) of kraft paper. In rolls of 250 sq. ft., 25", 33" and 36" wide.

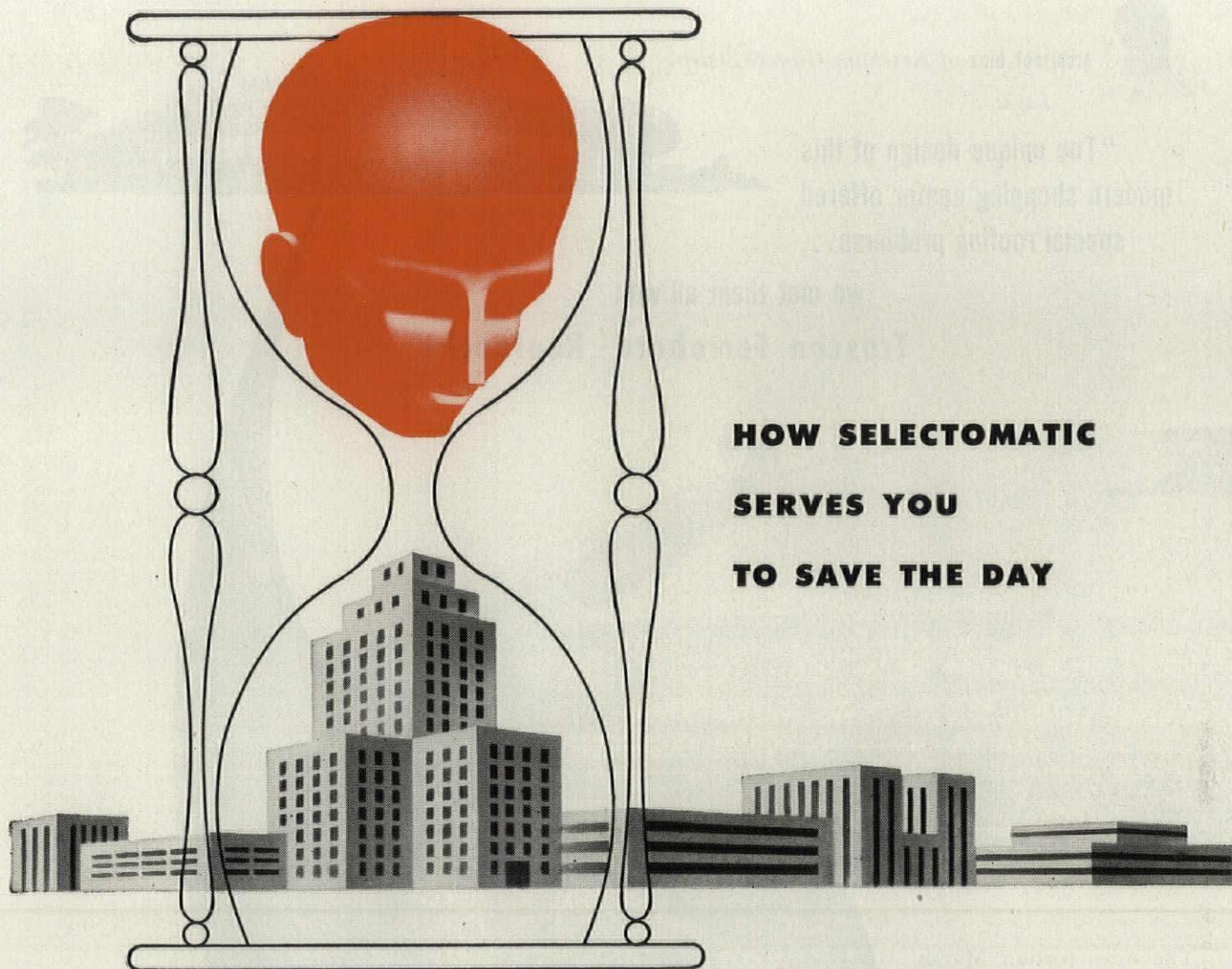


Military demands for aluminum limit the present supply of these products. But Reynolds is rapidly expanding aluminum production. Keep checking your supply source.



REYNOLDS ALUMINUM

"The Kate Smith Evening Hour" on Television, Wednesdays—Tallulah Bankhead in "The Big Show" on Radio, Sundays—NBC NETWORKS



**HOW SELECTOMATIC
SERVES YOU
TO SAVE THE DAY**

You know as well as anyone how much wasted time can cost in today's race against the clock. Long waits for inefficient elevator service, for instance, can waste a lot of time . . . can mean aggravating delays when promptness is so important.

But unique Westinghouse Selectomatic elevators cut your waiting time to a minimum. This fabulous elevator control system responds and dispatches cars in accordance with all traffic conditions.

And for extra time-saving speed, Selectomatic

installations now include Westinghouse Synchro-Glide Landing Control. It makes accurate landings extra-smooth, cushion-soft.

If you have a part in elevator planning or buying, test-ride the new Selectomatic with Synchro-Glide Landing before making any decisions. See how smooth-riding and time-saving an elevator can be. For names of Selectomatic installations in your locality, contact the nearest Westinghouse Elevator office, or write Westinghouse Electric Corporation, Elevator Division, Dept. F1, Jersey City, N. J.

For years, Westinghouse engineering developments have stimulated the vertical transportation industry to strive for ever-higher standards of quality and efficiency. In every phase of vertical transportation—equipment, maintenance and service—Westinghouse has been the vanguard for progress. So, whatever your traffic problems may be—there's a Westinghouse Integrated Vertical Transportation System to solve them completely. Look ahead with the leader . . .

YOU CAN BE SURE...IF IT'S

Westinghouse



Architect Giná of Ketchum, Giná & Sharp

says:

"The unique design of this modern shopping center offered special roofing problems . . .

we met them all with
Truscon Ferrobord® Roofdeck!"

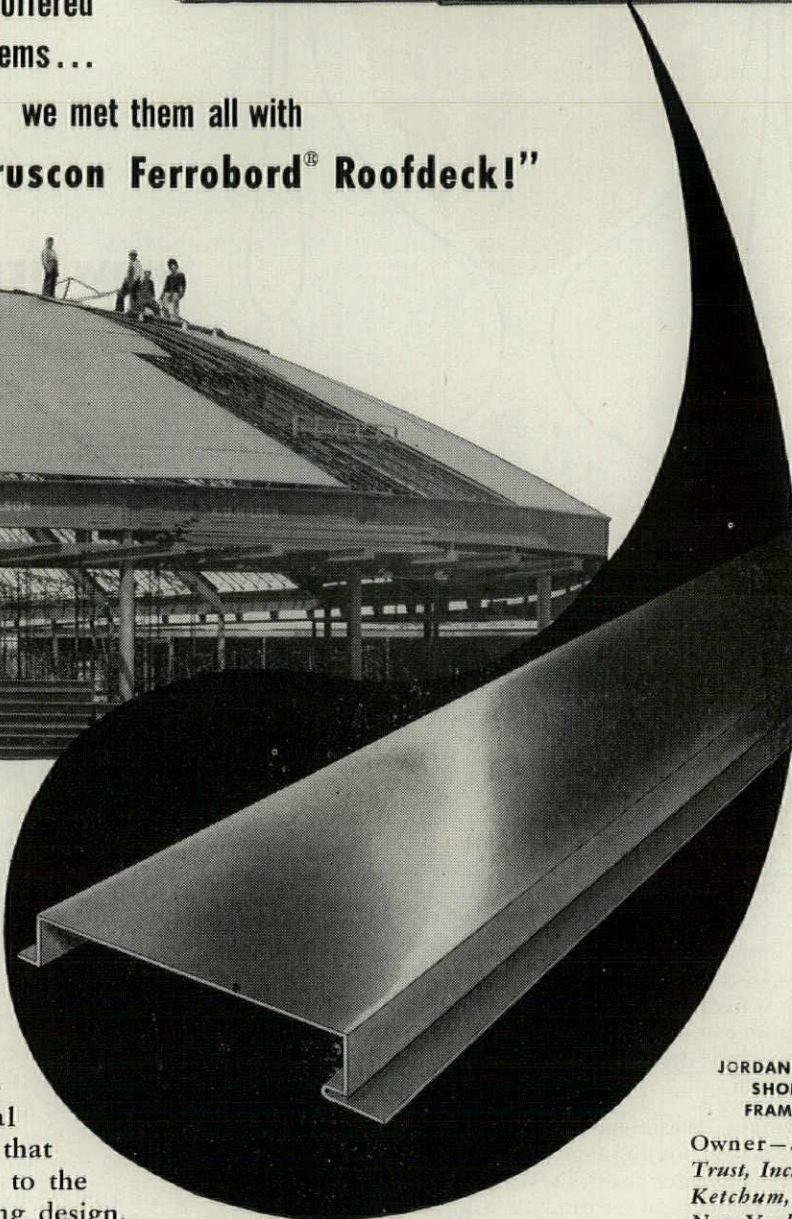


The new Jordan Marsh Company shopping center is a modern architectural masterpiece . . . with a roofing installation of exceptional efficiency. Here, Truscon Ferrobord Roofdeck supplied a lightweight roof of high structural strength . . . and one that permitted easy conformation to the distinctive building design.

Truscon Ferrobord is adaptable to flat, pitched or curved roofs.

The 6" wide units are so designed and formed that each firmly interlocks with the adjoining unit along the entire length, achieving the maximum in lateral distribution of concentrated loadings.

See SWEET's for complete details on Truscon Ferrobord Roofdeck; and write for detailed literature on all other Truscon Steel Building Products. Truscon Steel Company, 1102 Albert Street, Youngstown 1, Ohio. Subsidiary of Republic Steel Corporation.



JORDAN MARSH COMPANY
SHOPPING CENTER,
FRAMINGHAM, MASS.

Owner—Suburban Centers Trust, Inc., Boston. Architect: Ketchum, Giná and Sharp, New York City. Contractor: George B. H. Macomber Company. 140,000 Sq. Ft., 20 Gauge 1½" Truscon Ferrobord Steel Roofdeck.



TRUSCON

a name you can build on



The Secret of GOOD WASHROOM PLANNING

Fixture ratios based upon industrial plant populations, male and female

THE RIGHT FIXTURES

WATER CLOSETS

PERSONS MALE OR FEMALE	
1-9	1
10-24	2
25-49	3
50-100	5
Over 100	add 1 closet for each 30 additional persons.

URINALS

Wherever urinals are provided for men, one water closet less than the number specified herein may be provided for each urinal, except that the number of water closets shall not be reduced to less than $\frac{2}{3}$ of the number specified herein.

LAVATORIES

PERSONS LAVATORIES	
1-100	1 for each 10 persons.
Over 100	add 1 lava- tory for each 15 addi- tional persons.

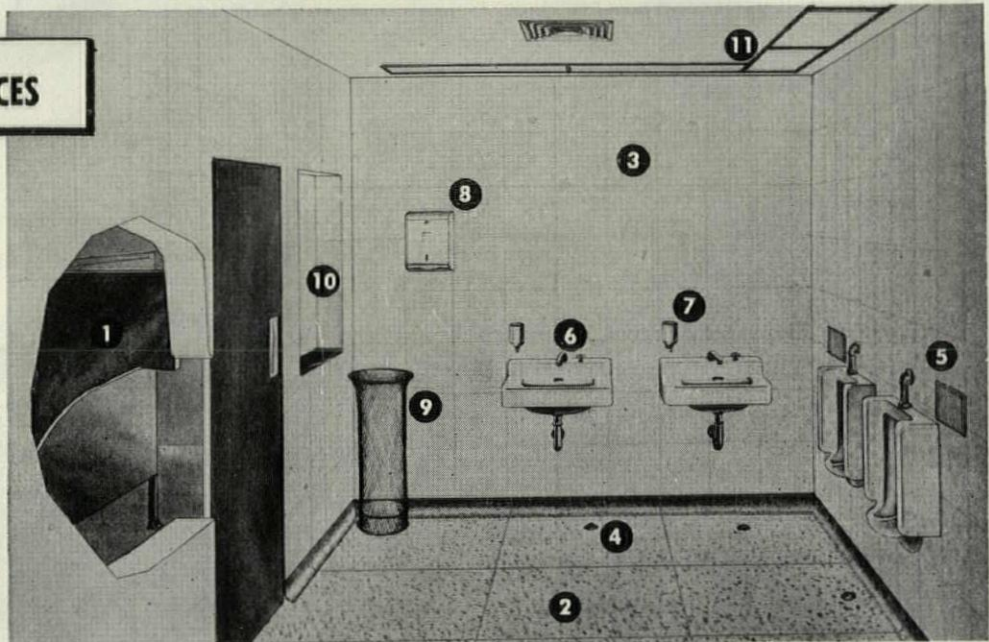
SHOWERS

1 for each 15 persons who may be exposed to excessive heat, or to skin contamination with poisonous, infectious, or irritating material.

...IN THE RIGHT PLACES

CHECK THE DETAILS OF THIS SMALL WASHROOM:

- (1) Entrance shielded from work area.
- (2) Sloped floors of terrazo (tile or concrete)—impervious to moisture, easy to clean. *Ideal drain location.*
- (3) Glass or tile walls, walls and floors coved at juncture—moisture-resistant.
- (4) Foot-control valves to operate wall-hung lavatories, urinals.
- (5) Exhaust vents above fixtures.
- (6) Single faucets for hot and cold water mixing.
- (7) Soap dispensers over left side of basin.
- (8) Towel dispenser away from basins, near exit.
- (9) Waste receptacle with large open top.
- (10) Recessed shelves, mirrors and lights.
- (11) Recessed fluorescent lighting for proper illumination over facilities.



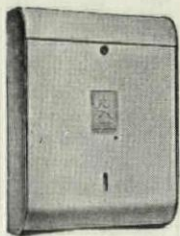
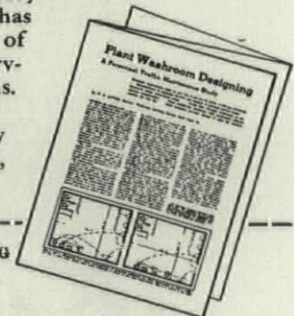
"Watch the details!"—sound strategy in planning *modern* washrooms. Fixtures should be modern, in sufficient number . . . and correctly located.

Up-to-date washrooms in your client's plant can save him thousands of dollars a year! Properly located facilities save man-hours wasted going to and fro. Good sanitary measures keep health and morale up . . . absenteeism down.

Questions? Send for the free pamphlet shown below. It's a good summary of the personnel, traffic and maintenance con-

siderations that go into modern washroom planning. Need more details? Your Scott Washroom Advisory Service consultant has them all. He has the know-how gained by the group of Scott trained specialists who have serviced over half-a-million washrooms.

Contact Scott Washroom Advisory Service, Scott Paper Company, Chester, Pa.



SCOTT
Symbol of
Modern Washrooms

Trade Mark "Washroom Advisory Service" Reg. U. S. Pat. Off.

Washroom Advisory Service, Dept. 6
Scott Paper Company
Chester, Pennsylvania

At no cost or obligation, please send me your study of personnel, traffic and maintenance problems, "Plant Washroom Designing."

Name _____

Company _____ Title _____

Address _____

City _____ Zone _____ State _____

AMERICA'S NUMBER 1 BUILDINGS USE

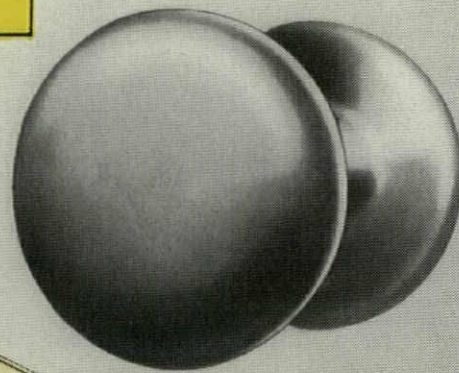
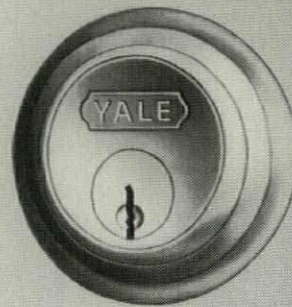
The new St. Joseph's hospital



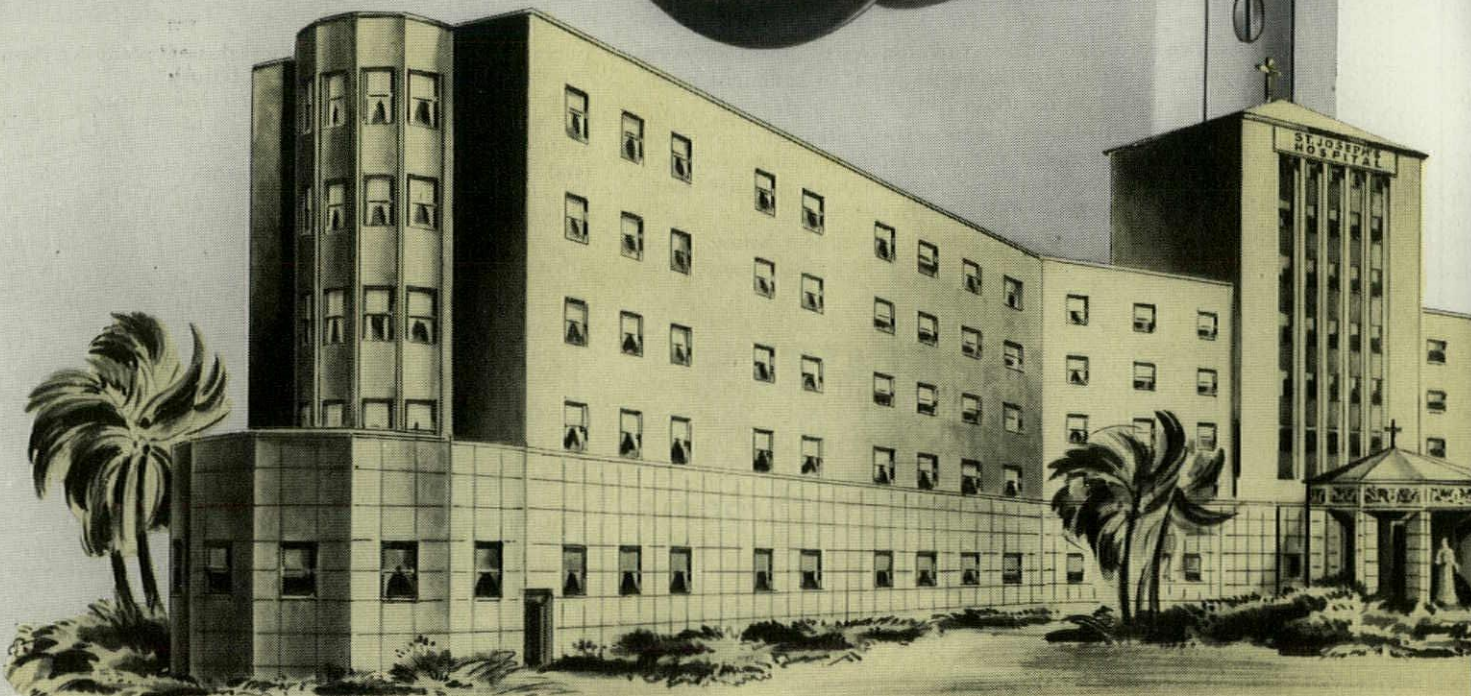
COMPACT DOOR CLOSER
—Series 90

Flattering to doorways, this closer works quickly, quietly...also checks door in hold-open position. Model shown has fusible link safety feature that melts at 160°-165°F to close door and instantly isolate the danger area.

(Below, at right) D-35 knob and G522 rose with an 8656 builder's lock...a five pin-tumbler lock with almost unlimited key changes. Can be easily adjusted to door thicknesses.



YALE



AMERICA'S NUMBER 1 HARDWARE

specifies **YALE**

*for greater dependability
— for new beauty!*

WHEN NURSES, doctors, technicians swing into action to handle emergencies, they require equipment that can keep pace with them...equipment that will perform with never-failing perfection.

That's why, you'll find so many up-to-date hospitals are equipped throughout with Yale hardware. They know that the faultless action of a Yale product can be taken for granted...that Yale's all-out efficiency stays at peak year after year, ready for any emergency.

Such a reputation is the product of Yale's eighty-three years of experience in the hardware field...experience that has paid off repeatedly in greater security, lower maintenance costs and extra years of service for builders and architects everywhere.

These are benefits you can easily specify for the next job you plan by specifying Yale. For detailed information see your distributor or write: The Yale & Towne Mfg. Co., Dept. 62, Stamford, Conn. (In Canada: St. Catharines, Ontario)

St. Joseph's Hospital

St. Joseph's Hospital is equipped throughout with Yale hardware. The new St. Joseph's Hospital is the largest privately financed construction job ever undertaken in the State of Arizona. When completed, it will cost over five million dollars.

YALE & TOWNE

Yale is a registered trade mark

Architect: Lescher & Mahoney
Phoenix, Arizona
Consultant: O. E. Quick
St. Louis, Mo.
Contractor: Del E. Webb Construction Co.
Phoenix, Arizona
Hardware: O'Mally Lumber Company
Phoenix, Arizona



THE FINEST BUILDINGS
THE FINEST HARDWARE



The Carlton House

A fifteen story apartment hotel; the new Carlton House represents the last word in luxurious living in New York. Excellent taste shows in every detail including the Yale hardware.



John Hancock Building

One of the newest and most attractive additions to Boston's skyline, the John Hancock Building exhibits the finest quality throughout. Hardware...Yale, of course!

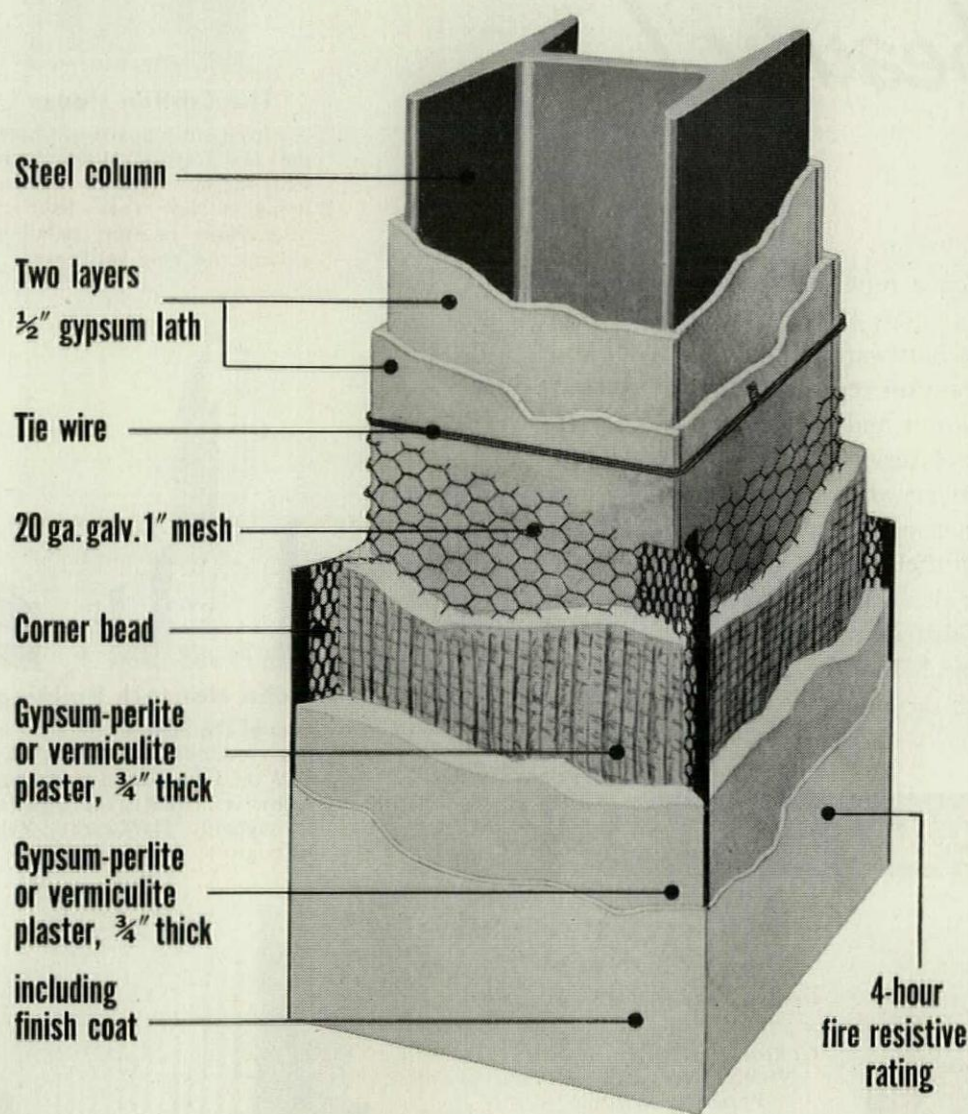


Farm Mutual Building

Again, Yale is the choice. This time, it's the Farm Mutual Building that will benefit from greater security at lower cost for years to come.

SAVE STEEL CUT COSTS

with new, lighter weight Gold Bond column fireproofing



HERE is a fast, efficient method for giving steel columns a fire-resistive rating up to 4 hours. Tests at a nationally recognized fire testing laboratory fully qualify the method for building code requirements.

It gives two benefits—crucially important *now* (1) it saves critical steel; (2) it cuts material and labor costs.

Lowers dead-weight one-third. The materials used—Gold Bond Gypsum Lath and Plaster mixed with lightweight plaster aggregates—weigh half as much as tile, and one-quarter as much as standard concrete for equivalent fire resistive ratings. The result is a reduction of as much as one-third in dead load weight, which reduces the size and cost of footings, foundations and structural frame.

Cuts material and labor costs. Column fireproofing with low-cost Gold Bond Gypsum Lath and Plaster is the fastest method known. It permits important savings in manhours and construction time over usual methods.

When Gold Bond Gypsum Products are used 100% on a job, the responsibility for performance is centered in one reputable manufacturer—National Gypsum Company.

For details and specifications, write our Architectural Service Dept. for new book, A.I.A. 21-C-1 "Column Fireproofing Systems Using Gold Bond Gypsum Lath and Plaster." Also available, Gold Bond's new A.I.A. 20-B-21 "2" Solid Gypsum Lath and Plaster Partitions"—also for exterior furred walls.

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

Lath, Plaster, Lime, Sheathing, Gypsum Roof Decks, Wall Paint, Textures, Rock Wool Insulation, Metal Lath, Sound Control Products, Fireproof Wallboards and Decorative Insulation Boards.

**You'll build or
remodel better with
Gold Bond**



If you made
a door-to-door canvass
of the stores,
supermarkets, restaurants,
hotels, banks, hospitals,
industrial plants

where customers
like to come back
and employees
like to stay,



very likely you'd find the
entrance and service doors
are **STANLEY**
MAGIC DOORS

Controlled by the "Magic Eye" (photoelectric) or "Magic Carpet", Stanley Magic Doors open automatically on approach, stay open till traffic has safely passed, then close quickly and silently.

It will pay you to find out how Stanley Magic Door Controls — easily installed on your present doors — speed traffic flow, build customer and employee morale, reduce heating and air conditioning costs. Mail coupon today for full details.

STANLEY

Reg. U.S. Pat. Off.

DOOR CONTROLS "The Magic Door"

Completely Automatic Door Controls for Swinging, Sliding or Folding Doors

THE STANLEY WORKS, Magic Door Division
303 Lake Street, New Britain, Conn.

☐ Kindly send me full information on Stanley Magic Doors.

☐ Have your representative call.

Your Name

Firm's Name

Street

City State

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

still another state office goes Q-Floor



Tennessee State Office Building, Nashville, Tenn.

Hart & McBryde—architects
Angus Jessup—structural engineer
I. C. Thomasson—mechanical engineer
Stanley G. Simm—electrical engineer
Creighton & MacDonald—builders

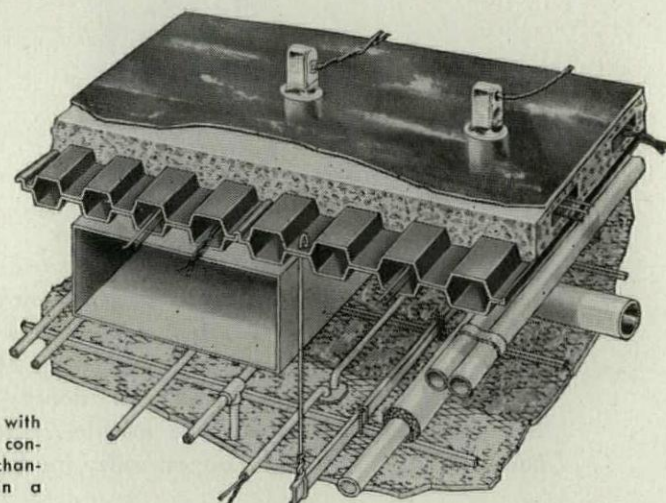
More than 340,000 square feet of Robertson Q-Floor are going into the State Office Building at Nashville designed by Hart & McBryde. And, every exposed square foot of floor can be tapped for an electrical outlet.

The cells of Q-Floor (the steel subfloor under a lightweight concrete fill) are used as raceways for any and all electrical systems. To establish an outlet on any six-inch area of the floor, an electrician drills a small hole and fishes his wires to the exact spot. Each outlet takes only a matter of minutes, without muss or fuss or trenches. Such electrical flexibility enables the building to accommodate any amount of increased electrical demand.

The Tennessee State Building's other aspect of modernity will be best seen by sidewalk superintendents. They will see how the use of lightweight steel subfloor makes possible the use of light framework to save steel. Q-Floor, welded promptly into final position, forms a permanent platform for all subcontractors. This eliminates much temporary material needed by conventional construction. All subcontractors can go to work at the same time, because Q-Floor floors go up as fast as the frame and are immediately usable. By proper contractor organization, Q-Floors cut construction time 15 to 20%.

Q-Floor savings in construction costs—both time and material—are significant. An enormous amount of drafting room time also is saved, because partitions and outlets can be located after tenants move in. The earlier completion date reduces financing costs. But above all is Q-Floor's electrical adequacy for the life of the building. Currently, Frankfort, Kentucky, Des Moines, Iowa, and Cheyenne, Wyoming, are also constructing Q-Floor State office buildings.

Write for the latest Q-Floor catalog and literature showing new Q-Floor buildings and naming their architects.



Steel Q-Floor is shown here with suspended ceiling and a condensed visualization of mechanical equipment needed in a modern building.



H. H. ROBERTSON CO.

2403 Farmers Bank Building
Pittsburgh 22, Pennsylvania



Offices in ALL Principal Cities
in the U. S. A. and Canada

World-Wide Building Service

SCHLAGE[®] CYLINDRICAL LOCKS...Time-Proven



In 15 years, no replacements...no repairs
to SCHLAGE LOCKS installed at
Western Merchandise Mart,
San Francisco

Few buildings give locks heavier use than this
"billion dollar market center of the West."

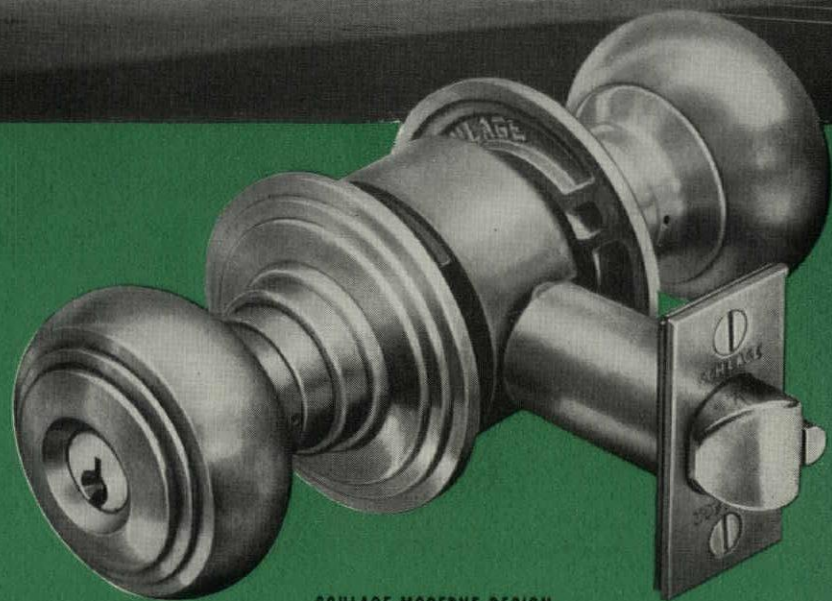
The 1100 Schlage Cylindrical Locks at the Western Merchandise Mart began their record of trouble-free service in 1937. Ten years later a wing was added and 700 more Schlage Locks were installed. "We specified these on the strength of Schlage's performance in our main structure," says "The Mart's" President, Frank K. Runyan. "And we have not had to replace or repair a single lock."

SCHLAGE[®]

THE Time-Proven CYLINDRICAL LOCK

SCHLAGE LOCK COMPANY • 2201 BAYSHORE BOULEVARD, SAN FRANCISCO, CALIFORNIA

SCHLAGE LOCK COMPANY OF CANADA, LTD. • VANCOUVER, B. C.



SCHLAGE MODERNE DESIGN



In floor fill
.....
in roof fill

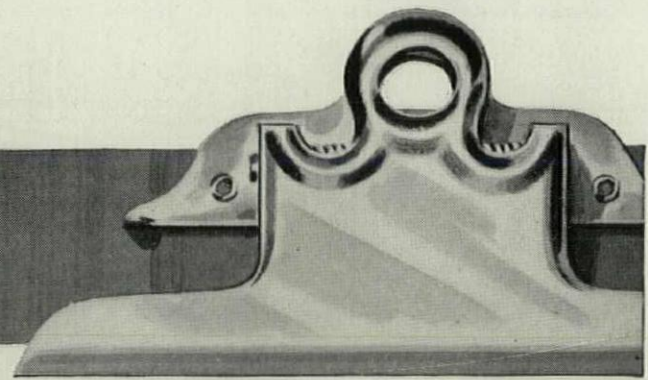
Permalite expanded aggregate gives you concrete with only 1/7 to 1/3 the weight of sanded concrete. The great saving in deadweight can not only sharply reduce requirements in structural steel but also cut construction time and costs.

Permalite offers you consistent, rigidly controlled quality on every job, first bag to last. In its weight class, Permalite mixes require less water, have less drying shrinkage, higher strength, less absorption and have greater resistance to freezing and thawing.

Leading architects are specifying Permalite for *all types of construction* — industrial buildings, schools, hospitals, defense housing and military buildings. For full facts and specification data see your Sweet's File or send for new Permalite brochure; Great Lakes Carbon Corporation, 18 East 48th Street, New York 17, N. Y., Dept. 222.

MAKES BETTER PLASTER, TOO

U. L. approved Permalite/plaster carries maximum fire ratings up to 4 hours — does a faster, easier job of fireproofing structural steel. On walls and ceilings, it assures lighter, more crack-resistant base coats.



PERMALITE

lightweight aggregate

FILLS THE BILL

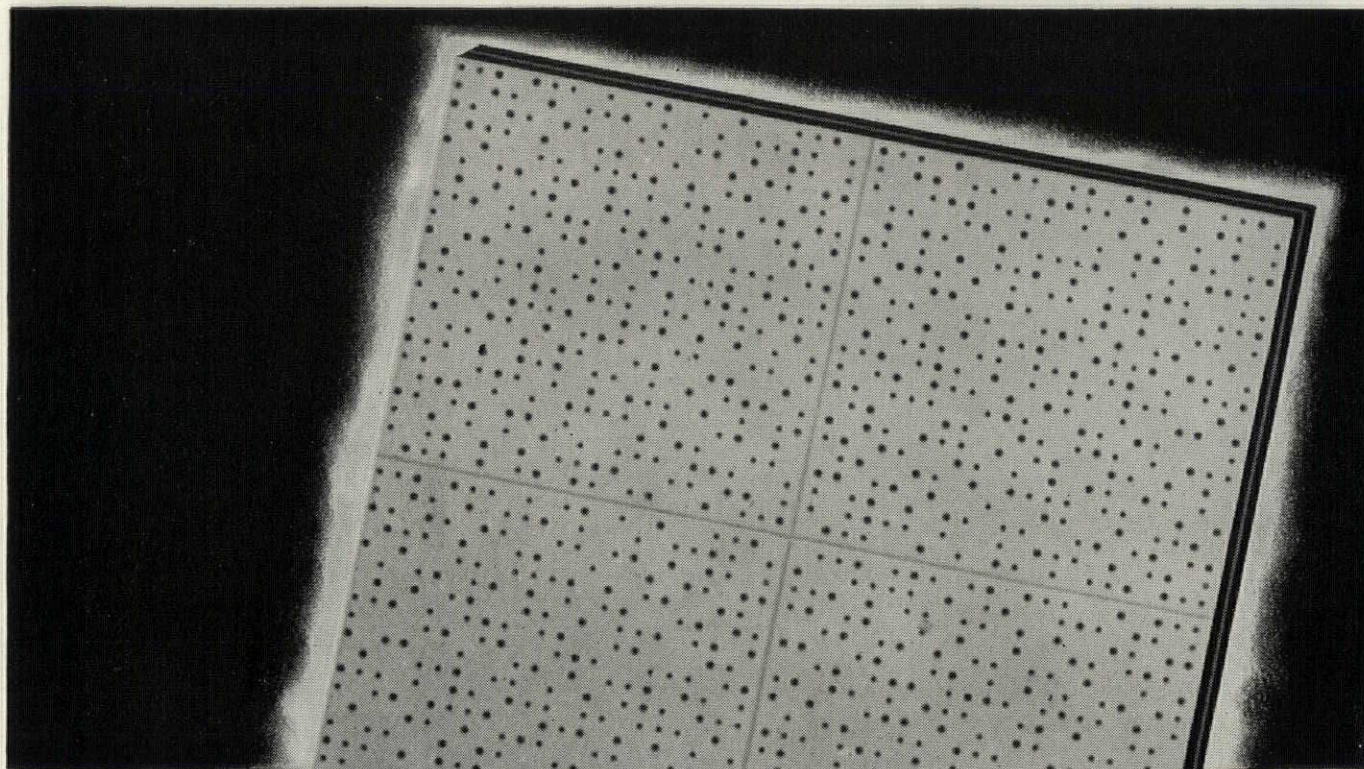
- ✓ Reduces deadload
- ✓ Cuts steel needs
- ✓ Lowers heat loss
- ✓ Fire resistant
- ✓ Availability unlimited
- ✓ Quality controlled
- ✓ Perlite Institute approval

Permalite®

THE LEADING
PERLITE
AGGREGATE

A Building Product of Great Lakes Carbon Corporation and its Exclusive Permalite Licensees

Something **UTTERLY NEW** in acoustical materials...



Acousti-Celotex

RANDOM PATTERN

Perforated Tile



Utterly new and "different" in appearance, Acousti-Celotex RANDOM PATTERN Perforated Tile enables you to create dramatically beautiful decorative effects impossible with any other Sound Conditioning material.

It owes its unusual charm to its sharply profiled perforations of varying sizes, arranged in random fashion. And to its rich, linen-like surface that gives better light diffusion.

But beauty is only part of the story. Acousti-Celotex RANDOM PATTERN Perforated Tile also has high sound absorbing value. And like all Acousti-Celotex Cane Fibre Sound Conditioning Products, it has a *new washable finish* of remarkable durability.



Note the interesting, varied charm of new Acousti-Celotex RANDOM PATTERN Perforated Tile. It lends a new note of beauty to any restaurant, theatre, office, hospital, school, church.

Applied in two coats under the pressure of a hot knurling iron, this tough and flexible new finish actually becomes an integral part of the tile. Keeps its smart, soft-white beauty through many, many washings.

Ask your Distributor of Acousti-Celotex Products to show you a sample of the new Acousti-Celotex RANDOM PATTERN Perforated Tile. If you don't know where to reach him, write to The Celotex Corporation, Dept. A-22, 120 S. LaSalle St., Chicago 3, Ill. In Canada, Dominion Sound Equipments, Ltd., Montreal, Quebec.

Sound Conditioning is a Sound Investment...

FOR OFFICES • FACTORIES • STORES • SCHOOLS
HOTELS • HOSPITALS • CHURCHES • BANKS



ACOUSTI-CELOTEX

TRADE MARK

REGISTERED

U. S. PAT. OFF.

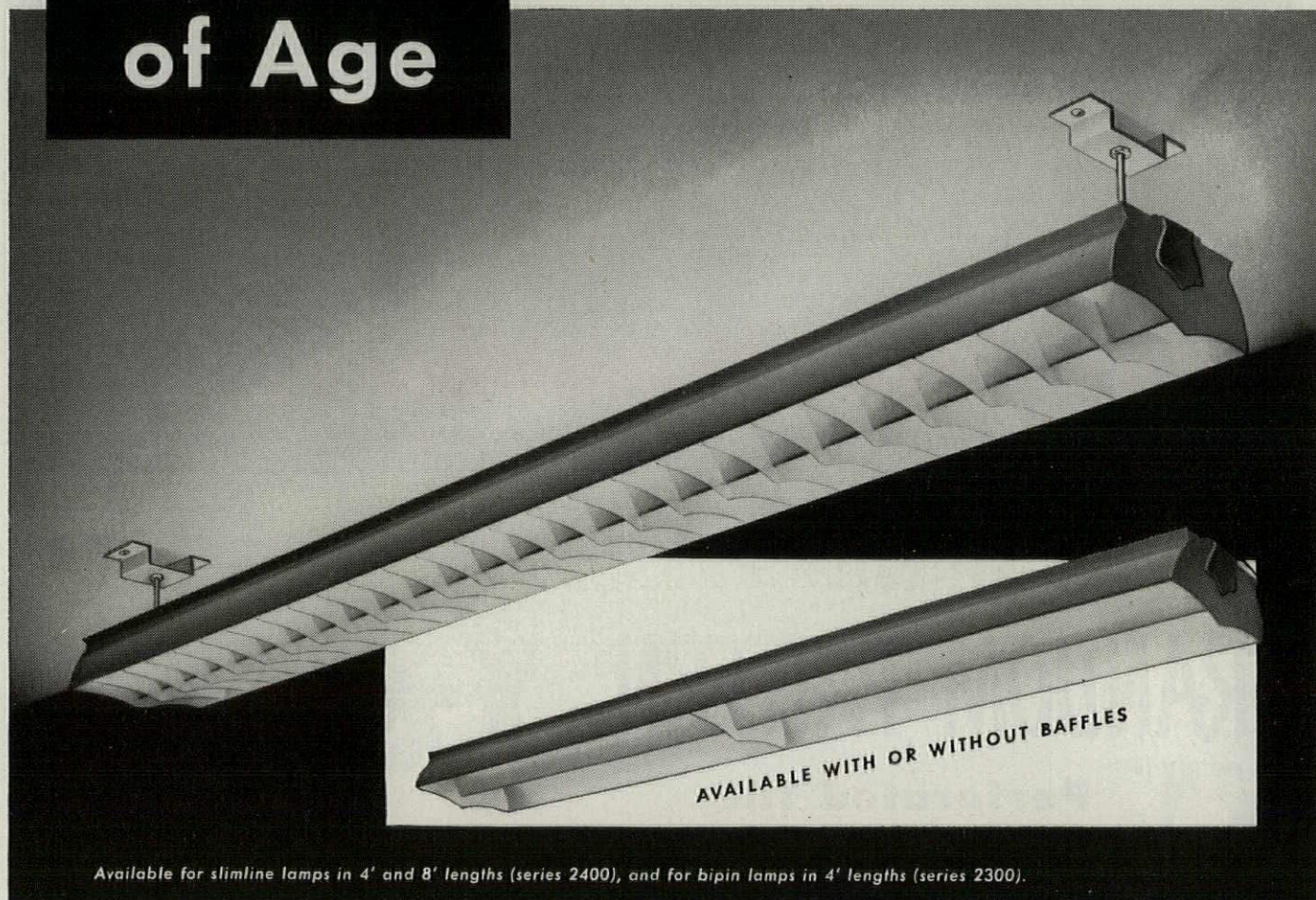
Sound Conditioning

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILLINOIS

Factory Lighting Comes of Age

with this NEW Litecontrol Industrial Fixture



HERE IT IS — the new LITECONTROL Industrial Unit that provides "white collar lighting for shop coat areas."

Minimum waste light . . . maximum lighting efficiency — This unit, employing general diffuse design, provides vent areas at the roof of the hood. Light is not "trapped" and thereby wasted as in older hood types, but instead is reflected through the vent to the ceiling and thence again to the working area *where it is needed*.

Sturdy construction . . . durably finished — The all-metal heavy gauge bonderized steel construction provides structural rigidity. And the LITECONTROL double-coated white finish is guaranteed not to chip, fade or discolor.

Maintenance minimized . . . mounting simplified — There's no maintenance worry with this LITECONTROL advance design. Lamps and starters can be easily replaced without disturbing baffles. Smooth curved sides can be wiped clean without cloth-snagging . . . no inaccessible dust corners. Diffuse design also helps keep interior of fixture clean through convection currents and overhead "escape hatch" for dust.

Mounting, too, is easy. Suspension mounting is recommended for peak

performance, but provision is made for other methods where preferred or necessary.

Consult your lighting specialist . . . and write for free booklet today — A consultation with your lighting advisor . . . or with your nearby LITECONTROL Representative will save you time, money and trouble. If you are planning on new lighting for your factory, call on him today . . . and write today for your free copy of our new booklet: "Industrial Fluorescent Lighting by LITECONTROL."

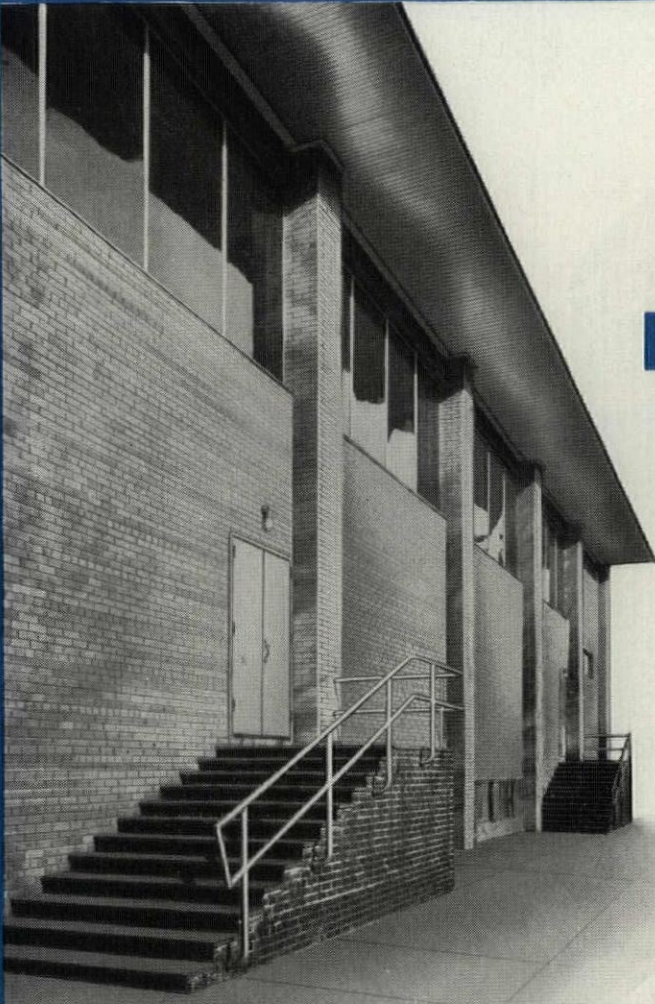


LITECONTROL *Fixtures*

KEEP UPKEEP DOWN

LITECONTROL CORPORATION, 36 Pleasant Street, Watertown 72, Massachusetts

DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS



No Protective Screening with **PLEXIGLAS** Glazing

Windows need no protection, even at this gymnasium, when the glazing is tough, resilient PLEXIGLAS. Here the transparent acrylic plastic, tinted blue, contributes a combination of advantages: resistance to impact... uniform daylight admission... elimination of screen-maintenance costs... reduction of direct glare from sun and sky. In addition, the large expanse of unobstructed glazing is important to the pleasing appearance of the building and the unrestricted feeling given to users of the gymnasium.

Strength, light weight, and resistance to weather combine to make PLEXIGLAS—the outdoor plastic—the architectural material for breakage-area glazing in schools and public buildings. We will be glad to tell you the full story of PLEXIGLAS anti-breakage glazing. Write to us for literature.



CHEMICALS



FOR INDUSTRY

**ROHM & HAAS
COMPANY**

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

City of Philadelphia Recreation Center, "B" and Wyoming Streets, Philadelphia, Pa. Gymnasium windows are single sheets of transparent pale blue PLEXIGLAS, eight feet high, five feet wide, in quarter-inch thickness. The acrylic plastic panels are hung from the top edge by means of a cemented PLEXIGLAS rib. In addition to the gymnasium windows, anti-breakage PLEXIGLAS glazing is used for all windows facing the Recreation Center's playground. Architects: Carroll, Grisdale, and Van Alen, Philadelphia.

PLEXIGLAS is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.

Canadian Distributor: Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada

Two Honeywell Weatherstats mounted outdoors, high above the street, are the Minnesota Building's keys to comfort and remarkable fuel saving.



How Honeywell Customized Temperature Control Has Cut Fuel Bill 26% Over 15-Year Period in Minnesota Office Building

Specially designed system paid for itself in 3 years—while furnishing tenants greatly improved comfort

The Minnesota Building, located in downtown St. Paul, is a typical mid-twentieth century American office building, and just about the most comfortable big building in town—all winter long.

And providing every tenant with comfortable, even warmth—no matter how changeable the weather—is a Honeywell Customized Temperature Control System, installed fifteen years ago as a modernization project.

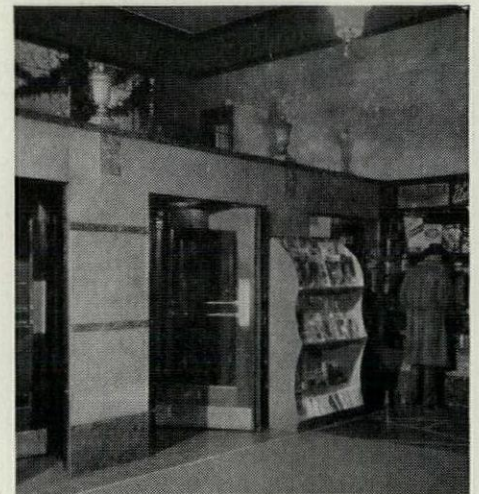
At that time Clapp-Thomssen Co., building managers, decided they'd go all-out to give tenants the finest comfort possible—and save fuel at the same time—by installing Honeywell Customized Temperature Control.

The customized system they had installed took the form of a Honeywell Weatherstat Zone Control System. And not only did this control system give the kind of comfort they expected—it made possible fuel savings that paid for the entire installation within three years!

And since that time fuel savings have continued to average 26% a year.

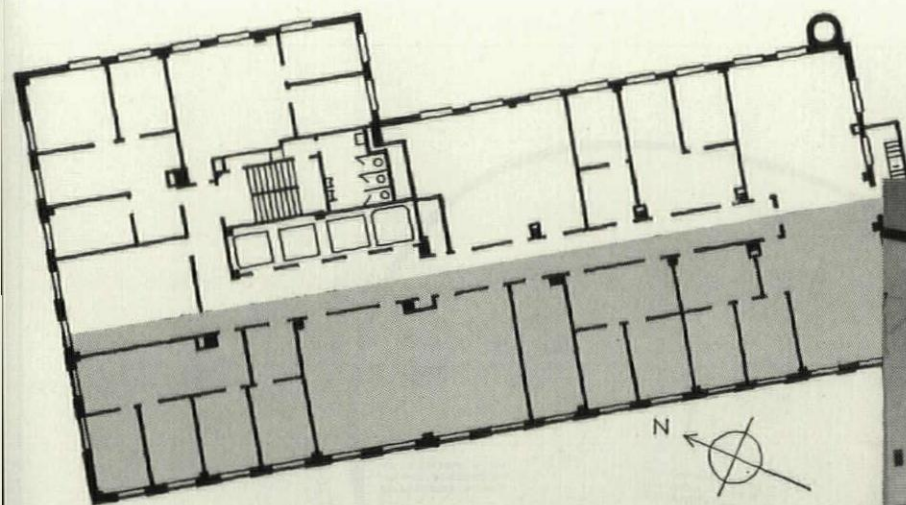
Important to both comfort and fuel saving was the fact that Honeywell Customized Temperature Control compensated for exposure, use and occupancy differences. *How* it did is explained in the individual picture captions, and by the floor plan.

Special lobby temperature requirements are met by a separate thermostat system, and a unit heater. By making the lobby a special heating zone, cold air entering through doorways is compensated for easily by Honeywell Customized Temperature Control. Yet, visitors in winter street garb never become uncomfortably warm—and considerable amounts of heat and costly fuel are saved.



Ground floor locations that have less heat loss and generally higher temperature requirements than the lobby include the savings and loan office, shown at right, as well as shops, a cafeteria, and a blueprint company. All of these firms are located in a single heating zone. The thermostat for this zone is in the savings and loan office.

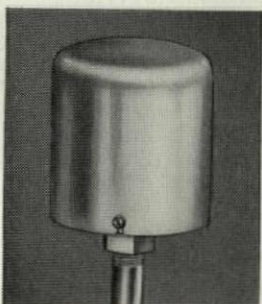




Office Floors Controlled By Weatherstat

The heating zones shown above—set up according to exposure, occupancy and construction—each have a separate Honeywell Weatherstat mounted outside the building. The Weatherstats—actual miniature zones in themselves—call for heat not only in direct relation to outside temperature, as do ordinary outdoor controls, but in relation to *wind and sun conditions as well!*

This type of control, together with indoor thermostats for each zone, means all tenants enjoy constant, comfortable temperatures. And because Weatherstat Zone Control eliminates over-heating, you get fuel savings like these enjoyed by the management of the Minnesota Building.



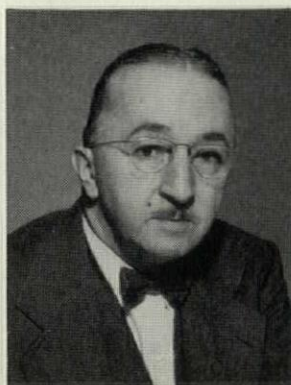
This view of a typical office shows two heating zones. The camera was set up in the northeast heating zone, while the portion of the office in view and around the corner is located in the southwest heating zone, shown in the shaded area on the floor plan. Both zones are controlled by Weatherstats mounted on the *outside* of the building. These truly remarkable Honeywell controls anticipate and compensate for changed heating requirements according to weather. In addition, separate thermostats *inside* give added control, make doubly sure of comfort all winter long.

For Comfortable, Even Warmth in New or Existing Public Buildings, Specify Honeywell Customized Temperature Control

Whether it's a store, office, school, garage—or any size public building—new or existing—there's a Honeywell Customized Temperature Control System to meet your clients' heating and ventilating problems.

Once equipped with a Honeywell Customized Temperature Control System, they'll have the newest, finest equipment available. They'll also have the right kind of controls to keep their employees, customers and tenants comfortable—and they'll save fuel besides.

For full facts on Honeywell Customized Temperature Control, call your local Honeywell office. There are 91 across the nation. Learn how these remarkable systems can help your clients and your business. Or mail the coupon today.



"No more complaints—even in the most changeable weather," says building manager William D. Clapp.

"Before we had Honeywell Customized Temperature Control installed, you never knew how many complaints you'd get on a cold day. Now if we get even one it's exceptional. And the 26% annual fuel savings have paid for the installation of the controls many times over."

MINNEAPOLIS
Honeywell



First in Controls

MINNEAPOLIS-HONEYWELL

Dept. MB-2-43

Minneapolis 8, Minn.

Gentlemen: I'm interested in learning more about your Customized Temperature Control Systems for public buildings.

Name

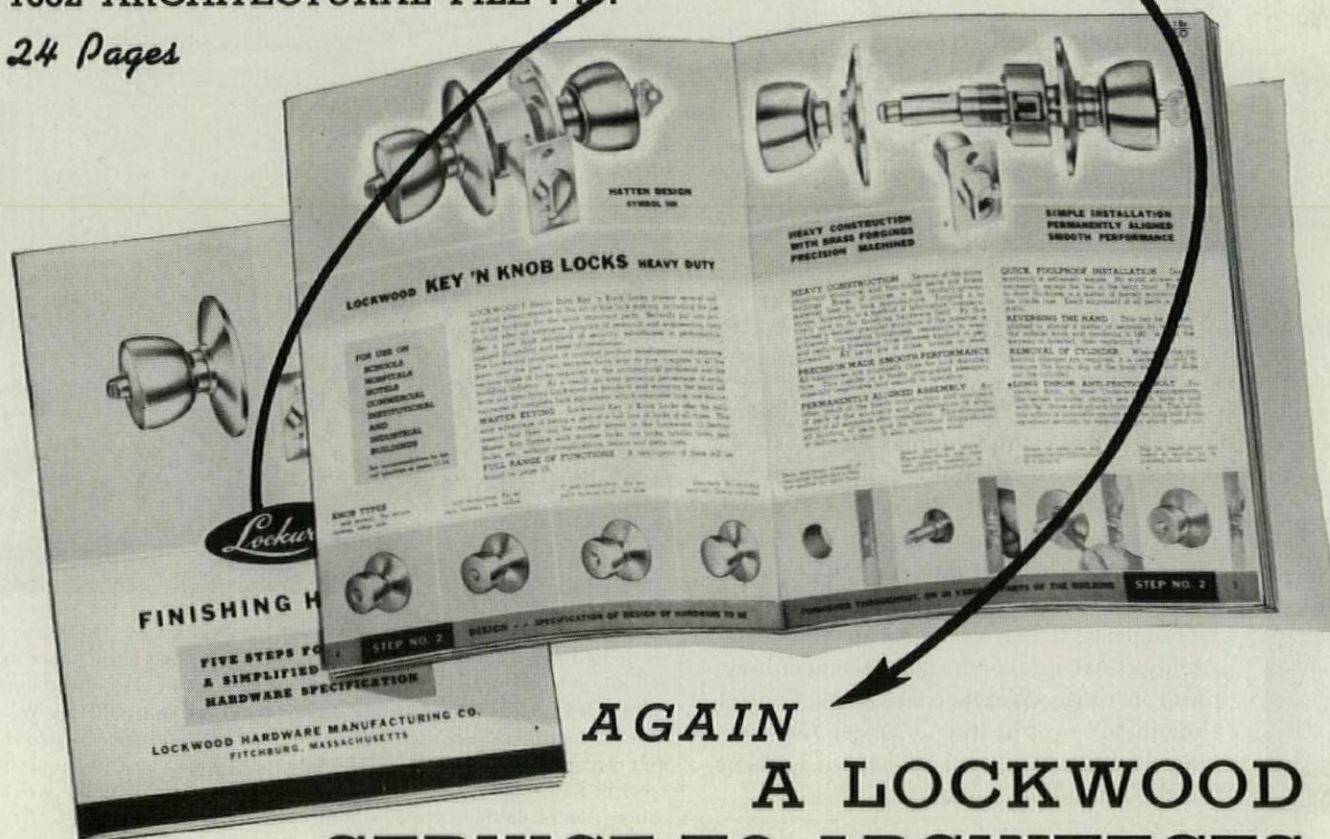
Firm Name

Address

City.....Zone.....State.....

LOCKWOOD IN SWEET'S 1952 ARCHITECTURAL FILE . . .

24 Pages



AGAIN A LOCKWOOD SERVICE TO ARCHITECTS

The 24 pages of Lockwood's catalogue in Sweet's Architectural File for 1952 are crammed full of helpful information on finishing hardware. They recommend specific locks for specific openings in commercial and public buildings, schools, hospitals, hotels, apartments and residences. They also present a simplified 5 step formula for writing a complete finishing hardware specification. The consistent use of substantial space in Sweet's Architectural File, year after year, is evidence of Lockwood's sincere desire to make complete information on its products readily available to the architectural profession when needed.

LOCKWOOD FEATURES THIS YEAR INCLUDE:

- A new line of automatic exit devices
- A new "Bor-a-lign" lock with steel aligning feature
- Several new and improved functions in Heavy Duty Key 'n Knob locks.

Each year, more architects make greater use of this aid to quick, convenient selection of builder's hardware. If you would like to have a reprint of this catalog, please write requesting catalog 18e/LO.



Lockwood

HARDWARE MANUFACTURING CO.

FITCHBURG, MASSACHUSETTS, U. S. A.



Above: St. Jude's Hospital, Montgomery, Alabama. Architect: James C. Masci. Red Kalistron on dados and furniture, contrasting Kalistron above chair rail.

UNBELIEVABLE DURABILITY...

This is a comment frequently heard about installations of Kalistron. When walls, doors, columns or furniture are covered with Kalistron, they literally defy the wear and tear of service. Years after installation the Kalistron is in excellent condition—unmarred, unscratched, with practically no sign of wear whatsoever.

Kalistron is different because the color is fused to the *underside* of a transparent sheet of wear-resistant Vinylite. Nothing can get at this under-surface,

so Kalistron's beauty stays fresh and new-looking—always.

Kalistron resists scuffs, scratches, scrapes; cannot peel, chip or crack; is water-proof, yet easily cleaned with a damp cloth.

SEND COUPON BELOW for Kalistron swatch and a nail-file—free. See if you can injure Kalistron even with this file.

Kalistron †
COLOR FUSED TO UNDERSIDE
 PLASTIC COVERING MATERIAL

U. S. Plywood Corp., Dept. F-82
 55 West 44th St., New York 18

Please send me FREE Nail-File Test (swatch of Kalistron plus actual nail-file) and folder "Facts About Kalistron."

NAME _____

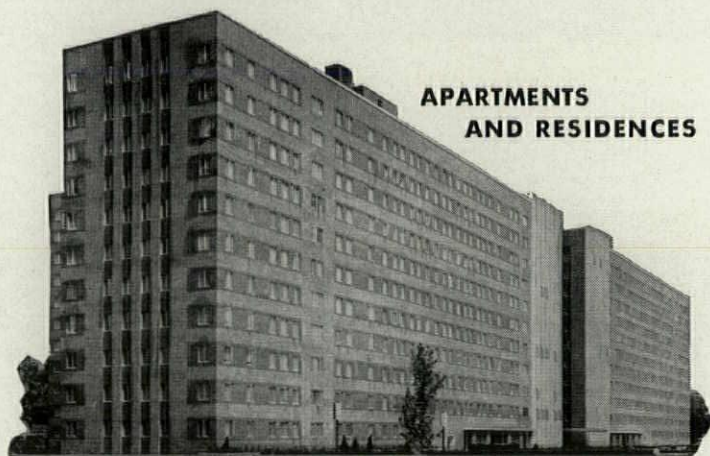
ADDRESS _____

Distributed by: UNITED STATES PLYWOOD CORP., N. Y. C.
 and by: DECO SALES, 408 Freylinghuysen Ave., Newark, N. J.
 In Canada: PAUL COLLET & CO., LTD., MONTREAL

† TRADEMARK

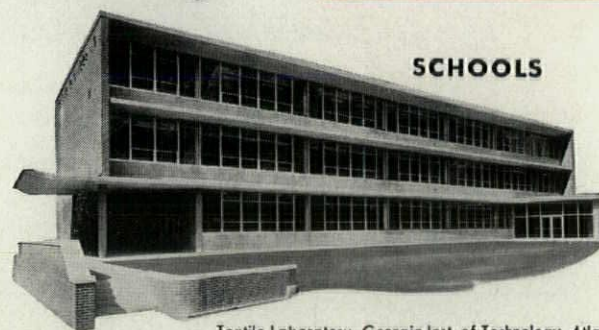
Color fused to
 underside of
 transparent vinyl
 sheet . . . backed
 by flocking

for any kind of building—one kind



APARTMENTS
AND RESIDENCES

Twin Oaks Apartments, Kansas City, Mo.
Architects: Voskamp & Slezak



SCHOOLS

Textile Laboratory, Georgia Inst. of Technology, Atlanta, Ga.
Architects: Bush, Brown, Gailey, Heffernan

Quality

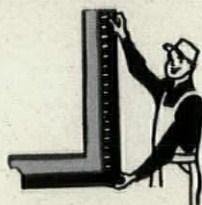
ALUMINUM



For client protection insist on
windows bearing this Quality Seal



TESTED FOR QUALITY
MATERIALS



TESTED FOR SOUND
CONSTRUCTION



TESTED FOR STRENGTH
OF SECTIONS



TESTED FOR LOW AIR
INFILTRATION

AVAILABILITY OF ALUMINUM WINDOWS

Don't be misled by false rumors. There is no need to use substitutes. Aluminum windows ARE AVAILABLE for immediate and future use. Present NPA Order M-4A permits unrestricted use of "Quality-Approved" aluminum windows, as class "B" building product under CMP. Consult individual manufacturers of "Quality-Approved" aluminum windows for up-to-the-minute information on their delivery schedules.

of windows does the job best!

HOSPITALS



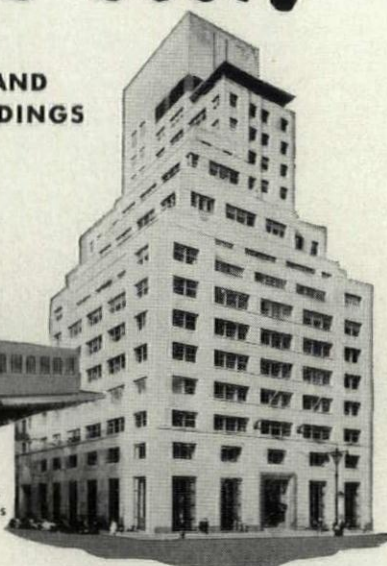
Georgia Baptist Hospital, Atlanta, Ga.
Architects: Stevens & Wilkinson, Inc.

COMMERCIAL AND INDUSTRIAL BUILDINGS

Philadelphia Inquirer Rotogravure Bldg., Philadelphia, Pa.
Architects: Albert Kahn Associates



Crowell-Collier Building, New York, N. Y.
Architects: Leonard Schultze & Associates



Approved

WINDOWS!

For schools and hospitals...for apartments and residences...
for commercial and industrial buildings—the one sure way of
giving your clients “the best” in windows is to specify “Quality-
approved” aluminum windows for every building you design.

Aluminum windows help clients save money year after year on
maintenance costs. They never need painting or costly repairs.
They cannot rust or rot. They always operate easily and will
remain beautiful for the life of the building.

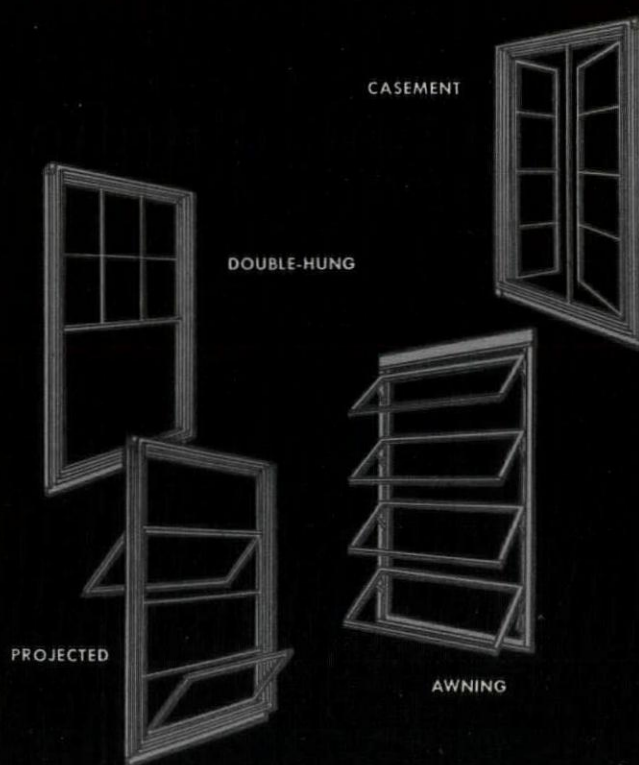
Be sure! Specify the *one* kind of aluminum windows that gives
you all these advantages—the kind that bears the “Quality-
approved” Seal. When you do, you can be sure of windows that
have been tested and approved by an independent laboratory—
windows which will assure complete satisfaction for you and
your client.

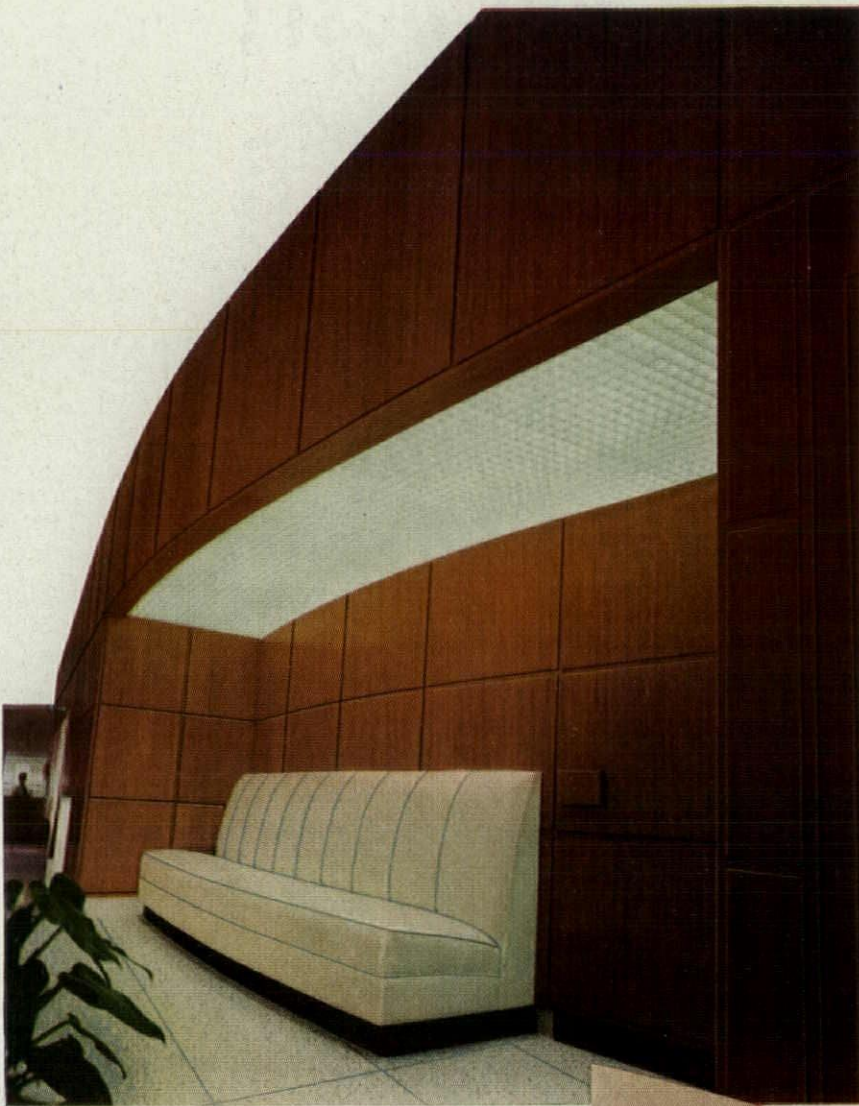
“Quality-Approved” aluminum windows are available in double-
hung, casement, projected and awning types. For detailed speci-
fications and names of manufacturers, consult Sweet's (Section
A/ALU) or write direct to Dept. AF-2.

*Aluminum Window
Manufacturers Association*

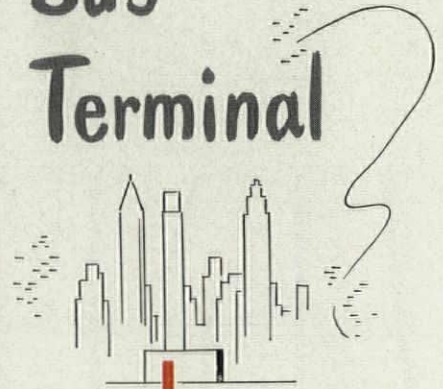
74 Trinity Place, New York 6, N. Y.

A TYPE FOR EVERY NEED





New York Port Authority Bus Terminal



FORMICA
Reg. U.S. Pat. Off.

specified by

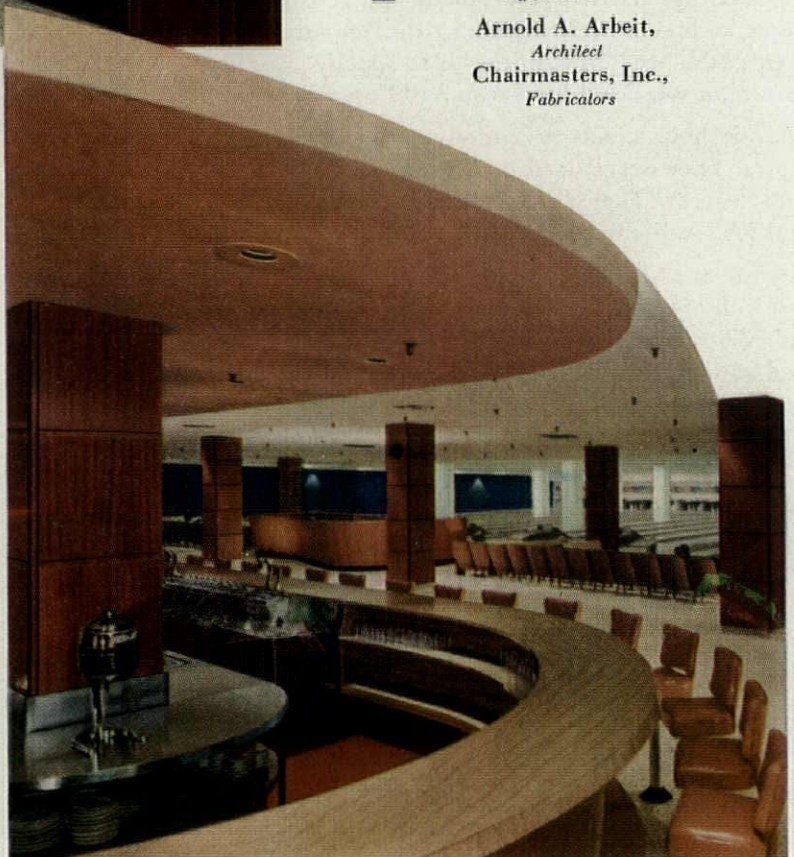
Arnold A. Arbeit,
Architect
Chairmasters, Inc.,
Fabricators

where beauty is a factor—where crowds
are big—where people are careless
—where maintenance must be low
Beauty Bonded Formica
interiors make dollars and sense.

See Sweets $\frac{14A}{FO}$ for Formica information
or write for Architectural catalog to

FORMICA, 4631 Spring Grove Ave.,
Cincinnati 32, Ohio

In Canada — Arnold Banfield & Co., Ltd.,
Oakville, Ontario



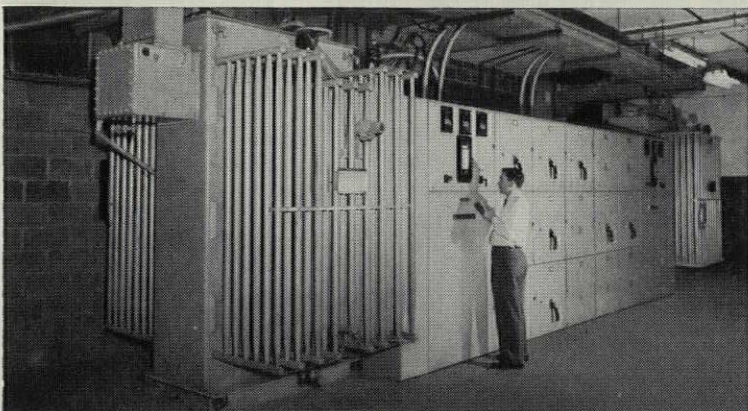


**COORDINATED
ELECTRICAL SYSTEMS**

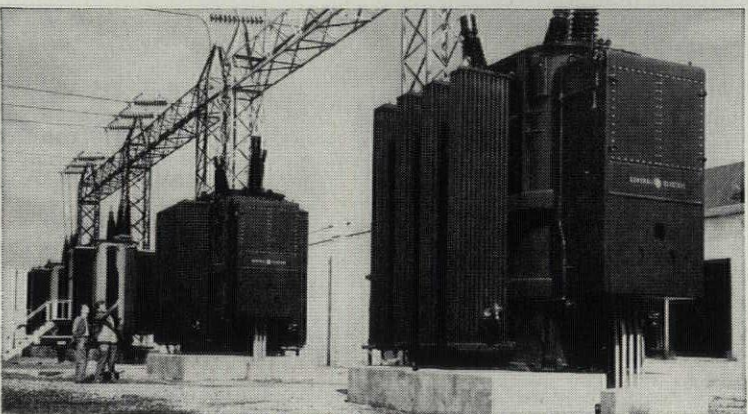
For Industrial Plants

FIFTY-THREE ACRES OF PRODUCTION SPACE IN THIS GIANT PLANT ARE RELIABLY SERVED BY "PACKAGED" GENERAL ELECTRIC POWER DISTRIBUTION EQUIPMENT.

Tanks Roll in 7 Months at New Plant



Secondary power distribution in the new plant is made on a 480-volt grounded-wye system—for greater safety, better system operation. This is one of 18 new 1500 kva G-E load-center unit substations added during the plant conversion.



Two new 132-13.8-kv transformers, foreground, together with breakers, disconnects, and structural parts, form the pre-engineered "package" which was integrated with existing G-E equipment to form the plant's master substation.

G-E power distribution equipment—easily specified, quickly installed—helps speed plant conversion to defense production

This new plant is an outstanding example of rapid conversion to defense production. Despite many obstacles, the first tank rolled off the line only seven months after the World War II plant was taken over. A major project in the conversion effort was the complete revamping and expansion of the electrical distribution system to meet the heavy demands of tank manufacture.

Selection of General Electric equipment helped speed conversion in these ways: (1) co-ordinated systems are readily designed around easy-to-specify G-E equipment, (2) "packaged" G-E equipment is quickly installed and connected, and (3) when substantially all power equipment is G-E, we will co-ordinate manufacture and shipment of system components.

You can gain these time-saving benefits for *your* industrial plant projects by specifying dependable, user-preferred G-E distribution equipment. And remember, G-E application engineers are ready to advise and assist those charged with distribution-system planning and design. Contact your G-E apparatus representative. And write for new brochure GEA-5600, "Electric Power for Industry's Third and Largest Expansion." Sect. 665-115A, General Electric Company, Schenectady 5, N. Y.

GENERAL  ELECTRIC

665-115A

Engineered **WAYS TO BETTER BUSINESS** by



**Space-saving
High-efficiency**

TECHNIPLAN the ORIGINAL modular office

RENT-FREE FLOOR SPACE is saved for expanded use by **TECHNIPLAN** Modular Office System, with space savings ranging from 18% up to 43%.

WORK EFFICIENCY is increased by the scientific $\frac{1}{4}$ -turn working position, which makes ALL working surface usable, within easy reach, without waste.

JOB-FITTED FACILITIES are provided for each work station's particular needs.

TECHNIPLAN standard units are interchangeable. They interlock to form any desired combination or arrangement. Rearrangement to meet changing needs

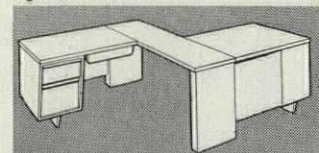
is readily accomplished without special tools or skill. So, **TECHNIPLAN** is always complete—never final.

DISTINGUISHED APPEARANCE results from finest craftsmanship devoted to quality woods, finished in rich walnut; smartly modern.

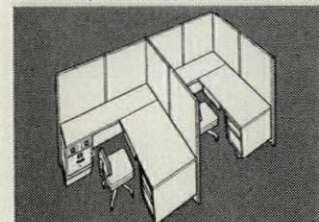
GET THE FACTS—use the convenient Check List Request—just a pen stroke.

TECHNIPLAN, and 4000 other ways to better business, originate with Globe-Wernicke, and are sold and serviced by dependable G-W dealers, listed in classified 'phone books under "Office Equipment."

TECHNIPLAN components are designed to true modular standards.



Innumerable combinations afford flexibility to meet all conditions.



Standard partitions available to provide full or semi-privacy.



Cincinnati 12, Ohio

**CHECK this LIST for
wanted information—
promptly furnished:**

- ☐ **TECHNIPLAN** Facts
- ☐ Modern Filing Methods
- ☐ Visible Record Facts
- ☐ Special BIG Papers System

**Check above, attach
to your letterhead—
and MAIL—TODAY!**

NPA Proposal Promises Relief For Areas Suffering Unemployment

Despite conditioned skepticism, builders could not keep down a fluttering of hope early this month when they heard National Production Authority Chief Henry H. Fowler's latest proposal for easing Controlled Materials Plan restrictions in "noncritical areas" (distressed because critical areas are getting the bulk of construction work). Fowler, in placatory letters to the New York congressional delegation (which represents 25,000 unemployed construction workers), committed the control agencies to what *seemed* to be a relief program.

Fowler's panacea would have NPA put a special allotment of controlled materials in the CMP bank. These would be used for nonindustrial construction in large urban areas, up to now pretty well snubbed in favor of defense production. This relief, for the most part, would mean a slight easing of restrictions on commercial starts which would be halted in the second quarter by previously announced CMP allotments.

Mere leniency in construction go-aheads for schools, hospitals and other public buildings would not solve the problem: there are not enough such projects in any of the distressed areas (or elsewhere for that matter) to provide more than token relief for construction industry unemployment. Industrial construction would help, of course, but little of that is earmarked for distressed areas. Channeling it there would interfere with more necessary Defense Department and DPA labor and material requirements.

But NPA's Fowler was not overly generous with his relief program.

He hedged the new distressed area kitty on the qualification: "Providing such a step would not deny allocations to new and necessary military and AEC construction."

It was clear the clamp down on stores and other commercial starts would not be eased until the third quarter. Except for the overallotments that could be garnered from the military—mostly aluminum—DPA's cupboard would be bare until then.

Where would the DPA begin? Beyond assuring the New York delegation that the big town was on the favored list, Fowler was vague. The news subsequently spilled, however: Boston, Washington, San Francisco, Los Angeles, Portland, Ore., and Seattle were to be included. For fear of putting a premium on organized squawking, DPA was handpicking the places

with the aid of Labor Advisor Joseph Keenan. Influencing it most in selecting distressed areas for relief was the volume of unemployment among construction workers. Much less consideration was given petitioning construction employers who were anxious to pry loose a deferred project here and there. Besides his letters to the New York congressmen, Fowler also wrote to the New York Building Congress. In a much sterner tone, he batted back charges CMP was unreasonably arbitrary or dilatory in its operations. Said Fowler: "The over-all volume of construction in the country will not be materially changed as a result of second quarter allocation cuts. The fact is, the greater part of construction which will be able to go on will be concentrated in military and atomic energy projects and completion of industrial and nonindustrial work already underway." Fowler did admit NPA regulations were overly gobbledygookish, promised to aim at Shakespearean simplicity hereafter.

One step in this direction, Fowler thought, was the consolidation of CMP Regulation 6 and Direction 1. More a codification than an outright revision, the new one-package version turned out to be a whopping 58-page document.

"CMP Regulation 6, Revised" contains a new table for the amount of controlled materials that may be self-authorized for nonhousing construction. No longer can builders self-certify up to two tons of structural steel. There is a limit on the amount of "B" products they can buy. Copper pipe and tubing will no longer be self-authorized. But in the over-all picture, the new order involved few major changes.

Actually the bulk of modifications were outlined to NPA's Construction Committee last month (AF, Jan. '52). They included such remedial steps as permitting

LAST MONTH'S WASHINGTON DIARY

- 1/9 NPA permits Federal Civil Defense Administration to process its own construction applications, assign ratings, and issue allotments of steel, copper and aluminum.
 - 1/18 NPA rules controlled materials delayed from a previous quarter may be accepted without charging the current quarter (interpretation of Amendment 1 to CMP Regulation 1).
 - 1/21 DPA reports certificates of necessity issued for first tax write-offs to 5,443 applicants involving \$11.5 billion investment.
 - 1/21 DPA Administrator Manly Fleischmann makes formal announcement of Anglo-American agreement for interchange of steel, tin and aluminum in 1952 drafted at recent Churchill-Truman talk.
 - 1/22 DPA expands priorities system for rapid tax amortization, adds five more categories. First on list: machine tool plants.
 - 1/23 NPA guarantees holders of CMP tickets for aluminum a place on mill schedules if unable to place orders.
 - 1/24 DPA announces Canada will export 15,800 short tons more of copper and 31,700 short tons more of zinc to U. S. this year than last.
 - 1/28 NPA decontrols chrome stainless steel, removes it from CMP.
 - 1/29 NPA shifts duct work and reinforcing mesh from Class B to Class A under CMP.
- (For other major developments, see stories below.)

the use of foreign or salvage steel to supplement normal allotments in deserving cases.

What about housing? HHFA legal talent and the DPA were already to clamp a 1,500 sq. ft. and 1½ bathroom maximum on all housing (new and remodeled) when the 30-man Industry Advisory Committee met in Washington, Feb. 13. First HHFA Administrator Raymond Foley said, "Nothing doing" on the sq. ft. limitation. Then the advisory committee (which up to now has been treated like a rubber stamp) balked on the bathroom limitation, declared the lack of metal for plumbing would be its own control. The committee also sought a modification on a proposed control for copper limiting houses to 100 lb. for plumbing, up to 30 lb. (at .025 lb. per sq. ft.) for wiring. Said the committee: Why not make the wiring restriction more flexible—guarantee a minimum of 25 lb. and then (at .5 lb. per 100 sq. ft.) run up to the 30 lb. maximum? Control officials went into a huddle to think it over. But it seemed certain the medicine would not be as bitter as it first threatened to be.

IN THE NEWS

Among the next 23 pages are reports on these important developments:

Truman budget boosts heavy building . . .	p. 40
Baltimore redevelopment gets green light . . .	p. 40
Bridgeport has housing dilemma . . .	p. 41
AFL condemns military hoarding . . .	p. 41
AIA sees good year ahead . . .	p. 41
Gropius speaks at Boston panel . . .	p. 45
Builder fined by WSB . . .	p. 49
Institutions sponsor slum project . . .	p. 49
266 communities adopt regional codes . . .	p. 56

NEW CONSTRUCTION ACTIVITY (expenditures in millions of dollars)

Type	'51	'52	Change
PRIVATE			
Residential (nonfarm)	902	720	-20.2
Industrial	129	179	+38.8
Commercial	122	90	-26.2
TOTAL	1,586	1,460	-7.9
PUBLIC			
Industrial	36	83	+130.6
Military	24	140	+483.3
Residential	29	67	+131.0
TOTAL	508	667	+31.3
GRAND TOTAL	2,094	2,127	+1.6

NEWS continued on p. 40

President's Budget Boosts Heavy Building, Includes Shelter Program

If the President's new \$85.4 billion budget was any indication, 1952 would be another banner year for heavy construction. Military construction of all kinds including overseas bases would reach an all time high—\$3.3 billion in the 1952-1953 fiscal year, compared to \$2.7 billion for the present one—with particulars to be given Congress later. Government economists were inclined to trim the significance of this figure. They doubted that more than two-thirds of such a staggering sum could be spent within the next year or even 18 months. They also cautioned stateside construction firms not to let their enthusiasm soar too high over the prospect of lucrative contracts for U. S. installations abroad. To an increasing extent, they warned, foreign contractors would be given first choice on this work. But when it came to construction *equipment*, American producers, though already swamped with orders, would have to meet practically all of the additional demand from abroad.

► Concerning atomic plant construction, the budget message was discreetly silent. However, subsequent closed-door hearings on Capitol Hill revealed Congress would soon be touched for a supplemental \$5 billion for AEC's five-year expansion program. Four new plants, each as big as the South Carolina H-bomb project, could be built for this sum. No details have been divulged, but informed sources firmly stated, "Contemplated expansion cannot be carried out in existing AEC plants."

► For VA hospitals as well as other non-defense categories of construction, new spending would be held to a bare minimum. The budget calls for a total allotment of

only \$95 million for completing VA hospitals and for starting three new ones.

► For community facilities in defense areas, a \$25 million loan and grant fund is proposed, plus whatever additional funds are needed for school construction. The budget could not be specific on this last item because Congress has not yet come up with a satisfactory program that side-steps embarrassing race and religious issues. Its last compromise in this respect had run into a Presidential veto on the ground that it would have perpetuated segregation with the use of federal funds and facilities.

► Finally, Congress was asked to set up a \$250 million matching fund program to help states build community air raid shelters in critical target areas.

A similar request last year was turned down on the not implausible ground that the Federal Civil Defense Administration had not jelled its own thinking on the subject. This time legislative committees will find FCDA more ready with the answers. Its estimates are that 62 million people live in the cities considered most tempting for enemy bombers. About 31 million of them are concentrated in downtown areas during the workday period.

Further surveys have shown that 2 million can be accommodated in buildings that are reasonably resistant—or have sections that are reasonably resistant—to an atomic explosion a half-mile away. Another 6 million can be accommodated in buildings that could provide adequate protection with minor modifications. But major alterations would have to be made to downtown structures to protect another 8 million. And this would still leave a deficit of 15 million

of the daytime population unprovided for. It is for this residue that community shelters are planned.

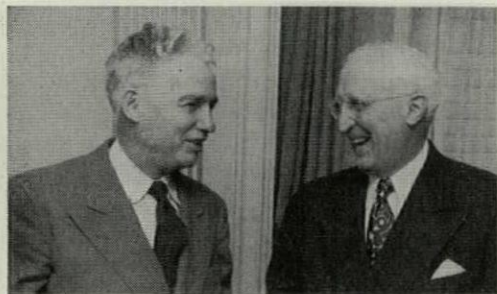
Up the sleeves of some defense planners is a scheme for extension of the rapid tax acceleration idea. Owners of existing buildings would be encouraged to tackle the necessary strengthening operations to provide shelter areas by permitting the outlays to be written off in five years. Later on, FCDA will publish a technical bulletin wrapping up in one package its ideas on protective construction for new buildings. Based on government sponsored research at Lehigh University, these recommendations are understood to center around the construction of resistant cores in a section of a new building. The extra cost will not be too high, officials believe—probably not more than 5%. Mortgage lenders might well feel the reduction of the risk factor would more than justify this added investment.

BOON FOR REDEVELOPMENT grows from Baltimore controversy

FHA's mid-December reluctance to renew two Section 608 commitments for Baltimore redevelopment programs (Dec. issue '51) changed with the New Year from obstinate refusal to encouraging cooperation as the agency granted the local sponsors a series of 15 day extensions. Jarred from its immovable position by protests from Baltimore officials (Mayor Thomas D'Alessandro and others who went as high up as the President's office), FHA extended the commitments (dating back to Aug. 31, 1949) with specific instructions that the projects be re-studied for insurance under Section 207. Today 207 is a live vehicle; 608 is a dead one, and FHA was anxious to bury it. Nevertheless, the 608 commitments remained a protective umbrella over the projects.

Back in Baltimore, floor plans and specifications were pared down on one committed project, Waverly Apartments (13 acres, 291 units). The second, Hopkins Towers (first 500 units of a 39-acre, 8-block scheme near Johns Hopkins University), was shelved temporarily, and was replaced by a group of walk-ups (350 units) originally planned for a later stage in the long-range program. These structures would serve ambulatory patients, nurses, internes and resident physicians at Johns Hopkins Hospital. Envisaged was a low cost contemporary design in glass, brick and cedar-stained wood sidings to be executed by architect Alexander S. Cochran.

Two hurdles remained before a 207 commitment could yield the necessary mortgage loan required to keep rentals around \$65. First: the maximum 83% loan permitted



NATIONAL CONSTRUCTORS ASSN., whose 19 members account for almost \$2 billion of U.S. heavy construction (oil, chemical and steel), agreed in their annual meeting in New York last month that small (under \$5 million) jobs might be taken on a lump sum basis, but that larger contracts required costs-plus figuring. Thinking of expiring wage agreements, materials price rises, and zooming taxes, Otto F. Seider (second from left), vice president of Cleveland's H. K. Ferguson Co., said: "Taking fixed price contracts would be committing suicide." Outgoing NCA Presi-



dent J. F. Pritchard (third from left), head of his own Kansas City construction firm, happily noted better relations with AFL building trades, a trend away from "the old baseball bat philosophy." Pritchard and colleagues saw a continuing boom for NCA, nourished by expanding basic industries. The convention elected J. J. O'Donnell (right) its 1952 president. O'Donnell is personnel and labor relations manager for New York's Lummus Co. Also active at the convention: T. C. Williams (far left), vice president of Boston's Stone & Webster Co.

Len Rosenberg

under Section 207 was inadequate. Second: estimated value of the property based on the prevailing 7% capitalization of net income further shaved the loan amount. This percentage, based on local conditions, is determined in the branch FHA office, not by national directive. Without a 90% loan based on 6% capitalization, the project was stymied. Said James Rouse, able, articulate Baltimore lender in on the negotiations from the beginning: "The effect of these two changes is real and critical. If both are applied, it means that 207 is really in business for redevelopment projects."

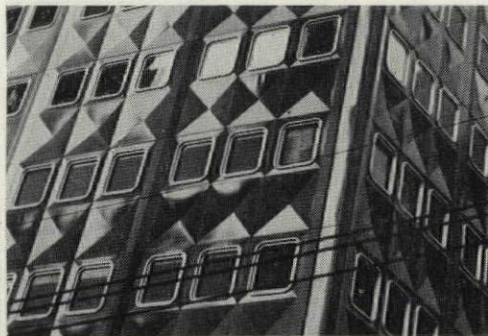
Then last month, FHA gave written notice to the sponsors that Regulation X would be rescinded for their projects. Net result: a 90% loan. Still in the discussion stage is the capitalization rate, with FHA ready to drop it to 6 1/2%, possibly even 6%. Should FHA yield on the capitalization rate, Section 207 could really become a workable medium for other cities contemplating redevelopment.

PHA VACANCIES: many would-be tenants too rich for public housing

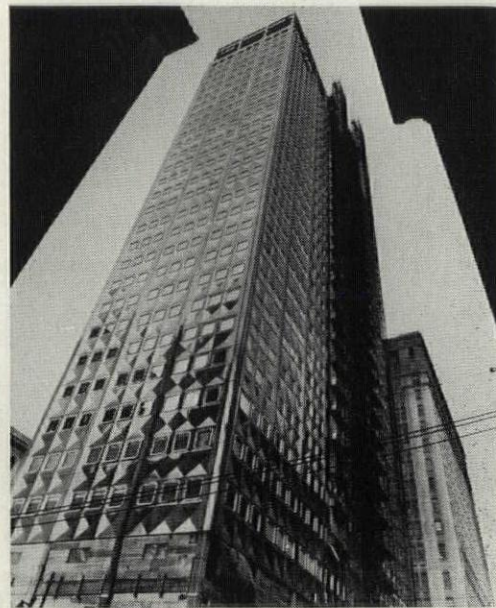
Bridgeport, Conn. is in a dilemma. It now has 225 public housing apartments vacant in the Phineas T. Barnum development. There will be 250 more vacant units June 1 with the completion of the Charles Green project. Yet the Defense Production Administration has declared Bridgeport a critical area and wants 1,000 more units built, either privately or by the PHA, as an inducement to immigrating defense workers.

Crux of the dilemma is this: the apartments already up are low rent, but have tenant income ceilings of \$2,295 for childless couples, \$2,885 for couples with four or more children. However, with the exception of a few distress cases, family incomes top these ceilings (Bridgeport Manufacturers' Assn. reports the average male factory worker earns \$4,053 a year; the female worker, \$2,897). And the DPA's proposed 1,000 units will make no change—they will have the same income ceilings.

Says Bridgeport Housing Authority Director Harold C. Poole: "One agency says 'build more homes' and another says 'don't let the workers in—they are making too much money.'" To relieve the situation, Poole has secured a \$9.8 million loan from the State of Connecticut for erecting 832 apartment units. These will have more "realistic" income ceilings for its tenants, \$3,500 per couple plus \$300 per child. A couple with two children will then be able to earn \$4,100 and still qualify for a \$65-per-month apartment. Bids on this program are due Feb. 28.



ALL-ALUMINUM SKIN is just about zippered up on the Aluminum Company of America's 30-story Alcoa Building in downtown Pittsburgh. The skin, composed of 1/8" thick stamped aluminum panels, forms a curtain wall with a 4" lightweight reinforced concrete backup. Alternating with the panels are 4' x 4 1/2' windows, so pivoted that they became reversible for cleaning. New York architects Harrison & Abramovitz began planning the building 11 years ago, experimented with 16 different skin treatments before they were satisfied. For a while it looked as if the nation's aluminum shortage would force Alcoa to put up substitute panels on the first six floors. But DPA's Manly Fleischmann relented last month, decided the panels had been fabricated months in advance anyway and wouldn't affect the defense effort. The Alcoa Building, an eye-



Newman-Schmidt

catching advertisement for the company's product as well as its office headquarters, will have aluminum wiring, plumbing, and heating, cooling and acoustical treatment combined in aluminum ceiling panels. Occupancy is set to begin in May.

Meanwhile Poole has petitioned the PHA to raise its income ceilings on the federal developments. Other communities, which may soon find their workers unhoused for ironically earning too much for their own good, are anxious to see if the ceilings will be relaxed as they were during World War II.

MILITARY HOARDING of materials decried; gov't. takes action

Either clairvoyant or an organization with mighty good pipe lines, AFL last month called for a civilian board within the Department of Defense to screen military requirements and allocations of scarce materials. The Defense Department had just done so but wasn't announcing it.

In asking for this board, AFL became the first politically potent U.S. pressure group to demand that military metal hoarders be called to account. Said AFL at a meeting of both its Building Trades Council and Executive Committee in Miami Beach: "Suspensions are inevitably roused when it is known that for many items allotments to the military are at about the same level as at the peak of World War II . . . (Their) request for enough materials to construct permanent housing equal to more than one-fourth of the total national housing goal for 1952 also seems far out of line."

Anxious for an effective job, AFL said current DPA screening of materials needed to produce the end products was only half of it. "(We must) measure the need for these end products against the stated military objectives."

At their Miami Beach meeting, the

Building Trades Council also asked for a renewal of the National Board for Jurisdictional Disputes. The Board's renewal had already been voted by contractors (who, along with labor, have four representatives sitting before the impartial chairman, Harvard Prof. John T. Dunlop). The arbitration board, extended from year to year, is popular on both sides because it irons out innumerable differences, allows problems to be handled by the industry rather than by government.

AIA SURVEY forecasts trend of architectural work in 1952

AIA this month gamely tried to predict the shape of things to come for architects in 1952. The method: a questionnaire sent to 9,000 members. The conclusion: the profession can look forward to a "slight increase" in dollar volume over 1951, though large-scale readjustments would continue to be made by individuals and firms in non-defense areas. Biggest factor in the gain was the tripling of defense work now on the boards of the 1,036 reporting offices. Other prophecies:

Other public work	.....	same
Private industrial	.....	up 100 %
Institutional	.....	little change
Commercial	.....	down 33 1/3 %
Residential	.....	down 25%

AIA's survey showed the importance of nondefense government work, which accounts for a full third of the architects' volume, but bemoaned the fact that residential stood last on the list and that "there is no doubt that the architect has not taken his rightful place in the large volume of speculative homebuilding since the war."

THE DRAMATIC UPSWEEP of glass and steel that distinguishes Chicago's latest skyscraper apartment building was made possible by the unique steel design and construction that holds the floor-to-ceiling glass walls in place. The steel face of the building consists of horizontal fascia plates welded across the spandrel beams, with vertical I-beam mullions on 5-foot, 3-inch spacings running the height of the building.

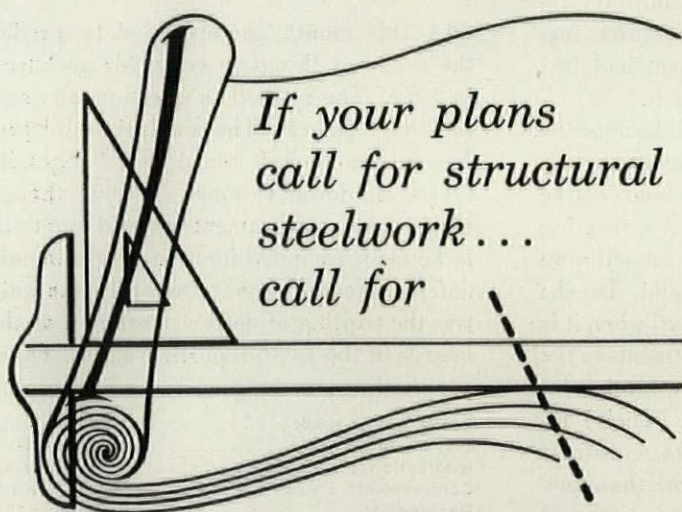


3,600-Ton Steel Framework for Chicago's Unique Glass House



Owner: 860 Lake Shore Drive Trust.
Architects and Engineers: Mies Van Der Rohe, Pace Associates, and Holsman, Holsman, Klekamp & Taylor, Chicago.

fabricated and erected by AMERICAN BRIDGE



*If your plans
call for structural
steelwork...
call for*

TWO 26-story towers of steel and glass connected at basement and ground floor comprise this ultra-modern 288-apartment structure. The unique design and construction of the vertical mullions and horizontal fascia plates made possible the framing that holds the glass walls in place. There are no conventional masonry curtain walls. This imposing building occupies a block-long site along Lake Shore Drive and provides a beautiful view overlooking Lake Michigan on Chicago's swanky North Side within a short drive of the Loop. The 2,842 tons of structural steel and the 856 tons of plate steel for the face of the building were fabricated and erected by American Bridge.

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL COMPANY,
GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.

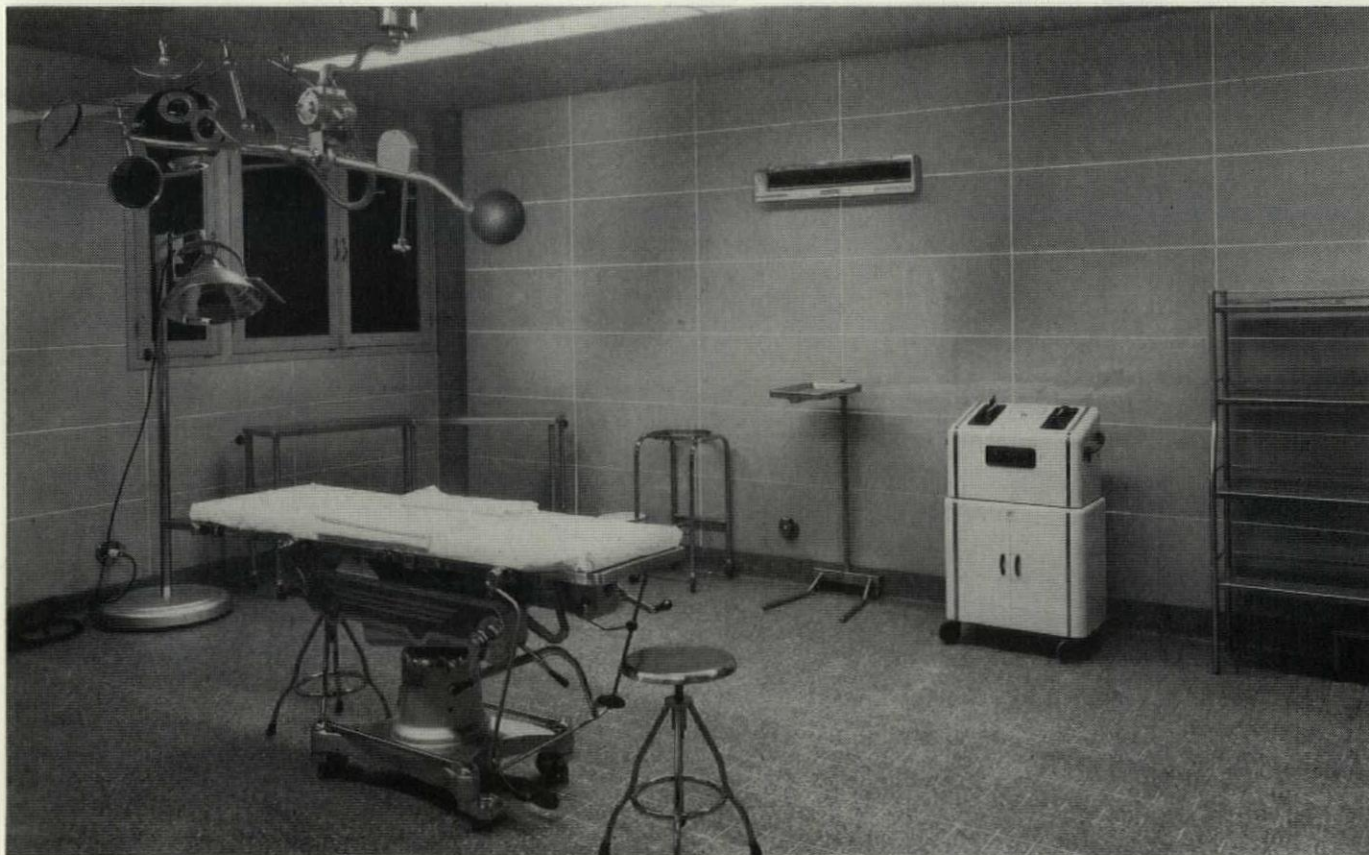
Contracting Offices in: AMBRIDGE • ATLANTA • BALTIMORE • BIRMINGHAM • BOSTON • CHICAGO
CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • DULUTH • ELMIRA • GARY • MEMPHIS
MINNEAPOLIS • NEW YORK • PHILADELPHIA • PITTSBURGH • PORTLAND, ORE. • ROANOKE • ST. LOUIS
SAN FRANCISCO • TRENTON UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AMERICAN BRIDGE

50 years of "know how" in fabricating and erecting structural steel—your assurance of a better job.



UNITED STATES STEEL



Architects: Marlier, Wolfe & Johnstone, Pittsburgh, Pa.

UNEXCELLED BEAUTY
AND PRACTICAL UTILITY

DISTINGUISH

Carrara Glass

As a wall covering, Carrara Glass is unsurpassed—in its high decorative appeal, as well as in its utilitarian excellence. The illustration above shows the use of this quality material on the walls of a hospital operating room. Here its aseptic properties make it the logical choice. For, being a *true* glass, Carrara is easy to keep clean and sanitary. And since it may be installed in large sections, there are fewer joint crevices to catch dirt and germs. Moreover, Carrara Glass is an everlasting product. It is impervious to weather, water, chemicals, acids, grease and pencil marks.

We suggest you consider Carrara Glass in all your creative plans. Available in ten attractive colors to meet any decorative need, you will find that it adds refinement to the architectural design. For detailed information on Carrara Glass, consult your Sweet's Catalog or write to Pittsburgh Plate Glass Company, 2003-2 Grant Bldg., Pittsburgh 19, Pa.



the quality

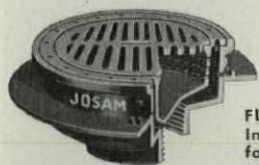
structural glass



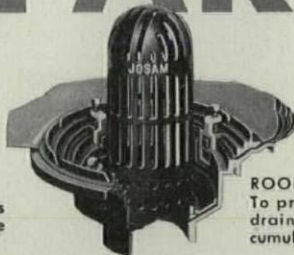
PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

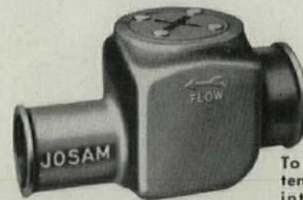
THERE ARE NO



FLOOR DRAINS
In a wide range of types
for every floor drainage
condition.



ROOF DRAINS
To provide continuous
drainage in spite of ac-
cumulated debris on roof.

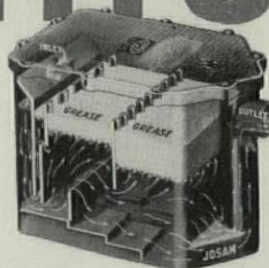


**BACKWATER
SEWER VALVES**
To prevent sewer con-
tents from backing up
into basement floors.

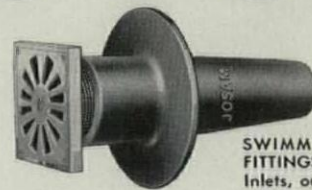
SUBSTITUTES FOR



SHOCK ABSORBERS
To eliminate water
hammer in pipe lines.



INTERCEPTORS
For grease, oil, gasoline,
hair, plaster, sediment,
and paraffin.



**SWIMMING POOL
FITTINGS**
Inlets, outlets, gutters,
and overflows

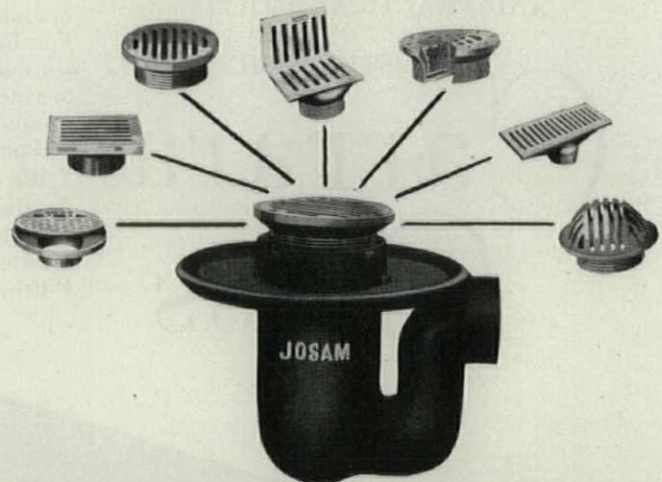
JOSAM PRODUCTS

only in *Josam* Products can you get *Josam* Quality!

The way to secure the best results in the quickest time on any job is to use the best products. By this method you secure known quality and positive dependability...you avoid grief both before and after installation.

In plumbing drainage products, you get the best when you use Josam because Josam is the originator and pioneer of hundreds of the products which are accepted as the standard of the industry today. In the Josam line there is a plumbing drainage product for every purpose, proved by almost 40 years experience to be easier-to-install, better-in-construction, superior-in-performance.

When the problem is drainage why take the slightest chance, when it costs you no more to use the best—Josam! Send coupon below for further information.



Typical of Josam leadership is the method pioneered by Josam whereby a great variety of adjustable strainers for various purposes are interchangeable to fit Josam floor drain bodies.

JOSAM MANUFACTURING COMPANY

World's Largest Manufacturer of Plumbing Drainage Products



Executive Offices and Manufacturing Division
MICHIGAN CITY, INDIANA

Representatives In All Principal Cities

JOSAM-PACIFIC CO., West Coast Distributors
San Francisco, California

JOSAM CANADA LIMITED, Canadian Distributors
Toronto, Canada

JOSAM MFG. CO., Dept. AF, Michigan City, Indiana

Please send free literature on the following products:

- | | |
|---|---|
| <input type="checkbox"/> Non-Clog Floor Drains | <input type="checkbox"/> Shock Absorbers |
| <input type="checkbox"/> Levelize Floor Drains | <input type="checkbox"/> Interceptors |
| <input type="checkbox"/> Roof Drains | <input type="checkbox"/> Swimming Pool Fittings |
| <input type="checkbox"/> Backwater Sewer Valves | <input type="checkbox"/> Folder on all products |

NAME _____

FIRM _____

ADDRESS _____

CITY and STATE _____

FUTURE OF DESIGN debated by top architects in Boston meeting

"Architecture is an art. It must be created by teams, it must use the machine creatively if it is to escape the anarchy of incompatible standard parts." So said Harvard School of Architecture Chairman Walter Gropius in kicking off a Boston Institute of Contemporary Art symposium on "The Future of Design" Jan. 31. He added architecture is diametrically opposed to "Art for Art's sake"—its goal is social expression, its future depends on the accuracy with which it meets man's biological needs.

Teamwork? Very well, said Gyorgy Kepes, M.I.T. professor of visual education, so long as it is a teamwork between the arts and sciences with its goal a common language understandable by both artist and art consumer.

Serge Chermayeff, until recently president of the Illinois Institute of Technology's Institute of Design, saw "a regrettable trend" toward depersonalization of architecture. "Today's architect is a politely educated builder." Schools can train the average collaborator, said Chermayeff, but the expressive individual artist cannot be made by schools at all. "I would like to see it made very much more difficult for architects to earn that title."

Also on the Institute of Contemporary Art's panel were Pietro Belluschi, M.I.T. dean of architecture, and Charles Burchard, Harvard architectural professor. So many New Englanders showed up for the gathering of architectural minds, one-third had to be turned away from the auditorium.

BIRD-PROOF CORNICE: pigeons shocked; maintenance eased

Brooklyn's Master Bird-proofing Co. is out to get the starlings and pigeons which deface ornate urban facades. The weapon: a miniature electric fence installed along the decorative ledges and column capitals where the birds roost. Its indoor generator sends out a 1/2 milliamper second pulse through the open wire field 1 1/2 times a second. It works off a 115-volt main, uses no more power than a 35-watt bulb.

Take the Colorado Building in Washington, D. C. where a network of wires and porcelain insulators (colored to match the building's facade) has just been completed. Eyewitnesses reported it this way: "The starlings return from a day's work of seed stuffing and hit the old ledge. Ouch! They regroup and zoom in. Ouch again! They make three or four more passes. A few try to land but the guy on the end gets the tingle. Then they move on."



Fred Stone

SYMPOSIUM PARTICIPANTS CHERMAYEFF, BELLUSCHI, GROPIUS, KEPES

The bird-proofers say their device meets the standards of the National Electrical Safety Code and the A.S.P.C.A. Installation, plus a year's maintenance, runs from \$1,200 to \$20,000. The fencings are permanent; have to be. Even if the old birds set up a conditioned-response pattern and stay away, there'll always be a new crop coming along.

The electrical tangles protect customers of the service but provide absolutely no assurance for the building owner across the street.

"We're doing some research on statue work now," says Robert H. Smith, one of M.B.p.'s owners. "Once we get the problem licked (the insulators and wiring have to be invisible for aesthetic reasons) we'll probably fix up Father Duffy in Times Square—he's *always* been smeared."

ANTI-WASTE DRIVE: no progress seen in survey of gov't. building

If NPA thought that government building was paying more than lip service to the materials conservation program urged by industry spokesmen, a Building Research Advisory Board survey last month set them straight. BRAB's conclusion: Little progress.

A shocking basic truth: there is no incentive to save materials. Long accustomed to cheap building products and expensive labor the U. S. finds it far too costly to use special design to save even critical items, if it means added man-hours. Also, BRAB pointed out, architects doing government work haven't been directed to cut down on scarce materials. (One industry suggestion: ingenuity in stretching materials be made a plus factor in compensating architects and engineers.)

Big hurdle in any conservation program

is government insistence that all contracts be let to the low bidder, and VA even adds completion time as a factor in their contracts. This naturally discourages experimentation, which often adds to construction time.

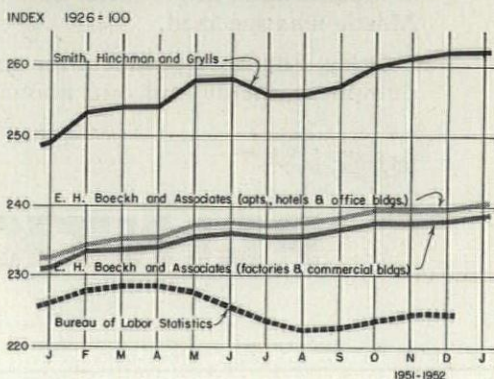
DOUBLE-DUTY BUILDING

The first promoter or investor clever enough to figure out a way of making an otherwise prohibited commercial structure do double duty as an emergency shelter area is apt to hit something like a jackpot. Washington dopesters are even ready with a little prompting—an underground bowling alley would be a natural. It would not take a lot of scarce building material and would provide a maximum amount of shelter space.

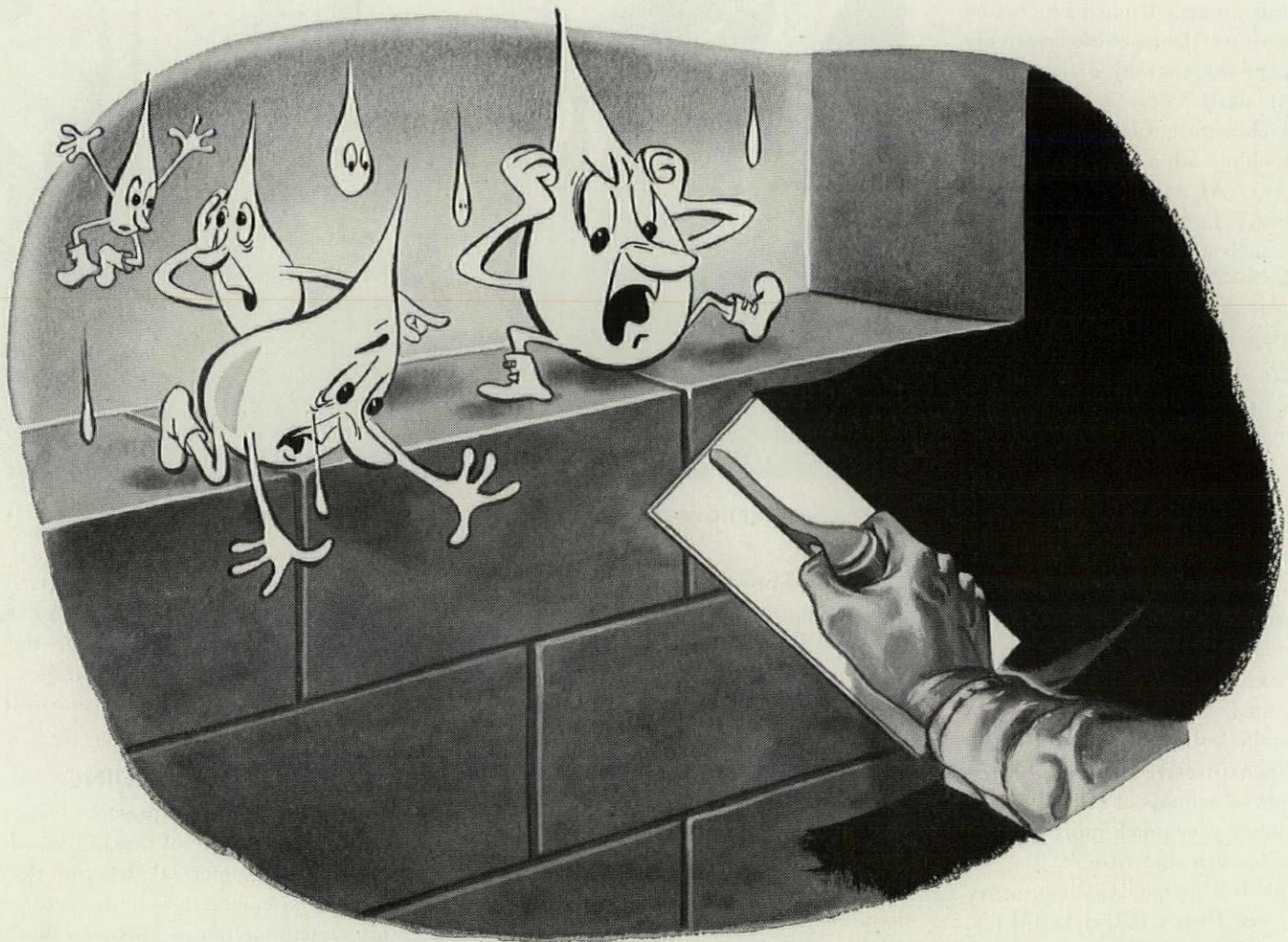
STEEL SUPPLY IMPROVES

NPA thinking on structural steel now runs this way: there will be an unexpected improvement in supply by next summer in all types except wide flange (used only in large buildings). Therefore more encouragement can be given such small buildings as schools and stores. A special allotment may be set up for "structures in the civic interest"—badly needed jails and firehouses.

BUILDING COSTS REMAIN STEADY



NEWS continued on p. 49



Close out dampness before closing-in buildings with *Flintkote Trowel Mastic*

The best way to make sure *inside* walls remain dry . . . is to see that Flintkote Trowel Mastic is put right into building specifications.

And this tough, elastic asphalt compound applied to the inside faces of exterior masonry walls before closing in with lath and plaster will be a lasting barrier to dampness. Coverage of 12 sq. ft. per gallon is recommended.

Thousands of apartments, hotels, hospitals, schools, office buildings and industrial plants are today serving occupants and owners better because Flintkote Trowel Mastic was specified.

Other Flintkote products for control of water and dampness, inside and out, above grade and below,

include liquid cutbacks and emulsions, mastics and semi-mastics. They can be spray-, brush-, and trowel applied. Used without heating.

So keep out that persistent intruder—moisture. Write today for your copy of our new *Industrial Products "Digest"* booklet which describes the complete line of products.

THE FLINTKOTE COMPANY, *Industrial Products Division*, 30 Rockefeller Plaza, New York 20, N. Y.

Atlanta · Boston · Chicago Heights · Detroit · Los Angeles · New Orleans · Washington.

The Flintkote Company of Canada, Ltd., 30th Street, Long Branch, Toronto, Canada.

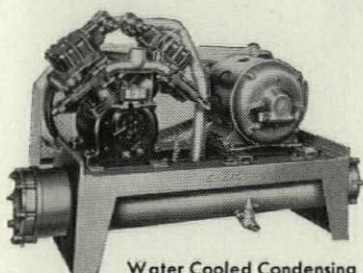
FLINTKOTE



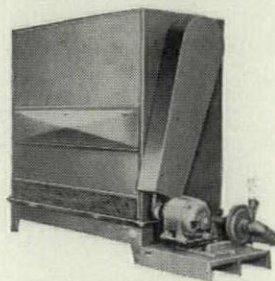
Products for Industry

BUILD YOUR **AIR CONDITIONING** SPECIFICATIONS
AROUND

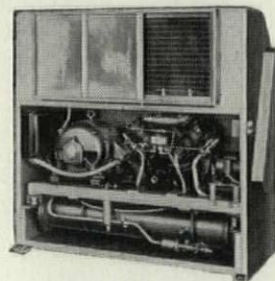
Curtis



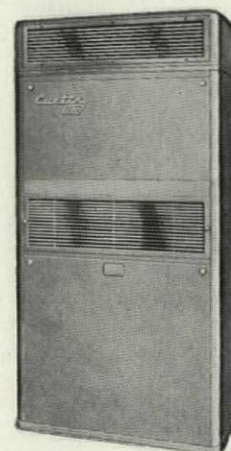
Water Cooled Condensing
Units—through 40 tons



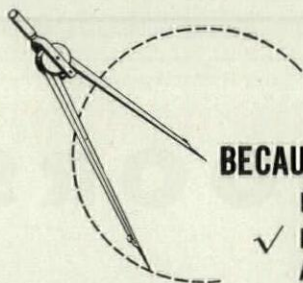
Evaporative condensers—
cooling towers — and air
handling units to match



Central Type—10-15 Ton
Air Conditioning



2, 4, 6, 8 Ton—
Packaged Type
Air Conditioning



BECAUSE... Curtis equipment has an *earned* reputation for performance.

- ✓ Built by a company with over 98 Years of Successful Manufacturing Experience.
- ✓ Competitively priced.
- ✓ Operate economically.
- ✓ Easily serviced.
- ✓ Engineering help is provided (if needed) by Curtis Engineers.
- ✓ New additions to the Curtis line provide the correct size and type for any installation.
- ✓ A new 1952 Curtis Architects Manual will be sent upon request to licensed architects. Use your own letterhead, please.

Curtis REFRIGERATING MACHINE DIVISION

of Curtis Manufacturing Company

1914 Kienlen Avenue, St. Louis 20, Missouri

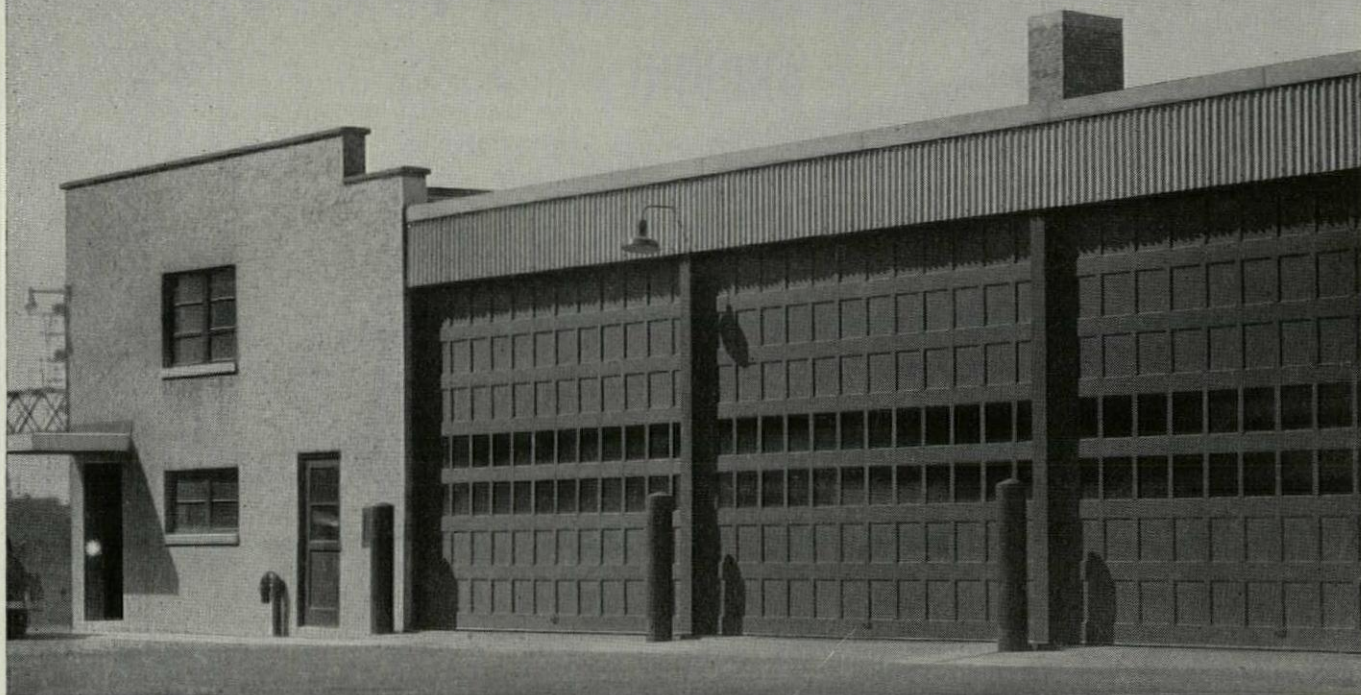
98 Years of Successful Manufacturing

PR-52-1

WHEN

BIG DOORS

ARE NEEDED...



BARCOL OVERDOORS **DO A GOOD JOB**

Lots of shops — both small and large — need doors that are out-size in various ways. Wider than normal, higher than normal, *high rise required to clear craneway*, extra low headroom, all glass, no glass, special design sections — all these problems, and many more, are familiar experience to Barber-Colman engineers and representatives. Barcol OVERdoors are made in sufficient variety, and have sufficient modifications, to meet practically every unusual condition we have found in over two decades of designing and manufacturing "improved overhead doors". Where power operation is required, we have good equipment of our own for that, too — with a full supply of controls including the surprising Radio Control. For full information, see one of our...



FACTORY-TRAINED SALES AND SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

BARBER-COLMAN COMPANY

158 MILL ST., ROCKFORD, ILLINOIS

\$40,000 FINE levied against builder for overpaying labor

A double spanking was given Washington D. C.'s J. D. Hedin Construction Co. by the Wage Stabilization Board late last month for exceeding legal wage rates on a VA hospital in Ann Arbor, Mich. Ruling that the construction company had violated regulations laid down under the Stabilization Act, the board in its first official crackdown:

- ▶ Directed VA to withhold \$40,000 in its payments to the firm (the amount of the overage paid by the contractor in coaxing bricklayers from Detroit).
- ▶ Refused to allow the company to claim a business expense deduction of a similar amount in computing its 1951 income tax.

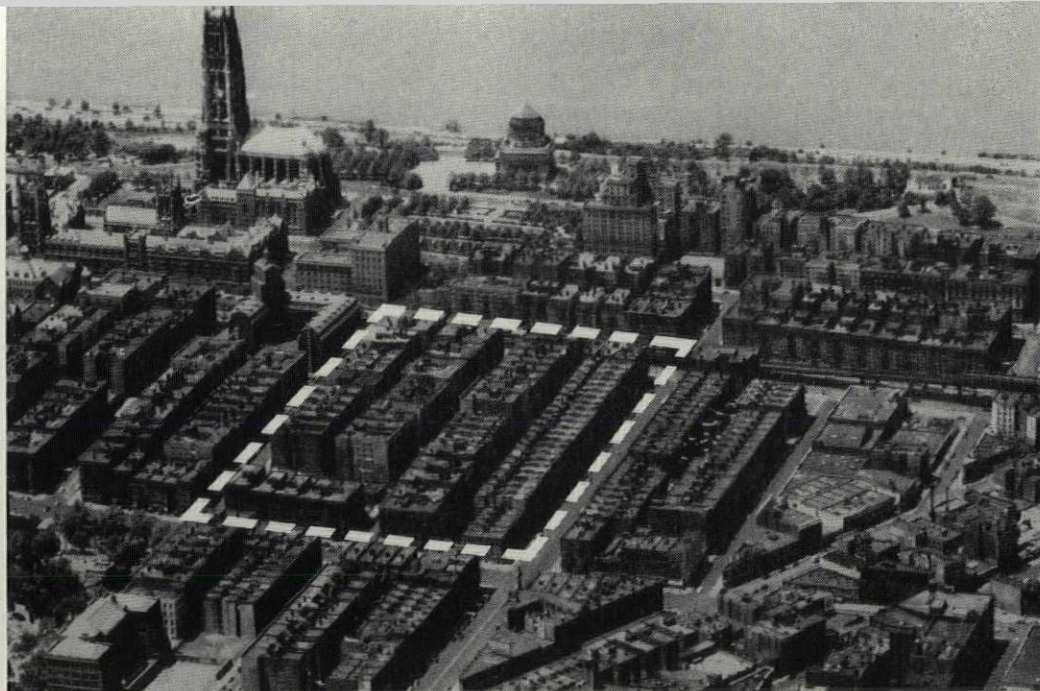
Actually the board would have been within its rights had it levied the maximum penalty for the contractor's entire bricklayer payroll—\$116,131.50—and refused an equal amount in tax expense deductions. But the wage regulators noted: "Respondent was not guilty of any acts of dishonesty or concealment."

The decision failed to create a profound stir in the construction industry. For one thing, construction men know full well the Stabilization Act has teeth. More to the point, most of them were not too sorry to have the sanctity of area wage agreements upheld. Any widespread flaunting of the carefully worked out scales by siphoning workers from adjacent higher-priced areas would just pile up more trouble.

How is a lower-rate peripheral area (Ann Arbor) in which heavy construction projects are suddenly launched supposed to entice building workers away from nearby higher-pay scale cities? This had been the Hedin Co.'s problem. It had considered that it was not stretching things too much to go to the Detroit market for bricklayers—a scant 40 miles away. It had even signified its intentions to the VA, but apparently made the mistake of seeking verbal, rather than written, clearance.

Another first on the board's docket was a special compensation dispute in the construction field in which both parties voluntarily sought an official determination as to the amount of the payment. At issue was the size of extra allowance or "job isolation" pay that building workers on the AEC project at Hanford, Wash. collect from their employing contractors. The workers wanted a hike of \$1 an hour. The contractors thought that a lesser amount would be ample. Late last month the board ordered the contending sides to settle on the in-between amount—62½¢. WSB officials state this is an uncommon practice and has only been approved in one other instance—for construction workers at AEC's ARCO project in Pocatello, Id.

NEWS continued on p. 53



Fairchild Aerial Views

Slum Clearance for Morningside Heights Gets Backing of 9 N.Y. Schools, Churches

Nine New York schools, colleges and churches have banded together to become the first such U. S. sponsors for a slum redevelopment project under Title I of the 1949 Housing Act. Under present plans, they will put up as much as \$2.5 million (probably less) to buy land * and start the 1,000-unit \$12.6 million apartment project replacing ten acres of Manhattan slums (in Morningside Heights). Sometime after construction starts, the apartments will be sold as cooperatives, returning the sponsors' capital. The project is much more than pure slum clearance to the nine institutions—Barnard College, Columbia University, Corpus Christi Church, International House, Jewish Theological Seminary, Julliard School of Music, Riverside Church, Teachers College and Union Theological Seminary. All are located in the neighborhood of the project. A survey a year ago showed most of their 6,000 faculty and employees

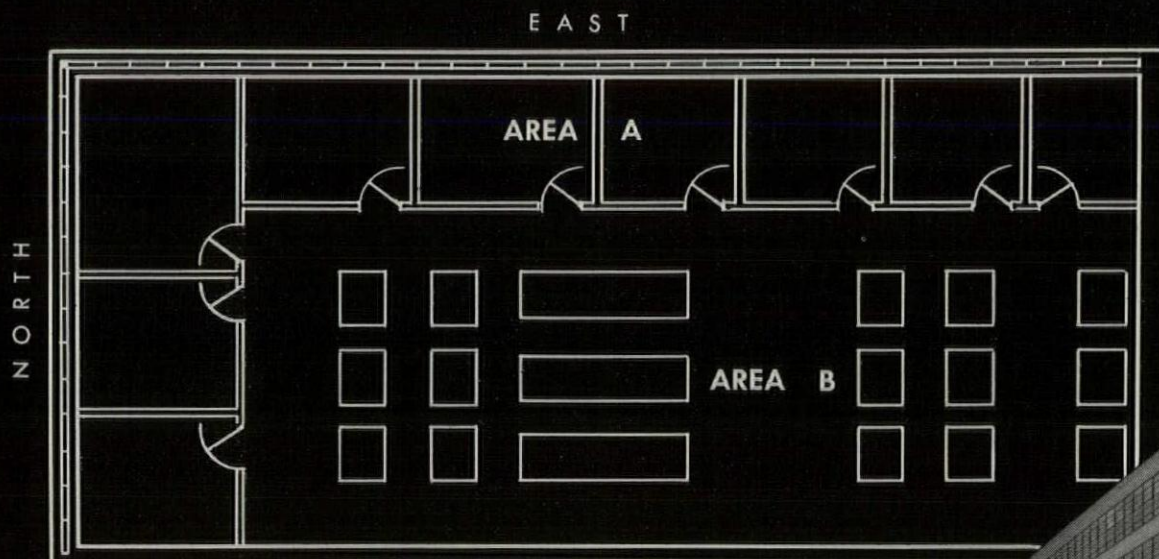
would like to live nearer their jobs—if decent housing were available. Original plans by Architects W. K. Harrison and H. H. Goldstone envisaged rentals of \$23 per room, but experts are trying to squeeze them down to \$16-\$22.

The blighted area (above) now has a density of 735 persons per acre, or three times the New York City average. Razed of its dingy, old-law tenements, it would hold 358 per net residential acre in a grassy, tree-lined community insulated from the dirt and noise of the nearby elevated subway by a buffer of new stores. The scheme calls for six 20-story buildings, a commercial structure, off-street parking spaces and numerous child play areas. North and east of the site, a 1,536 unit \$23 million public housing project will siphon off some displaced tenants.

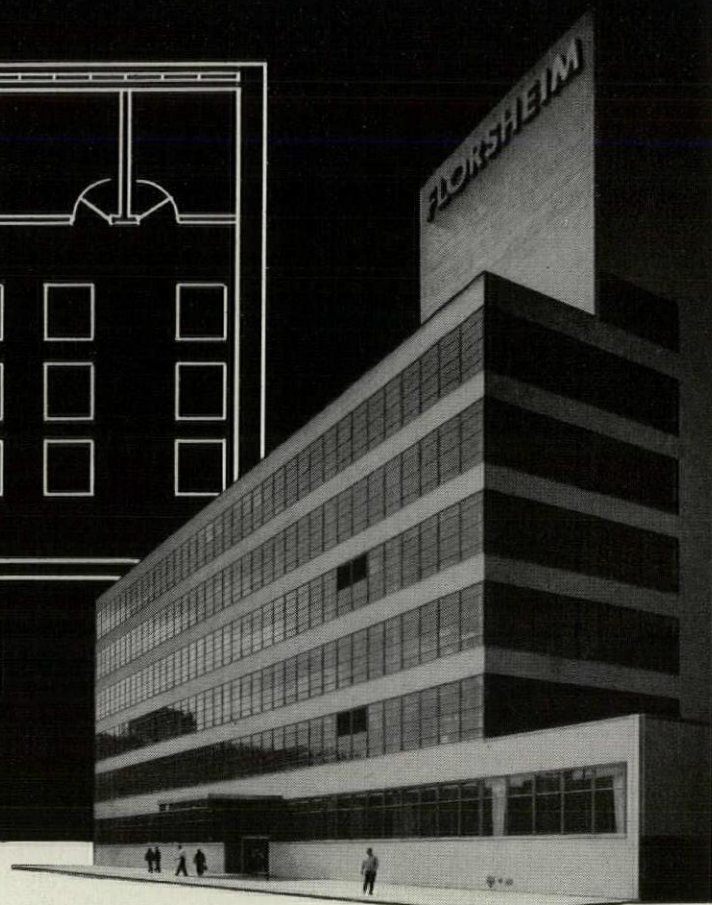
This plan is one of nine (183 acres, 14,000 dwelling units) approved by the city's committee on slum clearance plans.

* Under Title I, up to two-thirds of the loss incurred in acquiring, clearing and reselling the slum sites is borne by the federal government (with HHFA as agent), the remainder by the locality.





This was Florsheim Shoe's summer air-conditioning problem: When Area A was comfortable, Area B was freezing, and when Area B was comfortable, Area A was sweltering.



Here's how Florsheim Shoe solved their office heat problem with KoolShade® Sunscreen

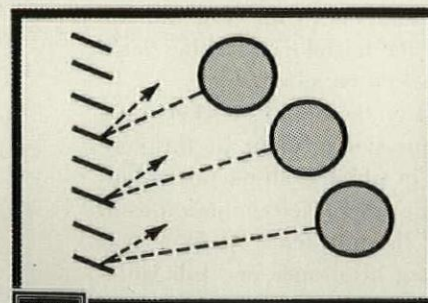
The general offices of the Florsheim Shoe Company in Chicago had a personnel problem in their new offices. With air conditioning, on a hot day the private offices in Area A would be cool and comfortable. But the open general office space in

Area B was too cold for comfort. If the thermostat was raised, the open office space then became quite pleasant... but the private offices on the outside became uncomfortably warm, and the complaints switched from Area B to Area A.

KOOLSHADE SUNSCREEN on the windows kept the sun's heat out, and let in cool, glareless light

Florsheim installed KoolShade sunscreen on the east, south and west office windows and blocked out the heat before it ever entered the offices. KoolShade sunscreen not only solved the conflicting air-conditioning problems in the offices, it reduced the peak load demand on their air-conditioning unit by 35 tons... or 20%.

KoolShade sunscreen can solve many of your problems of summer heat and glare. When ordering KoolShade specify Ingersoll framing for undivided responsibility and maximum performance. Priorities will speed delivery on both KoolShade and framing. To find out more about sun-conditioning with KoolShade sunscreen, write for the "KoolShade Manual for Architects and Builders" to Ingersoll Products Division, Borg-Warner Corporation, Dept. MB-2, 321 Plymouth Court, Chicago 4, Illinois.



Cross section of KoolShade showing how it blocks sun's heat rays at various elevations

A PRODUCT OF BORG-WARNER

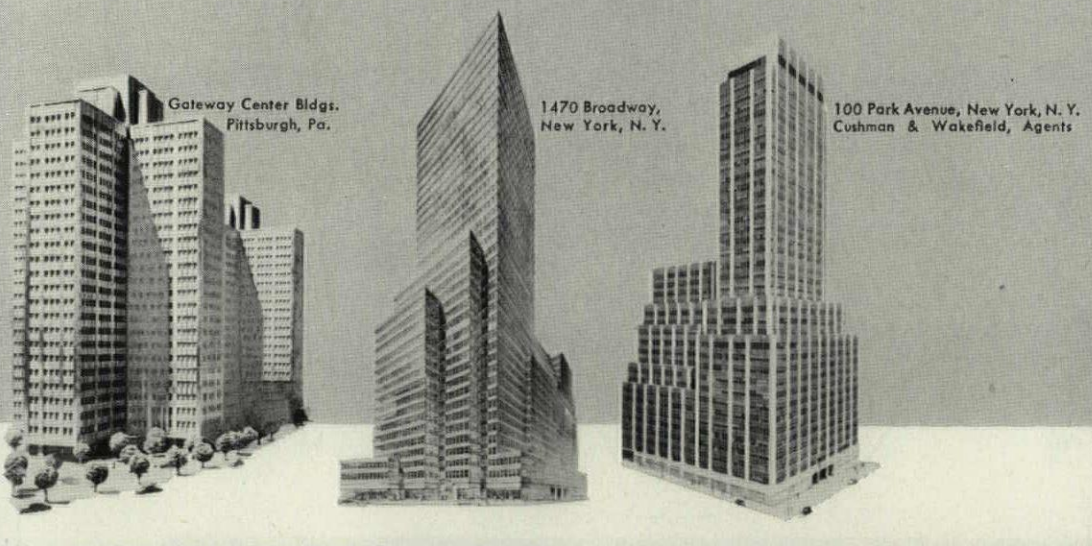
Ingersoll **KOOLSHADE®** Sunscreen

A PRODUCT OF BORG-WARNER

Gateway Center Bldgs.
Pittsburgh, Pa.

1470 Broadway,
New York, N. Y.

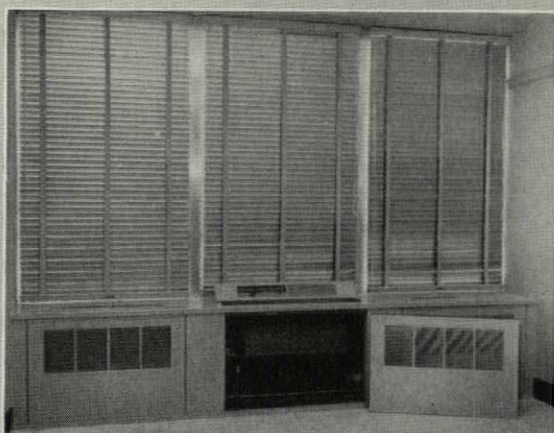
100 Park Avenue, New York, N. Y.
Cushman & Wakefield, Agents



OUTSTANDING ARCHITECTS

specify **'BRANDT'** Radiator Enclosures
to add beauty to function

ARCHITECTS
EGGERS & HIGGINS
Gateway Center Bldgs.
KAHN & JACOBS
both N.Y.C. Bldgs.



"Brandt" Radiator Enclosures contribute to the interior design of many fine buildings all over the country. They are built to high quality standards . . . finished to conform with fine interiors . . . always made and installed under union regulations to assure good labor relations on every building project.

Make efficient heating and air conditioning a decorative asset with "Brandt" Radiator Enclosures. Write for illustrated literature.



EUGENE J. BRANDT

847 ELEVENTH AVENUE, NEW YORK 19, N. Y.

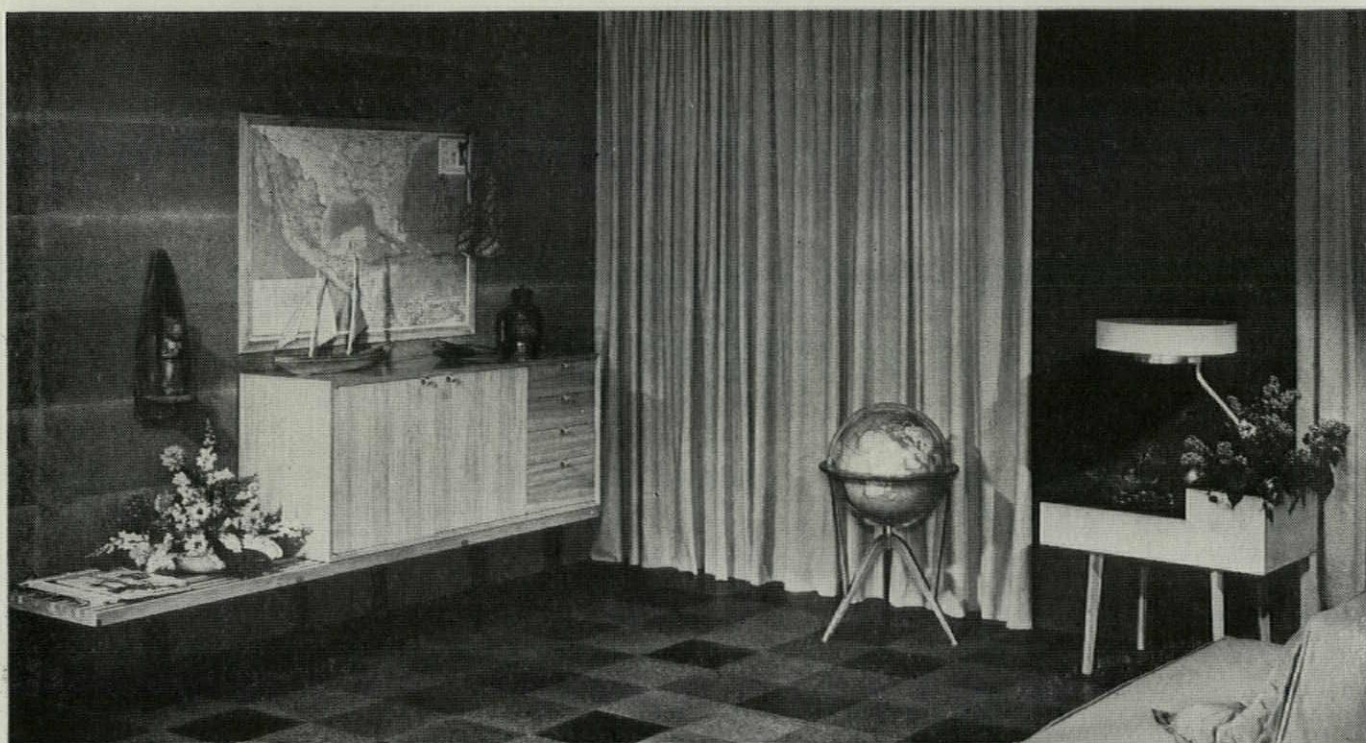
& COMPANY, INC.

BRANDT

for better interior climate control



PLANNING AND INSTALLATION for AIR CONDITIONING • HEATING • VENTILATING



Kencork Walls combined with Kencork Floors provide an air of quiet distinction. The initial cost is not high and the years of long wear and minimum maintenance provide real economies.

Consider the Kentile Flooring Contractor as part of your staff

THE FLOOR or wall that is ideal for one installation may be short-lived or uneconomical in another. And, with the countless materials available today, it's a full-time job to keep abreast of just the recent develop-

ments. That's why busy specifiers count on their Kentile Flooring Contractor for accurate and up-to-date information... his extensive training and wide practical experience is as near as your phone.

KENTILE • SPECIAL (Greaseproof) KENTILE • KENTILE RUBBER TILE • KENCORK



KENTILE INC.

KENTILE, INC., 58 Second Avenue, Brooklyn 15, New York • 350 Fifth Avenue, New York 1, N. Y. • 705 Architects Building, 17th and Sansom Streets, Philadelphia 3, Pennsylvania • 1211 NBC Building, Cleveland 14, Ohio • 225 Moore Street, S.E., Atlanta 2, Georgia • 2020 Walnut Street, Kansas City 8, Missouri • 1440 11th Street, Denver 4, Colorado • 4532 South Kolin Avenue, Chicago 32, Illinois • 1113 Vine Street, Houston 1, Texas • 4501 Santa Fe Avenue, Los Angeles 58, California • 95 Market St., Oakland 4, Calif. • 452 Statler Building, Boston 16, Mass.

People

France's **Le Corbusier** was *en garde* again over the "Radiant City" he is building 17 stories up in a Marseilles suburb. The chal-



lenge this time came when Beaux Arts Professor of Architecture Georges Labro and Roger Beguin of the taxpayers' lobby, "National Confederation of the Middle Classes," heard Corbu was getting a government loan

guarantee for another "Radiant City," this one in Rezé outside Nantes. Said they: "It will require elevators, which are subject to breakdowns; special water pumps and electrical units, foundation-pilings at a needless and additional 15% of cost; a tall building is unnecessary in cheap land like Rezé. Let us be of our time and not fore-runners. We are a country of slow evolution and not brusque revolution." Replied Corbu: "Do we have to neglect this mode of locomotion (elevators) in modern buildings under the pretext of possible breakdowns? . . . French building tastes, when not running to 18th Century imitations (are) Berlin moderne. Everywhere (but in France) I am treated with respect. (The French carpenters) can go on barking." Having applied the coup de grâce, Corbu explained Rezé would have only 296 apartments ("Radiant City" will have 337), dispense with Marseilles' seventh-floor commercial district, its swimming pool, athletic field and ten-acre park.

Named: As governors of the Federal Reserve Board, **Abbot L. Mills Jr.**, 33-year-old executive vice president of the U. S. National Bank in Portland, Ore., a Republican, and **James L. Robertson**, 44, First Deputy Controller of the Currency, a Democrat; **Jack F. Burns** as the \$19,000-a-year executive secretary of the Cleveland Building Trades Employers Assn. Burns's

job up to now: president of Cleveland's (AFL) Federation of Labor and business agent of the local Building Trades Council; **Leland W. King Jr.**, 44, as head of the State Department's foreign building program. An architect and State Department veteran of 14 years, King succeeds Frederick Larkin, who is returning to private architectural practice; **Karl C. Sippel** and **C. W. Wolfe**, as vice presidents of Cleveland's mammoth Austin Co.; **R. E. Gillmor**, vice president of the Sperry Corp., as chairman of DPA's new Distressed Defense Areas Task Force; **Huson T. Jackson**, assistant professor of architecture at Pratt Institute, and **Addison Erdman**, New York architect, as winners of 1952 Brunner Scholarships.

Clarence C. Zantzinger, 79, this month became the fifteenth architect to be elected to America's exclusive (250 members)



National Institute of Arts and Letters. Philadelphia-born, Yale-educated Zantzinger designed the Detroit and Philadelphia art museums, the Department of Justice building in Washington, Yale's administration building,

dormitories for Princeton and the University of Chicago, hospitals around his Chestnut Hill, Pa. home. He is a past AIA vice president, former head of the Pennsylvania State Art Commission.

Mammoth Webb & Knapp's mammoth boss, New Yorker **William Zeckendorf**, stopped off in Atlanta for a visit with Frank H. Neely, board chairman of Rich's Inc. (see p. 132). On arrival, the *Atlanta Constitution* hailed Bill as "the most fabulous real estate man in America . . . 250 lbs. of irrepressible good nature, razor sharp shrewdness and unbounded energy. . ." As usual, Bill obliged with a spectacular "multimillion dollar" project. This time it is for a retail shopping center in Atlanta.

Jones & Laughlin Steel Corp. announced a shift in its top echelon. **Admiral Ben Moreell**, Navy wartime construction chief



AUSTIN

and postwar head of Turner Construction Co., moves from J&L's presidency to board chairman and chief executive. Youthful-looking **Charles L. Austin**, 49, goes from executive vice president to president. Austin was

so surprised by the suddenness of the election, he had no new plans to announce. The new steel monarch specializes in administration, rather than production. Austin is a native of Port Chester, N. Y. He received his B.S. from Princeton in 1924, was a vice president of Mellon Securities Corp. before joining J&L as treasurer in 1942.

Architect **Edward D. Stone** last month won the Architectural League of New York's Gold Medal Award for his El Panama Hotel in Panama City (Apr. issue '51). The 271-room hotel, honey-combed with verandas, makes use of the trade winds for air conditioning. Stone was assisted by Carl J. Holzinger of New York, and Medez & Sanders, Panamanian architects.

Died: **Leicester B. Holland**, 69, chairman of the department of architecture at Miami Univ., Ohio and former head of the Congressional Library's fine arts division, Feb. 7 in Philadelphia; **Joseph E. Stone**, 77, former vice president of the Stanley Works and onetime president of the American Hardware Manufacturers Assn., Feb. 4 in New Britain, Conn.; **Herman Kregelius** for 25 years Cleveland commissioner for architecture, Jan. 28 in Hudson, Ohio; **Frank P. Whiting**, 79, architect for the Corcoran Art Gallery, Naval Academy buildings at Annapolis and the National Baseball Museum, Jan. 26 in Cooperstown, N. Y.; **Soren A. Thoresen**, engineer and designer of the Detroit-Windsor vehicular tunnel, Jan. 25 in New York; **John Donlin**, 83, president of the AFL Building Trades Dept. from 1916-24, Jan. 24 in Chicago; **Edward I. Devlin**, 91, former head of mortgage and loans for the New York Life Insurance Co., Jan. 21 in Greenwich, Conn.; **Edward F. Loud**, 93, whose Au Sable River holdings made him one of the last of Michigan's lumber kings, Jan. 19 in Oscoda, Mich.; **Herbert E. Law**, 88, realtor who rebuilt the Fairmont Hotel after San Francisco's disastrous 1906 earthquake, Jan. 18 in Palo Alto, Calif.; **Chester S. Allen**, 70, head of New York's Lockwood Greene engineering firm, Jan. 6 in Auburndale, Mass.



Mark Carroll

SOCIETY OF ARCHITECTURAL HISTORIANS last month held its annual meeting in New York, a city which up to now had never been architecturally worthy of SAH pilgrimages. Some 175 members, including Tokyo's Ruyichi Hamaguchi, squinted through the skyscrapers and examined what remained of 17th and 18th Century New Amsterdam. Said Hamaguchi in St. Paul's Chapel graveyard: "I am glad to see such interest in ancestors." The Society gave its annual book award to Anthony N. B. Garvan (with tattersall) for his "Architecture and Town Planning in Colonial Connecticut." Others pictured: Mrs. John Gilchrist, secretary-treasurer (left), Louise Hall, vice president, Charles Peterson, president.

NEWS continued on p. 56

Pittsburgh Corning

"the BIG



12-INCH PRISM A 55 BLOCK. For non-sun exposures. Transmits 30% more light than any other light-directing pattern. For use above eye level where generous light transmission really counts. (Perfect companion block for the 12-inch below-eye-level PCSaxon pattern.)



12-INCH SOFT-LITE PRISM B 55 LX BLOCK (with fibrous glass insert). For use above eye level on sun-exposed walls where light control is most important, this block transmits abundant daylight but with 20% less brightness than any other light-directing pattern.

announces

3"



12-INCH SOFT-LITE ESSEX B 55 LX BLOCK (with fibrous glass insert that forms a double cavity to reduce solar heat gain and make interiors more comfortable winter and summer). For light diffusing control. Matches new 12-inch Soft-Lite Prism B 55 LX Block.



**... new 12-inch functional glass blocks
assure better control of daylight
with more light ... lower brightness
... less cost per square foot**

► Now, from the PC Daylighting Research Center come three new 12-inch blocks that permit the architect far greater latitude in design. They supplement the widely accepted 8-inch "55" line functional patterns.

Two of these new blocks are for use on sun exposures, the other for use on non-sun exposures. And because of their larger size, any glass block panel composed of these 12-inch blocks will contain more glass, less mortar ... will transmit more light and control it more effectively ... will cost less per square foot than panels made up of smaller blocks.

Made of durable structural glass, these new blocks offer many advantages. Their spread-lens face corrugations insure a wide azimuth light acceptance on the outside face, and inside the building spread daylight into every corner.

Their dimensions are modular, and they therefore permit coordination with other building materials to achieve waste-free construction economy.

The "Big 3" also features: Soft-Lite edges, that reduce brightness contrasts; colored markings for ease of installation; and the PC Clean-Easy face finish to assure easier and quicker clean-up after installation, and maintenance economy over the years.

We invite you to write us today for complete information on the full line of 8-inch and 12-inch Pittsburgh Corning Functional Glass Blocks.

PITTSBURGH CORNING CORPORATION • PITTSBURGH 22, PA.

GLASS BLOCKS

The mark of a modern building

Distributed by Pittsburgh Plate Glass Company; W. P. Fuller & Co. on the Pacific Coast; Hobbs Glass Ltd. in Canada; and by leading distributors of building materials everywhere.

BUILDING CODES: in two years, 266 U. S. communities have adopted a regional code; lack of cash, staff, accurate statistics stymies faster acceptance

CODE ADOPTIONS

NAME OF CODE OR SPONSOR	INCEPTION	TOTAL COMMUNITIES	COMMUNITIES SINCE JAN. 1, '51	TOTAL POPULATION
Pacific Coast Building Officials Conference	1927	627	67	17,500,000
National Board of Fire Underwriters	1905	508	41	*
Southern Building Codes Congress	1945	392	68†	20,000,000**
Building Officials Conference of America	Sept. '50	90	*	3,950,000
National Electric Code	Nov. '49	645	*	36,670,000
National Plumbing Code	June '51	237	237	*

* Information not available. † Code also pending with 25 more. ** Based on SBCC's estimate.

THERE'S BRILLIANT NEW COLORING IN STONE

it's rich, creamy, golden

CORDOVA LIMESTONE

Beautiful, buff to rich cream Cordova Limestone offers brilliant new color effects to architects everywhere. Golden Cordova Shell, wonderfully shelled and pitted by nature, and smooth, even-textured Cordova Cream stay beautiful always. Ideal for homes, churches and public buildings. For exteriors of enduring elegance—for strikingly different interior effects—specify Cordova Shell or Cordova Cream Limestone!

To truly appreciate the texture and the natural warmth of color in Cordova Shell and Cordova Cream, it is necessary to see and feel these ageless Texas Limestones. For sample stones and for additional information, write to address below.



SEE CORDOVA LIMESTONE IN COLOR in Sweet's New 1952 File

Beautiful color photographs, faithfully reproducing the unusual surface qualities of both Cordova Shell and Cordova Cream can be seen in the new 1952 edition of Sweet's Architectural File.

TEXAS QUARRIES, INC.

P. O. BOX 91

AUSTIN, TEXAS

U. S. code unification has long been compared to the imperceptible creep of a glacier. The trouble with selling building codes to the public, explains Albert H. Baum, St. Louis building commissioner, is "they have practically no television or sex appeal. You cannot add lanolin or iridium or solium to add zest to your product."

Yet during the past two years, some 266 U. S. communities have adopted one of the four major regional building codes (see table). To building officials, this is encouraging progress in their long struggle to unify the 2,500 different local codes in force throughout the nation. Says George Strehan, consultant to the Building Officials Conference of America, newest of the country's regional code groups: "There is much more activity . . . more inquiries . . . than a year ago."

Nothing money won't cure. Faster adoption of regional codes has been held down because most of the sponsoring organizations are so poverty-ridden they are understaffed, woefully shy of statistics. Lacking money to check up thoroughly, they are seldom sure how many cities have adopted their code. For instance, BOCA recently sent postcards to 500 communities. Only a third bothered to answer. Often a state (like California) adopts a code in toto, then allows its cities to water it down with modifications.

Acceptance of the National Plumbing and Electrical Codes was making the biggest strides of all. Massachusetts adopted the electrical code on a statewide basis, overriding all local codes (except labor-stronghold Boston's). Nearly 20 other states had also adopted the NEC, but usually only for rural areas or cities without stricter regulations of their own.

Plumbing code gains. Technical men were giving the National Plumbing Code widespread support. The National Association of Master Plumbers accepted an interim report on the code last May. The American Society of Sanitary Engineers approved the code itself last October. BOCA will consider incorporating the plumbing code's provisions in its own code at its 1952 convention in May. American Standards Association last month took first steps toward endorsing the code: circulating it for comment. The Western Plumbing Officials Conference, at its fall meeting, revised its Uniform Plumbing Code to include 75% of the National Code's provisions.

NEWS continued on p. 60

Overly ^{design} keeps roof *flexible*

Freedom to expand and contract with changing temperatures is one of the features of this Overly-Goodwin Batten Type aluminum roof on the field house of The Lawrenceville School, Lawrenceville, New Jersey. The patented joint construction is flexible, yet permanently water tight. Field house dimensions are 346' x 197'. ARCHITECTS: Walter T. Karcher & Livingston Smith, Philadelphia, Pennsylvania.

CONTRACTOR: The White Construction Company, New York City. Roof, gutters, and octagon conductors are aluminum—

fabricated and erected by Overly. For details on Overly architectural sheet metal products, send for Catalog 8-B.

OVERLY MANUFACTURING COMPANY

GREENSBURG, PA. (Phone Greensburg 154)

Sales Representatives in All Principal Cities



In a City of Beautiful Buildings

Celotex Roof Insulation is proving itself where it counts most: **ON THE JOB!**



In roof insulation, as in everything else, *the payoff is in performance!* And no other roof insulation can challenge the *job-proved* record for quality, durability and economy set by Celotex Roof Insulation through over 25 years of actual use in all types of installations, all over the country.

Celotex Roof Insulation is low in initial cost, easy to handle, exceptionally durable. It speeds application, reduces labor costs, helps assure a superior, long-lasting roof that requires less maintenance.

So why take risks with untried materials? For complete satisfaction, always specify Celotex Roof Insulation. There's a type to meet every job requirement. Write now for complete technical data! The Celotex Corporation, Dept. MB-22, Chicago 3, Illinois.

It pays to specify genuine

CELOTEX

REG. U. S. PAT. OFF.

ROOF INSULATION

The Celotex Corporation
Chicago 3, Illinois



KASS BUILDING, WASHINGTON, D. C. *specified Celotex Roof Insulation*

Architect: James F. Hogan

Roofing Contractor: Easterday-Duckworth Company
Owner and Builder: Kass Realty Company, Inc.

Only the finest of materials were specified for the ultra-modern Kass Building — one of the newest office buildings in the nation's capital. Among these, naturally, was Celotex Roof Insulation.

There's a type of Celotex Roof Insulation for every job

REGULAR — for efficient insulation at lowest cost.

PRESEAL — with asphalt coating for extra moisture protection. Has a conductivity "k" of 0.33 Btu before coating.

PRESEAL "30" — with asphalt coating; special low density core; guaranteed 0.30 conductance before coating for nominal 1" thick material.

VAPOR-SEAL — with asphalt coating; guaranteed 0.30 Btu conductance before coating for nominal 1" thick material. Patented recessed edges form channels which help prevent roof blisters by equalizing the pressure of air trapped under roofing.

1. High Insulating Efficiency means greater comfort the year 'round, plus reduced heating and air conditioning costs.

2. Low in Cost all three ways: initial, applied, maintenance.

3. Quick, Thrifty to Apply: installed with less time, work and cost because it's light and easy to handle. Strong and rigid—doesn't have to be "babied" on the job.

4. Provides Excellent Bond for hot mopped roofing felts of either the asphalt or coal tar pitch type.

5. Durable, Long-Lasting. It is the *only* roof insulation made of long, remarkably strong Louisiana cane fibres—and protected by the *exclusive* patented Ferox® Process from dry rot and termite attack.

PENTA PRESERVATIVE PAYS



Ascension Lutheran School. Architect: Kenneth E. Wischmeyer (formerly Wischmeyer & Lorenz), St. Louis. Contractor: George Moeller Construction Company, St. Louis. Wood Treater: Associated Wood Preservers, St. Louis. Lumber: Hill-Behan Lumber Company, St. Louis.

Wood used for subflooring and vital structural members of Ascension Lutheran School, St. Louis, has years of added endurance because it is pressure-treated with Monsanto Penta. This means important economies in the future because the lumber is in hard-to-get-to places which would make repairs expensive.

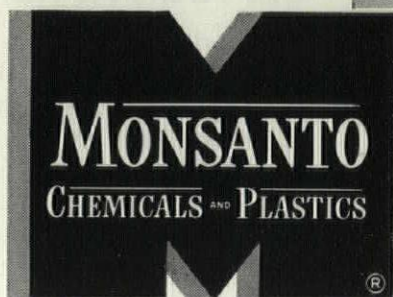
Penta preservative protects against termites and other wood-boring insects. It prevents decay due to fungi.

Penta is a stable chemical with uniform effectiveness. It does not leach. It holds its preserving power even when subjected to rain and ground water. Wood treated with properly formulated penta can be painted.

Penta is named in more than 50 government specifications for durable wood applications ranging from tent pins to freight cars. We will mail you a list of these specifications if you will ask for it.

Penta gives wood endurance that makes it practical to use in place of hard-to-get steel in many applications. Contact the nearest Monsanto Sales Office or write for information on the use of penta and for names of firms who can custom-treat wood or supply penta-preserved lumber. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1752-A South Second Street, St. Louis 4, Missouri.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto Canada Limited, Montreal.



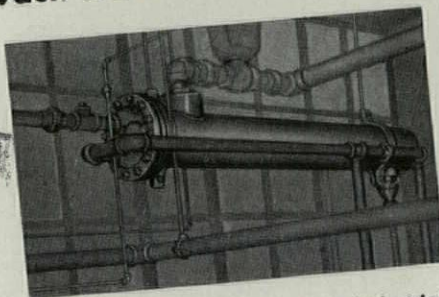
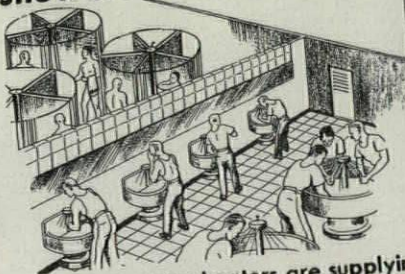
SERVING INDUSTRY . . . WHICH SERVES MANKIND

TACO has a proved record of helping

**FACTORIES • OFFICE BUILDINGS • SCHOOLS
HOSPITALS • CHURCHES • STORES**

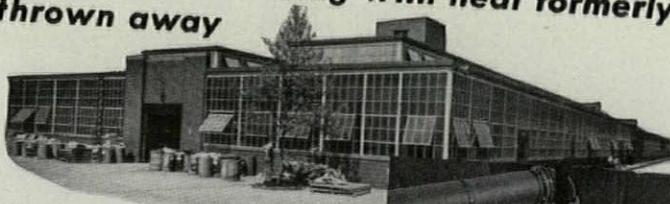
SOLVE THEIR HEAT and HOT WATER PROBLEMS ...

Provides hot water for wash fountains and showers for employees

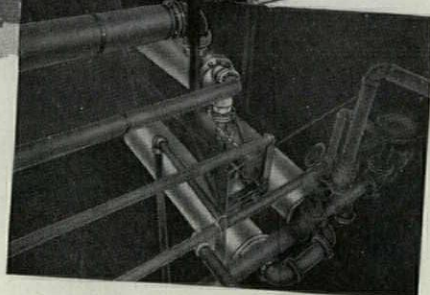


Taco water heaters are supplying abundant low cost hot water in industrial plants throughout the United States. Our more than 30 years' experience in this field is a big help to those with hot water heating problems.

Heats entire building with heat formerly thrown away



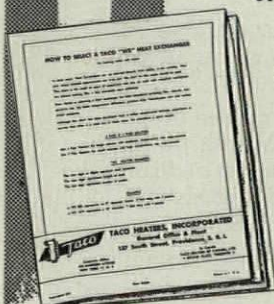
A large industrial user of steam was dumping the condensate from their steam processing into a creek. Now, thanks to the 3 Taco heat exchangers on the right, they're reclaiming enough to heat the 220' x 560 building shown above. Taco products can perhaps do a similar service for you.



ARCHITECTS—ENGINEERS

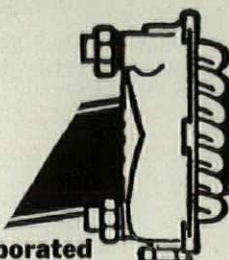
...WRITE FOR

simplified selection chart for sizing Taco water heaters under any conditions such as steam pressure, temperature rise and pressure drop.



**A TRAINED TACO
SALES ENGINEER
IS AVAILABLE
WHENEVER YOU
NEED HIS HELP**

**Better Heating—
Better with Taco**



Taco

TACO HEATERS, Incorporated

137 South Street • Providence 3, R. I.

CODE UNIFICATION: joint

committee agrees on big points

Since 1949, the Joint Committee on Building Code Unification, composed of representatives of 10 code writing, research or testing organizations, has pecked away at the formidable job of standardizing the conflicting provisions of the nation's major regional codes.* It was slow going. Initially, the major codes did not even agree on the definition of a building. Besides, the committee was so shy of funds it had virtually no clerical help. But last June when St. Louis Building Commissioner Albert H. Baum was elected chairman and HHFA's Gilbert R. Barnhart was elected secretary, federal taxes began to get the typing done. Now an HHFA stenographer records every word of its deliberations.

Result: last month, the JCBCU had something to show for its labors. Meeting January 18-20 in Houston, Tex., it reached final agreement on 25 pages of code provisions it hopes its member groups will make their own next time *their* codes are revised. Points of agreement covered definitions, use and occupancy classifications, types of construction including fire resistance ratings and design loads. Although these might form only 15 to 25% of the bulk of a building code, as one committeeman crowed: "This is the backbone of a national code. The rest is just dressing."

Hurdles ahead. Member organizations of JCBCU are under nothing more than a tenuous moral obligation to adopt its recommendations, many of which were not unanimous. And the Southern Building Code Congress, which has refused to join the committee, seemed likely to ignore its handiwork entirely. Recently an article in SBCC's house organ called the JCBCU "almost ridiculous."

Biggest hope that the recommendations would find acceptance lay in the fact that member groups sent top technical men to the drafting sessions. Next forward step was suggested by Building Research Advisory Board: would JCBCU help get government agencies to agree on the same uniform standards? Now, almost every agency that buys construction has different requirements.

OLD FOLKS AT HOME

New York State bowed to the increasing percentage of oldsters in the U. S. population. State Housing Commissioner Herman T. Stichman ordered that all new state-public housing projects henceforth set aside 5% of their apartments for the aging. To designers, he suggested such amenities as bathrooms with non-slip floors, tubs with seats and handgrips.

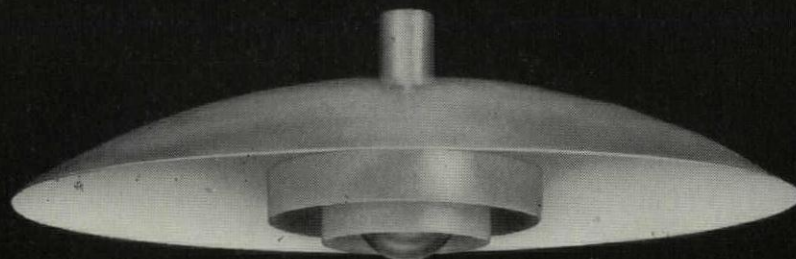
NEWS continued on p. 62



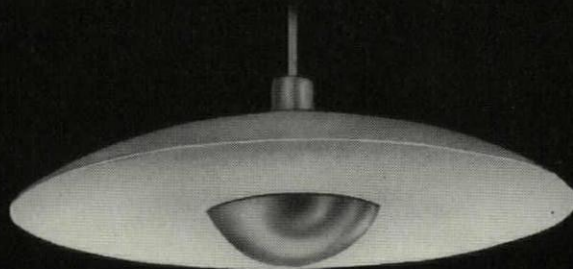
LITECRAFT



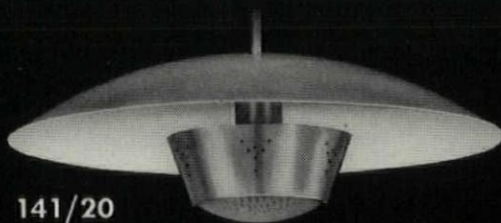
the quality line of superior design



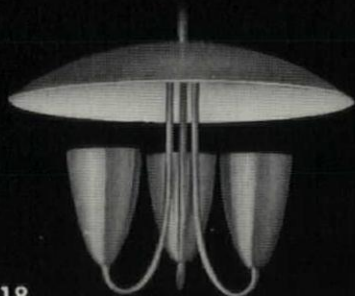
151/36



150/36



141/20



143/18

DOMES LIGHTS

USE: Commercial • Institutional

TYPE: Recessed • Pendant • Closeup

DIAMETER: 16" • 18" • 20" • 24" • 28" • 36"

WATTAGE: 75 to 500

FINISH: Available in a wide variety of beautiful,
durable finishes PLUS FIBERGLASS

LITECRAFT MANUFACTURING CORPORATION
Brooklyn 11 • Newark 3 • Los Angeles 48

LITECRAFT MANUFACTURING CORPORATION

790 Wythe Ave., Brooklyn 11, N. Y.

AF-1

Please send me, without cost or obligation, your illustrated catalogue
showing the complete line of LITECRAFT lighting fixtures.

Name.....

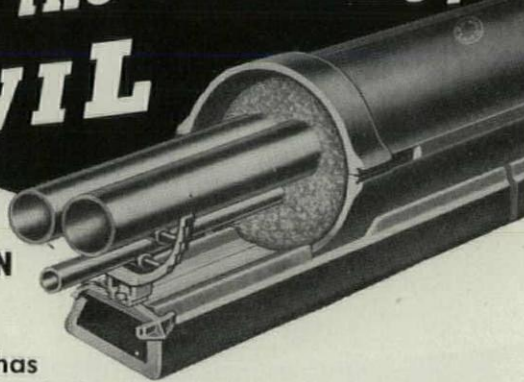
Address.....

City..... Zone..... State.....

Insist on the Genuine!

RIC-WIL

SECTIONAL TILE AND CAST IRON CONDUIT SYSTEMS



Since 1910, Ric-wil has been furnishing Sectional Conduit Systems for low cost, efficient protection of underground insulated pipe lines.

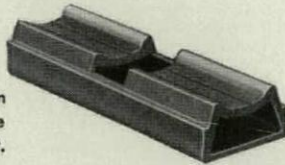
- 1 Entire system designed by expert engineers of long experience to meet every requirement for unusual tightness, permanent alignment, and long life.
- 2 Pipe supports designed for strength to carry the piping load.
- 3 Insulation furnished as specified or as recommended by Ric-wil's outstanding staff of engineers.
- 4 Delivery: Any size or quantity promptly from large stocks.

CHECK THE FOLLOWING EXCLUSIVE FEATURES:



ONLY RIC-WIL has Loc-Lip joint running along entire length of conduit, including bells—assuring a completely sealed, watertight joint.

ONLY RIC-WIL design has base drain with side shoulders which carry entire weight of piping independent of conduit.



THERE IS A RIC-WIL SECTIONAL SYSTEM FOR EVERY GROUND CONDITION

- STANDARD TILE CONDUIT—for normal ground loads.
- SUPER-TILE CONDUIT—with extra heavy walls, under roadways.
- CAST IRON CONDUIT—for installation under or near railroad tracks.
- UNIVERSAL TILE CONDUIT—with half tile arch, trapezoidal side blocks, and concrete foundation.

Don't make the mistake of accepting inferior, poorly-designed and rank imitations of the original Ric-wil Sectional Systems. Make sure you specify "RIC-WIL"—preproved by thousands of installations—and know that you are getting the BEST.

RIC-WIL

INSULATED PIPING SYSTEMS

• UNDERGROUND OR OVERHEAD

WRITE FOR
LATEST CATALOG
SECTION 480-4A.

THE RIC-WIL COMPANY, CLEVELAND, OHIO
AGENTS IN PRINCIPAL CITIES
LEADERS IN INSULATED PIPING PROTECTION



PREFABRICATED
INSULATED PIPING



SECTIONAL
CONDUIT SYSTEMS



PREFABRICATED
MANHOLES



UTILIDOR TYPE
CONDUITS

TAFT-HARTLEY act change to exempt building wins AFL aid

Like the rest of organized labor, the AFL Building Trades Department considers repeal of the Taft-Hartley Act its No. 1 legislative target. Most labor unions therefore won't consider supporting amendments to the act. Nearly all segments of the building industry agree, however, that the T-H Act is unworkable for construction: jobs for building labor are so transitory and intermittent that certification elections through NLRB would lead to a nightmare of confusion.

Last month, the potent AFL Building Trades Department at last took sides (with industry) in asking that construction be exempted from T-H union representation provisions. The amending legislation was framed by such strange political bedfellows as Senators Taft of Ohio and fair-dealing Hubert Humphrey of Minnesota. It seemed almost a certainty Congress would pass it.

AFL ELECTRICIANS warned: 'loafing imperils your job'

Thoughtful labor leaders—mindful, among other things, of how the low output of plasterers has helped boom dry wall construction—realize that productivity of labor should be a serious concern of unions as well as management. Recently, Business Manager M. J. Boyle of Chicago's Local 134 of the AFL Electrical Workers put the issue before his 8,000 members in a two-page letter. Scolded Boyle:

"It is high time for all building trades mechanics . . . to give serious thought to the manner in which loafing works against their own interests, jeopardizes their livelihood and undermines their unions. In the last six weeks, reports have been coming into this office in increasing numbers that many electricians are now and have been loafing and killing time on the job . . . The fact that management bears a major part of the responsibility for loafing practices and that it may do little if anything about it, other than to complain and blame the union, does not mean that we should do nothing about the problem . . . Why should we be shortsighted and do harm to ourselves by countenancing any nonproductivity among our members?"

ARMY ENGINEERS SHUFFLE

A shakeup in the Army Corps of Engineers brought consolidation of its engineering and construction operations divisions. Col. McDonald D. Weinert, chief of the engineering division, was upped to deputy chief of engineers. Under him, Col. W. J. Ely will head the consolidated division.

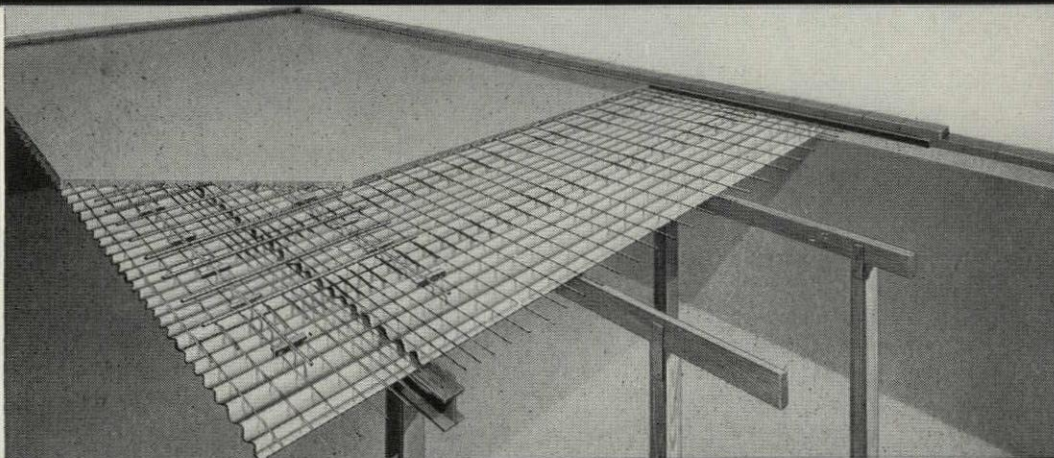
... A NEW PERSPECTIVE IN BUILDING!

COFAR

- ▶ Reinforced concrete construction.
- ▶ High-strength, deep-corrugated steel manufactured with welded closely spaced transverse wires (T-wires).
- ▶ Positive reinforcement permanently anchored to and combined with structural concrete.
- ▶ Concrete floors and roofs without forms.

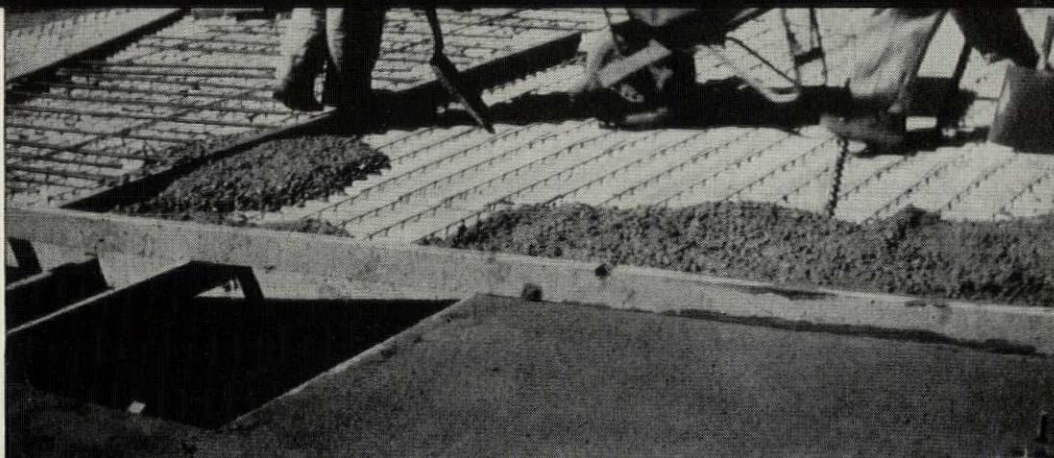
STRENGTH UNLIMITED

COFAR! Deep-corrugated steel, 100,000 psi and stronger (the main reinforcement), and T-wires (temperature reinforcement) in one manufactured product . . . all the positive steel needed in the structural concrete slab! Design follows normal concrete structural procedures. Full range and design freedom is given concrete slab construction, with continuity and weight saving. Hot-dip heavy galvanizing insures building-life permanence. Build strong . . . build COFAR.



TIME AND MONEY SAVED

COFAR makes concrete floor and roof construction a one-stage operation . . . no forms to build and tear down. Construction is clean and fast. Concreting in multi-story buildings moves indoors out of the weather. Large or small, your building is better, costs less with COFAR.



SPACE AND LIGHT RECAPTURED

Bright, clean, corrugated-pattern COFAR ceilings give the new look to many homes. Fire resistant for any exposure with lightweight modern ceiling protection. COFAR saves enough head room and deadweight to add stories to skyscrapers. Business, office or residential . . . COFAR is the answer.



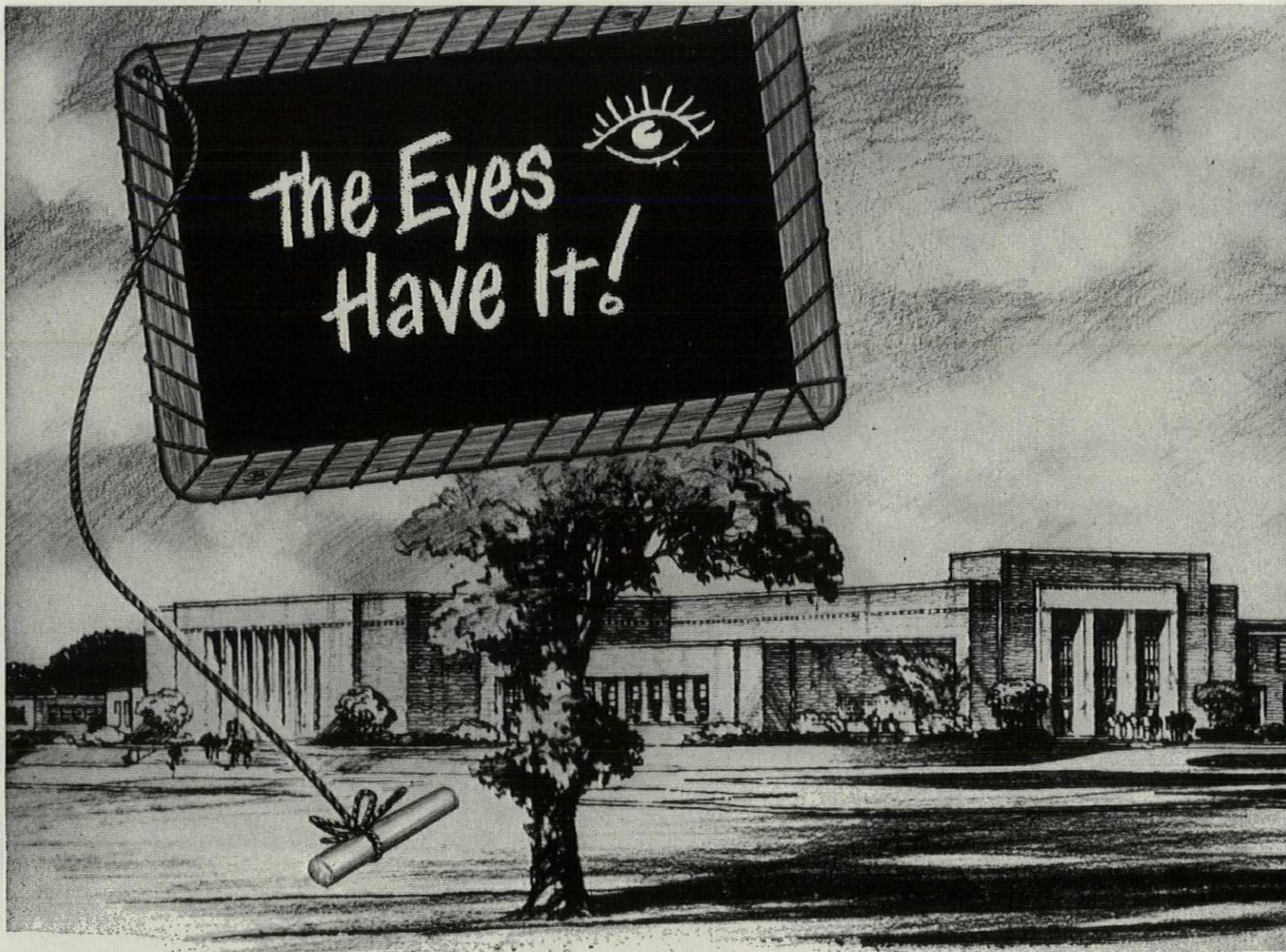
- ▶ *ADVICE* on application and design by qualified COFAR engineers.
- ▶ *REVIEW* of all COFAR designs.
- ▶ *ESTIMATES* and *COSTS* for any COFAR project.
- ▶ *KNOW-HOW* from experience on many COFAR jobs.

OTHER GRANCO PRODUCTS

- CORRUFORM for steel joist floors.
- TUFCOR corrugated deck used with cementitious insulating fills for roofs.
- GRANCO ROOF DECK flat-top roof deck rotary-press—UNIformed.

GRANCO STEEL PRODUCTS CO.

(Subsidiary of Granite City Steel Co.)
GRANITE CITY, ILLINOIS



HINSDALE HIGH SCHOOL, HINSDALE, ILLINOIS • CHILDS & SMITH, ARCHITECT • E. H. MARHOEFER JR. COMPANY, CONTRACTOR

...with CECO Metal Windows for schools

As you read this your eyes are doing more than seeing—they are bringing into action your entire body—nerves, muscles, circulation.

And you are burning up energy—piling up fatigue in direct proportion to the amount of light available for vision.

Medical science has proved eyestrain has a marked effect on the well-being of all. So it's necessary then that seeing be done with ease and in comfort. That's why proper illumination is all-important and there's

where metal windows come in, for they admit more daylight than any other window.

Add to that fact, most days in most of the country, are overcast in winter. Here again metal windows meet the need because only metal windows provide enough daylight for good vision on overcast days.

So there's good reason for the swing to CECO Metal Windows in modern school construction. Besides giving more light for better sight, they permit

**CECO
STEEL**

In construction products **CECO ENGINEERING**



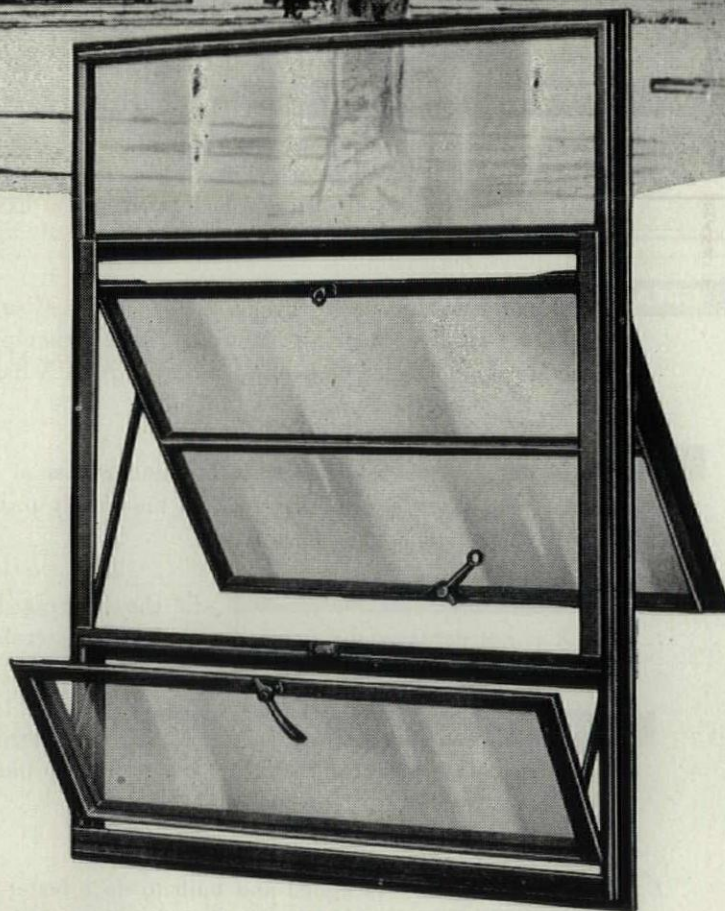
distant vision so vital for relaxing young minds.

There are other advantages in Ceco Metal Windows—such as controlled ventilation—won't rot or warp—cost less to install, clean and maintain. And because Ceco Windows are better engineered they fit better—last longer. That's why we say—"When you use Ceco Windows you know you use the very best—you're sure of savings, too."

CECO STEEL PRODUCTS CORPORATION

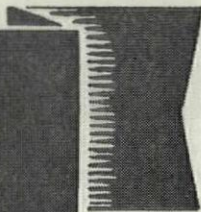
General Offices: 5601 W. 26th St., Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities



makes the big difference

Steel Windows and Doors • Steel Joists and Roof Deck
Steelforms • Reinforcing Steel • Metal Frame Screens
Aluminum Storm Windows • Combination Windows
and Doors • Metal Lath • Roofing Products



*A new Flooring Tile of
Unusual Beauty and
Outstanding Performance*

Vina-Lux
REINFORCED VINYL TILE

INTRODUCING the most beautifully colored resilient flooring tile ever made—and the most versatile for installation purposes—AZROCK's new VINA-LUX! Its vinyl resin—*asbestos* composition makes possible many advantages over ordinary types of flooring. VINA-LUX gives you—

BEAUTIFUL, RICH COLORS

unsurpassed for clarity and accuracy. The whole range of VINA-LUX colors from its lustrous black to its clean, bright white is the interior designer's dream. You can really build attractive interiors when you use VINA-LUX on the floor.

GREATER INSTALL-ABILITY

over a wider variety of sub-floors than any other resilient flooring material. Use it either over wood or concrete sub-floors, on or below grade. VINA-LUX has exceptional structural strength, density and flexibility.

MINIMUM MAINTENANCE COSTS

under normal traffic conditions. No waxing is necessary to keep the closely textured surface of VINA-LUX sparkling clean.

GREASE RESISTANCE UNEXCELLED

in the flooring field. VINA-LUX is not damaged by most commonly used petroleum solvents or food fats.

EXCEPTIONAL WEAR RESISTANCE

that means extra years of service. Tough, durable VINA-LUX stands up like iron under the heaviest traffic.

Vina-Lux—designed and built to do a better job in every way—is available *now*. For detailed literature and sample tiles, write to:

UVALDE ROCK ASPHALT CO.

Makers of AZROCK Asphalt Tile and AZPHLEX Thermoplastic Tile
FROST BANK BUILDING • SAN ANTONIO, TEXAS

"Azrock Makes Fine Floors"

LETTERS

SHOPPERS' WORLD AND MARSHALL FIELD

Sirs:

Your December issue . . . was outstanding . . . particularly the shopping center section. . . .

FRANK J. ZUZAK
F. J. Zuzak & Co., Realtors
Shreveport, La.

Sirs:

Would you send us 40 copies of that particular article. . . .

L. WILLIAM EAGAN
Eagan Real Estate, Inc.
Syracuse, N. Y.

Sirs:

As usual, when you do a job you do it thoroughly and well. . . .

NATHANIEL A. OWINGS, *Architect*
Skidmore, Owings & Merrill
Chicago, Ill.

Sirs:

Congratulations . . . on the accurate and perceptive job of reporting the proposed Marshall Field shopping center.

PHILIP WILL, JR., *Architect*
Perkins & Will
Chicago, Ill.

Sirs:

. . . Since we work almost entirely in the field of shopping centers, we have found the December article on Marshall Field's Chicago development extremely interesting. . . .

The article was very excellently prepared and . . . you should be complimented on the job.

FREDERICK ARPKE
Larry Smith & Co., Real Estate Consultants
Seattle, Wash.

Sirs:

. . . We are very pleased with the presentation of the Shoppers' World in the December issue. . . . Our only regret is that the landscape architects—Arthur A. Shurcliff and Sidney N. Shurcliff of Boston—were not credited. . . .

They have done a splendid job on planning the attractive paths, lawns, shrubbery and trees of the central mall and the parking areas surrounding the buildings.

They have proved that they are equally at home with either landscaping of an historical monument like Williamsburg, Va. or the landscaping problems of a contemporary shopping center.

While landscaping needs a year or two to prove itself, I feel confident that the great value of adequate landscaping of a shopping center of this size will become apparent in the near future.

MORRIS KETCHUM, JR., *Architect*
Ketchum, Gina & Sharp
New York, N. Y.

(Continued on page 70)

How to keep pace with your Building Needs



Both architects and owners find Armco STEELOX Buildings are a natural for many of today's industrial requirements. These buildings are so adaptable that you can get exactly what you need and save time and money in designing, erecting and finishing.

Armco STEELOX Buildings are constructed of standardized parts for utmost economy. Yet they offer such a wide range of widths, lengths and wall heights that designing for specific applications is no problem.

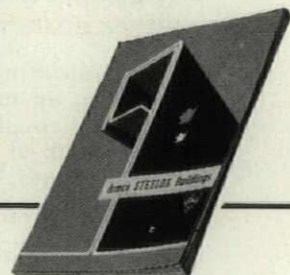
There is no danger of obsolescence. STEELOX Buildings have all the advantages of any other permanent structure. However, should conditions change they can readily be extended with standard parts; rearranged by moving doors, windows and partitions; or moved to a new site without loss of material.

Erection is easy. Unskilled labor does the job. The unique STEELOX panel provides both structural support and exterior surface. Interior finishing may be the same as for any other building.

Armco STEELOX Structures assure long-lasting, efficient shelter. The fire-resistance of all-steel construction means added protection for vital materials and equipment. Patented STEELOX construction cannot pull apart or sag and there is nothing to warp, crack or rot.

Specify and use Armco STEELOX Buildings wherever you need dependable, efficient shelter. Also write for the new Armco STEELOX Catalog as well as data for your specific needs. Armco Drainage & Metal Products, Inc., 1382 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

Armco STEELOX Buildings



PLEASE SEND

☐ Specific data on _____
(Type of building or application)

☐ General STEELOX Catalog

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

STEELOX makes attractive offices, laboratories, hospitals or recreational centers.

Smaller STEELOX Buildings are specified for a wide variety of standardized uses.

STEELOX locker rooms, garages and other buildings blend with present structures.

Design flexibility permits meeting exact needs in industry and elsewhere as demonstrated by this modern school.



Roy French, Arch.

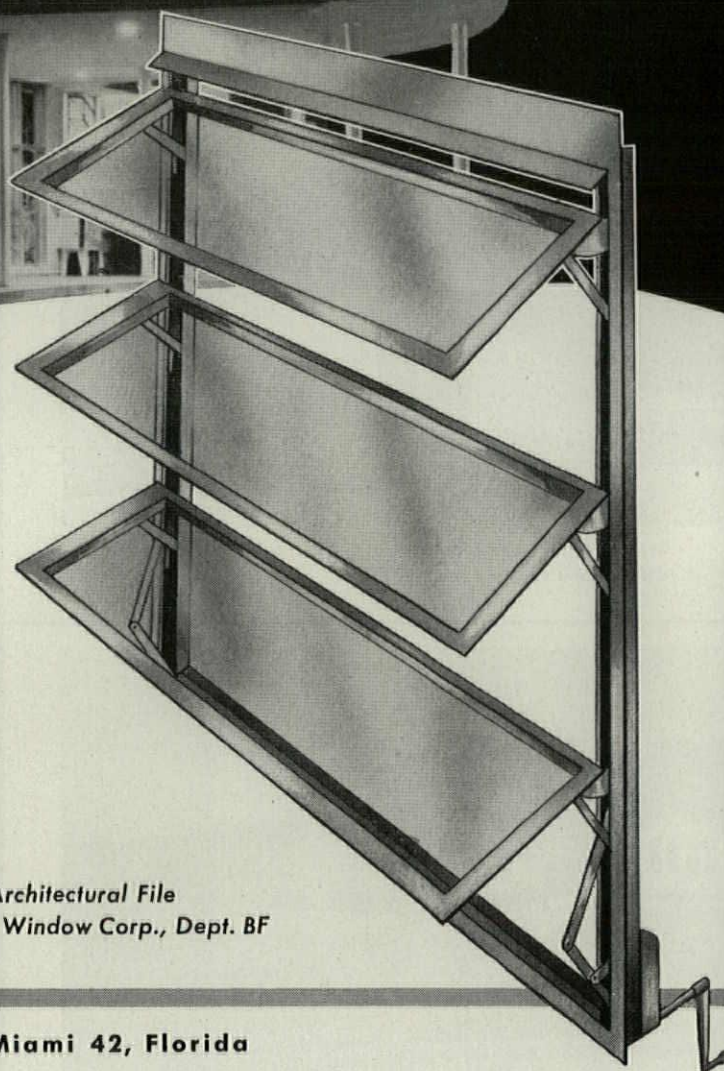
Specify
the
all-aluminum
miami
awning
window

Versatility in architectural design is expressed through its building materials. Materials like Miami Awning Windows built in regular or special sizes...sizes that meet your most unusual and exacting architectural specifications.

The all-aluminum Miami Awning Window is made to any dimension up to 6'2" wide and to any height -- hopper vents, gothic and circular heads may be specified. Windows which are 4½' in width or wider are made of special hollow extrusion for added strength. This prevents sash sag due to the increased span.

Constructed from extra-heavy aluminum alloy extrusions. (63-ST5).

For fine installations in schools, hospitals, office buildings and small homes, specify the all-aluminum Miami Awning Window. Available for immediate shipment.



MIAMI
Awning
WINDOW

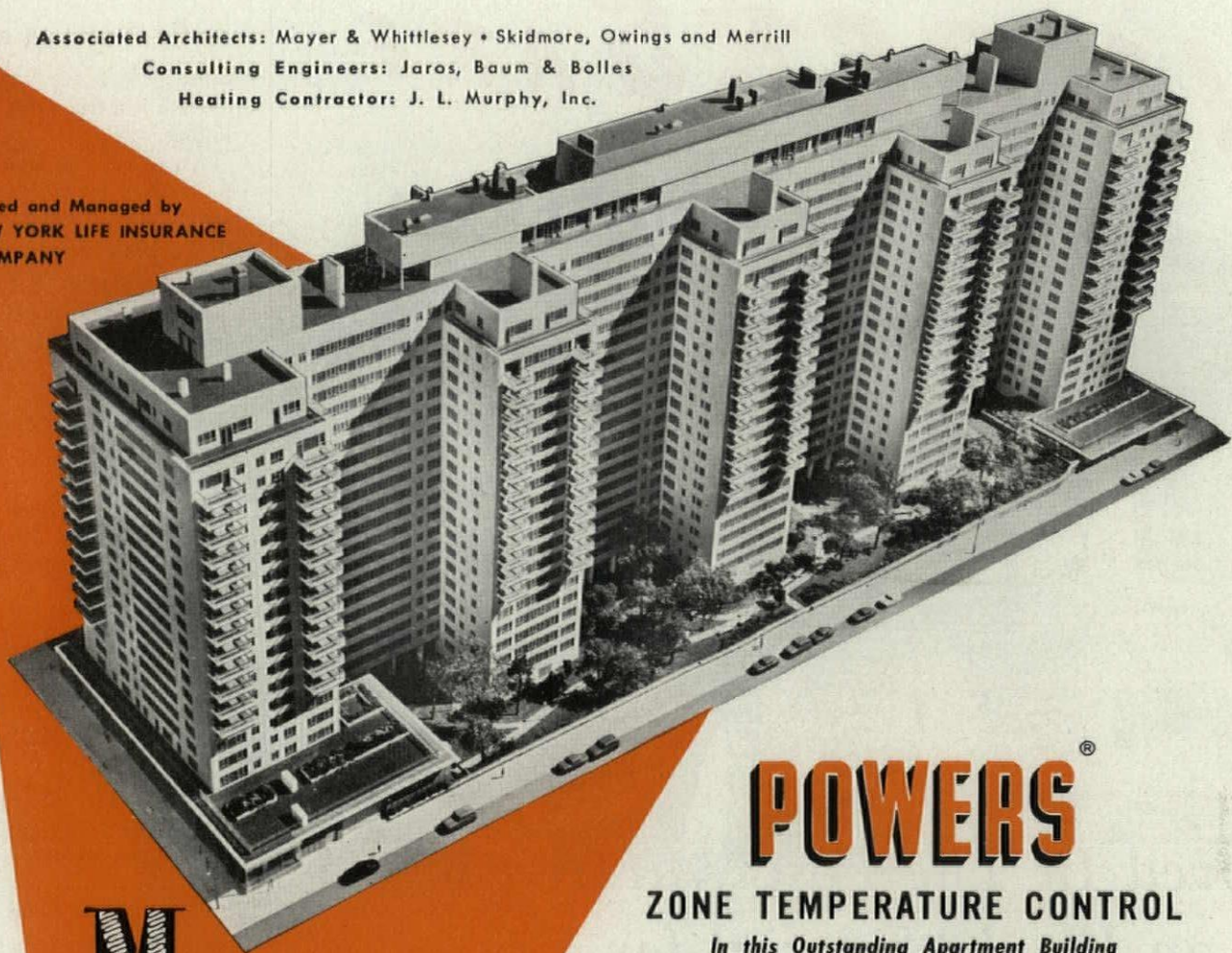
For further information, see Sweet's Architectural File
17A or -- write, wire or phone Miami Window Corp., Dept. BF
Mi

5200 N. W. 37th Avenue, Miami 42, Florida

Air Infiltration Tests Taken by Pittsburgh Testing Laboratories

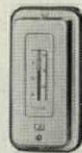
Associated Architects: Mayer & Whittlesey + Skidmore, Owings and Merrill
 Consulting Engineers: Jaros, Baum & Bolles
 Heating Contractor: J. L. Murphy, Inc.

Owned and Managed by
 NEW YORK LIFE INSURANCE
 COMPANY



Manhattan House

—with 582 modern, carefully planned apartments occupies an entire block at 66th and 2nd Ave., New York City. Comfort and fuel savings obtained here, year after year, will yield a handsome return on the investment in POWERS control.



Type D Room
Thermostat

POWERS[®]

ZONE TEMPERATURE CONTROL

*In this Outstanding Apartment Building
 Assures Comfort, Dependability, Lowest Maintenance Cost*

Temperature of hot water supply to convectors in this modern building is controlled by a Powers MASTROL System.

How It Operates—A Powers Master Thermostat with its sensitive bulb in a special housing for sun-wind effect and outdoor temperature is located on outside wall of zone being controlled. It operates in conjunction with 4 Room Thermostats on the 4th, 9th, 14th and 19th floors of each zone through Averaging Relays to establish the control point for Series 100 Sub-Master Controllers. A manually operated switch on the main control panel is provided to raise or lower the control point when desired.

A program clock automatically reverts the controls to night operation during which period the outdoor Master Thermostat readjusts Series 100 Sub-Master Controller to a lower control point than used during day operation. Other types of Powers controls regulate various fans supplying heating and ventilating to other spaces in the building.

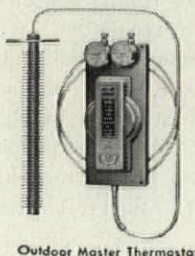
Experience gained by Powers in all types of prominent buildings will be helpful to you. When problems of temperature and humidity arise, contact our nearest office. THE POWERS REGULATOR COMPANY, Skokie, Ill.

(a77)

OVER SIXTY YEARS

OF AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL

OFFICES IN OVER 50 CITIES



Outdoor Master Thermostat



Averaging
Relay



Indoor Sub-Master
Controller



METAFLOW
Control Valve



ACCITEM
Regulator

POWERSTROKE



Dampet Motor



Pneumatic
Switches



AIRSTREAM Thermostat



FLOWRITE Control Valve

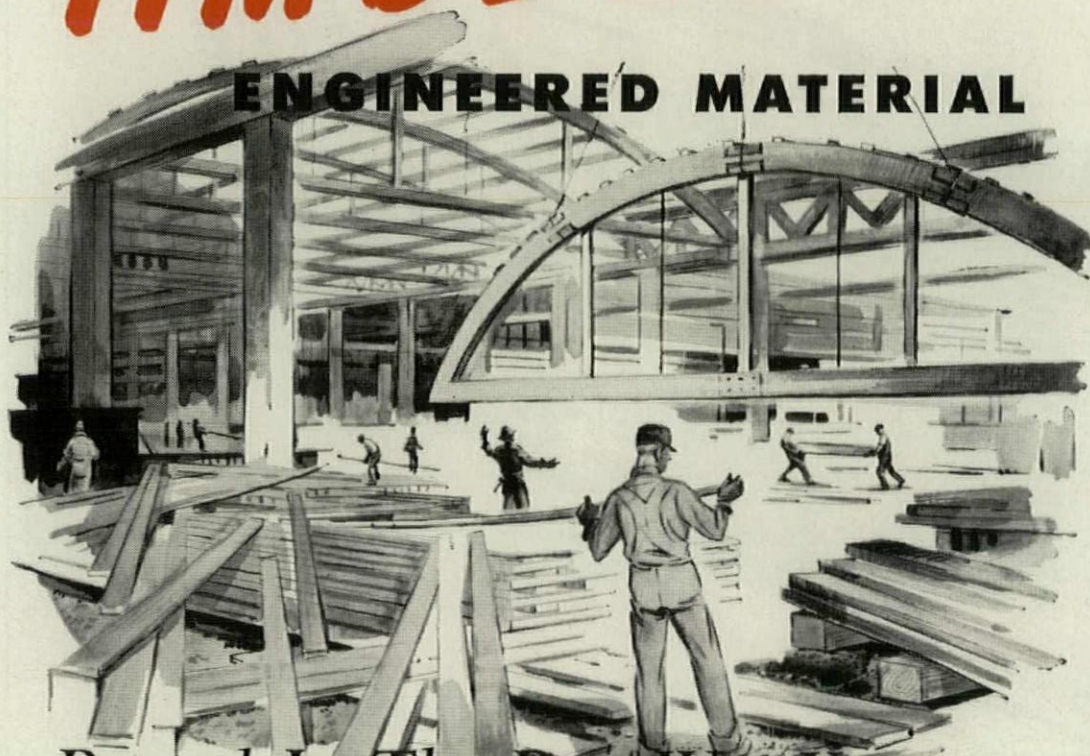


FLOWRITE Control Valve

CROSSETT

TIMBERS ARE

ENGINEERED MATERIAL



Proved In The Post-War Years As an Ideal Material for Heavy Truss Construction

Under the pressure of "guns and butter" restrictions, structural timbers are meeting the crucial need for heavy construction material requirements — and *without delay!*

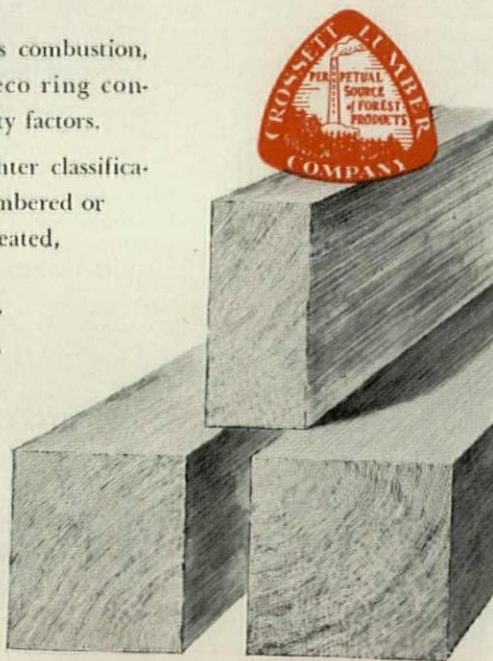
Timber construction is dependable, flexible, resists combustion, saves erection time, costs less. Augmented with Teco ring connectors and grids, load bearings provide excess safety factors.

Crossett timbers, of dense structural as well as lighter classifications, are engineered to specified stress values for timbered or laminated truss and arch designs. Available in untreated, WOLMANIZED* treated and Creosoted stock they qualify under Southern Pine Inspection Bureau standards as well as Federal Specifications MM-L-751b.

*Reg. U. S. Pat. Off.

CAPS AND STRINGERS

Furnished in dense material 7" x 16"; 12" x 14" and 14" x 14". For data and information, address:



CROSSETT LUMBER COMPANY

CROSSETT, ARKANSAS

LETTERS

OFFICE, HOME OR DOG HOSPITAL

Sirs:

Here is a true story about government regulations.

A savings and loan association was willing to make a loan to a veterinarian for a new building valued at \$12,000. The building was to be built in a residential section of the town and was to be essentially of a residential character, except that the veterinarian proposed temporarily to have his office in one room and to use the other space as a dog hospital.

Then arose the question—was the building a house, a hospital or a commercial establishment? On the answer to the question depended the possible terms of the loan the savings and loan association might make and the amount of materials the veterinarian might get.

If it was a house, the loan might be as much as \$9,600, and the owner could self-certify for a single allotment of 1,800 lbs. of steel and 35 lbs. of copper, or 1,450 lbs. of steel and 160 lbs. of copper.

If it was a hospital, there were no special restrictions on the loan, and the owner would be able to get 2 tons of steel and 200 lbs. of copper per quarter.

If it was a commercial establishment, the maximum loan would be \$6,000 and the owner could self-certify as much as 2 tons of steel and 200 lbs. of copper per quarter.

The deal, of course, could not safely be concluded until the question was answered and the answer, of course, could only be obtained from Washington. Fortunately for the lender, he belonged to a trade association which is able to find answers for this sort of thing. Otherwise, he might as well have dropped the whole idea.

In case you are interested, it turned out (after considerable inquiry) to be a commercial establishment. But the moral of the story is: It's tough for anybody to do business in a managed economy, but, for the little man, it's really tough.

MILES L. COLEMAN
Washington, D. C.

INDUSTRIAL BUILDING PROGRESS

Sirs:

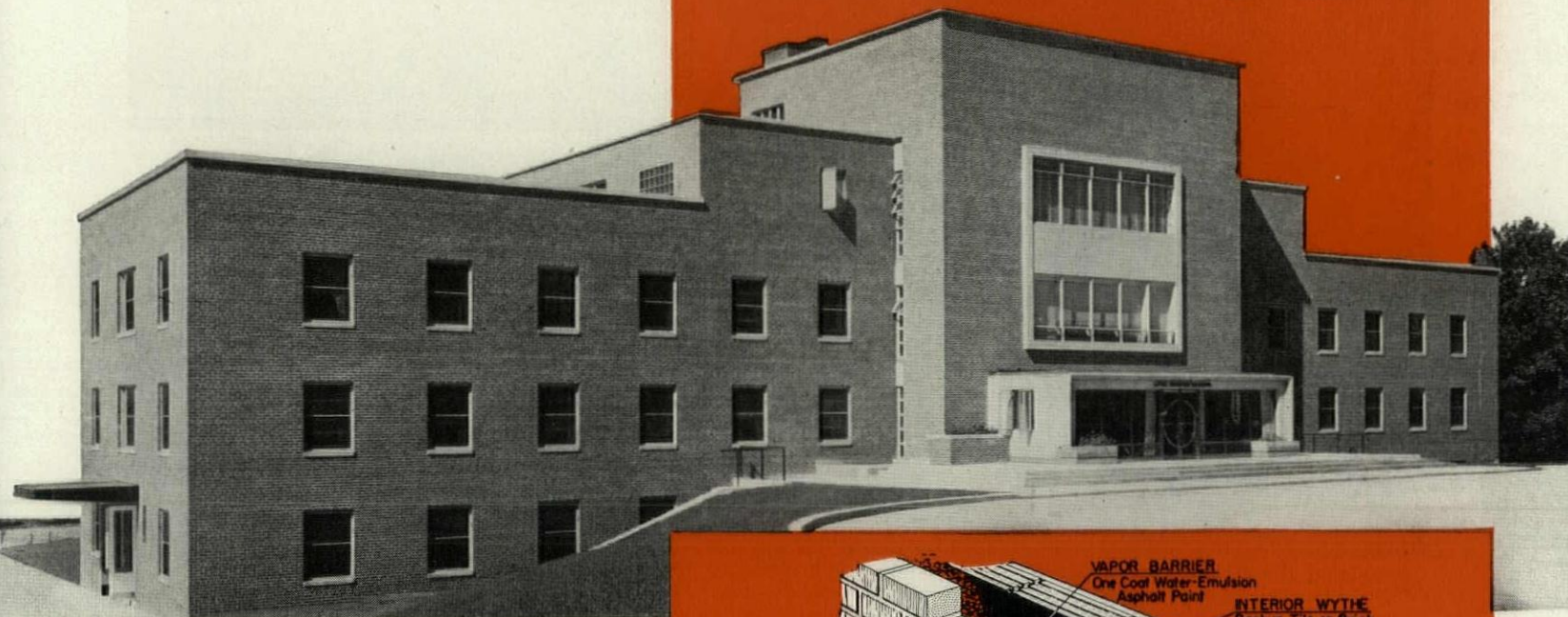
The recognition that your magazine has begun to accord the enormous field of industrial building fulfills a need that has heretofore been recognized by any of the building magazines or trade publications.

Your November issue contained an article on power generation in which the remark was made that when the people who build most of the power plants "recognize and adopt developments by the rest of the building world, as they are doing more and more, it is virtually a final endorsement of soundness. While appreciating the compliment, I point out

(Continued on page 74)

a **NEW** reason for building
with **BRICK** and **TILE**

...the **SCR**^{*}
INSULATED CAVITY WALL
with *Fiberglas*^{**} Cavity Wall
Insulation — Pouring Type

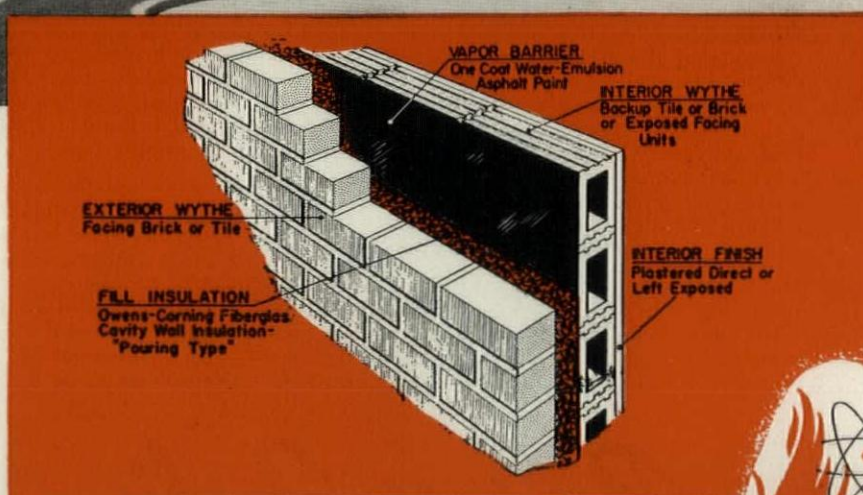


Cavity Wall construction of brick and tile has long been recognized as a sound, economical way to provide protection against moisture penetration and heat loss.

Now additional insulation protection is possible where needed through the new **SCR** Insulated Cavity Wall. This wall combines cavity wall construction with *Fiberglas* Cavity Wall Insulation — Pouring Type, especially developed for this particular wall.

The **SCR** Insulated Cavity Wall has a tested U value of .12, excellent in even the most rigorous climates. No change in construction technique or in building code specifications is involved.

In addition to supplying sufficient insulation for low heating or air conditioning costs, the **SCR** Insulated Cavity Wall gives other economies. It needs no furring or lathing and can be plastered directly or left exposed in interiors.



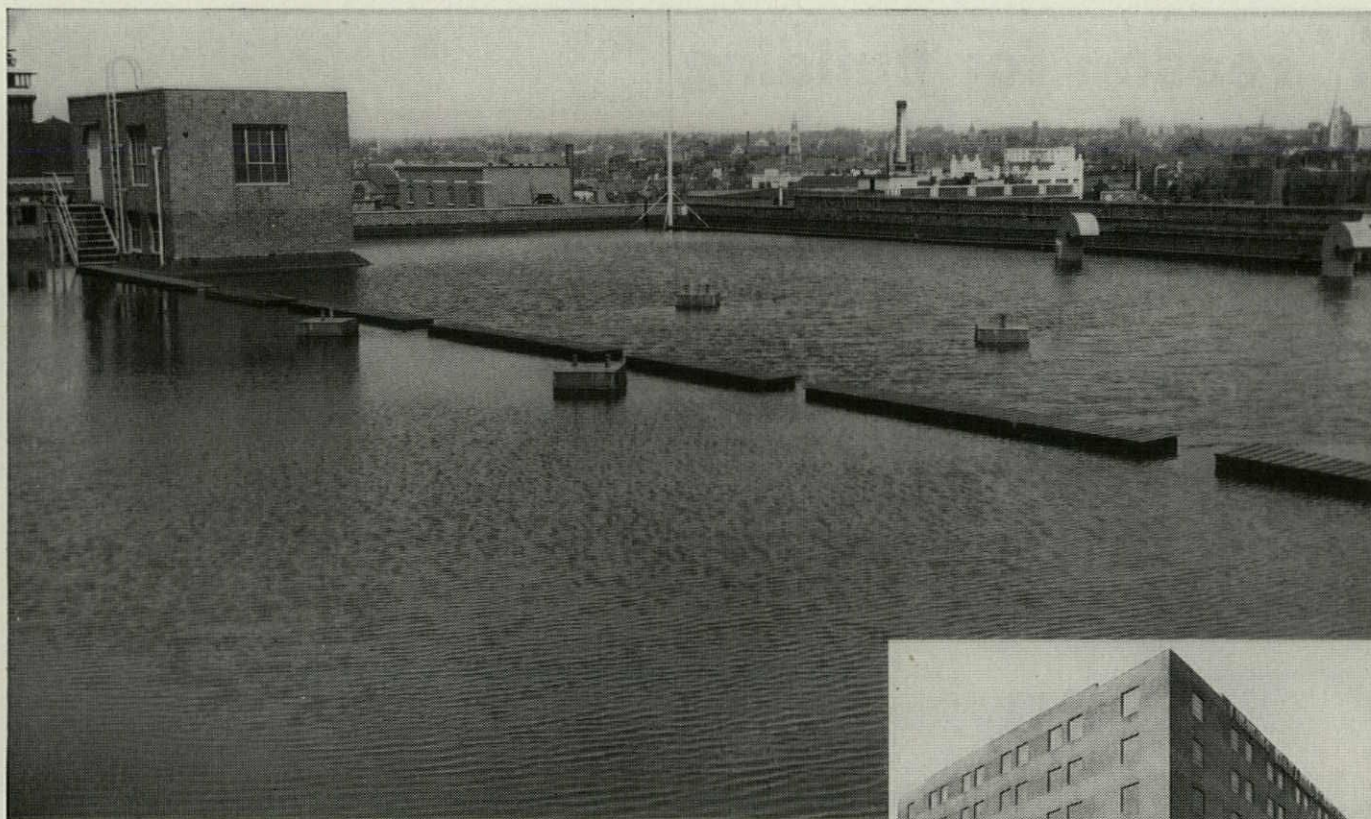
With this wall you build better buildings at less cost. You give your clients and customers more for their money.

Learn all about the **SCR** Insulated Cavity Wall. For full data and specifications, just write Dept. AF-2 on your own letterhead.

^{*}Reg. Trade-mark, Structural Clay Products Research Foundation
^{**}Reg. Trade-mark, Owens-Corning Fiberglas Corporation



STRUCTURAL CLAY PRODUCTS INSTITUTE
1520 18th Street, N. W., Washington 6, D. C.



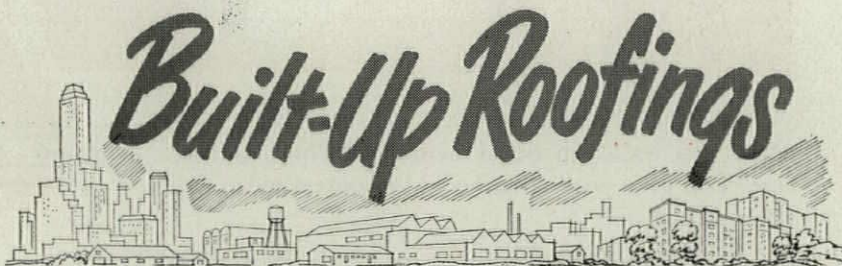
A ROOF SHOULD BE *more* THAN A COVERING!

That's why a Ruberoid water-cooled built-up roof was chosen for the Hochschild, Kohn & Co. furniture store in Baltimore, Md. A lot of care and thought goes into the selection and construction of a good roof. Merchandise, equipment and property should be lastingly safeguarded against all sorts of weather, wet and dry spells, heat and cold. And the right roof can make an important contribution to working conditions by aiding in temperature control and reducing the load on air-cooling equipment.

More and more architects are now specifying water-cooled roofs, a decided plus factor in offering better value to clients. They know that a dry roof on a hot summer day has a heat

flow factor of 11 BTU's per hour per square foot. The heat flow factor is reduced to 4.7 BTU's when that same roof has one inch of water covering it. They know, too, that the *right* roofing specifications applied by experienced, Approved Ruberoid Roofing Contractors are essential ingredients. A Ruberoid Built-Up Roof fulfills all these requirements.

You are bound to find the Ruberoid Built-Up Roofing Specification Book and Built-Up Roof Selector invaluable in planning more efficient roofs, no matter what type of roofing problem you may have. If you don't have these aids, write on your letterhead for your free copies. The Ruberoid Co., 500 Fifth Ave., New York 18, N. Y.



The RUBEROID Co.

ASPHALT AND ASBESTOS BUILDING MATERIALS



HOCHSCHILD, KOHN & CO.

Architects:

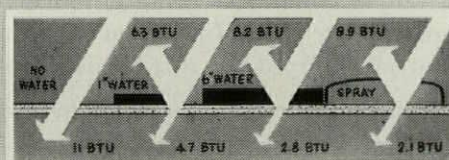
- Abbott-Merkt,
New York, N. Y.
- James R. Edmonds, Assoc.,
Baltimore, Md.

General Contractors:

- Morrow Bros.,
Baltimore, Md.

Applicators:

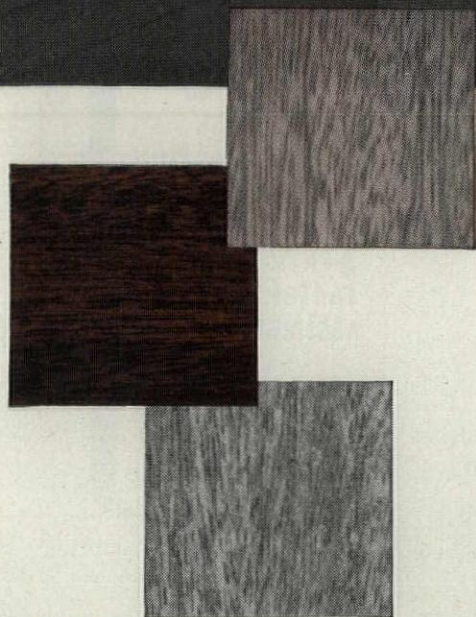
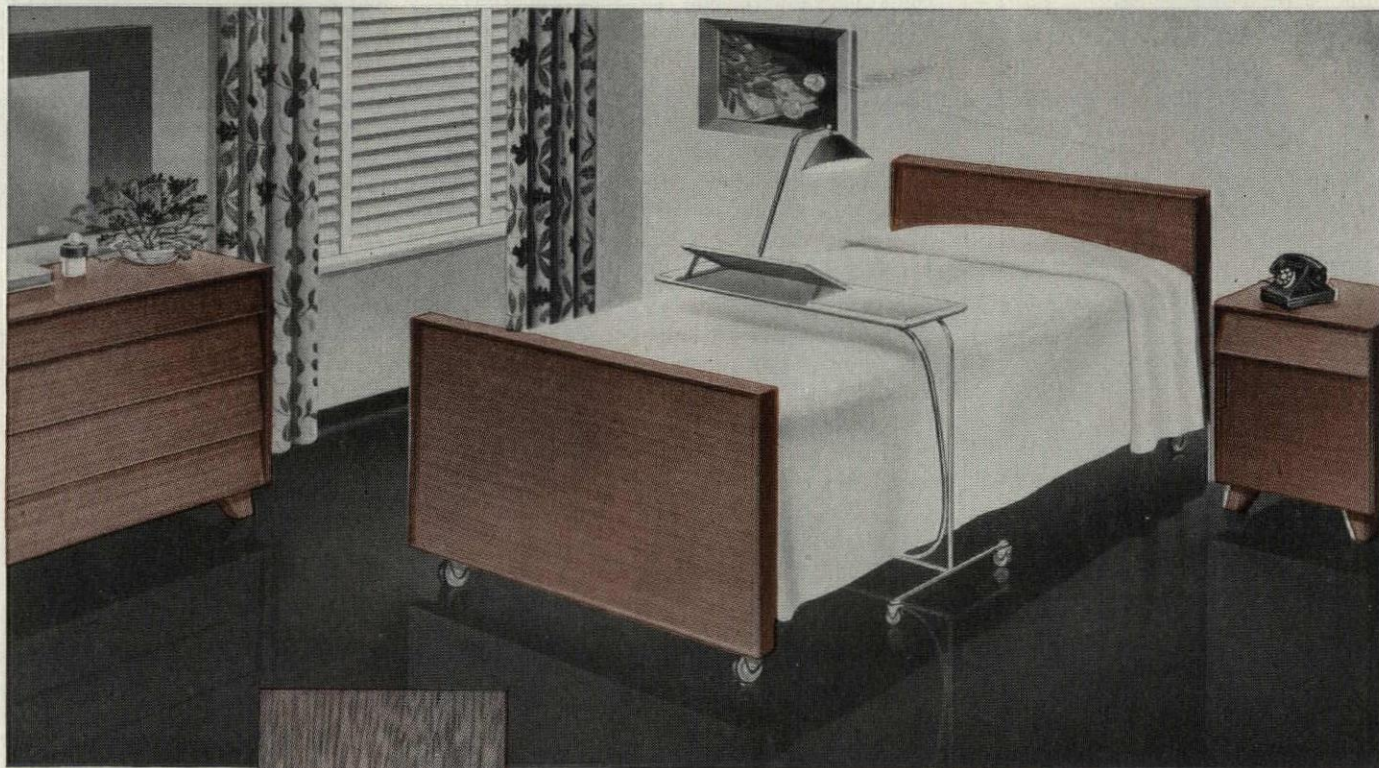
- John O. White & Sons,
Baltimore, Md.



The relative cooling effect of a roof pool is graphically demonstrated in this diagram. The pool depends primarily upon reflection or water evaporation for effectiveness. Based on controlled scientific tests, the chart shows that water in any form is an excellent barrier to solar radiation.

NEW **micarta** TRUGRAINS[®]

ARE TOUGH! ATTRACTIVE! SANITARY!



Now you can get all of MICARTA'S[®] charm and utility in wonderful new and authentic printed woods. Oak, walnut and mahogany beauty surfaces, of this top-quality high-pressure laminate, are locked for life beneath an incredibly tough glaze of clear Melamine plastic.

Its nonporous, super-smooth surface is impervious to damage by foods, alcohol, boiling water, dilute acids and alkalies, cosmetics and medicines. MICARTA shrugs off burns, scratches and scuffs. It resists chipping, denting, cracking and splintering. The surface cleans to a gleam with a wipe of a damp cloth.

MICARTA is also available in decorator colors, brilliant, solid colors and gay patterns. Write for the full MICARTA story today.

J-06454

Westinghouse

micarta

DISTRIBUTED BY UNITED STATES PLYWOOD CORP. and U. S.-MENGEL PLYWOODS, INC.

.....

• UNITED STATES PLYWOOD CORPORATION
 • 55 West 44th Street, New York 18, N. Y.
 • *Please send color guidebook and full application information on MICARTA.*

• NAME _____

• ADDRESS _____

• CITY _____ ZONE _____ STATE _____

•

MB-2-52

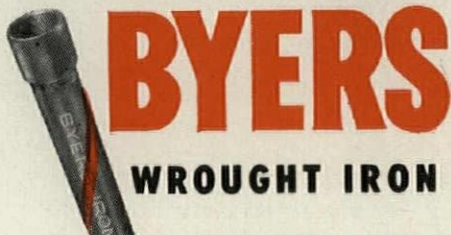
BYERS PIPE



Perhaps repair bills and production "slow-downs" in your plant have already made you fully aware of the costly consequence of pipe failure. In today's industrial plants where pipe is usually measured in miles, failure any place along the line can deal a "knock-out" blow to operation. And replacement or repair often means disrupted routine, service tie-ups, and annoying interruptions that curtail work flow. Fortunately, there's a proven solution to the problem . . . Byers Wrought Iron pipe. Users everywhere have found that the pipe with the red spiral stripe has the long-life service so vital to keeping production up and maintenance costs down.

Corrosion costs you more than wrought iron

Now available—"A Winter Wonder"—first sound motion picture on snow melting systems. Send now for folder telling what the film covers and how to apply for a showing to your group. Write A. M. Byers Co., Clark Building, Pittsburgh 22, Pennsylvania.



LETTERS

out that we in the industrial field do occasionally pioneer.

Economic pressure is perhaps most keenly felt here. The economic problem is the basic one that must first be solved in any industrial project. In structure, the difference of a few cents per square foot assumes importance when the measurement is in hundreds of thousands of square feet. This was the reason for the development of the metal skin you mentioned, developed solely for industrial applications, and also for the concrete panel skin developed in this office which is ably covered by another of your articles in the same issue. Though used by the Romans, the first practical use of radiant heating in this country was in industrial installations.

This same pressure, together with the necessity of answering functionally varied and unusual problems in space, have led the industrial architect and engineer to find new answers not only in volumes and definitions of space, but even in the materials of construction. Thus the skins mentioned above were not adapted from another, but created within this field. The development of these skins would have been impossible in other classifications of buildings subject to certain code limitations.

M. W. BACON

Ford, Bacon & Davis, Inc., Engrs.
New York, N. Y.

• Pioneering by industrial architect-engineers is further documented in the presentation of the recent work of Albert Kahn Inc. elsewhere in this issue.—Ed.

MORE MECHANIZED ROOFING

Sirs:

The article on "Mechanized Roofing" in your December issue . . . is excellent. Congratulations.

For several months we have been doing research to develop the very equipment you illustrate. . . .

LOUIS PINKSTON
Pioneer Roofing Co.
Vernon, Tex.

... WHERE CREDIT IS DUE

Sirs:

Since we realize that a credit line along with his published work is small enough recognition of the important part an architect plays in a building operation, we were amazed to discover that we had inadvertently failed to credit Architect Morris Lapidus with the lobby design of the Sans Souci Hotel in Miami Beach which was presented in the W. J. Haertel & Co. advertisement in your October issue.

W. J. HAERTEL, Pres.
W. J. Haertel & Co.
Chicago, Ill.

Sedgwick

DUMB WAITER DOORS

improve

Dumb Waiter Service

Hoistway doors have a direct effect on the efficiency of the dumb waiter. Whether you need doors for electric or hand power dumb waiters or for the landing openings of conveyors, laundry or package chutes, or other types of floor-to-floor equipment, you can make sure of improving service by specifying a Sedgwick Door. Over half a century of experience in successful engineering, manufacturing and installing lies behind Sedgwick Dumb Waiter Doors and Sedgwick Dumb Waiters.

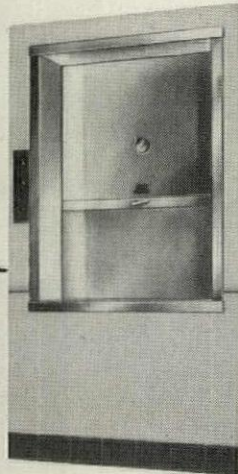
► DURABLE
STEEL
CONSTRUCTION

► OPERATE
EASILY

► ENGINEERED
BY VERTICAL
TRANSPORTATION
SPECIALISTS

► ENTIRE UNIT
FACTORY
ASSEMBLED

► UNDERWRITERS'
LABEL
WHEN REQUIRED



Bi-parting type



Also
slide-up,
slide-down
or hinged types

Write for booklet MB-1
on Sedgwick Dumb Waiter Doors
and complete line of Dumb Waiters and Elevators

Sedgwick MACHINE WORKS
140 WEST 15th ST., NEW YORK 11, N. Y.
Specialists in Vertical Transportation Since 1893

SOME OTHER SEDGWICK PRODUCTS:



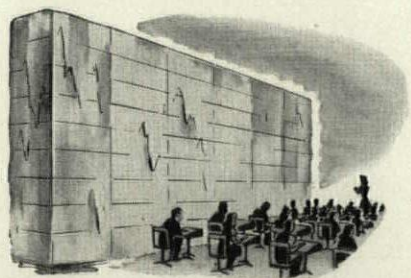
FREIGHT-WAITERS



CORRESPONDENCE
LIFTS



DUMB WAITERS

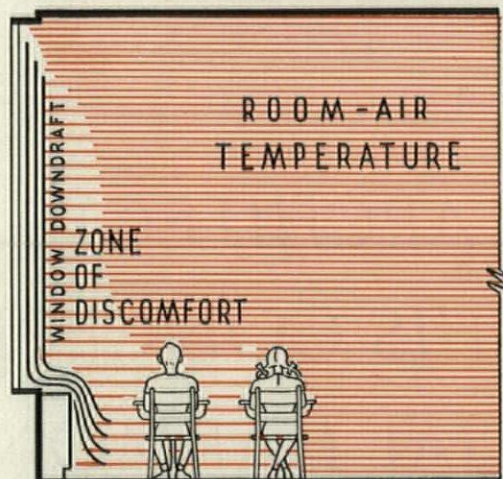


Will your system be **ABLE** to cope with the window "wall-of-ice" in the classroom?

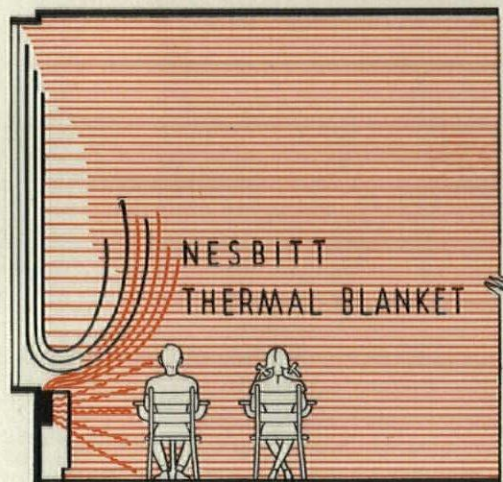


Showing the Nesbitt Syncretizer with Wind-o-line Radiation extending from both ends of the ventilating unit—positive protection against window downdraft.

How Comfortable will be your new SCHOOLROOM UNIT VENTILATING SYSTEM?



With room-air temperature evenly maintained, the downdraft from large windows on cold days may remain the robber of comfort for pupils.



Nesbitt Syncretizer and Wind-o-line Radiation temper the window downdraft, raise it out of the impression range, improve thermal balance.

If thermal comfort depended alone upon the classroom air temperature, your choice of ventilating units would be relatively easy...

but since you know that the radiant temperature differential of surrounding walls and surfaces is equally important in its effect on overall thermal comfort, you need to remember:

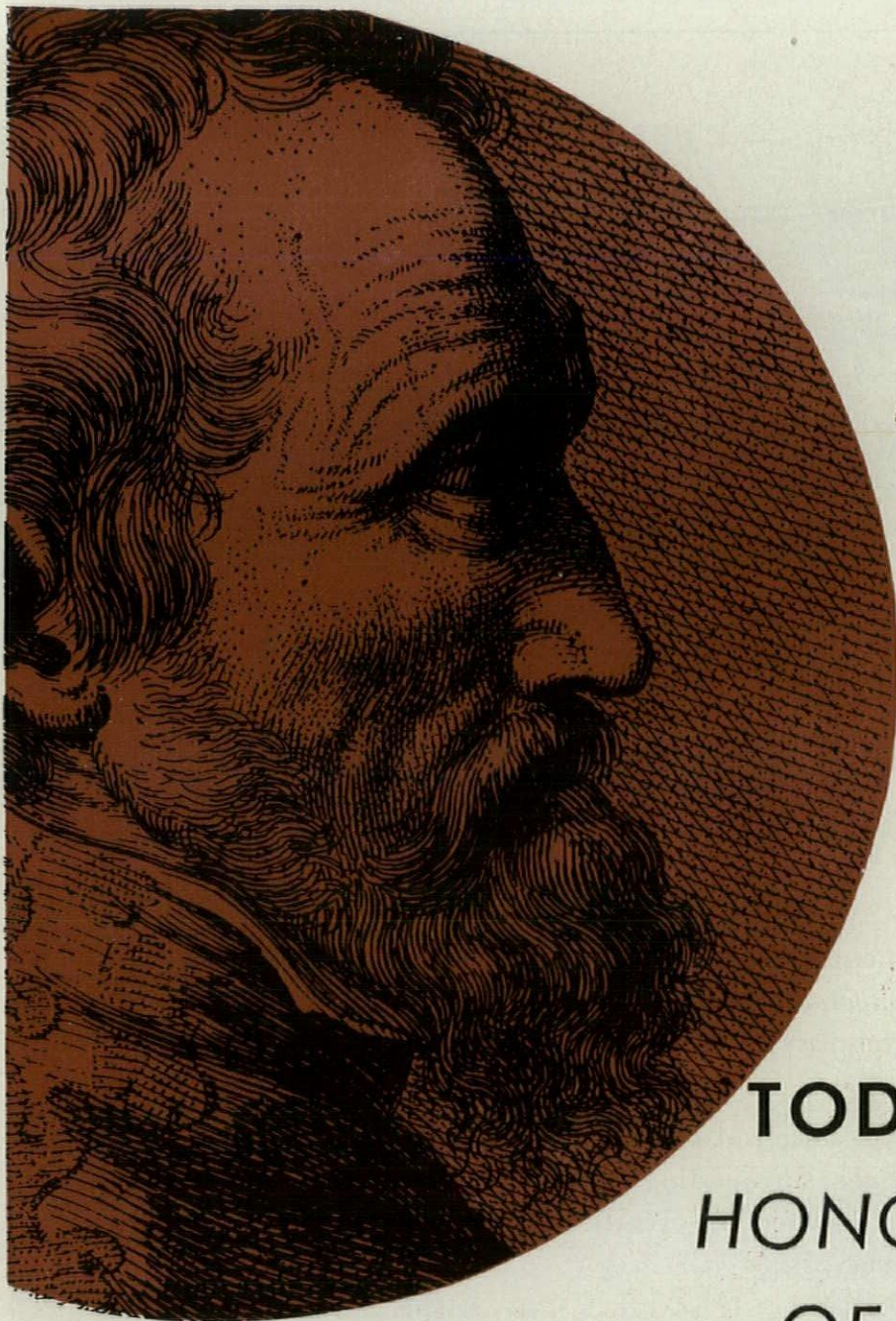
1. The basic cause of low surface temperatures in cold weather is the large window area in the modern classroom.
2. The sound solution to the chilling effect of the downdraft created by this "wall-of-ice" is to release heat over the surface.
3. In any classroom in which the window downdraft is not adequately protected by the unit ventilator alone, you need the Nesbitt Syncretizer and Wind-o-line Radiation.

Wind-o-line fin-and-tube radiation is installed to extend from both ends of the unit ventilator for the full length of the windows, at the sill line—and continued, if required, along cold outside walls. It is controlled in cycle with the Syncretizer to release a small quantity of heat—sufficient to temper and raise the downdraft and protect occupants by a "thermal blanket." Wind-o-line may be wall-hung in its own grilled casing, or recessed in a channel of the storage cabinets when such are to be integrated with the Nesbitt Syncretizer.

Send TODAY for Publication 264

NESBITT Syncretizer and Wind-o-line Radiation

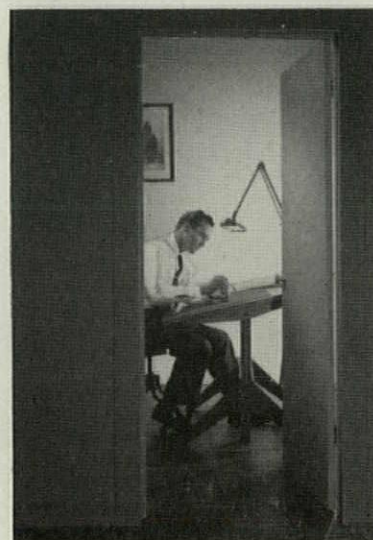
The Nesbitt Syncretizer, Wind-o-line Radiation, and The Nesbitt Package are sold by John J. Nesbitt, Inc., Phila. 36, Pa., and by American Blower Corporation.



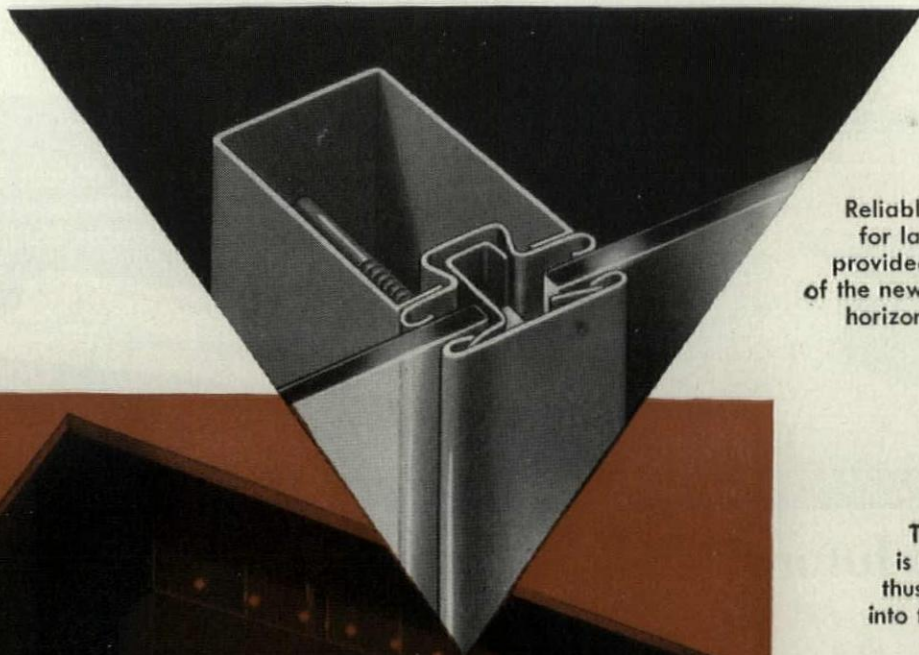
Michelangelo Buonarroti said,

*"When a plan has diverse parts,
all those which are alike in quality
and quantity must be treated
according to one model and one style."*

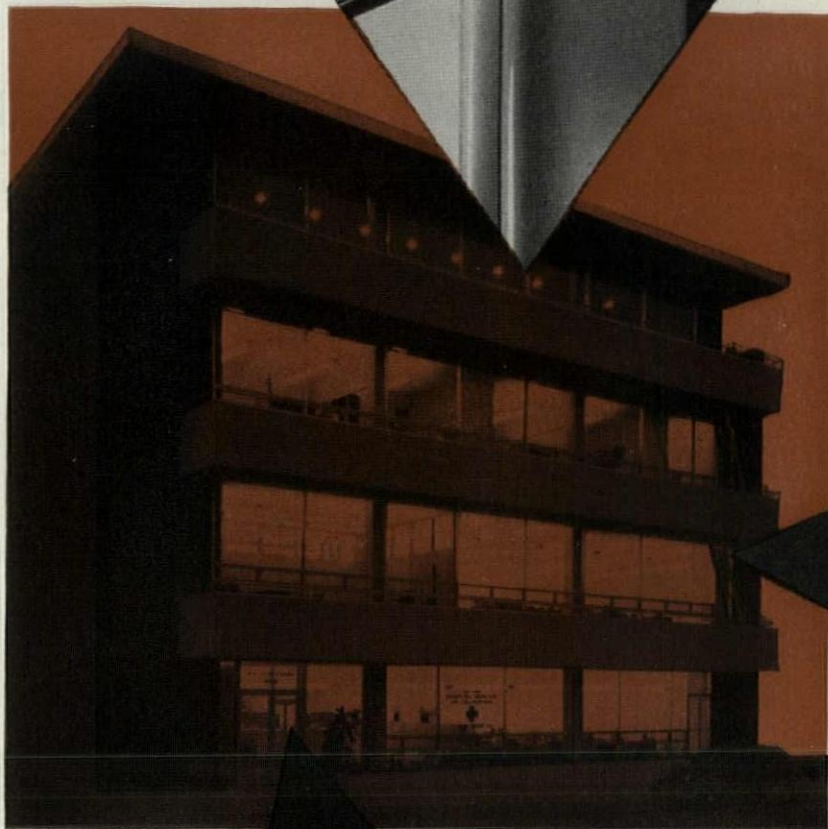
**TODAY, ARCHITECTS
HONOR THIS CONCEPT
OF VISUAL HARMONY..**



STORE FRONT METALS • TRIM • ALUMINUM FACING MATERIALS • ALUMINUM ROLL-TYPE AWNINGS • AWNING BOXES AND HOODS •



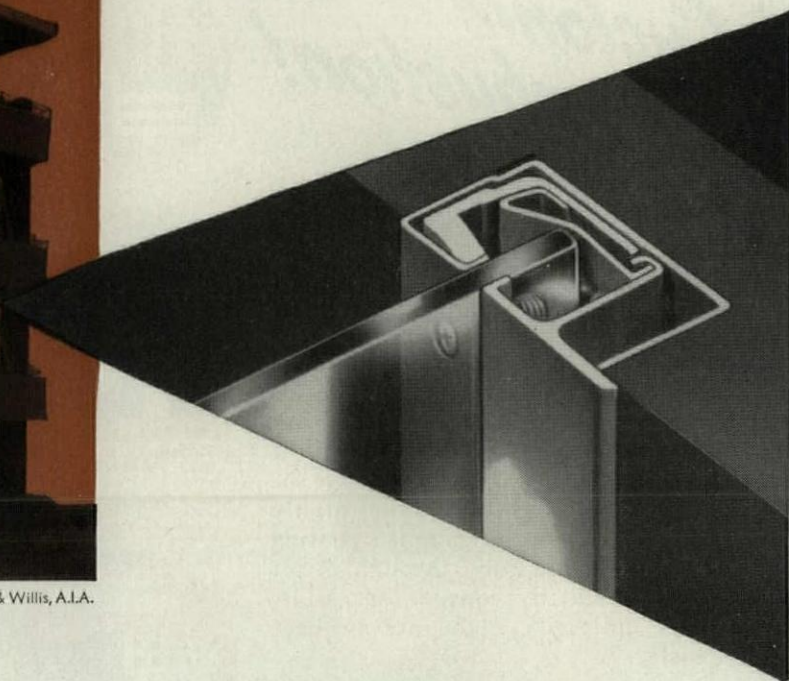
Reliable and compact setting for large lights of glass is provided by this modern member of the new Kawneer line of horizontal and vertical bars



The Blue Cross Building of Hospital Service of California
Oakland, California

Architects: Confer & Willis, A.I.A.

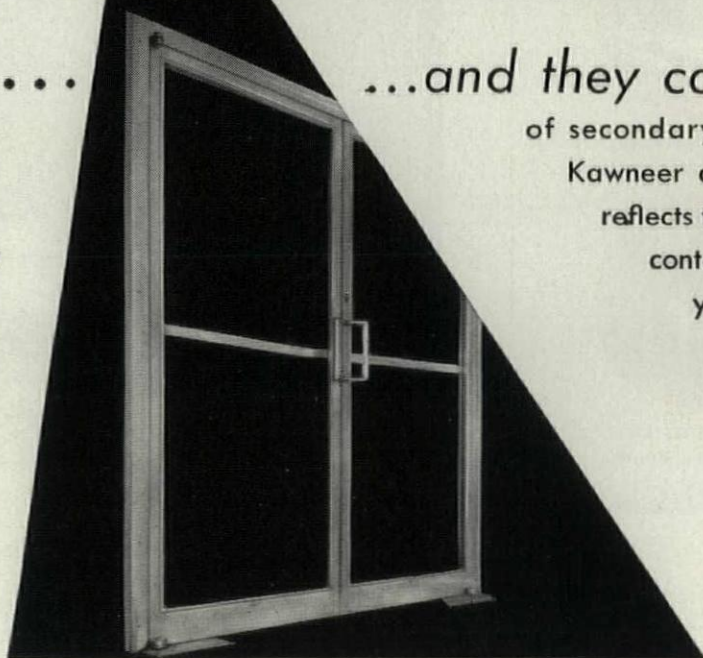
The face of this modern sash is flush with surrounding surfaces, thus eliminating visual obstruction into the interior



...and they can achieve this unity

of secondary elements by the creative use of Kawneer assemblies. Every Kawneer assembly reflects the clean lines, planes, and profiles of contemporary architectural design. Consult your Kawneer Details, Sweet's Catalog, or write The Kawneer Company, Dept. AF-91, 1105 N. Front Street, Niles, Michigan, or 930 Dwight Way, Berkeley, California.

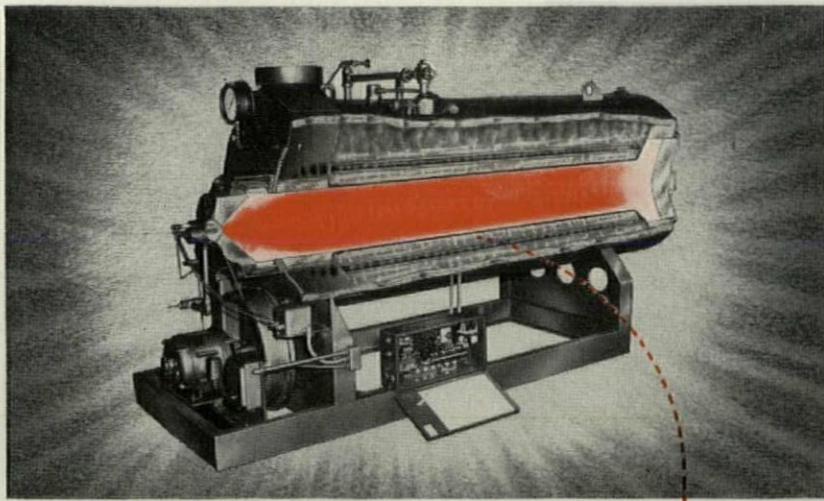
Kawneer stock entrances offer striking appearance, slim silhouettes, and trouble-free performance.



THE
Kawneer
COMPANY

ALL-ALUMINUM FLUSH DOORS • SHOWCASE DOORS • ENTRANCES

ARCHITECTURAL METAL PRODUCTS



The **POWER** of the future!

Cyclonic Combustion!

- The Cyclotherm Cyclonic Combustion Principle is an entirely new and amazingly different method of heat transfer in the boiler industry.

- Air enters the combustion chamber at extremely high velocity in a revolving spiral vortex which travels the entire length of the furnace. The fuel is introduced into the entering air where it is slowly consumed as it moves in a cyclonic motion down the combustion chamber. This highly luminous slow burning flame radiating heat to the fire tube through direct radiation and by convection, results in an unusually high rate of heat transfer.

- Boilers are designed for oil or gas operation from 18 through 400 HP, 15 to 200 lbs. operating pressure.

- No matter what size the building or job, Cyclotherm has the correct installation. Send for your copy of "Years Ahead in Steam Generation" today and find out for yourself the facts concerning Cyclotherm Steam Generators.



FOR INDUSTRY



FOR DAIRIES



FOR DRY CLEANERS
AND LAUNDRIES



FOR HOTELS AND
OFFICE BUILDINGS

CYCLOTHERM
STEAM GENERATORS

CYCLOTHERM CORPORATION
DEPT. 22
OSWEGO, NEW YORK

Please send without obligation my copy of "Years Ahead in Steam Generation"

NAME _____

FIRM _____

ADDRESS _____

City _____

Zone _____

State _____



GUTH WYTE-LINER

with **AIRFLOW** channel

a new idea in factory lighting as different as white from black

white inside and OUTSIDE

the white upside helps lift ceiling gloom, reduces strong shadows and improves brightness-contrast ratios

surface 300° Permalux or Porcelain Enamel

Airflow Channel circulates air for longer ballast life

easy to clean, easy to install

Wyte-Liners are made in 2 and 3 conventional 40-watt light units, also for 4- and 8-ft. Slimline lamps

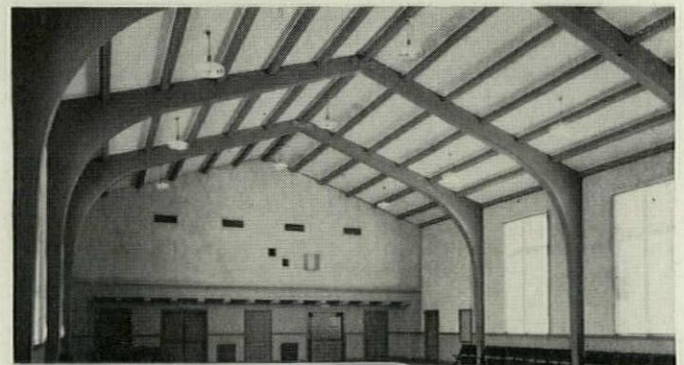
write for our FREE 16-page catalog

Guth

LIGHTING

THE EDWIN F. GUTH COMPANY / ST. LOUIS 3, MISSOURI

Leaders in Lighting since 1902



Summerbell

FOR SCHOOLS



Activity Building, Peabody School, Santa Barbara California
Sauls & Murphy, Architects • Donald F. Shugart, Structural Engineer
H. R. Graham & Son, General Contractors

SUMMERBELL, through its broad experience, is capable of producing the many different structural units required for all types of School and Public Buildings...in harmonious cooperation with the Architect, the Engineer and the Contractor. Write for illustrated brochure.

Glued Laminated Construction • Summerbell Bowstring Trusses
Lamella Roofs & All Types of Timber Structures

For quality, economy and satisfaction, specify **SUMMERBELL**

Summerbell ROOF STRUCTURES

825 EAST 29TH STREET • BOX 218, STATION "K" • LOS ANGELES 11



BRIXMENT

is more economical!

ASIDE from the brick, the most expensive item in masonry work is the *bricklayer's time*. Therefore the most economical mortar you can use is the one that enables the bricklayer to lay the most brick per day. Brixment mortar saves bricklayers' time because it is more plastic and stays plastic longer:

- (1) Requires less chopping and retempering on the board.
- (2) Works faster and easier.
- (3) Sticks to the brick — saves unnecessary stooping to the board for more mortar.
- (4) Easier to tool.
- (5) Doesn't gum up the trowel — makes a neater job that costs less to clean down.



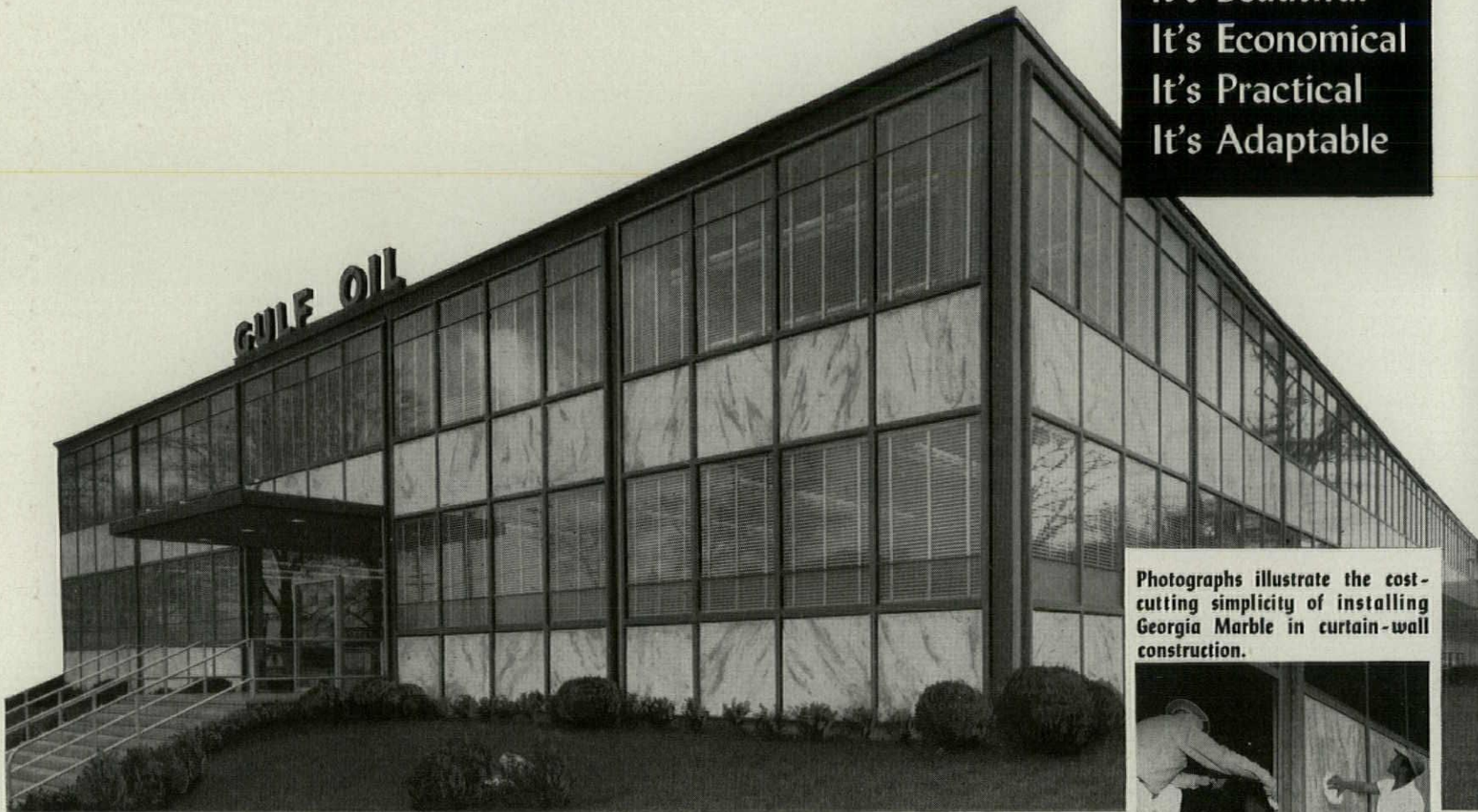
LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

GEORGIA MARBLE

REG. U. S. PAT. OFF.

for Curtain Wall Construction★

It's Beautiful
It's Economical
It's Practical
It's Adaptable



Architect: Mr. I. M. Pei, New York, N. Y.

Associate Architects: Stevens and Wilkinson, Inc., Atlanta, Ga.

General Contractor: Henry C. Beck Company, Atlanta, Ga.

New applications for the exciting curtain-wall type of construction, utilizing Georgia Marble, are constantly being discovered by architects throughout the nation. An outstanding example is the Gulf Oil Company Building in Atlanta, Georgia, where curtain-wall construction resulted in an amazingly low cost-per-square-foot area, plus phenomenal building speed!

Georgia Marble is a classical, time-tested building stone. Its beauty is unparalleled—its crystalline structure makes it "live" with gleam and sparkle through decade after decade. In addition, since it occurs in enormous, solid deposits, Georgia Crystalline Marble remains uniform according to grade and may confidently be ordered by name when haste is imperative.

The GEORGIA MARBLE COMPANY TATE, GEORGIA

★FOR UP-TO-THE-MINUTE INFORMATION on the application of Georgia Marble in curtain-wall or conventional type construction, contact the sales representative in these localities:

ATLANTA 3, GEORGIA
228 Hurt Building

CLEVELAND 15, OHIO
1570 Hanna Building

PHILADELPHIA 2, PENNSYLVANIA
1256 Commercial Trust Bldg.

BRIGHTON 35, MASSACHUSETTS
300 N. Beacon Street

DALLAS 5, TEXAS
Mr. Hal I. Padgett
3736 Stanford Street

PORTLAND 4, OREGON
Blaesing Stone Company
1225 S. W. Third Avenue

CHICAGO 6, ILLINOIS
20 N. Wacker Drive

NEW YORK 16, NEW YORK
419 Fourth Avenue

RICHMOND 19, VIRGINIA
514 N. 11th Street

ROCHESTER 10, NEW YORK
120 Village Lane

WASHINGTON 5, D. C.
314 Bond Building

Photographs illustrate the cost-cutting simplicity of installing Georgia Marble in curtain-wall construction.



Steel Framing is ready to receive the marble slab, and the marble setter applies mortar to the inside of panel.



Marble is applied from inside of building, obviating the need for exterior scaffolds. Setter and helper easily insert slab in frame. Mortar bed is already in place.



Marble Slab, with back parged solid, is backed by rigid insulation material. Insulation receives plaster directly to form finished interior wall.

MEDICAL EQUIPMENT

LAUNDRY EQUIPMENT

CAFETERIA EQUIPMENT

MAINTENANCE EQUIPMENT

AIR CONDITIONING EQUIPMENT

BUSINESS MACHINES

WATER COOLERS

CONE OF FAILURE ELIMINATED!

Westinghouse Panelboards offer more protection than will ever be required of them

Today, increased power demands place new burdens on electrical distribution systems. In hospitals, for instance, prolonged or unnecessary power outages may take a great toll of comfort, health, life itself.

Panelboards are electrical nerve centers—the points of use for most of your electrical circuits. Westinghouse Circuit Breaker Panelboards are designed to offer maximum circuit protection at these points, and cut maintenance trouble and expense.

Through the use of Westinghouse Nofuze “De-ion” Circuit Breakers, dangers of overfusing are eliminated. Circuit breakers ride out temporary, harmless overloads. Cut maintenance, too—no fuses to replace. Restore power with a flick of the switch.

But you’ve also got to look behind the breakers

for panelboard quality. Westinghouse Panelboards save time on installation, too. According to a prominent trade publication, such features as phase identification, extended neutral bar indicating trim tabs, angle iron support, can cut installation time as much as 25%.

Specify Westinghouse for the best in panelboards.

For your copy of our new booklet “Panelboard Planning” B-5260, write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-93464

YOU CAN BE SURE.. IF IT'S
Westinghouse

PANELBOARDS



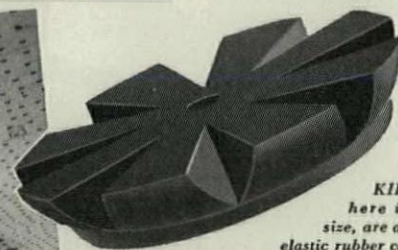
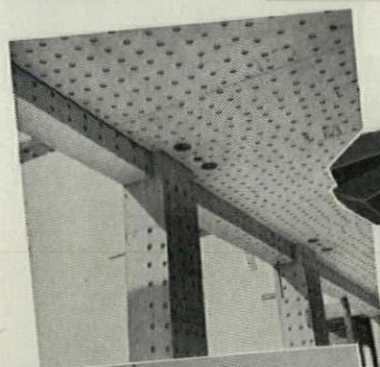
Shown are three of the many pieces eminently suitable for institutional use in "America's foremost collection of modern furniture". Metal x-leg table, designed by George Nelson, has Micarta top in choice of colors. Molded plywood and plastic chairs, designed by Charles Eames, come in wide variety of styles and finishes. For further details write Dept. AF-2.

for
public
areas...

herman  Miller
zeeland, michigan

showrooms: one park ave., new york
622 merchandise mart, chicago
exhibitors' building, grand rapids
1417 pennsylvania, kansas city
8810 beverly blvd., los angeles

KiFS for Bonding Plaster Directly and Permanently to Concrete



KiFS, shown here in actual size, are a durable, elastic rubber compound.

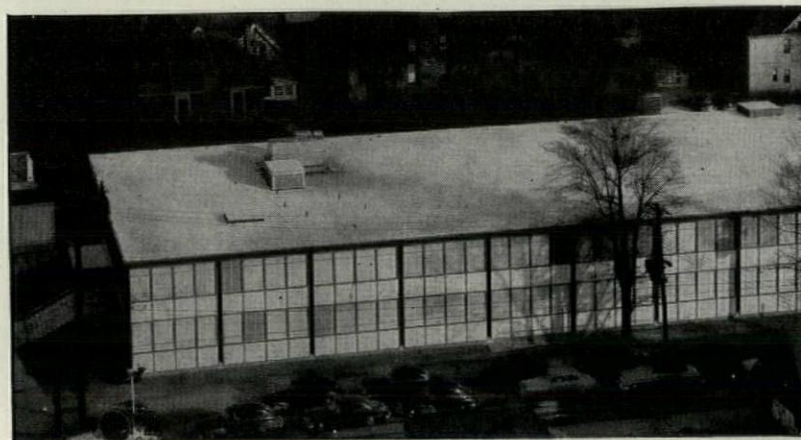


KiFS are nailed six inches apart on the concrete form boards. Then the concrete is poured. After concrete has hardened, the removal of form pulls the elastic KiFS out of the concrete, leaving clean undercut niches. The kiffed ceilings, walls, beams, columns are now ready for plastering.

160,000 KiFS used in this 20-floor building, 60 Sutton Place South, New York, N.Y. Architect: Arthur Weiser, General Contractor: Paul Tishman Co.

SEE our catalog in Sweet's: Architectural 3f/Bu, Engineering 3e/Bu. Write for full particulars about this easy, economical method of preparing concrete for direct plastering.

BUFFALO PRODUCTS, Inc.
A subsidiary of Frontier Industries, Inc.
319 Babcock St., Buffalo 10, N. Y.



Architect: Mr. I. M. Pei,
New York, N. Y.

Associate Architects: Stevens and Wilkinson, Inc.,
Atlanta, Ga.

General Contractor: Henry C. Beck Company, Atlanta, Ga.

The Gulf Oil Company Building in Atlanta, Ga.
was OUT-sulated with

White Top

White Georgia Marble roofing aggregate—WHITE TOP—makes for cooler summer and warmer winter temperatures due to its high coefficient of reflection and low coefficient of conduction.

Specify **WHITE TOP** on your next job.
Easily applied by any competent roofer. For
the name of your nearest distributor write to

CALCIUM PRODUCTS DIVISION
The Georgia Marble Company, Tate, Ga.

Here's
one of the
greatest product
improvements in
asphalt tile
history:

NOW

MATICO IS FORTIFIED

with
polystyrene
plastic

Fortified **MATICO**
assures easy, fast
installation...
long-lasting floors...
clear, bright colors.



New, fortified MATICO is a flooring that is far superior to ordinary asphalt tile, yet costs no more.

The addition of polystyrene plastic resin makes possible square tiles with sharp corners and edges, and a smooth surface. Installation is easy, fast, less costly.

Breakage is reduced, too, and floors are long-lasting because the high molecular weight of polystyrene gives extra toughness, strength and flexibility.

Bright, enduring colors are also provided by MATICO's new plastic content. A great variety of colors including beautiful pastel "Petal Tones" are available in the MATICO line.

When next you select asphalt tile for a project, be sure it's MATICO, and you'll be sure it's the best.

GET TO KNOW MATICO

See our insert in Sweet's File Architectural, section 13 i/Mas. For free samples, literature, and color chart, write us on your business stationery.

2A65



MASTIC TILE CORPORATION OF AMERICA

Member Asphalt Tile Institute

JOLIET, ILL.

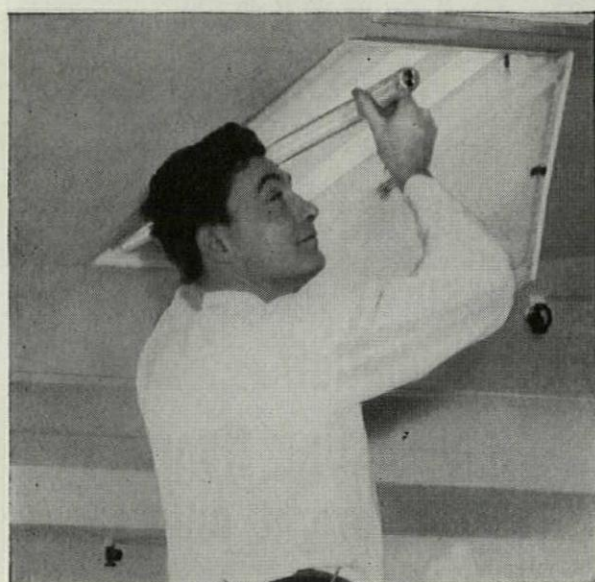
LONG BEACH, CALIF.

NEWBURGH, N.Y.

WORLD'S LARGEST PRODUCER OF ASPHALT TILE



For stores, office buildings . . . Check wiring costs against the New 277-Volt Lighting System



Standard lighting fixtures of any make are used with 277-volt lighting. Simply specify 240-280 volt ballasts. Lamps are the same.

With the G-E remote-control relay and switch it is now practical to use 480Y/277-volt, 3-phase, 4-wire distribution for fluorescent lighting in stores, office buildings, and other commercial structures.

Only 24 volts are brought down below the ceiling level to wall switches. Switches and switch wiring can be moved as easily as telephone connections.

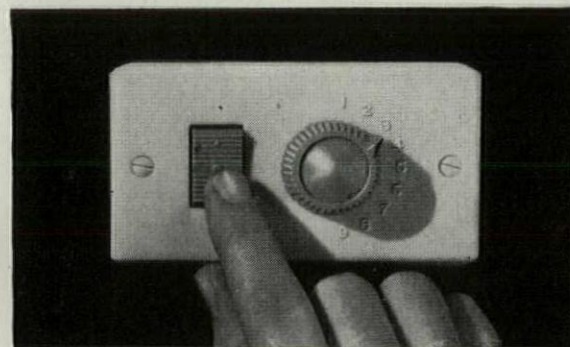
The use of this system for lighting circuits saves copper, cuts number of circuits required, and makes it possible to use the same distribution system for both lighting and power.

This 277-volt lighting system is already widely used in industrial buildings. Now G-E remote-control wiring makes this higher-voltage distribution system economically practical for new stores and office buildings, or for modernization of older ones—wherever large-scale fluorescent lighting is used.

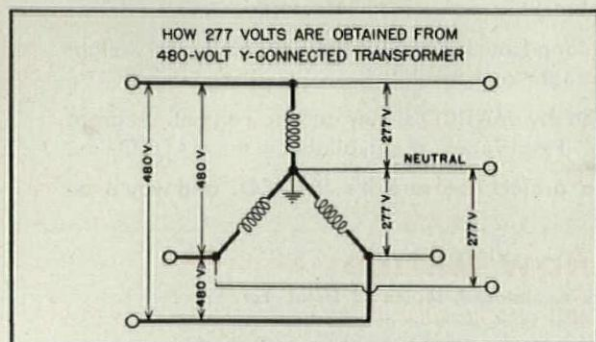
For additional information, or for a copy of the *G-E Remote-Control Manual of Layout and Installation*, get in touch with us. Address Section D15-24, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.




Heart of the 277-volt lighting system is this RR-2 remote-control relay. It will switch up to 5 amperes of fluorescent load. Operates on 24 volts, mounts through ½-inch knockout of outlet box or fixture.

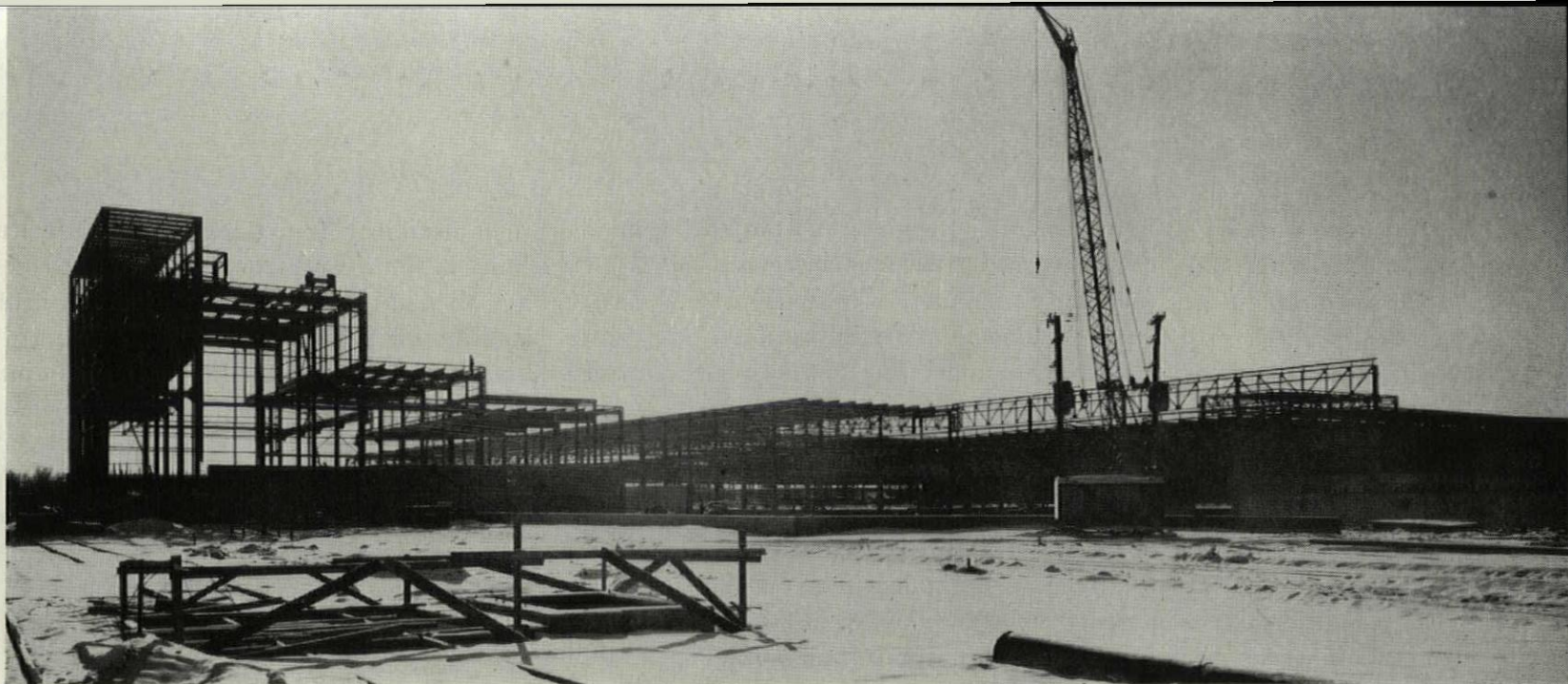


Individual switches are for surface mounting or flush mounting. Or you can use a master selector switch like this RMS-2 to operate up to nine relays. Control wire carries only 24 volts, less than most telephone circuits.



With the common 480-volt, 3-phase, 4-wire distribution system, voltage between any line and ground is 277 volts. For 120-volt needs, small dry-type transformers are used.

You can put your confidence in—
GENERAL  ELECTRIC



DUAL-PURPOSE PLANTS

**The nation's No. 1 architectural-engineering firm shows how it designs for flexibility:
a review of the recent work of Albert Kahn, Associated Architects and Engineers**

"Guns-and-butter" economy means guns-and-butter factories too. But today's defense plant is not, as some believe, a plant where tanks roll down one line and automobiles down the next. On the contrary, it is a plant planned with infinite care for total production of tanks or jet engines or cannon now and for quick conversion to total production of automobiles or refrigerators or tractors later.

The news about the current boom in industrial building is that the bulk of the defense plants now going up all over the U. S. are dual-purpose plants. These plants are not the "five-year" plants of World War II, built overnight to throw planes over some battlefield. Today's defense plants are a substantial addition to the permanent peacetime production facilities of the U. S.

This means that their designers have had to solve the intricate problems of providing the space, the structure and the electrical and mechanical equipment to accommodate two very different process layouts. Thus these new plants represent a new high in built-in flexibility, the kind of flexibility almost every industry needs to keep pace with today's rapid rate of technological advance.

Most of these dual-purpose plants are being built for the automobile industry, to which the U. S. has turned in every rearmament drive since Henry Ford pushed World War I sub-chasers off his assembly line into the Detroit river. And most of them have been designed by the firm which for a half-century has been the automobile industry's architect—the great Detroit office of Albert Kahn Associated Architects and Engineers.

Over the last year and a half the Albert Kahn office has made plans that will add more than 20 million sq. ft. to the nation's industrial space. Almost all of this is privately owned plant.

Buick's new plants show the pattern. Buick is building a vast array of parallel plants on open land adjoining the dense-packed triangle of its Flint works. These new plants will replace some of Buick's present manufacturing facilities, and they include what will eventually be one of the biggest assembly buildings in the industry, a 1,725,000 sq. ft. area. As fast as they are built, Buick will put its new

plants to work on such products as jet engines and torque converters for tank transmission. After the emergency, Buick will be in a flexible position in more ways than one. (See page 94 for the amazing amount of flexibility Buick has built into these plants.) Now operating in space so crowded that peak production means running three shifts in some plants, Buick can adjust use of its combined space to the tempo of the post-emergency market. Moreover, the flexibility of the new buildings means that these can be quickly shifted back again to defense manufacture if this is required. Because the U. S. is beginning to accept the probability that its present "emergency" may last for a generation, the provision for quickly turning from normal to military production at any time is an important one.

Buick's parallel plants are only the most spectacular example of what many manufacturers are doing. Even the huge tank plants are being built with an eye on tomorrow. For example, in the Ford tank plant near Detroit a huge craneway has been specially built to take the load of the giant cranes used to tilt up the heavy turrets and hulls for machining. Columns carrying the crane load are designed for removal if future use requires clear floor space.

Even outside the auto industry, which has always been conspicuous for its willingness to spend money on plant and save money on production, many another owner is beginning to take a wider view of capital cost. And the

initial cost of flexibility is not high—if it is calculated against savings in future operating costs. Says Kahn president George Miehl: "The slight additional cost of providing flexibility for periodic plant changeovers will be amortized many times over in the life of the building."

Tank plants today will be tractor plants tomorrow; jet engine plants today will be assembly plants or metal stamping plants when normalcy returns. For such major defense items, the plant required now will differ from a normal peacetime plant in these main ways:

► **Space** required for a military product is usually **more** than the space needed for a peacetime product.

► **Power** required for a military product is usually **less** than the power needed for a peacetime product.

► **Number of workers** required per sq. ft. for a military product is usually **more** than the workers needed for a peacetime product.

While there are plenty of exceptions, these general rules tend to hold because: 1) war products are bigger than their peacetime counterparts (tanks are bigger than tractors, aircraft engines bigger than auto engines); 2) they rely more heavily on subcontracting carried on in existing plants, with new construction used as a final assembly area; 3) they require (at point of assembly) more man power than

"WE'RE ALL GEARS—BUT WE MESH PERFECTLY"

Robert J. Anderson



Top Kahn officers are (l. to r.): Executive Vice President Sheldon Marston, Secretary George K. Scrymgeour, President and Treasurer George H. Miehl.

Today's factory is a complex building: Kahn staffers say that if it costs \$12 a sq. ft., \$6 of this is in mechanical services. Not even Henry Ford's great vision foresaw the extent to which the factory would become a production tool. In the old days Ford might say: "Build it big and build it strong. We can always use it." But today's factory is the footprint of a process layout.

Industrial architecture today is thus a far closer partner of engineering than it was in the days when the late great Albert Kahn created the first all-around design team. Nothing would be more satisfying to its founder than to know that this 50-year-old firm has kept its place at the very top of the profession. Before his death, he had set up an organization designed to accomplish just that: he admitted 25 top men to ownership as associates. Since then membership has been opened to many others.

But organization is only part of the story. Trained by Kahn himself to recognize that no specialist, however brilliant, can be of real use unless he can work with other specialists, Kahn men today say: "We're all gears—but we mesh perfectly."

Nor has the firm lost its early emphasis on the architect. Recognizing that the architect's ability to analyze space is the priceless

ingredient in any plan, the Kahn firm has an architect in charge of each job.

President Miehl is a structural engineer who made himself a master of intricate financial aspects of big-scale building when the Kahn Associates voted him as their top executive. Miehl is typically a Kahn man. He keeps a drafting table in his office so he can figure a beam and then, knows every one of his 300-staffers by first name. While more democratic in his staff relations than his predecessor, Miehl is no less of a perfectionist on performance standards.

Executive Vice President Marston is an engineer whose many responsibilities include supervision of all construction work in progress and supervision of bids. Architect Scrymgeour is a canny Scot who is Albert Kahn's right-hand man. He has been in charge of all Ford work for many years.

There are five Kahn vice presidents: F. A. Fairbrother, chief architect; Robert E. Linton, engineer and project supervisor; Saul Saulson, a top mechanical engineer who enjoyed licking the Ford foundry tilting problem (see p. 96) because his job was in a foundry; O. L. Canfield, whose expert finger on cost estimates tells clients exactly what they can expect; and Boomhower, chief engineer.

machines. Unless the plant designer has mastered the art of accommodating two process layouts, the plant may turn out to be underpowered for peacetime use, but oversupplied with employee facilities.

In designing dual-purpose plants, the industrial architect today commands some impressive resources. For many of these, he may properly feel indebted to the pioneer work of the firm Albert Kahn founded in a day when beaux arts architects tossed factory design jobs to the office boy. To the Kahn architects and engineers, the dual-purpose plant presents few challenges which they have not met before—as they marched step by step with such men as Henry Ford, Bill Knudsen, Charlie Sorenson, Walter Chrysler and many others in the most astonishing mechanical conquest ever made by man. For this is the great firm whose design “firsts” are so many as to defy a complete listing: first successful reinforced concrete construction in the U. S., first steel sash, first unit heaters, first movable concrete forms, first “victory” sash, first unit ventilators for “black out” construction, first 300’ spans—to name only a few. The spectacular history of this firm is written in billions of dollars worth of industrial plants on five continents. The first bomb intended for Pearl Harbor fell on a Kahn-designed steel truss in an aircraft hangar at Kaneohe, the decisive Battle of Midway was launched from Kahn-designed naval bases, the defense of Stalingrad was made from a Kahn-designed tractor plant, the aircraft engines that helped to save Britain came from Kahn’s famous Dodge Chicago, the world’s biggest plant, whose incredible 500-acre boundaries cover more ground than Chicago’s Loop. (The main 86-acre building is now being converted by Ford to production of airplane engines.)

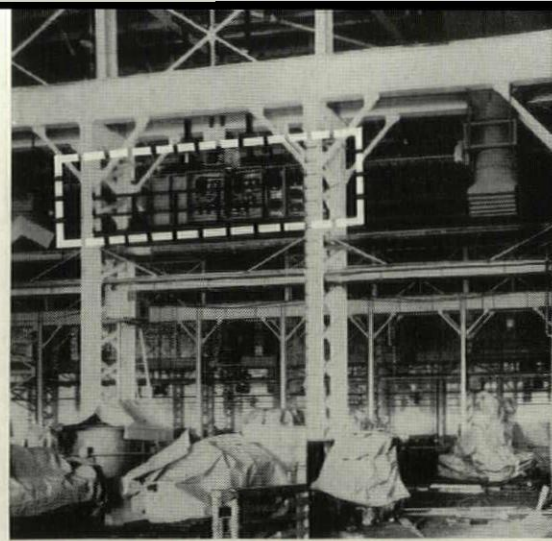
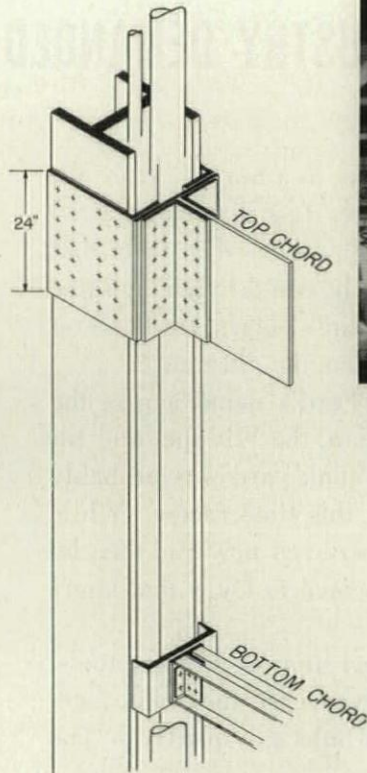
EVERYTHING OFF THE FLOOR

Today’s dual-purpose factory looks very different on the inside from the crowded, noisy factories of prewar days, different even from World War II factories. The sharpest difference the alert visitor might note is that there is practically nothing on the factory floor but the machines. Flexibility for future use means getting everything you can off the floor. While flexibility for future use may require vastly increased electrical equipment, this is not permitted to cut 1” off usable floor space: the huge control panels, for example, have been lifted up on platforms built between steel columns.

All electrical and other service lines will probably be threaded through the trusses in a grid arrangement permitting easy connections from above at any point in the process layout. Conveyors and other fixed handling equipment will be suspended from the overhead trusses rather than fixed on the floor. (Chevrolet, in its big new assembly plant, carried this off-the-floor trend to a logical conclusion by lifting chassis assembly off the floor to work bench height, so workers no longer have to lean over—see photo.)

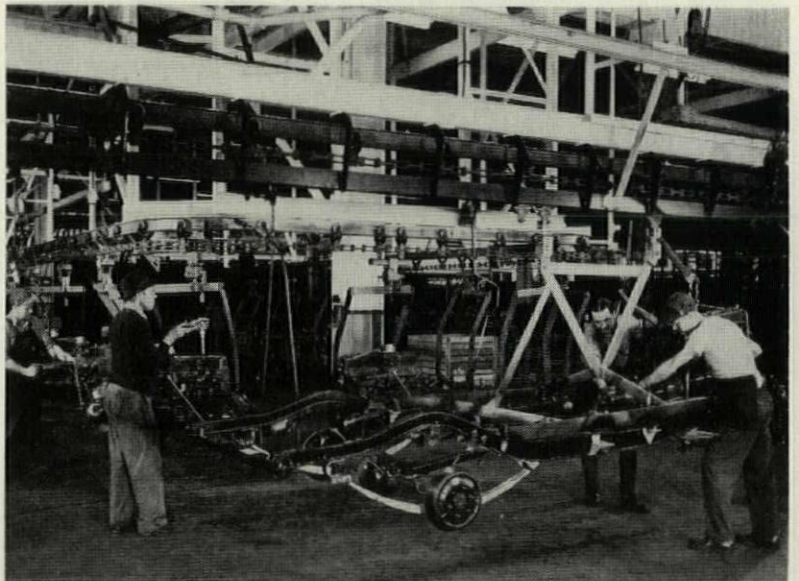
But the biggest move to keep ground floor space completely free for future changes has been in the location of employee facilities. Only a few years ago, these moved off the assembly

(Continued on page 92)



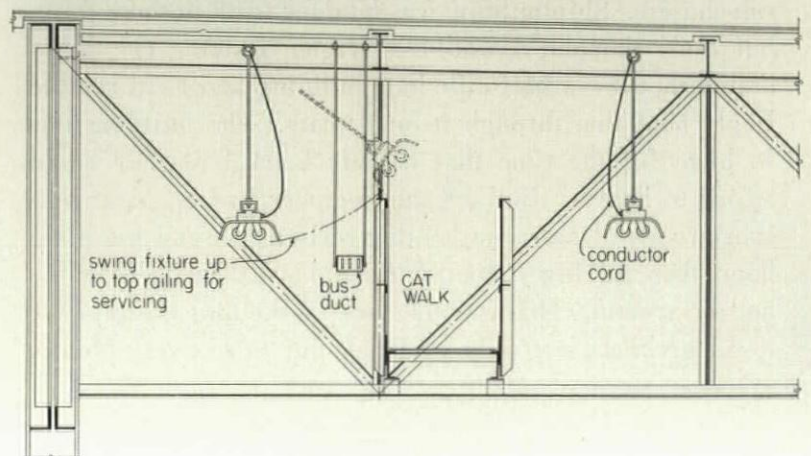
Lighting control panels in this Pontiac Press Plant are built into platforms between the columns (above). Panels are 9' wide. All branch circuit controls are mounted here; only one wire had to be brought down the column to connect with a floor switch. Note rungs welded between column flanges to provide repair access.

Method of joining trusses to outside of column (instead of to column web) creates vertical channel from floor to roof for the neat accommodation of electrical and plumbing risers.



“Suspended assembly” in huge new Chevrolet assembly plant was inspired by general trend to lift conveyor lines off the floor and hang them at work bench height by monorail from trusses.

Maintenance catwalks were built running the length of the building and parallel to the rows of lighting fixtures in New Departure plant. Owner says these are worth their cost by making it possible to wash lights without paying overtime or interrupting production.



THE AUTOMOBILE INDUSTRY DEMANDED A FLEXIBLE PLANT

The auto men were naturally always in a hurry. After all, it was the passion for getting places fast that had started them off in the first place. It never occurred to them that any activity known to man couldn't be run through the same time-wringer. Architect Albert Kahn's biggest trade secret may have been that he never told them the difference.

The insight that wrote Henry Ford's name across the world while the Peerless, the Jordan, the Whippet and literally thousands of others hit the junk yard was probably the extent to which Ford grasped this time factor. While his competitors may have been distracted now and then by the cost of things, Ford always seemed to know that hours are more important than dollars.

Ford's willingness to venture vast sums to improve tools, process or plant sometimes unnerved even the Kahn men. "I don't care what it costs," he would say quietly. "The question is—can you do it?"

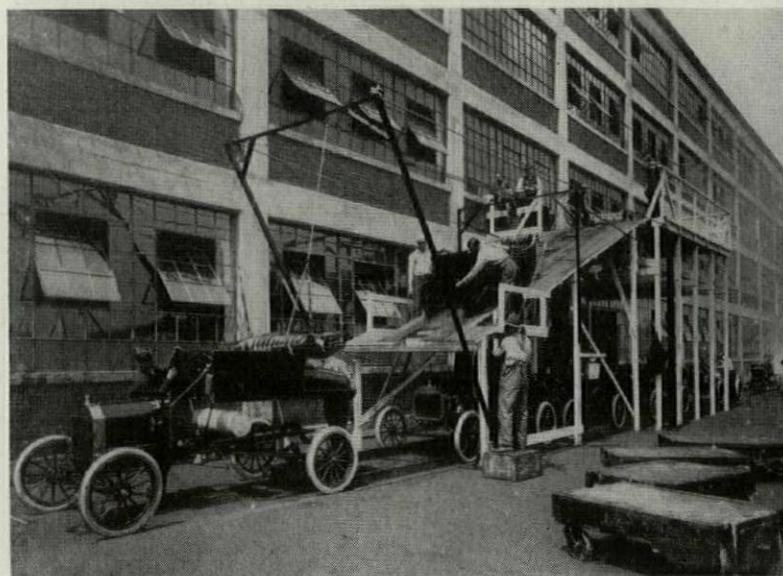
So they opened up the wall in the first Highland Park plant. "Give me enough glass for daylight and sunshine," Ford had said. "Men can't do accurate work in sloppy surroundings." After that, the Kahn architects put acres of glass in Detroit factories, and they devised the first steel sash so they could do it.

At Highland Park, Ford had all his processes under one roof, a vast improvement over the random cluster of small machine shops that composed the factory of the day. It was in this building that Ford pulled the switch that started the first moving chassis assembly line. That chain-driven conveyor pulled along a number of other things, ranging from an economy of abundance for the whole U. S. to a new kind of factory design.

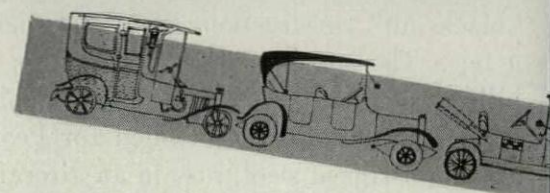
The Highland Park plant was stacked up on three floors, and Ford soon realized that the elevators used to move parts from floor to floor were empty half the time. "We have to go out to cheap land where we can spread out a line all on one floor," he said. So they moved out to a site along the River Rouge, where the Kahn architects drove steel piles into the marshland to carry an industrial city that took in iron ore at one end and pushed automobiles out the other.

It was 1917, and they built the first Rouge plant to make sub-chasers. Shipbuilding was outdoor work in those days, but Ford thought it would go faster inside. The Kahn architects drew a half-mile-long building and Ford ran the Eagle boat line through it on flatcars. The building was so huge for the time that nobody knew how they could afford to heat it. But a Kahn engineer had an idea: let's spot groups of cast-iron heating sections around the plant floor, then put big propellor fans above them to blow the hot air around. This was the start of the unit heater.

As architect not only to Ford, but to General Motors



1913



Ford bodies are added to chassis on final assembly line outside first Highland Park plant

(for whom they have designed over 200 plants), Chrysler, Packard, Hudson, and, at one time or another, practically everybody else who ever built automobiles, the Kahn men were in on the ground floor of a new way of building. It was a way of building which accepted change as the only constant in the manufacturing process.

The auto men wanted a factory they could gut from one end to another whenever they found a better way to make an automobile. And the Kahn men gave it to them, sometimes only three days after they asked for it. (Back in the days when process layout was fitted to the plant building, K. T. Keller once called on Wednesday and asked for a plant a mile long. Kahn gave him the roll of architectural and structural drawings on Friday.)

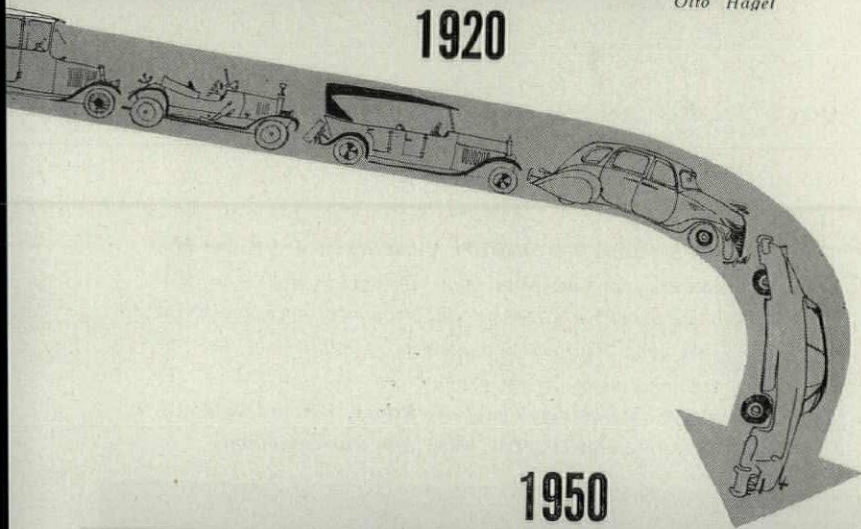
Little by little, as they moved along with the auto makers, the Kahn architects and engineers designed a plant in which process changes could be made literally overnight. They started with flexible structure: wide spans, steel trusses designed to take a conveyor load at any point, even concrete construction so channeled and cast that almost anything needed tomorrow could be hung from it. They moved on to flexible power and lighting grids, walls that could stand up under as many as six moves. Just a year or so ago they finally licked the problem of flexible foundations: they designed half-mile-long pits in which 440-ton presses could be moved around. (See p. 98).

Because they were primarily architects, the Kahn staff



Otto Hagel

1920



1950

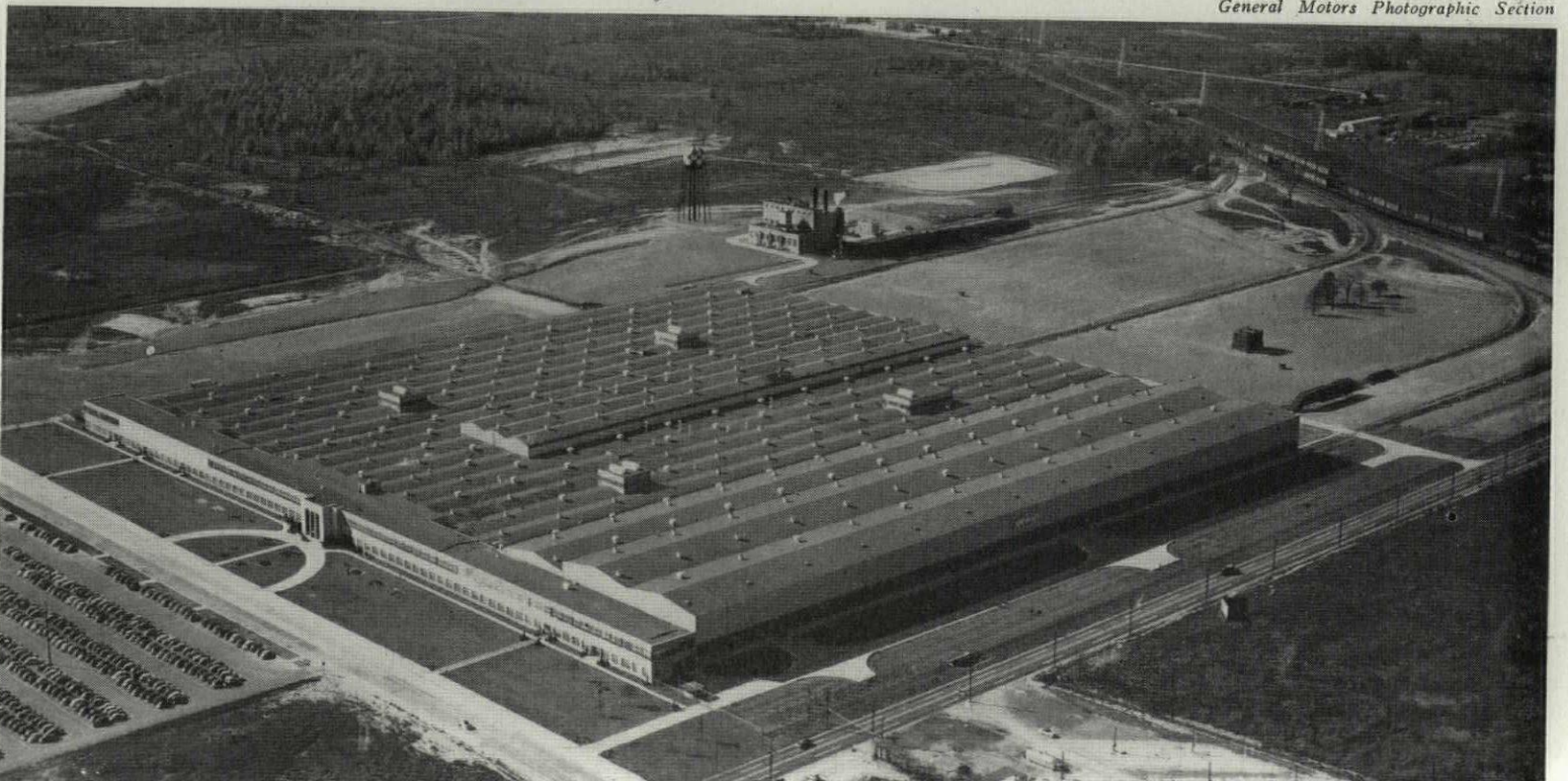
Hedrich-Blessing Studio



Final assembly line in Lincoln-Mercury plant, St. Louis

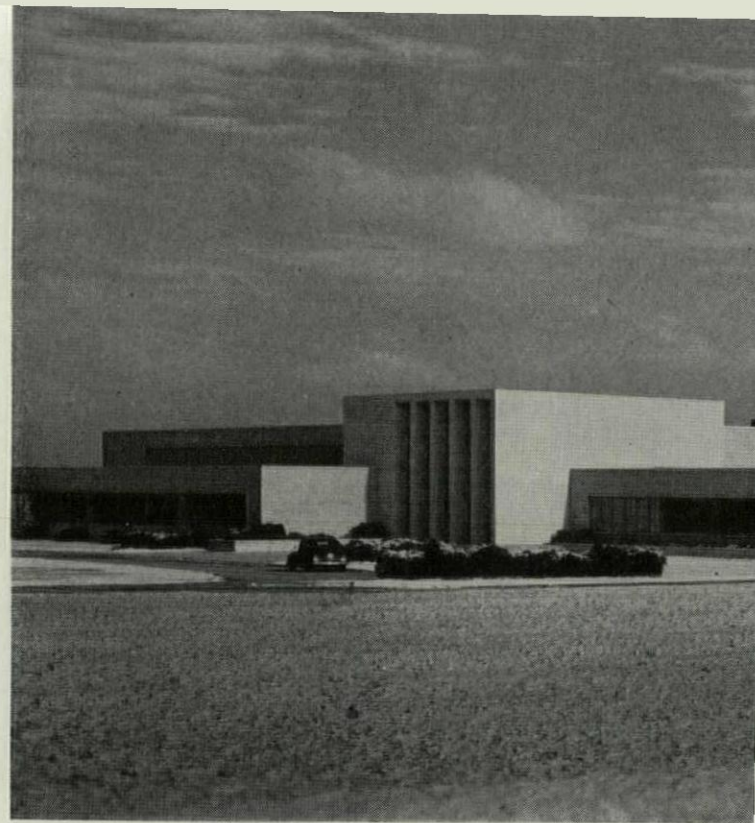
Postwar decentralization: plant for Chevrolet Cleveland Parts Manufacturing Div., General Motors Corp., Parma, Ohio

General Motors Photographic Section



bent all these engineering innovations to a single end. They saw their job, not as helping the manufacturer design his process, but as helping him lay out any conceivable variety of processes so that space would work for him instead of against him. While they have refused to add a process engineering or even a factory layout department to the firm, they bring to their many studies and restudies of the manufacturer's own layout a superlative grasp of the modern architect's special insight: an awareness of the extent to which motion can be used to beat the limits of both space and time. Thus, to pick up a very simple example, Kahn architects can propose, without batting an eye, a cafeteria big enough to seat 3,400 assembly workers in a single motion. Why this huge space, lying idle 7½ hr. a day? The answer: getting 3,400 men back to work at once after 25 min. for lunch is cheap no matter what you build to do it.

Having accomplished something approaching the ultimate in efficient motion inside the plant, the auto makers and their architects only recently began to look outside. With automobiles selling at prices the workers could afford to pay, every big plant began to have traffic and parking problems. They turned increasingly after World War II to one more time-saving motion: they moved their own assembly plants out to the customer—to Georgia, to California, to New York. George Miehl says: "The modern course of industry is turning our cities inside out. The decentralized factory is surrounding itself with houses built along the one-story lines of the plant itself. Nearby is the modern supermarket where production-line selling is on a one-floor basis. The one-story school is there, too, with horizontal communication. All these are offspring of the modern factory."

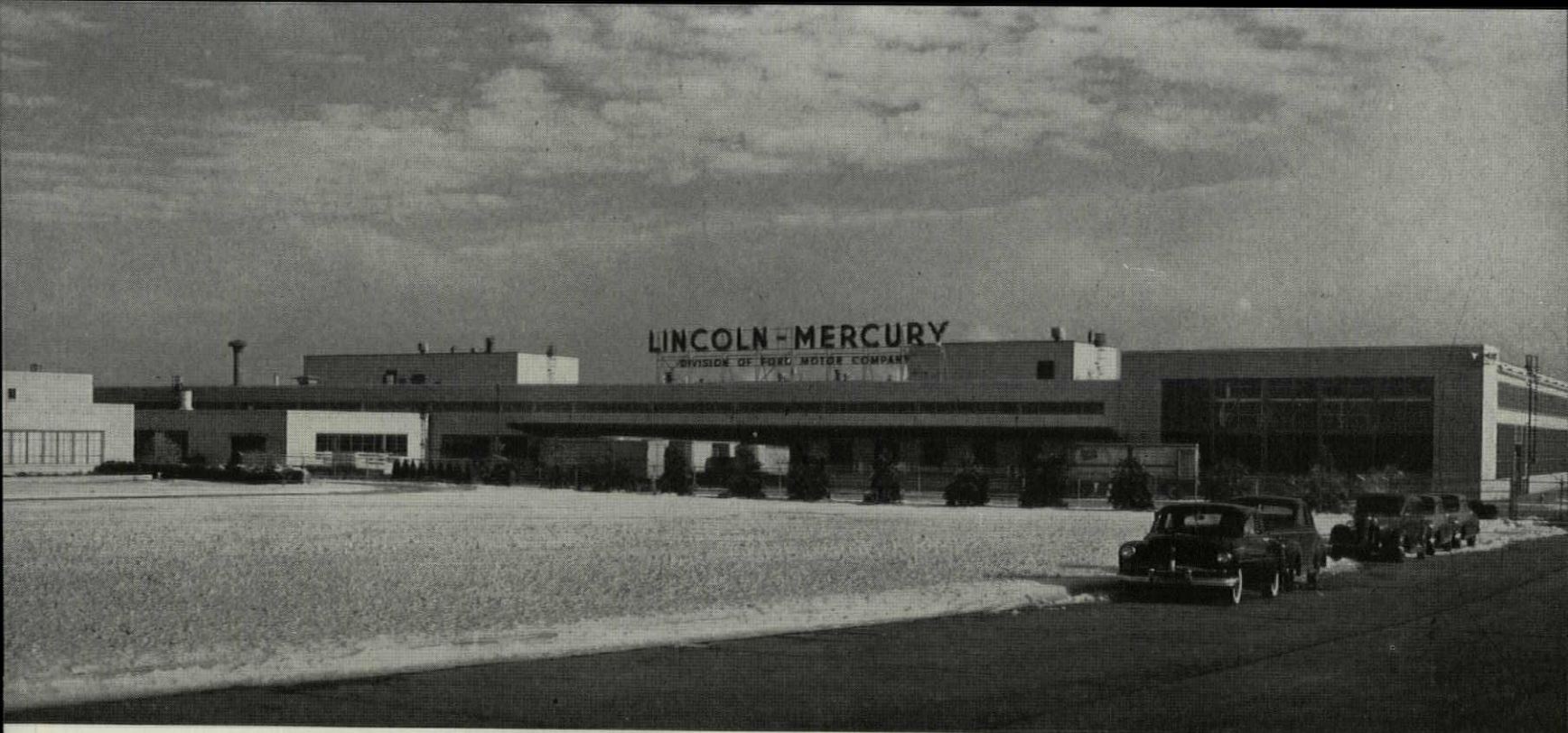


Postwar decentralization: assembly plant for Lincoln-Mercury Division, Ford Motor Co., St. Louis. White stone main entrance, 1½ stories high, is flanked by one-story brick walls of the office building.

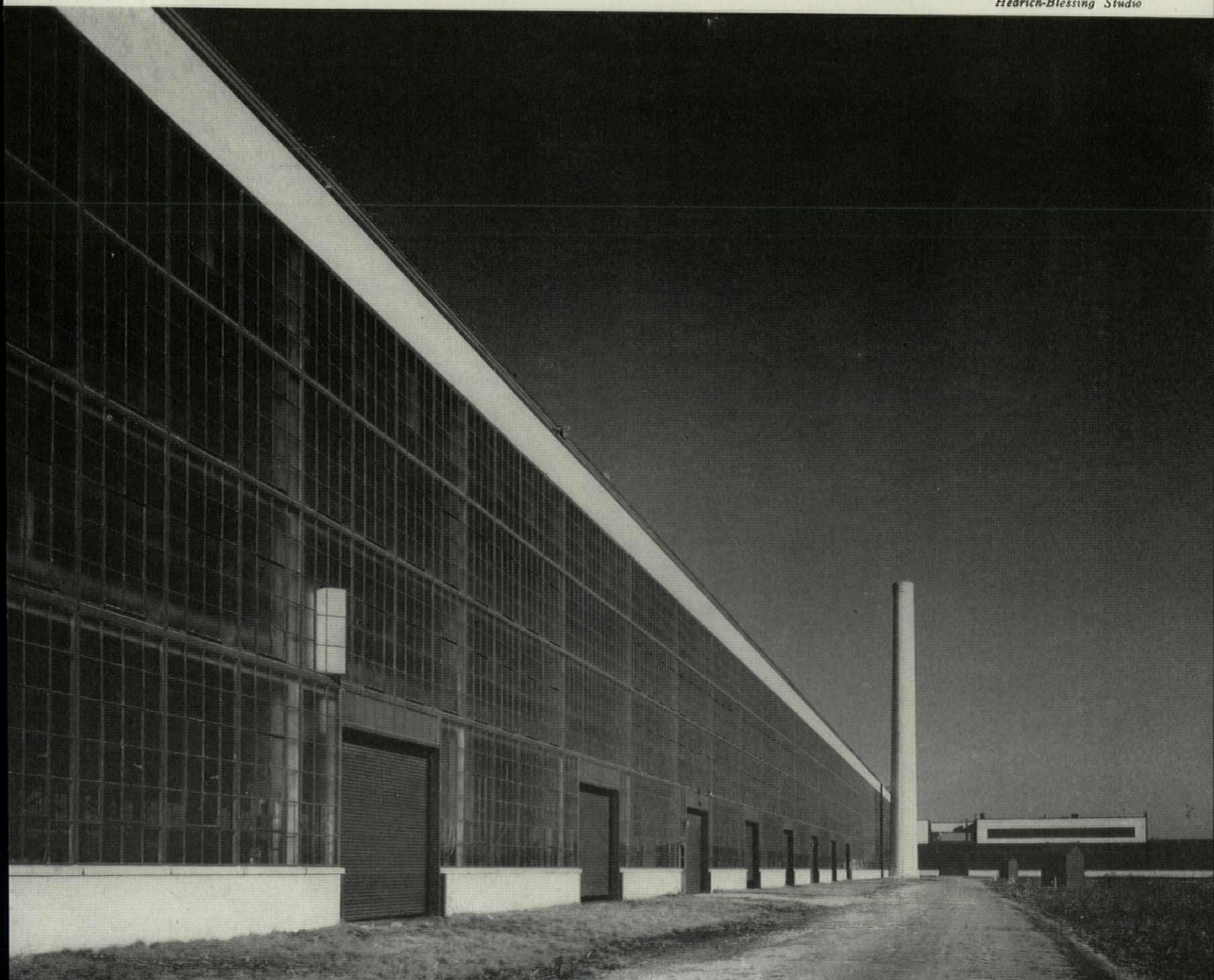
Plant for New Departure Division, General Motors Corp., Sandusky, Ohio shows maximum use of glass in forge shop.

Assembly plant for Chevrolet Motor Division, General Motors Corp., at Van Nuys (Los Angeles), Calif. Note that climate permitted a considerable amount of open equipment on the roof. Vertical fixed louvers of lightweight concrete overlapping slabs screen windows on the west side of the building. Parkinson, Powelson, Briney, Bernard & Woodford were architects. The Kahn firm was consultant.





Hedrich-Blessing Studio



(Continued from page 87)

floor itself, leaving space uncluttered for future shifts in machine location. The trend then was to put them in the basement, where tunnel entrances required only a short climb to the operating floor. The basement location also made it easy to provide a multitude of entries and exits, permitting several thousand men to make an almost instant change of shifts. Despite these advantages, today Kahn architects are likely to locate the cafeteria, locker rooms, "swing" rooms, etc. on a mezzanine hung above the assembly floor. This means that the process engineers will be free to locate machine trenches and pits below the ground floor as future changeovers may require them. It also turns out to have some other dividends: the problem of oil drip from machine operations required expensive copper plate protection where employee facilities were located below the production floor; this can now be cut from plant cost. Moving all nonproduction facilities off the main floor also eases housekeeping burdens; there are now a few corners and angles left to catch the dirt.

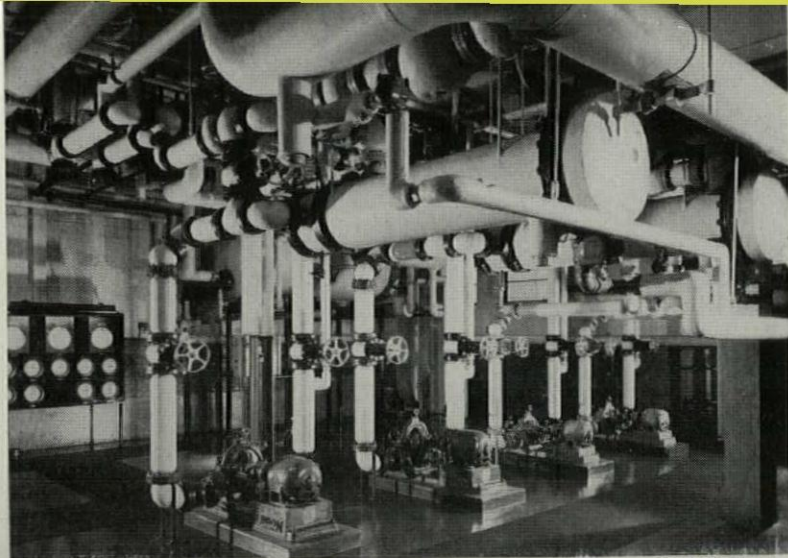
A careful observer would notice that the production floor has grown vertically as well as horizontally. Machines, which started to grow bigger as they became automatic, are growing still. The growth of machines, plus the area above them needed for the increased use of automatic handling equipment, means that true height has inched up from an average 14' to 18' or more. This 4' growth in structure has combined with other reasons to call for higher lighting intensities and it has also persuaded some plant owners to put in moving stairs to carry employees to mezzanine facilities (see page 94).

THE FACTORY IS A BETTER NEIGHBOR

If the enormous room of today's Kahn factory is quiet, well-lighted, free from fumes and grinding dust, painted in the shades of blues and greens of the natural horizon, outside it shows some striking changes, too. In the first place, it will be located away from the dense-packed industrial district. This means that designers will have been obliged to start from, say, a meadow with maybe one telephone wire running through it, and make the most complete and basic plans for equipping this new industrial settlement with power, waste disposal and sewage facilities. But this also means that the factory owner will be much more sensitive about whether his new building will be a blemish on the landscape (why worry when you are making just one more addition to a hopeless industrial slum?) or whether it will speak in a positive way to his employees, his customers and the community which will set his tax rates.

Architects interested in the esthetic contribution of the factory may greet the owner's new sensitivity with mixed feelings. Today's owner wants his factory to look good, and this urge may become demoralizing if he expects it to go to work for him like a page of display advertising.

On the other hand, today's factory exterior may express in a very positive way the owner's growing and broad concern for the welfare of his employees, and this concern can be said to be fully and gracefully expressed in the Kahn work. There is, for example, a noticeable tendency to bring the employee's cafeteria to the front of the building where it can have plenty of sunlight and view (the view is good out in the country). Thus this room enclosed in a glass wall frequently becomes, as it does in the Clark Equipment Co. plant (see photo), a new and effective element of the facade. The concern for how employees may feel about their work is also expressed, where the manufacturing plant is small-scale, in what might almost be called a domestic treatment. In the small Kahn plants, there is a noticeably increased use



Photos: Hedrich-Blessing

Typical of the Kahn care in composition of mechanical equipment are these four well-lit interiors. The equipment has been made part of the architecture, and has enriched it: 1) machine room in office building; 2) metal clad switchgear in transformer room; 3) basement machine room, showing electrical equipment; 4) garage in office building. Structural system is steel bents.

2.

3.

4.

glass sash and face brick, of home-size entries, of flower boxes.

In the vast new industrial locations, there is a new requirement, which may eventually provoke more far-reaching esthetic solutions. This is the need to relate the various buildings of a spread-out plant. Right now this is, of course, being handled on a purely functional basis. The manufacturing building or buildings are so located on the site and so provided with truck and rail docks that future expansion will be easy. The hive of accessory buildings—powerhouse, truck farm, warehouse, etc.—will be spread out so they will not be in the path of future additions to manufacturing area. In the splitting off of these accessory buildings, the boilerhouse—key to the whole possibility of future expansion—was the first to be moved away from the manufacturing plant. Today's boilerhouse is a very big building indeed: it is big enough, not only to house the much bigger boilers needed to provide the increased heat supplied to today's well ventilated factories (see page 96), but also to provide room for the air compressors and air conditioning equipment now considered increasingly important for efficiency of both personnel and process. The boilerhouse must also have expansion room, for the whole expandability of the plant may depend on whether there is a place to put additional boilers.

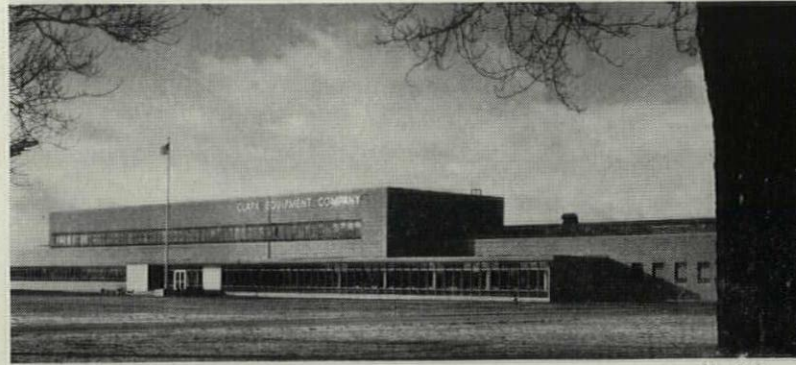
A NEW APPROACH TO WASTE DISPOSAL

One of the biggest ways that today's factory has become a better neighbor is not visible to the observer. This, too, can be chalked up to the move away from already built-up industrial areas. When the factories moved out to the country, objectionable wastes could no longer be buried in existing municipal sewage disposal systems with any corrosive result paid for by the taxpayers. State and federal laws have also been passed prohibiting stream pollution;

PLANNING FOR EXPANSION

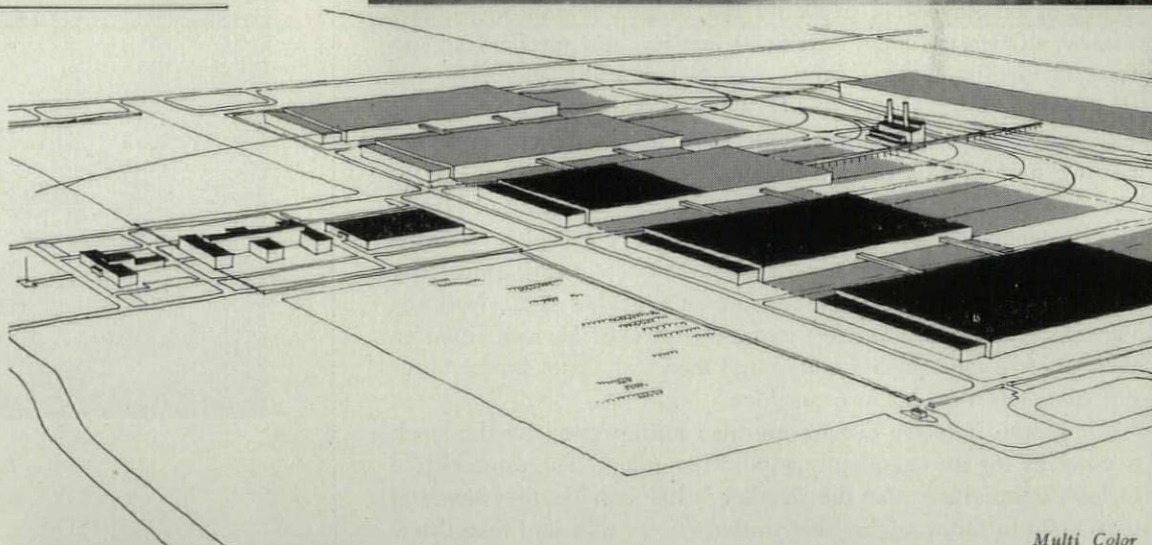
Appliance Park, the great building group outside Louisville where General Electric Corp. will centralize all its major home appliance manufacture, is carefully planned for future expansion. The present plan calls for five manufacturing buildings. Two of these are now under construction; the remainder will follow later. These manufacturing buildings, each averaging about 500,000 sq. ft., are spaced about 300' apart. Courts between buildings can be completely filled in for future expansion. Eventual expanded plant might be 1 mi. across the front, 1,480' deep. Overhead bridge supports, carrying service lines from the powerhouse to all buildings, have been carefully located so as not to be in the path of this future expansion. Three walls of each building are designed for easy expandability: girts, siding and sash, even stone sills, can be easily removed and relocated. The powerhouse will have three boilers to start with, but space is provided for the addition of three more later. The road system and parking are so designed that additions can easily be made.

As presently planned, the building group at the front of the site includes 1) administrative offices; 2) laboratory and research facilities; 3) personnel building. In addition, each manufacturing building will have a two-story office section in front for operating personnel. Plant buildings were standardized for maximum economy: for example, stairs, fan rooms, wall specifications are identical.



Al Salter
A long, windowed cafeteria wall is the facade which this machine shop and office building presents the community of Jackson, Mich. Designed by Kahn for the Clark Equipment Co., it symbolizes two newly stressed industrial aims: respect for the community and for employee relations. Below is spacious employee locker room in Chevrolet assembly plant in Van Nuys, Calif.

General Motors Photographic Section



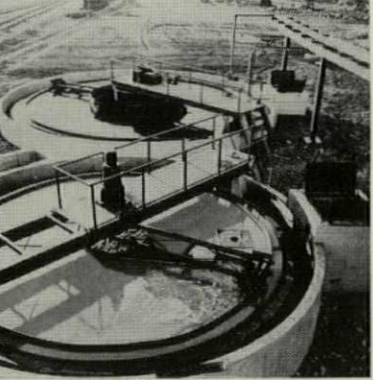
Multi Color



(Continued from page 93)

thus comprehensive waste disposal systems, planned as the building itself is planned, have become imperative. Such systems mean special drain lines for harmful wastes (waste drainage used to be

Forster Studio



connected with whatever pipe was available — sanitary line, storm sewer, etc.) and special treatment of wastes, usually in a separate disposal plant.

Kahn engineers designed what was probably the first comprehensive waste disposal system for a plant built for the New Departure Division of General Motors Corp. at Sandusky, Ohio. This was also the first fully integrated ball bearing plant ever built. Here Kahn

engineers had to deal with a variety of wastes—alkali rinse waste from the cleaning machines, spent pickle liquor, wastes from chrome plating and Parkerizing processes. They decided to install two main collection systems: 1) overhead piping threaded through the trusses to carry off weaker alkali wastes; 2) below floor piping through which acid wastes would flow by gravity. They built a chemical treatment plant flexible enough to dispose of this variety of wastes.

SOME STILL LIKE MONITORS

A surprising number of today's dual-purpose plants are of monitor construction, and concern for the psychological well-being of employees is probably the biggest reason why many owners still insist on it. Artificial lighting and mechanical systems of ventilation have been so perfected, Kahn engineers say, that it is pretty hard to justify monitor construction on a cost basis alone, especially when winter heat loss is figured as a continuing part of this cost. But some owners go to great lengths to avoid anything smacking of worker regimentation and always specify monitors. Although they may spend thousands to provide an adequate year-round system of mechanical ventilation, they always add monitors with motor-driven movable sash. Nothing, they say, makes a worker feel more in control of his own situation than to walk over, push a button and then feel a cool breeze blowing right down on his own machine.

Most auto industry owners are also unimpressed by the stock arguments for the completely windowless plant. The workers like to look out and see what the weather is like outside, they say, and they point to the wrenches that workers every now and then threw through the blacked-out windows of World War II plants as evidence in point.

The U. S. is now swinging into a new phase in building for defense. This article focuses on plants planned last year and now under construction for the automotive industry. Now government-owned plants, most of them for aircraft production, are coming on the drawing boards. The next issue of ARCHITECTURAL FORUM will report Kahn work for the aircraft industry, with some revealing data on how new aircraft plants differ from the dual-purpose plants shown here. The work of this famous architectural engineering firm is not, of course, limited to the automotive and aircraft industries. Its total list of clients reads like a bluebook of U. S. industry, and its practice includes office buildings, hospitals, schools.

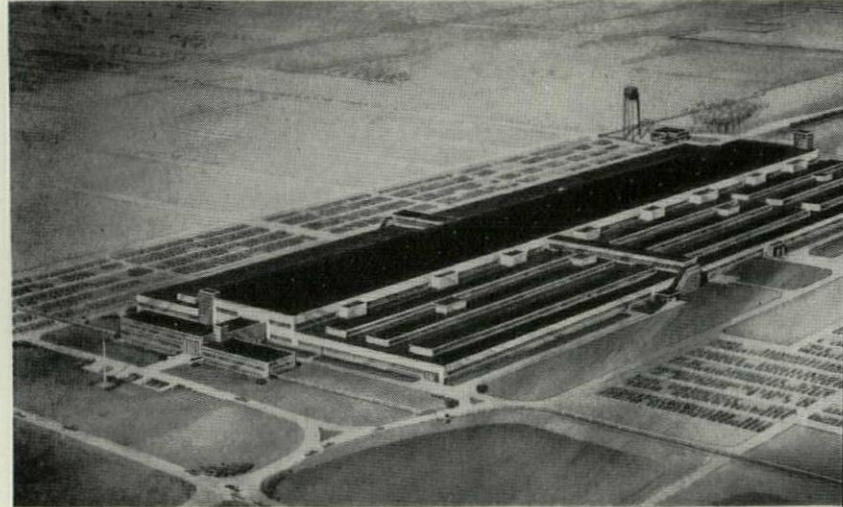
BUICK BUILDS FOUR FLEXIBLE PLANTS,

Buick's new parallel plants show how far today's owners are willing to go in paying for an electrical layout flexible enough to provide for future changes in power, light and signal loads. Buick knows this flexibility will be worth much more than its cost, not only when these plants are converted from, say, jet engine to peace time manufacture, but also in meeting the normal and highly competitive demands of auto production. Auto manufacturers cannot afford shutdowns; if it takes too long to make the annual model characteristic of the industry, sales may go to somebody else.

Kahn electrical engineers have given Buick a standard power distribution system, providing full capacity of 440 volts all over the manufacturing floor. A bus duct and cable feeder grid makes instant plug-ins possible at any point. This means that any department in the process layout can be moved without making any changes in power wiring and with only the simplest of floor connections.

Buick is also putting in a continuous grid of trolley duct as a part of the steel structure. Kahn engineers have used the trolley duct as a continuous raceway, providing uniform lighting capacity all over the factory floor. This means that lighting fixtures can be clipped on to provide any needed lighting intensity, right up to a maximum potential of end-to-end fixtures. The 2" wide trolley duct grid is supported by angles spanning from truss to truss (which means using about 1 lb. more steel per sq. ft.). With this

Multi Color



Two-story plant, 1,725,000 sq. ft., will be used to produce jet engines first, later will become Buick assembly building. Buick had to run three shifts in present assembly building to maintain peak production.

Another jet engine plant will amount to 580,000 sq. ft., later be used for auto engines. This building is one-story and mezzanine. Because this plant is planned for big machines, height to the truss on the first floor is 16', while height to mezzanine is 24'. Buick believes this is too high to ask workers to climb and has installed moving stairways to carry 2,500 workers quickly up to mezzanine cafeteria and locker rooms.

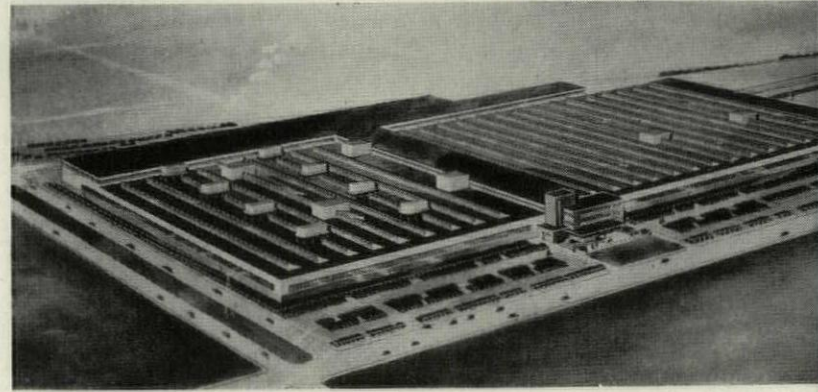
spreading out from its present crowded site

built-in duct system, it is almost as easy to provide the extra light which a departmental shift may suddenly require as it is to change a burned-out bulb. While the system requires a substantial initial investment in feeder, lighting panel and transformer capacity, Buick has standardized it for all these new buildings. This installation turned out to have an unexpected dividend: the supporting angles form a continuous scaffolding, available for maintenance use.

Trusses in all the plants are designed for free-loading. This means that a pair of channels is used as the bottom chord of the truss, acting as a beam between the panel points. This, of course, requires slightly more steel than the conventional truss which can be loaded only at the panel points. But Kahn engineers point out that when extra loading capacity is designed in the truss at the start it is cheap steel. If extra monorails have to be added later to take a new conveyor load, the reinforcing may cost many times more per ton. This is because handling is a bigger factor than material in structural steel cost. And even at a higher price, it may be impossible to get loading capacity where you need it.

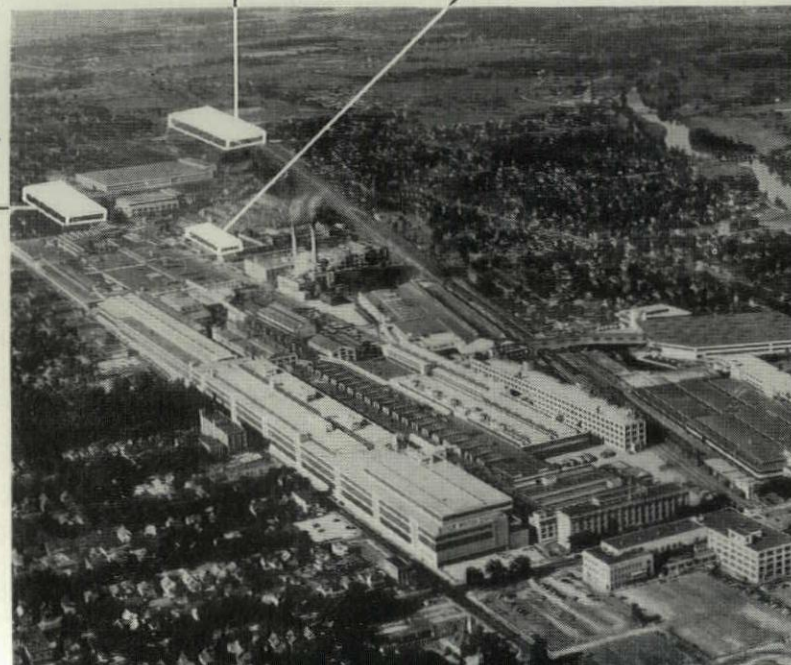
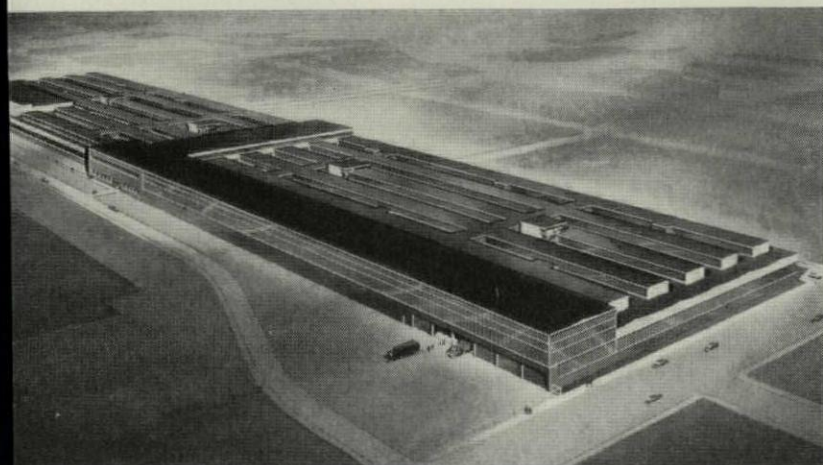
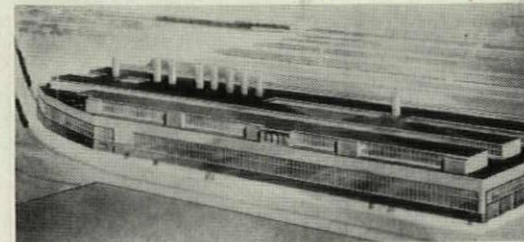
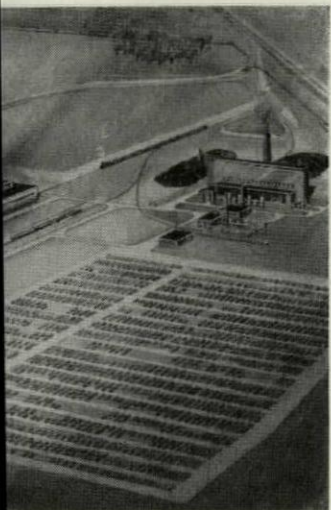
The steel work in these plants will be held together by high-tensile bolting, a method adopted from heavy bridgework. (A technical report on this new method will appear in the March issue—ED.) High-tensile bolting is faster and cheaper than welding, noiseless, and fills the gap left by a rapidly vanishing segment of our labor force: the riveter and his buckler-up.

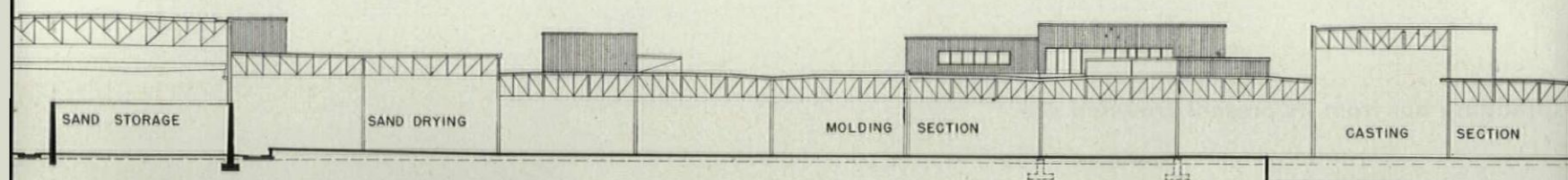
One-story plant amounting to 850,000 sq. ft. will be used first for torque converters for tanks, later will be shifted to auto transmission manufacture.



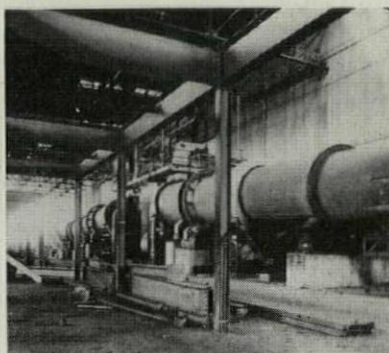
New castings cleaning building will add 170,000 sq. ft. of floor space to Buick's existing foundry. Building has basement locker and shower rooms for foundry workers and is equipped with 30,000 sq. ft. of dockage.

2 1/2 MILES



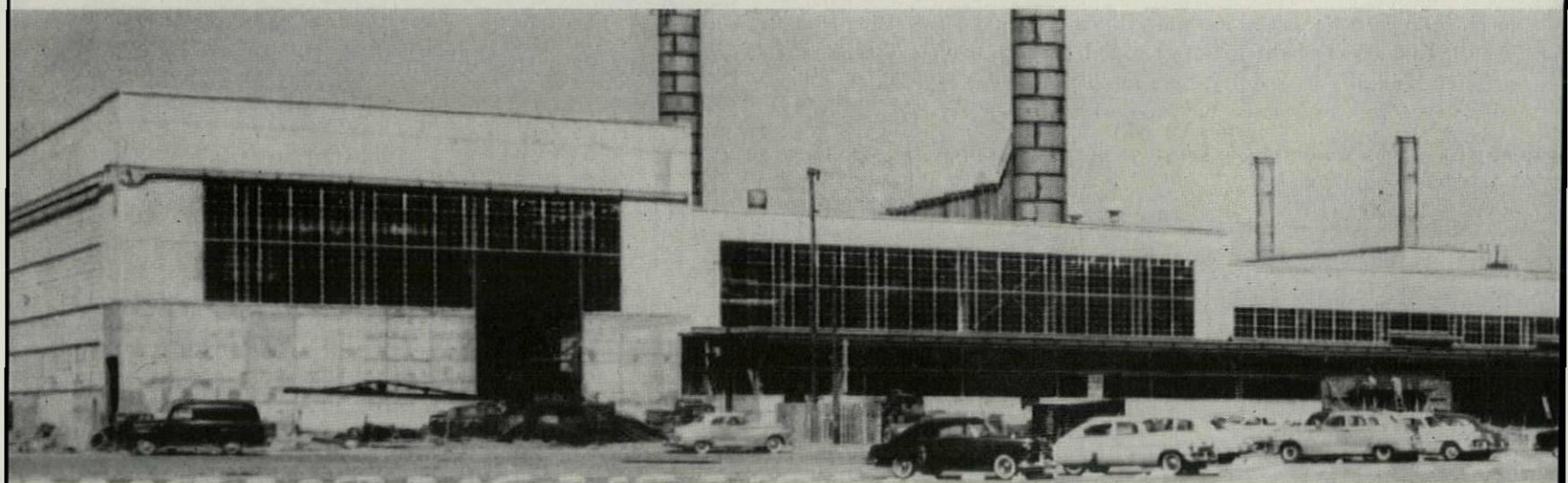


This straight-line foundry for Ford and V-8 Mercury engines composes a vast materials handling problem. Sand (to form the molds) goes in one end; hot metal meets it halfway down the line. Photo above is 20' high pile of sand, brought in by rail and dropped in conveyors. In photo at right the sand is being dried.



After being run through driers and cleaning screens, sand is moved to temporary storage bins. Then it is moved by crane to the hoppers in the molding area, the second big section of the building. This same crane also serves the core room, where ovens for baking cores are located. After the cores are completed, they are conveyed to the casting section. Meanwhile, in the melting area on the other side of the casting section, the metal is being made ready to pour.

FIRST SMOKELESS FOUNDRY sums up progress in factory ventilation



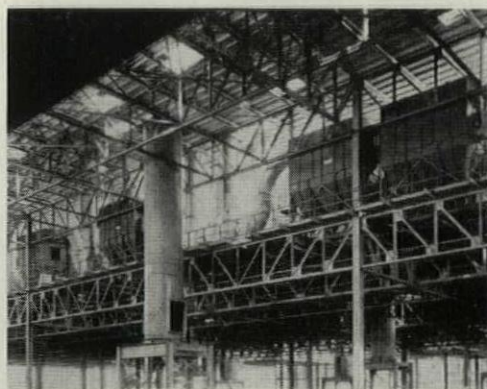
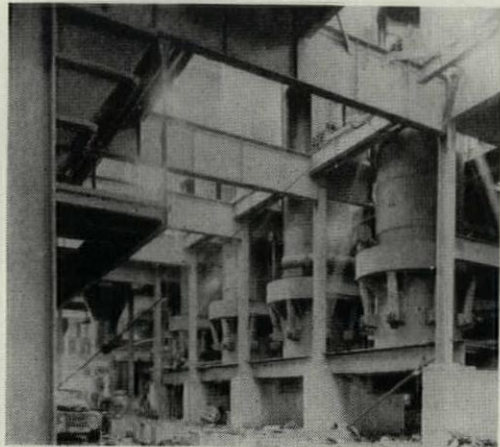
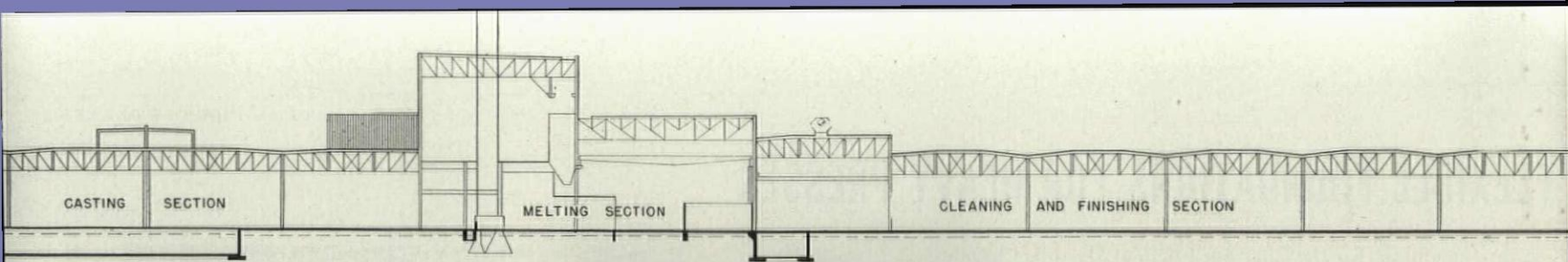
Probably the first foundry ever built free of smoke, dust and fumes, this 1,395,940 sq. ft. structure is for the Ford Motor Co. It is on a site about 10 mi. out of Cleveland, where an equally huge engine assembly building connects with it. These buildings mark the first Ford casting and engine making outside the Rouge.

In the search for operating flexibility, air supply ducts have been moving steadily upward in the factory building. In the foundry they designed for Studebaker in 1920, Kahn engineers put the ducts under the floor; in this new Ford foundry the ducts are on top of the roof. In fact, these huge ducts have become an integral part of the roof: they are built of sheet metal on three sides only, the roof makes the fourth side. While the huge size of the ducts called for the roof installation in this case, such a design might also be useful in smaller systems where it is necessary to leave truss height free.

The huge fan units (300,000 & 250,000 cfm units) pull fresh, filtered air into this vast interior at about 3 million cfm. Air is exhausted at the point where contamination originates so that there

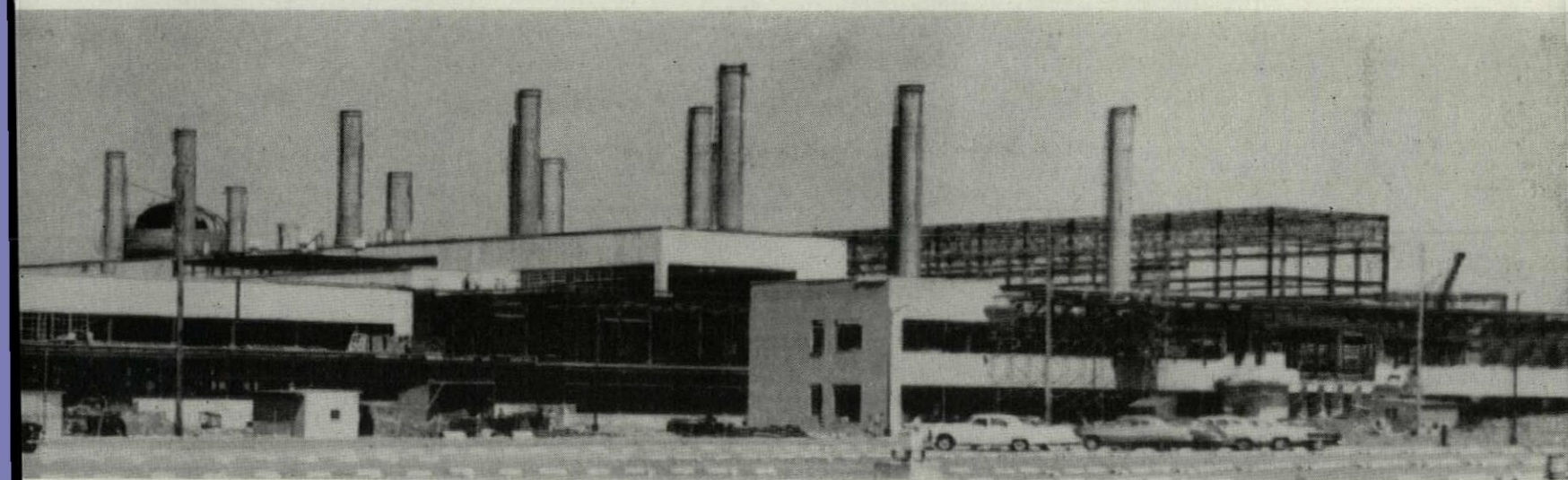
is no chance for the sand, dust, fumes, etc. it carries away to get back to breathing level. This means collecting the vitiated air directly at the machine.

Well ventilated interiors have been the biggest single advance made in factory planning over recent years, Kahn engineers say. "Modern processes require careful air exhaust. This air must be replaced, sometimes in enormous quantities." Replacing air in the quantities needed has meant bigger heater bills and bigger boilerhouses. One small heating tip from Kahn engineers: don't operate the heat curtain (intended to keep out cold air when a big factory door is opened) entirely by thermostat. To turn on the heat curtain, make use of a switch that the door will throw as it moves open; otherwise, minutes may be lost before the thermostat reacts to a temperature change. But let the thermostat turn the heat curtain off; in a plant where air supply balances air exhaust there will be no great whoosh of in-rushing air whenever a door is opened and temperature around the door area may be equalized even before the door is shut.



Metal is melted in big furnaces called cupolas (photo left). Scrap iron and scrap steel are brought in by overhead conveyors to the weigh platform (photo above) then dumped by skip-hoists into cupola along with coke and limestone.

After the pour, the completed engine blocks, with molds still attached, move to the shake-out building (it stands to one side, the only bend in the straight production line). In the shake-out building the cores are removed from the blocks, which then are ready for the cleaning area and finish area.



Foundry sends its product to the nearby engine assembly plant by truck. Together they form one of the largest construction projects ever undertaken in the Cleveland area, using a 209-acre site.



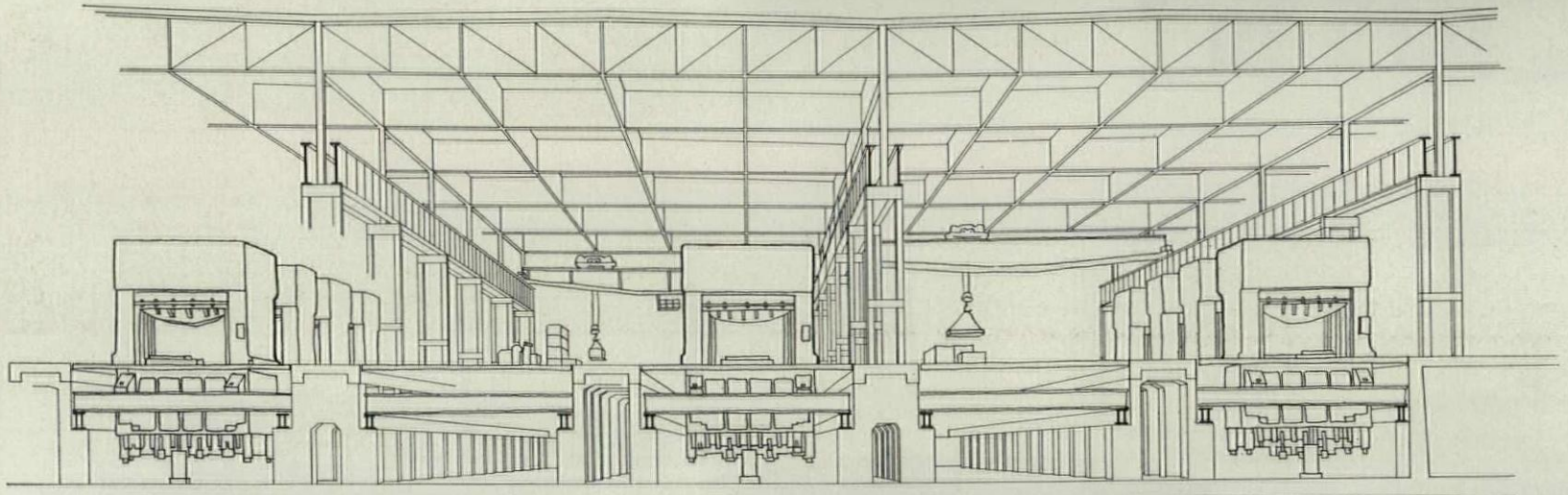
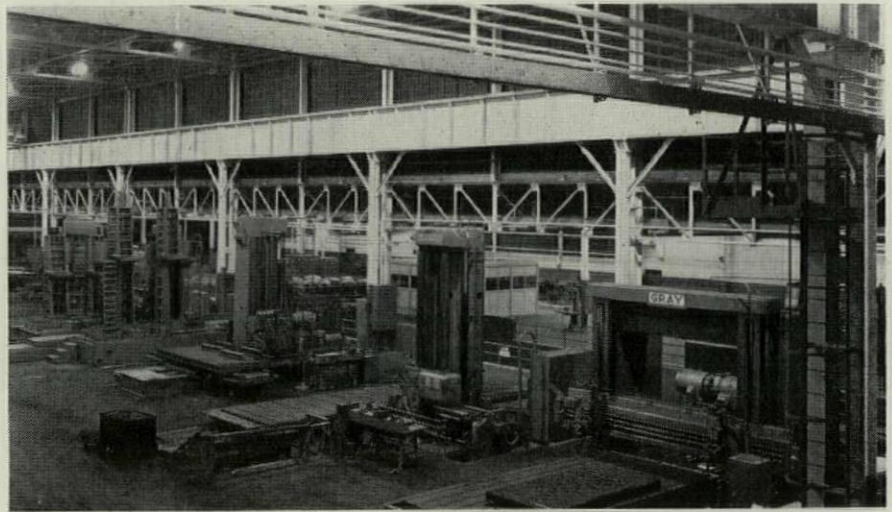
Engine plant sits at north end of site. Together, the two buildings will add approximately 2,420,000 sq. ft. to Ford's engine manufacturing and foundry facilities. Employment will reach 16,000. Construction cost is over \$85,000,000.



FLEXIBLE FOUNDATIONS FOR HEAVY PRESSES

In this new plant for the Chrysler Corp. at Detroit, Chrysler engineers working with the Kahn firm designed the first flexible foundations to permit moving of the giant metal-forming presses. Before the development of this continuous press pit, each machine was set on a permanent foundation (sometimes 20' deep) and had to be individually torn out and relocated if any change was made in the production line.

In this new kind of press plant, the presses are set above an open basement and designed so that most of their moving parts are below the first floor level. This means that the operator can fabricate steel above while repairmen work on operating parts below floor level. But the big bonus of the plan is that presses are lined up in continuous trenches and are so supported that they can be moved merely by remov-



ing some of the surrounding oak flooring. A 50-ton overhead crane moves the press from its original anchorage to the new location.

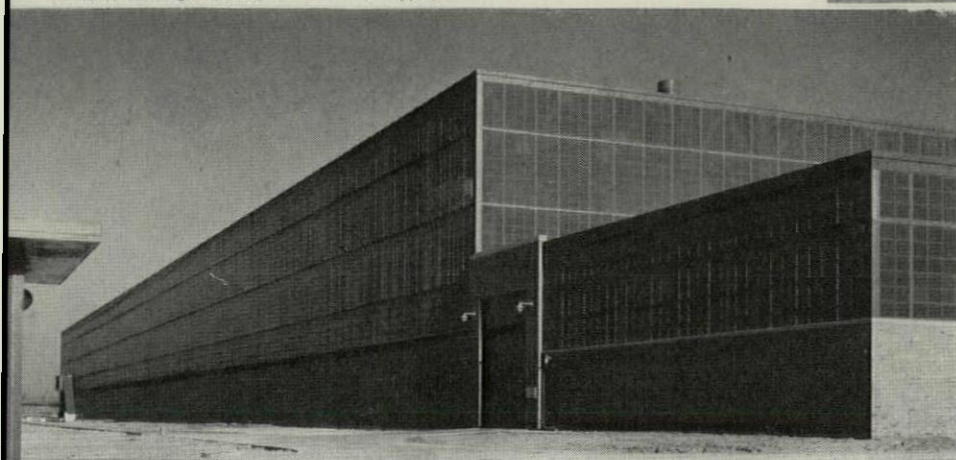
Here's how the supporting steelwork is designed:

Concrete piers 40' on center one way and 13' 4" the other support the 176' continuous lower tier girders. Pairs of these girders, 30' apart, form 12 separate aisles with a 10' wide floor strip between each one. In each press aisle, upper tier girders rest on the lower tier girder. The press rests on the upper girder, which has top and bottom cover plates slotted so that press anchor bolts and presses can be moved to any desired position laterally. The upper girder can be moved lengthwise to any desired position in the press aisle.



Photos: McGregor & Co.; Multi Color; Copyright

First floor press aisle (photo top) shows how continuous press pit is covered over with easily removable oak flooring. Drawing shows how presses are designed with all moving parts below the first floor level and how concrete piers support the upper and lower tiers of steel press girder. Bottom photo shows supporting structure from the basement level.



Exterior walls are steel sash glazed with heat resisting glass on three sides. Brick curtain wall below sash is 8'9" high on three sides and 13' high on the south side.

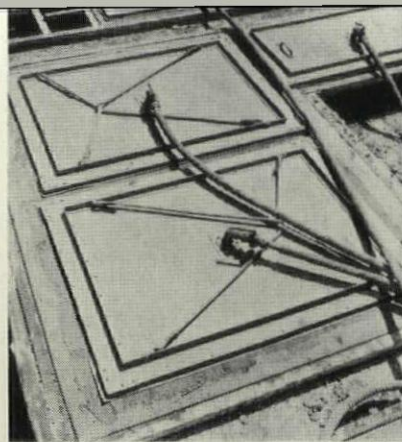
FAST NEW CURTAIN WALL

Fast new curtain wall construction is cutting months off the building time in this 11½ million sq. ft. tank plant being built for the Ford Motor Co. at Livonia, Mich. Precast reinforced concrete panels make the curtain wall, and a new licensed vacuum drying system makes it go up fast. Shortage of bricklayers puts this fast way to use concrete in the spotlight.

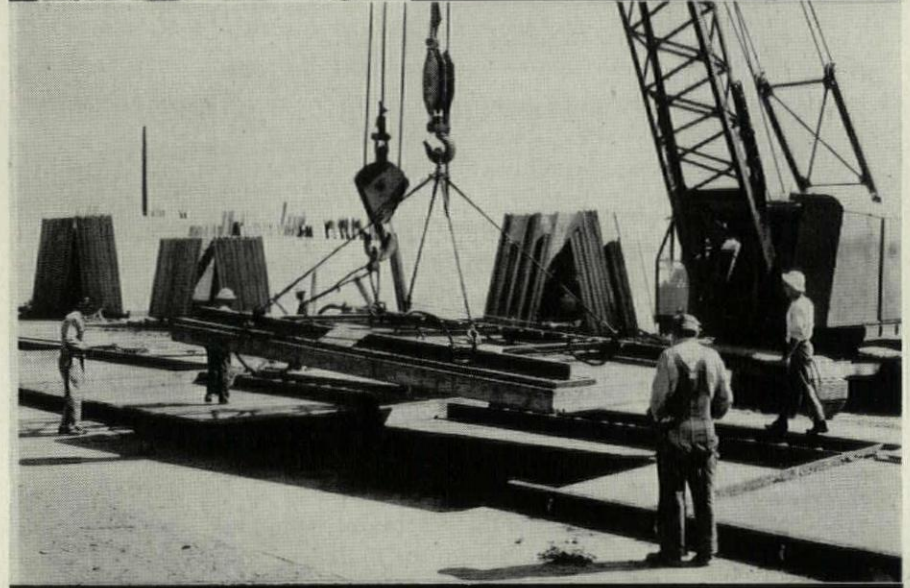
Kahn staffers are enthusiastic about the way the system has worked out. This Ford plant is the first place they have tried it, but they expect to use it a lot more from now on. All the panels needed to enclose this vast area were cast in four weeks, and this includes all the special panels which required steel door frames, louver frames, etc. cast integrally. Casting operations went ahead while the job was waiting for delivery of structural steel. Panels then went into storage and, when steel work got underway, enclosure followed rapidly on the heels of the structural steel workers. From 10 to 12 of the panels were set in place in one day. This means that each 20' long panel can be placed in less than one hour, using a crew of six men including the crane operator. This beats, in both time and labor cost, any comparable masonry wall.

Fast casting was possible because a specially licensed vacuum system was used to draw all excess water from the concrete immediately after pouring. Concrete was poured in forms on a mass production line. Then specially designed mats were placed over the slab to draw out water by suction. These mats draw off enough water in 10 or 15 min. so that the slab can be finished as soon as they are removed. The finished top side of the panel becomes the outside of the curtain wall; since the panel has been poured on an oil-treated slab, the bottom side requires no finishing. By the next morning the panels are ready for stacking. Specially designed vacuum lifters pull them from forms; a crane moves them to storage racks.

Kahn structural engineers designed a wall section which allows a 2" leeway between the steel column flange and the inside of the precast panel. The concrete panel (by means of cast-in inserts) is bolted to clip angles, and the clip angles are welded solidly to each side of a steel column. After welding, the bolt is given a half-turn backoff to permit independent movement of the steel frame and the concrete panel. Plastic rope, properly framed and compressed, is used between panels for a weatherproof joint. Kahn engineers report design strength of the panels as 2,750 lbs. per sq. in. in 28 days.



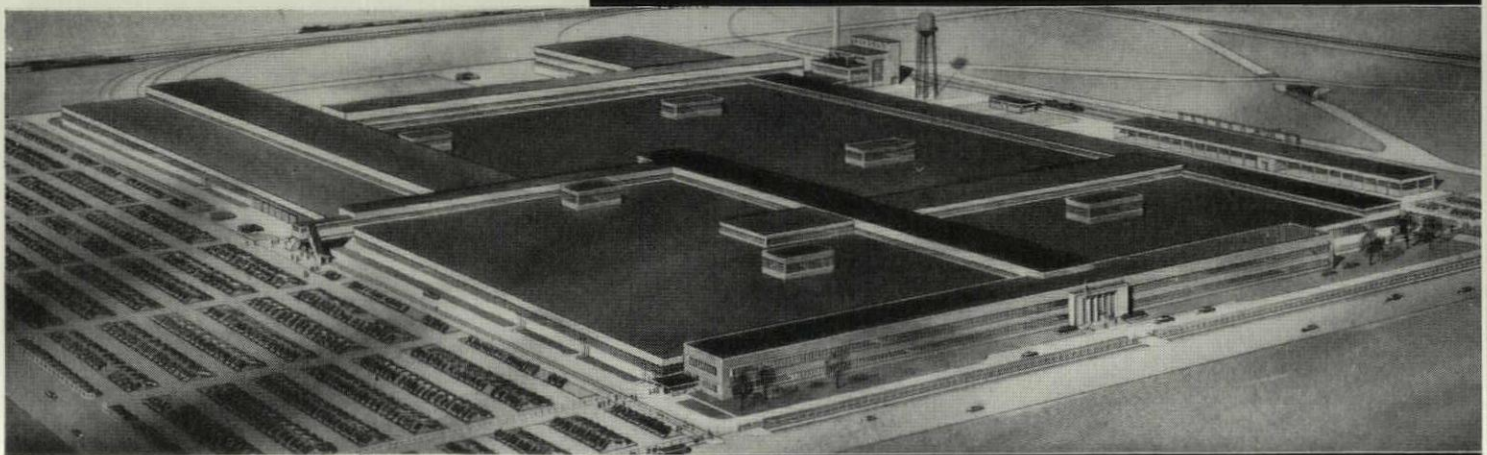
Freshly poured concrete panels are dried in 10 min. by suction through vacuum mats placed over slab. (Licensed system.)



The day after pouring, slabs are lifted from forms by specially designed vacuum lifter, moved by crane to storage racks.



Steel columns are on 20' centers; this sets length of panel. Heavy belt slings are placed around panels for crane pickup.



PARISH CHURCH

Its checkered wall adds a note of joy to a craftsmanlike, economical structure

Too few modern churches reflect the fact that joy is as much an element of religious experience as reverence. St. Anthony's parish church in West Vancouver, B. C. is a charming exception. Its gay checkerboard screen wall and crisp entrance canopy extend a cheerful invitation to worship—and the exuberant spirit of its builders sparkles in every line.

"This project was a pleasure and thrill throughout," says Architect Peter Thornton. "Father Leo Hobson readily accepted our ideas and helped with construction chores every day. The contractor, a member of the congregation, carried out the feeling as well as the detail of the design. And work parties of men, women and children were constantly on the job."

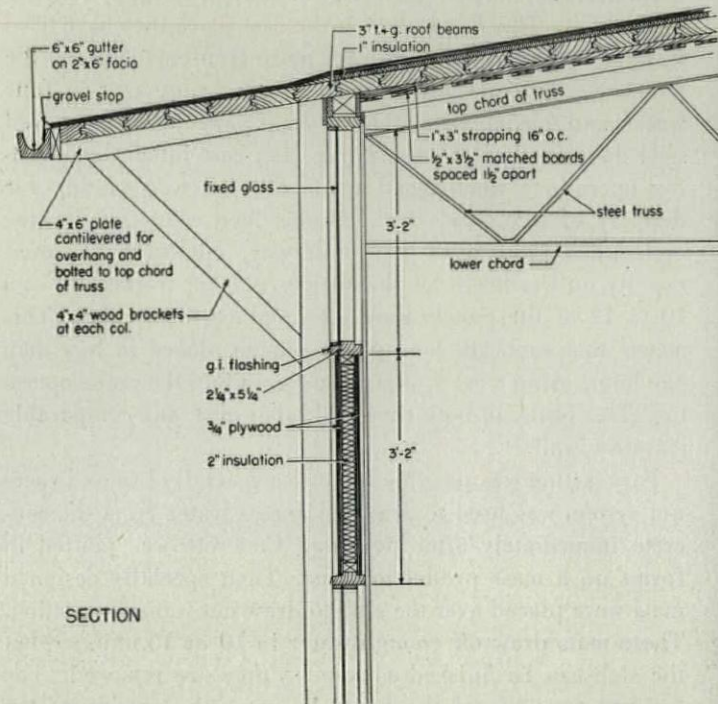
Costs were held down not only by this willing volunteer labor but by a compact plan and a simple structural system which translates the fine carpentry tradition of the Northwest into direct modern terms. With full parish house facilities and landscaping, this 300-seat church cost only \$73,000 or \$9.36 per sq. ft.—well below the U. S. average for Catholic churches of comparable size.

Structure throughout most of the building is frankly exposed, with natural finishes predominating. This not only cut costs, but achieved a simple, unpretentious dignity. Welded steel trusses, painted a soft green, span the nave and carry the roof load to 6" x 8" fir posts spaced 12' on centers. The nave's checkered south wall is merely a curtain of alternating panels of pale amethyst glass and painted plywood framed by clearly articulated structural posts. (Despite the colored glass, shading devices may have to be used to offset the

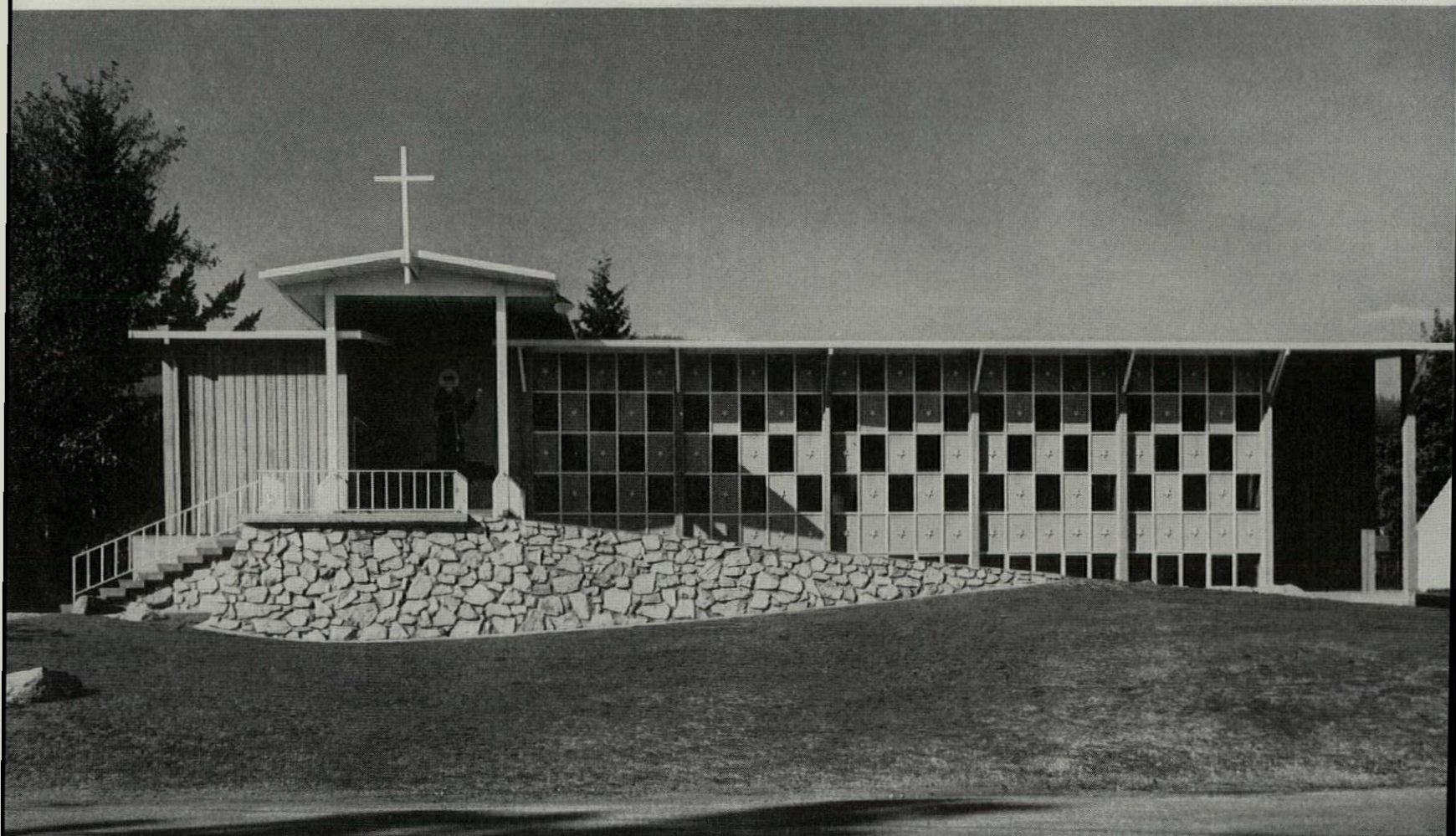
LOCATION: West Vancouver, B.C.

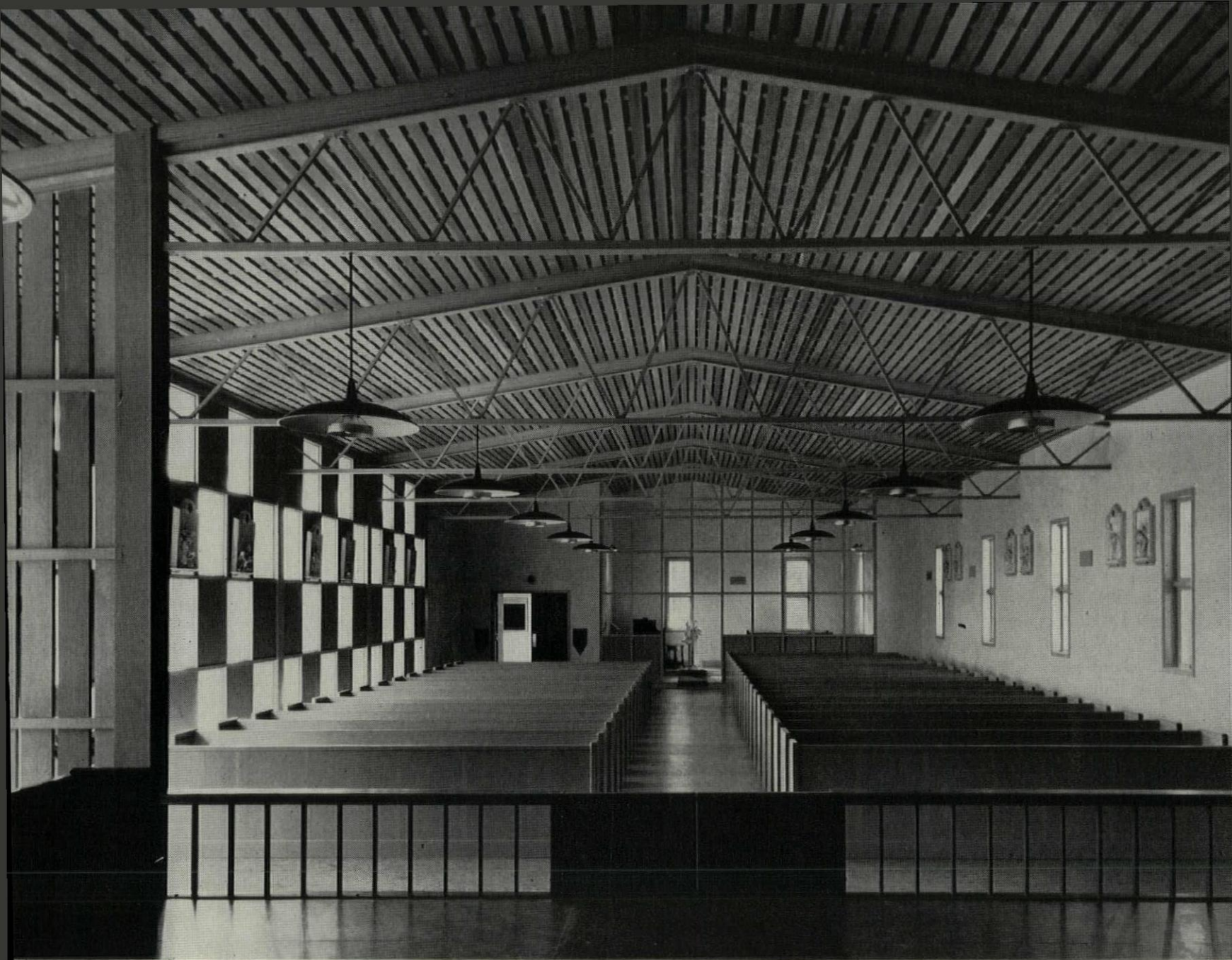
GARDINER & THORNTON, Architects

HANSSEN CONSTRUCTION CO. LTD., General Contractor



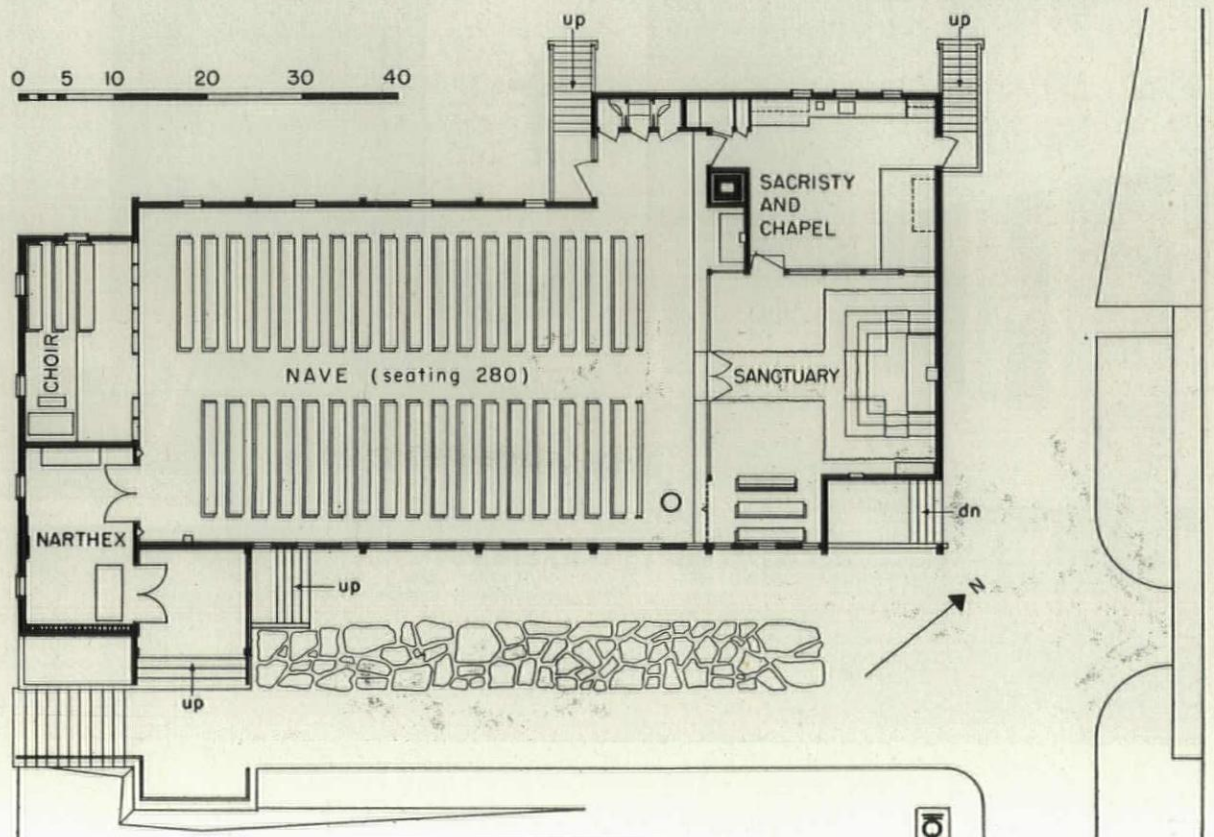
Photos: Graham Warrington

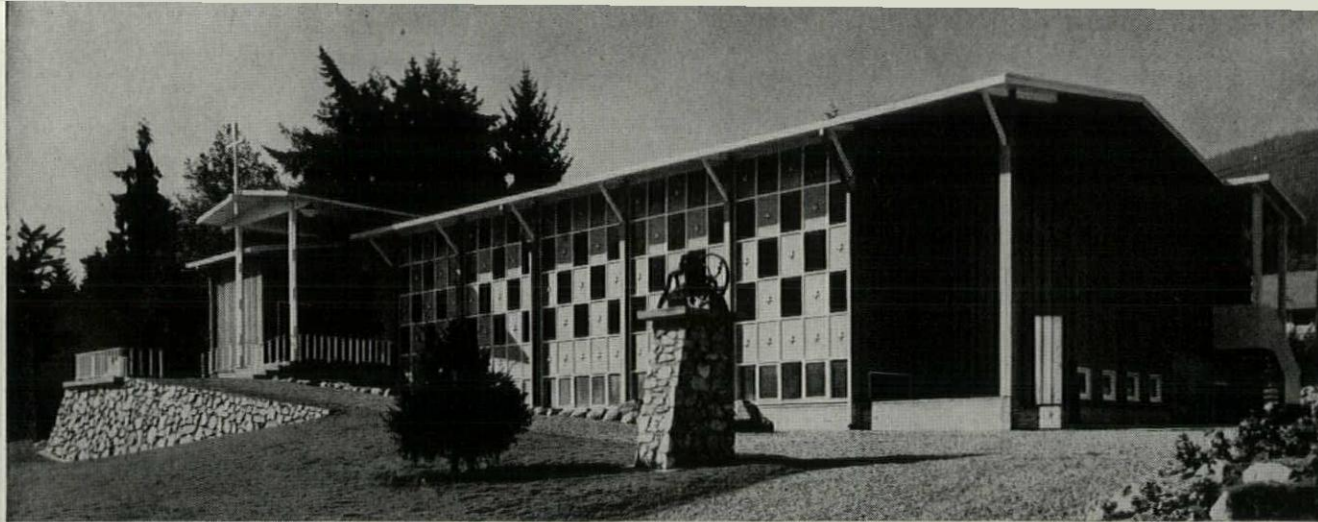




View from sanctuary shows dominant theme of light, rhythmic exposed structure. Ceiling of cedar boards spaced $1\frac{1}{2}$ " apart not only reduces sound reflection but will also hide normal spreading of joints in T&G plank ceiling above. Without shading, brightness contrast of checkered wall is distracting.

To save cubage, sacristy was designed to serve also as a chapel and a crying room for larger masses; parish house facilities are in basement, get light and air from high strip windows.



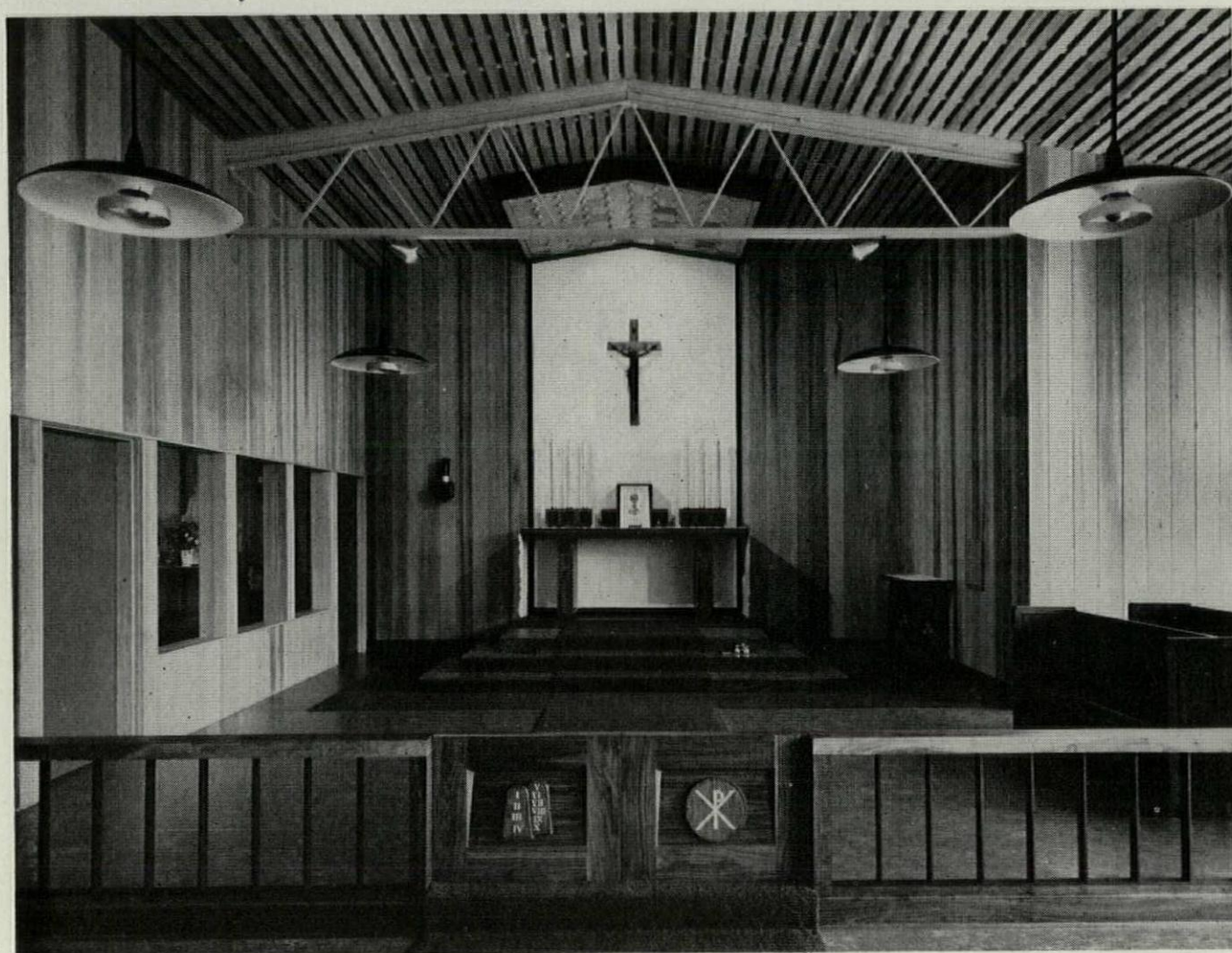


brightness contrast between solid and glass panels.) The theme of light, rhythmic structure is also carried out in the acoustically effective ceiling of spaced cedar boards, in the simple choir screen and in the natural cedar finishes of the sanctuary. But in the rough-plastered north wall, the architects weakened the theme by punching through a series of conventional windows.

The exterior is also a direct expression of structure, relieved by pleasant contrasts of color and texture. The checkerboard pattern of the nave wall is accented by painting the dividers white and the solid panels cobalt blue. (In an excessive burst of enthusiasm, the architects also studded the panels with gold stars.) The cleanly detailed entrance canopy sets this gay wall off from the rest of the structure, which is faced with rough-sawn board-and-batten siding stained a soft brown. A rugged retaining wall of native stone buttresses the building against the slope; a handsome feature, it provides a comfortable ramped approach for older people.

South facade overlooks the street and a harbor view beyond. Bell from old church is mounted on stone pedestal in foreground.

Sanctuary is a simple contemporary expression of old traditions. Walnut altar is topped by a baldachino of cedar squares.





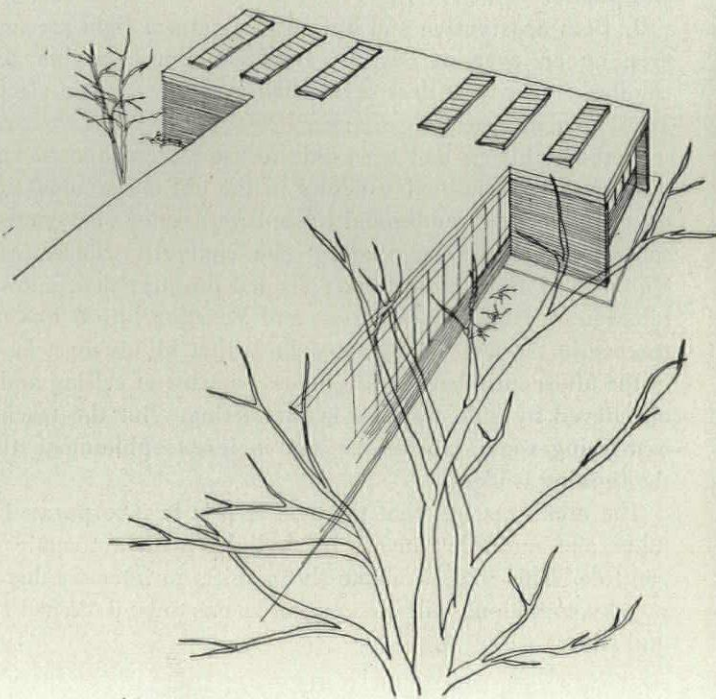
Photos: Molitor

EXPERIMENTAL SCHOOL tests top-lighted classrooms

LOCATION: Raleigh, N. C.
 WM. HENLEY DEITRICK INC., Architects
 F. Eugene Jones, Architectural Designer
 H. W. Moser, Mechanical Designer
 M. E. Ray, Structural Engineer
 GRANNIS & SLOAN INC. and
 C. V. YORK, General Contractors

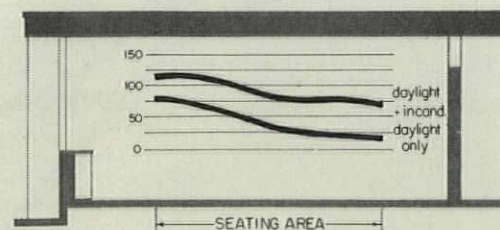
One of the late Matthew Nowicki's many brilliant design legacies was an idea for a school lighted chiefly through the roof—first proposed in his "FORUM School for 1950" (Oct. issue '49). As a tribute to Nowicki, his good friend and former associate, veteran Raleigh, N. C. architect William Deitrick has now put the idea to practical test in that city's new Sherwood-Bates elementary school.

Deitrick's original plan for this 400-pupil school called for overhead lighting throughout with only narrow strip openings around the perimeter for vision and ventilation. But because the School Board favored a cautious experimental approach, he confined top-lighting to two secondary classrooms and substituted continuous sill-to-ceiling windows for the vision strip (*sketch, right*). Other rooms in the secondary wing are conventional, but primary rooms are L-shaped. This combination of different room treatments has enabled

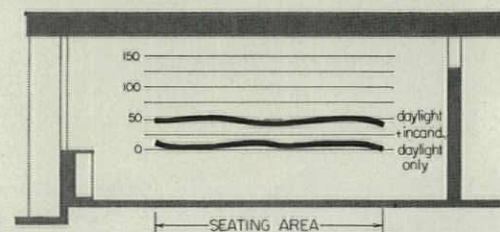




CLEAR BRIGHT DAY



EVEN OVERCAST DAY



On bright day intensity of light in conventional classroom drops off sharply near corridor wall. On overcast day, natural light is inadequate, must be supplemented by full use of incandescent fixtures.

the architects, teachers and Board members to make a comparative study which will guide the design of future Raleigh schools.

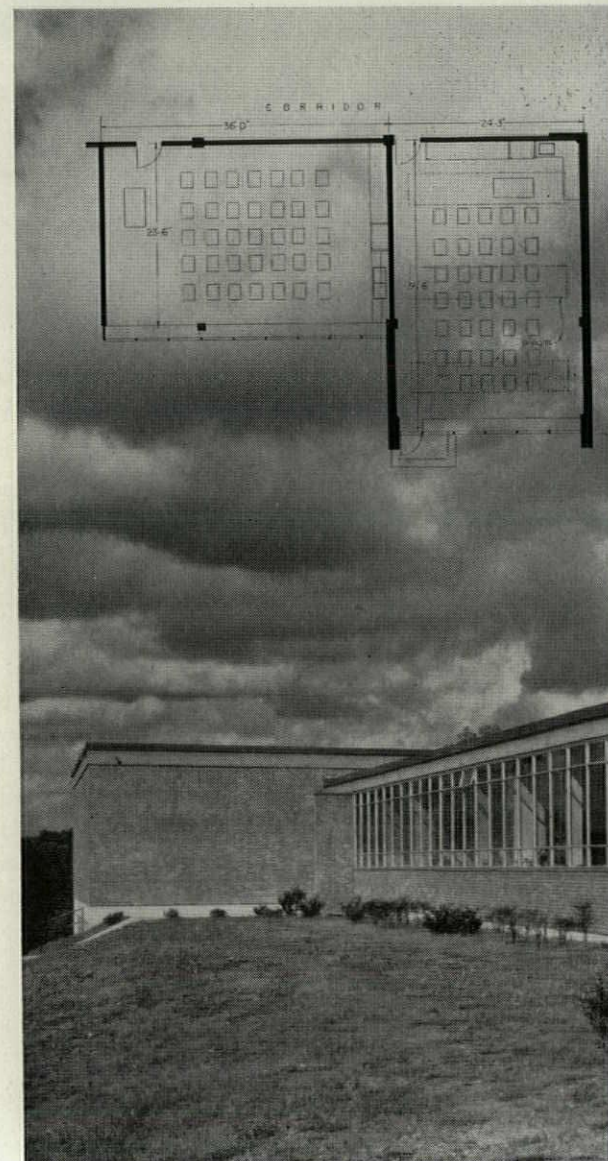
Architect Deitricks' experimental classrooms are lighted from above by a combination of strip skylights and recessed fluorescent egg-crate fixtures (*details, opposite*). This system has two clear advantages over the conventional lighting used in the rest of the school (*photo, above*):

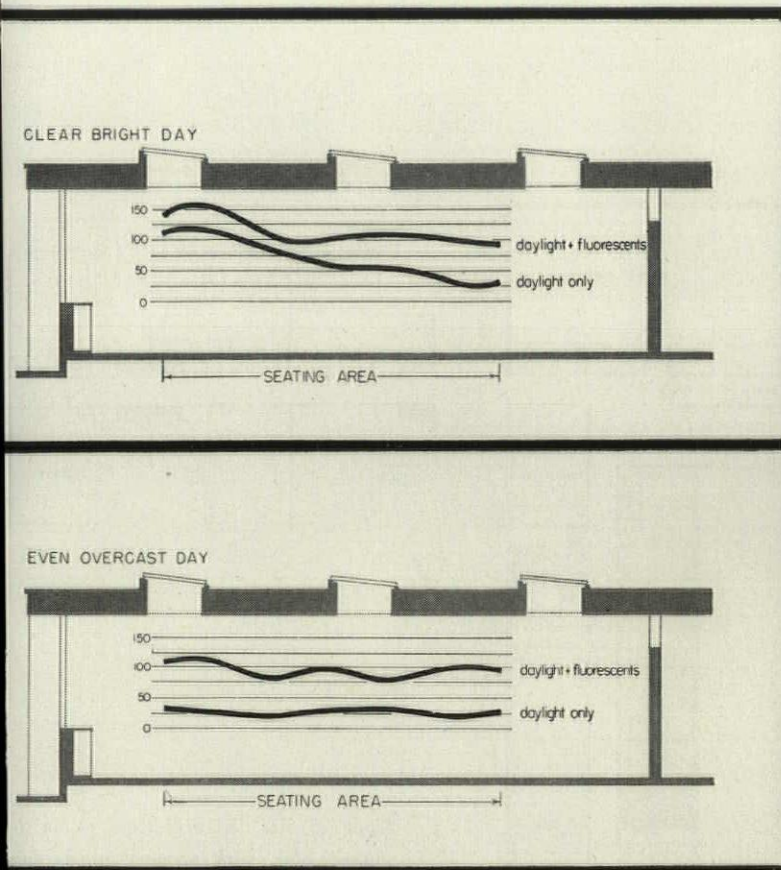
1. Since windows are needed for view only, classrooms can be turned so that the short ends instead of the usual long sides are exposed, saving 12' of corridor length per room (*plan, right*). Used throughout, this layout would have shortened periphery, reduced the length of pipe runs and cut down on corridor travel for teachers and pupils.

2. Both distribution and intensity of natural light are improved—even on an overcast day the skylights alone provide 28-30 foot-candles' intensity at desk level (*charts, above*). And electric lights are seldom needed.

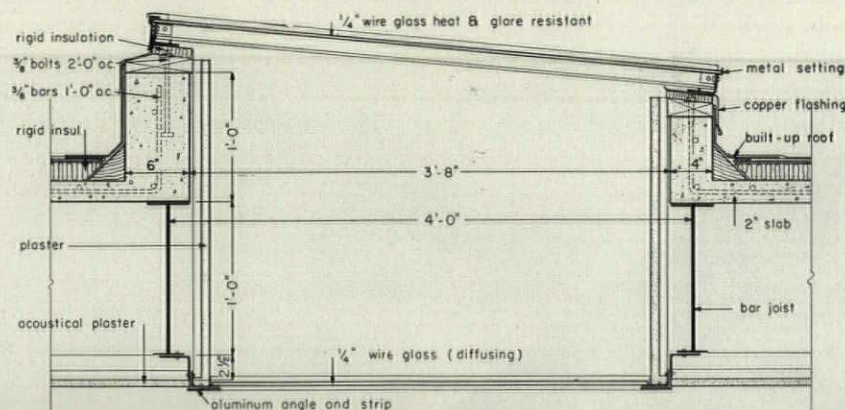
If the architects had been able to use their proposed vision strip instead of conventional windows in the test classrooms, they would have obtained an additional advantage—better sun control for an east-west exposure imposed by site contours. Since no practical width of overhang would have shaded the present windows, a combination of glare-resistant glass and Venetian blinds was used. The teacher in the west-facing room finds that blinds must be kept shut in the afternoon, that the brightness contrast of ceiling and skylights unrelieved by side lighting is distracting. But the teacher in the east-facing room (where the sun is less troublesome) thinks that the lighting is ideal.

The architects feel that the next step is to incorporate fluorescent tubes and movable louvers in skylights with automatic electronic controls. This will eliminate sharp shifts in intensity due to changing sky conditions, will also permit rooms to be darkened for movies and slides.

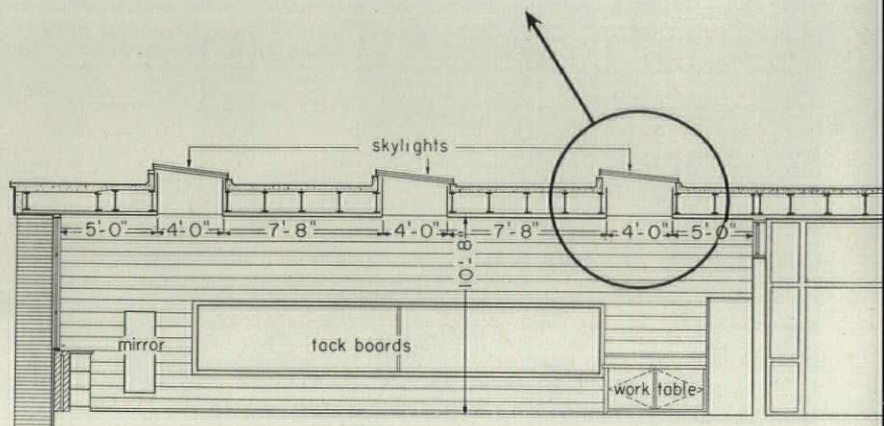




On bright day, skylights improve distribution, provide high intensity at desk level (above and right). With an overcast sky intensity of daylight is adequate, distribution is good and combination of both skylights and fluorescents doubles foot-candles obtained in conventional room under same conditions.



Skylights have wired glare resistant glass on top, ribbed diffusing glass at ceiling level. To deaden sound of rain and hail, skylight rests on gasket of insulation, is lined with acoustical plaster. Cost per classroom: \$700.



Strip skylights fit between bar joists, are cheaper than plastic bubble type proposed by Novicki. With these conventional windows instead of planned vision strip, architects think two skylights per room would suffice.

L-Shaped rooms provide bright work alcoves for primary grade projects

EXPERIMENTAL SCHOOL

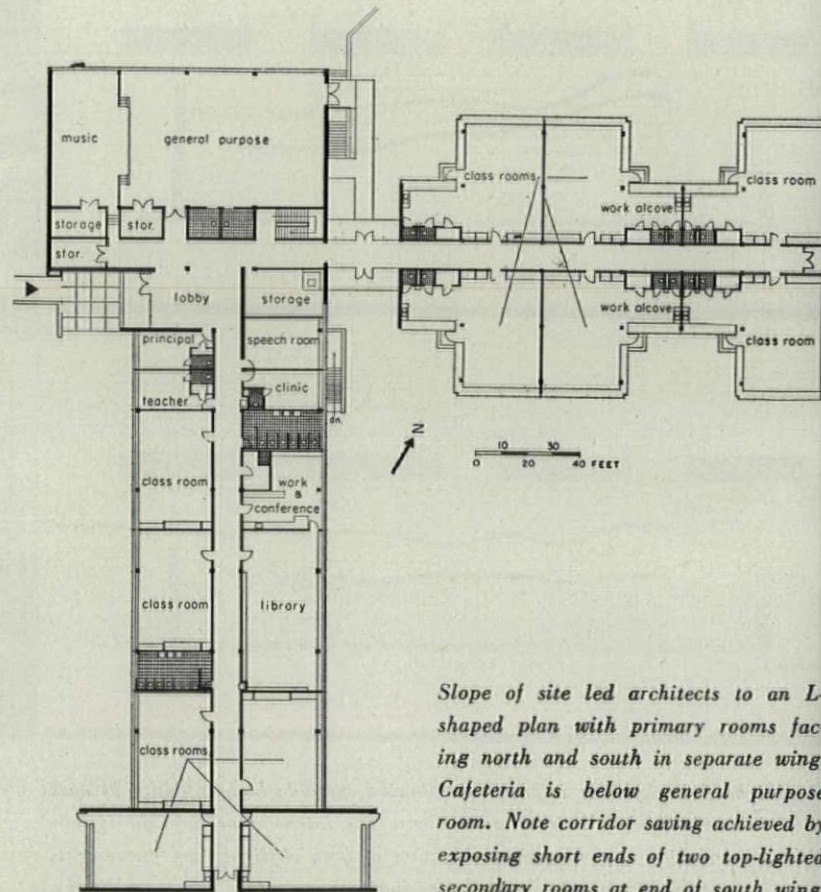
To create the secure, home-like environment needed by younger pupils, architect Deitrick put them in a cleanly segregated wing of L-shaped rooms. The children enter through a glass-walled passage (plan right) which brightens the approach from the main lobby.

Each room is a self-contained unit with its own work alcove, sinks, storage space and toilets. Each has an individual color scheme of soft blue, green, pink or yellow walls with brighter accents provided by the Venetian blinds. Storage units and doors are natural finish birch.

Continuous windows create a sense of spaciousness and direct contact with the outdoors, but also complicate sun and glare control. On the north side, teachers leave the blinds part way down to cut sky glare, generally turn on several lights near the interior wall to compensate for this shading. On the south, sun is controlled by a combination of glare-resistant glass and blinds—teachers leave blinds in the down position with louvers nearly horizontal. Through ventilation is provided by movable sash at top and bottom of windows and by high strip windows along the corridor wall.

Teachers particularly like the light, cheerful quality of the rooms, the flexible seating arrangements made possible by the extra work alcove space, and the radiant heating which permits pupils to curl up comfortably on the plastic-tiled floors during rest periods.

Structure throughout is steel frame with 24' bays, brick cavity walls, concrete block partitions and slab on grade under classroom wings. Most interior walls are exposed masonry, and an economical sound absorbent ceiling was provided by a finish coat of light-weight aggregate plaster. Due mainly to high site improvement costs (\$12,000), top-quality kitchen equipment and extensive built-ins, cost was slightly higher than the local average—\$11.82 per sq. ft.



Slope of site led architects to an L-shaped plan with primary rooms facing north and south in separate wing. Cafeteria is below general purpose room. Note corridor saving achieved by exposing short ends of two top-lighted secondary rooms at end of south wing.





Continuous sill-to-ceiling windows give youngsters a sense of freedom and space in L-shaped primary classrooms, but require teacher-regulation of blinds for light control. Work alcove in arm of L (below) combines sinks, counters, storage space and toilets in compact unit. Note big glass panels which light interior spaces, prevent fear of confinement.



1. MARBLE CURTAIN WALLS hung from the inside of pre-fab framing cut costs but preserve quality

Marble curtain walls made building history in this Atlanta office. With one bold stroke, architect Pei freed traditionally monumental marble from its use as a thin veneer on costly masonry walls and turned that veneer into the wall itself. Although this is not the first such use of marble (see *Detroit Federal Bank*, Mar. issue '50), Pei's building realizes, for the first time, the full economic benefits of marble curtain wall construction. Result: a phenomenally low building cost of \$7.50 per sq. ft. including all mechanical equipment.

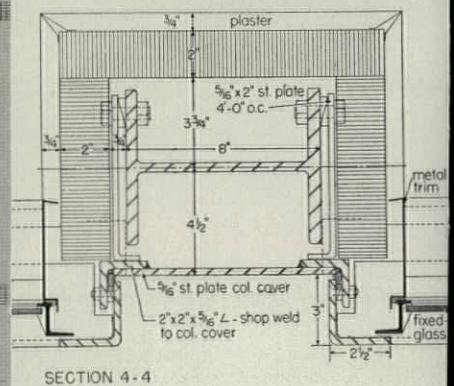
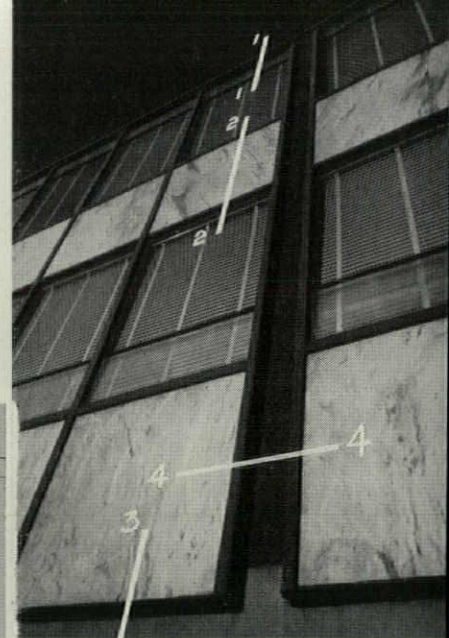
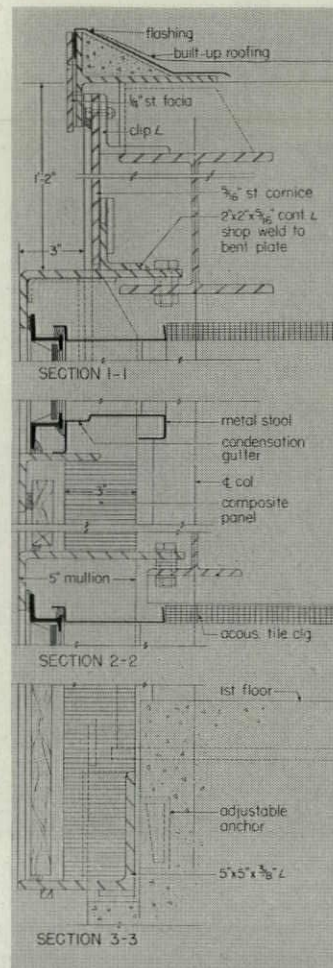
Pei's grasp of the potentiality of curtain wall construction resulted in:

1. Prefabrication of wall frames—with the simplest of detailing
2. Exposed exterior steel in a loft-type structure
3. Backup of cement-woodchip panels with a plaster finish
4. Elimination of all scaffolding during construction

Design

Conceived as a Webb & Knapp investment property, the small office was leased to Gulf Oil before it was even designed. This situation handed Pei two big problems: 1) a small, inflexible investor's budget, 2) tenants who demanded the solidity of a traditional colonial-type building.

To stay within the budget Pei chose curtain walls. To get the desired institutional quality, he turned to that most institutional of all materials: marble.

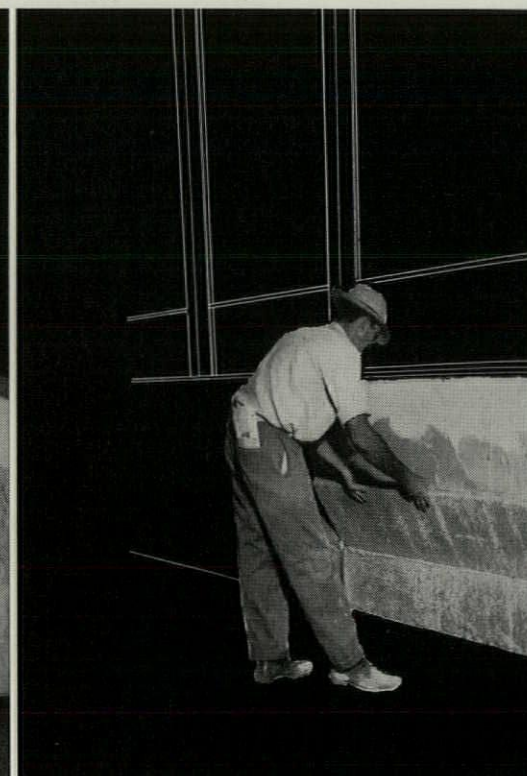
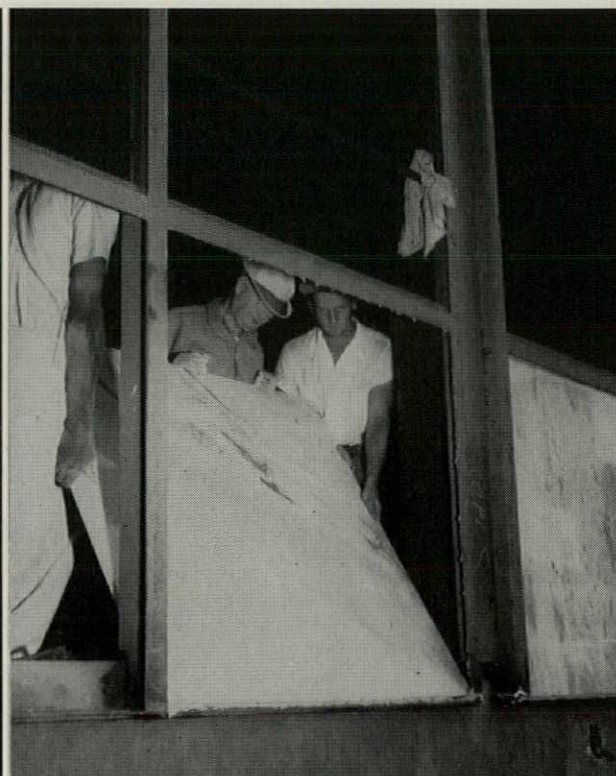
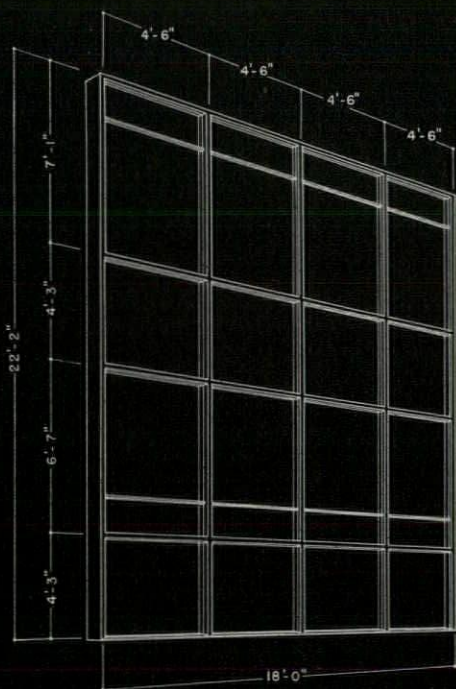


Glass, marble and dark painted exposed steel compose the effective, economical curtain wall on architect Pei's Atlanta office building. Simple detailing (l.) cut labor time, helped complete building in four months.

Prefabricated frame bolted in place ...

Marble panels are installed from inside ...

And composition backup completes wall.





Photos: Gabriel Bensur

Complete air conditioning permitted use of fixed glass throughout, eliminating cost of movable sash. Local Georgia marble was used economically for wall panels, crushed marble chips for roof finish.

In design, the office building holds as nearly as possible to the best principles of simplicity. Where Pei could not fully realize his goal, the frustrating factor was economic. Bent steel, for example, was used on corner column covers where Pei wanted welded steel corners ground flush for more precise edges.

Much of the building's impact stems from the subdued color chosen to harmonize with the marble. All exposed steel (column covers and wall frames) is painted dark brown, emphasizing it, outlining the glass and marble and giving rhythm to the building. Despite the imposed economic limits, the building possesses a quiet simplicity which is particularly effective in cluttered downtown Atlanta.

Economical construction

Realizing the design within the budget proved to be the biggest problem. Yet with few modifications, it was done using curtain wall construction plus other ingenious devices.

Bays 18' 9" square divide the 50,000 sq. ft. building. Reinforced concrete floors and a built-up roof supported by bar joists complete the basic structure.

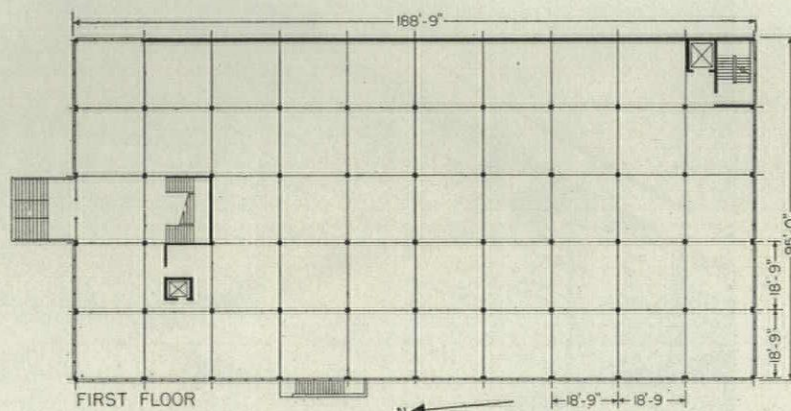
Curtain wall frames (each spanning a bay and reaching from floor to roof) were prefabricated. This cut on-the-site labor time and helped materially to complete the building in a scant four months. Although movement of the large sections from factory to site was prohibited legally, a concession was made so they could be transported at night. The next day, workmen quickly bolted them in place and proceeded to finish the walls.

LOCATION: Atlanta, Ga.

I. M. PEI, Architect

C. W. GOYER JR., C. F. GROOS JR., I. KESSLER, D. PAGE,
F. PRESTON, Associates

HENRY C. BECK CO. Contractor



Loft-type structure grosses 50,000 sq. ft. (including semifinished basement space). Bays are 18' 9" square. Interior is partitioned so as to place executive offices along exterior walls leaving interior space open for general office use. Hung fluorescent fixtures light all areas.



Installing the glass and marble panels was simplified by designing the frames so all pieces were set in place and mortared from inside the building, thus eliminating scaffolds. (Caulking done outside required only one man and a movable ladder.)

Exposed exterior steel was permitted under a sensible and liberal interpretation of the city's fire laws. Column covers and curtain wall frames thus become a major design element.

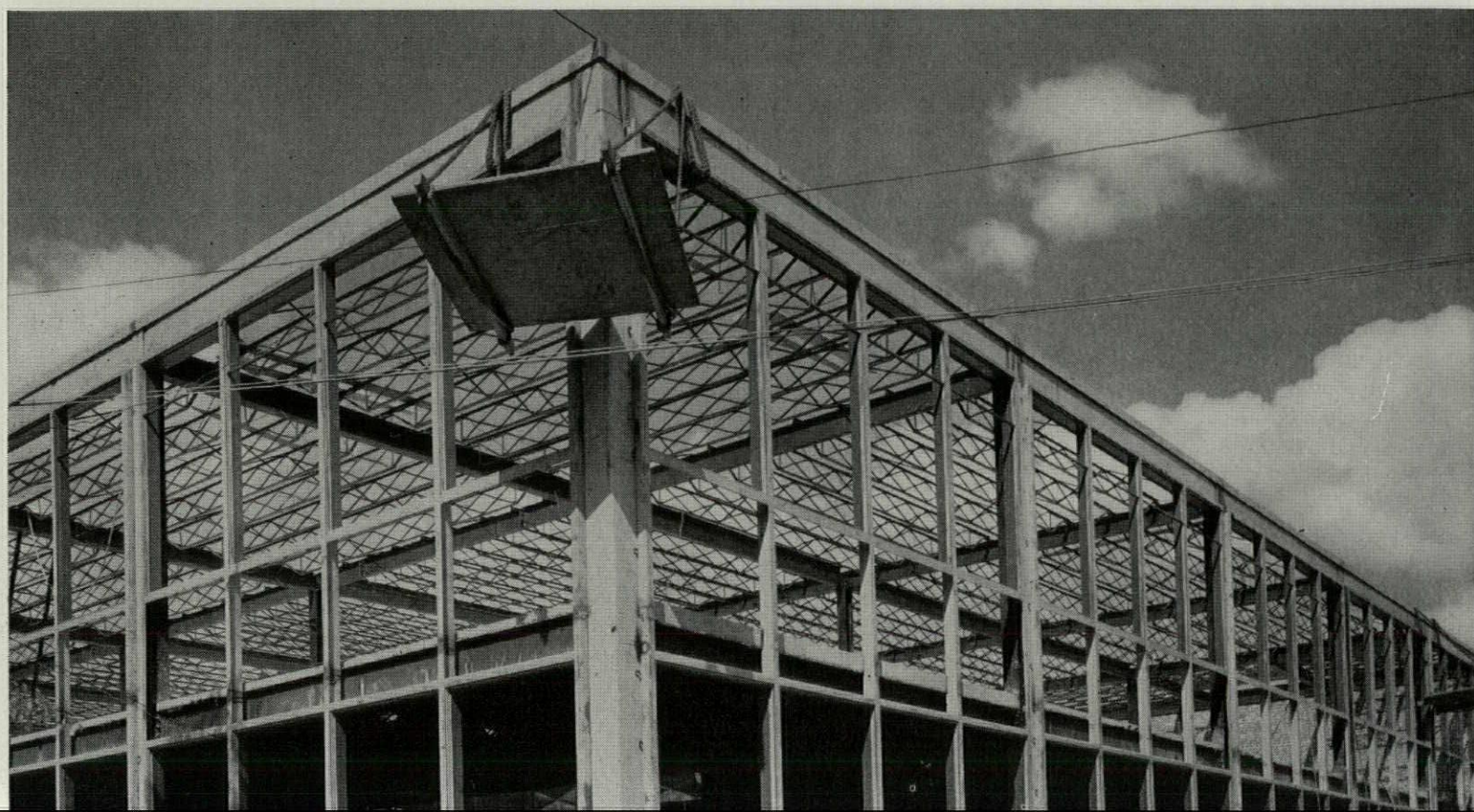
Backup for the marble walls (and interior column casings) was provided by 3" thick panels of cement-woodchip composition finished off with plaster. This fire resistant treatment proved feasible since the office was a low two-story structure and the furniture was the only combustible item inside.

Inexpensive local Georgia marble was used on the curtain walls. Inexpensive crushed white marble chips were used on the roof, materially reducing the load on air conditioning equipment.

Since the building is completely air conditioned, fixed glass was used throughout, thus eliminating the cost of movable sash.

Floodlighted exterior reveals the rhythmical geometry of architect Pei's building, the expression of the basic structure (below) in the finished work.

Steel frame of the building, including curtain wall frames took two weeks to erect. From this point on, no scaffolding was required since walls were designed to have glass and marble installed from inside.





Photos: Julius Neuman

SMALL OFFICE BUILDINGS

2. LIGHT WITHOUT GLARE through louvers and egg-crates—a dividend of wide-span construction

Function and environment controlled the creation of Richard Neutra's latest Los Angeles building. As an insurance office it had to express security and friendly intimacy; as a Southern California building it was expected to reflect the openness and casual living habits of the region.

Using glass, brick and steel, Neutra accomplished these objectives with:

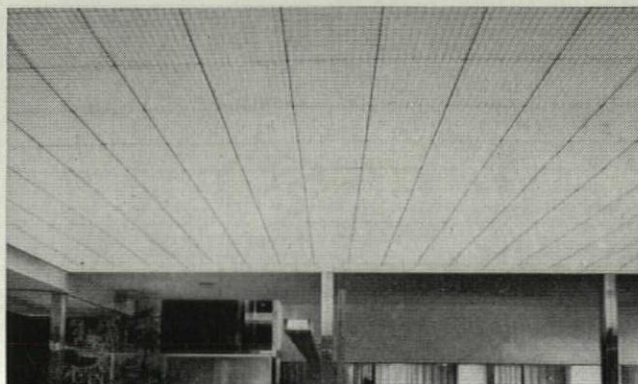
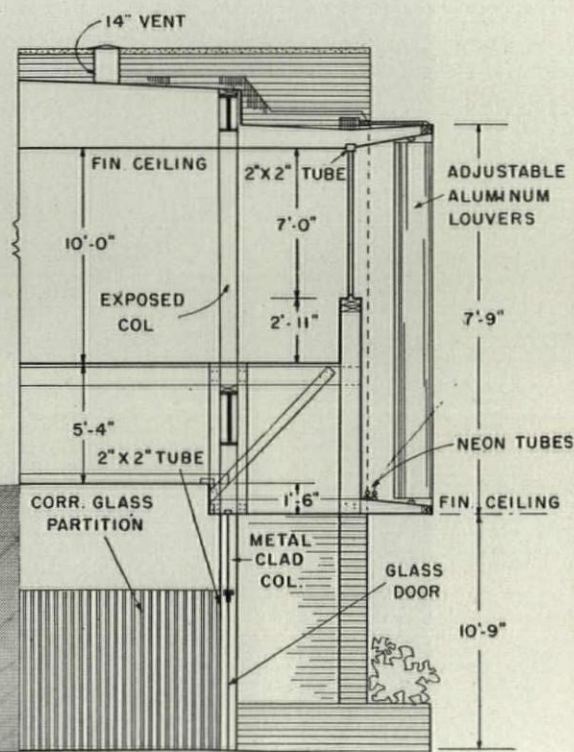
1. Skillful relation of large simple masses
2. A glass facade permitting passers-by to see into the office
3. A minimum of interior partitions
4. High intensity general illumination

NORTHWESTERN MUTUAL FIRE ASSN., OWNER

RICHARD F. NEUTRA, Architect

C. W. DRIVER, Contractor

sun-controlling louvers (above) contrast with gray brick mass housing interior stairs. Egg-crate ceiling over open office area (right) lights interior without glare, reveals rich finish of birch and walnut counters, stainless steel columns.



Aim: comfortable function

Neutra's building is so arranged that it gives the impression of being simply two big rooms. No usable space is subtracted from the building's 16,000 sq. ft. except that needed for elevators and stairways.

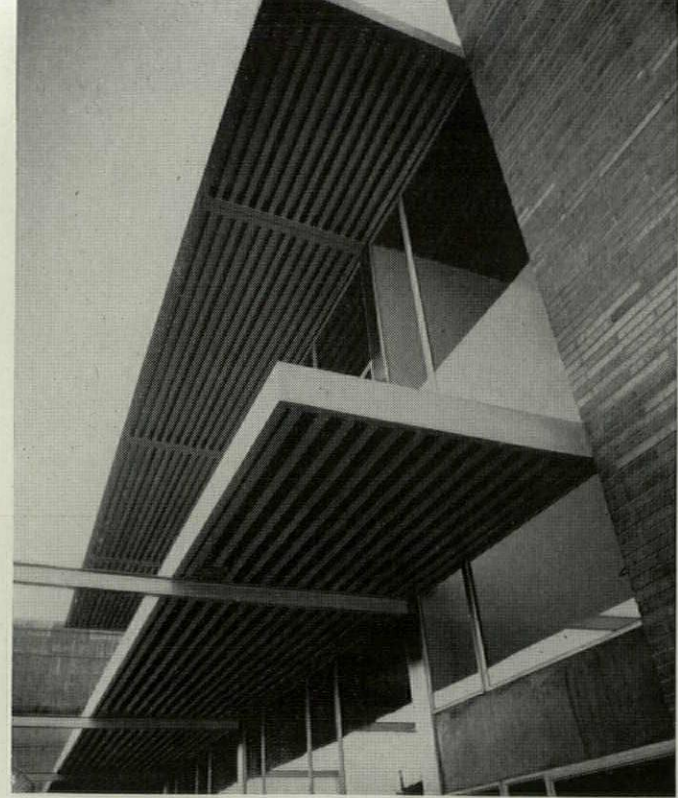
To further the feeling of spaciousness, a minimum of partitions were built. On the second floor, for example, collapsible curtains define a reception-display area for the American Crayon Co. (now leasing the floor). On the ground floor, the only enclosed work space consists of three executive offices and a conference room. A self-standing wall and a movable, louvered glass screen define the lobby, leaving the rest of the floor open. A large (78' x 80') general office area free of columns provides space for various departments which are divided by function rather than physical partition.

To free this area of columns, heavy beams capable of spanning 41' were required. Neutra then took advantage of the deep-beam construction to hang an immensely effective egg-crate ceiling with fluorescent fixtures far enough above it to eliminate all glare and shadow. In addition, the egg-crate functions acoustically.

Admittedly not a cheap construction method (the building cost \$20.31 per sq. ft.), it does admirably what its owners demand of it: provide an unusually pleasant place in which to work.

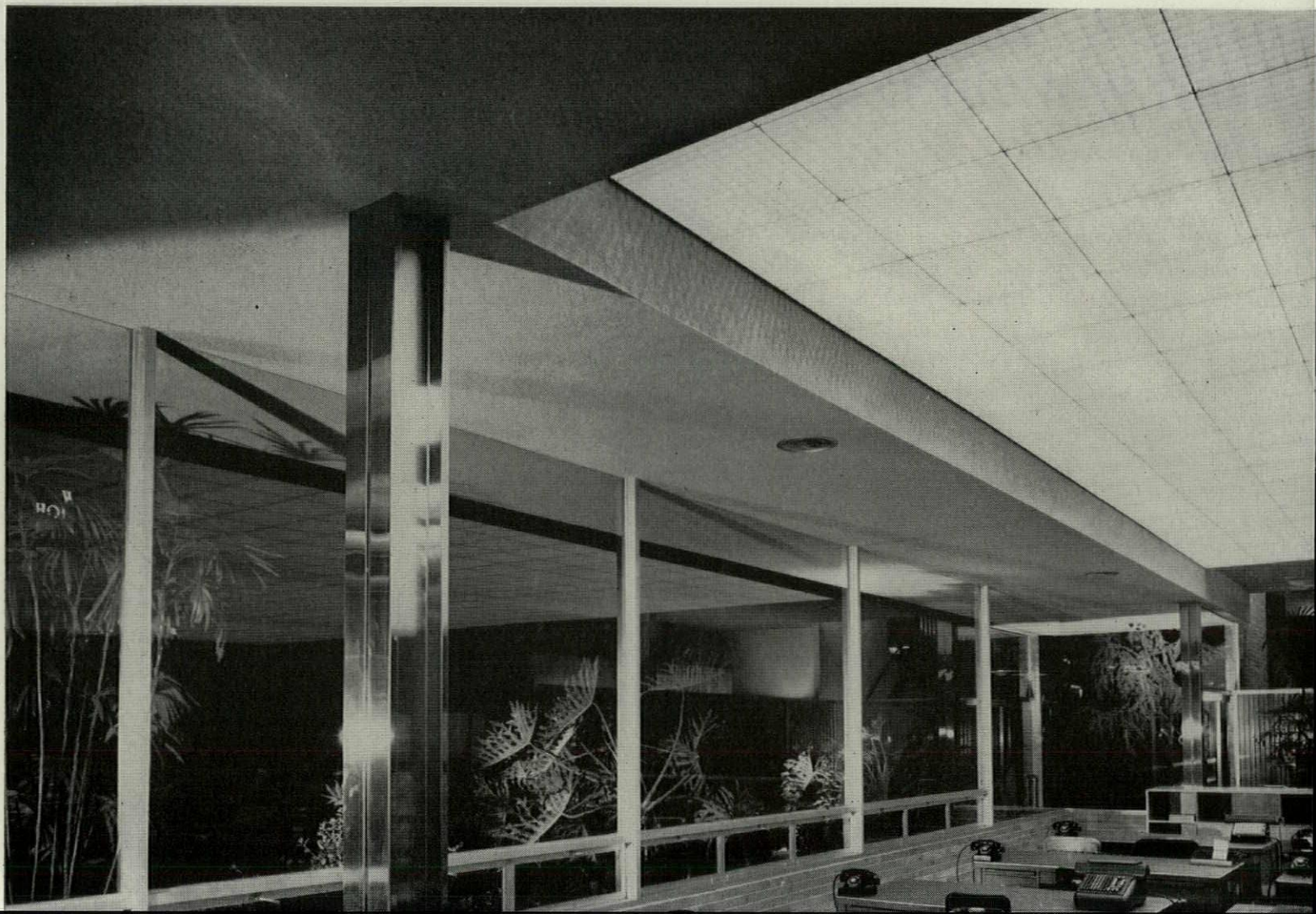
The deep-beam, wide span construction method also affected the exterior design. On the street side (facing east) Neutra employed vertical louvers to control direct morning sunlight. The louvers cover both the window and wide spandrel areas and are therefore larger than their strict function demands. However, their 17' height does serve a legitimate purpose. Had the louvers covered only the windows, the spandrel facing plus the ground floor glass facade would have complicated the small building front with three separate areas. As it is, the louvered facade decorates and simplifies the building.

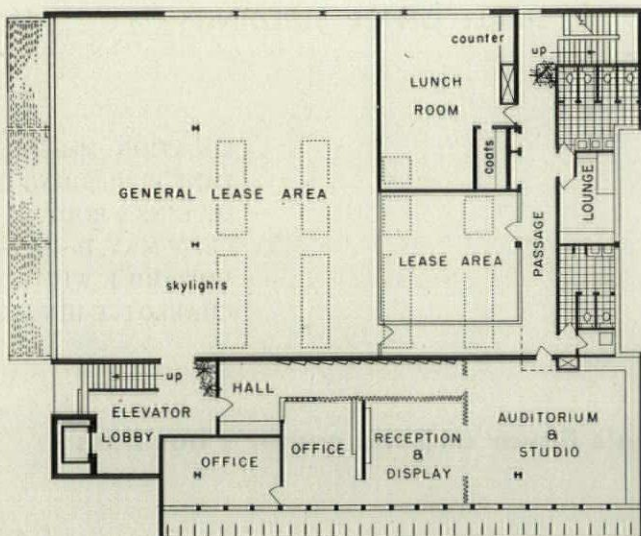
So successful is Neutra's office that it won honorable mention in *Office Management Magazine's* "Office of the Year" contest (judged by architects, decorators and management engineers).



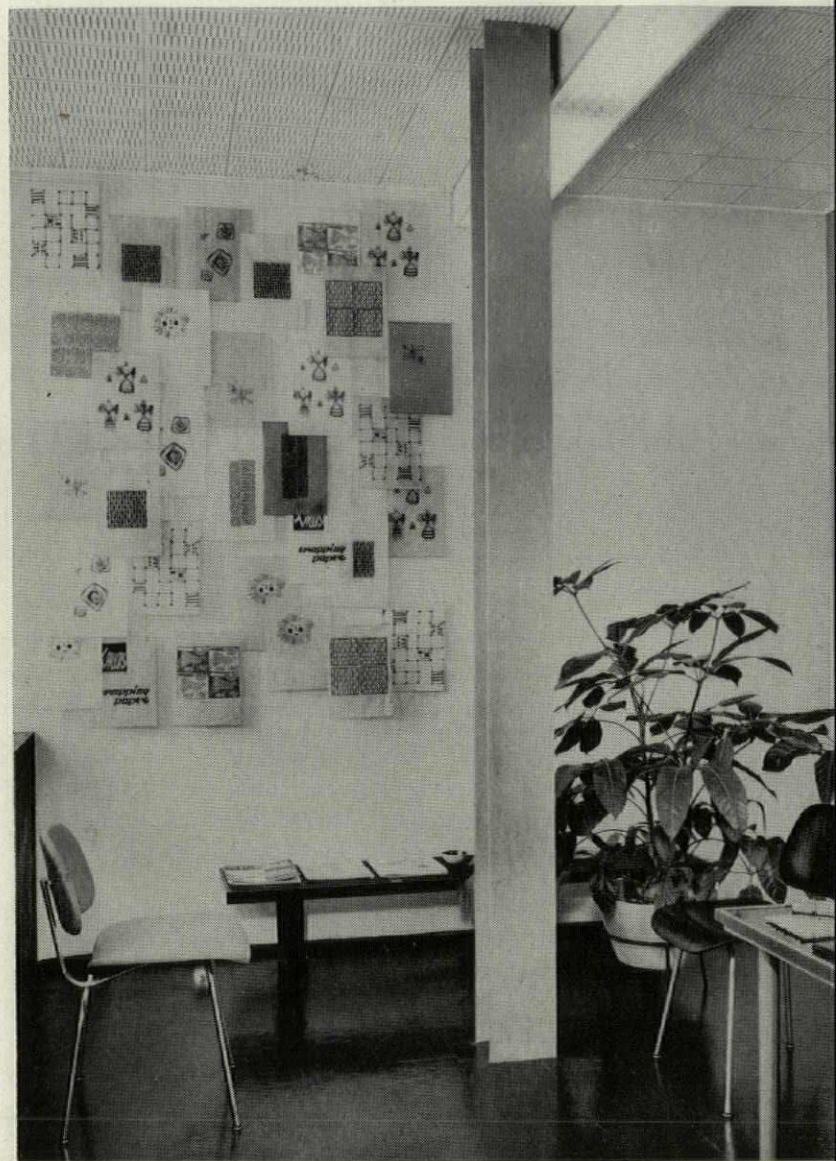
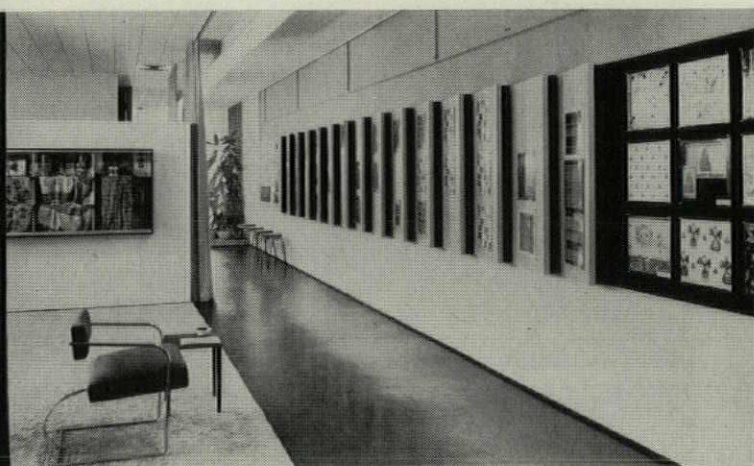
Steel supported deck and roof overhang control sunlight on the building's south side making extensive window areas practical.

Glass facade on first floor (below) faces street, adds to the feeling of openness. Planting outside keynotes informality of the entire building. Upstairs office (opposite page) with curtains drawn back turns office and hall into one light-filled space

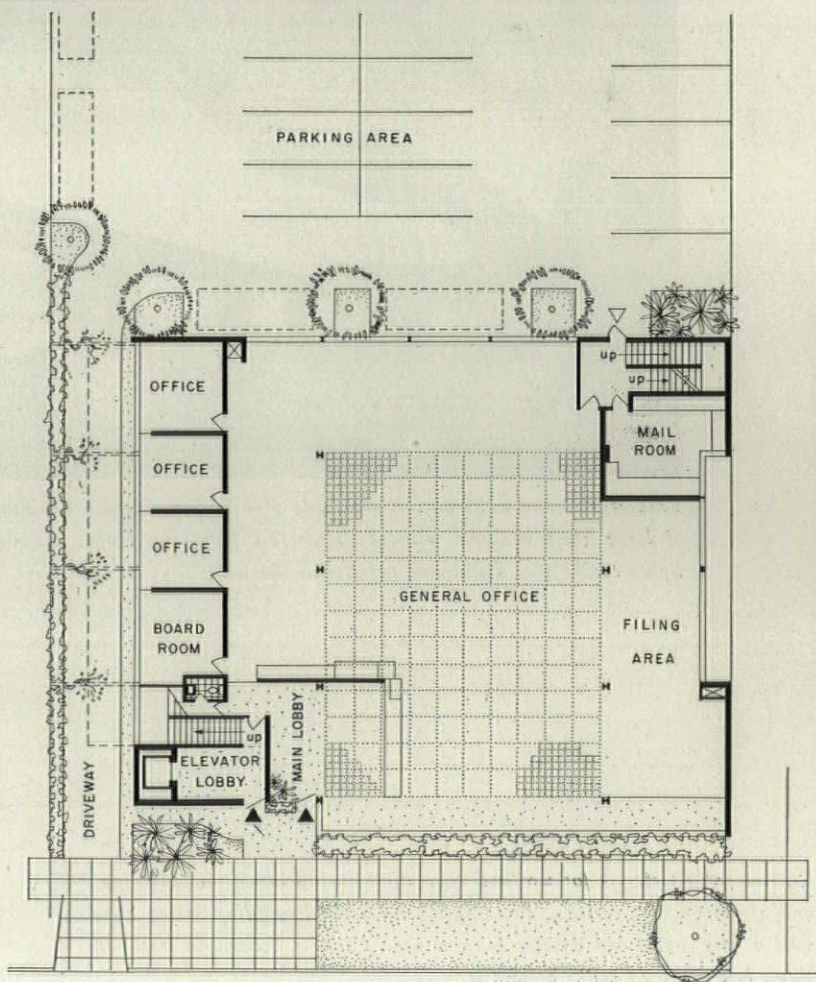


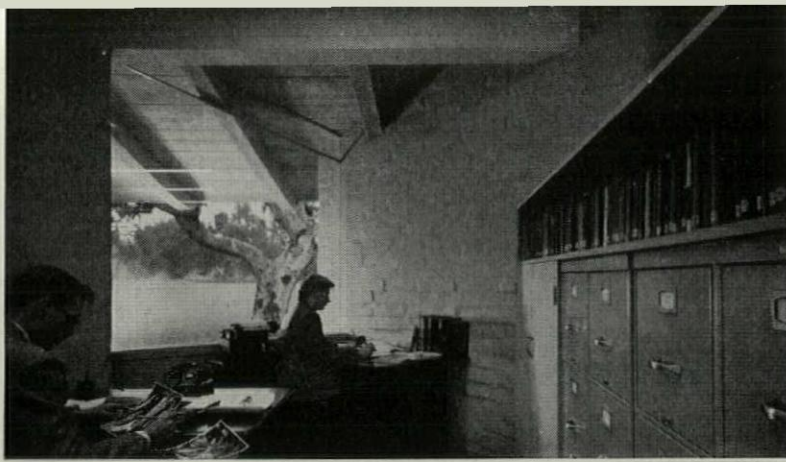


Second floor accommodates the insurance company's service facilities and utility rooms as well as expansion space which is currently rented. Ground floor plan is shown below.



Egg-crate trough in acoustical tile ceiling (above and continuing into the hall, left) lights reception-display room of second floor tenants. After dark (below) fluorescent lights silhouette vertical aluminum louvers—the main exterior design feature.





SMALL OFFICE BUILDINGS

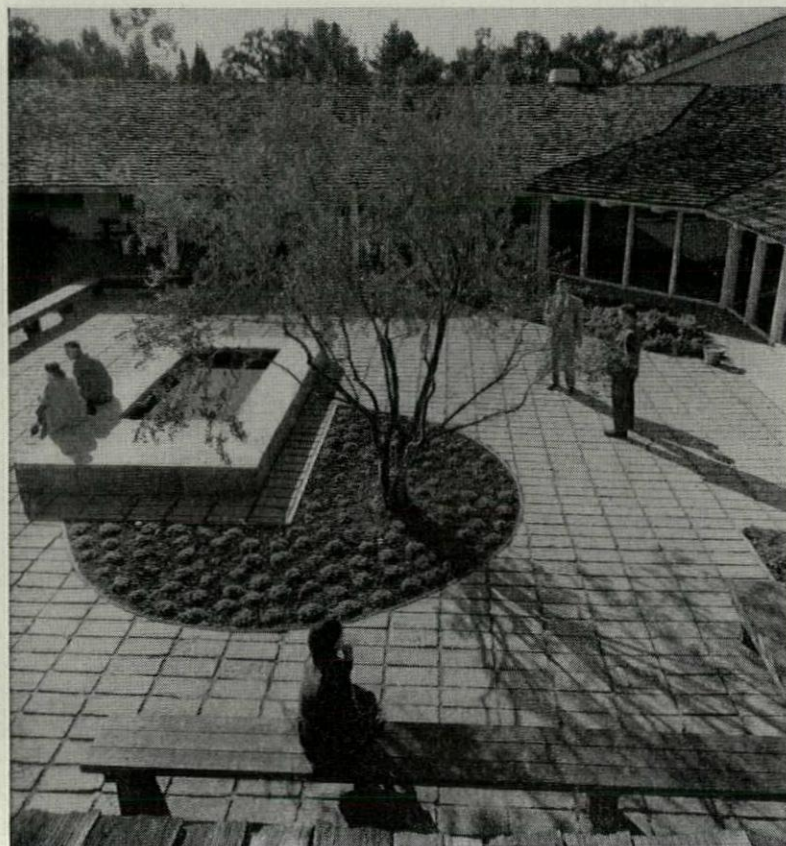
LOCATION: Menlo Park, Calif.
 LANE PUBLISHING CO., Owner
 HIGGINS & ROOT, Architects
 CLIFF MAY, Design Consultant
 HOWARD J. WHITE, INC., Builder
 CHARLOTTE HINCKLEY, Interiors

3. RANCH HOUSE PLAN expresses the region's flavor and the owner's business

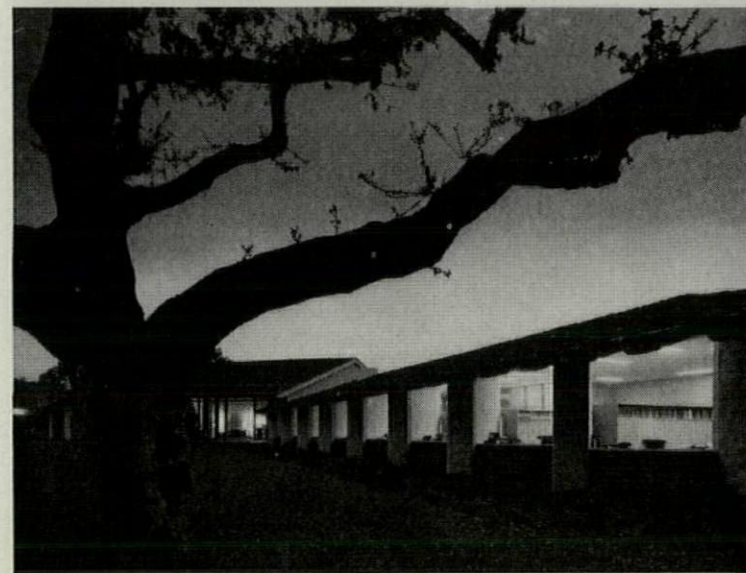
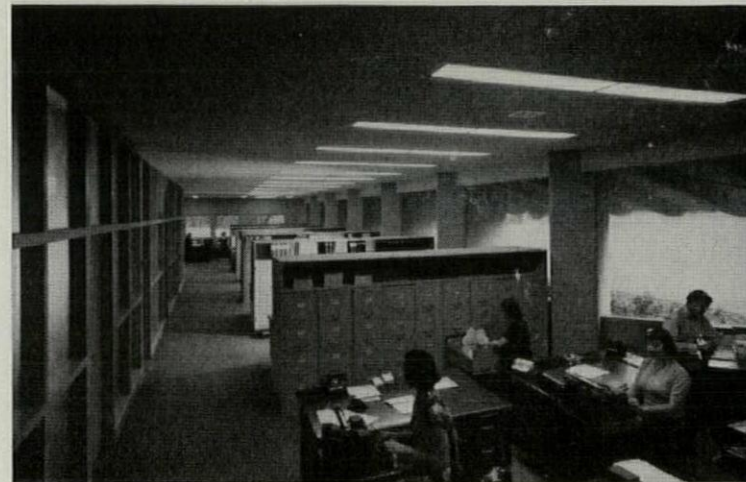
What happens when a business moves its office to the country? Nine times out of ten, it builds a Main St. office using its rural setting for nothing better than a pretty backdrop. Happily, the publishers of Sunset, The Magazine of Western Living, have done just the opposite. Their new office in Menlo Park, 30 mi. from San Francisco, is a rambling one-story building located on a seven-acre site and personifying the tenets preached in the magazine itself—indoor-outdoor living, casual comfort, barbecue cookery and gardening.

The office actually helps put out the magazine. The gardening editor, for example, has space for a garden where horticultural advice in the magazine is pretested; recommended recipes are prepared in the big kitchen and served for editorial consumption and criticism—outdoors, of course, on a shaded porch.

The 30,000 sq. ft. adobe-and-redwood building unfortunately abandons contemporary architecture in favor of a trance-like remembrance of things past: a Spanish ranch house. Its plan, however, holds to the best modern principles of function plus comfort. Reception and executive offices, creative, production and service departments each have separate wings. In the center, a patio provides private space for employee relaxation. Louvered walls on one side protect offices from the western sun and deep overhangs elsewhere form cool shadowed porticos.

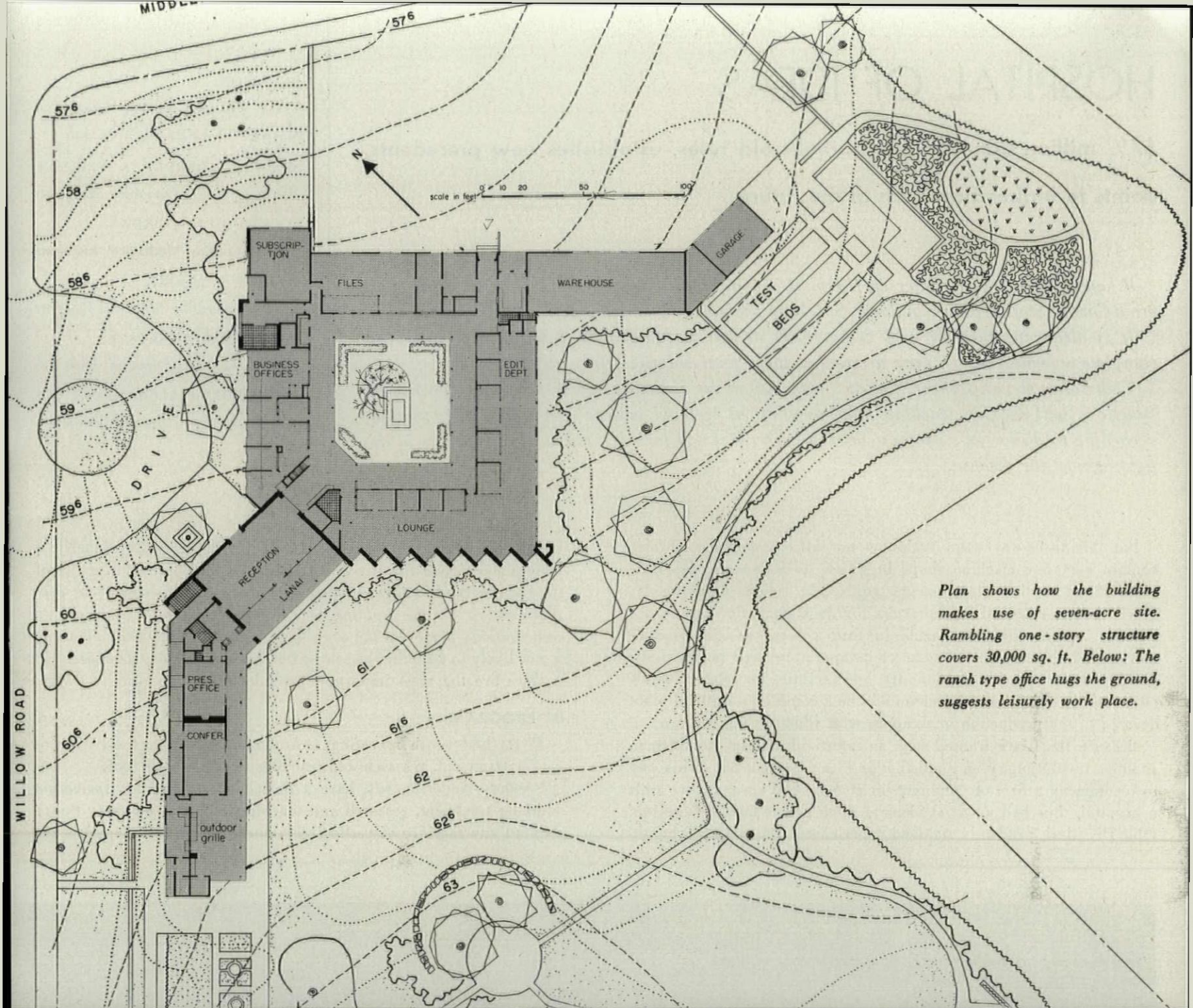


Photos: Ernest Braun



Louvered adobe walls on the west side give Sunset workers advantages of large glass windows without discomfort from sun (top). At night, lights inside give distinctive pattern to the wall.

Central patio (left) is for workers' relaxation during lunch and morning and afternoon rest periods. Planting in and around building shows how well a 'city' office can develop a rural site. Patio is accessible from all sides, has sheltered walks around it.



Plan shows how the building makes use of seven-acre site. Rambling one-story structure covers 30,000 sq. ft. Below: The ranch type office hugs the ground, suggests leisurely work place.



HOSPITAL OF IDEAS

\$7½ million Cancer Station breaks old rules, establishes new precedents, points to higher standards in the future

When Houston's new Anderson Hospital is completed a year from now it will be as modern a Cancer Station as any in the U. S.—very probably the most modern.

It is also exceptionally well researched: architects MacKie & Kamrath developed 23 complete schemes before they arrived at their final solution.

That solution is a Cancer Station (rather than an ordinary cancer hospital) because its functions will include teaching and research, as well as patient care. This combination, according to Anderson's energetic director, Dr. R. Lee Clark Jr., is the key to success in the fight against the disease.

But this three-way combination is not all: Anderson will also contain complete machine shops in which to design and fabricate some of the precision instruments required in various departments; it will be the editorial headquarters for the *Cancer Bulletin* (circ.: 80,000), a bimonthly magazine in four colors; it will produce movies and slide talks, and some of its operations will be televised; it will have its own library, laundry, and facilities for related service club activities; in short, Anderson will be a complex industrial plant devoted to the production of weapons with which to fight cancer.

Because Dr. Clark wanted such an unorthodox plant in which to practice revolutionary and unorthodox ideas, he went out of his way to recommend a firm of young architects who had never before built a hospital, thus had no fixed ideas to ditch before tackling the job. (But Dr. Clark prudently retained experienced consultants Schmidt,

Garden & Erikson.) As a result, the \$7½ million hospital MacKie & Kamrath designed for Dr. Clark's bosses (the Board of Regents of the University of Texas) establishes many new precedents in the program set up for the building by the hospital as well as in design contributions made by the architects. American hospital planning is not likely to be quite the same after Anderson opens its doors.

Here are the most important precedents:

IN PROGRAM:

First (and worth repeating)—Anderson will have the trinity of cancer treatment, research and teaching all under one roof.

Second—Anderson will have a horizontal flow of transportation (linking treatment, research and teaching facilities on every floor) without any sacrifice of vertical communication within departments.

LOCATION:

Texas Medical Center, Houston, Tex.

MacKIE & KAMRATH, Architects

SCHMIDT, GARDEN & ERIKSON,
Consulting Architects

LOCKWOOD & ANDREWS,
Consulting Mechanical Engineers

WALTER P. MOORE,
Consulting Structural Engineer

H. G. KNOLL ASSOCIATES,
Consulting Interior Designers

FARNSWORTH & CHAMBERS CO.,
General Contractors





Photos: F. Wilbur Seiders

View of Anderson Hospital from the southeast shows nursing units wing in the foreground, research laboratory wing in the back, to the right. Black material

is membrane waterproofing, will be hidden by $\frac{7}{8}$ " marble finish. Spandrels in framed part of facade will be finished in extruded aluminum.

In fact, communication (using two-way radio, color TV, pneumatic tubes etc.) will be better than ever before.

Third—Anderson will be one of the first all-food-wagon-served hospitals in the U. S., will spend an initial \$15,000 more for food-packing equipment—but eliminate subdiet kitchens on every floor and thus save an estimated \$25,000 p.a. in kitchen personnel wages alone.

And fourth—Anderson will have the most modern radiation equipment in the world (including the first Cobalt 60 therapy unit ever made)—and will of necessity contain the most modern antiradiation safeguards yet built into a hospital. These safeguards were developed by the late Dr. Leonard Grimmett, an English radiophysicist of world renown, whom Dr. Clark had brought to the University of Texas some years earlier. Dr. Grimmett also was the designer of the Cobalt 60 unit (voltage: 1,300,000) to be installed at Anderson.

IN DESIGN:

First—Anderson's intricate air conditioning system will include "under-window" room units that are actually tucked away *above doors* to save precious floor area.

Second—Anderson will save additional space by cutting its curtain wall thickness from 13" to 9" without sacrifice of the 4 hr. fire rating. Parenthetically, the architects will demonstrate that a marble-faced curtain wall backed with a 4" volcanic aggregate block can be cheaper than a brick-faced curtain wall, and that marble as a material is also 200 to 300 times more weather resistant than brick (important in a hurricane zone).

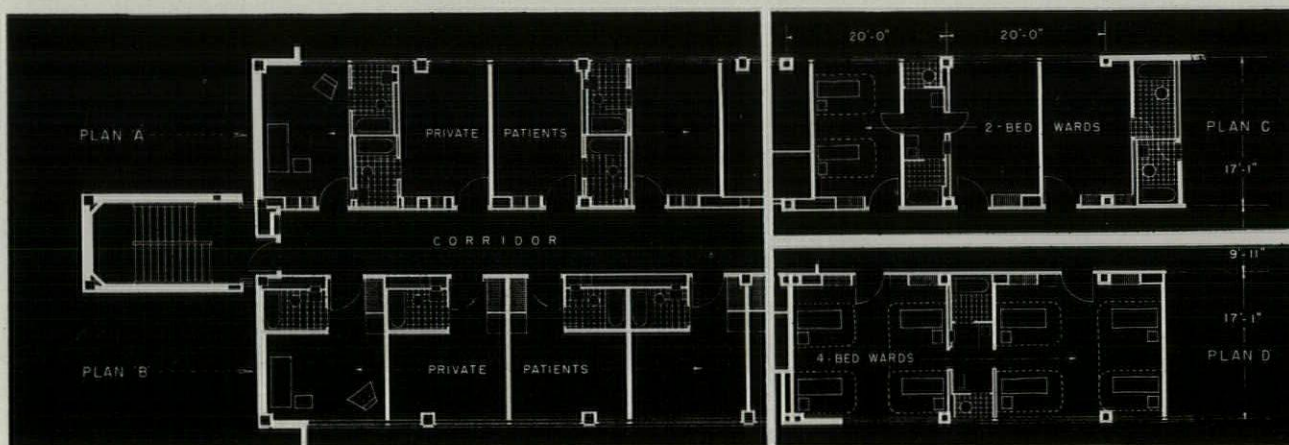
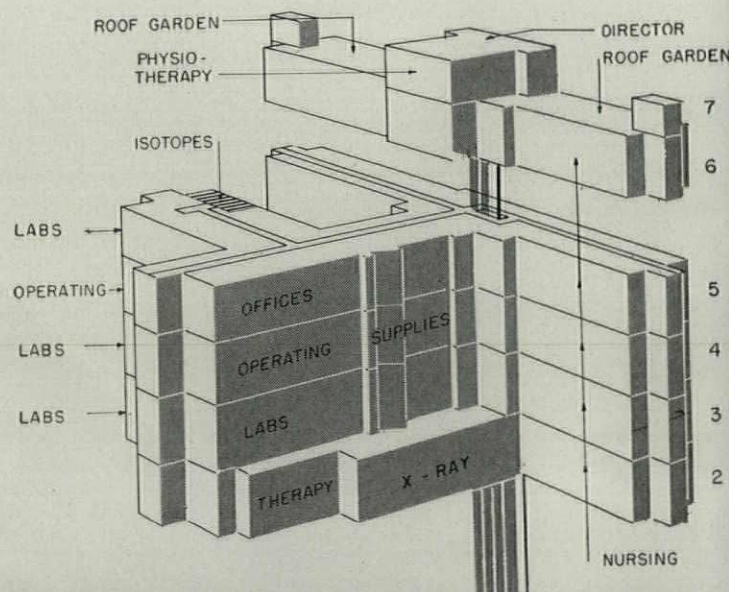
Third—Anderson's plans in certain individual departments—such as the areas relating to surgery—will set new standards.

And fourth—In its architectural design, Anderson Hospital will be a striking attempt to apply the principles of organic architecture to a tall, slab-like structure made up of repetitive units.

MacKie & Kamrath have been at work on their hospital for more than four years, in close collaboration with Dr. Clark and his staff of scientists and physicians. New developments in radiation techniques (as carried on at Oak Ridge and elsewhere) and numerous other factors caused many innovations. For this reason alone—and quite apart from the design quality of the building—the eight forward steps listed above make Anderson one of the most original recent events in hospital planning.

ANDERSON HOSPITAL IS DIVIDED INTO THREE WINGS:

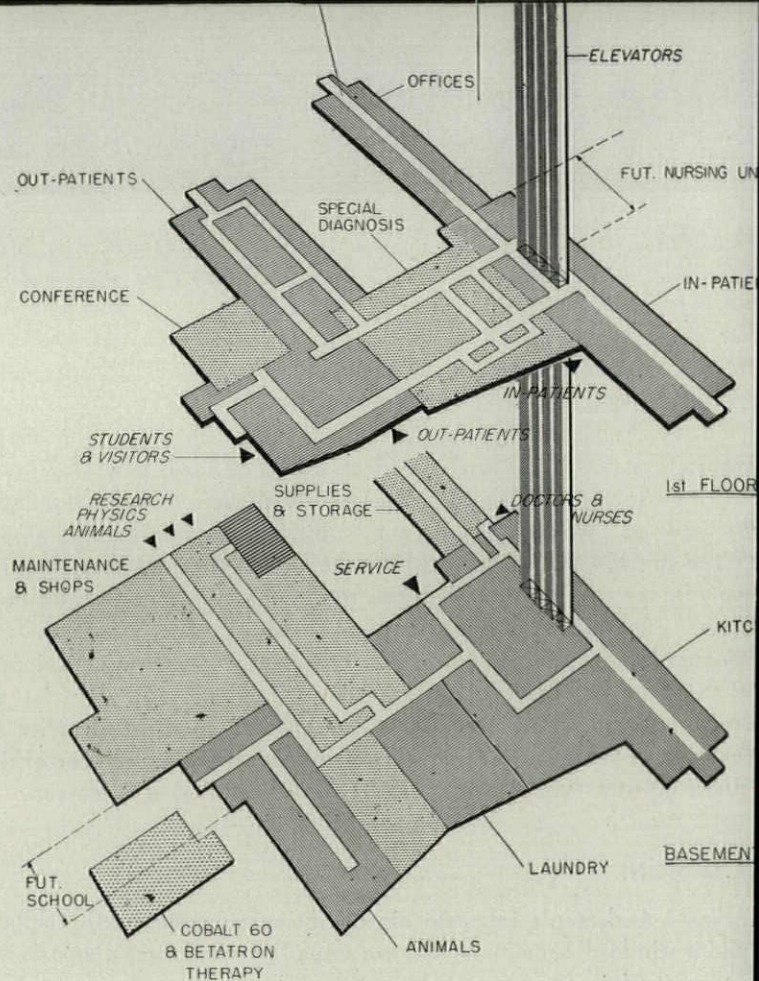
THE NURSING UNITS are contained in a 385' long, six-story wing that runs due east-west. In the center of that wing is a stack of four elevators; plans for future expansion include an additional nursing wing to extend due south from the elevator lobby, and elevator capacities were calculated to absorb this additional traffic later on. The nursing units have double-loaded central corridors, vary from 26 to 34 patients per unit. Patients' rooms range from private rooms with private baths between them (see plans A&B) to semiprivate units with a joint bath, toilet and subutility area between double rooms (plan C). The subutility is a time-saver, eliminates frequent trips to the central utility room and enables the nurse to clean most equipment on the spot. 4-bed wards have similar subutility (plan D).



THE MEDICAL SERVICES WING extends due north from the elevator stack. This wing varies in size from 18,500 sq. ft. to 10,700 sq. ft., contains the following services and departments: outpatients' entrance lobby and examination rooms for outpatients requiring special diagnosis on the first floor; X-ray diagnosis and therapy on the second; clinical and anatomical pathological labs on the third; central sterile supply and surgical sterile supply, as well as operating rooms, on the fourth (60% of all patients are treated by surgery); and more laboratories on the fifth.

THE RESEARCH LABORATORY WING is an off-shoot of the medical services wing, and covers about 8,500 sq. ft. per floor. Most of the training is centered in this wing, in additional labs and in conference rooms. Training is strictly on a postgraduate level and concentrates upon seven major subjects: physics, biochemistry, biology, experimental pathology, experimental medicine, experimental surgery and experimental radiology.

In the far east corner of this wing, on every floor, are labs for low- and high-activity isotopes (radioactive substances that are taken internally). Surrounding areas are carefully protected against their radiation by thick concrete and lead-shielded walls around this stack of rooms (see below). On the first floor there are examination rooms for outpatients, and some operating rooms are located on the fourth floor. But the bulk of the space in this wing is used for training and research.



THE CANCER STORY

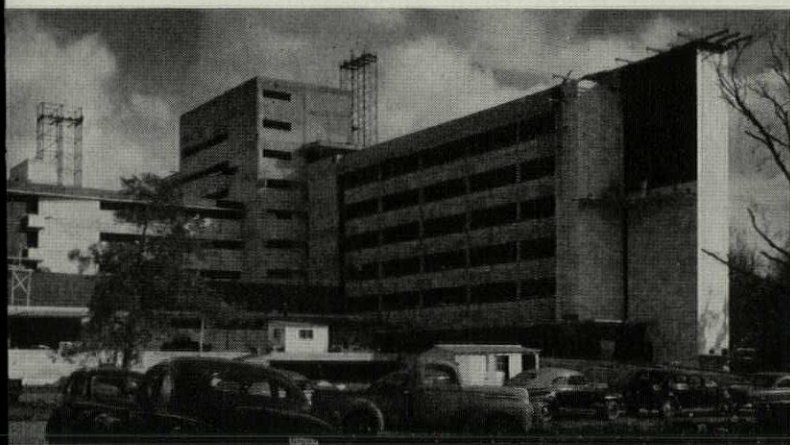
Anderson will contain 320,000 sq. ft. allocated to three basic divisions that correspond roughly to its three basic functions:

- 1. A 310-bed nursing units area*
- 2. A medical services wing*
- 3. A research laboratory wing (see diagrams opposite).*

About half the beds in the nursing units will be treated as "research and training beds" supported by University of Texas appropriation. The other half will be self-supporting private beds. In the laboratory and research wings, some 100 MDs and PhDs will receive training in their specialties: they will also carry on continuous cancer research using the cases in the nursing units (as well as outpatients) for daily reference.

In general, therefore, *there will be a constant flow of personnel and information from nursing units, through test labs, to research labs and back.*

For the present, Anderson Hospital will be able to handle about 100 trainees. However, the hospital was planned for future expan-



sion of training facilities, and a school wing extending due north from the laboratory wing may be added in a few years.

Dr. Clark considers the training aspect of his hospital most important. "The general practitioner is the first one to recognize cancer symptoms, and the earlier they are spotted the better the chance of recovery," he said recently, "so we must keep the family doctors informed of the latest developments. One way has been through the *Cancer Bulletin* we started to publish four years ago. It now has a circulation of 80,000, and we'll have an office for the editor in our new hospital. Another way is to invite doctors from all over the state to attend conferences for a few days at a time. We also plan to make and distribute movies of cancer treatment." Anderson will be more than a treatment-training-research center: *it will also be an information center for the whole state, handing out the latest cancer information developed in the research labs.*

Anderson's annual operating budget will be around \$3 million, with \$1 million devoted to research alone. The hospital will be able to handle 100 new and 200 old patients every day. Old patients must come back periodically over a period of five years after they have been discharged; records of this five-year follow-up program are an essential part of cancer research, and are kept in a large file room in the hospital basement.

THE COMMUNICATIONS STORY

The complexity of Anderson's plan is best seen in the fact that there are seven major, separate entrances to the hospital: for doctors and nurses, for inpatients, for outpatients, for trainees working in the

research wing, for kitchen supplies, for physics and other laboratory supplies, and for animals used in tests. (The animal influx has to be carefully controlled within the building: air-lock entrances will keep smells from penetrating to adjacent areas.)

Seventy per cent of the operating budget of a hospital pays for personnel, so that smooth traffic and elimination of waste motions are of supreme importance. Since most of the nursing-unit-to-laboratory-to-research flow is best accomplished horizontally on every floor, the chief problem is walking distance and poor vertical communication—by ordinary means.

The answer was to find extraordinary means of transportation and communication. Here are some of the extraordinary means employed:

Transportation facilities

- ▶ *Wagons for packaged food (see below).*
- ▶ *Pneumatic tubes (cost: \$27,600) to transport supplies measuring up to 3¾" in diameter, 13½" in length. Dr. Clark believes this system will pay for itself in runners' wages in two years.*
- ▶ *And special elevators and dumb-waiters for animals, supplies, isotopes and other "hot" matter.*

Communication facilities

- ▶ *Two-way radios between patients' beds and nurse's station.*
- ▶ *Call system for doctors using light control panels at every nurse's station, with names flashing on if and when doctor is wanted. Gong system in emergencies only.*
- ▶ *Planned for future use: a newly developed, pencil-sized "walkie-talkie" for each doctor.*
- ▶ *Color TV to televise operations. This will eliminate old-fashioned operating theaters in which observation was poor and air conditioning load great. TV reception will be in the conference rooms and labs, and trainees can ask questions of surgeon by intercom as the operation progresses. Black-and-white TV would not have done this job, since differentiation in color is only way to tell a surgery story.*
- ▶ *16 mm. color films with sound tracks will also be used. Chief disadvantage as compared with color TV: no chance of questioning surgeon during operation.*
- ▶ *Special dictating booths and equipment spaced along corridors outside examination rooms. This equipment will be connected directly to monitors in the central secretarial pool for quick recording of examination and of diagnosis.*
- ▶ *And a specially designed records-lift which transports records to and from the central control stations.*

THE PACKAGED FOOD STORY

All patients at Anderson will have their food served to them from food-tray dollies. These stainless steel vehicles (*see cut on p. 156*) carry either 20 or 40 trays on racks, and soup, coffee and tea containers on top. The meals are prepared in the central kitchen and placed in hermetically sealed, insulated container-trays that are kept warm in the heated wagon. (*For details, see p. 156.*)

THE RADIATION STORY

Most important of all the innovations at Anderson may be those concerned with the radiation equipment used at the hospital. Many of these developments should be credited to Dr. Gilbert Fletcher and the late expert radiophysicist, Dr. Leonard Grimmett—an Englishman who was brought from London to Houston when Anderson's plans were being prepared. (*For details see p. 156.*)

THE AIR CONDITIONING STORY

Most hospitals built in the U. S. to date have exterior shells from 2' 6" to 3' thick—counting the masonry skin and all the equipment stashed away under window sills. Since the design of Anderson Hospital was a constant race against rising costs and a constant battle for more generous funds, MacKie & Kamrath refused to accept such wholesale waste of precious floor area, decided to question what most hospital experts were accepting as unavoidable.

By keeping practically all their pipes and all high-velocity air conditioning units away from the exterior walls, they reduced



View of roof garden above. This can be used by ambulatory patients. Picture was taken from director's penthouse office.

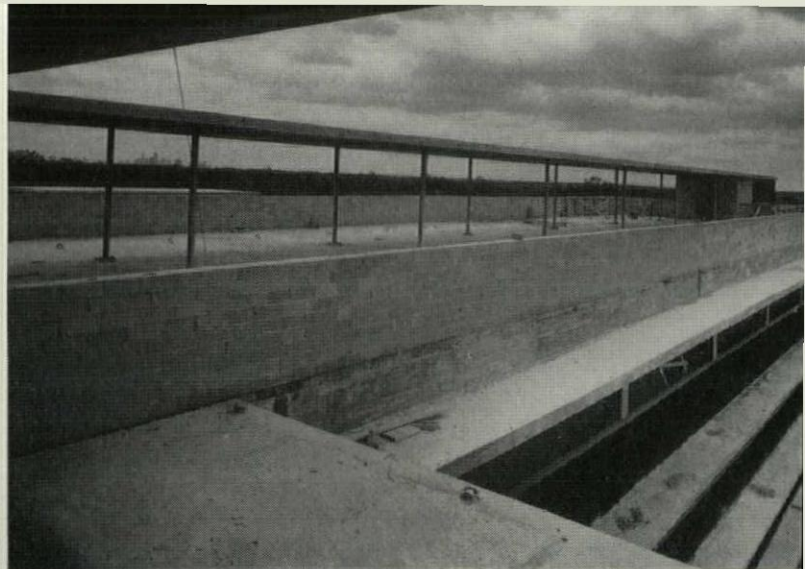
Picture at left shows high-velocity air conditioning units suspended from ceilings, just above entrance doors to patients' rooms. They are drained through bathrom drains. Above-door installation saved hospital 15,000 sq. ft. of floor space. Below: Stair tower at west end of nursing units wing.

the exterior wall thickness initially to the 13" minimum required by Houston's antiquated building code. (This was still further reduced later on, as we shall see below.) In any event, this reduction alone *added some 15,000 sq. ft. to the gross area of the building—or, to put it another way, gave Anderson some \$180,000 worth of space free.*

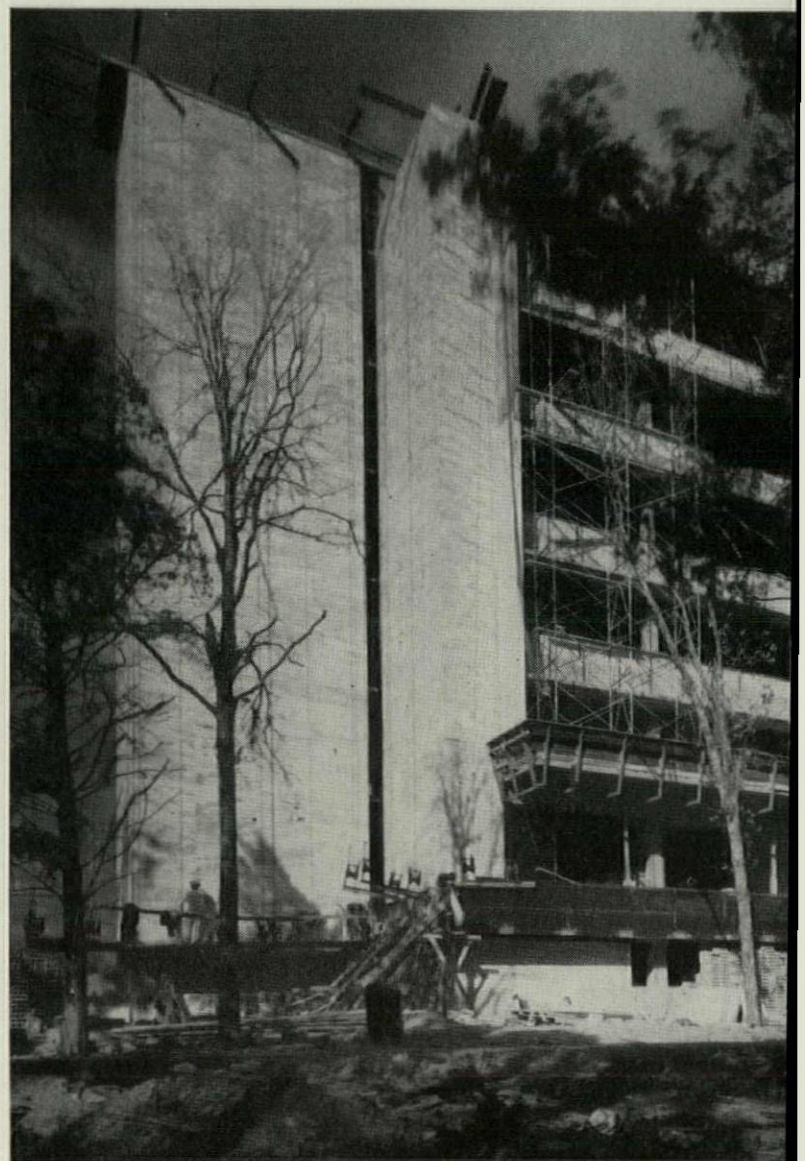
Having wrung this extra space out of their building, the architects looked for ways of placing their high-velocity units (one for each bedroom) where they would be out of everybody's way. In collaboration with the Thermal Engineering Co. of Houston, they devised an individually controlled, high-velocity unit that could be suspended from the ceiling and furred in just above the entrance passages to each bedroom (*see cut*). Since there are bathroom drains close at hand everywhere in the nursing unit, condensate could be drained off through these. So successful is the installation that General Electric is now planning to produce a standard, "above-door" unit similar to the one used at Anderson.

To supplement the high-velocity system, the architects installed a low-velocity cold and warm fresh air system with ducts in the central corridor ceilings. In addition, there is a great variety of special air conditioning and ventilating systems for operating rooms and hot labs—the latter requiring a special exhaust fan for the disposal of 100% of all radioactive fumes. All through the hospital, concrete spandrel beams are very deep and only 8" thick, and openings were cut into them wherever special intake units were required in labs handling radioactive materials.

Most of the heating is accomplished with baseboard convectors used in conjunction with circulated warm air. In the private rooms on the second floor, however, radiant heating coils were set into the floor since these rooms have glass sliding walls opening on a cantilevered balcony. Almost all the pipes needed for heating, high-velocity air conditioning and other services (including suction and oxygen in every patient's room) were kept back from the exterior wall and assembled in compact stacks along the sides of the central corridors. Only one steam pipe runs in the thin curtain wall: it was needed to supply the baseboard convectors.



Photos: F. Wilbur



THE CURTAIN WALL STORY

From the very first, MacKie & Kamrath realized that a *steel frame building was out—they would have had to add the equivalent of a complete concrete structure to get the floor-to-floor radiation protection that concrete affords* (rule of thumb: 1' of concrete equals 1" of lead in protective value). Moreover, concrete proved more stable against vibration, thus protected finely calibrated instruments in the research wing.

Much more difficult was the choice of a curtain wall. Not satisfied with having added another 15,000 sq. ft. to Anderson's gross floor area, the architects now began to question the validity of Houston's archaic 13" minimum thickness for exterior walls. In so doing, they went through a whole range of possible curtain walls, analyzed their relative costs and the structure needed to hold them up and arrived at their final selection of a 7/8" Georgia pink marble veneer with a 4" volcanic aggregate block backup. The chart on this page shows the cost comparisons developed in this study.

The study revealed several interesting facts:

1. The 4" backup block had the same Underwriters-approved, 4 hr. fire rating that Houston expected from its 13" masonry wall. Convinced, Houston's building code administrators changed the code, permitted Anderson to go ahead with a wall consisting of marble veneer, air space, 4" block, more air space and interior finish. Total thickness: 9".

2. This reduction of 4" in curtain wall thickness increased Anderson's usable floor area by another 3,400 sq. ft.

3. Water absorption of marble tests a mere 5/100 of 1% by weight as against 10% to 15% for good face brick. In a hurricane zone this factor is tremendously important.

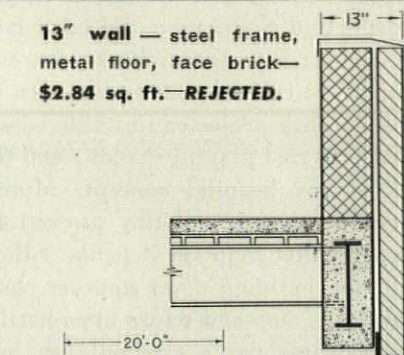
4. Weight of 13" of masonry would have required additional reinforcement and concrete in spandrel beams, columns and footings.

5. Cost of the 9" marble veneer wall will be only \$2.82 per sq. ft. (and that of a 9" aluminum spandrel wall only \$2.13) while the conventional 13" thick walls would have come to around \$2.84 per sq. ft., *not counting increases in structural costs to hold up the thicker masonry.*

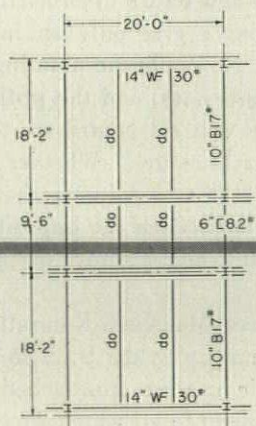
Part of the exterior will be finished with extruded aluminum panels. They are factory-oxidized and will blend perfectly with adjoining marble surfaces. Aluminum-faced spandrels occur mainly within the framed and shaded portions of the hospital facades, on the south side of the nursing unit wing.

The architects, greatly concerned with maintenance problems, were happy that the marble veneer with its low absorption would be much less trouble after rains, high winds or hurricanes.

Consideration of cost and maintenance also dictated the choice of interior finishes, which will be of a clear plastic sheet backed up with a colored (and occasionally patterned) fabric—the whole sandwich to be mounted on the plaster surface. H. G. Knoll Associates who are co-operating on all interiors (including color selection) decided with the architects and Dr. Clark that the plastic wall finish would give them superior wear.

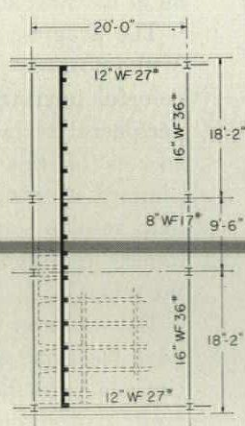


13" wall—steel frame, metal floor, face brick—**\$2.84 sq. ft.—REJECTED.**



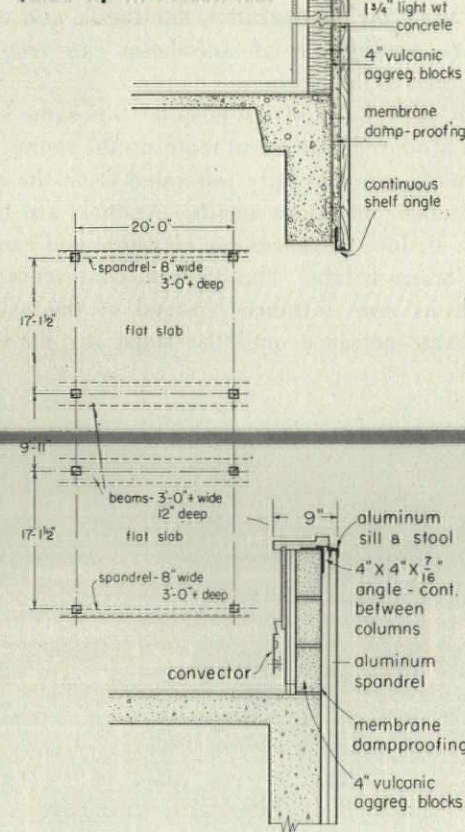
9" wall—steel frame, light weight aggregate, aluminum spandrels—**\$3.30 sq. ft.—REJECTED.**

13" wall—steel frame, concrete floor joists, face brick—**\$2.53 sq. ft.—REJECTED.**



9" wall—steel frame, concrete floor joists, light weight aggregate aluminum spandrels—**\$2.84 sq. ft.—REJECTED.**

9" wall—concrete frame, concrete floor, slab construction, marble veneer—**\$2.82 sq. ft.—ACCEPTED.**



9" wall—concrete frame, concrete floor, slab construction, aluminum spandrels—**\$2.13 sq. ft.—ACCEPTED.**

THE PLAN STORY

No visitor to Anderson Hospital can help being impressed by its complexity and by the way the architects managed to integrate dozens of different activities in one organic plan. Even more impressive is the fact that *the hospital was designed so that whole sections, wings or floors could be chopped off without affecting other hospital functions in the event fund-raising did not come up to expectations*. Thanks to the indefatigable Dr. Clark, however, who parlayed an original \$1,750,000 appropriation into a total that now approaches \$7½ million (and who fully expects to get an additional \$1 million for equipment before the building opens its doors), no important wings or departments had to be amputated.

This planning-with-one-eye-on-fund-raising is quite a story in itself. But more interesting to other hospital designers are the detailed plan innovations incorporated at Anderson, especially those around the operating rooms. Here are the most important ones:

1. *Operating Rooms*. As in most modern hospitals, these are grouped in pairs around one central work and scrub-up room, so that one surgeon, with two teams, can carry on two operations simultaneously (*see plan*). Some sterilizing of equipment goes on in the workroom and there are detergent sprays for the surgeon to clean his hands.

2. *Anesthesia*. Since Dr. Clark's wife is a practicing anesthesiologist, the anesthesia program was particularly well worked out for the architects. To keep tanks and other bulky equipment from cluttering up the operating room floor, MacKie & Kamrath designed a two-way storage wall loaded with gases piped to the prep rooms, and equipped (on the operating room side) with control panels to which the anesthetist could attach a thin hose. Sterile supplies are similarly prepared. They are pushed through another two-way storage wall: this one consists of stacks of drawer trays arranged each morning by a nurse who has a schedule of the day's operations and can lay out instruments and packs for each operation on a separate tray.

3. *Subrecovery*. The prep rooms adjoining each operating room are used for preoperative anesthesia and subrecovery, so that patients coming out of anesthesia can recover fully before being returned to their rooms.

In other parts of the hospital this same kind of original thinking has produced better and more useful rooms. The animal rooms, for example, are carefully separated from the rest of the research area to isolate obnoxious smells. Animals are brought in through their own air-lock entrances and elevators and can be delivered directly to the research labs. The 350-seat conference room on the first floor, with its rear entrance (instead of the usual side doors) and its separate entrance onto the stage for patients under discussion is

another example of simple rethinking of an accepted standard. And the use made of the roof areas (gardens that can be reached by ambulatory and wheel-chair patients) might well be copied by other hospitals. In the center of this roof area, incidentally, is Director Clark's own office and conference room—far enough away from the main entrance to discourage stray visitors. Dr. Clark spends a good many hours in the operating rooms himself, and needs all the time he can get to run Anderson Hospital.

THE DESIGN STORY

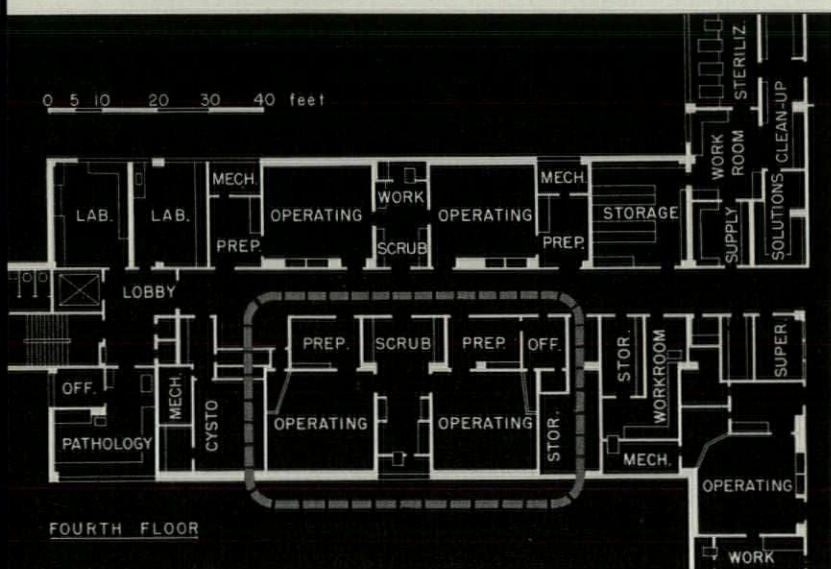
The kind of organic architecture to which MacKie & Kamrath subscribe has, of course, been brilliantly pioneered by Frank Lloyd Wright. Its principal characteristics—sweeping horizontal planes and lines that tie a building to its natural setting—can be expressed without too much difficulty in low-slung residences. But in a tall, slab-like building, these principles require an entirely different expression, have frequently prompted the master himself to seek strikingly original solutions.

The architects looked at some of these solutions, adopted a few of their basic concepts, but came up with an expression that has originality in its own right: their hospital rests on a series of horizontal planes—the projecting masses of first floor wings, the cantilevered canopies over carports and the cantilevered balcony outside the private rooms. The simple, tall masses of the building proper then rise out of the flat, horizontally accented base.

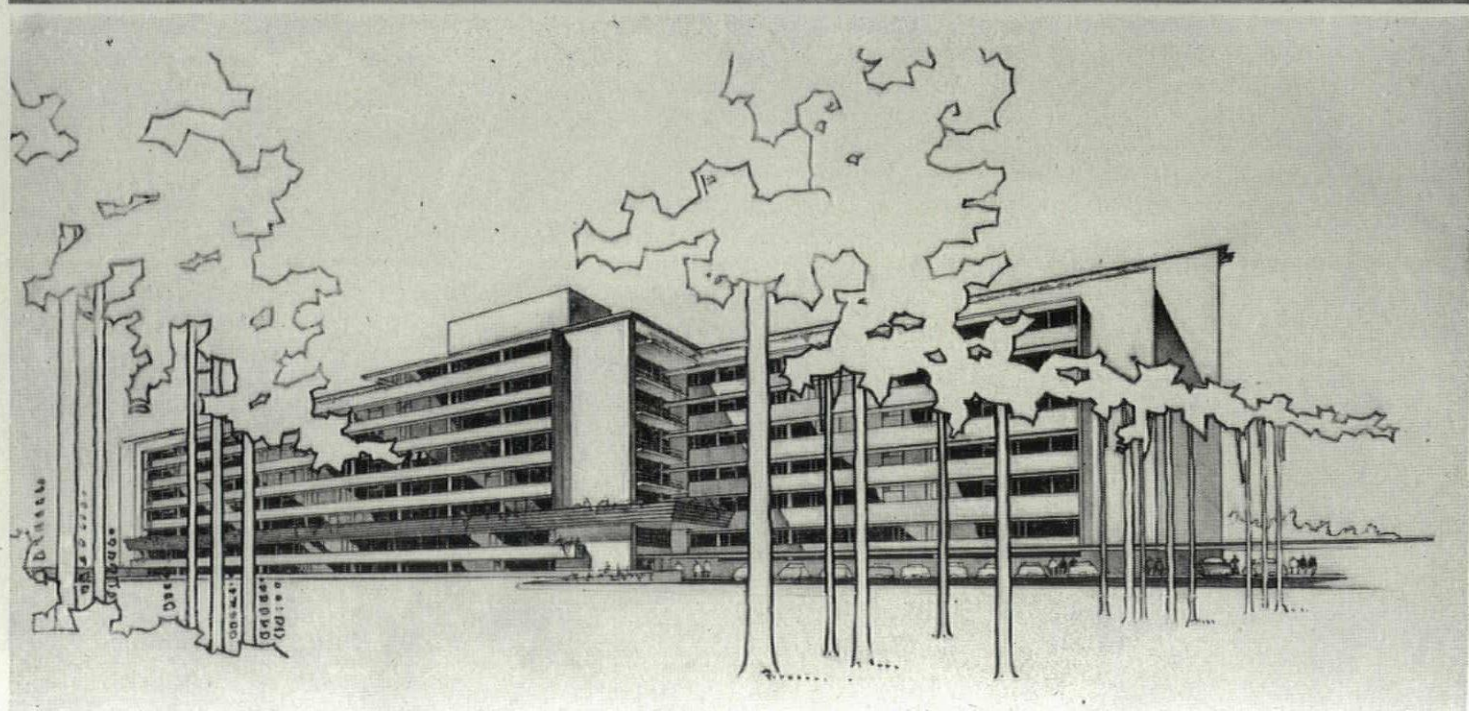
Flat, slab-like buildings are anathema to organic architecture, and MacKie & Kamrath made several attempts to fight the "flat-bosomed" geometry they were likely to get if they didn't watch out. They had no trouble on their south facades, where deep overhangs helped to give the face of the building depth and modulation. On other facades the problem was more complicated: here the architects introduced eyebrow overhangs that continue the ceiling planes, then turn down at one end to frame the windows. They projected tiny balconies (for planting) beyond the flat facades to cast playful shadows and to emphasize the humanism basic to any hospital concept. Moreover, each slab was framed in roof overhangs and tiny projections or topped with roof-garden canopies that help tie it to the adjoining building masses. As a result, the building never appears chopped off at its ends, always seems really to stop and return upon itself.

The progress photographs on these pages give only an inkling of the possible success of this treatment. No doubt the planting, the colorful interiors planned with Knoll Associates, and the projected peripheral terraces, pools and sculpture will all contribute to the success of this building as organic architecture. Whether they planned it or not, the architects may arrive at a solution that will help resolve some of the current conflicts between the opposite extremes or organic design on the one hand and abstract design on the other.

But whatever their success in this respect, MacKie & Kamrath will have built one of the freshest hospitals put up in the U. S. in some time—a fresh hospital because its problems were approached with fresh, unprejudiced minds; an encouragement to all young American architects whose access to large building commissions is so often blocked by narrow clients who place more value upon past performance than upon uncluttered vision and future advance.



Left, typical operating rooms on fourth floor. They were laid out to permit one surgeon with two teams to carry on two operations simultaneously. Opposite: Rendering of finished hospital. Above: Approach view, showing marble finish in place around stair tower at west end of building.



BOWLING ALLEYS

substitute good design
for juke-box appeal, convert awkward
bus terminal space to a money-maker

Here is a bright new note in bowling alley design—a direct, cheerful layout which shifts bowling from the poolroom league to the cocktail set. Sandwiched between two levels of New York's mammoth but shapeless new mid-town bus terminal, these 30 alleys gross \$750,000 a year from space previously useless because of an inclined bus-loading floor above.

Architect Arbeit converted the liabilities of this wedge-shaped cross section to assets by putting the alleys at the low (9') end and stepping up to the high (12') end with a tier of seats and a spacious promenade for spectators. The curved entrance foyer brings people in on the high promenade level, opens up a sudden, dramatic view of the 200' wide sweep of alleys beyond. To the left is a glass-walled cocktail lounge, well segregated from the bowling area; directly ahead is the control desk; to the right is the dominant feature of the promenade—an inviting, curved lunch counter (above).

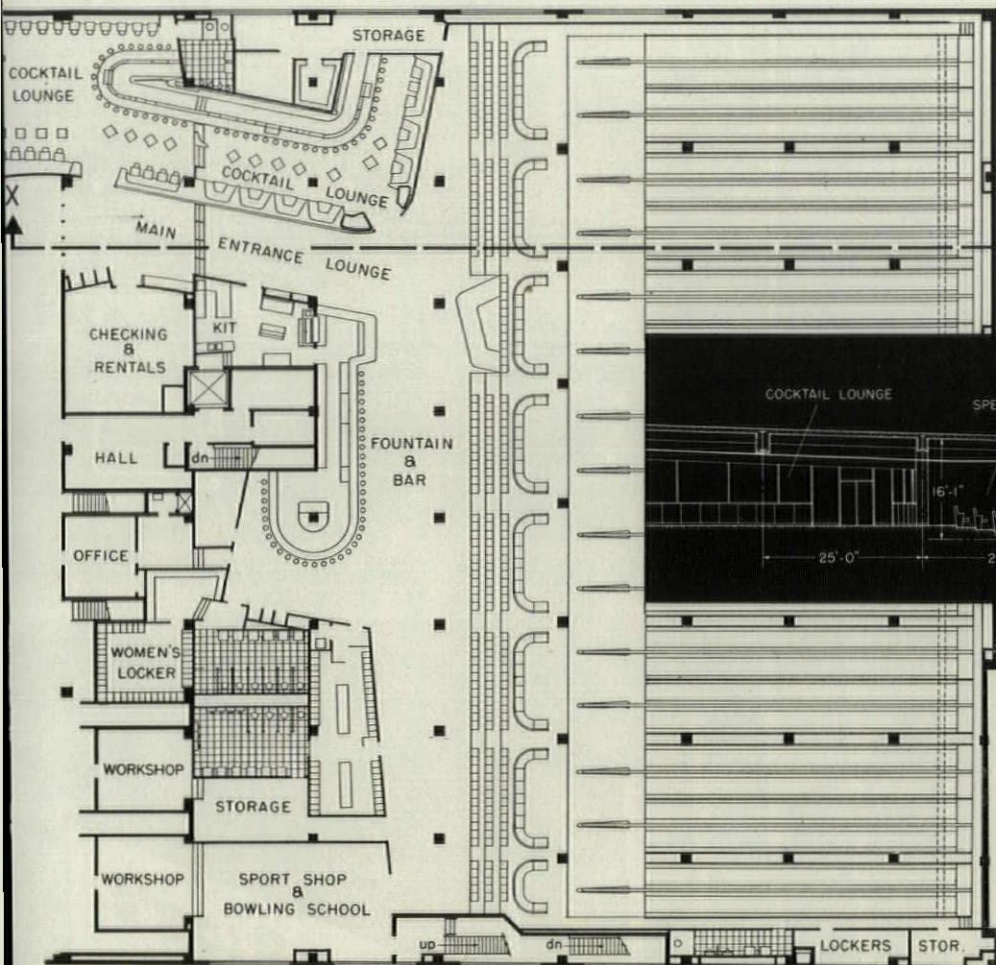
Over the alleys, the sloping plane of the ceiling is broken into sawtooth sections which aid acoustics and serve as baffles for fluorescent lighting concealed in the coves. To eliminate distracting overhead patterns and keep attention focused on the brightly lighted alleys, small recessed down-lights are used in the rest of the area. The acoustically treated ceiling keeps noise at a comfortable level, but does not kill the satisfying rumble of a "strike."

Finishes were selected both to produce a warm, friendly atmosphere and to permit easy maintenance. In the spectators' area, columns are sheathed in plastic-impregnated mahogany, rear walls are vertical redwood siding, with an accent of salmon-colored tile behind the lunch counter. Columns between alleys are painted white to blend unobtrusively with the ceiling and background. As a foil for the dominant warm wood tones, side walls are faced with deep blue plastic-coated fabric.

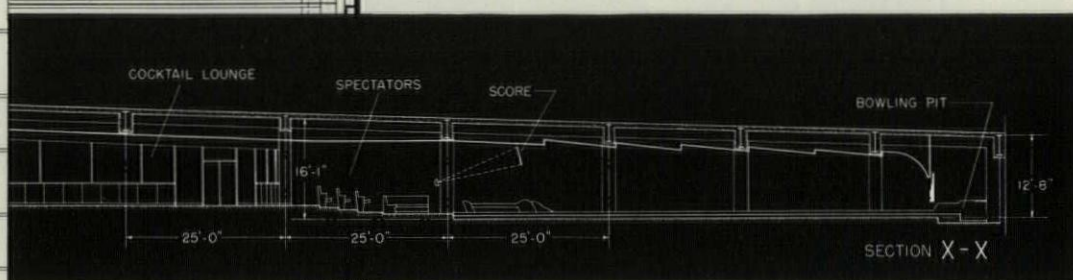
Completely air conditioned and fitted out with the latest in standard bowling equipment, the whole job cost close to \$1 million.

Photos: Damora





LOCATION: N. Y. Port Authority
Bus Terminal, N. Y.
ARNOLD A. ARBEIT, Architect
CHAIRMASTERS INC. and
STONE INC., General Contractors



Alleys solved problem of producing rent from a 200' x 200' area beneath bus-loading ramps. Higher entrance level with 12' ceiling provides grandstand view of alleys for spectators. Low 9' ceiling at end of alleys is ample for pin boys and semiautomatic pin-setting machines.





RICH'S

NEW DOWNTOWN STORE

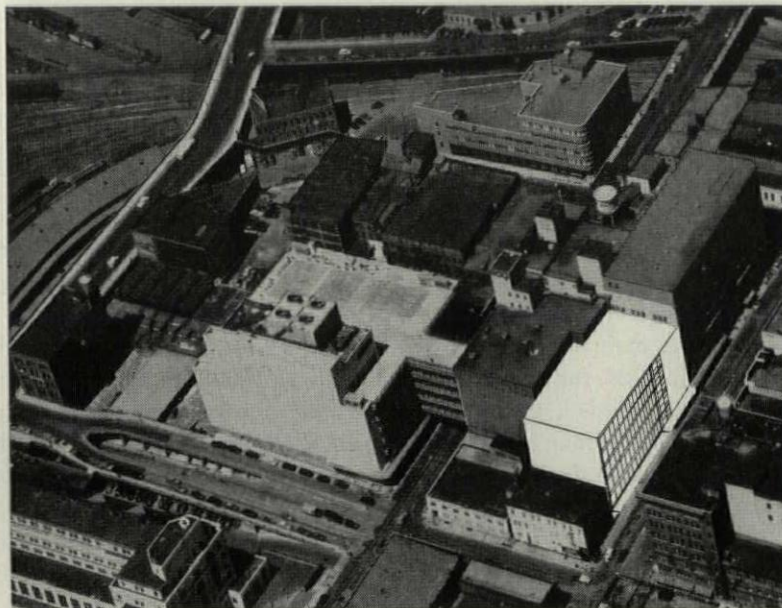
**adds to a central store community,
counters the race to suburbia**

The clean-cut glass and aluminum facade on Broad St. in Atlanta stops by-passers, instantly suggests news. And indeed the new seven-floor Store For Men built by Rich's famed department store as its latest addition has more than one useful story for visiting merchants and store architects.

Obviously, the striking glass front by architects Stevens & Wilkinson is one of the stories: it emphatically contradicts the trend toward windowless department store buildings such as Macy's in Kansas City (Feb. issue '50).

Equally fascinating is the store interior—designed all the way through for a special merchandising policy, the policy of customer *self-selection*. (Rich carefully explains that this differs sharply from *self-service* and that specialists are available for personalized service.)

Serving this policy, store designer Eleanor LeMaire has given the Store For Men an extraordinary array of sharply designed special-purpose fixtures, specially lighted and



D. L. King

New Store For Men takes its place beside Rich's main store. It is the fourth major addition since 1940.

arranged to show customers full lines of every stock classification (p. 132-133).

Less immediately obvious are the strong implications of the fact that this is clearly a men's store—a separate entity built by a department store. The ordinary department store would have added floors, not stores; would have simply expanded existing departments vertically or horizontally. But this is the second time since World War II that Rich's has hit Atlanta with a new department set up as a complete new store. (The first was the fabulously successful Store For Homes built in 1947.) And therewith emerges clearly a significant new pattern.

Rich's new pattern—adding stores, not floors—is the first radical new downtown idea challenging the suburban shopping center. What Rich's has invented is nothing less than the idea of the downtown community of stores under single management—a sort of one-store downtown shopping center.

STORE FOR MEN: requirements

In its new store, Rich's shopping community has come closer to achieving its merchandising goal than in any previous expansion or renovation. Since it contains the fruits of the owner's extensive experience, the requirements handed architects and designer were precise and to the point: design a complete store for men adjacent to the main store with a separate identity and separate entrance but accessible from the main store. Above all, make the new store appeal to men.

These requirements were met. The Store For Men competes with the most exclusive men's specialty shops in Atlanta. It includes not only clothing but an Abercrombie-&Fitch-type array of sporting goods—everything a man might want to buy from jeweled cuff links to outboard motors. Shrewdly, it also has everything a gift-shopping woman might conceivably buy for a man.

With this new store, Rich's confidently expects to increase its annual \$3 million sale of men's goods to at least \$6 million.

LOCATION: Atlanta, Ga.

RICH'S, INC., Owner

STEVENS & WILKINSON, Architects & Engineers

ELEANOR LEMAIRE, Designer

MION CONSTRUCTION CO., General Contractor

Glass and aluminum facade of Rich's new Store For Men in Atlanta sets a shining example of downtown development.

The store has its own identity yet adjoins other Rich's stores.

Combined, they form a mid-town shopping center.

(Photo: Ezra Stoller—Pictor)

Development of store community

Rich's Store For Men is in fact the latest step in a building policy which has broken rule after rule usually set up for successful merchandising—and all in the name of a constructive conservatism that has proved its point.

Rich's main store, ten floors encompassing 250,000 sq. ft., was built in 1924 for the booming Twenties. Though the store immediately succeeded, many a wiseacre was soon declaring that Rich's was in the wrong place—some said “on the wrong side of the tracks”—away from Atlanta's newer uptown section of specialty stores.

But the late Walter Rich's first step was to stick where he was. Instead of moving to expensive land, he expanded where he stood, buying a corner store in 1928 to add 25,000 sq. ft. He was out to prove that a store on inexpensive land could pull its neighborhood up with it. Rich's bought deteriorating neighborhood properties, improved them by expanding and thereby encouraged other merchants to come into the area with good buildings. As a result, the adjoining streets have taken on new life and are now among the most pleasant in the downtown area.

Because president Richard Rich and chairman Neely were indefatigable workers in civic affairs for the benefit of Atlanta, they and other members of the Merchants Assn. were in a good position to convince the city of the value of better streets, better services down on Broad St.

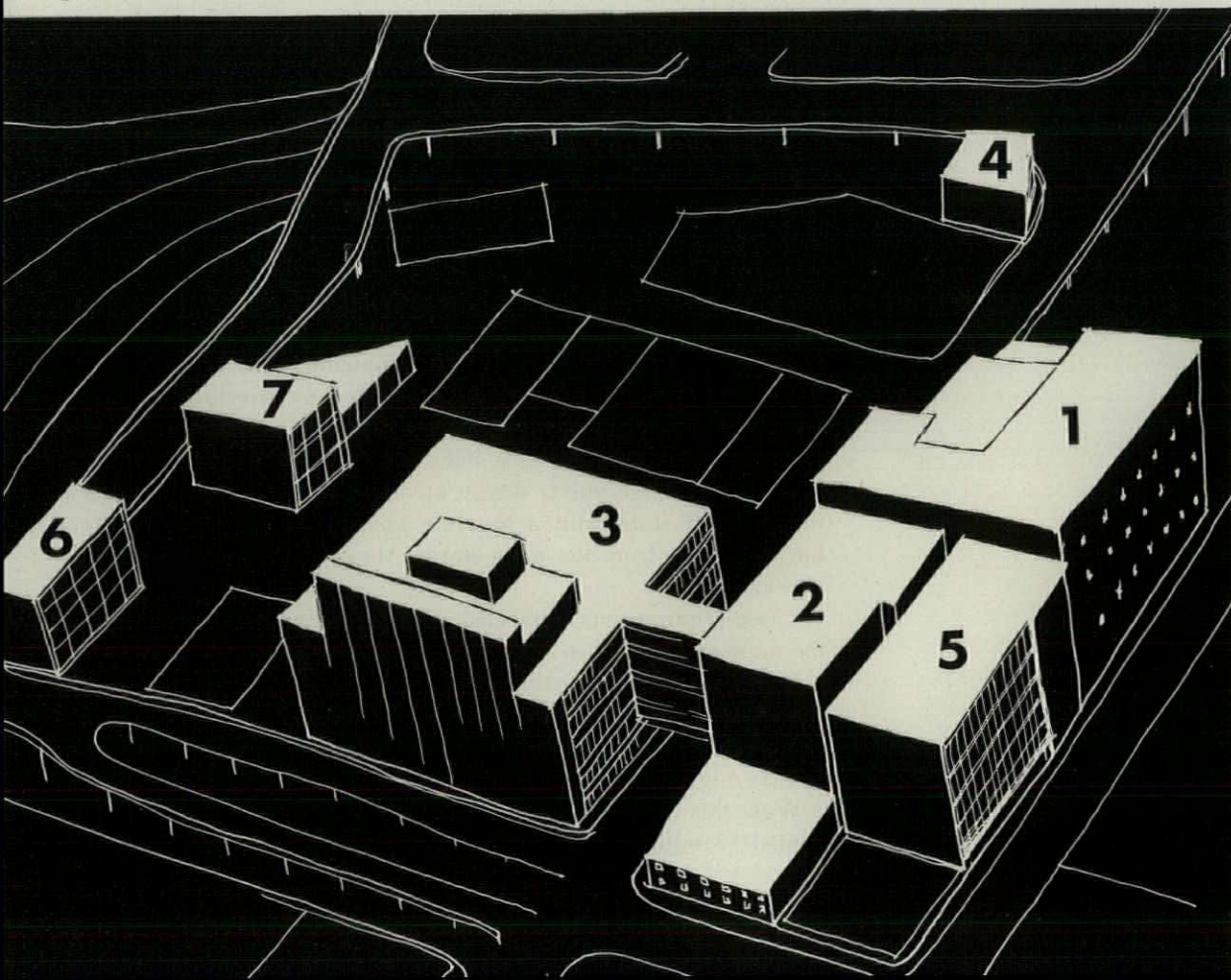
Meanwhile they worked constantly to keep the store itself up to date. In the course of doing so they asked Eleanor LeMaire to face-lift their third floor in the mid-Thirties and learned to respect the hard-headed business thinking of this woman designer. Said she,

“It would be a waste to restyle a floor which the customers could not easily reach.” Upshot was a thorough traffic study, resulting ultimately in the installation of moving stairs—the first in Atlanta.

A more radical move resulted from some constructive daydreaming by Walter Rich's cousin Richard during World War II. He was thinking about war's end when G. I.s by the million would want nothing so passionately as a wife and home. Answer: A fine Store For Homes where, in a single shopping trip, these future homebuilders could find everything a house might need. More important, he thought of it as a substore of Rich's but with its own name, its own entity, dramatizing the idea. Said he, “A *simple* idea is always easier to sell.”

In planning this 1947 addition, several major decisions had to be made. Integrated and mutually accessible stores were a “must” but a new store across the street made complete accessibility difficult to attain. The solution was a connecting bridge above street level and connecting underground tunnels for basement areas.

Designwise, the connecting link called for a wide (35') glass-enclosed bridge to overcome the heavy tunnel-like feeling encountered in most such structures. This set the pattern of using great areas of glass in the store. With the glazed bridge planned, the entire connecting wall of the new store was designed with glass. The adjoining wall of the building was kept windowless to provide enclosed space for service areas and elevator banks. Its brick exterior was designed in a series of vertical convex and concave sections to relieve monotony. (It was found that laying brick in curves over such a large area did not increase costs considerably.)



Step by step,
Rich's developed
its community of stores.
Still in the future:
a parking plaza
and a new service building.
Below are listed
the steps taken to date:

- 1 Main store (1924)
- 2 Main store addition (1940)
- 3 Store For Homes (1947)
- 4 Rich's garage (1949)
- 5 Store For Men (1951)
- 6 Old building for storage
- 7 Old building for storage

Rich's

At the rear of the building the wall parallel to the glass front was planned also for glass to give a view of a proposed plaza area where customers could drive up to an attended entrance. The plaza project was deferred, however, and the rear wall blocked up. But when the plaza is built, the block can be removed and glass substituted with no structural changes.

Throughout this expansion, Rich's experimented continually with more and more fixtures to further self-selection. Some of the solutions involved adapting existing display tables. Others had to be built. Perhaps the most successful were in the Store For Homes' china department. These single-purpose fixtures show a place setting as it looks on a table with shelving above which shows it as it would appear in a cupboard. Above each compartment, the name of the pattern is printed. Other display cases were built or adapted until virtually every classification of stock could be seen and handled by shoppers.

In 1949 more parking space was required and a Rich's garage was built a scant two blocks from the main store. It has a capacity of 350 cars and handles an average of 1,200 daily.

Expansion since 1940 has more than tripled Rich's original store space at an average rate of nearly 50,000 sq. ft. a year.

The box score (including basement and sub-basement):	
	Area
1924 Main store (10 floors).....	250,000 sq. ft.
1928 Acquired corner store building (3 floors).....	25,000 sq. ft.
1940 Addition (8 floors).....	120,000 sq. ft.
1947 Store For Homes (9 floors).....	337,000 sq. ft.
1951 Store For Men (7 floors).....	84,500 sq. ft.
	<hr/> 816,500 sq. ft.

The need for expansion can be seen in Rich's sales figures. From 1940's \$10 million they have climbed to over \$50 million in 1951.

Why stay downtown?

In the above figures is proof of the sound decision to remain in the downtown area.

"In Atlanta," said one Rich's official, "the suburbs are, at most, 10 mi. away. With the express highway leading to town and with our increased parking facilities, we feel serious consideration of a suburban store is at least ten to 15 years in the future. In the meantime we'll stay put."

Rich's is not through expanding yet. Plans for the plaza (leading off a nearby express highway to suburban Atlanta) plus a new service building (to free existing floor space for selling) are complete. They wait only a starting signal.

Glass walls

Contrary to the popular belief that stores should use artificial light exclusively in selling areas, Rich's employed entire facades of glass in its Store For Men and Store For Homes (in conjunction with the glazed bridge). As a result, Rich's is enjoying the advantages of glass—natural light for merchandise selection, a feeling of spaciousness on all floors, and an aid in general store lighting.



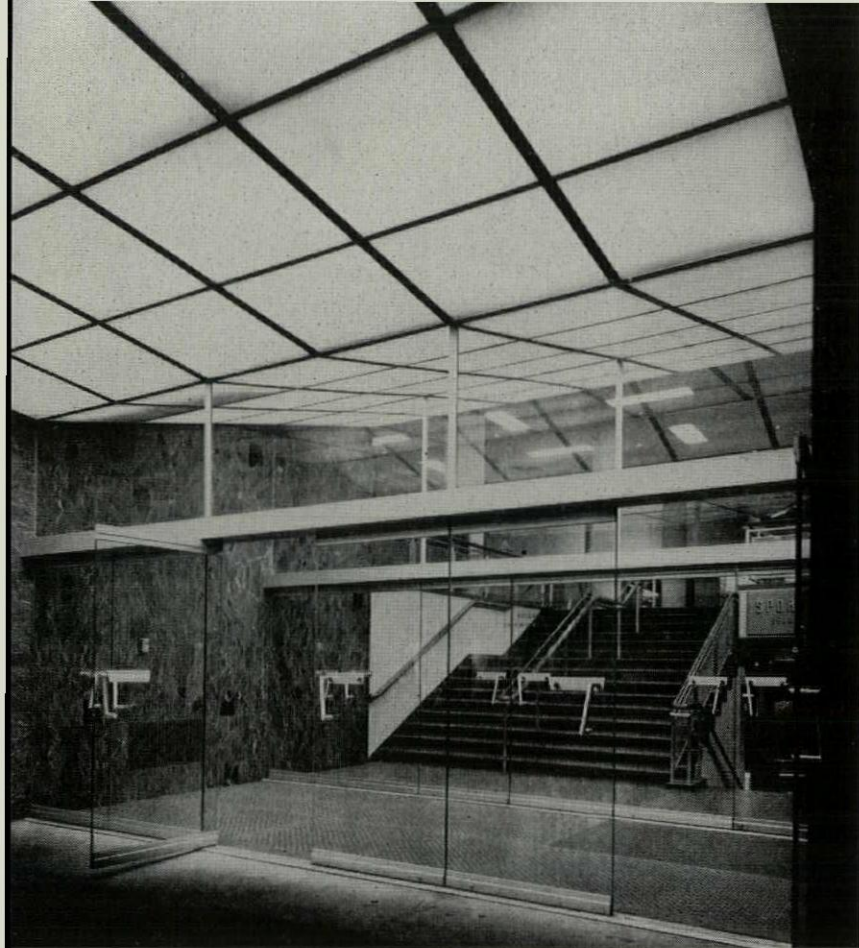
Glass bridge connects 1947 Store For Homes with the 1940 addition to the main store.

Use of glass here set future pattern of fenestration.

At the same time the managers are grappling with the disadvantages: sun glare and merchandise fading.

To counter glare, thin drapes have been employed on several floors. To combat fading, such items as glassware, white curtains and furniture that resist fading are displayed next to the windows. The problems have not been solved completely but with continued study Rich's hopes to lick them.

Oddly, sun heat through the windows has not been a problem. Heat resistant glass is used in panels near the ceiling in the Store For Men but no additional air conditioning outlets were found necessary in the window areas.



*Fluorescent lights behind glass squares
light the cantilevered canopy
and lead into the separate entrance
which psychologically sets the Store For Men apart
from adjoining Rich's stores.*

STORE FOR MEN: solution

Culmination of Rich's years of experimentation and expansion is the new Store For Men. From its five-story glass facade down to the smallest display fixture, Rich's successful merchandising philosophy has been realized by both architects and designer.

The facade itself is composed of large lights of $\frac{1}{4}$ " polished plate set in extruded aluminum members. Convector strips on each floor run along the base of the glass introducing air movement over the glass to prevent condensation.

At one end of the facade a service stair well with its diagonal pattern of stringers is visible from the street. These stairs and the staggered arrangement of glass sections become a major design element at night when the store is lighted. In contrast to the glass facade, the masonry wall connecting the new store with the old is windowless.

A cantilevered aluminum canopy over the entrance maintains the simple character of the exterior. Fluorescent lights behind translucent squares of glass light the underside of the canopy and carry into the foyer which is defined by six sets of tempered glass doors. Here, terrazzo floors and marble walls in combination with the lighted ceiling make the entrance an unobstructed invitation to enter the store.

A split level inside permits customers to descend only a few steps to the sporting goods department and grill or go a short distance up to the first men's furnishings floor.

Reinforced concrete columns and beams (with a 23' span) support flat slabs which bring all floors level with those of the adjoining main store. Columns were aligned as nearly as possible with those of the older building. This gave the desired accessibility from the main store and added a feeling of spaciousness to the relatively small (approximately 10,500 sq. ft.) floors in the new store.

Freight moves vertically via an elevator in one corner, making the new store independent of the main store's facilities. Reserve stock is kept in rooms at the south end of each floor and back of show windows on the first floor.

Vertical travel for customers is provided by moving stairs near the rear of the store. On the first floor a unique treatment of the moving stairs reveals the structure and mechanism. Glass panels, substituted for conventional plaster, permit a view of the frame, the wheels (which are painted orange) and the endless belt. This kept the bulk of the mechanized stairway from being too massive and provided a spot of mobile decoration as well as offering an invitation to ascend to the floors above.



*Glass doors give minimum obstruction in the entrance.
Brightly lighted store interior shows through the glass facade.
Service stairs left fully exposed add to the variety of the facade itself.
Thin drapes on second floor level help daytime control of sunlight.*

*Moving stairs near the junction
of the main store and the Store For Men
give independent customer circulation to the store.
Recessed down-lights are patterned
to avoid a directional feeling.
This first floor houses 11 departments.*

Photos: Ezra Stoller—Pictor



to avoid the bulk
of massive
moving stairs,
glass was used
instead of plaster
on the sides.
Stair frames
and wheels
and belts exposed
make the stairs
a spot
for mobile decoration
inviting customers
upstairs.

Design for self-selection

Display cases and tables were designed with the idea of furthering Rich's pet merchandizing theory of self-selection. To carry this theory to its logical conclusion demands that every classification of goods in stock be on display. And, in the Store For Men, the only items not on display are servants' uniforms.

All fixtures are of stained oak (their color being varied to fit the department and surrounding color scheme). Display tables have been designed with removable tops for maximum flexibility. Many of these trays are open and have only vertical divisions which permit customers to pick up and examine shirts, sweaters, etc., but keep the merchandise in neat stacks.

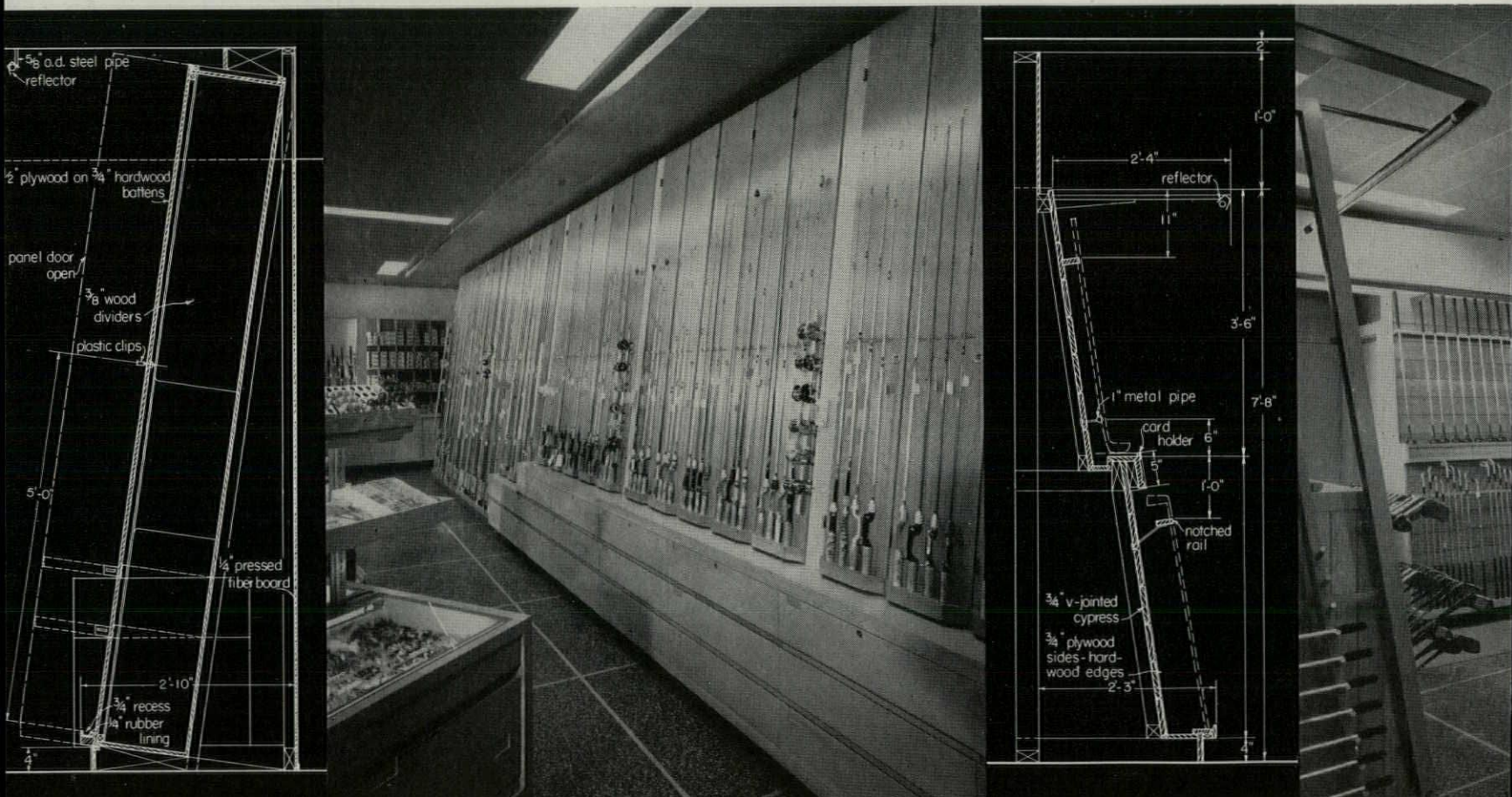
Special single purpose racks were designed for many sporting goods items. Fishing rods, for example, are displayed on slanted panels and held in place with metal clips. The panels actually are doors to forward stock compartments. Reels are mounted on an

aluminum tube placed at hand level so customers can manipulate a reel as if actually fishing with it.

Glass-topped showcases display such items as jewelry and pistols (obviously articles not meant for unsupervised examination or brandishing about). But these cases are so well illuminated an observer has no sense of a barrier between him and the merchandise he is examining.

Lighting

At the insistence of Designer LeMaire a much higher intensity general lighting was used in the Store For Men than had been planned. The effect surprised and delighted Rich's since much more merchandise became visible from greater distances. The general lighting source is recessed fluorescent fixtures. These were arranged

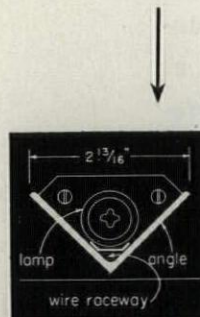


Fixture for display of fishing rods shows extent to which Rich's goes to put all stock on display. Rods are mounted on panels which are hinged doors to forward stock compartments (detail, left).

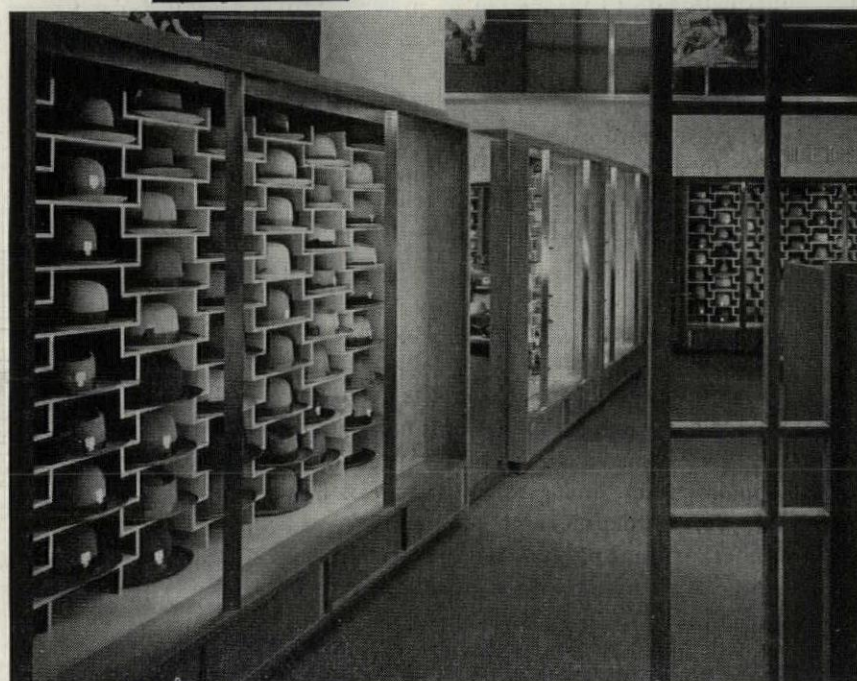
to avoid as much as possible any directional feeling and to give a pleasing over-all pattern. Supplementing these is a diagonal pattern of adjustable down-lights, each of which fills one square of the acoustical metal pan ceiling. This system of general lighting prevails throughout the store except for coves in the shoe department and a recessed row of down-lights in the grill.

Use of high intensity general lighting made even higher intensity display lighting mandatory. Open wall racks, for instance, get their special lighting from vertical angles spaced along the forward edge of the case. The chromium flanges face inward at an angle of 45° to the front line of the case. Light from slim tube fluorescents inside the angles is thereby directed on the merchandise illuminating the lower shelves equally as well as the higher ones. This is particularly effective on light, brightly colored merchandise which has been used as a decorative element in the over-all color scheme.

Flanges of the chromium finished structural angle point inward at 45° directing light from slim tube fluorescents onto the merchandise.



Photos: Ezra Stoller—Pictor

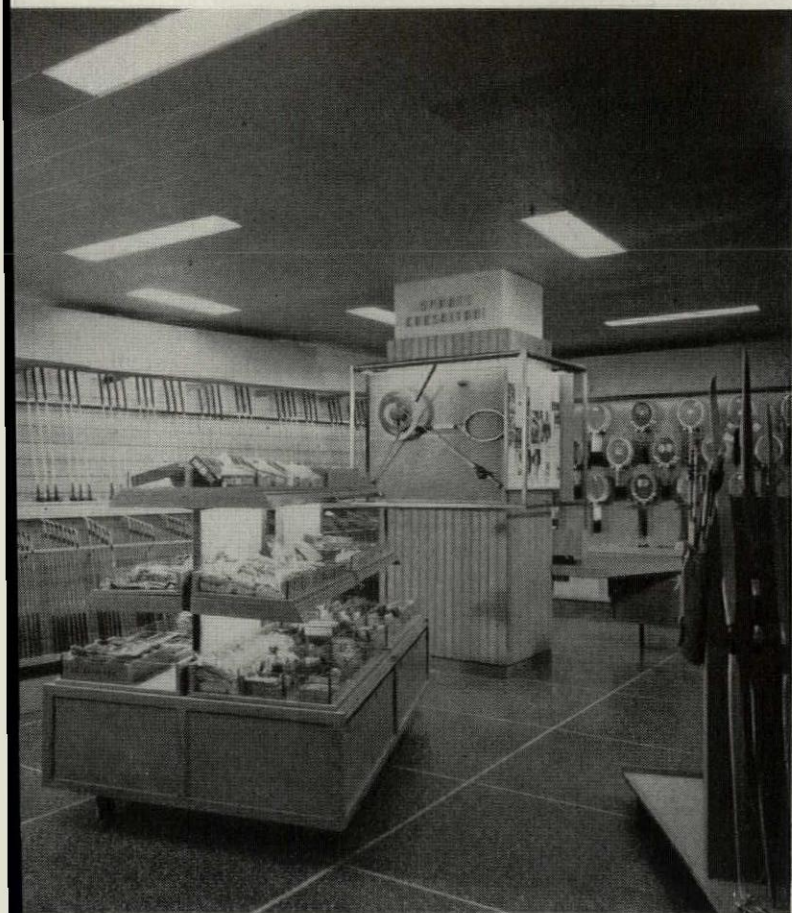


Hat racks designed for decoration and display have no glass doors to prevent customer handling. Vertical structural angles do more than support display case top; they house the lighting fixture that illuminates top and bottom of the case equally well.

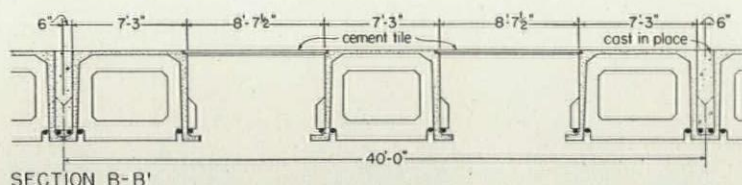
Color

A characteristic LeMaire touch, colors are used to characterize the store while defining and relating the different departments. On the first floor, for example, neutral brown and beige set a masculine tone. Stained oak fixtures relate the 11 departments here, all of which have distinctive secondary color treatments. Jewelry is displayed in gunmetal-stained fixtures with blue shelving and lining. The shoe department has brown-stained and bleached white fixtures, green leather chairs and green lacquer display pieces.

Departments are organized in a series of islands and their ordered appearance stems from color definition which simultaneously harmonizes with the color pattern of the entire floor.



If club sets are displayed on their own special purpose fixture, club heads are held at about hand height encourage examination on the part of customers (detail, left). Club sets, from cheapest to most expensive, can be seen.



1. CONTINUITY IN PRESTRESSED CONSTRUCTION

By rigid-frame design, prestressed concrete engineers save 25% concrete, 25% depth and 30% steel as compared with simply supported prestressed members

Though the value of continuity is well established for steel and reinforced concrete, little progress has been made in applying this principle to the design of prestressed concrete structures. Analysis of such members has long proved extremely complicated. However, a new, simplified method of design of rigid-frame prestressed concrete members has been used by Albert Kahn engineers on three industrial buildings, the first of which is already being built (*details right*).

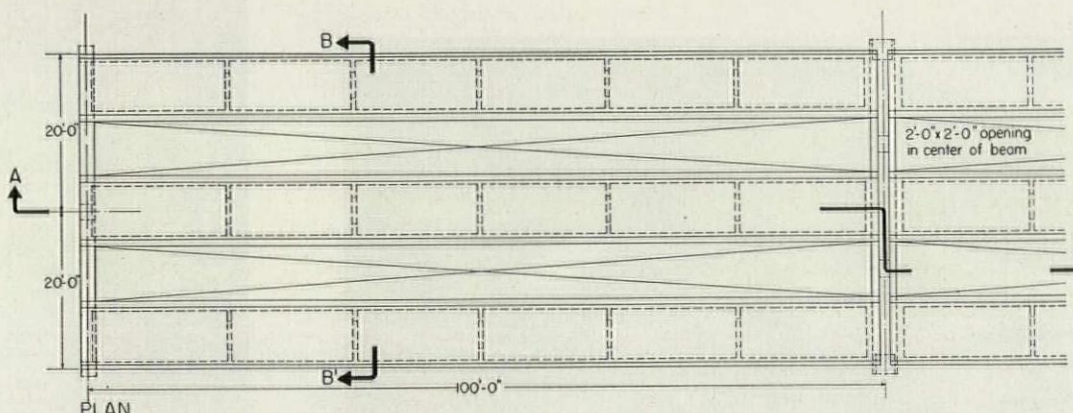
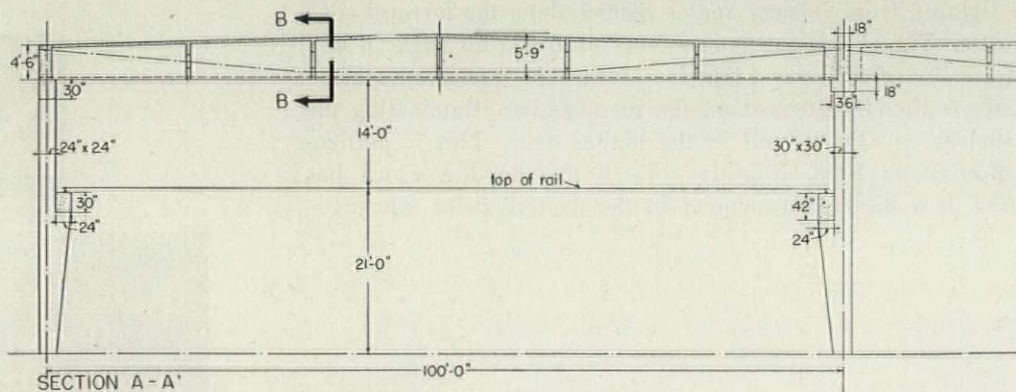
Chief advantage of continuity — where beams are continuous over the supports as distinct from a series of independent beams — lies in the shallow section that can be used to carry a given load. Thus maximum clearance is provided, dead load is reduced to a minimum and greater spans can be bridged. Furthermore, the number of end anchorages and prestressing operations required is fewer than in simply supported structures, and the present high cost of prestressing is reduced.

To show the savings possible by the exploitation of continuity with prestressed concrete construction, Portland Cement Association engineers Alfred L. Parme and George H. Paris analyzed a typical 60' prestressed beam having a live load of 1,760,000 in.-lb. for both simple and fixed end supports. Their conclusions:

	Simply-supported	Rigid frame	Saving
Area of concrete...	280 sq. in.	208 sq. in.	25%
Depth of section...	24.50"	18.5"	25%
Area of steel.....	1.90 sq. in.	1.33 sq. in.	30%

Major limitation to continuous prestressing is that the cable must have a more or less sinusoidal shape which may develop too much friction during prestressing. By experiment Belgian engineer Gustave Magnel found this loss did not exceed 5% if there are not more than three spans and the tension is applied simultaneously at both ends. His recommended limit of three spans is supported by the need to provide expansion joints about every 120', which would in any case break up continuity.

Continuous prestressing. 100' beams designed by Engineer Alfred Zweig of Albert Kahn Associated Architects & Engineers, for a new factory addition. Beams are fully prestressed with partial continuity achieved by tie bars cast in place between beams after erection. Cables are not covered with concrete and are galvanized against corrosion.



CONTINUOUS PRESTRESSING applied to long-span roof design

Albert Kahn Associated Architects & Engineers found that prestressed concrete was the only alternative to steel in designing 100' spans in this factory addition calling for 100' x 40' bays with heavy concentrated loads of 15 lb. per sq. ft., a total of 30 tons on each bay. Reinforced concrete was out of the question because of excessive weight and depth of beam. Steel may yet be used but at the moment is unobtainable.

Each bay is to be spanned by three 100' prestressed beams, each in section like an inverted "U" 7'3" wide and up to 5'9" deep. Dead weight of the roof will be kept down by lightweight concrete planks spanning the 8'7 1/2" between adjoining prestressed beams. Diaphragm stiffeners are placed every 16' along each beam to stiffen the web of the beam, and to provide support for overhead cranes and conveyors.

Weighing 50 tons each, the prestressed beams are designed to be cast on the ground and lifted by two erection cranes into position atop cast-in-place concrete girders. In section like an inverted "T" these 40' girders are not cast until the beams are in position mounted on temporary supports. Beams and girders then form a single homogeneous unit reinforced with tie bars, with the result that the beams are noncontinuous for their own weight and continuous for other loads. An equivalent noncontinuous beam would require 1 5/8" cables and would weigh 60 tons; partial continuity thus saves 20% in cost.

Each prestressed beam contains four 1 3/4" cables, tensioned to 70 tons per cable and anchored by the Roebling system. This cable is galvanized, and can be left uncovered with no danger of deterioration through corrosion.

As compared with an equivalent structure designed in steel, this prestressed rod design uses only 30% critical steel, but cost

is estimated at 18% more. Detailed material requirements and costs:

Typical	Prestressed	Steel
100' x 40' bays	concrete roof	frame roof
Steel required		
per sq. ft.....	3½ lb. reinf. steel	15½ lb. struct. steel
	1.2 lb. wire cable	
Estimated cost		
per sq. ft.....	\$3.35	\$2.80

ANCHORING THE CABLES

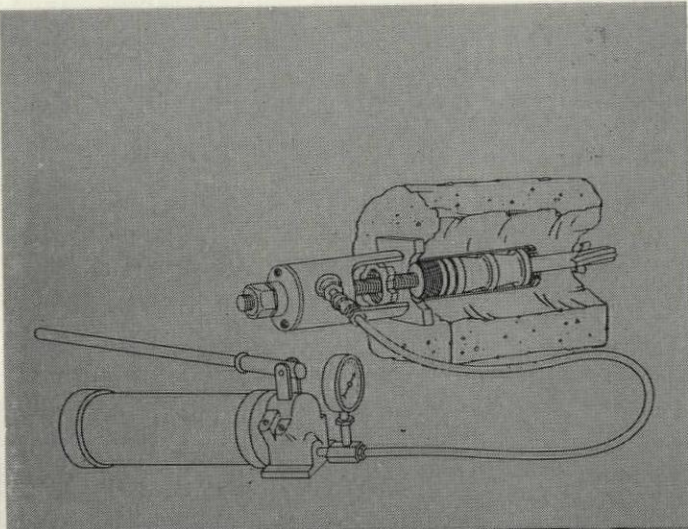
Prestressing cables to be used by Albert Kahn Associates consist of prestretched strands of high-tensile galvanized steel wire made into bridge cables by John A. Roebling's Sons Co. Cylindrical terminals are threaded to take the nuts which hold the cable in tension against steel bearing plates. The cable is gripped by a hydraulic jack extension, tensioned to 125,000 psi; then the nut is screwed down tightly to the bearing plate embedded in the end of the beam, the jack is released transferring stresses to the nut, and the complete anchorage is grouted. Available in diameters from 5/8" to 1 5/8", the cables have tensioning loads of 13 1/2 tons to 100 tons.

The fitting shown here is for the 1 3/8" cables used in Kahn's prestressed industrial buildings. These cables will employ the 4 3/4" thread fitting shown on right. Initial tension on the cables is 125,000 psi, but the design tension is calculated at 105,000 psi to allow for creep of concrete and steel. Cables can either be applied within the beam itself, suitably sheathed to prevent bond with concrete, or can be applied externally as in the accompanying designs. In the latter case a galvanized coating prevents atmospheric corrosion of the cable.

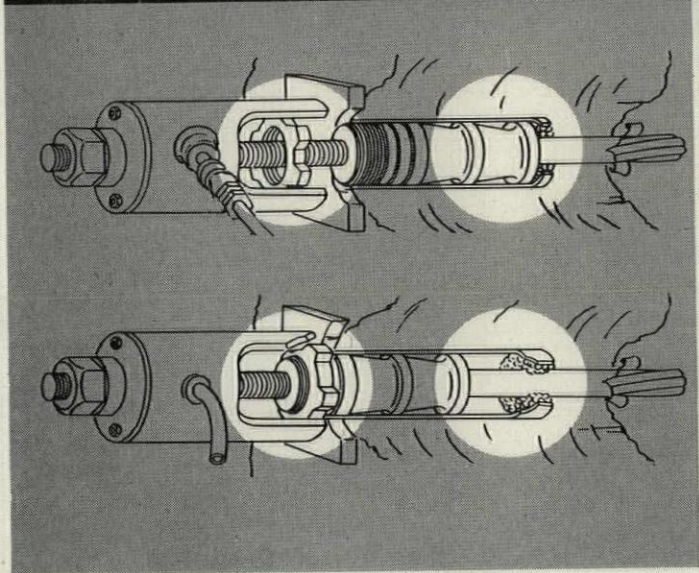
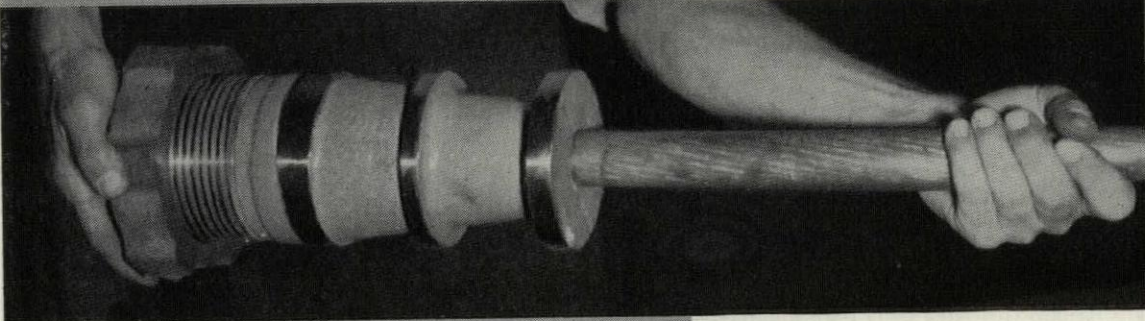
PRESTRESSED GARAGE ROOF

Nine 66' 10" prestressed concrete beams are now being erected to roof a garage for an industrial plant at Flint, Mich. Supported on brick walls and placed 8' on center, each 12 ton beam is prestressed by two 1 3/8" galvanized cables. Depth of each beam is 38 1/2", top flange 24" wide, bottom flange 18" wide with a 5" web thickness. Solid end blocks distribute the prestressing load to the top and bottom flanges of the beams.

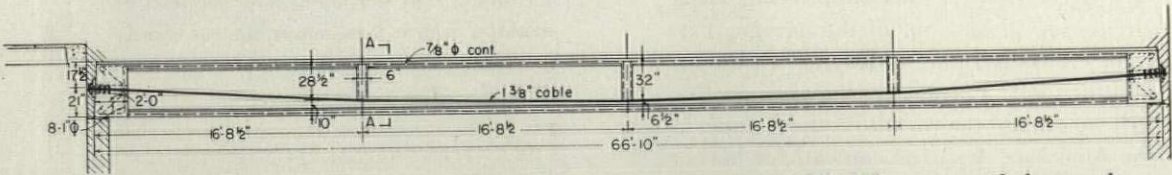
Tension cables are exposed, one each side of the web, and pass beneath three 6" wide diaphragms on 16' 8 1/2" centers which serve to transmit an upward bending moment to the beam. To withstand handling stresses, flanges are reinforced with two 7/8" diameter mild steel bars in the top and two 3/4" bars in the bottom. Beams are precast and prestressed on the ground, then hoisted and grouted into position, with cement tiles spanning between the beams.



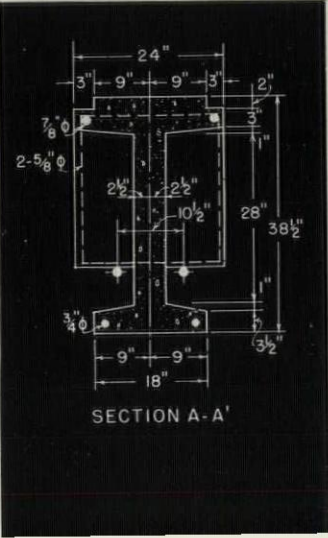
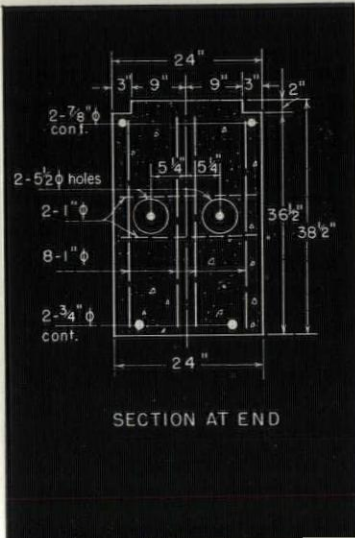
Prestressing cables are tensioned in a few minutes by means of a center hole hydraulic ram jack. Each 1 3/8" cable requires a tensioning force of 70 tons.



End connection of prestressing cable. Upper diagram shows jack in position ready to tension cable. Below, cable is stretched, and nut is screwed down tightly against bearing plate to hold cable in tension. Each cable and unit is carefully annealed to withstand the 125,000 psi tensioning stresses.



66' 10" prestressed beams designed to roof an industrial garage in Flint, Mich. Exposed prestressing cables pass beneath web flanges, are galvanized against corrosion.



On page 134 is an account of a new framing technique which combines the economies of continuity and prestressing with the simplicity of a simple beam structure.

2. COMBINED OFFICE-GARAGE

Highly efficient plan packs 600 cars, 140,000 sq. ft. of office space onto 100' x 150' Manhattan site

Every square inch of floor space is put to profitable use in this combined 31-story automatic parking garage and 17-story office building for mid-town Manhattan.

L-shaped in plan, the 140,000 sq. ft. of offices are placed around a central parking tower so that tenants will all have outside windows. These high-class offices are expected to cost \$20 per sq. ft. fully partitioned and air conditioned; will rent for \$4.50 per sq. ft.

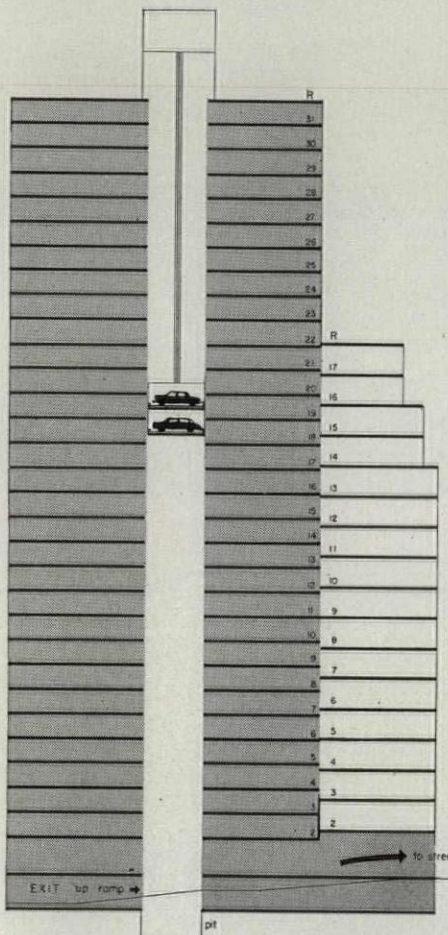
Covering only 65' x 108' of the 100' x 150' site, the tower will park 600 cars, 20 on each level in two-deep banks of five cars each, both front and rear of a five-car wide elevator bank. Such high density parking is achieved by the use of automatic parking dollies and double-deck elevators, two of them two cars wide with a capacity of four cars, and a third only one car wide. Elevators and parking dollies will be under push-button control by elevator attendants. To obtain a car from a rear cubicle, the attendant will move the first onto one deck of his elevator, move up (or down) one level, get the car he wants and replace the first one. Including such juggling, the average time to park or deliver a car will be slightly under 2 min. with 3 min. for the car that is hardest to get, permitting 200 cars to be parked or delivered an hour. Powered by 200 h.p. motors, elevators will travel at 450' per min. Electronic indicator boards in the office will show which cubicles are occupied and which vacant.

Cars will enter the garage from a one-way street (34th), thus simplifying traffic circulation in and out of the garage; cars enter from the right, on leaving the garage will turn left. Entrance to the office portion will be around the corner on the Avenue of the Americas. A patron can call for his car at the avenue entrance, pay his check and descend into the basement where his car will be waiting for him.

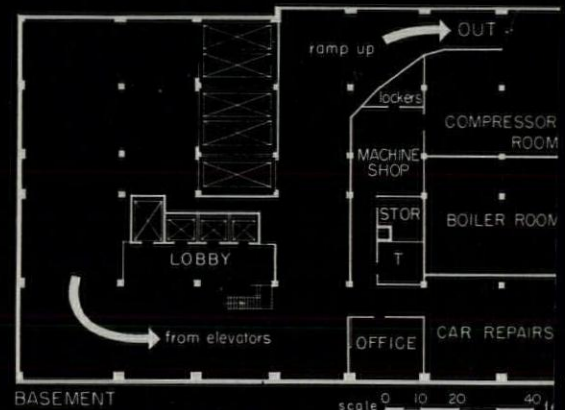
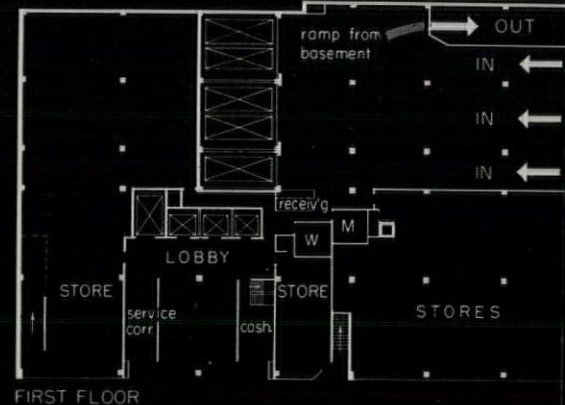
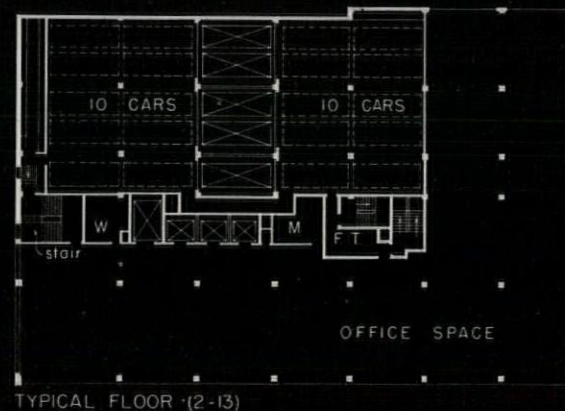
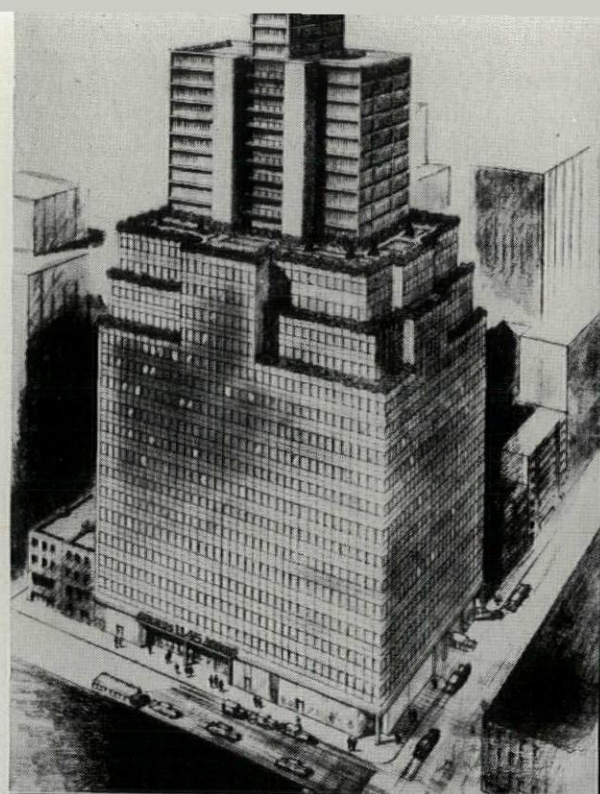
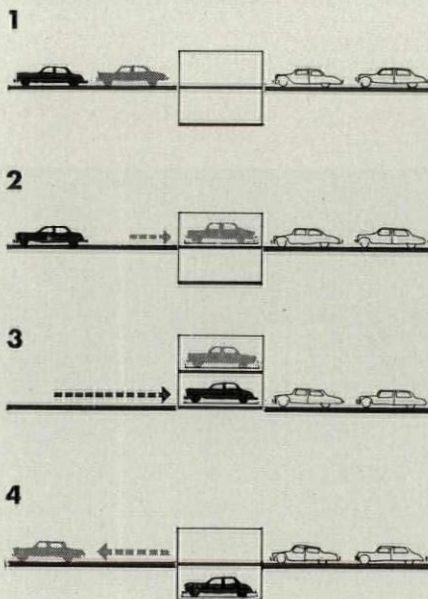
Floor-to-floor heights in the parking tower will be only 8' 6" compared to 10' 6" between office floors. Short stairs will connect garage levels with offices. The tower will be without windows and sturdy walls will make it suitable for a bomb shelter. Few lights will be needed and little ventilation since cars are moved by electric dollies eliminating exhaust problems.

This \$8,000,000 project is planned by realty operator Henry Goelet. Charles N. and Selig Winston are the architects.

Thirty-one story parking tower inside a seventeen-story office building planned for New York's Avenue of the Americas and 45th Street.



Floor capacity is 20 cars, automatically parked and delivered by dollies operating from 5 banks of two-level elevators. To obtain a car from a rear cubicle, dolly picks up car in front and moves it to one level of elevator, which then moves up (or down) one level and the other car is collected. Shaded area is garage tower.



3. WELDED HOSPITAL

Welding instead of riveting saved 14.5% steel and 12.5% in erection

To avoid the nerve-racking hammer of riveting alongside an existing hospital the Medical Staff of the Veteran's Administration Hospital at Minneapolis put pressure on the VA Construction Service to permit welding the frame of their new hospital building. The addition was welded and the VA was pleasantly astonished to discover that the engineer's claims about the economics of welding were in fact well founded. The nine-story steel-framed hospital took 337 tons of steel (14.5%) less than an equivalent riveted frame and cut erection costs by \$3.32 per ton (12.5%).

Already designed for riveting, the basic framing plan of the hospital was unchanged. Even greater savings could have been effected had there been time to redesign the building to develop the full continuity possible in welded connections. As it was, partial continuity was achieved by the use of column flange stiffeners and column caps. Because steel was already being fabricated for riveting these were welded on the site. Greater erection economies would have resulted had it been possible to weld these in the steel shop.

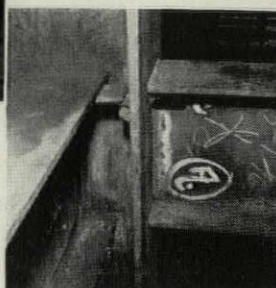
Special erection clips were used to hold members in place for welding. A forged steel prong or clip on the beam seats into a forged "U" piece on the supporting column. Clips and seats are so designed and positioned that when the clip is fully inserted the supported member will be correctly placed for welding. Clips must be carefully positioned and the frame must be accurately lined up during erection, after which the erection clips, being close fitted, hold the frame rigidly in position. As the men gained experience the frame went up fast; a five-man crew, plus a two-man crane crew, was able to average 50 tons a day despite bitterly cold winter weather. Below 32° F. joints were electrically preheated in about 3 min. by means of a carbon arc; welding was suspended in subzero weather.

On this hospital building, it was found that welded joints could be inspected more readily than riveted ones. All surfaces to be welded were fully exposed to view, and both inspectors and operators could examine each layer of weld metal as it was fused into place. Not a single cracked weld was discovered.

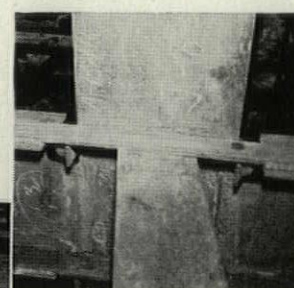
Planned by the VA Construction Service, the building was revised for welding by the American Bridge Co. and consulting engineer Van Rensselaer P. Saxe.



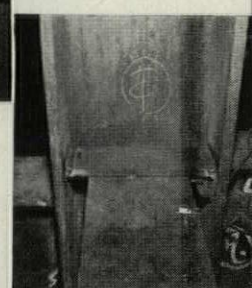
1.



2.

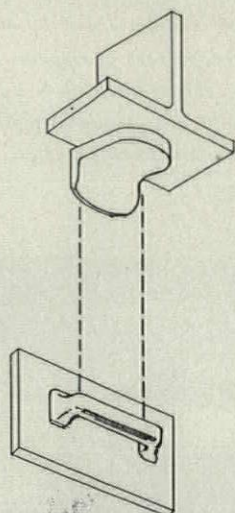


3.

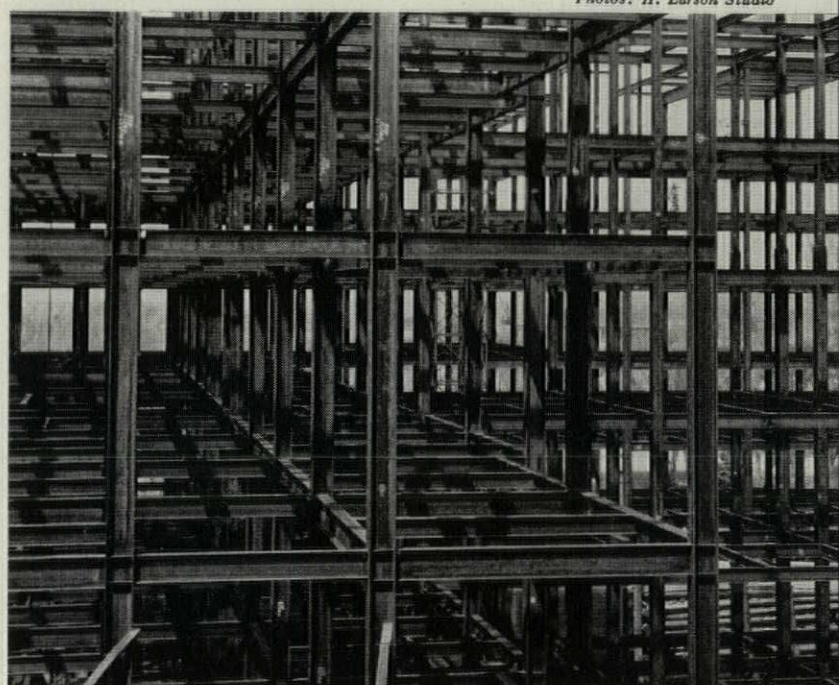
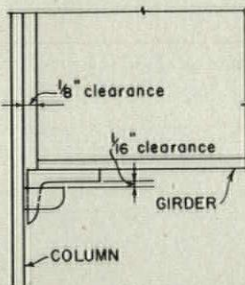


4.

1. Welding of spandrel beam . . . 2. Beams connected to column flange and column web . . . 3. Tie plates where beam webs are in line with column flange . . . 4. Stiffener plates between column flanges.



Erection clips used to hold members in position ready for welding.



Photos: H. Larson Studio

Welded construction proved quiet and efficient in Veteran's Administration Hospital at Minneapolis. Flange stiffener plates at spandrel beam connections were installed in field due to late design drawings. Installation in fabricating shop would have been cheaper.

SAVINGS EFFECTED BY WELDED CONSTRUCTION: Costs shown for a riveted job were obtained from field records of a similar job erected in good weather conditions

	RIVETED BUILDING	WELDED BUILDING	SAVINGS	
			Tonnage	%
Base Plates	38 tons	38 tons	—	—
Columns	759 tons	759 tons	—	—
Column splices	23 tons	4 tons	19 tons	83%
Beams	1,265 tons	1,153 tons	112 tons	9%
Beam connections	157 tons	—	157 tons	100%
Erection clips	—	10 tons	-10 tons	—
Rivets	75 tons	—	75 tons	100%
Welding rod	—	11 tons	-11 tons	—
Stiffener plates	—	5 tons	-5 tons	—
Totals	2,317 tons	1,980 tons	337 tons	14.5%

	LABOR COSTS PER TON		SAVED	
Erection	\$4.90	\$4.72	\$0.18	4%
Plumbing	\$2.90	\$2.42	\$0.48	17%
Welding	\$18.44	\$15.78	\$2.66	14.5%
Totals	\$26.24	\$22.92	\$3.32	12.5%

4. FRAMING COMPARISON

Analysis of alternate structural systems leads to lower construction costs—continuity saves 20% steel

Built for a cost of only \$4.12 per sq. ft. including equipment, this warehouse demonstrates 1) the savings that can be achieved by careful framing analysis before erection and 2) the advantages of long continuous girders. It is a two-story and penthouse building for National Bellas Hess Inc. in North Kansas City.

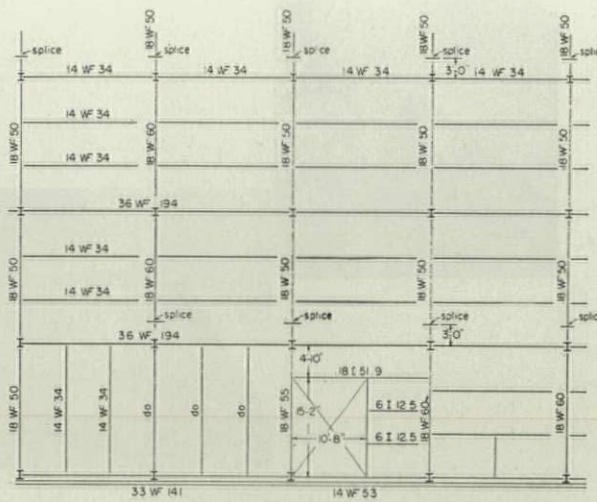
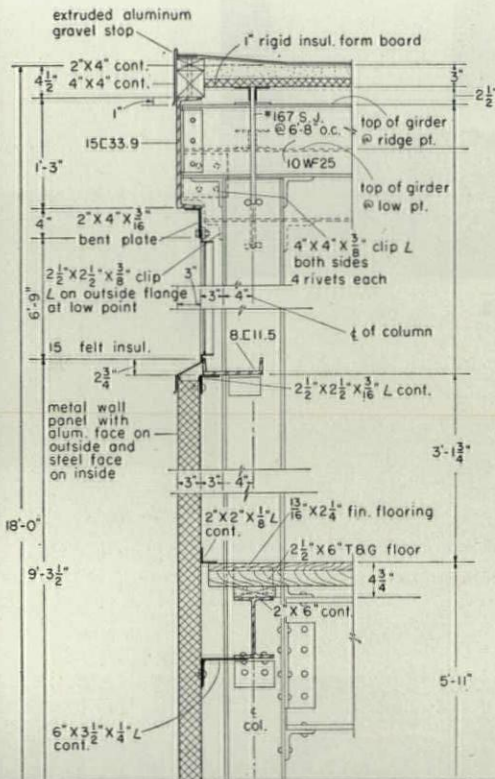
Various 20' x 20' framing schemes for 200 lb. per sq. ft. loading were studied to evaluate cost of materials, their availability and their effect on fire insurance rates. The results, corrected to Jan. 1952 prices, are tabulated below.

Nominal 2" wood joists appeared to be the cheapest method of floor framing, but involved big insurance rate penalties and required undesirable ceiling heights. They were consequently rejected in favor of 14" WF 34# beams 6' 8" on centers covered with factory-grade maple strip flooring over a 2 1/2" x 6" subfloor.

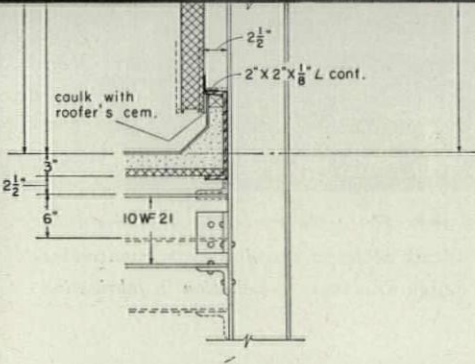
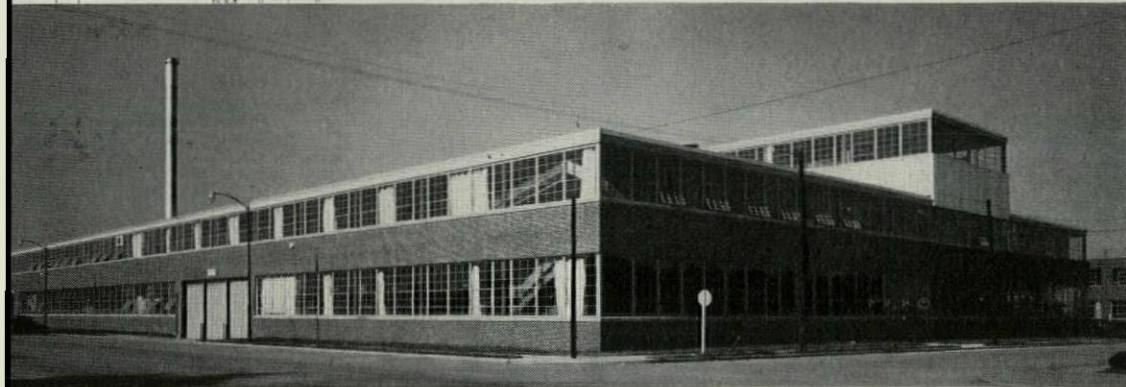
Similar analysis led to the selection of the roof framing technique: bar joists with a poured gypsum roof deck on 1" insulating form board. This proved economical, had a low heat transmission value, and gave a ceiling surface which required no paint.

To support the selected floor and roof bays, continuous girders were made in 40' lengths to bear on top of, rather than frame into, the columns. They were cantilevered 3' beyond alternate columns and joined with simple splice-plate connections. As well as saving 20% of the steel tonnage in an equivalent simple span design, this system required few parts and simple connections, consequently speeded construction.

Architects: Kivett & Myers; Angus McCallum, associate. Structural engineers: Pfuhl & Shideler.

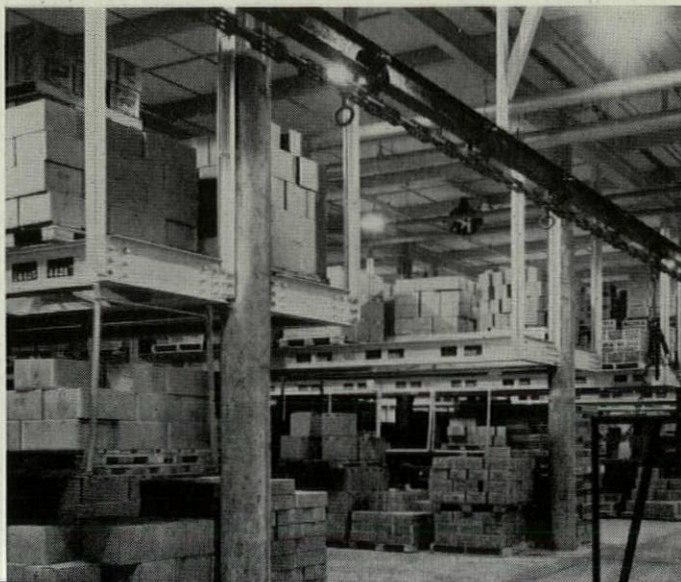


Continuous girders 40' long and cantilevered 3' beyond alternate columns were mounted on tops of columns in this two-story and penthouse warehouse in North Kansas City. Typical framing of 20' x 20' bays shown at top of page were arrived at after numerous framing studies.



Wall section shows the insulated aluminum-steel wall panel enclosing the penthouse; these panels proved extremely efficient, were light and economical to erect.

Cantilevered roof framing supports storage mezzanines in Philadelphia warehouse. Every other girder is cantilevered 4' beyond columns and a shorter, lighter girder hung between the ends of the cantilevers.

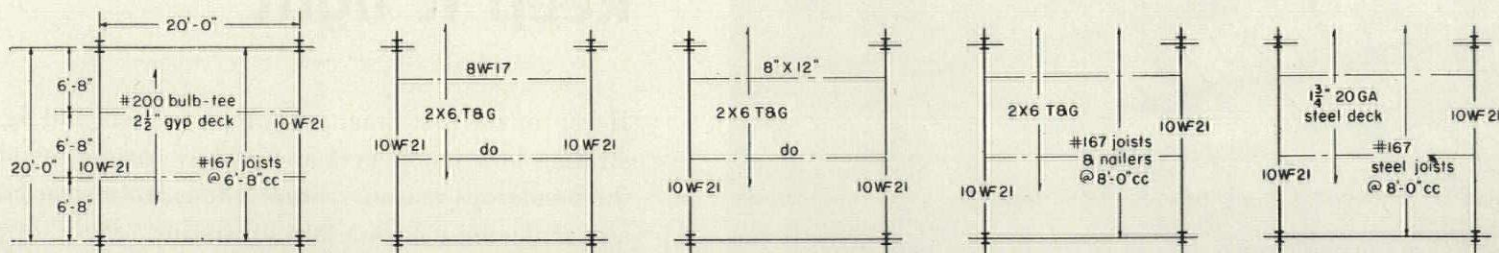


5. STEEL-SAVING FRAME

Alternate long and short girders cap columns to save 16% steel

Another technique of cantilevered framing used in a 526,000 sq. ft. warehouse for American Stores Co. in Philadelphia saved 100 tons of steel (16%) in its roof and mezzanine construction.

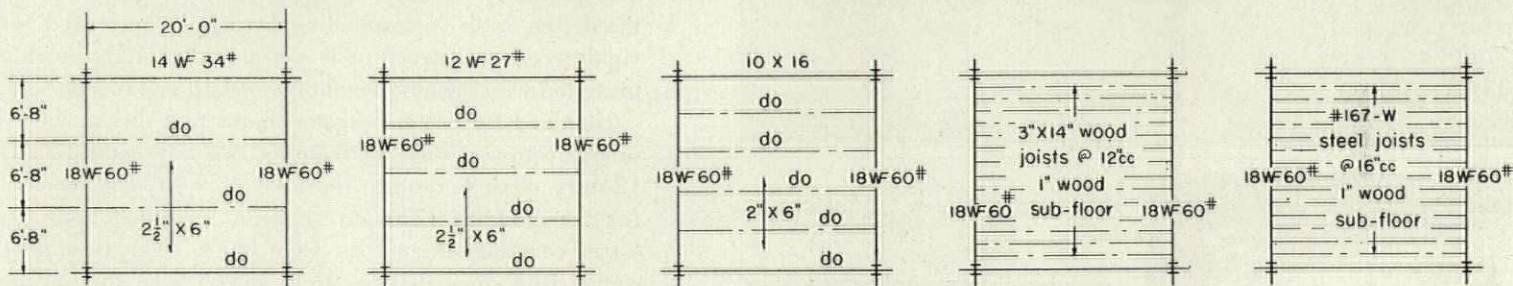
This single-story warehouse has 21' x 21' column bays. Steel was saved by cantilevering every other girder 4' beyond columns and hanging a lighter member between the



ROOF FRAMING

Figures given include erection costs. Framing costs corrected to January 1952 prices.

	1) BAR JOISTS & GYPSUM DECK Adopted	2) STEEL BEAMS & WOOD SHEATHING	3) WOOD BEAMS & WOOD SHEATHING	4) BAR JOISTS & WOOD SHEATHING	5) BAR JOISTS & STEEL DECK
DEAD LOAD	3.03 tons	2.14 tons	2.39 tons	1.86 tons	1.39 tons
STEEL COST	\$390.50	\$256.00	\$115.50	\$196.50	\$360.00
LUMBER COST	Nil	\$188.00	\$273.50	\$177.50	Nil
SPRINKLER COST	\$80.00	\$80.00	\$80.00	\$80.00	\$80.00
TOTAL COST	\$470.50	\$524.00	\$469.00	\$454.00	\$440.00



FLOOR FRAMING

Figures given include erection costs. Framing costs corrected to January 1952 prices.

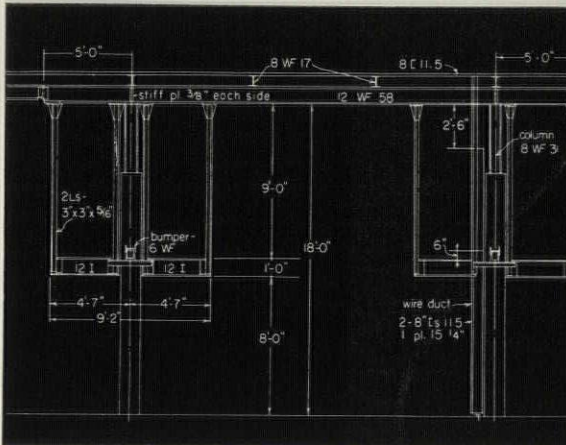
	1) STEEL FRAMING (4 BEAMS) Adopted	2) STEEL FRAMING (5 BEAMS)	3) WOOD FRAMING (10" x 16")	4) WOOD JOISTS (3" x 4")	5) NAILER STEEL JOISTS
DEAD LOAD	4.52 tons	4.61 tons	5.41 tons	4.70 tons	4.27 tons
STEEL COST	\$610.00	\$627.00	\$330.00	\$330.00	\$765.00
LUMBER COST	\$236.00	\$239.50	\$444.50	\$332.30	\$81.50
SPRINKLER COST	\$80.00	\$80.00	\$80.00	\$100.00	\$100.00
TOTAL COST	\$926.00	\$946.50	\$854.50	\$762.30	\$946.50

ends of the cantilevers. The long 29' cantilevered girders are 12" WF 58# beams; the short 13' suspended members, 10" WF 21# beams. Had conventional column-to-column framing been used, heavier 12" WF 65# members would have been required. Mounted above the girders are 8" WF 17# roof purlins, 7' on centers. Girders are level; roof slope is accomplished by pitching the purlins.

The concrete floor of the warehouse is divided into bays 65' x 65' poured in alternate sections with armored edges to avoid cracks. Foundations were a problem since the warehouse is built on 40' of undependable loose micaceous sand and long-

dumped rubbish fill. From 4' to 20' of new fill was needed to bring the ground to the proposed floor level. This was provided by clean sand thoroughly compacted in 6" layers. After it was in place, the area was preloaded with a 6' layer of sand, which was left in place for two weeks and then removed. The supporting columns were carried on spread footings bearing on the compacted fill. This "soil wizardry" cost \$350,000 less than the pile foundation which would otherwise have been required.

Architects and engineers: Ganteaume & McMullen. The foundation preloading technique was by Dr. Arthur Casagrande, Harvard professor of soil mechanics.



Mezzanines hung from cantilevered roof girders.

How to fireproof a light steel frame—and keep it light

Here, for the first time, are complete facts and figures demonstrating how much steel and money can be saved by shaving the ponderous masonry fireproofing from steel frame designs and replacing it with a thin insulating "shell" of gypsum lath and light aggregate plaster. Commissioned by Lloyd H. Yeager, general manager of the Gypsum Association, and executed by architects Holabird & Root & Burgee of Chicago, this study reveals more than expected, however: it also indicates that, despite today's steel scarcities, the multistory light steel frame still can compete with reinforced concrete, if fireproofed shrewdly.

In a conventionally fireproofed 12-story steel frame for light occupancy, at least 15% of the steel is devoted to supporting its own masonry fireproofing. So this amount of steel can be lopped off the design, with corresponding savings in cost (and without loss of rigidity) if the structure is designed for light steel members fire protected with the new membrane of lath and plaster* (*pictures left*).

Holabird & Root & Burgee demonstrate this in their investigation of five common ways of framing two bays and a hall of a typical 12-story office building, fire-rated at 2 hr. for the floor and 3 hr. for the columns. The investigation included both steel and reinforced concrete designs (*see page 143 to 145*). Results of the detailed comparison show that the light steel frame shell-fireproofed under a 2" floor slab saves about 20 lb. per sq. ground ft. in *weight* of steel and 40% in *cost* over the conventional steel frame fireproofed with concrete and supporting a 4" concrete slab.

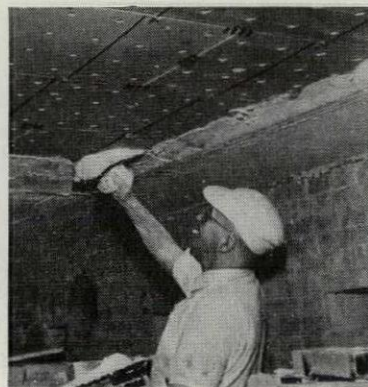
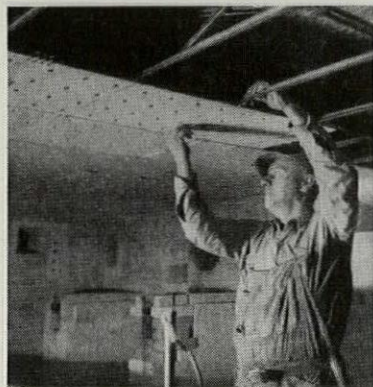
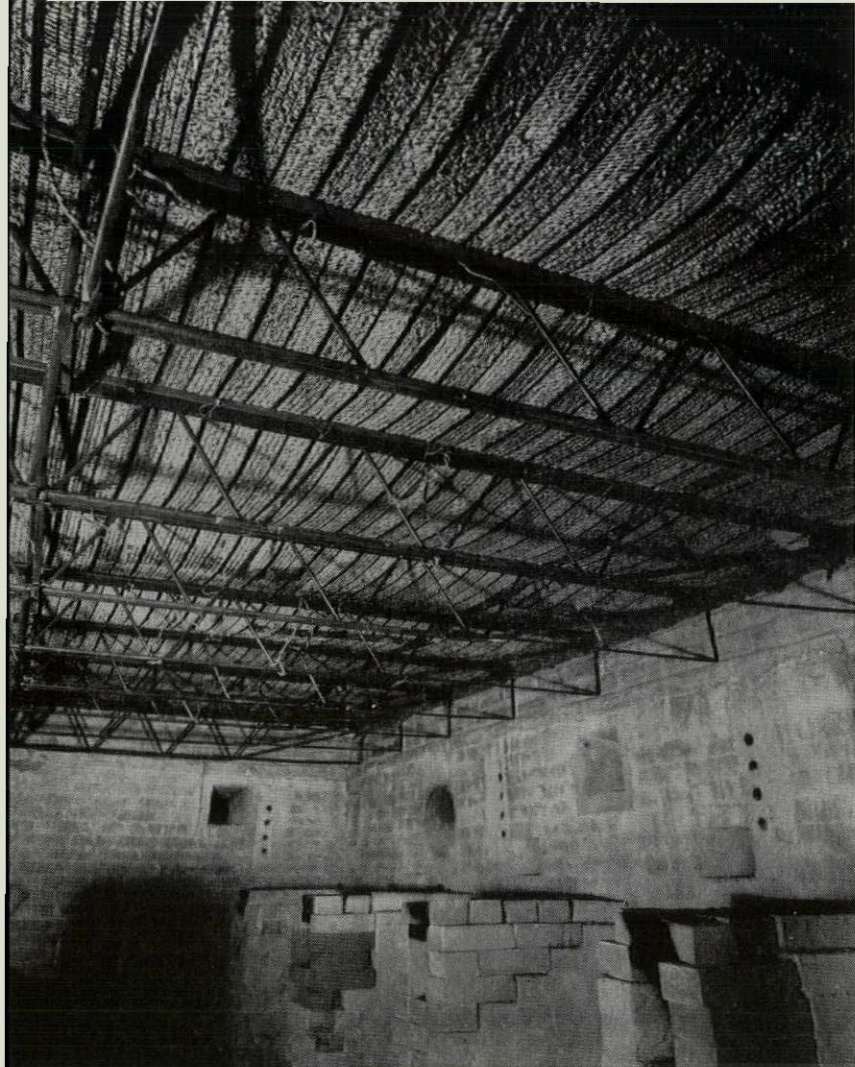
The conventional design costs \$51.02 per sq. ft. of ground area 12 stories high. This includes the cost of the footings, steel frame and concrete fireproofing, with bond plaster on the concrete ceiling, beams and columns. If bond plaster is eliminated, the cost is reduced to \$46.55 per sq. ft.

By contrast, the light steel frame with gypsum lath and light-weight aggregate plaster fireproofing costs \$30.84 per sq. ft. 34% less than the unplastered concrete frame.

Other advantages:

- ▶A light steel frame goes up faster, is roofed-in faster, and uses less field labor (particularly in forming) than most of the other designs.
- ▶The steel which this technique does use is less critical material in the current market than the steel in larger rolled sections.
- ▶Contractors take minimum risk in this kind of work, because almost all elements in light steel construction are prefabricated, not field manufactured.
- ▶The fireproofing ceiling of the light steel frame is flat, unbroken by beams, as sought by many office renters today.
- ▶Flexibility of design means mechanical and electrical work can be completed easily and early.

Each of the five designs which follow is based on live load of 50 lb. per sq. ft., 10' story height, and 20 lb. per s. ft. allowance for partitions (*see page 144 for more on partitions*).

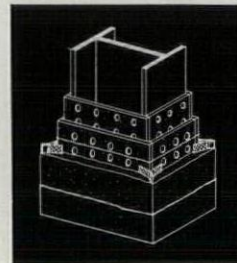


Floor beams are fire protected by attaching $\frac{3}{4}$ " channels to the beams for support of gypsum lath. Supporting clips engage furring channel. The opposite end of the wire clip passes through the eyelet of the preceding clip. Then the lath is plastered to thickness required by the desired fire resistive rating. For column-fireproofing technique, see p. 143.)

* A 12-story office or apartment building of steel frame having 3 hr. columns and 2 hr. floors can be built under the following building codes:

1) Basic Code—Building Officials Conference of America; 2) Uniform Code—Pacific Coast Building Officials Conference; 3) Southern Standard Building Code; 4) National Code—National Board of Fire Underwriters; 5) Chicago; 6) Los Angeles; 7) San Francisco; 8) St. Louis. Limitations apply in other cities as indicated below: 1) New York—apartments, 9 stories; offices, 6 stories; first floor—3 hrs. 2) Cleveland—floors must be 2½ hrs. 3) New Orleans and St. Louis—8-story limit. 4) Boston—2 hr. columns and 1 hr. floors permitted 8 stories; mercantile, 10 stories; apartments, 6.

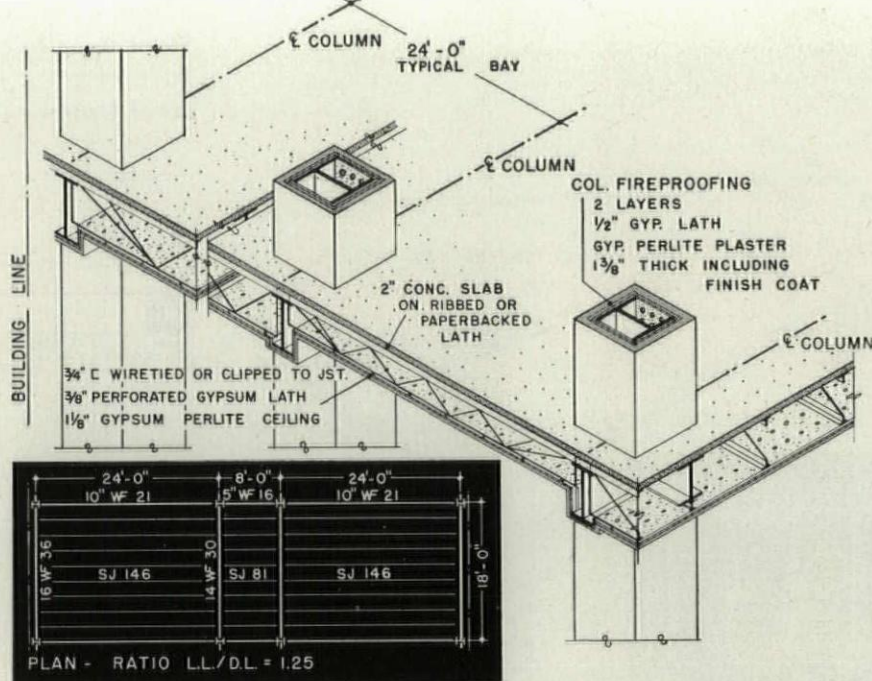
Recent tests at the Bureau of Standards in Washington qualified the shell fireproofing for the indicated fire-resistive ratings.



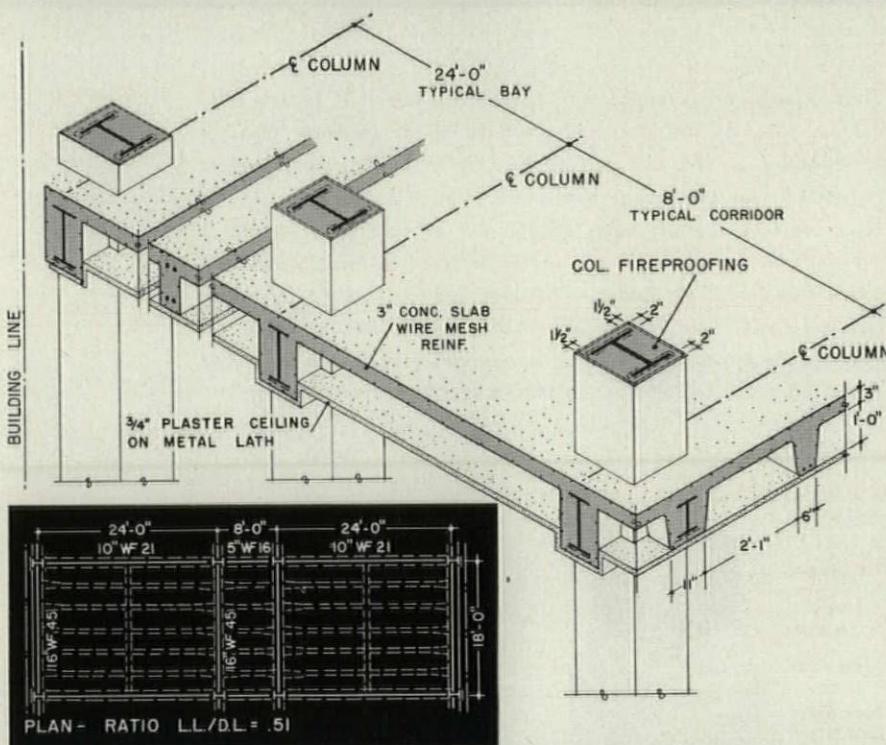
3" concrete slab on
light steel floor members,
supported with steel frame,
all elements fireproofed
with gypsum lath
and lightweight
aggregate plaster.

Total cost of building frame
including footing,
structure, slab floor,
and plastering per sq. ft.
of ground area covered:

\$30.84



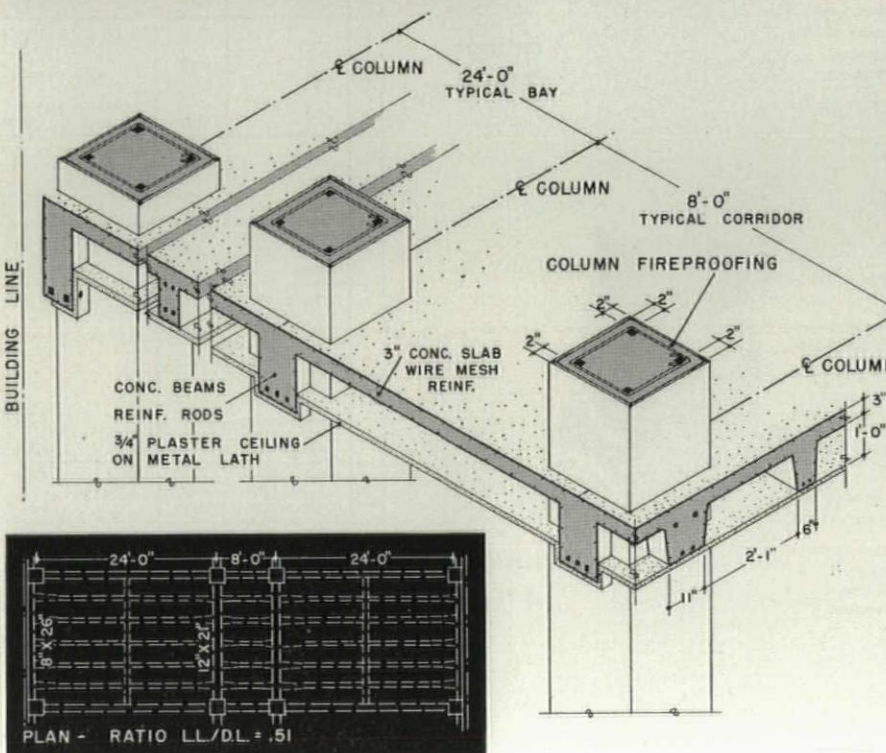
1 COLUMN SCHEDULE				
STORY (Sty. Ht. 10'-0")	EXTERIOR COL. SIZE	TOTAL WT. OF STEEL	INTERIOR COL. SIZE	TOTAL WT. OF STEEL
12 & 11	8W 31	620	8W 31	620
10 & 9	8W 35	700	8W 31	620
8 & 7	10W 49	980	8W 40	800
6 & 5	12W 65	1300	10W 54	1080
4 & 3	12W 79	1580	12W 65	1300
2 & 1	12W 92	1840	12W 79	1580
Bsmnt.	12W 99	990	12W 85	850
Footing	36-1/4 d. each way	1460	30-1/4 d. each way	1100
TOTAL STEEL (One Col. & Fig.)		9470#		7950#



3" concrete slab and
concrete joists (removable pans),
steel beams and columns
all fireproofed with concrete.
Cost per sq. ft. of ground area:

\$45.64

2 COLUMN SCHEDULE				
STORY (Sty. Ht. 10'-0")	EXTERIOR COL. SIZE	TOTAL WT. OF STEEL	INTERIOR COL. SIZE	TOTAL WT. OF STEEL
12 & 11	8W 31	620	8W 31	620
10 & 9	10W 49	980	10W 49	980
8 & 7	12W 65	1300	12W 65	1300
6 & 5	12W 85	1700	12W 85	1700
4 & 3	14W 103	2060	14W 103	2060
2 & 1	14W 127	2540	14W 127	2540
Bsmnt.	14W 136	1360	14W 136	1360
Footing	33-1/4 d. each way	2160	33-1/4 d. each way	2160
TOTAL STEEL (One Col. & Fig.)		12720#		12720#



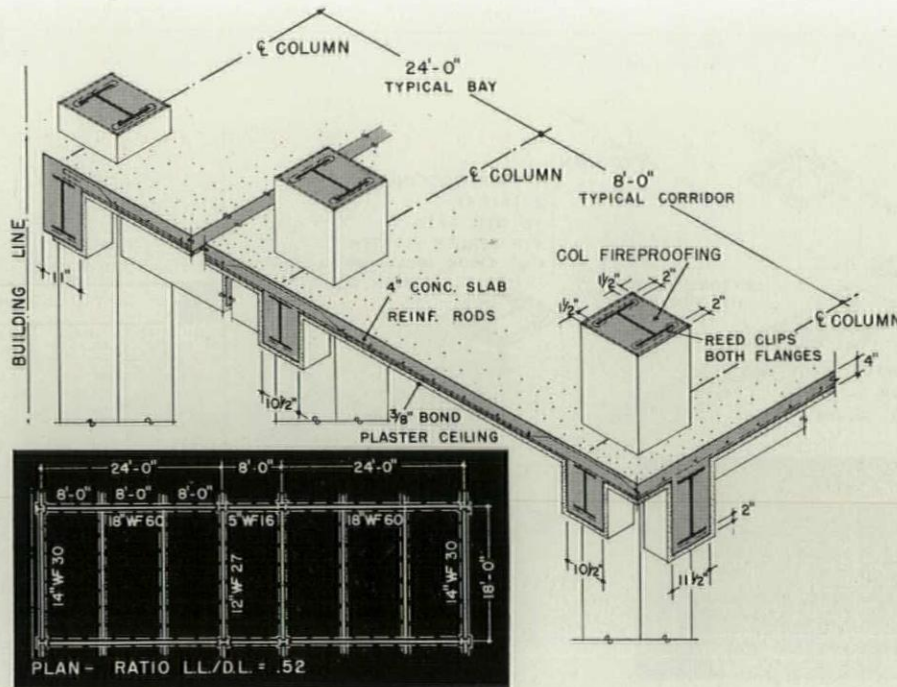
3" concrete slab and
concrete joists (pan construction)
supported on a reinforced
concrete frame.
Cost per sq. ft. of ground area:

\$37.28

3 COLUMN SCHEDULE*				
STORY (Sty. Ht. 10'-0")	EXTERIOR COL. SIZE	TOTAL WT. OF STEEL	EXTERIOR COL. SIZE	TOTAL WT. OF STEEL
12 & 11	12 x 12 4-1/4 d.	135#	12 x 12 4-1/4 d.	135#
10 & 9	14 x 14 4-1/4 sq.	365	14 x 14 4-1/4 sq.	465
8 & 7	16 x 16 8-1/4 sq.	730	17 x 17 8-1/4 sq.	730
6 & 5	19 x 19 8-1/4 sq.	890	19 x 19 12-1/4 sq.	1090
4 & 3	21 x 21 12-1/4 sq.	1330	21 x 21 12-1/4 sq.	1330
2 & 1	24 x 24 16-1/4 sq.	1450	24 x 24 16-1/4 sq.	1450
Bsmnt.	24 x 24 16-1/4 sq.	885	24 x 24 16-1/4 sq.	885
Footing	34-1/4 d. each way	2260	34-1/4 d. each way	2260
TOTAL STEEL One Col. & Footing		8045#		8345#

*(Based on Hard Grade Steel)

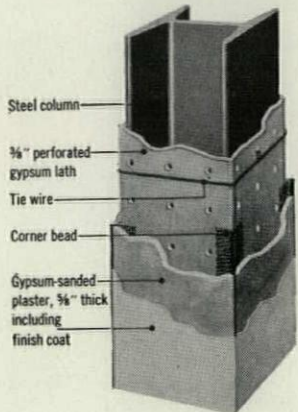
LIGHTWEIGHT FIREPROOFING



4" concrete slab on
steel floor beams,
supported by
steel frame,
all fireproofed with concrete.
Cost per sq. ft. of ground area:

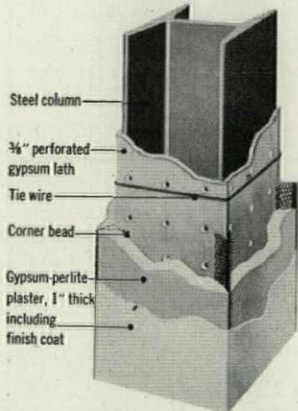
\$51.02

4 COLUMN SCHEDULE				
STORY (Sty. Ht. 10'-0")	EXTERIOR COL. SIZE	TOTAL WT. OF STEEL	INTERIOR COL. SIZE	TOTAL WT. OF STEEL
12 & 11	8W 31	620#	8W 31	620
10 & 9	10W 49	980	10W 49	980
8 & 7	12W 65	1300	12W 65	1300
6 & 5	12W 85	1700	12W 79	1580
4 & 3	14W 111	2220	14W 103	2060
2 & 1	14W 136	2720	14W 119	2380
Bsmnt.	14W 142	1420	14W 136	1360
Footing	34-7/8 d. each way	2260	32-7/8 d. each way	2030
TOTAL STEEL (One Col. & Fig.)		13220#		12310#

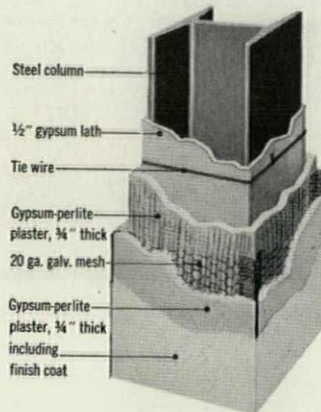


rating:
1 1/2 hrs.

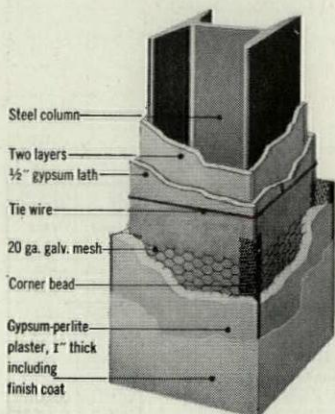
Steel columns are wrapped with one or two layers of gypsum lath, held in place by tie wires and plastered to the thickness required for specified fire resistive rating. For higher ratings, the plaster is reinforced with thin gauge wire mesh. Choice between one or two layers of lath depends upon specific job conditions. If lathing is subcontracted, greater economy will be achieved by using the method which will permit the lather to complete his work on the column in one single operation. On the other hand, if the plastering contractor employs the lather there is little inconvenience in having the lather return after the scratch coat of plaster has been applied.



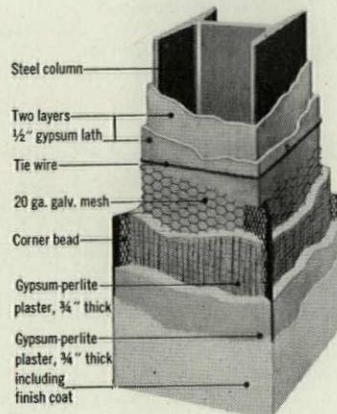
rating:
2 hrs.



rating:
3 1/2 hrs.

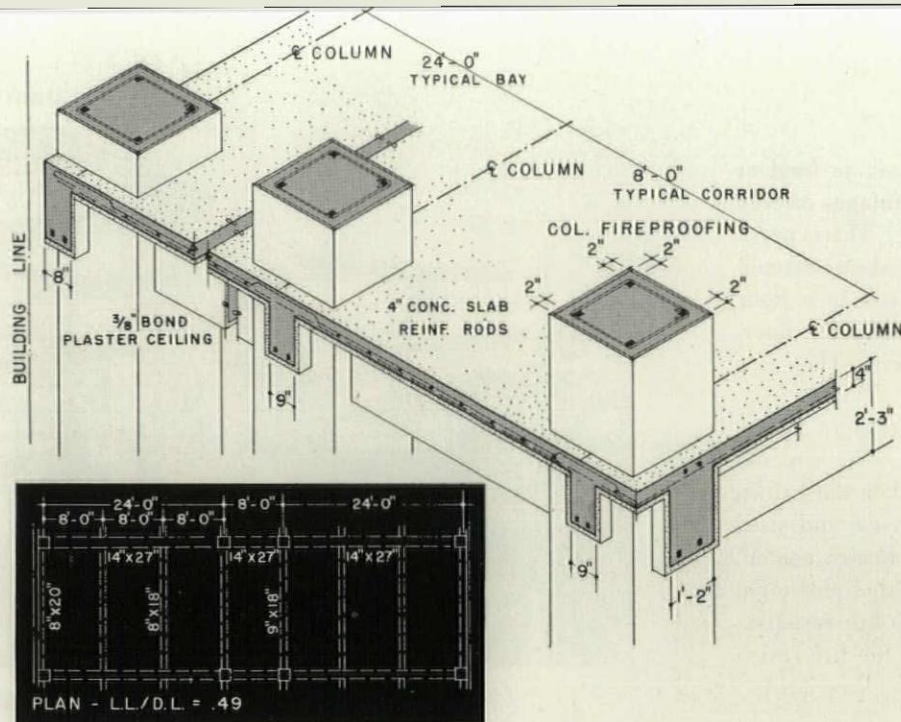


rating:
3 1/2 hrs.



rating:
4 1/2 hrs.

TYPE OF CONSTRUCTION		1 LIGHT STEEL FRAME, "BOX"-FIREPROOFED		
		QUANTITY/SQ. FT.	UNIT PRICE	TOTAL PRICE
Floor L.L. 50#/s.f. Partition Load 20#/s.f.	Struc. Steel	Joists	12x3.61=43.3#	\$0.14 \$6.06
		Beams	12x3.63=43.6#	0.132 5.76
		Total	86.9#	\$11.82
	Reinf. Steel	Slabs	Lath 9.1#	
		Joists		
		Beams		
	Conc.	Total	9.1#	0.13 1.56
		Slabs	12x .17 = 2.0 c.f.	
		Joists		
	Forms	Beams		
		Total	2.0 c.f.	0.93 1.86
		Slabs		
Columns	Lath	Plaster	12x1.02=12.2 s.f.	0.70 8.54
		Plaster	12x1.02=12.2 s.f.	
		Total	28.5#	0.132 3.76
	Reinf. Stl.	Concrete		
		Forms		
		Lath	2.2 s.f.	1.72 1.44
	Plaster	Reinf. Stl.	5.1#	0.10 0.51
		Concrete incl. forms	1.5 c.f.	0.90 1.35
		Total	3.5 c.f./1 s.f.	
	Tot. Vol. Conc.	Tot. Wt. Steel	129.6#/s.f.	
		Tot. Vol. Plaster	1.95 c.f./s.f.	
		Total Price for 12 Floors per s.f. of Ground Area		\$30.84



4" concrete slab on
concrete beams,
supported by reinforced
concrete frame.
Cost per sq. ft. of ground area:

\$41.57

5 COLUMN SCHEDULE*				
STORY Sty. Ht. 10'-0"	EXTERIOR COL. SIZE	TOTAL WT. OF STEEL	EXTERIOR COL. SIZE	TOTAL WT. OF STEEL
12 & 11	12 x 12 4-3/4 d.	135	12 x 12 4-3/4 d.	135
10 & 9	14 x 14 4-1/4 sq.	365	14 x 14 4-1/4 sq.	465
8 & 7	16 x 16 8-1/4 sq.	730	17 x 17 8-1/4 sq.	730
6 & 5	19 x 19 8-1/4 sq.	890	20 x 20 12-1/4 sq.	1090
4 & 3	21 x 21 12-1/4 sq.	1330	22 x 22 12-1/4 sq.	1330
2 & 1	23 x 23 16-1/4 sq.	1450	24 x 24 16-1/4 sq.	1770
Bsmnt.	24 x 24 16-1/4 sq.	885	26 x 26 16-1/4 sq.	885
Footing	33-1/4 d. each way	2160	37-1/4 d. each way	2570
TOTAL STEEL One Col. & Footing		7945#		8975#

*(Based on Hard Grade Steel)

Chart below summarizes and adds detailed information to graphic material on typical methods of framing a 12-story office building, fire rated at two hours for the floors and three hours for the columns. Number 1 is the new method, and is the cheapest, almost \$7 less costly than any other method shown per sq. ft. of ground area covered by the two office bays and hall (n.b.—designation is not per sq. ft. of floor area but ground area). Note that the major area of saving is in the form work in comparison with all other designs. These costs include only structural costs, with comparable plaster finishes.

2 CONCRETE JOISTS, STEEL FRAME				3 CONCRETE JOISTS, R. C. FRAME				4 STEEL FRAME, CONCRETE-FIREPROOFED				5 REINFORCED CONCRETE BEAMS AND FRAME			
QUANTITY/SQ. FT.	UNIT PRICE	TOTAL PRICE		QUANTITY/SQ. FT.	UNIT PRICE	TOTAL PRICE		QUANTITY/SQ. FT.	UNIT PRICE	TOTAL PRICE		QUANTITY/SQ. FT.	UNIT PRICE	TOTAL PRICE	
12x4.35 = 52.2#								12x6.95 = 83.4#							
52.2#	\$0.132		\$ 6.89					83.4#	\$0.132		\$11.00				
Mesh 9.6#	0.05	\$0.60		Mesh 9.6#	\$0.05	\$0.60		12x1.36 = 16.3#				12x1.36 = 16.3#			
12x1.97 = 23.6#	0.10	2.36		12x1.97 = 23.6#	0.10	2.36									
12x .018 = 0.2#	0.10	0.02		12x .706 = 8.5#	0.10	0.85		12x .018 = .2#				12x2.05 = 24.6#			
33.4#			2.98	41.7#		\$ 3.81		16.5#	0.10		1.65	40.9#	\$0.10		\$ 4.09
12x .25 = 3.0 c.f.				12x .25 = 3.0 c.f.				12x .33 = 4.0 c.f.				12x .333 = 4.0 c.f.			
12x .18 = 2.2 c.f.				12x .18 = 2.2 c.f.											
12x .14 = 1.7 c.f.				12x .134 = 1.6 c.f.				12x .196 = 2.4 c.f.				12x .242 = 2.9 c.f.			
6.9 c.f.	0.93		6.42	6.8 c.f.	0.93	6.33		6.4 c.f.	0.93		5.95	6.9 c.f.	0.93		6.42
12x .90 = 10.8 s.f.	0.75	8.10		12x .93 = 11.2 s.f.	0.75	8.40		12x .84 = 10.1 s.f.	0.75	\$7.58		12x .837 = 10.0 s.f.	0.75	\$7.50	
12x .14 = 1.7 s.f.	0.60	1.02		12x .11 = 1.3 s.f.	0.60	0.78		12x .64 = 7.7 s.f.	0.60	4.62		12x .322 = 8.7 s.f.	0.60	5.22	
12.5 s.f.			9.12	12.5 s.f.		9.18		17.8 s.f.		12.20		18.7 s.f.		12.72	
12x1.04 = 12.5 s.f.	0.60		7.50	12x1.04 = 12.5 s.f.	0.60	7.50		0				0			
12x1.04 = 12.5 s.f.				12x1.04 = 12.5 s.f.				12x1.48 = 17.8 s.f.	0.42	7.46		12x1.17 = 18.7 s.f.	0.39	7.46	
41.9#	0.132		5.53					42.1#	0.132	5.56					
12x .037 = .4#	0.135	0.05		23.6#	0.10	2.36		12x .037 = .4#	0.135	0.05		24.2#	0.10	2.42	
0.8 c.f.	0.93	0.74		1.2 c.f.	0.93	1.12		0.8 c.f.	0.93	1.74		1.2 c.f.	0.93	1.12	
2.7 s.f.	0.60	1.62		3.1 s.f.	0.60	1.86		2.8 s.f.	0.60	1.68		3.2 s.f.	0.60	1.92	
0				0				0				0			
2.8 s.f.	0.47	1.32		3.2 s.f.	0.47	1.52		2.9 s.f.	0.47	1.36		3.4 s.f.	0.47	1.60	
8.6#	0.10	0.86		9.0#	0.10	0.90		8.5#	0.10	0.85		9.4#	0.10	0.94	
2.9 c.f.	0.90	2.61		3.0 c.f.	0.90	2.70		2.8 c.f.	0.90	2.52		3.2 c.f.	0.90	2.88	
10.6 c.f./s.f.				11.0 c.f./s.f.				10.0 c.f./s.f.				11.3 c.f./s.f.			
136.5# /s.f.				74.3# /s.f.				150.9# /s.f.				74.5# /s.f.			
1.19 c.f./s.f.				1.21 c.f./s.f.				.71 c.f./s.f.				.76 c.f./s.f.			
		\$45.64				\$37.28				\$51.02					\$41.57

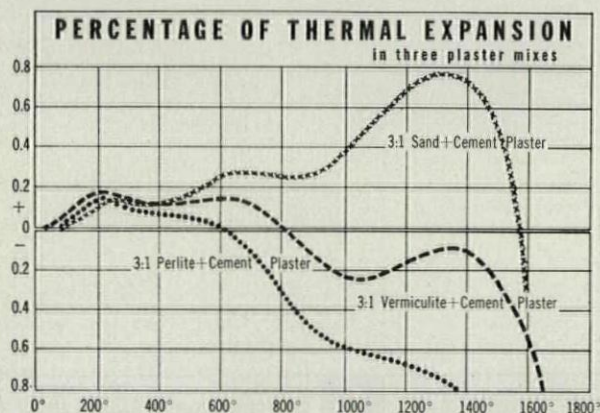
Partitions

The 2" solid gypsum lath and plaster partition is used as companion construction to attain the best advantages offered by lightweight aggregate-gypsum fireproofing. These partitions consist of 1/2" thick gypsum lath in long sheets extending from floor to ceiling. The lath is centered in a floor runner assembly which provides a metal base at the floor, and secured at the ceiling in concealed runners. Then this is braced temporarily.

A scratch coat of gypsum plaster and lightweight aggregates is applied to both sides. After this sets, a brown coat is applied to the side opposite the braces. When the brown coat has set the temporary braces are removed and used elsewhere, and the side which was braced is brown coated. When plastered to a total thickness of 2" with lightweight aggregate plastering, the partition is 1 1/2 hr. fire resistive. An increase of 1/2" plaster thickness increases the fire resistance to 2 hrs.

Aggregates

Vermiculite and perlite are the best known and most commonly used of the lightweight aggregates. Vermiculite is a mica mineral, which when heated expands about ten times. Perlite, a volcanic rock, reacts similarly.



Both vermiculite and perlite generally cost slightly more than their equivalent in sand for plastering, particularly where good sand is available locally, but generally the increase in aggregate cost is less than 10%. And the labor saved in the mixing and application (plus the added cost of thawing sand in cold weather) generally compensates for the additional cost of the lightweight aggregates.

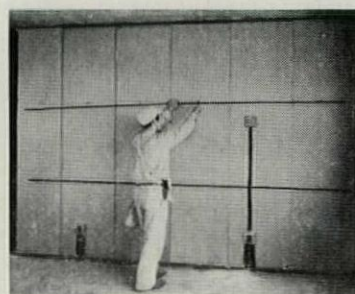
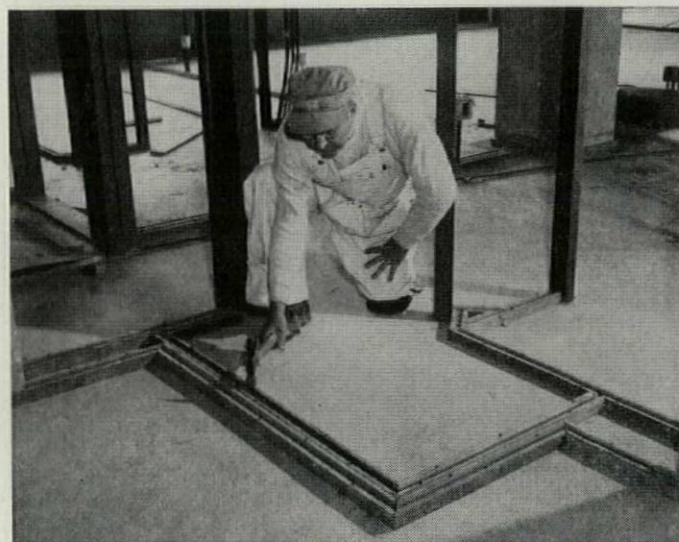
Lightweight aggregates are no more fire resistive than sand but their use in combination with gypsum plaster provides much greater fire resistance than sanded plaster. This is due principally to the low coefficient of expansion of lightweight aggregates under extreme temperature as compared to sand's high coefficient under similar conditions.

Selection of lightweight aggregates should be done carefully. They should have a minimum density of 7 1/2 lb. per cu. ft. and no excess fines in particle sizing. Lower densities should be avoided because compressive strength generally deteriorates with density.

In proportioning of lightweight aggregates to plaster 1 cu. ft. replaces 100 lb. of sand in the normal plaster mix. So the scratch coat of plaster should consist of 2 cu. ft. of lightweight aggregate per 100 lb. bag of plaster, and the brown coat should consist of 3 cu. ft. to 100 lb. of plaster. These lightweight aggregates are generally packaged with 4 cu. ft. per container. Sand weighs 95 to 100 lb. per cu. ft. Perlite and vermiculite weigh only 7 1/2 to 10 lb. per cu. ft.



New partitions weigh about 12 lb. per sq. ft., as compared with approximately 40 lb. per sq. ft. for conventional masonry partitions. Above, workmen set receiving framework in the ceiling for the 2" thick partitions. Below, floor assembly. Right, placing the gypsum lath core.



To provide temporary rigidity for plastering, 3/4" furring channels are placed longitudinally at the center or third points, depending on ceiling height. Then scratch coat of plaster is applied to both sides, and clear side is brown coated, making further braces unnecessary.



client approval

goes without saying

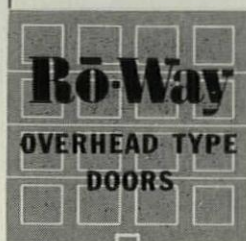
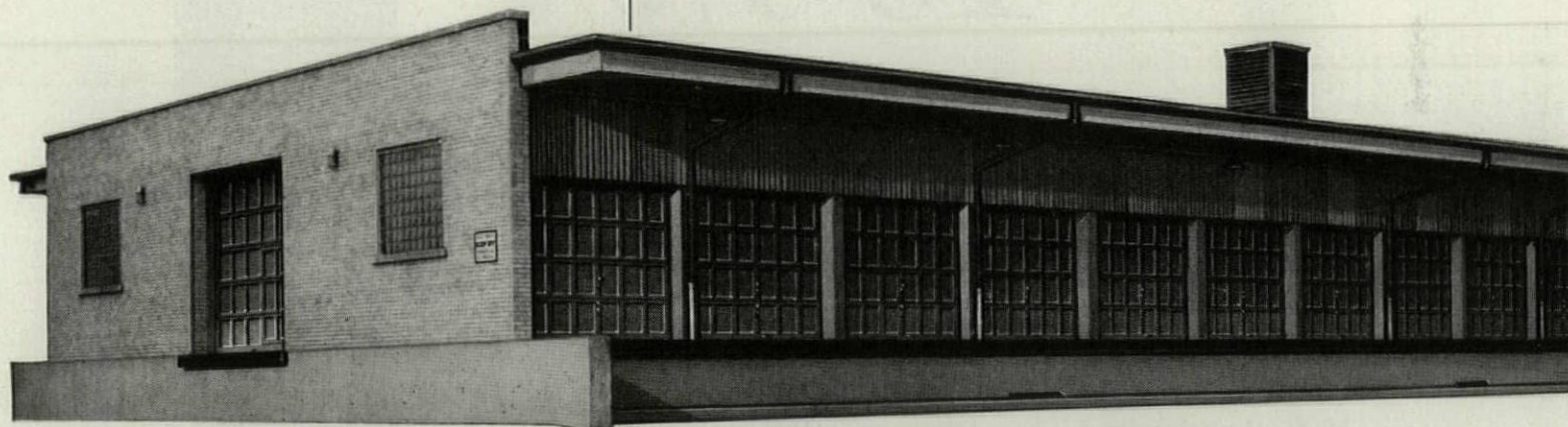
You *know* you can be sure of client approval whenever you specify *Ro-Way* overhead type garage doors for commercial or industrial installations!

You *know*—because client *satisfaction* is engineered and built right in!

It's *there*—in the selected west coast lumber. In the *Ro-Way* fabricated, Parkerized *and* painted, heavy gauge steel hardware. In the way mortise and tenon joints are both glued and *steel* doweled. In the precision squaring of muntins, rails and stiles. In the rabbeting of sections for weather-tight joints. In the drum and *hand* sanding for super smoothness. In the superior *Ro-Way* features.*

Yes, client approval goes without saying—when you specify *Ro-Way* overhead type doors.

*FOR EXAMPLE: *Taper-Tite* track and exclusive *Seal-A-Matic* hinges, which work together to hold door tightly against side and head jambs, yet readily permit easy opening and closing. Available on all doors with 2" tracking.

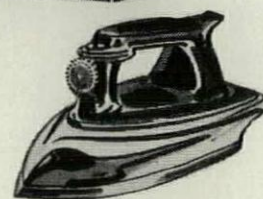
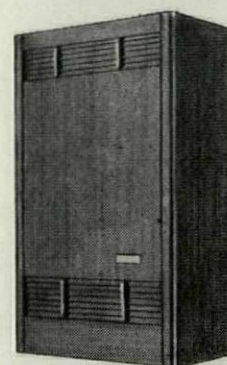
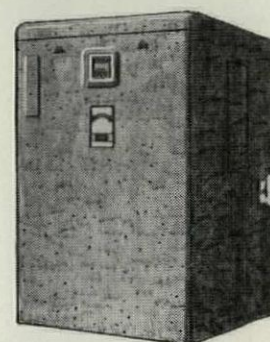
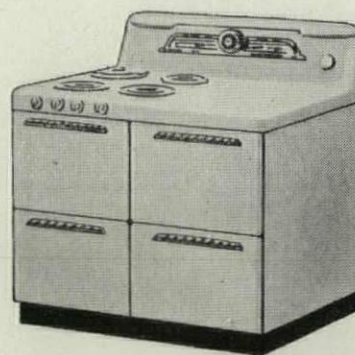
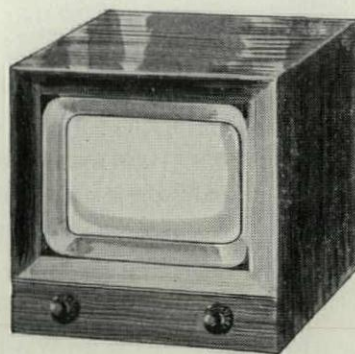


Nationwide sales and installation service.
See your classified telephone directory
for nearest *Ro-Way* distributor.

OWE MANUFACTURING CO., 995 HOLTON ST., GALESBURG, ILLINOIS



there's a Ro-Way for every Doorway!



How Many in 1952?

You can help maintain steel production . . . for military and civilian needs . . . by salvaging your iron and steel scrap—*now* and regularly.

Steel mill productive capacity is being constantly increased, and we can meet military and civilian demands . . .

If we all pitch in and turn in our iron and steel scrap

Scrap is the scarce commodity. The amount of *working* scrap—the wastes of metal-working, such as

trimmings, borings, etc.—is not enough for the enlarged furnace capacity.

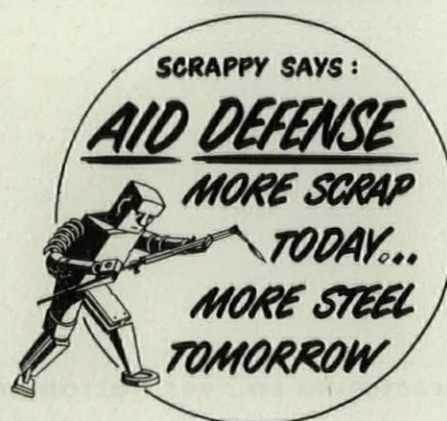
It will take the *dormant* scrap to keep the furnaces running—old, outmoded machinery, equipment and parts that you've already "junked" or *can* junk because you have no further use for them.

We need extra millions of tons of scrap this year and next year. All of us can help by clearing out our plants and yards—*now*.

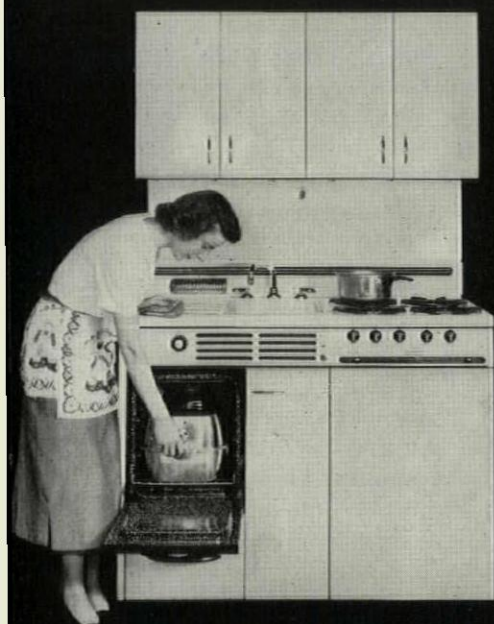
NON-FERROUS SCRAP IS NEEDED, TOO!

This advertisement is a contribution, in the national interest, by

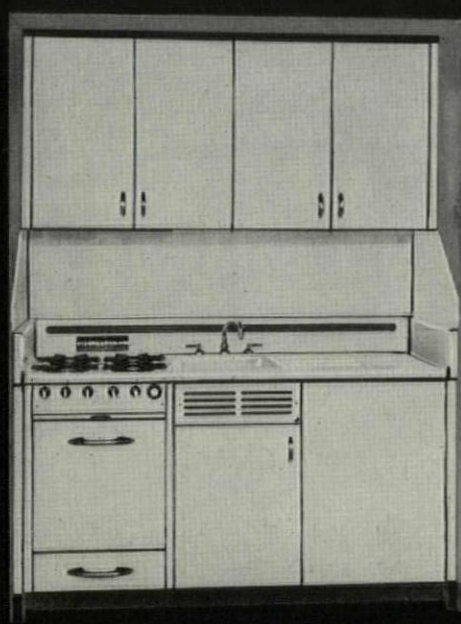
ARCHITECTURAL FORUM
THE MAGAZINE OF BUILDING



When you need compact kitchens
here are the kitchens you need!



Series 48 Standard

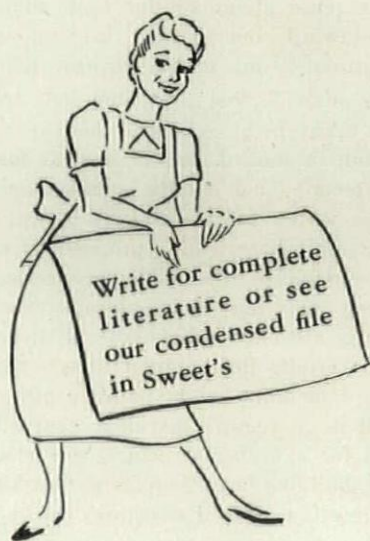


Series 60 Recess



Series 69 Recess

DWYER KITCHENS



In one
streamlined
unit

Genuine
porcelain

Recess or
standard
models.
4 sizes.

Gas or electric range of approved design. Electric refrigerator with push-button door and compartment for ice cubes and frozen food. Deep bowl sink-and-worktop in one piece; not a crack or crevice for dirt or grease.

Welded steel construction. All fronts and worktop of genuine vitreous porcelain. Permanently beautiful; never require repainting. Wash clean with soap and water.

39 to 72 inches wide. On recess models the 5-inch high backrail of sink-and-worktop continues around each end; eliminates cracks between working surface and adjacent walls.

DWYER PRODUCTS CORPORATION • Dept. HE-3, Michigan City, Indiana

Specialists in compact porcelain kitchens for over a quarter century.

BUILDING NEAR AIRPORTS—recent crashes in built-up areas suggest builders study CAA rules

The most important reason for relating buildings and aeronautical safety comes suddenly and infrequently—when a plane crashes in a densely populated residential or commercial neighborhood. But several other less catastrophic reasons are pointed out by the Civil Aeronautics Administration:

► Increasing development of airports—private, commercial, military.

► Aeronautical advancements, such as jet aircraft, requiring longer take-off runs, longer flatter approaches.

► Mental hazards imposed on the pilot by buildings of appreciable height and proximity to flight paths.

► Obvious disadvantages of living or conducting business near the noise caused by aircraft operations.

► Possible reluctance of lending agencies to supply mortgage money for certain projects close to airports.

► The fact that an airport may reduce the value of adjacent areas.

To avoid such problems, the wise architect or builder will familiarize himself with aeronautical regulations *before* he makes his plans. (Not all builders can afford to cover an initial mistake, as did one who bought an extra 87-acre tract which was in the middle of an already begun development and which would otherwise have been used by a private flying club.) These are all set forth in the CAA's Technical Standard Order N-18, herewith boiled down to its essential elements:

Approach surface to an airport is the inclined plane directly above the approach area. Its dimensions are measured horizontally (lengthwise) and vary by class of airport (determined by runway length) from feeder and trunk line runways of 3,500'-5,000' to intercontinental express runways of 8,400' and longer.

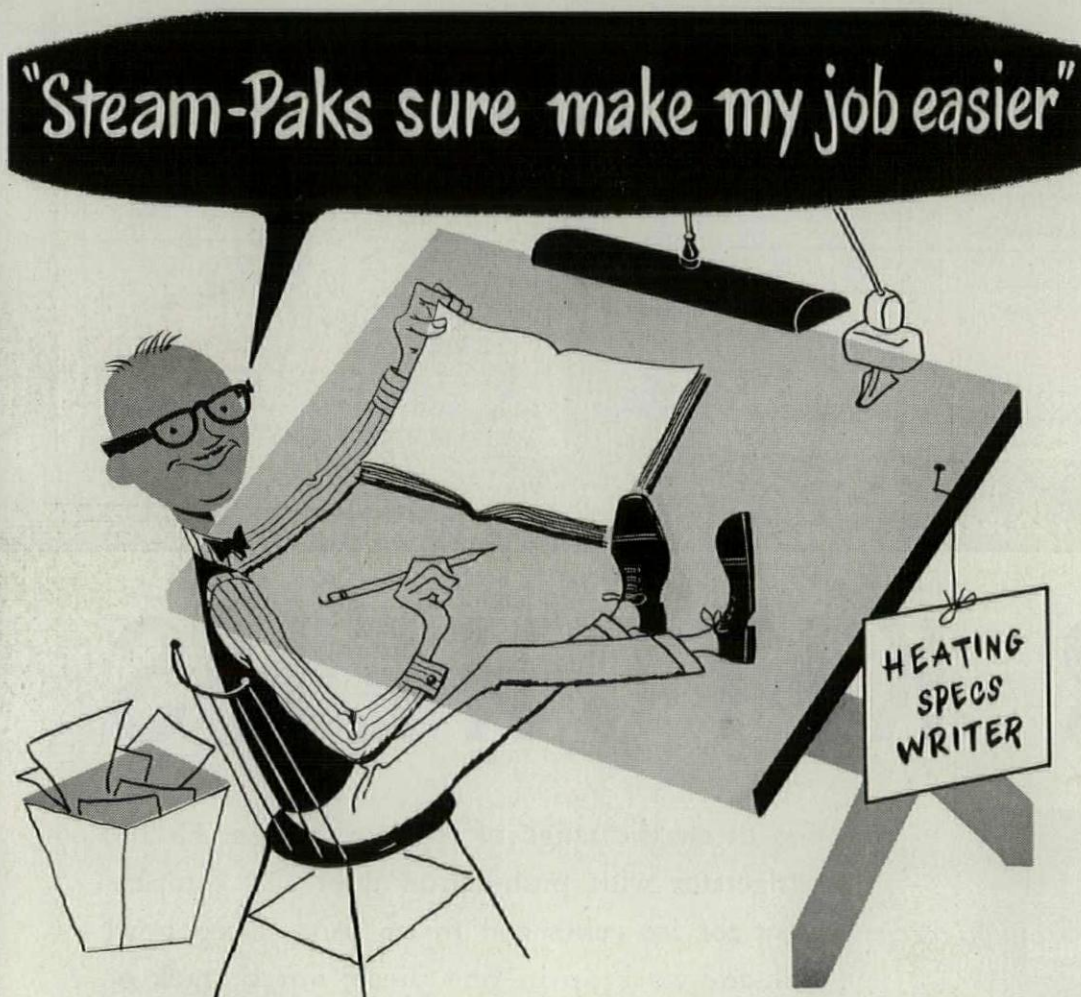
Approach zone for a noninstrument runway is 500' wide at the runway end and flares to 2,500' at a distance of about two miles; for an instrument runway, 1,000' flaring to 4,000'.

Slope of the approach zone for instrument runways is 50:1, extending outward from the end of the runway for approximately 2 mi.; and 40:1 from this point for a distance of about 7 mi. For all other runways not intended for instrument operation, the slope to be protected varies with class of airport.

Building heights in instrument approach zones, in addition to the above requirements, are considered obstructions if they extend more than 100' above the elevation of the runway within 3 mi. of the runway end. They may increase about 25' for each additional mile outward, but in any case not exceed 250' within 10 mi. of the runway end.

Two other factors are taken into account by the CAA: 1) Sites beyond these areas may constitute a hazard due to natural features of the terrain, such as hills or mountains, and location with reference to civil airways. 2) The possible hazard of a proposed structure may be reduced by suitable aeronautical obstruction painting and lighting. Standard markings are not applicable to all structures within certain height limitations. For example, a medium height building may be so located as to require markings generally intended for a higher structure; conversely, a higher building may require no marking at all if existing marked structures shield it.

Under certain conditions, it is legally required that a builder notify the CAA of his proposed construction. Also, a copy of Technical Standard Order N-18 may be had free from any CAA regional office.

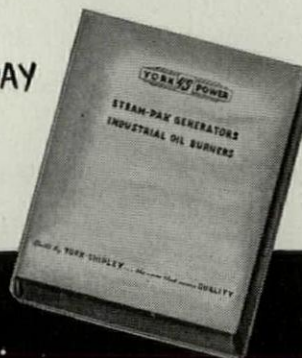


Yes, Steam-Pak Generators have made heating specifications writing a lot easier because these packaged generators are designed, built, and shipped complete with all controls ready for fast, easy installation. Steam-Paks handle any high pressure or low pressure steam or hot water heating job from 15 to 250 hp. automatically using oil or gas or both as the fuel.



GET YOUR COPY OF THIS MANUAL TODAY

Steam-Pak's 208-page Architects' Manual is the only complete reference on steam generators. Contains specifications, hook-ups, wiring and piping diagrams, operating charts. Request Manual 101-B today on your letterhead.



YORK-SHIPLEY, INC.

Industrial Division, York 6, Pa.

Automatic Heat & Power Specialists since 1918

free

a quick review of the latest
and best in industrial doors



New Presentation
on Industrial Doors
by International Steel
*Can help save
on first costs...
operating costs*

Industrial door design at International Steel moves ahead with the needs of American industry.

In a field where obsolescence is particularly great . . . with plant after plant handicapped by inadequate doors . . . International Steel brings wide experience and specialized engineering skill to help meet the most varied door requirements. Included in International's completed job file are motorized and manually operated doors of every size . . . up to the world's largest. And it is spe-

cialization that shows in low first costs — in doors that can often reduce operating costs in many ways — in this new guide to the latest and best in industrial doors. Send for your free "Industrial Door Book" today.

See our ad in Sweet's Architectural File.

**INTERNATIONAL
STEEL COMPANY**

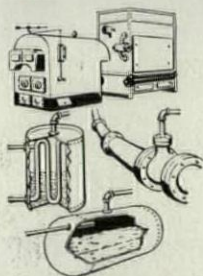
1909 EDGAR STREET • EVANSVILLE 7, IND.



You're ahead 4 ways when you **SPECIFY SERVEL** **AIR CONDITIONING EQUIPMENT**

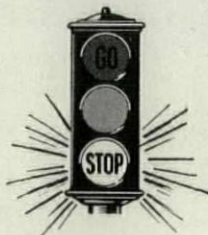
**EXCLUSIVE ADVANTAGES OF SERVEL "ALL-YEAR"
AIR CONDITIONING MAKE IT YOUR BEST CHOICE
FOR TODAY—AND FOR THE YEARS AHEAD!**

1 Use existing steam lines to operate Serval at low cost!



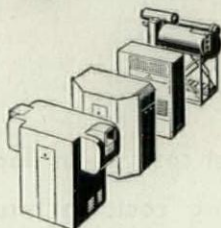
Serval air conditioning units can be connected to any present source of steam to give you air conditioning at nominal cost. Serval "All-Year" Air Conditioners also operate on gas, oil, LP gas, waste heat, or steam from any source, at any pressure. With this multiplicity of fuels, Serval lets you choose the most economical energy source for any installation.

3 Serval "no moving parts" design cuts maintenance costs!



Operating on the famous absorption principle, Serval units deliver quiet, continuous, vibrationless operation at peak performance... year after year... and, because there is nothing in their cooling systems to wear out, require a minimum of maintenance! Operating within a vacuum—they are absolutely safe.

2 Serval has the model to do all jobs better!



Do you have a factory problem that could be solved by the use of chilled water in one of the processes? Serval has the unit to remedy it! What do you want to air condition... a factory space, a store, an office? Serval has the unit or combination of units to provide economical air conditioning how and where you specify it! You may have cooling only... a year 'round combination of heating and cooling... or combination units for vibration-free multiple floor air conditioning.

4 Servels have a five year factory warranty



The perfected Serval absorption refrigeration unit is warranted for five full years! Five times as long as all other air conditioning units having comparable capacity.

Serval air conditioning offers low operating costs, proven dependability, vibrationless operation—and an exclusive 5-year warranty.



SPECIFY SERVEL... the air conditioning that offers low operating costs, guaranteed dependability in home, commercial or industrial installations.



Serval

AIR CONDITIONING

Made by the makers of the famous Serval Refrigerator
SERVEL, INC. • Evansville 20, Indiana

**Write for the amazing cost-cutting facts about
Serval Air Conditioning today!**

Serval, Inc., Dept. MBH-2, Evansville 20, Indiana

Gentlemen:

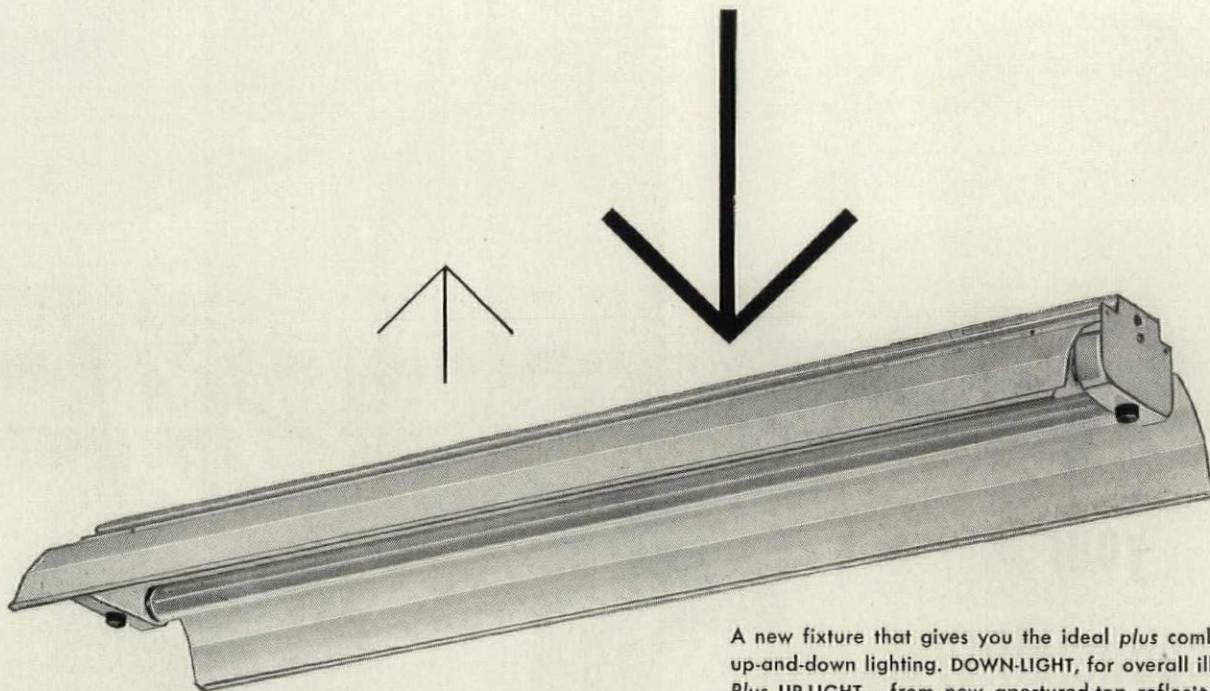
I'm interested in more information on Serval's new, low cost air conditioning. Rush me details on () Industrial () Commercial Air Conditioning.

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

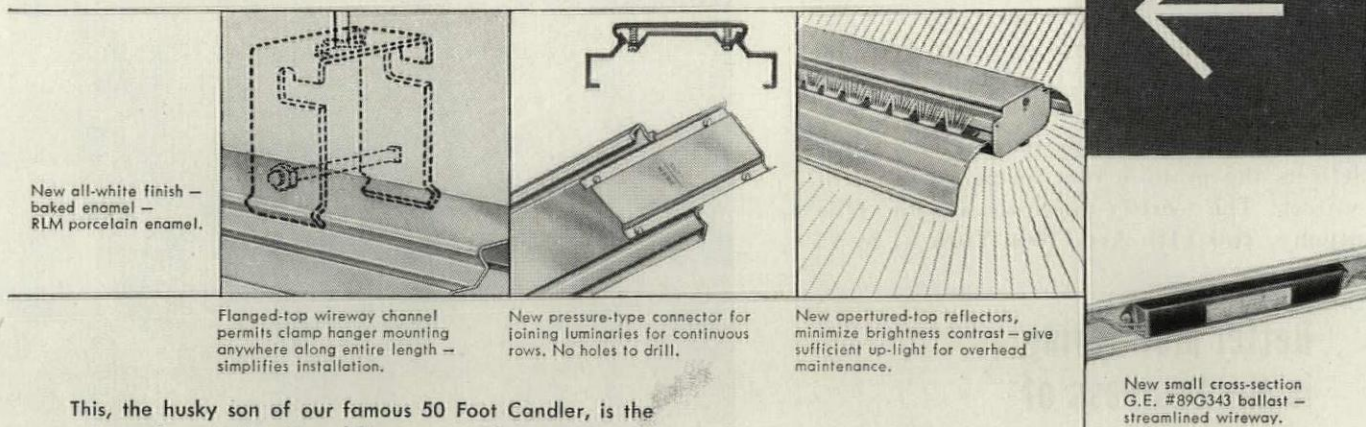


A new fixture that gives you the ideal *plus* combination of up-and-down lighting. **DOWN-LIGHT**, for overall illumination. *Plus UP-LIGHT* — from new apertured-top reflector, new all-white finish inside and out — to minimize brightness contrast (and give sufficient light for overhead maintenance). Result — a new high standard of illumination that enables workers to see easily and work better.

A more compact fixture, too, made possible by the use of the new G. E. small cross-section ballast. Long life assured by rigid adherence to the Miller 8-Point **QUALITY** standard. Engineered for easy installation and maintenance. Carries RLM label. Can be mounted individually or in continuous rows. Delivery — excellent.

a new plus in industrial lighting

millers 50 FOOT CANDLER JR.



New all-white finish —
baked enamel —
RLM porcelain enamel.

Flanged-top wireway channel
permits clamp hanger mounting
anywhere along entire length —
simplifies installation.

New pressure-type connector for
joining luminaires for continuous
rows. No holes to drill.

New apertured-top reflectors,
minimize brightness contrast — give
sufficient up-light for overhead
maintenance.

New small cross-section
G.E. #89G343 ballast —
stream-lined wireway.

This, the husky son of our famous 50 Foot Candler, is the newest of a complete line of Fluorescent, Filament and Mercury fixtures for a wide range of industrial and commercial lighting requirements. Miller field engineers and distributors are conveniently located for nation-wide service.

THE miller COMPANY MERIDEN, CONN.
SINCE 1844

ILLUMINATING DIVISION:

Fluorescent, Incandescent, Mercury Lighting Equipment

HEATING PRODUCTS DIVISION:

Domestic Oil Burners and Liquid Fuel Devices

ROLLING MILL DIVISION:

Phosphor Bronze and Brass in Sheets, Strips and Rolls

We'll share your responsibility

... in hospitals, you have set routines. And emergencies. Human life is involved. You need always-available, hospital-safe elevator service.

We'll provide this service. We deal in height. Moving people and material vertically. In hospitals, it's patients, visitors, staff, food, linen, sterile supplies and freight.

We can accept this responsibility because Otis is the only elevator manufacturer that designs and builds everything from pit to penthouse. Based on:

Research that advances electronic operation • **Planning** that gives better service with fewer elevators • **Engineering** that turns tested theory into better elevating • **Manufacturing** that concentrates entirely on vertical transportation • **Construction** that brings elevator-trained men to your installation • **Service** that keeps elevators available and hospital-safe.

This background of elevator experience—*unequalled anywhere*—delivers the promise that forms the basis of every Otis contract: The world's finest elevating. Otis Elevator Company, 260 11th Ave., New York 1, N. Y.

Better elevating is the business of

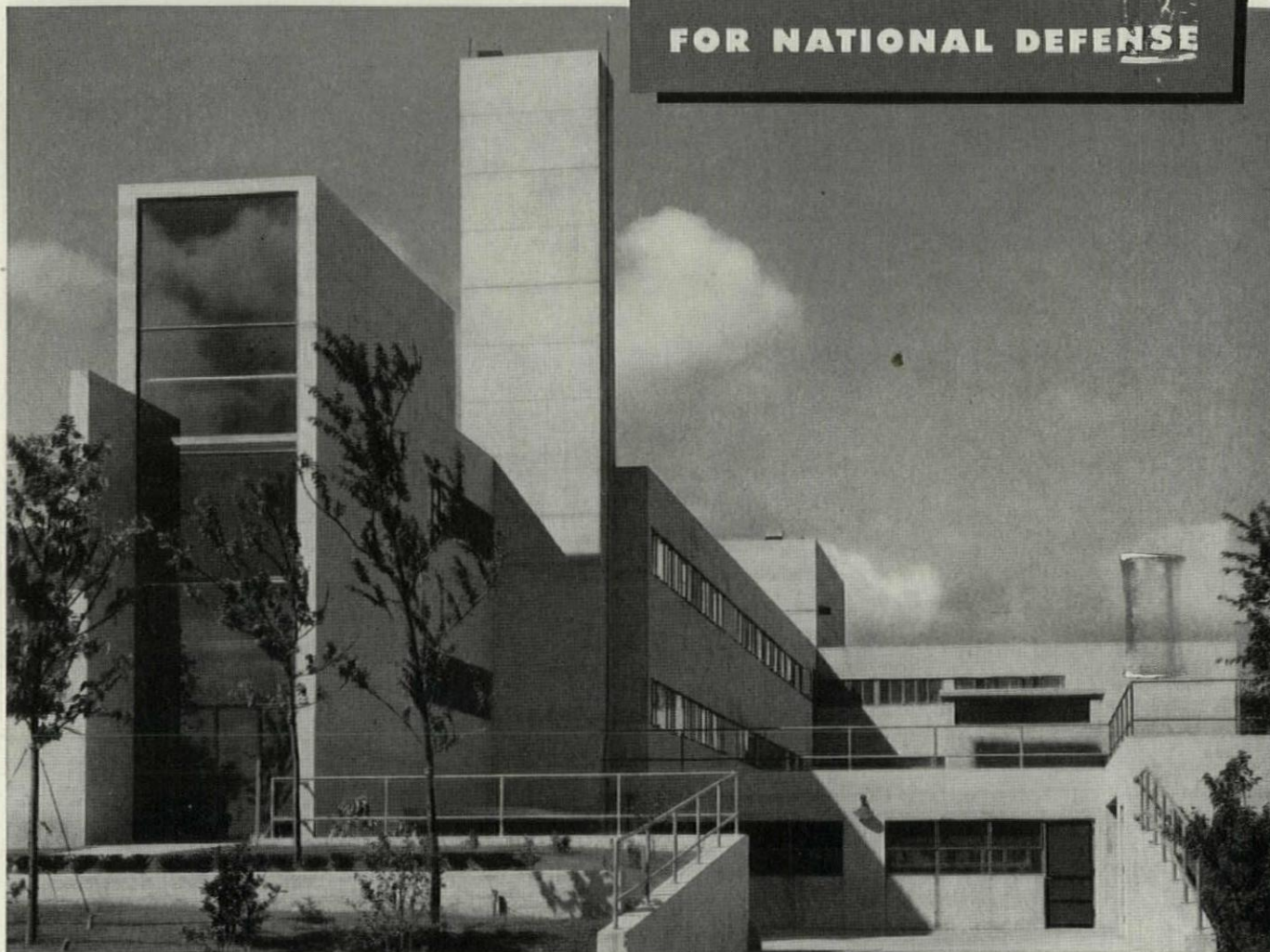


Passenger Elevators • Freight Elevators
Electric Dumbwaiters • Escalators
Maintenance • Modernization

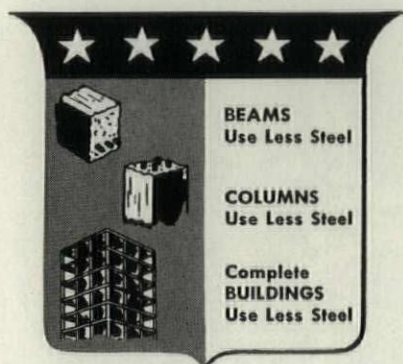


SAVE STEEL

FOR NATIONAL DEFENSE



...build with REINFORCED CONCRETE



- Your steel allotment can be s-t-r-e-t-c-h-e-d.

Yes, you can save steel—critically needed today—by designing your buildings and other structures for reinforced concrete.

Not only does reinforced concrete require less steel—it has many other advantages. Reinforced concrete framing is low in cost and fast to erect—often providing extra months of income. Furthermore, it is inherently firesafe, and provides a rugged, durable structure which is highly resistant to wind, shock, and quakes.

On your next structure, *design for reinforced concrete!*

CONCRETE REINFORCING STEEL INSTITUTE • 38 South Dearborn Street, Chicago 3, Illinois

ABBOTT, MERKT & COMPANY
designing architects

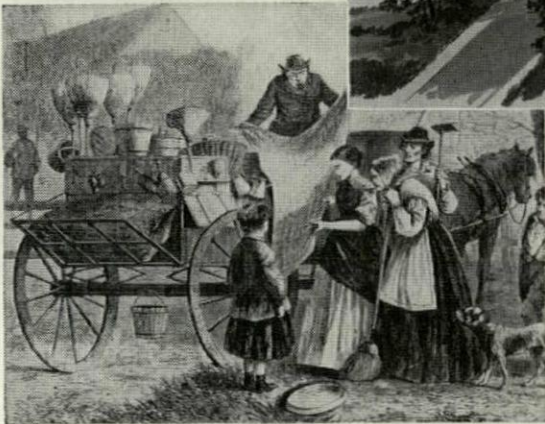
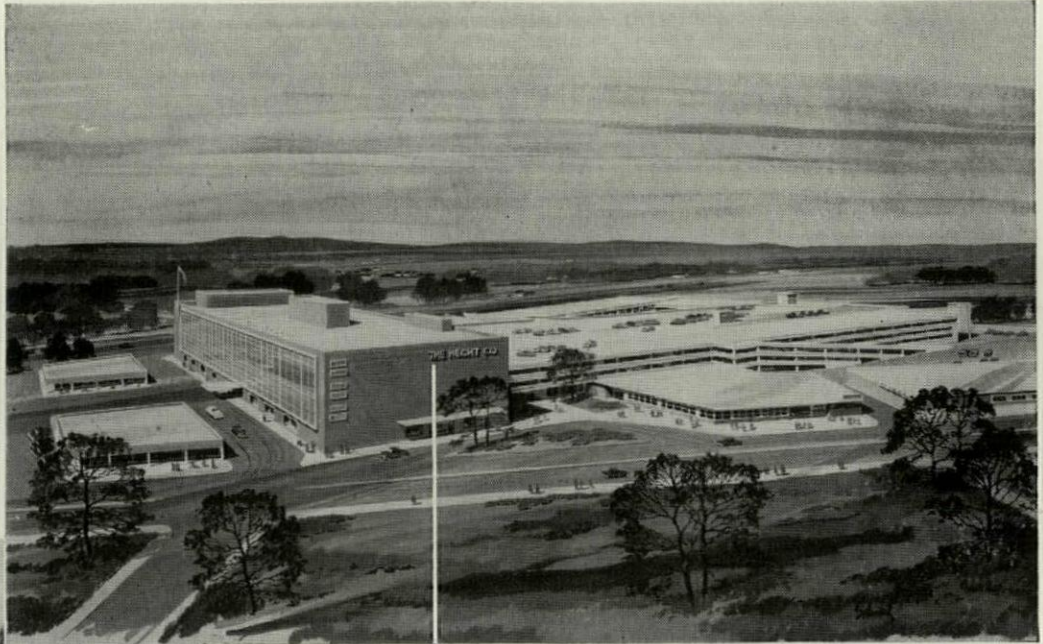
KAHN & JACOBS
consulting architects

EDWARD E. ASHLEY
consulting mechanical engineer

PRESCOTT CONSTRUCTION CO.
general contractors

FRANK M. CAUFIELD
plumbing contractor

NOLAND COMPANY, INC.
plumbing wholesaler



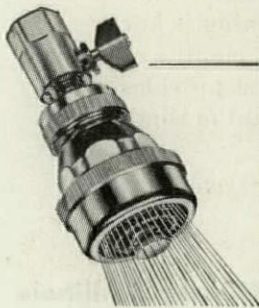
Merchant Goes to Customer—Early Yankee Style. It's likely that in your family's early history the womenfolk patronized the horse-drawn "store on wheels" and relied upon it for many simple necessities.

STORE GOES TO CUSTOMERS ... MODERN STYLE

• The 77 year old, progressive HECHT CO. is making it easy for people to buy. Across the Potomac from the nation's capital this new, huge shopping center, with its world's largest indoor parking facilities draws customers to a modern and complete department store. The site chosen for this innovation is an 18 acre area in Arlington, Virginia, appropriately named Parkington. Soon approximately thirty other stores

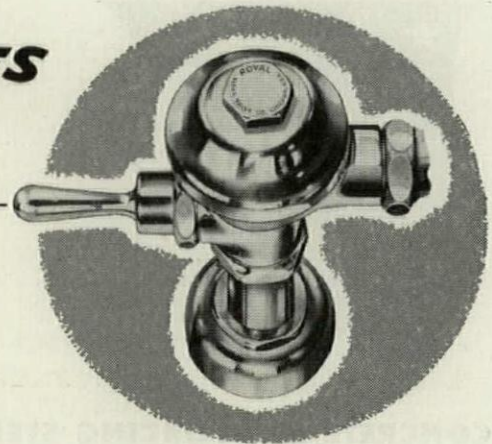
will be built in this new home-serving development. When planning the HECHT building in this multi-million dollar shopping center it was logical that highest standards were set for every detail of construction and equipment. Thus SLOAN is exceedingly proud that its *Flush VALVES* were installed throughout—another example of preference that explains why . . .

more **SLOAN** *Flush* **VALVES**
are sold than all other makes combined



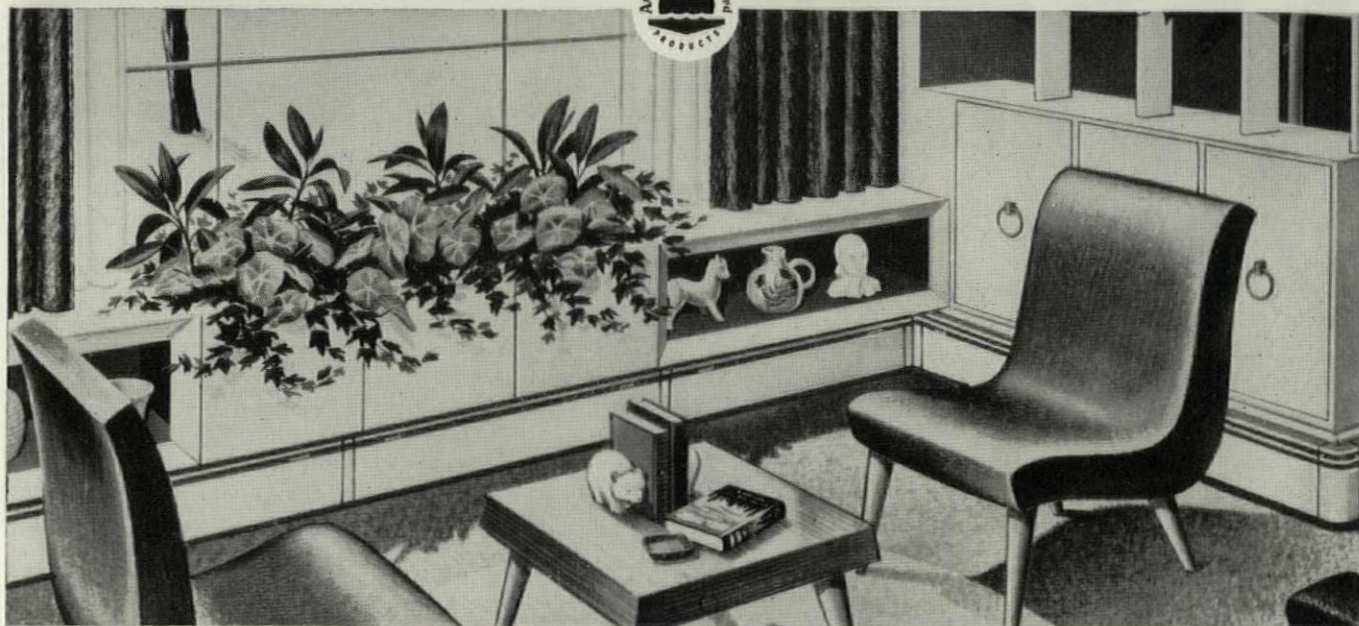
SLOAN VALVE COMPANY • CHICAGO • ILLINOIS

Another achievement in efficiency, endurance and economy is the SLOAN *Act-O-Matic* SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. When turned on it delivers cone-within-cone spray of maximum efficiency. When turned off it drains instantly. It gives greatest bathing satisfaction, and saves water, fuel and maintenance service costs. Try it and discover its superiorities.



AMERICAN-Standard

HEATING



Announcing

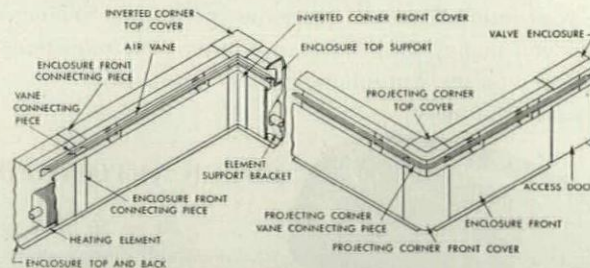
an important new development in baseboard heating...

HEATRIM PANELS by **AMERICAN-Standard**

● Heatrim Panels present a smart appearance. They blanket the perimeter of the home with abundant warmth. And they're economical to own and to operate. Your clients will appreciate the many advantages of these smartly-styled, space-saving units. And the adaptability of Heatrim Panels offer you greater latitude in architectural planning.

Heatrim Panels take the place of regular wood baseboards. They are smartly designed to complement modern decorative motifs. Furnished with a grey prime coat base, they can be painted to harmonize with surroundings or finished to match wood trim. Installed—either free standing or recessed to the depth of the plaster—Heatrim Panels take up so little space that virtually all the floor area can be used. They're excellent for use under picture windows.

Whether you're planning new construction or a modernization job, Heatrim Panels will add to the attractiveness of your job... and your clients will have comfortable, healthful warmth, at a very low cost.



Heatrim Panels, specifically designed by American-Standard for forced circulation hot water heating, offer many economies. Since the heart of the element is actually a straight tube, air is carried along with the water. There is no need for vent valves... and piping can be held to a minimum. The heating element consists of die-formed rectangular shaped aluminum fins mechanically bonded on correctly sized copper tubing. The trim sheet steel enclosure has one-piece back and top, and steel front designed to fasten firmly on support brackets without use of tools. Panels are available in six-foot lengths... can be cut easily to fit any space requirement.

AVAILABLE FOR PROMPT DELIVERY!

American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • ACME CABINETS • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

Explain yourself, Miss Smith!



"Why naturally I've enjoyed work more since we got the Autophone!"

"With the Autophone, my board doesn't get jammed with inter-office calls — the automatic dialing leaves me free to handle long distance and important outside calls. And judging by the way everyone in the office uses the Autophone, they must love that 'one-shot dialing'."

Chances are, your "Miss Smith" has a *full day* handling outside calls and expediting long distance messages. Why not relieve that jammed-up board by installing an Autophone System to handle your inter-office calls for more speed and efficiency? It will save you money too! Write, outlining your requirements, for information on the Autophone System best suited for your particular need.



COUCH AUTOPHONE SYSTEM

... 30 or 50 line systems ... "one-shot" dialing saves time, eliminates manually operated switchboard ... simple, rugged, inexpensive.

Private telephones for home and office ... hospital signaling systems ... apartment house telephones and mail boxes ... fire alarm systems for industrial plants and public buildings.



DEPT. 300 • NORTH QUINCY 71, MASS.

HOSPITAL OF IDEAS

(Continued from page 120)



Typical food wagon can take up to 40 packaged food trays

Hot-packed food containers are divided into three compartments that are sealed from each other to prevent transmission of food smells and topped with a heat-reflecting aluminum foil cover. The food can be kept warm for 2 hrs. and longer, so that—

- a. the central kitchen can operate at an even rate throughout the day, instead of dealing with peak loads at certain hours;
- b. subdiet kitchens on every floor can be eliminated altogether;
- c. variations in feeding schedules present no problems.

Anderson will be one of the first all-packaged-food hospitals in the U. S. The savings Dr. Clark expects in kitchen personnel wages alone (\$25,000 per year) plus the space saved on each floor should more than justify the greater initial cost. In any event, this part of the Anderson story will be watched carefully by hospital directors throughout the country.

For the staff and visitors there is a cafeteria on the ground floor, big enough to seat 225. Adjoining kitchen facilities can turn out 200 meals every 30 mins. during rush hours. This, again, was made possible largely because the patients' meals will be prepared during slack periods in the mornings and afternoons.

THE RADIATION STORY

(Continued from page 120)

Here are the most important structural and planning decisions dictated by the Anderson Hospital's radiotherapy research and checked with the Oak Ridge Medical Division (which was consulted regularly) and Argonne Cancer Hospital designers:

1. *All-concrete structure*—since concrete is excellent protection against radiation.

(Continued on page 162)

WEST COAST HOSPITAL illustrates flexibility of

Frigidaire air conditioning and refrigeration units

LOCATION: Yakima, Washington
OWNER: Yakima Valley Memorial Hospital

The maintenance of proper temperatures in a large hospital—near zero for frozen-food storage to comfort air conditioning for patients and staff—presents many an engineering problem—and calls for a variety of specialized equipment. The architects and engineers of the Yakima Valley Memorial Hospital knew that this equipment must be dependable, too—to provide not only a wide range of temperatures, but precise control of these temperatures at all times, under all conditions.

Like many modern hospitals, Yakima Valley Memorial Hospital is equipped throughout with Frigidaire Air Conditioning and Refrigeration. The following is quoted from a letter written by George V. Rankin, Chairman of the Building Committee.

"Our hospital is 100% equipped with Frigidaire air conditioning and refrigeration, including kitchen and food storage equipment as well as biological and blood bank refrigerators. One full year of most satisfactory operation indicates that we made a wise selection when we chose Frigidaire."

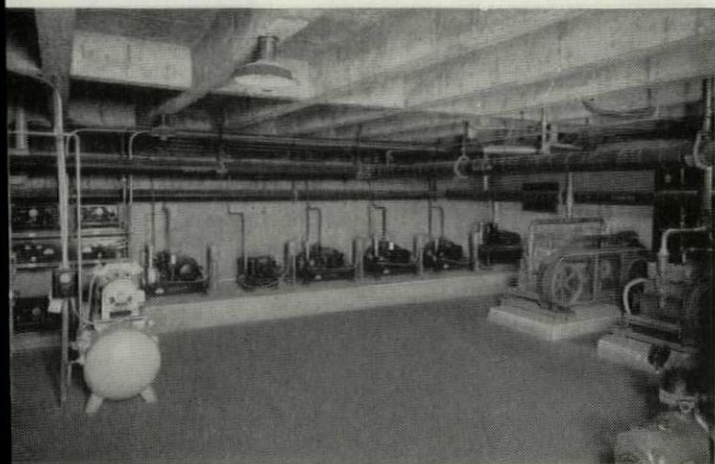
For expert help in planning installations of this kind—or in solving any air conditioning or refrigeration problem—call the Frigidaire Dealer, Distributor or Factory Branch that serves your area. Look for the name in the Yellow Pages of your phone book. See Frigidaire catalogs in Sweet's Files or write Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside (Toronto 17), Ontario.



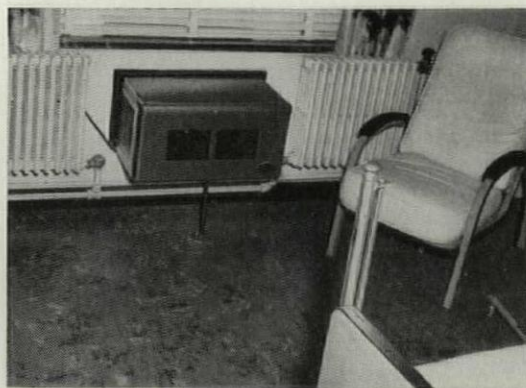
Frigidaire Air Conditioning and Refrigeration throughout.



Frigidaire Reach-In Refrigerators and Ice Cream Cabinets match the modern efficiency of this carefully planned hospital kitchen.



12 Frigidaire Compressors serve the food refrigeration and air conditioning requirements of the entire hospital.



Individually controlled Frigidaire Room Air Conditioners provide cool, filtered air in many hospital rooms.

FRIGIDAIRE Appliances —

Refrigeration and Air Conditioning Products

Frigidaire reserves the right to change specifications, or discontinue models, without notice

Refrigerators • Electric Ranges • Home Laundry Equipment
Food Freezers • Water Coolers • Electric Water Heaters • Air Conditioning
Electric Dehumidifier • Commercial Refrigeration Equipment

8 structural reasons which make **RICHMOND MD* DOORS**

Molded Design



OFFICE BUILDINGS



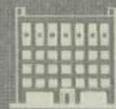
FACTORIES



SCHOOLS

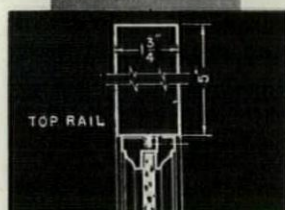


HOSPITALS



HOTELS

the logical choice for many types of buildings



TOP RAIL

HEAVY DUTY CONSTRUCTION

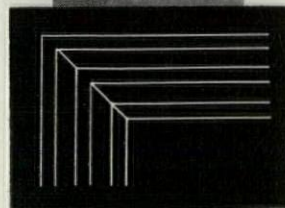
Stiles and rails 16 gauge; butt and lock cutout reinforcing



MUNTIN BAR

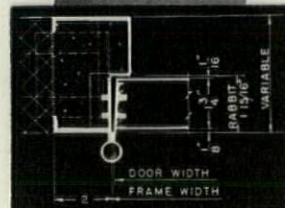
MOLDED DESIGN

A Richmond "first"; neat 20 gauge hollow metal molding around all glass and solid panels



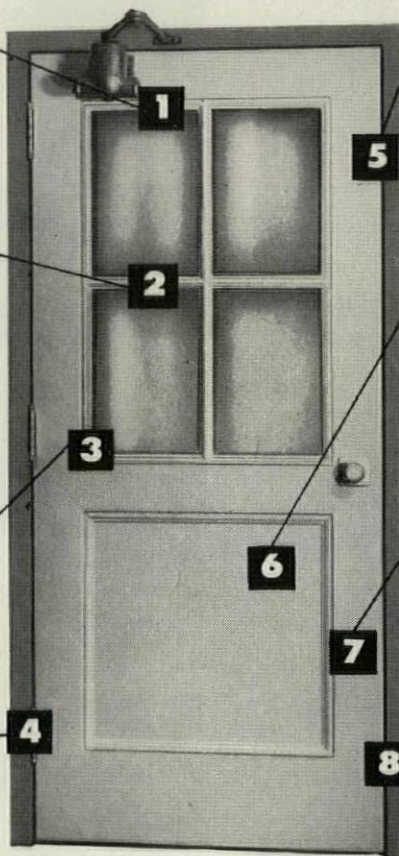
MITRED AND BRAZED CORNERS

Continuous sash ready for glazing; no open mitres



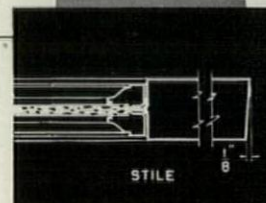
HINGE RECESSES

provided for neat fit; no cutting on job



BEVELLED EDGES

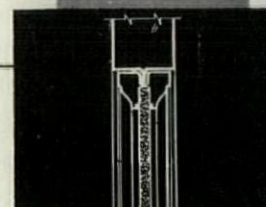
for snug fit in frame, and non-binding operation



STILE

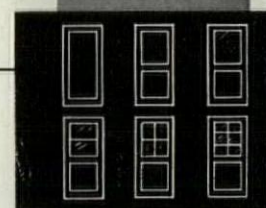
METAL COVERED PANELS

1/4" sheet rock glued between 20 gauge steel sheets



MANY SIZES AVAILABLE

Single and double swing in almost any size up to 4' 0" x 8' 0"



COMPLETE "PACKAGE"

Furnished complete with frame and standard hardware for savings on job



FOR FULL DETAILS AND SPECIFICATIONS WRITE TO:

The Richmond Fireproof Door Company

RICHMOND, INDIANA

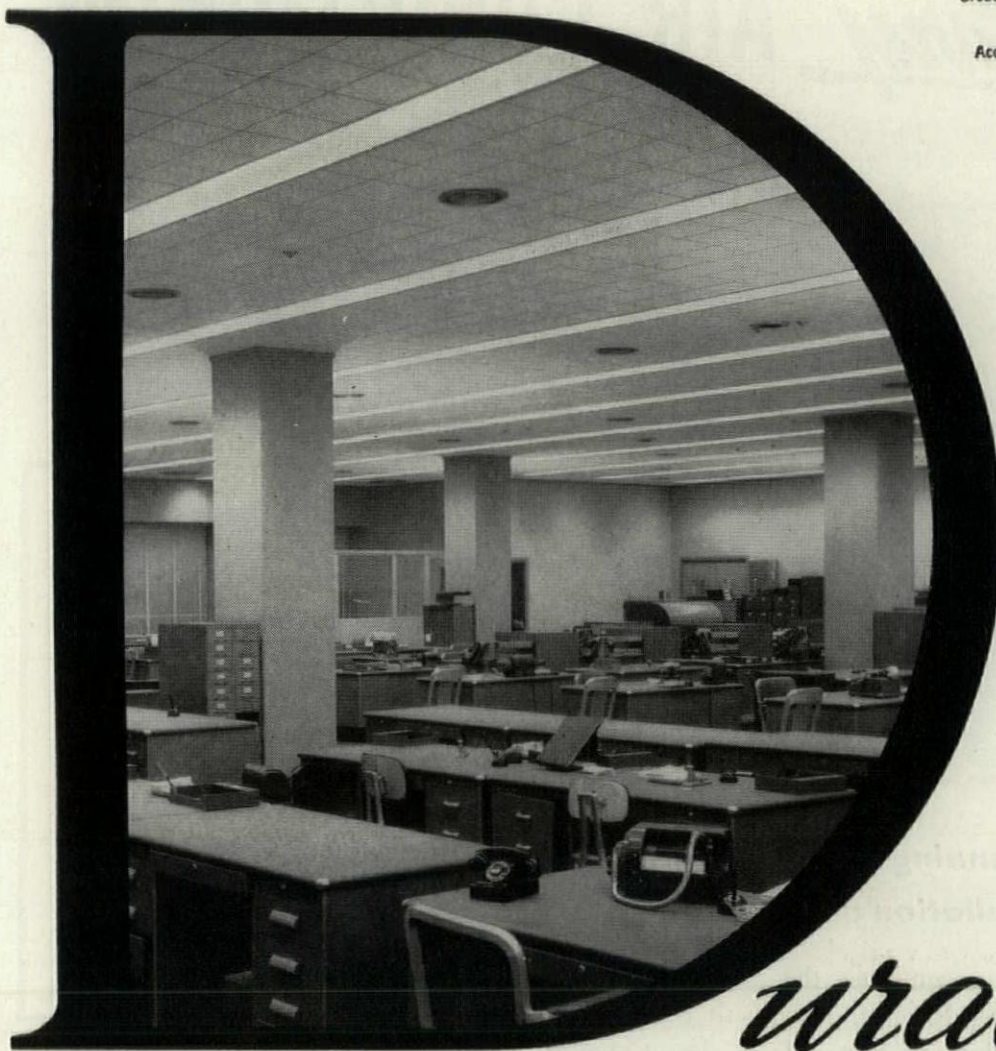
an affiliate of THE PELLE COMPANY

*A New Industrial Tubular Steel Door

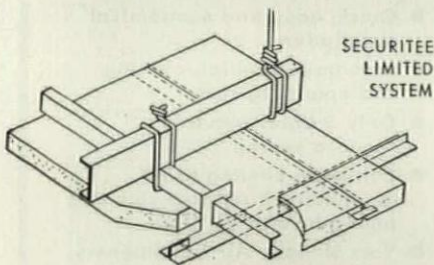


AUTOMATIC FIRE DOORS • KALAMEIN DOORS • INDUSTRIAL STEEL DOORS • UNIT STEEL FRAMES

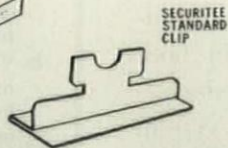
Great American Reserve Insurance Building, Dallas, Texas
 Architect—George L. Dahl, Dallas, Texas
 Contractor—J. E. Morgan & Sons, Dallas, Texas
 Acoustical Contractor—Blue Diamond Co., Dallas, Texas
 Acoustical Tile—Simpson Acoustical Tile mfr'd
 by Simpson Logging Co., installed on
 Securitee Limited System



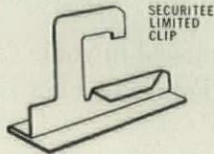
Durability



SECURITEE
LIMITED
SYSTEM



SECURITEE
STANDARD
CLIP



SECURITEE
LIMITED
CLIP



A Securitee System* installation is one that combines *Quality* and *Durability*. Thousands of trouble-free, level ceilings from coast to coast substantiate this statement daily.

The component parts of all Securitee Systems*, mechanical attachments for erecting acoustical tile, are carefully tested for weight load and will last the life of the building. They offer advantages that are not possible with other types of acoustical tile installations. An easy, inexpensive method of installing flush lighting fixtures. Quick access to piping or wiring.

Specify and insist on Securitee — the outstanding suspension system on the market.

See Sweet's Architectural File or write direct for complete technical data

W. J. **HAERTEL** & COMPANY

*T.M. Reg. U.S. Pat. Off.

832 West Eastman Street • Chicago 22, Illinois

West Coast Distributor **FREY & HAERTEL, Inc.**, 125 Barneveld Ave., San Francisco 24, Calif.

YORK *Unitary* AIR CONDITIONING



Tenants of the world's first fully air-conditioned skyscraper apartment — Philadelphia's 25-story Rittenhouse Claridge and 20-story Rittenhouse Savoy—select their own weather with York Unitary Air Conditioning.

Saves time in planning and designing!

Saves cost in installation and operation!

York Unitary Air Conditioning combines the advantages of both central system and packaged conditioner. The result is multi-room, multi-story air conditioning with lower first costs . . . lower operating costs . . . lower installation costs . . . and maximum user satisfaction.

York Unitary Air Conditioning heats in winter . . . cools and dehumidifies in summer . . . filters, ventilates and circulates all year 'round. The user tailors the weather to his taste . . . instead of being dependent on a fixed, centralized system.

Knotty planning, designing and installation problems are eliminated. Minimum space is required for installation, and in both rental area and engine room. Only three small pipes are needed — water supply and return, and drain. Since the only central system is water supply, air handling equipment is not required.

Consult your nearby York Representative today (he's listed in your Classified Directory) or write York Corporation, York, Pennsylvania.

USER ADVANTAGES

- Personal weather control
- All air filtered
- Ventilation air quantity adjustable from 0% to 100%
- Year-round conditioning
- Quiet operation
- Freedom from outside noises
- Adaptable to office partition changes
- Positive circulation and uniform distribution of air

OWNER ADVANTAGES

- Quick, easy and economical installation
- Economy in initial, owning and operating costs
- Only 3 pipes required —space saving
- Complete filtering of all air circulated reduces cleaning and redecorating costs
- York Unitary Air Conditioners may be installed to provide heating initially and cooling added later
- Outside air plenum simplifies ventilation air connection
- Negligible maintenance—no disturbance to tenants



The big advances come from

YORK

Headquarters for— **Refrigeration and Air Conditioning**

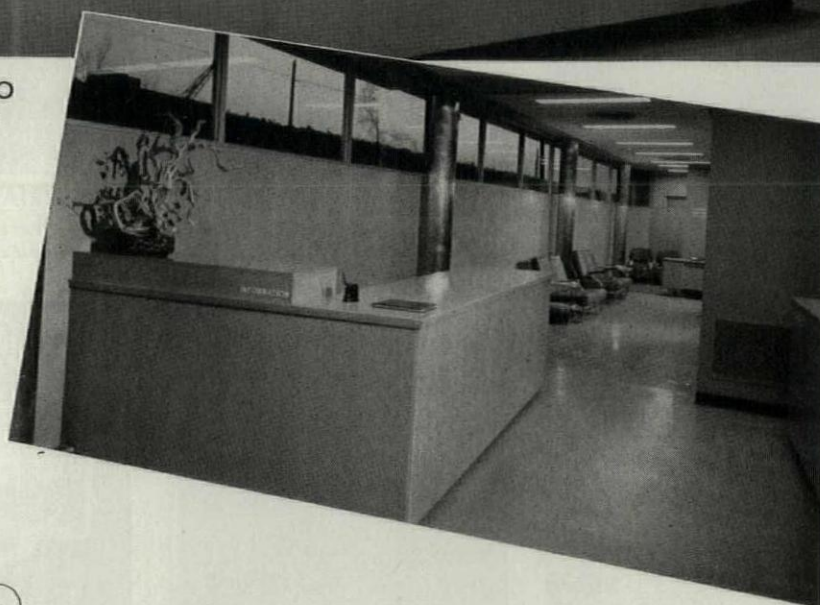


V. MUELLER & COMPANY, CHICAGO
MITTELBUSHER & TOURTELOT, Architects, Chicago
CARROLL CONSTRUCTION COMPANY, Chicago
WALTER INGSTRUP COMPANY, Painters, Chicago

Where P&L Lends a Helping Hand



Color was called upon for a dual role in this modern building — both to contribute to the architectural effectiveness, and to help provide a suitable setting for the display and sale of surgical supplies and hospital equipment manufactured by V. Mueller & Company. Pratt & Lambert met the architect's requirements on both counts.



Whenever you deal with color, either decorative or functional — or with exterior or interior finishes for any purpose, P&L Paints and Varnishes offer the selection and quality to meet the most exacting specifications. And your nearest P&L Architectural Service Department stands ready to assist you in every possible way at any time you have occasion to call.



PRATT & LAMBERT-INC.
Paint and Varnish Makers

NEW YORK • BUFFALO • CHICAGO • FORT ERIE, ONTARIO

Keep Your Air Busy!

- exhausting
- materials conveying
- cleaning
- ventilating
- drying
- pressure blowing
- mechanical draft

THERE'S A "Buffalo" FAN TO DO EVERY JOB WELL



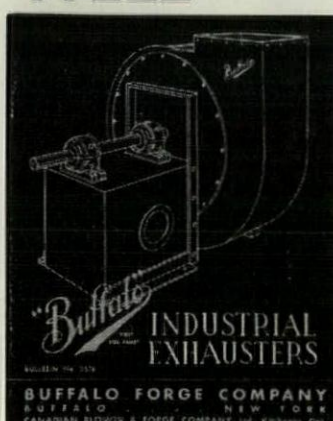
LIMIT LOAD FANS

Quiet, non-overloading — for BIG ventilation and air conditioning jobs. Bulletin 3675.



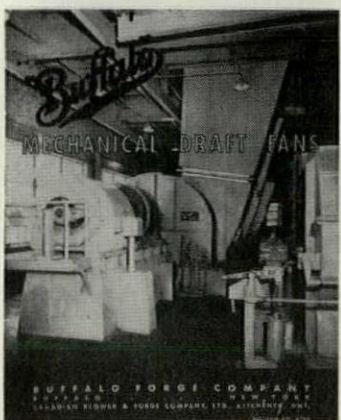
BELTED VENT SETS

Non-overloading "package" fans for efficient small-area ventilation. Bulletin 3720.



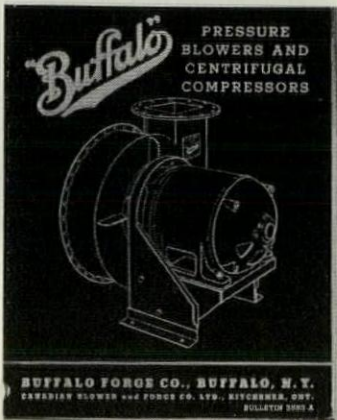
INDUSTRIAL EXHAUSTERS

For handling a wide variety of gases, also materials. Bulletin 3576.



POWER PLANT FANS

Known for their endurance—every type required for boiler service. Request Bulletin 3750.



PRESSURE BLOWERS

Types "CB" for pressures up to 2 1/4 lbs.; and "CC" for 4 lbs./sq. in. Bulletin 3553-A.



AXIAL FLOW FANS

Compact, non-overloading fans for light-duty ventilation and air conditioning. Bulletin 3533-A.

A small sample of the BUFFALO FANS in use today

Write For The Bulletins You Need!

"Buffalo" FIRST FOR FANS

BUFFALO FORGE COMPANY

142 MORTIMER ST. BUFFALO, NEW YORK
Canadian Blower & Forge Co., Ltd., Kitchener, Ont., Sales Representatives in all Principal Cities

VENTILATING
FORCED DRAFT

AIR WASHING
COOLING

AIR TEMPERING
HEATING

INDUCED DRAFT
PRESSURE BLOWING

EXHAUSTING

HOSPITAL OF IDEAS

(Continued from page 156)

2. *Isotope stack*—located at the east end of the research wing. This vertical stack of isotope storage rooms had to be carefully insulated from the rest of the building with thick lead-lined concrete walls.

3. *Vaults for Cobalt 60 and Betatron units*—located underground beyond the north end of the hospital. Since the Cobalt 60 unit emits rays of 1.3 million volts it was surrounded with 4' of extra-dense concrete; since the Betatron emits rays of 24 million volts, it was surrounded with 6 1/2' of extra-dense concrete!

Incidentally, the Grimmert-designed Cobalt 60 unit (the first ever built) will cost only \$35,000, as compared with about \$100,000 heretofore spent on an equivalent 2 million volt X-ray unit. What is more, the Cobalt 60 unit is quite small and flexible, can be operated with great ease. Both the Cobalt 60 and the Betatron units will be controlled through a small hole in the concrete wall; and in most cases, patients (rather than heavy equipment) will be moved around to come into the radioactive field.

4. *Special air exhausts*—provided for all hot labs, to dispose of 100% of all radioactive air. Their details are still on the classified list.

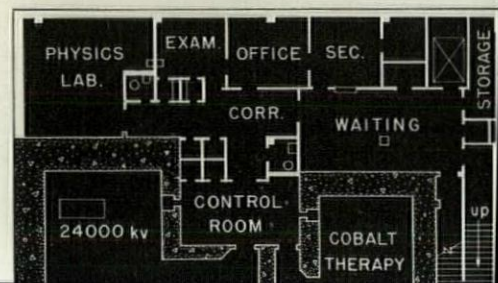
5. *Rooms for "hot patients"* (i.e. those retaining radioactivity) are isolated on the second floor of the east nursing wing with direct connection to the retention tanks (see below).

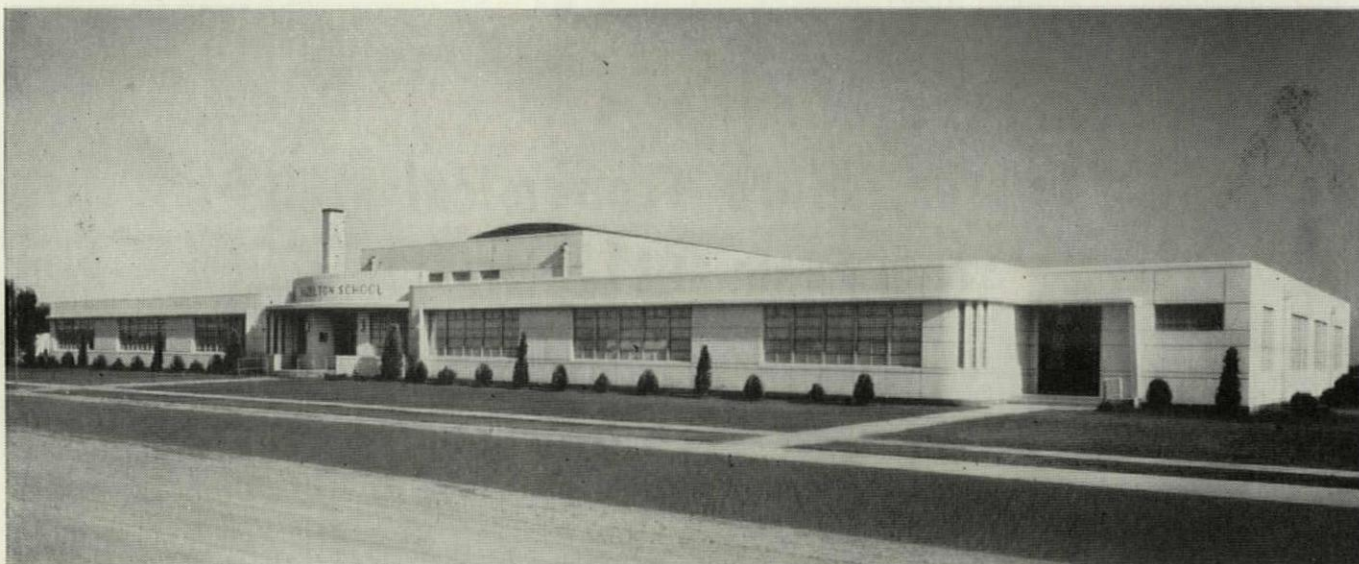
6. *Danger signals*—consisting of brilliant red lines inlaid in floors will indicate a radioactive area (instead of the usual DANGER signs which disturb patients).

7. *Isotope retention tanks*—located at a distance from the building to its east. These are steel-lined tanks enclosed in concrete and buried in the ground to receive radioactive waste.

Many of these protective devices were designed as new radiology developments made them necessary. The chances are that more such devices may become necessary in future years. But when Anderson is completed its radiation equipment and its protective devices will be the most advanced yet installed in the U. S.

Plan of concrete vaults for Cobalt 60 and Betatron Therapy Units





Architectural Concrete

ideal for schools of any size or type

The sharp increase in the birth rate during and since World War II now is reflected in a greatly expanded population of school age. Construction of buildings to house these students lags behind requirements.

In filling these needs architects can serve the interests of students, teachers, school boards and taxpayers best by designing in architectural concrete.

The outstanding characteristics of architectural concrete—rugged strength, maximum firesafety and unexcelled resistance to the elements—not only meet all structural requirements but also provide students and teachers with the utmost comfort and protection. Moreover, the enduring beauty which can be designed into architectural concrete buildings creates schools the city can be proud of for generations.

Architectural concrete schools best serve school boards and taxpayers too. The moderate first cost of architectural concrete+its low maintenance cost ÷ its long years of service=**low annual cost.**

Architectural concrete is a versatile structural material adaptable to single or multi-story schools of any size or style. Even ornamentation can be cast integrally—and economically—with structural parts.

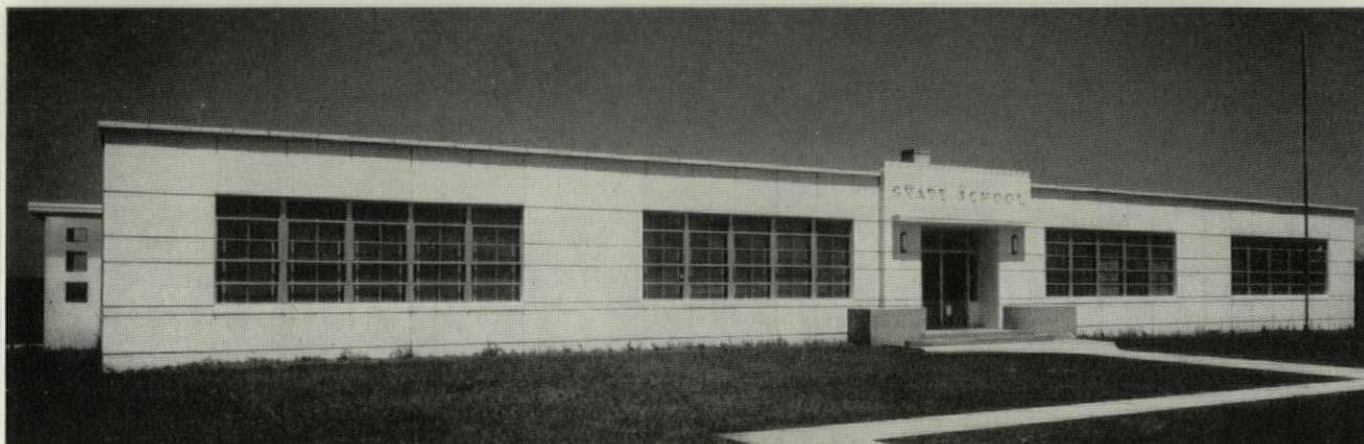
For more information on designing architectural concrete schools write for free copy of "*Concrete in Schools.*" Distributed only in the U. S. and Canada.

PORTLAND CEMENT ASSOCIATION

Dept. 2-7, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

These two Kansas schools, in Hazelton (above) and in Hanston, designed by Hibbs and Robinson, architects and engineers, of Wichita. Jenson and Ridge, also of Wichita, contractors.

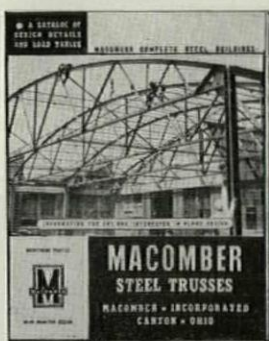




Specify

MACOMBER

STANDARDIZED STEEL BUILDING PRODUCTS



Spanning the wide area with Macomber Bowstring Trusses and designing the complete steel frame with cataloged members combines speed and economy more effectively than any other construction method.

These standardized structural members with ample flexibility for most any need of the designer are in universal demand for industrial, institutional and commercial framing.

To enable you to utilize the speed and economies of these products more profitably, Macomber has a new catalog of design details being printed. Your request now for this new Truss Catalog will assure a valuable design source for your draftsmen at an early date. Write us.



STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER • INCORPORATED

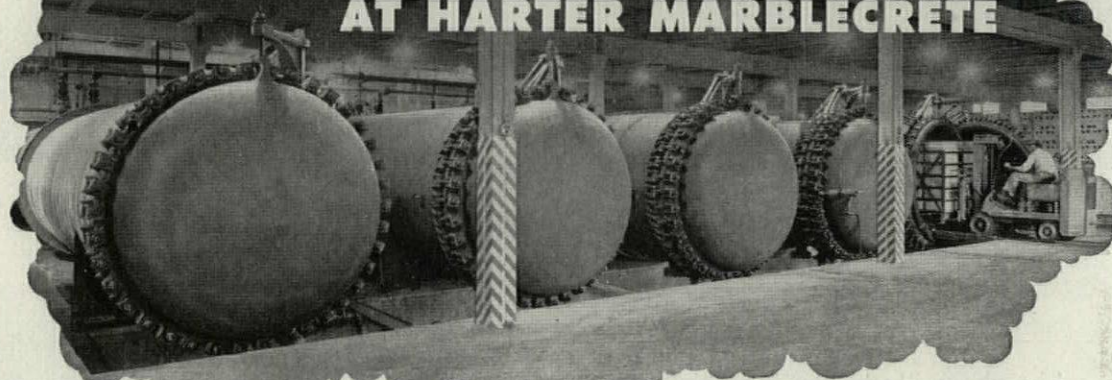
CANTON, OHIO

V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK



HIGH PRESSURE STEAM

**CURES CEMENT BLOCKS
IN 54 TON AUTOCLAVES . . .
AT HARTER MARBLECRETE**



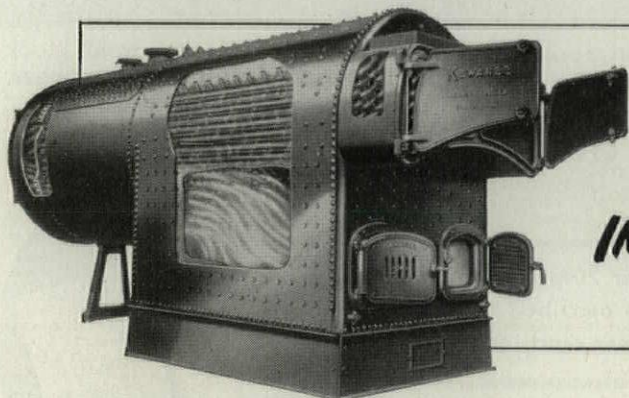
KEWANEE HEAVY-DUTY BOILER

• In the modern plant of Harter Marblecrete Stone Co., at Oklahoma City, cement blocks are cured with high-pressure steam at 135 to 150 psi in five of the *largest autoclaves ever built*. (Pictured above)

A further interesting fact about this

outstanding development is the use of a 26-inch vacuum, pulled with an Elliott barometric condenser, for the drying stage.

High pressure steam is provided by a gas fired 300 hp Kewanee Boiler producing 10,500 pounds of steam per hour.



Cut-a-way View of KEWANEE "500" used in Harter Marblecrete Plant. Sizes for 40 to 304 hp . . . 100-150 psi.

**FOR HEATING, POWER AND
INDUSTRIAL PROCESS STEAM**

Wherever steam is needed . . . high or low pressure . . . there is a Kewanee Boiler just right. Ask for complete catalogs and information.

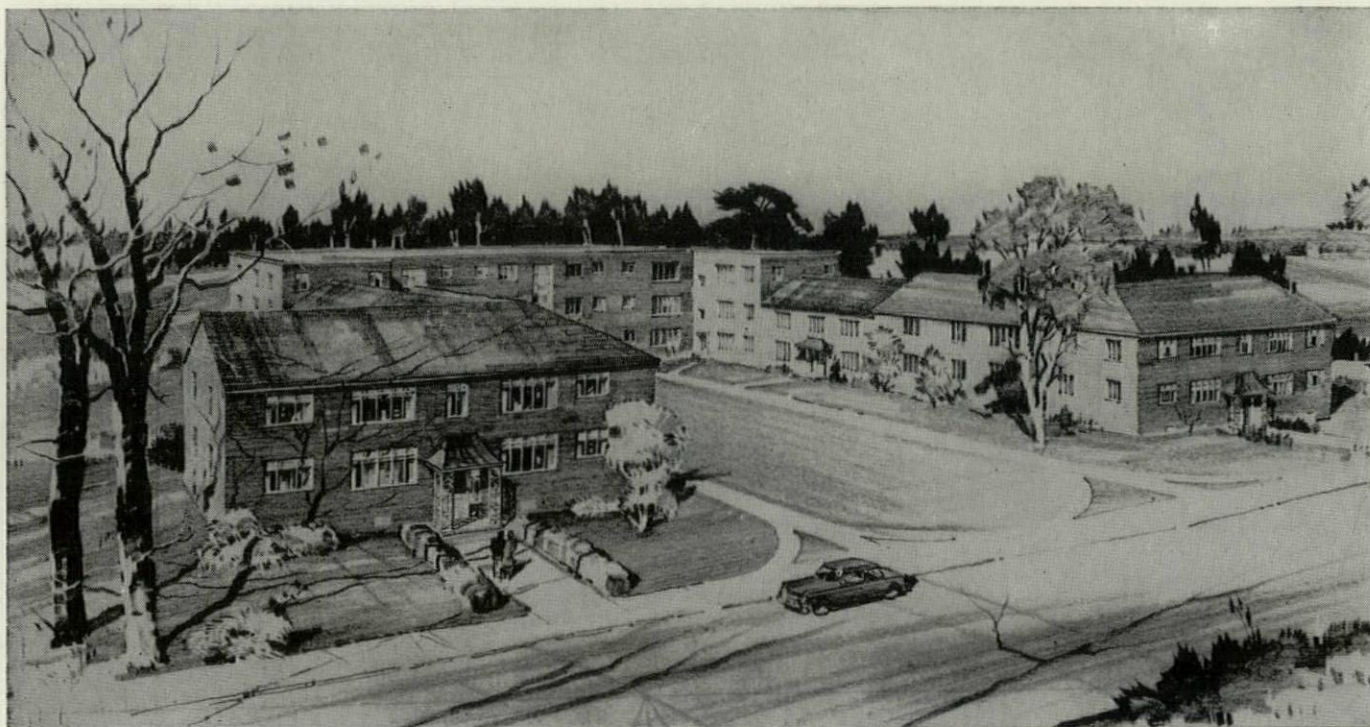
**KEWANEE BOILER CORPORATION
KEWANEE, ILLINOIS**

Eastern District Office: 40 West 40th Street, New York City 18
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION



Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • ACME CABINETS • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON



A dry foundation for Swifton Village

1200 UNITS AT THE NEW SWIFTON VILLAGE, CINCINNATI, OHIO.

The above illustration is an architect's conception of a section of the new housing project that will house, when completed, 4,500 people, covering 36 acres

THOROSEAL

Developed and built by The Jonathan Woodner Company, of Washington, D. C., the project, when completed, will total \$25,000,000. The Thoro System materials, used on this project, furnished by the Oakley Coal & Supply Company, through The Nurre Company, Cincinnati.



Al Loreti applies 2 coats of Thoroseal to concrete block foundation, as sure protection against rain and dampness.

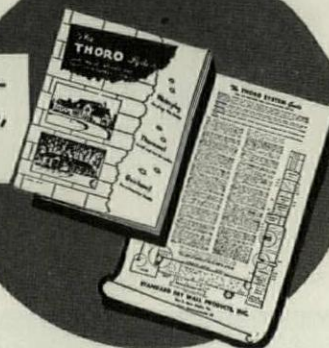
WATERPLUG
Stops leaks

THOROSEAL
Seals surface

QUICKSEAL
Beautiful finish

For 39 years, The Thoro System materials have been protecting above and below-grade masonry, where constant dampness, caused by rain, destroys unprotected masonry.

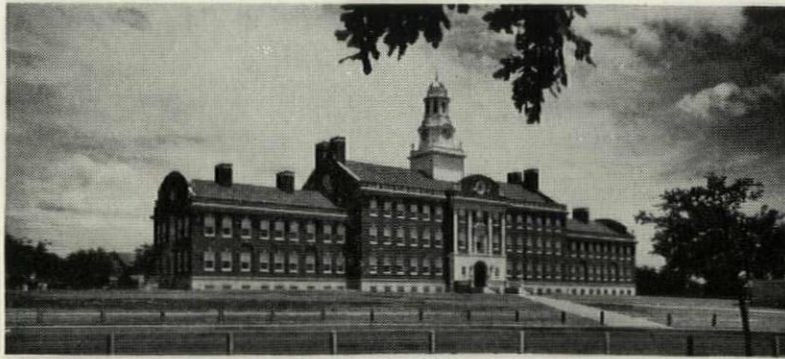
Get our 20-page brochure, pictorially described in detail; also, architect's chart for your wall.



STANDARD DRY WALL PRODUCTS

NEW EAGLE, PENNSYLVANIA • U. S. A.

Phone — MONONGAHELA 67 or 1417



Who put comfort on the Q.T. at S.M.U.?

Comfort's *always* on the Q.T. when it's supplied by a Carrier Conduit Weathermaster* Air Conditioning System.

There's a Conduit Weathermaster System installed in the Fondren Science Building at Southern Methodist University. It keeps the air fresh and clean and at proper temperature the year round for clear thinking. And the beauty of it is the quiet.

What little noise there is from the equipment is kept in the basement, all in one place. The 263 room units have no moving parts, like motors or fans. They get filtered, dehumidified air from the central station through conduits, then distribute it evenly and silently.

There's no wiring or heavy maintenance in the rooms. Servicing and filter-cleaning are all done in one place, at the central station.

A Conduit Weathermaster System will fit into anybody's plans. Vertical or horizontal buildings, there's no restriction on design. And installation costs are held down by standardized prefabricated fittings.

There's more to the Conduit Weathermaster story, of course. Complete details are yours for the asking. Just write for our booklet, "Conduit Weathermaster System." Carrier Corporation, Syracuse 1, New York.

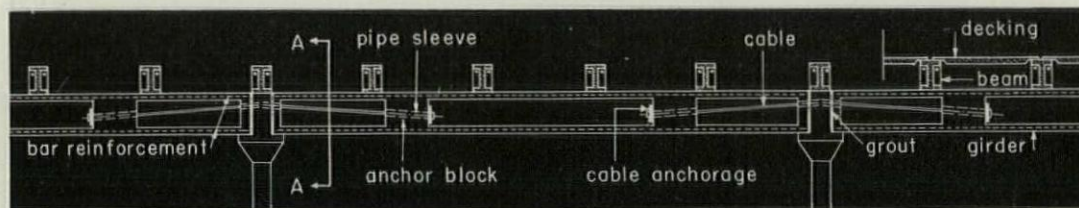
*REG. U. S. PAT. OFF.



Inside the Fondren Science Building at Southern Methodist University: one of the comfortable classrooms, and one of the two Carrier Centrifugal Machines which supply refrigeration for the Conduit Weathermaster System. Mark Lemmon, *architect*; Zumwalt & Vinther, *engineers*; Martyn Bros., Inc., *mechanical contractor*.

6. CONTINUITY AND PARTIAL PRESTRESSING: New framing technique combines economies of

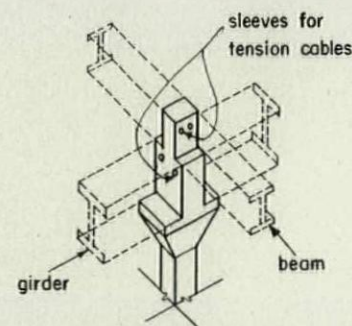
continuity and prestressing with simplicity of a simple beam structure



Tension cables prestress area above columns to develop continuity, also relieve diagonal tension. Reduced bending moments at center of beam can safely be taken by ordinary reinforcing. Section A-A will be found on p. 174.

Prestressed concrete to date has generally been considered apart from conventional reinforcing and rigid-framing techniques. To combine the advantages of each, engineer Fritz Kramrisch of Albert Kahn Associates (see p. 85 and 132) has integrated conventional mild steel reinforcing with high-tensile prestressed cables in a continuous floor framing system. This exploitation of continuity in a system of two-way prestressing is expected to produce great economies in spans of 50' or more. It has already been successfully applied by Pierre Lebel in building new factories in France.

As illustrated, main girders span between columns while shallower beams span between girders to support the floor deck. Both girders and beams are designed on the same principle of continuous prestressing. In effect, when extended into adjoining bays, they form a continuous structure, with single members tied together and pre-



stressed over supports by tension cables. In simple-span prestressed members tension cables run from one end to the other; in Kramrisch's system the cables run through bent pipe sleeves over the supports to develop continuity through the structure, while the center portion of each member contains only mild steel reinforcement.

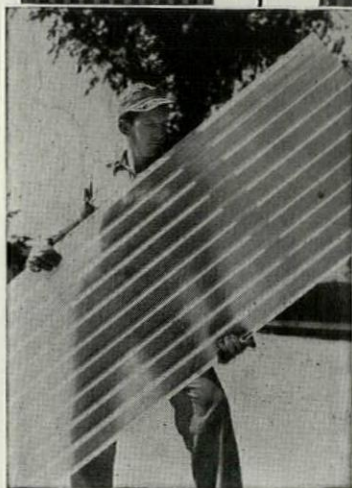
Members are precast on the ground with mild steel reinforcing in the bottom flange for support during erection and to resist part of the positive moment in the final continuous structure. Small reinforcing bars are also placed in the top flange to resist cantilever action during erection.

Cables and the prestressed concrete extending on both sides of the supports are in the zone of negative moments. At the points of contraflexure the girders and beams are filled out to solid rectangular cross sections to provide anchor blocks for the cables. The blocks are pierced by pipe sleeves through which the cables are placed after erection.

Similar sleeves are cast into the columns for passage of cables from one horizontal

(Continued on page 174)

NOW! SKYLIGHT WITH RESOLITE



Resolite is shatterproof. It can be worked, sawed, drilled with ordinary tools, and its installation ease is economical of man-hours.

TRANSLUCENT STRUCTURAL PANELS

Resolite makes large skylight and wallight areas economical for corrugated industrial buildings because no special framing is required, either for support or weatherproofing — it nests with any standard corrugated sheet. Resolite permits substantial savings in plant lighting by its efficient diffusion of daylight through the building interior.

Structurally rugged, chemically immune to weather extremes, and most industrial fumes, Resolite gives long life without protective treatment. Resolite is molded in standard sheet sizes and corrugations, made of polyester resins, reinforced with fiber-glas mat — a quality product with controlled uniformity of thickness for strength and durability.

SPECIAL ARCHITECTURAL USES, TOO!



Interior and exterior decorative beauty is easy to obtain with Resolite's wide variety of colors and corrugated patterns. Store fronts, marquees, bar facings and patio covering are simplified in structure and assembly. While transmitting light freely, Resolite is impervious to vision, making it ideal partitioning for offices, shower stalls and toilet compartments.

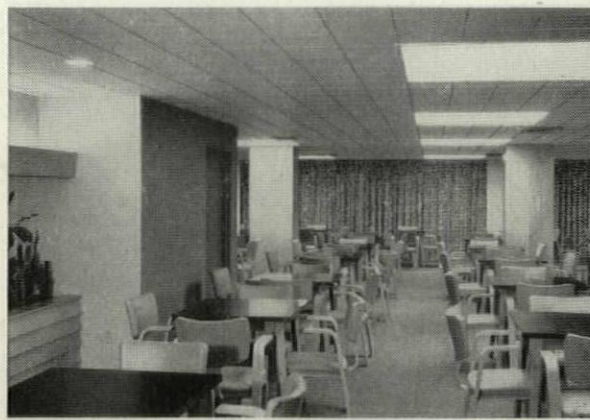
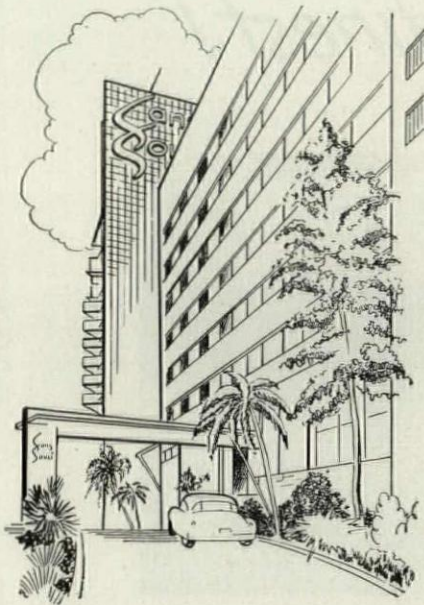


Write for free literature

RESOLITE CORPORATION

ZELIENOPLE, PA.

SELECTING ACOUSTICAL MATERIALS



Card room: Cushiontone White factory-finish



Lobby, looking west: Cushiontone, painted Coral

SANS SOUCI HOTEL, Miami Beach, Florida

Roy F. France & Sons, Architect for the Structure
Morris Lapidus, Associate Architect and Interior Designer
Acoustical Contractor, Lotspiech Flooring Company

Lobby terrace: Cushiontone, painted Coral

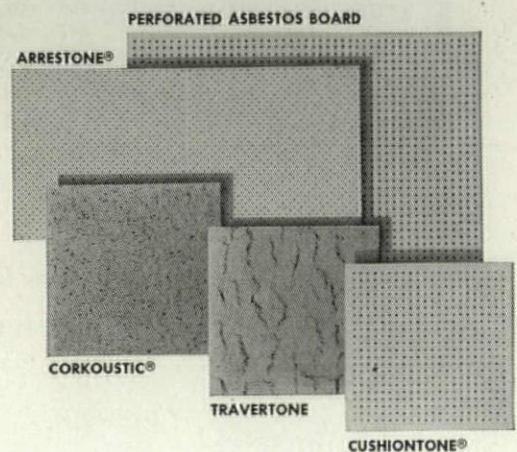


The exciting use of color in the beautiful Sans Souci Hotel demanded acoustical ceilings that could be repainted. Acoustical efficiency and architectural beauty were also important factors in the choice of an acoustical material.

Architect Morris Lapidus selected Armstrong's Cushiontone because it can be repainted without losing efficiency. This popular wood fiber material is high in sound absorption, and its attractive surface is cleanly perforated.

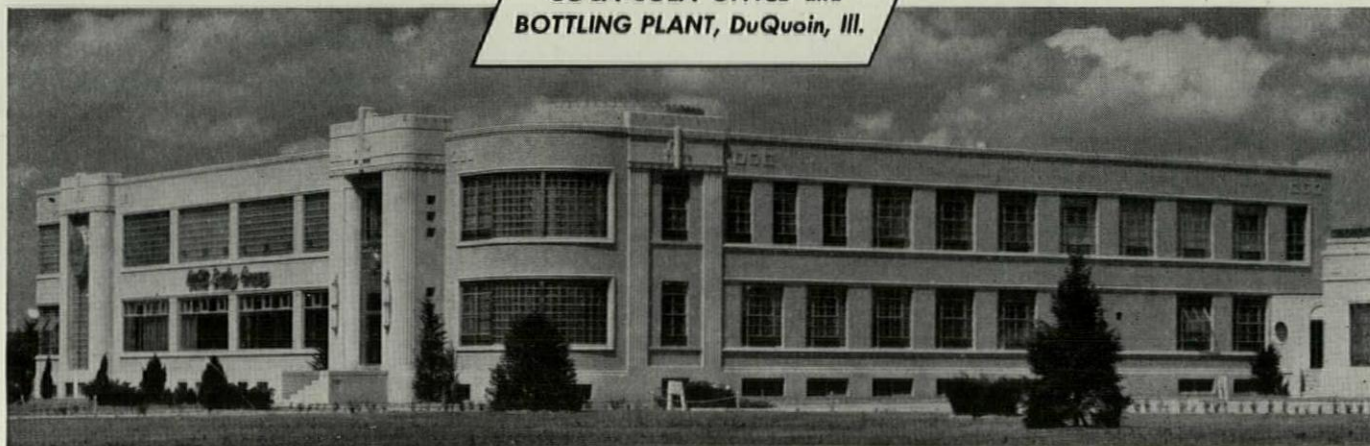
Armstrong's complete line of acoustical materials offers you a wide range of special features. Your Armstrong Contractor will give you expert advice without obligation. Write for free booklet, "How to Select an Acoustical Material." Armstrong Cork Company, 5402 Stevens St., Lancaster, Pennsylvania.

ARMSTRONG'S ACOUSTICAL MATERIALS



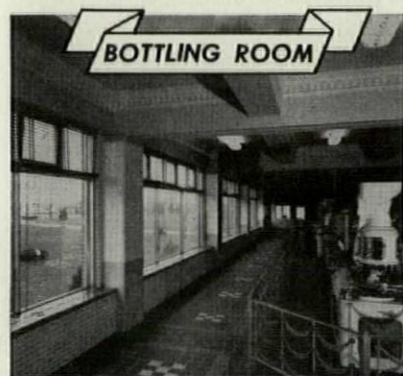
Nothing but the cleanest and finest!

COCA-COLA OFFICE and
BOTTLING PLANT, DuQuoin, Ill.



Janitrol

Gas-Fired Unit Heaters Serve Every Department

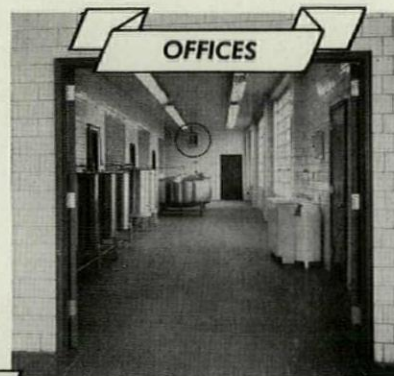


BOTTLING ROOM

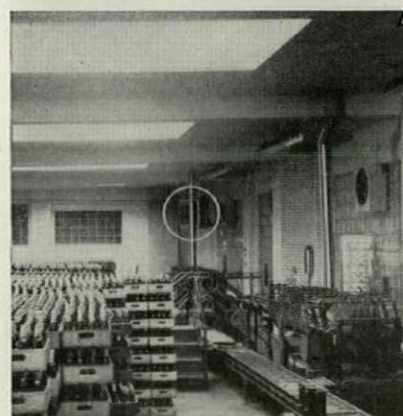
In this typically spotless, 1½ million dollar Coca-Cola building, 45 Janitrol Unit Heaters deliver dependable, clean, automatic gas heat where it is wanted . . . when it is wanted.

The complete Janitrol line of sizes and model types made it practical to standardize on Janitrol throughout the entire plant . . . for instance, a corner of the stock room only required a 50,000 Btu/hr. unit while a 450,000 Btu/hr. blower heater was required in the huge basement storage rooms.

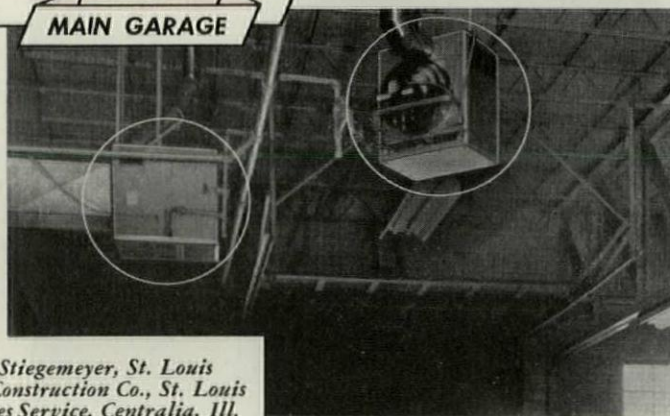
In large or small industrial and commercial buildings of all types, in schools and churches, Janitrol Unit Heaters, year after year add to their proven record of unmatched performance.



OFFICES



STOCK ROOM



MAIN GARAGE

ARCHITECT: O. W. Stiegemeier, St. Louis
CONTRACTOR: Prahl Construction Co., St. Louis
HEATING: Butane Sales Service, Centralia, Ill.

Write today for new A. I. A. File on Industrial and Commercial Heating

Surface Combustion Corporation • Toledo, Ohio
Offices in Principal Cities



Designed with Fire Protection in Mind

It takes a second look to find the sprinklers in this *completely* fire-protected showroom. But there they are . . . unobtrusive Viking flush type sprinkler heads blended with the lighting system . . . actually part of the decoration. These Viking flush heads are the "business end" of a complete Viking installation. They are visible proof of the "look-ahead" engineering and design of every Viking device.

When you specify a Viking sprinkler system you don't add a cent to the true cost of your building, in fact, you

actually save money for your client . . . because Viking sprinkler systems reduce insurance costs enough to pay for themselves . . . usually in a few years . . . and leave a cash balance besides. Viking systems are engineered to last the life of the building with a minimum of maintenance.

For details about Viking sprinkler protection, contact your nearest Viking representative or write direct to the Viking Corporation, Hastings, Michigan.

This brochure is included in Sweet's Architectural File. For your personal copy, write the Viking Corporation, Hastings, Michigan

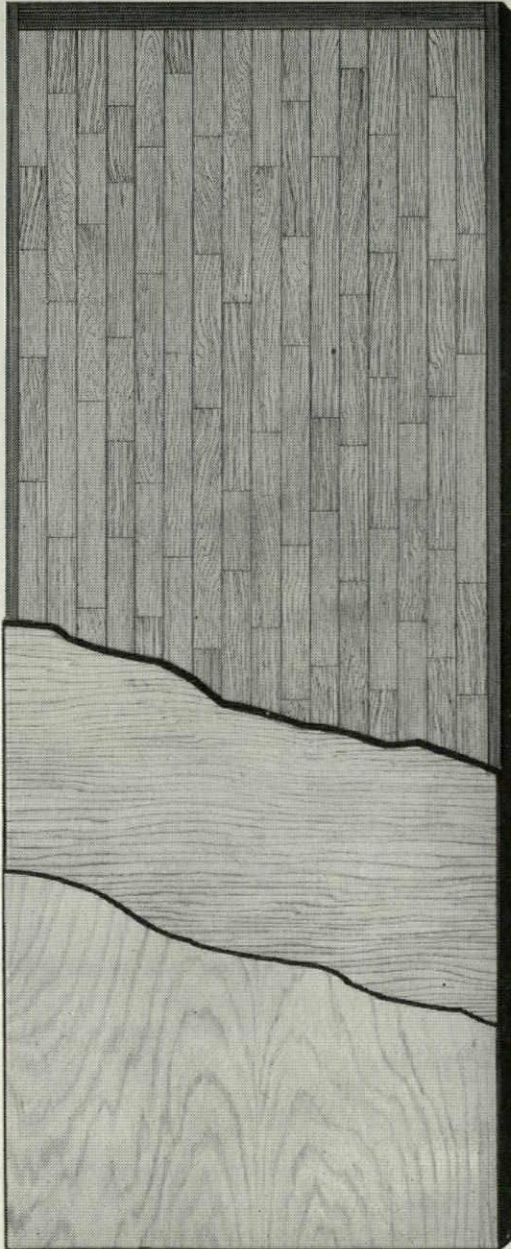


the **Viking**

corporation

HASTINGS, MICHIGAN

It's the unseen quality of Roddiscraft solid core flush veneered doors that merits your confidence



◀ This Construction

explains the great strength and durability of Roddiscraft Solid Core Flush Veneered Doors. Standard thickness face veneers are bonded to 1/10 inch hardwood cross-bandings with fully waterproof phenolic resin glue — forming an assembly which, when backed by the solid core, is very difficult to chip or split. Standard thickness face veneers (1/28 inch for most woods) stand up best to extremes of temperature and humidity. The waterproof glue line being so near the surface, shrinking and swelling of face veneers is practically eliminated — the formation of hairline cracks is prevented — permanent beauty is assured.

Provides these advantages for Apartments, Hotels, Office Buildings, Schools, Institutions:

FIRE RESISTANT — substantiated by independent laboratory tests where standard Roddiscraft Doors have exceeded the 40-minute fire test.

SOUND RESISTANT — Roddiscraft Solid Core Doors develop an average sound transmission loss of 30.9 decibels — only a little less than specially constructed sound resistant doors of much greater cost.

WATERPROOF — phenolic resin glue provides two completely waterproof shields over the entire area of the door on each side of the core.

Resistant to Abuse — core, crossbandings, and face veneers are welded into a single unit with the inherent strength of true plywood construction.

Where you need the best in beauty and durability, specify Roddiscraft Solid Core Flush Veneered Doors. See Sweet's Architectural File, Page $\frac{16c}{Ro}$ for complete specifications, including hollow core doors, X-ray doors and doors for added fire protection.

NATIONWIDE Roddiscraft WAREHOUSE SERVICE

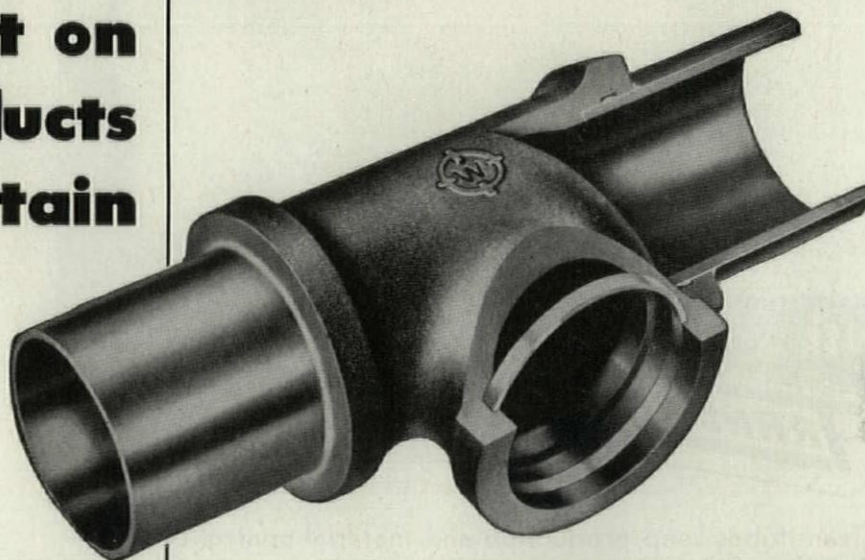
Cambridge, Mass. • Charlotte, N.C. • Chicago, Ill. • Cincinnati, Ohio • Dallas, Texas • Detroit, Michigan • Houston, Texas • Kansas City, Kan. • New Hyde Park, L.I., N.Y. • Los Angeles, Calif. • Louisville, Ky. • Marshfield, Wis. • Milwaukee, Wis. • New York, N.Y. • Port Newark, N.J. • Philadelphia, Pa. • St. Louis, Mo. • San Antonio, Texas • San Francisco, Calif.



THE FORESTS . . . THE FACILITIES . . . THE EXPERIENCE TO PRODUCE THE FINEST

**DON'T BE SATISFIED
WITH HALF-WAY MEASURES...**

**insist on
Walseal[®] products
and be certain**



**— the FACTORY INSERTED Ring insures FULL PENETRATION
of the Silver Alloy . . . a perfect joint**

Today, contractors . . . builders . . . architects are using brazed connections, in ever increasing numbers on their brass and copper pipe runs. However, they must be certain that the correct brazing alloy is used; that the joint has penetration of alloy up the shoulder of the fitting.

That's why more and more are turning to Silbraz[®] joints made with Walseal valves, fittings and flanges which assure the proper amount of alloy with no waste. They know that the finished joint not only will withstand hydrostatic pressure, but it will also withstand terrific impact and vibration — in fact, no correctly made Silbraz joint has ever been known to creep or pull apart under any pressure,

shock, vibration or temperature which the pipe itself can withstand.

Furthermore, it is a relatively simple operation to make a Silbraz joint — no heavy scaffolding need be erected . . . just cut the pipe, flux, assemble, then braze, following the technique recommended by the Walworth Company. A silver brazing alloy — FACTORY INSERTED — in each port flows out when heated with the oxyacetylene torch, making a joint that is stronger than the pipe itself . . . a one-hand operation, with the mechanic out of the path of the deflected heat — at all times.

For full information about Silbraz joints made with Walseal products, write for Circular A-1.

WALWORTH

valves and fittings

60 EAST 42nd STREET, NEW YORK 17, N. Y.

Production and Material Control IS UP-TO-THE-MINUTE



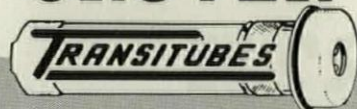
Transitubes keep production and material control up to the pace of production itself in this multi-building auto plant. Purchasing, production control, stores, as well as production departments are just seconds apart **and on a written basis**. In addition, the high cost of foot-messengers is eliminated and the flow of paperwork is smoothed out for more efficient handling by all departments.

In practically every industry these pneumatic tube systems are delivering paperwork, small parts, laboratory samples and many other objects. And the chances are that Transitubes can save money and increase efficiency in your organization, too . . . why not investigate today?



The complete story of Transitube economy and flexibility is in the Grover Bulletins. Write for yours, there is no obligation.

GROVER



THE GROVER COMPANY

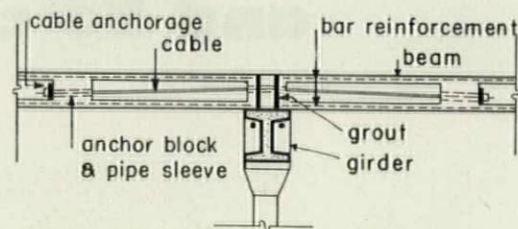
25531 W. EIGHT MILE ROAD — DETROIT 19, MICH.

CONTINUITY AND PRESTRESSING

(Continued from page 168)

member to the next. Sleeves at the columns are placed higher than the cable anchorages, so as to subject the center portion of the girder to a positive, upward moment which reduces the requirements for positive reinforcing at these points. The reinforcing needed for handling is sufficient for the reduced positive moment of the continuous girder and thus eliminates the need for expensive prestressing cables in the center portion of the girder.

Precast columns extend to the top of the beams. Girders and beams are mounted on flanges on the columns and grouted together. Finally, the cables are positioned and tensioned, which integrates girders, beams and columns into monolithic action and produces lateral wind stiffness in both directions.



SECTION A-A

Tension cables are exposed, and are therefore galvanized against corrosion. They can easily be inspected and replaced if ever necessary.

This system of continuous partial prestressing has many advantages over simple-span prestressing:

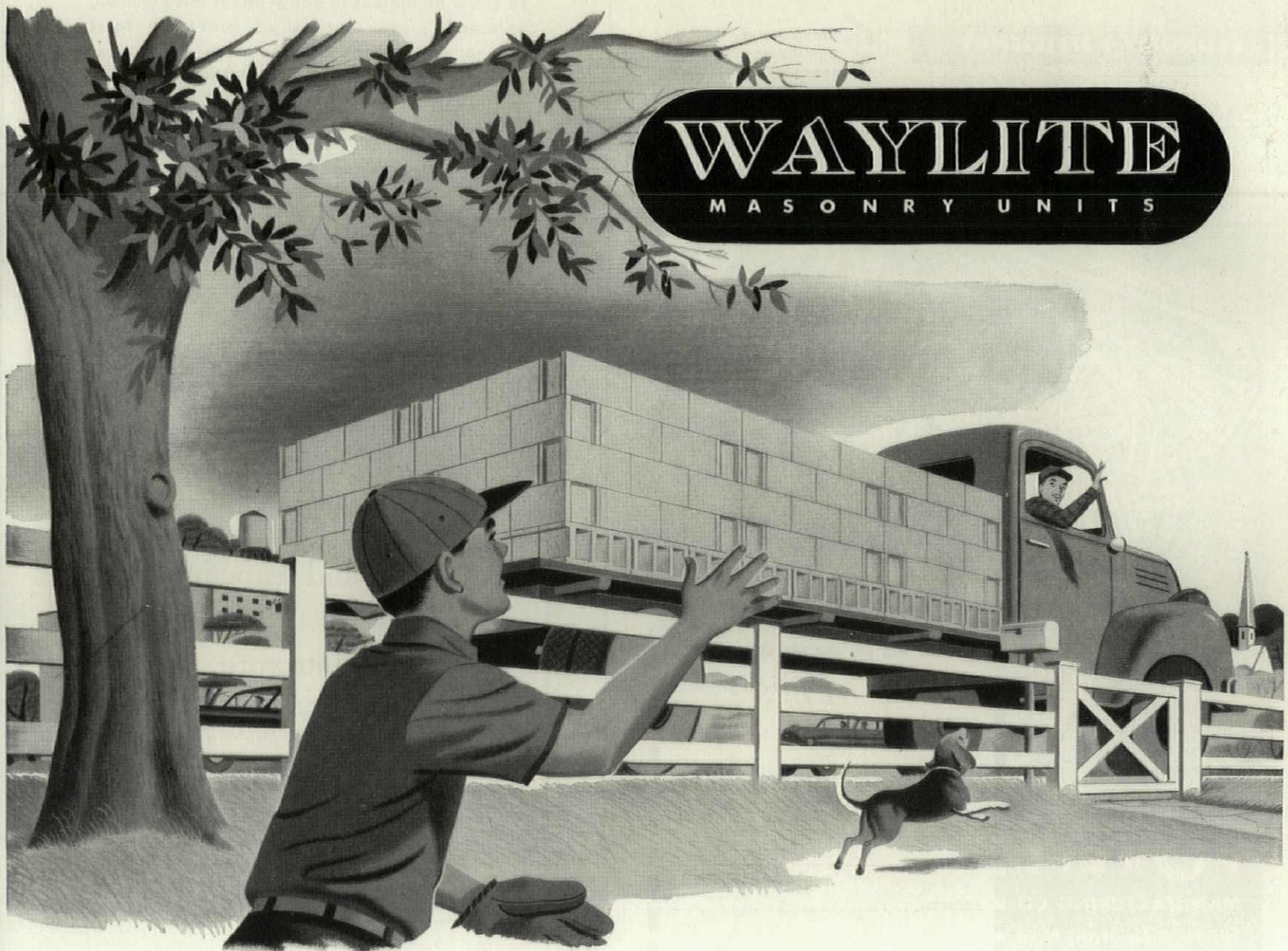
- ▶ Beams and girders are basically of the same design with full continuity obtained in both directions. Beams may either be placed on top of the girders or may frame into them for shallower construction.
- ▶ Economies of prestressed concrete (small concrete section, little steel requirement, ease of precasting many similar units) are combined with the efficiencies of continuous design (reduced moments, rigidity and small deflection) in an easily erected structure.
- ▶ Depth of a partially prestressed continuous girder will be 30% less than an equivalent simply supported prestressed member, with a consequent saving in concrete of 25%.
- ▶ Though nearly the same amounts of steel are required for each design, in the simply supported design about 65% of this steel will be expensive high-tensile cables, while the percentage in the continuous design is only 15%. Thus continuous design permits smaller cables and lighter anchorages and construction should be considerably cheaper.

A SALUTE TO THE Concrete Masonry Industry

ON ITS FIFTH SUCCESSIVE BILLION-PLUS YEAR

The remarkable record of the Concrete Masonry Industry during the past five years in producing the equivalent of over Six Billion sq. ft. of 8" Masonry Wall Units has few parallels in building industry history. . . . This production has been equal to about two-thirds of all masonry walls built in the United States during this period. . . . This unprecedented growth of the Concrete Masonry Industry has been the direct result of the quality, utility and economy of concrete masonry walls, and the superior service of progressive locally-owned companies. . . .

The Waylite Company is proud to be a part of such an outstanding industry in the construction field, and this seemed to be a good time to say so. . . .



Mr. Architect:
Are you looking for
a Roof Deck which
meets all these
requirements?

POREX

STRUCTURAL STRENGTH

+

HEAT INSULATION

+

SOUND ABSORPTION

+

NAILABILITY

+

FIRE RESISTANCE

+

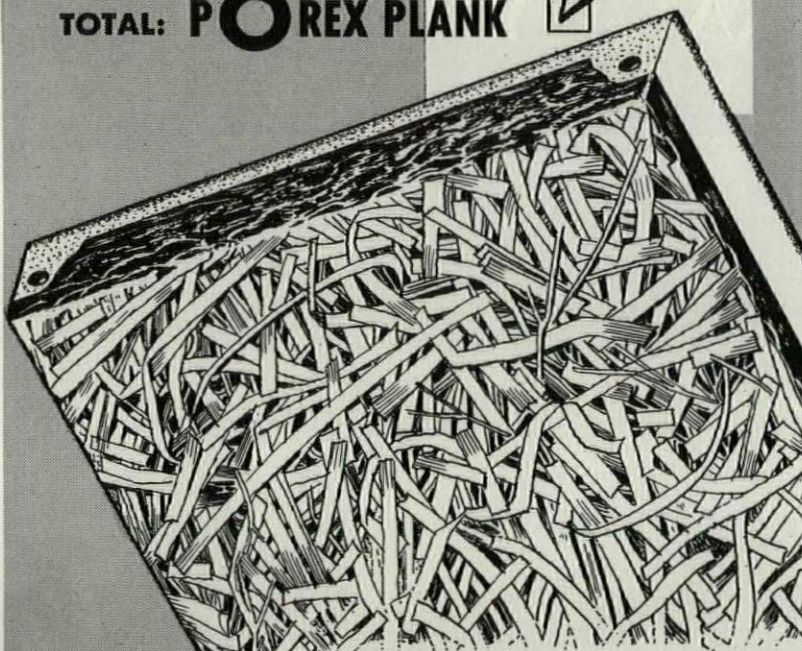
LIGHTWEIGHT

+

ECONOMY + EFFICIENCY

- ☒ Spans up to 8 feet
- ☒ Coefficient $U=0.15$ Btu
- ☒ Excellent acoustical ceiling
- ☒ Nailable cement finish
- ☒ Practically incombustible
- ☒ Weighs under 15 lbs./sq. ft.
- ☒ Inexpensive, eliminates separate roof insulation

TOTAL: POREX PLANK



Manufacture and installation backed up by more than 30 years of pioneer work in precast lightweight concrete products.

PORETE

MANUFACTURING CO.

North Arlington, N. J.

Please send me your bulletin #78
describing Porex Products

NAME: _____

ORGANIZATION: _____

ADDRESS: _____

THE F. W. WAKEFIELD BRASS CO.

Vermilion, Ohio

Please send me a copy of your book on the Wakefield Ceiling.

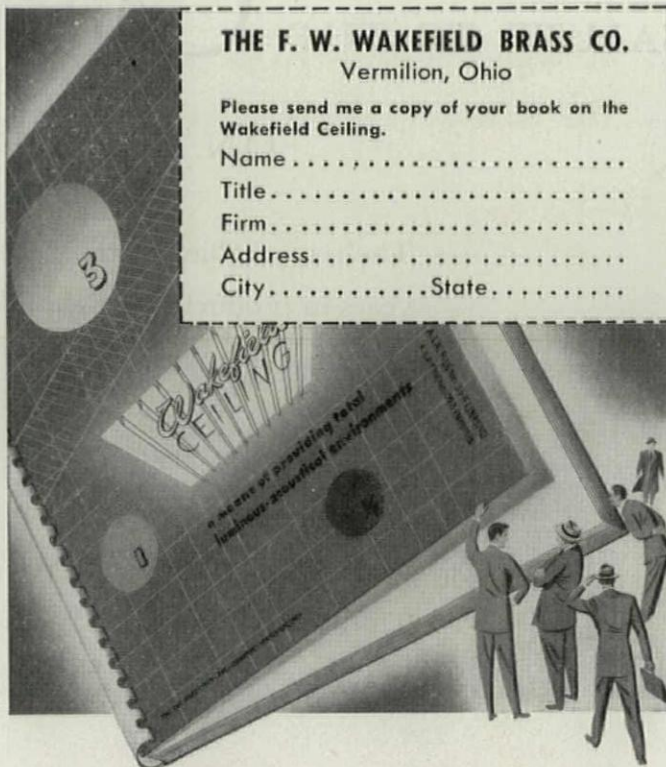
Name

Title

Firm

Address

City State



To know all there is to know about this patented, packaged, proven means of providing total luminous-acoustical environments you must have this book. A copy is waiting for you.



COLUMBIA UNIVERSITY PRESS

*Announces the publication
on March 28 of a landmark
in architectural literature*

**Forms and Functions
of Twentieth Century
Architecture**

IN FOUR VOLUMES

Edited by TALBOT HAMLIN, F.A.I.A.

We invite you to send today for an illustrated brochure describing in detail the contents of this monumental work and a special pre-publication offer.

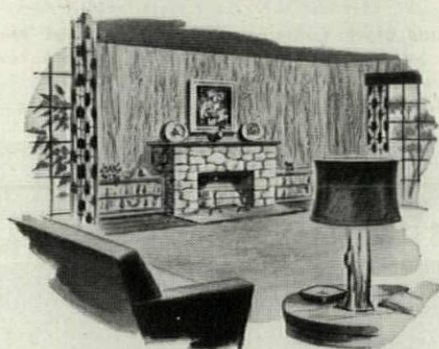
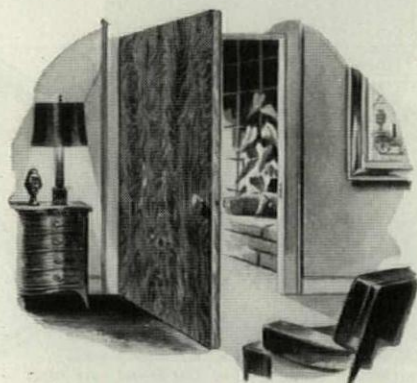
COLUMBIA UNIVERSITY PRESS

Dept. 849, Morningside Heights, New York 27, New York

**A very simple reason
for always specifying**

ATLAS PANELS and ATLAS DOORS

**{ Every Atlas Plywood product is always
exactly as graded or better }**



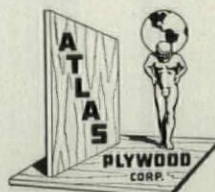
Atlas is one of the world's largest makers of plywood. We make every grade, type and size. We serve every group of plywood users. The fields served vary as widely as the architectural, the builder, the industrial designer, the furniture manufacturer, the trailer manufacturer, those who build with concrete, the user of plywood containers, shipping cases and barrels, the cabinet maker.

The significance is this . . . Since we serve every field, you can know that every Atlas Plywood product is always exactly as graded—or better. Any plywood or veneer that does not fully measure up to a given specification, is immediately diverted to some other use it can fully serve.

Plywood is bought for some specific degree of strength—or for beauty—or for both. When you specify Atlas, you can count on getting the exact combination you require. You can count on receiving full value—the quality that safeguards your specification.

Let us send you illustrated literature on Atlas (hard and soft wood) Panels—Architectural Grades, Journeyman Grades, Utility Grades and Concrete Form Grades.

And on Atlas Flush Doors — both solid core and hollow core. Kindly address your inquiry to Department 42.



**Territories open to
additional distributors**

18 MANUFACTURING PLANTS

Anderson, Cal.	Gladstone, Mich.
Crescent City, Cal.	Munising, Mich.
Laurel, Del.	Goldsboro, N. C. (2)
Brunswick, Ga.	Plymouth, N. C.
Houlton, Me.	Klamath Falls, Ore. (2)
Greenville, Me.	Portland, Ore.
Patten, Me.	Williamsport, Pa.
Cadillac, Mich.	Newport, Vt.

PANEL AND DOOR DIVISION

ATLAS

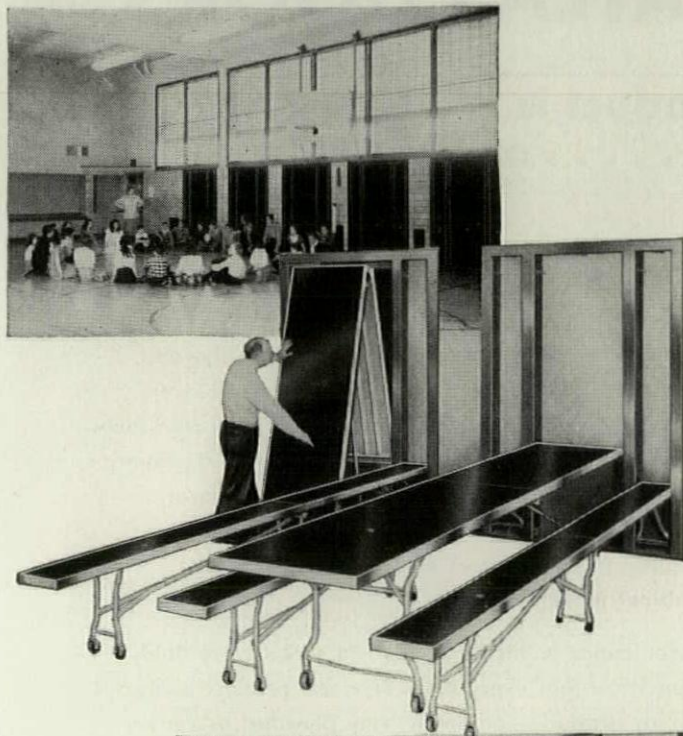
PLYWOOD CORPORATION

STATLER BUILDING, BOSTON 16, MASS.
TELEPHONE: HANCOCK 6-0016 TELETYPE: BS-644

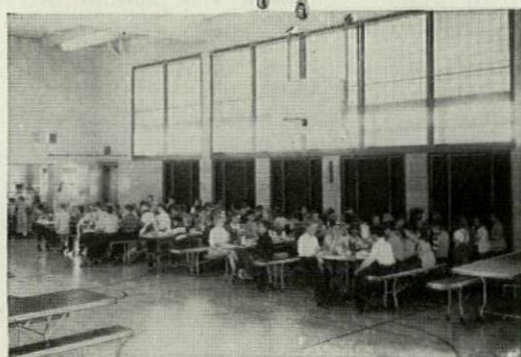
24 SALES OFFICES AND WAREHOUSES

Boston, Mass.	New York, N. Y.
Los Angeles, Cal. (2)	Goldsboro, N. C.
Oakland, Cal.	Cleveland, Ohio
Sacramento, Cal.	Dayton, Ohio
San Francisco, Cal.	Oklahoma City, Okla.
Denver, Colo.	Tulsa, Okla.
Chicago, Ill.	Portland, Ore.
Evansville, Ind.	Pittsburgh, Pa.
Detroit, Mich.	Corpus Christi, Tex.
Gladstone, Mich.	Houston, Tex.
Grand Rapids, Mich.	San Antonio, Tex.
Tacoma, Wash.	

school space does **DOUBLE DUTY**



*Conversion
of activities
room to
lunchroom
for 200 can
be made in
8 minutes*



One area serves as both
activities room and
lunchroom for economy
in school construction . . .

Now in use in hundreds of schools from coast to coast...
Let us send you complete details

In-wall

FOLDING TABLES
AND BENCHES

SCHIEBER SALES COMPANY

12738 Burt Road • Detroit 23, Michigan

DUR-O-WAL TRUSSED

Design

Now Available
in Greater Supply!

Improved delivery schedules
are now being maintained in
the shipment of pat-
ented Dur-O-wal...
the trussed design
reinforcing member
which gives masonry
walls a backbone of
steel.



Masonry walls reinforced with patented Dur-O-wal are built for lasting performance. Trussed design means permanent beauty, scientifically designed protection from cracks. Lays fast, economical, ideal for all masonry construction.

Cedar Rapids Block Company
Dur-O-wal Div. 651 12 Ave. SW
Cedar Rapids, Iowa

Dur-O-wal Products, Inc.
P. O. Box 628
Syracuse 1, N. Y.

FOR DUMB WAITERS
consult

MATOT

SINCE 1888

Designers and Developers
of Electrical and Hand-
operated Dumb Waiters for

**HOTELS • RESTAURANTS
INSTITUTIONS • CLUBS
WAREHOUSES • FACTORIES**

Complete data in Sweet's Catalog
or write

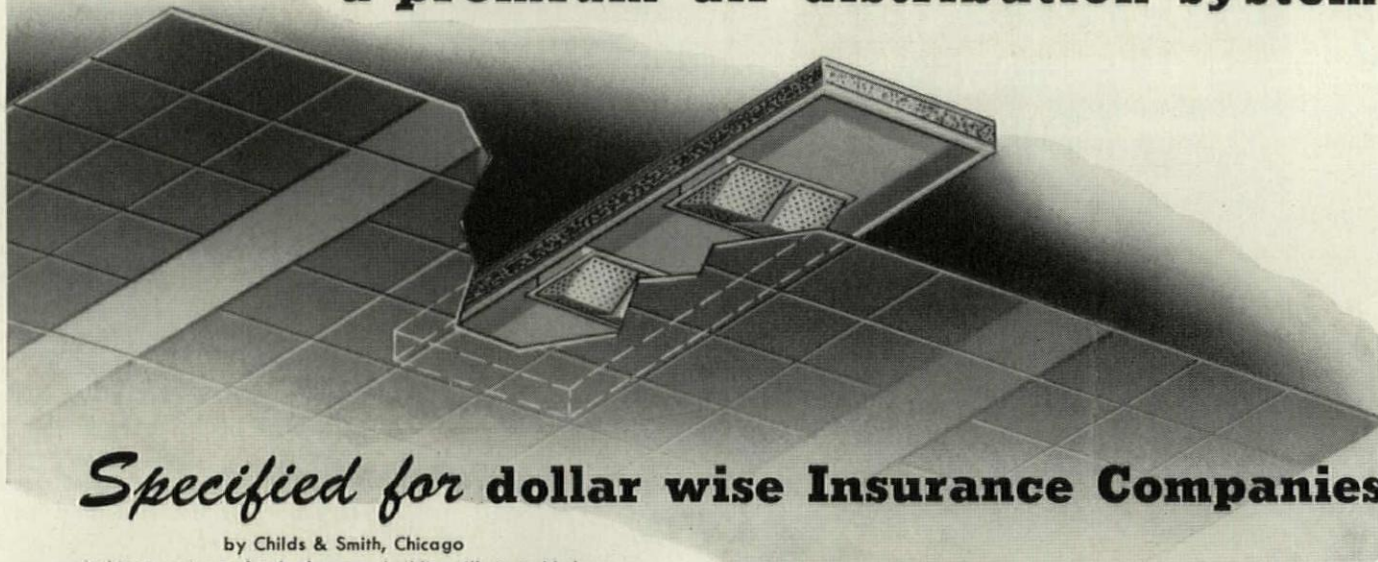
D. A. MATOT, INC.

1533 West Altgeld Street • Chicago 14, Illinois

MULTI-VENT

T.M. Reg. U.S. Pat. Off.

low velocity air diffusion ceiling panels
a premium air distribution system



Specified for dollar wise Insurance Companies

by Childs & Smith, Chicago

Architect-engineers for the four new buildings illustrated below



Shelby Mutual Casualty Co., Shelby, Ohio



Farmers Mutual Automobile Insurance Co., Madison, Wisc.



Utica Mutual Insurance Co., Utica, N. Y.



Lumbermans Mutual Insurance Co., Mansfield, Ohio

Comfortable, complaint-free air conditioned office spaces are an important factor in the productivity and employee relations of any company where office work plays an important role. That is why these insurance firms were readily convinced that their dollars were spent wisely on Multi-Vent panels for air distribution . . . a premium product which guarantees a superior, faultless performance worthy of their investment in the over all air conditioning system. For with Multi-Vent panels installed throughout, completely concealed in standard acoustical ceilings, a widespread, uniform air distribution is enjoyed free from all the hazards of drafts, noise and dirt. In addition the unique radiant panel heating or cooling effect of the Multi-Vent panel adds to the comfort factor.

Only Multi-Vent distributes air entirely by displacement rather than by high velocity injection. That means there are no strong air streams to aim and no change in air flow pattern when air supply is varied. Even with movable partitions and low ceilings, all problems of outlet location and direction adjustments for throw and drop to avoid drafts are eliminated . . . there simply are no drafts!

The use of Multi-Vent makes possible many sound economies in the basic heating, cooling, and air conditioning equipment in addition to substantial reductions in installation, maintenance, and redecorating costs. It pays to specify the finest in air diffusion systems . . . Multi-Vent. Write now for detailed literature and the name of the Multi-Vent sales engineer in your vicinity.

MULTI-VENT DIVISION

THE PYLE-NATIONAL COMPANY

1376 North Kostner Avenue

Chicago 51, Illinois

Dated 1898-99,
the first two by
Holabird & Roche,
third by Sullivan.



Photos: Courtesy Museum of Modern Art

THE RISE OF THE SKYSCRAPER. By Carl W. Condit. The University of Chicago Press, Chicago, Ill. 255 pp. 7" x 9 3/4". Illus. \$5.

If there was one book on American architecture that needed writing, this was it: the story of the Chicago School, the story of the development of the skyscraper. It is a fascinating story, and Carl Condit has made it fascinating reading.

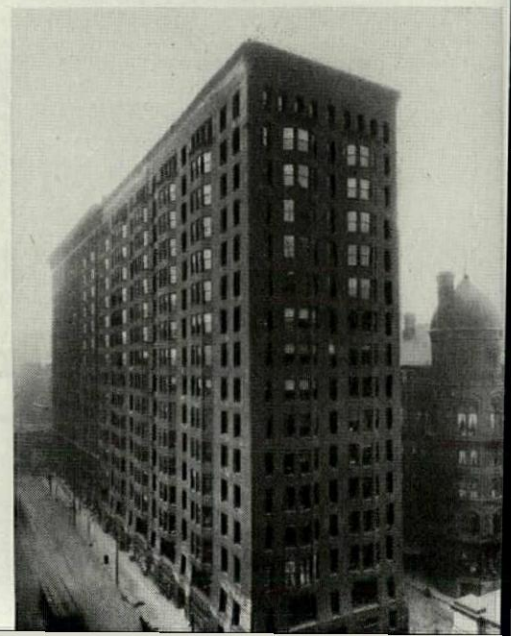
Ever since Lewis Mumford rediscovered the Chicago School in 1931, in *The Brown Decades*, architects and critics the world over have paid their respects to that small band of men who, in the last decades of the 19th Century, invented many of the basic concepts that made the Radiant Cities of Le Corbusier, Gropius and Mies van der Rohe possible in our own time: the tall slab-like building framed in steel; the office tower with its core of elevators, its stern, geometrically modulated facade; and the structural bay filled with sheets of glass.

It was a small band of *modest* men. They called their work "Commercial Architecture," and in the early record of this work, *Industrial Chicago*, it is described as the "great airy buildings of the present . . . truly American architecture in conception and utility . . . a commanding style without being venerable." A French visitor, Paul Bourget, wrote of it with enthusiasm: "The simple force of need is such a principle of beauty, and these buildings so conspicuously manifest that need, that in contemplating them you experience a singular emotion. The sketch appears here of a new kind of art, an art of democracy, made by the crowd and for the crowd, an art of science in which the certainty of natural laws gives to audacities . . . the tranquility of geometrical figures. . . ."

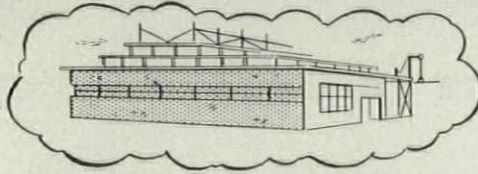
Now, as a matter of fact, there were good architects and poor architects in the Chicago School, and it produced some glass-filled structural bays that were badly proportioned

(Continued from page 182)

Burnham & Root's famed Monadnock Building (1889-91) was the final triumph of traditional masonry efforts.



To safeguard that new building against Fire Damage, insist on



"Automatic" Sprinkler 10-point FIRE PROTECTION

Fire protection is serious business. A single automatic sprinkler may be called upon at any moment to decide the fate of any industrial, commercial or institutional property . . . and of many human lives. Make certain that you include the comprehensive fire safety of "Automatic" Sprinkler 10-point Fire Protection on all your buildings, whether completed or on the planning board. Here's what it includes:

1. **JOB SURVEY and ENGINEERING ANALYSIS:** Detailed to meet individual needs.
2. **BASIC FIXED TEMPERATURE SYSTEMS:** Improved devices for fire detection and water extinguishment.
3. **RATE-OF-TEMPERATURE-RISE PROTECTION:** Recognized leaders in the development of high speed systems for all fire hazards.
4. **QUALITY CONTROL:** All system components — material and manufacture.
5. **ACCURATE PREFABRICATION:** Reduced installation time and expense.
6. **QUALIFIED INSTALLATION CRAFTSMEN:** Experienced in fire protection for all types of property.
7. **NATIONWIDE ORGANIZATION:** Expert fire protection engineers at your immediate service.
8. **INSPECTION AND MAINTENANCE:** Low-cost service keeps fire-fighting equipment in fire-fighting condition.
9. **CONTINUING RESEARCH:** Constant improvement of old methods and development of new.
10. **CONVENIENT PAYMENT CONTRACTS:** Liberal lease, cash, or deferred plans permit payment out of savings.



If you are responsible for building design, construction or management, you should have our new 36-page book, "The ABC of Fire Protection." Write for your free copy today.

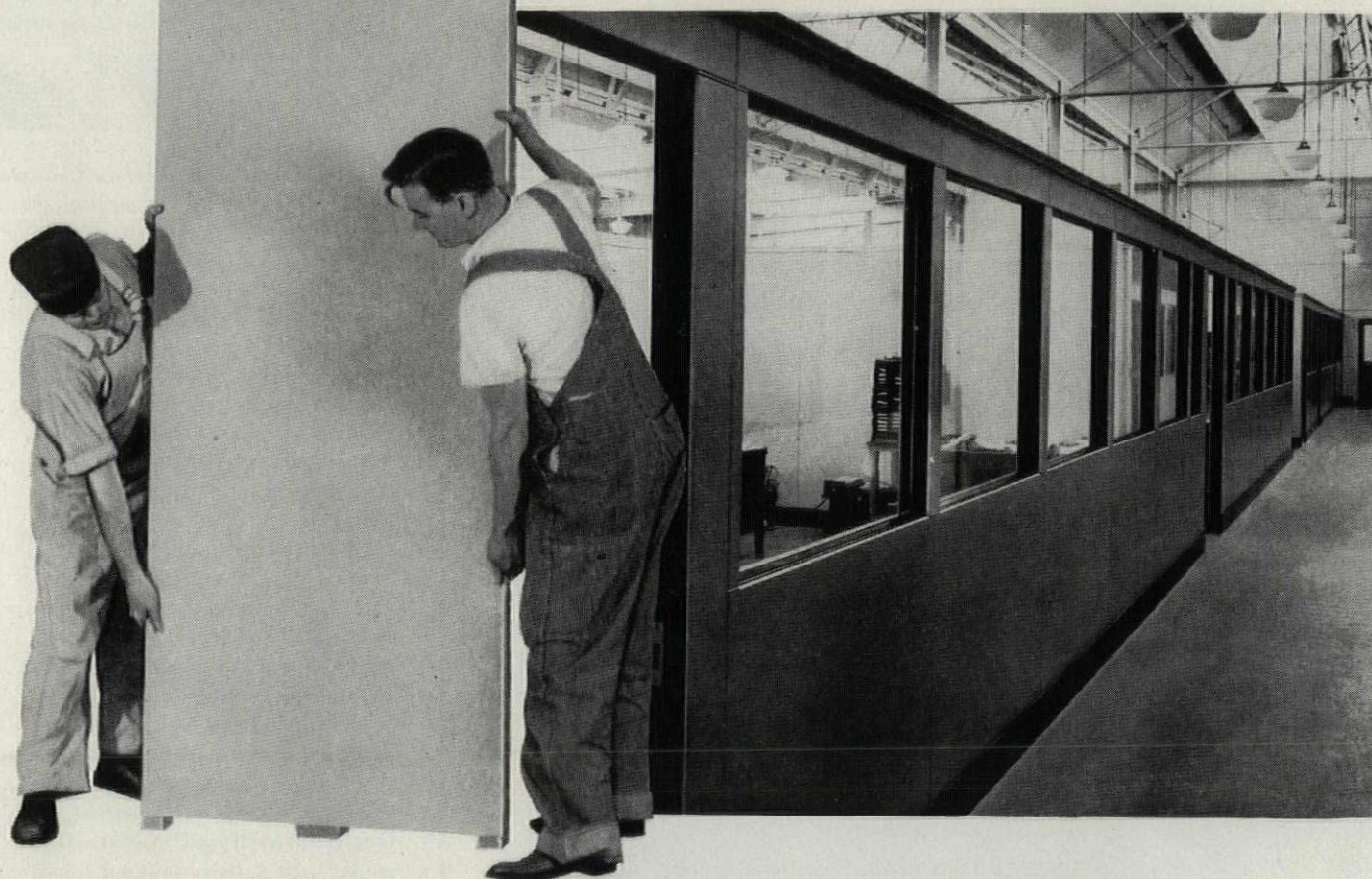
"AUTOMATIC" SPRINKLER CORPORATION OF AMERICA
YOUNGSTOWN, OHIO

OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

"Automatic" Sprinkler

FIRST IN FIRE PROTECTION

Make major space changes
a minor problem!



**When you use Johns-Manville Asbestos Universal Movable Walls,
expansion and conversion is quickly and easily accomplished
with minimum interference to regular routine**

• Reallocation of existing space and partitioning of new space can be done easily and quickly with Johns-Manville Universal Movable Walls. Made of asbestos, these walls are ideally designed to help business and industry meet the space problems involved in the defense effort.

The flush panels have a clean, smooth surface that's hard to mar, easy to maintain, and will withstand shock and abuse. They're light, easy to erect and to relocate. The "dry wall" method of erection assures little or no interruption to regular routine.

Johns-Manville Movable Walls may be used as ceiling-high or free-standing partitions. The complete

wall, including doors, glazing and hardware, is installed by Johns-Manville's own construction crews and under the supervision of trained J-M engineers.

TRANSITONE Movable Walls—A recent and unique development of the Johns-Manville laboratories is the Transitone Movable Wall, with asbestos panels integrally colored. Non-fading pigments are blended into the asbestos fibres, thus eliminate the cost of periodic decorative treatment. The color goes all the way through each panel.

For details about J-M Movable Walls, consult your Sweet's Architectural File, or write Johns-Manville, Box 158, Dept. MB, New York 16, N. Y. In Canada, write 199 Bay Street, Toronto 1, Ontario.



Johns-Manville

ASBESTOS

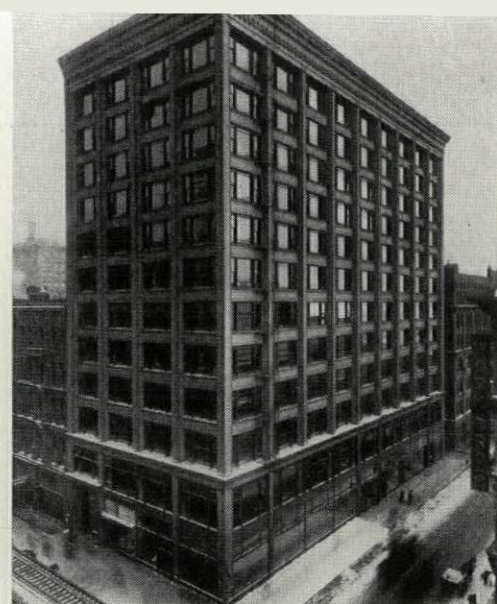
Movable Walls

INSTALLED NATIONALLY BY **JOHNS-MANVILLE**

and some that were good. Occasionally, Condit's infectious enthusiasm for his subject seems to dull his critical powers in this respect. But that is not very serious—for if his intention was to kindle that kind of enthusiasm in others, he has certainly succeeded.

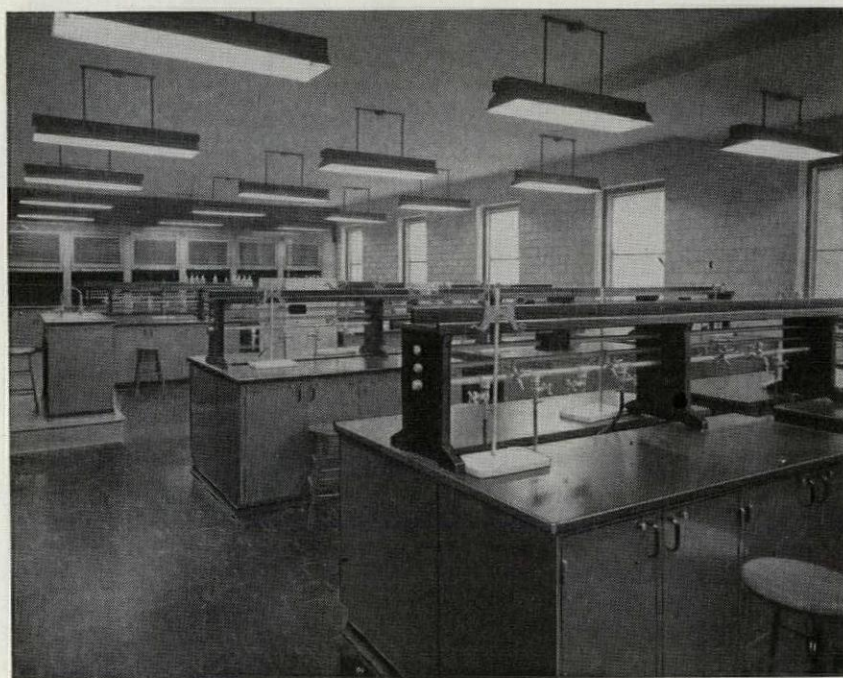
History, it must be admitted, has helped him a good deal. The background to his story is, of course, fascinating in the extreme: the growth of the huge, rude city in the prairies; the destruction by fire; the undaunted faith

leading to explosive reconstruction; and then the painful collapse—however temporary—of the new style after the Chicago Fair of 1893, and its final resurrection by Wright and, most recently, by Mies van der Rohe. But in addition, his human material is extraordinary: The stories of men like Dankmar Adler (whom Condit, like other historians, tends to underestimate), of men like Jenney, Holabird, Roche, Louis Sullivan and John Root—to name only a few—are exciting material in



Museum of Modern Art

Holabird & Roche's Champlain Building (1903) is typical of the reasonable beauty of Chicago architecture.



Kewaunee installation in Science Hall, S.M.U., Dallas, Texas



KEWAUNEE OFFERS YOU

CUSTOM QUALITY IN LABORATORY EQUIPMENT

... at no extra cost

At Southern Methodist University—and in hundreds of other leading laboratories throughout the nation—Kewaunee Equipment is first choice. Every piece is functionally designed to speed laboratory work... soundly constructed to withstand constant use... exceptionally finished to resist the wear of acids, alkalis, solvents and water. All—custom quality, yet at no extra cost.

Whatever your needs—in wood or metal laboratory equipment—find out how much more Kewaunee offers. Write for free catalog, indicating whether interested in wood or metal.

Representatives and sales offices in principal cities

Kewaunee Mfg. Co.
J. A. Campbell, President
5086 S. Center Street • Adrian, Michigan

themselves. Condit's paragraphs on that extraordinary and brilliant man, Jenney, and on Root (who, if he had lived, might well have ranked close to Sullivan) are wonderful reading. They prove, among other things, that the men of the Chicago School were architects of tremendous sensitivity and perception, and that they were as articulate about the things they believed in as the most vocal of the 20th Century *avant-garde* that followed them.

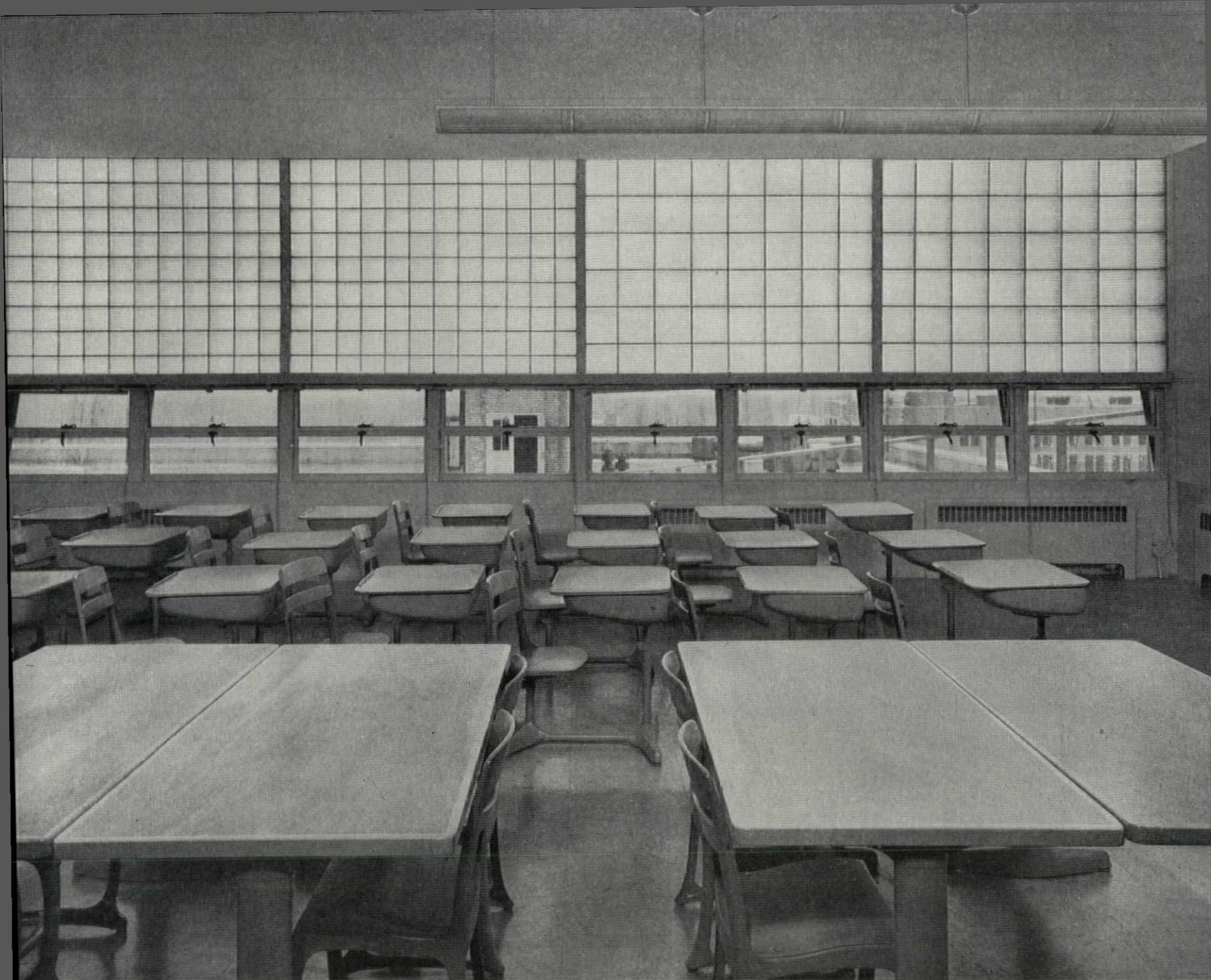
It used to be fashionable in the 1920's in Europe to praise the American engineer and to damn the American architect. This is understandable, for only a few historians like Montgomery Schuyler kept alive the memory of the Chicago School. With Condit's book in print, there is no longer any excuse for selling the Chicago architects short. In a century whose architecture was either eclectic or entangled in confused protests, these architects spoke with a clear language and saw with a pure vision that was not to be matched until many decades had passed.—P.B.

HEATING DESIGN AND PRACTICE by Robert Henderson Emerick. McGraw-Hill Book Co., publishers, 330 W. 42nd St., New York 18, N. Y. 453 pages. Illus. 6 $\frac{3}{8}$ x 9 $\frac{3}{8}$ ". \$8.00

This is a textbook which will also be of use out of school. For not only does it present basic *theory* of heating design, with examples of calculations, and wide coverage of the various heating methods, but it gives a good deal of information on *practice*. As the author points out, the results of practice must often temper theory—and may even improve it, if the designer interprets these results properly. In each section of his new book, Emerick introduces observations from his considerable experience as a mechanical engineer.

There is a score of sections to the book, running from one on calculation of heating loads to another on specifications and the analysis of bids. In between are the systems, from boilers to fireplaces. Eminently practical, and in more than a merely technical way, the book recognizes most of the influences on heating design, including even clients and the FHA.

—W. McQ.



Installation of Insulux 12-inch (463) and 8-inch (363) blocks at the Daylighting Laboratory, Engineering Research Institute, University of Michigan, Ann Arbor, Michigan. Choose the scale you prefer, or combine both sizes.

**Now Insulux gives you a choice
of light-controlling blocks in 12-inch and 8-inch sizes —
READY FOR IMMEDIATE DELIVERY**

Use the new Insulux 12-inch light-controlling blocks to create an entirely new scale in glass block panels . . . Or, combine with the 8-inch size for interesting formal or abstract design. While the 12-inch size transmits more light than the 8-inch, the brightness of the faces are visually equal.

These new 12-inch Insulux Glass Blocks are available in light-directing design No. 463 (for use above eye-level) and the light-diffusing design No. 465 (for use below eye-level). The addition of the 12-inch sizes gives the

architect four Insulux light-controlling blocks for the solution of every daylighting problem. *And all four are in production and ready for immediate delivery.* They've been installed and proved in service.

12-inch Insulux blocks use less mortar, have more light-controlling glass surface. Faster laying results in real erection economies. And, like the 8-inch size, they have an exclusive azimuth-correcting design that helps light the far corners of a room. Easy-cleaning face finish and gold-stripe installation guide marks are

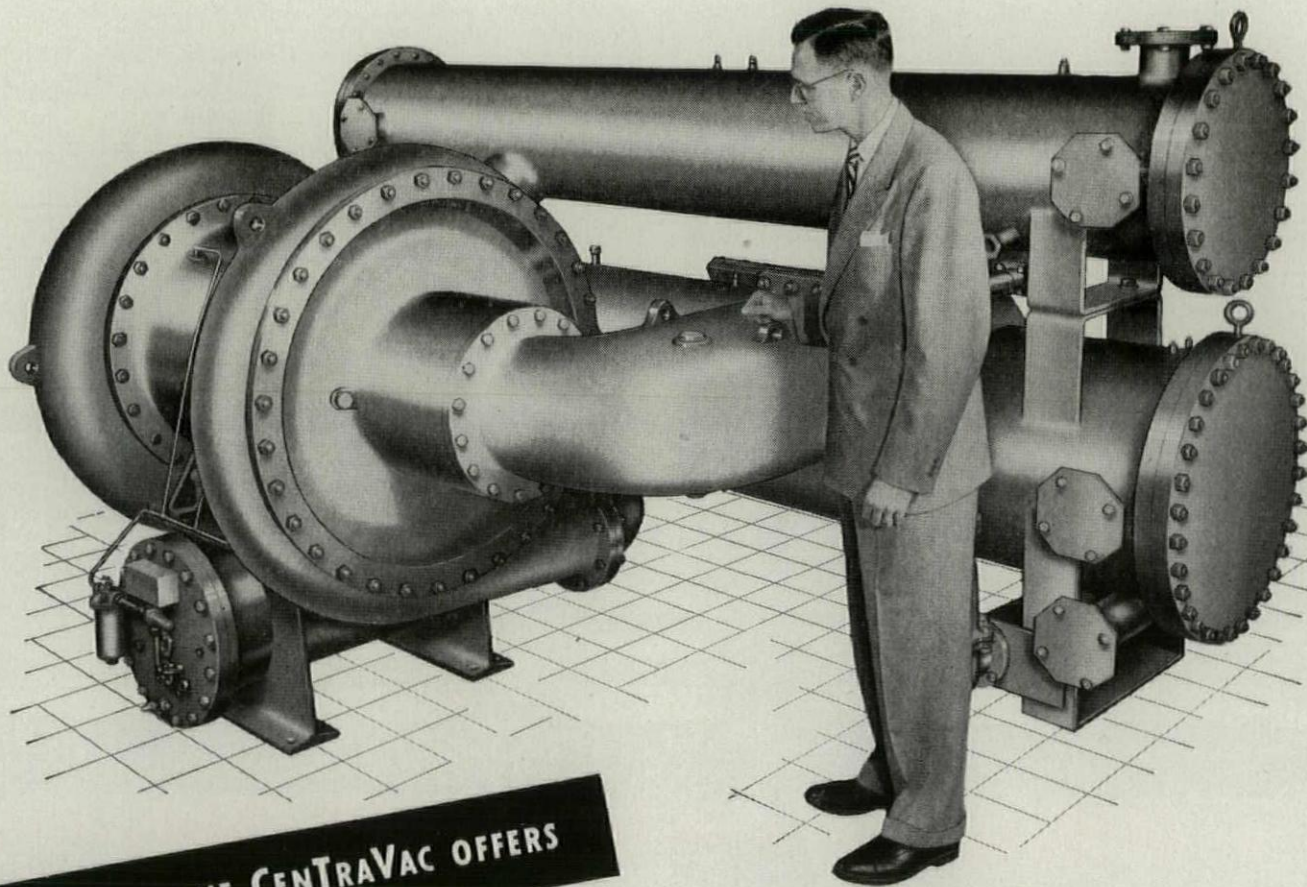
features of all Insulux light-controlling glass blocks.

All Insulux Glass Blocks® provide better insulation, longer life and lower maintenance than any other fenestration material.

Make sure the buildings you design have the long-lasting advantages of an Insulux Fenestration System installed on Daylight Engineering principles. A Daylight Engineer will be glad to help you. His knowledge and experience is at your service. Just write Insulux, Dept. MB2, Box 1035, Toledo 1, Ohio.

INSULUX FENESTRATION SYSTEMS
— by the leaders of Daylight Engineering





NOW THE TRANE CENTRAVAC OFFERS

Centrifugal Refrigeration for the Small Job, Too

Now air conditioning installations as small as 45 tons can have all the advantages of centrifugal refrigeration. For years the flexibility, the safety and the economical operation of the centrifugal compressor were limited to the larger job. But Trane has changed all that with the CenTraVac.

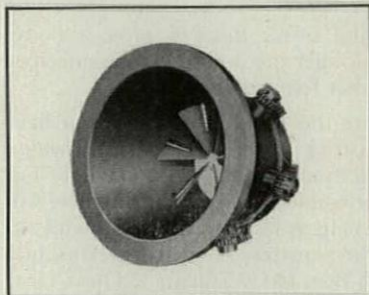
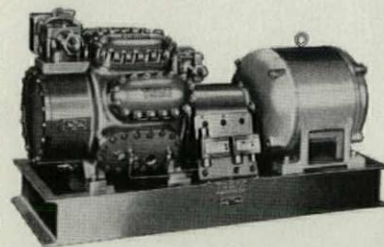
The CenTraVac is a completely self-contained, hermetically sealed water chilling unit. Light in weight—small sizes weigh under 15,000 pounds. It can be installed in basement or penthouse, in new or existing buildings. No special bases are necessary. Only simple water and electrical connections are required. First costs are surprisingly low. Push button operation eliminates the need for extra attendants—thus, maintenance costs are kept at a minimum.

Operating efficiently over a range from 100 to 10% of rated capacity, the Trane CenTraVac is ideal for the smaller job—

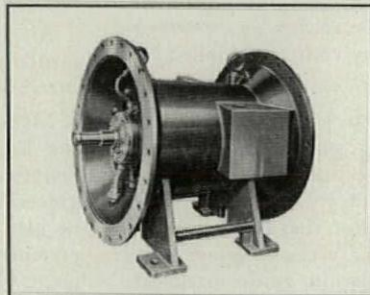
industrial offices, precision manufacturing areas, small theatres, post exchanges. Yet, the CenTraVac is equally at home on the larger installations. It is available in five sizes to 190 tons. Single or multiple installation may be made. For more details, contact the Trane representative in your area or write for CenTraVac Bulletin S-399.

Trane Builds Both!

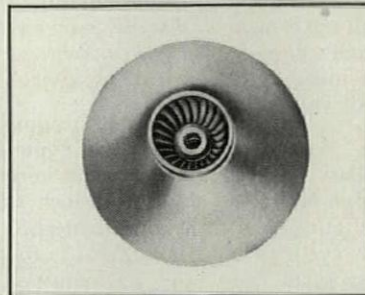
For applications in the 10 to 50 ton range, Trane manufactures a complete line of reciprocating compressors and condensers. These smooth, quiet operating units pack maximum capacity in a minimum of space.



Saves Power—The exclusive Trane capacity control feature. Variable inlet guide vanes permit the unit to operate down to 10% of its rated capacity by regulating the flow of refrigerant into the impeller.



No Shaft Seals—Impellers mounted on a double extended shaft motor are hermetically sealed in this unit. Air, enemy of capacity, is sealed out. Maximum effectiveness is maintained at all times.



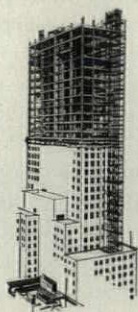
High Efficiency—True radial blade impellers produce flat characteristic curve—so desirable in centrifugal compressors. Curved buckets at each blade entrance also contribute to high efficiency.

TRANE

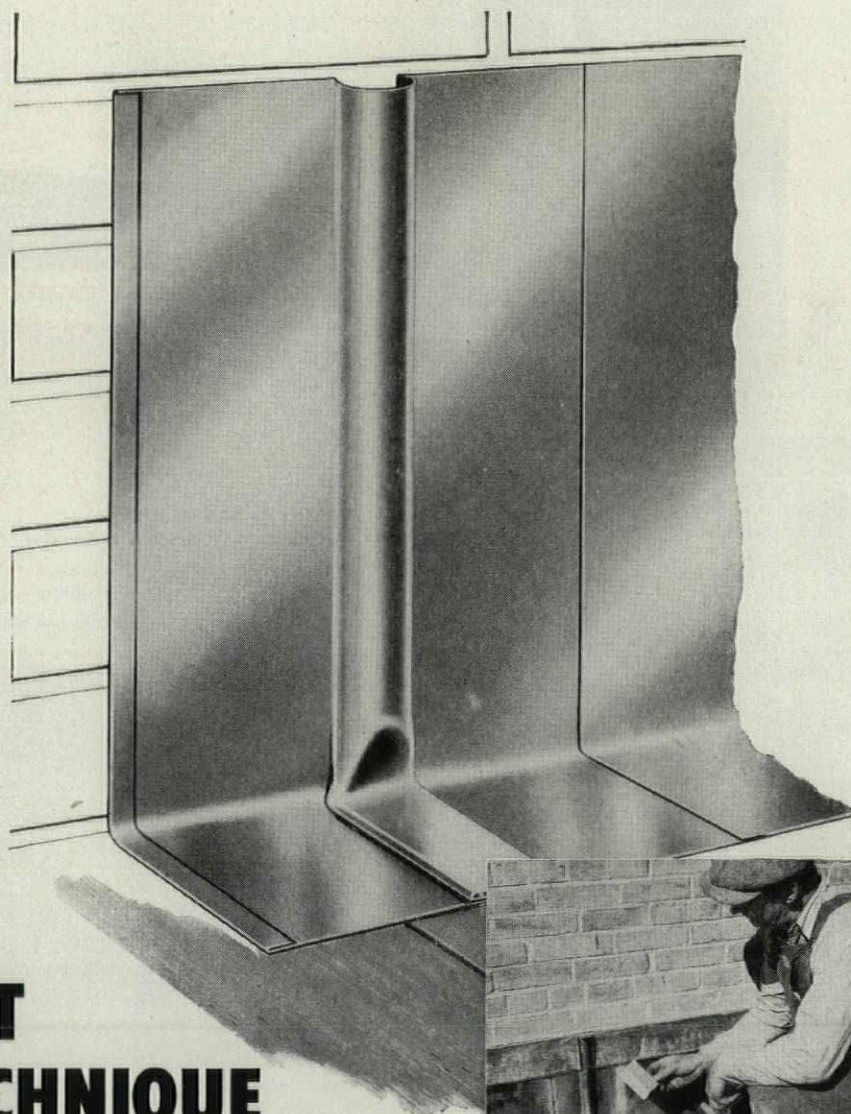
MANUFACTURING ENGINEERS
OF HEATING, VENTILATING AND
AIR CONDITIONING EQUIPMENT

THE TRANE COMPANY, LA CROSSE, WIS.
Eastern Mfg. Division . . . Scranton, Pa.
Trane Company of Canada, Ltd., Toronto

OFFICES IN 80 U. S. AND
14 CANADIAN CITIES



"CHRYSLER BUILDING EAST"
Architect:
 Reinhard, Hofmeister & Walquist.
General Contractor:
 Turner Construction Co.
Sheet Metal Contractor:
 Benjamin Riesner, Inc.



FOR THE LATEST AND FINEST TECHNIQUE

in Copper Base Flashing

Install The New Chase Copper Base Flashing Expansion Joint

This new patented Copper Joint permits movement of copper base flashings due to expansion and contraction without danger of buckling or cracking.

Sheet metal contractors and architects realize that with this Chase Expansion Joint, copper base flashing becomes even more efficient and economical for use at the juncture of flat built-up roof and masonry wall.

The new Chase Copper Base Flashing Expansion Joint is made of 18-ounce copper. Open seams on the edges of the joint permit fast, easy interlocking and soldering to the adjoining lengths of base flashing. A "cap box" is supplied with each Expansion Joint for attachment to the cap flashing and a completely watertight job.

Chase  **BRASS & COPPER**

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• The Nation's Headquarters for Brass & Copper

Albany†	Chicago	Denver†	Kansas City, Mo.	Newark	Pittsburgh	San Francisco
Atlanta	Cincinnati	Detroit	Los Angeles	New Orleans	Providence	Seattle
Baltimore	Cleveland	Houston†	Milwaukee	New York	Rochester†	Waterbury
Boston	Dallas	Indianapolis	Minneapolis	Philadelphia	St. Louis	(Sales office only)



FREE FOLDERS: You will also want to know about the new Chase One-piece Thru-Wall Copper Flashing and Cap Flashing Receiver. Write for folders on both these new developments in copper flashing.

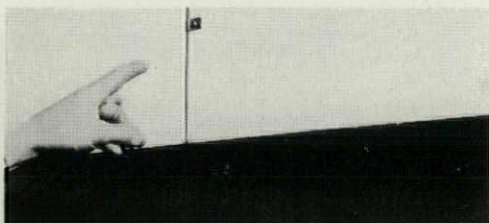
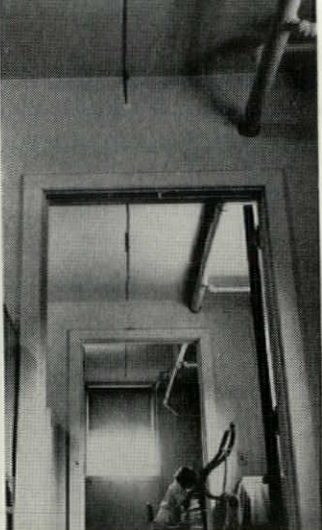
Chase Brass & Copper Co., Dept. MB-252
 Waterbury 20, Conn.

Please send me your free folders

- ☐ Chase Copper Base Flashing Expansion Joint.
☐ The New Chase One-Piece Thru-Wall Copper Flashing.

NAME _____
 POSITION _____
 FIRM _____
 STREET _____
 CITY _____ STATE _____

PRODUCT NEWS



Hollow tubing acts as the detector. It is attached with clips, bends around corners easily.

FIRE DETECTION SYSTEM gives fast and accurate warnings

There is little chance of a false alarm setting off the *Atmo* fire detection system. Instead of reacting to a fixed temperature (usually 180°) as do most other systems, the new apparatus works on the principle of temperature rate-of-rise. Any increase in room temperature expands the air in the *Atmo*'s continuous copper tubing detecting element. If the rise is abnormal—15° or more a minute—the pressure activates a warning signal. However, short surges of heat which cause momentary pressure increases, but do not indicate the presence of a fire, are cushioned in the system and discharged.

This type of detection equipment permits a wide variety of applications: it responds quickly even in refrigerated areas where temperatures ordinarily are kept at 20° F., or in an industrial processing area where the thermometer registers 100°. A rapid temperature rise anywhere in a building covered by the system will be detected.

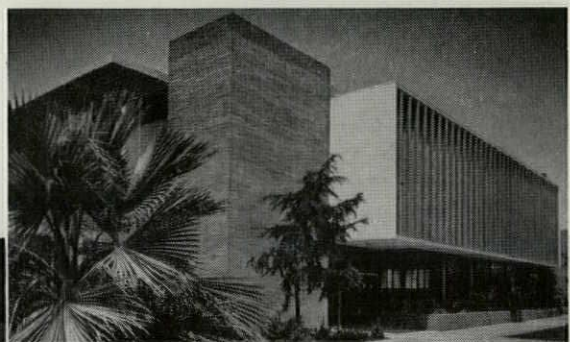
Because the *Atmo* equipment operates on self-charging batteries, it is not affected by outside power failures. (Batteries deliver up to 60 hours of emergency power.) The detection devices can be zoned to give the exact location of the danger, and the alarm circuit may be connected to a municipal fire headquarters.

Installation is quite simple: the copper tubing is attached on ceilings and walls with small clips; no structural alterations are necessary, and the tubing may be painted over to match room interiors without loss of its detecting effectiveness. It should be placed so that no point on the ceiling is more than 15' from the nearest run, and no more than 1,000 lin. ft. of tubing should be at-

(Continued on page 190)

NORTHWESTERN MUTUAL FIRE ASSOCIATION CO., Los Angeles

- Architect: RICHARD J. NEUTRA, F. A. I. A.
- General Contractor: C. W. DRIVER, INC.
- Plumbing Contractor: LEO PLUMBING CO.



HAWS drinking fountains



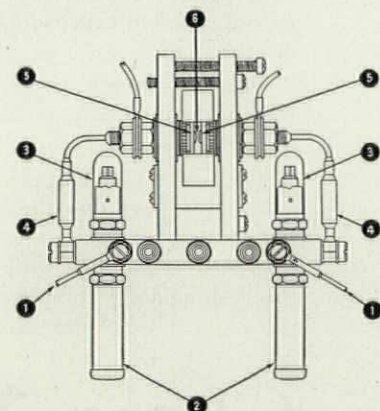
Ever in keeping . . . ever in need . . .

HAWS Drinking Fountains complement any décor with stylized beauty, mechanical excellence, down-to-earth utility.

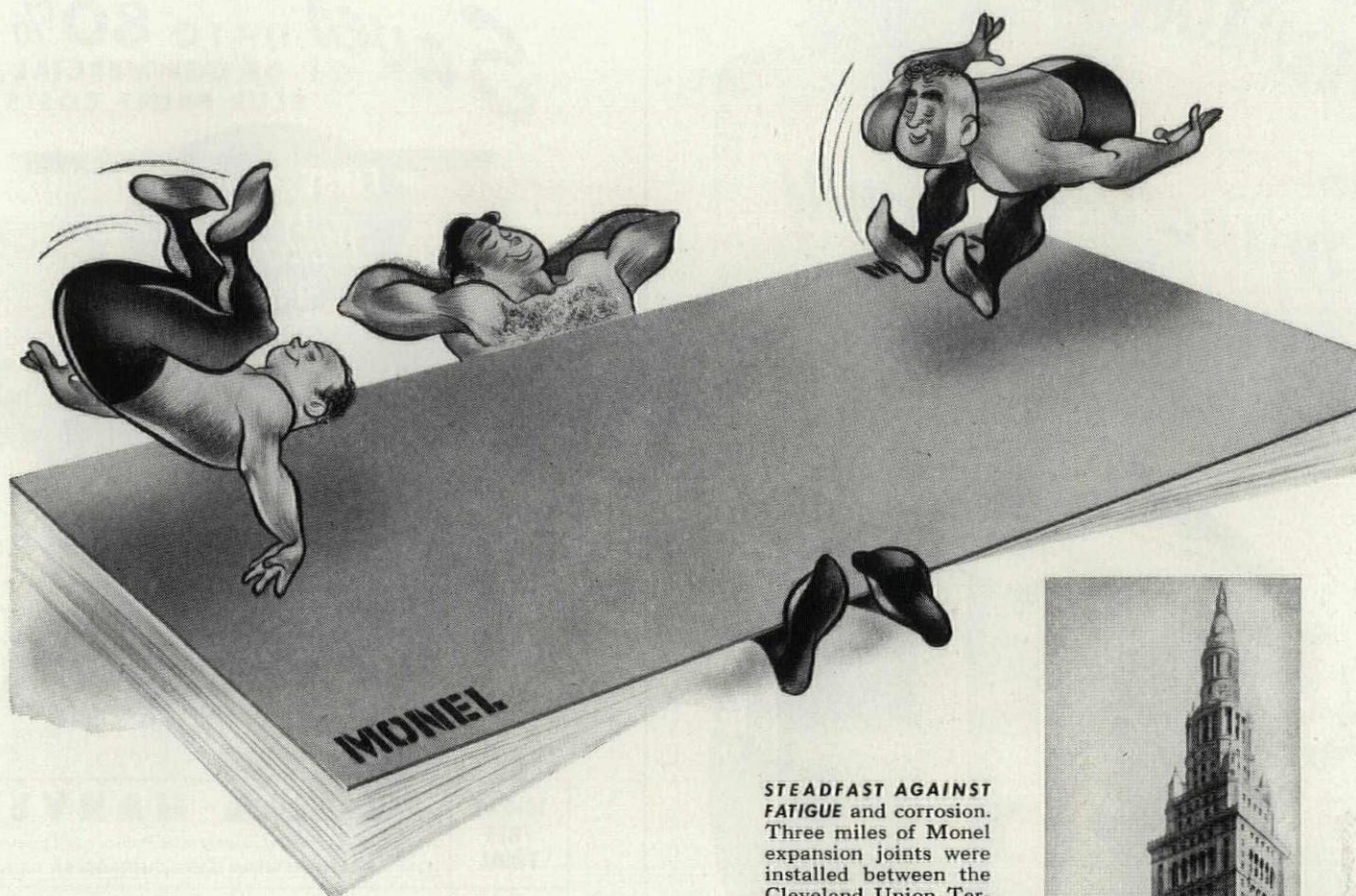
Always specify, always insist on HAWS!

HAWS DRINKING FAUCET CO.

1443 FOURTH STREET (Since 1909) BERKELEY 10, CALIFORNIA
Agents and Sales Representatives in All Principal Cities



How the apparatus works: The ends of each length of copper tubing (1) terminate in the detector (2). The air which moves through the tube goes up through breathers (3). Any excess air pressure caused by an abnormal temperature rise travels up insulator tubes (4) and acts on diaphragms (5) with platinum-faced contact points (6). The pressure forces them together, closing an electrical circuit which sounds an alarm.



STEADFAST AGAINST FATIGUE and corrosion. Three miles of Monel expansion joints were installed between the Cleveland Union Terminal and surrounding buildings, sidewalks and pavements when the station was erected in 1928. Periodic inspections have shown the Monel joints still in excellent condition.



A roofing sheet to remember . . .

It takes worlds of flexing without cracking!

A roof is no "resting place" for metal!

It gets pushed and pulled and twisted by heat and cold . . . by high winds and heavy loads.

That's why a roofing sheet like Monel® is worth remembering. Its excellent fatigue strength keeps it from cracking.

How do we know? We've proved it—in tests that show Monel Roofing Sheet can withstand a load of 24,500 psi through 100 million bending and flexing cycles!

Right now—because of the demand for nickel and nickel alloys in the defense program—Government orders prohibit use of Monel for building applications.

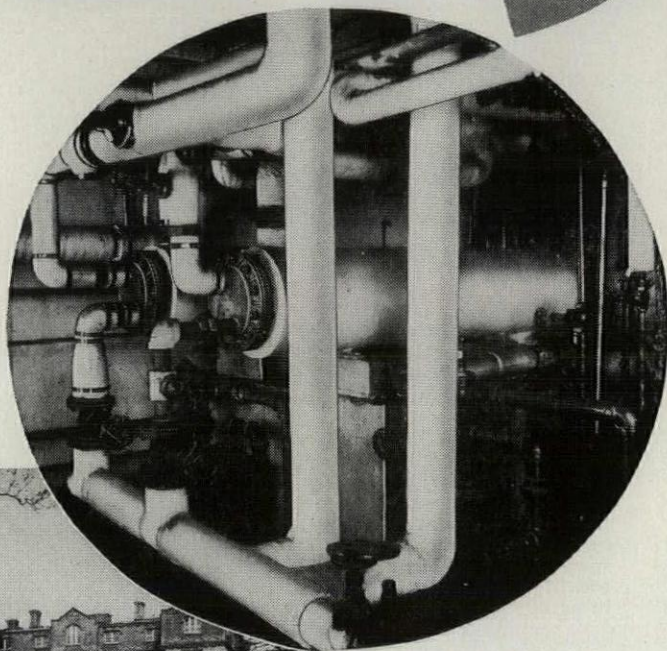
In time, though, there'll be enough Monel available for normal roofing needs. Until then, let INCO help you in planning for the future. Write our Architectural Section and ask them to keep you supplied with the latest technical information and literature. There's no obligation, of course.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.



MONEL . . . "For the Life of the Building"

MODERN, LOW-COST WAY
to increase
hot water supply



ARE your present-day demands for hot water pressing hard against your present supply facilities? You'll find an easy modern answer in **GENERAL Instantaneous Heaters**.

These heaters require no bulky storage tanks or complicated piping... use either live or exhaust steam as heat source... and may be installed either to "boost" or completely replace storage-tank water-heating systems. Their compactness and high efficiency save you money on installation and operation.

The illustration above shows a typical compact installation of **GENERAL Instantaneous Heaters** which supplies all hot water requirements for kitchens, baths and cafeteria in a New England private hospital.

Investigate the benefits of **GENERAL Instantaneous Heaters** for your hot water supply. Available in 21 sizes with capacities up to 300 gals. per min. All-bronze and copper waterways.

MAIL THIS COUPON FOR COMPLETE CATALOG 60 -----

General Fittings Co., Dept. X
 123 Georgia Ave., Providence 5, R. I.

Gentlemen: Please send copy of your new Catalog 60 containing detailed information on Instantaneous Heaters.

Name.....

Address.....

City..... State.....

GENERAL

INSTANTANEOUS WATER HEATERS



Saves UP TO 80% OF COMMERCIAL BLUE PRINT COSTS!



FIRST low-priced
 24" x 36"
Whiteprinter
 \$149.81

New Speed-Dee

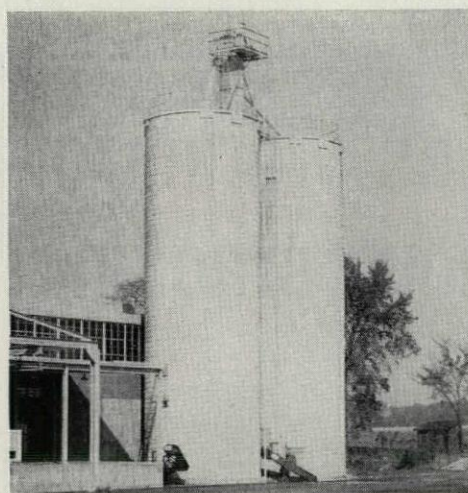
Pays for itself in 3 months!

● Anyone in your office can quickly make accurate black-on-white or blue-on-white prints up to 24" x 36", from translucent originals, at less than 2¢ per sq. ft. Makes photocopies too. Just plug in. Uses diazo (moist or ammonia dry) process. \$155.81 including initial supply of paper and developing powder. Printer only, \$149.81. Shipping weight, 85 lbs. Order the Speed-Dee on 10-days free trial, or write for full facts. 12" x 18" and 18" x 24" sizes also available from \$55.12 up.

**10-DAY
 FREE
 TRIAL**

PECK & HARVEY

Mfrs. of Whiteprint, Blueprint & Photocopy Equipment
 5721 NORTH WESTERN AVE., CHICAGO 45, ILLINOIS



381 tons
coal in reserve

A Michigan manufacturer had been caught short of coal only too often. To avoid that situation in the future, the management had us erect two 18 x 60 ft. silos; one of them to feed the stokers, the other to keep a reserve supply of coal. When full, both silos hold

approximately 700 tons—and that's enough to outlast a serious delivery failure.

There's an idea here for users of all kinds of flowable bulk materials: 1st. Plenty of storage capacity to avert shutdowns; 2nd. Neff & Fry Storage Bins, the silos which stand from generation to generation without rusting, rotting, spalling—without the need for painting and face-lifting.

If you're immediately or remotely interested in silo-type storage, ask for our folder, "Bins With the Strength of Pillars."

THE NEFF & FRY CO. • 148 Elm St., Camden, Ohio

**SUPER-CONCRETE STAVE
 STORAGE BINS**

NEFF & FRY

ZURN

ZURN TYPE REST ROOMS HAVE FIXTURE-BARE FLOORS

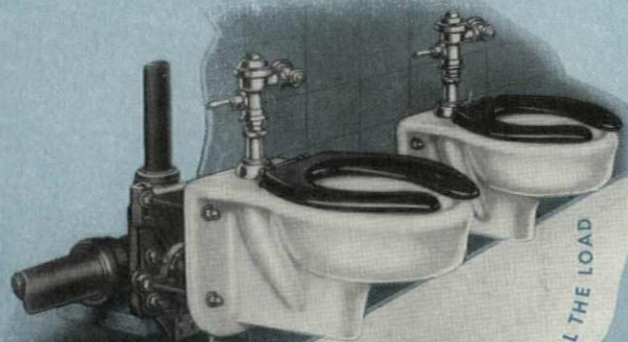
→ A FIXTURE-BARE FLOOR IS,
AS IT IS, ALWAYS!

Immaculately clean! Cleanliness is no problem in toilet rooms where plumbing fixtures are off the floor, because there is nothing to interrupt the sweep of the broom and the swish of the mop. Fixture-bare floors reduce the day by day dollar cost of maintenance to an all-time low while lifting sanitation to a new high. A New Way of building utilizes wall type plumbing fixtures throughout, installed the Zurn Way—the simple, fast, safe way of installing wall type closets, lavatories, sinks and other fixtures. This New Way reduces the use of building material; eliminates need of suspended ceiling constructions; requires less space for walls; saves time and labor and protects rest rooms from premature obsolescence. Specify wall type plumbing fixtures installed with Zurn Wall Closet Fittings and Carriers. Write for booklet entitled, "You Can Build It (Cubic Foot of Building Space) For Less The New Way".

J. A. ZURN MFG. CO. ERIE, PA. U. S. A. PLUMBING DIVISION

Sales Offices in All Principal Cities

Pre-eminent Manufacturer of Sanitary Products for the Protection of
Human Health and Modern Structures



THE ZURN WAY RELIEVES THE WALL OF ALL THE LOAD

Write for this booklet. It tells how "You Can Build It (Cubic Foot of Building Space) For Less A New Way".



J. A. ZURN MANUFACTURING CO. • PLUMBING DIVISION • ERIE, PA., U. S. A.

Please send me the new Zurn Booklet, "You Can Build It (Cubic Foot of Building Space) For Less A New Way."

Name and Title

Company

Street

City and State

Please attach coupon to your business letterhead.

Dept. AF

Rest Rooms with Fixture-Bare Floors in These Buildings and Hundreds of Others:

OFFICE BUILDINGS: Farmers Mutual Insurance Company, Madison, Wis. • New Hampshire Fire Insurance Building, Manchester, New Hampshire • Southwestern Bell Telephone Co., Toll Building, Houston, Texas • International Business Machines, Endicott, N. Y. • General Food Building, Newark, N. J. • The Texas Company, Minneapolis, Minn. • Humble Oil Company, New Orleans, La. • **EDUCATIONAL BUILDINGS:** Fisher Memorial Dormitory, University of Notre Dame, Notre Dame, Ind. • Maple Heights High School, Maple Heights, O. • Dilworth School, Salt Lake City, Utah • New Engineering Laboratory, Virginia Polytechnic Institute, Blacksburg, Va. • Medical Research Building, University of Michigan, Ann Arbor, Mich. • **INDUSTRIAL BUILDINGS:** DeLaval Separator Company, Poughkeepsie, N. Y. • Houston Lighting and Power Company, Houston, Texas • Berkshire Knitting Mill, Andrews, N. C. • Minneapolis Honeywell Regulator Co.,

Minneapolis, Minn. • Chrysler Corporation, Trenton, Mich. • Dan River Mills, Philadelphia, Pa. • Court House and City Hall Building, Minneapolis, Minn. • Oregon State Penitentiary, Salem, Oregon • **HOSPITAL BUILDINGS:** Cuyahoga County Chronic Hospital, Warrensville, O. • National Jewish Hospital, Denver, Colo. • Terrell State Hospital, Terrell, Texas • Memorial Hospital, Algoma, Wis. • Central State Hospital, Petersburg, Va. • Oakwood Hospital, Dearborn, Mich. • **TERMINAL BUILDINGS:** New Norfolk and Western R. R. Warehouse, Roanoke, Va. • Holland American Line Terminal, Hoboken, N. Y. • New Greyhound Terminal, Phoenix, Ariz. • **MERCANTILE BUILDINGS:** Emporium, Oakland, Cal. • Sugarland Shopping Center, Sugarland, Texas • Federal Stores, Cleveland, O. • Macy's Kansas City Store, Kansas City, Kan. • Rexall Drug Company, National Headquarters Building, Los Angeles, Cal. •

Patented and Pat. Pending.

Copyright 1962

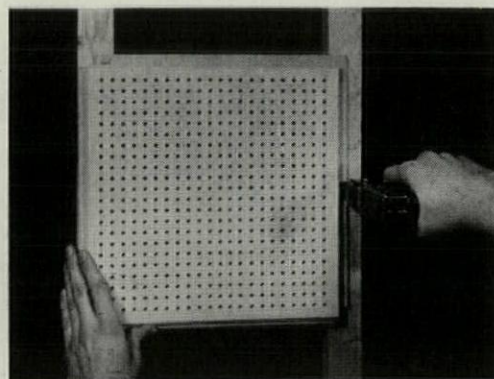
tached to any one detector. A single run of tubing protects about 3,000 sq. ft.

The copper tubing lists at 8¢ per ft. Detectors are \$88 each. The control panel ranges in price from \$135 to \$235, depending on the scope of the system. The rectifier (which switches the apparatus to batteries when the alarm sounds) costs \$157.

Manufacturer: Walter Kidde and Co., Inc., 40 East 34th St., New York 16, N. Y.

WOOD FIBER ACOUSTICAL TILE has semi-gloss white surface.

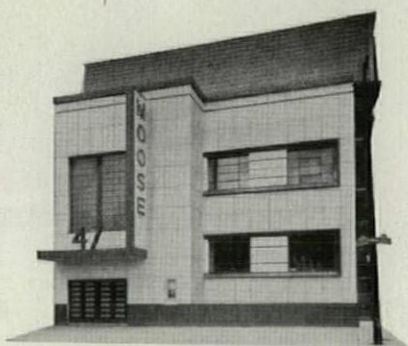
A new perforated tileboard made from northern pine and spruce fibers, *Acoustilite* is given a factory-coat of white paint for high (78%) light reflection. It may be cleaned with a brush or damp cloth, or may be vacuumed, and can be recoated with any type of paint many times without appreciable loss of its acoustical efficiency. Two types of



board are available: one has a flanged tongue-and-groove joint for stapling or nailing; the other has a beveled butt-edge for adhesive applications. The tile measures 12" square and is 1/2" thick. Price per sq. ft., not installed, is about 15¢.

Manufacturer: Insulite, 500 Baker Arcade Bldg., Minneapolis 2, Minn.

More Than A Trend . . . Seaporcel Is Permanent



Any Old Building Can Look as Smart and Modern as This!

TO TRANSFORM an old building into a strikingly modern structure follow the nation's leading architects in the swing to SEAPORCEL porcelain enamel.

LOOK AT this building (above), though no mere black and white picture can do it justice! Yet BEFORE Clifford A. Lake, Pittsburgh architect had it rebuilt with a SEAPORCEL exterior, it looked "sick" and "weather-beaten" . . . badly in need of an overall face-lifting.

The bulkheads, coping and window trim, as well as the upright letters now appear in a soft red terra cotta finish . . . with piers, fascia and sign in unobtrusive buff terra cotta.

WHILE LENDING STYLE and dignity to the structure, there is no question of the recaptured realty value of this restored property.

Write today for copy of the Seaporcel idea brochure showing numerous sample installations.

For interiors as well
as exteriors
SEAPORCEL Porcelain Enamel
is the most notable advance
in Architectural design

Fabricated in any shape, form or section; rounds, compound curves, flutings, reedings, etc. Obtainable in such versatile textures as "Terra Cotta," in Semi-Matte or Gloss finishes; also our new "LEATHORCEL" (simulated leather) finish.

SEAPORCEL METALS, Inc.
28-24 Borden Ave., Long Island City 1, N. Y.
complete A. F. of L. Metal
Fabricating & Enameling Shop

Also manufactured on the
West Coast by
SEAPORCEL PACIFIC, Inc.
1461 Canal Ave.
Long Beach 13, Calif.



Seaporcel

ARCHITECTURAL
PORCELAIN ENAMEL

Complete Engineering and Erection Departments • Member: Porcelain Enamel Institute

TRANSPARENT COATING protects masonry walls against water damage

A colorless water repellent, *Silaseal* forms an invisible protective coat on exterior walls. Penetrating deep into masonry pores—3/8" on some materials—the silicone-based formula prevents efflorescence and much of the damage to stone, brick, cement block, and masonry joints caused by water which seeps into stonework and expands and contracts during weather changes. A surface treated with *Silaseal* is said to stay cleaner because grit and soot will not cling to the chemical film and are washed off with each rainfall. The coating does not oxidize; it remains on the wall until the masonry surface itself wears off. A single application is said to be sufficient protection for many years. *Silaseal* may be brushed on or sprayed. It sells for \$4.40 per gal. in 55 gal. drums.

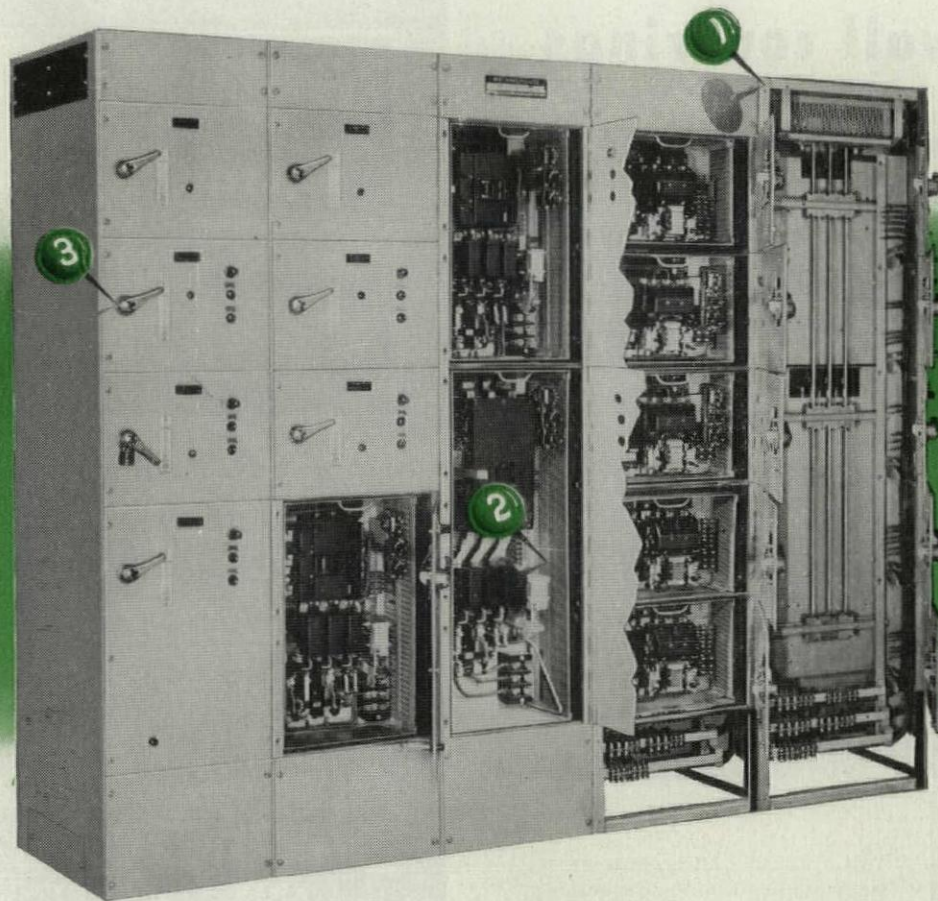
Manufacturer: Surface Protection Co., Cleveland, Ohio.

TEXTURED FABRIC. Synthetic fiber with rubber-coated backing takes hard wear

The rich sheen and bright colors of *Dexter* upholstery fabric belie its ruggedness. Woven of treated rayon with a permanent crimp over a cotton backing coated with latex, the material is crush resistant and mothproof. It is suitable for institutional furniture where long service is as important as appearance. It comes in a 54" width in tones of gray, green, red, tangerine, brown, tan, a bright copper, gold, and moss green. Retail price is about \$7 per yd. with substantial discounts to architects and decorators.

Manufacturer: Joan Fabrics Corp., Woonsocket, R. I.

(Continued on page 194)



Everybody says **"WELL BUILT"**

And they really mean it when referring to Westinghouse Control Centers. Here you get top-quality construction which gives you all the advantages of centralized motor control... quality at every one of the following points:

1 Sturdy, Self-Supporting, Tight Structures. No need for angle iron or other bracing. No gaps or cracks to permit entrance of foreign objects. Interior is fully protected.

2 Complete Baffling localizes unusual arcing if faults occur. A short circuit in one starter unit cannot spread throughout the entire structure. Removable grill baffle on right side of each unit provides easy accessibility.

3 Safety Doors, with safety-interlocking handles, remain on the panel when the

starter unit is removed. Doors can be fastened closed over open space to prevent entrance by unauthorized personnel.

For further evidence of a "well-built" control center, check these features: self-cooling construction for foolproof ventilation, plug-in starter units, vertical and horizontal wiring troughs.

You get all these features and more, when you specify Westinghouse Control Centers. The complete story is contained in Booklet B-4213. For your copy, write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-27009

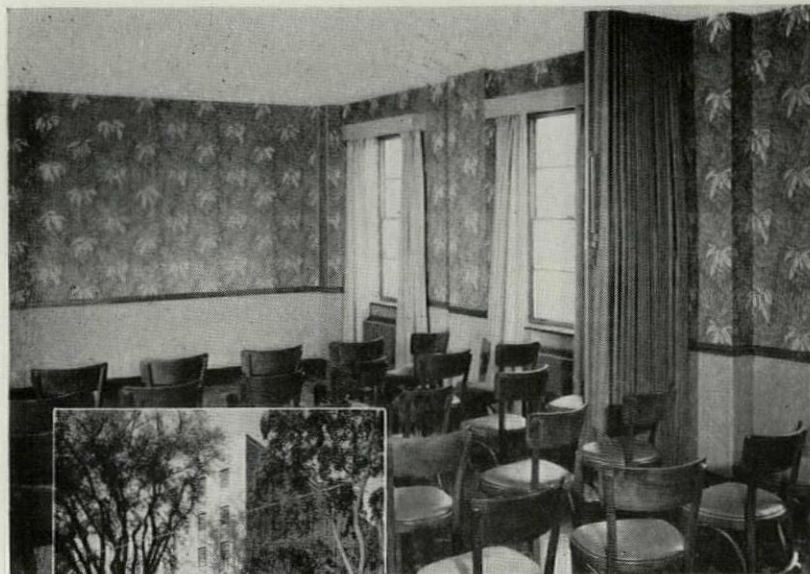


YOU CAN BE SURE... IF IT'S
Westinghouse

CONTROL CENTERS



specify fabric wall coverings for Buildings LIKE THIS



YMCA, Lansing, Michigan—one of many public buildings decorated with Wall-Tex Fabric Wall Coverings.

In public buildings—for rooms or corridors where there's heavy traffic—wherever wall decoration may get hard use or abuse—specify Wall-Tex fabric wall coverings. Wall-Tex is styled for modern beauty—and it's sensible decoration, too. The Wall-Tex base of sturdy fabric protects against scuffing, strengthens the walls, controls plaster cracks. Wall-Tex colors and finishes are waterproof and safely washable, time after time. Investors, managers, buyers and tenants for every type of building welcome these Wall-Tex service features. Mail coupon for File Folder which contains technical data, full information, sample swatches.

WALL-TEX
fabric wall coverings

new **FREE** file folder

Columbus Coated Fabrics Corporation
Dept. AF-22, Columbus, Ohio

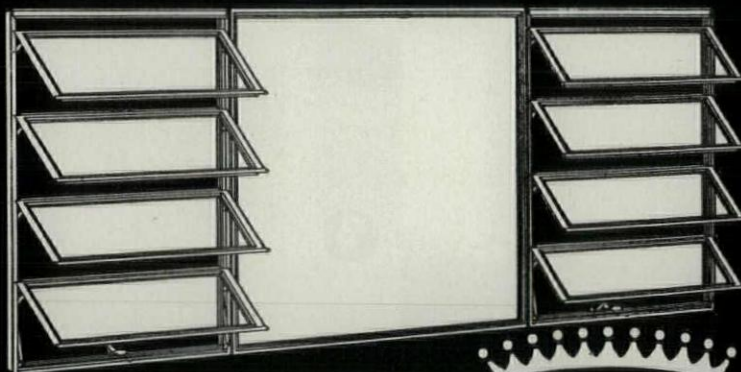
Send your new File Folder on Wall-Tex and Sample Swatches.

Name _____

Street _____

City _____ State _____

LEMCO Monumental



Series 62

EXTRUDED ALUMINUM
AWNING WINDOWS

NOW AVAILABLE in limited quantities.

Write or wire today for additional information.

AMERICA'S OLDEST CASEMENT WINDOW MANUFACTURER

Croft STEEL PRODUCTS, INC.
16 MARKET STREET • JAMESTOWN, N.Y.

SAFE Moisture and Fume Removal



GALLAHER Air Van®
POWER EXHAUSTER

Expel moisture and fumes without the danger of motor damage. Exclusive Scroll Effect design, built-in, assures efficiency against normal static pressures. Positive air seal-off prevents passage of fumes into motor housing.

Air-Vans are weatherproof and completely self contained. No penthouses necessary. Direct connected. Construction heaviest of any comparable unit.

Pat. 2188741 2526290

Ratings tested and certified by an independent laboratory. Capacities 150-11,000 CFM Static Pressures to 1 1/4" Ideal low silhouette design.

For full technical information contact your Gallaher Representative or write the Gallaher Company, Dept. A, 4108 Dodge Street, Omaha, Nebraska.



The GALLAHER Company
Omaha, Nebr. Owatonna, Minn.

DAYLIGHTING

DILEMMA?

... GO OVERHEAD WITH WASCOLITE SKYDOMES

HOW TO GET DAYLIGHT WITHOUT WINDOWS was one of the problems faced by the architectural firm of Voorhees, Walker, Foley & Smith in its remodeling of the attic of the Scarsdale, N. Y., telephone building into a rest room and dining room. The sloping roof prohibited windows . . . conventional monitor skylights would be too costly and take too long to install. *Solution:* a single large Wascolite Skydome in each room provides pleasant, glare-free daylight . . . eliminates completely the "locked in" sensation experienced with the windowless attic. Say the architects: "Skydomes enabled us to make the attic really attractive."



For the best and cheapest solution to *your* daylighting problem, ask us to make a Daylight Engineering Study of your project. A Study will show the best Skydome arrangement for your floor plan . . . the lighting level maintained and other vital data. No obligation, of course. For complete information fill in and mail the coupon today.

Wascolite Skydomes
PATENT PENDING



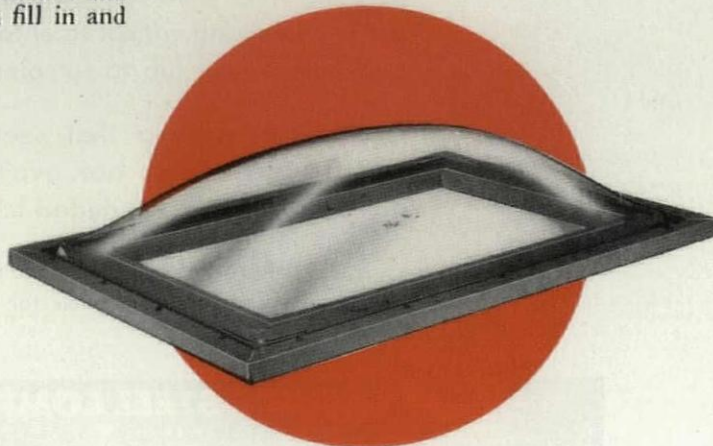
WASCO FLASHING COMPANY

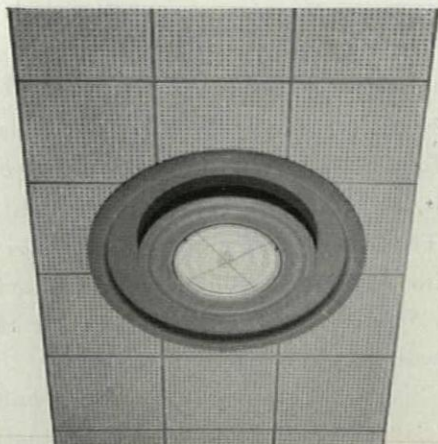
87 FAWCETT ST., CAMBRIDGE 38, MASS.
Please send folder on Skydomes.

I am interested in a Daylight Engineering Study. I enclose a floor plan of our project and lighting requirements.

NAME _____
TITLE _____
ORGANIZATION _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Prefabricated Wascolite Skydomes are installed in minutes . . . are weather-proof, shatter-resistant and maintenance-free . . . come in three basic shapes and with clear colorless or white translucent acrylic domes.





PRODUCT NEWS

COMPACT CEILING OUTLET nests light fixture

Doubling as air diffuser and lighting unit, the *Venturi Flo-Lite* provides a neat means of reducing the number of doohickeys which tend to bespeckle ceilings in fully accoutered buildings. Working as a supply air outlet, the diffuser boasts an efficient air pattern, deflectors which may be regulated after in-

stallation, and quiet operation. The lamp mounted in the center is a reflector type bulb, and is available with a glass roundel or concentric louvers. Either fitting is hinged for easy access to the fixture (the lamps also may be removed from above the unit—an important feature in auditorium and other high ceiling installations). The *Flo-Lite* has a prime coat of baked enamel. Sizes of the neck diameters range from 8" to 17"; corresponding prices run from about \$50 to \$120. The outlet is made in a recessed model (pictured above left) and in a unit for surface-mounting on ceilings or exposed duct-work.

Manufacturer: Barber-Colman Co., Rockford, Ill.



Framework of Robert Ave. School, St. Louis, Mo. • V. Harry Rhodes, Commissioner of School Buildings • Contractor: Juengel Construction Company

• NO ALLOCATION NEEDED . . . JOISTS ARE NOW A CLASS "B" PRODUCT • AVAILABLE FOR PROMPT SHIPMENT FROM OUR ENLARGED MILL FACILITIES

By using steel joists for roofs and floors you can aid in conserving critical steel for construction and help speed your job to completion.

A class "B" product that needs no allocation, Laclede Steel Joists are available for prompt delivery from our expanded mill facilities.

Write for information on the complete line of Laclede quality steels for construction.



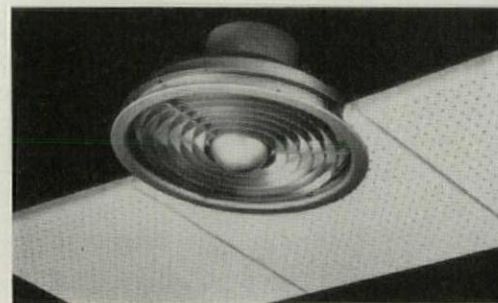
LACLEDE STEEL COMPANY

Producers of Steel for Industry and Construction

St. Louis, Mo.

LOUVERED CEILING FIXTURE designed for glareless spot and flood lighting

Instead of the usual 150 reflector lamp, the *Silver Spot* utilizes 100 w. silvered bowl incandescent lamps for flood and spot lighting. This inexpensive light fixture has a built-in aluminum reflector which is said to provide an even more intense light beam than the larger, and hotter, bulb. It is transformed from flood to spot lighting merely by switching an inside frosted silvered bowl lamp to an unfrosted one. Used for either type of illumination, the fixture directs the light from its reflector through the louver rings to a controlled area; there is no light spill and the light source, above the opaque bottom of the bulb, cannot be seen from ordinary viewing angles. The *Silver Spot* is adaptable to a wide range of commercial applications—show windows, store counters, lobbies, etc. The one-piece steel housing of the model pictured below requires a recess depth of only 5½". Its outside diameter is 10¼". Slotted mounting holes in the housing will permit easy attachment to the plaster ring and sim-



ply leveling. A surface-mounted unit is also available with a drum-shaped enclosure, enameled white. It has an over-all height of 5½" but extends only 3½" below the ceiling. On either model, the lamps may be changed from the floor with a pole-type clamp without handling or removing any fixture parts. The price, \$8.50, includes two lamps.

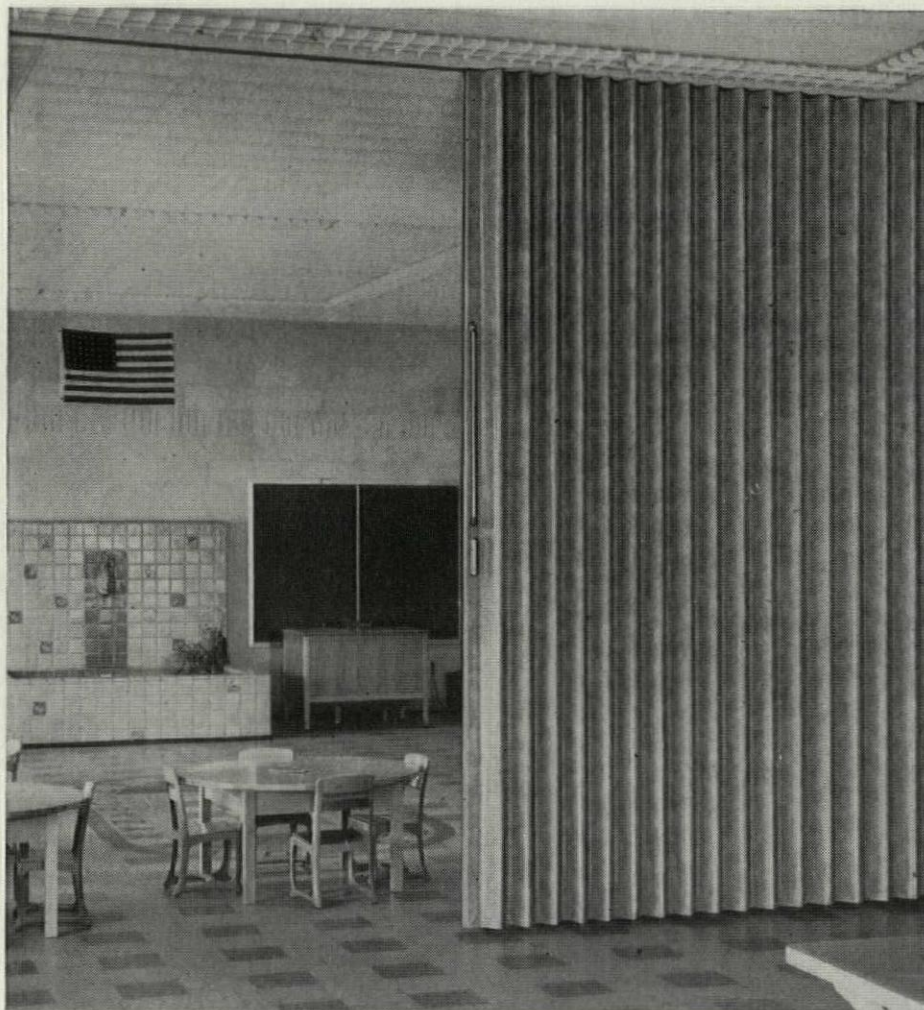
Manufacturer: Silvray Lighting, Inc., 1270 Avenue of the Americas, New York 20, N. Y.

(Continued on page 198)

How many classrooms are enough?

That's a mighty tough question to answer today. Many schools, however, solve this lack-of-space problem by using "Modernfold" doors as "movable walls" to make their present rooms do double duty.

For example, note how simple it is here to make two rooms out of one. You just close the large "Modernfold" door. Then . . . when group activities demand a large single room . . . you just fold the "Modernfold" door back on itself, out of the way.



Your ideas come to life . . . for life with "MODERNFOLD" doors

Whether you need *floor plan flexibility* . . . or want to use the space that swinging doors waste . . . specify "Modernfold" —the original folding door. No other folding door *anywhere* equals "Modernfold" doors for quality of design . . . for quality and strength of materials . . . for *completeness of line*.

Regardless of how your room division or door closure problems may vary . . . you get exactly what you want when you specify "Modernfold" doors —your guarantee against client complaint. For on their performance record alone, "Modernfold" doors look better, operate easier, last longer.

Sold and Serviced Nationally

NEW CASTLE PRODUCTS, NEW CASTLE, INDIANA

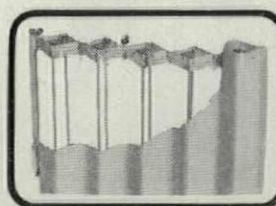
In Canada:

Modernfold Doors, 1315 Greene Avenue, Montreal



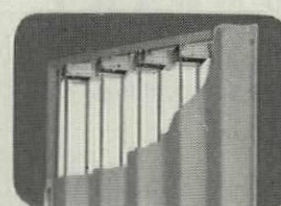
Better Looking

Fabric covering conceals all operating mechanism. No cornice needed. Adjustable trolleys keep doors hanging flush to jamb.



Easier Operating

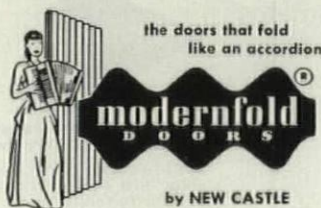
Balanced pantograph hinge construction at both top and bottom; trolleys attached at hinge instructions. No sidewise twist or pull possible.



Longer Lasting

More steel binges both top and bottom; more steel in each hinge; two vertical steel rods welded to each hinge assembly.

YOU CAN'T GET MORE IN A FOLDING DOOR



Copyrighted New Castle Products 1952

New Castle Products
Box No. 803
New Castle, Indiana

Gentlemen:
Please send me full details on "Modernfold" doors.

Name

Address

City County 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.

SAVES WEIGHT

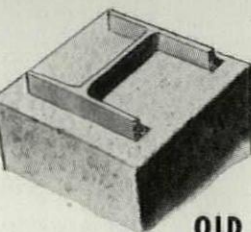
Weight saving as compared to ordinary fireproofing methods is enormous. Form construction is eliminated, lighter steel members can be used, and building time is reduced while rentable space is increased.

MANY USES

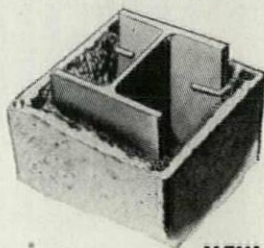
For all other plastering needs, too, Zonolite offers many advantages. Only ½ the weight of sand plaster, it sticks better and with fewer droppings. The finished plaster is so tough a hammer blow only dents it and it doesn't chip even when nails are driven into it. For booklet showing uses, techniques, and fire-tests, mail coupon below.

ZONOLITE COMPANY

Dept. MBH-22
135 S. La Salle St.
Chicago 3, Illinois



OLD
WAY



NEW
WAY



Fireproofing with Zonolite plaster calls for no new methods or skills. It is applied in a manner familiar to all plasterers.

Member of the
Vermiculite Institute

MAIL COUPON FOR DETAILS

ZONOLITE COMPANY—DEPT. MBH-22
135 S. LaSalle St., Chicago 3, Ill.

Gentlemen: Please send me booklet showing uses of Zonolite Vermiculite Plaster Aggregate for fireproofing.

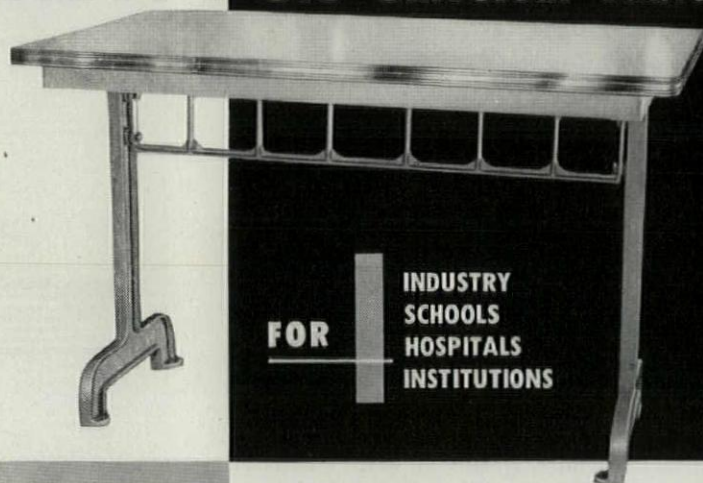
Name.....

Address.....

City and Zone.....State.....

*Zonolite is a registered Trade Mark

NEW! CHICAGO HARDWARE FOUNDRY 313 Universal Table!



FOR
INDUSTRY
SCHOOLS
HOSPITALS
INSTITUTIONS

Lifetime CAST IRON CONSTRUCTION ... Colorful Porcelain Enamel Finish

You'll like the colorful, attractive appearance of this new "CHF" table... and the fact it's built to give a life-time of service! Cast iron channels and center stringer give necessary strength without bulky bases. Easy to clean around with more chair and knee room. Available in sizes to seat 4 to 20 people. Your choice of lifetime porcelain enamel colors and standard tops. Portable — or can be secured to floor for use with permanently attached counter stools.



Write for Complete Information and Prices Today

THE CHICAGO HARDWARE FOUNDRY CO.

"Dependable Since 1897"

9252 COMMONWEALTH AVE., NORTH CHICAGO, ILL.

a new quality tested RIXSON product

RIXSOWOOD thresholds



Now Rixson brings you a threshold old in a warm, natural wood color with a smooth, lustrous finish that does not show dirt and cannot be dulled by grease, alkalines or hard wear.

It's Rixsowood... a phenolic impregnated compressed wood laminate that can be waxed and polished.

Rixsowood's soft color blends beautifully with both masonry and wood floors. Architects will prefer it to metal thresholds in most installations.

Like all Rixson thresholds Rixsowood thresholds are CUSTOM MADE... to assure perfect fit and to effect a neat, trim, attractive appearance.

Write for complete details on RIXSOWOOD thresholds

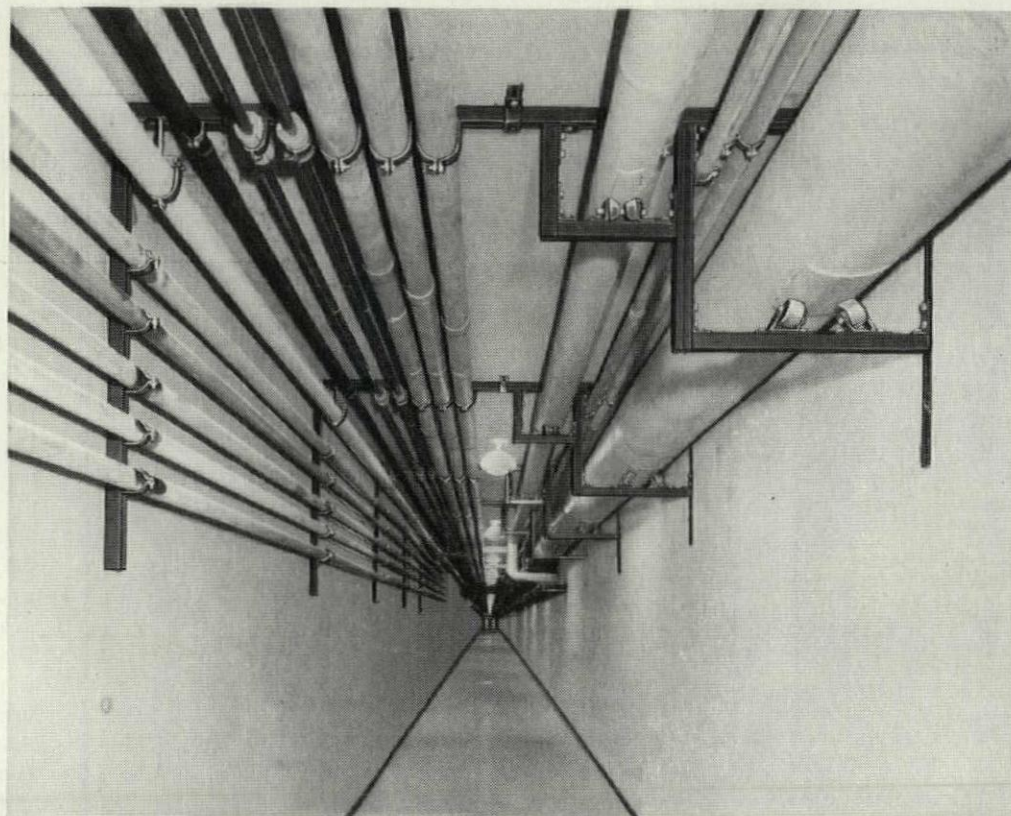
Highest wearing qualities under normal threshold usage
Rixsowood has been given every abuse that a threshold normally receives. It remains dimensionally stable when soaked in water. Withstands frictional wear equivalent to years of heavy traffic.

THE OSCAR C. RIXSON COMPANY

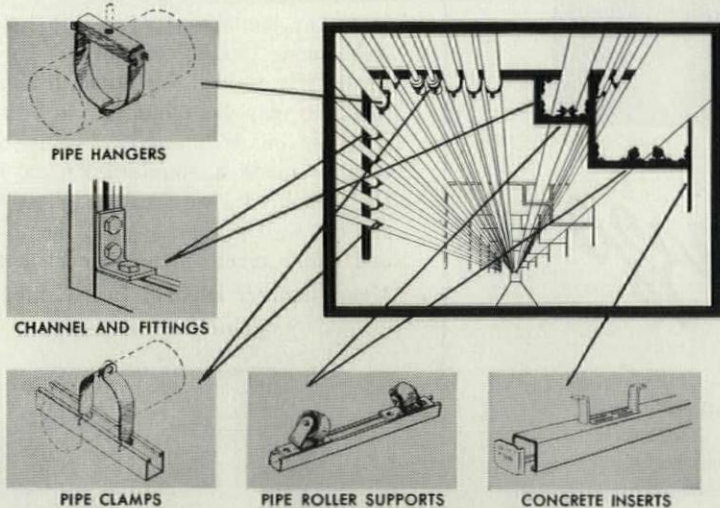
4450 W. Carroll Avenue • Chicago 24, Illinois

UNISTRUT® METAL FRAMING SYSTEM DOES THE ENTIRE JOB* FOR PUBLIC SERVICE COMPANY OF INDIANA, INC.

* Tunnel for all services—
electric, steam, water, air
and oil lines.

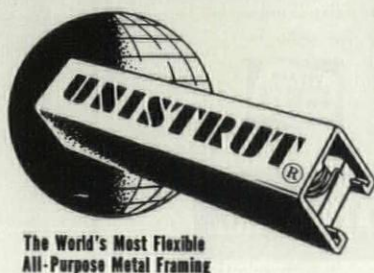


Specifications: Naess & Murphy,
Architects—Engineers.
Contractor: Gust K. Newberg
Construction Company
Electrical Contractor: Hatfield Electric
Process Piping: Hayes Bros., Inc.



**Representatives and Warehouse Stocks in
Principal Cities—Consult Your Telephone Directories**

For Defense Production—Every day
the value of UNISTRUT products is
being proved by their use in Defense
Industries and Armed Services in-
stallations where flexibility, assembly
and erection speed count most.



In this large main tunnel installation at Plainfield,
Indiana, UNISTRUT channel, concrete inserts, pipe
rollers, hangers and clamps support electric, steam,
water, air and oil lines—all the services in
one neat package!

This completely adjustable metal framing system
provides a new and more flexible type of mechanical
support for every kind of piping, conduit and cable.
Assures exact slope or pitch. Permits adjustments,
changes or additions to be made at any time.
No drilling, no welding, no special tools or equipment.
The UNISTRUT method conserves steel, reduces
manpower hours, cuts over-all costs.

**Write for NEW FREE
Construction Catalog No. 700**

UNISTRUT PRODUCTS COMPANY

1013 W. Washington Blvd., Chicago 7, Ill., Dept. F2

Please send the items checked below, without obligation.

- ☐ New Catalog No. 700 ☐ UNISTRUT Sample
☐ Wall Chart

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____





The green-tinted glass at right cuts off the glare, transmits soft light.

PRODUCT NEWS

TINTED GLASS absorbs heat, reduces glare

The greenish *Solex* safety glass which has cropped up in many 1952 automobiles will be available in plate glass form to the construction industry. Said to absorb 80% of the hot infra-red portion of the solar spectrum (as compared with 30% for ordinary glass), the glazing takes a substantial cooling load off air conditioning systems where there are large window areas. The manu-

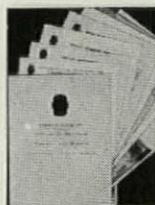
facturer claims that during hot weather, a room glazed with *Solex* stays 10° to 20° cooler than one with regular windows. *Solex* is also easy on the eyes. It transmits enough (73%) daylight for clear visibility, but its green coloring softens the intensity of the light, thereby reducing glare. It is suitable for installations in airport control towers, factories, stores (where it can prevent fading damage to goods in shop windows by cutting off 40 to 60% of the ultra-violet rays) and office buildings. *Solex*, 1/4" thick, costs about the same as regular plate—approximately \$1 per sq. ft. not installed.

Manufacturer: Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.



Educated in the school
of hard knocks:

Terrazzo



• Write for free
AIA Kit, the
complete refer-
ence work about
TERRAZZO.

Class-bound students have little consideration for the floors they tramp. TERRAZZO needs no consideration—from them or from maintenance crews. It repays builders' foresight with long life and low upkeep. You can specify it for floors, walks, baseboards, wainscots, and stairways.

Marble-hard and concrete-durable, TERRAZZO's smooth, jointless surface cleans easily, minimizes repair. That's why it continues to be the all-time favorite for schools, institutions and hospitals. Specify TERRAZZO—and do your client and your building a permanent service.



THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION, INC.

404 Kass Bldg.

711 14th Street, N. Y.

Washington 5, D. C.

HOLLOW METAL SLIDING DOOR frees wall space in cramped quarters

Diebold's new hollow metal sliding door has been designed for small apartments and offices where valuable space is often sacrificed to the door-swing. Selling for \$45 complete with overhead track and sliding mechanism, the prefab unit is said to cost less installed than a similar wood door. Its face has a semi-flush surface indented with two vertical lines where the metal sections meet, which add a simple decorative design to the door. The primary advantages of the metal door are that it will not warp, bind, or sag. Its hollow construction and close fitting frame make it a good sound barrier. Lightweight, it is easy to open and close. The floor guide prevents any contact between the sliding panel and frame. Fabricated of 20 gauge steel, electrically welded for strength and rigidity, the unit may be mounted on 2" x 4" wood studs or on 4" masonry construction. The door is made a standard 2'6" x 6'8" size, 1 3/8" thick. Its overhead track is 60" long, and the wall pocket is 40 1/8" deep. The door and frame receive a prime coat at the plant.

Manufacturer: Diebold Inc., Canton 2, Ohio.

(Continued on page 202)





TRANSPORTATION CLOTH,
new fabric of unsurpassed strength
from the world-wide Knoll collection.
Designed to correlate with the total
architectural scheme... engineered
to meet every specification for
durability and economy.

KNOLL ASSOCIATES, INC. • 575 Madison Avenue, New York 22, N. Y.

KNOLL

Knoll Furniture
Knoll Fabrics
Knoll Planning Unit



"Marylander" Apartments, Baltimore, Maryland. Hal A. Miller, Architect; installed by Southern Plate Glass Co.

ALUMILINE

EXTRUDED ALUMILITED ALUMINUM PRODUCTS

Specified by Leading Architects for:

HOSPITALS • SCHOOLS • RELIGIOUS BUILDINGS • BANKS
STORE FRONTS • OFFICE BUILDINGS • INDUSTRIAL PLANTS
HOUSING PROJECTS • SHOPPING CENTERS

- Extruded Aluminum Store Front Construction
- Extruded Aluminum Factory Assembled Entrance Frames
- Narrow and Wide Stile Extruded Aluminum Doors
- Custom Built Extruded Aluminum Windows

Send for new 1952 Catalogs: "Alumiline"
Store Front Construction and "Extrud-A-Line"
Entrances

THE ALUMILINE CORPORATION
1540 COVERT ST. BROOKLYN 27, N. Y.



toward better understanding

Now, as never before, there is a need for a true picture abroad of life in the U. S. You can help create better understanding by sending copies of **ARCHITECTURAL FORUM** (when you are through with them) to a friend or relative abroad, or to a U. S. Information Library.

ARCHITECTURAL FORUM's editorial coverage—reporting trends and developments in design, construction, financing, new products, significant legislation, etc.—presents an authoritative and vital picture of the American way.

It costs only 1 1/2 cents to mail 2 oz. of printed matter anywhere in the world. Just by rolling a copy of this magazine in brown paper—leaving the ends open and marking it "Printed Matter"—you can contribute to the free exchange of ideas which will help assure Peace.

If you donate your magazine to the U. S. Information Library, please send it to one of the addresses below:—

c/o American Embassy at:
Ankara, Turkey
Athens, Greece
Buenos Aires, Argentina
Cairo, Egypt
New Delhi, India
The Hague, Netherlands
London, England
Manila, Philippines
Mexico City, Mexico
Montevideo, Uruguay
Paris, France
Rangoon, Burma
Rome, Italy
Stockholm, Sweden
Warsaw, Poland

c/o American Legation at:
Bern, Switzerland
Budapest, Hungary

c/o American Consulate
General at:
Batavia, Java-Indonesia
Sydney, Australia

ATTENTION

MANUFACTURERS' AGENTS

THE MAGAZINE OF BUILDING is compiling a new list of Dealers, Distributors and Manufacturers' Agents who are interested in adding new lines (building products, materials, specialties, household appliances, etc.). This list, when completed, will be available on request to interested manufacturers.

If you would like to be listed please write and be sure to tell us what territory you cover and what types of products you would like to handle.

Write: George P. Shutt
Director of Advertising
THE MAGAZINE OF BUILDING
9 Rockefeller Plaza
New York 20, New York

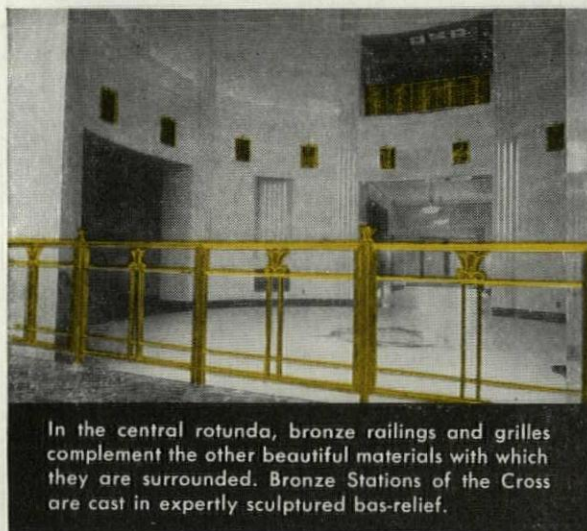
BUILT

to withstand the centuries

The Holy Sepulchre Mausoleum, Oakland County, Michigan, is a superb and mighty combination of marble and bronze, with a beauty in every way appropriate to the solemn purpose of the building.

Noteworthy and complimentary is the large amount of ANACONDA Architectural Bronze used on the exterior and interior. Mr. Lawrence Michaels, President of The Michaels Art Bronze Company, Inc., Covington, Kentucky, reported that a total of 13,870 pounds was supplied.

Countrywide, bronze is time and again preferred for its warmth of character . . . its lasting ability to add grace and dignity to all types of structures. For information about ANACONDA Architectural Bronze,



In the central rotunda, bronze railings and grilles complement the other beautiful materials with which they are surrounded. Bronze Stations of the Cross are cast in expertly sculptured bas-relief.

write The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

NOTE: The use of copper and copper alloys is now subject to the regulations of The National Production Authority.

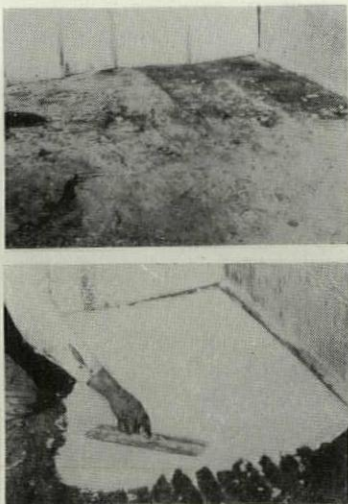
5201



A NOBLE, IMPRESSIVE ENTRANCE WAY. The Bronze fittings and ornamental components of the entrance doors and frames are designed in harmony with the restraint which characterizes the structure throughout.

ARCHITECTS: Harley, Ellington & Day, Inc., Detroit, Mich.
GENERAL CONTRACTORS: O. W. Burke Co., Detroit, Mich.

ANACONDA[®] architectural bronze



PRODUCT NEWS

WOOD FLOORING laid with a trowel

An unusual flooring material composed of hardwood fibers bonded together with a plastic gel, *Roc-Wood* has many features for industrial construction. It may be used over any solid surface (without an underlayment) above or below grade. It is troweled on, and hardens ready for unlimited use in 24 hrs. In its natural form, the material looks like a light-grained cork; it can be tinted during the

mixing process on the job with any dry cement pigment. Extremely hard and durable yet resilient underfoot, *Roc-Wood* may be laid in a heavy cargo trucking area or around vibrating machinery. The wood fibers are chemically treated to protect the flooring against termites and rot. *Roc-Wood* is also acid and alkali resistant. Even when damp or covered with water, it is said to be skidproof. The mix sells for around \$13 per unit (a 5 gal. can of binder and a bag of hardwood fibers) which will cover 50 sq. ft. $\frac{1}{4}$ " thick.

Manufacturer: Roc-Wood Flooring, 2268 S. Parkway, Chicago 16, Ill.



Northwestern Mutual Fire Association Building, Los Angeles, designed by Richard J. Neutra.

Three Types of Mississippi Glass Selected For Design of Contemporary Northwestern Mutual Office Building

The smart design of this fine, contemporary structure takes fullest advantage of the properties of gleaming glass, the modern material, to achieve an overall feeling of warmth and unity that is as utilitarian as it is beautiful.

Translucent Mississippi Factrolite in the facade effects a striking, subdued contrast in the exterior and floods upper floors with softened daylight.

A unique separation with a practical partition of



A translucent partition of Structural Corrugated glass by Mississippi highlights building interior.

Structural Corrugated Glass helps keep the interior aglow with "borrowed light." These modern partitions are easier to erect and maintain than conventional materials and avoid that "closed in" feeling... give an atmosphere of spaciousness and friendliness.

More natural illumination for the interior is provided by skylights glazed with Mississippi Smooth Rough Wire Glass selected for its properties of strength and diffusion.

Leading architects and designers everywhere select glass by Mississippi. Available in a wide variety of patterns wherever quality glass is sold. Listed in Sweet's Catalogue.



MISSISSIPPI *Glass* **COMPANY**

88 ANGELICA ST. SAINT LOUIS 7, MO.

NEW YORK • CHICAGO • FULLERTON, CALIF.

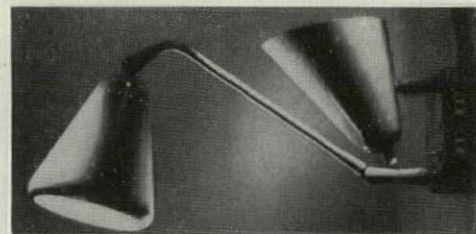
Specify Mississippi Glass and make daylight a part of your plan. Send today for literature and free samples.

WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

HOSPITAL LIGHT in contemporary design cuts costly conduit needs

Kurt Versen recently turned his attention from home and store lighting to hospital fixtures—a field somewhat snubbed by imaginative designers—and came up with a clean-lined utilitarian lamp for hospital bedrooms. Combining in a single fixture an adjustable reading light, night lamp, and outlets for electrical appliances, each *Hospitality Light* is reputed to save about \$120 per bed on rigid conduit (the kind of wiring ordinarily required in fireproof hospital construction).

The fixture is installed over the right or left side of a bed with the master outlet (a heavy duty 4-prong receptacle) 5' from the



floor so that a reclining patient may regulate the swivel-necked lamp easily. The night lamp provides indirect illumination when turned toward the ceiling; it can also be tilted down as a spotlight during medical examinations. A radio, heating pad, or other appliance may be plugged into the readily accessible outlets on the fixture's base.

If any of the wiring should need repair, the entire fixture may be removed in less than a minute for work in a shop, and a spare unit set in its place, with a minimum of disturbance to the patient. A terminal block system inside the fixture permits several circuit arrangements and the appliances may be controlled from a switch at the door. When the fixture is hooked up for two-circuit operation, continued light is assured if the fuse should blow on the appliance line.

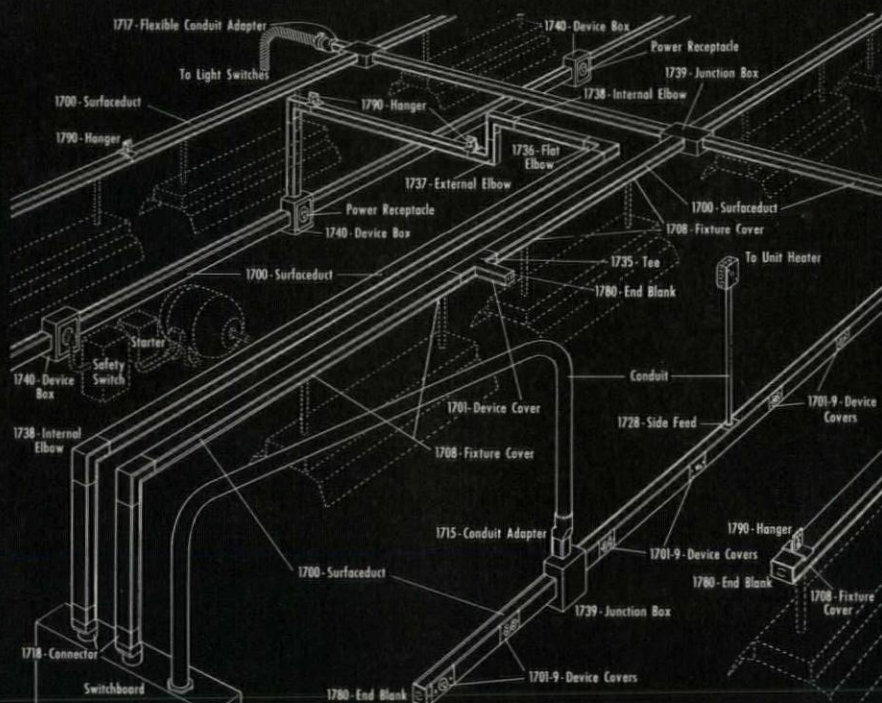
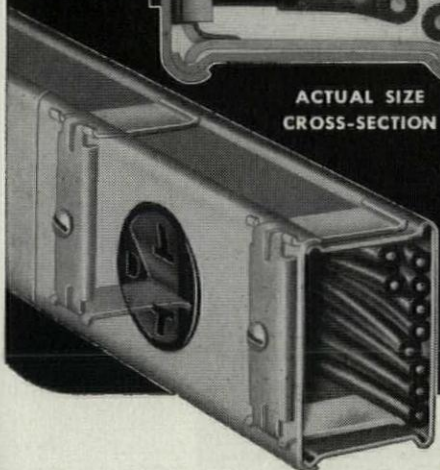
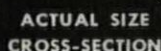
In quantities of 100 or more the Underwriters Laboratories approved lamp sells for under \$35. Standard finish is a gray baked enamel; other colors will be applied to specifications at additional cost.

Manufacturer: Kurt Versen Co., Englewood, N. J.

(Technical Publications, page 206)



FOR INDUSTRIAL AND COMMERCIAL WIRING MODERNIZATION



EVERYTHING IN WIRING POINTS TO



National Electric
PRODUCTS CORPORATION
1334 CHAMBER OF COMMERCE BUILDING, PITTSBURGH 19, PA.

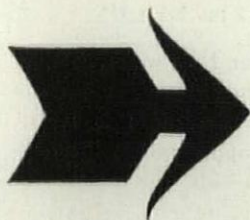
Daily . . . or once in a lifetime . . .

Von Duprin

fire and panic exit devices
assure "the safe way out!"



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



Whether a door is a constant thoroughfare or an emergency exit, it will open instantly . . . *every* time and *any* time . . . with a Von Duprin exit device. Von Duprin devices are America's finest . . . quality-constructed to last a lifetime and operate unfailingly, no matter how often or seldom used. The mechanism is precision-made and foolproof: any kind of pressure anywhere along the crossbar instantly releases the latch and opens the door.

Von Duprin exit devices are easy to install, require virtually no maintenance, and are approved by Underwriters' Laboratories, Inc. for accident hazard.

It may be a matter of life or death . . . so equip your doors with genuine Von Duprin exit devices . . . and be absolutely sure of "the *safe* way out!"



Call in Your Von Duprin "Exit Engineer."

Von Duprin "Exit Engineers"—factory representatives and contract hardware distributors—are located for your convenience in key cities across the nation. Each has the engineering and hardware experience to aid you in your exit planning. Each has all the facts on Von Duprin devices and accessories to save you time on specifications. Get acquainted with the "Exit Engineer" in *your* area. Consult him on all of your exit problems. For his name, write Vonnegut Hardware Co., Von Duprin Division, Indianapolis 9, Indiana.

Check these features of the Von Duprin B² device pictured at the left.

- Accepted as the finest available vertical rod type exit device, incorporating every known refinement.
- Completely drop-forged device of architectural bronze with interior parts of bearing metal to assure lifetime quality, never-failing performance and harmonious design.
- Double acting crossbar is X-bar reinforced its full length. Pressure either up or down will release latches and open door.
- Dogging features at each end of crossbar have direct drive into lever arms. Phosphor bronze compression springs used throughout.
- Top and bottom pullman type latch bolts with independent action, 3/4" throw bolt pivoted on monel metal axles, ball compensating vertical rod connections, and steel bushings on cam pins.

TECHNICAL PUBLICATIONS

WATER HEATERS. GF Products for Industry, Catalogue 60. General Fittings Co., Dept. 44, 118 Georgia Ave., Providence 5, R. I. 12 pp. 8½ x 11".

This catalogue has been prepared for consulting engineers, architects and plumbing contractors who select equipment for wash-rooms, cafeterias, dispensaries and industrial processing. It gives detailed information on instantaneous water heaters and other industrial fluid heating units, illustrates typical

installations, and contains useful sizing data and steam consumption tables.

WATERPROOFING. Monoseal Liquid Water Repellant. The Monroe Co., Inc., 10703 Quebec Ave., Cleveland 6, Ohio. 2 pp. 8½ x 11".

How Monoseal, a silicone base waterproofing, penetrates into masonry surfaces and coats the pore walls is described in this recent bulletin. Methods for applying the invisible coating and some test results are illustrated.

EXCAVATOR. 25 Ton Life Capacity ¾ Yard Dipper. Koehring Co., Milwaukee 16, Wis. 8 pp. 8½ x 11".

Describing the latest advancements made on the Koehring Model 304 excavator and its attachments, the two-color booklet contains many drawings of machine parts and photos depicting various applications of the heavy duty excavator.

PROTECTIVE COATINGS. Laykold Fibrecoat. American Bitumuls & Asphalt Co., 200 Bush St., San Francisco 4, Calif. 4 pp. 8½ x 11".

This three-color brochure gives detailed application data on a weatherproof mica-flaked asphalt coating. Included are specifications, approximate costs and information on equipment for applying the product on bituminous roofs, masonry and metal surfaces.

FLASHING. Copper Sheet Metal Work. The American Brass Co., Waterbury 20, Conn. 20 pp. 8½ x 11".

Enclosed in a portfolio for quick reference, the drawings show details of new or improved methods of sheet metal work frequently performed in residential and commercial construction. Designs, suggested by Anaconda's building consultants, are said to require a minimum use of sheet copper for maximum protection against the weather. Additional plates of details will be added from time to time.

HEATING. Cleaver-Brooks Hev-E Burner. Cleaver-Brooks Co., Hev-E Oil Burner Div., 326 E. Keefe Ave., Milwaukee 12, Wis. 4 pp. 8½ x 11".

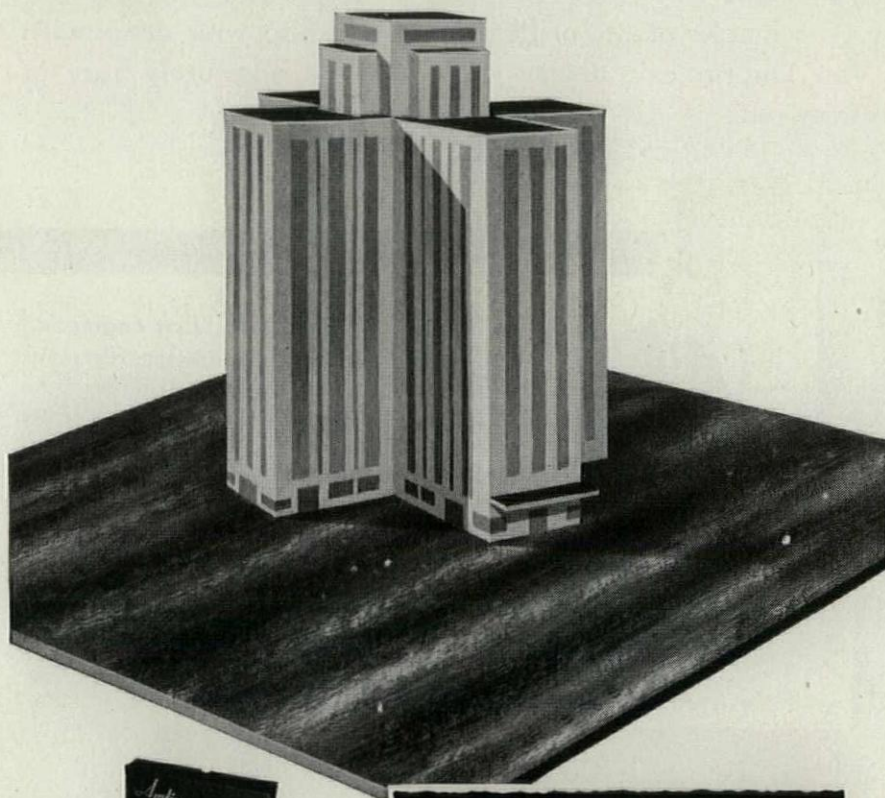
Photo-illustrated, the folder outlines important design features of Hev-E gas and combination oil and gas burners for commercial and industrial use, pointing out the units' efficiency, flexibility, cleanliness, and ease of operation. The burners, the brochure explains, furnish all the air needed for combustion, so that the gas and oil may be burned completely without bringing in secondary air. The combination burner may be switched from one fuel to another, as availability and costs of gas and oil change.

CORRUGATED ROOFING AND SIDING. Asbestone Asbestos-Cement Building Products. Asbestone Corp., 5300 Tchoupitoulas St., New Orleans 15, La. 24 pp. 8½ x 11".

This brochure covers general uses of corrugated asbestos-cement products in industrial and commercial construction. It includes photos of practical, decorative adaptations of the material such as interior wall paneling, partitions, and outdoor fencing. The firm's engineering service and other building material lines are also described.

(Continued on page 212)

Put America's most beautiful flooring
in that new office building...



SAMPLES ON REQUEST

A request on your business letterhead will bring illustrated literature and a free box of 4" x 4" samples of AMTICO Flooring in standard ⅛" gauge and all 26 stock colors. Write Dept. MB-8.

Amtico
RUBBER FLOORING

AMERICAN BILTRITE

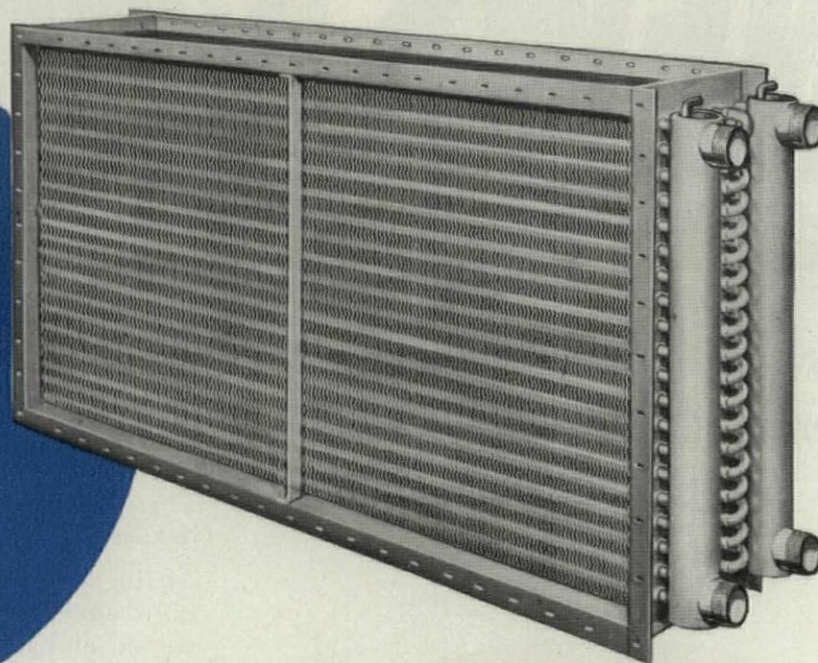
RUBBER COMPANY
TRENTON 2, NEW JERSEY

Also makers of Famous Biltrite NURON Soles and Rubber Heels

AFFILIATES . . . BILTRITE RUBBER COMPANY, CHELSEA 50, MASS. • AMERICAN TILE & RUBBER CO., TRENTON 2, N. J. • PANTHER-PANCO RUBBER CO., CHELSEA, MASS. • AMERICAN TILE & RUBBER CO. (CANADA) LTD., SHERBROOKE, QUEBEC • PANTHER RUBBER CO. LTD., SHERBROOKE, QUEBEC, CANADA

NEW STANDARD OF QUALITY!

McQuay
**WATER
COOLING
COILS**

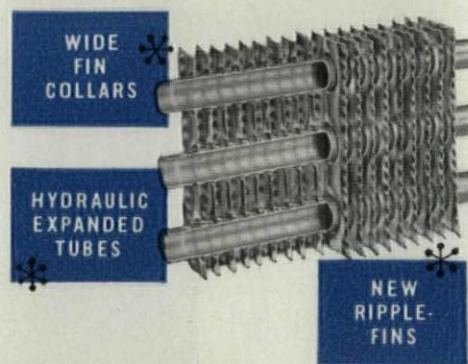


...featuring **NEW RIPPLE-FIN CONSTRUCTION**

Now, the new, improved Ripple-Fin makes McQuay Water Cooling Coils even more rugged and efficient. Consider these advantages of the new Ripple-Fin Coil construction:

- Easy to drain of condensed moisture. Water hang-up has been sharply reduced on coils requiring vertical (up) air flow.
- Produces a rippled air flow pattern . . . closer and longer contact between the air stream and the coil surface, preventing air by-pass and producing faster heat transfer.
- Permits increased face velocities without danger of moisture carry-over from fin surface to air stream.
- Offers greater heat transfer surface.
- Gives higher flexible strength with minimum air friction and cleaner operation.
- Copper tube headers provide inherent flexibility.
- Hydraulic expansion of all tubes into fins having wide smooth collars assures permanent mechanical bond.

Available in a wide variety of styles and sizes. Standard and special coils for cold water, brine, direct expansion, refrigerant condensing, steam, hot water, and other applications. Write McQuay, Inc., 1609 Broadway St. N.E., Minneapolis 13, Minn. Representatives in principal cities.



**EXCLUSIVELY YOURS
IN *McQuay* COILS!**

McQuay **INC.**



HEATING • AIR CONDITIONING • REFRIGERATION

NEWS

Lower Industrial

Plus the greatest Advance

**New Simplified Design
Series offers fewer parts...
greater flexibility
... LOWER COST!**

*Mass production
of simplified parts
provides the
big savings!*



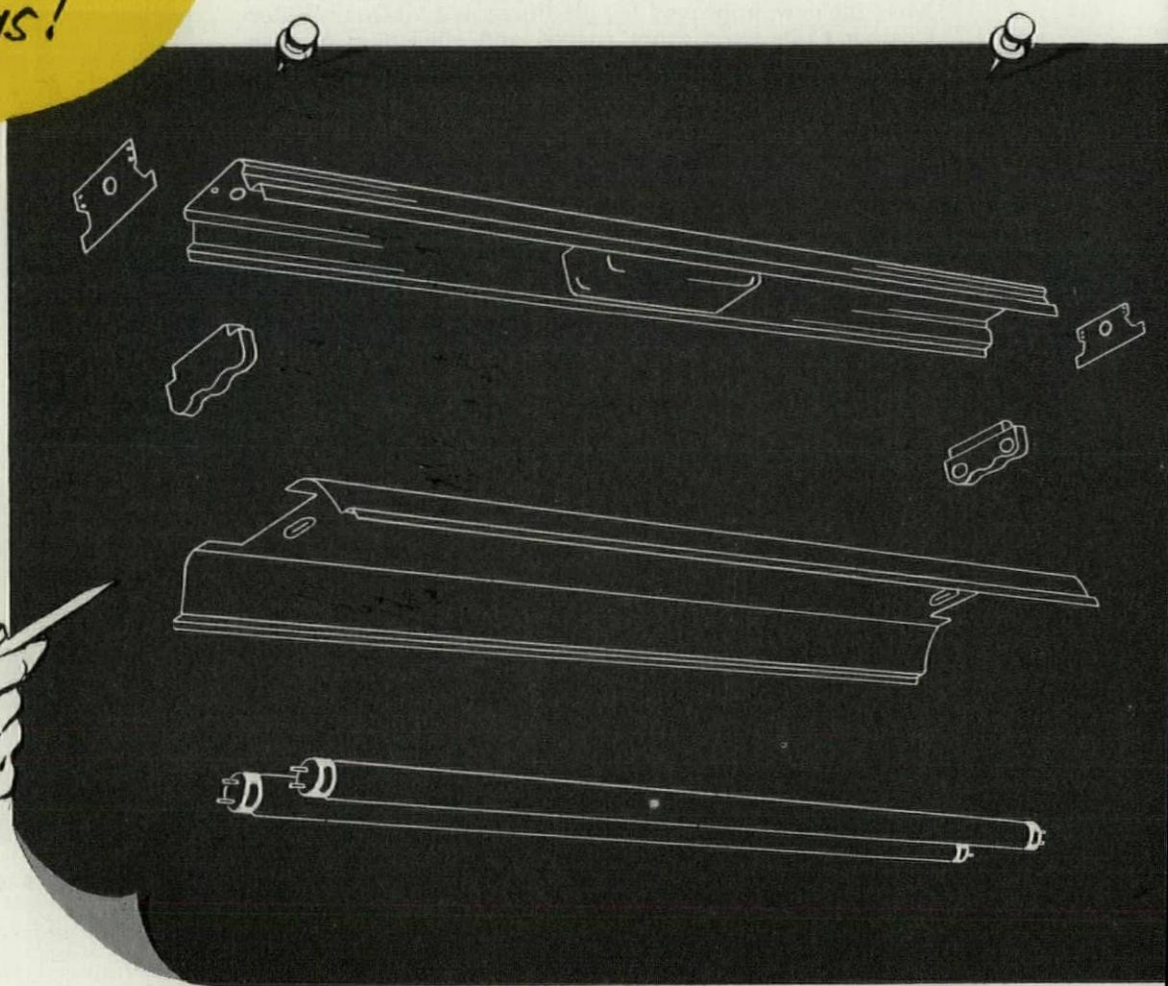
Now, a new revolutionary mass-production design for Sylvania Industrial Fluorescent Fixtures brings advantages of *greater flexibility* and *lower costs* to architects, lighting engineers, contractors and plant managers.

These new fixtures are built around one efficient key design which results in a greater number and variety of fixture types.

At the same time, our costs of expensive dies and assembly operations have been greatly reduced. The result of these economies is passed along to you.

Now, with Sylvania Industrial Fixtures, you can offer your clients the exact type and size fixture they need. You can assure highest lighting levels . . . and lowest maintenance costs. And, you can quote prices well within modest budgets.

Twenty-nine basic types of new open and closed-end Sylvania industrial fixtures are available . . . with variations for every type



Fixture Prices

*Announced
by Sylvania*

in Modern Fluorescent Fixture Engineering

Reflectors may be had that are modified with apertures or slots for upward illumination ... finished in vitreous porcelain enamel or baked "miracoat" enamel. Fixtures may be equipped with longitudinal shields ... with glass or plastic dust-tight covers, or with louvers.

Sizes for every need

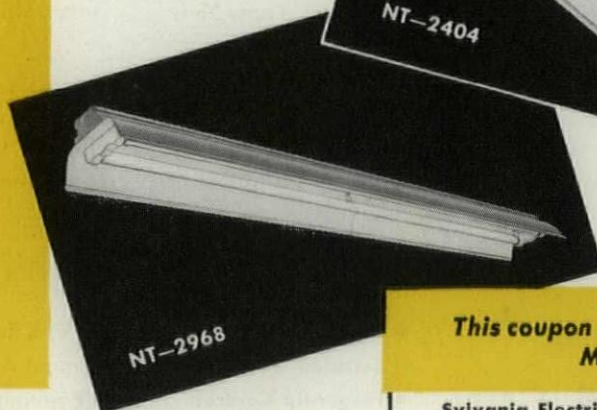
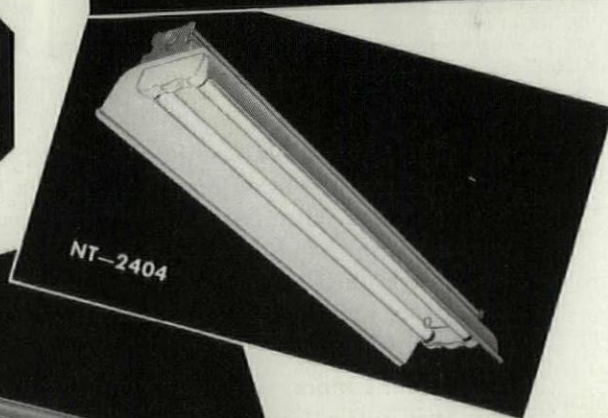
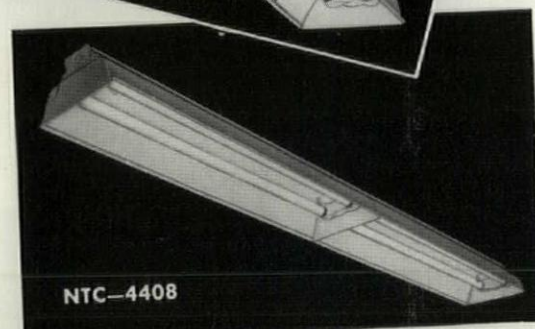
New Sylvania Industrial Fixtures are available in 2, 4, 5½, 6, 8 and 11 foot lengths. Fluorescent Tubes range from two 20-watt to four 85- or 100-watt per fixture. All 40-watt units are available in standard or instant start type.

Now, this new line of high quality, low-cost fixtures, made and backed by Sylvania, gives you a tailor-made fixture for every conceivable type of lighting need.

Mail the coupon for descriptive literature now!

Check over these 5 Advantages

1. The utmost in lighting flexibility and efficiency. Every job a custom built job, at substantially lower costs.
2. Quick easy installation.
3. Trouble-free operation. Fixtures come equipped with Sylvania long-life tubes.
4. Low maintenance costs. Fixtures easy to re-lamp, a minimum of cleaning problems.
5. A 1 YEAR GUARANTEE, including lamps, ballasts, starters, and all component parts, is given with each of these new Sylvania Industrial Fixtures.



**This coupon brings you full details.
Mail it NOW!**

Sylvania Electric Products Inc.
Dept. L4202, 1740 Broadway, N. Y. 19, N. Y.

Please send me full information about the new line of Basic Design Industrial Fluorescent Fixtures.

Name

Company

Street

City Zone State

SYLVANIA



FLUORESCENT TUBES, FIXTURES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; RADIO TUBES; TELEVISION TUBE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; PHOTOLAMPS; TELEVISION SETS

For the
Dun
&
Bradstreet
Building



Dun & Bradstreet Building, New York City

Architect: Reinhard, Hofmeister & Walquist

Contractor: George Fuller Company

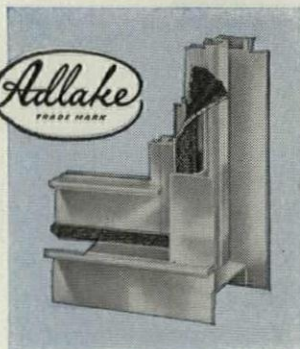
Adlake aluminum windows

The woven-pile weather stripping and exclusive patented serrated guides that are a vital part of ADLAKE Aluminum Windows mean complete weather protection for Dun & Bradstreet's new New York offices. Wind, rain and cold will not penetrate their positive weather seal.

What's more, these ADLAKE Aluminum Windows will ultimately pay for themselves by eliminating

all maintenance costs except routine washing. They'll never warp, rot, rattle, stick or swell, and they will keep their weather seal, beauty and finger-tip operation for the life of the building!

Let us show you how ADLAKE Aluminum Windows will guarantee continuing satisfaction to your clients, while they save them money! ADLAKE Representatives are in all principal cities.



every Adlake window gives you these "plus" Features:

- Woven-pile Weather Stripping and Exclusive Patented Serrated Guides
- Minimum Air Infiltration
- Finger-tip Control
- No Painting or Maintenance
- No Warp, Rot, Rattle, Stick or Swell



THE **Adams & Westlake** COMPANY

Established 1857

ELKHART, INDIANA

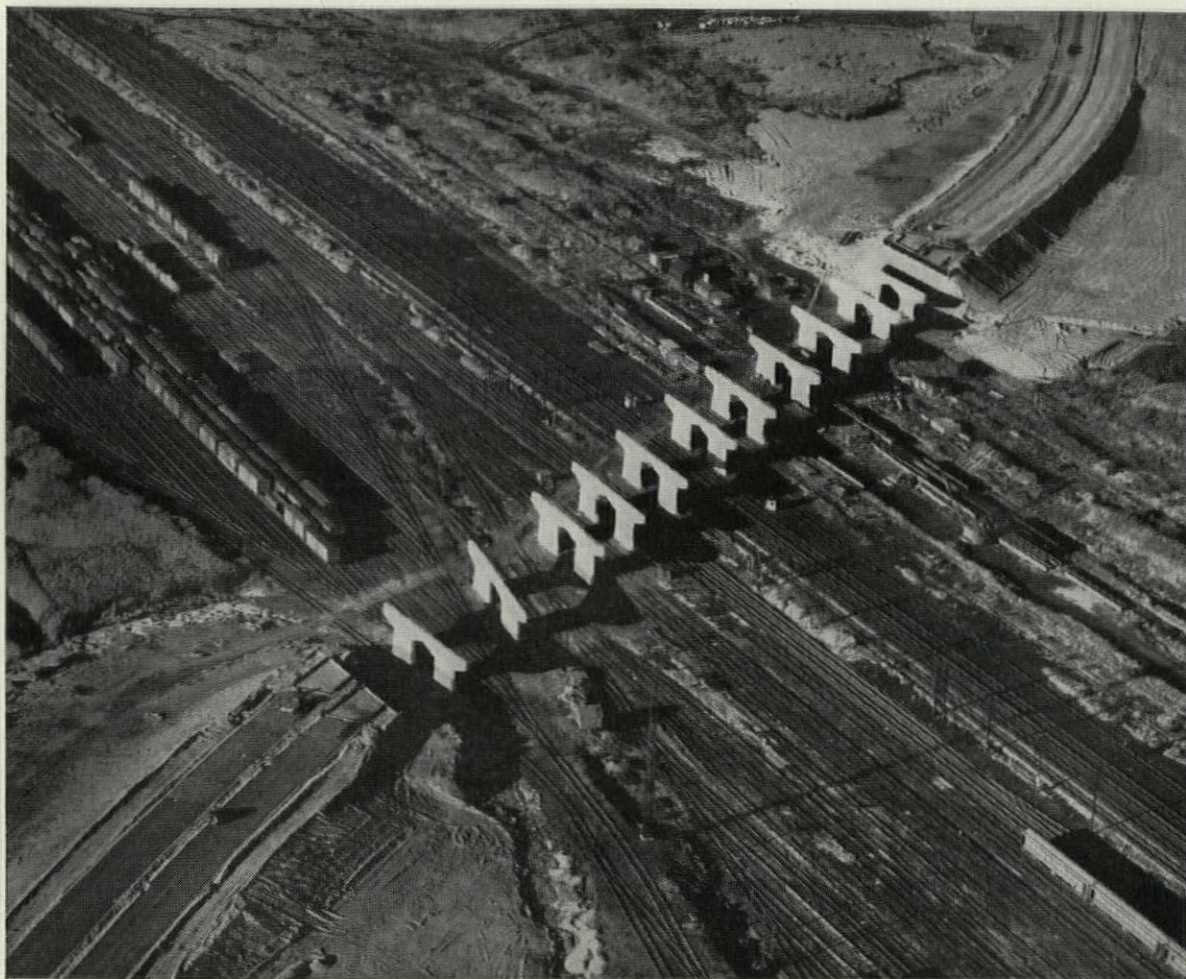
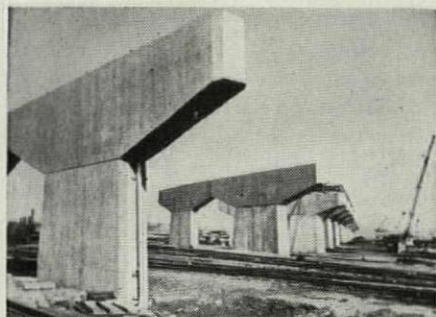
New York • Chicago

GENERAL CONTRACTOR:
Stock Construction Corp.
New York, N. Y.

STEEL CONTRACTOR:
American Bridge Co.
Ambridge, Pa.

ENGINEERS:
*Howard, Needles,
Tammen & Bergendoff*
New York, N. Y.

ARCHITECTS:
*Alfred Fellheimer
—Steward Wagner*
New York, N. Y.



Raymond

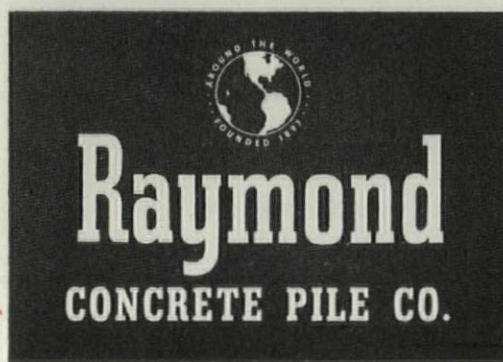
SALUTES

THE NEW JERSEY TURNPIKE

.....

RAYMOND IS PROUD to have played a vital part in the creation of this fabulous new cross-state highway. The railroad overpass near Ridgefield, N. J., is just one of several projects on the Turnpike that rest on Raymond Piles. 778 Raymond Pipe Step-Taper Piles driven for 11 piers and 2 abutments, with an average length of 120' and a total footage of 93,283' were used on this overpass—just another example of the part Raymond is playing in building tomorrow's world today.

SCOPE OF RAYMOND'S ACTIVITIES
*Soil Investigations, Pile and Caisson
Foundations, Underpinning, Harbor
and River Improvements and
Cement-Mortar Lining of Pipelines
by the Centriline and Tate Processes.*



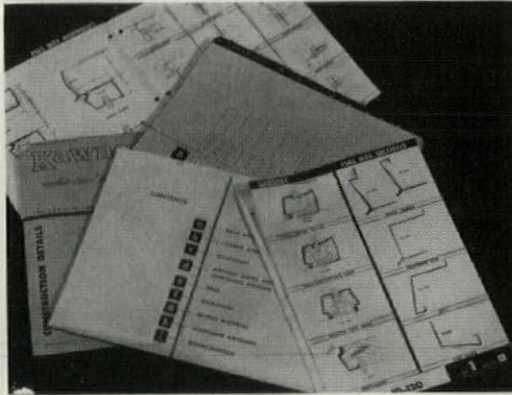
BRANCH OFFICES in the
principal cities of the
United States and Central
and South America.

140 CEDAR STREET • NEW YORK 6, N. Y.

TECHNICAL PUBLICATIONS

METAL BUILDING PRODUCTS. Kawneer Construction Details. The Kawneer Co., Advertising Dept., Niles, Mich. 60 pp. 9 x 11".

This comprehensive portfolio contains full size and quarter size dimensioned construction details of the manufacturer's architectural metal products. Prepared specifically for the building industry, the details are printed on tracing paper so that they may be transferred right side up or reversed easily when used on the drawing board. The folder is



broken down into nine sections covering fabricated items such as sash and jambs, bulkheads, trim, entrances, and facing material. The individual pages are punched for insertion in a standard three-ring binder.

CONSTRUCTION. Recommendations for Earthquake-Resistant Design of Buildings, Structures, and Tank Towers. Pacific Fire Rating Bureau, 465 California St., San Francisco, Calif. 82 pp. 7 x 10".

Conscientious designers on our unstable West Coast not only have to consider aesthetics and economy in new buildings, but as a top-per must also plan structures which are earthquake resistant. This pamphlet is a supplement and explanation of the *Earthquake Tariff of the Pacific Fire Rating Bureau*. A reprint of the 1935 publication, the current edition has been updated with photographs of the recent Pacific Northwest shock and an extended list of notable Pacific Coast earthquakes.

CONCRETE. ACI Standards—1951. American Concrete Institute, 18263 W. McNichols Rd., Detroit 19, Mich. 222 pp. 6 x 9". \$3.

In this small volume are compiled the results of intensive research conducted by committees of the American Concrete Institute. A collection of all current ACI standards—except the *Detailing Manual* which is available separately—the new book should become an invaluable reference material for the architect, engineer, and concrete technician. It contains the recently revised *Building Code, Specifications for Concrete Pavements and Bases*, and a new standard on pneumatically placed mortar. Other sections give authoritative information on applying Portland cement paint, winter concreting methods, requirements for precast floor units, silos, concrete mixes, specifications for cast stone, metal supports for reinforcement, and concrete placement.

AIR CONDITIONING. Cooling Coils, Bulletin DF-365. The Train Co., La Crosse, Wis. 72 pp. 8 1/2 x 11".

Developments in cooling coils for air conditioning and industrial processing are summarized in this revised bulletin. Engineered for use with direct expansion refrigerants and chilled water, the coils described include a new model, the type F, which has been designed for applications where the quantity of water is restricted. Another model, the type OF, may be completely drained where danger of freezing exists. Both coils can be used for either right- or left-hand connection, thus simplifying installation. About two-thirds of the bulletin is devoted to performance data tables, selection instruction, and other details which should help the engineer in specifying equipment for air conditioning applications.

Marlo Cools A Giant



Latest Giant Store,
Washington, D. C.
Installation by Griffith
Consumers Co.,
Washington, D. C.

Because customer-comfort is an important ingredient in the shopping service offered by the Giant chain of super markets—this is the *tenth* Giant Store equipped with dependable, efficient, economical Marlo Air Conditioning equipment.

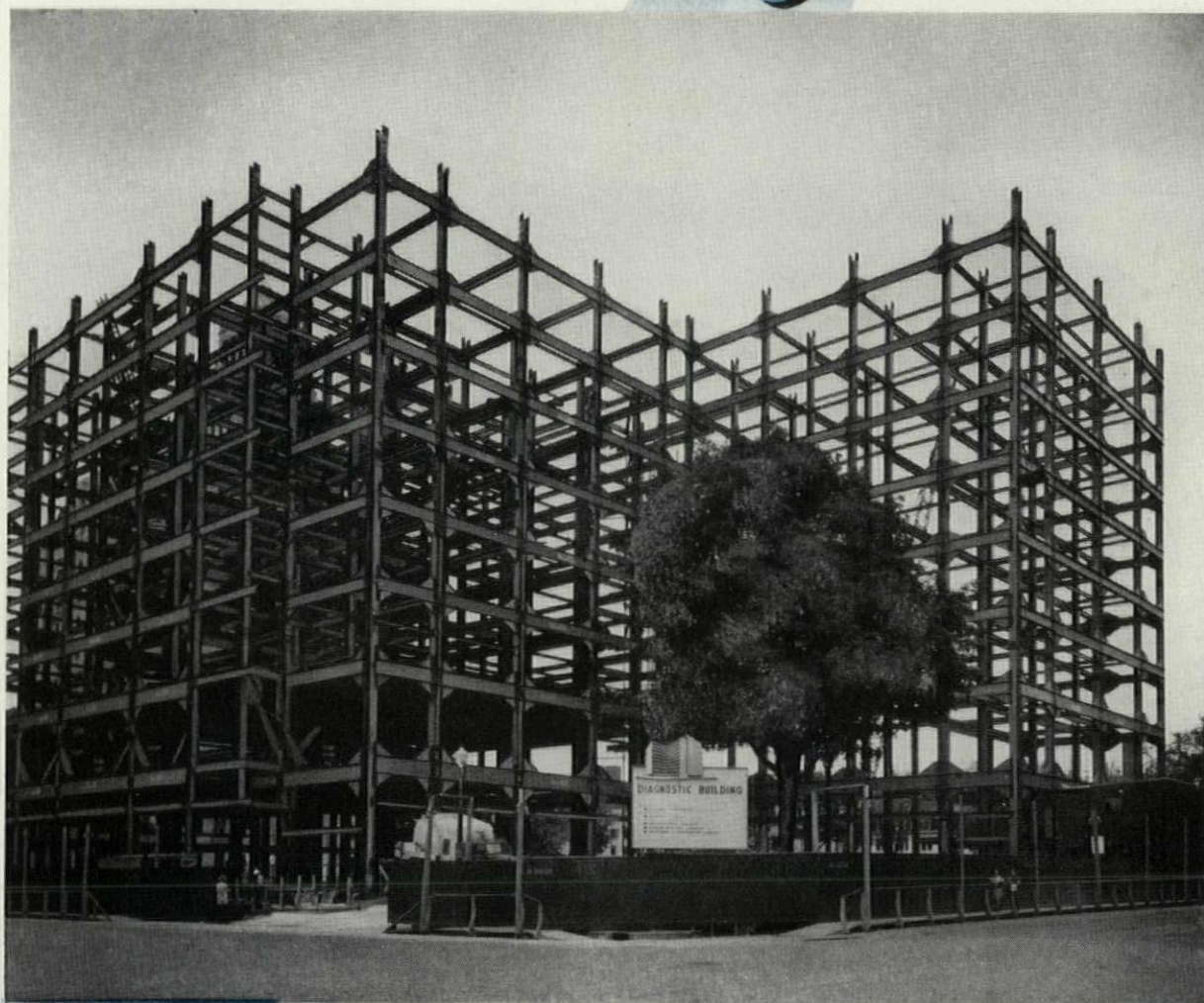
- **Air Conditioning Units.** (Three.) Complete facilities (cooling, heating, ventilating) for year-round shopping comfort.
- **Evaporative Condenser.** (40-ton installation.) Designed to assure maximum water savings.

WRITE for information on the complete Marlo line



COIL CO. • 6135 Manchester Rd. • St. Louis 10, Mo.
.....
COOLING TOWERS • EVAPORATIVE CONDENSERS • INDUSTRIAL COOLERS
AIR CONDITIONING UNITS • MULTI-ZONE UNITS • BLAST HEATING & COOLING COILS

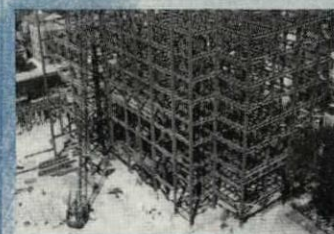
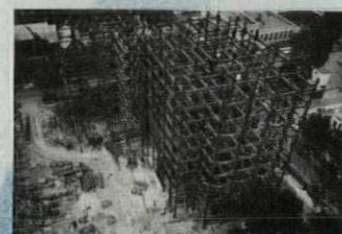
new horizons for Medical Diagnoses



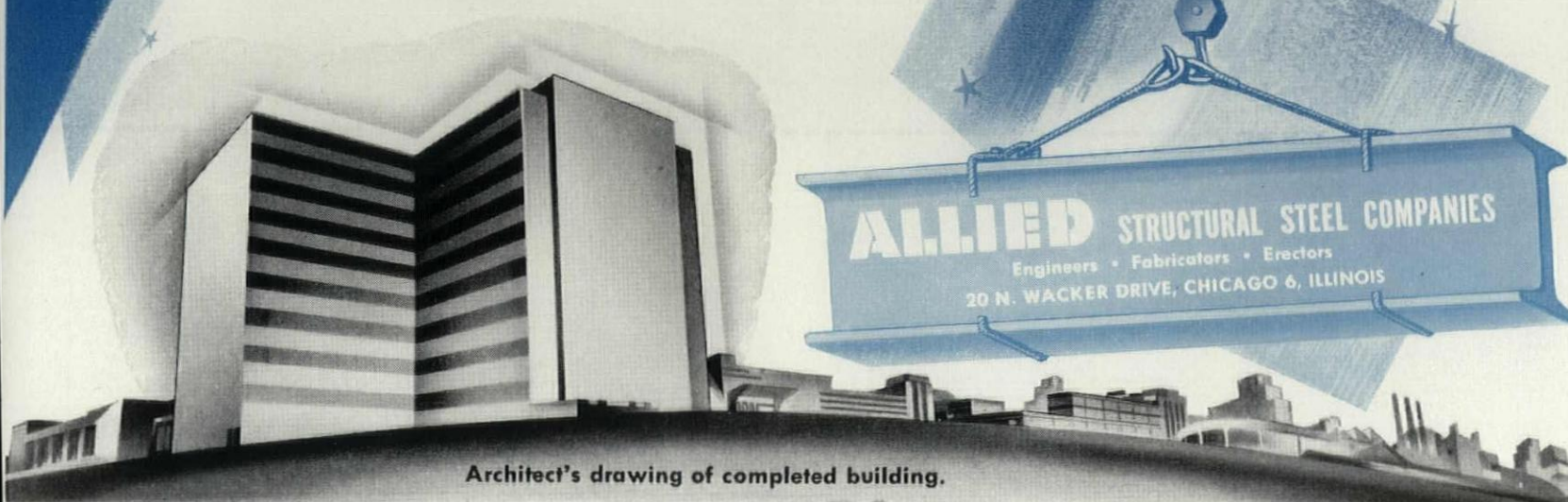
The pictures illustrate progressive stages during erection of the structural steel. General Contractor, Stocke & Olson, Rochester, Minnesota.

At Rochester, Minnesota, a new building is under construction to house the ever expanding facilities for medical diagnoses.

It is a source of satisfaction to us that we were chosen to provide the sinews of construction . . . the fabrication and erection of 8500 tons of structural steel . . . for this building.



- Clinton Bridge Corporation
- Gage Structural Steel Corporation
- Midland Structural Steel Corporation



Architect's drawing of completed building.



Here's helpful data *that simplifies electrical planning* **for Architects and Engineers**

The completely new edition of the famous Westinghouse Data Book is ready now! Prepared especially for Architects and Engineers, it contains valuable planning help on everything electrical. A truly complete electrical reference source.

It aids in selecting and specifying . . . quickly and conveniently. It is accurate, up to date. The data will enable you to apply electrical equipment to the very best advantage. Here all in one place is the latest factual information on every electrical product made by Westinghouse for the Construction Industry. It is your authoritative guide on electrical application. The presentation is simple and slanted to your needs and methods.

Distribution is being limited to those directly concerned with electrical planning. If you need the material and have not already received a copy, please contact your Westinghouse representative.

J-94893

YOU CAN BE **SURE**...IF IT'S
Westinghouse

**EQUIPMENT FOR THE
CONSTRUCTION INDUSTRY**



The wall is available to

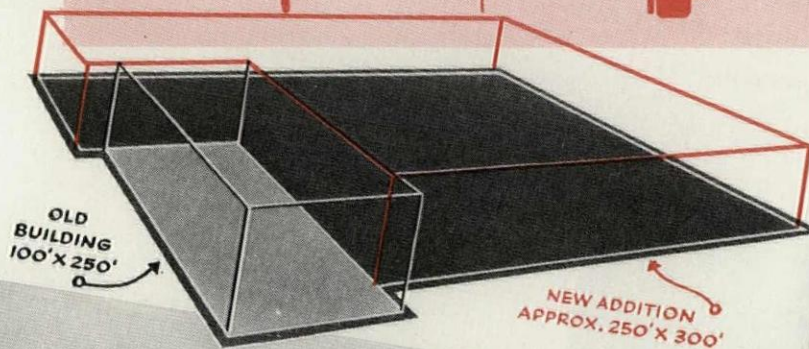


In Cleveland

Below, you see how a plant built with Stainless Steel wall panels was enlarged to several times its original size. The photograph shows the partially completed addition with panels removed from the original structure being reused. The photograph above shows work in progress. Owner: The E. F. Hauserman Company.

In Pittsburgh

A 48" spandrel of Type 430 Stainless Steel backed with approximately $4\frac{1}{4}$ " of lightweight concrete is being guided into place on one of the three buildings in the new Gateway Center project, Pittsburgh, Pa. Panel weight is one ton. Owner: Equitable Life Assurance Society of the United States. Builder: Starratt Bros. & Eken, New York. Panels by United Steel Fabricators, Wooster, Ohio.



material of tomorrow you today—*U·S·S 17 (TYPE 430)* *Stainless Steel*

Architects must consider U·S·S 17 (Type 430) Stainless Steel when searching for the most practical, economical and available exterior panel wall material.

This grade of stainless steel has proved to be suitable for insulated and non-insulated panels on many types of buildings, including office buildings, plant office buildings, warehouses, and power plants. U·S·S 17 (AISI Type 430) is available today; it is not affected by the nickel shortage that limits the current use of some other grades of Stainless Steels.

An outstanding example of the use of insulated panels of U·S·S 17 Stainless Steel are three multi-story office buildings now under construction in Pittsburgh's new Gateway Center. Here panel installation was accomplished at the almost unbelievable rate of 17 floors in 15 working days. And Stainless Steel's permanence and ease of maintenance will be reflected throughout the life of these buildings.

The versatility of Stainless panels was demonstrated effectively on a plant of the E.

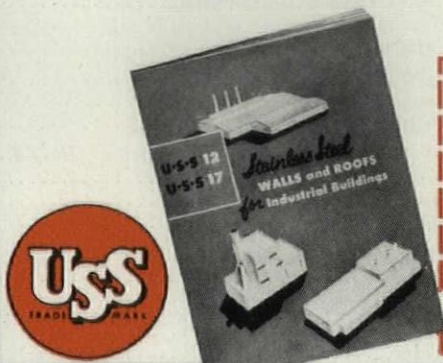
F. Hauserman Company in Cleveland, Ohio. Here a building constructed with Stainless Steel walls was enlarged by removing panels, adding a wing larger than the original structure and then using both the old panels and additional new ones to enclose the new wing.

Our new booklet contains full details on Stainless Steel panels and their use. You'll find it valuable in planning your current work as well as future projects. Use the coupon to obtain your copy and indicate if you would like additional information direct from panel manufacturers. Remember that United States Steel only produces the Stainless Steel; it does not fabricate panels.

No CMP tickets needed

Effective January 28, 1952, the NPA has removed all straight-chromium Stainless Steels from CMP controls. This includes U.S.S. 17 (Type 430). Purchasers no longer need CMP tickets; they simply order from their steel supplier.

AMERICAN STEEL & WIRE . . . COLUMBIA-GENEVA STEEL . . . NATIONAL TUBE . . . TENNESSEE COAL & IRON
UNITED STATES STEEL SUPPLY, WAREHOUSE DISTRIBUTORS . . . Divisions of **UNITED STATES STEEL COMPANY, PITTSBURGH**
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



United States Steel Company
Room 4358, 525 William Penn Place, Pittsburgh 30, Pa.

- ☐ Please send me your booklet "U·S·S 12, U·S·S 17 Stainless Steel Walls and Roofs for Industrial Buildings."
☐ Please arrange to have fabricators of Stainless Steel wall panels send me literature on their particular type of construction.

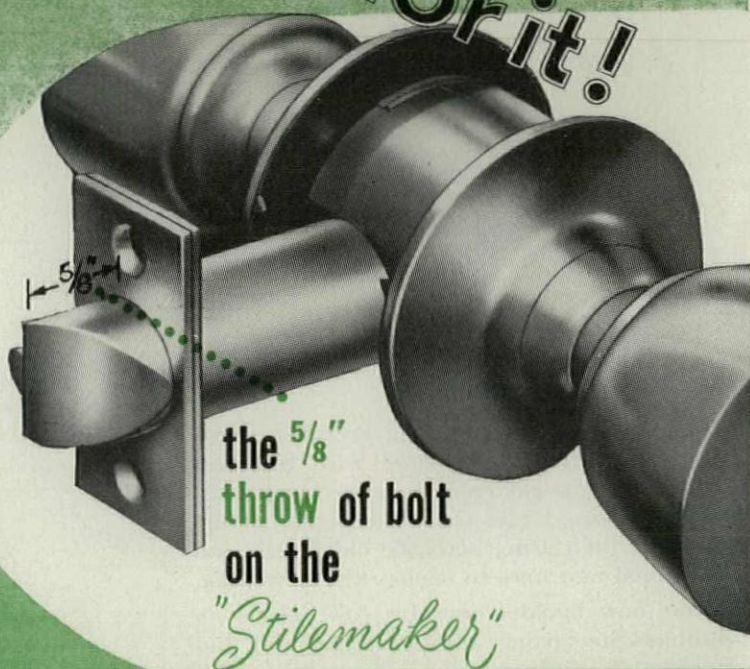
Name Title

Address

City State

UNITED STATES STEEL

architects
asked for it!



The extra-long throw of "Stilemaker" locks solves a problem that many architects have had to face . . . it's specifically designed to handle extreme door shrinkage.

In addition to the $\frac{5}{8}$ " throw, there are many other important features offered by the "Stilemaker" lock . . . all, tangible reasons for the immediate, country-wide acceptance of this new Russwin product.

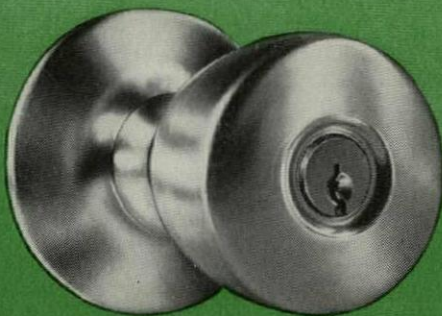
Give your clients their benefits wherever heavy-duty, quality-made cylindrical locks are to be specified.

Send for complete details. Russell & Erwin Division,
The American Hardware Corporation,
New Britain, Connecticut.

Engineered to
Architects' Specifications

Available in
all popular functions

Knob Styles . . . in
wrought or cast
brass or bronze



RUSSWIN[®]
"Stilemaker"

BY THE MAKERS OF THE ORIGINAL KEY-IN-THE-KNOB LOCK

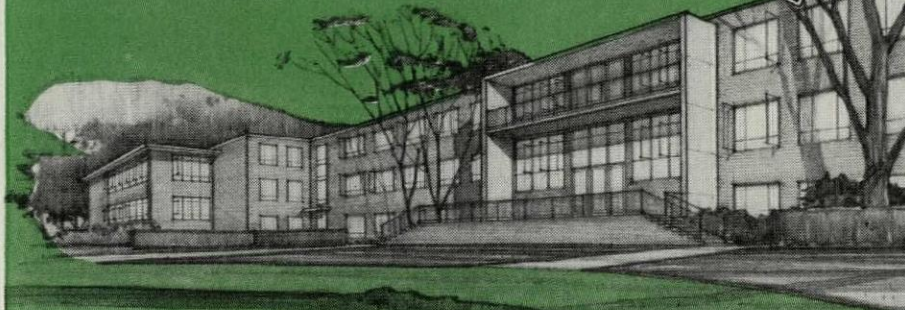
ADVERTISER

Adams & Westlake Company, The.....	210
Allied Chemical & Dye Corporation (<i>The Barrett Division</i>)..	6
Allied Structural Steel Companies	213
Alumiline Corporation, The	200
Aluminum Window Manufacturers Association	34, 35
American Bilrite Rubber Company (<i>Amtico Rubber Flooring</i>)	206
American Brass Company, The	201
American Bridge Company (<i>U. S. Steel</i>).....	42
American Hardware Corp., The (<i>Russell & Erwin Division</i>)	218, 219
American Radiator & Standard Sanitary Corporation	155
American Structural Products Company (<i>Subsidiary of Owens- Illinois Glass Company</i>)	183
Armco Drainage & Metal Products, Inc.	67
Armstrong Cork Company	11, 169
Atlas Plywood Corp.	177
Automatic Sprinkler Corp. of America	180
Barber-Colman Company	48
Barrett Division, The (<i>Allied Chemical & Dye Corporation</i>)	6
Borg-Warner Corporation (<i>Ingersoll KoolShade Sunscreen Division</i>)	50
Brandt & Company, Inc., Eugene J., The	51
Buffalo Forge Company	162
Buffalo Products, Inc.	82
THE MAGAZINE OF BUILDING.....	146, 200
Byers, A. M., Co.....	74
California Redwood Association	4
Carrier Corporation	167
Ceco Steel Products Corporation	64, 65
Cedar Rapids Block Company (<i>Dur-O-Wal Division</i>)	178
Celotex Corporation, The	27, 58
Certified Ballast Manufacturers (<i>Equipment</i>)	9
Chase Brass & Copper Co.....	185
Chicago Hardware Foundry Co., The.....	196
Columbia University Press	176
Columbus Coated Fabrics Corp.....	192
Concrete Reinforcing Steel Institute.....	153
Couch, S. H., Company, Inc.....	156
Croft Steel Products, Inc.....	192
Crossett Lumber Company.....	70
Curtis Refrigerating Machine Division (<i>Curtis Manufacturing Company</i>)	47
Cyclotherm Corporation	78
Day-Brite Lighting, Inc.....	14, 15
Douglas Fir Plywood Association.....	12, 13
Dunham, C. A., Company.....	10
Dur-O-Wal Division (<i>Cedar Rapids Block Co.</i>).....	178
Dwyer Products Corporation.....	147
Eljer Co.....	Cover III
Facing Tile Institute.....	5
Flintkote Company, The.....	46
Formica Company, The.....	36
Frigidaire Division (<i>General Motors Corporation</i>).....	157
Gallaher Company, The.....	192
General Electric Company.....	37, 84
General Fittings Co.....	188
General Motors Corporation (<i>Frigidaire Division</i>).....	157
Georgia Marble Co., The.....	80, 82
Globe-Wernicke Co.....	34
Goodyear Tire & Rubber Co.....	2
Granco Steel Products Co. (<i>Subsidiary of Granite City Steel Co.</i>)	6
Great Lakes Carbon Corporation.....	24
Grover Company, The.....	17
Guth Company, Edwin F., The.....	7
Haertel, W. J. & Co.....	15
Hauserman, E. F., Company, The.....	Cover I
Haws Drinking Faucet Co.....	18
Ingersoll KoolShade Sunscreen Division (<i>Borg-Warner Cor- poration</i>)	5
International Nickel, Inc., The.....	18
International Steel Company.....	14
Johns-Manville	18
Josam Mfg. Co.....	4
Kalistron, Inc. (<i>U. S. Plywood Corp.</i>).....	3
Kawneer Co., The.....	76, 7
Kentile, Inc.....	5
Kewanee Boiler Corporation.....	16
Kewaunee Manufacturing Company.....	13
Knoll Associates, Inc.....	1
Kwikset Locks, Inc.....	1
Laclede Steel Company.....	1
Leader Electric Manufacturing Corporation.....	2
Libbey-Owens-Ford Glass Company.....	

INDEX

Litecontrol Corporation.....	28
Litecraft Manufacturing Corporation.....	61
Lockwood Hardware Manufacturing Co.....	32
Louisville Cement Company, Inc.....	79
McQuay, Inc.....	207
Macomber Incorporated.....	164
Marlo Coil Co.....	212
Mastic Tile Corporation of America.....	83
Matot, D. A., Inc.....	178
Miami Window Corp.....	68
Miller Company, The.....	151
Miller, Herman, Furniture Company.....	82
Minneapolis-Honeywell Regulator Company.....	30, 31
Mississippi Glass Company.....	202
Modine Manufacturing Company.....	7
Monsanto Chemical Company.....	59
National Electric Products Corporation.....	203
National Gypsum Company.....	22
National Terrazzo and Mosaic Association, Inc., The.....	198
Neff & Fry Co., The.....	188
Nesbitt, John J., Inc.....	75
New Castle Products.....	195
Otis Elevator Company.....	152
Overhead Door Corporation.....	Cover IV
Overly Manufacturing Company.....	57
Owens-Illinois Glass Co. (American Structural Products Company, Subsidiary).....	183
Peck & Harvey.....	188
Peelle Company, The (Richmond Fireproof Door Company, The).....	158
Pittsburgh Corning Corporation.....	54, 55
Pittsburgh Plate Glass Company.....	43
Porete Mfg. Co.....	176
Portland Cement Association.....	163
Powers Regulator Co., The.....	69
Pratt & Lambert, Inc.....	161
Pyle-National Company, The (Multi-Vent Division).....	179
Raymond Concrete Pile Company.....	211
Resolite Corporation.....	168
Reynolds Metals Company.....	16
Ric-Wil Company, The.....	62
Richmond Fireproof Door Company, The (Peelle Company, The).....	158
Rixson, Oscar C., Company, The.....	196
Robertson, H. H., Company.....	24
Roddis Plywood Corp.....	172
Rohm & Haas Company.....	29
Rowe Manufacturing Company.....	145
Ruberoid Company, The.....	72
Russell & Erwin Div. (The American Hardware Corp.).....	218, 219
Schieber Sales Company.....	178
Schlage Lock Company.....	25
Scott Paper Company.....	19
Seaportel Metals, Inc.....	190
Sedgwick Machine Works, Inc.....	74
Servel, Inc.....	150
Sloan Valve Company.....	154
Standard Dry Wall Products, Inc.....	166
Stanley Works, The.....	23
Structural Clay Products Institute.....	71
Summerbell Roof Structures.....	78
Surface Combustion Corporation.....	170
Sylvania Electric Products, Inc.....	208, 209
Taco Heaters, Inc.....	60
Texas Quarries, Inc.....	56
Trane Company, The.....	184
Tuscon Steel Company.....	18
Unistrut Products Company.....	197
U. S. Plywood Corp. (Kalistron, Inc.).....	33
United States Steel Company.....	216, 217
U. S. Steel (American Bridge Company).....	42
Valde Rock Asphalt Company.....	66
Viking Corporation.....	171
Vonnegut Hardware Company, Von Duprin Division.....	204, 205
Wakefield Brass, F. W., Company, The.....	176
Walworth Company.....	173
Wasco Flashing Company.....	193
Waylite Co.....	175
Westinghouse Electric Corporation.....	17, 73, 81, 191, 214, 215
Wheeler & Towne Manufacturing Company, The.....	20, 21
Worship Corporation.....	160
Worship-Shipley, Inc.....	148
Woolite Company.....	196
Worship, J. A., Mfg. Co.....	189

the new "look"
in Hartford

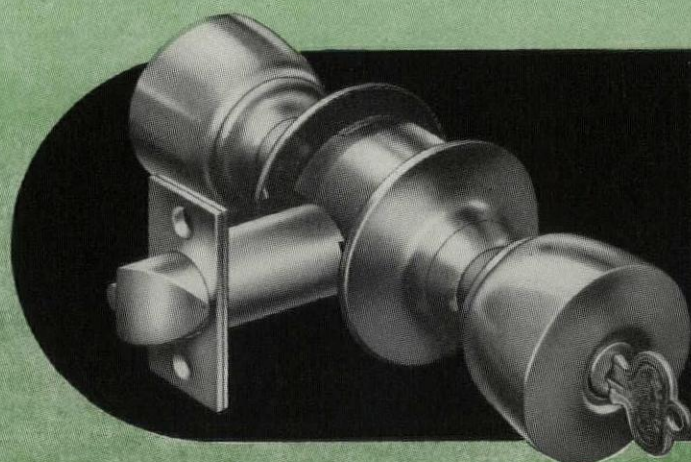


HARRIET INGERSOLL JONES HOME
2 Holcomb Street — Hartford, Conn.
City of Hartford, Connecticut

CARLETON F. SHARPE, City Manager
H. IRVING SKILTON, City Engineer
DAVID H. KEPPEL, Director of Welfare

SHERWOOD F. JETER, JR., Architect
25 Lewis Street, Hartford, Conn.

gets the new lock
in builders' hardware

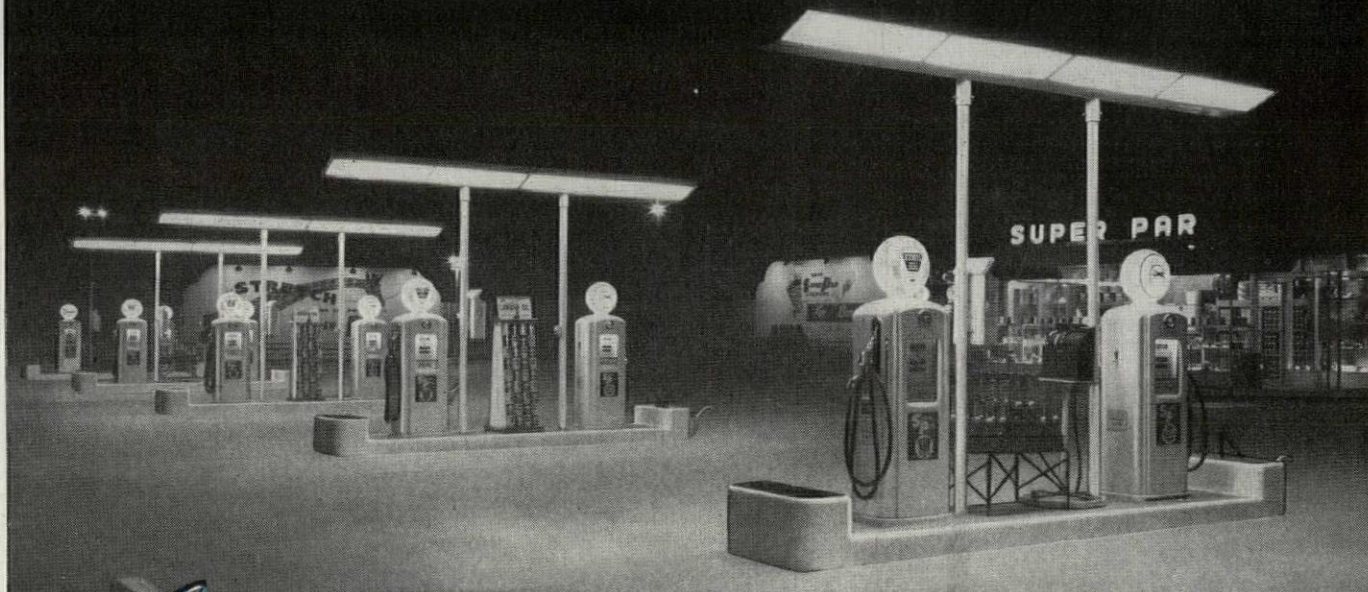


Russell & Erwin Division
The American Hardware Corporation
New Britain, Connecticut

RUSSWIN
"Stilemaker"

HEAVY-DUTY CYLINDRICAL LOCK

The First Overhead Fluorescent Lighting Unit
Expressly Designed for...
ISLAND LIGHTING



the Leader "Station Master"

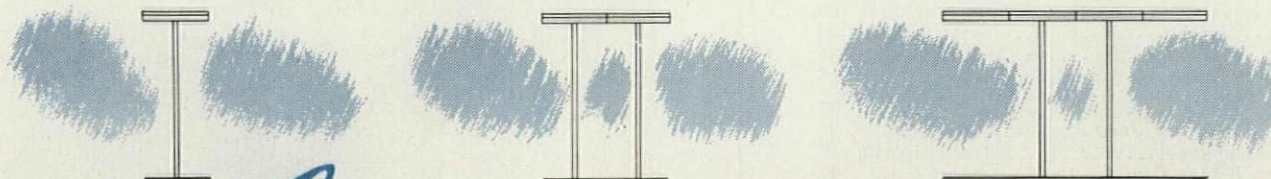
New, but tested and proved! The Station Master makes sales z-o-o-om to fantastic new highs!

Specifically designed to deliver high intensity of light at the selling zone, without creating a barrier of glare. Provides truly inviting lighting for the motorist, and reduces service-time per car.

The Station Master is Leader's answer to the need for modern glare-free lighting and efficient island illumination.

No station is too small—or too large—to be deprived of Station Master sales-stimulating illumination.

AVAILABLE IN SIZES OF FOUR — EIGHT — OR SIXTEEN FEET



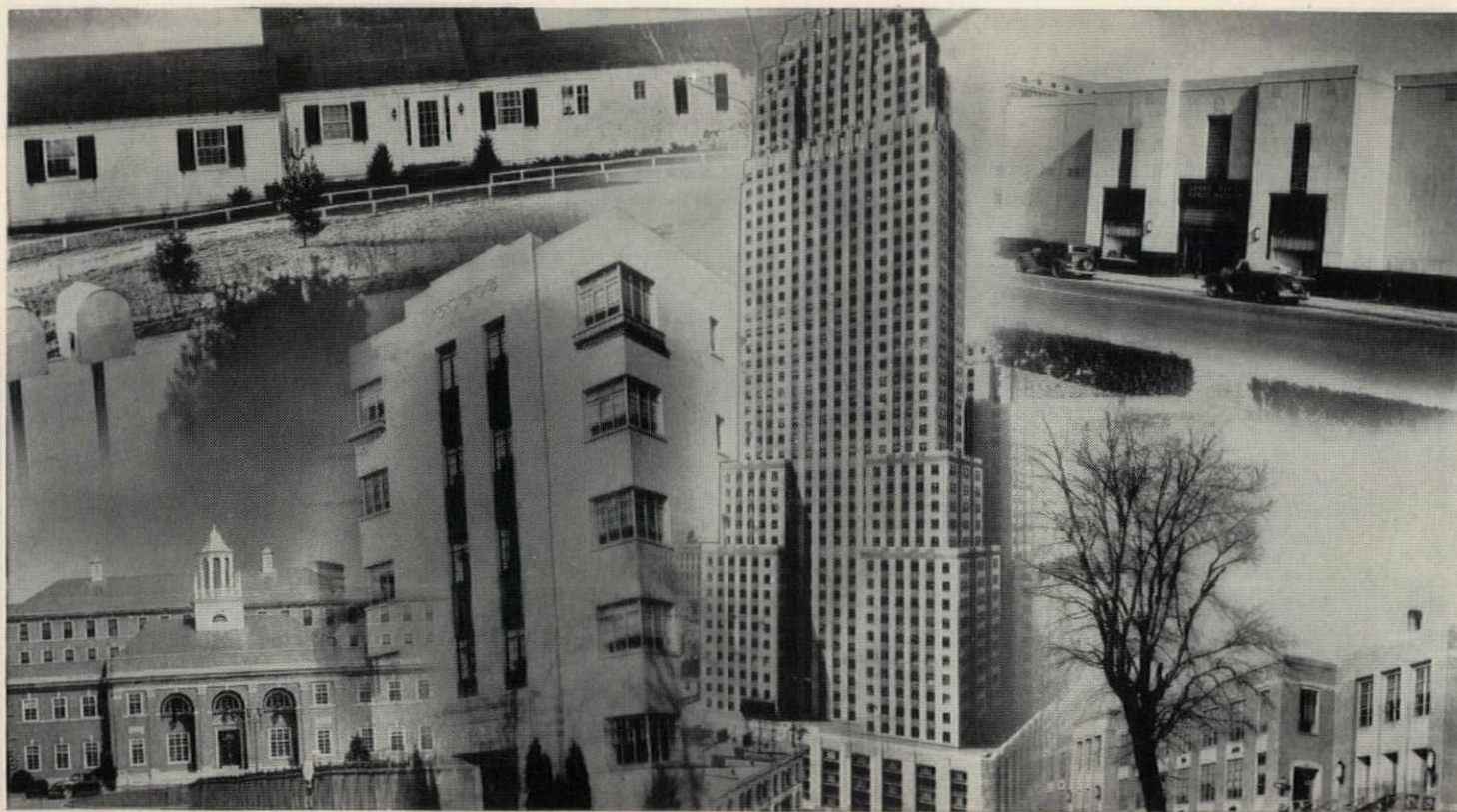
Sold and installed by the better electrical dealers and contractors



Leader

America's No. 1 Lighting Equipment Manufacturer

LEADER ELECTRIC COMPANY • 3500 North Kedzie Avenue • Chicago 18, Illinois
 Leader Electric—Western: 800 One Hundredth Avenue, Oakland 3, California
 Campbell-Leader, Ltd.: Brantford, Ontario, Canada



TO THOSE WHO HELP *build* AMERICA

America is growing. The pioneer spirit is as bright today as it was when covered wagons moved along the Oregon trail. Today, our nation continues to grow vertically as well as horizontally . . . and architects and builders of big buildings continue to pioneer new appearance, utility and investment values in every project they create.

Eljer has been active in the American construction scene since 1904, and every year more and more Eljer Plumbing Fixtures are being installed in new commercial, industrial, institutional and government buildings.

Eljer's Line covers the complete range of vitreous china and enameled cast iron fixtures, as well as brass trim. Quality is rigidly controlled and *second to none*. New design features for style, trouble-free service and ease of cleaning, give Eljer *extra values* you should know about. There is an Eljer Distributor near you.



Eljer Renewable Brass Fittings

Eljer Fixtures are available with quality renewable brass fittings . . . featuring the exclusive Eljer Swivel-Disc that virtually eliminates dripping and corrosion. Faucets operate smoothly at the touch of a finger and wear on moving parts is reduced to a minimum.



See Sweet's File, Architectural, and Sweet's File for Builders

There is an Eljer Fixture for *every* need. Sweet's Files contain Eljer's Condensed Catalog of popular plumbing fixtures. For complete data write: Eljer Co., Specifications Department, Box 192, Ford City, Pennsylvania.

ELJER



THE

OVERHEAD DOORTM

TRADE MARK

Only

OVERHEAD DOOR CORPORATION
and its manufacturing divisions make

THE
OVERHEAD DOORTM
TRADE MARK

MIRACLE WEDGE *
SALT SPRAY STEEL *

* TRADE MARK

COPYRIGHT, 1952, OVERHEAD DOOR CORPORATION

OVERHEAD DOOR CORPORATION

Hartford City, Indiana, U. S. A.

MANUFACTURING DIVISIONS

CLEVELAND - CALIFORNIA

HILLSIDE, NEW JERSEY

PORTLAND, OREGON